

Swan River Crossings Project

Sediment Sampling Report

Report ARUP-SED-January-2021-Rev 01



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1. Introduction & Background

At the request of Arup, Innovative Corrosion Management (ICM) was engaged to provide resources to undertake the sediment sampling associated with the Swan River Crossings Project for Main Roads.

The sampling and analysis was undertaken to the requirements of the Swan River Crossings – Consultancy Brief for Soil Sampling. The sample analysis has been provided to assist Main Roads with sediment migration modelling.

A total of Thirty Seven (37) samples were taken throughout the Swan River seabed extending from the Western side of the existing Fremantle Rail Bridge and through to the eastern side of the Stirling Hwy Traffic Bridge.

The 37 sample locations consisted of an initial twenty one (21) samples nominated as required predominantly around the existing Fremantle Traffic and Road Bridges extending east towards the Stirling Bridge. A further sixteen (16) samples were taken (nominated as optional) to cover the seabed locations closer to and surrounding the Stirling Bridge. Locations are as shown in Figure 1.



Figure 1: Sediment Sample Locations



1.1 Sediment Sampling

The scope of work for the removal of the sediment samples consisted of the following:

- Review of the nominated sample locations and confirm suitability for sample removal. This was achieved at all locations with minimal movement of the sample locations as provided by Main Roads. No sample was taken any further than +1m from the nominated sample location positions.
- All samples were taken and logged as per the sample locations provided with the initial required samples labelled samples 1 through to 21 inclusive (eg. SS1, SS2, SS3.....SS21). The Optional samples were then labelled 1 through to 16 inclusive as SS01, SS02, SS03....SS016).
- At all 37 locations samples were taken in 20L buckets as well as push tube cores. All samples removed and tested have been retained at the Laboratory in the event that any additional testing is required.
- At all locations the seabed was photographed and the divers commented on the seabed type.



The sample locations are as follows:

SAMPLE No.	ТҮРЕ	LONGITUDE	LATITUDE
1	Required	115.7523117	-32.04158681
2	Required	115.753097	-32.04104784
3	Required	115.7534722	-32.04132579
4	Required	115.7542098	-32.04126802
5	Required	115.7547221	-32.04058034
6	Required	115.7549381	-32.04078391
7	Required	115.7548715	-32.04116338
8	Required	115.7550172	-32.04159623
9	Required	115.7552677	-32.04119263
10	Required	115.7553517	-32.04041431
11	Required	115.756639	-32.04031965
12	Required	115.7568669	-32.03975455
13	Required	115.7570633	-32.04087213
14	Required	115.7577032	-32.03932054
15	Required	115.7577387	-32.0402265
16	Required	115.7582616	-32.04076288
17	Required	115.7589212	-32.04095697
18	Required	115.758452	-32.03955505
19	Required	115.7588005	-32.04002029
20	Required	115.7593538	-32.04053084
21	Required	115.7593995	-32.04009807
01	Optional	115.7585224	-32.03910453
02	Optional	115.7589923	-32.03945356
O3	Optional	115.7598071	-32.04019353
04	Optional	115.7586554	-32.03862336
05	Optional	115.7588752	-32.03879787
06	Optional	115.7592579	-32.03915977
07	Optional	115.7596824	-32.03949263
08	Optional	115.7599515	-32.03971237

Table One: Sediment Sample Locations



Cont'd.....

SAMPLE No.	ТҮРЕ	LONGITUDE	LATITUDE
09	Optional	115.7604367	-32.03982562
010	Optional	115.7591145	-32.03819402
011	Optional	115.7595237	-32.03864636
012	Optional	115.7599406	-32.03892431
013	Optional	115.7604939	-32.03930243
014	Optional	115.7599523	-32.03838333
015	Optional	115.7598236	-32.0379731
016	Optional	115.7605627	-32.03845466



SITE	SAMPLE TYPE	DESCRIPTION SURFACE LAYERS	REVISED CO-ORDINATES
EXAMPLE	Bucket/Push Tube	Sand/Rocks - obstructions	As Original
1	Bucket & Core	Sand / Shell	As Original
2	Bucket & Core	Sand / Shell	As Original
2	Bucket & Core	Sand / Shell	As Original
3	Bucket & Core	Sand / Shell	As Original
4	Bucket & Core	Sand / Shell	As Original
5	Bucket & Core	Rocky / Hard	As Original
6	Bucket & Core	Rocky / Hard	As Original
7	Bucket & Core	Sand / Shell	As Original
8	Bucket & Core	Sand / Shell	As Original
9	Bucket & Core	Rocky	As Original
10	Bucket & Core	Sandy Seabed	As Original
11	Bucket & Core	Sandy Seabed	As Original
12	Bucket & Core	Sandy Seabed	As Original
13	Bucket & Core	Sand / Rock	As Original
14	Bucket & Core	Sandy Seabed	As Original
15	Bucket & Core	Sandy Seabed	As Original
16	Bucket & Core	Sandy Seabed	As Original
17	Bucket & Core	Sandy Seabed	As Original
18	Bucket & Core	Sand / Shell	As Original
19	Bucket & Core	Sand / Shell	As Original
20	Bucket & Core	Sandy Seabed	As Original
21	Bucket & Core	Sand / Shell	As Original
01	Bucket & Core	Sand / Rock	As Original
02	Bucket & Core	Sand/ Silt	As Original
03	Bucket & Core	Sandy Seabed	As Original
04	Bucket & Core	Sandy Seabed	As Original
05	Bucket & Core	Sandy Seabed	As Original
06	Bucket & Core	Sand / Shell	As Original
07	Bucket & Core	Sand / Shell	As Original
08	Bucket & Core	Sandy Seabed	As Original

Table Two: Sediment Sample Locations and surface layer description



SITE	SAMPLE TYPE	DESCRIPTION SURFACE LAYERS	REVISED CO-ORDINATES
09	Bucket & Core	Sandy Seabed	As Original
010	Bucket & Core	Sandy Seabed	As Original
011	Bucket & Core	Sand / Shell	As Original
012	Bucket & Core	Sand / Shell	As Original
013	Bucket & Core	Silt	As Original
014	Bucket & Core	Sandy Seabed	As Original
015	Bucket & Core	Silt	As Original
016	Bucket & Core	Sand / Shell	As Original

Cont'd.....

1.2 Laboratory Testing

The laboratory testing was undertaken by Western Geotechnical with the following testing provided:

- Particle Size Distribution to AS 1289.3.6.1
- Hydrometer Analysis to AS1289.3.6.3
- Calcium Carbonate Content to WA 615.1
- Solid Partial Density to AS 1289.3.5.1
- Insitu Density from Push Tubes

As part of the sample removal works, a representative from Western Geotechnical was on board the diver vessel for the initial sample removal to confirm sampling technique and quantity of material removed was adequate for the testing required.

The reports for all Laboratory testing can be found in full for each individual sample in the attached Appendices.

2. Diver sample locations

As part of the sediment removal, the divers were asked to take a photographic representation from where the samples were removed and note the seabed typical makeup. The following photographs refer directly with the sample location as identified in *Figure 1: Sediment sample locations*.



Sample Location One (1)

Surface Layers description: Sandy with shells



Sample Location Two (2)

Surface Layers description: Sandy with shells



ICINI)



Sample Location Three (3) Surface Layers description: Sandy with shells



Sample Location Four (4) Surface Layers description: Sandy with shells slight rock





Sample Location Five (5)

Surface Layers description: Rocky and hard surface



Sample Location Six (6) Surface Layers description: Rocky and hard surface





Sample Location Seven (7)

Surface Layers description: Sandy with shells



Sample Location Eight (8) Surface Layers description: Sandy with shells





Sample Location Nine (9) Surface Layers description: Rocky



Sample Location Ten (10) Surface Layers description: Sandy seabed





Sample Location Eleven (11) Surface Layers description: Sandy seabed



Sample Location Twelve (12) Surface Layers description: Sandy seabed





Sample Location Thirteen (13) Surface Layers description: Sandy with rocks



Sample Location Fourteen (14)

Surface Layers description: Sandy seabed





Sample Location Fifteen (15) Surface Layers description: Sandy seabed



Sample Location Sixteen (16) Surface Layers description: Sandy seabed





Sample Location Seventeen (17) Surface Layers description: Sandy seabed



Sample Location Eighteen (18) Surface Layers description: Sandy with small shells





Sample Location Nineteen (19) Surface Layers description: Sandy with shells



Sample Location Twenty (20) Surface Layers description: Sandy seabed



Sample Location Twenty One (21) Surface Layers description: Sandy with shells



2.2 Optional Samples numbered One (01) – Twenty One (021)

Sample Location Optional One (01) Surface Layers description: Sandy with rocks



ICINI)





Sample Location Optional Three (03) Surface Layers description: Sandy seabed



ICINAT)



Sample Location Optional Four (04) Surface Layers description: Sandy seabed



Sample Location Optional Five (05) Surface Layers description: Sandy seabed





Sample Location Optional Six (06) Surface Layers description: Sandy with shells



Sample Location Optional Seven (07) Surface Layers description: Sandy with shells





Sample Location Optional Eight (08) Surface Layers description: Sandy seabed



Sample Location Optional Nine (09) Surface Layers description: Sandy seabed





Sample Location Optional Ten (010) Surface Layers description: Sandy seabed



Sample Location Optional Eleven (011) Surface Layers description: Sandy with shells



Sample Location Optional Twelve (012) Surface Layers description: Sandy with shells



Sample Location Optional Thirteen (013) Surface Layers description: Silt



ICINAT)



Sample Location Optional Fourteen (014) Surface Layers description: Sandy seabed



Sample Location Optional Fifteen (015) Surface Layers description: Silt



Sample Location Optional Sixteen (016) Surface Layers description: Sandy with shells



Innovative Corrosion

Management

Appendix A: Particle Size Distribution of Soil & Hydrometer Analysis



	SOIL AGGRE	GAT	E	С	ONC	RET	Έ		JSH	ING		
	TEST REF	PORT -	AS 12	89.3.	6.1 &	ψAS	128	9. 3.6.3				
Client:	ICM							Ticket No).	S226	6	
Client Address:	Suite 7, 3 Stirk Hou	se Car	nning R	oad,	Kalar	nunda	a	Report N	о.	WG2	20/12009	J_1_PSDHY
Project:	Riverbed Material	Assess	ment					Sample N	о.	WG2	20/12009	•
Location:	Swan River							Date Samp	led:	1/12	/2020	
Sample Identification:	SS1							Date Teste	ed:	3/01	/2021	
TEST F	RESULTS - Particle	Size	Distri	but	ion c	of So	il &	Hyrdron	nete	r Ana	alysis	
Sampling I	Method:			Sa	mpled	by Cli	ient,	Tested as Re	ceive	k		
Sieve Size (mm)	Percent Passing (%)	100										
75.0	100								-			
37.5	99	90										
19.0	93											
9.5	86	80										
4.75	79 👳	00							-		1	
2.36	75											
1.18	71 . <mark></mark>	70										
0.600	52 8								I F			
0.425	22	60							/ ‡			
0.300	4								/ =			
0.150	1	50							Ŧ			
0.075	1	50										
Particle Diameter (mm	Ψ Percent Finer (%)											
0.0781	1	40										
0.0552	1											
0.0391	1	30										
0.0270	0											
0.0145	0	20							+			
0.0072	0	20										
0.0051	0								IIE			
0.0036	0	10										
0.0025	0											
0.0015	0	0							<u> +</u>			
ψ AS 1289.3.5.1 -2.36r	mm Particle Density	C	0.0		0.0	_	().1	1.0		10.0	100.0
2.65 -	/ 2					P	artı	cie Size (m	m			

2.65 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. **Approved Signatory:** Marin Harte Accreditation No. 20599 NATA Accredited for compliance with ISO/IEC 17025 - Testing Name: Matt van Herk WORLD RECOGNISED Date: 06/January/2021 This document shall not be reproduced except in full

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S	OIL <u>AGG</u> RE	GATE		CON	CRETE		C	RUSH	IING			
	TEST REP	PORT - AS	1289	.3.6.1 &	ψ AS 1	289.	3.6.3					
Client:	ICM						Ticket	No.	S2266			
Client Address:	Suite 7, 3 Stirk Hou	se Cannir	ng Roa	ad, Kala	munda		Repor	t No.	WG20	/12010)_1_PS	DHY
Project:	Riverbed Material	Assessme	nt				Sampl	e No.	WG20	/12010)	
Location:	Swan River					D	ate Sa	mpled:	1/12/2	2020		
Sample Identification:	SS2						Date Te	ested:	3/01/2	2021		
TEST R	ESULTS - Particle	Size Dis	strib	ution	of Soil	& I	Hyrdr	omete	er Anal	ysis		
Sampling N	lethod:			Sample	d by Clie	nt, Te	ested as	Receive	ed	-		
Sieve Size (mm)	Percent Passing (%)	100 —				1 1 1 1 1				_		
75.0												
37.5	100	90										
19.0	100											
9.5	99											
4.75	99 🕤	80										
2.36	98							E				
1.18	98	70				++++-						
0.600	95 🖇											
0.425	83 🗳	60										
0.300	46											
0.150	2											
0.075	1	50										
Particle Diameter (mm 🏼 🏼	Percent Finer (%)						•					
0.0774	1	40										
0.0547	1							+				
0.0387	1	20										
0.0274	1	30										
0.0142	0							IIIIE				
0.0100	0	20				+++++-						
0.0071	0							_				
0.0050	0	10									<u> </u>	
0.0035	0	·~										
0.0025	0											
0.0014	0			0.0		اند 1 0	•	1 0		10.0	╈╾╼╋╼╋	HHH 100 0
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.0		0.0	Ра	rticl	e Size	(mm)				100.0

2.68 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

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	SOIL AGGRE	GATE	E	CONC	RETE	CRUSH	ING	
	TEST REF	PORT -	AS 128	9.3.6.1 &	ψ AS 128	9. 3.6.3		
Client:	ICM					Ticket No.	S2266	
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning Ro	oad, Kalar	nunda	Report No.	WG20/12011	1_PSDHY
Project:	Riverbed Material	Assessi	ment			Sample No.	WG20/12011	
Location:	Swan River					Date Sampled:	1/12/2020	
Sample Identification:	SS3					Date Tested:	3/01/2021	
TEST R	ESULTS - Particle	Size [Distrik	oution o	of Soil &	Hyrdromete	r Analysis	
Sampling N	/lethod:			Sampled	by Client,	Tested as Receive	d	
Sieve Size (mm)	Percent Passing (%)	100						
75.0								
75.0	100	90						
19.0	97							
9.5	94	00						
4.75	88 🕤	80						
2.36	82							
1.18	74	70						
0.600	54 👸					4		
0.425	27 🗳	60				F		
0.300	7							
0.150	1	50				∮		
0.075	1	50						
Particle Diameter (mm	ψ Percent Finer (%)							
0.0774	1	40						
0.0547	1							
0.0387	1	30						
0.0274	1	50						
0.0142	0							
0.0100	0	20						
0.0071	0							
0.0050	0	10						
0.0035	0							
0.0025	0	_						
0.0014	0	0 0	⊢ ● ⊢● ∦ .0	0.0).1 10	10.0	
ψ AS 1289.3.5.1 -2.36n	nm Particle Density	Ū	-	0.0	Parti	cle Size (mm)		

2.68 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 WORLD RECOGNISED ACCREDITATION

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SC	DIL AGGRE	GATE		CONC	RETE	CRUS	HING					
	TEST REF	PORT - AS	1289	. 3.6.1 & u	4 AS 128	9. 3.6.3						
Client:	ICM					Ticket No.	S2266					
Client Address:	Suite 7, 3 Stirk Hou	se Cannir	ng Roa	ad, Kalam	unda	Report No.	WG20/12012	2_1_PSDHY				
Project:	Riverbed Material	Assessme	nt			Sample No.	WG20/12012	2				
Location:	Swan River					Date Sampled	: 1/12/2020					
Sample Identification:	SS4					Date Tested:	3/01/2021					
TEST RE	SULTS - Particle	Size Dis	strib	ution o	f Soil &	Hyrdromet	ter Analysis					
Sampling Me	ethod:		Sampled by Client, Tested as Received									
Sieve Size (mm)	Percent Passing (%)	100 —										
75.0												
37.5	100	90										
19.0	98											
9.5	96	80										
4.75	93 📀	80										
2.36	89 🗳											
1.18	84	70										
0.600	57 👸											
0.425	21	60										
0.300	3	00										
0.150	1											
0.075	1	50										
Particle Diameter (mm Ψ	Percent Finer (%)											
0.0777	1	40										
0.0549	1											
0.0388	1											
0.0275	1	30										
0.0142	0											
0.0101	0	20				·····						
0.0071	0											
0.0050	0	10										
0.0036	0											
0.0025	0											
0.0015	0	0		0.0	0-0-0-0-0	.1 1.	0 10.0	100.0				

ψ AS 1289.3.5.1 -2.36mm Particle Density 2.67 g/cm3

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Manuel Hark

 Name: Matt van Herk

 Date: 06/January/2021

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Particle Size (mm)



S	oil ag <u>gre</u>	GATE		C	ONC	RETE		CRUSH	IING		
	TEST REI	PORT -	AS 128	39.3.6	5.1 &	ψ AS 12	89. 3.6.	3			
Client:	ICM						Tick	et No.	S22	:65	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad,	Kalan	nunda	Rep	ort No.	WG	i20/1199	9_1_PSDHY
Project:	Riverbed Material	Assessi	ment				Sam	ple No.	WG	i20/1199	9
Location:	Swan River						Date S	Sampled:	1/1	2/2020	
Sample Identification:	S No. 5						Date	Tested:	5/0	1/2021	
TEST RE	SULTS - Particle	Size [Distri	buti	on o	of Soil a	& Hyro	dromete	er An	alysis	
Sampling M	ethod:			Sai	mpled	by Client	t, Tested	as Receive	ed	-	
Sieve Size (mm)	Percent Passing (%)	100									^ -
75.0	100										
37.5	61	90									
19.0	49										
9.5	43	80									
4.75	37 📀	00									
2.36	33)									
1.18	30 .5	70									
0.600	21 8										
0.425	13 🗳	60									
0.300	8										
0.150	2	50									
0.075	1	50									
Particle Diameter (mm 4	Percent Finer (%)										
0.0763	1	40				+		╈			
0.0540	1										
0.0382	1	30				+					
0.0271	0										
0.0140	0	20						ļ			
0.0070	0	20									
0.0050	0										
0.0035	0	10									
0.0025	0										
0.0014	0	0									
ψ AS 1289.3.5.1 -2.36m	m Particle Densitv	0	.0		0.0		0.1	1.0		10.0	100.0
2.7 g/c	m3					Par	ticle Siz	ze (mm)			





S	OIL AG <u>GRE</u>	EGATE		COI	NCRE	ETE_		CR	USH	ING		
	TEST REI	PORT -	AS 128	9.3.6.1	&ψΑ	S 128	89. 3.6	5.3				
Client:	ICM						Tie	cket N	lo.	S226	5	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad, Ka	lamun	da	Re	port N	lo.	WG2	20/1200	0_1_PSDHY
Project:	Riverbed Material	Assessi	ment				Sar	nple I	Vo.	WG2	20/1200	0
Location:	Swan River						Date	Sam	oled:	1/12	/2020	
Sample Identification:	S No. 6						Dat	e Test	ted:	5/01	/2021	
TEST RI	ESULTS - Particle	Size [Distri	butio	ו of S	oil 8	k Hyı	rdroi	nete	r Ana	alysis	
Sampling M	lethod:			Samp	led by	Client	, Teste	d as R	eceive	d	-	
Sieve Size (mm)	Percent Passing (%)	100										
75.0												
37.5	100	90										
19.0	89											
9.5	84	00										
4.75	82 🗔	00										
2.36	81								1 L			
1.18	79 .	70						-7				
0.600	77 👸								-			
0.425	71 🗳	60										
0.300	58							1				
0.150	7	50										
0.075	2	50							TIF			
Particle Diameter (mm 4	Percent Finer (%)								III F			
0.0761	2	40										
0.0538	2								-			
0.0380	2	30										
0.0269	2											
0.0140	1											
0.0099	1	20										
0.0070	1											
0.0049	1	10										
0.0055	0											
0.0025	0	0										
0.0014	v	0	.0	0.	0		0.1		1.0		10.0	100.0
ψ AS 1289.3.5.1 -2.36m	m Particle Density					Part	icle S	ize (n	nm)			
2.71 g/c	m3								,			

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 WORLD RECOGNISED ACCREDITATION

Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

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And Harte



	SOIL AGGRE	EGATE	CONCRETE	CRUSH		
	TEST RE	PORT - AS 128	39.3.6.1 & ψ AS 12	89. 3.6.3		
Client:	ICM			Ticket No.	S2266	
Client Address:	Suite 7, 3 Stirk Hou	ise Canning R	oad, Kalamunda	Report No.	WG20/12013_1_PS	DHY
Project:	Riverbed Material	Assessment		Sample No.	WG20/12013	
Location:	Swan River			Date Sampled:	1/12/2020	
Sample Identification	: SS7			Date Tested:	3/01/2021	
TEST I	RESULTS - Particle	Size Distri	bution of Soil 8	& Hyrdromete	r Analysis	
Sampling	Method:		Sampled by Client	, Tested as Received	d	
Sieve Size (mm)	Percent Passing (%)	100				
75.0						
75.0 27 F		90				
57.5 19.0	100	30				
95	100					
4.75	100	80				
2.36	100					
1.18	100 .9	70			+	
0.600	83 83					
0.425	33 🗳	60				
0.300	5	00				
0.150	1					
0.075	1	50				
Particle Diameter (mm	ψ Percent Finer (%)					
0.0779	1	40			+	
0.0551	1	-			++	
0.0389	1					
0.0275	1	30				
0.0143	0					
0.0101	0	20			-	
0.0071	0					
0.0050	0	10				
0.0036	U					
0.0025	U					
0.0015	U		0.1	▼ 	10	
ψ AS 1289.3.5.1 -2.36	mm Particle Density	0.0	Dort	ticlo Sizo (mm)		10.0
2.00 -	10000		Par	LICIE SIZE (MM		

2.66 g/cm3

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021

235 Bank Street, Welshpool WA 6106

Jan Herte

08 9472 3465

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Accreditation No. 20599

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S	OIL AG <u>GRE</u>	E CONCRE <u>TE </u>						CRUSHING								
	TEST REF	PORT -	AS 128	39.3.	6.1 &	ψAS	128	9. 3.	6.3							
Client:	ICM							Ti	icket	No.	5	226	6			
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad,	Kala	mund	а	Re	port	No.	١	NG2	0/120 1	14_1_	PSE	ЭНҮ
Project:	Riverbed Material	Assess	ment					Sa	mple	No.	١	NG2	0/120 1	14		
Location:	Swan River							Date	e San	npled	: 1	/12/	/2020			
Sample Identification:	SS8							Da	te Te	sted:	3	\$/01/	/2021			
TEST R	ESULTS - Particle	Size	Distri	but	ion d	of So	oil 8	k Hy	rdro	met	er /	Ana	lysis			
Sampling N	lethod:			Sa	mpled	d by Cl	ient,	Test	ed as	Receiv	/ed					
Sieve Size (mm)	Percent Passing (%)	100														
75.0	100															
37.5	98	90														
19.0	96															
9.5	95	80														
4.75	93 🔗	00														
2.36	91															
1.18	88 si	70													+	
0.600	62 Sg									l / E						
0.425	20	60														
0.300	4									-						
0.150	1									Ţ						
0.075	1	50								1111F						
Particle Diameter (mm u	Percent Finer (%)									-						
0.0779	1	40														
0.0551	1									F						
0.0389	1	30								ΗĒ						
0.0275	1	50														
0.0143	0															
0.0101	0	20							1	┝┼┼┼┢					+	
0.0071	0															
0.0036	0	10													+++-	
0.0025	0	-														
0.0015	0	0														
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0	0.0		0.0		(0.1		1.0)		10.0			100.0
266 al	Particle Size (mm)															

2.66 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021

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S	OIL AGGRE	GATE		C	ONC	RETE	Ξ		CRUSH	IING			
	TEST REF	PORT -	AS 128	39.3.0	5.1 &	ψ AS 1	1289	9. 3.6.3					
Client:	ICM							Ticke	et No.	S2266			
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad,	Kalan	nunda		Repo	rt No.	WG20,	/12015	5_1_PS	SDHY
Project:	Riverbed Material	Assessr	ment					Samp	le No.	WG20,	/12015	5	
Location:	Swan River							Date S	ampled:	1/12/2	020		
Sample Identification:	SS9							Date 1	Tested:	3/01/2	021		
TEST R	ESULTS - Particle	Size [Distri	buti	on o	of Soi	8	Hyrd	romete	er Analy	ysis		
Sampling M	lethod:			Sa	mpled	by Clie	ent,	Tested a	as Receive	d			
Sieve Size (mm)	Percent Passing (%)	100 r	1								-		
75.0													
75.U 27 E		90											
37.5 19.0		50											
9.5	100								ļ				
4.75	100 🐨	80										rttt	
2.36	100								ļ ļ				
1.18	100 .9	70										$\left - \right + \left - \right $	
0.600	95 8								-				
0.425	59 🗳	60											
0.300	12	00											
0.150	1												
0.075	1	50										┝──┼─┼	
Particle Diameter (mm 4	Percent Finer (%)												
0.0781	1	40										└──┤─┤	
0.0552	1												
0.0391	1												
0.0276	1	30											
0.0143	0												
0.0101	0	20										┝╍╍┝╍┝╸┝	
0.0072	0								H				
0.0051	0	10											
0.0036	0	10											
0.0025	0												
0.0015	0	0					С Л		 1 0		10.0		100 0
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.	-		5.0	Pa	arti	cle Size	e (mm)				

2.65 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

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Mar Harte



S	oil aggre	EGATI	E <u> </u> _	CONC	RETE	CRUS	HING	
	TEST RE	PORT -	AS 1289	.3.6.1 &	ψ AS 1289	9. 3.6.3		
Client:	ICM					Ticket No.	S2265	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	nning Roa	ad, Kalam	nunda	Report No.	WG20/1200	1_1_PSDHY
Project:	Riverbed Material	Assess	ment			Sample No.	WG20/1200	1
Location:	Swan River					Date Sampled:	1/12/2020	
Sample Identification:	S No. 10					Date Tested:	5/01/2021	
TEST RE	SULTS - Particle	Size	Distrib	ution o	f Soil &	Hvrdromet	er Analysis	
Sampling M	ethod:			Sampled	by Client,	Tested as Receiv	ved	
Sieve Size (mm)	Percent Passing (%)	100						•
75.0						I ME		
37.5		90				•		
19.0	100							
9.5	100	00						
4.75	100 🗔	80						
2.36	100					I I T IIIE		
1.18	100 .5	70						
0.600	98 🖇							
0.425	92 🎽	60						
0.300	76							
0.150	15							
0.075	5	50						
Particle Diameter (mm ψ	Percent Finer (%)							
0.0750	4	40						
0.0530	4							
0.0375	4	30						
0.0265	4	50						
0.0138	4							
0.0098	3	20						
0.0069	3 2							
0.0049	۲ ۲	10			<u> </u>	/		
0.0055	1 1							
0.0014	0	0						
JL AC 1390 3 E 1 3 30	m Dorticlo Doncity	Ő).0	0.0	0	.1 1.0) 10.0	100.0
ψ A3 1209.3.3.1 -2.30mi 2 7 g/ri	m ²				Parti	cle Size (mm)		

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Maddada Name: Matt van Herk Date: 06/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 235 Bank Street, Welshpool WA 6106 08 9472 3465 WWW.Wgls.com.au



S	OIL <u>Aggre</u>	EGATE		CONC	RET <u>E</u>	CRL	JS <u>H</u>	ING		
	TEST REI	PORT - A	AS 128	9.3.6.1 & u	ψ AS 1289	. 3.6.3				
Client:	ICM					Ticket No).	S2265		
Client Address:	Suite 7, 3 Stirk Hou	ise Canr	ning Ro	ad, Kalam	unda	Report No).	WG20	/12002	_1_PSDHY
Project:	Riverbed Material	Assessn	nent			Sample No	0.	WG20	/12002	
Location:	Swan River					Date Sampl	ed:	1/12/2	2020	
Sample Identification:	S No. 11					Date Teste	d:	4/01/2	2021	
TEST RI	ESULTS - Particle	Size D	Distrik	oution o	f Soil &	Hyrdrom	ete	r Anal	ysis	
Sampling M	lethod:			Sampled	by Client, 1	Fested as Re	ceived	ł		
Sieve Size (mm)	Percent Passing (%)	¹⁰⁰ г							 ♦	
75.0										
37.5		90					/			
19.0	100						4			
9.5	100						-			
4.75	100 🧔	00								
2.36	99						E			
1.18	98	70						+		
0.600	83 83						-			
0.425	47 🗳	60								
0.300	11						+			
0.150	1						1			
0.075	1	50					1			
Particle Diameter (mm 4	Percent Finer (%)						-			
0.0777	1	40								
0.0549	1									
0.0389	0	30					F			
0.0275	0	30								
0.0142	0						-			
0.0101	0	20								
0.0071	0						-			
0.0050	0	10					<u> </u> -			
0.0030	0						ļ.			
0.0025	0						IF.			
0.0013	Ū	U F 0.0	0	0.0	0	.1	1.0		10.0	100.0
ψ AS 1289.3.5.1 -2.36m 2 67 σ/c	m Particle Density	5.	-	0.0	Partic	cle Size (m	m)			
2.07 8/0										

 Comments: ψ- A5 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Maddadd

 Name: Matt van Herk

 Date: 06/January/2021

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S	DIL AGGRE	GAT		CO	NCR	ETE		CRUS	HING		
	TEST REI	PORT -	AS 128	39.3.6.	1&ψ/	AS 128	9. 3.6.3	3			
Client:	ICM						Tick	et No.	S226	5	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad, K	alamur	nda	Repo	ort No.	WG2	20/12003	1_PSDHY
Project:	Riverbed Material	Assess	ment				Sam	ple No.	WG2	20/12003	}
Location:	Swan River						Date S	Sampled:	1/12	/2020	
Sample Identification:	S No. 12						Date	Tested:	4/01	/2021	
TEST RE	SULTS - Particle	Size I	Distri	butio	n of S	Soil &	Hyrc	Iromet	er Ana	alysis	
Sampling Mo	ethod:			Sam	pled by	Client,	Tested	as Receiv	ed		
Sieve Size (mm)	Percent Passing (%)	100			1						
75 0											
37 5		90									
19.0											
9.5	100	00									
4.75	100 🧔	80									
2.36	100										
1.18	99	70									
0.600	97 🕺							E			
0.425	90 🗳	60									
0.300	74	00									
0.150	14										
0.075	4	50									
Particle Diameter (mm ψ	Percent Finer (%)										
0.0752	3	40						++++++++++++++++++++++++++++++++++++			
0.0532	3										
0.0376	3	20									
0.0267	2	30									
0.0138	2										
0.0098	1	20									
0.0069	1										
0.0049	1	10								<u></u>	
0.0035	0										
0.0025	0										
0.0014	U	0	⊢ ● ∔● .0		.0	·······	₩ <u></u>).1	1.C)	10.0	100.0
ψ AS 1289.3.5.1 -2.36mr	m Particle Density	Ū			-	Parti	cle Siz	e (mm)			

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Mana:
 Matt van Herk

 Date:
 06/January/2021

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	soil ag <u>gre</u>	E _		20	NC	RET	E		C	RUS	SHI	NG						
	TEST REF	PORT -	AS 12	289.3	8.6.1	L & L	۹¢ م	128	9. 3.6	5.3								
Client:	ICM								Ti	cket	No.		S22	266				
Client Address:	Suite 7, 3 Stirk Hou	se Car	nning	Road	l, Ka	alam	unda	a	Re	port	No.		WG	j20/	' 120 1	L6_1	_PS	DHY
Project:	Riverbed Material	Assess	ment	;					Sai	mple	No.		WG	j20/	′ 120 1	16		
Location:	Swan River								Date	san	nple	d:	1/1	2/2	020			
Sample Identification:	SS13								Dat	e Te	sted	:	3/0	1/2	021			
TEST R	RESULTS - Particle	Size	Dist	ribu	tio	n o	f So	il 8	k Hy	rdro	me	eter	· An	haly	/sis			
Sampling N	Method:			s	am	bled	by Cli	ent,	Teste	ed as	Rece	ived	I		,			
Sieve Size (mm)	Percent Passing (%)	100					-		11 1		1111						•-	
75.0												Ī				7		
37.5	100	90										+			-			
19.0	98											ŧ						
9.5	92	00										ŧ						
4.75	87 📀	00										1						
2.36	83											ł						
1.18	79	70																
0.600	55 🖇											†						
0.425	26	60							ļ.			+						
0.300	17	00									И	+						
0.150	4										Μ	ŧ						
0.075	1	50										+						
Particle Diameter (mm	ψ Percent Finer (%)											ŧ						
0.0774	1	40										<u>+</u>		_				
0.0547	1											ŧ						
0.0387	1	20										ŧ						
0.0274	1	30										÷			(†††			
0.0142	0									7		Ŧ						
0.0100	0	20										<u> </u>						
0.0071	0									7		Ŧ						
0.0050	0	10										+						
0.0035	0	10			Π			Π	7	' T		+						
0.0025	0	0						Щ				+						
III AS 1289 3 5 1 -2 26r	nm Particle Density	0).0		0	.0			0.1		1	.0			10.0			100.0
φ							Р	art	icle S	ize (mm)						

2.68 g/cm3

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021

Marin Horte



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S	OIL AGGRE	EGATE		CONC	RETE	(CRUSH	IING		
	TEST RE	PORT - A	S 1289.3	.6.1 & u	4 AS 128	9. 3.6.3				
Client:	ICM					Ticke	t No.	S2265	5	
Client Address:	Suite 7, 3 Stirk Hou	ise Cann	ing Road	, Kalam	unda	Repor	rt No.	WG2	0/12004	I_1_PSDHY
Project:	Riverbed Material	Assessm	ent			Sampl	le No.	WG2	0/12004	t.
Location:	Swan River					Date Sa	mpled:	1/12/	2020	
Sample Identification:	S No. 14					Date T	ested:	4/01/	2021	
TEST R	ESULTS - Particle	Size D	istribut	tion o	f Soil &	Hyrdr	omete	r Ana	lysis	
Sampling M	lethod:		Sa	ampled	by Client,	Tested a	s Receive	d	-	
Sieve Size (mm)	Percent Passing (%)	100 r								
75.0								-		
37.5		90					1			
19.0										
9.5	100	00								
4.75	100 🧔	. 00								
2.36	100	S I					IIIIE			
1.18	99 . <u></u>	70								
0.600	98 🥳									
0.425	95 🗳	60								
0.300	91									
0.150	48									
0.075	9	50								
Particle Diameter (mm 4	Percent Finer (%)									
0.0735	9	40					+++++++++++			
0.0523	8									
0.0372	7	20								
0.0264	6	30								
0.0138	4									
0.0098	4	20 –					┼┼┼┼┟ <u></u>			
0.0069	3									
0.0049	3	10								
0.0035	1									
0.0025	1									
0.0014	0	0		·····	· · · · · · · · · · · · · · · · · · ·	₩ <u></u>) 1	+++++++ 1 O		10.0	100
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.0		0.0	Dort:	do Sizo	(mm)		10.0	100
2.69 g/g	cm3				raiti	cie size	uun			





S	OIL AGGRE	EGATE	Ξ [CO	NCF	RETE		CI	RUSH	IING			
	TEST RE	PORT -	AS 128	39.3.6.	1&ψ	AS 12	89.3	6.3					
Client:	ICM						Т	ïcket	No.	S22	65		_
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad, K	alamı	unda	R	eport	No.	WG	20/120	05_1_PSD	HY
Project:	Riverbed Material	Assess	ment				Sc	mple	No.	WG	20/120	05	
Location:	Swan River						Dat	e San	npled:	1/1	2/2020		
Sample Identification:	S No. 15						Da	ite Te	sted:	4/0	1/2021		
TEST R	ESULTS - Particle	Size [Distri	butio	n of	Soil	& Hy	rdro	mete	er An	alysis		
Sampling M	lethod:			Sam	pled b	y Clien	t, Test	ed as	Receive	d	,		
Sieve Size (mm)	Percent Passing (%)	100											Π
75.0													
37.5		90											<u>_</u>
19.0													
9.5	100												
4.75	100 🐨	80						T					ŤŤ
2.36	100												
1.18	99 .	70											++-
0.600	96 SS												
0.425	81 🗳	60							IIIF				
0.300	25	00											
0.150	1												
0.075	1	50						+					┼┼
Particle Diameter (mm 🏼 🎙	Percent Finer (%)												
0.0777	1	40											<u> </u>
0.0549	1												
0.0388	1												
0.0275	1	30											Ħ
0.0142	0												
0.0101	0	20											<u></u>
0.0071	0	-											
0.0050	0	40											
0.0036	0	10											Ħ
0.0025	0												
0.0015	0	0											.
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.	.0	C	0.0	_	0.1	. <i>.</i>	1.0		10.0	1	00.
2.67 g/c	cm3					Par	ticle	Size (mm)				

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation doe	es not cover the performance of this service.
Approved Signatory: Manos Hatte Name: Matt van Herk Date: 06/January/2021	Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full
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S	OIL AGGRE	GATE		CONC	RETE	CRUSH		
	TEST REI	PORT -	AS 128	9.3.6.1 &	ψ AS 1289	9. 3.6.3		
Client:	ICM					Ticket No.	S2265	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning Ro	oad, Kalam	nunda	Report No.	WG20/12006	_1_PSDHY
Project:	Riverbed Material	Assessr	nent			Sample No.	WG20/12006	
Location:	Swan River					Date Sampled:	1/12/2020	
Sample Identification:	S No. 16					Date Tested:	4/01/2021	
TEST RE	SULTS - Particle	Size [Distrik	oution o	f Soil &	Hyrdromete	er Analysis	
Sampling M	ethod:			Sampled	by Client, ⁻	Tested as Receive	d	
Sieve Size (mm)	Percent Passing (%)	100 _I						
75.0								
37.5	100	90						
19.0	99							
9.5	98	80				<u> </u>		
4.75	96 👳	00						
2.36	93							
1.18	90	70						
0.600	76 🖇							
0.425	53 🎽	60						
0.300	36							
0.150	6	50						
0.075	1	50						
Particle Diameter (mm ψ	Percent Finer (%)							
0.0777	1	40						
0.0549	1							
0.0388	1	30						
0.0275	1							
0.0143	0							
0.0101	0	20						
0.00/1	U							
0.0050	0	10				┝─╊┼╌┼┼┼╫╟╢		
0.0050	0							
0.0025	0	0						
0.0010	•	0.	0	0.0	0	.1 1.0	10.0	100.0
ψ AS 1289.3.5.1 -2.36mı 2.66 g/cı	m Particle Density m3				Partio	cle Size (mm)		

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 WORLD RECOGNISED ACCREDITATION

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S	OIL AGGRE		<u> </u>	<u>C0</u> N	ICRE	TE_		CR <u>US</u> I	HING		
	TEST RE	PORT -	AS 128	9.3.6.1	&ψΑ	S 128	9. 3.6.3				
Client:	ICM						Tick	et No.	S226	55	
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning Ro	oad, Ka	amuno	da	Repo	ort No.	WG2	20/12007	_1_PSDHY
Project:	Riverbed Material	Assess	ment				Samp	ole No.	WG2	20/12007	
Location:	Swan River						Date S	ampled:	1/12	2/2020	
Sample Identification:	S No. 17						Date	Tested:	3/01	L /2021	
TEST R	ESULTS - Particle	Size I	Distril	butior	of So	oil &	Hyrd	romet	er Ana	alysis	
Sampling M	lethod:			Samp	ed by C	lient,	Tested	as Receiv	ed		
Sieve Size (mm)	Percent Passing (%)	100									·
75.0								Į.			
37.5		90						/			
19.0	100							Ē			
9.5	100	00						Į į			
4.75	99 🗔	80						Ŧ			
2.36	98							H E			
1.18	97 .	70									
0.600	86 8										
0.425	74 🗳	60									
0.300	55										
0.150	18]				
0.075	3	50									
Particle Diameter (mm	Percent Finer (%)										
0.0754	3	40									
0.0533	3										
0.0377	3	30									
0.0268	3	30									
0.0139	2										
0.0099	2	20									
0.0070	2										
0.0050	1	10				+ + + + + + + + + + + + + + + + + + + +					
0.0035	0	-									
0.0025	0	~									
0.0014	U	U 0	.0	0.0		וווווו ר	∺ i i).1	1 0		10.0	
ψ AS 1289.3.5.1 -2.36m	m Particle Density	Ū		0.	-	Parti	cle Siz	e (mm)			
2.7 g/c	m3							,,			





S	OIL <u>Aggre</u>		C	RUS	HIN	G											
	TEST REI	PORT - A	AS 128	9.3.6.2	Ι&ψ	AS 1	289	. 3.6	.3								
Client:	ICM							Tic	ket l	No.	SZ	2266					
Client Address:	Suite 7, 3 Stirk Hou	ise Cani	ning Ro	oad, Ka	alamı	unda		Rep	oort	No.	W	/G20	/120	17_:	1_P	SDF	IY
Project:	Riverbed Material	Assessr	nent					San	nple	No.	W	/G20	/120	17			
Location:	Swan River							Date	Sam	pled	: 1,	/12/:	2020				
Sample Identification:	SS18							Date	e Tes	sted:	4,	/01/	2021				
TEST RI	ESULTS - Particle	Size D	Distril	outio	n of	Soil	&	Hyr	dro	met	er A	nal	ysis	;			
Sampling M	lethod:			Sam	oled b	y Clie	nt, 1	[este	d as l	Receiv	ved						
Sieve Size (mm)	Percent Passing (%)	100 r															1
75.0																	
37.5	100	90								//							
19.0	100									* =							
9.5	100									III F							
4.75	99 🗔	80															
2.36	98									E							
1.18	97 .	70													+		-
0.600	87 8									-							
0.425	61	60								-							
0.300	24	00															
0.150	1																
0.075	1	50										++-			+		-
Particle Diameter (mm 🏼 🏼 🏼 🏼 🏼 🏼 🏼	Percent Finer (%)																
0.0777	1	40															-
0.0549	1	-															
0.0389	0									-							
0.0275	0	30															
0.0142	0																
0.0101	0	20															-
0.0071	0																
0.0050	0	10															
0.0036	0	10														T	1
0.0025	0																
0.0015	0	0					and And				<u> </u>	╈		<u> </u>	┷┷┥		
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.	U	0	.0	D -	0.	." Ja Ci		1.(J		10.0)		10	0.0
2.67 g/c	cm3					Pa		.ie 21	ze (mm)							

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Maddbab Name: Matt van Herk Date: 06/January/2021 235 Bank Street, Welshpool WA 6106 08 9472 3465 Marce of this service. Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 08 9472 3465 WWW.Wgls.com.au



S	OIL AGGRE	EGATE	E	С	ONC	RET	E _		CF	RUSH	IINC	j				
	TEST REI	PORT -	AS 12	89.3.	6.1 &	ψAS	128	9. 3.6.	3							
Client:	ICM							Tic	ket N	lo.	S22	266				
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad,	Kalan	nunda	a	Rep	ort I	Vo.	WG	620/	12018	3_1_F	PSDI	ΗY
Project:	Riverbed Material	Assess	ment					Sam	ple	No.	We	520/	12018	3		
Location:	Swan River							Date	Sam	pled:	1/1	2/2	020			
Sample Identification:	SS19							Date	e Tes	ted:	4/0)1/2	020			
TEST R	ESULTS - Particle	Size I	Distri	but	ion o	of Soi	il &	Hyr	dro	mete	er Ar	naly	sis			
Sampling N	lethod:			Sa	mpled	by Cli	ent,	Tested	l as R	eceive	d					
Sieve Size (mm)	Percent Passing (%)	100			1111		1111	1					111		, <u>, , , , , , , , , , , , , , , , , , </u>	п
75.0																
37.5	100	90														-
19.0	92															
9.5	87	00														
4.75	83 🗔	80								1						+-
2.36	81															
1.18	79	70								+HE-				┝──┼	+++++	
0.600	60 🕺															
0.425	30 🗳	60								<u>/</u>				ļļ.ļ		Ļ
0.300	13	00							Ĩ	ΤĿ						
0.150	2															
0.075	1	50														+-
Particle Diameter (mm	Percent Finer (%)															
0.0779	1	40		.												
0.0551	1									+						
0.0391	0	20														
0.0276	0	30							γ							
0.0143	0															
0.0101	0	20														-
0.0071	0															
0.0050	0	10							71					ļļ		1
0.0036	0	10														
0.0025	0															
0.0015	0	0				•••				1 0	-		10.0	┢─╁─╁	11	H 10 0
ψ AS 1289.3.5.1 -2.36m 2 GG ~/	m Particle Density	0	.0		0.0	Р	arti	cle Si	ze (r	nm)			10.0		10	.0.0
2.00 g/0	01115									-						

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 WORLD RECOGNISED ACCREDITATION

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S	oil <u>Agg</u> re	EGATE	<u> </u>	C	DNC	RET	Ε		CR	USF	IING					
	TEST REI	PORT -	AS 128	9.3.6	5.1 & 0	ψAS :	1289	9. 3.6	.3							
Client:	ICM							Tic	ket N	lo.	S22	265				
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad,	Kalam	unda	1	Rep	ort N	Vo.	We	620/	12008	3_1_1	PSD	HY
Project:	Riverbed Material	Assessi	ment					San	nple I	No.	We	620/	12008	3		
Location:	Swan River							Date	Sam	oled:	1/1	.2/2	020			
Sample Identification:	S No. 20							Date	e Tes	ted:	3/0)1/2	021			
TEST RE	ESULTS - Particle	Size I	Distri	buti	on o	f Soi	8	Hyr	droi	mete	er Ar	naly	sis			
Sampling M	ethod:			Sar	npled	by Clie	ent, [·]	Teste	d as R	eceive	d					
Sieve Size (mm)	Percent Passing (%)	100			111			I I				11				
75.0																
37.5		90				ļ								ļļ.	_	
19.0																
9.5	100	00							<u> </u>							
4.75	99 🗔	80							7							
2.36	98															
1.18	96	70							∳⊹			++++		+		
0.600	90 👸									IIIE						
0.425	80	60														
0.300	70	00														
0.150	32															
0.075	9	50														
Particle Diameter (mm 4	Percent Finer (%)															
0.0730	9	40														
0.0516	9															
0.0368	7	20														
0.0261	7	30						7		+						
0.0136	6									ļļļ						
0.0097	4	20														
0.0069	3															
0.0049	2	10														
0.0035	1	10														
0.0025	1									IIIE						
0.0014	0	0					<u> </u>						<u> </u>	┝		Щ
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0	.0		0.0		0	.1	-	1.0			10.0		1	00.0
2.71 g/c	cm3					Pa	arti	cle Si	ze (n	nm)						

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Mame: Matt van Herk Date: 06/January/2021 235 Bank Street, Welshpool WA 6106 Name: Matt van Herk Date: 08 9472 3465 Name: Matt van Herk Mame: Matt van Herk Matt van



S	OIL AGGRE	GATE		COI		ETE _		CRL	JSH	ING		
	TEST REF	PORT - A	S 128	9.3.6.1	&ψ/	AS 128	9. 3.6.3	3				
Client:	ICM						Tick	et No).	S226	6	
Client Address:	Suite 7, 3 Stirk Hou	se Canr	ing Ro	oad, Ka	lamu	nda	Repo	ort No).	WG2	20/1201	9_1_PSDHY
Project:	Riverbed Material	Assessn	nent				Sam	ple N	0.	WG2	20/1201	9
Location:	Swan River						Date S	Sampl	ed:	1/12	/2020	
Sample Identification:	SS21						Date	Teste	d:	4/01	/2021	
TEST R	ESULTS - Particle	Size D	istril	outio	n of S	Soil 8	k Hyrc	Irom	ete	r Ana	alysis	
Sampling N	lethod:			Samp	led by	Client,	Tested	as Re	ceive	d	-	
Sieve Size (mm)	Percent Passing (%)	100 г					11 1					
75.0											H	
37.5	100	90										
19.0	99											
9.5	98	•0							F			
4.75	95 🗔	00 ľ							Æ			
2.36	90								ΙĒ			
1.18	87	70 -										
0.600	72 🔮											
0.425	47 🗳	60										
0.300	21											
0.150	2											
0.075	1	50 -						Ш	+			
Particle Diameter (mm	Percent Finer (%)							Υ	+			
0.0779	1	40										
0.0551	1								ļ.			
0.0391	0	20							+			
0.0276	0	30 "							H			
0.0143	0											
0.0101	0	20										
0.0071	0						/		-			
0.0050	0	10									<u></u>	
0.0036	0											
0.0025	0											
0.0015	0	0 -			0		0.1		1.0		10.0	100 0
ψ AS 1289.3.5.1 -2.36m	nm Particle Density	5.0	-	5.	-	Part	icle Siz	e (m	m)			

2.66 g/cm3

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matt van Herk Date: 06/January/2021 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

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Appendix A: Particle Size Distribution of Soil & Hydrometer Analysis

SEDIMENT SAMPLES OPTIONAL ONE (01) TO OPTIONAL SIXTEEN (016)



SOIL	AGGREGA	TE _			CC	NCR	ETE				C	CRUS	HIN	G	
	TEST REF	PORT -	AS 12	89.3.	6.1 &	ψAS	1289	9. 3.6.3							
Client:	ICM							Tick	et No.		S226	64			
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning F	Road,	Kalar	nund	а	Repo	ort No.	,	WG	20/11	984_	1_PSD	ЭΗΥ
Project:	Riverbed Material	Assess	ment					Sam	ole No		WG	20/11	984		
Location:	Swan River							Date S	ample	d:	1/12	2/202	0		
Sample Identification:	SS01							Date	Tested	1:	31/1	12/20	20		
TEST RE	SULTS - Particle	Size I	Distri	ibut	ion c	of So	oil &	Hyrd	rom	eter	An	alysi	S		
Sampling M	ethod:			Sa	mpled	by Cl	ient,	Tested	as Rec	eived					
Sieve Size (mm)	Percent Passing (%)	100									L				
75.0	100										+				
37.5	97	90													
19.0	91														
9.5	88	80			<u> </u>		ļ				F				
4.75	86 😪										+				
2.36	85	70									+				
1.18	84	70													
0.600	76 88														
0.425	55 🗳	60									-				
0.300	31									✦	+				
0.150	ь Э	50									†				
0.075 Particle Diameter (mm	Z N Porcont Finor (%)										+				
0 0758	2	40													
0.0537	2	40													
0.0380	2										+				
0.0269	2	30							7		+				
0.0140	1										+				
0.0099	1	20					+								
0.0070	1														
0.0050	1	10									-				
0.0035	1										ŧ				
0.0025	0	•									ŧ				
0.0015	0	0	.0	ווווווו ח	.0	نىشىنى)).0	רה די די די ה	<u>+ i i</u> ∟1	1 1 1 1 1 1 1	.0		10.0	1	
AS 1289.3.5.1 -2.36mm	Particle Density	0		Ū			Darti	rle Siz	e (mn	_)					55.0
2.67 g/c	cm3					ſ	arti	CIC JIZ	c (mii	''					

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accredit	ation does not co	ver the performance of this service.
Approved Signatory: Macodiate Name: Matt van Herk Date: 04/January/2021		Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full
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SOIL	AGGREGA	TE	l	(CONCREI	'E		CRUSHI	NG
	TEST REI	PORT -	AS 128	39.3.6.1	& ψ AS 12	89. 3.6.	3		
Client:	ICM					Tick	ket No.	S2264	
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad, Kal	amunda	Rep	ort No.	WG20/11985	_1_PSDHY
Project:	Riverbed Material	Assessi	ment			Sam	ple No.	WG20/11985	
Location:	Swan River					Date S	Sampled:	1/12/2020	
Sample Identification:	SS02					Date	Tested:	31/12/2020	
TEST RE	SULTS - Particle	Size [Distri	bution	of Soil	& Hyro	dromete	r Analysis	
Sampling M	ethod:			Sample	ed by Clien	t, Tested	as Received	s t	
Sieve Size (mm)	Percent Passing (%)	100							
75.0									
37.5		90							
19.0	100						Į į		
9.5	100	00					III III		
4.75	100 👳	00							
2.36	99 🇳								
1.18	98	70							
0.600	87 👸								
0.425	62 🗳	60							
0.300	27								
0.150	1								
0.075	1	50							
Particle Diameter (mm Ψ	Percent Finer (%)						 		
0.0776	0	40							
0.0549	0								
0.0388	0	30							
0.0274	0	50							
0.0142	0								
0.0100	0	20							
0.0071	0								
0.0050	0	10							
0.0035	U	-							
0.0025	U	0							
0.0014	U	0	0	0.0		0.1	10	10.0	
ψ AS 1289.3.5.1 -2.36mi	m Particle Density	0.	.0	0.0	Der	tials Ci	····	10.0	100.0
2.68 g/c	:m3				Par	ucie Slž	ie (mm)		

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Manuel Matt van Herk Date: 04/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 235 Bank Street, Welshpool WA 6106 Name Accreditation No. 20599 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full WW.wgls.com.et



S	oil Aggre	GAT	E	С	ONC	RETE		CRUS	SHI	NG				
	TEST REI	PORT -	AS 12	89.3.	6.1 &	ψ AS 128	9. 3.6.3	3						
Client:	ICM						Tick	et No.		S22(56			
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad,	Kalam	nunda	Repo	ort No.		WG	20/120	20_	1_P\$	SDHY
Project:	Riverbed Material	Assess	ment				Sam	ple No.		WG	20/120	20		
Location:	Swan River						Date S	ampled	1:	1/12	2/2020			
Sample Identification:	OPT.03						Date	Tested		5/01	L/2021			
TEST RE	ESULTS - Particle	Size	Distri	but	ion o	f Soil 8	Hyrd	Irome	ter	An	alysis	;		
Sampling M	ethod:			Sa	mpled	by Client,	Tested	as Rece	ived		,			
Sieve Size (mm)	Percent Passing (%)	100			1111		11 1				• •-			
75.0														
37 5		90							-					
19.0								*	-					
9.5	100								-					
4.75	100 🙃	80												
2.36	99								-					
1.18	98	70							-					
0.600	94 8													
0.425	87 🗳	60							_					
0.300	78	00							-					
0.150	37								-					
0.075	10	50												
Particle Diameter (mm 4	Percent Finer (%)								-					
0.0739	8	40		<u> </u>					-				+	
0.0524	7						•		-					
0.0372	7	20							-					
0.0264	6	30							-					
0.0137	5								E					
0.0097	4	20											+	
0.0069	4													
0.0049	4	10							_					
0.0035	4	10							Ļ					
0.0025	3								÷					
0.0014	2	0		╅╋╋	111			<u>, </u> 1	0		10 0)	+++	++++ 100 0
ψ AS 1289.3.5.1 -2.36m	m Particle Density	U	.0		0.0	Parti	icle Siz	o (mm			10.0	,		100.0
2.69 g/c	cm3					rail	icie 312	e (min	,					

Approved Signatory: Madded Name: Matt van Herk
Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Date: 06/January/2021

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SOIL	AGGREGA	re	CON	ICRETE		CRUSHIN	G
	TEST REP	ORT - AS 1	.289.3.6.1 & ψ	AS 1289. 3.6.3	3		
Client:	ICM			Tick	et No.	S2264	
Client Address:	Suite 7, 3 Stirk Hou	se Canning	Road, Kalam	unda <i>Repo</i>	ort No.	WG20/11986_	1_PSDHY
Project:	Riverbed Material	Assessmen	t	Sam	ple No.	WG20/11986	
Location:	Swan River			Date S	ampled:	1/12/2020	
Sample Identification:	SS04			Date	Tested:	31/12/2020	
TEST RE	SULTS - Particle	Size Dist	ribution of	Soil & Hyrd	Iromete	r Analysis	
Sampling M	ethod:		Sampled b	y Client, Tested	as Received	r I	
Sieve Size (mm)	Percent Passing (%)	100					
75.0							
75.0	100	90					
19.0	99				Ţ		
9.5	99				f ‡		
4.75	97 🕤	80					
2.36	96 🕺						
1.18	94	70					
0.600	84 8				E		
0.425	59 🗳	60					
0.300	32	00			T		
0.150	8						
0.075	2	50					
Particle Diameter (mm ψ	Percent Finer (%)						
0.0779	2	40					
0.0551	2						
0.0390	2						
0.0276	1	30					
0.0143	1						
0.0101	1	20					
0.0072	0						
0.0051	0	10					
0.0036	0	10					
0.0025	0						
0.0015	0	0					
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.0	0.0	0.1	1.0	10.0	100.0
2.64 g/c	:m3			Particle Siz	e (mm)		

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Machdod

 Name: Matt van Herk

 Date: 04/January/2021

 235 Bank Street, Welshpool WA 6106



SOIL 2	AGGREGATE	CONCRE	TE	CRUSHING
	TEST REPORT - AS	L289.3.6.1 & ψ AS 1	289. 3.6.3	
Client: ICM			Ticket No.	S2264
Client Address: Suite 7,	3 Stirk House Canning	g Road, Kalamunda	Report No.	WG20/11987_1_PSDH
Project: Riverbee	d Material Assessmer	ıt	Sample No.	WG20/11987
Location: Swan Ri	ver		Date Sampled:	1/12/2020
Sample Identification: SS05			Date Tested:	31/12/2020
TEST RESULTS -	Particle Size Dist	ribution of Soil	& Hyrdromete	er Analysis
Sampling Method:		Sampled by Clie	nt, Tested as Receive	ď
Sieve Size (mm) Percent P	assing (%) 100			
75.0				
37.5 100	90			
19.0 96				
9.5 93	00			
4.75 88	3 0			
2.36 85	6) 60		IIII III	
1.18 83	. .			
0.600 76	SS			
0.425 60	6 0			
0.300 31			Y	
0.150 2				
0.075 1	50			
Particle Diameter (mm ψ Percent	Finer (%)			
0.0774 1	40			
0.0547 1				
0.0387 1	30			
0.02/4 1	50			
0.0142 0				
0.0100 0	20			
0.0071 0				
0.0035 0	10		┼┼╫──┨─┼┼┼┼╟╪╴┈	
0.0025				
0.0014 0				
· · ·				
	0.0	0.0	0.1 1.0	10.0 100

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Machada Name: Matt van Herk Date: 04/January/2021 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 225 Park Street Molesbreel NA 6106



SOIL	AGGREGA	TE			CO	NCRE	ſE			CI	RUSHI	NG
	TEST REF	PORT -	AS 128	39.3.6.	1& .	ψ AS 12	289. 3.	6.3				
Client:	ICM						Τ	icket N	lo.	S226 4	1	
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad, K	alam	nunda	R	eport I	Vo.	WG20	0/11988	_1_PSDHY
Project:	Riverbed Material	Assessr	ment				Sa	mple	No.	WG20	0/11988	}
Location:	Swan River						Dat	e Sam	pled:	1/12/	/2020	
Sample Identification:	SS06						Da	te Tes	ted:	31/12	2/2020	
TEST R	ESULTS - Particle	Size [Distri	butic	on o	f Soil	& Hy	rdro	mete	r Ana	lysis	
Sampling M	ethod:			Sam	pled	by Clien	t, Test	ed as R	eceive	ł		
Sieve Size (mm)	Percent Passing (%)	100				-						
75.0												
75.0 37 5	100	90										
19.0	94	00										
9.5	91	00										
4.75	87 🕤	80							T			
2.36	83								I			
1.18	82	70			+				? + <u>-</u>			
0.600	71 👸											
0.425	54	60										
0.300	28								+			
0.150	2								-			
0.075	1	50										
Particle Diameter (mm $\$	Percent Finer (%)											
0.0772	1	40										
0.0546	1											
0.0386	1	20										
0.0273	1	30							+			
0.0141	0								III T			
0.0100	0	20										
0.0071	0								III			
0.0050	0	10										
0.0035	0	10							I			
0.0025	0											
0.0014	0	0					0.1	+ + + +	10		10.0	
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.	.0	(5.0	_	0.1		1.0		10.0	100.0
2.68 g/c	:m3					Par	ticle	Size (n	nm)			

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Maddada Name: Matt van Herk Date: 04/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full



SOIL	AGGREGA	TE			СС	NCREI	ΓE			C	RUSHI	NG
	TEST REI	PORT - A	S 128	9.3.6	5.1 &	ψ AS 12	89. 3.	6.3				
Client:	ICM						Τ	icket I	Vo.	S226	4	
Client Address:	Suite 7, 3 Stirk Hou	ise Canr	ing R	oad,	Kalan	nunda	Re	eport	No.	WG2	0/11989	_1_PSDHY
Project:	Riverbed Material	Assessn	nent				Sa	mple	No.	WG2	0/11989)
Location:	Swan River						Dat	e Sam	pled:	1/12	/2020	
Sample Identification:	SS07						Da	te Tes	ted:	31/1	2/2020	
TEST RE	SULTS - Particle	Size D	istri	buti	on o	of Soil	& Hy	rdro	mete	r Ana	lysis	
Sampling M	ethod:			Sar	npled	by Clien	t, Test	ed as F	Receive	d	-	
Sieve Size (mm)	Percent Passing (%)	100 г										
75.0												
37.5	100	90										
19.0	100								7			
9.5	99											
4.75	97 🧔	80							-			
2.36	92								Į,			
1.18	88	70 -							8 E-			
0.600	68 👸								ΤĿ			
0.425	39	60										
0.300	14								-			
0.150	1											
0.075	1	50 -										
Particle Diameter (mm Ψ	Percent Finer (%)											
0.0770	1	40										
0.0544	1							I				
0.0385	1	20							-			
0.0272	1	30										
0.0141	0											
0.0100	0	20										
0.0071	0											
0.0050	0	10										
0.0035	0											
0.0025	0											
0.0014	0	0										
ψ AS 1289.3.5.1 -2.36mi	m Particle Density	0.0	J		0.0		0.1		1.0		10.0	100.0
2.67 g/c	m3					Par	ticle	Size (ı	nm)			

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Market Matt van Herk Date: 04/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 235 Bank Street, Welshpool WA 6106 08 9472 3465 Www.wgls.com.au



SOIL	AGGREGA	ΓE	l	C	ONCRETE		CRUSHIN	G
	TEST REP	ORT - /	AS 128	9.3.6.1 8	ψ AS 1289	. 3.6.3		
Client:	ICM					Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk Hou	se Canr	ning Ro	oad, Kala	munda	Report No.	WG20/11990_	1_PSDHY
Project:	Riverbed Material	Assessn	nent			Sample No.	WG20/11990	
Location:	Swan River					Date Sampled:	1/12/2020	
Sample Identification:	SS08					Date Tested:	31/12/2020	
TEST RE	SULTS - Particle	Size D	Distril	bution	of Soil &	Hyrdromete	r Analysis	
Sampling M	ethod:			Sample	d by Client, 1	Fested as Receive	d	
Sieve Size (mm)	Percent Passing (%)	100 г			-			-
75.0								
75.0	100	90						
19.0	99							
9.5	98					L L L		
4.75	96 😨	80				/		
2.36	92					/ ‡		
1.18	90	70						
0.600	71 🖇					+		
0.425	43	60						
0.300	21	00						
0.150	3							
0.075	2	50						
Particle Diameter (mm ψ	Percent Finer (%)							
0.0767	1	40						
0.0542	1					Ţ		
0.0383	1							
0.0271	1	30						
0.0141	0					+		
0.0100	0	20				∲ ‡		
0.0071	0					ļ		
0.0050	0							
0.0035	0	10						
0.0025	0							
0.0014	0	0						
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.	0	0.0	0	.1 1.0	10.0	100.0
2.69 g/c	m3				Partio	cle Size (mm)		

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Mane: Matt van Herk Date: 04/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accreditation No. 20599 This document shall not be reproduced except in full 235 Bank Street, Welshpool WA 6106 Name: Matt Van Herk Dete: 08 9472 3465 Www.wgls.com.au



S	DIL AGGRE	GAT	Ξ	C	DNC	RET	E	CRUS	HINC	Ĵ	
	TEST REF	PORT -	AS 128	39.3.6	5.1 &	ψAS	1289	9. 3.6.3			
Client:	ICM							Ticket No.	S2 2	264	
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad,	Kalan	nunda	a	Report No.	W	G 20/ 1199	1_1_PSDHY
Project:	Riverbed Material	Assess	ment					Sample No.	W	G 20/ 1199	1
Location:	Swan River							Date Sampled:	1/1	12/2020	
Sample Identification:	SS09							Date Tested:	2/ 1	1/2021-5/	1/2021
TEST RE	SULTS - Particle	Size I	Distri	buti	on o	f Soi	il &	Hyrdromet	er Aı	nalysis	
Sampling Mo	ethod:			Sar	npled	by Cli	ent,	Tested as Receiv	ved		
Sieve Size (mm)	Percent Passing (%)	100									
75.0								-			
37.5	100	90								1	
19.0	98							Ē			
9.5	96	80						7 F			
4.75	94 📀	00									
2.36	91										
1.18	90 .5	70		┝─┼┼┼		+					
0.600	87 🖇										
0.425	83 🎽	60					+++++				
0.300	76										
0.150	32							ļ ‡			
0.075	14	50									
Particle Diameter (mm ψ	Percent Finer (%)										
0.0694	13	40									
0.0494	12										
0.0351	12	30						E E E E E E E E E E E E E E E E E E E			
0.0252	10	30									
0.0132	8										
0.0094	7	20									
0.0067	6						Ц				
0.0048	5	10		<u> </u>				└─── <u></u>			
0.0034	4	-									
0.0024	3 1	0									
0.0014	-	0	.0		0.0		0	.1 1.0)	10.0	100.0
ψ AS 1289.3.5.1 -2.36mr	m Particle Density					Р	arti	cle Size (mm)			

2.72 g/cm3

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Mandidation

 Name: Matt van Herk

 Date: 06/January/2021

 235 Bank Street, Welshpool WA 6106

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SOIL	AGGREGA	TE			CC)NCRE1	ľE			CF	USHI	NG	
	TEST REI	PORT -	AS 12	89.3.	6.1 &	ψ AS 12	289. 3.	6.3					
Client:	ICM						Τ	icket I	lo.	S2264			
Client Address:	Suite 7, 3 Stirk Hou	ise Can	ning R	oad,	Kalar	nunda	Re	eport	Vo.	WG20	/11992	2_1_PS	DHY
Project:	Riverbed Material	Assess	ment				Sa	mple	No.	WG20	/11992	2	
Location:	Swan River						Dat	e Sam	pled:	1/12/	2020		
Sample Identification:	SS010						Da	te Tes	ted:	31/12	/2020		
TEST RE	SULTS - Particle	Size I	Distri	but	ion c	of Soil	& Hy	rdro	mete	r Ana	ysis		
Sampling Method: Sampled by				l by Clien	t, Test	ed as F	eceive	d	-				
Sieve Size (mm)	Percent Passing (%)	100			1111		1111						
75.0											1		
37.5		90											
19.0	100												
9.5	100	00											
4.75	98 🗔	80							+				
2.36	97								III F				
1.18	97	70		$\left \right $			$\left \left \right \right $	- 1	╢╢╂				
0.600	90 🕺												
0.425	71	60		ļļ.									
0.300	39												
0.150	5												
0.075	2	50											
Particle Diameter (mm ψ	Percent Finer (%)												
0.0772	2	40											
0.0546	2												
0.0386	2	20											
0.0273	1	30											
0.0141	1								IIIE				
0.0100	1	20											
0.0071	1												
0.0050	1	10											
0.0035	1	10											
0.0025	0												
0.0015	0	0		4							10.0		
ψ AS 1289.3.5.1 -2.36mr 2.67 g/c	m Particle Density m3	0	.0		0.0	Par	0.1	Size (ı	1.0 nm)		10.0		100.0

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Mame: Matt van Herk

 Date: 04/January/2021

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SOIL	AGGREGA	TE			СС	NCRE	TE			CI	RUSHII	NG
	TEST REF	PORT -	AS 128	39.3.6	5.1 &	ψAS	1289	. 3.6.3				
Client:	ICM							Ticke	et No.	S226 4	Ļ	
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning R	oad,	Kalan	nunda		Repo	rt No.	WG2)/11993	_1_PSDHY
Project:	Riverbed Material	Assessi	ment					Samp	ole No.	WG2)/11993	}
Location:	Swan River							Date S	ampled:	1/12/	2020	
Sample Identification:	SS011							Date 1	Tested:	4/01/	2020	
TEST RE	SULTS - Particle	Size [Distri	buti	on o	f Soi	8	Hyrd	romete	er Ana	lysis	
Sampling M	ethod:			Sar	npled	by Clie	ent, T	rested a	as Receive	ed		
Sieve Size (mm)	Percent Passing (%)	100				-						
75.0												
75.0	100	90										
19.0	99	00										
9.5	99	00										
4.75	99 🗔	80										
2.36	98 🌑								Ē			
1.18	98	70										
0.600	92 8								-			
0.425	77 🗳	60										
0.300	38											
0.150	2											
0.075	1	50										
Particle Diameter (mm Ψ	Percent Finer (%)											
0.0772	1	40										
0.0546	1							7				
0.0386	1	30										
0.0273	1	30										
0.0142	0											
0.0100	0	20										
0.0071	0											
0.0050	0	10										
0.0035	U											
0.0025	U											
0.0014	U	0			0.0		0-0-	1	1 0		10.0	
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0	.0		0.0	-	0		1.0		10.0	100.0
2.68 g/c	:m3					Pa	artio	sie Size	e (mm)			

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Machada Name: Matt van Herk Date: 04/January/2021 Accreditation No. 20599 Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing This document shall not be reproduced except in full 235 Bank Street, Welshpool WA 6106



SOIL	AGGREGA	re	CONCRI	ETE	CRUSHING
	TEST REP	ORT - AS	1289.3.6.1 & ψ AS	1289. 3.6.3	
Client:	ICM			Ticket No.	S2264
Client Address:	Suite 7, 3 Stirk Hou	se Cannin	g Road, Kalamunda	Report No.	WG20/11994_1_PSDHY
Project:	Riverbed Material	Assessme	nt	Sample No.	WG20/11994
Location:	Swan River			Date Sampled:	1/12/2020
Sample Identification:	SS012			Date Tested:	4/01/2021
TEST RE	SULTS - Particle	Size Dis	tribution of Soi	il & Hyrdromete	er Analysis
Sampling M	ethod:		Sampled by Cli	ent, Tested as Receive	d
Sieve Size (mm)	Percent Passing (%)	100			
75.0					
37.5	100	90			
19.0	95				
9.5	90	80			
4.75	84 😨	00			
2.36	76				
1.18	71 .5	70		7	
0.600	58 %			<u> </u>	
0.425	44 🕰	60		·····	
0.300	28			I I I I I I I I I I I I I I I I I I I	
0.150	6	50		<u> </u>	
0.075 Derticle Diameter (mm. 1	2 Dercent Finer (%)	50			
	2	10		┃	
0.0537	2	40			
0.0379	2				
0.0268	2	30			
0.0140	1			7 <u></u>	
0.0099	1	20			
0.0070	1				
0.0050	1				
0.0035	1	10			

0.0014 0 0.0 0.0 ψ AS 1289.3.5.1 -2.36mm Particle Density 2.68 g/cm3 Comments: ψ- AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

0

0

Approved Signatory: And Hate Accreditation No. 20599 NATA Accredited for compliance with ISO/IEC 17025 - Testing Name: Matt van Herk WORLD RECOGNISE ACCREDITATIO Date: 04/January/2021 This document shall not be reproduced except in full

0.1

Particle Size (mm)

1.0

10.0

100.0

0.0025



S	OIL AGGRE	EGAT	E_		CC		RE	TE_		(CR	USF	lINC	5				
	TEST RE	PORT -	AS 1	289.	3.6	.1 &	ψA	5 12	89. 3	.6.3								
Client:	ICM								7	Ticke	t N	о.	S2	264				
Client Address:	Suite 7, 3 Stirk Hou	use Car	nning	Roa	d, k	Kalan	nund	la	R	еро	rt N	о.	W	G20	/119	95_1	_P	SDHY
Project:	Riverbed Material	Assess	ment	t					S	amp	le N	lo.	W	G20	/119	95		
Location:	Swan River								Da	te Sc	mp	led:	1/:	12/2	2020			
Sample Identification:	SS013								Do	ate 1	est	ed:	2/	1/20)21-5	/1/2	202	1
TEST R	ESULTS - Particle	Size	Dist	ribu	itio	on c	of So	sil 8	& H1	vrdı	ror	nete	er A	nal	vsis			
Sampling M	lethod:	0.20			San	npled	by C	lient	t, Tes	ted a	s Re	eceive	ed		,			
Sieve Size (mm)	Percent Passing (%)	100							,									
		100																
75.0		00																
37.5		90																
19.0	100											ΠĒ						
9.5	100	80																
4.75	100																	
2.30		70																
1.18	96	10																
0.425	88																	
0.300	75	60																
0.150	21																	
0.075	9	50																
Particle Diameter (mm	Percent Finer (%)											ΠĒ						
0.0680	7	40										Ŧ						
0.0496	5	-0																
0.0362	4																	
0.0261	3	30																
0.0138	1																	
0.0097	1	20																
0.0069	1																	
0.0049	1	40							Ι									
0.0035	1	10							1									
0.0025	0											IIF						
0.0014	0	0							0.4									
0.0 ψ AS 1289.3.5.1 -2.36mm Particle Density				0.0 0.1 1.0 10.0							100.							
o = /	•							r ai	いいせ	JIZE	: (11							

2.7 g/cm3

 Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

 Approved Signatory:

 Maxe:
 Matt van Herk

 Date:
 06/January/2021

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SOIL	AGGREGA	TE			CC	DNCRE	ΓE			CR	USHII	NG	
	TEST REF	PORT -	AS 12	89.3.	6.1 &	ψ AS 12	289. 3	.6.3					
Client:	ICM						7	Ticket N	lo.	S2264			
Client Address:	Suite 7, 3 Stirk Hou	se Can	ning F	Road,	Kalar	nunda	R	eport l	Vo.	WG20	/11996	_1_PSD	HY
Project:	Riverbed Material	Assessi	ment				S	ample	No.	WG20	/11996		
Location:	Swan River						Da	te Sam	pled:	1/12/2	2020		
Sample Identification:	SS014						Do	ate Tes	ted:	4/01/2	2021		
TEST RE	SULTS - Particle	Size [Distr	ibut	ion d	of Soil	& Hy	/rdro	mete	r Anal	ysis		
Sampling Method: Sampl				mpled	l by Clier	nt, Tes	ted as R	eceive	d	-			
Sieve Size (mm)	Percent Passing (%)	100			1111		1111						Π
75.0													
37.5		90											
19.0	100								ļ ļ				
9.5	99	80							IIIF				
4.75	99 📀	00							H				
2.36	98 🗳								IIIE				
1.18	97	70											
0.600	90 8												
0.425	65 🗳	60		_									
0.300	27												
0.150	3												
0.075	2	50											+
Particle Diameter (mm ψ	Percent Finer (%)												
0.0763	2	40											
0.0540	2	-											
0.0382	2												
0.0270	2	30											
0.0140	1												
0.0099	1	20											
0.0070	1												
0.0049	1	10											
0.0035	1	10											
0.0025	0								IIIF				
0.0014	0	0					M						
ψ AS 1289.3.5.1 -2.36mr	n Particle Density	0.	.0		0.0		0.1		1.0		10.0	1	00.0
2.69 g/c	2.69 g/cm3				Particle Size (mm)								

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service. Approved Signatory: Manafibbo Name: Matt van Herk Date: 04/January/2021 235 Bank Street, Welshpool WA 6106 08 9472 3465 Www.wgls.com.au



SOIL	AGGREGA	re		CC	NCRETE	<u>ا</u>	CRUSHIN	G
	TEST REP	PORT - AS	1289.	3.6.1 &	ψ AS 1289	. 3.6.3		
Client:	ICM					Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk Hou	se Cannin	g Roa	d, Kalan	nunda	Report No.	WG20/11997_	1_PSDHY
Project:	Riverbed Material	Assessme	nt			Sample No.	WG20/11997	
Location:	Swan River				L	Date Sampled:	1/12/2020	
Sample Identification:	SS015					Date Tested:	4/01/2021	
TEST RE	SULTS - Particle	Size Dis	tribu	ition o	of Soil &	Hyrdromete	er Analysis	
Sampling M	ethod:		9	Sampled	by Client, T	ested as Receive	ed	
Sieve Size (mm)	Percent Passing (%)	100 —						
75.0								
73.0	100	90						
19.0	97					Г Г		
9.5	95							
4.75	94 🗔	80				111		
2.36	93							
1.18	92	70						
0.600	90 🕺							
0.425	80	60						
0.300	34	00						
0.150	3							
0.075	3	50						
Particle Diameter (mm ψ	Percent Finer (%)							
0.0750	2	40						
0.0530	2							
0.0375	2	20						
0.0265	2	30						
0.0139	1							
0.0098	1	20						
0.0069	1							
0.0049	1	10						
0.0035	1							
0.0025	1							
0.0014	0	0	+ + +					
ψ AS 1289.3.5.1 -2.36mı	m Particle Density	0.0		0.0	0.	1 1.0	10.0	100.0
2.68 g/c	m3				Partic	le Size (mm)		





SOIL	AGGREGA	ΓE		CC	NCRETE	Ι	CRUSHIN	1G
	TEST REP	PORT - A	S 128	9.3.6.1 &	ψ AS 1289	. 3.6.3		
Client:	ICM					Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk Hou	se Cann	ing Ro	oad, Kalan	nunda	Report No.	WG20/11998	_1_PSDHY
Project:	Riverbed Material	Assessm	ent			Sample No.	WG20/11998	
Location:	Swan River				L	Date Sampled:	1/12/2020	
Sample Identification:	SS016					Date Tested:	4/01/2021	
TEST RE	SULTS - Particle	Size D	istrik	oution o	f Soil &	Hyrdromet	er Analysis	
Sampling M	ethod:			Sampled	by Client, T	ested as Receiv	ved	
Sieve Size (mm)	Percent Passing (%)	100 r						
75.0	100							
37.5	98	90 -						
19.0	95							
9.5	93							
4.75	91 🗔	00						
2.36	86							
1.18	81	70						
0.600	67 🔮							
0.425	50 🗳	60						
0.300	29							
0.150	4							
0.075	2	50				7		
Particle Diameter (mm 4	Percent Finer (%)							
0.0743	2	40						
0.0526	2							
0.0372	2	20						
0.0263	2	30				•		
0.0137	1							
0.0097	1	20						
0.0068	1							
0.0048	1	10						
0.0035	1							
0.0025	0					≁		
0.0014	0	0				4 4 7		
ψ AS 1289.3.5.1 -2.36m	m Particle Density	0.0	1	0.0	0.	1.U	10.0	100.0
2.71 g/c	.m3				Partic	le Size (mm)		

Approved Signatory:

Comments: ψ - AS 1289.3.5.1 & ψ AS 1289.3.6.3 - NATA Accreditation does not cover the performance of this service.

Name: Matt van Herk Date: 04/January/2021



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Corrosion

Management

Appendix B: Calcium Carbonate Content



	SOIL	AGGREGATE	CONCRETE	CRUSI	HING
		TEST REI	PORT - WA 915.1		
Client:	ICM			Ticket No.	S2266
Client Address:	Suite 7,	3 Stirk House Canning	Road, Kalamunda	Report No.	WG20/12009-12012_1_Ca
Project:	Riverbe	d Material Assessment		Sample No.	WG20/12009-12012
Location:	Swan Ri	iver		Date Sampled:	1/12/2020
Sample Identification	: Various	, see below		Date Tested:	4/01/2021

Sampling Method:	Sampled by Client	, Tested as Received
Sample Number	Sample Identification	Calcium Carbonate Content (%)
WG20/12009	SS1	31.7
WG20/12010	SS2	30.1
WG20/12011	SS3	29.3
WG20/12012	SS4	21.0





SOIL	AGGREGATE	CONCREI	TE	CRUSHING
	TEST REF	PORT - WA 915.1		
Client:	ICM		Ticket No.	S2265
Client Address:	Suite 7, 3 Stirk House Canning	Road, Kalamunda	Report No.	WG20/11999-12002_1_Ca
Project:	Riverbed Material Assessment		Sample No.	WG20/11999-12002
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification:	Various, see below		Date Tested:	2/01/2021

Sampling Method:	Sampled by Client	, Tested as Received
Sample Number	Sample Identification	Calcium Carbonate Content (%)
WG20/11999	S No. 5	43.0
WG20/12000	S No. 6	50.1
WG20/12001	S No. 10	45.2
WG20/12002	S No. 11	18.1





	SOIL	AGGREGATE	CONCRETE	CRUSI	HING
		TEST REI	PORT - WA 915.1		
Client:	ICM			Ticket No.	S2266
Client Address:	Suite 7,	3 Stirk House Canning	Road, Kalamunda	Report No.	WG20/12013-12016_1_Ca
Project:	Riverbe	d Material Assessment		Sample No.	WG20/12013-12016
Location:	Swan Ri	ver		Date Sampled:	1/12/2020
Sample Identification	: Various	, see below		Date Tested:	4/01/2021

Sampling Method:	Sampled by Client, Tested as Received		
Sample Number	Sample Identification	Calcium Carbonate Content (%)	
WG20/12013	SS7	8.5	
WG20/12014	SS8	12.8	
WG20/12015	SS9	16.1	
WG20/12016	SS13	28.9	





SOIL	AGGREGATE	CONCREI	TE	CRUSHING
TEST REPORT - WA 915.1				
Client:	ICM		Ticket No.	S2265
Client Address:	Suite 7, 3 Stirk House Canning F	Road, Kalamunda	Report No.	WG20/12003-12006_1_Ca
Project:	Riverbed Material Assessment		Sample No.	WG20/12003-12006
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification:	Various, see below		Date Tested:	2/01/2021

Sampling Method:	Sampled by Client, Tested as Received		
Sample Number	Sample Identification	Calcium Carbonate Content (%)	
WG20/12003	S No. 12	45.4	
WG20/12004	S No. 14	75.7	
WG20/12005	S No. 15	23.8	
WG20/12006	S No. 16	33.6	





SOIL	AGGREGATE	CONCREI	'E	CRUSHING
TEST REPORT - WA 915.1				
Client:	ICM		Ticket No.	S2265
Client Address:	Suite 7, 3 Stirk House Canning R	Road, Kalamunda	Report No.	WG20/12007-12008_1_Ca
Project:	Riverbed Material Assessment		Sample No.	WG20/12007-12008
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification:	Various, see below		Date Tested:	2/01/2021

Sampling Method: Sample Number	Sampled by Client, Tested as Received		
	Sample Identification	Calcium Carbonate Content (%)	
WG20/12007	S No. 17	31.7	
WG20/12008	S No. 20	55.0	

Comments:		
Approved Signatory:		Accreditation No. 20599 Accredited for compliance
Name: Matt van Herk		WORD RECOMMEND with ISO/IEC 17025 - Testing
Date: 03/January/2021		This document shall not be reproduced except in full
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	SOIL AGGREGATE	CONCRETE	CRUSH	HING
	TEST RE	PORT - WA 915.1		
Client:	ICM		Ticket No.	S2266
Client Address:	Suite 7, 3 Stirk House Canning	Road, Kalamunda	Report No.	WG20/12017-12020_1_Ca
Project:	Riverbed Material Assessment		Sample No.	WG20/12017-12020
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification	n: Various, see below		Date Tested:	4/01/2021

Sampling Method:	Sampled by Client, Tested as Received		
Sample Number	Sample Identification	Calcium Carbonate Content (%)	
WG20/12017	SS18	20.6	
WG20/12018	SS19	25.2	
WG20/12019	SS21	26.0	
WG20/12020	ОРТ.03	55.7	





SOIL	AGGREGATE	CONCRET	re I	CRUSHING	
TEST REPORT - WA 915.1					
Client:	ICM		Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk House Canning	Road, Kalamunda	Report No.	WG20/11984-11987_1_Ca	
Project:	Riverbed Material Assessment		Sample No.	WG20/11984-11987	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification:	Various, see below		Date Tested:	30/12/2020	

Sampling Method:	Sampled by Client, Tested as Received		
Sample Number	Sample Identification	Calcium Carbonate Content (%)	
WG20/11984	SS01	18.9	
WG20/11985	SS02	22.1	
WG20/11986	SS04	23.7	
WG20/11987	SS05	32.2	





SOIL	AGGREGATE	CONCREI	TE	CRUSHING	
TEST REPORT - WA 915.1					
Client:	ICM		Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk House Canning F	Road, Kalamunda	Report No.	WG20/11988-11991_1_Ca	
Project:	Riverbed Material Assessment		Sample No.	WG20/11988-11991	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification:	Various, see below		Date Tested:	30/12/2020	

Sampling Method:	Sampled by Client, Tested as Received			
Sample Number	Sample Identification	Calcium Carbonate Content (%)		
WG20/11988	SS06	32.8		
WG20/11989	SS07	28.4		
WG20/11990	SS08	27.8		
WG20/11991	SS09	68.6		





SOIL	AGGREGATE	CONCREI	'E	CRUSHING	
TEST REPORT - WA 915.1					
Client:	ICM		Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk House Canning R	load, Kalamunda	Report No.	WG20/11992_1_CaC03	
Project:	Riverbed Material Assessment		Sample No.	WG20/11992	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification:	Various, see below		Date Tested:	30/12/2020	

Sampling Method:	Sampled by Client, Tested as Received		
Sample Number	Sample Identification	Calcium Carbonate Content (%)	
WG20/11992	SS010	15.2	
WG20/11993	SS011	26.1	
WG20/11994	SS012	34.9	
WG20/11995	SS013	56.2	





SOIL	AGGREGATE	CONCREI	TE	CRUSHING	
TEST REPORT - WA 915.1					
Client:	ICM		Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk House Canning H	Road, Kalamunda	Report No.	WG20/11996-11998_1_Ca	
Project:	Riverbed Material Assessment		Sample No.	WG20/11996-11998	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification:	Various, see below		Date Tested:	30/12/2020	

Sampling Method:	Sampled by Client, Tested as Received			
Sample Number	Sample Identification	Calcium Carbonate Content (%)		
WG20/11996	SS014	31.1		
WG20/11997	SS015	28.0		
WG20/11998	SS016	28.2		

Comments:	
Approved Signatory:	Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing
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Appendix C: Insitu Core Density



	SOIL AGGREGA	ATE CONCRETE	E CRUSH	ING
	TEST REPORT - INSI	U CORE DENSITY - DIRECT	T MEASUREMENT	
Client:	ICM		Ticket No.	S2266
Client Address:	Suite 7, 3 Stirk House Ca	anning Road, Kalamunda	Report No.	WG20/12009-12014_1_ICD
Project:	Riverbed Material Asse	ssment	Sample No.	WG20/12009-12014
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification	n: Various see below		Date Tested:	4/01/2021
T	EST RESULTS - INSITU	CORE DENSITY - DIR	RECT MEASUREN	ИЕМТ
Sampling	Method:	Sampled by	Client, Tested as R	Received
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³):	Dry Density (t/m ³):
WG20/12009	SS1	21.5	2.06	1.70
WG20/12010	SS2	31.7	2.16	1.64
WG20/12011	SS3	35.0	2.01	1.49
WG20/12012	SS4	24.4	2.01	1.61
WG20/12013	SS7	24.4	2.12	1.70
WG20/12014	SS8	22.1	2.03	1.66

Comments:		
Approved Signatory:		
Name: General Manager		
Date: 05/January/2021	This docur	nent shall not be reproduced except in full
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S	OIL AGGREGAT	FE CONCRET	e crushi	NG		
TEST REPORT - INSITU CORE DENSITY - DIRECT MEASUREMENT						
Client:	ICM		Ticket No.	S2265		
Client Address:	Suite 7, 3 Stirk House Car	nning Road, Kalamunda	Report No.	WG20/11999-12003_1_ICD		
Project:	Riverbed Material Assess	sment	Sample No.	WG20/11999-12003		
Location:	Swan River		Date Sampled:	1/12/2020		
Sample Identification:	Various see below		Date Tested:	4/01/2021		
TES	TEST RESULTS - INSITU CORE DENSITY - DIRECT MEASUREMENT					
Sampling Method: Sampled by Client, Tested as Received				eceived		
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³):	Dry Density (t/m ³):		
WG20/11999	S No. 5	26.9	2.09	1.65		
WG20/12000	S No. 6	46.5	1.69	1.16		
WG20/12001	S No. 10	36.4	1.87	1.37		
WG20/12002	S No.11	23.5	2.03	1.64		
WG20/12003	S No. 12	28.5	1.81	1.41		

Comments: Approved Signatory: Name: General Manager Date: 05/January/2021 This document shall not be reproduced except in full

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	SOIL AGGREGA	ATE CONCRETE	E CRUSH	ING	
TEST REPORT - INSITU CORE DENSITY - DIRECT MEASUREMENT					
Client:	ICM		Ticket No.	S2266	
Client Address:	Suite 7, 3 Stirk House Ca	anning Road, Kalamunda	Report No.	WG20/12015-12020_1_ICD	
Project:	Riverbed Material Asse	ssment	Sample No.	WG20/12015-12020	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification	n: Various see below		Date Tested:	4/01/2021	
Т	EST RESULTS - INSITU	CORE DENSITY - DIF	RECT MEASURE	MENT	
Sampling Method: Sampled by Client, Tested as Received					
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³)	: Dry Density (t/m ³):	
WG20/12015	SS9	20.9	1.91	1.58	
WG20/12016	SS13	21.8	1.99	1.64	
WG20/12017	SS18	27.6	1.98	1.55	
WG20/12018	SS19	42.7	1.75	1.22	
WG20/12019	SS21	38.2	1.83	1.32	
WG20/12020	ОРТ.03	44.1	1.77	1.23	

Comments:		
Approved Signatory:		
Name: General Manager Date: 05/January/2021	This docum	ent shall not be reproduced except in full
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S	OIL AGGREGAT	E CONCRET	E CRUSHI	NG	
TEST REPORT - INSITU CORE DENSITY - DIRECT MEASUREMENT					
Client:	ICM		Ticket No.	S2265	
Client Address:	Suite 7, 3 Stirk House Car	ning Road, Kalamunda	Report No.	WG20/12004-12008_1_ICD	
Project:	Riverbed Material Assess	ment	Sample No.	WG20/12004-12008	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification	: Various see below		Date Tested:	4/01/2021	
TE	ST RESULTS - INSITU	CORE DENSITY - DII	RECT MEASUREN	IENT	
Sampling Method: Sampled by Client, Tested as Received					
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³):	Dry Density (t/m ³):	
WG20/12004	S No. 14	33.3	1.73	1.30	
WG20/12005	S No. 15	27.9	1.90	1.49	
WG20/12006	S No. 16	29.2	1.92	1.49	
WG20/12007	S No. 17	28.3	2.03	1.58	
WG20/12008	S No. 20	42.9	1.75	1.22	

Comments: Approved Signatory: Name: General Manager Date: 05/January/2021 This document shall not be reproduced except in full

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S	DIL AGGREGA ⁻	FE CONCRET	E CRUSHI	NG	
TEST REPORT - INSITU CORE DENSITY - DIRECT MEASUREMENT					
Client:	ICM		Ticket No.	S2264	
Client Address:	Suite 7, 3 Stirk House Car	nning Road, Kalamunda	Report No.	WG20/11984-11991_1_ICD	
Project:	Riverbed Material Assess	sment	Sample No.	WG20/11984-11991	
Location:	Swan River		Date Sampled:	1/12/2020	
Sample Identification:	Various see below		Date Tested:	4/01/2021	
TES	T RESULTS - INSITU	CORE DENSITY - DI	RECT MEASUREN	IENT	
Sampling M	ethod:	Sampled by	Client, Tested as Re	eceived	
			·		
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³):	Dry Density (t/m ³):	
WG20/11984	\$\$01	31 0	1 89	1 44	
1020/11904	5501	31.0	1.05	2.77	
WG20/11985	SS02	18.9	1.97	1.66	
WG20/11986	SS04	25.4	2.01	1.60	
WG20/11987	SS05	19.9	1.97	1.64	
WG20/11988	SS06	26.7	1.98	1.56	
WC20/11080	6607	26.2	2.05	1.62	
WG20/11989	5507	26.2	2.05	1.63	
WG20/11990	SS08	22.2	2.07	1.69	
WC20/11001	5500	22.2	1 05	1 51	
wG20/11991	2203	22.2	1.85	1.51	

Comments:

Approved Signatory:

Mantinto

Name: General Manager Date: 05/January/2021

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S	DIL AGGREGA	TE CONCRET	E CRUSHI	NG
TEST REPORT - INSITU CORE DENSITY - DIRECT MEASUREMENT				
Client:	ICM		Ticket No.	52264
Client Address:	Suite 7, 3 Stirk House Ca	nning Road, Kalamunda	Report No.	WG20/11992-11998_1_ICD
Project:	Riverbed Material Asses	sment	Sample No.	WG20/11992-11998
Location:	Swan River		Date Sampled:	1/12/2020
Sample Identification:	Various see below		Date Tested:	4/01/2021
TES	T RESULTS - INSITU	CORE DENSITY - DIF	RECT MEASUREN	IENT
Sampling Method: Sampled by Client, Tested as Received				
Sample Number:	Sample Identification:	Moisture Content (%)	Wet Density (t/m ³):	Dry Density (t/m ³):
WG20/11992	SS010	28.8	1.62	1.26
WG20/11993	SS011	30.6	1.95	1.49
WG20/11994	SS012	26.5	2.01	1.59
WG20/11995	SS013	43.8	1.79	1.24
WG20/11996	SS014	40.4	1.79	1.28
WG20/11997	SS015	21.9	2.03	1.67
WG20/11998	SS016	34.9	1.92	1.42

Comments:

Approved Signatory:

Manthate

Name: General Manager Date: 05/January/2021

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