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Memorandum

To	Catholic Healthcare Limited c/- Marlon Zunac (CYRE Projects Pty Ltd)		
From	David Holden	**Date**	06 June 2017
Subject	Inspection of BH9- Proposed Residential Aged Care Facility, Marsh Parade, Casula	**Project No.**	85600.00.R.003

Marlon,

In response to Liverpool City Council's recent request for further assessment in the vicinity of Borehole 9 (BH9) due to the asbestos identified at BH9 in the Douglas Partners Pty Ltd (DP) detailed site investigation report (referenced below) for the proposed residential aged care facility at Casula, the following comments and results of DP's recent inspection are provided.

DP's report titled *'Report on Detailed Site investigation, Residential Aged Care Facility, Lang road, Marsh Parade and Hume Highway, Casula'*, dated March 2017, DP ref: 85600.00.R.002.rev2 (DP 2017) observed the presence of a bonded fragment of material in the near surface soils at BH9 (see attached Drawing 1) which was subsequently confirmed to contain chrysotile and amosite asbestos. DP (2017) also reported that the recorded asbestos concentration in the soil sample at BH9 taken between 0.02 m and 0.1 m below ground level (bgl) was below the laboratory reporting limit (LRL) of 0.1 g/kg. Given the field observations and the laboratory results, DP considered that the fragment of asbestos containing material was likely due to either current or past structures on the site which are known to contain asbestos.

It was also noted in DP (2017) that given the thick grass coverage, observations of the site surface were limited. Following recent initial preliminary works on the site, the grass coverage around BH9 has been removed allowing visual observations of the surface in this area. Given this, and following Council's request, DP inspected the area around BH9 on 2 June 2017. The surface and near surface soils (i.e. top 20 mm) in a 3 m radius around BH9 was inspected for asbestos to assess if the fragment previously observed in DP (2017) was part of wider asbestos contamination at the test location or a sporadic fragment from previous/current structures as anticipated based on the field observation and laboratory observation in DP (2017).

Inspection of the surface observed that the grass vegetation was no longer present exposing the underlying brown silty clay topsoil/filling (see photos attached). No asbestos fragments around BH9 were observed. There were a few tile and plastic fragments in the near surface soils (top 20 mm) which may be associated with the demolition works currently being undertaken. Notwithstanding these observations, as a conservative approach two samples (BH9- A and BH9-B) were collected from the near surface soils (0-0.1 m) and analysed for the presence of asbestos fines/friable asbestos.

Results of the laboratory analysis recorded asbestos below the LRL of 0.001% (see laboratory analysis certificate, attached). This is consistent with the site assessment criteria of 0.001% outlined in

Table 7, Schedule B1 of National Environment Protection Council (NEPC) *National Environment Protection (Assessment of Site Contamination) Measure* 1999 (amended 2013, NEPC 2013).

Given the observations and laboratory results of both DP (2017) and those presented above, there does not appear to be widespread asbestos contamination around BH9. The fragment of bonded asbestos identified in DP (2017) at BH9 is considered to be a sporadic fragment associated with past or present structures. Moreover, it is also noted that removal of the near surface soils will be required as part of the development.

The recommendations outlined in DP (2017) are still required to be implemented during the works which include: an unexpected finds protocol; and surface inspection, and if necessary sampling, following demolition of the existing structures and stripping of the grass coverage to assess the presence of asbestos in the site surface and/or filling material which is to be retained on the site.

Limitations

Douglas Partners (DP) has prepared this report for the project at Lang Road, Marsh Parade and Hume Highway, Casula in accordance with DP's proposal dated 30 May 2017 and acceptance received from CYRE Project Pty Ltd on behalf of Catholic Healthcare Ltd on 31 May 2017. The work was carried out under agreed contract between DP and Catholic Healthcare Ltd. This report is provided for the exclusive use of Catholic Healthcare Ltd 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/or their agents.

The results provided in the report are indicative of the surface conditions on the site only at BH9. Surface and 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

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.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives around BH9, there are necessarily parts of the site that have not been sampled and analysed as this is outside the area of investigation. It is therefore considered possible that HBM, including asbestos, is present in other parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present outside BH9.

We trust the above meets your current requirements. If you require anything further please contact the undersigned

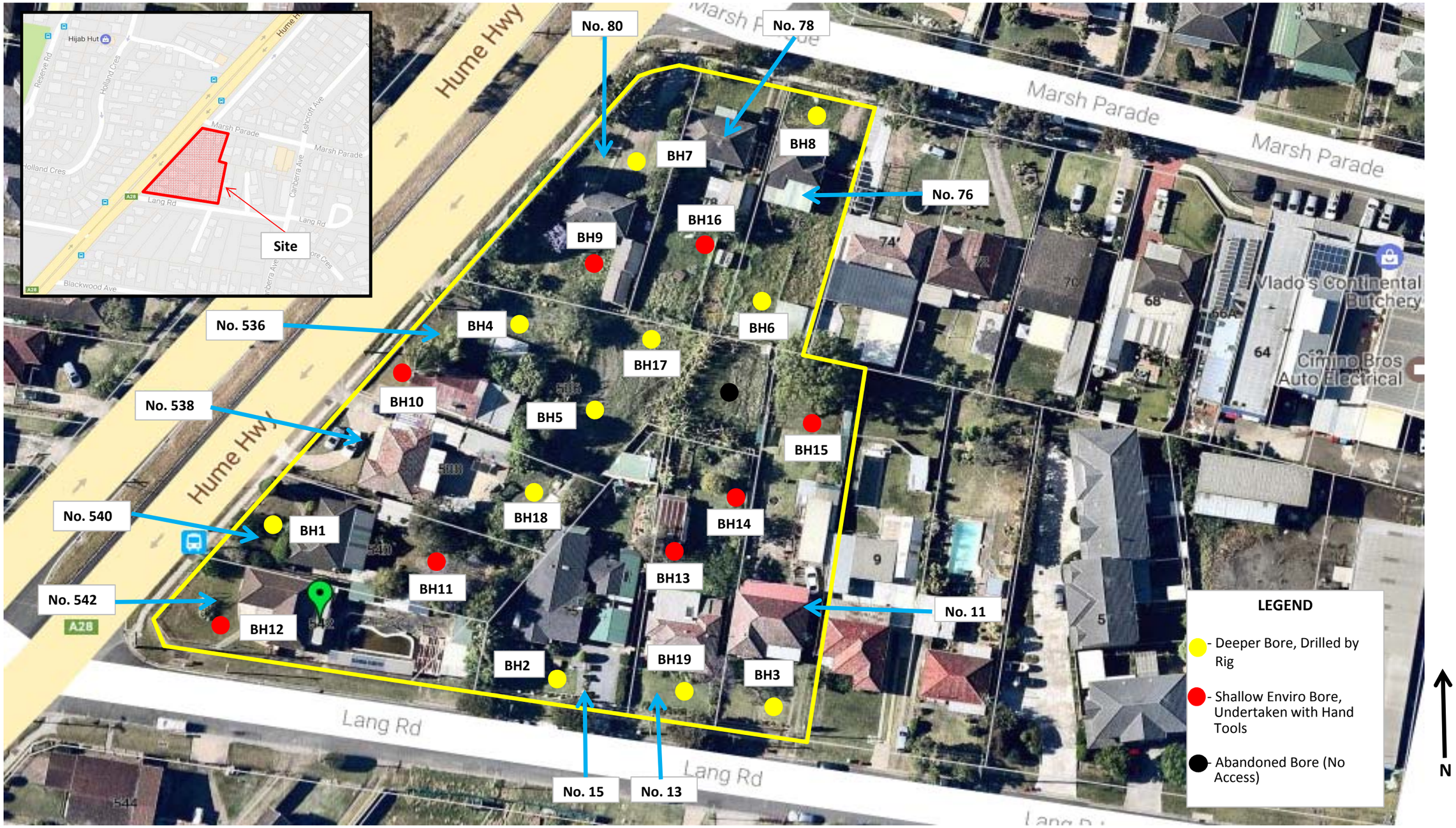
Douglas Partners Pty Ltd

David Holden
Associate

Reviewed by

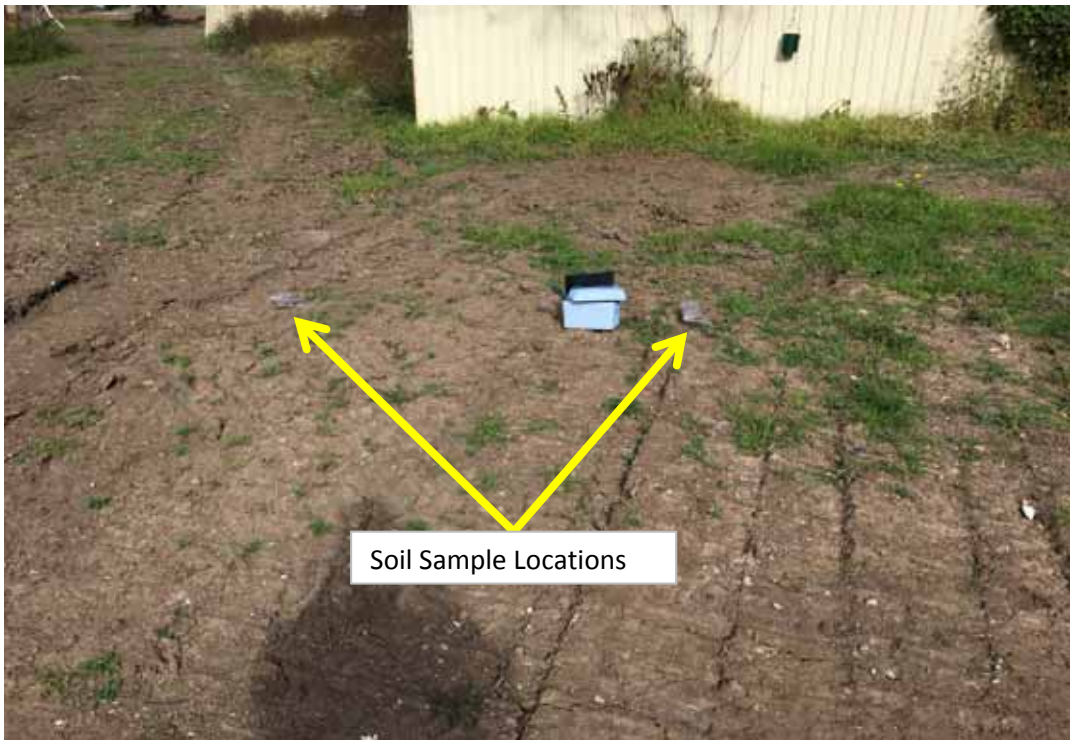
Paul Gorman
Principal

Attachments: Drawing 1
Site Photographs
Laboratory Certificate



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Catholic Healthcare Ltd		TITLE:	**Bore Locations**	PROJECT No: 85600
	OFFICE: Sydney	DRAWN BY: CB		**Residential Aged Care Facility**	DRAWING No: 1
	SCALE: As shown	DATE: 25 Feb 2017		**Lang Road, Marsh Parade and Hume Highway, Casula**	REVISION: B

Photograph 1 - Looking West in the Area of BH9



Photograph 2- Looking South in the Area of BH9

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **Lang Road, Marsh Parade &** **Hume Highway, Casula**	PROJECT: 85600 PLATE No: 1 REV: A
	CLIENT: Catholic Healthcare Ltd	DATE: 2-Jun-17

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 168498

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: David Holden

Sample log in details:

Your Reference:	**85600, Casula**		
No. of samples:	2 Soils		
Date samples received / completed instructions received	02/06/17	/	02/06/17

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: / Issue Date:	6/06/17	/	6/06/17
Date of Preliminary Report:	Not Issued		

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025 - Testing **Tests not covered by NATA are denoted with *.**

Results Approved By:

David Springer
General Manager

Asbestos ID - soils NEPM			
Our Reference:	UNITS	168498-1	168498-2
Your Reference	---------- -	BH9-A	BH9-B
Depth	----------	0.0-0.1	0.0-0.1
Date Sampled		2/06/2017	2/06/2017
Type of sample		Soil	Soil
Date analysed	-	5/06/2017	5/06/2017
Sample mass tested	g	704.72	778.7
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibre detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibre detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–
FA and AF Estimation*	g	–	–
FA and AF Estimation*[#2]	%(w/w)	<0.001	<0.001

Method ID	Methodology Summary
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
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.

Report Comments:

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.
This is reported outside our scope of NATA accreditation.

Asbestos ID was analysed by Approved Identifier:	Lucy Zhu
Asbestos ID was authorised by Approved Signatory:	Paul Ching

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

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

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

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client:	Douglas Partners	**Project Number**	85600	**To:**	Envirolab Services
Contact Person:	David Holden	**Project Name:**	Casula	**Contact Person:**	Aileen Hie
Project Mgr:	David Holden	**PO No.:**		**Address:**	12 Ashley Street
		lab Quote No. :			Chatswood NSW 2068
Address:	96 Hermitage Road	**Date results required:**	48hr	**Phone:**	02 9910 6200
	West Ryde NSW 2114	**Or choose:**		**Fax:**	02 9910 6201
		Note: Inform lab in advance if urgent turnaround is required - surcharges apply		**Email:**	ahie@envirolab.com.au
Phone:	9809 0666 **Mob:** +61413886051	**Report format: esdat / PDF / Excel**		**Laboratory Report No:**	
Email:	david.holden@douglaspartners.com.au	**Comments:**		**Lab Comments:**	

Sample information						Tests Required											Comments
Lab Sample ID	**Field Sample ID**	**Depth**	**Date sampled**	**Container Type**	**Type of sample**	Asbestos-NEPM AF/FA											**Provide as much information about the sample as you can**
1	BH9-A	0-0.1	2/06/2017	BAG	soil	✓											
2	BH9-B	0-0.1	2/06/2017	BAG	soil	✓											

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 168498

Date Received: 02-06-17
Time Received: 17:45
Received by: NR
Temp: Cool/Ambient
Cooling: ~~Ice/Icepack~~
Security: Intact/Broken/None

Relinquished by: Douglas Partners		**Sample Receipt**	ECS	***Lab use only:***
Courier (by whom)	HUNTER	**Received by (Company):**	RLJ	**Samples Received: Cool or Ambient (circle one)**
Condition of Sample at dispatch Cool or Ambient (circle)		**Print Name:**	Nicholas Roberts	**Temperature Received at:** (if applicable)
Temperature (if Applicable):		**Date & Time:**	02-06-17	**Transported by: Hand delivered / courier**
Print Name:	~~Matthew Hyde~~ DAVID HOLDEN	**Signature:**		
Date & Time:	~~7/09/2016 1200h~~ 2/6/17 14:00			**FCM = FIBRE CEMENT MATERIAL** **VFT = VINYL FLOOR TILE**
Signature:				**VFS = VINYL FLOOR SHEET**

About this Report

Douglas Partners

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.