



Asbestos testing CERTIFICATE OF ANALYSIS FIBRE IDENTIFICATION (Soils / Aggregate)

Job No.: HL2122-981 Date of Report: 28/10/2021 Samples Taken by: Client Sample Received: 26/10/2021

Client: Capital Recycling, 19 Felspar St, Welshpool WA 6106 Attention: Paul Marinelli Email: paul@capitalperth.com.au

Client Reference: Postans – Road Base Production


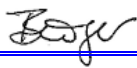
METHODOLOGY SUMMARY

Test Specification(s) Employed: In-House Test Procedure *LPH-01* based on *AS 4964-2004* and the analytical procedures and reporting recommendations in WA *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia - May 2009*. Samples of material are examined to determine the presence of asbestos fibres using *AS4964 (2004)* & In-House Procedure *LPH-01* i.e. Qualitative identification of chrysotile, amosite and crocidolite in bulk 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.

Sample No.	Sampling Date	Physical Structure	Sample Location	Asbestos Detected	Trace Analysis	Analysis of Fibrous Content	DoH Group	Est. Conc. (%)
P2728	23.10.2021	Road Base	Stockpile	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected	None	n/a
P2729	23.10.2021	Road Base	Stockpile	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected	None	n/a
P2730	23.10.2021	Road Base	Stockpile	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected	None	n/a
P2731	23.10.2021	Road Base	Stockpile	No Asbestos found at LOR of 0.1g/kg	Respirable Fibres Not Detected	No Asbestos Detected	None	n/a

Number of Samples: 4

Note: Reporting of concentrations below 0.01% w/w is outside the scope of our NATA Accreditation for Fibre Identification

Analyst Details	Name	Signature
Approved Identifier	Monika Bürger	
Approved Signatory	Monika Bürger	

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian and national standards.



CERTIFICATE OF ANALYSIS ASBESTOS FIBRE IDENTIFICATION (Soils / Aggregate)

CLIENT SUPPLIED SAMPLES

EAPL 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, EAPL cannot be held responsible for the interpretation of the results shown. EAPL takes responsibility of information reported only when an EAPL staff member takes the sample(s). Soil samples analysed by the requirements in *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia - May 2009* must have a volume of 500ml or more.

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 **"Free Asbestos Fibre"** is defined as a fibre that is **>5 µm** long x **<3 µm** wide

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 fibres in excess of the practical detection limit used (in this case, **PLM** and **DS**, which has a calculated practical detection limit of **0.01 - 0.1% w/w** equivalent to **0.1 - 1g/kg** (AS4964-2004:App.A4).
- **Limit of Reporting (LOR)** for *asbestos-in-soil* is **1,000 to 1 in 10,000 parts**, or **0.1 to 0.01%**, or **1 to 0.1 g/kg** (AS4964-2004:App.A4).

NB: reporting of concentrations below 0.01% w/w is outside the scope of our NATA Accreditation for Fibre Identification

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 *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia - May 2009*

Samples were sieved and the **>2mm** fraction analysed, and the **<2mm** fraction sub-sampled and analysed: Sub-Sample size will be **50g** unless otherwise stated.

Estimated Asbestos Concentration is in relation to **0.001 %** weight for weight (w/w) asbestos for **Fibrous Asbestos (FA)** and **Asbestos Fines (AF)**

Capital Recycling Roadbase Summary for October (Lot 2) 2021 - Sample LLS21/3683- Postans



Test	Sieve Size (mm)	Sampled	IPWEA/WALGA Specification for the supply of recycled road base.		
Particle Size Distribution - (WA 115.1)	37.50	100	Lower	Target	Upper
	26.50	100	100	100	100
	19.00	94	95	98	100
	9.50	65	60	70	80
	4.75	44	40	50	60
	2.36	33	30	38	45
	1.18	30	20	28	35
	0.600	25	13	20	27
	0.425	21	11	17	23
	0.300	15	8	14	20
	0.150	7	5	10	14
	0.075	5	3	7	11
	0.0135	3			

Test	Limits on Source Material Composition - T276 (RMS)	Linear Shrinkage (WA 123.1)		Unconfined Compressive Strength (WA 143.1)		
Material	Class 1 Maximum % by weight	Class 2	Class 1 & 2	Unconfined Compressive Strength	Class 1 & 2	
Crushed Recycle Concrete (CCRB)	95	95	58.2	Base (kPa)	200 - 1000	NT
Recycled Asphalt Pavement (RAP)	10	15	7.0	Subbase (kPa)	200 - 2000	
High Density clay brick & tile	10	15	20.4	Los Angeles abrasion loss (%)		NT
High Density aggregates from roads etc.	25	100	13.9			
Low Density materials (plastic, plaster, etc.)	1	2	0.0	California Bearing Ratio (CBR) (%)		150%
Organic Matter (Wood etc.)	1	1	0.0			
Unacceptable High density material (metals, glass, ceramics > 4mm)	2	3	0.5	Class 1 (98% MDD, 100% OMC)	Class 2 (98% MDD, 100% OMC)	
				>100	>100	

Comments: N/A - Not Applicable



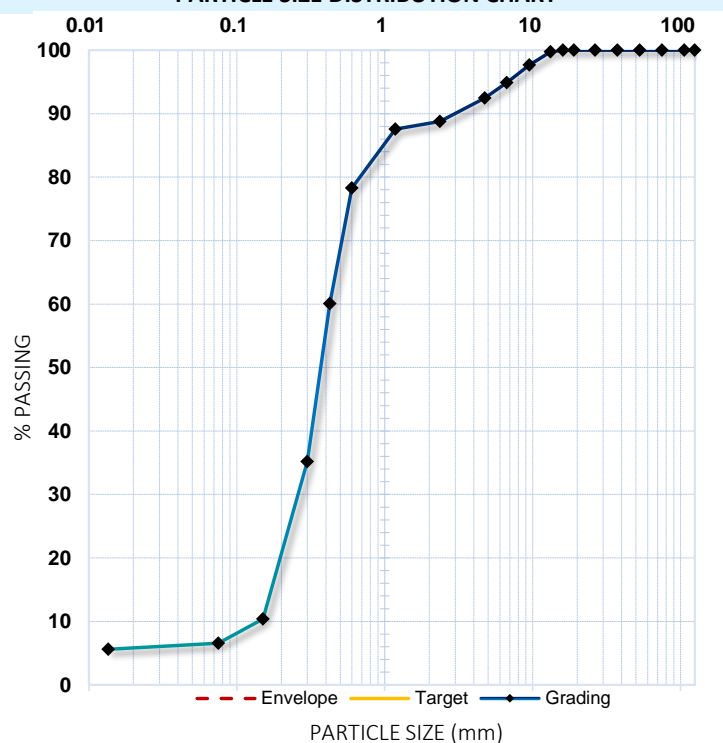
TEST REPORT

PARTICLE SIZE DISTRIBUTION & CONSISTENCY LIMITS

WA 115.1

Client	Capital Recycling	Report No.	LLS21/3684_1_PSD-CL
Client Address	19 Felspar Street Welshpool, WA 6106	Ticket No.	S5059
Project	Monthly QA/QC - October 2021 - LOT 2 (Requested 08.10.2021)	Sample No.	LLS21/3684
Project Location	Postans, WA	Client Reference	OCT - LOT 2
Sampling Location	Postans Recycling Station	Date Sampled	12/10/2021
Sample Identification	Sample 2 - Postans Sand	Sampled By	HB
Sampling Method	WA 100.1-6.2: Stockpiled Materials	Preparation Method	WA 105.1
Sample Description	Sand	Date Tested	14/10/2021
Notes	-	Tested By	JB

PARTICLE SIZE DISTRIBUTION CHART



Sieve Size (mm)	Passing (%)	Minimum (%)	Maximum (%)
125.00	100	-	-
106.00	100	-	-
75.00	100	-	-
53.00	100	-	-
37.50	100	-	-
26.50	100	-	-
19.00	100	-	-
16.00	100	-	-
13.20	100	-	-
9.50	98	-	-
6.70	95	-	-
4.75	92	-	-
2.36	89	-	-
1.180	88	-	-
0.600	78	-	-
0.425	60	-	-
0.300	35	-	-
0.150	10	-	-
0.075	7	-	-
0.0135	6	-	-

Specification Name

CONSISTENCY LIMITS

WA 120.2	WA 121.1	WA 122.1	WA 123.1
Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)
			Moisture Content (%)
			Mould Length (mm)
			Condition of Dried Specimen
		0.0	26.8
			250
			-

Comments:

NO - Not Obtainable; NP - Non-Plastic; NT - Not Tested



ACCREDITED FOR
TECHNICAL
COMPETENCE

Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation No. 19872, Site No. 23230

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Approved Signatory

Bryce Slinn

Name

Bryce Slinn

Function

Laboratory Supervisor

Issue Date

21-October-2021



ORGANIC CONTENT - TEST REPORT

ASTM D 2974-14 - TEST METHOD C

Client	Capital Recycling	Ticket No.	S5059
Client Address	19 Felspar Street Welshpool, WA 6106	Report No.	LLS21/3684_1_ORG
Project	Monthly QA/QC - October 2021 - LOT 2 (Requested 08.10.2021)	Sample No.	LLS21/3684
Location	Postans Recycling Station	Sampled By	LLWA
Sample Identification	Various - See Below.	Date Tested	14/10/2021
Preparation Method	ASTM D 2974-14	Tested By	KH
Sampling Method:	WA 100.1-6.2: Stockpiled Materials	Furnance Temperature (°)	460

LOSS ON IGNITION METHOD

Sample Number	Sample ID	Ash Content (%)	Organic Content (%)
LLS21/3684	Sample 2 - Postans Sand	99.1	0.9

Comments:



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Approved Signatory
Name
Function
Issue Date

Bryce Slinn
Laboratory Supervisor
21-October-2021



DRY DENSITY & MOISTURE CONTENT RELATION OF SOIL TEST REPORT

WA 115.2, 133.1

Client	Capital Recycling	Ticket No.	S5059
Client Address	19 Felspar Street Welshpool, WA 6106	Report No.	LLS21/3684_1_MMDD
Project	Monthly QA/QC - October 2021 - LOT 2 (Requested 08.10.2021)	Sample No.	LLS21/3684
Sampling Location	Postans Recycling Station	Date Sampled	12/10/2021
Sample Identification	Sample 2 - Postans Sand	Date Tested	13/10/2021
Sampling Method	WA 100.1-6.2: Stockpiled Materials	Preparation Method	WA 105.1
		Sample Curing Time	2

WA 115.2

OverSize Material

Retained 19.0mm (%)

0

Retained 37.5mm (%)

0

WA 133.1, 110.1

Laboratory Moisture & Density Results

Moisture Content (%)

7.0

8.8

10.8

13.1

Dry Density (t/m³)

1.816

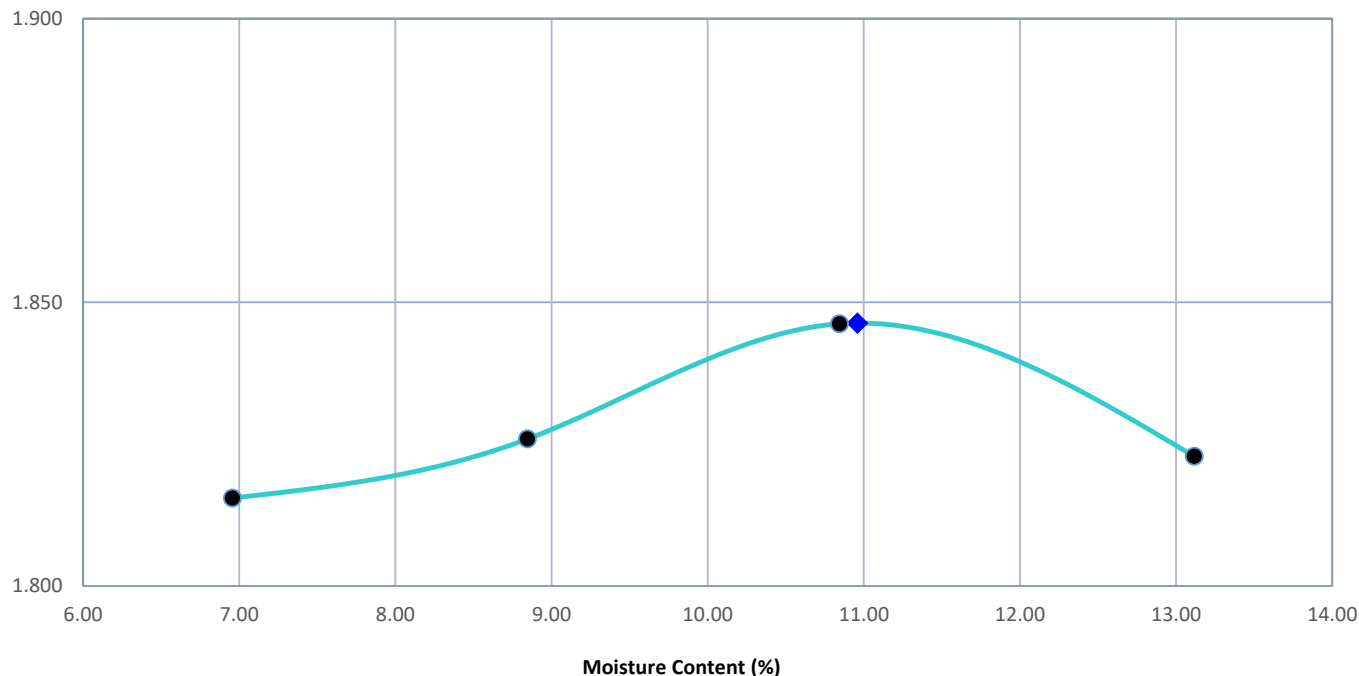
1.826

1.846

1.823

Plot: Dry Density vs. Moisture Content

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.846

Modified Optimum Moisture Content (%)

11.0

Comments:



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Approved Signatory:

Bryce Slinn

Name:

Bryce Slinn

Function:

Laboratory Supervisor

Date:

14-October-2021



CALIFORNIA BEARING RATIO TEST REPORT

WA 110.1, WA 141.1

Client	Capital Recycling	Ticket No.	S5059
Client Address	19 Felspar Street Welshpool, WA 6106	Report No.	LLS21/3684_1_SCBR
Project	Monthly QA/QC - October 2021 - LOT 2 (Requested 08.10.2021)	Sample No.	LLS21/3684
Sampling Location	Postans Recycling Station	Sampled By	HB
Sample Identification	Sample 2 - Postans Sand	Sample Description	Sand
Date Sampled	12/10/2021	Date Tested	19/10/2021
Sampling Method:	WA 100.1-6.2: Stockpiled Materials	Preparation Method	WA 105.1

Compaction Details

Compaction Method	WA 133.1	Rammer Type	Modified
Number of Layers	5	Mass of Rammer (kg)	4.9
% Retained 19.0mm	0	Blows per Layer	9
Liquid Limit Determined by:	Estimated	Curing Time (Hrs)	2.5
Maximum Dry Density (t/m ³)	1.846	Optimum Moisture (%)	11.0
Desired Dry Density Ratio (%)	95.0	Desired Moisture Ratio (%)	100.0

Specimen Conditions At Compaction

Dry Density (t/m ³)	1.755	Moisture Content (%)	10.9
Density Ratio (%)	95.1	Moisture Ratio (%)	98.9

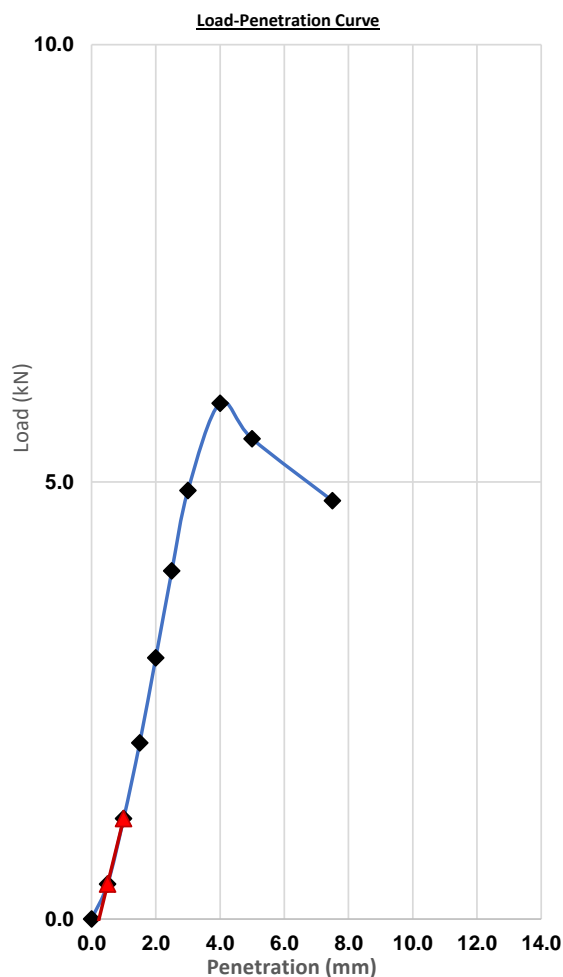
Specimen Conditions After Soak

Soaked or Unsoaked	Soaked	Soaking Period (days)	4
Surcharges Applied (kg)	4.50	Measured Swell (%)	0.0
Dry Density (t/m ³)	1.756	Dry Density Ratio (%)	95.1
Moisture Content (%)	17.0	Moisture Ratio (%)	154.8

Specimen Conditions After Test

Top 30mm Moisture (%)	14.6	Moisture Ratio (%)	132.4
Remaining Depth (%)	15.4	Moisture Ratio (%)	140.2

California Bearing Ratio (CBR)	35%
Determined at a Penetration of	2.5mm
Correction applied to Penetration	0.2mm



Comments:



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Approved Signatory

Name
Function
Issue Date

Bryce Slinn

Bryce Slinn
Laboratory Supervisor
21-October-2021

≠ NATA Accreditation does not cover the performance of this service

ENVIRONNIVATE

5 October 2022

Malcolm Field
Lot 10 Gossage Rd
OLDBURY WA 6121

Our ref: C0123_Gossage Rd_R01v01

Dear Malcolm,

Lot 10 Gossage Rd, Oldbury: Review of Surface Water Management for Upgraded Firebreak

A site inspection of the property was completed on Friday 30 September 2022, focused on the surface water flow regime along the western boundary of Lot 10, in particular the two locations marked on Figure 1 attached, namely:

1. The northern dam
2. The southern drain crossing.

The following observations were made:

Southern drain crossing

- The southern drain was quite full with similar water levels observed either side of the firebreak crossing. Due to a lack of hydraulic head flow was relatively low.

Northern dam

- The finished level of the firebreak adjacent to the northern dam ties in with the ground level of the existing boundary fence, with only a minor lip of approximately 100 mm (see Plate 2 attached).
- The ground slopes up from the western boundary through the Water Corporation reserve and is at least 1m higher on the other side of the reserve (see Plate 3 attached).
- The Water Corporation reserve is dry, with only a very minor area of standing water on the fence line.
- Any water flowing from west to east will flow over the firebreak. The fire break is lower than the land to the west and the firebreak will not cause any more than 100 mm of ponding at the fence line before water will flow over the firebreak.
- The dam fills from a drain connection to the east. The firebreak at its current level helps to contain the water and prevent it from overtopping into the Water Corporation reserve.

Recommendations

Based on my observations I recommend that no further work is required to the firebreak for surface water management. The basis of this recommendation is that:

- The southern drain provides more of a storage function than a water conveyance function. Once the drain fills up flow is relatively low, and the culvert crossing at the firebreak acts as a balance pipe. The two 375 mm diameter pipes installed have sufficient capacity for this function.
- The northern dam is contained by the firebreak and there is no risk of the land west of the firebreak flooding due to the elevation of the land. Any flow emanating from the western property can flow over the firebreak.

Yours sincerely,



Scott Wills

Principal Hydrologist

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FIGURE 1. INSPECTION LOCATIONS

PLATES



Plate 1. Looking east towards northern dam from Water Corporation reserve.



Plate 2. Firebreak finish level relative to existing fence line.



Plate 3. Looking south-east across Water Corporation reserve towards northern dam. Ground is falling towards dam.