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Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation (Contamination)

Monte Scientia Project
Monte Sant' Angelo Mercy College
128 Miller Street, North Sydney

Prepared for
Monte Sant' Angelo Mercy College
c/- Bloompark Consulting Pty Ltd

Project 73019.03
January 2020

Monte Scientia Project
KNOWLEDGE. ENTERPRISE. INNOVATION.

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
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Table of Contents

Page

Report on Preliminary Site Investigation (Contamination)
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1. Introduction

This report prepared by Douglas Partners Pty Ltd (DP) presents the results of a Preliminary Site Investigation (Contamination) undertaken for the proposed Monte Scientia Project at Monte Sant' Angelo Mercy College, 128 Miller Street, North Sydney. The investigation was undertaken for Monte Sant' Angelo Mercy College in consultation with Bloompark Consulting Pty Ltd, project managers. The work was completed in accordance with DP's proposal SYD191047 dated 3 October 2019 and this report has been prepared in support of the SSD-10393 for the development at Monte Sant' Angelo Mercy College.

It is understood that the project will include the redevelopment of a portion of the Monte Sant' Angelo Mercy College campus, excluding the heritage significant buildings, and will include a new science and innovation building, carpark, sports gymnasium and recreation facility, and public domain. Three basement levels are proposed for the site, including two levels for the sports gymnasium and a single level basement carpark beneath the gymnasium.

The Preliminary Site Investigation was undertaken to:

- assess the previous land uses to determine the potential for soil and groundwater contamination on the site;
- provide a preliminary assessment of the suitability of the site for the proposed development; and
- provide recommendations for additional investigation, if required.

The Preliminary Site Investigation has been prepared to address the requirements of State Environmental Planning Policy No. 55 (SEPP 55). The overall approach for the Preliminary Site Investigation included a review of readily available historical information, an inspection of the site by an engineer, and a review of limited soil sampling and laboratory analysis. Details of the investigation are given in this report, as well as comments on the issues outlined above. This report has not specifically been prepared for review by a Site Auditor.

A geotechnical assessment was also undertaken for the project and is reported separately.

2. Site Description

Monte Sant' Angelo Mercy College is located on a truncated triangular block bounded by Miller Street to the east, McLaren Street to the north, Angelo Street to the west and Berry Street to the south. Several residential properties along McLaren Street are also included within the block. The site for this investigation is the central-east portion of Monte Sant' Angelo Mercy College adjacent to Miller Street

and is shown on Drawing 1 in Appendix B. The site spans the parcels of land legally known as Lots 3, 4 and 5 in Deposited Plan (DP) 262534.

The ground surface across the site generally slopes downwards to the south-east, with changes in elevation from about RL 80 m relative to Australian Height Datum (AHD) at the north-west corner to about RL 72 m AHD at the south-east corner. Terracing and small retaining structures are present across the site.

3. Regional Geology and Hydrogeology

The *Sydney 1:100 000 Geological Series Sheet* indicates that the site is underlain by Ashfield Shale (Rwa) but is close to the mapped boundary between Ashfield Shale and Hawkesbury Sandstone (Rh). Ashfield Shale typically comprises dark-grey to black shale, claystone and siltstone with fine sandstone laminae. Hawkesbury Sandstone typically comprises medium to coarse grained quartz sandstone with minor shale and laminite lenses. An intermediate unit, the Mittagong Formation, is often present below Ashfield Shale and above Hawkesbury Sandstone. The Mittagong Formation comprises interbedded shale, laminite and medium-grained quartz sandstone. An extract from the geological map overlain by 2 m surface contours is shown in Figure 1.

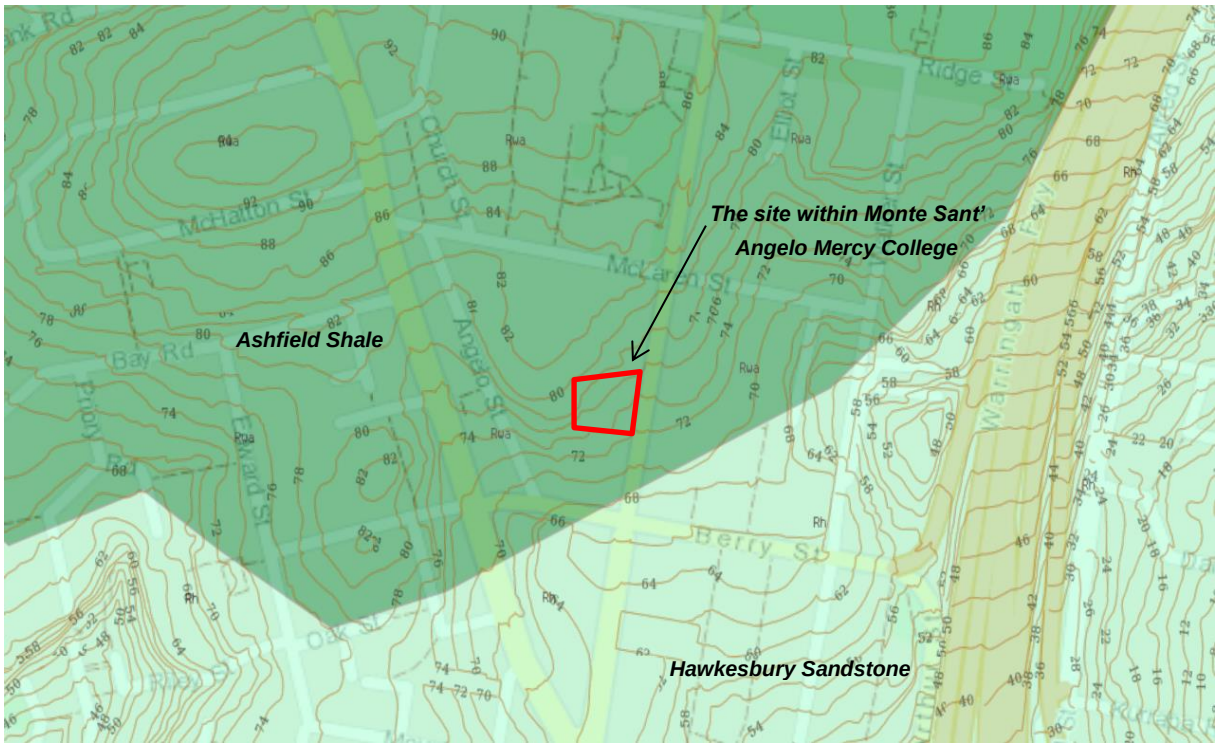

Figure 1: Extract from geological map overlain by 2 m surface contours to AHD

A geotechnical investigation was previously undertaken at Monte Sant' Angelo Mercy College by DP for the Arts and Creativity Common, which is to the north of the site currently proposed for redevelopment. The investigation encountered fill and residual soil (possibly extremely weathered Ashfield Shale) down to 1.5 m to 2.4 m depth, overlying sandstone (either the Mittagong Formation or Hawkesbury Sandstone)

of variable weathering and strength near to the surface, grading to medium and high strength sandstone with depth.

The topography of the site suggests that regional groundwater is likely to flow in a south-westerly to easterly direction. Groundwater in this geology is typically of poor quality (i.e. saline / high dissolved salts) and low yield and is not considered to be a high value potential resource.

4. Scope of Works

The scope of the Preliminary Site Investigation was as follows:

- Review various readily available historical documents including historical aerial photographs, land title information, the Section 10.7 planning certificate, the EPA Contaminated Land register and groundwater bore licences to assess the nature of previous activities that may have occurred on the site;
- Review the results of limited soil sampling and laboratory analysis for a range of potential contaminants including:
  - Total recoverable hydrocarbons (TRH)
  - Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
  - Polycyclic aromatic hydrocarbons (PAH)
  - Organochlorine pesticides and organophosphorus pesticides (OCP & OPP)
  - Polychlorinated biphenyls (PCB)
  - Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn)
  - Asbestos
- Provide this Preliminary Site Investigation report which comments on the historical uses of the site, the contaminant status of the samples tested, the potential for soil and groundwater contamination to be present and recommendations for follow up action (if required).

5. Site History

5.1 Aerial Photographs

Aerial photographs from 1930, 1943, 1951, 1961, 1970, 1986, 2000, 2009 and 2019 were used to assess historical land-use patterns on the site. The aerial photographs are attached in Appendix C.

The 1930 and 1943 photographs show that the site comprised vacant land, two low-rise structures and trees. Taller buildings, including the church and school buildings, were present to the north and north west of the site, with low-rise structures and trees to the south of the site.

The 1951 photograph shows some construction activity in the grassed area to the west of the site along the Pacific Highway. Similar conditions are shown in the 1961 photograph but with fewer trees to the south of the site.

The 1970 photograph shows some construction activity within the southern portion of the site and a swimming pool to the south of the site. Redevelopment to the west of the site is also shown, including medium-rise school buildings. Development along the Pacific Highway appears to be complete with medium and high-rise buildings.

The 1986 photograph shows a new carpark within the southern portion of the site and a carpark to the south of the swimming pool, south of the site.

The 2000 photograph shows that the site was redeveloped to include two tennis courts, probably in their current arrangement as rooftop tennis courts above a carpark. The 2009 photograph shows that a structure was built over the swimming pool and carpark to the south of the site.

The 2019 image shows the site as it was at the time of the investigation. Two rooftop tennis courts with a single level carpark beneath, the aquatic centre located to the south, school grounds and buildings to the west and the church to the north. Some new school buildings are shown to the north of the church.

5.2 Historical Land Title Information and Potential Historical Land Uses

A review of historical land title information was undertaken. The site (part of Lots 3 to 6, DP 262534) has been owned by the Trustees for the Sisters of Mercy (North Sydney) since 1925. Monte Sant' Angelo Mercy College has a long-term lease of the land, which expires on 30 June 2042.

The previous inferred land uses appear to have been limited to residential housing, education and religious activities. The historical land title information is included in Appendix D.

5.3 Planning Certificate

The Section 10.7(2) planning certificate for the site was obtained from North Sydney Council. The certificate states that the land is not significantly contaminated within the meaning of the *Contaminated Land Management Act 1997*, is not the subject of a management order, is not the subject of an approved voluntary management proposal, is not the subject of an ongoing maintenance order, and is not the subject of a site audit statement.

The planning certificate is included in Appendix E.

5.4 Contaminated Lands Register

The site is not identified as being significantly contaminated under the *Contaminated Lands Management Act 1997* as at 21 November 2019 based on an online search of the register. Further, the site is not on the 18 November 2019 version of the 'List of NSW Contaminated Sites Notified to EPA'.

5.5 Licenced Groundwater Bores

A search of licenced groundwater bores indicated that there are no licenced wells within at least 500 m of the site. This indicates that the groundwater aquifer is unlikely to be productive, as indicated by the regional geology, and may be at considerable depth.

6. Preliminary Conceptual Site Model

The site history information indicates that the site has primarily been used for residential, educational and religious purposes. There is no indication of heavy industry or other uses that have the potential to significantly contaminate the land or groundwater.

Potentially contaminating activities that may have occurred on the site include:

- The placement of fill on the site;
- On-site disposal of waste (i.e. landfilling) from the dwellings in the early to mid-20th Century;
- Demolition of buildings containing hazardous building materials (e.g. Lead, asbestos after the mid-20th Century etc.); and
- Contaminants associated with building maintenance (e.g. pesticides).

The use of groundwater within the development is not proposed. The quality of the groundwater from a land-use perspective will therefore only be of significance if volatile contaminants are present. As the groundwater table is likely to be at considerable depth this risk is considered to be low.

Soil vapour intrusion and/or ground gas will only need to be considered if significant concentrations of volatile organic compounds are encountered on the site.

The human receptors to soil contamination are likely to be the students, staff and visitors to the school. Construction personnel, nearby residents/visitors and the general public may also be receptors during the construction phase of the redevelopment project.

The ecological receptors are likely to be limited to the flora and fauna that grow/live on the site. The area is not known to be ecologically significant.

Exposure pathways are expected to be limited to dermal contact with soils on the site by humans, ingestion of soils and vegetation by fauna, and phytotoxic exposure to flora.

7. Results of Inspection

DP undertook an inspection of the site during the field work phase of the investigation project. The school was observed to be a well-maintained facility and obvious signs of significant contamination were not encountered during our inspection/investigation.

8. Field Work Methods

The field work for the current investigation included the drilling of three boreholes (BH01 to BH03) to depths of between 15.0 m and 16.5 m using two truck-mounted Hydrapower Scout drilling rigs and one track-mounted Hanjin DB8 drilling rig. The boreholes were commenced using solid flight augers until bedrock was encountered. Standard penetration tests (SPTs) were carried out and soil samples were collected for laboratory testing in each borehole. The boreholes were then extended into bedrock using NMLC diamond core drilling techniques to obtain continuous core samples of the bedrock.

One borehole (BH03) was converted into a groundwater monitoring well by installing Class 18 uPVC screen and casing.

The locations of the boreholes were measured from existing site features and are shown on Drawing 1 in Appendix B. It is noted that BH01 and BH02 were located outside of the site boundary, to the north, and BH03 was located within the site. The surface RLs of the tests were interpolated from the survey plan for the site, which was provided by Bloompark Consulting Pty Ltd (Plan No. 192082_A, dated 9/09/2019, prepared by TSS Total Surveying Solutions). Coordinates are in GDA94/MGA Zone 56 format (Geocentric Datum of Australia 1994 base with Map Grid of Australia projection) and RLs are relative to AHD.

Environmental sampling was performed according to standard operating procedures outlined in the DP *Field Procedures Manual*. All sampling data was recorded on DP chain of custody sheets. The general sampling and sample management procedures comprised:

- Collection of samples in laboratory-prepared glass jars with Teflon lined lids by hand, capping immediately and ensuring headspace within the sample jar was minimised;
- Collection of a replicate sample in a zip-lock bag for PID screening;
- A new disposable nitrile glove was worn by the field scientist / engineer for each sample collected thereby precluding potential cross-contamination;
- Collection of 10% replicate samples for QA/QC purposes;
- Labelling of sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable); and
- Placement of the sample jars into a cooled, insulated and sealed container for transport to the laboratory.

9. Field Work Results

The subsurface conditions encountered during the investigation are presented in the borehole logs in Appendix F. Notes defining descriptive terms and classification methods are included in Appendix A.

The boreholes encountered:

- BRICK PAVERS & ASPHALTIC CONCRETE – 0.065 m thick brick pavers from the surface of BH01 and BH02, and 0.055 m thick asphaltic concrete from the surface of BH03;

- FILL – sandy gravel, sandy clay and clayey sand with varying proportions of igneous, ironstone and sandstone gravel to depths of between 0.3 m and 1.1 m;
- RESIDUAL SOIL – generally very stiff and hard sandy clay to depths of between 1.3 m and 1.4 m. Residual soil was encountered in BH01 and BH02 only;
- BEDROCK – very low, low and medium strength sandstone from depths of between 0.3 m and 1.4 m, generally becoming medium and/or high strength with depth. Some weathered seams and bands of very low and low strength sandstone and siltstone were present throughout the boreholes.

Free groundwater was not observed during auger drilling in any of the boreholes. The use of drilling fluid during coring prevented further observations with depth. The level in the groundwater well was measured on 19 November 2019 and the results are summarised in Table 1.

Table 1: Groundwater Level Observations (Depth, m and [RL, m AHD])

Date	BH03
19 November 2019	9.6 [63.4]

10. Laboratory Testing

Envirolab Services Pty Ltd (Envirolab) was commissioned to undertake the analysis of the soil samples. A summary of the results is provided in Table G1 in Appendix G. The detailed report sheets and chain-of-custody documentation are also included in Appendix G.

11. Selected Comparative Criteria

The *National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater* (NEPC, 2013) provides assessment levels for various soil, groundwater and vapour contaminants. The site is assumed to be a category 'C' site for human health-based assessment (i.e. HIL C) which includes secondary schools and public open space.

Ecological-based assessment is based on the relevant screening levels/added concentrations in urban residential areas and public open space for fine-grained sites due to the clayey nature of the soil profile.

The preliminary quantitative site assessment criteria adopted are shown in Table G2 in Appendix G.

Waste classification criteria are provided in Table G3 in Appendix G.

12. Discussion of Results

Five soil samples (excluding one QA/QC replicate) from three test locations were analysed for metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEX, PAH, OCP, OPP and PCB. All the samples analysed recorded concentrations below the adopted site assessment criteria.

All five soil samples were analysed for asbestos (presence / absence). Asbestos was not detected in any of the samples analysed.

Data quality assurance and quality control (QA/QC) for the soil dataset included the collection and analysis of replicate samples at a rate of 10%. A replicate sample was tested and the results compared against the primary sample results and the relative percent difference (RPD) between the two concentrations was calculated. Based on a review of the RPD results and the in-house laboratory QA/QC results, the data is considered to be of an acceptable standard and suitable to interpret site conditions.

13. Conclusions and Recommendations

The Preliminary Site Investigation has been prepared to address the requirements of SEPP 55. The overall approach for the Preliminary Site Investigation included a review of readily available historical information, an inspection of the site by an engineer, and a review of limited soil sampling and laboratory analysis.

On the basis of the results of this Preliminary Site Investigation, the main contamination risks are considered to be associated with previous development works such as filling and demolition of former buildings, and site maintenance activities. The potential for contamination to be present from industry or other similar sources is considered to be low.

The laboratory testing indicated that the contaminant concentrations in all soil samples analysed were within the adopted health-based and ecological-based investigation/screening levels for the proposed land use.

Asbestos was not encountered in any of the soil samples analysed, however the presence of asbestos in fill should not be discounted due to previous construction and demolition activities that have been undertaken near to the site.

The beneficial use (abstraction) of groundwater is not currently proposed and the groundwater table is likely to be well below the level of the proposed development. The risk of groundwater contamination impacting upon the development is therefore considered to be low.

On the basis of the investigation undertaken to date, it is considered that the risk of significant contamination being present, that prevents the redevelopment of the site without significant remediation, is low.

If any contamination is identified during construction (e.g. waste filling, asbestos etc.) then an appropriate response will need to be developed by an environmental consultant and actioned on site to

ensure site suitability. This could be undertaken by enacting an Unexpected Finds Protocol (UFP) as part of the Construction Environmental Management Plan (CEMP).

Any materials required to be removed from the site will need to be classified in accordance with the current *Waste Classification Guidelines* (NSW EPA, 2014). The classification of the samples tested to date would be General Solid Waste (non-putrescible) based on either the CT1 criteria, or the SCC1/TCLP1 criteria for the one sample with an elevated concentration of B(a)P relative to the CT1 criteria.

14. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Monte Sant' Angelo Mercy College at 128 Miller Street, North Sydney in accordance with DP's proposal SYD191047 dated 3 October 2019 and acceptance received from Peter Brogan of Bloompark Consulting Pty Ltd on behalf of Monte Sant' Angelo Mercy College, dated 11 October 2019. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Monte Sant' Angelo Mercy College and their agents for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon

factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Conclusions and Recommendations section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

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Appendix A

About This Report

About this Report

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Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

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

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

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

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

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

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

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

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

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

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Sampling Methods

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Sampling

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

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

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

The test results are reported in the following form.

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

  4,6,7
  N=13

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

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	19 - 63
Medium gravel	6.7 - 19
Fine gravel	2.36 – 6.7
Coarse sand	0.6 - 2.36
Medium sand	0.21 - 0.6
Fine sand	0.075 - 0.21

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

Term	Proportion of sand or gravel	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	>30%	Sandy Clay
With	15 – 30%	Clay with sand
Trace	0 - 15%	Clay with trace sand

In coarse grained soils (>65% coarse)
- with clays or silts

Term	Proportion of fines	Example
And	Specify	Sand (70%) and Clay (30%)
Adjective	>12%	Clayey Sand
With	5 - 12%	Sand with clay
Trace	0 - 5%	Sand with trace clay

In coarse grained soils (>65% coarse)
- with coarser fraction

Term	Proportion of coarser fraction	Example
And	Specify	Sand (60%) and Gravel (40%)
Adjective	>30%	Gravelly Sand
With	15 - 30%	Sand with gravel
Trace	0 - 15%	Sand with trace gravel

The presence of cobbles and boulders shall be specifically noted by beginning the description with ‘Mix of Soil and Cobbles/Boulders’ with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Extremely weathered material – formed from in-situ weathering of geological formations. Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil – deposited by streams and rivers;
- Estuarine soil – deposited in coastal estuaries;
- Marine soil – deposited in a marine environment;
- Lacustrine soil – deposited in freshwater lakes;
- Aeolian soil – carried and deposited by wind;
- Colluvial soil – soil and rock debris transported down slopes by gravity;
- Topsoil – mantle of surface soil, often with high levels of organic material.
- Fill – any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) Non-cohesive and free-running.
- Moist (M) Soil feels cool, darkened in colour.
  Soil tends to stick together.
  Sand forms weak ball but breaks easily.
- Wet (W) Soil feels cool, darkened in colour.
  Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- ‘Moist, dry of plastic limit’ or ‘w <PL’ (i.e. hard and friable or powdery).
- ‘Moist, near plastic limit’ or ‘w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- ‘Moist, wet of plastic limit’ or ‘w >PL’ (i.e. soils usually weakened and free water forms on the hands when handling).
- ‘Wet’ or ‘w ≈LL’ (i.e. near the liquid limit).
- ‘Wet’ or ‘w >LL’ (i.e. wet of the liquid limit).

Rock Strength

Rock strength is defined by the Unconfined Compressive Strength and it refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects.

The Point Load Strength Index $Is_{(50)}$ is commonly used to provide an estimate of the rock strength and site specific correlations should be developed to allow UCS values to be determined. The point load strength test procedure is described by Australian Standard AS4133.4.1-2007. The terms used to describe rock strength are as follows:

Strength Term	Abbreviation	Unconfined Compressive Strength MPa	Point Load Index * $Is_{(50)}$ MPa
Very low	VL	0.6 - 2	0.03 - 0.1
Low	L	2 - 6	0.1 - 0.3
Medium	M	6 - 20	0.3 - 1.0
High	H	20 - 60	1 - 3
Very high	VH	60 - 200	3 - 10
Extremely high	EH	>200	>10

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$. It should be noted that the UCS to $Is_{(50)}$ ratio varies significantly for different rock types and specific ratios should be determined for each site.

Degree of Weathering

The degree of weathering of rock is classified as follows:

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

Rock Descriptions

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with occasional fragments
Fractured	Core lengths of 30-100 mm with occasional shorter and longer sections
Slightly Fractured	Core lengths of 300 mm or longer with occasional sections of 100-300 mm
Unbroken	Core contains very few fractures

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or stronger. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

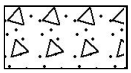
Symbols & Abbreviations

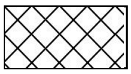
Graphic Symbols for Soil and Rock

General

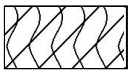

Asphalt

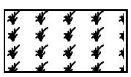

Road base

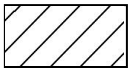

Concrete

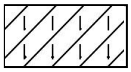

Filling

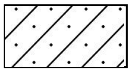
Soils


Topsoil

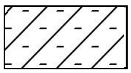

Peat

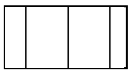

Clay

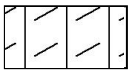

Silty clay

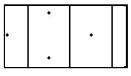

Sandy clay

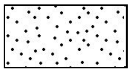

Gravelly clay

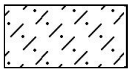

Shaly clay

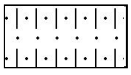

Silt


Clayey silt


Sandy silt

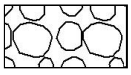

Sand

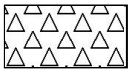

Clayey sand


Silty sand


Gravel

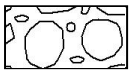

Sandy gravel


Cobbles, boulders

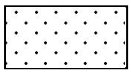

Talus

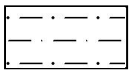
Sedimentary Rocks

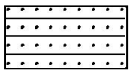

Boulder conglomerate

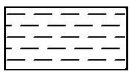

Conglomerate


Conglomeratic sandstone

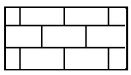

Sandstone


Siltstone

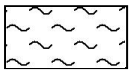

Laminite

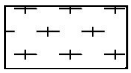

Mudstone, claystone, shale

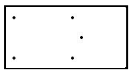

Coal


Limestone

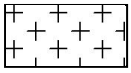
Metamorphic Rocks

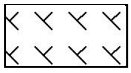

Slate, phyllite, schist

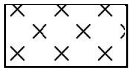

Gneiss

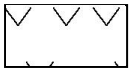

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

Appendix B

Drawings

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	Monte Sant' Angelo Mercy College		
OFFICE:	Sydney	DRAWN BY:	MB
SCALE:	1:1000 @ A3	DATE:	20/11/2019

TITLE: **Test Location Plan**
Monte Scientia Project
128 Miller Street, North Sydney

PROJECT No:	73019.03
DRAWING No:	1
REVISION:	1

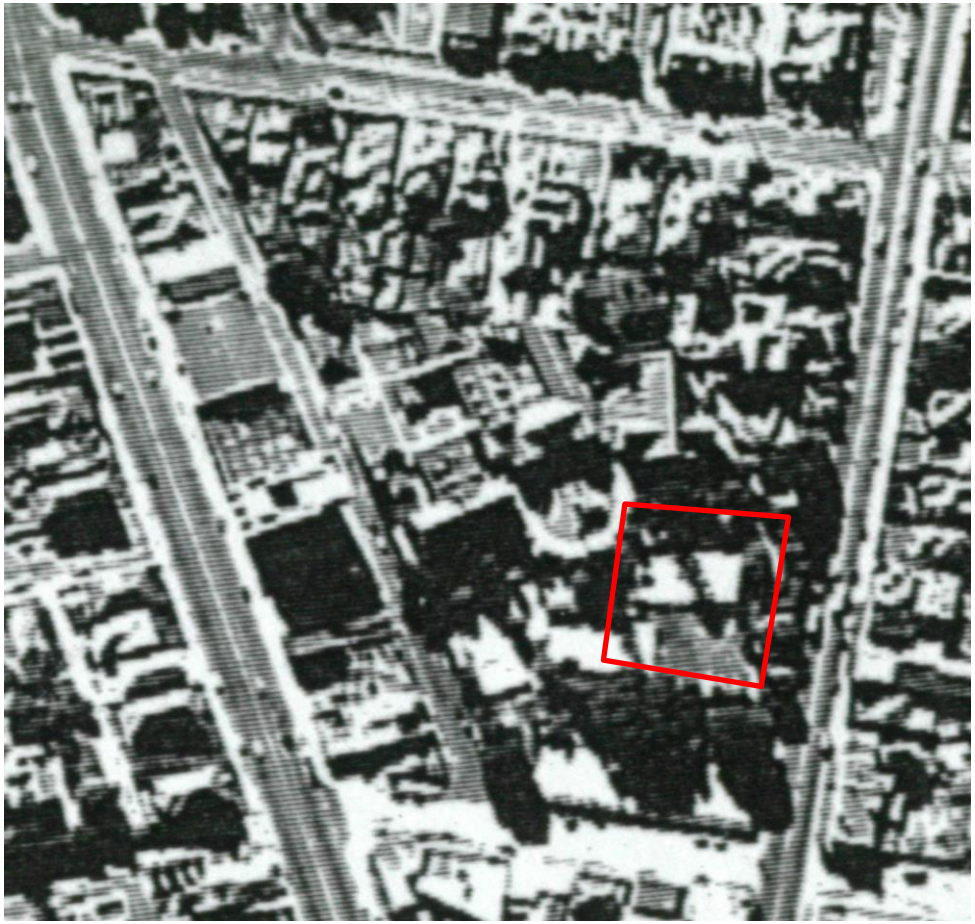
Appendix C

Historical Aerial Photographs

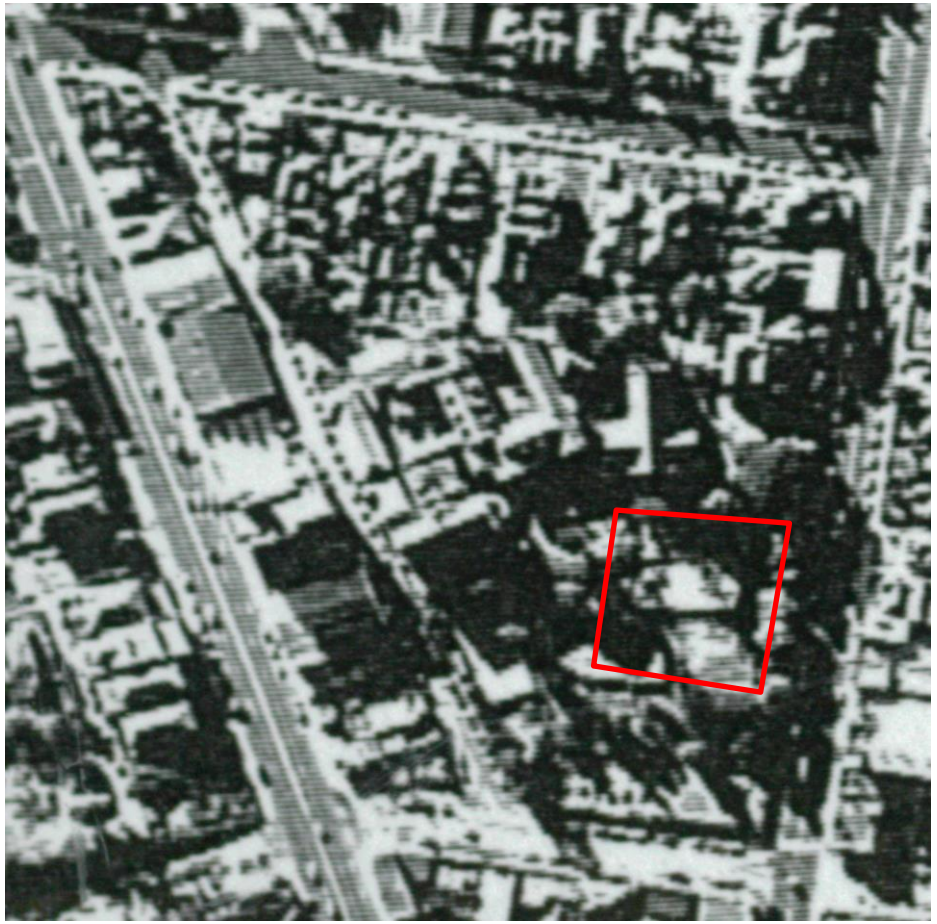
1930

1943

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Monte Sant' Angelo Mercy College	**Historical Aerial Photographs** **Monte Sant' Angelo Mercy College** **128 Miller Street, North Sydney**	PROJECT No:	73019.03
	OFFICE:	Sydney		PLATE No:	1
	DATE:	14 Nov 2019		REVISION:	0

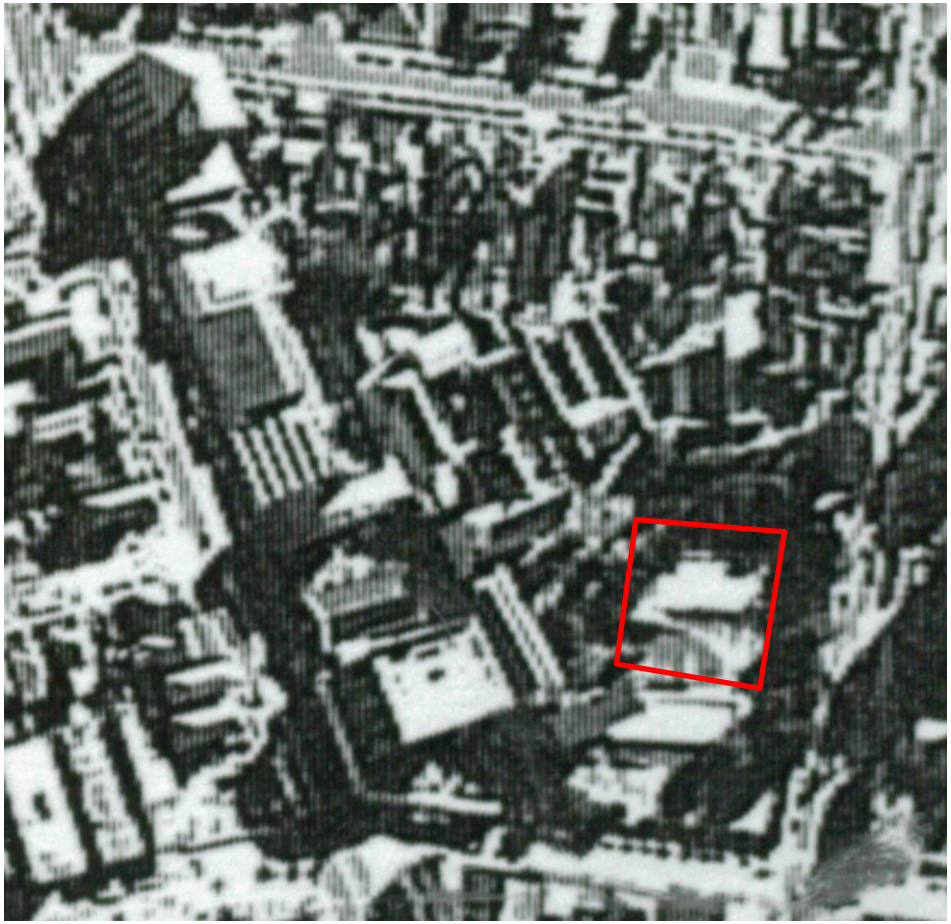


1951



1961

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Monte Sant' Angelo Mercy College	**Historical Aerial Photographs** **Monte Sant' Angelo Mercy College** **128 Miller Street, North Sydney**	PROJECT No:	73019.03
	OFFICE:	Sydney		PLATE No:	2
	DATE:	14 Nov 2019		REVISION:	0



1970

1986

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Monte Sant' Angelo Mercy College	**Historical Aerial Photographs** **Monte Sant' Angelo Mercy College** **128 Miller Street, North Sydney**	PROJECT No:	73019.03
	OFFICE:	Sydney		PLATE No:	3
	DATE:	14 Nov 2019		REVISION:	0

2000

2009

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Monte Sant' Angelo Mercy College	**Historical Aerial Photographs** **Monte Sant' Angelo Mercy College** **128 Miller Street, North Sydney**	PROJECT No:	73019.03
	OFFICE:	Sydney		PLATE No:	4
	DATE:	14 Nov 2019		REVISION:	0

2019

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Monte Sant' Angelo Mercy College	**Historical Aerial Photographs**	PROJECT No:	73019.03
	OFFICE:	Sydney	**Monte Sant' Angelo Mercy College**	PLATE No:	5
	DATE:	14 Nov 2019	**128 Miller Street, North Sydney**	REVISION:	0

Appendix D

Land Title Information

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LRS NSW **Sydney**

Part 128 Miller Street North Sydney

Description: - Part of Lots 3 to 6 in D.P. 262534 (excluding stratum lands)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
15.07.1925 (1925 to 1944)	Jane Heaton & others As Trustees for the Sisters of Mercy (North Sydney)	Book 1393 No 757
29.08.1944 (1944 to date)	# Trustees for the Sisters of Mercy (North Sydney)	Book 1949 No 981 Now 3,4, 5 & 6/262534

Denotes current registered proprietor

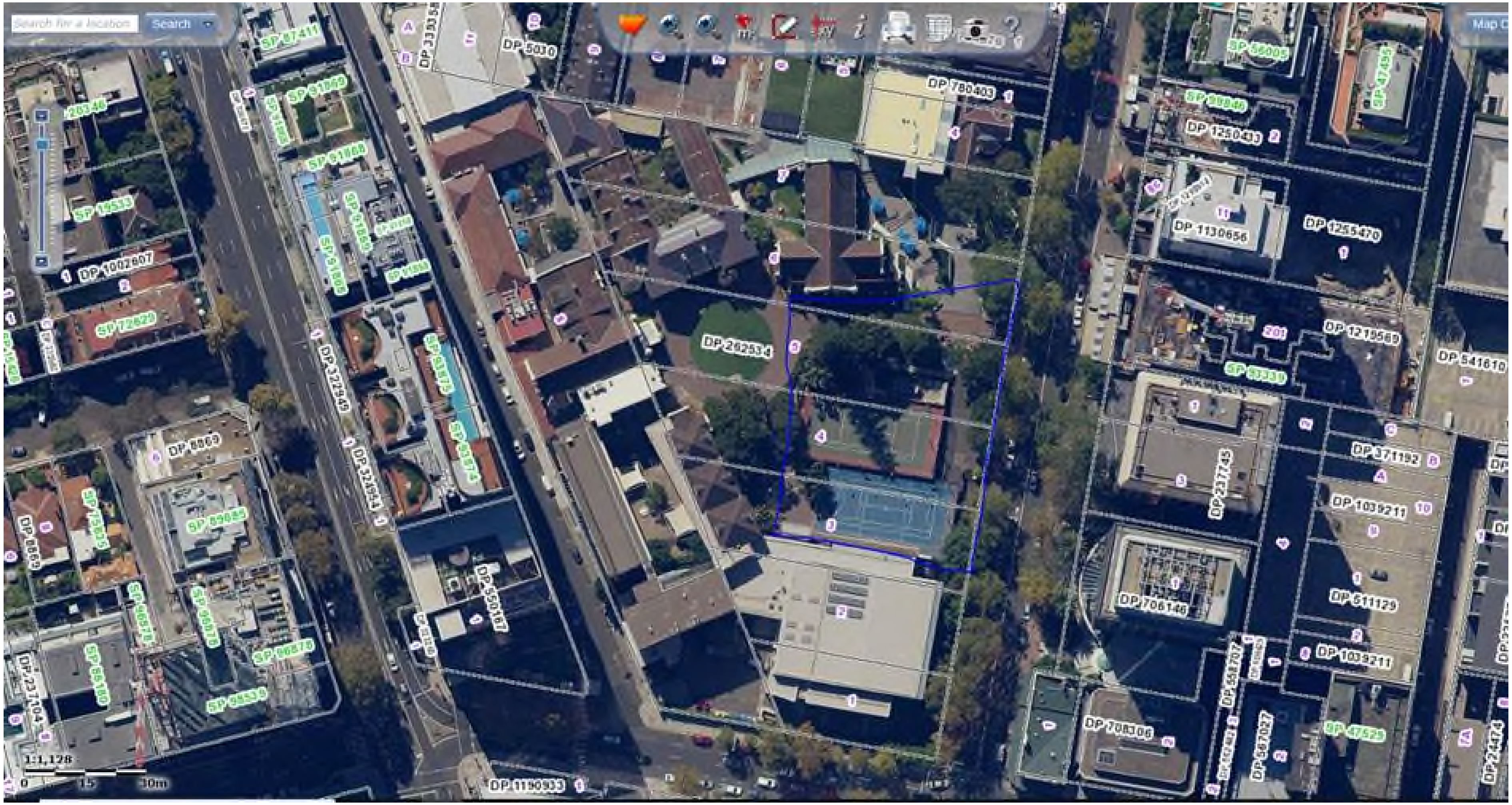
Leases: -

- 23.01.2018 (AN 44466) to Monte Sant' Angelo Mercy College Limited - expires 30.06.2042

Easements affecting Lot 6: -

- (D.P. 1201328) Easement for Electricity and other purposes 3.38 wide
- (D.P. 1201328) Right of Carriageway 4, 10.285 metres wide and variable

Yours Sincerely,
Mark Groll
11 November 2019

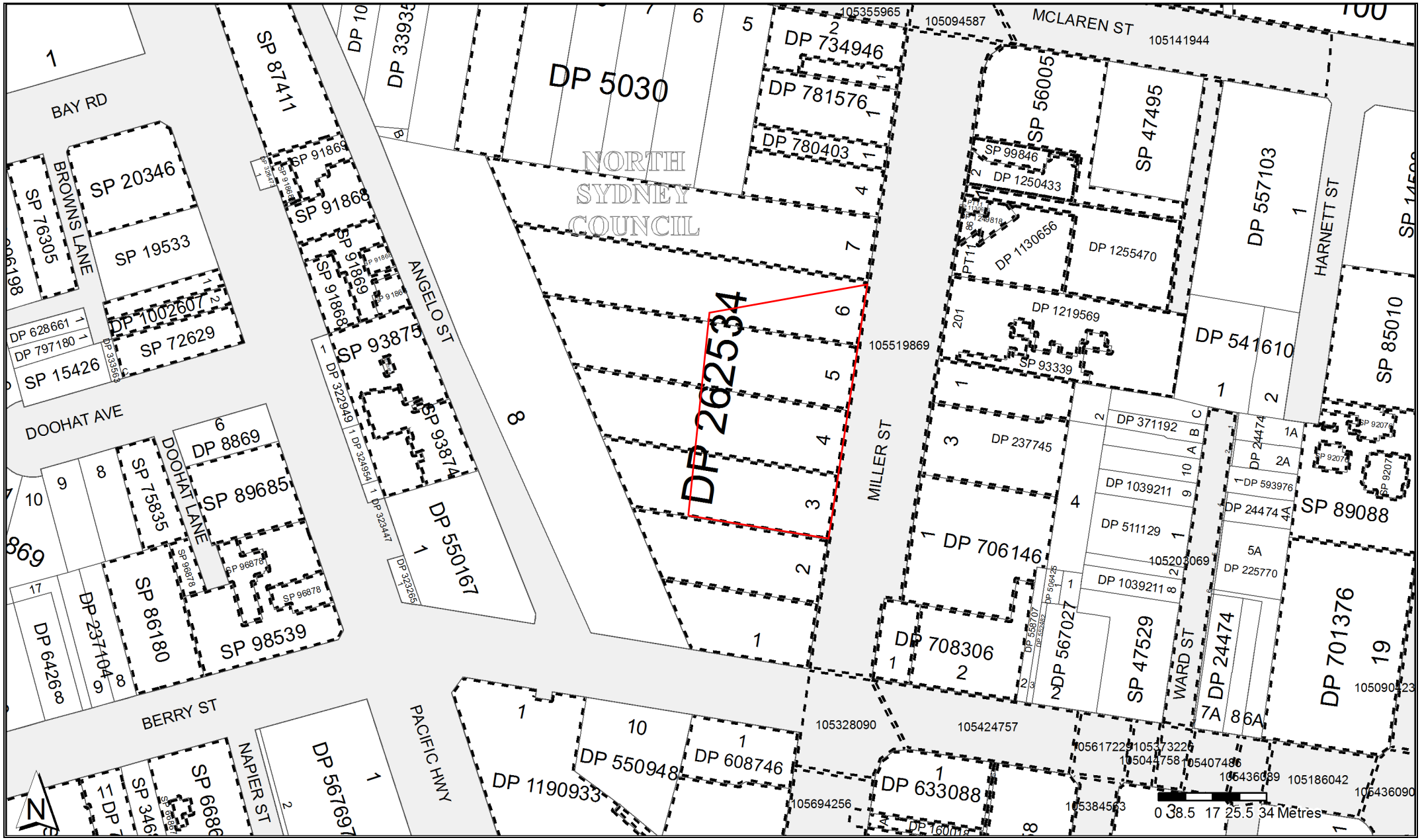


Search
DP 5030
DP 780403
DP 1250433
DP 1130656
DP 1255470
DP 1002807
SP 72629
DP 202534
DP 1219569
DP 541610
DP 6869
SP 89085
DP 371192
DP 1039211
DP 706146
DP 511129
DP 708306
SP 47525
DP 1190933
1:1,128
0
15
30m

Cadastral Records Enquiry Report : Lot 4 DP 262534

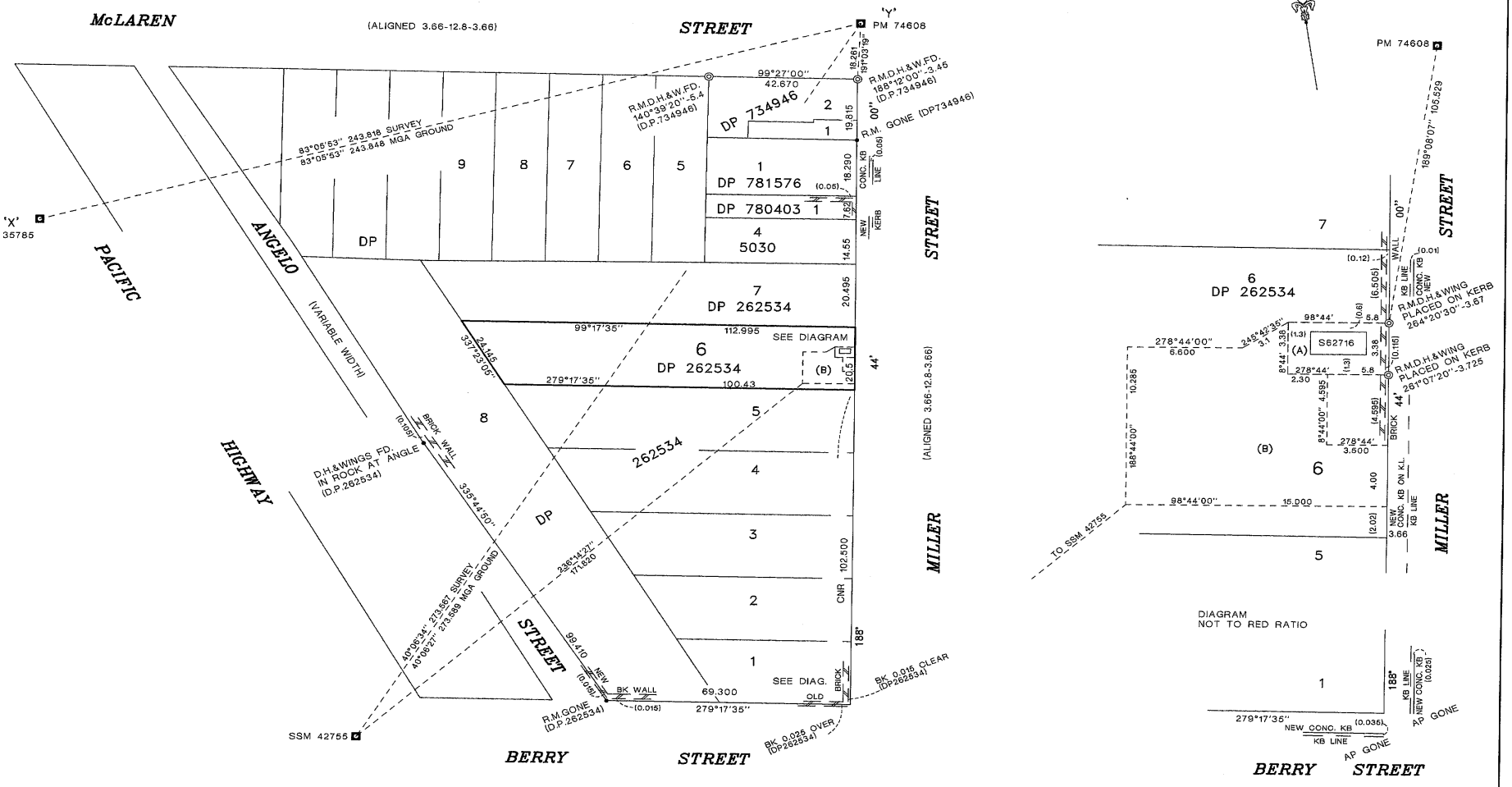
Ref : north sydney

Locality : NORTH SYDNEY
Parish : WILLOUGHBY
LGA : NORTH SYDNEY
County : CUMBERLAND



Report Generated 9:00:10 AM, 11 November, 2019

PLAN FORM 2 (A2) WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION Sheet 1 of 1 sheets



(A) DENOTES EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.38 WIDE
(B) DENOTES RIGHT OF CARRIAGEWAY 4 AND 10.285 WIDE & VARIABLE WIDTH

Clause 35(1)(b) and Clause 61(2) of the Surveying and Spatial Information Regulation 2012

MARK	MGA EASTING	MGA NORTHING	CLASS	ORDER	METHOD	ORIGIN
P.M.35785	333902.631	6254691.782	B	2	CAD TRAV	SCIMS
P.M.74608	334144.694	6254721.083	C	4	CAD TRAV	SCIMS
SSM42755	333968.455	6254511.848	B	2	CAD TRAV	SCIMS

DATE: 7.07.2014 COMBINED SCALE FACTOR: 0.999924 ZONE 56

10 20 30 40 50 Table of mm 90 100 110 120 130 140

Surveyor : ANDREW P. MASON
Date of Survey : 10.07.2014
SURVEYOR'S REFERENCE: 32946DP1

PLAN OF RIGHT OF CARRIAGEWAY AND EASEMENT FOR ELECTRICITY AND OTHER PURPOSES WITHIN LOT 6 DP262534

LGA: NORTH SYDNEY
Locality: NORTH SYDNEY
Subdivision No: ———
Lengths are in metres. Reduction Ratio 1:800

Registered: 25.6.2015

DP1201328 P

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

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 25.6.2015

Title System: TORRENS

Purpose: EASEMENT

Use Only

DP1201328 S

PLAN OF RIGHT OF CARRIAGEWAY AND EASEMENT FOR ELECTRICITY AND OTHER PURPOSES WITHIN LOT 6 DP 262534

LGA: NORTH SYDNEY

Locality: NORTH SYDNEY

Parish: WILLOUGHBY

County: CUMBERLAND

Crown Lands NSW/Western Lands Office Approval

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

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, ...

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

Signature: .....

Accreditation number: .....

Consent Authority: .....

Date of endorsement: .....

Subdivision Certificate number: .....

File number: .....

*Strike through if inapplicable.

Survey Certificate

I, ANDREW PHILIP MASON

of FRANK M MASON & CO PTY LTD, 2 WINSLOW STREET,

KIRRIBILLI NSW 2061

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

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

*(b) The part of the land shown in the plan in respect to the easements within Lot 6 DP 262534 and connections was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on, 10 JULY 2014 the part not surveyed was compiled in accordance with that Regulation.

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

Signature: ..... Dated: 10/07/2014

Surveyor ID: 1576

Datum Line: X-Y

Type: Urban

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

Statements of intention to dedicate public roads, public reserves and drainage reserves.

Plans used in the preparation of survey/compilation.

DP's 262534, 734946, 781576, 780403, 5030

If space is insufficient continue on PLAN FORM 6A

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

Surveyor's Reference:32946DP1

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

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 25.6.2015

Office Use Only

DP1201328

PLAN OF RIGHT OF CARRIAGEWAY AND EASEMENT FOR ELECTRICITY AND OTHER PURPOSES WITHIN LOT 6 DP 262534

Subdivision Certificate number: .....

Date of Endorsement: .....

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

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

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT, 1919, IT IS INTENDED TO CREATE:

1. **EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.38 WIDE**
2. **RIGHT OF CARRIAGEWAY 4 & 10.285 WIDE & VARIABLE WIDTH**

EXECUTION BY THE TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY):

ABN 70 929 061 516

Loreto Lomoy
CONGREGATION LEADER
LORETO LOMOY

Member
LINDA ALICIA
KOEMAN.

Bernadette Mansour
MEMBER
BERNADETTE
MANSOOR.

EXECUTED PURSUANT TO SEC 7
ROMAN CATHOLIC CHURCH
COMMODITIES LANDS ACT 1942

EXECUTED for and on behalf of)
AUSGRID by)
TREVOR MARK ARMSTRONG)
its duly constituted Attorney pursuant to) .....
Power of Attorney registered Book ~~4528~~ 4641) Attorney
No. ~~401~~ in the presence of:)

639

.....
Witness

AMY ELISE HILL
.....
Name of Witness (please print)

570 George Street,
Sydney, NSW, 2000
.....
Address of Witness

If space is insufficient use additional annexure sheet

Surveyor's Reference:32946DP1

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

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 25.6.2015

Office Use Only

DP1201328

PLAN OF RIGHT OF CARRIAGEWAY AND EASEMENT FOR ELECTRICITY AND OTHER PURPOSES WITHIN LOT 6 DP 262534

Subdivision Certificate number: .....

Date of Endorsement: .....

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

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

EXECUTED BY THE COMMONWEALTH BANK OF AUSTRALIA AS MORTGAGEE:

Certified correct for the purposes of the Real Property Act. 1900 by the person(s) named below who signed this instrument pursuant to the power of attorney specified

Signature of attorney:

Attorney's name: TARIQ RESSAS

Attorney's position: RELATIONSHIP EXECUTIVE

Signing on behalf of: COMMONWEALTH BANK OF AUSTRALIA ABN 48 123 123 124

Power of attorney -Book: 4548
-No: 494

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

Signature of witness: SFlynn

Name of witness: STEPHANIE FLINN

Address of witness: LVL 3 TWR B 799 PACIFIC HWY CHATSWOOD 2067

If space is insufficient use additional annexure sheet

Surveyor's Reference:32946DP1

[redacted]FICATE OF TITLE

NEW SOUTH WALES

[redacted]EAL PROPERTY ACT, 1900

Appln No. 56287

Vol. 14862 Fol. 80

EDITION ISSUED

8 9 1982

14862 Fol. 80

(Page 1) Vol.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

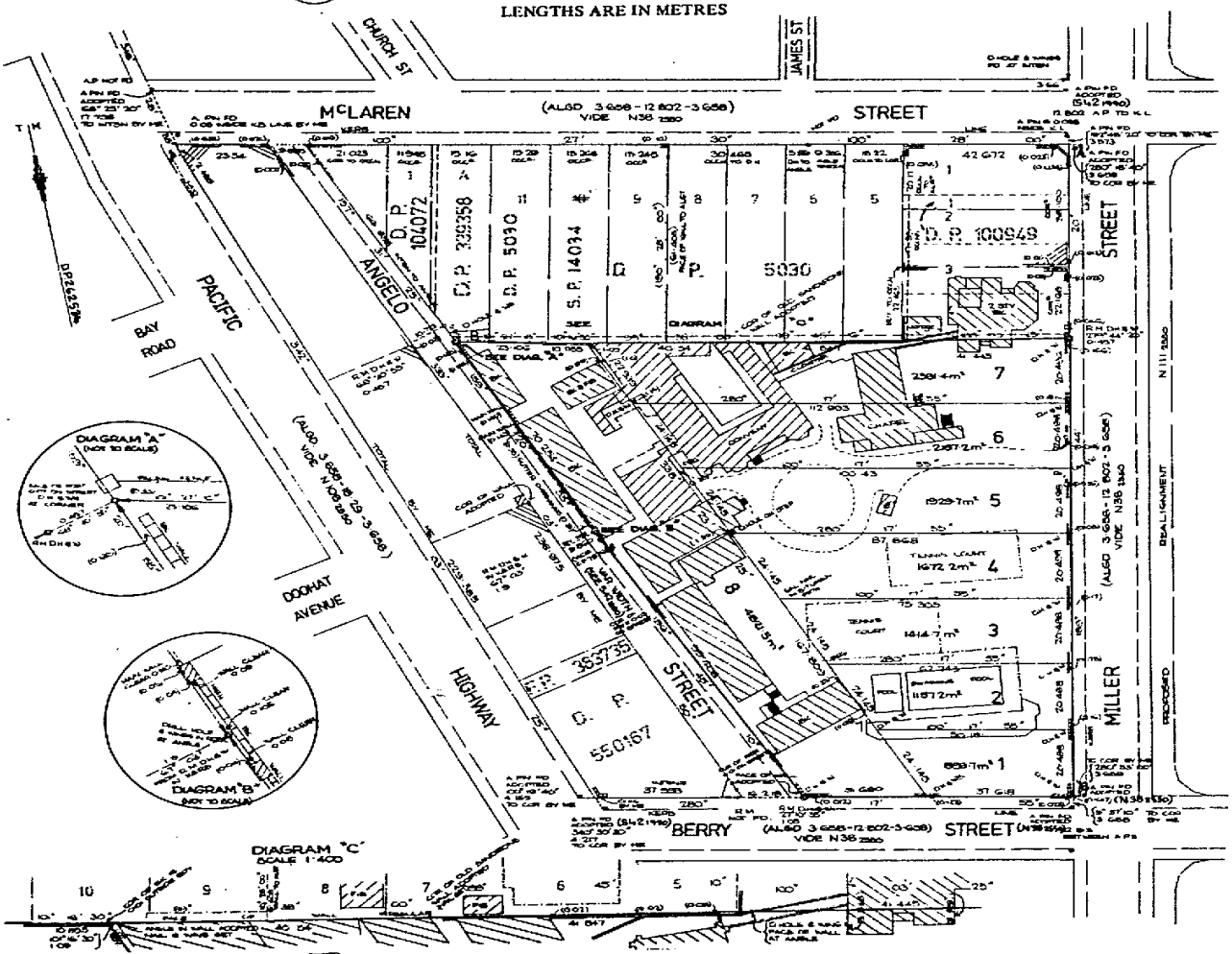
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 3 in Deposited Plan 262534 at North Sydney in the Municipality of North Sydney Parish of Willoughby County of Cumberland being Allotment 3 of Section 7 granted to Hastings Elwin on 19-3-1844.

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Vol 14862 Fol 80

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

NOTE: ENTRIES RULED THROUGH AND AUTHENTICA[illegible] OF THE REGISTRAR GENERAL ARE CANCELLED

[redacted]IFICATE OF TITLE

NEW SOUTH WALES

[redacted]EAL PROPERTY ACT, 1900

Appln No. 56287

Vol. 14862 Fol. 81

EDITION ISSUED

8 9 1982

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

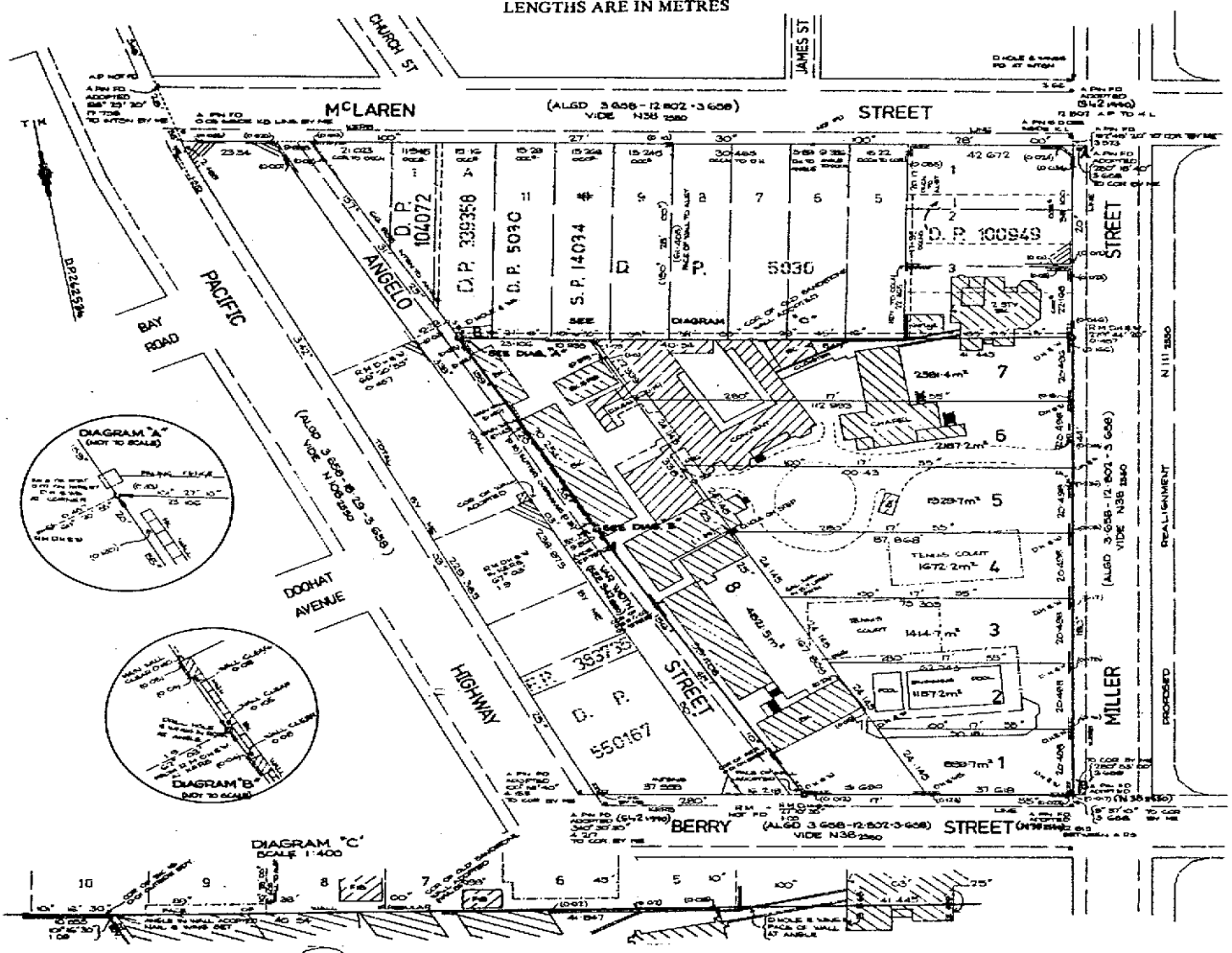
CANCELLED

Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 4 in Deposited Plan 262534 at North Sydney in the Municipality of North Sydney Parish of Willoughby County of Cumberland being Allotment 4 of Section 7 granted to Hastings Elwin on 19-3-1844.

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Vol 14862 Fol 81

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

NOTE: ENTRIES RULED THROUGH AND AUTHENTICAT[illegible] OF THE REGISTRAR GENERAL ARE CANCELLED

[redacted]IFICATE OF TITLE

NEW SOUTH WALES

[redacted]EAL PROPERTY ACT, 1900

14862-082

Appln No. 56287

Vol. 14862 Fol. 82

EDITION ISSUED

8 9 1982

14862 Fol. 82

(Page 1) Vol.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

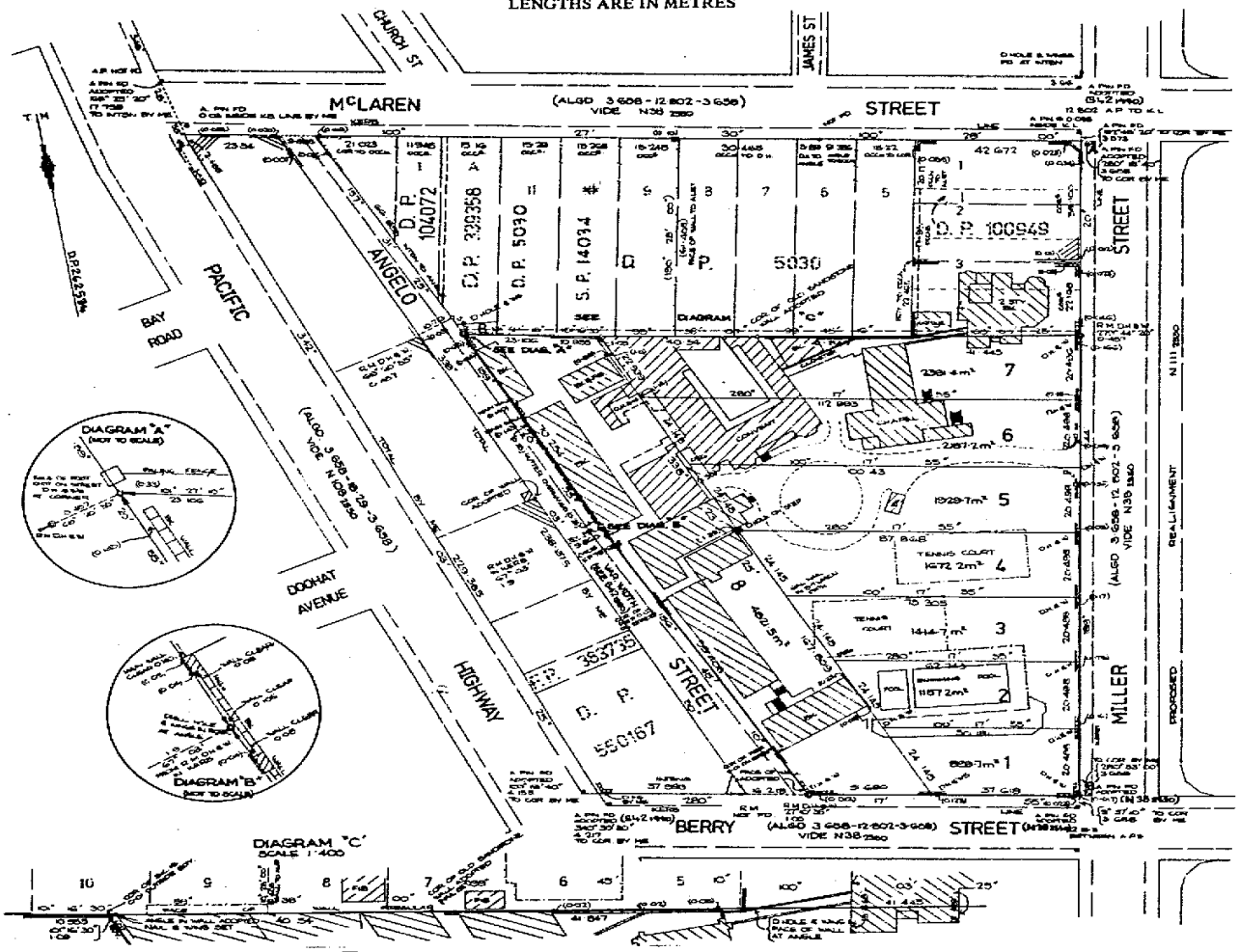
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 5 in Deposited Plan 262534 at North Sydney in the Municipality of North Sydney Parish of Willoughby County of Cumberland being Allotment 5 of Section 7 granted to Hastings Elwin on 19-3-1844.

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Vol 14862 Fol 82

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

NOTE: ENTRIES RULED THROUGH AND AUTHENTICA[illegible] OF THE REGISTRAR GENERAL ARE CANCELLED

[redacted]FICATE OF TITLE

NEW SOUTH WALES

[redacted]EAL PROPERTY ACT, 1900

Appln No. 56287

Vol. 14862 Fol. 83

EDITION ISSUED

8 9 1982

14862 Fol. 83

(Page 1) Vol. .....

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

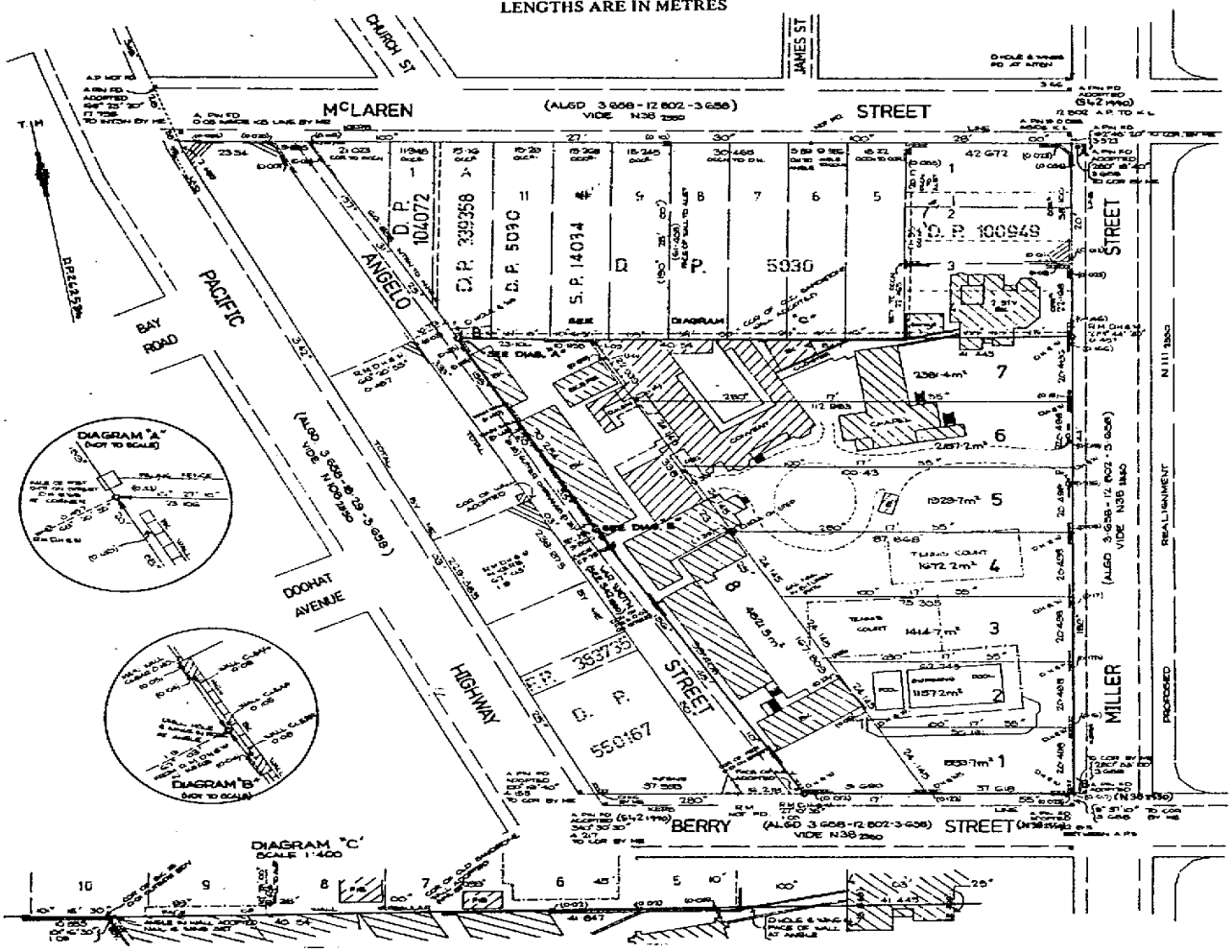
CANCELLED

Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 6 in Deposited Plan 262534 at North Sydney in the Municipality of North Sydney Parish of Willoughby County of Cumberland being Allotment 6 of Section 7 granted to Hastings Elwin on 19-3-1844.

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Vol 14862 Fol 83

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

NOTE: ENTRIES RULED THROUGH AND AUTHENTICA[illegible] OF THE REGISTRAR GENERAL ARE CANCELLED

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/11/2019 9:02AM

FOLIO: 3/262534

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14862 FOL 80

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
27/7/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/4/2006	AC257091	MORTGAGE	EDITION 1
28/6/2017	AM489216	REQUEST	
8/9/2017	AM705494	REQUEST	
19/10/2017	AM817561	DEPARTMENTAL DEALING	
30/11/2017	AM929543	DEPARTMENTAL DEALING	
23/1/2018	AN44466	LEASE	EDITION 2 CORD ISSUED
19/3/2018	DP1231920	DEPOSITED PLAN	

*** END OF SEARCH ***

north sydney PRINTED ON 11/11/2019

Received: 11/11/2019 09:02:36

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/11/2019 9:02AM

FOLIO: 4/262534

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14862 FOL 81

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
27/7/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/4/2006	AC257091	MORTGAGE	EDITION 1
28/6/2017	AM489216	REQUEST	
8/9/2017	AM705494	REQUEST	
19/10/2017	AM817561	DEPARTMENTAL DEALING	
30/11/2017	AM929543	DEPARTMENTAL DEALING	
23/1/2018	AN44466	LEASE	EDITION 2 CORD ISSUED
19/3/2018	DP1231920	DEPOSITED PLAN	

*** END OF SEARCH ***

north sydney PRINTED ON 11/11/2019

Received: 11/11/2019 09:02:36

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/11/2019 9:02AM

FOLIO: 5/262534

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14862 FOL 82

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
27/7/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/4/2006	AC257091	MORTGAGE	EDITION 1
28/6/2017	AM489216	REQUEST	
8/9/2017	AM705494	REQUEST	
19/10/2017	AM817561	DEPARTMENTAL DEALING	
30/11/2017	AM929543	DEPARTMENTAL DEALING	
23/1/2018	AN44466	LEASE	EDITION 2 CORD ISSUED
19/3/2018	DP1231920	DEPOSITED PLAN	

*** END OF SEARCH ***

north sydney PRINTED ON 11/11/2019

Received: 11/11/2019 09:02:36

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/11/2019 10:29AM

FOLIO: 6/262534

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14862 FOL 83

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
27/7/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/4/2006	AC257091	MORTGAGE	EDITION 1
8/10/2014	AI913416	POSITIVE COVENANT	
25/6/2015	DP1201328	DEPOSITED PLAN	EDITION 2
28/6/2017	AM489216	REQUEST	
8/9/2017	AM705494	REQUEST	
19/10/2017	AM819175	DEPARTMENTAL DEALING	
30/11/2017	AM929543	DEPARTMENTAL DEALING	
23/1/2018	AN44466	LEASE	EDITION 3 CORD ISSUED
19/3/2018	DP1231920	DEPOSITED PLAN	

*** END OF SEARCH ***

north sydney PRINTED ON 11/11/2019

Received: 11/11/2019 10:29:29

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 3/262534

SEARCH DATE	TIME	EDITION NO	DATE
11/11/2019	9:00 AM	2	23/1/2018

NO CERTIFICATE OF TITLE HAS ISSUED FOR THE CURRENT EDITION OF THIS FOLIO.
CONTROL OF THE RIGHT TO DEAL IS HELD BY COMMONWEALTH BANK OF AUSTRALIA.

LAND

LOT 3 IN DEPOSITED PLAN 262534
AT NORTH SYDNEY
LOCAL GOVERNMENT AREA NORTH SYDNEY
PARISH OF WILLOUGHBY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP262534

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AC257091 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
3 AM705494 PROPOSED ACQUISITION PURSUANT TO SECTION 11 LAND ACQUISITION (JUST TERMS COMPENSATION) ACT, 1991 AFFECTING THE LAND ABOVE DESCRIBED
4 AN44466 LEASE TO MONTE SANT' ANGELO MERCY COLLEGE LIMITED EXPIRES: 30/6/2042.

NOTATIONS

AM489216 NOTE: MEMORANDUM AM216034
AM929543 NOTE: ACQUIRED FOR THE JUST TERMS COMPENSATION ACT 1991 LOT 80 DP1231920 VIDE GOV. GAZ. 11-10-2017 FOLS. 5847-6099. ERRATUM VIDE GOV. GAZ. 10-11-2017 FOLS. 6787-6829
DP1231920 PLAN OF ACQUISITION

UNREGISTERED DEALINGS: R AN391376.

*** END OF SEARCH ***

Received: 11/11/2019 09:00:51

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 4/262534

SEARCH DATE	TIME	EDITION NO	DATE
11/11/2019	9:00 AM	2	23/1/2018

NO CERTIFICATE OF TITLE HAS ISSUED FOR THE CURRENT EDITION OF THIS FOLIO.
CONTROL OF THE RIGHT TO DEAL IS HELD BY COMMONWEALTH BANK OF AUSTRALIA.

LAND

LOT 4 IN DEPOSITED PLAN 262534
AT NORTH SYDNEY
LOCAL GOVERNMENT AREA NORTH SYDNEY
PARISH OF WILLOUGHBY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP262534

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AC257091 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
3 AM705494 PROPOSED ACQUISITION PURSUANT TO SECTION 11 LAND ACQUISITION (JUST TERMS COMPENSATION) ACT, 1991 AFFECTING THE LAND ABOVE DESCRIBED
4 AN44466 LEASE TO MONTE SANT' ANGELO MERCY COLLEGE LIMITED EXPIRES: 30/6/2042.

NOTATIONS

AM489216 NOTE: MEMORANDUM AM216034
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DP1231920 PLAN OF ACQUISITION

UNREGISTERED DEALINGS: R AN391376.

*** END OF SEARCH ***

Received: 11/11/2019 09:00:51

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 5/262534

SEARCH DATE	TIME	EDITION NO	DATE
11/11/2019	9:00 AM	2	23/1/2018

NO CERTIFICATE OF TITLE HAS ISSUED FOR THE CURRENT EDITION OF THIS FOLIO.
CONTROL OF THE RIGHT TO DEAL IS HELD BY COMMONWEALTH BANK OF AUSTRALIA.

LAND

LOT 5 IN DEPOSITED PLAN 262534
AT NORTH SYDNEY
LOCAL GOVERNMENT AREA NORTH SYDNEY
PARISH OF WILLOUGHBY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP262534

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AC257091 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
3 AM705494 PROPOSED ACQUISITION PURSUANT TO SECTION 11 LAND ACQUISITION (JUST TERMS COMPENSATION) ACT, 1991 AFFECTING THE LAND ABOVE DESCRIBED
4 AN44466 LEASE TO MONTE SANT' ANGELO MERCY COLLEGE LIMITED EXPIRES: 30/6/2042.

NOTATIONS

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DP1231920 PLAN OF ACQUISITION

UNREGISTERED DEALINGS: R AN391376.

*** END OF SEARCH ***

Received: 11/11/2019 09:00:50

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 6/262534

SEARCH DATE	TIME	EDITION NO	DATE
11/11/2019	10:27 AM	3	23/1/2018

NO CERTIFICATE OF TITLE HAS ISSUED FOR THE CURRENT EDITION OF THIS FOLIO.
CONTROL OF THE RIGHT TO DEAL IS HELD BY COMMONWEALTH BANK OF AUSTRALIA.

LAND

LOT 6 IN DEPOSITED PLAN 262534
AT NORTH SYDNEY
LOCAL GOVERNMENT AREA NORTH SYDNEY
PARISH OF WILLOUGHBY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP262534

FIRST SCHEDULE

TRUSTEES OF THE SISTERS OF MERCY (NORTH SYDNEY)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AC257091 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
3 AI913416 POSITIVE COVENANT
4 DP1201328 EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.38 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN DP1201328
5 DP1201328 RIGHT OF CARRIAGEWAY 4, 10.285 METRE(S) WIDE AND VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN DP1201328
6 AM705494 PROPOSED ACQUISITION PURSUANT TO SECTION 11 LAND ACQUISITION (JUST TERMS COMPENSATION) ACT, 1991 AFFECTING THE LAND ABOVE DESCRIBED
7 AN44466 LEASE TO MONTE SANT' ANGELO MERCY COLLEGE LIMITED EXPIRES: 30/6/2042.

NOTATIONS

AM489216 NOTE: MEMORANDUM AM216034
AM929543 NOTE: ACQUIRED FOR THE JUST TERMS COMPENSATION ACT 1991 LOT 80 DP1231920 VIDE GOV. GAZ. 11-10-2017 FOLS. 5847-6099. ERRATUM VIDE GOV. GAZ. 10-11-2017 FOLS. 6787-6829
DP1231920 PLAN OF ACQUISITION

UNREGISTERED DEALINGS: R AN391376.

*** END OF SEARCH ***

north sydney PRINTED ON 11/11/2019

Received: 11/11/2019 10:28:03

Appendix E

Planning Certificate

N O R T H S Y D N E Y C O U N C I L

address 200 Miller Street North Sydney NSW 2060
all correspondence General Manager North Sydney Council
PO Box 12 North Sydney NSW 2059
DX10587

telephone (02) 9936 8100
facsimile (02) 9936 8177
email council@northsydney.nsw.gov.au
internet www.northsydney.nsw.gov.au
ABN 32 353 260 317

Applicant:
Matthew Bennett
96 Hermitage Rd
West Ryde 2114

PLANNING CERTIFICATE UNDER SECTION 10.7 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Cert. No.: **74629/02**
Page No.: **1 of 8**

Parcel No: 7234

Date: 30/10/2019
Receipt No.:
Your REF: 73019.03

Property Description:
128 Miller Street NORTH SYDNEY NSW 2060
LOT: 4 DP: 262534

Owner (as recorded by council):
Monte Sant' Angelo Mercy College

C/- Stuart Hanrahan
PO Box 1064
NORTH SYDNEY NSW 2059

The Title information shown on this Certificate has been obtained from the Land and Property Information NSW, therefore Council cannot guarantee accuracy.

The information required to be disclosed in this planning certificate is that prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation 2000. If no response is provided in this planning certificate for an item listed in Schedule 4, that matter has been considered and determined as not applying to the land to which this certificate relates.

AS AT THE DATE OF THE CERTIFICATE THE FOLLOWING MATTERS APPLY TO THE ABOVE MENTIONED LAND.

PLANNING INSTRUMENT:

North Sydney Local Environmental Plan 2013, published on the NSW legislation website on 2 August 2013 and came into force on 13 September 2013, as amended.

Zone: SP2 – Infrastructure "Educational establishment"
Permitted without consent
Environmental protection works
Permitted with consent
Aquaculture; Roads; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose
Prohibited
Any development, other than a development specified above, is prohibited in the zone

Exempt Development
Development for the purposes set out in clause 3.1 of *North Sydney Local Environmental Plan 2013* is exempt development, which may be carried out within the zone without the need for development consent.

Complying Development

address 200 Miller Street North Sydney NSW 2060
all correspondence General Manager North Sydney Council
PO Box 12 North Sydney NSW 2059
DX10587

telephone (02) 9936 8100
facsimile (02) 9936 8177
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Development for the purposes set out in clause 3.2 of *North Sydney Local Environmental Plan 2013* is complying development, which may be carried out within the zone without the need for development consent, provided that a complying development certificate is obtained.

DRAFT PLANNING INSTRUMENTS:

Planning Proposal 7/15 to amend North Sydney Local Environmental Plan 2013 – 575-583 Pacific Highway, St Leonards

This Planning Proposal seeks to amend the planning controls to *North Sydney Local Environmental Plan 2013* for land at 575-583 Pacific Highway, St Leonards. In particular, the proposed amendments include:

- increasing the maximum building height from 26m to 56m; and
- applying a whole of site maximum Floor Space Ratio of 7:1.

Accompanying the Planning Proposal is a draft Voluntary Planning Agreement (VPA) that proposes a monetary contribution of $4,095,803 to assist Council in providing public open space in the area as envisaged by the *St Leonards/Crows Nest Planning Study for Precinct 1.*

The Planning Proposal and VPA will be on public exhibition from Thursday 8 March 2018 to Thursday 12 April 2018.

Planning Proposal 6/16 to amend North Sydney Local Environmental Plan 2013 – 100 Christie Street, St Leonards

This Planning Proposal seeks to amend the planning controls to *North Sydney Local Environmental Plan 2013* for land at 100 Christie Street, St Leonards. In particular, the proposed amendments include:

- increasing the maximum building height from 49m to 132m;
- introducing a maximum floor space ratio (FSR) of 18:1;
- introducing a minimum non-residential FSR of 4.25:1;
- adding a clause to Schedule 1 – *Additional Permitted Uses* such that "shop top housing" is permissible with consent on the subject site;
- adding a clause to Part 6 – *Local Provisions* such that basement parking may be constructed under 50% of the lot containing Christie Street Reserve; and
- amending Clause 4.6 to exclude the use of Clause 4.6 to vary the development standard proposed above under Part 6.

Accompanying the Planning Proposal is a draft Voluntary Planning Agreement (VPA) which seeks to provide Council with a material public benefit in the form of two floors of co-working commercial office space within the building podium, embellishment and dedication of the Christie Street Reserve to Council in perpetuity, upgrade of Chandos Street and Sergeants Lane and a monetary contribution of $100,000 to Council for the purpose of a bike hub in the area.

The Planning Proposal and VPA will be on public exhibition from Thursday 8 November 2018 to Thursday 6 December 2018.

Planning Proposal 1/18 to amend North Sydney Local Environmental Plan 2013 – 23 – 35 Atchison Street, St Leonards

The Planning Proposal seeks to amend *North Sydney Local Environmental Plan 2013* to amend the planning controls for land at 23-35 Atchison Street, St Leonards. In particular, the proposed amendments include:

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- increasing the maximum building height from 20m to 56m (equivalent to 16 storeys);
- increasing the minimum non-residential floor space ratio from 0.6:1 to 1.5:1; and
- imposing a maximum floor space ratio of 6.3:1

Accompanying the Planning Proposal is a draft Voluntary Planning Agreement (VPA) that proposes the dedication of a 5-metre wide strip for the purpose of a linear park along Oxley Street, the provision of a publically accessible 6-metre wide laneway from Atchison Street to Albany Lane along the western boundary of the site, and a monetary contribution of $2,800,000 towards the upgrade of Hume Street Park or public open space within the North Sydney Local Government Area.

In addition, Council resolved to place an associated draft amendment to *North Sydney Development Control Plan 2013* (NSDCP 2013) on public exhibition concurrently with the Planning Proposal that seeks to introduce a 6m ground level setback control along the Atchison Street portion of the site.

The Planning Proposal, VPA and associated draft DCP amendment will be on public exhibition from Thursday 4 April 2019 to Thursday 2 May 2019.

Planning Proposal 5/19 to amend North Sydney Local Environmental Plan 2013 – 6 Hayes Street, Neutral Bay

The Planning Proposal seeks to amend *North Sydney Local Environmental Plan 2013* to identify 6 Hayes Street, Neutral Bay, as an item of local heritage significance.

The Planning Proposal, will be on public exhibition from Thursday 10 October 2019 to Wednesday 6 November 2019.

DEVELOPMENT CONTROL PLANS:

North Sydney Development Control Plan 2013
North Sydney Development Control Plan 2013 applies to all land to which *North Sydney Local Environmental Plan 2013* applies. The Development Control Plan was adopted by Council on 2 September 2013 and came into effect on 13 September 2013. Amended 20/02/14. Amended 08/01/2015. Amended 26/03/2015. Amended 6/08/2015. Amended 5/11/2015. Amended 7/07/2016. Amended 13/10/2016. Amended 19/07/2017. Amended 16/11/2017. Amended 7/12/2017. Amended 15/03/2018.

Draft Amendments North Sydney DCP 2013 (8 Hayes Street)
On 22 July 2019, Council resolved to place a draft amendment to the *North Sydney Development Control Plan 2013* on public exhibition, to identify 8 Hayes Street, Neutral Bay, as a "contributory item" recognising its contribution to the Kurraba Point Conservation Area. This DCP amendment is being publically exhibited concurrently with the Planning Proposal relating to land at 6 Hayes Street, Neutral Bay.

Public exhibition of the draft amendment to NSDCP 2013 will take place from Thursday 10 October 2019 to Wednesday 6 November 2019.

INFRASTRUCTURE CONTRIBUTION PLANS:

North Sydney Section 94 Contributions Plan. Local infrastructure contributions plan made under Section 7.11 of the Environmental Planning and Assessment Act 1979, applying to all development in the North Sydney local government area. Effective from 20 June 2013.

N O R T H S Y D N E Y C O U N C I L

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HERITAGE CONTROLS:

The subject land IS NOT WITHIN A CONSERVATION AREA, under clause 5.10 - Heritage Conservation to *North Sydney Local Environmental Plan 2013*.

The whole or part of the subject land IS A HERITAGE ITEM, under clause 5.10 - Heritage Conservation to *North Sydney Local Environmental Plan 2013*. Development consent is required for demolition (including partial demolition) or any change to the property, construction of a building on, or subdivision of, the land. Council may refuse consent to demolish a Heritage Item.

The subject land IS NOT identified as containing a HERITAGE ITEM under *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.*

OTHER CONTROLS:

The subject land is NOT PROCLAIMED as a MINE SUBSIDENCE DISTRICT within the meaning of Section 15 of the *Mine Subsidence Compensation Act 1961*.

The subject land is NOT AFFECTED by any ROAD WIDENING OR ROAD REALIGNMENT under the *Roads Act 1993*.

The subject land is NOT AFFECTED by any ROAD WIDENING OR ROAD REALIGNMENT under any environmental planning instrument.

The subject land is NOT AFFECTED by any ROAD WIDENING OR ROAD REALIGNMENT under any Council resolution.

The subject land is NOT IDENTIFIED as BUSHFIRE PRONE LAND on Council's Bushfire Prone Land Map as certified by the NSW Rural Fire Service Commissioner dated 22 June 2018 pursuant to the requirements under the of the *Rural Fires Act 1997* and *Environmental Planning and Assessment Act 1979*.

The subject land is NOT SUBJECT to any reservation for LAND ACQUISITION by a public authority for any purpose under any environmental planning instrument applying to the land as set out in this certificate.

Council is NOT AWARE of the subject land being subject to an ORDER issued under the *Trees (Disputes Between Neighbours) Act 2006*.

Loose-fill Asbestos Insulation
Council has no record of the subject land being identified on the NSW Fair Trading's *Loose-Fill Asbestos Insulation Register* as containing a residential building containing loose-fill asbestos insulation, (sometimes called "Mr Fluffy" insulation). Loose-fill asbestos is easy to disturb and can become airborne and it is then easily inhaled. Inhaling asbestos fibres can result in serious illness including asbestosis, lung cancer and mesothelioma.

You are advised to contact NSW Fair Trading for more information:
https://www.fairtrading.nsw.gov.au/housing-and-property/loose-fill-asbestos-insulation

Note: Nothing in this statement relates to information about the presence of bonded asbestos materials such as asbestos cement sheeting which may have been used at this site.

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Council is not aware of any *Affected Building Notice*, *Building Product Rectification Order* or *Intention to make a Building Product Rectification Order* made under the *Building Products (Safety) Act 2017* applying to the subject land.

The subject land is NOT AFFECTED by a policy, adopted by the Council or adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council, that restricts the development of the land by reason of the likelihood of landslip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

THE FOLLOWING STATE ENVIRONMENTAL PLANNING POLICIES AND REGIONAL ENVIRONMENTAL PLANS APPLY:

State Environmental Planning Policies (SEPPs)
SEPP No. 1 – Development Standards
SEPP No. 19 - Bushland in urban areas
SEPP No. 33 - Hazardous and offensive development
SEPP No. 50 - Canal estate development
SEPP No. 55 - Remediation of land
SEPP No. 64 - Advertising and signage
SEPP No. 65 - Design Quality of Residential Apartment Development
SEPP No. 70 – Affordable Housing (Revised Schemes)
SEPP (Affordable Rental Housing) 2009
SEPP (Building Sustainability Index: BASIX) 2004
SEPP (Concurrences) 2018
SEPP (Educational Establishments & Child Care Facilities) 2017
SEPP (Exempt and Complying Development Codes) 2008
SEPP (Housing for Seniors or People with a Disability) 2004 - *formerly SEPP (Seniors Living) 2004*
SEPP (Infrastructure) 2007
SEPP (Primary Production and Rural Development) 2019
SEPP (State Significant Precincts) 2005 - *formerly SEPP Major Development*, *SEPP Major Projects & SEPP State Significant Development*
SEPP (Mining, Petroleum Production and Extractive Industries) 2007
SEPP (Miscellaneous Consent Provisions) 2007 - *formerly SEPP (Temporary Structures) 2007*
SEPP (State and Regional Development) 2011
SEPP (Vegetation in Non-Rural Areas) 2017

Regional Environmental Plans (REPs) (Deemed SEPPs)
Sydney REP (Sydney Harbour Catchment) 2005

Note: summaries of the SEPPs and deemed SEPPs are provided on the Department of Planning's website at:
www.planning.nsw.gov.au

Draft State Environmental Planning Policies (SEPPs)
Draft SEPP No. 66 - Integration of Land Use and Transport
Draft SEPP (Application of Development Standards) 2004
Draft SEPP (Competition) 2010
Draft SEPP (Environment) 2017
Draft SEPP (Remediation of Land) 2018
Draft SEPP (Short-term Rental Accommodation) 2019

Note: summaries of the draft SEPPs are provided on the Department of Planning's website at:
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FOR THE PURPOSE OF SECTION 10.7(2) AND CLAUSE 3 TO SCHEDULE 4 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000, THE FOLLOWING INFORMATION IS PROVIDED:

Housing Code
Complying development types specified within the Housing Code under Part 3 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Rural Housing Code
Complying development types specified within the Rural Housing Code under Part 3A of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Housing Alterations Code
Complying development types specified within the Housing Alterations Code under Part 4 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

General Development Code
Complying development types specified within the General Development Code under Part 4A of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Commercial and Industrial Alterations Code
Complying development types specified within the Commercial and Industrial Alterations Code under Part 5 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Commercial and Industrial (New Buildings and Additions) Code

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Complying development types specified within the Commercial and Industrial (New Buildings and Additions) Code under Part 5A of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Subdivisions Code
Complying development types specified within the Subdivisions Code under Part 6 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Demolition Code
Complying development types specified within the Demolition Code under Part 7 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Fire Safety Code
Complying development types specified within the Fire Safety Code under Part 8 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Container Recycling Facilities Code
Complying development types specified within the Container Recycling Facilities Code under Part 5B of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Low Rise Medium Density Housing Code
Complying development types specified within the Low Rise Medium Density Housing Code under Part 3B of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

- Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Greenfield Housing Code
Complying development types specified within the Greenfield Housing Code under Part 3C of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* CANNOT BE UNDERTAKEN ON THE SUBJECT LAND, as the subject land is:

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• Wholly identified as an item of environmental heritage or heritage item by an environmental planning instrument or on which is located an item that is so identified.

Note. This part of the Planning Certificate only addresses matters raised in Clauses 1.17A(c)-(e), (2), (3) and (4), 1.18 (1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.* It is your responsibility to ensure that you comply with any other relevant requirements of *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.

FOR THE PURPOSE OF SECTION 59(2) OF THE CONTAMINATED LAND MANAGEMENT ACT 1997, THE FOLLOWING INFORMATION IS PROVIDED:

Council is NOT AWARE of the land (or part of the land) being declared SIGNIFICANTLY CONTAMINATED land, as defined under Section 11 of the *Contaminated Land Management Act, 1997*.

Council is NOT AWARE of the land (or part of the land) being subject to a management order, as defined under Section 14(1) of the *Contaminated Land Management Act, 1997*.

Council is NOT AWARE of the land (or part of the land) being the subject of an approved voluntary management proposal, as defined under Section 17(1) of the *Contaminated Land Management Act, 1997*.

Council is NOT AWARE of the land (or part of the land) being subject to an ongoing maintenance order, as defined under Section 28(2) of the *Contaminated Land Management Act, 1997*.

Council is NOT AWARE of the land (or part of the land) being the subject of a site audit statement, as defined under Part 4 of the *Contaminated Land Management Act, 1997*.

For further information, please contact Council's
DIVISION OF CITY STRATEGY

KEN GOULDTHORP
GENERAL MANAGER
Electronically generated certificate – no signature required

Appendix F

Results of Field Work

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 79.1 AHD
EASTING: 334078.9
NORTHING: 6254610.5
DIP/AZIMUTH: 90°/--

BORE No: BH01
PROJECT No: 73019.03
DATE: 9/11/2019
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.065	BRICK PAVERS										
	0.4	FILL/Sandy GRAVEL: fine to medium, grey, igneous gravel, fine to medium sand, moist, appears generally well compacted							A/E			PID = 1.3 ppm
									A/E*			PID = 1.4 ppm
1	1.1	FILL/Sandy CLAY: low plasticity, orange mottled brown, fine sand, with fine ironstone and sandstone gravel, w<PL, appears generally moderately compacted							A/E*			PID = 0.9 ppm
									S			2,6,6/100 refusal
	1.4	Sandy CLAY CL: low plasticity, pale grey, fine to medium, with fine to medium ironstone gravel, w<PL, hard, residual										PID = 1.1 ppm
2												PL(A) = 0.5
								2.07m: J 25°, pl, ro, cln	C	83	72	
								2.13-2.18m: Cs				
	2.46	SANDSTONE: medium grained, pale grey brown to red-brown, medium strength with 10% clay bands, moderately weathered, slightly fractured and unbroken, Hawkesbury Sandstone						2.18m: CORE LOSS: 280mm				PL(A) = 0.6
3												
												PL(A) = 0.5
4												
	4.17	SANDSTONE: medium grained, pale grey and red brown, thinly bedded and cross bedded, low to medium strength, moderately weathered, slightly fractured, Hawkesbury Sandstone						4.13-4.17m: Cs	C	93	92	
								4.79m: B 20°, pl, ro, fe vn				PL(A) = 0.3
5								5.04m: B 0°, pl, ro, cly co 5mm				
								5.24m: B 0°, pl, ro, cly co 2mm				PL(A) = 0.3
								5.8m: CORE LOSS: 200mm				
6	6.0	SANDSTONE: medium and coarse grained, pale grey and red brown, thinly bedded, medium then high strength, slightly weathered, slightly fractured and unbroken, Hawkesbury Sandstone										PL(A) = 0.6
								6.61-6.65m: Ds				
7									C	92	87	PL(A) = 1.2
8												PL(A) = 1.2
								8.65-8.68m: fg				
								8.75m: CORE LOSS: 250mm				
9	9.0											PL(A) = 1.5
								9.5m: B 5°, pl, ro, cly co 2mm	C	58	53	

RIG: Hydrapower Scout **DRILLER:** Hagstrom Drilling - CN **LOGGED:** SI/KR **CASING:** HQ to 1.4m

TYPE OF BORING: Diatube to 0.065m, Solid flight augering (TC-bit) to 1.40m, NMLC coring to 15.00m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: A/E sample at 0.2-0.3m is BD3/9112019, A/E sample at 0.4-0.5m is BD2/9112019

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 79.1 AHD
EASTING: 334078.9
NORTHING: 6254610.5
DIP/AZIMUTH: 90°/--

BORE No: BH01
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SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	10.2	SANDSTONE: as above						10.2m: CORE LOSS: 260mm				
	10.46											PL(A) = 2
	10.85											
	11	SANDSTONE: fine grained, pale grey, very low strength, highly weathered Hawkesbury Sandstone (possibly very low or low strength rock washed away)						10.85m: CORE LOSS: 1000mm	C	58	53	
	11.85							11.85-12.0m: Cs				
	12 12.0	SANDSTONE: medium grained, pale grey and brown, thinly bedded and laminated with some cross bedding (5°-20°), micro faults (45°) medium strength, slightly weathered then fresh, slightly fractured Hawkesbury Sandstone										PL(A) = 0.6
	13							12.9m: J 30°-45°, cu, he				PL(A) = 0.6
								13.45m: B 0°, pl, ro, fe vn	C	100	100	
	14							13.85m: B, 0°, pl, ro, cly co 5mm				PL(A) = 0.3
	15 15.0	Bore discontinued at 15.0m - Target Depth Reached										
	16											
	17											
	18											
	19											

RIG: Hydrapower Scout **DRILLER:** Hagstrom Drilling - CN **LOGGED:** SI/KR **CASING:** HQ to 1.4m

TYPE OF BORING: Diatube to 0.065m, Solid flight augering (TC-bit) to 1.40m, NMLC coring to 15.00m

WATER OBSERVATIONS: No free groundwater observed whilst augering

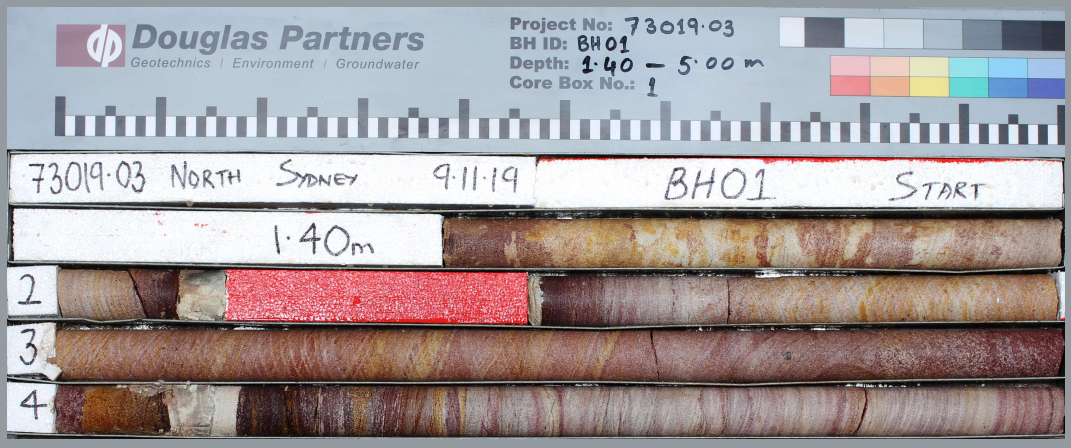
REMARKS: A/E sample at 0.2-0.3m is BD3/9112019, A/E sample at 0.4-0.5m is BD2/9112019

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: 01 PROJECT: NORTH SYDNEY NOVEMBER 2019

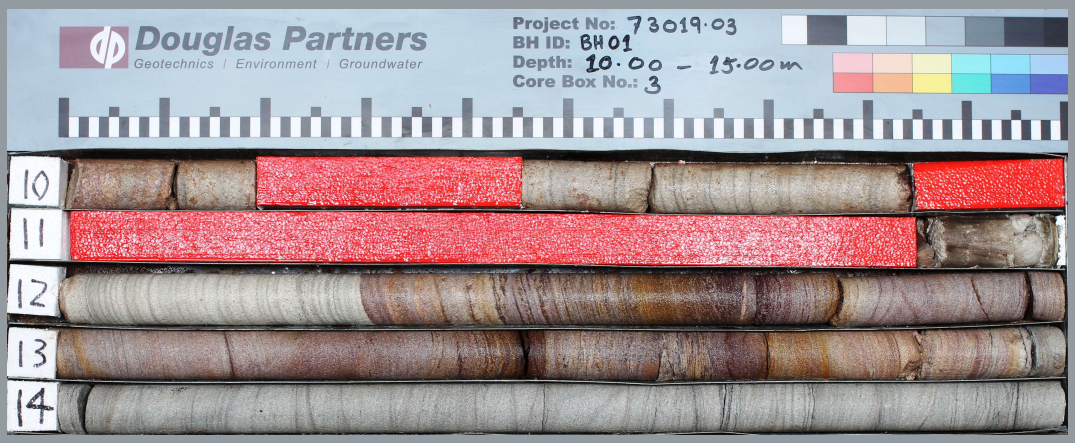


1.40 – 5.00m

BORE: 01 PROJECT: NORTH SYDNEY NOVEMBER 2019

5.00 – 10.00m

BORE: 01 PROJECT: NORTH SYDNEY NOVEMBER 2019



10.00 – 15.00m

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 75.7 AHD
EASTING: 334113.8
NORTHING: 6254610.1
DIP/AZIMUTH: 90°/--

BORE No: BH02
PROJECT No: 73019.03
DATE: 9/11/2019
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
	0.065	BRICK PAVERS							A/E*			PID = 1.1 ppm
	0.4	FILL/Sandy GRAVEL: fine to medium, grey, igneous gravel, fine to medium sand, moist, appears generally well compacted							A/E			PID = 0.5 ppm
	0.8	FILL/Sandy CLAY: low plasticity, orange mottled brown, fine sand, with fine to medium ironstone and sandstone gravel, w<PL, appears generally moderately compacted							A/E			PID = 0.4 ppm
1	1.0							1m: CORE LOSS: 280mm	S			5,6/20,B refusal
	1.28	Sandy CLAY CL: low plasticity, pale grey and slightly pink, fine sand, with fine to medium ironstone gravel, w<PL, hard, residual										PID = 0.6 ppm
2		SANDSTONE: medium to coarse grained, pale grey, some indistinct bedding, low strength, highly weathered then fresh, slightly fractured, Hawkesbury Sandstone						1.42-1.65m: J 80°, un, ro, cln 1.70m: B 0°, pl, ro, cly co 5mm	C	83	75	PL(A) = 0.3 PL(A) = 0.2
3	3.01	SANDSTONE: medium grained, pale grey, cross bedding (20°), medium strength, fresh, slightly fractured and unbroken, Hawkesbury Sandstone						2.91m: B 0°, pl, ro, cly co 3mm 2.97m: B 0°, pl, ro, cly co 10mm				PL(A) = 0.1
4									C	100	96	PL(A) = 0.5
								4.58m: B 5°, pl, ro, cly co 5mm 4.90m: B 10°, pl, ro, cly vn, ti				PL(A) = 0.8
5												
	5.3	SANDSTONE: medium grained, red-grey, some cross bedding (20°), medium strength with some very low and low strength bands, moderately then slightly weathered, slightly fractured and unbroken, Hawkesbury Sandstone 6.55-6.95m: high strength						5.30-5.35m: Ds				PL(A) = 0.08 PL(A) = 0.5
6												PL(A) = 0.9
								6.35m: B 0°, pl, ro, fe co 3mm 6.41m: B 5°, pl, ro, fe, fg 10mm 6.55m: J 45°, pl, ro, fe, cly co 10mm				PL(A) = 0.2 PL(A) = 1.2
7									C	100	97	PL(A) = 0.8
8												PL(A) = 1
								8.27-8.43m: Ds				PL(A) = 0.1
								8.65m: B 10°, pl, ro, cly co, 5mm 8.70m: J 45°, pl, ro, cln				PL(A) = 0.6
9								8.85m: B, 5°, pl, ro, cly vn 9.05-9.08m: Cs 9.13-9.16m: Cs	C	100	96	PL(A) = 0.5

RIG: Hydrapower Scout **DRILLER:** Hagstrom Drilling - MC **LOGGED:** SI/KR **CASING:** HQ to 1.0m

TYPE OF BORING: Diatube to 0.065m, Solid flight augering (TC-bit) 1.00m, NMLC coring to 15.00m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: A/E sample at 0.1-0.2m is BD1/9112019

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 75.7 AHD
EASTING: 334113.8
NORTHING: 6254610.1
DIP/AZIMUTH: 90°/--

BORE No: BH02
PROJECT No: 73019.03
DATE: 9/11/2019
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		SANDSTONE: medium grained, red-grey, some cross bedding (20°), medium strength with some very low and low strength bands, moderately then slightly weathered, slightly fractured and unbroken, Hawkesbury Sandstone *(continued)*							C	100	96	PL(A) = 0.4
	11											
	11.5	SANDSTONE: medium to coarse grained, pale grey then red-brown, some cross bedding (20°), high strength,slightly weathered, slightly fractured and unbroken, Hawkesbury Sandstone						11.77m: B 5°, pl, ro, cly co 3mm 11.91m: B 5°, pl, ro, cly co 10mm 12.05m: B 20°, pl, ro, cly co 10mm				PL(A) = 1.1 PL(A) = 1.7
	12											
	13							12.92m: J 35°, ir, he	C	100	99	PL(A) = 1.3
	13.62	SANDSTONE: medium to coarse grained, pale grey, some cross bedding (20°) then massive, low then medium strength, slightly weathered then fresh, slightly fractured and unbroken, Hawkesbury Sandstone						13.62m: B 0°, pl, ro, cly co 5mm				PL(A) = 0.2 PL(A) = 0.5
	14											
	15								C	100	100	PL(A) = 0.7
	15.0	Bore discontinued at 15.0m - Target Depth Reached										
	16											
	17											
	18											
	19											

RIG: Hydrapower Scout **DRILLER:** Hagstrom Drilling - MC **LOGGED:** SI/KR **CASING:** HQ to 1.0m

TYPE OF BORING: Diatube to 0.065m, Solid flight augering (TC-bit) 1.00m, NMLC coring to 15.00m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: A/E sample at 0.1-0.2m is BD1/9112019

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BORE: 02 PROJECT: NORTH SYDNEY NOVEMBER 2019

1.00 – 5.00m

BORE: 02 PROJECT: NORTH SYDNEY NOVEMBER 2019

5.00 – 10.00m

BORE: 02 PROJECT: NORTH SYDNEY NOVEMBER 2019

10.00 – 15.00m

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 73.0 AHD
EASTING: 334109.2
NORTHING: 6254576.2
DIP/AZIMUTH: 90°/--

BORE No: BH03
PROJECT No: 73019.03
DATE: 9/11/2019
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.055	ASPHALTIC CONCRETE										
	0.3	FILL/Clayey SAND: fine to medium, orange mottled brown, with fine to medium igneous gravel, moist, appears generally moderately compacted							A/E			PID = 0.4 ppm
									A/E			PID = 0.3 ppm
1	1.0	SANDSTONE: fine to medium grained, red-brown then pale grey, apparently very low and low to medium strength						1m: CORE LOSS: 200mm 1.20-1.27m: Cs				PL(A) = 0.7
	1.2	SANDSTONE: fine to medium grained, pale grey brown then red brown, thinly bedded with 20% clay seams, very low, low and medium strength, highly to moderately weathered, fractured, Hawkesbury Sandstone						1.57m, 1.65m, 1.74m, 1.9m: Cs, 20mm	C	85	35	
2								2.45m & 2.62m: B(x2) 5°, pl, ro, cly co 10mm				PL(A) = 0.2
3								2.90m: B, 0°, pl, ro, cln				PL(A) = 0.4
								3.50m & 3.75m: B(x2) 5°, pl, ro, cly co 5mm	C	100	98	
4								4.27m & 4.4m: B(x2) 5°, pl, ro, fe, cly vn				PL(A) = 0.2
	4.3	SANDSTONE: fine to medium grained, brown then pale grey, thinly bedded with some cross bedding (5°-10°), medium strength, moderately weathered then fresh, slightly fractured and unbroken, Hawkesbury Sandstone										PL(A) = 0.7
5												
6								6.11m: B 10°, pl, ro, cly co 10mm				PL(A) = 0.5
7									C	93	93	
								7.33m: B 0°, pl, ro, cly co 5mm				PL(A) = 0.5
8												PL(A) = 0.9
	8.47							8.27m: CORE LOSS: 200mm				
								8.71m: B 0°, pl, ro, cly vn				
9								9.07m: B 0°, pl, ro, cly co 5mm	C	97	94	PL(A) = 0.6
								9.50-9.52m: Ds				

RIG: Hanjin DB8 **DRILLER:** BG Drilling - MW **LOGGED:** SI/KR **CASING:** HQ to 3.5m

TYPE OF BORING: Diatube to 0.055m, Solid flight augering (TC-bit) to 1.00m, NMLC coring to 16.50m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Well contruction details: Blank pipe from 0.00-10.50m, Slotted pipe from 10.50-16.50m, Bentonite from 0.00-9.50m, Gravel from 9.50-16.50m, Gatic at surface

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Monte Sant' Angelo Mercy College
PROJECT: Monte Scientia Project
LOCATION: 128 Miller Street, North Sydney

SURFACE LEVEL: 73.0 AHD
EASTING: 334109.2
NORTHING: 6254576.2
DIP/AZIMUTH: 90°/--

BORE No: BH03
PROJECT No: 73019.03
DATE: 9/11/2019
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		SANDSTONE: as above						10.45-10.48m: Cs 10.65m: B 5°, pl, ro, cly co 5mm 10.88-10.92m: Ds	C	97	94	PL(A) = 0.6
11	11.0	SANDSTONE: medium grained, brown grey then pale grey, massive then thinly bedded, medium to high then high strength, fresh, slightly fractured and unbroken, Hawkesbury Sandstone						11.08m: CORE LOSS: 80mm				
	11.16											PL(A) = 0.9
12												PL(A) = 1
								12.75m & 12.85m: B(x2) 5°, pl, ro, cly co 2mm	C	100	99	
13								13.40m: B 10°, pl, ro, cly co 10mm				
												PL(A) = 1.6
14												
	14.3	SILTSTONE: pale grey and dark grey, with 20% fine grained sandstone laminations, 10% clay with quartz gravel, very low and low strength, slightly and highly weathered, slightly fractured, Hawkesbury Sandstone						14.30-14.40m: gravelly (quartz) clay 14.4m: CORE LOSS: 150mm	C	77	54	PL(A) = 0.2
	14.55											
15	15.05							14.55m: J 45°, pl, sm, cly co 2mm 14.60m: B 0°, un, sm, cly co 2mm 15.05m: B 0°, pl, ro, cbs cly co 2mm				PL(A) = 1.6
		SANDSTONE: fine then medium grained, pale grey and grey, thinly laminated with 10% carbonaceous laminations, high strength, fresh, unbroken, Hawkesbury Sandstone							C	100	100	
16												PL(A) = 1.3
	16.5	Bore discontinued at 16.5m - Target Depth Reached										
17												
18												
19												

RIG: Hanjin DB8 **DRILLER:** BG Drilling - MW **LOGGED:** SI/KR **CASING:** HQ to 3.5m

TYPE OF BORING: Diatube to 0.055m, Solid flight augering (TC-bit) to 1.00m, NMLC coring to 16.50m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Well contruction details: Blank pipe from 0.00-10.50m, Slotted pipe from 10.50-16.50m, Bentonite from 0.00-9.50m, Gravel from 9.50-16.50m, Gatic at surface

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: 03 PROJECT: NORTH SYDNEY NOVEMBER 2019

1.00 – 5.00m

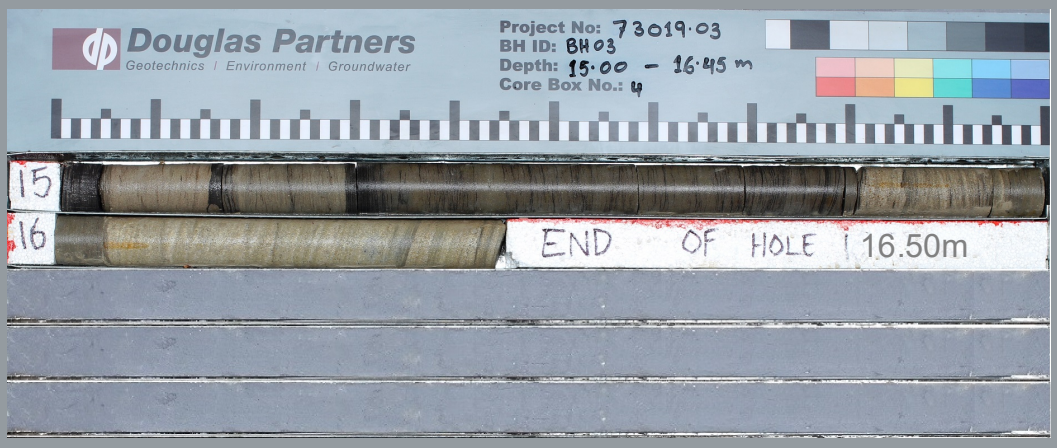
BORE: 03 PROJECT: NORTH SYDNEY NOVEMBER 2019

5.00 – 10.00m

BORE: 03 PROJECT: NORTH SYDNEY NOVEMBER 2019

10.00 – 15.00m

BORE: 03 PROJECT: NORTH SYDNEY NOVEMBER 2019



15.00 – 16.45m

Appendix G

Laboratory Test Results

Table G1: Contaminant Concentrations in Soil

Sample/ Depth (m)	B	T	E	X	F1	F2	+PAH	B.TEQ	B(a)P	B(a)P in TCLP	+OCP	+OPP	+PCB	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH01/0.2-0.3	<0.2	<0.5	<1	<1	<25	<50	24	2.2	1.5	<0.001	NIL	NIL	NIL	N	<4	<0.4	10	32	20	<0.1	9	32
BH01/0.9-1.0	<0.2	<0.5	<1	<1	<25	<50	5	<0.5	0.3	NT	NIL	NIL	NIL	N	<4	<0.4	39	<1	8	<0.1	1	2
BH02/0.4-0.5	<0.2	<0.5	<1	<1	<25	<50	5	<0.5	0.3	NT	NIL	NIL	NIL	N	5	<0.4	28	4	12	<0.1	7	9
BH02/0.9-1.0	<0.2	<0.5	<1	<1	<25	<50	<0.05	<0.5	<0.05	NT	NIL	NIL	NIL	N	4	<0.4	9	<1	5	<0.1	<1	<1
BH03/0.5-0.6	<0.2	<0.5	<1	<1	<25	<50	<0.05	<0.5	<0.05	NT	NIL	NIL	NIL	N	<4	<0.4	5	<1	6	<0.1	<1	4
BD3/9112019	<0.2	<0.5	<1	<1	<25	<50	28	3.0	1.9	NT	NT	NT	NT	N	5	<0.4	22	5	9	<0.1	3	6

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); B(a)P = Benzo(a)pyrene
OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NIL = below detection limits
NT = not tested; NA = not applicable
BD3/9112019 is replicate sample of BH01/0.2-0.3

Table G2: NEPM Investigation/Screening Levels[1]

Screening Level	B	T	E	X	F1	F2	+PAH	B.TEQ	B(a)P	+OCP	+OPP	+PCB	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Health-Based[1]							300	3		Various	Various	1		300	90	300	17000	600	80	1200	30000
Ecological-Based[2]	65	105	125	45	180	120			20[3]					100		400	190	1100		170	400

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); B(a)P = Benzo(a)pyrene
OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc;
[1]Based on National Environment Protect (Assessment of Site Contamination) Measure 1999 (updated 2013) for 'C' sites which include secondary schools and public open space
[2]Based on assumed clayey soils with pH of 6.0 and CEC of 10 cmol/kg
[3]Based on CRC CARE Technical Report 39: *Risk-based remediation and management guidance for benzo(a)pyrene*

Table G3: Waste Classification Criteria[1]

Waste Classification	B	T	E	X	C_6-C_9	C_{10}-C_{36}	+PAH	B.TEQ	B(a)P	+OCP[2]	+OPP[2]	+PCB	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
General Solid Waste																					
CT1	10	288	600	1000	650	10000	200	N/A	0.8	<50	<50	<50	N	100	20	100	N/A	100	4	40	N/A
SCC1	18	518	1080	1800	650	10000	200	N/A	10	<50	<50	<50	N	500	100	1900	N/A	1500	50	1050	N/A
TCLP1 (mg/L)	0.5	14.4	30	50	N/A	N/A	N/A	N/A	0.04	N/A	N/A	N/A	N/A	5	1	5	N/A	5	0.2	2	N/A

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; C_6 – C_9 TRH; C_{10} – C_{36} TRH; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; N/A = not applicable
[1]Based on Waste Classification Guidelines (NSW EPA, 2014); [2]As part of Scheduled Chemicals

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CERTIFICATE OF ANALYSIS 230507

Client Details

Client	Douglas Partners Pty Ltd
Attention	Matthew Bennett
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**73019.03, North Sydney**
Number of Samples	9 soil
Date samples received	11/11/2019
Date completed instructions received	11/11/2019

Analysis Details

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	18/11/2019
Date of Issue	18/11/2019

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Asbestos Approved By
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Authorised by Asbestos Approved Signatory: Lucy Zhu

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Loren Bardwell, Senior Chemist
Lucy Zhu, Senior Asbestos Analyst
Nick Sarlamis, Inorganics Supervisor
Steven Luong, Organics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	14/11/2019	14/11/2019	14/11/2019	14/11/2019	14/11/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	104	73	70	62	90

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		230507-6	230507-7	230507-8
Your Reference	UNITS	BD3/9112019	TS	TB
Depth		-	-	-
Date Sampled		09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	14/11/2019	14/11/2019	14/11/2019
TRH C_6 - C_9	mg/kg	<25	[NA]	<25
TRH C_6 - C_{10}	mg/kg	<25	[NA]	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]	<25
Benzene	mg/kg	<0.2	97%	<0.2
Toluene	mg/kg	<0.5	96%	<0.5
Ethylbenzene	mg/kg	<1	91%	<1
m+p-xylene	mg/kg	<2	92%	<2
o-Xylene	mg/kg	<1	92%	<1
naphthalene	mg/kg	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<3	[NA]	<3
Surrogate aaa-Trifluorotoluene	%	80	96	71

svTRH (C10-C40) in Soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	240	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	320	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	350	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	430	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	560	<50	<50	<50	<50
Total +ve TRH (>C10-C40)	mg/kg	780	<50	<50	<50	<50
Surrogate o-Terphenyl	%	103	88	84	82	83

svTRH (C10-C40) in Soil		
Our Reference		230507-6
Your Reference	UNITS	BD3/9112019
Depth		-
Date Sampled		09/11/2019
Type of sample		soil
Date extracted	-	12/11/2019
Date analysed	-	13/11/2019
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	230
TRH C_{29} - C_{36}	mg/kg	240
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	350
TRH >C_{34} -C_{40}	mg/kg	180
Total +ve TRH (C10-C36)	mg/kg	470
Total +ve TRH (>C10-C40)	mg/kg	530
Surrogate o-Terphenyl	%	102

PAHs in Soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
Naphthalene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.5	<0.1	0.1	<0.1	<0.1
Phenanthrene	mg/kg	3.4	0.5	0.9	<0.1	<0.1
Anthracene	mg/kg	0.8	0.1	0.2	<0.1	<0.1
Fluoranthene	mg/kg	4.4	1.0	0.9	<0.1	<0.1
Pyrene	mg/kg	4.1	1.1	0.9	<0.1	<0.1
Benzo(a)anthracene	mg/kg	2.2	0.6	0.4	<0.1	<0.1
Chrysene	mg/kg	1.6	0.4	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	2.3	0.6	0.5	<0.2	<0.2
Benzo(a)pyrene	mg/kg	1.5	0.3	0.3	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.8	0.2	0.2	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	1	0.2	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	24	5.0	5.0	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	2.2	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	2.2	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	2.2	0.6	0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	104	105	102	101

PAHs in Soil		
Our Reference		230507-6
Your Reference	UNITS	BD3/9112019
Depth		-
Date Sampled		09/11/2019
Type of sample		soil
Date extracted	-	12/11/2019
Date analysed	-	13/11/2019
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	0.1
Phenanthrene	mg/kg	3.3
Anthracene	mg/kg	0.8
Fluoranthene	mg/kg	5.5
Pyrene	mg/kg	5.7
Benzo(a)anthracene	mg/kg	3.0
Chrysene	mg/kg	2.2
Benzo(b,j+k)fluoranthene	mg/kg	2.9
Benzo(a)pyrene	mg/kg	1.9
Indeno(1,2,3-c,d)pyrene	mg/kg	0.9
Dibenzo(a,h)anthracene	mg/kg	0.3
Benzo(g,h,i)perylene	mg/kg	1.1
Total +ve PAH's	mg/kg	28
Benzo(a)pyrene TEQ calc (zero)	mg/kg	3.0
Benzo(a)pyrene TEQ calc(half)	mg/kg	3.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	3.0
Surrogate p-Terphenyl-d14	%	102

Organochlorine Pesticides in soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	86	89	85	83

Organophosphorus Pesticides in Soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	86	89	85	83

PCBs in Soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	86	89	85	83

Acid Extractable metals in soil						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Arsenic	mg/kg	<4	<4	5	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	39	28	9	5
Copper	mg/kg	32	<1	4	<1	<1
Lead	mg/kg	20	8	12	5	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	1	7	<1	<1
Zinc	mg/kg	32	2	9	<1	4

Acid Extractable metals in soil			
Our Reference		230507-6	230507-10
Your Reference	UNITS	BD3/9112019	BH1/0.2-0.3 - [TRIPLICATE]
Depth		-	0.2-0.3
Date Sampled		09/11/2019	09/11/2019
Type of sample		soil	soil
Date prepared	-	12/11/2019	12/11/2019
Date analysed	-	12/11/2019	12/11/2019
Arsenic	mg/kg	5	4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	22	11
Copper	mg/kg	5	21
Lead	mg/kg	9	23
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	3	9
Zinc	mg/kg	6	39

Misc Soil - Inorg						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Moisture						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
Moisture	%	9.7	16	11	13	7.8

Moisture		
Our Reference		230507-6
Your Reference	UNITS	BD3/9112019
Depth		-
Date Sampled		09/11/2019
Type of sample		soil
Date prepared	-	12/11/2019
Date analysed	-	13/11/2019
Moisture	%	9.9

Asbestos ID - soils						
Our Reference		230507-1	230507-2	230507-3	230507-4	230507-5
Your Reference	UNITS	BH1/0.2-0.3	BH1/0.9-1.0	BH2/0.4-0.5	BH2/0.9-1.0	BH3/0.5-0.6
Depth		0.2-0.3	0.9-1.0	0.4-0.5	0.9-1.0	0.5-0.6
Date Sampled		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	13/11/2019	13/11/2019	13/11/2019	13/11/2019	13/11/2019
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 35g	Approx. 30g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils		
Our Reference		230507-6
Your Reference	UNITS	BD3/9112019
Depth		-
Date Sampled		09/11/2019
Type of sample		soil
Date analysed	-	13/11/2019
Sample mass tested	g	Approx. 30g
Sample Description	-	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected

Misc Inorg - Soil				
Our Reference		230507-2	230507-4	230507-9
Your Reference	UNITS	BH1/0.9-1.0	BH2/0.9-1.0	BH3/0.9-1.0
Depth		0.9-1.0	0.9-1.0	0.9-1.0
Date Sampled		09/11/2019	09/11/2019	09/11/2019
Type of sample		soil	soil	soil
Date prepared	-	13/11/2019	13/11/2019	13/11/2019
Date analysed	-	13/11/2019	13/11/2019	13/11/2019
pH 1:5 soil:water	pH Units	5.4	5.6	5.7
Electrical Conductivity 1:5 soil:water	µS/cm	79	28	31
Chloride, Cl 1:5 soil:water	mg/kg	<10	<10	10
Sulphate, SO4 1:5 soil:water	mg/kg	120	36	22

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
AT-008	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS.

Method ID	Methodology Summary
Org-012/017	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS and/or GC-MS/MS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			14/11/2019	1	14/11/2019	14/11/2019		14/11/2019	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	91	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	91	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	63	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	84	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	90	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	108	[NT]
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	98	[NT]
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	67	1	104	100	4	93	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			13/11/2019	1	13/11/2019	13/11/2019		13/11/2019	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	118	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	240	220	9	91	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	320	340	6	138	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	118	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	350	360	3	91	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	430	430	0	138	[NT]
Surrogate o-Terphenyl	%		Org-003	89	1	103	104	1	108	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			13/11/2019	1	13/11/2019	13/11/2019		13/11/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	1	0.3	0.2	40	114	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	1	0.4	0.3	29	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	1	0.5	0.3	50	104	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	1	3.4	2.4	34	104	[NT]
Anthracene	mg/kg	0.1	Org-012/017	<0.1	1	0.8	0.6	29	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	1	4.4	3.4	26	112	[NT]
Pyrene	mg/kg	0.1	Org-012/017	<0.1	1	4.1	3.2	25	116	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	2.2	1.4	44	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	1	1.6	1.0	46	106	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	1	2.3	2	14	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	1	1.5	0.98	42	92	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	1	0.8	0.5	46	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	1	0.2	0.1	67	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	1	1	0.7	35	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	107	1	105	105	0	113	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			13/11/2019	1	13/11/2019	13/11/2019		13/11/2019	[NT]
alpha-BHC	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	120	[NT]
HCB	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	108	[NT]
gamma-BHC	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	95	[NT]
delta-BHC	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	116	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	116	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	120	[NT]
Dieldrin	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	124	[NT]
Endrin	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	116	[NT]
Endosulfan II	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	120	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	112	[NT]
Methoxychlor	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	90	1	88	89	1	100	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			13/11/2019	1	13/11/2019	13/11/2019		13/11/2019	[NT]
Dichlorvos	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	116	[NT]
Dimethoate	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	134	[NT]
Fenitrothion	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	90	[NT]
Malathion	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	124	[NT]
Chlorpyriphos	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	75	[NT]
Parathion	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	83	[NT]
Bromophos-ethyl	mg/kg	0.1	AT-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	88	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-012/017	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	90	1	88	89	1	100	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			13/11/2019	1	13/11/2019	13/11/2019		13/11/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	102	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	90	1	88	89	1	100	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	109	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	105	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	10	12	18	112	[NT]
Copper	mg/kg	1	Metals-020	<1	1	32	21	42	107	[NT]
Lead	mg/kg	1	Metals-020	<1	1	20	21	5	107	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	100	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	9	9	0	103	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	32	34	6	108	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Date analysed	-			12/11/2019	1	12/11/2019	12/11/2019		12/11/2019	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	100	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			13/11/2019	[NT]	[NT]	[NT]	[NT]	13/11/2019	[NT]
Date analysed	-			13/11/2019	[NT]	[NT]	[NT]	[NT]	13/11/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sam

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that these sub-samples are indicative of the entire sample.
Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples requested for asbestos testing were sub-sampled from jars provided by the client.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 230507-1 for Cu. Therefore a triplicate result has been issued as laboratory sample number 230507-10.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	73019.03	**Suburb:**	North Sydney	**To:**	Envirolab Chatswood
Project Name:	Science and Sports Building Project	**Order Number**			
Project Manager:	MB	**Sampler:**	KR		
Emails:	matthew.bennett@douglaspartners.com.au				
Date Required:	Standard				
Prior Storage:	☑ Esky	Do samples contain 'potential' HBM?	Yes ☐	No ☑	(If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Combo 3a	TRH/BTEX	pH	EC	SO4	Cl			Notes/preservation
BH1/0.2-0.3	1	09/11/19	S	G	X									
BH1/0.9-1.0	2	09/11/19	S	G	X			X	X	X	X			
BH2/0.4-0.5	3	09/11/19	S	G	X									
BH2/0.9-1.0	4	09/11/19	S	G	X			X	X	X	X			
BH3/0.5-0.6	5	09/11/19	S	G	X									
BD3/9112019	6	09/11/19	S	G		X								
TS/TB	7 8	09/11/19	S	G			X							
BH3/0.9-1.0	9	09/11/19	S	G				X	X	X	X			
														ANZECC PQLs req'd for all water analytes ☐

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 230507
Date Received: 11/11/19
Time Received: 1308
Received by: SD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Metals to Analyse: 8HM unless specified here: N/A

Lab Report/Reference No: 230507

Total number of samples in container: 8 **Relinquished by:** MB **Transported to laboratory by:** Courier

Send Results to: Douglas Partners Pty Ltd **Address:** 96 Hermitage Rd, West Ryde, NSW, 2114 **Phone:** 9809 0666 **Fax:** 9809 4095

Signed: MB **Received by:** Soson Day EL&S 1308 **Date & Time:** 11/11/19

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 230507-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Matthew Bennett
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**73019.03, North Sydney**
Number of Samples	9 soil
Date samples received	11/11/2019
Date completed instructions received	20/11/2019

Analysis Details

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

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

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

Report Details

Date results requested by	25/11/2019
Date of Issue	25/11/2019

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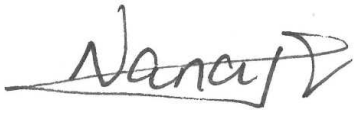
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Josh Williams, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

PAHs in TCLP (USEPA 1311)		
Our Reference		230507-A-1
Your Reference	UNITS	BH1/0.2-0.3
Depth		0.2-0.3
Date Sampled		09/11/2019
Type of sample		soil
pH of soil for fluid# determ.	pH units	10.5
pH of soil TCLP (after HCl)	pH units	2.3
Extraction fluid used	-	1
pH of final Leachate	pH units	6.5
Date extracted	-	22/11/2019
Date analysed	-	23/11/2019
Naphthalene in TCLP	mg/L	<0.001
Acenaphthylene in TCLP	mg/L	<0.001
Acenaphthene in TCLP	mg/L	0.001
Fluorene in TCLP	mg/L	<0.001
Phenanthrene in TCLP	mg/L	0.002
Anthracene in TCLP	mg/L	<0.001
Fluoranthene in TCLP	mg/L	<0.001
Pyrene in TCLP	mg/L	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001
Chrysene in TCLP	mg/L	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001
Total +ve PAH's	mg/L	0.0026
Surrogate p-Terphenyl-d14	%	70

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004. Please note that the mass used may be scaled down from the default based on sample mass available.
Org-012/017	Leachates are extracted with Dichloromethane and analysed by GC-MS and/or GC-MS/MS.

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			22/11/2019	[NT]	[NT]	[NT]	[NT]	22/11/2019	[NT]
Date analysed	-			23/11/2019	[NT]	[NT]	[NT]	[NT]	23/11/2019	[NT]
Naphthalene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	83	[NT]
Acenaphthylene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	81	[NT]
Phenanthrene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	72	[NT]
Anthracene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	80	[NT]
Pyrene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	80	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012/017	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	87	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012/017	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	73	[NT]	[NT]	[NT]	[NT]	76	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sam

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Jessica Hie

To: Jeremy Faircloth; Samplereceipt
Cc: Steven Luong
Subject: RE: Results for Registration 230507 73019.03, North Sydney

From: Matthew Bennett <Matthew.Bennett@douglaspartners.com.au>
Sent: Thursday, 21 November 2019 1:38 PM
To: Jeremy Faircloth <JFaircloth@envirolab.com.au>; Simon Song <SSong@envirolab.com.au>
Subject: RE: Results for Registration 230507 73019.03, North Sydney

230507-A
Due: 25/11/19
2day TAT

Hi Jeremy,

Thanks for that, standard TAT is ok.

Regards,

Matthew Bennett | Geotechnical Engineer
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 8878 0668 | M: 0408 205 579 | E: Matthew.Bennett@douglaspartners.com.au

From: Jeremy Faircloth <JFaircloth@envirolab.com.au>
Sent: Thursday, 21 November 2019 1:27 PM
To: Matthew Bennett <Matthew.Bennett@douglaspartners.com.au>; Simon Song <SSong@envirolab.com.au>
Subject: RE: Results for Registration 230507 73019.03, North Sydney

Apologies Matt,
Id left early and looks like I read it on the way home and not actioned it.
We'll get it booked in for you.

When did you need it by? Std TAT?

Kind Regards,

Jeremy Faircloth | Operations Manager | Envirolab Services Pty Ltd
Great Science. Great Service.
12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 **F** 612 9910 6201
E jfaircloth@envirolab.com.au | **W** www.envirolab.com.au

New sampling bottle provision now available for PFAS and SVOCs in water samples

Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link

From: Matthew Bennett <Matthew.Bennett@douglaspartners.com.au>
Sent: Thursday, 21 November 2019 1:22 PM
To: Jeremy Faircloth <JFaircloth@envirolab.com.au>; Simon Song <SSong@envirolab.com.au>
Subject: RE: Results for Registration 230507 73019.03, North Sydney

Hi Jeremy and Simon,

Just checking that this TCLP testing is scheduled?

Cheers,

Matthew Bennett | Geotechnical Engineer
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 8878 0668 | M: 0408 205 579 | E: Matthew.Bennett@douglaspartners.com.au

From: Matthew Bennett
Sent: Wednesday, 20 November 2019 2:41 PM
To: 'Jeremy Faircloth' <JFaircloth@envirolab.com.au>
Subject: RE: Results for Registration 230507 73019.03, North Sydney

Hi Jeremy,

Can you please undertake TCLP testing for PAH on one sample: BH1/0.2-0.3m.

Regards,

Matthew Bennett | Geotechnical Engineer
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 8878 0668 | M: 0408 205 579 | E: Matthew.Bennett@douglaspartners.com.au

From: Jeremy Faircloth <JFaircloth@envirolab.com.au>
Sent: Monday, 18 November 2019 4:01 PM