

# D1 Supplementary Asbestos Assessment

*Douglas Partners*



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**Douglas Partners**  
Geotechnics • Environment • Groundwater

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WFY:jlb  
Project 71102.02  
19 July 2010

Dellara Pty Ltd  
Suite 2, Level 9  
171 Clarence Street  
**ORCHARD HILLS NSW 2748**

**Attn: Mr Rick Miller**

**By e-mail: rodericksyd@ozemail.com.au**

Dear Sirs

**FACTUAL LETTER REPORT  
SUPPLEMENTARY ASBESTOS ASSESSMENT  
WASTE AND RESOURCE MANAGEMENT FACILITY  
ORCHARD HILLS**

**1. INTRODUCTION**

This letter report presents the findings of an investigation into the presence of asbestos containing materials (ACM) within the eastern bund wall of the site at Orchard Hills Waste and Resource Management Facility. The area of investigation as shown on Drawing 1 attached comprises part of a larger land parcel formerly occupied by a non-operational quarry. The supplementary assessment was commissioned by Mr Rick Miller of Dellara Pty Ltd.

A Preliminary *In Situ* Waste Classification assessment was previously undertaken by DP at the larger site in August 2009 and the findings were presented in *Report on Preliminary In Situ Waste classification Assessment, Erskine Park Quarry, Patons Lane, Orchard Hills*, reference 71102.02, dated 7 August 2009. Asbestos (chrysotile) was detected embedded in plaster fragments in the near surface filling material (0 - 0.3 m) at bore location BH12 located within the eastern bund wall of the site. The source of asbestos contamination in this sample was considered likely to be associated with the presence of construction and demolition (C&D) waste buried in the bund walls.

*The Waste Classification Guidelines* (NSW DECC, 2008, revised 2009) defines asbestos waste as 'any waste that contains asbestos' and is classified therein as 'Special Waste'. The approximate vertical and horizontal distribution of Special Waste in the bund walls as identified in the August 2009 report by DP is shown on Figure 3 attached hereto.

It should be noted that the depiction of the Special Waste materials shown on Figure 3 as extracted from DP's August 2007 report is indicative only. The August 2009 report recommended that further step-out sampling be undertaken to examine the lateral and vertical extent of Special Waste.

The purpose of the current assessment was to undertake additional testing in the vicinity of bore location BH12 extending towards BH11 and BH13 in order to better define the degree of asbestos contamination and likely extent of Special Waste in this area.

## 2. SCOPE OF WORKS

The scope of works comprised the following:

1. Set out eight step-out sampling locations in the vicinity of BH 12;
2. Excavate test pits using a small mechanical excavator to a depth of 1.5 m;
3. Collect soil/fill samples at intervals based on field observations, including signs of contamination;
4. Photograph and log test pit conditions;
5. Despatch 14 selected soil samples, a fibre-cement sample and a ceramic tile sample to a NATA accredited laboratory for asbestos analysis;
6. Prepare a factual letter report including an assessment of the extent of the contaminated material detected and general recommendations for further work; and
7. Store remaining soil samples, not sent for contaminant analysis, for a period of one month pending the need for additional testing and evaluation.

## 3. FIELD OBSERVATIONS

Eight test pits were excavated on 31 May 2010 as shown on Drawing 1 attached.

Soil samples were collected at broadly regular depth intervals, at changes in the strata/materials observed or upon signs of contamination. Fibre cement fragments (possibly containing asbestos) were observed in Test Pits 2 - 8 at various depths. Details of the soil conditions encountered during the course of the investigation are shown on the Test Pit Report Sheets, attached.

The general sequence of materials observed during testing comprised C&D waste mixed with reworked (*ex situ*) natural clay and shale in all test pits. C&D materials consisted of plaster debris, roof and ceramic tile fragments, concrete, timber, brick, glass, polystyrene, slag, marble fragments and sections of plastic pipe, ceramic pipe and metal pipe.

In summary, small amounts of C&D waste were observed in Test Pits 1, 2, 3 and 4; whilst a higher proportion of C&D waste was observed in Test Pits 5, 6, 7 and 8, refer to Photos 1-8, attached.

Table 1 summarises the frequency of fibre-cement fragments observed in each test pit during the current investigations.

**Table 1 – Observed Fibre-cement Fragments in Each Test Pit Location**

Sampling Location	Depth (m)	No. of fibre-cement fragments observed	Typical Fragment Dimensions (mm)
TP1	-	No fibre-cement fragments observed	-
TP2	1	2	50 x 10
TP3	0.5	8	50 x 50
	1.2		
TP4	1.3	1	60 x 60
TP5	1	4	50 x 50
TP6	1.3	2	90 x 40
TP7	1	3	50 x 50
	1.5		
TP8	1.3	4	50 x 50

Fibre cement fragments were observed in all test pits except Test Pit 1. The dimensions of fibre-cement fragments generally range from 50 x 10 mm (Photo 10) to 90 x 40 mm (Photo 9). It should be noted that the observations made in Table 1 do not necessarily reflect the analytical presence of fibres in the matrix as fibres are generally more difficult to visually identify during fieldwork than are fibre-cement fragments.

#### 4. ANALYTICAL RESULTS

A summary of the analytical results for asbestos is presented below. The laboratory reports and chain-of-custody information are attached hereto.

**Table 2 – Analytical Results**

Test Pit ID	Filling Depth (m)	Analytical Results	Corresponding Observations of FCF
1	0.3-0.5	No asbestos detected	No fibre-cement fragments observed
1	0.8-1.0	No asbestos detected	No fibre-cement fragments observed
2	0.8-1.0	<b>Chrysotile asbestos detected in fibres</b>	<b>Fibre-cement fragments observed</b>
2	1.3-1.5	No asbestos detected	No fibre-cement fragments observed
3	0.4-0.5	No asbestos detected	<b>Fibre-cement fragments observed</b>
3	1.3-1.5	No asbestos detected	<b>Fibre-cement fragments observed</b>
4	1.3-1.5	No asbestos detected	<b>Fibre-cement fragments observed</b>
5	0.8-1.0	No asbestos detected	<b>Fibre-cement fragments observed</b>

Test Pit ID	Filling Depth (m)	Analytical Results	Corresponding Observations of FCF
5	1.3-1.5	Chrysotile asbestos detected in fibres	No Fibre-cement fragments observed
6	1.3-1.5	Chrysotile asbestos detected in fragments of fibro plaster cement	Fibre-cement fragments observed
6	1.3-1.5 (fibre-cement fragment analysed only)	Chrysotile asbestos detected in a fragment of a fibre cement material	Fibre-cement fragments observed
7	0.8-1.0	No asbestos detected	Fibre-cement fragments observed
7	0.8-1.0 (ceramic tile fragment analysed only)	No asbestos detected	Fibre-cement fragments observed
7	1.3-1.5	No asbestos detected	Fibre-cement fragments observed
8	0.3-0.5	Chrysotile asbestos detected in fibres	No Fibre-cement fragments observed
8	1.3-1.5	Chrysotile and Amosite asbestos detected in fragments of fibre cement	Fibre-cement fragments observed

## 5. DISCUSSION AND CONCLUSIONS

Based on the previous and current observations and testing, the eastern bund wall appears to have been constructed in an uncontrolled manner with highly variable subsurface conditions generally comprising C&D waste mixed with reworked (*ex situ*) natural clay and shale.

The amount of building rubble within the C&D waste observed during both the previous and current investigations appears to be generally increasing toward the northern portion of the bund wall.

C&D waste and fibre-cement fragments were observed in all of the test pits with the exception of Test Pit 1. Sixteen samples were analysed for asbestos. As shown in Table 2, asbestos fibres (chrysotile in all cases and amosite in one case) were detected in five of the soil samples tested (2/0.8-1.0, 5/1.3-1.5, 6/1.3-1.5, 8/0.3-0.5 and 8/1.3-1.5).

One selected sample of fibrous cement from Test Pit 8 was analysed for asbestos fibres and was found to contain chrysotile asbestos. All other fibre-cement fragments observed in the field and noted in Table 1 are also considered likely to contain asbestos indicating that all test pits except TP1 are asbestos bearing to a greater or lesser extent.

The current assessment indicates that the lateral and vertical extent of asbestos contamination (or Special Waste) is at least as extensive as previously advised in DP's August 2009 report and may extend beyond the boundary of the previously identified Special Waste (asbestos) zone originally shown on Figure 3 (extracted from the August 2009 report), although no asbestos was positively identified in bores BH 11 and BH 13 from the previous investigations.

It should be also noted that the current investigation is limited to the area within the vicinity of BH12 and limited by bores BH11 and BH13 as marked in Drawing 1 and does not extend beyond this area.

On this basis the current testing confirms that the extent of Special Waste is, at least, broadly similar to that delineated in the previous DP report dated August 2009.

## 6. LIMITATIONS

Douglas Partners (DP) has prepared this factual letter report for the supplementary asbestos assessment at Orchard Hills Waste and Resource Management Facility in accordance with DP's e-mail dated 31 May 2010 and acceptance received from Mr Andrew Drury also dated 31 May 2010. The work was carried out under DP Conditions of Engagement. This factual letter report is provided for the exclusive use of Dellara Pty Ltd for the specific project and purpose as described in the letter 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.

The results provided in the report are considered to be indicative of the sub-surface conditions on the site only to the depths investigated at the specific sampling and/or testing locations, and only at the time the work was carried out. DP's advice may be based on observations, measurements, tests or derived interpretations. The accuracy of the advice provided by DP in this report is limited by unobserved features and variations in ground conditions across the site in areas between test locations and beyond the site boundaries or by variations with time. The advice may be limited by restrictions in the sampling and testing which was able to be carried out, as well as by the amount of data that could be collected given the project and site constraints. Actual ground conditions and materials behaviour observed or inferred at the test locations may differ from those which may be encountered elsewhere on the site. Should variations in subsurface conditions be encountered, then additional advice should be sought from DP and, if required, amendments made.

This report must be read in conjunction with the attached "Notes Relating to This Report" and any other attached explanatory notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions from review by others of this report or test data, which are not otherwise supported by an expressed statement, interpretation, outcome or conclusion stated in this report. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

Yours sincerely

**DOUGLAS PARTNERS PTY LTD**



**Wen-Fei Yuan**  
Environmental Scientist

Reviewed by:

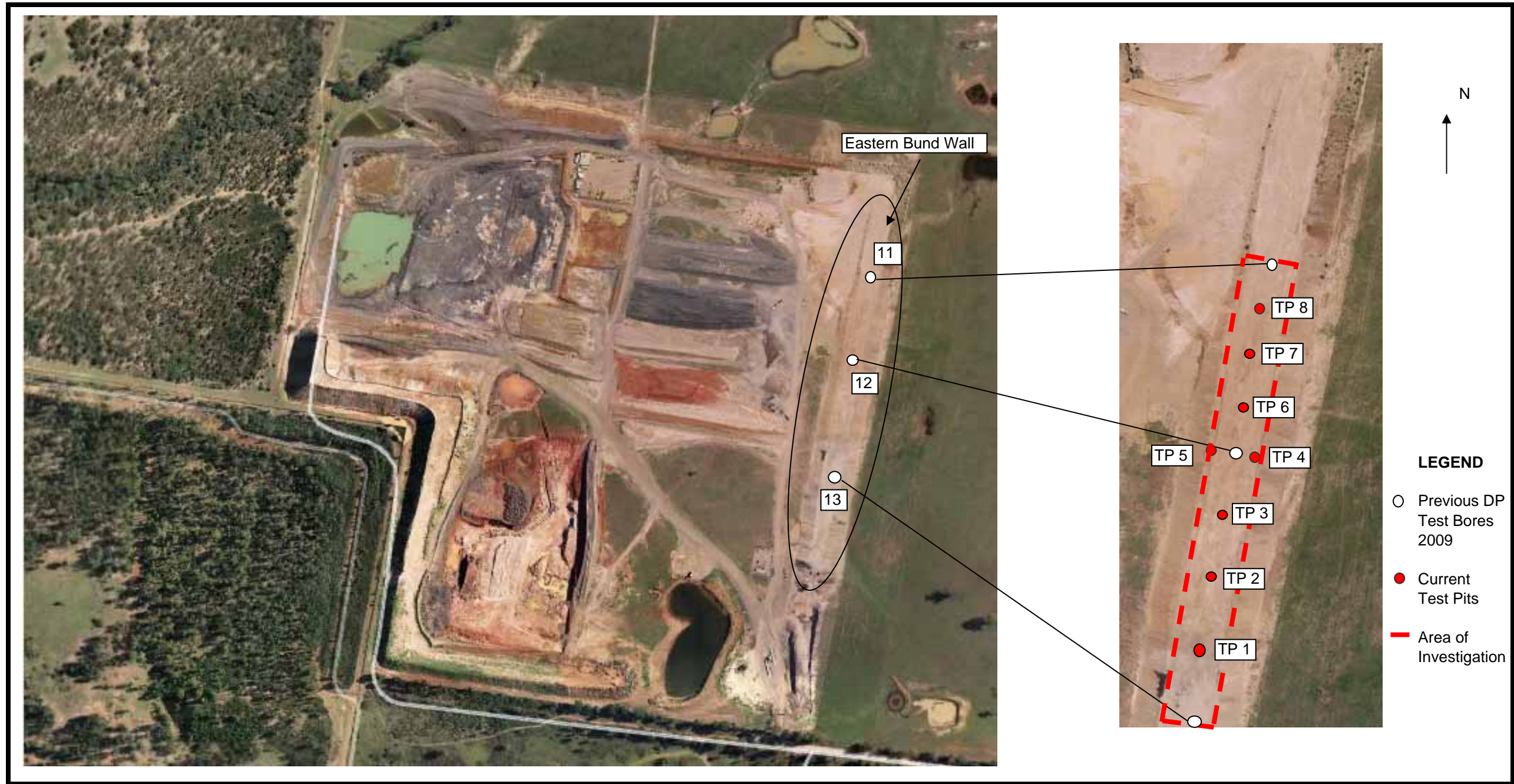


**J M Nash**  
Principal

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**ATTACHMENT**  
*Drawing*

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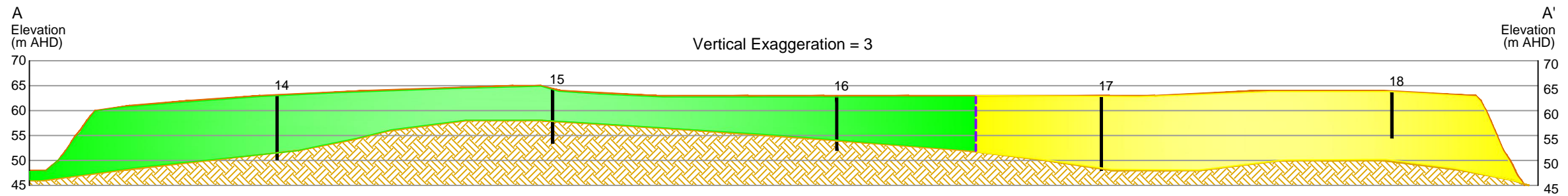
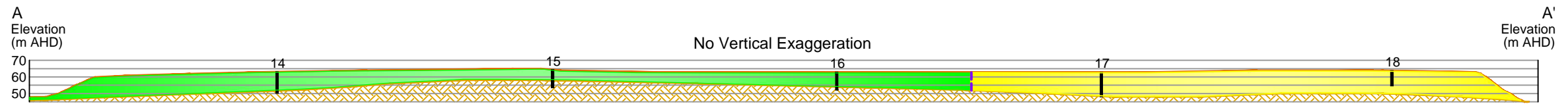


<p>Supplementary Asbestos Assessment          Orchard Hills Waste and Resource Management Facility          Dellara Pty Ltd</p>	<p>Project          71102.02</p>	<p>June          2010</p>	<p>Drawing          1</p>
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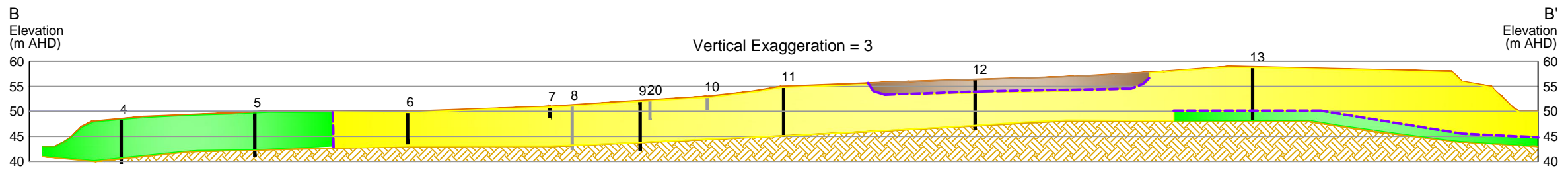
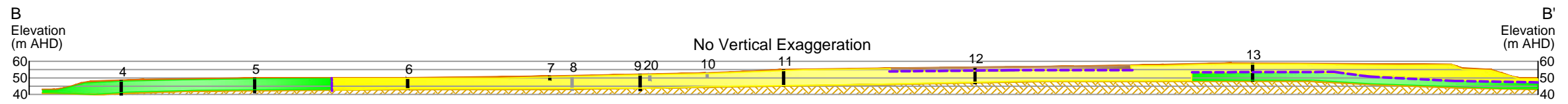
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**ATTACHMENT**  
**Figure 3**  
**(extracted from DP's August 2009 report)**

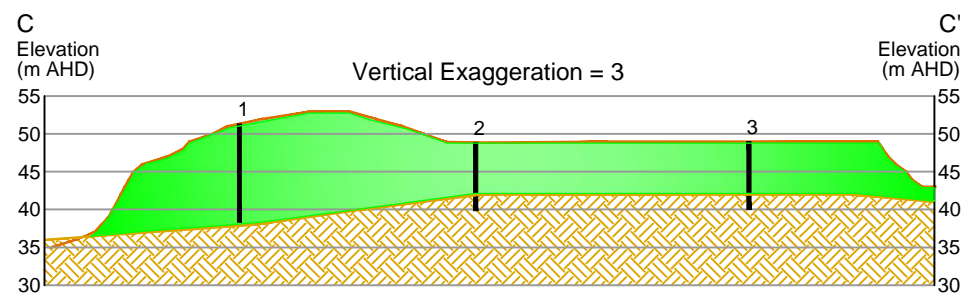
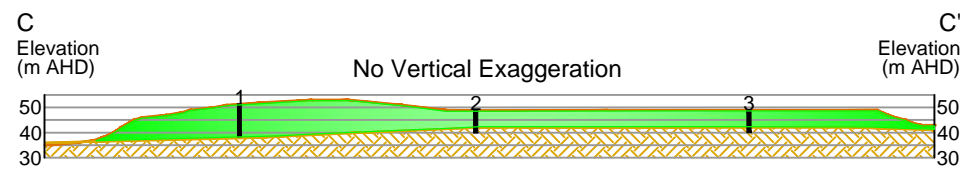
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Southwestern and Southern Bund Wall



Eastern and Northeastern Bund Wall



Northwestern Bund Wall

- REFERENCE**
- Project Site Boundary
  - Natural Ground Level
  - Bund Wall Upper Surface
  - Drill Hole (and reference)
  - General Solid Waste (GSW)
  - Possible GSW (may contain traces of asbestos)
  - Special Waste-Asbestos (SW)
  - Indicative Boundary Between Material Types
- A-A' Section Lines  
 B-B' Section Lines  
 C-C' Section Lines

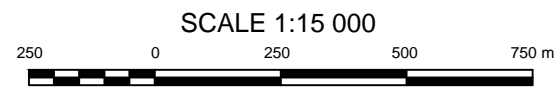
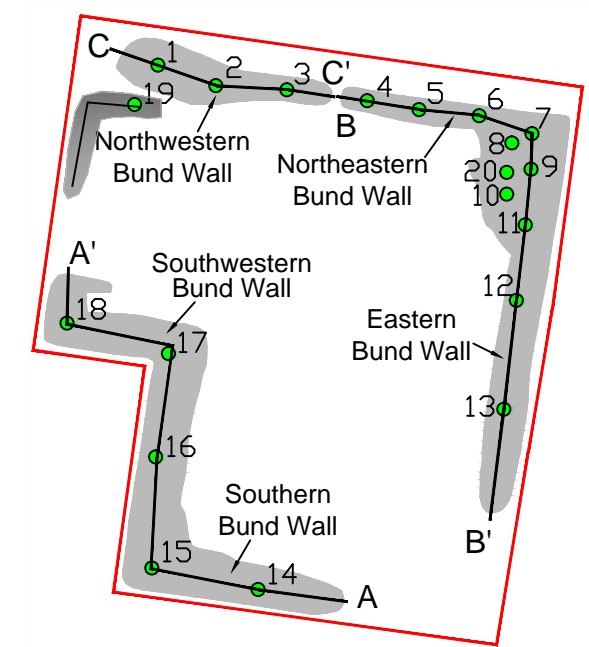


Figure 3  
 BUND WALL SECTIONS

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***ATTACHMENT***  
***Photographs 1 - 10***

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PHOTO 1: Test Pit 1



PHOTO 2: Test Pit 2



PHOTO 3: Test Pit 3



PHOTO 4: Test Pit 4



PHOTO 5: Test Pit 5



PHOTO 6: Test Pit 6



PHOTO 7: Test Pit 7



PHOTO 8: Test Pit 8



PHOTO 9: A fibre-cement fragment found in TP6 between 1.3 and 1.5 m. Dimension: 90 x 40 mm

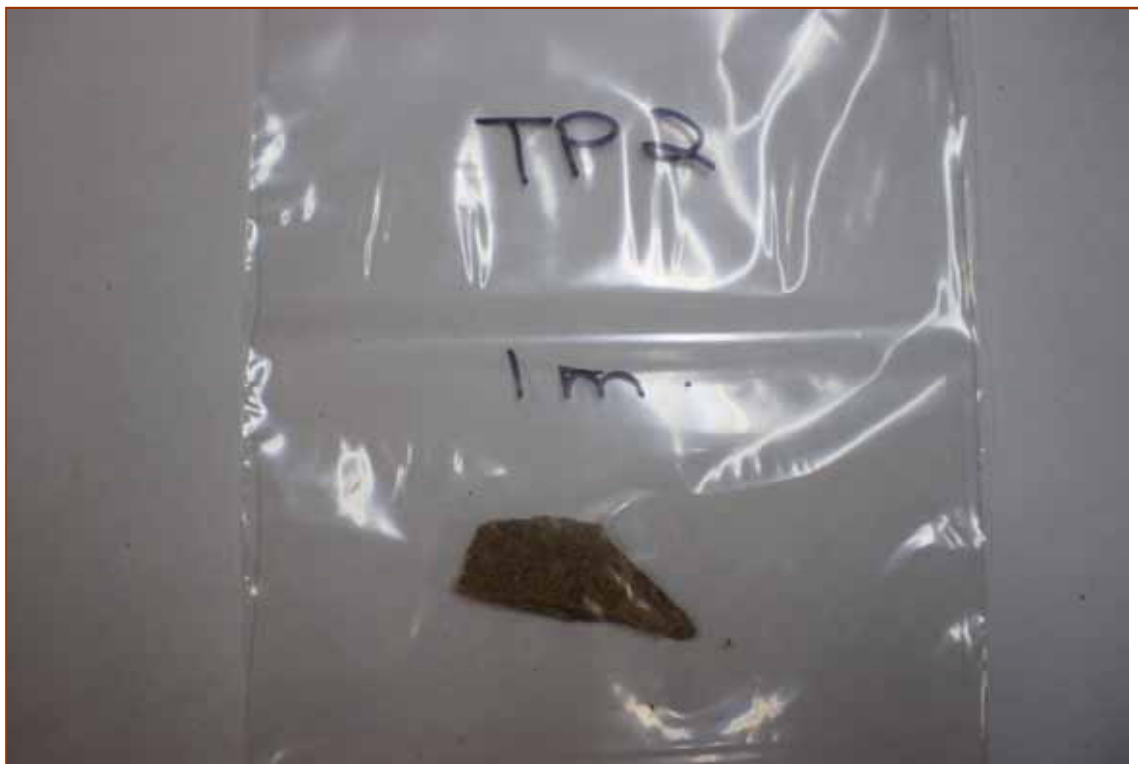


PHOTO 10: A fibre-cement fragment found in TP2 at 1 m. Dimension: 50 x 10 mm

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***ATTACHMENT***  
***Test Pit Logs***

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# GRAPHIC SYMBOLS FOR SOIL & ROCK

## SOIL

	BITUMINOUS CONCRETE
	CONCRETE
	TOPSOIL
	FILLING
	PEAT
	CLAY
	SILTY CLAY
	SILT
	SANDY CLAY
	GRAVELLY CLAY
	SHALY CLAY
	CLAYEY SILT
	SANDY SILT
	SAND
	CLAYEY SAND
	SILTY SAND
	GRAVEL
	SANDY GRAVEL
	COBBLES/BOULDER
	TALUS

## SEDIMENTARY ROCK

	BOULDER CONGLOMERATE
	CONGLOMERATE
	CONGLOMERATIC SANDSTONE
	SANDSTONE FINE GRAINED
	SANDSTONE COARSE GRAINED
	SILTSTONE
	LAMINITE
	MUDSTONE, CLAYSTONE, SHALE
	COAL
	LIMESTONE

## SEAMS

	SEAM >10mm		SEAM <10mm
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## METAMORPHIC ROCK

	SLATE, PHYLLITE, SCHIST
	GNEISS
	QUARTZITE

## IGNEOUS ROCK

	GRANITE
	DOLERITE, BASALT
	TUFF
	PORPHYRY



# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP1  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)									
				Type	Depth	Sample	Results & Comments		5	10	15	20						
		FILLING - brown grey, shaly clay filling with some shale and ironstone boulders	X	D	0.0													
			X		0.2													
			X		0.3													
			X	D														
			X		0.5													
		0.8m: trace of ceramic pipe and marble fragments	X		0.8													
			X	D														
1	1.0	FILLING - red brown mottled grey, clay with some shale/ironstone fragments	X		1.0													
			X		1.3													
			X	D														
	1.5	Pit discontinued at 1.5m	X		1.5													

RIG: Excavator

LOGGED: WFY

WATER OBSERVATIONS: No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	pp Pocket penetrometer (kPa)	PID Photo ionisation detector	
D Disturbed sample	S Standard penetration test	PL Point load strength Is(50) MPa	
B Bulk sample	V Shear Vane (kPa)	▷ Water seep	≡ Water level
U Tube sample (x mm dia.)			
W Water sample			
C Core drilling			

CHECKED
Initials:
Date:



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# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP2  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.0	FILLING - red brown mottled grey, clay with some shale and shaly clay and rootlets, stiff		D									
	0.2												
	0.3	0.3m: with trace of plastic and sandstone fragments											
	0.4			D									
	0.5												
	0.6	0.6m: with trace of brick fragments, concrete, limestone fragments and roof tile											
	0.8	0.8m: with some sandstone fragments											
	1.0	1.0m: with trace of brick, concrete fragments, slag and fibre-cement fragments*		D									
	1.3												
	1.5	1.5m: metal pipe, ceramic pipe and brick		D									
	1.5	Pit discontinued at 1.5m											

**RIG:** Excavator

**LOGGED:** WFY

**WATER OBSERVATIONS:** No free groundwater observed

**REMARKS:** \*2 small pieces of fibre-cement fragments found - sample taken

- Sand Penetrometer AS1289.6.3.3  
 Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U <sub>t</sub>	Tube sample (x mm dia.)	PL	Point load strength 1s(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP3  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RIG	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
		FILLING - brown grey, silty clay filling with some shale, brick, sandstone fragments, ceramic pipe, glass and trace of plaster	X	D	0.0								
			X		0.2								
		0.5m: with trace of fibre-cement* and plastic	X	D	0.4								
			X		0.5								
			X		0.8								
		1.0m: with trace of tile fragments, limestone, plastic, tile fragments, glass, brick and plastic pipe	X	D	1.0								
			X		1.3								
		1.2m: trace of fibre-cement**, concrete and tile fragments	X	D	1.3								
			X		1.5								
	1.5	Pit discontinued at 1.5m											

**RIG:** Excavator

**LOGGED:** WFY

**WATER OBSERVATIONS:** No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

**REMARKS:** \*4 pieces of fibre-cement fragments found - sample taken  
 \*\*4 pieces of fibre-cement fragments found - sample taken

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	pp Pocket penetrometer (kPa)	CHECKED	
D Disturbed sample	PID Photo Ionisation detector	Initials:	
B Bulk sample	S Standard penetration test	Date:	
U <sub>1</sub> Tube sample (x mm dia.)	PL Point load strength Is(50) MPa		
W Water sample	V Shear Vane (kPa)		
C Core drilling	▷ Water seep		
	≡ Water level		



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# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP4  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
	0.0	FILLING - brown, silty clay filling with some sandy clay, rootlets and trace of plaster	X	D	0.0														
	0.2	FILLING - grey brown, shaly clay with some ironstone nodules	X		0.2														
	0.3		X		0.3														
	0.5		X	D	0.5														
	0.8	0.8m: with trace of slag, roof tile and gravel	X		0.8														
	1.0		X	D	1.0														
	1.3	1.3m: with some building rubble, ceramic tile, roof tile, concrete, timber, trace of fibre-cement* and plaster	X		1.3														
	1.5	Pit discontinued at 1.5m	X	D	1.5														

**RIG:** Excavator

**LOGGED:** WFY

**WATER OBSERVATIONS:** No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

**REMARKS:** \*A piece of fibre-cement fragment found - sample taken

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/-

**PIT No:** TP5  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
	0.0	FILLING - grey mottled red brown orange, clay filling with some rootlets, sandstone fragments, floor tile fragments, timber and shale	X	D										
	0.2	FILLING - brown, silty clay filling with plastic pipe, brick, ceramic tiles, glass, ceramic pipe, roof tile and slag	X											
	0.3		X	D										
	0.5		X											
	0.8		X	D										
	1.0	1.0m: with fibre-cement fragments*	X											
	1.3		X	D										
	1.5	Pit discontinued at 1.5m	X											

RIG: Excavator

LOGGED: WFY

WATER OBSERVATIONS: No free groundwater observed

Sand Penetrometer AS1289.6.3.3

REMARKS: \*4 pieces of fibre-cement fragments found - sample taken

Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
IJ	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP6  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)					
				Type	Depth	Sample	Results & Comments		5	10	15	20		
		FILLING - red brown mottled grey, clay with some shale fragments, ironstone fragments and rootlets	[Cross-hatched pattern]	D	0.0									
	0.2	FILLING - brown, silty sandy clay filling with some shale fragments, ironstone fragments, concrete boulders, roof fragments and plastic	[Cross-hatched pattern]	D	0.2									
			[Cross-hatched pattern]	D	0.3									
			[Cross-hatched pattern]	D	0.5									
			[Cross-hatched pattern]	D	0.8									
			[Cross-hatched pattern]	D	1.0									
		1.3m: trace of fibre-cement fragments*	[Cross-hatched pattern]	D	1.3									
	1.5	Pit discontinued at 1.5m	[Cross-hatched pattern]	D	1.5									

**RIG:** Excavator

**LOGGED:** WFY

**WATER OBSERVATIONS:** No free groundwater observed

**REMARKS:** \*2 pieces of fibre-cement fragments found - sample taken

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



**Douglas Partners**  
 Geotechnics • Environment • Groundwater

# TEST PIT LOG

**CLIENT:** Dellara Pty Ltd  
**PROJECT:** Supplementary Asbestos Assessment  
**LOCATION:** Orchard Hills Waste & Resource Management Facility, Orchard Hills

**SURFACE LEVEL:** --  
**EASTING:**  
**NORTHING:**  
**DIP/AZIMUTH:** 90°/--

**PIT No:** TP7  
**PROJECT No:** 71102.02  
**DATE:** 31/5/2010  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)										
				Type	Depth	Sample	Results & Comments		5	10	15	20							
		FILLING - brown grey, silty clay filling with some ceramic tile, brick, wood, concrete, marble and plates	[Cross-hatched pattern]	D	0.0														
				D	0.2														
				D	0.3														
				D	0.5														
				D	0.8														
	1	1.0m: with trace of fibre-cement fragments*		D	1.0														
				D	1.3														
		1.5m: grey shaly clay with trace of brick, roof tile, plastic pipe and trace of fibre-cement fragments*		D	1.5														
	1.5	Pit discontinued at 1.5m																	

**RIG:** Excavator

**LOGGED:** WFY

**WATER OBSERVATIONS:** No free groundwater observed

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

**REMARKS:** \*A piece of fibre-cement fragment found - sample taken  
 \*\*2 pieces of fibre-cement fragments found - samples taken

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	pp Pocket penetrometer (kPa)		
D Disturbed sample	PID Photo ionisation detector		
B Bulk sample	S Standard penetration test		
U, Tube sample (x mm dia.)	PL Point load strength 1s(50) MPa		
W Water sample	V Shear Vane (kPa)		
C Core drilling	▷ Water seep	≡ Water level	

**CHECKED**

Initials: \_\_\_\_\_

Date: \_\_\_\_\_



**Douglas Partners**  
 Geotechnics • Environment • Groundwater

# TEST PIT LOG

CLIENT: Dellara Pty Ltd  
 PROJECT: Supplementary Asbestos Assessment  
 LOCATION: Orchard Hills Waste & Resource Management Facility, Orchard Hills

SURFACE LEVEL: --  
 EASTING:  
 NORTHING:  
 DIP/AZIMUTH: 90°/--

PIT No: TP8  
 PROJECT No: 71102.02  
 DATE: 31/5/2010  
 SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Dynamic Penetrometer Test (blows per mm)						
				Type	Depth	Sample		Results & Comments	5	10	15	20		
	0.0	FILLING - red brown mottled orange brown, clay filling with some rootlets, trace of concrete and ceramic tile fragments	[Cross-hatched pattern]	D										
	0.2													
	0.3			D										
	0.5	FILLING - brown grey, silty clay filling with some brick, plastic pipe, polystyrene, concrete fragments and marble fragments	[Cross-hatched pattern]											
	0.8													
	1.0	FILLING - red brown mottled orange brown, clay filling with some ceramic tiles		D										
	1.3	- fibre-cement fragments*	[Cross-hatched pattern]											
	1.5	Pit discontinued at 1.5m		D										

RIG: Excavator

LOGGED: WFY

WATER OBSERVATIONS: No free groundwater observed

REMARKS: \*4 pieces of fibre-cement fragments found - samples taken

- Sand Penetrometer AS1289.6.3.3
- Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials:
Date:



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# Douglas Partners

*Geotechnics • Environment • Groundwater*

## NOTES RELATING TO THIS REPORT

### Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring 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.

### Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q <sub>c</sub> — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25

Very dense greater than 50 greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

### Sampling

Sampling is carried out during drilling 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 with 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.

Details of the type and method of sampling are given in the report.

### Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

**Test Pits** — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

**Large Diameter Auger (eg. Pengo)** — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of 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 sampling.

**Continuous Sample Drilling** — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

**Continuous Spiral Flight Augers** — the hole 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 in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

**Non-core Rotary Drilling** — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

**Rotary Mud Drilling** — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

**Continuous Core Drilling** — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

### Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength 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 short of full penetration, 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 tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain

samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

### Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

$$q_c \text{ (MPa)} = (0.4 \text{ to } 0.6) N \text{ (blows per 300 mm)}$$

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

$$q_c = (12 \text{ to } 18) c_u$$

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on

soil classification is required, direct drilling and sampling may be preferable.

### Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. 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 relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

### Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 “Methods of Testing Soil for Engineering Purposes”. Details of the test procedure used are given on the individual report forms.

### Bore Logs

The bore logs presented herein 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. 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 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, the frequency of sampling and the possibility of other than ‘straight line’ variations between the boreholes.

### Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.

- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations 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.

### Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company 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 condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

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

### 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, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

### Reproduction of Information for Contractual Purposes

Attention is drawn to the document “Guidelines for the Provision of Geotechnical Information in Tender Documents”, published by the Institution of Engineers,

Australia. Where information obtained from this investigation 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. The Company 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 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.

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***ATTACHMENT***  
***Laboratory Reports and Chain of Custody Documentation***

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Our ref : ASET21846/ 25026 / 1 - 16

Your ref: 71102.02 – Orchard Hills – Supplementary Asbestos Assessment

**NATA Accreditation No: 14484**

3 June 2010

Douglas Partners Pty Ltd  
P O Box 472  
West Ryde NSW 1685

**Attn: Mr Wen-fei Yuan**

Dear Wen-fei,

**Asbestos Identification**

This report presents the results of sixteen samples, forwarded by Douglas Partners Pty Ltd on 2 June 2010, for analysis for asbestos.

**1.Introduction:**Sixteen samples forwarded were examined and analysed for the presence of asbestos.

**2. Methods :** The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining Method (**Safer Environment Method 1.**)

**3. Results :** **Sample No. 1. ASET21846 / 25026 / 1. TP1 - 0.8 - 1.0.**

Approx dimensions 8.6 cm x 8.4 cm x 4.6 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of cement.

**No asbestos detected.**

**Sample No. 2. ASET21846 / 25026 / 2. TP2 - 0.8 - 1.0.**

Approx dimensions 8.7 cm x 8.5 cm x 4.8 cm

The sample consisted of a mixture of clayish sandy soil, stones, plant matter, fibres<sup>^</sup>, fragments of ceramic tile, bitumen, plaster and glass.

**Chrysotile<sup>^</sup> asbestos detected.**

**Sample No. 3. ASET21846 / 25026 / 3. TP2 - 1.3 - 1.5.**

Approx dimensions 8.2 cm x 7.6 cm x 4.7 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, glass, brick and coal like material.

**No asbestos detected.**

**Sample No. 4. ASET21846 / 25026 / 4. TP3 - 0.4 - 0.5.**

Approx dimensions 7.8 cm x 7.6 cm x 4.7 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, bitumen, corroded metal and glass.

**No asbestos detected.**

**Sample No. 5. ASET21846 / 25026 / 5. TP3 - 1.3 - 1.5.**

Approx dimensions 7.5 cm x 7.1 cm x 4.6 cm

The sample consisted of a mixture of soil, stones, plant matter and fragments, plaster, cement, glass and brick.

**No asbestos detected.**



**Sample No. 6. ASET21846 / 25026 / 6. TP4 - 1.3 - 1.5.**

Approx dimensions 8.2 cm x 7.9 cm x 4.7 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of ceramic tile, plaster, cement, bitumen and brick.

**No asbestos detected.**

**Sample No. 7. ASET21846 / 25026 / 7. TP5 - 0.8 - 1.0.**

Approx dimensions 8.1 cm x 7.8 cm x 4.8 cm

The sample consisted of a mixture of soil, stones, plant matter, synthetic mineral fibres, fragments of ceramic tile, plaster, bitumen, corroded metal, glass and brick.

**No asbestos detected.**

**Sample No. 8. ASET21846 / 25026 / 8. TP5 - 1.3 - 1.5.**

Approx dimensions 7.6 cm x 7.4 cm x 4.7 cm

The sample consisted of a mixture of soil, stones, plant matter, fibres<sup>^</sup>, fragments of plaster, cement, coal like material, glass and brick.

**Chrysotile<sup>^</sup> asbestos detected.**

**Sample No. 9. ASET21846 / 25026 / 9. TP6 - 1.3 - 1.5.**

Approx dimensions 8.4 cm x 8.2 cm x 4.8 cm

The sample consisted of a mixture of sandy soil, stones, plant matter, fragments of fibro plaster cement\*, plaster, cement and brick.

**Chrysotile\* asbestos detected.**

**Sample No. 10. ASET21846 / 25026 / 10. TP7 - 0.8 - 1.0.**

Approx dimensions 8.1 cm x 7.8 cm x 4.7 cm

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of bitumen.

**No asbestos detected.**

**Sample No. 11. ASET21846 / 25026 / 11. TP7 - 1.3 - 1.5.**

Approx dimensions 8.2 cm x 7.8 cm x 4.6 cm

The sample consisted of a mixture of soil, stones, plant matter, synthetic mineral fibres, fragments of plaster and cement.

**No asbestos detected.**

**Sample No. 12. ASET21846 / 25026 / 12. TP8 - 0.3 - 0.5.**

Approx dimensions 7.8 cm x 7.4 cm x 4.8 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fibres<sup>^</sup>, fragments of plaster and bitumen.

**Chrysotile<sup>^</sup> asbestos detected.**

**Sample No. 13. ASET21846 / 25026 / 13. TP8 - 1.3 - 1.5.**

Approx dimensions 7.9 cm x 7.7 cm x 4.9 cm

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of fibre cement\*, plaster, cement and glass.

**Chrysotile\* asbestos and Amosite\* asbestos detected.**

**Sample No. 14. ASET21846 / 25026 / 14. TP1 - 0.3 - 0.5.**

Approx dimensions 7.8 cm x 7.5 cm x 4.6 cm

The sample consisted of a mixture of clayish soil, stones and plant matter.

**No asbestos detected.**

The logo for ASET (Asbestos Sampling and Testing) features the letters 'ASET' in a bold, blue, serif font. The letters are set against a yellow background that is shaped like a stylized, curved banner or ribbon.

**Sample No. 15. ASET21846 / 25026 / 15. TP6 - 1.3 - 1.5.**

Approx dimensions 6.2 cm x 4.1 cm x 0.4 cm

The sample consisted of a fragment of a fibre cement material.

**Chrysotile asbestos detected.**

**Sample No. 16. ASET21846 / 25026 / 16. TP7 - 0.8 - 1.0.**

Approx dimensions 4.5 cm x 3.8 cm x 0.5 cm


The sample consisted of a fragment of a hard ceramic tile.

**No asbestos detected.**

Analysed and reported by,

A handwritten signature in black ink, appearing to read 'Laxman Dias', written over a horizontal line.

**Laxman Dias. BSc.  
Approved Identifier / Analyst.**

A handwritten signature in black ink, appearing to read 'Mahen De Silva', written over a horizontal line.

**Mahen De Silva . BSc. MSc. Grad Dip (Occ Hyg)  
Occupational Hygienist / Approved Signatory.**



**This document is issued in accordance with  
NATA's Accreditation requirements. Accredited  
for compliance with ISO/IEC 17025.**

Asbestos

Project Name: Orchard Hills - Supplementary Assessment  
 Project No: F1102.02  
 Email: Wenfei.yuan@douglaspartners.com.au

TO:



To: Mahen D'Silva  
 ASET Pty Ltd  
 Unit 710, 90 George Street  
 HORNSBY NSW

Field

Sample ID	Depth (m)	Duplicate Sample	Depth (m)	Sample Type	Container Type	Sampling		Analyses
						By	Date	
1 TP1	0.8-1	-	-	S	P	WFY	01-06-10	Asbestos
2 TP2	0.8-1	↓	↓	↓	↓	↓	↓	↓
3 TP2	1.3-1.5							
4 TP3	0.4-0.5							
5 TP3	1.3-1.5							
6 TP4	1.3-1.5							
7 TP5	0.8-1							
8 TP5	1.3-1.5							
9 TP6	1.3-1.5							
10 TP7	0.8-1							
11 TP7	1.3-1.5							
12 TP8	0.3-0.5							
13 TP8	1.3-1.5							
14 TP1	0.3-0.5							
15 TP6	1.3-1.5							
16 TP7	0.8-1							

RECEIVED

02 JUN 2010

150510150

Default storage: Glass containers in fridge, plastic containers shelved.

Respatch Date: 02-06-10

Wenfei Yuan