Appendix F – Soil Validation Report

Franco Frino
Senior Manager - Project Management
Asset Management Branch
Community Services Directorate,
GPO Box 158
Canberra ACT 2601

Thursday, 19 September 2013

Dear Franco,

Re: 7692 – Surface Soil Validation Assessment, 25 Bradfield Street, Downer.

Background

During 2011 it was identified that the house located at 25 Bradfield St, Downer (herein referred to as 'the site') contained loose asbestos (amosite) insulation throughout the house.

Through 2013 the loose asbestos insulation was removed from the house and the house demolished. This validation assessment reports the finding of surface soil sampling undertaken following the demolition of the house.

Objective

The objective of this validation assessment is to validate the surface of the material on the site.

Scope of Works

The scope of works undertaken by Robson during the validation works included the following:

- Provision of airborne fibre monitoring services during the remedial works;
- Visual clearance by a Class 'A' Asbestos Assessor and validation soil sampling in the remediated areas on site;
- Submission of samples to a National Association of Testing Authorities (NATA) accredited laboratory for asbestos analysis;
- Preparation of this report for the Community Services Directorate, detailing the findings and recommendations of the validation works.

Assessment Criteria

The validation works were undertaken in accordance with the Western Australia Department of Health (2009) '*Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*'.

In essence, if asbestos fragments or potentially asbestos impacted fill is not visually identified on the surface of the natural material and the validation soil samples are negative for the presence of asbestos, then the area will be considered to have been successfully validated (with regards to asbestos).

Sampling Methodology

On completion of the removal of asbestos impacted fill material from an area of the site the area was demarcated. The area was then inspected by a Class 'A' Asbestos Assessor from Robson to assess for signs for asbestos contamination

Once the area had been assessed as clear of visible ACM, soil samples would be collected in a grid pattern across the demarcated area in accordance with the Western Australia Department of Health (2009) '*Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*' as outlined below:

- At least one (1) 10 L sample would be collected from the surface of the natural material on an approximate grid of 13 m by 13 m and discretionary samples from other suspect spots as required. The samples would be manually screened onsite through a less than (<) 7 millimetre (mm) sieve, (as per WA Guidelines Table 5: Summary of Test Pit/Trenching Sampling Recommended Method);
- Should any ACM be present in the sample it will be weighed to calculate the asbestos soil concentration for the sample, using the formula shown below (WA Guidelines Section 4.1.7)

$$\%\text{Soil Asbestos} = \frac{\%\text{Asbestos Content} \times \text{ACM(kg)}}{\text{Soil Volume (L)} \times \text{Soil Density (kg/L)}}$$

  Where it is assumed that:

  % Asbestos Content (within asbestos cement materials) = 15% and Soil Density (sandy soil) = 1.65kg/L;

- Validation samples would then be collected and placed in a new plastic zip locked bag for each sample. The plastic zip locked bag would be clearly marked with the sample identification number, job project number and date of sampling. The plastic zip lock bags would then be secured in a sealed ambient temperature (preservation of asbestos in soil not required) esky with chain of custody (COC) forms for transport to a NATA registered laboratory for analysis.

Clearance Inspection and Sampling

Following the remedial works Robson was engaged to undertake a clearance inspection of the contaminated zone. The clearance inspection comprised a thorough visual assessment of the contaminated zone in which no asbestos containing materials (ACM) were identified. Following the inspection ten (10) soil samples were collected and sent to Robsons Laboratory for asbestos analysis. Photographs showing the site are presented in **Appendix 1**. The samples were collected in general accordance ACT EPA endorsed WA DOH (2009) '*Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*'. No ACM were observed within the soil samples.

Results

The results of the soil sampling are presented overleaf in **Table 1**. The laboratory report is presented in **Appendix 2**.

Table 1: Results of soil sampling

Sample Number	Location and Description	Sample Composition	Analysis
SS1	Refer to Figure 1	Yellow brown clayey silt	No asbestos detected
SS2	Refer to Figure 1	Brown silty clay	No asbestos detected
SS3	Refer to Figure 1	Brown silty clay	No asbestos detected
SS4	Refer to Figure 1	Brown silty clay	No asbestos detected
SS5	Refer to Figure 1	Brown silty clay	No asbestos detected
SS6	Refer to Figure 1	Brown silty clay	No asbestos detected
SS7	Refer to Figure 1	Brown silty clay	No asbestos detected
SS8	Refer to Figure 1	Mottled brown yellow silty clay	No asbestos detected
SS9	Refer to Figure 1	Brown silty clay	No asbestos detected
SS10	Refer to Figure 1	Brown clay	No asbestos detected
SSQC1	Refer to Figure 1	Yellow brown clayey silt	No asbestos detected

Conclusion and Recommendations

A thorough visual inspection was undertaken of the site following the remedial works. The visual inspection revealed that building materials associated with the house and the vegetation around the house had been removed from the remedial area and that no contamination or builders waste associated with the demolition works were observed.

Based on the results of the clearance inspection and the laboratory analysis it is considered that the site has been successfully validated.

It is recommended that a copy of the report is issued to the ACT EPA for their review.

For an on behalf of Robson Environmental Pty Ltd

Ewan Dickenson
Hazardous Materials Consultant
Class A Asbestos Assessor (ACTPLA)
Licence Number 20121558

Appendix 1 - Photographs

Photograph 1: View of the site to the south east

Photograph 2: View of the site to the north west

Appendix 2 - Certificate of Analysis

Unit 1
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Effective Environmental Solutions

Fibre Identification Certificate of Analysis
Soil Samples

Report Number: 7692 Date of Report: 16.09.2013 Samples Taken by: Robson Environmental Page 1 of 2

Client Details		Laboratory Details	
Client:	D Group	Address:	140 Gladstone Street, Fyshwick, Canberra 2609
Attention:	Chris Herrings	Manager:	Gerard Keane
Received:	Friday, 13 September 2013	Telephone:	02 6239 5656
Client Reference:	25 Bradfield Street, Downer, ACT, 2602	Fax:	02 6239 5669
Email/Tel. No:	N/A	Email:	fbreid@robsonenviro.com.au

Test Specification(s) Employed: **In-House Documentation Procedure No.2 based on *AS 4964-2004* and the analytical procedures and reporting recommendations in Western Australia *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia - May 2009***

Methodology Summary

Samples of material are examined to determine the presence of asbestos fibres using *AS 4964 (2004)* & In-House Procedure No.2 i.e. Qualitative identification of chrysotile, amosite and crocidolite in soil samples by **Polarised Light Microscopy (PLM)**, in conjunction with **Dispersion Staining (DS)**. Unequivocal identification of asbestos minerals present is made by assessing fibre properties to see whether the values are typical and consistent with published data. This provides a reasonable degree of certainty to determine whether a fibre under investigation is asbestiform or not. Careful application of the test procedure provides sufficient diagnostic clues to allow unequivocal identification of asbestos types, and so, to determine whether a sample contains asbestos or not. If sufficient diagnostic clues are absent, then positive identification of fibrous asbestos is not possible.

Client Supplied Samples

Robson Environmental is not responsible for the accuracy or competence of sampling carried by third parties. Sample location(s) and/or sample type(s) of third party samples delivered to the laboratory are given by the client at the time of delivery. Under these circumstances Robson Environmental cannot be held responsible for the interpretation of the results shown. When the test certificate indicates that soil samples were taken by the client, they are outside the scope of our NATA Accreditation for sampling. Robson Environmental takes responsibility of information reported only when a staff member takes the sample(s).

Reporting of Results

'Asbestos Detected': Asbestos detected by **Polarised Light Microscopy (PLM), including Dispersion Staining (DS)**
'No Asbestos Detected': No Asbestos detected by **PLM**, including **DS** reported as **'No Asbestos found at LOR of 0.1g/kg'**
'UMF Detected': Mineral fibres of unknown type detected by **PLM**, including **DS**. Confirmation by another independent analytical technique may be necessary
'Respirable Fibres Detected' or **'Respirable Fibres Not Detected'**: "respirable fibre" or "fibre asbestos fibre" is defined as <3 µm wide x >5 µm long

Limit of Detection (LOD) & Limit of Report (LOR)

Known limitations of the test procedure using **Polarised Light Microscopy (PLM)** are:

- **PLM** is a qualitative technique only.
- It does not cover identification of airborne or water borne asbestos.
- The less encountered asbestos mineral fibres actinolite, anthophyllite and tremolite exhibit a wide range of optical properties that preclude unequivocal identification by **PLM** and **DS**. Thus the method is used to positively identify the three major asbestos minerals: amosite (brown), chrysotile (white) and crocidolite (blue).
- Valid identification requires that the sample material contains a sufficient quantity of the unknown fibre to enable the optical properties to be used in the case. **PLM** and **DS** which has a calculated practical detection limit of 0.01-0.1% equivalent to 0.1-1g/kg (*AS/Guide 2004 App A6*).
- **Limit of Reporting (LOR) for asbestos in soil = 0.1g/kg**

Results relate only to the sample(s) submitted for testing. Test report must not be reproduced except in full. Test report is consistent with the analytical procedures and reporting recommendations in Western Australia *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia - May 2009*.
Estimated Asbestos Concentration is in relation to 0.001 % weight for weight (w/w) asbestos for **Fibrous Asbestos (FA)** and **Asbestos Fines (AF)**.
Test report issued in accordance with NATA's accreditation requirements and compliance with ISO/IEC 17025.

Gerard Keane
Approved Identifier

NATA
No. 3161

Gerard Keane
Approved Signatory

Document issued in accordance with NATA's accreditation requirements and without alterations or erasure and must not be duplicated unless in full.

Fibre Identification Certificate of Analysis

Laboratory Report Number: 7692 **Analyst:** Ged Keane **Page** 2 of 2

Sample No	Sample mass (dry) g	Physical Structure	Sample Location	Asbestos Detected	Trace Analysis	Analysis of Filtered Content
7692-SS1	608	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS2	630	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS3	656	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS4	633	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS5	580	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS6	735	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS7	664	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS8	500	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS9	725	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SS10	721	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected
7692-SSQC1	723	Soil	25 Bradfield St Downer	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected

Gerard Keane
Approved Identifier

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No. 3181

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Appendix 3 – Site Plan