

Job No: 7747/54 Our Ref: 7747/54-AF 20 June 2023

Redbank Communities PO Box 262 NORTH RICHMOND NSW 2754 Email: andrewflaherty@redbankcommunities.com.au

Attention: Mr A Flaherty

Dear Sir

re: Redbank Development Grose Vale Road, North Richmond Site Fill Testing at Promenade - Southern Heights, Ridgetops, Dam 7 and Dam 8

This letter report provides a summary of site filling testing carried out at Southern Heights, Promenade, Ridgetop, Dam 7 and Dam 8.

The tests were undertaken within the terms of our NATA accreditation, at the dates and to the procedures shown on the test result sheets, copies of which are attached. The site filling works at Promenade, Southern Heights and Ridgetops were carried out under Level 2 Inspection and Testing as per AS3798 (Standards Australia, 2007) and at Dam 7 and Dam 8 under Level 1 Inspection and Testing as per AS3798. The frequency of the density testing and inspection were in accordance with the above standard. It should be noted that except for Dam 13, Dam 7 and Dam 8, the site filling works at all other stages at Redbank development were conducted under Level 2 Inspection and Testing.

A total of 913 tests were conducted against the volume of fill of about 382,030m³ placed at the above sites. Based on the number of the tests conducted and the fill volume, the frequency of the testing is one density test for every 418m³ of fill. It should be noted that AS3798 requires a minimum of one test for every 500m³ of fill. The tests were spread across the fill area and conducted at different depths. An extract regarding the frequency of testing from the above standard is shown below.

Type of earthworks	Frequency of tests (see Note 2)				
<i>Type 1</i> Large scale operations (greater than 1500m ² e.g., subdivisions, large industrial lots, road embankments)	 1 test per layer per material type per 2500m²; or 1 test per 500m³ distributed reasonably evenly throughout full depth and area; or 3 tests per lot (Clause 1.2.8) 				
	Whichever requires the most tests				

TABLE 8.1	
FREQUENCY OF FIELD DENSIT	Y TESTS

The compacted fill attained the density ratio of 98% Standard. An extract regarding the requirement of minimum compaction as per AS3798 is shown on the following page.

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7747/54-AF Grose Vale Road, North Richmond

		Minimum relative compaction, %						
Item	Application	Minimum density ratio (at standard compactive effort) (Cohesive soils) (see Note 1)	Minimum density index (Cohesionless soils (see Note 2)					
1	Residential—lot, fill, house, sites	95 (see Note 3)	70					
2	Commercial—fills to support minor loadings, including floor loadings of up to 20 kPa and isolated pad or strip footings to 100 kPa	98 (see Note 4)	75					
3	Fill to support pavements (see Note 5) (a) General fill (b) Subgrade (to a depth of 0.3 m)	95 98	70 75					

TABLE 5.1 MINIMUM RELATIVE COMPACTION

In addition to the above density testing, our Geotechnical Officer also conducted stripping inspection of topsoil and proof rolling of the exposed ground surface before the placement of fill.

It should be noted that the site filling at the above sites was carried out as bulk earthworks and not for individual residential lot.

We certify that all the site filling works at the subject sites were conducted as per the requirements of AS3798 and the fill is assessed as **CONTROLLED FILL**.

If you have any questions relating to this report, please do not hesitate to contact the undersigned.

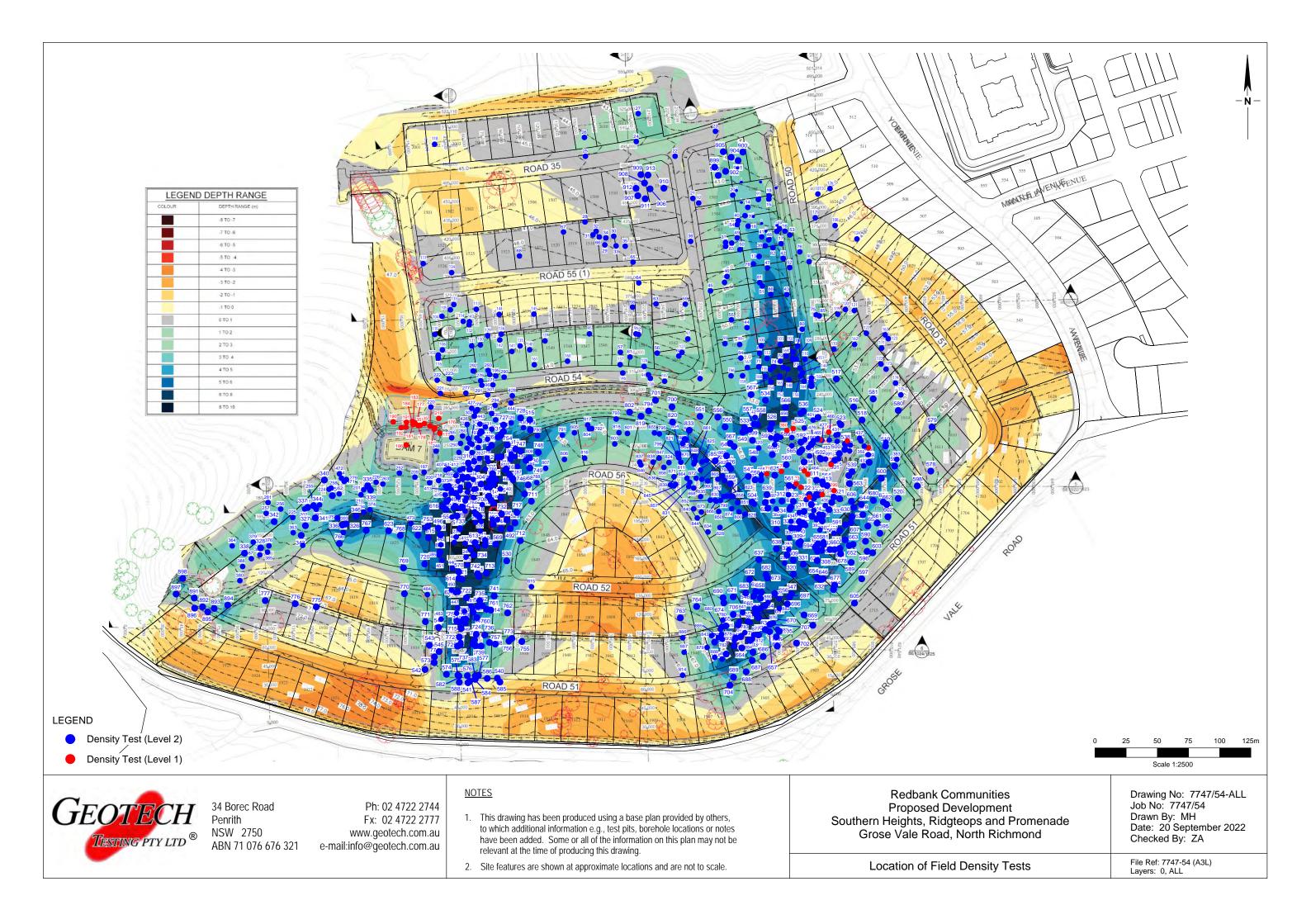
Yours faithfully GEOTECH TESTING PTY LTD

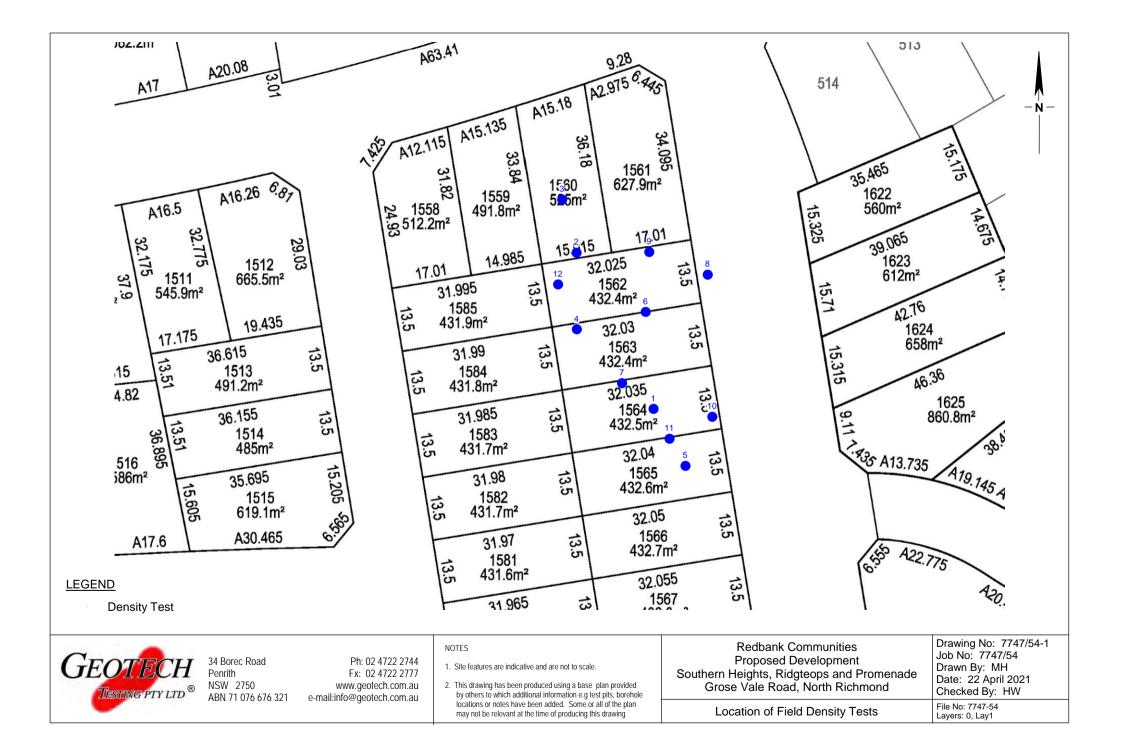
ZIAUDDIN AHMED Principal Geotechnical Engineer

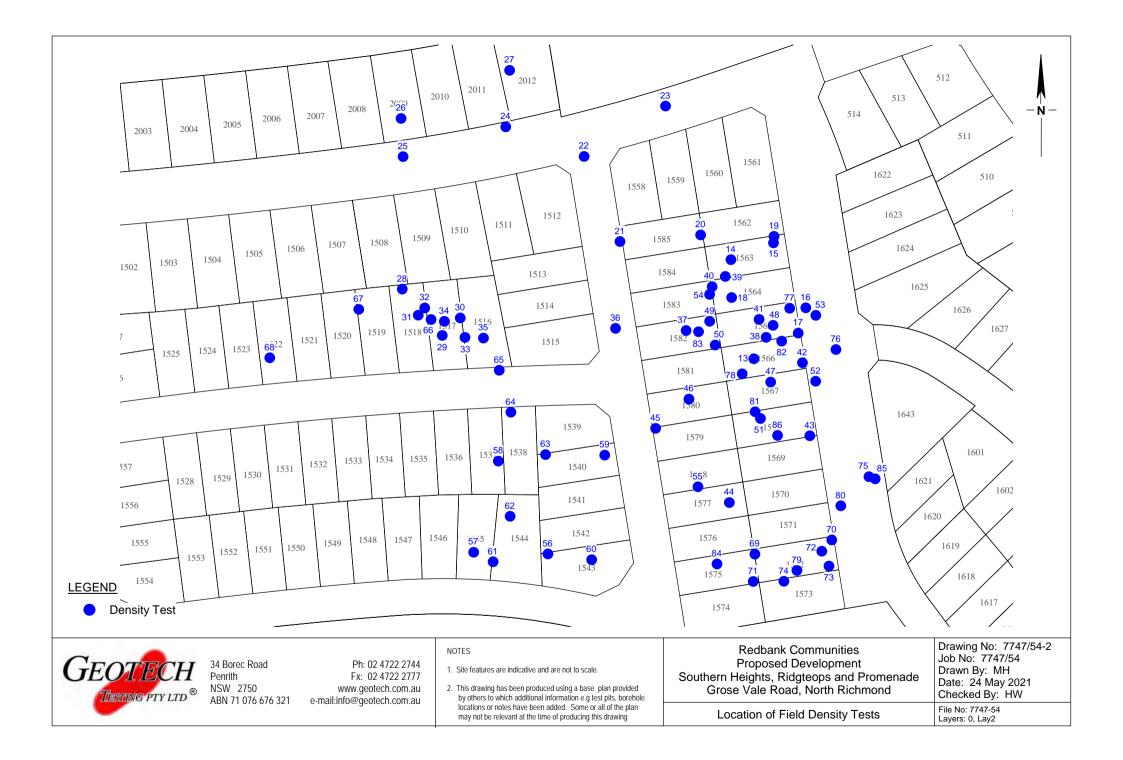
Attached: Drawing 7747/54-ALL (FDT#1-913) Drawings 7747/54-1 to 7747/54-18 Density Test Results (FDT# 1 to 913)

Reference

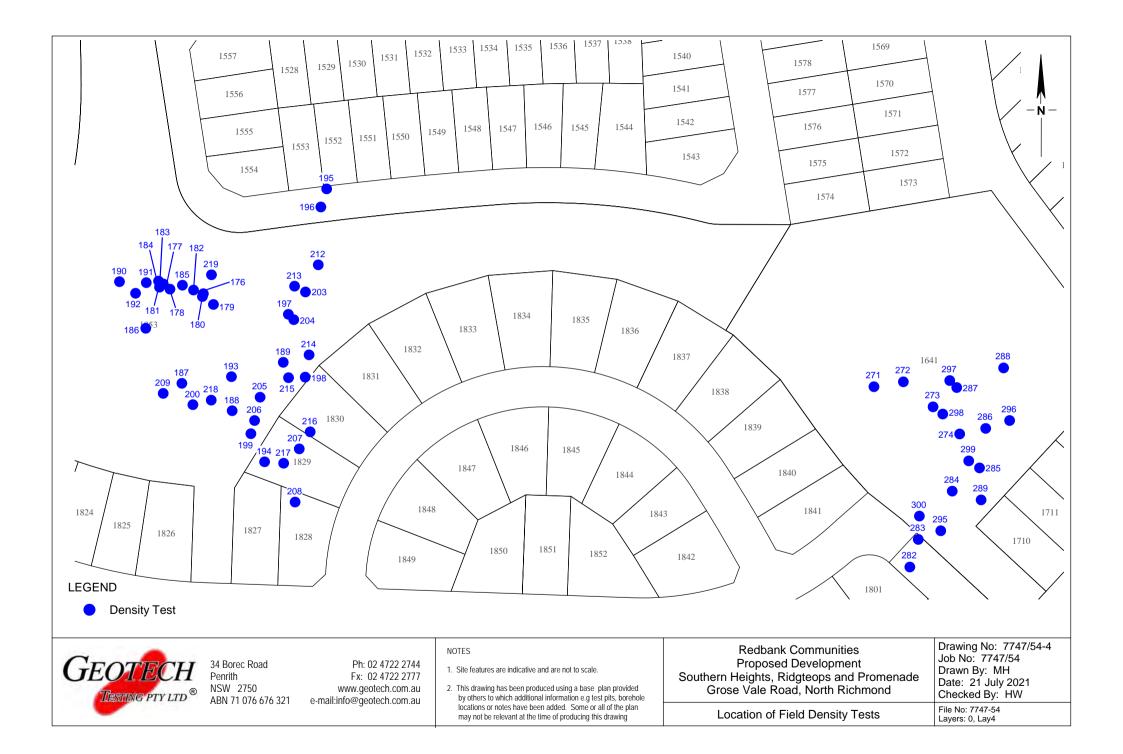
Standards Australia, 2007. AS3798-2007 Guidelines on earthworks for commercial and residential developments. Sydney: SAI Global Limited.

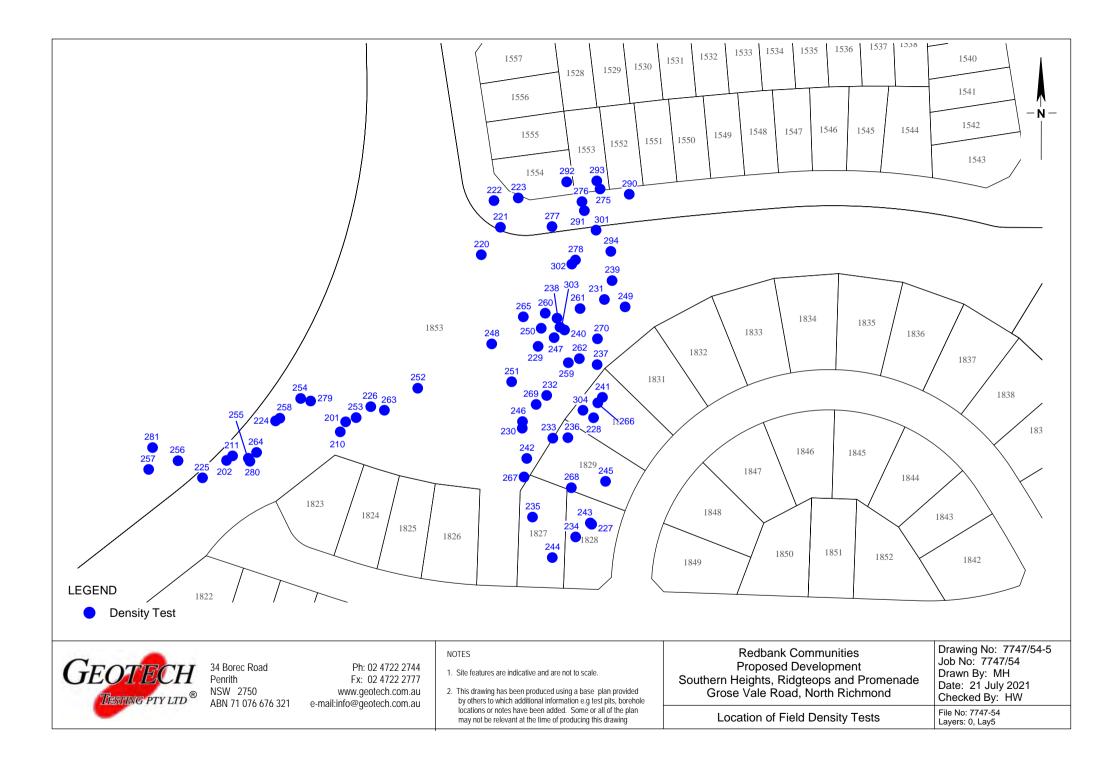


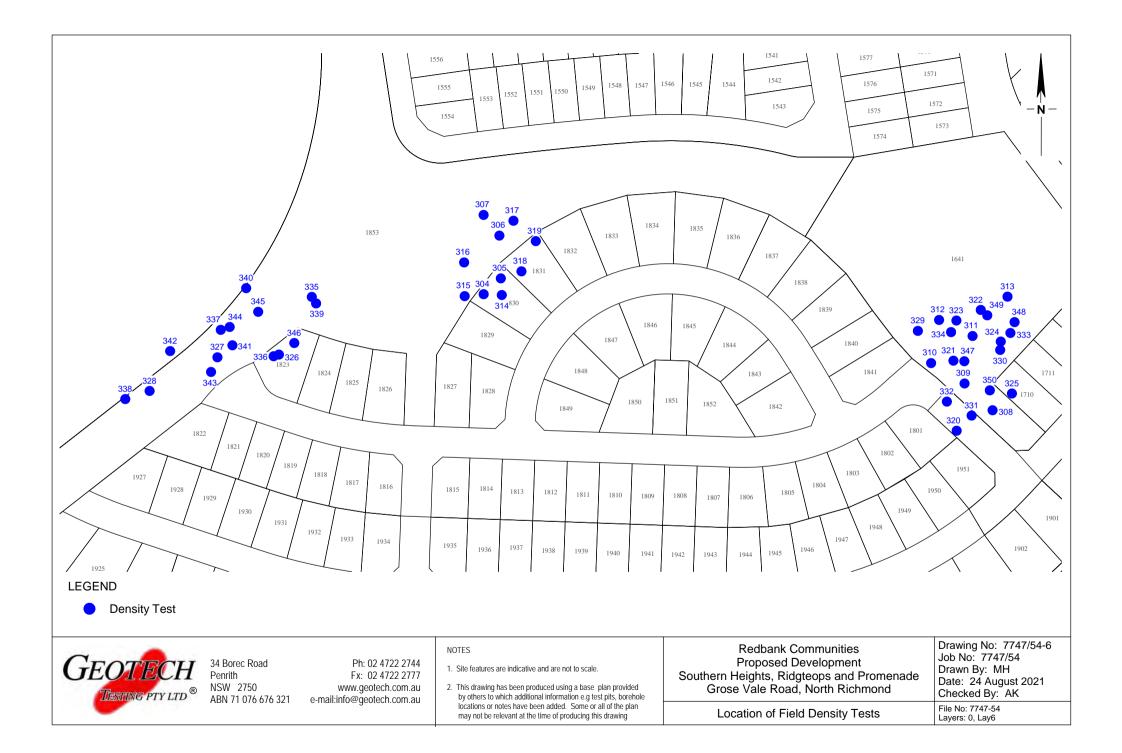


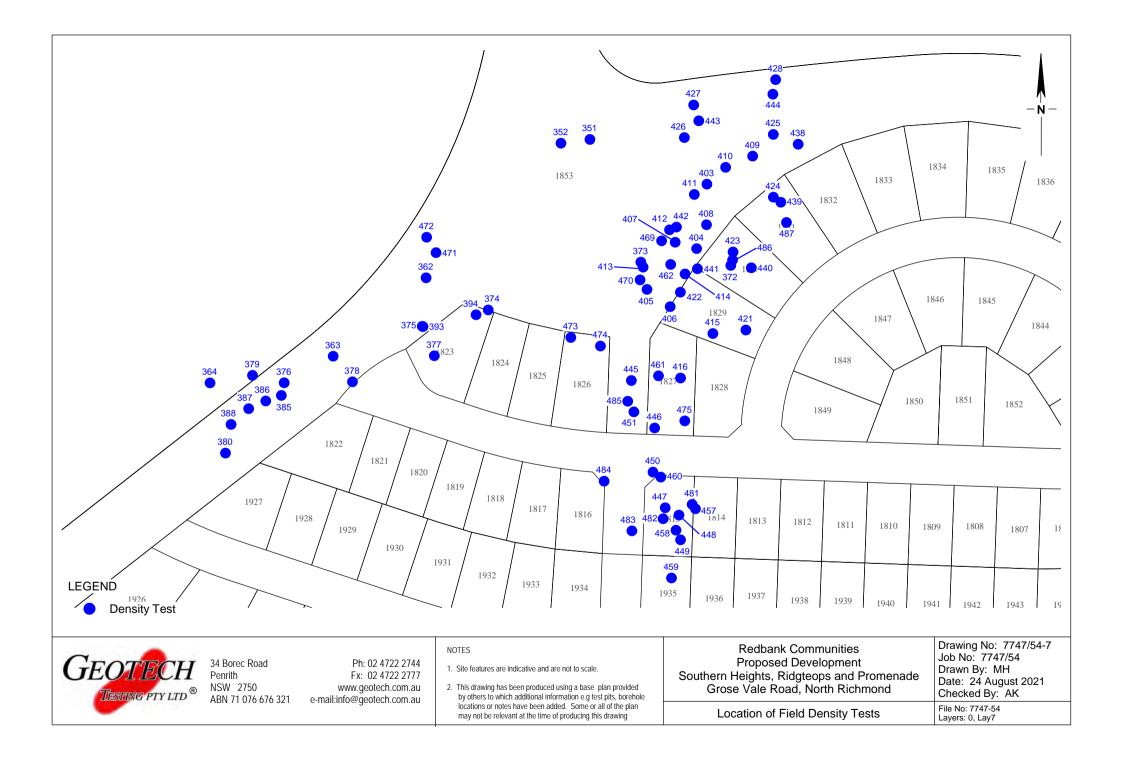


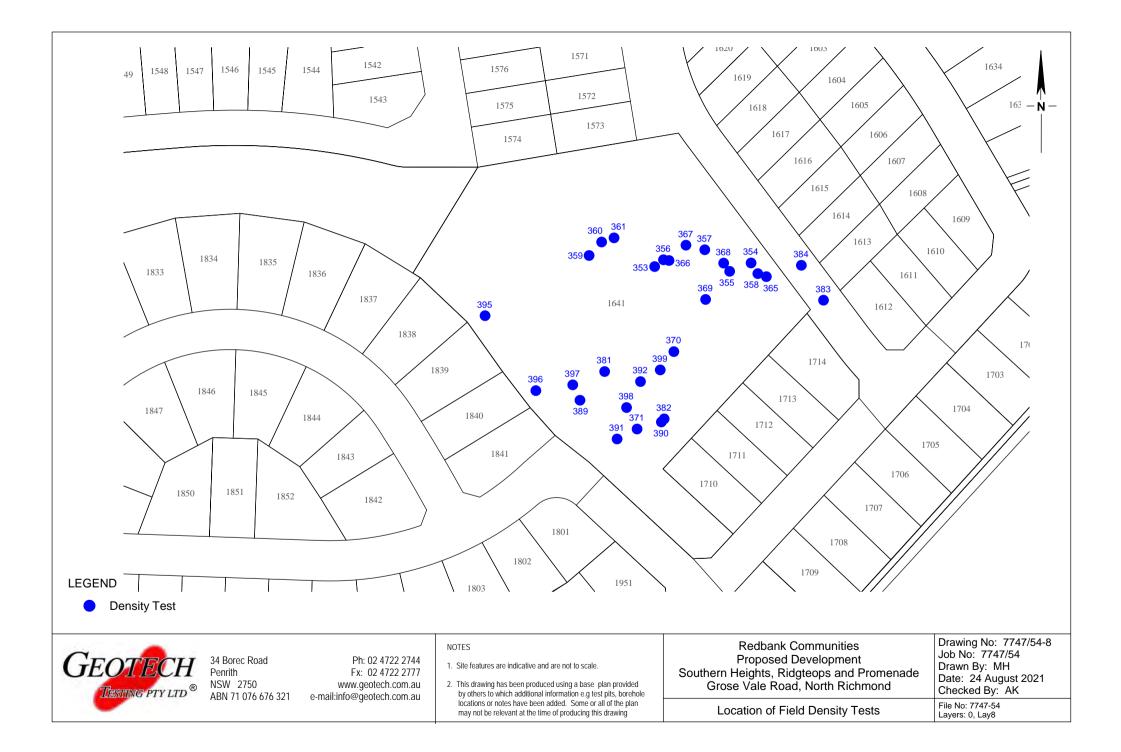


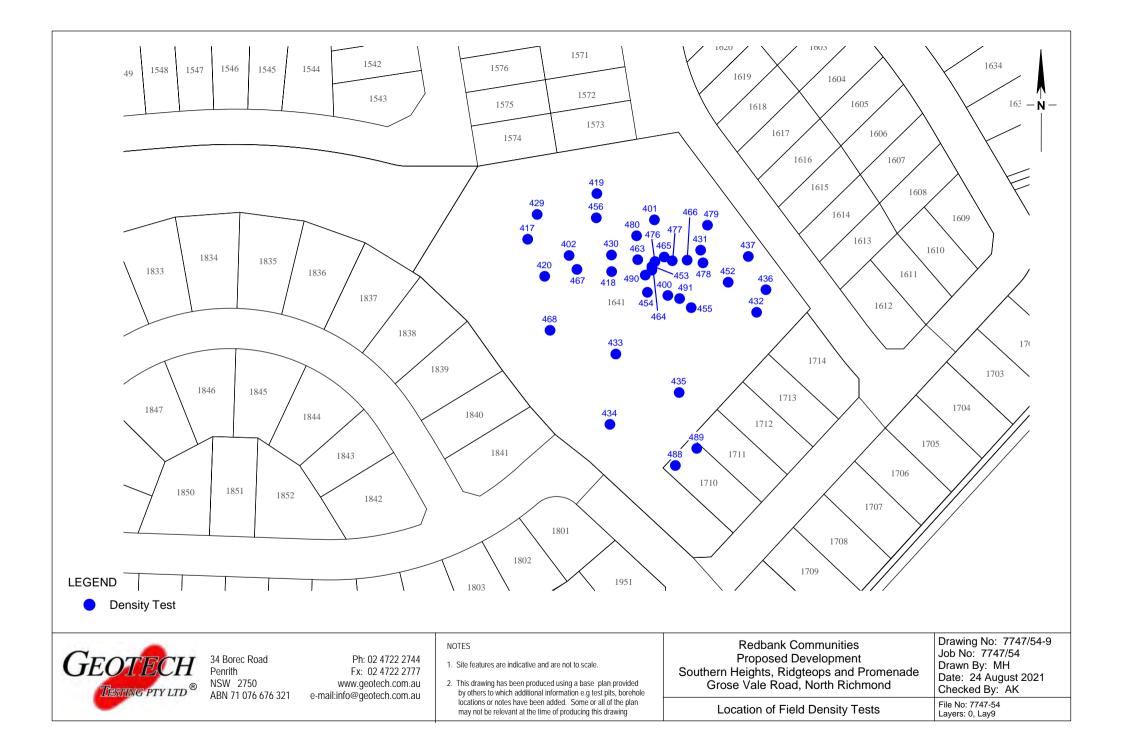


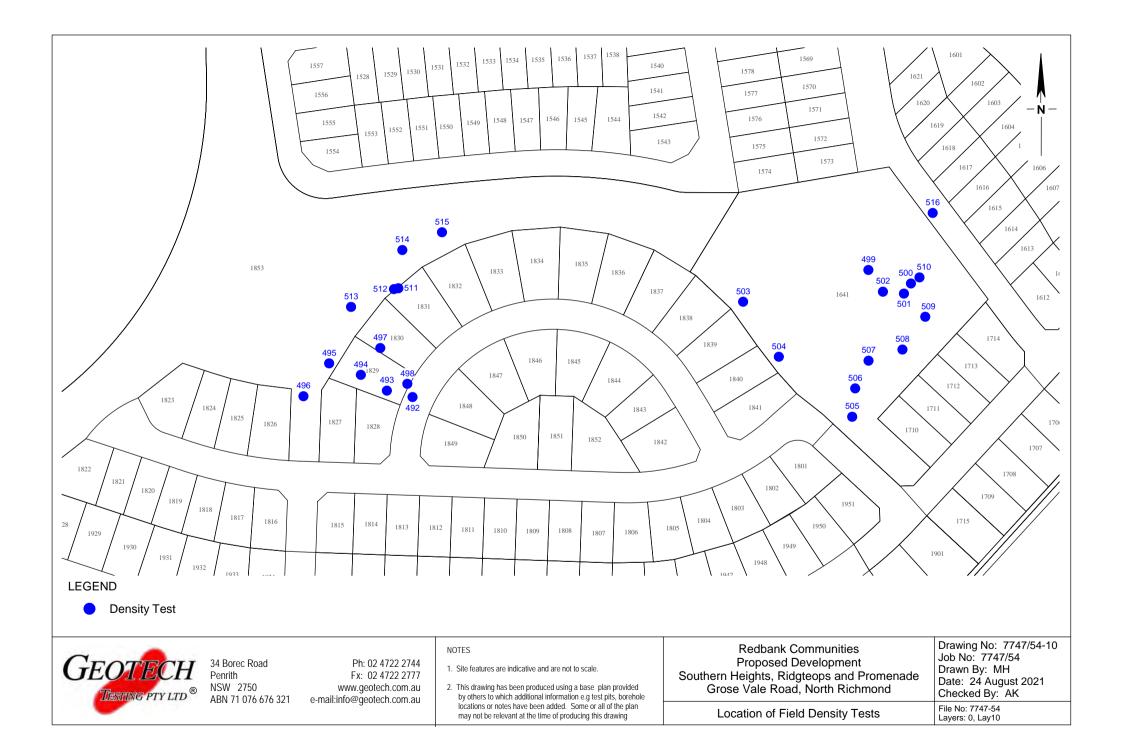


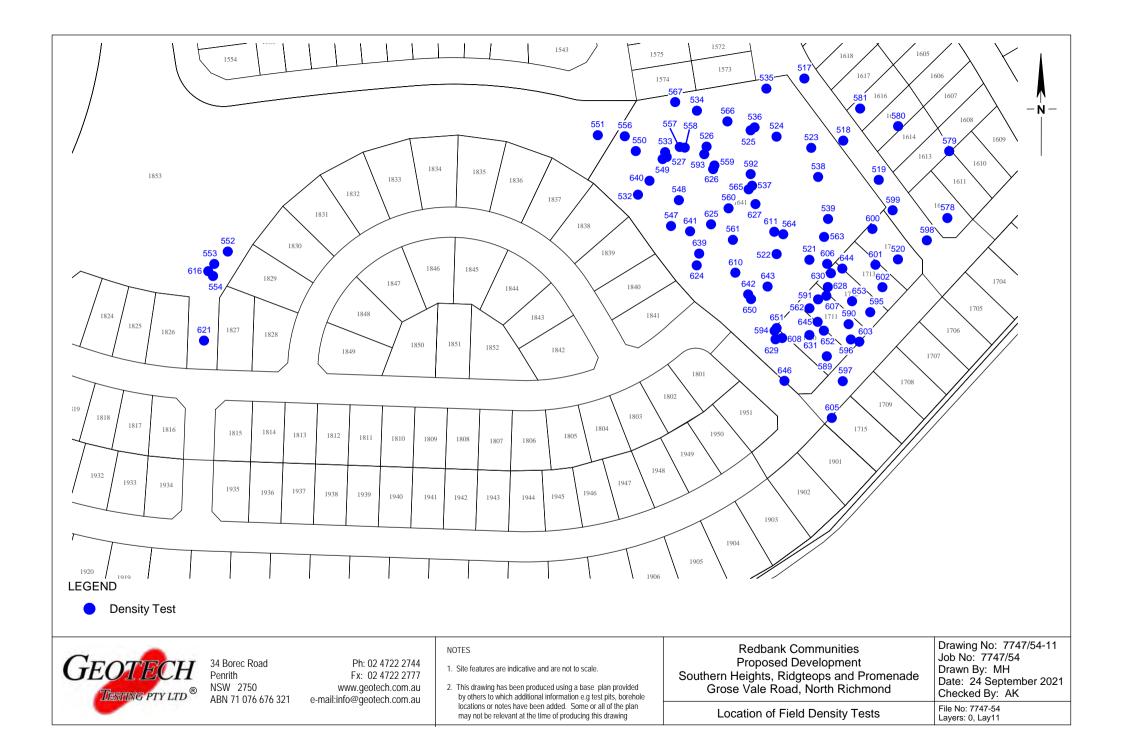


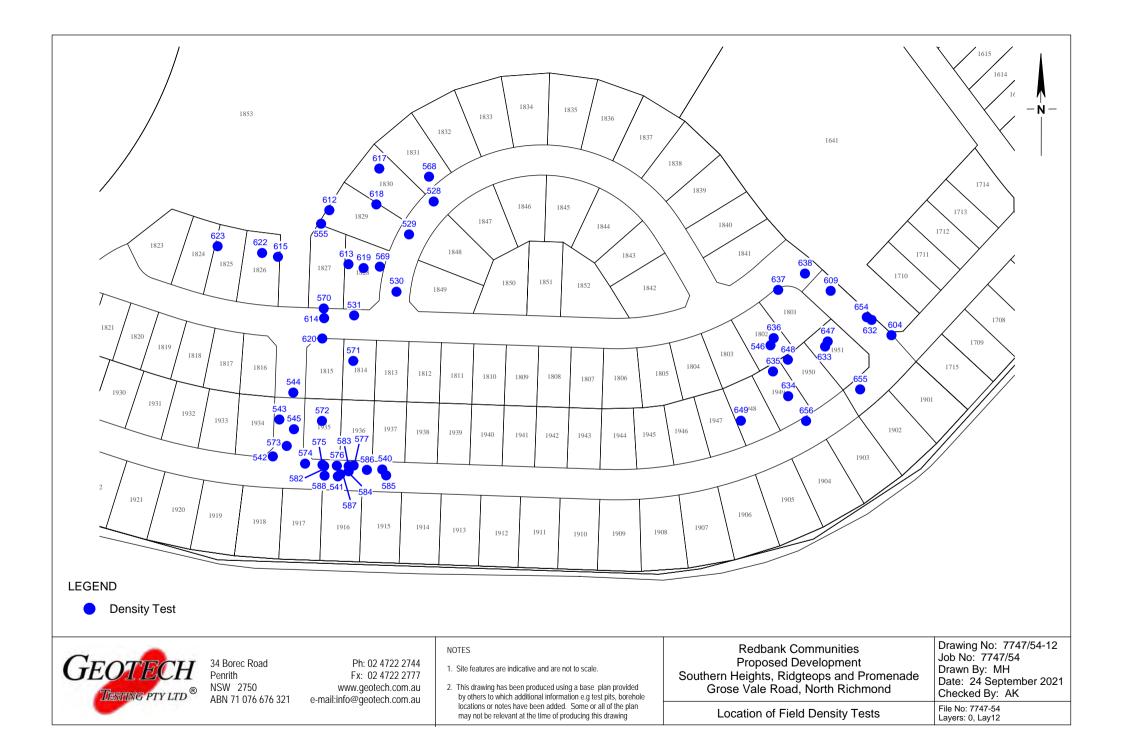


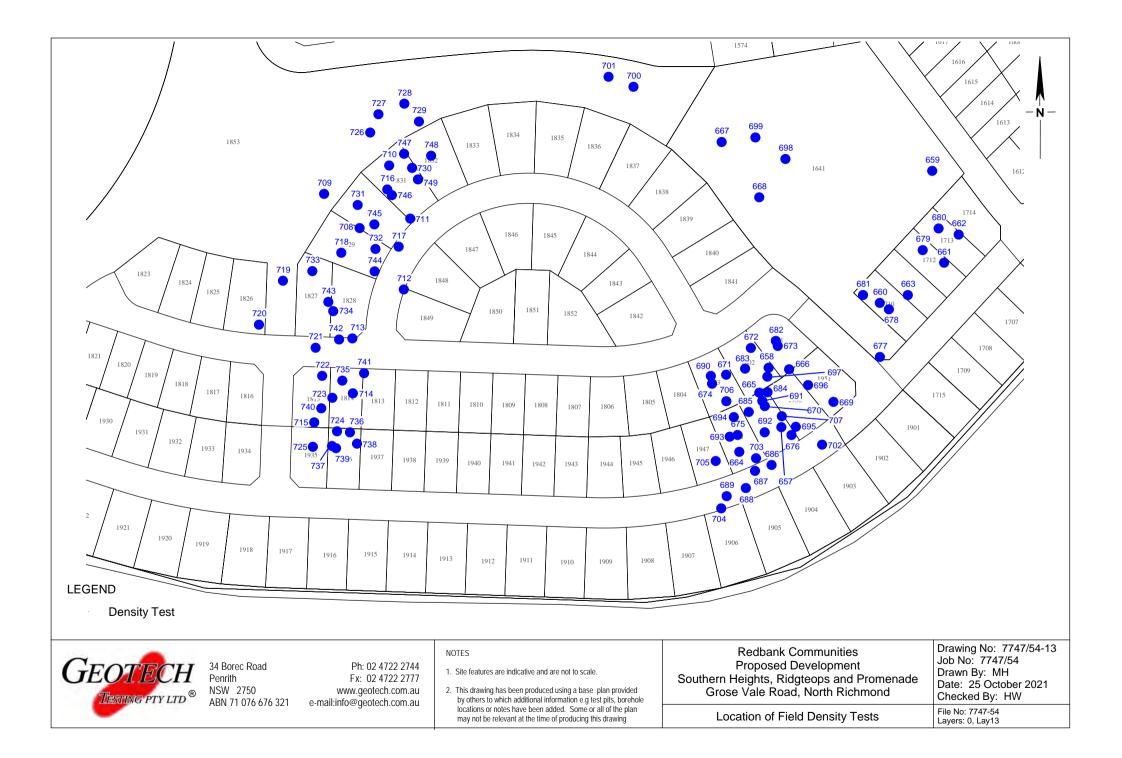


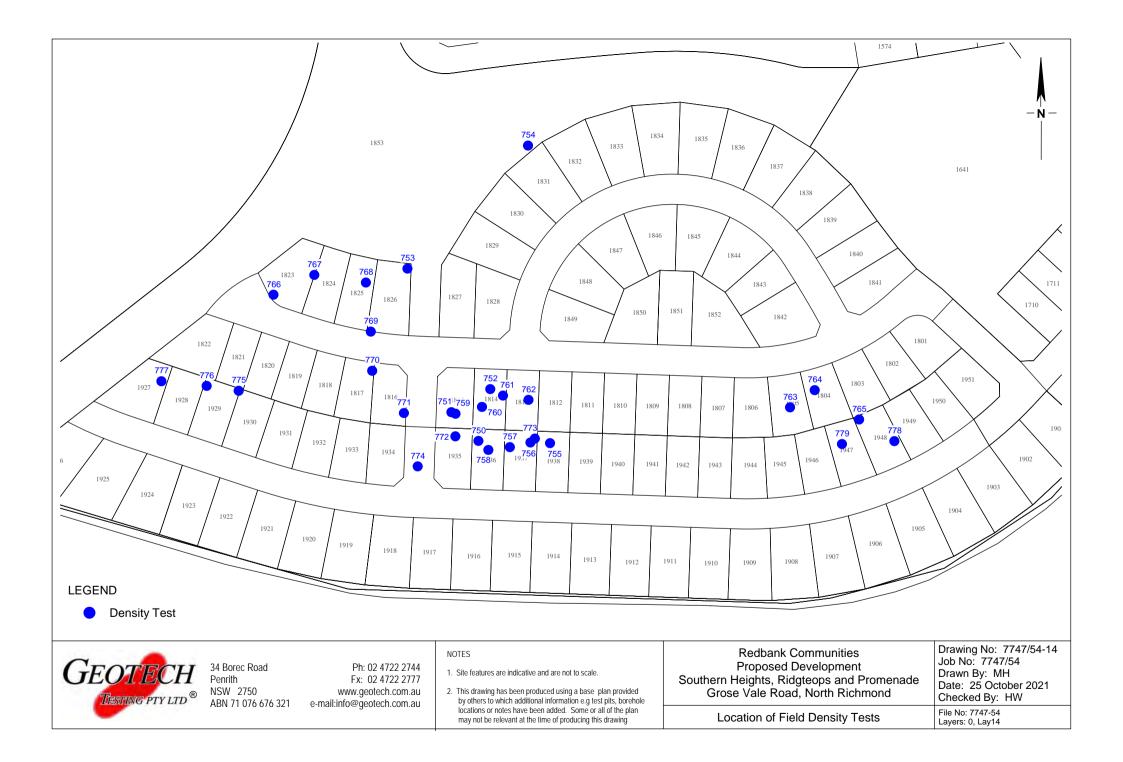


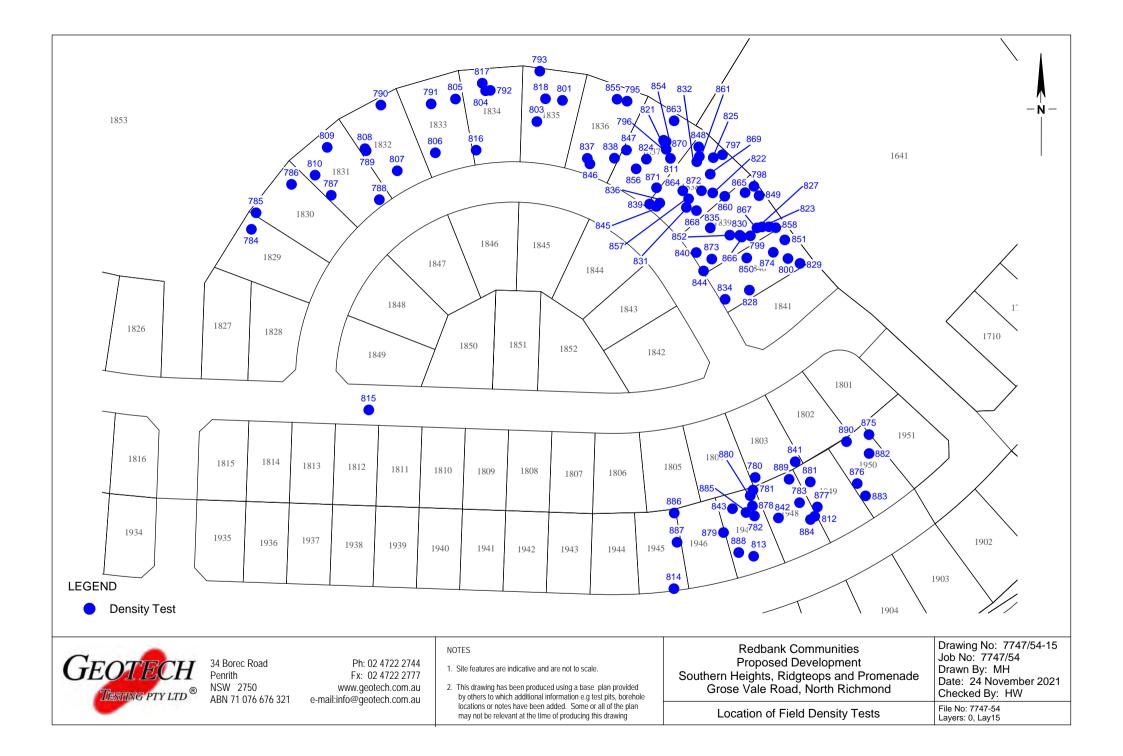


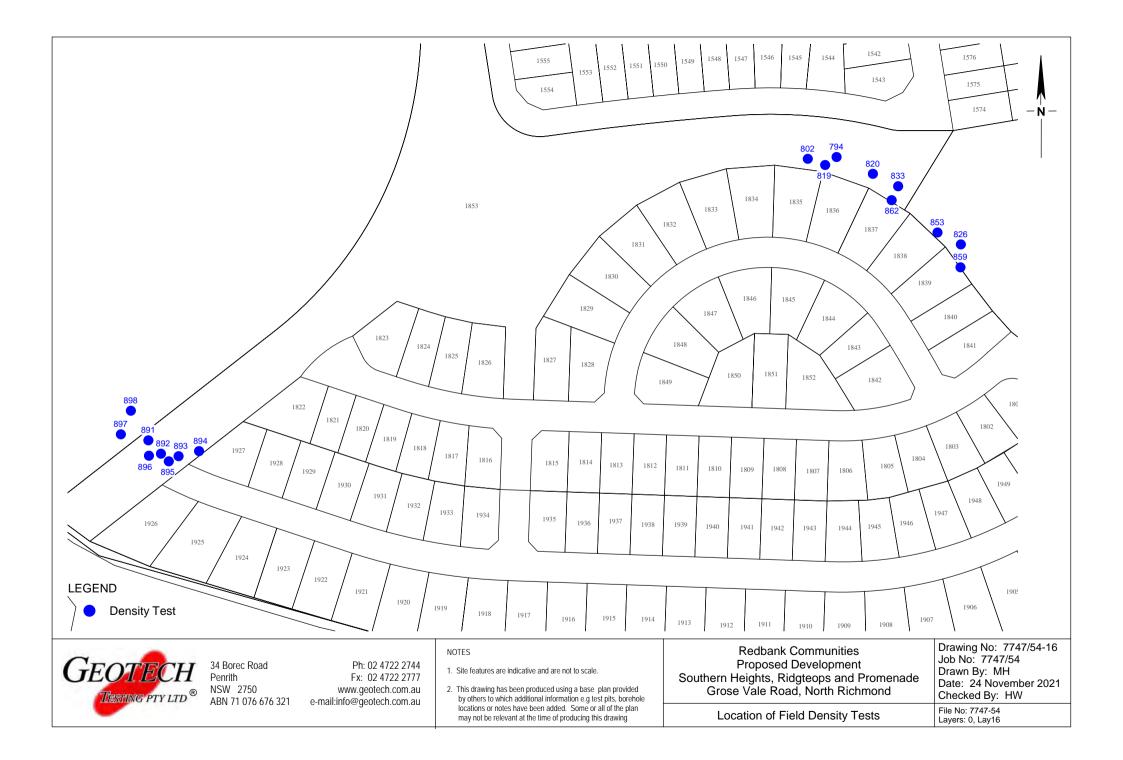


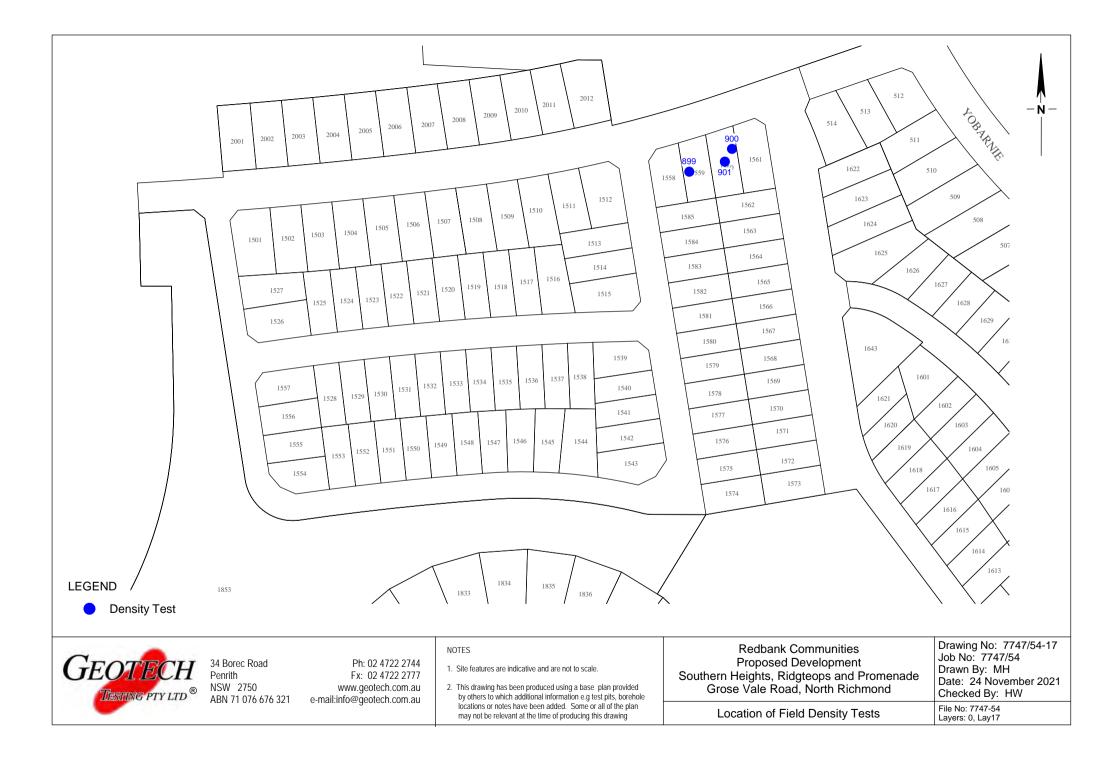


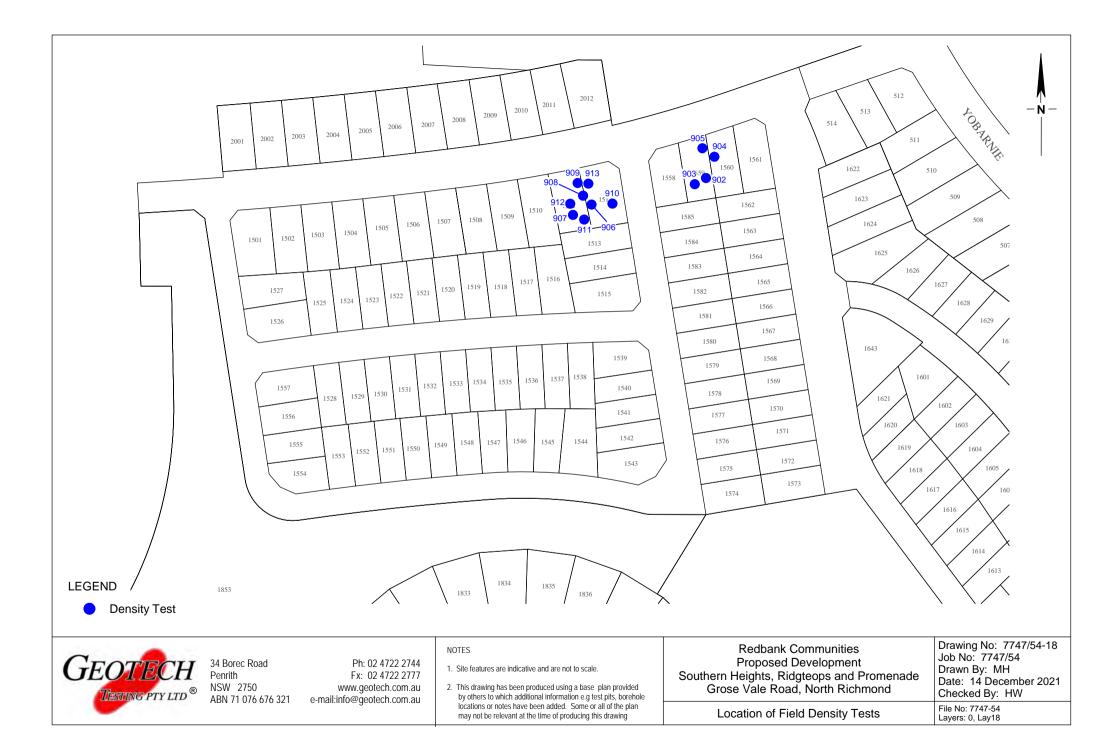














REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	22/4/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 1 of 2

TEST NUMBER DATE TESTED & SAMPLED	ŀ	1	2	3 /2021	4	5	6 19/4	7 /2021	8
	L		10/4	12021			13/4	/2021	
RESULTS	-			-	-	-	-		-
Hilf Density Ratio Standard	%	100	99	100	100	99.5	99.5	99.5	99
Moisture Variation from OMC (-Drier/+Wetter) %	0.0	0.0	-2.0	0.0	0.0	0.0	0.5	0.0
Specification Density Ratio (Sta	andard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	,	±2%
TEST LOCATION	_								
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No			•	-	7747	/54-1		-	
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	40.31	40.18	40.63	40.55	40.85	40.67	41.57	40.86
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.08	2.08	2.08	2.10	2.07	2.08	2.08
Field Moisture Content	%	19.5	17.5	19.5	20.0	19.0	18.0	19.0	19.5
Material retained on 19mm Sieve (we	t) %	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number	ſ	1	2	3	4	5	6	7	8
Lab Compaction Date Tested	Γ		-		21/04	/2021		-	
Peak Converted Wet Density	t/m³	2.09	2.10	2.08	2.08	2.11	2.08	2.09	2.10
Apparent Optimum Moisture Content	%	19.5	17.5	21.5	20.0	19.0	18.0	19.0	19.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below Notes		2-3	2	2-3	2-3	2-3	2	2-3	2-3
 Assigned Values have been obtained from our Penith labor Assigned Values have been obtained from our Prestons labo Results have been calculated using infinite decimal places. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ratory – Accreditat	ion No 14234	vary from those	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	o), 2.1.1, 5.3.1, 5 o), 2.1.1, 5.7.1, 5 66	.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty cl 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Sitly sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - `	liance with Testing.			нw	l'ilson <u>Approvec</u>	22/04 <u>I Signatory</u>	/2021

34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COM	IMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	2750	Date:	22/4/2021
PROJECT.			

ROJECT

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 2

TEST NUMBER	Г	9	10	11	12				
DATE TESTED & SAMPLED	ŀ	-	-	2021					
	Ŀ								
RESULTS	Г								
Hilf Density Ratio Standard	%	99.5	99	98	99.5				
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.0	0.0	0.0				
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	oisture Va	riance fi	rom OMC	•	±2 %
TEST LOCATION	_								
Chainage (Carriageway L/R)	m	-	-	-	-				
Shown on Drawing No			7747	/54-1					
Retested by Test	-	-	-	-	-				
Reduced Level	m	40.65	41.41	41.99	41.78				
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.05	2.11	2.07				
Field Moisture Content	%	19.0	17.0	17.0	17.5				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		9	10	11	12				
Lab Compaction Date Tested			21/04		-				
Peak Converted Wet Density	t/m³	2.10	2.07	2.15	2.08				
Apparent Optimum Moisture Content	%	18.5	17.0	17.0	17.5				
Number of Compaction Points	-	3	3	3	3				
Test Procedures - See Note Number	-	12	12	12	12				<u> </u>
Material Description - see below Notes		2-3	2	2	2				
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefor AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.4, 5.5.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 	- Accreditat	ion No 14234	vary from those :	shown	11: AS 1289 1	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description									
1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayeg sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayeg gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	coadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Sta # Lime Stabili \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⁻				ΗΜ	/ilson <u>Approver</u>	22/0 <u>d Signatory</u>	4/2021
34 Borec Road, Penrith NSW 2750				1 Init / 10	20 Whyalla	Place Pro	tone NISW	2170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COMMUNITIES							
PO BOX 1918							
PENRITH NSW 2750							

Laboratory:PenrithJob No:7747/54Date:24/5/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 10

	-								
		13	14	15	16	17	18	19	20
DATE TESTED & SAMPLED	L		25/04	04/2021 26/04/2021					
RESULTS									
Hilf Density Ratio Standard	%	101	101	99.5	101.5	101	100.5	100	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No			-		7747	/54-2			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	42.07	42.20	42.05	42.11	42.49	42.74	42.25	42.46
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.09	2.07	2.08	2.08	2.07	2.07	2.08
Field Moisture Content	%	17.5	17.0	16.5	20.0	17.5	18.0	16.5	18.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		13	14	15	16	17	18	19	20
Lab Compaction Date Tested					27/04				
Peak Converted Wet Density	t/m³	2.07	2.07	2.08	2.05	2.06	2.06	2.07	2.08
Apparent Optimum Moisture Content Number of Compaction Points	%	17.5	17.5	16.5	20.0	17.5	18.0	16.5	19.0
Test Procedures - See Note Number	-	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Material Description - see below	ŀ	2	2	2	2-3	2	2	2	2
 Assigned Values have been obtained from our Prestons laborate Results have been calculated using infinite decimal places. The 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 				e shown	12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173			
9: Full details of Test Procedure 5.8.1 available on request Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	/S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		 Cement Stab # Lime Stabilis \$ Gypsum Stat 	ed	
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Corporate Site Number 2727									
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whvalla I	Place, Prest	tons NSW 2	170	

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 2 of 10

TEST NUMBER DATE TESTED & SAMPLED		21 22 23 24 26/04/2021			25 26 27 27/04/2021			28 28/04/202	
RESULTS	_								
Hilf Density Ratio Standard	%	100.5	100.5	100.5	100.5	100	100	100	100.5
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	-0.5	-0.5	0.0
Specification Density Ratio (Standa	rd)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No	-		1		7747	/54-2	1		
Retested by Test	_	-	-	-	-	-	-	-	-
Reduced Level	m	42.93	41.84	41.01	42.37	44.04	43.92	41.97	45.49
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08	2.07	2.06	2.08	2.06	2.09	2.08	2.07
Field Moisture Content	%	18.0	17.0	17.0	17.0	18.0	19.5	20.5	17.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		21	22	23	24	25	26	27	28
ab Compaction Date Tested			27/04					/2021	
Peak Converted Wet Density	t/m³	2.07	2.06	2.05	2.07	2.06	2.09	2.08	2.06
Apparent Optimum Moisture Content	%	18.0	17.0	17.0	17.5	18.0	19.5	21.0	17.0
Number of Compaction Points	-	3	3	3	3	3	3	3	3
Test Procedures - See Note Number Material Description - see below	-	12 2	12 2	12 2	12 2	12 2	12 2-3	12 2-3	12 2
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Hull details of Test Procedure 5.8.1 available on request 	y – Accredit	tation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
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Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - ⊺				ΗW	ilson <u>Approved</u>	24/09 Signatory	5/2021
Accreditation Number 2734 Corporate Site Number 2727							と		
34 Borec Road, Penrith NSW 2750					20 Whyalla I	Place Prost	one NSW 2	170	

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REDBANK COI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 3 of 10

		29	30	31	32	33	34	35	36
DATE TESTED & SAMPLED				28/04/2021				29/04/2021	
RESULTS									
Hilf Density Ratio Standard	%	101	100	101	100.5	100.5	100.5	100.5	100.5
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standar	d)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±29
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No					7747	//54-2			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	45.68	45.97	46.05	46.32	46.62	46.99	46.97	44.57
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.09	2.08	2.07	2.08	2.08	2.08	2.09
Field Moisture Content	%	16.5	17.5	17.5	17.0	17.5	19.0	18.0	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		29	30	31	32	33	34	35	36
ab Compaction Date Tested		28/04	/2021		-		/2021		
Peak Converted Wet Density	t/m³	2.07	2.09	2.06	2.06	2.07	2.07	2.07	2.08
Apparent Optimum Moisture Content	%	16.5	18.0	18.0	17.0	18.0	19.5	18.0	17.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Fest Procedures - See Note Number		12	12	12	12	12	12	12	12
Aaterial Description - see below Notes		2	2	2	2	2	2-3	2	2
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 	- Accredi	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
		d for compl				НW	lison	24/05	/2021
NATA	ISO/IE	C 17025 - 1	lesting.				Approved	Signatory	
Accreditation Number 2734									
Corporate Site Number 2727							~		
34 Borec Road, Penrith NSW 2750					20 Whyalla I				

34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 4 of 10

TEST NUMBER DATE TESTED & SAMPLED	ŀ	37	38	39 29/04/2021	40	41	42	43 30/04/2021	44
RESULTS	_				-	-			
Hilf Density Ratio Standard	%	100.5	101	100.5	101.5	101	99.5	101	101
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION	-		-				-		
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	
Shown on Drawing No	-				7747	/54-2			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	44.57	44.09	43.92	44.44	44.38	44.73	45.04	46.64
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.08	2.09	2.09	2.08	2.07	2.08	2.09	2.09
Field Moisture Content	%	18.0	18.0	17.5	19.0	18.0	18.0	18.5	18.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		37	38	39	40	41	42	43	44
ab Compaction Date Tested				29/04/2021				30/04/2021	
Peak Converted Wet Density	t/m³	2.07	2.07	2.08	2.05	2.05	2.09	2.07	2.07
Apparent Optimum Moisture Content	%	18.0	18.0	17.5	19.0	18.0	18.5	18.5	18.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number	_	12	12	12	12	12	12	12	12
Aaterial Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Hull details of Test Procedure 5.8.1 available on request 				e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	o), 2.1.1, 5.3.1, 5 o), 2.1.1, 5.7.1, 5 66	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey grads, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippe 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Stal	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - 1				НW	ilson <u>Approved</u>	24/05 <u>I Signatory</u>	/2021

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 5 of 10

TEST NUMBER DATE TESTED & SAMPLED	-	45	46	47	48	49 5/2021	50	51	52
DATE TESTED & SAMPLED					03/05	5/2021			
RESULTS	_								
Hilf Density Ratio Standard	%	100	99	99.5	100	99.5	99	99	99
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC		±29
TEST LOCATION	_								
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No					7747	7/54-2		-	
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	46.57	46.16	45.89	44.91	45.42	46.12	46.54	45.60
FIELD & LABORATORY DATA	_								
ield Wet Density	t/m³	2.10	2.12	2.13	2.13	2.09	2.11	2.13	2.14
Field Moisture Content	%	17.0	18.0	17.0	17.0	17.0	20.5	16.5	17.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		45	46	47	48	49	50	51	52
ab Compaction Date Tested						5/2021	1	-	I
Peak Converted Wet Density	t/m³	2.10	2.14	2.14	2.13	2.10	2.13	2.15	2.16
Apparent Optimum Moisture Content	%	17.0	18.0	17.0	17.0	17.0	20.5	17.0	18.0
Number of Compaction Points	-	3	3	3	3	3	3	3	3
Fest Procedures - See Note Number Material Description - see below	-	12 2	12 2	12 2	12 2	12 2	12 2	12 2	12 2
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 E AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 E AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 E AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				e shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures DGB20 DGB40 DGS20 	S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER	Accredited	d for compl	iance with			НW	/ilson	24/05	5/2021
NATA		C 17025 - 1					Approvec	I Signatory	
Accreditation Number 2734 Corporate Site Number 2727									
34 Borec Road, Penrith NSW 2750				Unit 4 18-2	20 Whyalla	Place, Presi	tons NSW 2	2170	
H DOIEC NOAU, FEITHIT NOW 2750				01111, 101	_o myana				

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 6 of 10

TEST NUMBER	Г	53	54	55	56	57	58	59	60
DATE TESTED & SAMPLED	-	00	V T		5/2021	51		12/05	
	L								
RESULTS	_								
Hilf Density Ratio Standard	%	100	99.5	99.5	99.5	99.5	99	99.5	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No					7747	7/54-2			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	44.62	45.15	47.44	51.14	52.55	49.53	48.19	50.44
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08	2.07	2.07	2.06	2.07	2.06	2.08	2.06
Field Moisture Content	%	21.5	21.5	18.5	19.5	18.0	16.5	18.0	16.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		53	54	55	56	57	58	59	60
Lab Compaction Date Tested					5/2021		1	13/05	/2021
Peak Converted Wet Density	t/m³	2.08	2.08	2.08	2.07	2.08	2.08	2.09	2.06
Apparent Optimum Moisture Content	%	21.5	22.0	18.5	19.0	18.0	16.5	18.0	16.5
Number of Compaction Points	-	3	3	3	3	3	3	3	3
Test Procedures - See Note Number Material Description - see below	-	12 3	12 3	12 2-3	12 2-3	12 2	12 2	12 2	12 2
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 Calues 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	- Accredit	ation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand B. DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Sta 	ed	
Form No R 020 Version 10 10/20 - issued by ER	ccredite	d for compl	iance with			н	lison	24/05	/2021
Accreditation Number 2734		C 17025 - 1						24/03 I Signatory	12021
Corporate Site Number 2727							U		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	ions NSW 2	170	

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 7 of 10

TEST NUMBER	Г	61	62	63	64	65	66	67	68
DATE TESTED & SAMPLED	Ē				12/05	6/2021			
RESULTS	۰ <i>،</i> ۲	00 F	00.5	00.5	00.5	00.5	00.5	00	00.5
Hilf Density Ratio Standard	%	99.5	99.5	99.5	99.5	99.5	99.5	99	99.5
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standa	rd)	298%	Specific	ation Mo	isture Va	iriance fr	om OMC		±2%
Chainage (Carriageway L/R)	m		-	-	-	_			-
Shown on Drawing No		_	_	-		//54-2	<u> </u>	<u> </u>	
Retested by Test	F	-	-	-	-	-	-	-	-
Reduced Level	m	52.58	51.31	48.95	47.26	46.94	46.84	46.72	47.73
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08	2.10	2.08	2.11	2.08	2.07	2.11	2.09
Field Moisture Content	%	16.5	18.5	19.0	17.5	17.5	17.5	18.0	18.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number	F	61	62	63	64	65	66	67	68
ab Compaction Date Tested	F		P	13/05	5/2021	P	•	14/05	5/2021
Peak Converted Wet Density	t/m³	2.09	2.11	2.09	2.12	2.09	2.08	2.13	2.10
Apparent Optimum Moisture Content	%	16.5	19.0	19.0	18.0	17.5	17.5	18.0	18.0
Number of Compaction Points	Г	3	3	3	3	3	3	3	3
Fest Procedures - See Note Number	Γ	12	12	12	12	12	12	12	12
Material Description - see below		2	2	2-3	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laborators. Results have been calculated using infinite decimal places. There is AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 E AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				e shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173			
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER							(ile e e	0.4/05	10001
NATA		d for compl C 17025 - 1	liance with Festing.			нw	/ilson <u>Approved</u>	24/05 Signatory	5/2021
Accreditation Number 2734							\mathcal{D}		
Corporate Site Number 2727									
4 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 8 of 10

TEST NUMBER DATE TESTED & SAMPLED		69 12/05	70 5/2021	71	72	73 13/05	73 74 75 76 13/05/2021			
				-						
RESULTS Hilf Density Ratio Standard	%	99	99	100	99.5	99.5	99.5	100	99.5	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	-0.5	0.0	
Specification Density Ratio (Stand							rom OMC		0.0 ±2%	
TEST LOCATION		20070	opeenie						/	
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-	
Shown on Drawing No	-				7747	7/54-2				
Retested by Test		-	-	-	-	-	-	-	-	
Reduced Level	m	47.08	45.46	47.75	46.73	47.34	47.82	46.38	45.47	
FIELD & LABORATORY DATA										
Field Wet Density	t/m³	2.08	2.09	2.10	2.09	2.08	2.08	2.09	2.08	
Field Moisture Content	%	18.0	17.0	17.5	17.0	18.5	17.5	19.0	17.5	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		69	70	71	72	73	74	75	76	
ab Compaction Date Tested						5/2021				
Peak Converted Wet Density	t/m³	2.10	2.11	2.10	2.10	2.09	2.09	2.09	2.09	
Apparent Optimum Moisture Content	%	18.0	17.0	17.5	17.0	18.5	17.5	19.0	18.0	
Number of Compaction Points Fest Procedures - See Note Number	-	3 12	3	3	3	3	3	3	3 12	
Material Description - see below	-	2	12 2	12 2	12 2	12 2	12 2	12 2-3	2-3	
 Assigned Values have been obtained from our Prestons labora Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173				
9: Full details of Test Procedure 5.8.1 available on request Material Description										
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures CS-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Brc	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed		
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - ⊺				нм	/ilson <u>Approved</u>	24/05 Signatory	/2021	
Accreditation Number 2734 Corporate Site Number 2727							<i>L</i>			
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	170		

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 10

TEST NUMBER DATE TESTED & SAMPLED			77 78 79 80 8 13/05/2021					81 82 83 84 14/05/2021			
RESULTS	_										
Hilf Density Ratio Standard	%	99.5	99	99.5	99.5	99.5	99.5	99	99		
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-0.5	0.0	-0.5	-0.5	0.0	-0.5	0.0		
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%		
TEST LOCATION	_										
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-		
Shown on Drawing No					7747	//54-2	1				
Retested by Test	L	-	-	-	-	-	-	-	-		
Reduced Level	m	44.83	46.61	47.93	47.17	47.06	45.95	46.01	50.11		
FIELD & LABORATORY DATA											
Field Wet Density	t/m³	2.08	2.09	2.07	2.08	2.09	2.11	2.07	2.08		
Field Moisture Content	%	17.5	18.0	18.5	17.5	18.0	17.5	18.0	18.0		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5		
_ab Compaction result from test number		77	78	79	80	81	82	83	84		
ab Compaction Date Tested			6/2021				5/2021				
Peak Converted Wet Density	t/m³	2.09	2.11	2.08	2.09	2.10	2.12	2.09	2.10		
Apparent Optimum Moisture Content	%	18.0	18.5	18.5	17.5	18.5	17.5	18.5	18.0		
Number of Compaction Points	Ļ	3	3	3	3	3	3	3	3		
Test Procedures - See Note Number Material Description - see below	-	12 2-3	12 2	12 2	12 2	12 2	12 2	12 2	12 2		
 Assigned Values have been obtained from our Penrith laboratory- 2: Assigned Values have been obtained from our Prestons laboratory 3: Results have been calculated using infinite decimal places. Theref 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 2: Full details of Test Procedure 5.8.1 available on request 	 Accredit 	ation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1			
Material Description											
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SMS-Silty sands, sand-silt mixtures CC-Clayey gravels, gravel-sand-clay mixtures CS-P-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed			
Form No R 020 Version 10 10/20 - issued by ER	orodito	d for comp	ianco with				lison	24/05	/2024		
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				ΗW		24/05 <u>I Signatory</u>	/2021		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170			

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/5/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 10 of 10

TEST NUMBER 85									
DATE TESTED & SAMPLED	ł		86 5/2021						
					-		•	-	•
RESULTS	_								
Hilf Density Ratio Standard	%	99.5	98.5						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0						
Specification Density Ratio (Stan	dard)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION	_								
Chainage (Carriageway L/R)	m	-	-						
Shown on Drawing No		7747	7/54-2						
Retested by Test		-	-						
Reduced Level	m	47.64	48.18	_					
FIELD & LABORATORY DATA	_								
Field Wet Density	t/m ³	2.07	2.11						
Field Moisture Content	%	18.0	18.5						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number	-	85	86						
Lab Compaction Date Tested	t/m³		5/2021						
Peak Converted Wet Density Apparent Optimum Moisture Content	%	2.08	2.14 18.5						
Number of Compaction Points	70	3	3						
Test Procedures - See Note Number		12	12						
Material Description - see below	ŀ	2	2						
 Assigned Values have been obtained from our Penrith laborat Assigned Values have been obtained from our Prestons labora Results have been calculated using infinite decimal places. Th AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 	tation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays. Cl-Clays of high plasticity, gravelly clays, sandy clays, silty clays. CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Sity sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS20 					Roadbase ycled Sub-base shed Sandstone bed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734 Corporate Site Number 2727		d for comp C 17025 - ⁻				ΗW	rilson <u>Approved</u>	24/05 <u>I Signatory</u>	5/2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-	20 Whyalla I	Place, Prest	tons NSW 2	2170	

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 1 of 11

TEST NUMBER			87	88	89	90	91	92	93	94	
DATE TESTED & SAMPLE	D		17/5/2021								
<u>RESULTS</u>											
Hilf Density Ratio	Standard	%	100.5	100	102	102	100	101	100	100.5	
Moisture Variation from OMC	(-Drier/+Wetter)	%	0.0	0.0	-0.5	-0.5	0.0	0.5	0.0	0.0	
Specification Densit	y Ratio (Standar	d)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%	
TEST LOCATION											
Chainage (Carriag	jeway L/R)	m	-	-	-	-	-	-	-	-	
Shown on Drawing No	• •					7747	/54-3	-			
Retested by Test			-	-	-	-	-	-	-	-	
Reduced Level		m	47.77	45.95	44.70	45.90	43.56	43.83	51.64	53.19	
FIELD & LABORATORY	ΠΔΤΔ										
Field Wet Density	DATA	t/m³	2.25	2.23	2.26	2.23	2.15	2.23	2.20	2.24	
Field Moisture Content		%	14.5	15.0	14.5	17.0	14.0	14.5	16.0	14.5	
Material retained on 19mn	n Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
Lab Compaction result from test nu	. ,		87	88	89	90	91	92	93	94	
Lab Compaction Date Tested			27/05/2021	27/05/2021	27/05/2021	27/05/2021	01/06/2021	01/06/2021			
Peak Converted Wet Density		t/m³	2.24	2.23	2.22	2.19	2.15	2.21	2.20	2.22	
Apparent Optimum Moisture Conte	ent	%	14.5	15.0	15.0	17.5	14.0	14.5	16.0	14.5	
Number of Compaction Points		Г	3	3	3	3	3	3	3	3	
Test Procedures - See Note Numb	ber	Г	12	12	12	12	12	12	12	12	
Material Description - see below		Ī	2	2	2	2	2	2	2	2	
 Assigned Values have been obtained from Assigned Values have been obtained from Results have been calculated using infinit AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, Calse 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, Cl-Clays of low plasticity, gravelly clays, s Cl-Clays of low plasticity, gravelly clays, s CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, gravel-sand-clay mixtures 	n our Prestons laboratory – <i>J</i> e decimal places. Therefore 5.3.1, 5.4.1 5.3.1, 5.4.1 , 5.6.1, 5.8.1 ble on request sandy clays, silty clays s, sandy clays, silty clays	Accreditati	ion No 14234	vary from those	11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 19. RMS T120 19. RMS T120 19. RMS T120 10. RMS T120	T162, T173	o), 2.1.1, 5.3.1, 5. o), 2.1.1, 5.7.1, 5. 66	7.1 8.1 villised ed		
7. SP-Sand, crushed dust, filling sand, washe 8. DGB20 9. DGB40 10. DGS20 Form No R 020 Version 10 10/20 - issued by Accreditation Number 2734 Corporate Site Number 2727	ER		d for compl C 17025 - ⁻	liance with Testing.	17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	ed Sandstone	ΗW	ilson <u>Approved</u>	23/06 <u>Signatory</u>	5/2021	
34 Borec Road, Penrith NSW 27	750				Linit 4 19	20 W/byalla	Place Proc	topo NSW/	2170		

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 11

		1	-					1.5.5				
			95	96	97	98	99	100	101	102		
DATE TESTED & SAMPLED				19/5/2021								
RESULTS												
lilf Density Ratio	Standard	%	100	100	100	99.5	101	100.5	100	100.5		
Noisture Variation fr	om OMC (-Drier/+Wetter)	%	-0.5	-0.5	-1.0	-0.5	0.0	-0.5	0.0	0.0		
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%		
FEST LOCATION												
Chainage	(Carriageway L/R)	m	-	-	-	-	-	-	-	-		
Shown on Drawing No						7747	/54-3					
Retested by Test			-	-	-	-	-	-	-	-		
Reduced Level		m	52.96	52.51	50.82	50.68	50.74	51.06	50.76	49.66		
FIELD & LABOR	ATORY DATA											
ield Wet Density		t/m³	2.10	2.11	2.09	2.09	2.09	2.10	2.11	2.09		
ield Moisture Content		%	18.5	18.0	19.5	21.0	19.5	19.5	19.5	19.0		
laterial retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5		
ab Compaction result f			95	96	97	98	99	100	101	102		
.ab Compaction Date T					01/06/2021				01/06/2021			
eak Converted Wet De	ensity	t/m³	2.10	2.11	2.09	2.10	2.07	2.09	2.11	2.08		
Apparent Optimum Mois		%	19.0	18.5	21.0	21.5	19.5	20.0	19.5	19.0		
Number of Compaction	Points		3	3	3	3	3	3	3	3		
est Procedures - See N	Note Number		12	12	12	12	12	12	12	12		
laterial Description - se	e below		2-3	2	2-3	2-3	2-3	2-3	2-3	2		
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1),), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	Accredita	tion No 14234	vary from those	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111,	T162, T173), 2.1.1, 5.3.1, 5), 2.1.1, 5.7.1, 5 66	.7.1			
CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayes yands, sand-slit SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-s: SP-Sand, crushed dust, fillin DGB20 DCB40 0. DGS20	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R: 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe 19. Cowels Brot	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat: # Lime Stabilis \$ Gypsum Stat 	ed			
orm No R 020 Version 10 10/2	Ac		d for compl C 17025 - ⁻				нw	ilson <u>Approved</u>	23/06 <u>Signatory</u>	6/2021		

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REDBANK COM	MUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 11

TEST NUMBER DATE TESTED & SAMPLED		103	104	105 /2021	106				
	l		19/0				1	1	1
RESULTS									
Hilf Density Ratio Standard	%	99.5	99.5	99.5	99.5				
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0	-0.5	-1.5	-0.5				
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	±2%
TEST LOCATION	-								
Chainage (Carriageway L/R)	m	-	-	-	-				
Shown on Drawing No			7747	/54-3					
Retested by Test		-	-	-	-				L
Reduced Level	m	48.71	47.72	47.41	48.36				
FIELD & LABORATORY DATA	-								
Field Wet Density	t/m³	2.12	2.12	2.10	2.11				
Field Moisture Content	%	12.5	12.5	11.5	11.5				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		103	104	105	106				
Lab Compaction Date Tested			02/06/2021	02/06/2021					
Peak Converted Wet Density	t/m³	2.13	2.13	2.11	2.12				
Apparent Optimum Moisture Content	%	13.5	13.0	13.0	12.0				
Number of Compaction Points		3	3	3	3			_	
Test Procedures - See Note Number Material Description - see below		12	12	12 1	12 1-2				
Notes		1-2	1-2		I-Z				
 Assigned Values have been obtained from our Penrith laboratory – J. Assigned Values have been obtained from our Prestons laboratory – J. Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 7: AS 1289 1.2.1 clause 6.4 (b), 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.8.1 	Accredita	tion No 14234	vary from those	shown	10: AS 1289 1. 11: AS 1289 1. 12. AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (l 2.1 clause 6.4 (l T119, T120, T T120, T166, T T120, T162, T162 T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 D.DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Sta # Lime Stabili \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⁻				ΗΜ	/ilson <u>Approved</u>	23/0 <u>d Signatory</u>	6/2021
34 Borec Road. Penrith NSW 2750				l Init 4 18-	20 Whvalla	Place Pres	tons NSW	2170	

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	23/6/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 1 of 4

TEST NUMBER		107	108						
DATE TESTED & SAMPLED		20/05	5/2021						
RESULTS									
Hilf Density Ratio Standard	%	100.5	100						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	-0.5						
Specification Density Ratio (Standard	I)	≥9 8%	Specific	ation Mo	oisture Va	ariance fr	om OMC	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-						
Shown on Drawing No		7747	/54-3						
Retested by Test		-	-						
Reduced Level	m	43.45	45.02						
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.19	2.12						
Field Moisture Content	%	12.5	10.5						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number		107	108						
Lab Compaction Date Tested		02/06/2021	02/06/2021						
Peak Converted Wet Density	t/m³	2.18	2.12						
Apparent Optimum Moisture Content	%	12.0	11.0						
Number of Compaction Points		3	3						
Test Procedures - See Note Number		12	12						
Material Description - see below Notes		1-2	1						
 Assigned Values have been obtained from our Penrith laboratory – Acc Assigned Values have been obtained from our Prestons laboratory – Acc Results have been calculated using infinite decimal places. Therefore, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ccredita	tion No 14234	vary from those	shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	o), 2.1.1, 5.3.1, 5 o), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	ed	
Form No R 020 Version 10 10/20 - issued by ER									
		d for compl C 17025 - ⁻				Η₩	/ilson <u>Approvec</u>	23/00 <u>I Signatory</u>	6/2021
34 Borec Road, Penrith NSW 2750				l Init / 19-	20 Whyalla	Place Pros	tons NSW '	2170	

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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									Faye 4 01 1
TEST NUMBER	Į	109	110	111	112	113	114	115	116
DATE TESTED & SAMPLED	ļ	20/05	5/2021	24/05/2021					
RESULTS									
Hilf Density Ratio Standard	%	100	101	99.5	99.5	100	100	100	98.5
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No					7747	//54-3			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	50.81	50.49	50.89	51.92	48.22	48.97	48.85	50.18
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.11	2.19	2.11	2.10	2.11	2.09	2.12	2.10
Field Moisture Content	%	12.0	13.0	16.5	13.5	16.0	14.0	14.5	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number	-	109	110	111	112	113	114	115	116
ab Compaction Date Tested		02/06/2021	02/06/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/20
Peak Converted Wet Density	t/m³	2.11	2.17	2.12	2.11	2.11	2.09	2.12	2.13
Apparent Optimum Moisture Content	%	13.5	13.0	16.5	13.5	16.0	14.0	14.5	17.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		1-2	1-2	2	2	2	2	2	2
 Assigned Values have been obtained from our Penrith laboratory - 2: Assigned Values have been obtained from our Prestons laboratory 3: Results have been calculated using infinite decimal places. There 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity 5: CC-Claye gravels, sand-clay mixtures 5: MS-Sity gravels, gravel-sand-clay mixtures 5: SP-Sand, crushed dust, filling sand, washed sand DGB20 	- Accreditat fore, calculat	ion No 14234	vary from those	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120 19. RMS T120 10. RMS T120	2.1 clause 6.4 (b 2.1 clause 6.4 (b , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		7.1 8.1 vilised ed	
9. DGB40 10. DGS20 Form No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⁻		19. Cowels Bro	wn	нw	ilson <u>Approved</u>	23/06 <u>Signatory</u>	5/2021
24 Perce Read Deprith NSW/ 2750					20 Whyalla				

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REDBANK COMML	INITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 27	750	Date:	23/6/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER		117	118						
DATE TESTED & SAMPLED		24/05/2021	25/05/2021						
<u>RESULTS</u>	-								
Hilf Density Ratio Standard	%	99.5	100.5						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0						
Specification Density Ratio (Stand	ard)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION	-								
Chainage (Carriageway L/R)	m	-	-						
Shown on Drawing No		7747	//54-3						
Retested by Test		-	-						
Reduced Level	m	46.72	44.77						
FIELD & LABORATORY DATA	-								
Field Wet Density	t/m³	2.09	2.13						
Field Moisture Content	%	15.5	16.0						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number		117	118						
Lab Compaction Date Tested		25/05/2021	18/06/2021						
Peak Converted Wet Density	t/m³	2.10	2.12						
Apparent Optimum Moisture Content	%	15.5	16.5						
Number of Compaction Points		3	3						
Test Procedures - See Note Number		12	12						
Material Description - see below Notes		2	2						
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	- Accredita	tion No 14234	vary from those :	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173), 2.1.1, 5.3.1, 5), 2.1.1, 5.7.1, 5 66	.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20	3			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - ⁻				нw	ilson <u>Approved</u>	23/06 <u>I Signatory</u>	5/2021

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REDBANK COMMUNITIES PO BOX 1918	Laboratory: Job No:	Penrith 7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER			119	120	121	122	123	124	125	126
DATE TESTED & S	AMPLED					25/05/2021				26/05/202
RESULTS										
Hilf Density Ratio	Standard	%	101	101.5	100	99	99.5	100.5	98.5	100
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.5	0.0	0.0	0.5	0.5	0.0
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fro	om OMC		±2%
TEST LOCATION		i								
Chainage	(Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No				1	1	//4/	/54-3	1		
Retested by Test Reduced Level		m	- 49.08	- 49.58	- 50.19	- 52.04	- 53.38	- 46.88	- 44.78	- 44.01
			49.00	49.00	50.19	52.04	55.50	40.00	44.70	44.01
FIELD & LABORA	ATORY DATA					1	-			
Field Wet Density		t/m³	2.14	2.14	2.12	2.12	2.12	2.13	2.10	2.13
Field Moisture Content	10 0:	%	16.0	16.0	16.5	15.0	15.5	15.5	16.0	15.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fi			119	120	121	122	123	124	125	126
Lab Compaction Date Te Peak Converted Wet De		t/m³	18/06/2021 2.12	18/06/2021 2.11	18/06/2021 2.12	18/06/2021 2.14	18/06/2021 2.13	18/06/2021 2.12	18/06/2021 2.13	18/06/202 2.13
Apparent Optimum Mois		%	16.0	16.0	16.0	15.0	15.5	15.5	15.5	15.5
Number of Compaction I		70	3	3	3	3	3	3	3	3
Test Procedures - See N			12	12	12	12	12	12	12	12
Material Description - se			2	2	2	2	2	2	2	2
 Results have been calculate AS 1289 1.2.1 clause 6.4 (b) Hull details of Test Procedur Material Descriptio CL-Clays of low plasticity, gra 	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures			vary from those	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crusi	12. AS 1289 1. 13. RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120 19. RMS T120 10. RMS T120	, T162, T173 , T164, T173), 2.1.1, 5.7.1, 5. 66	.8.1 pilised ed	
8. DGB20 9. DGB40 10. DGS20 Form No R 020 Version 10 10/2 Accreditation Numbe Corporate Site Numbe	Ac		d for compl C 17025 - ⁻		18. RSS - Rippi 19. Cowels Bro		нw	ilson <u>Approved</u>	23/06 <u>I Signatory</u>	/2021
34 Boroc Bood Boprith						20 Whyalla			0470	

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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										Tage 0 01
	_	Į	127	128	129	130	131	132	133	134
DATE TESTED & SAMPLE	D					26/05	/2021			
RESULTS										
Hilf Density Ratio	Standard	%	99.5	99.5	101	100	100.5	99.5	98.5	99.5
Moisture Variation from OMC	(-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5
Specification Densit	ty Ratio (Standar	d)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION				-						
Chainage (Carriag	jeway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						7747	/54-3			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	52.51	54.57	50.37	51.21	51.70	50.05	48.55	47.49
FIELD & LABORATORY	DATA									
Field Wet Density		t/m³	2.12	2.13	2.14	2.11	2.12	2.12	2.15	2.14
Field Moisture Content		%	15.5	17.5	16.5	14.5	15.5	16.5	16.5	17.0
Material retained on 19mr	n Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test n	umber	-	127	128	129	130	131	132	133	134
Lab Compaction Date Tested		-		18/06/2021			18/06/2021		18/06/2021	18/06/20
Peak Converted Wet Density		t/m³	2.13	2.14	2.12	2.11	2.11	2.13	2.18	2.14
Apparent Optimum Moisture Conte	ent	%	15.0	17.5	16.5	14.5	15.0	16.5	16.0	16.5
Number of Compaction Points		-	3	3	3	3	3	3	3	3
Test Procedures - See Note Num	ber	-	12	12	12	12	12	12	12	12
Material Description - see below		Ē	2	2	2	2	2	2	2	2
 Assigned Values have been obtained fro Assigned Values have been obtained fro Results have been calculated using infinit AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1 BS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1 BS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1 BY 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1 BY 1.3.1 clause 6.4 (b), 2.1.1, 5.5.1 BY 1.3.1 clause 6.4 (b), 5.5.1 BY 1.3.1	n our Prestons laboratory – <i>J</i> te decimal places. Therefore , 5.3.1, 5.4.1 , 5.3.1, 5.4.1 , 5.4.1, 5.8.1 I, 5.6.1, 5.8.1	Accreditat	ion No 14234	vary from those	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (b 2.1 clause 6.4 (b , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		7.1	
 CL-Clays of low plasticity, gravelly clays, s Cl-Clay of medium plasticity, gravelly clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixt SP-Sand, crushed dust, filling sand, wash DGB20 DGB40 DGS20 	s, sandy clays, silty clays ures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recyc 17. CSS - Crus 18. RSS - Rippe 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stab # Lime Stabilise \$ Gypsum Stab	ed	
Form No R 020 Version 10 10/20 - issued by Note of the second sec	Ac		d for compl C 17025 - ⁻				нw	ilson <u>Approved</u>	23/06 <u>Signatory</u>	6/2021

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

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SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST LOCATION Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Per	Standard n OMC (-Drier/+Wetter) Density Ratio (Standar (Carriageway L/R) CORY DATA 19mm Sieve (wet) n test number	m m t/m³ %	- 51.70	99.5 0.0	5/2021 100 -0.5 ation Mo - - 54.57	99 0.0 isture Va - 7747	-	27/05 101.5 -0.5 om OMC -	101.5 0.0	98.5 0.5 ±2%
Hilf Density Ratio Moisture Variation from Specification TEST LOCATION Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Per	n OMC (-Drier/+Wetter) Density Ratio (Standar (Carriageway L/R) CORY DATA 19mm Sieve (wet) n test number	% d) m t/m³ %	0.0 ≥98% - 51.70	0.0 Specific -	-0.5 ation Mo	0.0 isture Va	-0.5 riance fro	-0.5 om OMC	0.0	0.5 ±2%
Moisture Variation from Specification TEST LOCATION Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Density Pack Converted Wet Pack Converted Wet P	n OMC (-Drier/+Wetter) Density Ratio (Standar (Carriageway L/R) CORY DATA 19mm Sieve (wet) n test number	% d) m t/m³ %	0.0 ≥98% - 51.70	0.0 Specific -	-0.5 ation Mo	0.0 isture Va	-0.5 riance fro	-0.5 om OMC	0.0	0.5 ±2%
Specification TEST LOCATION Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction Date Tes Peak Converted Wet Dense Apparent Optimum Moistu Number of Compaction Per	Density Ratio (Standar (Carriageway L/R) ORY DATA 19mm Sieve (wet) n test number	d) m m t/m³ %	≥ 98% - 51.70	Specific -	ation Mo	isture Va	riance fro	om OMC		±2%
TEST LOCATION Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Pote	(Carriageway L/R) TORY DATA 19mm Sieve (wet) n test number	m m t/m³ %	- 51.70	-	-	-	-		-	1
Chainage Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po	TORY DATA 19mm Sieve (wet) n test number	m t/m³ %	- 51.70	-	-		- /54-3	-	-	1
Shown on Drawing No Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po	TORY DATA 19mm Sieve (wet) n test number	m t/m³ %	- 51.70	-	-		- /54-3	-	-	-
Retested by Test Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Pe	19mm Sieve (wet) n test number	t/m³ %		- 52.01	- 54.57	- 7747	/54-3			L
Reduced Level FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Per	19mm Sieve (wet) n test number	t/m³ %		- 52.01	- 54.57	-				
FIELD & LABORAT Field Wet Density Field Moisture Content Material retained on Lab Compaction result fron Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Pc	19mm Sieve (wet) n test number	t/m³ %		52.01	54.57	E4.40	-	-	-	-
Field Wet Density Field Moisture Content Material retained on Lab Compaction result fron Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po	19mm Sieve (wet) n test number	%			••	54.16	51.83	52.44	52.21	52.10
Field Moisture Content Material retained on Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Pc	n test number	%								
Material retained on Lab Compaction result fron Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Pc	n test number		2.03	2.06	2.03	2.02	2.19	2.16	2.17	2.18
Lab Compaction result from Lab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po	n test number	0/	18.5	15.5	18.0	18.0	14.0	12.0	13.0	12.5
ab Compaction Date Tes Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po		%	<5	<5	<5	<5	<5	<5	<5	<5
Peak Converted Wet Dens Apparent Optimum Moistu Number of Compaction Po	ted		135	136	137	138	139	140	141	142
Apparent Optimum Moistu Number of Compaction Po			18/06/2021	18/06/2021	18/06/2021	18/06/2021	18/06/2021	18/06/2021	09/06/2021	
Number of Compaction Po	•	t/m³	2.04	2.07	2.03	2.04	2.11	2.13	2.14	2.21
		%	18.5	15.5	18.5	18.0	14.5	12.5	13.5	12.0
			3	3	3	3	3	3	3	3
Test Procedures - See No		-	12	12	12	12	12	12	12	12
Material Description - see	DEIOW		2	2	2	2	2	2	2	2
 Assigned Values have been ob Results have been calculated u AS 1289 1.2.1 clause 6.4 (b), 2 S 1289 1.2.1 clause 6.4 (b), 2 AS 1289 1.2.1 clause 6.4 (b), 7 AS 1289 1.2.1 clause 6.4 (b), 2 AS 1289 1.2.1 clause 6.4 (b), 2 Hald tables of Test Procedure 5 Material Description CL-Clays of low plasticity, grave 	1.1, 5.2.1, 5.3.1, 5.4.1 1.1, 5.2.1, 5.4.1, 5.8.1 1.1, 5.5.1, 5.6.1, 5.8.1 8.1 available on request Ily clays, sandy clays, silty clays avelly clays, sandy clays, silty clays dures	Accreditat	ion No 14234	vary from those	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120.	2.1 clause 6.4 (b 2.1 clause 6.4 (b 1119, T120, T1 T120, T166, T1 T119, T162 T162, T173 T164, T173		7.1 8.1 illised ed	
GC-Clayey gravels, gravel-sance SP-Sand, crushed dust, filling s DGB20 DGB20 DGS20 Om No R 020 Version 10 10/20 - OCOMPARENT OF THE SAME SAME SAME SAME SAME SAME SAME SAM	and, washed sand issued by ER Ac		d for compl C 17025 - ⁻		16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	hed Sandstone ed Sandstone	НW		23/06 Signatory	6/2021

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 11

TEST NUMBER	EST NUMBER		143	144	145	146	147	148	149	150	
DATE TESTED & S	AMPLED	Ē	27/05/2021								
<u>RESULTS</u> Hilf Density Ratio	Standard	%	101	101.5	101	102	101	100.5	100.5	100.5	
-	om OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	0.0	-0.5	0.0	0.0	0.0	
Specification	Density Ratio (Standar		≥98%		ation Mo					±2%	
TEST LOCATION		- /	,					••		/	
Chainage	(Carriageway L/R)	m	-	-	-	-	-	-	-	-	
Shown on Drawing No						7747	7/54-3				
Retested by Test			-	-	-	-	-	-	-	-	
Reduced Level		m	49.83	50.03	50.54	54.12	53.89	46.43	46.31	46.61	
FIELD & LABORA	TORY DATA										
Field Wet Density		t/m³	2.17	2.18	2.17	2.16	2.17	2.13	2.14	2.15	
Field Moisture Content		%	12.5	12.5	14.0	14.0	13.5	14.0	14.5	15.5	
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
Lab Compaction result fr	rom test number	F	143	144	145	146	147	148	149	150	
Lab Compaction Date Te	ested		09/06/2021	09/06/2021	09/06/2021	09/06/2021	27/05/2021	27/05/2021	27/05/2021	27/05/202	
Peak Converted Wet De	nsity	t/m³	2.15	2.15	2.15	2.12	2.15	2.12	2.13	2.14	
Apparent Optimum Mois	ture Content	%	13.0	12.5	14.5	14.0	13.5	14.0	14.5	15.5	
Number of Compaction F	Points		3	3	3	3	3	3	3	3	
Test Procedures - See N	lote Number		12	12	12	12	12	12	12	12	
Vaterial Description - se Notes	e below		2	2	2	2	2	2	2	2	
 Results have been calculated AS 1289 1.2.1 clause 6.4 (b) Full details of Test Procedure Material Descriptio CL-Clays of low plasticity, gra CH-Clays of high plasticity SC-Claye sonds, sand-clay (b) 	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures			vary from those	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl	12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	, T162, T173), 2.1.1, 5.7.1, 5. 66	.8.1 pilised ed		
5. SM-Silty sands, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 9. DGB20 9. DGB40 10. DGS20 Form No R 020 Version 10 10/20 Accreditation Number	and-clay mixtures g sand, washed sand 0 - issued by ER Ac		d for comp C 17025 - ⁻		15. Recycled Rr. 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippe 19. Cowels Bro	rcled Sub-base hed Sandstone ed Sandstone	нw	ilson <u>Approved</u>	23/06 <u>Signatory</u>	5/2021	
Corporate Site Numbe					Linit / 18-						

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REDBANK COMM PO BOX 1918	IUNITIES	Laboratory: Job No:	Penrith 7747/54
PENRITH NSW 2	2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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										Page 9 of 1
TEST NUMBER			151	152	153	154	155	156	157	158
DATE TESTED & SA	AMPLED		27/05/2021				28/05/2021			
RESULTS										
Hilf Density Ratio	Standard	%	100.5	101	100.5	101	101	101.5	100.5	100.5
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification	Density Ratio (Standar	·d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						7747	//54-3			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	47.30	48.01	49.05	50.13	50.10	50.16	50.08	51.01
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.16	2.11	2.11	2.12	2.11	2.14	2.13	2.12
Field Moisture Content		%	15.0	17.0	14.5	15.0	15.0	14.0	16.0	15.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fr	· · ·		151	152	153	154	155	156	157	158
Lab Compaction Date Te			27/05/2021		31/05/2021		31/05/2021	31/05/2021	31/05/2021	31/05/202
Peak Converted Wet De	nsity	t/m³	2.15	2.09	2.10	2.10	2.09	2.11	2.12	2.11
Apparent Optimum Moist	ture Content	%	15.0	17.0	14.5	15.0	15.0	14.0	16.0	15.5
Number of Compaction F	Points		3	3	3	3	3	3	3	3
Test Procedures - See N	lote Number		12	12	12	12	12	12	12	12
Material Description - see	e below		2	2	2	2	2	2	2	2
2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1., 5.5.1, 5.6.1, 5.8.1	Accredita	tion No 14234	vary from those	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	o), 2.1.1, 5.3.1, 5 o), 2.1.1, 5.7.1, 5 66	.7.1	
Material Description										
1. CL-Clays of low plasticity, gra	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stab # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 NATA Accreditation Number Corporate Site Number	Ac		d for comp C 17025 - ⁻				нw	lilson <u>Approved</u>	23/06 <u>Signatory</u>	5/2021
24 Porce Pood Doprith	NOW 2750								170	

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REDBANK COMMU		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	23/6/2021
PROJECT:	SITE FILL TESTING	Date.	23/0/2021

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER DATE TESTED & SAMPLED		159 28/05/2021	160 31/0	161 5/2021						
RESULTS Hilf Density Ratio Standard	%	100	100.5	100						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0						
Specification Density Ratio (Stand					isture Va	riance from OMC ±2%				
TEST LOCATION	,							-		
Chainage (Carriageway L/R)	m	-	-	-						
Shown on Drawing No			7747/54-3							
Retested by Test		-	-	-						
Reduced Level	m	52.38	53.74	53.78						
FIELD & LABORATORY DATA										
ield Wet Density	t/m³	2.11	2.14	2.14						
ield Moisture Content	%	14.5	18.0	16.0						
Material retained on 19mm Sieve (wet)	%	<5	<5	<5						
ab Compaction result from test number		159	160	161						
ab Compaction Date Tested										
Peak Converted Wet Density	t/m³	2.11	2.12	2.14						
pparent Optimum Moisture Content	%	14.5	18.0	16.0						
Number of Compaction Points		3	3	3						
Fest Procedures - See Note Number Material Description - see below		12	12	12				-		
lotes		2	2	2						
 Assigned Values have been obtained from our Prenrith laboratory. Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Hull details of Test Procedure 5.8.1 available on request 	 Accredita 	tion No 14234	vary from those	shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1		
Material Description										
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 	3			 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro 	loadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Sta # Lime Stabili \$ Gypsum Sta	sed		
Form No R 020 Version 10 10/20 - issued by ER										
NATA		d for compl C 17025 -				нw	/ilson <u>Approve</u>	23/06 <u>d Signatory</u>	6/2021	
\mathbf{v}							∇			
Accreditation Number 2734 Corporate Site Number 2727										
4 Borec Road, Penrith NSW 2750				Unit 4, 18-	20 Whyalla	Place, Pres	tons NSW	2170		
					(00) 0007					

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	23/6/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 4

TEST NUMBER DATE TESTED & SA	MPLED		162 01/06	163 6/2021						
RESULTS										
Hilf Density Ratio	Standard	%	100.5	101.5						
Moisture Variation fro	m OMC (-Drier/+Wetter)	%	0.0	0.0						
Specification	Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	-	-						1
Shown on Drawing No			7747	7/54-3						
Retested by Test			-	-						
Reduced Level		m	51.87	53.37						
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.24	2.22						1
Field Moisture Content		%	15.0	15.5						
Material retained on	19mm Sieve (wet)	%	<5	<5						
Lab Compaction result fro			162	163						
Lab Compaction Date Tes			03/06/2021	03/06/2021						
Peak Converted Wet Den		t/m³	2.23	2.19						
Apparent Optimum Moistu		%	15.0	15.0						-
Number of Compaction P Test Procedures - See No			3	3						
Material Description - see			12	12 2						-
Notes	DEIOW		2	Z						
2: Assigned Values have been of	2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accredita	tion No 14234	vary from those	shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	o), 2.1.1, 5.3.1, 5 o), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description										
 CH-Clays of high plasticity SC-Clayey sands, sand-clay m SM-Silty sands, sand-silt mixtu GC-Clayey gravels, gravel-san SP-Sand, crushed dust, filling : DGB20 DGB40 DGS20 	ravelly clays, sandy clays, silty clays ixtures res d-clay mixtures sand, washed sand					Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Sta # Lime Stabilis \$ Gypsum Sta	ed	
Form No R 020 Version 10 10/20										
Accreditation Number Corporate Site Number	2734		d for compl C 17025 - ⁻				ΗW	/ilson <u>Approvec</u>	23/06 <u>I Signatory</u>	6/2021
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-	20 Whyalla	Place, Pres	tons NSW :	2170	

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REDBANK COMMUNITIES	Laboratory:	Penrith
PO BOX 1918	Job No:	7747/54
PENRITH NSW 2750	Date:	23/6/2021

PROJECT:

SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 11 of 11

TEST NUMBER		Γ	164	165	166	167	168	169		
DATE TESTED & S	AMPLED	[01/06	5/2021		02/06	/2021			
<u>RESULTS</u>		r					r	1		1
Hilf Density Ratio	Standard	%	101.5	101	100	100	100.5	101		
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.0	0.5	0.0	0.5	0.5	0.0		
Specification	Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		_								
Chainage	(Carriageway L/R)	m	-	-	-	-	-	-		
Shown on Drawing No		-			7747	/54-3				
Retested by Test			-	-	-	-	-	-		
Reduced Level		m	51.02	52.46	52.84	52.58	52.90	51.09		
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.21	2.23	2.18	2.18	2.19	2.19		
Field Moisture Content		%	15.0	16.0	16.5	16.0	17.0	16.0		
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
Lab Compaction result fr	rom test number		164	165	166	167	168	169		
Lab Compaction Date Te			03/06/2021	03/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021		
Peak Converted Wet De	•	t/m³	2.18	2.21	2.18	2.18	2.18	2.17		
Apparent Optimum Mois		%	15.0	15.5	16.5	16.0	16.5	16.0		
Number of Compaction F		_	3	3	3	3	3	3		
Test Procedures - See N		-	12	12	12	12	12	12		
Material Description - se Notes	e delow		2	2	2	2	2	2		
2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accreditat	ion No 14234	vary from those	shown	11: AS 1289 1.	2.1 clause 6.4 (t 2.1 clause 6.4 (t T119, T120, T1 T120, T166, T1 T119, T162 T162, T173		7.1	
Material Descriptio	n									
 CL-Clays of low plasticity, gra CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-silt mixit GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stab # Lime Stabiliss \$ Gypsum Stab 	ed	
Form No R 020 Version 10 10/20										
Accreditation Number Corporate Site Number	r 2734		d for compl C 17025 - ⁻				ΗW	'ilson <u>Approved</u>	23/0 <u>Signatory</u>	6/2021
34 Borec Road, Penrith					l Init 4 18-					

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REDBANK COMM	JNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2750		Date:	23/6/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER DATE TESTED & SAMPLED		170 03/06	171 5/2021	172	173 09/06	174 /2021	175		
RESULTS	0/	400 5	00.5	400	400	400	404		
Hilf Density Ratio Standard	%	100.5	99.5	100	100	100	101		
Ioisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0		
Specification Density Ratio (Stand	dard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29
	~		-						1
hainage (Carriageway L/R) hown on Drawing No	m	-	-	- 77/7	- 7/54-3	-	-		-
letested by Test			r – – – – – – – – – – – – – – – – – – –	//4/	/54-5				
Reduced Level	m	- 50.49	53.56	- 54.05	- 54.77	- 55.57	- 56.42		
IELD & LABORATORY DATA									
ield Wet Density	t/m³	2.16	2.16	2.09	2.11	2.07	2.08		1
ield Moisture Content	%	17.5	17.0	14.5	15.5	15.0	15.5		
laterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
ab Compaction result from test number		170	171	172	173	174	175		
ab Compaction Date Tested		03/06/2021	03/06/2021	10/06/2021		10/06/2021	10/06/2021		
eak Converted Wet Density	t/m³	2.15	2.17	2.09	2.11	2.07	2.06		
pparent Optimum Moisture Content	%	17.5	17.0	14.5	15.5	15.0	15.5		
lumber of Compaction Points		3	3	3	3	3	3		
est Procedures - See Note Number		12	12	12	12	12	12		
laterial Description - see below		2	2	2	2	2	2		
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), AS 1281 1.2.1 clause 6.4 1.2.1 clause 6.4 1.2.1 clause 6.4 1.2.1 clause 6.4 1.2.1 clause	y – Accredita	tion No 14234	vary from those	shown	11: AS 1289 1.	2.1 clause 6.4 (b 2.1 clause 6.4 (b T119, T120, T1 T120, T166, T1 T119, T162 T162, T173		7.1	
Aaterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 D DGS20	'S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippe 19. Cowels Brot	oadbase cled Sub-base hed Sandstone ed Sandstone		* Cement Stab # Lime Stabilis \$ Gypsum Stab	ed	
orm No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734 Corporate Site Number 2727		d for comp C 17025 -				нw	l'ilson <u>Approved</u>		6/2021
							tons NSW 2	470	

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:22/07/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 17

TEST NUMBER			176	177	178	179	180	181	182	183
DATE TESTED & SA	AMPLED				5/2021		100	17/06		100
RESULTS										
Hilf Density Ratio	Standard	%	101	100.5	99.5	100.5	101.5	100	101	101.5
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	1.0	0.5	0.5	0.5	1.0	0.5	0.5	0.5
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m				Southern He	0			
Shown on Drawing No						7747	/54-4			
Retested by Test		~	-	-	-	-	-	-	-	-
Reduced Level		m	72.87	73.62	73.70	73.19	73.53	74.32	74.02	74.81
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.10	2.10	2.08	2.09	2.11	2.09	2.10	2.11
Field Moisture Content		%	18.5	16.0	18.0	19.0	18.5	19.0	22.0	19.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fro	om test number		176	177	178	179	180	181	182	183
Lab Compaction Date Tes			25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/202
Peak Converted Wet Den	•	t/m³	2.08	2.09	2.09	2.08	2.08	2.09	2.08	2.08
Apparent Optimum Moistu		%	17.5	15.5	17.5	18.5	18.0	18.5	21.5	19.0
Number of Compaction Pe			3	3	3	3	3	3	3	3
Test Procedures - See No			12	12	12	12	12	12	12	12
Material Description - see Notes	DEIOW		2	2	2	2	2	2	2	2
2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1., 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l T119, T120, T1 T120, T166, T1 T119, T162 T162, T173		5.7.1	
Material Description	1									
	velly clays, sandy clays, silty clays				11. DGS40			* Cement Stat # Lime Stabilis	ed	
 CI-Clay of medium plasticity, 9 CH-Clays of high plasticity SC-Clayey sands, sand-clay 1 SM-Silty sands, sand-silt mixt GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 	mixtures ures nd-clay mixtures				12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase cled Sub-base hed Sandstone ed Sandstone		\$ Gypsum Stal	Dilised	
 CH-Clays of high plasticity SC-Clayey sands, sand-clay r SM-Silty sands, sand-silt mixt GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 	mixtures ures nd-clay mixtures ı sand, washed sand				13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crust 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone		\$ Gypsum Star	Dilised	
 CH-Clays of high plasticity SC-Clayey sands, sand-clay r SM-Silty sands, sand-silt mixt GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 	mixtures ures nd-clay mixtures ı sand, washed sand) - issued by ER Acı		d for compi C 17025 - ⁻		13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crust 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A Ki	ench	22/07 Signatory	/2021
 CH-Clays of high plasticity SC-Clayey sands, sand-clay i SM-Silty sands, sand-silt mixt GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 Form No R 020 Version 10 10/20	mixtures ures nd-clay mixtures sand, washed sand D - issued by ER Act		•		13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crust 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A Ki	ench	22/07	/2021

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REDBANK COMMUNITIES	
PO BOX 1918	
PENRITH NSW 2750	

Laboratory:	Penrith
Job No:	7747/54
Date:	22/07/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 2 of 17

TEST NUMBER									
		184	185	186	187	188	189	190	191
DATE TESTED & SAMPLED		17/06	6/2021			18/06	/2021		
RESULTS									
Hilf Density Ratio Standard	%	100.5	101	103.5	102	100.5	103.5	102	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.5	0.5	2.0	1.0	1.0	1.0	0.5
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m				Southern He				
Shown on Drawing No			1		1	/54-4			
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level	111	75.67	75.86	76.35	77.12	77.57	76.19	76.99	77.17
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.10	2.14	2.13	2.13	2.13	2.14	2.13
Field Moisture Content	%	20.5	20.0	18.5	19.5	17.0	20.5	18.5	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		184	185	186	187	188	189	190	191
_ab Compaction Date Tested		25/06/2021	25/06/2021			24/06/2021		24/06/2021	24/06/202
Peak Converted Wet Density	t/m³	2.08	2.08	2.07	2.09	2.12	2.06	2.10	2.13
Apparent Optimum Moisture Content	%	19.5	19.5	18.0	17.5	16.0	19.5	17.5	16.5
Number of Compaction Points Fest Procedures - See Note Number		3	3	3	3	3	3	3	3
Naterial Description - see below		12	12	12 2	12 2	12	12	12	12
Notes		2-3	2-3	Ζ	Z	2	2	2	2
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator 			4			2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5	5.7.1	
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 Star 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	fore, calcu		ιγ vary from thos	e shown		, T119, T120, T , T120, T166, T , T119, T162 , T162, T173	66	5.8.1	
 Assigned values have been calculated using infinite decimal places. There As 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 Sa 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Sa 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	fore, calcu		iy vary from thos	e shown	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	, T119, T120, T , T120, T166, T , T119, T162 , T162, T173	66	5.8.1	
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity gravelly clays, sandy clays, silty clays CH-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 			iy vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 17. RMS T120 19. R	, T119, T120, T , T120, T166, T , T119, T162 , T162, T173	66	pilised	
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity (ravelly clays, sandy clays, silty clays CH-Clays and, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER		lated values ma		11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 17. RMS T120 19. R	, T119, T120, T ⁷ , T120, T166, T ⁻ , T119, T162 , T162, T173 , T164, T173	 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ollised ed ollised	/////
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity (ravelly clays, sandy clays, silty clays CH-Clays and, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER	ccredite		liance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 17. RMS T120 19. R	, T119, T120, T ⁷ , T120, T166, T ⁻ , T119, T162 , T162, T173 , T164, T173	 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stat Gypsum Stat 	pilised	/2021
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity (ravelly clays, sandy clays, silty clays CH-Clays and, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER	ccredite	lated values ma	liance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 17. RMS T120 19. R	, T119, T120, T ⁷ , T120, T166, T ⁻ , T119, T162 , T162, T173 , T164, T173	 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stat Gypsum Stat 	oilised ed bilised 22/07	/2021
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity, gravelly clays, sandy clays, silty clays CH-Clays and, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures GP-Clays of dust, filling sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER	ccredite	lated values ma	liance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 17. RMS T120 19. R	, T119, T120, T ⁷ , T120, T166, T ⁻ , T119, T162 , T162, T173 , T164, T173	 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stat Gypsum Stat 	oilised ed bilised 22/07	/2021

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 3 of 17

Standard C (-Drier/+Wetter) ty Ratio (Standard geway L/R) Z DATA m Sieve (wet) umber	% % d) t/m³ %	- 77.44 2.13 18.5	193 18/06/2021 101 1.0 Specific - 76.98	- 78.73	Southern He	196 99.5 0.5 riance fr ights Dam 8 /54-4 - 75.18		198 104 0.0	199 103.5 0.0 ±2%
Standard C (-Drier/+Wetter) Ity Ratio (Standard geway L/R) Z DATA M Sieve (wet)	% d) m m t/m³ %	0.5 ≥98% - 77.44 2.13 18.5	101 1.0 Specific - 76.98 2.04	0.0 ation Mo - 78.73	0.5 isture Va Southern He 7747 -	0.5 riance fr eights Dam 8 /54-4 -	103.5 0.0 om OMC	0.0	0.0 ±2%
C (-Drier/+Wetter) ty Ratio (Standard geway L/R) T DATA m Sieve (wet)	% d) m m t/m³ %	0.5 ≥98% - 77.44 2.13 18.5	1.0 Specific - 76.98 2.04	0.0 ation Mo - 78.73	0.5 isture Va Southern He 7747 -	0.5 riance fr eights Dam 8 /54-4 -	0.0 om OMC	0.0	0.0 ±2%
C (-Drier/+Wetter) ty Ratio (Standard geway L/R) T DATA m Sieve (wet)	% d) m m t/m³ %	0.5 ≥98% - 77.44 2.13 18.5	1.0 Specific - 76.98 2.04	0.0 ation Mo - 78.73	0.5 isture Va Southern He 7747 -	0.5 riance fr eights Dam 8 /54-4 -	0.0 om OMC	0.0	0.0 ±2%
ty Ratio (Standar geway L/R) T DATA m Sieve (wet)	d) m m t/m³	≥98% 	Specific - 76.98 2.04	ation Mo - 78.73	Southern He	riance fr eights Dam 8 /54-4 -	om OMC		±2%
geway L/R) ' DATA m Sieve (wet)	m m t/m³ %	- 77.44 2.13 18.5	- 76.98	- 78.73	Southern He 7747	eights Dam 8 /54-4 -	-	- 77.86	-
DATA m Sieve (wet)	m t/m³ %	2.13 18.5	2.04		7747 -	/54-4 -	-	- 77.86	- 78 57
DATA m Sieve (wet)	m t/m³ %	2.13 18.5	2.04		7747 -	/54-4 -	-	- 77.86	- 78 57
m Sieve (wet)	t/m³ %	2.13 18.5	2.04		-	-	- 75.49	- 77.86	- 78 57
m Sieve (wet)	t/m³ %	2.13 18.5	2.04		- 75.13	- 75.18	- 75.49	- 77.86	- 78 57
m Sieve (wet)	t/m³ %	2.13 18.5	2.04		75.13	75.18	75.49	77.86	78 57
m Sieve (wet)	%	18.5							10.01
(/	%	18.5							
(/		18.5		2.02	2.14	2.14	2.15	2.16	2.15
(/	%		21.5	19.5	18.0	17.5	18.0	17.5	18.5
umber	%	<5	<5	<5	<5	<5	<5	<5	<5
		192	193	194	195	196	197	198	199
		24/06/2021	23/06/2021	23/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021	26/06/202
	t/m³	2.07	2.02	1.98	2.10	2.15	2.08	2.08	2.08
ent	%	17.5	20.5	19.0	18.0	16.5	18.0	17.5	18.5
		3	3	3	3	3	3	3	3
ber		12	12			12	12		12
		2	3	2	2	2	2	2	2
om our Prestons laboratory - nite decimal places. Therefo 1, 5.3.1, 5.4.1 1, 5.3.1, 5.4.1 1, 5.4.1, 5.8.1 1, 5.6.1, 5.8.1	- Accred	itation No 14234			11: AS 1289 1. 12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
ıys, sandy clays, silty clays ktures				15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	oadbase vcled Sub-base hed Sandstone ed Sandstone		# Lime Stabilis	ed	
		•				A Ke			/2021
			-				Art	<u></u>	
							Key		
							/		
	oper rom our Penrith laboratory – om our Prestons laboratory – nite decimal places. Therefo 1, 5.3.1, 5.4.1 1, 5.3.1, 5.4.1 1, 5.6.1, 5.8.1 lable on request sandy clays, silty clays ys, sandy clays, silty clays ktures shed sand IN ER	Der rom our Penrith laboratory – Accredit om our Prestons laboratory – Accredi nite decimal places. Therefore, calcu 1, 5.3.1, 5.4.1 1, 5.4.1, 5.8.1 1, 5.6.1, 5.8.1 lable on request , sandy clays, silty clays ys, sandy clays, silty clays where shed sand IN ER Accredite	ber 3 12 2 rom our Penrith laboratory – Accreditation No 2734 om our Prestons laboratory – Accreditation No 1423 nite decimal places. Therefore, calculated values may anter the decimal places.	Accreditation No 2734 om our Penrith laboratory – Accreditation No 2734 om our Prestons laboratory – Accreditation No 14234 nite decimal places. Therefore, calculated values may vary from thos 1, 5.3.1, 5.4.1 1, 5.4.1, 5.8.1 1, 5.6.1, 5.8.1 lable on request	Image: Note of the second s	No Loce Noce Noce 3 3 3 3 3 12 12 12 12 12 2 3 2 2 2 rom our Penrith laboratory – Accreditation No 2734 10: AS 1289 1. 11: AS 1289 1. om our Prestons laboratory – Accreditation No 14234 11: AS 1289 1. 12: AS 1289 1. 1, 5.3.1, 5.4.1 11: AS 1289 1. 12: AS 1289 1. 12: AS 1289 1. 1, 5.3.1, 5.4.1 13: RMS T111 13: RMS T111 14: RMS T111 1, 5.4.1, 5.8.1 16: RMS T120 16: RMS T120 16: RMS T120 1able on request 11: DGS40 12: FCR20 13: FCR40 , sandy clays, silty clays 11: DGS40 14: RC - Recycled Concrete 15: Recycled Roadbase 16: RSB - Recycled Sub-base 17: CSS - Crushed Sandstone 19: Cowels Brown 19: Cowels Brown 19: Cowels Brown	Image Image <th< td=""><td>Image: Note of the second se</td><td>Image: Note of the second se</td></th<>	Image: Note of the second se	Image: Note of the second se

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	22/07/2021

Page 4 of 17

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		200	201	202	203	204	205	206	207
DATE TESTED & SAMPLED			21/06/2021				22/06/2021		
RESULTS	and and a	400	404	400 5	400 5	400	400	400 5	400
	andard %		101	102.5	103.5	103	103	102.5	102
Moisture Variation from OMC (-D	rier/+Wetter) 9	6 0.5	0.5	0.0	0.0	0.0	0.0	-0.5	-0.5
•	atio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		r			0 11 11				
Chainage (Carriagewa	yL/R) r	n	7747		Southern He	eights Dam 8			
Shown on Drawing No		7747/54-4	//4/	/54-5			7747/54-4		
Retested by Test Reduced Level	r	- n 77.93	- 78.36	- 81.03	- 75.49	- 76.54	- 78.36	- 78.78	- 79.38
FIELD & LABORATORY DA	TA	11.00	10.00	01.00	10.10	10.01	10.00	10.10	10.00
Field Wet Density	t/m	1 ³ 2.14	2.15	2.14	2.13	2.13	2.13	2.12	2.14
Field Moisture Content	9		18.5	18.5	19.0	18.5	16.5	18.0	17.5
	Sieve (wet)	10.0	18.5 <5	<5	19.0 <5	<5	<5	<5	<5
Lab Compaction result from test number		200	201	202	203	204	205	206	207
Lab Compaction Date Tested		28/06/2021	26/06/2021	26/06/2021	28/06/2021	28/06/2021	26/06/2021	28/06/2021	26/06/202
Peak Converted Wet Density	t/m		2.13	2.09	2.06	2.07	2.07	2.07	2.10
Apparent Optimum Moisture Content	9	2.00	18.0	19.0	19.0	18.5	16.5	18.0	17.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	2	2	2	2
1: Assigned Values have been obtained from of 2: Assigned Values have been obtained from ou 3: Results have been calculated using infinite de 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6 9: Full details of Test Procedure 5.8.1 available of Material Description	r Prestons laboratory – Accrr cimal places. Therefore, cal .1, 5.4.1 .1, 5.8.1 .1, 5.8.1 .1, 5.8.1	editation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
 CL-Clays of low plasticity, gravelly clays, sand CI-Clay of medium plasticity, gravelly clays, sa CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed s DGB20 DGB40 DGS20 	ndy clays, silty clays			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER		ted for comp IEC 17025 - ⁻				A K	ench <u>Approved</u>	22/07 <u>Signatory</u>	/2021

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory: Penrith Job No: 7747/54 Date: 22/07/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 5 of 17

										Tage 5 01 17
TEST NUMBER			208	209	210	211	212	213	214	215
DATE TESTED & S	AMPLED			22/06	6/2021			23/06	6/2021	
<u>RESULTS</u>		ĺ		1	1	1	1	1	1	1
Hilf Density Ratio	Standard	%	103.5	103.5	102.5	102	103	103	101.5	100
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	-0.5	0.5
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m					eights Dam 8			
Shown on Drawing No			7747	//54-4	7747	//54-5		7747	/54-4	-
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	80.34	78.19	79.14	81.94	75.57	76.27	77.72	78.50
FIELD & LABOR	ATORY DATA									
Field Wet Density		t/m³	2.13	2.15	2.14	2.14	2.17	2.18	2.17	2.17
Field Moisture Content		%	19.0	17.5	19.0	17.5	16.0	17.0	16.5	17.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fr	om test number		208	209	210	211	212	213	214	215
Lab Compaction Date Te	ested		26/06/2021	28/06/2021	26/06/2021	25/06/2021	29/06/2021	28/06/2021	29/06/2021	29/06/202
Peak Converted Wet Der	nsity	t/m³	2.06	2.08	2.09	2.10	2.11	2.12	2.14	2.17
Apparent Optimum Moist	ture Content	%	19.0	17.5	19.5	17.5	16.0	17.0	16.5	16.5
Number of Compaction F	Points		3	3	3	3	3	3	3	3
Test Procedures - See N			12	12	12	12	12	12	12	12
Material Description - see	e below		2	2	2	2	2	2	2	2
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Descriptio	n									
1. CL-Clays of low plasticity, gr	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
10. DGS20 Form No R 020 Version 10 10/2	20 - issued by ER									
Accreditation Numbe	or 2734		ed for comp C 17025 - ⁻				A Ki	ench <u>Approved</u>	22/07 Signatory	7/2021
Corporate Site Number	er 2/2/							/		

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 6 of 17

DATE TESTED & S			216	217	218	219	220	221	222	223
DATE TESTED & S	AMPLED					23/06	/2021			
RESULTS										
Hilf Density Ratio	Standard	%	101	100.5	101	99.5	103	103	101.5	101.5
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	-0.5	0.5	0.0	0.0	0.0	0.0
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29
TEST LOCATION Chainage	(Carriageway L/R)	m				Southern He	eights Dam 8			
hown on Drawing No	(Callageway L/N)			7747	/54-4	Southernine	ignis Dani o		/54-5	
Retested by Test				1141	/J+-4			1141	/54-5	
Reduced Level		m	79.14	- 80.14	- 78.39	- 75.79	- 75.78	- 75.47	- 75.62	- 75.682
FIELD & LABOR										
Field Wet Density		t/m³	2.17	2.18	2.17	2.17	2.17	2.17	2.16	2.16
Field Moisture Content		%	18.5	17.0	17.5	16.5	16.5	15.5	17.0	16.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result fr	(/		216	217	218	219	220	221	222	223
ab Compaction Date Te			29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	28/06/2021	28/06/20
Peak Converted Wet Der	nsity	t/m³	2.15	2.16	2.15	2.18	2.11	2.11	2.13	2.13
pparent Optimum Moist	ure Content	%	18.5	16.5	18.0	16.0	16.5	15.0	17.0	16.5
Number of Compaction F	oints		3	3	3	3	3	3	3	3
est Procedures - See N	ote Number		12	12	12	12	12	12	12	12
Aaterial Description - see	e below		2	2	2	2	2	2	2	2
: Assigned Values have been		- Accredi	tation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T , T120, T166, T		5.7.1	
7: AS 1289 1.2.1 clause 6.4 (b 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1., 5.5.1, 5.6.1, 5.8.1					15: RMS T120 16. RMS T120 17. RMS T120	, T162, T173			
7: AS 1289 1.2.1 clause 6.4 (b 8: AS 1289 1.2.1 clause 6.4 (b 9: Full details of Test Procedur Material Descriptio 1. CL-Clays of low plasticity, gr 2. CL-Clay of medium plasticity, 3. CH-Claye of and-clay 5. SM-Silty sands, sand-clay 5. SM-Silty sands, sand-silt mib 5. GC-Clayey gravels, gravel-s 7: SP-Sand, crushed dust, fillin 3. DGB20 3. DGB40), 2.1.1., 5.5.1, 5.6.1, 5.8.1 re 5.8.1 available on request n avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays ^r mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Ripp 19. Cowels Bro	16. RMS T120 17. RMS T120 led Concrete cadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
 AS 1289 1.2.1 clause 6.4 (b AS 1289 1.2.1 clause 6.4 (b Full details of Test Procedur Material Descriptio CL-Clays of low plasticity, gr CH-Clay of medium plasticity, CH-Clays of high plasticity CH-Clays of shigh plasticity CH-Clays of and-clay SC-Clayey sands, sand-clay SM-Silty sands, sand-slit mix GC-Clayey gravels, gravel-s SP-Sand, crushed dust, fillin DGB20 DGB40 DGS20 	 aveily clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures dtures and-clay mixtures g sand, washed sand issued by ER 	redite	d for compl	iance with	12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	16. RMS T120 17. RMS T120 led Concrete cadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	# Lime Stabilis	ed	/2021
7: AS 1289 1.2.1 clause 6.4 (b 3: AS 1289 1.2.1 clause 6.4 (b 9: Full details of Test Procedur Material Descriptio . CL-Clays of low plasticity, gr . CH-Clays of high plasticity . SC-Clayes of high plasticity . SC-Clayes gravels, sand-slat mix . GC-Clayev gravels, gravel-s . SP-Sand, crushed dust, fillin . DGB20), 2.1.1., 5.5.1, 5.6.1, 5.8.1 re 5.8.1 available on request n avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 20 - issued by ER		d for compl C 17025 - ገ		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	16. RMS T120 17. RMS T120 led Concrete cadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	# Lime Stabilis \$ Gypsum Stal	ed bilised	/2021
7: AS 1289 1.2.1 clause 6.4 (b 8: AS 1289 1.2.1 clause 6.4 (b 9: Full details of Test Procedur Material Descriptio . CL-Clays of low plasticity, gr . CL-Clay of medium plasticity, . CH-Clays of high plasticity . SC-Clayey sands, sand-clay . SM-Silty sands, sand-silt mix . GC-Clayey gravels, gravel-s . SP-Sand, crushed dust, fillin . DGB20 . DGB40 0. DGS20	 available on request available on request available on request availy clays, sandy clays, silty clays, gravelly clays, sandy clays, silty clays mixtures and-clay mixtures g sand, washed sand sissued by ER 		•		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	16. RMS T120 17. RMS T120 led Concrete cadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	# Lime Stabilis \$ Gypsum Stal	ed bilised 22/07	/2021

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 7 of 17

			224	225	226	227	228	229	230	231
DATE TESTED & S	AMPLED					24/06	/2021			
RESULTS										
Hilf Density Ratio	Standard	%	100	102	100.5	101	100	101.5	99.5	101
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29
TEST LOCATION Chainage		m				Ridgetop	ne Dam 7			
Shown on Drawing No	(Carriageway L/R)						/54-5			
Retested by Test						1141	/54-5			
Reduced Level		m	81.13	83.23	- 78.48	- 81.10	- 79.13	77.75	- 79.35	- 76.87
			01.15	00.20	70.40	01.10	75.15	11.15	19.00	10.01
ield Wet Density	AIORI DATA	t/m³	2.13	2.13	2.13	2.14	2.12	2.13	2.11	2.12
Field Moisture Content		%	17.5	18.0	17.0	18.5	18.5	19.0	17.5	19.0
laterial retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result fr	(/		224	225	226	227	228	229	230	231
ab Compaction Date Te			28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/20
eak Converted Wet De		t/m³	2.13	2.09	2.12	2.12	2.12	2.10	2.12	2.10
pparent Optimum Moist	•	%	19.0	20.0	19.0	20.0	20.5	21.0	19.5	21.0
Jumber of Compaction F			3	3	3	3	3	3	3	3
est Procedures - See N	ote Number		12	12	12	12	12	12	12	12
Aterial Description - se	e below		2	2-3	2	2-3	3	3	2-3	3
: Assigned Values have beer), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accredi	tation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
 CI-Clay of medium plasticity CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mis GC-Clayey gravels, gravels, gravels, gravels, gravels SP-Sand, crushed dust, fillin DGB20 DGB40 	avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
CL-Clays of low plasticity, gr. Cl-Clay of medium plasticity, CH-Clays of high plasticity, SC-Clayey sands, sand-clay, SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-s SP-Sand, crushed dust, fillin DGB20	avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 20 - issued by ER		d for comp		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	oadbase vcled Sub-base hed Sandstone ed Sandstone	A Kı	# Lime Stabilis	ed	/2021
CL-Clays of low plasticity, gr CL-Clays of medium plasticity CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Sility sands, sand-silt mis GC-Clayey gravels, gravel-s SP-Sand, crushed dust, fillin DGB20 DGB20 DGS20	avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 20 - issued by ER		d for comp C 17025 - ⁻		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	oadbase vcled Sub-base hed Sandstone ed Sandstone	A K	# Lime Stabilis \$ Gypsum Stal	ed bilised	/2021
CL-Clays of low plasticity, gr. CL-Clays of medium plasticity. CH-Clays of high plasticity SC-Clayes grands, sand-slaw SM-Silty sands, sand-silt mis GC-Clayey gravels, gravel-s SP-Sand, crushed dust, fillin DGB20 DGB20 DGS20	avelly clays, sandy clays, silty clays , gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 20 - issued by ER Acc				12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	oadbase vcled Sub-base hed Sandstone ed Sandstone	A Ki	# Lime Stabilis \$ Gypsum Stal	ed billised 22/07	/2021

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 8 of 17

TEST NUMBER			232	233	234	235	236	237	238	239
DATE TESTED & S	AMPLED					25/06	5/2021			
RESULTS										
Hilf Density Ratio	Standard	%	103.5	102.5	102	98	99	100.5	100	98
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	1.0	0.0	0.0	1.5	0.0	0.0
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
	(Corriggourou L/D)		-			Pidaotor	os Dam 7			
Chainage	(Carriageway L/R)	m					/54-5			
Shown on Drawing No Retested by Test						1141	/J4-J			
Reduced Level		m	- 79.17	- 79.69	- 81.56	- 81.31	- 79.99	- 78.85	- 77.89	- 76.48
			10.11	10.00	01.00	01.01	10.00	10.00	11.00	10.40
ield Wet Density		t/m³	2.14	2.13	2.14	2.13	2.12	2.14	2.15	2.15
Field Moisture Content		%	16.5	19.0	18.5	17.0	15.0	16.5	20.0	18.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result fro	()		232	233	234	235	236	237	238	239
ab Compaction Date Te			29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/20
eak Converted Wet Der		t/m³	2.07	2.08	2.10	2.17	2.14	2.12	2.15	2.19
pparent Optimum Moist	ure Content	%	16.5	19.0	17.0	17.0	15.0	15.0	20.0	18.5
lumber of Compaction F	Points		3	3	3	3	3	3	3	3
est Procedures - See N	ote Number		12	12	12	12	12	12	12	12
Aaterial Description - see	e below		2	2	2	2	2	2	2-3	2
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 1423		e shown	11: AS 1289 1.	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
 CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silly sands, sand-silt mix GC-Clayey gravels, gravel-si SP-Sand, crushed dust, filling DGB20 DGB20 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase rcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stat 	ed	
10. DGS20 Form No R 020 Version 10 10/2	Acc		ed for comp				A K	ench	22/07	/2021
Accreditation Numbe		13U/IE	.0 17020 -	າ ອວແກ່ງ.				Approved	Signatory	
Corporate Site Number								1		

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REDBANK COI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 17

FEST NUMBER DATE TESTED & SAMPLED		240	241	242	243 28/06	244 5/2021	245	246	247
					20/00				
RESULTS								1	
Hilf Density Ratio Standard	%	100.5	100.5	98	102.5	101.5	100.5	99.5	102
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0	-1.5	-2.0	0.0	-1.0	-0.5	-1.0	-0.5
Specification Density Ratio (Stand	ard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %
		L			Didactor	os Dam 7			
Chainage (Carriageway L/R) Shown on Drawing No	m					7/54-5			
Retested by Test					//4/	/34-3		1	
Reduced Level	m	- 78.54	79.14	- 79.84	- 81.47	- 81.44	80.66	79.53	- 78.35
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.20	2.19	2.18	2.19	2.15	2.16	2.18	2.18
Field Moisture Content	%	14.5	14.0	11.5	16.0	15.0	13.0	15.0	13.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		240	241	242	243	244	245	246	247
ab Compaction Date Tested		29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/20
Peak Converted Wet Density	t/m³	2.19	2.18	2.22	2.14	2.12	2.15	2.19	2.14
Apparent Optimum Moisture Content	%	15.5	15.5	13.0	16.0	15.5	13.5	16.0	13.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Fest Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Penrith laborator Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 B: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 B: Full details of Test Procedure 5.8.1 available on request 	ry – Accred	itation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20	S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 * Cement Stal # Lime Stabilis \$ Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER		ed for comp C 17025 - ⁻				A K	ench Approved	22/07 Signatory	/2021
Accreditation Number 2734							Alt		
Corporate Site Number 2727							/		

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	22/07/2021

Page 10 of 17

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		248	249	250	251	252	253	254	255
DATE TESTED & SAMPLED			5/2021	230	231	29/06/2021			
RESULTS									
Hilf Density Ratio Standard	%	103.5	102.5	101.5	99.5	102.5	101.5	99	101
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.5	0.5	-1.5	-1.0	0.5	0.5
Specification Density Ratio (Standa	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m				Ridgetop				
Shown on Drawing No			1		7747	/54-5			
Retested by Test Reduced Level	m	- 78.12	- 77.23	- 77.96	- 79.05	- 78.70	- 79.71	- 81.22	- 83.54
		10.12	11.23	11.90	79.05	70.70	79.71	01.22	03.04
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.21	2.19	2.10	2.09	2.11	2.09	2.10	2.12
Field Moisture Content	%	13.5	13.0	18.0	19.0	19.5	18.5	18.5	19.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		248	249	250	251	252	253	254	255
Lab Compaction Date Tested Peak Converted Wet Density	t/m3	29/06/2021	29/06/2021		30/06/2021			30/06/2021	
Apparent Optimum Moisture Content	t/m³ %	2.14	2.14	2.07	2.10	2.06	2.06	2.12	2.10
Number of Compaction Points	/0	13.5 3	13.5 3	17.5 3	18.5 3	21.0 3	19.5 3	18.0 3	18.5 3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	3	2-3	2	2
Notes		2	2	2	2	Ū	20	2	L
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 S.1289 1.2.1 clause 6.4 S.2.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ry – Accred	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20	5			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	Accredite	ed for comp	liance with			ΔΚ	ench	22/07	/2021
NATA		C 17025 - ⁻						Signatory	,2021
Accreditation Number 2734 Corporate Site Number 2727							Key		
							//		

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REDBANK COMMU	-	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 27		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 11 of 17

TEST NUMBER DATE TESTED & SAMPLED			256 29/06	257 6/2021	258	259	260 30/06	261 5/2021	262	263
RESULTS										
Hilf Density Ratio	Standard	%	100	98	100	99.5	101	102	101	103
Moisture Variation from ON	IC (-Drier/+Wetter)	%	0.5	0.5	0.5	-0.5	0.5	1.0	0.0	-1.0
Specification Dens	sity Ratio (Standard	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
	ageway L/R)	m				Ridgetop				
Shown on Drawing No				1	1	7747	/54-5	1	1	1
Retested by Test Reduced Level		m	- 84.77	- 85.08	- 82.38	- 79.10	- 77.93	- 78.14	- 79.28	- 79.10
FIELD & LABORATOR			•	00.00	02.00					
Field Wet Density		t/m³	2.09	2.09	2.18	2.08	2.16	2.17	2.16	2.15
Field Moisture Content		%	17.5	18.0	19.0	16.5	16.5	17.0	17.5	19.5
	mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test	()		256	257	258	259	260	261	262	263
Lab Compaction Date Tested				30/06/2021			01/07/2021		01/07/2021	01/07/20
Peak Converted Wet Density		t/m³	2.09	2.13	2.18	2.09	2.14	2.13	2.13	2.09
Apparent Optimum Moisture Cor	ntent	%	17.0	17.5	18.5	16.5	15.5	16.0	17.5	20.5
Number of Compaction Points			3	3	3	3	3	3	3	3
Test Procedures - See Note Nun	nber		12	12	12	12	12	12	12	12
Material Description - see below			2	2	2	2	2	2	2	2-3
 Assigned Values have been obtained Assigned Values have been obtained Results have been calculated using in Results have been calculated using in AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5 BS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5 S AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5 E Full details of Test Procedure 5.8.1 av Material Description CL-Clays of low plasticity, gravelly clay CL-Clays of high plasticity CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay r SP-Sand, crushed dust, filling sand, w 	from our Prestons laboratory – finite decimal places. Therefor .1.1, 5.3.1, 5.4.1 .2.1, 5.3.1, 5.4.1 .5.1, 5.6.1, 5.8.1 .5.1, 5.6.1, 5.8.1 vailable on request ys, sandy clays, silty clays clays, sandy clays, silty clays	Accredi	tation No 14234		11. DGS40 12. FCR20 13. FCR40 14. RC - Recyce 15. Recycled R 16. RSB - Recy 17. CSS - Crus	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 19. Hed Concrete total as a second to the second total as a second	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1 5.8.1 pillised ed	
8. DGB20 9. DGB20 Form No R 020 Version 10 10/20 - issued Accreditation Number 2734 Corporate Site Number 2727	Acc		d for comp C 17025 - ⁻		18. RSS - Ripp 19. Cowels Bro		A Ki	ench Approved	22/07 Signatory	/2021

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 12 of 17

TEST NUMBER DATE TESTED & SAMPLED		264 30/06	265 5/2021	266	267	268 01/07	269 7/2021	270	271
RESULTS									
Hilf Density Ratio Standard	d %	101.5	101	101.5	102	102.5	101	103	99.5
Moisture Variation from OMC (-Drier/+We	etter) %	0.0	0.0	0.0	0.5	0.5	0.0	0.5	-1.0
Specification Density Ratio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29
TEST LOCATION	-								
Chainage (Carriageway L/R)	m				Ridgetop	os Dam 7			
Shown on Drawing No			1		7747/54-5				7747/54
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level		83.70	77.80	79.94	80.75	81.21	80.16	78.88	71.58
FIELD & LABORATORY DATA								-	
Field Wet Density	t/m³	2.16	2.17	2.09	2.12	2.13	2.12	2.14	2.03
Field Moisture Content	%	17.5	16.5	20.0	112.5	18.5	18.0	19.0	17.0
Material retained on 19mm Sieve ((wet) %	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		264	265	266	267	268	269	270	271
ab Compaction Date Tested Peak Converted Wet Density	t/m³		01/07/2021		02/07/2021	02/07/2021		02/07/2021	02/07/20
Apparent Optimum Moisture Content	%	2.13 17.5	2.15 16.5	2.06 20.0	2.08 112.0	2.08 18.5	2.10 18.0	2.08 18.5	2.04 18.0
Number of Compaction Points	70	3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2	2	3	2	2	2	2	2
 Assigned Values have been obtained from our Perstin Assigned Values have been obtained from our Preston Results have been calculated using infinite decimal pla K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 K S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	s laboratory – Accredi ces. Therefore, calcu	tation No 1423		e shown	11: AS 1289 1.	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, si 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - ⁻				A Ke	ench <u>Approved</u>	22/07 Signatory	/2021
Accreditation Number 2734 Corporate Site Number 2727							May		

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SITE FILL TESTING

FIELD DENSITY RESULTS

REDBANK COMMUNITIES PO BOX 1918		
PENRITH NSW 2750		

 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 22/07/2021

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 13 of 17

TEST NUMBER DATE TESTED & SA			272	273	274	275	276	277	278	279
DATE TESTED & SA	MPLED			01/07/2021 05/07/2021						
RESULTS										
Hilf Density Ratio	Standard	%	101	103	102	103	100.5	100.5	102	99
Moisture Variation from	m OMC (-Drier/+Wetter)	%	0.5	0.0	1.0	0.5	0.0	0.5	0.0	0.0
	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION			-				-			
	(Carriageway L/R)	m		Southern He	eights Dam 8			Ridgetop	os Dam 7	
Shown on Drawing No				7747/54-4				7747/54-5		
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	71.69	71.75	72.42	74.78	75.24	75.62	75.40	81.39
FIELD & LABORAT	FORY DATA									
Field Wet Density		t/m³	2.12	2.13	2.11	2.13	2.10	2.11	2.09	2.09
Field Moisture Content		%	19.0	19.0	21.0	22.0	16.5	19.5	17.5	20.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from	n test number		272	273	274	275	276	277	278	279
Lab Compaction Date Test	ed		02/07/2021	02/07/2021	02/07/2021	02/07/2021	06/07/2021	06/07/2021	06/07/2021	06/07/202
Peak Converted Wet Densi	ity	t/m³	2.10	2.07	2.07	2.07	2.09	2.10	2.05	2.11
Apparent Optimum Moistur	e Content	%	19.0	18.5	20.5	21.5	17.0	19.0	18.0	20.5
Number of Compaction Poi	ints		3	3	3	3	3	3	3	3
Test Procedures - See Note			12	12	12	12	12	12	12	12
Material Description - see b Notes	below		2	2	3	3	2	2-3	2	2-3
2: Assigned Values have been of 3. Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 2 5: AS 1289 1.2.1 clause 6.4 (b), 2 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 8: AS 1289 1.2.1 clause 6.4 (b), 2 9: Full details of Test Procedure 6 9: Full details 0 9: Full deta	2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
 CH-Clays of high plasticity SC-Clayey sands, sand-clay mi SM-Silty sands, sand-silt mixtur GC-Clayey gravels, gravel-sand SP-Sand, crushed dust, filling s DGB20 DGB40 	avelly clays, sandy clays, silty clays ixtures res d-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stal 	ed	
10. DGS20	•	credite	d for comp	liance with			A Ke	ench	22/07	/2021
Form No R 020 Version 10 10/20 -										
Form No R 020 Version 10 10/20 -			C 17025 - ⁻	Testing.				Approved Mala	Signatory	

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 14 of 17

TEST NUMBER DATE TESTED & SAMPLED		280	281	282 05/07	283 7/2021	284	285	286 06/07	287 7/2021
				00/07	72021			00/07	72021
RESULTS									
Hilf Density Ratio Standard	%	101	102	102	101.5	100	100	100	101.5
Moisture Variation from OMC (-Drier/+Wetter	r) %	0.0	0.0	0.0	0.0	0.0	-0.5	-2.0	-2.0
Specification Density Ratio (Sta	andard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION				_	T				
Chainage (Carriageway L/R)	m		idgetops Dan	17			ern Heights	Dam 8	
Shown on Drawing No		//4/	7/54-5		1	//4/	/54-4	1	1
Retested by Test Reduced Level	m	- 83.96	- 85.72	- 74.57	- 74.88	- 74.37	- 73.28	- 73.02	- 72.89
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.12	2.10	2.09	2.08	2.10	2.10	2.09
Field Moisture Content	%	18.5	17.5	19.0	18.0	17.0	18.5	16.0	15.5
Material retained on 19mm Sieve (wet	.) %	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		280	281	282	283	284	285	286	287
Lab Compaction Date Tested		06/07/2021	06/07/2021	06/07/2021	06/07/2021	06/07/2021	06/07/2021	07/07/2021	07/07/202
Peak Converted Wet Density	t/m³	2.07	2.08	2.06	2.06	2.08	2.10	2.10	2.06
Apparent Optimum Moisture Content	%	18.5	17.5	19.0	18.5	17.0	18.5	18.0	17.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Notes	pratony – Accredit	2 ation No 2734	2	2	2 10: AS 1289 1	2	2	2	2
Notes 1: Assigned Values have been obtained from our Penrith labd 2: Assigned Values have been obtained from our Prestons lat 3: Results have been calculated using infinite decimal places. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 8: AS 1289 1.2.1 clause 6.4 9: Full details of Test Procedure 5.8.1 available on request	oratory – Accred Therefore, calcu	ation No 2734 itation No 1423	4		10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS 1289 1.	2.1 clause 6.4 (l 2.1 clause 6.4 (l 2.1 clause 6.4 (l T119, T120, T1 T120, T166, T1 T119, T162 T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 66	5.5.1, 5.6.1 5.7.1 5.8.1	2
Notes 1: Assigned Values have been obtained from our Penrith labd 2: Assigned Values have been obtained from our Prestons lat 3: Results have been calculated using infinite decimal places. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silt 3: CH-Clays of high plasticity, gravelly clays, sandy clays, silt 4: SC-Clayey sands, sand-silt mixtures 5: SM-Silty sands, sand-silt mixtures 6: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB40 10: DGS20	oratory – Accred Therefore, calcu	ation No 2734 itation No 1423	4	e shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (l 2.1 clause 6.4 (l 2.1 clause 6.4 (l T119, T120, T1 T120, T166, T1 T119, T162 T162, T173	o), 2.1.1, 5.3.1, {)), 2.1.1, 5.3.1, { o), 2.1.1, 5.7.1, { 66 73	5.5.1, 5.6.1 5.7.1 5.8.1 pilised red	2
Notes 1: Assigned Values have been obtained from our Penrith labd 2: Assigned Values have been obtained from our Prestons lat 3: Results have been calculated using infinite decimal places. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1. CL-Clay of low plasticity, gravelly clays, sandy clays, silt 3: CH-Clays of low plasticity, gravelly clays, sandy clays, silt 4: SC-Clayey sands, sand-silt mixtures 5: SM-Silty sands, sand-silt mixtures 6: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB20 9: DGB40 10: DGS20	oratory – Accred Therefore, calcu ays y clays	ation No 2734 itation No 1423	4 ay vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy. 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (1 2.1 clause 6.4 (1 2.1 clause 6.4 (1 7119, T120, T1 7119, T162, T1 7119, T162 7162, T173 7164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 66 73 * Cement Stat # Lime Stabilis 	5.5.1, 5.6.1 5.7.1 5.8.1 pilised red	
Material Description - see below Notes 1: Assigned Values have been obtained from our Penrith labo 2: Assigned Values have been obtained from our Prestons lat 3: Results have been calculated using infinite decimal places. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silt 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 Form No R 020 Version 10 10/20 - issued by ER	oratory – Accred Therefore, calcu ays y clays	ation No 2734 itation No 1423 lated values ma	4 ay vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy. 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (1 2.1 clause 6.4 (1 2.1 clause 6.4 (1 7119, T120, T1 7119, T162, T1 7119, T162 7162, T173 7164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 c), 2.1.1, 5.7.1, 4 c), 3.1.1, 5.7.1, 4 c), 4.1.1, 5.7.1, 4	5.5.1, 5.6.1 5.7.1 5.8.1 Dilised ed bilised	
Notes 1: Assigned Values have been obtained from our Penrith labo 2: Assigned Values have been obtained from our Prestons lat 3. Results have been calculated using infinite decimal places. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays come plasticity 3: CH-Clays of high plasticity 4: SC-Clayey sands, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 6: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB20 9: DGB40 10: DGS20 Form No R 020 Version 10 10/20 - issued by ER	oratory – Accred Therefore, calcu ays y clays	ation No 2734 itation No 1423 lated values ma	4 ay vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy. 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (1 2.1 clause 6.4 (1 2.1 clause 6.4 (1 7119, T120, T1 7119, T162, T1 7119, T162 7162, T173 7164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 c), 2.1.1, 5.7.1, 4 c), 3.1.1, 5.7.1, 4 c), 4.1.1, 5.7.1, 4	5.5.1, 5.6.1 5.7.1 5.8.1 Dilised ied Dilised 22/07	

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111 www.geotech.com.au



REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 15 of 17

TEST NUMBER DATE TESTED & S/	AMPLED		288	289	290	291 06/07	292 /2021	293	294	295
<u>RESULTS</u> Hilf Density Ratio	Standard	%	104	104	101	101	101	100.5	102	103.5
•	om OMC (-Drier/+Wetter)	%	-1.5	-0.5	-0.5	-1.0	-0.5	-0.5	0.0	-0.5
Specification	Density Ratio (Standard					isture Va				-0.0 ±2%
TEST LOCATION)		opeenie				•		/
Chainage	(Carriageway L/R)	m	South	ern Heights	Dam 8		Ri	dgetops Dan	n 7	
Shown on Drawing No				/54-4			7747/54-5	•		7747/54
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	72.18	73.57	76.15	76.25	76.11	76.73	76.06	74.39
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.11	2.12	2.10	2.08	2.08	2.10	2.09	2.11
Field Moisture Content		%	15.5	16.0	16.0	15.5	15.5	16.0	15.0	#N/A
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result fro	om test number		288	289	290	291	292	293	294	295
ab Compaction Date Te					07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/20
Peak Converted Wet Den	•	t/m³	2.03	2.04	2.08	2.06	2.06	2.09	2.05	2.04
Apparent Optimum Moist		%	17.0	16.5	16.5	16.0	16.0	16.5	15.0	#N/A
Number of Compaction P			3	3	3	3	3	3	3	3
Test Procedures - See No			12	12	12	12	12	12	12	12
Material Description - see	DEIOM		2	2	2	2	2	2	2	2
2: Assigned Values have been 3. Results have been calculate 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1., 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request	Accredi	tation No 1423		e shown	11: AS 1289 1.	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippi 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20	Aco		d for compl C 17025 - ⁻				A Ke	ench	22/07	/2021
			0 11020 -	i courig.				Mah	Signatory	
Accreditation Number Corporate Site Numbe								Key		
								/		

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REDBANK COI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV		Date:	22/07/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 16 of 17

TECT NUMBED								1		
			296	297	298	299	300	301	302	303
DATE TESTED & SA	AMPLED					07/07	/2021			
RESULTS	Char dand		00 5	00	00.5		400	00.5	400 5	400 5
Hilf Density Ratio	Standard	%	98.5	99	99.5	98	102	98.5	102.5	100.5
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	-1.0	0.0	-1.5	-0.5	0.0	0.5	-0.5	0.0
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										_
Chainage	(Carriageway L/R)	m				eights Dam 8		1	Ridgetop	s Dam 7
Shown on Drawing No					7747/54-4				7747/54-5	
Retested by Test		m	-	-	-	-	-	-	-	-
Reduced Level		m	73.69	73.12	74.27	74.52	75.31	77.42	77.11	78.67
FIELD & LABORA	TORY DATA	-								
Field Wet Density		t/m³	2.12	2.10	2.11	2.10	2.12	2.12	2.10	2.10
Field Moisture Content		%	12.5	13.5	13.0	12.5	13.5	14.0	13.5	14.0
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fro			296	297	298	299	300	301	302	303
Lab Compaction Date Tes			08/07/2021	08/07/2021			08/07/2021		08/07/2021	
Peak Converted Wet Den	•	t/m³	2.15	2.12	2.12	2.14	2.08	2.15	2.05	2.09
Apparent Optimum Moist		%	13.5	13.5	14.5	13.5	14.0	13.5	14.0	14.0
Number of Compaction P			3	3	3	3	3	3	3	3
Test Procedures - See No Material Description - see			12	12	12	12	12	12	12	12
Notes	DEIOW		2	2	2	2	2	2	2	2
2: Assigned Values have been	obtained from our Penrith laboratory – obtained from our Prestons laboratory - d using infinite decimal places. Therefo	- Accred	itation No 14234			11: AS 1289 1.	2.1 clause 6.4 (l 2.1 clause 6.4 (l	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b)), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1					13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	, T120, T166, T1 , T119, T162 , T162, T173			
6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request					14: RMS T111 15: RMS T120 16. RMS T120	, T120, T166, T1 , T119, T162 , T162, T173	173		
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. CI-Clay of medium plasticity, 4. SC-Clayey sands, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20 9. DGB40), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures					14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173		ed	
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. CH-Clays of migh plasticity, 4. SC-Clayey sands, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20 9. DGB40 10. DGS20), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173 , T164, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. CH-Clays of migh plasticity, 4. SC-Clayey sands, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20 9. DGB40 10. DGS20), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Act		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173 , T164, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	ed billised 22/07	/2021
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. CI-Clay of medium plasticity, 4. SC-Clayey sands, sand-slay 15. SM-Silty sands, sand-slay 15. SM-Silty sands, sand-slay 15. SM-Silty sands, sand-slay 15. SM-Silty sands, sand-slit mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20 9. DGB40 10. DGS20), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Act			iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173 , T164, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	ed bilised	/2021
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. CH-Clays of migh plasticity, 4. SC-Clayey sands, sand-silt mixt 6. GC-Clayey sands, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20 9. DGB40 10. DGS20), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Act		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173 , T164, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	ed billised 22/07	/2021
7: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. Cl-Clay of medium plasticity, 3. CH-Clays of high plasticity 4. SC-Clays gravels, sand-silt mixt 6. GC-Clayey gravels, gravel-sa 7. SP-Sand, crushed dust, filling 8. DGB20), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Acc		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 17: RMS T120 14: Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T120, T166, T1 , T119, T162 , T162, T173 , T164, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	ed billised 22/07	/2021

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REDBANK COI	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 1 of 8

TEST NUMBER	[304	305		<u> </u>			1	
DATE TESTED & SAMPLED		07/07/2021	07/07/2021	1	┨ ┨		<u> </u>		
		0.7017E0E1	0110112021	1			<u> </u>	I	I
RESULTS									
Hilf Density Ratio Standard	%	101	103	Ι			[1	
Moisture Variation from OMC (-Drier/+Wetter)		-2.0	-1.5						
	%	_	_						1.00/
Specification Density Ratio (Standard	a)	298%	Specific	ation Mo	oisture Va	riance fr			±2%
TEST LOCATION	i			1	· · · ·		1	1	1
		•	etops						
Shown on Drawing No		//4/	7/54-6						
Retested by Test	m	-	-						
Reduced Level	m	52.834	54.390						
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.10	2.11						
Field Moisture Content	%	13.5	14.0						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number		304	305						
Lab Compaction Date Tested		08/07/2021	08/07/2021						
Peak Converted Wet Density	t/m³	2.08	2.05						
Apparent Optimum Moisture Content	%	16.0	15.5						
Number of Compaction Points		3	3						
Test Procedures - See Note Number		12	12						
Material Description - see below Notes		2	2						
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	Accred	itation No 1423		se shown	10: AS 1289 1.2 11: AS 1289 1.2 12. AS 1289 1.2 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T166, T T120, T162 T162, T173	(b), 2.1.1, 5.3.1, (b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				17. CSS - Cru	Roadbase cycled Sub-base shed Sandstone ped Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER								05/00	
		ed for comp C 17025 - ⁻				AK	ench <u>Approvec</u>	25/08 I Signatory	8/2021
Corporate Site Number 2727							/		

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	25/08/2021

Page 1 of 9

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		306	307	308	309	310	311		
DATE TESTED & SAMPLED		07/07/2021 08/07/2				1//2021			
RESULTS									
Hilf Density Ratio Standard	%	103.5	98	99.5	98.5	98.5	100		
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5	-0.5	0.0	0.0	0.0	0.0		
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
					n Heights 7/54-6				-
Shown on Drawing No Retested by Test				//4/	/34-0		1		<u> </u>
Reduced Level	m	- 56.218	- 56.959	- 49.70	- 49.72	- 50.30	- 50.77		
FIELD & LABORATORY DATA								•	
Field Wet Density	t/m³	2.11	2.12	2.09	2.09	2.08	2.10		
Field Moisture Content	%	13.0	13.5	16.5	16.0	17.5	15.5		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
ab Compaction result from test number		306	307	308	309	310	311		
ab Compaction Date Tested		08/07/2021	08/07/2021	12/07/2021	12/07/2021	12/07/2021	12/07/2021		
Peak Converted Wet Density	t/m³	2.04	2.16	2.10	2.12	2.11	2.10		
Apparent Optimum Moisture Content	%	14.0	14.0	17.0	16.0	17.5	15.5		
Number of Compaction Points		3	3	3	3	3	3		
Test Procedures - See Note Number		12	12	12	12	12	12		
Material Description - see below		2	2	2	2	2	2		
1: Assigned Values have been obtained from our Penrith laboratory	 Accredit 						b), 2.1.1, 5.3.1, 5		
 Results have been calculated using infinite decimal places. There 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 3.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 					11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120.	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 166 173		
 Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures SM-Silty sands, sand-slam mixtures SB-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DCBS20 	fore, calcu			e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippi 19. Cowels Bro	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 166	bilised	
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity, gravelly clays, sandy clays, silty clays CH-Clays and, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER	fore, calcu	lated values ma	iy vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	b), 2.1.1, 5.7.1, § 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised	8/2024
 Results have been calculated using infinite decimal places. There 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 9. DGB40 10. DGS20 Form No R 020 Version 10 10/20 - issued by ER	fore, calcu		liance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	b), 2.1.1, 5.7.1, § 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised	8/2021
 Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description Cl-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clays of high plasticity SC-Claye gravels, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Claye gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 Form No R 020 Version 10 10/20 - issued by ER	fore, calcu	d for compl	liance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	b), 2.1.1, 5.7.1, § 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised 25/0	8/2021

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REDBANK COMMUNITIES		Laboratory:	Penrith	
PO BOX 1918		Job No:	7747/54	
PENRITH NSW 2750		Date:	25/08/2021	
PROJECT:	SITE FILL TESTING			

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 8

TEST NUMBER		312							
DATE TESTED & SAMPLED		08/07/2021			1				
		- 5/ 0. / 2021	I	I	I	I	I	I	I
<u>RESULTS</u>									
Hilf Density Ratio Standard	%	98							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5							
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION									
		Ridgetops							
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	50.84							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.10							
Field Moisture Content	%	16.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		312							
Lab Compaction Date Tested		12/07/2021							
Peak Converted Wet Density	t/m³	2.14							
Apparent Optimum Moisture Content	%	16.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 3. Results have been calculated using infinite decimal places. Therefore, calculated values may 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request				e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 Cement Stat # Lime Stabilis Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734		ed for comp C 17025 - ⁻				A Ki	ench <u>Approved</u>	25/08 Signatory	3/2021
Corporate Site Number 2727							1		
							/		

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REDBANK COMMUNITIES		Laboratory:	Penrith	
PO BOX 1918		Job No:	7747/54	
PENRITH NSW 2750		Date:	25/08/2021	
PROJECT:	SITE FILL TESTING			

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 9

TEST NUMBER		313							
DATE TESTED & SAMPLED		08/07/2021							
			-					-	
RESULTS									
Hilf Density Ratio Standard	%	100.5							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION									
			n Heights						
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	50.35							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.10							
Field Moisture Content	%	17.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		313							
Lab Compaction Date Tested		12/07/2021							
Peak Converted Wet Density	t/m³	2.09							
Apparent Optimum Moisture Content	%	17.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							ļ
Material Description - see below		2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 3. Results have been calculated using infinite decimal places. Therefore, calculated values matched from our Prestons laboratory – Accreditation No 1423 5. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 6. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.8.1 7. AS 1289 1.2.				se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T119, T162		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 					Roadbase ycled Sub-base shed Sandstone bed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER	cradite	ed for comp	lianco with				ench	25/00	3/2021
		:C 17025 - ⁻				AN		<u>I Signatory</u>	V2U21
Accreditation Number 2734							Key		
Corporate Site Number 2727							/		

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 8

TEST NUMBER		314							
DATE TESTED & SAMPLED		08/07/2021							
<u>RESULTS</u>									
Hilf Density Ratio Standard	%	101.5							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5							
Specification Density Ratio (Standard))	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION									
		Ridgetops							
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	55.86							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.11							
Field Moisture Content	%	17.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		314							
Lab Compaction Date Tested		12/07/2021							
	t/m³	2.08							
Apparent Optimum Moisture Content	%	16.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation 3: Results have been calculated using infinite decimal places. Therefore, calculate 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request				e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER									10004
IS		ed for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/08 <u>I Signatory</u>	8/2021
Accreditation Number 2734							Keff		
Corporate Site Number 2727							/		

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REDBANK COM	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2750		Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 9

TEST NUMBER		315	316	317					
DATE TESTED & SAMPLED			08/07/2021						
RESULTS	-			-	-	-	-	-	
Hilf Density Ratio Standard	%	102	100	99					
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.5	0.5					
Specification Density Ratio (Standard	l)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION	_								
		Sc	outhern Heig	hts					
Shown on Drawing No			7747/54-6	1					
Retested by Test		-	-	-					
Reduced Level	m	53.97	53.94	55.40					
FIELD & LABORATORY DATA	_								
Field Wet Density	t/m³	2.09	2.08	2.09					
Field Moisture Content	%	18.0	16.0	17.5					
Material retained on 19mm Sieve (wet)	%	<5	<5	<5					
Lab Compaction result from test number		315	316	317					
Lab Compaction Date Tested		12/07/2021	12/07/2021	12/07/2021					
Peak Converted Wet Density	t/m ³	2.05	2.08	2.11					
Apparent Optimum Moisture Content	%	18.0	15.5	17.0					
Number of Compaction Points		3	3	3					
Test Procedures - See Note Number Material Description - see below		12	12	12					
		2	2	2					
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 3. Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T120, T166 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T162, T173 9: Full details of Test Procedure 5.8.1 available on reguest 17: RMS T120, T164, T173									
Material Description * Cement Stabilised 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 11. DGS40 * Cement Stabilised 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised 3. CH-Clays of high plasticity 13. FCR40 \$ Gypsum Stabilised 4. SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete 5 5. SM-Silty sands, sand-silt mixtures 15. Recycled Roadbase 6 6. GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base 7 7. SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone 8 8. DGB20 18. RSS - Ripped Sandstone 9 0 9. DGB40 19. Cowels Brown 10. DGS20 10. DGS20									
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - 1				A K	ench <u>Approved</u>	25/08 I Signatory	/2021

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 4 of 8

TEST NUMBER	I	318	319	320	<u>г г</u>				
DATE TESTED & SAMPLED			7/2021	12/07/2021					
	I	00/07		12/01/2021			1	1	1
RESULTS									
Hilf Density Ratio Standard	%	100.5	99	101.5					
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.5	0.0					
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	oisture Var	iance fr	om OMC	;	±2%
TEST LOCATION	-								
			Ridgetops						
Shown on Drawing No			7747/54-6						
Retested by Test		-	-	-					
Reduced Level	m	54.90	55.24	51.993					
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08	2.08	2.10					
Field Moisture Content	%	17.0	17.0	21.0					
Material retained on 19mm Sieve (wet)	%	<5	<5	<5					
Lab Compaction result from test number		318	319	320					
Lab Compaction Date Tested		12/07/2021	12/07/2021	13/07/2021					
Peak Converted Wet Density	t/m³	2.07	2.10	2.07					
Apparent Optimum Moisture Content	%	16.5	16.5	20.5					
Number of Compaction Points		3	3	3					
Test Procedures - See Note Number		12	12	12					
Material Description - see below Notes		2	2	2-3			_		
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 53.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 52.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 55.1, 56.1, 58.1 S Full details of Test Procedure 5.8.1 available on request 	- Accredi	tation No 1423		se shown	10: AS 1289 1.2 11: AS 1289 1.2 12: AS 1289 1.2 13: RMS T111, T 14: RMS T120, T 16: RMS T120, T 16: RMS T120, T 17: RMS T120, T	.1 clause 6.4 (.1 clause 6.4 (Г119, T120, T Г120, T166, T Г119, T162 Г162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 Cement Sta # Lime Stabilis \$ Gypsum Sta 	sed	
Form No R 020 Version 10 10/20 - issued by ER		d fan						05/00	10004
		d for comp C 17025 - ⁻				A K	ench <u>Approvec</u>	25/08 <u>I Signatory</u>	3/2021
Corporate Site Number 2727							/		

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Laboratory:	Penrith
Job No:	7747/54
Date:	25/08/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

DATE TESTED & SAMPLED		321	322	323 12/07/2021	324	325			
RESULTS Hilf Density Ratio Standard	%	98.5	100	101	98.5	101			
Moisture Variation from OMC (-Drier/+Wetter)	%	-2.0	0.0	0.5	-1.5	0.0			
Specification Density Ratio (Standa				ation Mo	_		om OM0		±2%
TEST LOCATION	,		-						-
	[Southern Heights							
Shown on Drawing No		7747/54-6							
Retested by Test	-	-	-	-	-	-			
Reduced Level	m	52.210	51.155	51.96	51.887	51.934			
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.11	2.10	2.09	2.12			
Field Moisture Content	%	20.5	19.0	20.0	17.5	17.0			
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5			
ab Compaction result from test number		321	322	323	324	325		_	
ab Compaction Date Tested Peak Converted Wet Density	t/m³	13/07/2021	13/07/2021			13/07/2021		-	
Apparent Optimum Moisture Content	%	2.12 22.5	2.11 19.0	2.08 20.0	2.12 19.0	2.10 16.5			
lumber of Compaction Points	70	3	3	20.0	3	3			
Fest Procedures - See Note Number		12	12	12	12	12			
Aaterial Description - see below		3	2	2-3	2	2			
 Assigned Values have been obtained from our Penrith laboratory. Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. Thereits: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 	– Accredi	tation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1.	2.1 clause 6.4 (l 2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1	b), 2.1.1, 5.3.1 b), 2.1.1, 5.7.1 166	, 5.7.1	
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1					14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	, T119, T162 , T162, T173			
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1., 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request					14: RMS T111 15: RMS T120 16. RMS T120	, T119, T162 , T162, T173			
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clays of high plasticity 4: SC-Clayes of high plasticity 5: SM-Silty sands, sand-clay mixtures 5: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 3: DGB20 4: DGB40				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T119, T162 , T162, T173	* Cement St # Lime Stabil \$ Gypsum St	ised	
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 5: Full details of Test Procedure 5.8.1 available on request Material Description . CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays . Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays . Cl-Clays of high plasticity . SC-Clayey sands, sand-clay mixtures . SM-Silty sands, sand-silt mixtures . SM-Silty sands, sand-silt mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB20 . DGB20 . DGB20 . DGS20 . Test State St				12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T119, T162 , T162, T173 , T164, T173	* Cement St # Lime Stabil \$ Gypsum St	ised	
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey sands, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB20 1: DGB20 5: Orn No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - T		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T119, T162 , T162, T173 , T164, T173	* Cement St # Lime Stabil \$ Gypsum St	lised abilised	3/2021
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 5: Full details of Test Procedure 5.8.1 available on request Material Description . CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays . Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays . Cl-Clays of high plasticity . SC-Clayey sands, sand-clay mixtures . SM-Silty sands, sand-silt mixtures . SM-Silty sands, sand-silt mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB20 . DGB20 . DGB20 . DGS20 . Test State St		•		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe	14: RMS T111 15: RMS T120 16: RMS T120 17: RMS T120 17: RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T119, T162 , T162, T173 , T164, T173	* Cement St # Lime Stabil \$ Gypsum St	ised abilised	3/2021

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PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER		326							
DATE TESTED & SAMPLED		12/07/2021		1					
			•			•	•	•	•
RESULTS					-				
Hilf Density Ratio Standard	%	102							
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0							
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION									
		Ridgetops							
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	58.242							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.10							
Field Moisture Content	%	17.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		326							
Lab Compaction Date Tested		13/07/2021							
Peak Converted Wet Density	t/m³	2.06							
Apparent Optimum Moisture Content	%	18.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below Notes		2							
 Assigned Values have been obtained from our Penrith laboratory - Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 54.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	- Accred	itation No 1423		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734		ed for comp C 17025 - ⁻				A Ki	ench <u>Approved</u>	25/08 <u>I Signatory</u>	3/2021
Corporate Site Number 2727							1		
							/		

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PO BOX 1918
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Laboratory:	Penrith
Job No:	7747/54
Date:	25/08/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		327	328	329	330				
DATE TESTED & SAMPLED		12/07	13/07/2021 13/07/2021						
<u>RESULTS</u> Hilf Density Ratio Standard	%	99	101	103.5	104				
Moisture Variation from OMC (-Drier/+Wetter		0.0	0.0	0.5	0.0				
Specification Density Ratio (Sta					isture Va	rianco fr	om OM		
TEST LOCATION	indard)	20070	opecine			nance n		5	± z /(
			Souther	n Heights					
Shown on Drawing No			7747	7/54-6					
Retested by Test		-	-	-	-				
Reduced Level	m	60.403	62.161	52.01	51.916				
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.11	2.10	2.11				
Field Moisture Content	%	18.5	16.5	21.5	20.5				
Material retained on 19mm Sieve (wet) %	<5	<5	<5	<5				
Lab Compaction result from test number		327	328	329	330				
Lab Compaction Date Tested		13/07/2021	13/07/2021	14/07/2021	14/07/2021				
Peak Converted Wet Density	t/m³	2.11	2.09	2.03	2.03				
Apparent Optimum Moisture Content	%	18.5	16.5	21.0	20.5				
Number of Compaction Points		3	3	3	3				
Test Procedures - See Note Number		12	12	12	12				
Material Description - see below		2	2	3	2-3				
 Assigned Values have been obtained from our Penrith labo Assigned Values have been obtained from our Prestons lab Results have been calculated using infinite decimal places. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 Explanding 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	oratory – Accred	tation No 1423		se shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120.	2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T166, T T119, T162 T162, T173	(b), 2.1.1, 5.3.1 (b), 2.1.1, 5.7.1 166	, 5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty cl 2. CI-Clay of medium plasticity, gravelly clays, sandy clays, silty 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement SI # Lime Stabi \$ Gypsum S	lised	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - ⁻				AK	ench <u>Approve</u>	25/ d Signatory	08/2021 <u>/</u>

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REDBANK COI	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER		331	332						
DATE TESTED & SAMPLED		13/07	/2021						
RESULTS									
Hilf Density Ratio Standard	%	101.5	104						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5						
Specification Density Ratio (Standard)		≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION									
			etops						
Shown on Drawing No		7747	/54-6						
Retested by Test		-	-						
Reduced Level	m	52.366	52.920						
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.12	2.12						
Field Moisture Content	%	20.5	20.0						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number		331	332						
Lab Compaction Date Tested		14/07/2021	14/07/2021						
	t/m³	2.09	2.04						
Apparent Optimum Moisture Content	%	20.5	20.5						
Number of Compaction Points Test Procedures - See Note Number		3	3						
Material Description - see below		12	12						
Notes		2-3	2-3						
 Assigned Values have been obtained from our Penrith laboratory – Ac Assigned Values have been obtained from our Prestons laboratory – A Results have been calculated using infinite decimal places. Therefore, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ccred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					Roadbase ycled Sub-base shed Sandstone bed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
		ed for compl C 17025 - 1				A K	ench <u>Approved</u>	25/08 I Signatory	3/2021

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 6 of 9

TEST NUMBER		333	334	335	
DATE TESTED & SAMPLED			13/07/2021		
RESULTS					
Hilf Density Ratio Standard	%	101	102.5	102.5	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	bisture Variance from OMC ±2%
TEST LOCATION					
		Sc	outhern Heig	hts	
Shown on Drawing No			7747/54-6		
Retested by Test		-	-	-	
Reduced Level	m	51.859	52.200	56.81	
FIELD & LABORATORY DATA					
Field Wet Density	t/m³	2.12	2.09	2.09	
Field Moisture Content	%	20.5	21.5	20.0	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	
Lab Compaction result from test number		333	334	335	
Lab Compaction Date Tested		14/07/2021	14/07/2021	14/07/2021	1
Peak Converted Wet Density	t/m³	2.10	2.04	2.04	
Apparent Optimum Moisture Content	%	20.5	22.0	20.0	
Number of Compaction Points Test Procedures - See Note Number		3	3	3	
Material Description - see below		12	12	12	
Notes		2-3	3	2-3	
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefor AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	- Accred	itation No 14234		se shown	10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 13: RMS T111, T119, T120, T166 14: RMS T111, T120, T166, T173 15: RMS T120, T119, T162 16: RMS T120, T119, T162 17: RMS T120, T164, T173
Material Description					
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity mixtures SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				17. CSS - Crus	Roadbase cycled Sub-base shed Sandstone ped Sandstone
Form No R 020 Version 10 10/20 - issued by ER	orodita	d for compl	ionoo with		A Kench 25/08/2021
NATA		C 17025 - 1			A Kench 25/06/2021 Approved Signatory
Accreditation Number 2734 Corporate Site Number 2727					ne f

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email: info@geotech.com.au



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 7 of 8

TEST NUMBER		336							
DATE TESTED & SAMPLED		13/07/2021							
RESULTS									
Hilf Density Ratio Standard	%	103							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standar	rd)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION									
		Ridgetops							
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	59.290							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.13							
Field Moisture Content	%	20.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		336							
Lab Compaction Date Tested		14/07/2021							
Peak Converted Wet Density	t/m³	2.07							
Apparent Optimum Moisture Content	%	19.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							ļ
Material Description - see below Notes		2-3							
 Assigned Values have been obtained from our Penrith laboratory - Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, s.5.1, s.6.1, s.8.1 	- Accred	litation No 1423		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734 Corporate Site Number 2727		ed for comp C 17025 - ⁻				A K	ench <u>Approved</u> MM	25/08 I Signatory	3/2021
Corporate Site Number 2121							/		

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REDBANK COMMUNITIES					
PO BOX 1918					
PENRITH NSW 2750					

Laboratory:	Penrith
Job No:	7747/54
Date:	25/08/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER	1								
		337	338	339	340	341 14/07	342	343	344
DATE TESTED & SAMPLED		13/07	/2021			14/07	/2021		
RESULTS									
Hilf Density Ratio Standard	%	102.5	102.5	104	103	99.5	103	102	99
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	-1.5	0.0	-1.0
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION	-								
						n Heights			
Shown on Drawing No					7747	/54-6			
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level	111	60.949	62.824	57.313	60.260	61.19	62.810	62.436	61.594
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.12	2.09	2.09	2.09	2.11	2.08	2.10	2.08
Field Moisture Content	%	21.0	21.0	20.0	20.0	19.0	18.0	19.5	19.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		337	338	339	340	341	342	343	344
ab Compaction Date Tested		14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021		14/07/2021	14/07/202
Peak Converted Wet Density	t/m³	2.07	2.04	2.01	2.03	2.12	2.02	2.06	2.10
Apparent Optimum Moisture Content	%	21.0	21.0	20.0	20.0	19.0	19.5	19.5	20.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Fest Procedures - See Note Number Material Description - see below		12	12	12	12	12	12	12	12
Notes		2-3	2-3	2-3	2-3	2	2-3	2-3	2-3
 Assigned Values have been obtained from our Penrith laboratory - Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefit 	 Accredi 	tation No 14234			11: AS 1289 1.		b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5	5.7.1	
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1., 5.5.1, 5.6.1, 5.8.1		lated values ma	y vary from thos	e shown	13: RMS T111	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.0.1	
4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description		lated values ma	y vary from thos		13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	173		
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clays of high plasticity 4: SC-Clayes of high plasticity 5: SM-Silty sands, sand-clay mixtures 5: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 3: DGB20 0: DGB40		lated values ma	y vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		bilised	
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey sands, sand-silt mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB20 1: DGB20 Form No R 020 Version 10 10/20 - issued by ER	credite			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	T119, T120, T1 T120, T166, T1 T119, T162, T173 T162, T173 T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	bilised led bilised	/2021
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey gravels, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayev gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 9: DGB20 10: DGB20 10: DGS20 10: DGN 10: DCO Version 10: 10/20 - issued by ER		d for compl C 17025 - 1	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	T119, T120, T1 T120, T166, T1 T119, T162, T173 T162, T173 T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	oilised led bilised 25/08	/2021
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey gravels, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayev gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 9: DGB20 10: DGB20 10: DGS20 10: DGN 10: DCO Version 10: 10/20 - issued by ER		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	T119, T120, T1 T120, T166, T1 T119, T162, T173 T162, T173 T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	bilised led bilised	/2021
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey gravels, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayey gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 8: DGB20 1: DGB20 1: DGS20 1: Test State Sta		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	T119, T120, T1 T120, T166, T1 T119, T162, T173 T162, T173 T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	oilised led bilised 25/08	/2021
5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Material Description 1: CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3: CH-Clays of high plasticity 4: SC-Clayey gravels, sand-clay mixtures 5: SM-Silty sands, sand-silt mixtures 5: GC-Clayev gravels, gravel-sand-clay mixtures 7: SP-Sand, crushed dust, filling sand, washed sand 9: DGB20 10: DGB20 10: DGS20 10: DGN 10: DCO Version 10: 10/20 - issued by ER		d for compl	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120, 17. RMS T120, 18: Concrete oadbase cled Sub-base hed Sandstone	T119, T120, T1 T120, T166, T1 T119, T162, T173 T162, T173 T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal ench 	oilised led bilised 25/08	/2021

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email: info@geotech.com.au www.ge



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 9

TEST NUMBER		345							
DATE TESTED & SAMPLED		14/07/2021			I				
RESULTS									
Hilf Density Ratio Standard	%	102							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standard)	≥ 9 8%	Specific	Specification Moisture Variance from OMC					±2%
TEST LOCATION									
		Souther	n Heights						
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	60.157							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08							
Field Moisture Content	%	19.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		345							
Lab Compaction Date Tested		14/07/2021							
Peak Converted Wet Density	t/m³	2.04							
Apparent Optimum Moisture Content	%	19.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below Notes		2-3	_						
 Assigned Values have been obtained from our Penrith laboratory – A Assigned Values have been obtained from our Prestons laboratory – J Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER	odit-	d for com-				A 12	anah	05/00	0/2021
		ed for comp C 17025 - ⁻				AN	ench <u>Approved</u>	25/08 I Signatory	8/2021
Accreditation Number 2734							Key		
Corporate Site Number 2727							/		

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/08/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 8

TEST NUMBER		346							
DATE TESTED & SAMPLED		14/07/2021			1				
				ı	·		l	·	
RESULTS									
Hilf Density Ratio Standard	%	102.5							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standard)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION			-						
		Ridgetops							
Shown on Drawing No		7747/54-6							
Retested by Test		-							
Reduced Level	m	59.156							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09							
Field Moisture Content	%	18.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		346							
Lab Compaction Date Tested		14/07/2021							
Peak Converted Wet Density	t/m³	2.04							
Apparent Optimum Moisture Content	%	18.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below Notes		2							
 Assigned Values have been obtained from our Penrith laboratory – At 2: Assigned Values have been obtained from our Prestons laboratory – At 3: Results have been calculated using infinite decimal places. Therefore 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 	Accred	itation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Stal	ed	
Form No R 020 Version 10 10/20 - issued by ER									
		d for compl C 17025 - ⁻				AK	ench <u>Approved</u>	25/08 Signatory	/2021
Corporate Site Number 2727							/		

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email: info@geotech.com.au



REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	25/08/2021

Page 9 of 9

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER	ſ	347	348	349	350				
DATE TESTED & SAMPLED				7/2021	•		1	1	1
	L.								
RESULTS	-		-	-				_	
Hilf Density Ratio Standard	%	102.5	100	103.5	102				
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-1.5	-0.5	0.5				
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance f	rom OMC	;	±2%
TEST LOCATION									
				n Heights					
Shown on Drawing No			7747	7/54-6			_		
Retested by Test		-	-	-	-				
Reduced Level	m	52.30	51.496	51.846	52.530				
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.11	2.09	2.10				
Field Moisture Content	%	18.0	22.0	19.5	21.0				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		347	348	349	350				
Lab Compaction Date Tested		14/07/2021	14/07/2021	14/07/2021	14/07/2021				
Peak Converted Wet Density	t/m³	2.04	2.11	2.02	2.06				
Apparent Optimum Moisture Content Number of Compaction Points	%	18.5	24.0	19.5	20.5				
Test Procedures - See Note Number		3 12	3 12	3 12	3 12				
Material Description - see below		2	2-3	2-3	2-3				
Notes		Z	2-3	2-3	2-3				
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	- Accredi	tation No 14234		se shown	11: AS 1289 1.	2.1 clause 6.4 2.1 clause 6.4 , T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Sta # Lime Stabili \$ Gypsum Sta	ised	
Form No R 020 Version 10 10/20 - issued by ER									
		d for compl C 17025 - ⊺				AK	Kench <u>Approved</u>	25/08 d Signatory	3/2021
Corporate Site Number 2727							/		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory: Penrith Job No: 7747/54 Date: 24/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 1

		┝	351	352	353	354	355	356	357	358
DATE TESTED & SA	HIVIPLED	L				15/07	//2021			
RESULTS										
Density Ratio	Standard	%	102.5	101.5	102.5	103	103	102.5	102	102.5
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	- 0.5	- 2.0	- 0.5	- 0.5	- 1.0	0.0	0.0	- 0.5
Specification	Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		± 2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m		-		-	-	-		
Shown on Drawing No		Ļ	7747	//54-7		1	7747	7/54-8		
Shown on Drawing No		m	E 4.00	Dam 7 Key	45.75	40.70	10.10	Dam 8 Key	47.00	40.55
Reduced Level		111	54.00	54.36	45.65	48.68	48.10	45.82	47.30	49.55
FIELD & LABORA	ATORY DATA									
Field Dry Density		t/m ³	1.69	1.62	1.66	1.70	1.70	1.63	1.73	1.73
Field Moisture Content	10	%	18.6	20.5	21.1	20.7	20.6	23.4	21.6	20.9
Material retained on	19 mm Sieve	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab compaction result fro Lab Compaction Date Te		┝	251	252 16/07	253	254	255	256 19/07	257	258
Maximum Dry Density	.310U	t/m³	1.65	16/07	1.62	1.65	1.65		1.70	1.69
Number of Compaction P	oints	<i>a</i> 11 ⁻	1.65	1.60	4	1.65	1.65	1.59 4	1.70	1.69
Optimum Moisture Conte		%	4	22.5	21.5	21.0	4 21.5	23.5	21.5	21.5
Test Procedures - See No	otes	F	6	6	6	6	6	6	6	6
Material Description - see		ŀ	2	2-3	2-3	2-3	2-3	2-3	2-3	2-3
	1, 5.2.1, 5.3.1, 5.4.1 1, 5.1.1, 5.4.1, 5.8.1 1, 5.2.1, 5.4.1, 5.8.1 1., 5.5.1, 5.6.1, 5.8.1			se shown				120, T166, T173 119, T162 162, T173		
9: Full details of rest Procedure 5.8.		-	1							
 CL-Clays of low plasticity, gravelly CI-Clay of medium plasticity, gravely CI-Clays of high plasticity SC-Clayey sands, sand-clay mixtu SM-Silly sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-cl SP-Sand, crushed dust, filling sand DGB20 DGB40 DGS20 	r clays, sandy clays, silty clays elly clays, sandy clays, silty clays ures day mixtures d, washed sand			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled 15. Recycled Roar 16. RSB - Recycle 17. CSS - Crushet 18. RSS - Ripped 19. Coal Wash	dbase ed Sub-base d Sandstone		* Cement Stabilised # Lime Stabilised \$ Gypsum Stabilis	i		
Form No R022 Version 20 12/20	5			ith 100 "	47005 -	-41			<u> </u>	N0001
Accreditation Number Corporate Site Number	r 2/34	ed for co	mpliance v	vith ISO/IEC	: 17025 - Te	esting.	ΗW	/ilson	24/08 Signatory	3/2021
34 Borec Road, Penrith					-		tons NSW 2	2170		
Telephone: (02) 4722 2	2744			I elephone:	: (02) 9607 6	6111				
			· · · · · · · · · · · · · · · · · · ·		and a second second second					

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: Date: 24/8/2021

PROJECT: SITE FILL TESTING

> PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 2

TEST NUMBER		359							
DATE TESTED & SAMPLED		15/07/2021			1	1	1		1
RESULTS									
Hilf Density Ratio Standa	rd %	101							
Moisture Variation from OMC (-Drier/+)	Wetter) %	0.0							
Specification Density Ratio	(Standard)	≥ 9 5%	Specific	ation Mo	oisture Va	ariance fr	om OMC		N/A
TEST LOCATION							1		1
Chainage (Carriageway L/R) m		outhern Heigl	nts					
Shown on Drawing No		7747/54-8							
Retested by Test Reduced Level	m	- 46.06							
		40.00							
FIELD & LABORATORY DATA									
Field Wet Density	t/m ³	2.10							
Field Moisture Content	%	18.0							
Material retained on 19mm Sieve Lab Compaction result from test number	e (wet) %	<5							
Lab Compaction Date Tested		359 19/07/2021							
Peak Converted Wet Density	t/m³	2.08							
Apparent Optimum Moisture Content	%	18.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
 Assigned Values have been obtained from our Pent Assigned Values have been obtained from our Prest Results have been calculated using infinite decimal r AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4 KS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8 Full details of Test Procedure 5.8.1 available on requ 	ons laboratory – Accred Ilaces. Therefore, calcu 1 1 1 1	itation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, ! b), 2.1.1, 5.7.1, ! I66	5.7.1	
Material Description									
CL-Clavs of low plasticity, gravelly clavs, sandy clavs, CL-Clavy of medium plasticity, gravelly clavs, sandy clavs, CH-Clavs of high plasticity, gravelly clavs, sandy clavs, SC-Clayev grands, sand-clav mixtures GC-Clayev gravels, gravel-sand-clav mixtures GC-Clayev gravels, gravel-sand-clav mixtures SP-Sand, crushed dust, filling sand, washed sand B DGB20 DGB40 DDGS20 SC-Clave gravel, gra				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	sed	
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for comp	iance with			нм	ilson	24/09	8/2021
Accreditation Number 2734 Corporate Site Number 2727		C 17025 - ⁻				L VV		<u>I Signatory</u>	WZUZ I
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla : (02) 9607	Place, Prest 6111	tons NSW 2	170	



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 24/8/2021 Date:

Page 2 of 2

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

	Ę	360	361	362	363	364			
DATE TESTED & SAMPLED	L			15/07/2021					
RESULTS									
Hilf Density Ratio Standard	%	102	103	102.5	98.5	99.5			
Moisture Variation from OMC (-Drier/+We	etter) %	0.0	0.0	0.0	0.0	0.0			
Specification Density Ratio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±ź
	Γ	Couthor	n Holahta	Distantes	Diductors	Distantes		1	
Chainage (Carriageway L/R) Shown on Drawing No	m		n Heights 7/54-8	Ridgetops	Ridgetops 7747/54-7	Ridgetops			
Retested by Test Reduced Level	m	- 46.42	- 46.64	- 59.80	- 62.74	- 65.02			
		10.12	10.01	07.00	02.71	00.02		11	
ield Wet Density	t/m³	2.11	2.11	2.10	2.02	2.03			
ield Moisture Content	%	18.5	18.0	57.0	18.0	18.5			
Material retained on 19mm Sieve (wet) %	<5	<5	<5	<5	<5			
ab Compaction result from test number	_	360	361	362	363	364			
ab Compaction Date Tested Peak Converted Wet Density	t/m³	2.07	2.05	19/07/2021	2.05	2.04			
Apparent Optimum Moisture Content	%	2.07 18.5	2.05 18.0	2.05 57.5	2.05 18.5	2.04 18.5			
Number of Compaction Points	<i>,</i> 0	3	3	3	3	3			
Fest Procedures - See Note Number	-	12	12	12	12	12			
Material Description - see below		2	2	2	2	2			
 Results have been calculated using infinite decimal plant AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 S AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on reques Material Description Cl-Clavs of low plasticity, gravelly clays, sandy clays, si Cl-Clay of medium plasticity SC-Claye sonds, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clay gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 	it Ity clays	aleo values ma	y var v irom inos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120 19. RMS T120 19. RMS T120 19. RMS T120 19. RMS T120 19. RMS T111 19. RMS T120 19. R	, T162, T173	66	pilised sed	
DGB40 DGS20 Orm No R 020 Version 10 10/20 - issued by ER	Accredited	d for comp	liance with	19. Cowels Bro	WII	НW	ilson	24/08/	2021
NATA		C 17025 - ⁻						Signatory	
Accreditation Number 2734 Corporate Site Number 2727								J	
34 Borec Road, Penrith NSW 2750 Felephone: (02) 4722 2744					(02) 9607	Place, Prest 6111	ons NSW 2	170	

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SITE FILL TESTING

FIELD DENSITY RESULTS

REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory: Penrith Job No: 7747/54 Date: 24/08/2021

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		Ľ	365	366	367	368				
DATE TESTED & SA	MPLED			16/07	/2021					
RESULTS										
Density Ratio	Standard	%	104	102.5	103	102				
5	om OMC (-Drier/+Wetter)	%	- 1.5	0.0	- 2.0	0.0				
Specification	Density Ratio (Standa			Specific	ation Mo	oisture Va	ariance fr	om OM	С	± 2
EST LOCATION				-						
Chainage	(Carriageway L/R)	m [Dam 8 Key	Dam 8 Key		Dam 8 Key			_	
Shown on Drawing No Retested by test				7747	/54-8	1				
Reduced Level		m	- 50.48	48.37	- 49.10	49.77				
FIELD & LABORA	TORY DATA									
ield Dry Density		t/m³	1.66	1.62	1.68	1.62				
Field Moisture Content		%	21.0	23.6	20.1	23.5				
Material retained on	19 mm Sieve	%	<5	<5	<5	<5				
ab compaction result from		L	365	366	367	368				
ab Compaction Date Tes	sted	t/m ³		7/2021		7/2021				
Maximum Dry Density Number of Compaction Pe	oints	VIII	1.60 4	1.58 4	1.63 4	1.59 4				_
Optimum Moisture Conter		%	4 22.5	4 23.5	4 22.0	4 23.5				
Fest Procedures - See No			6	6	6	6				
Aaterial Description - see		F	2-3	3	2-3	3				
	I, 5.2.1, 5.3.1, 5.4.1 I, 5.1.1, 5.4.1, 5.8.1 I, 5.2.1, 5.4.1, 5.8.1 I, 5.5.1, 5.6.1, 5.8.1 I available on request			se shown			11: AS 1289 1.2. 12: AS 1289 1.2. 13: RMS T111, T 14: RMS T111, T 15: RMS T120, T 16: RMS T120, T 17: RMS T120, T	1 clause 6.4 (b), 119, T120, T166 120, T166, T173 119, T162 162, T173	2.1.1, 5.7.1, 5.8.1 5	
CL-Clays of low plasticity, gravely of Cl-Clays of medium plasticity, gravely CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-cla SP-Sand, crushed dust, filling sand DGB20 DGB40 UGS20	Ily clays, sandy clays, silty clays res ay mixtures I, washed sand			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled 15. Recycled Roa 16. RSB - Recycle 17. CSS - Crushe 18. RSS - Ripped 19. Coal Wash	dbase d Sub-base I Sandstone		 Cement Stabili # Lime Stabilised \$ Gypsum Stabili 			
Form No R022 Version 20 12/20	3	ad for cor	moliance	with ISO/IEC	17025 7	esting		'ilson	210	8/2021
NATA	Accredit	50 IUI COI	прпапсе \	WIII ISU/IEU	11020 - 16	-sung.	ΗVV		24/0	10/2021
Accreditation Number Corporate Site Number								Approve	ed Signatory	
34 Borec Road, Penrith ⁻elephone: (02) 4722 2	744	nail: info	@geotech	Telephone	•	6111	tons NSW 2	2170		



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 24/8/2021 Date:

Page 1 of 1

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

									Page 1 o
	Ľ	369	370	371	372	373	374	375	376
DATE TESTED & SAMPLED	L				16/0	7/2021			
RESULTS									
Hilf Density Ratio Standard	%	100.5	101	100.5	100	100.5	99.5	100	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC		±29
TEST LOCATION	-								
Chainage (Carriageway L/R)	m			n Heights				etops	
Shown on Drawing No Retested by Test	-		7747/54-8			r	7747/54-7	1	
Reduced Level	m	- 48.80	- 50.83	- 52.70	- 56.51	- 56.32	- 58.34	- 61.33	63.87
FIELD & LABORATORY DATA						-		-	-
Field Wet Density	t/m³	2.10	2.09	2.09	2.07	2.09	2.08	2.06	2.08
Field Moisture Content	%	19.5	16.5	16.5	18.0	18.0	18.0	18.0	19.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number	_	369	370	371	372	373	374	375	376
ab Compaction Date Tested	1/2					7/2021			
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m ³ %	2.09	2.07	2.08	2.07	2.08	2.09	2.06	2.08
Number of Compaction Points	70	19.5	16.5	16.5	18.0	18.0	18.0	18.0	19.0
Fest Procedures - See Note Number	-	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Aaterial Description - see below	-	2-3	2	2	2	2	2	2	2
 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 : AS 1289 1.2.1 clause 6.4 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 : Hull details of Test Procedure 5.8.1 available on request), T162, T173			
Material Description . CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays . CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clay . CH-Clays of high plasticity . SC-Clayey sands, sand-clay mixtures . SM-Silty sands, sand-silt mixtures . GC-Clayey gravels, gravel-sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB40 0. DGS20	rs			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recvcled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase rcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Sta 	sed	
orm No R 020 Version 10 10/20 - issued by ER		l for compl				нw	lison	24/08	8/2021
NATA	ISO/IEC	C 17025 - T	Testing.				Approved	Signatory	
Accreditation Number 2734 Corporate Site Number 2727),	
4 Borec Road, Penrith NSW 2750 elephone: (02) 4722 2744				Unit 4, 18-2 Telephone:		Place, Prest 6111	tons NSW 2	170	
	mail· info	acotoch		•	. ,				

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Telephone: (02) 4722 2744

 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		377	378	379	380	381	382	383	384
DATE TESTED & SAMPLED					02/08	/2021			
RESULTS									
Hilf Density Ratio Standard	%	103	103.5	103.5	103.5	103.5	103	103	103.5
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Specification Density Ratio (Standa	ird)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N/.
TEST LOCATION	ľ		Dida	otono			Southorn	Lloighte	
Shown on Drawing No				etops /54-7			Southerr	/54-8	
Retested by Test			,,,4,	-	_	-	//4/	-	_
Reduced Level	m	62.36	63.80	64.87	66.57	52.30	52.83	54.17	53.42
FIELD & LABORATORY DATA									
Field Wet Density	t/m ³	2.09	2.09	2.10	2.11	2.11	2.12	2.10	2.09
ield Moisture Content	%	20.5	22.0	22.0	21.5	21.0	18.5	22.0	22.5
Naterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		377	378	379	380	381	382	383	384
ab Compaction Date Tested		03/08/2021	03/08/2021	03/08/2021		03/08/2021	03/08/2021	03/08/2021	03/08/20
Peak Converted Wet Density	t/m ³	2.03	2.02	2.03	2.04	2.04	2.06	2.04	2.02
pparent Optimum Moisture Content	%	20.0	21.5	22.0	21.5	21.0	18.5	22.0	22.5
Number of Compaction Points Test Procedures - See Note Number		3	3	3	3	3	3	3	3
Aaterial Description - see below		12	12 3	12 3	12	12	12	12	12
lotes		2-3	3	3	3	3	2	3	3
 Assigned Values have been obtained from our Prestons laborators. Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 					12. AS 1289 1. 13: RMS T111 14: RMS T111	2.1 clause 6.4 (, T119, T120, T1 , T120, T166, T1			
7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 3: AS 1289 1.2.1 clause 6.4 (b), 2.1.1., 5.5.1, 5.6.1, 5.8.1					15: RMS T120 16. RMS T120 17. RMS T120	, T162, T173			
X S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 X S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Y Full details of Test Procedure 5.8.1 available on request Material Description					16. RMS T120	, T162, T173			
7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1., 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request	;				16. RMS T120 17. RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173	 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clay of medium plasticity gravelly clays, sandy clays, silty clays CH-Clays of high plasticity CH-Clays of high plasticity SC-Claye y sands, sand-clay mixtures SG-Claye y gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 orn No R 020 Version 10 10/20 - issued by ER 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippu	16. RMS T120 17. RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	 # Lime Stabilis \$ Gypsum State 	ed bilised	(0004
7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request Waterial Description . CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs . CL-Clavs of medium plasticity, gravelly clavs, sandy clavs, silty clavs . CL-Clavs of high plasticity . CL-Clavs of sand-slaw mixtures . SM-Silty sands, sand-clay mixtures . SM-Silty sands, sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB20 Torm No R 020 Version 10 10/20 - issued by ER	ccredite	d for compl C 17025 - 7		11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippu	16. RMS T120 17. RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	# Lime Stabilis \$ Gypsum Stat	ed	/2021
 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clay of medium plasticity gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-slit mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 CM Na 2020 Version 10 10/20 - issued by ER 	ccredite			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippu	16. RMS T120 17. RMS T120 led Concrete oadbase rcled Sub-base hed Sandstone ed Sandstone	, T162, T173 , T164, T173	# Lime Stabilis \$ Gypsum Stat	ed jilised 25/08	/2021
 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Acterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey gravels, sand-clay mixtures SG-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 Orm No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734	ccredite			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 6. RSB - Recy 17. CSS - Crusi 18. RSS - Rippi 19. Cowels Bro	16. RMS T120 17. RMS T120 led Concrete oadbase cicled Sub-base hed Sandstone wn	. T162, T173 . T164, T173 . A Ko	# Lime Stabilis \$ Gypsum Stat	ed jilised 25/08 <u>Signatory</u>	/2021

email: info@geotech.com.au



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		385	386	387	388	389	390	391	392
DATE TESTED & SAMPLED					03/08	/2021			
RESULTS									
Hilf Density Ratio Standard	%	100	100	100.5	100	99.5	100	100	100
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N/.
EST LOCATION									
hown on Drawing No	-			etops 1/54-7		Southern Heights 7747/54-8			
Retested by Test	ŀ	-	//4/	/34-7	_		//4/	/34-0	_
Reduced Level	m	63.87	64.70	65.00	84.00	67.17	53.23	54.09	52.90
FIELD & LABORATORY DATA									
ield Wet Density	t/m ³	2.06	2.06	2.08	2.07	2.06	2.07	2.08	2.06
ield Moisture Content	%	20.5	20.0	20.0	20.0	19.5	19.0	19.5	20.0
Aaterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number	-	385	386	387	388	389	390	391	392
ab Compaction Date Tested	t/m³	03/08/2021	03/08/2021	03/08/2021					03/08/20
Peak Converted Wet Density pparent Optimum Moisture Content	0111º %	2.06 20.5	2.06	2.07 20.0	2.07 20.0	2.07	2.07 19.0	2.08 19.0	2.06
umber of Compaction Points	70	20.5	20.0	20.0	20.0	19.5 3	3	3	19.5 3
est Procedures - See Note Number	-	12	12	12	12	12	12	12	12
Aterial Description - see below	F	2-3	2-3	2-3	2-3	2-3	2	2-3	2-3
 Assigned Values have been obtained from our Prestons laboratis. Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 				e shown	12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 5 66		
9: Full details of Test Procedure 5.8.1 available on request									
Material Description . CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs ? CI-Clavs of medium plasticity, gravelly clavs, sandy clavs, silty clavs . CH-Clavs of high plasticity . SC-Claves of high plasticity . SC-Claves ands, sand-clay mixtures . SM-Silty sands, sand-clay mixtures . GF-Clayey gravels, gravel-sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGS20	/S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase rcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Aaterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 0. DGS20 orm No R 020 Version 10 10/20 - issued by ER		d for compl	iance with	12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	oadbase rcled Sub-base hed Sandstone ed Sandstone	A Kı	# Lime Stabilis	æd bilised	/2021
Aterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 orm No R 020 Version 10 10/20 - issued by ER	Accredited	d for compl C 17025 - ገ		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	oadbase rcled Sub-base hed Sandstone ed Sandstone	A Ke	# Lime Stabilis \$ Gypsum Stal	æd bilised	/2021
Aaterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 0. DGS20 orm No R 020 Version 10 10/20 - issued by ER	Accredited	•		12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	oadbase rcled Sub-base hed Sandstone ed Sandstone	A Ki	# Lime Stabilis \$ Gypsum Stal	ed bilised 25/08	/2021
Material Description I. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 5. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 Form No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734	Accredited	•		12. FCR20 13. FCR40 14. RC - Recyc 15. Recvcled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase rcled Sub-base hed Sandstone ed Sandstone	Place, Prest	# Lime Stabilis \$ Gypsum Stat	ed billised 25/08 <u>Signatory</u>	/2021

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 3 of 18

RESULTS Hilf Density Ratio Standard Moisture Variation from OMC (-Drier/+Wetter) Specification Density Ratio (Stan	%				395 396 397 398 399 40 3/08/2021 04/08/2021					
Noisture Variation from OMC (-Drier/+Wetter)	-									
Specification Density Ratio (Stan	i i i i i i i i i i i i i i i i i i i	101.5	101.5	102	101.5	104	99.5	101.5	102	
•	%	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	
	dard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//	
EST LOCATION										
			etops				n Heights			
hown on Drawing No		//4/	/54-7		1	7747/54-8	1	1	7747/54	
Retested by Test Reduced Level	m	- 61.85	- 59.54	- 51.20	- 52.38	- 53.04	- 53.58	- 52.47	49.04	
		01.00	57.54	51.20	52.50	55.04	55.56	52.47	17.01	
FIELD & LABORATORY DATA ield Wet Density	t/m³	2.11	2.11	2.10	2.11	2.10	2.11	2.08	2.09	
ield Moisture Content	%	18.0	21.0	21.5	20.0	15.5	16.0	16.0	16.5	
Material retained on19mmSieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		393	394	395	396	397	398	399	400	
ab Compaction Date Tested		04/08/2021	04/08/2021	04/08/2021	04/08/2021	04/08/2021	04/08/2021	04/08/2021	04/08/202	
eak Converted Wet Density	t/m ³	2.08	2.08	2.06	2.08	2.02	2.12	2.05	2.05	
pparent Optimum Moisture Content	%	18.0	21.0	21.0	19.5	15.5	15.5	16.0	16.5	
lumber of Compaction Points		3	3	3	3	3	3	3	3	
est Procedures - See Note Number		12	12	12	12	12	12	12	12	
Naterial Description - see below		2	3	3	2-3	2	2	2	2	
 Assigned Values have been obtained from our Prestons labor. Results have been calculated using infinite decimal places. Ti AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T ¹ , T120, T166, T ¹ , T119, T162 , T162, T173				
laterial Description										
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clay CI-Clay of medium plasticity, gravelly clays, sandy clays, silty of CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 D, DGS20				 11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro 	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement State # Lime Stabilis \$ Gypsum State 	ed		
orm No R 020 Version 10 10/20 - issued by ER	Accredito	d for compl	iance with			ΔΚ	ench	25/08	/2021	
NATA		C 17025 - 1						Signatory	" <i>L</i> V <i>L</i> I	
Accreditation Number 2734 Corporate Site Number 2727							Kiff			
4 Borec Road, Penrith NSW 2750				Linit 4, 19 (Place, Prest		170		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		401	402	403	404	405	406	407	408
DATE TESTED & SAMPLED					04/08	3/2021			
RESULTS									
Hilf Density Ratio Standard	%	99	99	102	102.5	101.5	100	102.5	100.5
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC	;	N//
EST LOCATION				-					
	-		n Heights			-	etops		
Shown on Drawing No	-	//4/	/54-9			//4/	/54-7	1	
Retested by Test Reduced Level	m	- 48.47	- 48.80	- 55.44	- 56.69	- 57.34	- 57.47	- 57.13	- 56.56
FIELD & LABORATORY DATA		10117	10100	00111	00107	07101	0,111	01110	00100
Field Wet Density	t/m³	2.09	2.10	2.09	2.09	2.12	2.08	2.09	2.09
Field Moisture Content	%	17.5	14.5	16.0	16.0	16.5	16.0	17.0	2.09
Naterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number	-	401	402	403	404	405	406	407	408
ab Compaction Date Tested	-	04/08/2021			04/08/2021	04/08/2021		04/08/2021	04/08/20
Peak Converted Wet Density	t/m ³	2.11	2.12	2.05	2.04	2.09	2.08	2.04	2.08
Apparent Optimum Moisture Content	%	17.5	14.5	15.5	16.0	16.5	16.0	17.0	16.0
lumber of Compaction Points	-	3	3	3	3	3	3	3	3
est Procedures - See Note Number		12	12	12	12	12	12	12	12
Naterial Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laborate Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 EX S1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 EX S1289 1.2.1 clause 6.4 (b), 2.1.1, 3.5.1, 3.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 3.5.1, 3.4.1 					12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T119, T162 , T162, T173			
Material Description									
 CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs CI-Clay of medium plasticity, gravelly clavs, sandy clavs, silty clavs CH-Clavs of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 	ys			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stał # Lime Stabilis \$ Gypsum Stal	sed	
0. DGS20			ianaa with			AK	ench	25/08	/2021
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orm No R 020 Version 10 10/20 - issued by ER	Accredited ISO/IE0	d for compi C 17025 - 1					Approved	I Signatory	
orm No R 020 Version 10 10/20 - issued by ER		•					Approved	I Signatory	

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 5 of 18

TEST NUMBER	1	409	410	411	412	413	414	415	416
DATE TESTED & SAMPLED		407	410	411	_	3/2021	414	415	410
	L								
RESULTS									
Hilf Density Ratio Standard	%	98.5	99.5	100.5	101	99	100.5	99.5	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
TEST LOCATION	ſ				Dida				
Shown on Drawing No						etops 1/54-7			
Retested by Test		-	-	_	-	-	-	-	-
Reduced Level	m	54.01	54.63	56.52	57.43	57.37	57.86	58.28	58.58
FIELD & LABORATORY DATA									
Field Wet Density	t/m ³	2.06	2.05	2.05	2.04	2.07	2.07	2.06	2.08
Field Moisture Content	%	16.0	16.0	16.5	18.0	19.5	18.0	17.0	17.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		409	410	411	412	413	414	415	416
ab Compaction Date Tested	1/ 2	06/08/2021	06/08/2021	06/08/2021		06/08/2021	06/08/2021	06/08/2021	06/08/20
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m ³ %	2.09	2.06	2.04	2.02	2.09	2.06	2.07	2.08
Number of Compaction Points	70	16.5	16.5	16.5	18.0	19.5	18.0	17.0	17.5
Fest Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Vaterial Description - see below		2	2	2	2	2-3	2	2	2
 Assigned Values have been obtained from our Prestons laborate Results have been calculated using infinite decimal places. Then AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA S1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T119, T162 , T162, T173			
9: Full details of Test Procedure 5.8.1 available on request									
Material Description 1. CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs 2. Cl-Clay of medium plasticity, gravelly clavs, sandy clavs, silty clav 3. CH-Clavs of high plasticity 4. SC-Clavey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 5. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20	/S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - ⊺				A K	ench <u>Approved</u>	25/08 Signatory	3/2021
							/		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 6 of 18

TEST NUMBER DATE TESTED & SAMPLED		417	418 05/08	419 3/2021	420	421	422 06/08	423 3/2021	424
RESULTS									
Hilf Density Ratio Standard	%	99	101.5	99.5	100	102	101	101.5	100.5
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.5
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC		N//
TEST LOCATION									
				n Heights			0	etops	
Shown on Drawing No			//4/	7/54-9	1		//4/	7/54-7	
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level	m	49.02	48.53	48.45	48.95	58.46	58.04	57.70	55.85
FIELD & LABORATORY DATA			-		-		-		
ield Wet Density	t/m ³	2.09	2.03	2.06	2.04	2.08	2.08	2.07	2.08
ield Moisture Content	%	17.0	19.0	16.0	18.5	16.5	18.5	16.0	16.5
Aaterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		417	418	419	420	421	422	423	424
ab Compaction Date Tested	1/ 2	06/08/2021	06/08/2021		06/08/2021	09/08/2021		09/08/2021	09/08/20
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.11	2.00	2.07	2.04	2.04	2.06	2.04	2.07
lumber of Compaction Points	/0	17.0	19.0	16.0	18.5	16.5	18.5	16.5	17.0
est Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3	3	3 12
Aaterial Description - see below		2	2	2	2	2	12 2	12	2
 Assigned Values have been obtained from our Prestons laboratom Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Fall details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
Material Description									
 CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clavs of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	coadbase vcled Sub-base whed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
Form No R 020 Version 10 10/20 - issued by ER	oorodita	d for com-				Λ.ΙΖ	ench	05/00	0/2024
Accreditation Number 2734		d for compl C 17025 - ⁻				AK		25/08 I Signatory	3/2021
Corporate Site Number 2727							/		
34 Borec Road, Penrith NSW 2750				Unit 4 18-3	20 Whvalla	Place, Presi	tons NSW 2	2170	
Felenherer (02) 4702 0744									

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 7 of 18

TEST NUMBER	г	105	407	107	400	400	420		Page 7 of 1
DATE TESTED & SAMPLED	ŀ	425	426	427	428 06/08	429 3/2021	430	431	432
RESULTS									
Hilf Density Ratio Standard	%	101	100.5	98	99	100.5	100.5	100	99
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	0.0
Specification Density Ratio (Standar						ariance fr			N//
	,		•						
Shown on Drawing No			-	etops 7/54-7	1			n Heights 1/54-9	
Retested by Test Reduced Level	m	- 53.75	- 53.34	- 53.74	- 54.23	- 49.27	- 49.06	- 49.67	- 50.58
FIELD & LABORATORY DATA									
Field Wet Density	t/m ³	2.06	2.06	2.05	2.07	2.06	2.06	2.08	2.06
Field Moisture Content	%	16.5	19.0	17.5	21.5	18.5	17.0	16.0	18.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		425	426	427	428	429	430	431	432
ab Compaction Date Tested		09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/20
Peak Converted Wet Density	t/m ³	2.04	2.05	2.09	2.09	2.05	2.05	2.08	2.08
Apparent Optimum Moisture Content	%	16.5	19.0	17.5	21.5	18.5	17.0	16.0	18.5
Jumber of Compaction Points		3	3	3	3	3	3	3	3
est Procedures - See Note Number		12	12	12	12	12	12	12	12
Aaterial Description - see below		2	2	2	3	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4<				se shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis Gypsum Sta 	sed	
Form No R 020 Version 10 10/20 - issued by ER	credito	d for compl	iance with			Δκ	ench	25/09	8/2021
NATA		C 17025 - 1						Signatory	" <u>-</u> U Z I
Accreditation Number 2734 Corporate Site Number 2727							Ref		
34 Borec Road, Penrith NSW 2750				Unit 4 18-1	20 Whyalla	Place, Prest	tons NSW 2	170	
				Talaakaaa	-				

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		433	434	435	436	437	438	439	440
DATE TESTED & SAMPLED	l				09/08	/2021			
RESULTS									
Hilf Density Ratio Standard	%	100	100.5	100.5	100	100	99	100	99
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standa	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
TEST LOCATION	r								
Shown on Drawing No			50	outhern Heigl 7747/54-9	nts			Ridgetops 7747/54-7	
Retested by Test				//4//34-9				//4//34-/	
Reduced Level	m	52.36	54.01	53.48	51.57	51.33	55.54	56.75	58.26
FIELD & LABORATORY DATA									
ield Wet Density	t/m ³	2.06	2.05	2.07	2.06	2.11	2.08	2.06	2.11
ield Moisture Content	%	17.0	17.0	17.0	19.0	18.0	18.5	17.5	20.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		433	434	435	436	437	438	439	440
ab Compaction Date Tested		10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/2021	10/08/202
Peak Converted Wet Density	t/m ³	2.06	2.04	2.06	2.06	2.11	2.10	2.06	2.13
Apparent Optimum Moisture Content	%	17.0	16.5	17.0	19.0	18.0	18.5	17.5	20.0
Number of Compaction Points Test Procedures - See Note Number		3	3	3	3	3	3	3	3
Aaterial Description - see below		12	12 2	12 2	12	12 2	12	12 2	12
lotes		2	Z	Z	2	Z	2	Z	2-3
 Assigned values have been obtained from our Pennin laboratory 	7100104114							5.5.1, 5.6.1	
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	ry – Accredi			e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	2.1 clause 6.4 (f , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 66	5.7.1	
 Assigned Values have been obtained from our Penrith laboraton Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Haldetails of Test Procedure 5.8.1 available on request 	ry – Accredi			e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	2.1 clause 6.4 (f , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 66	5.7.1	
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs CH-Clavs of high plasticity, gravelly clays, sandy clays, silty clay CH-Clavs of high plasticity SG-Clayey grades, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey qravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB40 	ry – Accredi efore, calcul			e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120	2.1 clause 6.4 (f , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 66	5.7.1 5.8.1 pillised red	
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of hidh plasticity, gravelly clays, sandy clays, silty clay CH-Clays of hidh plasticity SC-Clayey gravels, gravel-sand-clay mixtures SM-Silty sands, sand-silt mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	ry – Accredi efore, calcul s	ated values ma	v varv from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120	2.1 clause 6.4 (î T119, T120, T1 T120, T16, T1 T119, T162 T162, T173 T164, T173	 b), 2.1.1, 5.7.1, § 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	5.7.1 5.8.1 billised ved billised	/2021
Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Calculated using infinite decimal places. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clays of high plasticity CL-Clays of high plasticity SC-Claye gravels, sand-clay mixtures SM-Silty sands, sand-clay mixtures SC-Claye qravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20	ry – Accredi		iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. RMS T120	2.1 clause 6.4 (î T119, T120, T1 T120, T16, T1 T119, T162 T162, T173 T164, T173	 b), 2.1.1, 5.7.1, § 66 73 * Cement Stat # Lime Stabilis \$ Gypsum Stal Gypsum Stal 	5.7.1 5.8.1 pillised red	/2021
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 18

ISO/IEC 17025 - Testing. Approved Signator	448
Hilf Density Ratio Standard % 99.5 100 100 100.5 99.5 99 99 Aoisture Variation from OMC (Joher/Wetter) % 0.0 0.0 0.0 0.0 0.5 0.0 0.0 Specification Density Ratio (Standard) ≥98% Specification Moisture Variance from OMC TEST LOCATION Shown on Drawing No 7/47/84-7 -	
Adisture Variation from OMC (-Drier/+Wetler) % 0.0	
Specification Density Ratio (Standard) 298% Specification Moisture Variance from OMC TEST LOCATION Ridgetps 7747/54-7 Shown on Drawing No 7747/54-7 Steleside by Test - - Reduced Level m 58.50 57.48 55.12 55.50 57.93 57.81 57.97 FIELD & LABORATORY DATA -	99.5
FEST LOCATION Ridgetops shown on Drawing No 7747/54.7 Retested by Test 1 returned Level m 58.50 57.48 55.50 57.93 FIELD & LABORATORY DATA Tield Wet Density 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 <th>0.0</th>	0.0
Shown on Drawing No Ridgetops Reduced Level m 77747/54-7 Reduced Level m 58.50 57.48 55.12 55.50 57.93 57.81 57.97 FIELD & LABORATORY DATA 1 1 58.50 57.48 55.12 55.50 57.93 57.81 57.97 FIELD & LABORATORY DATA 1 1 1 5 5 4.5 4.5 5 4.5 4.5 5 5 5 5 5 5 5 5 5 5 5 5 4.5 4.44 <td>N/.</td>	N/.
Shown on Drawing No Retested by Test Trians and the state of the stat	
Reteard by Test i	
FIELD & LABORATORY DATA Tield Weit Density 1/11/11/11/11/11/11/11/11/11/11/11/11/1	-
Tield Wet Density Um3 2.09 2.08 2.05 2.04 2.07 2.06 2.05 Aderlai retained on 19mm Sieve (wet) % 18.5 16.5 16.0 17.5 17.5 17.0 19.5 Ad Compaction call from test number ab Compaction Date Tested 44.1 44.2 44.3 44.4 44.2 44.3 44.4 44.2 10.08/2021 11/08/2021 11/08/2021 11/08/2021 11/08/2021 11/0	58.74
ield Moisture Content % 18.5 10.0 17.5 17.5 17.0 19.5 Alderial retained on 19mm Sieve (wel) % 18.5 16.0 17.5 17.5 17.0 19.5 ab Compaction result from test number ab Compaction Date Tested 44.1 442 44.3 44.4 44.5 44.6 44.7 veak Converted Wel Density t/m³ 2.10 2.08 2.05 2.03 2.08 2.07 vpparent Optimum Moisture Content % 18.5 16.0 16.0 17.5 17.0 17.0 19.5 Mumber of Compaction Points 3	
faterial retained on 19mm Sieve (wet) % 0.00 100	2.07
ab Compaction result from test number ab Compaction Date Tested byparent Optimum Moisture Content ym 2.10 2.08 2.05 2.03 2.08 2.07 ypparent Optimum Moisture Content ym 2.10 2.08 2.05 2.03 2.08 2.07 ypparent Optimum Moisture Content ym 2.10 2.08 2.05 2.03 2.08 2.07 ypparent Optimum Moisture Content ym 12	17.5
ab Compaction Date Tested 10/08/2021 10/08/2021 11/08/2021 <t< td=""><td><5</td></t<>	<5
Deak Converted Wel Density t/m³ 2.10 2.08 2.05 2.03 2.08 2.08 2.07 Apparent Optimum Moisture Content % 18.5 16.0 16.0 17.5 17.0 17.0 19.5 Set Procedures - See Note Number 12 13 15 15 15 15 15 16	448 1 11/08/20
Apparent Optimum Moisture Content % 18.5 16.0 16.0 17.5 17.0 17.0 19.5 Jumber of Compaction Points 3	2.08
Jumber of Compaction Points 3<	17.5
Image: Set Procedures - See Note Number Image: Image: Image: Set Procedures - See Note Number Image: Image: Image: Set Procedures - See Note Number Image: Image: Set Procedures - See Note Number Image: Image: Set Procedures - See Note Number Image: Image: Set Procedures - S	3
Alaterial Description - see below 2	12
Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 As 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166, T173 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 16: RMS T120, T119, T142 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T119, T142 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T119, T142 CI-Clavs of low plasticity, cravelly clavs, sandy clavs, silty clavs 11. DCS40 * Cernent Stabilised CI-Clavs of low plasticity, cravelly clavs, sandy clays, silty clavs 12. FCR20 # Lime Stabilised SC-Clave vands, sand-clay mixtures 15. RCVcled Roadbase 6 RSB - Recycled Roadbase GC-Clave varies, cravels, c	2
Aterial Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 1DGS40 * Cement Stabilised CL-Clays of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised CL-Clays of hich plasticity 13. FCR40 \$ Gypsum Stabilised SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete 5. SM-Silty sands, sand-silt mixtures 16. RSB - Recycled Roadbase Secold Sub-base GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base Secold Sub-base SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone Secold Sub-base DGB20 18. RSS - Ripped Sandstone DGS20 orrm No R 020 Version 10 10/20 - issued by ER Accredited for compliance with ISO/IEC 17025 - Testing. A Kench 25/ Approved Signator SO/IEC 17025 - Testing. Soft Accredited Sub-base	
. C1-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised . C1-Clays of high plasticity 13. FCR40 \$ Gypsum Stabilised . SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete \$ Gypsum Stabilised . SM-Silty sands, sand-clay mixtures 16. RSB - Recycled Roadbase \$ Gypsum Stabilised . GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base \$ Secclayey gravels, gravel-sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone \$ Secclayey Gravels, Ripped Sandstone . DGB20 18. RSS - Ripped Sandstone \$ Secclayey Gravels, Gravel Sub Pare \$ Accredited for compliance with ISO/IEC 17025 - Testing. A Kench 25/	
Accredited for compliance with A Kench 25/ ISO/IEC 17025 - Testing. Approved Signator	
ISO/IEC 17025 - Testing. Approved Signator	8/2021
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Accreditation Number 2734 Corporate Site Number 2727	
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 10 of 18

	ļ	449	450	451	452	453	454	455	456
DATE TESTED & SAMPLED					10/08	3/2021			
RESULTS									
Hilf Density Ratio Standard	%	99.5	100	99.5	99.5	99.5	99.5	100	99
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	lard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
TEST LOCATION	r		Diductore			<u> </u>		L-1-	
Shown on Drawing No	ŀ		Ridgetops 7747/54-7			50	outhern Heig 7747/54-9	nis	
Retested by Test	F	-	-	-	-	-	-	-	-
Reduced Level	m	60.00	58.60	58.31	50.08	49.58	50.18	50.25	49.05
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.05	2.06	2.04	2.05	2.10	2.07	2.05	2.05
ield Moisture Content	%	20.5	17.0	17.0	18.5	16.5	20.0	19.0	17.5
Aaterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number	-	449	450	451	452	453	454	455	456
ab Compaction Date Tested Peak Converted Wet Density	t/m³	11/08/2021	11/08/2021			11/08/2021		11/08/2021	11/08/20
Apparent Optimum Moisture Content	%	2.06 20.5	2.06 16.5	2.05 16.5	2.06 18.5	2.11 16.5	2.08 20.0	2.05 18.5	2.07 17.5
Jumber of Compaction Points	70	20.5	3	3	3	3	3	3	3
est Procedures - See Note Number	-	12	12	12	12	12	12	12	12
Material Description - see below	-	2-3	2	2	2	2	2-3	2	2
 Assigned Values have been obtained from our Penrith laborato Assigned Values have been obtained from our Prestons laborat Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 EX 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 EV 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 EV 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 SS 128 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 	ory – Accredit	ation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T119, T162		5.7.1	
Material Description									
 CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs. CL-Clav of medium plasticity, gravelly clavs, sandy clavs, silty cla CH-Clavs of high plasticity, SC-Clavey sands, sand-clav mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clav mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	γs			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stat 	sed	
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for compl	iance with			Δκ	ench	25/08	/2021
NATA		C 17025 - 1						I Signatory	, LUL I
Accreditation Number 2734							Ref		
Corporate Site Number 2727							/		
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

ESULTS If Density Ratio Standard % 98 100 102 100 98.5 99.5 100.5 99 olsture Variation from OMC (chrier/-Wetter) % 0.0 0.0 1.0 -1.5 0.0 0.0 -0.5 0.0 pecification Density Ratio (Standard) ≥98% Specification Moisture Variance from OMC N ested by Test			457	458	459	460	461	462	463	464
If Density Ratio Standard % 98 100 102 100 98.5 99.5 100.5 99 oilsture Variation from OMC (Detect-Wetter) % 0.0 0.0 1.0 -1.5 0.0 0.0 -0.5 0.0 pecification Density Ratio (Standard) ≥98% Specification Moisture Variance from OMC N EST LOCATION Ridgetops standard 2000 0.0 -0.5 0.0 0.0 -0.5 0.0 Standard % 0.5 60.15 62.30 59.77 58.89 58.55 495.0 49.5 BUD B Laboration Content Mm 211 210 212 213 211 210 2.00 210 2.00 200 211 210 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.01	DATE TESTED & SAMPLED	Į				11/08	/2021			
If Density Ratio Standard % 98 100 102 100 98.5 99.5 100.5 99 oilsture Variation from OMC (Detect-Wetter) % 0.0 0.0 1.0 -1.5 0.0 0.0 -0.5 0.0 pecification Density Ratio (Standard) ≥98% Specification Moisture Variance from OMC N EST LOCATION Ridgetops standard 2000 0.0 -0.5 0.0 0.0 -0.5 0.0 Standard % 0.5 60.15 62.30 59.77 58.89 58.55 495.0 49.5 BUD B Laboration Content Mm 211 210 212 213 211 210 2.00 210 2.00 200 211 210 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.00 2.01 2.01	RESULTS									
pecification Density Ratio (Standard) > 298% Specification Molsture Variance from OMC N EST LOCATION		%	98	100	102	100	98.5	99.5	100.5	99
EST LOCATION Ridgetops Same how on Drawing No tested by Test aduced Level m 95.4 1 <	Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	1.0	-1.5	0.0	0.0	-0.5	0.0
Nome on Drawing No baseled by Test duced Level Ridgetops Issueme T7747/54-7 Susteme T7747/54-7 Help & Law Concent duced Level m 59 54 60.15 62.30 59.79 58.89 58.55 49.50 49.9 Help & Law Concent duced Level m 59 54 60.15 62.30 59.79 58.89 58.55 49.50 49.9 Help & Law Concent duced Level m 59 54 60.15 62.30 59.79 58.89 58.55 49.50 49.9 Help & Law Concent duced Level m 2.11 2.10 2.12 2.13 2.11 2.10 2.00 2.11 2.00 2.01 2.02 2.0	•	ırd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
Norm on Drawing No Tri/154-7 Tri/154-7 Tri/154-7 stesded by Test m 59,54 60.15 62.30 59.79 58.89 58.55 49.50 49.50 Bit Obsitue Content m 59,54 60.15 62.30 59.79 58.89 58.55 49.50	EST LOCATION	ſ				Ridgetons				Southorn Hoi
atested Level m i <	hown on Drawing No	ŀ			7747				7747	
stduced Level m 59:54 60:15 62:30 59:79 58:89 58:55 49:50 49:39 IELD & LABORATORY DATA add Molsture Content ************************************	Retested by Test		-	-	-	-	-	-	-	-
add Web Density Imp 2.11 2.10 2.12 2.13 2.11 2.10 2.09 2.11 add Moisture Content % 17.5 16.0 17.5 17.5 17.5 17.0 15.5 17.0 16.0 b Compaction result from test number % 5 -5	Reduced Level	m	59.54	60.15	62.30	59.79	58.89	58.55	49.50	49.96
eld Moisture Content % 17.5 16.0 17.5 19.5 17.0 15.5 17.0 10.6 b Compaction Date Tested % 45.7 45.8 45.9 46.0 46.1 46.2 46.3 46.4 46.4 b Compaction Date Tested % 17.5 10.6 16.5 21.0 17.5 10.6 45.7 45.8 45.9 46.0 46.1 46.2 46.3 46.4 b Compaction Points % 17.5 10.6 16.5 21.0 17.5 16.5 17.7.5 10.5 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 17.5 16.0 15.5 17.5 16.0 16.5 21.0 17.5 16.0 16.5 21.0 17.5 16.0 17.5 <	IELD & LABORATORY DATA	_								
aterial retained on 19mm Sieve (weit) % 10.5	ield Wet Density		2.11	2.10	2.12	2.13	2.11		2.09	2.11
b Compaction result from test number 457 458 459 460 461 462 463 464 b Compaction Date Tested 18/08/2021	ield Moisture Content		17.5	16.0	17.5	19.5	17.0	15.5	17.0	16.0
b Compaction Date Tested Um # 18/08/2021 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08 12/08/2021 18/08/2021 18/08/2021 18/08/2021 13/08 12/08/2021 12/08/2021 12/08/2021 12/08/2021 12/08/2021 12/08/2021 12/08/2021 12/08/2021 12/08/2021 11		%								<5
wak Converted Wet Density t/m³ 2.15 2.10 2.08 2.13 2.14 2.11 2.08 2.13 parent Optimum Moisture Content % 17.5 16.0 16.5 21.0 17.5 15.5 17.5 16.0 sist Procedures - See Note Number 12	•									464
parent Optimum Moisture Content % 17.5 16.0 16.5 21.0 17.5 15.5 17.5 16.0 amber of Compaction Points 3										
mber of Compaction Points 3<										
Ist Procedures - See Note Number 12 <td>••••••</td> <td>%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	••••••	%								
Image: New Year Image: Nea		ŀ	-		-	-		-	-	
Assigned Values have been obtained from our Penrith laboratory - Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.3.1, S.5.1, S.6.1 Assigned Values have been obtained from our Penrith laboratory - Accreditation No 14234 10: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.3.1, S.5.1, S.6.1 Assigned Values have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12. A S 1289 1.2.1 clause 6.4 (b). 2.1.1, S.7.1, S.8.1 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1 13: RMS T111, T119, T120, T166 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1 14: RMS T111, T119, T120, T166 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1 16: RMS T120, T161 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1, S.8.1 16: RMS T120, T162 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1, S.8.1 17: RMS T110, T102 AS 1289 1.2.1 clause 6.4 (b). 2.1.1, S.2.1, S.3.1, S.6.1, S.8.1 17: RMS T110, T102 Full details of Test Procedure 5.8.1 available on request 16: RMS T120, T164 17: RMS T110, T102 Cl-Clavs of low plasticity, gravely clavs, sandy clavs, silty clays 11. DCSA0 * Cement Stabilised Cl-Clavs of low mlasticity, gravely clavs, sandy clays, silty clays 12. FCR20 # Line Stabilised Cl-Clavs of low alasticity, gravely class, sand-clay mixtures 16: RSE Recycled Concrefe <t< td=""><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		-								
Asigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 Assigned Values have been obtained from our Prestors laboratory – Accreditation No 14234 Results have been calculated usin Infinite decimal places. Therefore, calculated values may vary from those shown AS 1289 12.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 S1289 12.1 clause 6.4 (b			Z	Z	2	Z-2	Ζ.	2	Z	2
CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs 11. DGS40 * Cement Stabilised CL-Clavs of nodium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised CH-Clavs of high plasticity 13. FCR40 \$ Gvosum Stabilised SC-Clayey gravels, sand-clay mixtures 15. Recycled Concrete \$ Gvosum Stabilised SM-Silty sands, sand-silt mixtures 16. RSB - Recycled Sandstone \$ Gvosum Stabilised SP-Sand, crusshed dust, filling sand, washed sand 17. CSS - Crushed Sandstone \$ Gvosum Stabilised DGB20 18. RSS - Ripped Sandstone \$ Gvosum Stabilised DGB20 19. Cowels Brown \$ Cushed Sandstone DGB20 19. Cowels Brown \$ Corporate Site Number 2734 Corporate Site Number 2727 Accredited for compliance with ISO/IEC 17025 - Testing. A Kench 25/08/2021 Approved Signatory Aggrower 2727 \$ Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170		fore, calcul	ated values ma	v vary from thos		12 45 1280 1	2.1 clause 6.4.(b), 2.1.1, 5.7.1, 5		
Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Line Stabilised CH-Clay of hich plasticity 13. FCR40 \$ Gyosum Stabilised SC-Clayey gravels, sand-clay mixtures 14. RC - Recycled Concrete \$ Gyosum Stabilised SM-Silty sands, sand-clay mixtures 15. Recycled Concrete \$ Gyosum Stabilised SM-Silty sands, sand-clay mixtures 16. RSB - Recycled Sub-base \$ Gyosum Stabilised GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base \$ Gyosum Stabilised SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone \$ Gyosum Stabilised DGB20 19. Cowels Brown \$ Cowels Brown \$ Gyosum Stabilised DGS20 19. Cowels Brown \$ Gyosum Stabilised \$ Gyosum Stabilised Mo R 200 Version 10 10/20 - issued by ER Accredited for compliance with ISO/IEC 17025 - Testing. \$ A Kench \$ 25/08/2021 Approved Signatory Accreditation Number 2734 \$ Accredited For Compliance With ISO/IEC 17025 - Testing. \$ A Kench \$ 25/08/2021 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 \$ Stabilised	: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 : AS 1289 1.2.1 clause 6.4 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 : AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1				e shown	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.8.1	
Accredited for compliance with ISO/IEC 17025 - Testing. Accreditation Number 2734 Corporate Site Number 2727 Borec Road, Penrith NSW 2750 Accredited for compliance with ISO/IEC 17025 - Testing. Accredited for compliance with ISO/IEC 17025 - Testing. Accr	 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 			y vary nom thos	e shown	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.8.1	
ISO/IEC 17025 - Testing. Approved Signatory Accreditation Number 2734 Corporate Site Number 2727 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170	 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clays of hidh plasticity CH-Clays of hidh plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Claye gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 led Concrete oadbase cicled Sub-base hed Sandstone ed Sandstone	, T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	 * Cement Stat # Lime Stabilis 	bilised ed	
Corporate Site Number 2727 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170	AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CL-Clays of hidh plasticity SC-Clayey sands, sand-clay mixtures SC-Clayey gravels, gravel-sand-clay mixtures GC-Claye gravels, gravel-sand, washed sand DGB20 DCB40 DCB520 orm No R 020 Version 10 10/20 - issued by ER		d for comp		11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 led Concrete oadbase cicled Sub-base hed Sandstone ed Sandstone	, T119, T120, T1 , T120, T166, T1 , T119, T162, T173 , T162, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	bilised ed bilised	/2021
	 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays Cl-Clays of hidh plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures SM-Silty sands, clays, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 orm No R 020 Version 10 10/20 - issued by ER 	ccredite	•	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 led Concrete oadbase cicled Sub-base hed Sandstone ed Sandstone	, T119, T120, T1 , T120, T166, T1 , T119, T162, T173 , T162, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal 	ollised ed ollised 25/08	/2021
	5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 7: Full details of Test Procedure 5.8.1 available on request Material Description . CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clavs 2: Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clavs 3: Cl-Clays of high plasticity 3: Cl-Clayse of high plasticity 5: SM-Silty sands, sand-silt mixtures 5: SM-Silty sands, sand-silt mixtures 5: SP-Sand, crushed dust, filling sand, washed sand 1: DGB20 1: DGB20 1: DGB40 1: DGB20 1: DGB40 1: DGB20 1: DGB40 1: DGB20 1: DGB40 1: DGB20 1: DGB40 1: DGB20 1: DGB40 1: DGB40	ccredite	•	iance with	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 led Concrete oadbase cicled Sub-base hed Sandstone ed Sandstone	, T119, T120, T1 , T120, T166, T1 , T119, T162, T173 , T162, T173 , T164, T173	 * Cement Stat # Lime Stabilis \$ Gypsum Stal 	ollised ed ollised 25/08	/2021

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		465	466	467	468	469	470	471	472
DATE TESTED & SAMPLED			11/08	3/2021			12/08	3/2021	
RESULTS		00	00	00 F	00 5	100 F	100 F	00.5	100
Hilf Density Ratio Standard	%	99	98	99.5	99.5	102.5	100.5	98.5	100
Noisture Variation from OMC (-Drier/+Wetter)	%	1.0	0.0	1.0	2.0	0.5	0.5	0.5	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	N//
TEST LOCATION	1		Souther	n Heights		Ridgetops			
hown on Drawing No				//54-9			5	7/54-7	
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	50.56	51.13	49.40	51.55	58.13	58.68	59.12	60.01
FIELD & LABORATORY DATA									
ield Wet Density	t/m ³	2.11	2.10	2.13	2.12	2.11	2.10	2.09	2.10
ield Moisture Content	%	16.5	18.5	17.0	16.5	15.5	16.5	16.5	14.5
Aterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		465	466	467	468	469	470	471	472
ab Compaction Date Tested eak Converted Wet Density	t/m ³	18/08/2021	18/08/2021	18/08/2021	18/08/2021	18/08/2021	18/08/2021	18/08/2021	18/08/20
pparent Optimum Moisture Content	will ⁻ %	2.13 15.5	2.14 18.5	2.14 16.0	2.13 14.5	2.06 15.0	2.09 16.0	2.12 16.0	2.10 14.5
umber of Compaction Points	70	3	3	3	3	3	3	3	14.5
est Procedures - See Note Number		12	12	12	12	12	12	12	12
Aaterial Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratic Results have been calculated using infinite decimal places. Thei AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				e shown	12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
P: Full details of Test Procedure 5.8.1 available on request									
Material Description I. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clay 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 5. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20	/S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	coadbase vcled Sub-base whed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gvpsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for compl	iance with			AK	ench	25/08	/2021
NATA	ISO/IE	C 17025 - 1	Festing.				Approved MM	I Signatory	
							KINI		
Accreditation Number 2734							In The		
Accreditation Number 2734 Corporate Site Number 2727							T		
Corporate Site Number 2727				Unit 4, 18-2	20 Whyalla I	Place, Pres	tons NSW 2	2170	
					20 Whyalla I : (02) 9607 (tons NSW 2	2170	

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Telephone: (02) 4722 2744

Laboratory:PenrithJob No:7747/54Date:25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		473	474	475	476	477	478	479	480
DATE TESTED & SAMPLED					12/08	/2021			
RESULTS									
Hilf Density Ratio Standard	%	101	100	98	100	100.5	101	102.5	103
Noisture Variation from OMC (-Drier/+Wetter)	%	-1.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
TEST LOCATION			Didaataa			C.			
Shown on Drawing No			Ridgetops 7747/54-7			50	outhern Heigl 7747/54-9	nts	
Retested by Test			1141134-1			_	1141134-7	_	
Reduced Level	m	58.80	59.39	60.06	51.34	51.74	52.29	50.73	49.73
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.11	2.13	2.10	2.11	2.12	2.12	2.13	2.13
ield Moisture Content	%	21.0	16.5	14.5	14.0	21.5	17.0	16.5	16.0
Naterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		473	474	475	476	477	478	479	480
ab Compaction Date Tested		18/08/2021	18/08/2021		18/08/2021	18/08/2021	18/08/2021	18/08/2021	18/08/20
eak Converted Wet Density	t/m ³	2.09	2.13	2.14	2.11	2.11	2.10	2.08	2.07
pparent Optimum Moisture Content	%	22.0	16.0	14.0	14.0	21.5	16.5	16.0	16.0
lumber of Compaction Points		3	3	3	3	3	3	3	3
est Procedures - See Note Number Aaterial Description - see below		12	12	12	12	12	12	12	12
lotes		3	2	2	2	3	2	2	2
 Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. There 									
 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	fore, calcu			e shown	11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173	b), 2.1.1, 5.7.1, 5 166		
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email: info@geotech.com.au



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

> PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 14 of 18

DATE TESTED & SAMPLED 1308/2021 RESULTS 1308/2021 HIP Density Ratio Standard % Moisture Variation from OMC (Conter/Wetter) % 0.0 <th>NUMBER</th> <th></th> <th>481</th> <th>482</th> <th>483</th> <th>484</th> <th>485</th> <th>486</th> <th>487</th> <th>488</th>	NUMBER		481	482	483	484	485	486	487	488
Hilf Density Ratio Standard % 99 100 98.5 99.5 101.5 103 10 Moisture Variation from OMC (Driver/-Weiter) % 0.0 <td< th=""><th>E TESTED & SAMPLED</th><th></th><th>101</th><th>102</th><th>100</th><th></th><th></th><th>100</th><th>107</th><th>100</th></td<>	E TESTED & SAMPLED		101	102	100			100	107	100
Hilf Density Ratio Standard % 99 100 98.5 99.5 101.5 103 100 Adisture Variation from OMC (Drier/Wetter) % 0.0										
Adisture Variation from OMC (prier/Wetter) % 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Specification Density Ratio (Standard) 298% Specification Moisture Variance from OMC FEST LOCATION Ridgetops 1000000000000000000000000000000000000	<u>ULTS</u>			T	T	1	T	T	•	
Specification Density Ratio (Standard) 298% Specification Moisture Variance from OMC TEST LOCATION Ridgetops Ridgetops Ridgetops Shown on Drawing No Ridgetops 17/17/15/-7 1	ensity Ratio Standard	%	99	100	98.5	99.5	101.5	103	102	100
TEST LOCATION Ridgetops Shown on Drawing No Ridgetops Shown on Drawing No Ridgetops Shown on Drawing No Ridgetops Steduced Level m 60.68 61.39 62.92 61.84 59.78 58.67 57.3 FIELD & LABORATORY DATA m 208 2.08 2.08 2.09 2.11 2.1 side Misture Content % 18.5 18.0 18.0 17.0 17.0 18.0 18.0 ab Compaction Castlet from test number % 48.5 45.6 45.6 45.6 45.6 46.6 48.6 <t< td=""><td>ure Variation from OMC (-Drier/+Wetter</td><td>r) %</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></t<>	ure Variation from OMC (-Drier/+Wetter	r) %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shown on Drawing No Ridgetops TY47154-7 -		ndard)	≥9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC	:	N//
whow no Drawing No 7747/54-7 Released by Test 00.68 61.39 62.92 61.84 59.78 58.67 57.4 FIELD & LABORATORY DATA 10 10.60.68 61.39 62.92 61.84 59.78 58.67 57.4 Field Wel Density 101 10.5 18.0 18.0 17.0 17.0 12.	T LOCATION					Dil				
Related Level m i <	on Drawing No						etops			7747/54
Reduced Level m 60.68 61.39 62.92 61.84 59.78 58.67 57.3 FIELD & LABORATORY DATA Field Welt Density Um ¹ 208 2.08 2.08 2.09 2.11 2.1 Field Mosture Content % 18.5 18.0 18.0 18.0 17.0 17.0 17.0 17.0 18.0 16.0 46.0				1	1	1141104-1	1	1	1	7747/54
Field Wet Density Um ² 2.08 2.08 2.09 2.11 2.1 Field Midsture Content % 18.5 18.0 11.0 17.0 17.0 18.0 16.0 Addriaf relationed on 19mm Sieve (wet) % 5	-	m	60.68	61.39	62.92	61.84	- 59.78	58.67	57.91	52.96
iield Molsture Content 96 18.5 18.0 10.0 17.0 17.0 18.0 16.0 Alderfai retained on 19mm Sieve (wel) 96 18.5 18.0 17.0 17.0 18.0 16.0 ab Compaction Date Tested 1800/2021 18/08/2021 </td <td>D & LABORATORY DATA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	D & LABORATORY DATA									
Ataterial retained on 19mm Sieve (wel) % 100	Vet Density	t/m ³	2.08	2.08	2.08	2.08	2.09	2.11	2.10	2.08
ab Compaction result from test number 481 482 483 484 485 486 486 ab Compaction Date Tested 181008/2021 18008/2021						17.0		18.0	16.5	17.0
ab Compaction Date Tested 18/08/2021 <t< td=""><td></td><td>) %</td><td></td><td></td><td></td><td></td><td></td><td></td><td><5</td><td><5</td></t<>) %							<5	<5
2-eak Converted Wet Density t/m³ 2.10 2.08 2.11 2.09 2.06 2.05 2.0 Apparent Optimum Musture Content % 18.5 18.0 18.0 18.0 17.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0 16.0 16.5 18.0 16.0 16.5 18.0 16.0									487	488
Apparent Optimum Moisture Content % 10.5 18.0 17.0 16.5 18.0 16.5 Mumber of Compaction Points 12<		+/ma3							18/08/2021	18/08/20
Number of Compaction Points 3<									2.06	2.08
Image: Procedures - See Note Number 12	•	/0						-		17.0 3
Atterial Description - see below 12 2										3 12
Votes 1: Assigned Values have been obtained from our Penth laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 10: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.3.1, 5.3.1, 5.7.1 3: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.3.1, 5.4.1 11: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.3.1, 5.4.1 3: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.3.1, 5.4.1 13: RMS T111, T120, T166, T173 3: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.5.1, 5.6.1, 5.8.1 15: RMS T120, T162, T173 3: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T164, T173 3: AS 1289 1.2.1 clause 6.4 (b). 2.1.1, 5.2.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 3: Fuldetails of Test Procedure 5.8.1 available on request 40: Clave of olive plasticity, aravelly clavs, sandy clavs, silty clavs 11. DCS40 * Cement Stabilised 4: Clave of olive blasticity, aravelly clavs, sandy clavs, silty clavs 13: FCR40 \$ Gyosum Stabilised 5: CClaver of low plasticity, aravelly clavs, sandy clavs, silty clavs 18: RS5 - Riped Sandstone \$ Grosum Stabilised 5: CClaver of sand usafe diago 18: RS5 - Riped Sandstone 19: Coread \$ Grave of Sandstone 5: SM-Silty sands, sand-silt mitures 16: RS5 - Recycled Roadbase 16: RS5 - Ri										2
Aterial Description 1. DGS40 * Cement Stabilised CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised CH-Clays of hich plasticity 13. FCR40 \$ Gvpsum Stabilised SC-Clayey gands, sand-clay mixtures 14. RC - Recycled Concrete \$ Gvpsum Stabilised SM-Silty sands, sand-clay mixtures 16. RSB - Recycled Sub-base \$ Gvpsum Stabilised GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base \$ Gvpsum Stabilised SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone \$ Gvpsum Stabilised DGB20 18. RSS - Rioped Sandstone \$ DGS20 Dom No R 020 Version 10 10/20 - issued by ER Accredited for compliance with ISO/IEC 17025 - Testing. A Kench 2 Accreditation Number 2734 Corporate Site Number 2734 Accredited for Compliance with ISO/IEC 17025 - Testing. A Kench 2 4 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 XIII 4, 18-20 Whyalla Place, Prestons NSW 2170	289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 289 1.2.1 clause 6.4 289 1.2.1 clause 6.4 289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1	merciore, carca		ay vary norm ino.	5C 3HUWH	13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	, T119, T120, T , T120, T166, T), T119, T162), T162, T173	166	5.0.1	
 CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs CL-Clavs of medium plasticity, gravelly clavs, sandy clavs, silty clavs CH-Clavs of high plasticity CH-Clavs of high plasticity CH-Clavs of high plasticity SC-Clave y fands, sand-clav mixtures SC-Clave y gravels, gravel-sand-clav mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 CH-Clave Oversion 10 10/20 - issued by ER Accredited for compliance with ISO/IEC 17025 - Testing. A Kench Approved Signat Accreditation Number 2734 Corporate Site Number 2727 A Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 										
Form No R 020 Version 10 10/20 - Issued by ER Accredited for compliance with ISO/IEC 17025 - Testing. Accreditation Number 2734 Corporate Site Number 2727 34 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170	lays of low plasticity, gravelly clays, sandy clays, silty c ay of medium plasticity, gravelly clays, sandy clays, silt lays of high plasticity layey sands, sand-clay mixtures lity sands, sand-silt mixtures layey gravels, gravel-sand-clay mixtures and, crushed dust, filling sand, washed sand 20				12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	coadbase vcled Sub-base whed Sandstone ed Sandstone		# Lime Stabilis	sed	
ISO/IEC 17025 - Testing. Approved Signat Accreditation Number 2734 MM Corporate Site Number 2727 MM 34 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170		Accredito	d for comp	liance with			ΛK	ench	25/00	8/2021
Accreditation Number 2734 Corporate Site Number 2727 34 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170	NATA		•				AN			# ZUZ I
Corporate Site Number 2727 B4 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170								Art		
Corporate Site Number 2727 B4 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170	Accreditation Number 2724							KAN		
4 Borec Road, Penrith NSW 2750 Unit 4, 18-20 Whyalla Place, Prestons NSW 2170								T		
								/		
	rec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	170	
Telephone: (02) 4722 2744 Telephone: (02) 9607 6111	hone: (02) 4722 2744				Telephone	: (02) 9607	6111			

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750
 Laboratory:
 Penrith

 Job No:
 7747/54

 Date:
 25/08/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 15 of 18

TEST NUMBER DATE TESTED & SAMPLED		489	490 13/08	491 3/2021	492	493	494 16/08	495 3/2021	496
RESULTS									
Hilf Density Ratio Standard	%	101	100.5	99.5	102.5	103.5	102.5	103.5	98.5
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	-1.5	-1.5	-1.5	0.0
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N//
TEST LOCATION			-						
				n Heights			0	etops	
Shown on Drawing No			7747/54-9				7747/54-10	r	1
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level	111	53.30	52.38	51.39	59.77	60.18	60.00	59.68	59.76
FIELD & LABORATORY DATA							-	-	
ield Wet Density	t/m ³	2.10	2.08	2.09	2.09	2.11	2.11	2.11	2.10
ield Moisture Content	%	15.5	20.0	17.0	18.0	13.5	13.0	14.0	13.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		489	490	491	492	493	494	495	496
ab Compaction Date Tested	+/1003	19/08/2021	23/08/2021		23/08/2021	23/08/2021	23/08/2021	23/08/2021	23/08/20
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.08	2.07	2.10	2.04	2.04	2.06	2.04	2.13
Jumber of Compaction Points	/0	15.5	20.0	17.0	18.0	14.5	14.0	15.5	13.5
Test Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Material Description - see below		2	2-3	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. Theref. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S AS 1289 1.2.1 clause 6.4 (b), 2.1.3, 5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T119, T162			
Material Description									
CL-Clavs of low plasticity, gravelly clavs, sandy clavs, silty clavs CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clavs of high plasticity A SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures G-C-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DG840 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
Form No R 020 Version 10 10/20 - issued by ER	credite	d for compl	iance with			ΔΚ	ench	25/08	3/2021
Accreditation Number 2734 Corporate Site Number 2727		C 17025 - 7						I Signatory	" ZUZ I
34 Borec Road, Penrith NSW 2750					-		tons NSW 2	2170	
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

> PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 16 of 18

		497	498	499	500	501	502	503	504
DATE TESTED & SAMPLED					16/08	/2021			
RESULTS									
Hilf Density Ratio Standard	%	100.5	102	101.5	102	103	101.5	101.5	100.5
Noisture Variation from OMC (-Drier/+Wetter)	%	0.5	-1.5	0.5	-1.5	-2.0	-2.0	-1.0	-2.0
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N/#
TEST LOCATION	1		Dida	atona			Coutbor	n Heights	
Shown on Drawing No			Riug	etops	7747/	54-10	Southern	THEIGHTS	
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	59.52	59.82	52.52	52.43	52.46	52.27	51.90	52.94
FIELD & LABORATORY DATA	-								
ield Wet Density	t/m ³	2.12	2.12	2.11	2.14	2.12	2.13	2.11	2.10
Field Moisture Content	%	14.0	13.0	12.5	12.0	13.5	13.0	14.0	14.5
Vaterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number Lab Compaction Date Tested		497	498	499	500	501	502	503	504
Peak Converted Wet Density	t/m ³	23/08/2021	23/08/2021	23/08/2021	23/08/2021	20/08/2021	19/08/2021	19/08/2021	19/08/202
Apparent Optimum Moisture Content	%	14.0	2.08 14.5	2.08 12.0	2.09 13.5	2.06 15.5	2.10 15.5	2.08 14.5	2.09 16.5
Number of Compaction Points	70	3	3	3	3	3	3	3	3
Fest Procedures - See Note Number		12	12	12	12	12	12	12	12
Naterial Description - see below		2	2	1	2	2	2	2	2
 Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Ch S 1289 1.2.1 clause 6.4 (b), 2.1.3, 5.5.1, 5.6.1, 5.8.1 Ch S 1289 1.2.1 clause 6.4 (b), 2.1.3, 5.5.1, 5.6.1, 5.8.1 Ch S 1289 1.2.1 clause 6.4 (b), 2.1.3, 5.5.1, 5.6.1, 5.8.1 Ch S 1289 1.2.1 clause 6.4 (b), 2.1.3, 5.5.1, 5.6.1, 5.8.1 	ore, calcu	lated values ma	v vary from thos		12. AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.8.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 O DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stal	ed	
orm No R 020 Version 10 10/20 - issued by ER	orodita	d for compl	ionoo with			Λ ΙΖ	onch	0 <i>E </i> 00	/2024
NATA		d for compi C 17025 - 1				AK	ench <u>Approved</u>	25/08 Signatory	/2U21
$\mathbf{\nabla}$							Art.		
Accreditation Number 2734							KIST		
Corporate Site Number 2734							1		
···							/		
4 Borec Road, Penrith NSW 2750					20 Whyalla I : (02) 9607 6		tons NSW 2	170	

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		505	506	507	508	509	510	511	512
DATE TESTED & SAMPLED					17/08	8/2021			
RESULTS									
Hilf Density Ratio Standard	%	100	102	98.5	99	98.5	99.5	101	100
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	0.5	0.5	0.0	0.0	0.0
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		N/.
EST LOCATION	r				a				
hown on Drawing No	-					n Heights /54-10			
Retested by Test	-	-	-	-	-	-	-	-	-
Reduced Level	m	54.44	54.70	54.08	53.47	52.76	52.62	57.56	57.67
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.12	2.11	2.12	2.10	2.11	2.12	2.11	2.11
ield Moisture Content	%	13.5	16.0	14.5	14.5	16.5	15.0	17.0	15.5
Naterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		505	506	507	508	509	510	511	512
ab Compaction Date Tested		22/08/2021	22/08/2021			22/08/2021		22/08/2021	
Peak Converted Wet Density	t/m ³	2.12	2.07	2.15	2.12	2.14	2.13	2.09	2.11
pparent Optimum Moisture Content	%	14.0	16.5	14.5	14.0	16.0	15.0	16.5	15.5
lumber of Compaction Points	-	3	3	3	3	3	3	3	3
est Procedures - See Note Number Aaterial Description - see below	-	12 2	12 2	12 2	12 2	12 2	12 2	12 2	12 2
lotes		Z	Z	Z	Z	Z	Z	Z	Z
 Assigned Values have been obtained from our Prestons laborat Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				e shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T ¹ , T120, T166, T ¹ , T119, T162 , T162, T173			
Material Description									
. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays	/S			11. DGS40 12. FCR20			 Cement State # Lime Stabilis \$ Gypsum State 	ed	
Ct-Clay of medium plasticity, gravelly clays, sandy clays, silty cla CH-Clays of high plasticity SC-Clayes ands, sand-clay mixtures M-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 0. DGS20				 FCR40 RC - Recycled R Recycled R RSB - Recy CSS - Crusi RSS - Rippe Cowels Brow 	oadbase cled Sub-base hed Sandstone ed Sandstone		• eypsun star	in sea	
CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silly sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 O.DGS20 orm No R 020 Version 10 10/20 - issued by ER	Accredited	d for compl	iance with	13. FCR40 14. RC - Recycle 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A Ki	ench		/2021
CH-Clavs of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 b. DGS20 prm No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - 7		13. FCR40 14. RC - Recycle 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A Ki	ench		/2021
CH-Clavs of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGB40 DGB20 orm No R 020 Version 10 10/20 - issued by ER		•		13. FCR40 14. RC - Recycle 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A K	ench	25/08	/2021
CH-Clavs of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40). DGS20 prm No R 020 Version 10 10/20 - issued by ER		•		13. FCR40 14. RC - Recycle 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A K	ench	25/08	/2021
CH-Clavs of high plasticity SC-Clavey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clavey qravels, qravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DCB20 orm No R 020 Version 10 10/20 - issued by ER		•		13. FCR40 14. RC - Recycle 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Rippe	oadbase cled Sub-base hed Sandstone ed Sandstone	A K	ench	25/08	/2021
CH-Clavs of high plasticity SC-Clavey sands, sand-clay mixtures SM-Silly sands, sand-silt mixtures GC-Clavey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 0. DGS20 orm No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734 Corporate Site Number 2727		•		13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Ripp 19. Cowels Bro	oadbase cled Sub-base hed Sandstone ed Sandstone wn		ench <u>Approved</u>	25/08 Signatory	/2021
CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGB40 DGS20 orm No R 020 Version 10 10/20 - issued by ER		•		13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crusl 18. RSS - Ripp 19. Cowels Bro	oadbase cled Sub-base hed Sandstone ed Sandstone wn 20 Whyalla I	Place, Prest	ench	25/08 Signatory	/2021

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: 25/08/2021 Date:

PROJECT: SITE FILL TESTING

> PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 18 of 18

								F	Page 18 of
TEST NUMBER DATE TESTED & SAMPLED		513	514	515 3/2021	516				
SATE TESTED & SAMPLED			17/00	D/2U21					
RESULTS									
lilf Density Ratio Standard	%	100.5	100.5	100.5	100.5				
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.5	0.5				
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fro	om OMO		N/
TEST LOCATION	1		D ' 1			[]		1	
hown on Drawing No				etops /54-10					
Retested by Test			-	-					
Reduced Level	m	58.61	56.84	56.65	53.99				
FIELD & LABORATORY DATA									
ield Wet Density	t/m ³	2.11	2.11	2.10	2.13				
ield Moisture Content	%	19.5	19.5	18.5	19.5				
laterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
ab Compaction result from test number		513	514	515	516				
ab Compaction Date Tested eak Converted Wet Density	t/m³	20/08/2021	20/08/2021	20/08/2021					
pparent Optimum Moisture Content	will ² %	2.10 19.0	2.10 19.5	2.09 18.0	2.12 19.0				
umber of Compaction Points	70	3	3	3	3				
est Procedures - See Note Number		12	12	12	12				
laterial Description - see below		2-3	2-3	2	2				
 Results have been calculated using infinite decimal places. Theref. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Eval data in of Tact Dready to F.8.1 	fore, calcu	lated values ma	av varv from thos	se shown	13: RMS T111	T162, T173	66	5.8.1	
: Full details of Test Procedure 5.8.1 available on request Aaterial Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	coadbase vcled Sub-base whed Sandstone ed Sandstone		* Cement Sta # Lime Stabil \$ Gypsum Sta	ised	
orm No R 020 Version 10 10/20 - issued by ER	credito	d for comp	liance with			A Ke	ench	25/09	3/2021
NATA		C 17025 - 7						d Signatory	<i>,, 202</i> I
V							1rd		
Accreditation Number 2734							KIN		
Corporate Site Number 2734							1		
							/		
4 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whvalla I	Place, Presto	ons NSW	2170	
elephone: (02) 4722 2744					: (02) 9607 6				
		.							

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 16

	_								Page 1 of 1
		517	518	519	520	521	522	523	524
DATE TESTED & SAMPLED					19/08	3/2021			
RESULTS									
Hilf Density Ratio Standard	%	99.5	101	101.5	101	101	98	98	100
Moisture Variation from OMC (-Drier/+Wetter)	%	-2.0	-1.5	-2.0	-2.0	-2.0	-1.5	-0.5	-1.5
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m					n Heights /54-11			
Shown on Drawing No Retested by Test					//4/	/54-11	<u> </u>		
Reduced Level	m	52.04	54.74	- 56.04	- 56.68	53.47	53.84	- 51.24	- 51.02
FIELD & LABORATORY DATA				-	-				-
Field Wet Density	t/m³	2.11	2.12	2.13	2.12	2.13	2.14	2.12	2.12
Field Moisture Content	%	10.0	10.5	12.0	12.0	10.0	10.0	13.5	12.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	19
_ab Compaction result from test number		517	518	519	520	521	522	523	524
_ab Compaction Date Tested		26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/202
Peak Converted Wet Density	t/m³	2.12	2.10	2.10	2.10	2.11	2.18	2.16	2.12
Apparent Optimum Moisture Content	%	11.5	12.0	13.5	14.0	12.0	11.5	14.0	13.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		1	1	1	2	1	1	2	1
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 BS 12.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Child etails of Test Procedure 5.8.1 available on request 	y – Accredi	tation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T119, T162		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	ccredite	d for comp	liance with			н м	/ilson	24/00	/2021
NATA		C 17025 - ⁻				ΠVV		Signatory	" ZUZ I
Accreditation Number 2734 Corporate Site Number 2727									
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Presi	tons NSW 2	170	
Felerhanne (00) 4700 0744					(00) 0007	~			

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 16

TEST NUMBER		1	F05	F 00	F07	T		1	1	1
			525	526	527				ļ	
DATE TESTED & S	AWPLED			19/08/2021						
RESULTS		ī		T		•		1	T	T
Hilf Density Ratio	Standard	%	100	100.5	98					
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	-2.0	-2.0	-2.0					
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	Sc	outhern Heig	hts					
Shown on Drawing No				7747/54-11	•					
Retested by Test			-	-	-					
Reduced Level		m	51.15	51.71	51.78					
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.11	2.11	2.13					
Field Moisture Content		%	11.0	11.5	11.0					
Material retained on	19mm Sieve (wet)	%	<5	<5	<5					
Lab Compaction result fro			525	526	527					
Lab Compaction Date Te			26/08/2021	26/08/2021	26/08/2021					
Peak Converted Wet Der		t/m³	2.11	2.10	2.17					
Apparent Optimum Moist		%	13.0	13.5	12.5					
Number of Compaction F			3	3	3					
Test Procedures - See N			12	12	12					
Material Description - see	e delow		1-2	1-2	1-2					
1: Assigned Values have been 2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	- Accredi	itation No 14234		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Descriptio	n									
 CL-Clays of low plasticity, gr. CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-si SP-Sand, crushed dust, fillin DGB20 DGS40 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Sta # Lime Stabili: \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/2	•									
Accreditation Numbe Corporate Site Numbe	r 2734		d for compl C 17025 - ⊺				ΗW	rilson <u>Approvec</u>	24/09 <u>I Signatory</u>	0/2021
34 Borec Road, Penrith	n NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	2170	

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REDBANK COMMUNITIES								
PO BOX 1918								
PENRITH NSW 2750								

Laboratory:PenrithJob No:7747/54Date:24/9/2021

Page 1 of 14

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER DATE TESTED & SAMPLED		528	529 19/08	530 3/2021	531				
DATE TESTED & SAMPLED			19/00	0/2021					
RESULTS									
Hilf Density Ratio Standard	%	99.5	100.5	100.5	101				
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0	0.5	0.0	0.0				
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance f	rom OM	C	±29
TEST LOCATION	r						1		
Chainage (Carriageway L/R) Shown on Drawing No	m	Ridgetops 7747/54-12							<u> </u>
Retested by Test		-	-	-	-				
Reduced Level	m	60.09	60.98	62.41	62.30				
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.13	2.11	2.10	2.13				
ield Moisture Content	%	12.0	20.5	19.5	18.5			_	
Aaterial retained on 19mm Sieve (wet) ab Compaction result from test number	%	<5	<5	<5	<5			_	
ab Compaction Date Tested		528 26/08/2021	529 20/08/2021	530 20/08/2021	531 20/08/2021				
Peak Converted Wet Density	t/m³	20/00/2021	20/06/2021	20/08/2021	20/00/2021				
Apparent Optimum Moisture Content	%	13.5	20.0	19.5	18.5				
Number of Compaction Points		3	3	3	3				
Test Procedures - See Note Number		12	12	12	12				
Material Description - see below		1-2	2-3	2-3	2				
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Erull details of Test Procedure 5.8.1 available on request 	- Accredi	tation No 14234		se shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 2.1 clause 6.4 , T119, T120, T , T120, T166, T , T119, T162 , T162, T173	(b), 2.1.1, 5.3.1 (b), 2.1.1, 5.7.1 166	, 5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled Concrete 15. Recycled Roadbase 16. RSB - Recycled Sub-base 17. CSS - Crushed Sandstone 18. RSS - Ripped Sandstone 19. Cowels Brown		 * Cement Stabilised # Lime Stabilised \$ Gypsum Stabilised 			
Form No R 020 Version 10 10/20 - issued by ER		al fan com 1					/:!	0.1/2	0/0004
	credited for compliance with ISO/IEC 17025 - Testing.			H Wilson <u>Approved</u>			24/0 ed Signatory	24/09/2021 <u>I Signatory</u>	
Accreditation Number 2734 Corporate Site Number 2727							<i>G</i>		

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REDBANK COMI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 3 of 16

TEST NUMBER DATE TESTED & SAMPLED	532 533 534 535 536 537 538 19/08/2021									
RESULTS										
Hilf Density Ratio Standard	%	100.5	100	100.5	100.5	100.5	100.5	100.5	100.5	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	
Specification Density Ratio (Standa	ard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %	
TEST LOCATION		-								
Chainage (Carriageway L/R)	m					n Heights				
Shown on Drawing No					//4//	/54-11	1	1		
Retested by Test	m	-	-	-	-	-	-	-	-	
Reduced Level	111	52.55	52.68	51.79	50.57	51.56	52.77	53.54	53.05	
FIELD & LABORATORY DATA										
ield Wet Density	t/m³	2.11	2.10	2.11	2.12	2.12	2.12	2.12	2.11	
ield Moisture Content	%	19.0	20.5	20.5	19.0	19.5	19.0	19.5	19.0	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		532	533	534	535	536	537	538	539	
ab Compaction Date Tested	t/m3	20/08/2021	20/08/2021		20/08/2021	20/08/2021		20/08/2021	20/08/20	
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.10	2.10	2.10	2.11	2.11	2.11	2.11	2.10	
Number of Compaction Points	/0	19.0 3	20.0 3	20.0 3	19.0 3	19.0 3	18.5 3	19.0 3	18.5 3	
Fest Procedures - See Note Number		12	12	12	12	12	12	12	3 12	
Material Description - see below		2	2-3	2-3	2	2-3	2	2	2	
 Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				e shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T [.] , T120, T166, T [.] , T119, T162 , T162, T173	T162, T173			
Material Description CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity	3			11. DGS40 12. FCR20 13. FCR40			 * Cement Stat # Lime Stabilis \$ Gypsum Stal 	ed		
 SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone					
Form No R 020 Version 10 10/20 - issued by ER		ed for comp C 17025 - ⁻			H Wilson 24/09/20 <u>Approved Signatory</u>				/2021	
Accreditation Number 2734 Corporate Site Number 2727							V2			
				Unit 4, 18-20 Whyalla Place, Prestons NSW 2170						
4 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Presi	tons NSW 2	170		

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 2 of 14

TEST NUMBER		540	541	542	543	544	545	546	
DATE TESTED & SAMPLED		19/08/2021		•	21/08	3/2021	•		
RESULTS						-			
Hilf Density Ratio Standard	%	100	100.5	100	100	100	100	99	
Noisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
Specification Density Ratio (Standa	ard)	≥ 9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC		±29
TEST LOCATION									
Chainage (Carriageway L/R)	m				Ridgetops				
Shown on Drawing No				1	7747/54-12	1	1		
Retested by Test	~	-	-	-	-	-	-	-	
Reduced Level	m	70.04	69.01	69.49	67.02	64.09	66.12	54.24	
FIELD & LABORATORY DATA			-		-				
ield Wet Density	t/m³	2.11	2.11	2.12	2.11	2.12	2.11	2.11	
ield Moisture Content	%	19.5	16.5	16.0	18.5	18.0	18.5	18.0	
Aterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		540	541	542	543	544	545	546	
ab Compaction Date Tested	t/m³	20/08/2021		23/08/2021				23/08/2021	
Peak Converted Wet Density Apparent Optimum Moisture Content	0/11- %	2.11	2.10	2.12	2.11	2.12	2.11	2.13	
Jumber of Compaction Points	/0	19.0 3	16.5 3	16.0 3	18.5 3	18.0 3	18.0 3	18.0 3	
est Procedures - See Note Number		12	12	12	12	12	12		
Aaterial Description - see below		2	2	2	2	2	2	2	
 Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. Then: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T120, T166, T , T119, T162 , T162, T173			
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	5			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for compl	iance with			Ц \/	/ilson	24/09/	2021
NATA		C 17025 - 1				11 VV		Signatory	2021
Accreditation Number 2734 Corporate Site Number 2727							L.		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	170	

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 4 of 16

TEST NUMBER		547	548	549	550	551	552	553	554
DATE TESTED & SAMPLED				21/08		23/08/			
RESULTS									
Hilf Density Ratio Standard	%	100	100.5	99.5	100	100	99.5	99.5	100
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standa	rd)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %
TEST LOCATION	r								
Chainage (Carriageway L/R)	m					n Heights /54-11			
Shown on Drawing No	ŀ				//4/	/54-11			
Retested by Test Reduced Level	m	- 53.29	- 53.67	- 53.08	- 52.78	- 53.13	- 60.18	- 60.30	- 60.46
		00.20	00.01	00.00	02.10	00.10	00.10	00.00	00.10
Field Wet Density	t/m³	2.12	2.11	2.02	2.03	2.11	2.01	2.12	2.11
Field Moisture Content	%	18.0	17.5	18.0	18.5	17.5	17.0	18.5	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		547	548	549	550	551	552	553	554
_ab Compaction Date Tested	-	23/08/2021	23/08/2021	23/08/2021	23/08/2021	23/08/2021	23/08/2021	26/08/2021	26/08/20
Peak Converted Wet Density	t/m³	2.12	2.10	2.03	2.03	2.11	2.01	2.13	2.11
Apparent Optimum Moisture Content	%	18.0	17.5	18.0	18.5	17.5	17.0	18.5	17.0
Number of Compaction Points	Ē	3	3	3	3	3	3	3	3
Test Procedures - See Note Number	ľ	12	12	12	12	12	12	12	12
Naterial Description - see below	ſ	2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Penrith laboratory. Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. Theref. AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Hull details of Test Procedure 5.8.1 available on request 	- Accredit	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	ocrodito	d for comp	ianco with				'ilson	24/00	/2021
NATA		d for compl C 17025 - ⊺				нvv		Signatory)/2021
Accreditation Number 2734 Corporate Site Number 2727							<i>Y</i>		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 14

TEST NUMBER			555							
DATE TESTED & SA	MPLED		23/08/2021							
RESULTS										
Hilf Density Ratio	Standard	%	100							
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.0							
Specification	Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	Ridgetops							
Shown on Drawing No			7747/54-12							
Retested by Test			-							
Reduced Level		m	60.60							
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.13							
Field Moisture Content		%	18.0							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result fro			555							
Lab Compaction Date Tes Peak Converted Wet Den		+/m3	26/08/2021							
Apparent Optimum Moistu	,	t/m³ %	2.13 18.0							
Number of Compaction Po		/0	3							
Test Procedures - See No			12							
Material Description - see			2							
Notes			-							4
2: Assigned Values have been	2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description										
1. CL-Clays of low plasticity, gra	velly clays, sandy clays, silty clays pravelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		 * Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
		redito	d for compl	iance with			ц \//	ilson	24/00	/2021
NATA			C 17025 - ⊺				ΠVV		Signatory	12021
Accreditation Number	2734							L'		
Corporate Site Number	2727									
34 Borec Road, Penrith	NSW 2750				linit / 191	20 Whyalla I	Diaca Droot	one NEW 2	170	
						uana i	1000, 1 1031	010110112		

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REDBANK CO		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NS\		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 5 of 16

									Fage 5 0FT
TEST NUMBER		556	557	558	559	560	561	562	563
DATE TESTED & SAMPLED					23/08	3/2021			
RESULTS Hilf Density Ratio Standard	%	100	100.5	100.5	100.5	100.5	100	99.5	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0
Specification Density Ratio (Standar							om OMC		±2%
TEST LOCATION	u)	20070	opecific						±2 /(
Chainage (Carriageway L/R)	m				Souther	n Heights			
Shown on Drawing No					7747	/54-11			
Retested by Test		-	-	-	-	-	-	-	-
Reduced Level	m	53.33	53.26	53.21	53.46	54.28	54.90	53.75	53.33
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.12	2.10	2.14	2.12	2.11	2.11	2.11	2.12
Field Moisture Content	%	17.5	17.5	19.5	19.0	17.0	16.5	18.0	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		556	557	558	559	560	561	562	563
Lab Compaction Date Tested		26/08/2021	26/08/2021		26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/202
Peak Converted Wet Density	t/m³	2.12	2.09	2.13	2.11	2.10	2.11	2.12	2.12
Apparent Optimum Moisture Content	%	17.5	17.5	19.0	19.0	17.0	16.5	18.0	17.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below Notes		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 Se S1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 	- Accredi	itation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T119, T162		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER							lile e re	0.4/00	V2001
		d for compl C 17025 - ⁻				ΗW	'ilson <u>Approved</u>	24/09 Signatory	0/2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

₽, 1 hya ice, Prestons NSW 170 Telephone: (02) 9607 6111



REDBANK COMMUNITIES	
PO BOX 1918	
PENRITH NSW 2750	

Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 6 of 16

TEST NUMBER		564	565	566	567				
DATE TESTED & SAMPLED		23/08/2021		27/08/2021					
<u>RESULTS</u>									
Hilf Density Ratio Standard	%	100	100	100.5	100				
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0				
Specification Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC)	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m			n Heights					
Shown on Drawing No			7747	/54-11					
Retested by Test		-	-	-	-				
Reduced Level	m	54.03	53.76	52.14	52.12				
FIELD & LABORATORY DATA	1			1				-	
Field Wet Density	t/m³	2.12	2.11	2.11	2.12				
Field Moisture Content	%	19.5	17.5	18.0	17.5				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		564	565	566	567				<u> </u>
Lab Compaction Date Tested Peak Converted Wet Density	t/m³	26/08/2021		01/09/2021					
Apparent Optimum Moisture Content	wiii %	2.12 19.5	2.11 17.5	2.10 18.0	2.12 17.5				<u> </u>
Number of Compaction Points	/0	19.5 3	3	3	3				<u> </u>
Test Procedures - See Note Number		12	12	12	12				
Material Description - see below		2-3	2	2	2				
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SAS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 	- Accred	itation No 14234		se shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (l 2.1 clause 6.4 (l T119, T120, T1 T120, T166, T1 T119, T162 T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SC-Clayey gravels, gravel-sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Sta # Lime Stabili \$ Gypsum Sta 	ised	
Form No R 020 Version 10 10/20 - issued by ER		16						0.1/2	0/0001
		d for compl C 17025 - 1				нw	ilson <u>Approve</u> O	24/0 <u>d Signatory</u>	9/2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla F	Place, Prest	ons NSW 2	2170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 4 of 14

-			I	T	1	1	1	T	Page 4 of 1		
TEST NUMBER		568	569	570	571	572	573	574	575		
DATE TESTED & SAMPLED		27/08/2021									
RESULTS											
Hilf Density Ratio Standard	%	100.5	99	99.5	99	99.5	98.5	99	99		
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%		
TEST LOCATION											
Chainage (Carriageway L/R)	m				Ridg	etops					
Shown on Drawing No					7747.	/54-12					
Retested by Test		-	-	-	-	-	-	-	-		
Reduced Level	m	59.23	61.89	62.22	63.07	64.71	67.95	65.57	66.01		
FIELD & LABORATORY DATA											
ield Wet Density	t/m³	2.10	2.11	2.12	2.12	2.12	2.10	2.10	2.11		
Field Moisture Content	%	18.5	17.5	17.5	17.5	17.0	19.0	19.0	18.0		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5		
_ab Compaction result from test number		568	569	570	571	572	573	574	575		
ab Compaction Date Tested		01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/2021	01/09/20		
Peak Converted Wet Density	t/m³	2.09	2.13	2.13	2.14	2.13	2.13	2.12	2.13		
Apparent Optimum Moisture Content	%	18.5	17.5	17.5	17.5	17.0	19.0	19.0	18.0		
Number of Compaction Points		3	3	3	3	3	3	3	3		
Fest Procedures - See Note Number		12	12	12	12	12	12	12	12		
Material Description - see below Notes		2	2	2	2	2	2	2	2		
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 St 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 St 289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 St 2189 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 St 2189 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166				
Material Description											
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	s			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed			
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for comp	liance with			нw	'ilson	24/00	9/2021		
NATA		C 17025 - ⁻				11 VV		I Signatory	7 ZVZ I		
Accreditation Number 2734 Corporate Site Number 2727											
34 Borec Road, Penrith NSW 2750				l Init / 19 '		Place, Presi	tone NGW 2	2170			
						1 1000, FICS	010 1000 2				

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REDBANK CO		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 5 of 14

TEST NUMBER			576	577						
DATE TESTED & SA	AMPLED		27/08/2021	30/08/2021						
RESULTS										
Hilf Density Ratio	Standard	%	99	98						
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.0	0.0						
Specification	Density Ratio (Standard	I)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	v	etops						
Shown on Drawing No			7747/	/54-12						
Retested by Test			-	-						
Reduced Level		m	66.38	67.00						
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.12	2.09						
Field Moisture Content		%	17.0	16.0						
Material retained on	19mm Sieve (wet)	%	<5	<5						
Lab Compaction result fro			576	577						
Lab Compaction Date Tes			01/09/2021	01/09/2021						
Peak Converted Wet Den		t/m³	2.14	2.13						
Apparent Optimum Moist		%	17.0	16.0						
Number of Compaction P Test Procedures - See No			3	3						
Material Description - see			12 2	12 2						
	50101		Z	Z						
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 3. Results have been calculated using infinite decimal places. Therefore, calculated values may vary from 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request					e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description	า									
Internal Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete \$ 15. Recycled Roadbase \$ 16. RSB - Recycled Sub-base \$ 17. CSS - Crushed Sandstone \$ 18. RSS - Ripped Sandstone \$ 19. Cowels Brown \$					
Form No R 020 Version 10 10/20		rodit-	d for com-					ileon	04/00	1/2021
Accreditation Number Corporate Site Numbe	2734		ed for compl ℃ 17025 - ⊺				ΗW	illson <u>Approved</u>	24/09 I Signatory	//2021
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

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Telephone: (02) 9607 6111



REDBANK COMMUNITIES										
PO BOX 1918										
PENRITH NSW 2750										

Laboratory:	Penrith
Job No:	7747/54
Date:	24/9/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER]	578	579	580	581				
DATE TESTED & SAMPLED				3/2021					
	L							•	
RESULTS									
Hilf Density Ratio Standard	%	99.5	100.5	98.5	98				
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-0.5	0.0	-0.5				
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMO)	±2%
TEST LOCATION	_								
Chainage (Carriageway L/R)	m			n Heights					
Shown on Drawing No			7747.	/54-11					
Retested by Test		-	-	-	-				
Reduced Level	m	59.45	58.56	56.83	55.25				
FIELD & LABORATORY DATA									<u> </u>
Field Wet Density	t/m³	2.09	2.11	2.09	2.10				
Field Moisture Content	%	16.5	16.0	16.5	14.5				ļ
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		578	579	580	581				
Lab Compaction Date Tested Peak Converted Wet Density	t/m³		31/08/2021	31/08/2021					
Apparent Optimum Moisture Content	%	2.10 17.0	2.10 16.5	2.12 16.5	2.14 14.5				<u> </u>
Number of Compaction Points	/0	3	3	3	14.5 3				
Test Procedures - See Note Number		12	12	12	12				<u> </u>
Material Description - see below		2	2	2	2				
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 	- Accredi	tation No 14234		se shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16: RMS T120, 17: RMS T120,	2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T166, T T119, T162 T162, T173	(b), 2.1.1, 5.3.1 (b), 2.1.1, 5.7.1 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Sta # Lime Stabil \$ Gypsum St	ised	
Form No R 020 Version 10 10/20 - issued by ER							/:!	0.1/2	0/2024
		d for compl C 17025 - 1				нм	/ilson <u>Approve</u>	24/0 <u>d Signatory</u>	9/2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla F	Place, Pres	tons NSW	2170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 6 of 14

TEST NUMBER DATE TESTED & SAMPLED		582	583 30/08/2021	584	585	586 01/09	587 9/2021	588	
RESULTS									
Hilf Density Ratio Standard	%	99	99	98	102	102.5	100.5	100.5	
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	0.0	-0.5	-1.0	-0.5	0.0	-0.5	
Specification Density Ratio (Standa	rd)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION	-								
Chainage (Carriageway L/R)	m				Ridgetops				
Shown on Drawing No					7747/54-12				
Retested by Test		-	-	-	-	-	-	-	
Reduced Level	m	66.62	67.40	67.58	68.76	68.86	69.05	69.45	
FIELD & LABORATORY DATA	_								
ield Wet Density	t/m³	2.09	2.14	2.09	2.08	2.09	2.09	2.08	
ield Moisture Content	%	15.5	15.0	16.0	18.0	17.5	16.5	16.5	
Naterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		582	583	584	585	586	587	588	
ab Compaction Date Tested		31/08/2021	31/08/2021	31/08/2021	03/09/2021	03/09/2021	03/09/2021	03/09/2021	
Peak Converted Wet Density	t/m³	2.11	2.16	2.13	2.04	2.04	2.08	2.07	
Apparent Optimum Moisture Content	%	16.0	15.0	16.5	19.0	18.0	16.5	17.5	
lumber of Compaction Points		3	3	3	3	3	3	3	
Test Procedures - See Note Number		12	12	12	12	12	12	12	
Material Description - see below Notes		2	2	2	2	2	2	2	
 Assigned Values have been obtained from our Penrith laboratory- 2: Assigned Values have been obtained from our Prestons laboratory 3: Results have been calculated using infinite decimal places. Theref 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 	- Accredi	tation No 14234		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	sed	
Form No R 020 Version 10 10/20 - issued by ER	orodit-	d for come	ionoo with				licon	24/00	2024
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				ΗW	l'ilson <u>Approved</u>	24/09/ I <u>Signatory</u>	2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

Telephone: (02) 9607 6111



REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 8 of 16

TEST NUMBER	 1	500	500	501	500	502	504	505	FOG		
DATE TESTED & SAMPLED	-	589 590 591 592 593 594 595 596 01/09/2021									
					01/03/2021						
RESULTS											
Hilf Density Ratio Standard	%	101	103	100.5	102.5	101	100	99.5	101.5		
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-1.0	0.0	-0.5	0.0	-2.0	0.0	-0.5		
Specification Density Ratio (Standar	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%		
TEST LOCATION											
Chainage (Carriageway L/R)	m					n Heights					
Shown on Drawing No					7747	/54-11	1	1			
Retested by Test		-	-	-	-	-	-	-	-		
Reduced Level	m	55.50	55.82	54.02	53.40	53.81	54.21	56.64	57.37		
FIELD & LABORATORY DATA											
Field Wet Density	t/m³	2.11	2.09	2.08	2.10	2.10	2.09	2.07	2.08		
Field Moisture Content	%	17.0	20.0	20.0	18.0	13.5	21.0	17.5	19.0		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5		
Lab Compaction result from test number	[589	590	591	592	593	594	595	596		
Lab Compaction Date Tested		03/09/2021	03/09/2021		03/09/2021	03/09/2021	03/09/2021	03/09/2021	03/09/202		
Peak Converted Wet Density	t/m³	2.09	2.03	2.07	2.05	2.08	2.09	2.08	2.05		
Apparent Optimum Moisture Content	%	17.0	21.0	20.0	18.5	13.5	23.0	17.5	19.5		
Number of Compaction Points		3	3	3	3	3	3	3	3		
Test Procedures - See Note Number Material Description - see below	ŀ	12 2	12	12	12 2	12 2	12 3	12 2	12		
Notes		Z	2-3	2-3	Z	Z	3	Z	2-3		
 Assigned Values have been obtained from our Penrith laboratory - Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	- Accredi	tation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1			
Material Description											
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed			
Form No R 020 Version 10 10/20 - issued by ER											
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				ΗW	iilson <u>Approved</u>	24/09 Signatory	/2021		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Placa Prost	one NSW 2	170			

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SITE FILL TESTING

FIELD DENSITY RESULTS

REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 16

TEST NUMBER DATE TESTED & SAMPLED		597 598 599 600 02/09/2021			600	601 602 603 03/09/2021				
RESULTS	_									
Hilf Density Ratio Standard	%	103	105	102.5	101	98	99.5	99		
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-0.5	-0.5	-0.5	0.0	-0.5	0.5		
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%	
TEST LOCATION	I									
Chainage (Carriageway L/R) Shown on Drawing No	m			Sc	outhern Heigl 7747/54-11	nts				
Retested by Test		-	-	-	-	-	-	-		
Reduced Level	m	57.44	58.54	56.72	55.79	56.57	57.82	57.95		
FIELD & LABORATORY DATA										
Field Wet Density	t/m³	2.09	2.09	2.07	2.06	2.11	2.15	2.11		
ield Moisture Content	%	18.0	19.5	18.0	17.5	16.0	17.0	16.0		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5		
ab Compaction result from test number ab Compaction Date Tested		597	598	599	600	601	602	603		
Peak Converted Wet Density	t/m³	07/09/2021 2.03	07/09/2021	07/09/2021 2.02	2.04	10/09/2021 2.15		10/09/2021 2.13		
Apparent Optimum Moisture Content	%	18.5	20.0	18.5	18.0	16.0	2.16 17.5	16.0		
lumber of Compaction Points	70	3	3	3	3	3	3	3		
est Procedures - See Note Number		12	12	12	12	12	12	12		
laterial Description - see below		2	2-3	2	2	2	2	2		
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	/ – Accredi	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1		
Material Description . CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays . CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays . CH-Clays of high plasticity . SC-Clayey sands, sand-clay mixtures . SM-Silty sands, sand-silt mixtures . GC-Clayey gravels, gravel-sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB40				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed		
0. DGS20 Form No R 020 Version 10 10/20 - issued by ER Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				нw	rilson <u>Approved</u>	24/09/ <u>Signatory</u>	2021	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170		

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111 www.geotech.com.au



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 7 of 14

TEST NUMBER DATE TESTED & SAMPLED			604 03/09/2021							
RESULTS						1	1	1		-
Hilf Density Ratio	Standard	%	99							
Moisture Variation from	OMC (-Drier/+Wetter)	%	-0.5							
•	ensity Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION						-	-	-		-
	arriageway L/R)	m	Ridgetops							
Shown on Drawing No			7747/54-12							ļ
Retested by Test			-							ļ
Reduced Level		m	57.99							
FIELD & LABORATO	ORY DATA									
Field Wet Density		t/m³	2.09							
Field Moisture Content		%	17.0							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result from t			604							ļ
Lab Compaction Date Tested			10/09/2021							ļ
Peak Converted Wet Density		t/m ³	2.11							ļ
Apparent Optimum Moisture Number of Compaction Point		%	17.5							l
Test Procedures - See Note			3 12							
Material Description - see be			2							
Notes			2							<u> </u>
 Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 Results have been calculated using infinite decimal places. Therefore, calculated values may vary from th AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 					e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description										
 CL-Clays of low plasticity, gravelly CH-Clays of medium plasticity, grav CH-Clays of high plasticity SC-Clayey sands, sand-clay mixth SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-c SP-Sand, crushed dust, filling sar DGB20 DGS40 DGS20 	elly clays, sandy clays, silty clays ures s clay mixtures id, washed sand				11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete \$ 15. Recycled Roadbase 16. RSB - Recycled Sub-base 17. CSS - Crushed Sandstone \$ 18. RSS - Ripped Sandstone \$ 19. Cowels Brown \$					
Form No R 020 Version 10 10/20 - is	,									
Accreditation Number 273 Corporate Site Number 273	4		d for compl C 17025 - ⊺				ΗW	illson <u>Approved</u>	24/09 <u>Signatory</u>	0/2021
34 Borec Road, Penrith NS	SW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	ions NSW 2	170	

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 10 of 16

	_								-
TEST NUMBER		605	606	607	608				
DATE TESTED & SAMPLED	[03/09	9/2021					
RESULTS									
Hilf Density Ratio Standard	%	103	100.5	100	98.5				
····· - •·····,	-		100.5	100	90.0				
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	0.0	0.0	0.0				
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance f	rom OM	С	±2%
TEST LOCATION	_								
Chainage (Carriageway L/R)	m			n Heights					
Shown on Drawing No			7747	/54-11					
Retested by Test		-	-	-	-			_	
Reduced Level	m	58.50	55.06	55.32	55.72				
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.10	2.13	2.12	2.10				
Field Moisture Content	%	16.0	16.0	15.5	15.5				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		605	606	607	608				
Lab Compaction Date Tested		13/09/2021	13/09/2021					_	
Peak Converted Wet Density	t/m³	2.04	2.12	2.12	2.13			_	
Apparent Optimum Moisture Content Number of Compaction Points	%	16.0	15.5	15.5	15.5			_	
Test Procedures - See Note Number	-	3 12	3 12	3 12	3 12			_	<u> </u>
Material Description - see below	ŀ	2	2	2	2				
Notes		L	2	L	L				
 Assigned Values have been obtained from our Prestons laborate Results have been calculated using infinite decimal places. Thei AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S I289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S I289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S I289 1.2.1 clause 6.4 (b), 2.1.4, 5.5.1, 5.6.1, 5.8.1 				se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	2.1 clause 6.4 , T119, T120, T , T120, T166, T , T119, T162 , T162, T173	(b), 2.1.1, 5.7.1 166		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	/5			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement S # Lime Stab \$ Gypsum S	ilised	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734		d for compl C 17025 - ⁻				ΗΜ	Vilson <u>Approve</u>	24/0 ed Signatory	99/2021
Corporate Site Number 2727							Q		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Pres	tons NSW	2170	
Tolophono: (02) 1722 2711				Telephone	. (02) 0607 (2444			

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 14

TEST NUMBER DATE TESTED & SAMPLED			609 06/09/2021							
RESULTS		r								
Hilf Density Ratio	Standard	%	102							
Moisture Variation from ON	IC (-Drier/+Wetter)	%	-1.0							
	sity Ratio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
	ageway L/R)	m	Ridgetops							
Shown on Drawing No			7747/54-12							
Retested by Test		_	-							
Reduced Level		m	55.38							
FIELD & LABORATOR	Y DATA	_								
Field Wet Density		t/m³	2.09							
Field Moisture Content		%	14.0							
	mm Sieve (wet)	%	<5							
Lab Compaction result from test	number		609							
Lab Compaction Date Tested		4/1003	09/09/2021							
Peak Converted Wet Density	stant	t/m³ %	2.05							
Apparent Optimum Moisture Cor Number of Compaction Points	Iterit	/0	15.5 3							
Test Procedures - See Note Nun	nher		3 12							
Material Description - see below			2							
Notes			Z							
 Notes Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 Results have been calculated using infinite decimal places. Therefore, calculated values may vary t AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 					10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 m those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 13: RMS T111, T119, T120, T166 14: RMS T111, T120, T166, T173 15: RMS T120, T162, T173 16: RMS T120, T162, T173 17: RMS T120, T164, T173					
Material Description										
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete * 15. Recycled Roadbase * 16. RSB - Recycled Sub-base * 17. CSS - Crushed Sandstone * 18. RSS - Ripped Sandstone * 19. Cowels Brown *					
Form No R 020 Version 10 10/20 - issued	,	a al '							0.1/00	/2024
Accreditation Number 2734 Corporate Site Number 2727			d for compl C 17025 - T				ΗW	illson <u>Approved</u>	24/09 <u>Signatory</u>	/2021
34 Borec Road, Penrith NSW	2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 11 of 16

TEST NUMBER			610	611						
DATE TESTED & S	AMPLED		06/09	-	<u> </u>	1				<u> </u>
			00/03		I	1	1	1	I	<u>I</u>
RESULTS										
Hilf Density Ratio	Standard	%	102	102						
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	-0.5	-0.5						
Specification	Density Ratio (Standard	d)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	Southerr	n Heights						
Shown on Drawing No			7747/	54-11						
Retested by Test			-	-						
Reduced Level		m	55.54	54.24						
FIELD & LABORA										
Field Wet Density		t/m³	2.11	2.10					r	<u> </u>
Field Moisture Content		%	16.0	15.0						
Material retained on	19mm Sieve (wet)	%	<5	<5						<u> </u>
Lab Compaction result fro		/0	610	611						1
Lab Compaction Date Te			09/09/2021	09/09/2021						
Peak Converted Wet Der		t/m³	2.07	2.06						
Apparent Optimum Moist	•	%	16.5	15.5						
Number of Compaction P			3	3						
Test Procedures - See N	ote Number		12	12						
Material Description - see	e below		2	2						1
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 12: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 2: Assigned Values have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17. RMS T120, T164, T173 9: Full details of Test Procedure 5.8.1 available on reguest 17. RMS T120, T164, T173										
Material Description	n									
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 11. DGS40 * Cement Stabilised 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised 3. CH-Clays of high plasticity 13. FCR40 \$ Gypsum Stabilised 4. SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete 5. SM-Silty sands, sand-silt mixtures 15. Recycled Roadbase 6. GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base 7. SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone 8. DGB20 18. RSS - Ripped Sandstone 9. DGB40 19. Cowels Brown										
Form No R 020 Version 10 10/2		radita	d for comp	ianco with			Ц \//	ilson	24/00	/2021
Accreditation Number Corporate Site Number	I 2734		ed for compl ℃ 17025 - ⊺				ΗW	ilson <u>Approvec</u>	24/09 <u>I Signatory</u>	9/2021
34 Borec Road, Penrith						20 Whyalla I		tons NSW 2	2170	
Telephone: (02) 4722 2744					Telephone	e: (02) 9607 6	6111			

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Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 14

TEST NUMBER		612	613	614	615				
DATE TESTED & SAMPLED			06/09	9/2021					
<u>RESULTS</u>				•			•	-	
Hilf Density Ratio Standard	%	101.5	102	100	101				
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-1.5	-1.0	0.0				
Specification Density Ratio (Standar	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OM	С	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m			etops					
Shown on Drawing No				/54-12					
Retested by Test	m	-	-	-	-				
Reduced Level		61.24	62.22	62.49	61.43				
							1		
Field Wet Density	t/m ³	2.12	2.10	2.09	2.11				
Field Moisture Content	%	17.0	15.5	16.0	15.5				
Material retained on 19mm Sieve (wet) Lab Compaction result from test number	%	<5	<5	<5	<5				-
Lab Compaction Testin from test number		612 09/09/2021	613	614 09/09/2021	615 09/09/2021				
Peak Converted Wet Density	t/m³	2.09	2.06	2.09	2.09				
Apparent Optimum Moisture Content	%	17.0	17.0	17.0	16.0				
Number of Compaction Points	,.	3	3	3	3				
Test Procedures - See Note Number		12	12	12	12				
Material Description - see below		2	2	2	2				
 Assigned Values have been obtained from our Penrith laboratory - Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Therefi AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 KS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 X 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, stan, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, stan, 5.5.1, 5.6.1, 5.8.1 	 Accredi 	tation No 14234		se shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T166, T T119, T162 T162, T173	b), 2.1.1, 5.3.1 b), 2.1.1, 5.7.1 166	, 5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement St # Lime Stabi \$ Gypsum St	lised	
Form No R 020 Version 10 10/20 - issued by ER	- 1:1-	d for care	ionooiii			1114	liloon	0.4/0	0/2024
Accreditation Number 2734		d for compl C 17025 - ⊺				нw	/ilson <u>Approve</u>	24/0 ed Signatory	9/2021
Corporate Site Number 2727							\sim		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla F	Place, Pres	tons NSW	2170	

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER DATE TESTED & SAMPLED			616 06/09/2021							
RESULTS						-	-	-		-
Hilf Density Ratio	Standard	%	101							
Moisture Variation from Ol	MC (-Drier/+Wetter)	%	-0.5							
	sity Ratio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		_								
Chainage (Carr	iageway L/R)	m	Southerr	n Heights						
Shown on Drawing No			7747/54-11							
Retested by Test			-							
Reduced Level		m	61.33							
FIELD & LABORATOR	RY DATA									
Field Wet Density		t/m³	2.09							
Field Moisture Content		%	15.0							
	312 Sieve (wet)	%	<5							
Lab Compaction result from test	tnumber		616							
Lab Compaction Date Tested Peak Converted Wet Density		t/m³	09/09/2021							
Apparent Optimum Moisture Co	intont	0111 %	2.07							
Number of Compaction Points		/0	15.5 3							
Test Procedures - See Note Number			12							
Material Description - see below			2							
Notes			-							
 NOTES 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 3: Results have been calculated using infinite decimal places. Therefore, calculated values ma 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 					e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description										
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete \$ Gypsum Stabilised 15. Recycled Roadbase \$ Interpretation 16. RSB - Recycled Sub-base \$ Interpretation 17. CSS - Crushed Sandstone \$ RSS - Ripped Sandstone 19. Cowels Brown \$ Interpretation					
Form No R 020 Version 10 10/20 - issue	•	- ئالە م					11147	lison	04/00	0001
Accreditation Number 2734 Corporate Site Number 2727			d for compl C 17025 - 1				ΗVV		24/09 <u>Signatory</u>	/2021
34 Borec Road, Penrith NSW	2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 10 of 14

TEST NUMBER			617	618	619	620				
DATE TESTED & S	AMPLED			06/09	9/2021					
RESULTS				-	-	-	-		-	
Hilf Density Ratio	Standard	%	99.5	102.5	101.5	100				
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	-2.0	-1.0	-0.5	0.0				
Specification	Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fi	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m			etops					
Shown on Drawing No				7747	/54-12					
Retested by Test			-	-	-	-				
Reduced Level		m	59.77	60.55	62.23	63.19				
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.08	2.09	2.10	2.08				
Field Moisture Content		%	15.5	16.0	15.5	17.5				
Material retained on	312 Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result fro			617	618	619	620				
Lab Compaction Date Te			09/09/2021	09/09/2021	09/09/2021	09/09/2021				
Peak Converted Wet Der	•	t/m³	2.09	2.04	2.07	2.08				
Apparent Optimum Moist Number of Compaction P		%	2.0	16.5	16.0	18.0				
Test Procedures - See N			3 12	3 12	3 12	3 12				
Material Description - see			2	2	2	2				
			2	2	2	2				
 Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accredi 2: Assigned Values have been obtained from our Prestons laboratory – Accredi 3: Results have been calculated using infinite decimal places. Therefore, calcu 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on reguest 			itation No 1423		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Descriptio	n									
 CL-Clays of low plasticity, gravely of medium plasticity, CH-Clays of high plasticity, CH-Clays sofhigh plasticity, SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGS40 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand					loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	ed	
Form No R 020 Version 10 10/2									/	10004
Accreditation Numbe Corporate Site Numbe	r 2734		ed for comp C 17025 - ⁻				ΗΜ	/ilson <u>Approved</u>	24/09 <u>I Signatory</u>	9/2021
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Pres	tons NSW 2	170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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TEST NUMBER]	621							
DATE TESTED & SA	MPLED		07/09/2021							
						•		·	•	·
RESULTS										
Hilf Density Ratio	Standard	%	101							
Moisture Variation fro	m OMC (-Drier/+Wetter)	%	0.0							
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		_								
Chainage	(Carriageway L/R)	m		n Heights						
Shown on Drawing No			7747/54-11							
Retested by Test			-							
Reduced Level		m	61.90							
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.06							
Field Moisture Content		%	15.0							
Material retained on	312 Sieve (wet)	%	<5							
Lab Compaction result from			621							
Lab Compaction Date Tes		4/1003	13/09/2021							
Peak Converted Wet Dens	•	t/m³ %	2.04							
Apparent Optimum Moistu Number of Compaction Po		/0	15.0 3							
Test Procedures - See No			12							
Material Description - see			2							
Notes			L							
2: Assigned Values have been of	2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accredi	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description										
 CI-Clay of medium plasticity, g CH-Clays of high plasticity SC-Clayey sands, sand-clay n SM-Sity sands, sand-silt mixt GC-Clayey gravels, gravel-sar SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 	ures Id-clay mixtures sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	sed	
Form No R 020 Version 10 10/20		orodit-	d for com-					ilson	04/00	1/2021
Accreditation Number	2734		d for compl C 17025 - ⊺				HW		24/09 <u>I Signatory</u>	W2021
Corporate Site Number	2727									
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 11 of 14

TEST NUMBER DATE TESTED & SAMPLED		622 07/09	623 9/2021						
RESULTS									
	ndard %	101	100						
Moisture Variation from OMC (-Dri	ier/+Wetter) %	-0.5	0.0						
•	atio (Standard)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION					-			-	
Chainage (Carriageway	rL/R) m		etops						
Shown on Drawing No		7747	/54-12						
Retested by Test	m	-	-						
Reduced Level	111	60.93	60.14						
FIELD & LABORATORY DA	ТА								
Field Wet Density	t/m³	2.08	2.07						
Field Moisture Content	%	19.0	18.5						
	Sieve (wet) %	<5	<5						
Lab Compaction result from test number	ſ	622	623						
Lab Compaction Date Tested	4/3	13/09/2021	13/09/2021						
Peak Converted Wet Density	t/m³	2.06	2.07						
Apparent Optimum Moisture Content Number of Compaction Points	%	19.5	18.5						
Test Procedures - See Note Number		3 12	3 12						
Material Description - see below		2-3	2						
Notes		2-3	2						
 Assigned Values have been obtained from our Assigned Values have been obtained from our Results have been calculated using infinite dec AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6. Full details of Test Procedure 5.8.1 available or 	Prestons laboratory – Accred imal places. Therefore, calcu 1, 5.4.1 1, 5.8.1 1, 5.8.1	litation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy CI-Clay of medium plasticity, gravelly clays, san CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sat DGB20 DGS40 	dy clays, silty clays				Roadbase ycled Sub-base shed Sandstone ped Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
Form No R 020 Version 10 10/20 - issued by ER	.		Page 19					0.1/2-	10004
Accreditation Number 2734 Corporate Site Number 2727		ed for comp EC 17025 - ⁻				нw	illson <u>Approvec</u>	24/09 <u>I Signatory</u>	0/2021
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	2170	

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 14 of 16

TEST NUMBER]	624	625	626	627	628	629	630	631	
DATE TESTED & SAMPLED				07/09/2021						
RESULTS						•		•		
Hilf Density Ratio Standard	%	101.5	102.5	100.5	103	103	101	102	102	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-1.5	-0.5	-0.5	-1.0	-0.5	-0.5	0.0	
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29	
TEST LOCATION	r									
Chainage (Carriageway L/R)	m					n Heights /54-11				
Shown on Drawing No Retested by Test	-				//4//		-	1	L -	
Reduced Level	m	- 55.53	- 55.19	54.92	- 54.63	- 56.24	- 56.33	- 55.73	- 57.25	
FIELD & LABORATORY DATA					-	-	-			
Field Wet Density	t/m³	2.09	2.11	2.06	2.09	2.08	2.07	2.08	2.10	
Field Moisture Content	%	17.5	17.0	18.5	17.0	17.0	#NUM!	18.5	19.0	
Material retained on 312 Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
_ab Compaction result from test number		624	625	626	627	628	629	630	631	
ab Compaction Date Tested		13/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/2021	14/09/20	
Peak Converted Wet Density	t/m³	2.06	2.06	2.05	2.03	2.02	2.05	2.04	2.06	
Apparent Optimum Moisture Content	%	17.5	18.5	19.0	17.5	18.0	#NUM!	19.0	19.0	
Number of Compaction Points		3	3	3	3	3	3	3	3	
Test Procedures - See Note Number		12	12	12	12	12	12	12	12	
Aaterial Description - see below		2	2	2	2	2	2	2	2	
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1. 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T [.] , T120, T166, T [.] , T119, T162 , T162, T173				
Material Description										
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	s			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed		
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for compl	iance with			нм	lison	24/00	9/2021	
NATA		C 17025 - 1				11 VV		Signatory	<i>n 202</i> I	
Accreditation Number 2734 Corporate Site Number 2727							L.			
24 Paras Pased Paseith NSW 2750				Lipit 4, 40 f			tong NOW 0	170		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 wriyalla I	riace, Presi	tons NSW 2	170		

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REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 12 of 14

TEST NUMBER		632	633	634	635	636	637	638	
DATE TESTED & SAMPLED		07/09/2021			08/09	/2021			
RESULTS				1			1	,	
Hilf Density Ratio Standard	%	103	102	102.5	102	98	103	99.5	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-1.5	-1.0	0.0	0.0	-1.5	-0.5	
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	:	±29
TEST LOCATION	ī							-	
Chainage (Carriageway L/R)	m				Ridgetops				
Shown on Drawing No				r	7747/54-12				
Retested by Test Reduced Level	m	- 56.79	- 56.36	- 57.44	- 57.27	- 56.51	- 54.97	- 55.50	
		50.75	00.00	57.77	51.21	50.51	04.07	00.00	
ield Wet Density	t/m³	2.10	2.12	2.10	2.10	2.10	2.11	2.10	
Field Moisture Content	%	17.5	15.0	19.5	15.5	15.0	15.0	17.0	
Material retained on 312 Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		632	633	634	635	636	637	638	
ab Compaction Date Tested		14/09/2021	13/09/2021	13/09/2021		13/09/2021	14/09/2021	14/09/2021	
Peak Converted Wet Density	t/m³	2.04	2.08	2.05	2.06	2.14	2.05	2.11	
pparent Optimum Moisture Content	%	17.5	16.5	20.5	15.5	15.0	16.5	17.0	
lumber of Compaction Points		3	3	3	3	3	3	3	
Test Procedures - See Note Number		12	12	12	12	12	12	12	
Aterial Description - see below		2	2	2	2	2	2	2	
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 ENSUBS 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 ENSUBS 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	y – Accredi	tation No 1423		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Sta 	sed	
Form No R 020 Version 10 10/20 - issued by ER	coredito	d for comp	liance with			Ц \/	'ilson	24/09/	2021
NATA		C 17025 - ⁻				ΠVV		I Signatory	2021
Accreditation Number 2734							\mathcal{Y}		
Corporate Site Number 2727									
A Design Design NOVA 0750					00 M/b 11 11			470	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 vvnyalia I	riace, Presi	tons NSW 2	.170	

Telephone: (02) 4722 2744

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 15 of 16

TEST NUMBER DATE TESTED & SAMPLED		639	640 08/09	641 9/2021	642	643 644 645 09/09/2021			646	
RESULTS										
Hilf Density Ratio Standard	%	103	103.5	101.5	102	100.5	102	101	100	
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5	-1.5	0.0	0.0	0.0	0.0	-1.5	-1.5	
Specification Density Ratio (Standar	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%	
TEST LOCATION Chainage (Carriageway L/R) Shown on Drawing No	m			1	7747/	n Heights /54-11	1			
Retested by Test Reduced Level	m	- 55.75	- 54.86	- 55.83	- 55.39	- 55.64	- 56.33	- 56.92	- 56.70	
FIELD & LABORATORY DATA										
Field Wet Density Field Moisture Content Material retained on 312 Sieve (wet) Lab Compaction result from test number	t/m³ % %	2.09 14.5 <5 639	2.10 15.0 <5 640	2.09 15.0 <5 641	2.12 15.5 <5 642	2.05 21.0 <5 643	2.06 19.5 <5 644	2.05 19.5 <5 645	2.06 19.0 <5 646	
Lab Compaction Date Tested Peak Converted Wet Density Apparent Optimum Moisture Content Number of Compaction Points Test Procedures - See Note Number Material Description - see below	t/m³ %	14/09/2021 2.03 16.0 3 12 2	14/09/2021 2.03 16.5 3 12 2	14/09/2021 2.06 14.5 3 12 2	14/09/2021 2.08 15.0 3 12 2	17/09/2021 2.04 21.0 3 12 2-3	17/09/2021 2.02 19.5 3 12 2-3	17/09/2021 2.03 21.0 3 12 2-3	17/09/202 2.06 20.5 3 12 2	
Notes 1: Assigned Values have been obtained from our Prestons laboratory 2: Assigned Values have been obtained from our Prestons laboratory 3: Results have been calculated using infinite decimal places. Theref 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 8: AS 1289 1.2.1 clause 6.4 9: Full details of Test Procedure 5.8.1 available on request	– Accredi	tation No 14234			11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1		
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed		
Form No R 020 Version 10 10/20 - issued by ER		d for compl C 17025 - ⊺				нw	Vilson <u>Approved</u> Q _t	24/09 Signatory	9/2021	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170		

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 13 of 14

TEST NUMBER DATE TESTED & SAM	MPLED		647	648 10/09/2021	649					
RESULTS										
Hilf Density Ratio	Standard	%	102	99	99					
Moisture Variation from	n OMC (-Drier/+Wetter)	%	0.0	1.0	0.0					
•	Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	rom OMC	;	±2%
TEST LOCATION						-	-	-		-
	Carriageway L/R)	m		Ridgetops						
Shown on Drawing No				7747/54-12						
Retested by Test		m	-	-	-					
Reduced Level		m	56.62	57.05	58.60					
FIELD & LABORAT	ORY DATA									
Field Wet Density		t/m³	2.10	2.11	2.12			ſ		
Field Moisture Content		%	17.5	17.5	17.0					
Material retained on	312 Sieve (wet)	%	<5	<5	<5					
Lab Compaction result from			647	648	649					
Lab Compaction Date Teste			11/09/2021	11/09/2021	11/09/2021					
Peak Converted Wet Densit		t/m³	2.06	2.13	2.14					
Apparent Optimum Moisture		%	17.0	16.5	17.0					
Number of Compaction Poin			3	3	3					
Test Procedures - See Note			12	12	12					
Material Description - see b Notes	elow		2	2	2					
1: Assigned Values have been ob 2: Assigned Values have been ob	.1.1, 5.2.1, 5.3.1, 5.4.1 .1.1, 5.2.1, 5.4.1, 5.8.1 .1.1, 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description										
 CL-Clays of low plasticity, grave Cl-Clay of medium plasticity, grave CH-Clays of high plasticity SC-Clayey sands, sand-clay mis SM-Silty sands, sand-silt mixture GC-Clayey gravels, gravel-sand SP-Sand, crushed dust, filling sa DGB20 DGS20 	avelly clays, sandy clays, silty clays ktures es I-clay mixtures and, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 -	•							/:!	0.4/02	10004
Accreditation Number 27 Corporate Site Number 2	I 734		d for compl C 17025 - ⊺				нм	/ilson <u>Approvec</u>	24/09 <u>I Signatory</u>)/2021
34 Borec Road, Penrith N	ISW 2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	2170	

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	24/9/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 16 of 16

TEST NUMBER			650	651	652	653				
DATE TESTED & SA	AMPLED			10/09)/2021					
RESULTS					-	-	-			
Hilf Density Ratio	Standard	%	99	100.5	99.5	100.5				
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.5	0.0	0.0	0.0				
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m			n Heights					
Shown on Drawing No				7747,	/54-11					
Retested by Test		m	-	-	-	-				
Reduced Level		m	56.32	57.09	57.64	58.20				
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.12	2.09	2.10	2.07				
Field Moisture Content		%	17.5	18.5	19.0	19.0				
Material retained on	312 Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result fro			650	651	652	653				
Lab Compaction Date Tes			11/09/2021	11/09/2021	11/09/2021	11/09/2021				
Peak Converted Wet Den: Apparent Optimum Moistu	•	t/m³ %	2.14	2.08	2.11	2.06				
Number of Compaction Po		70	17.0 3	18.5 3	19.0 3	19.0 3				
Test Procedures - See No			12	12	12	12				
Material Description - see			2	2	2	2				
Notes			L	2	2	2				
I: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary f 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on reguest					e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description	1									
Naterial Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete 15. Recycled Roadbase 15. Recycled Roadbase 16. RSB - Recycled Sub-base 17. CSS - Crushed Sandstone 18. RSS - Ripped Sandstone 19. Cowels Brown 19. Cowels Brown					
Form No R 020 Version 10 10/20	,							/:!	0.4/01	2/2024
Accreditation Number	2734		d for compl C 17025 - ⊺				нм	/ilson <u>Approved</u>	24/09 <u>I Signatory</u>	9/2021
Corporate Site Number	r 2727									
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	2170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/9/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 14 of 14

TEST NUMBER DATE TESTED & SA	AMPLED		654	655 10/09/2021	656					
<u>RESULTS</u> Hilf Density Ratio	Standard	%	100.5	98.5	99.5					
Moisture Variation fro		%	0.0	0.0	0.0					
Specification	Density Ratio (Standard					isture Va	riance fr	om OMC	;	±2%
TEST LOCATION		.,		opeenie						/0
Chainage	(Carriageway L/R)	m		Ridgetops						
Shown on Drawing No				7747/54-12						
Retested by Test			-	-	-					
Reduced Level		m	58.10	58.46	60.42					
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.06	2.11	2.11					
Field Moisture Content		%	17.0	18.0	18.5					
Material retained on	312 Sieve (wet)	%	<5	<5	<5					
Lab Compaction result fro	om test number		654	655	656					
Lab Compaction Date Tes			11/09/2021	11/09/2021	11/09/2021					
Peak Converted Wet Den		t/m³	2.05	2.14	2.12					
Apparent Optimum Moistu		%	17.0	17.5	18.5					
Number of Compaction P			3	3	3					
Test Procedures - See No			12	12	12					
Material Description - see Notes	below		2	2	2					
1: Assigned Values have been 2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description										
 CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay 15 SM-Silty sands, sand-silt mixit GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 	tures Ind-clay mixtures I sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20								(:l.e.e.e.	0.4/02	V0004
Accreditation Number	2734		d for compl C 17025 - ⊺				нм	/ilson <u>Approved</u>	24/09 I Signatory	0/2021
Corporate Site Numbe	r 2727									
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Pres	tons NSW 2	2170	

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REDBANK COM	/MUNITIES	Laboratory:	Penrith	
PO BOX 1918		Job No:	7747/54	
PENRITH NSW	/ 2750	Date:	25/10/2021	
PROJECT:	SITE FILL TESTING			

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

Page 1 of 16

TEST NUMBER]	657	658						
DATE TESTED & SAMPLED		13/9	/2021						
RESULTS	-			-		-	-		-
Hilf Density Ratio Standar	'd %	99.5	99.5						
Moisture Variation from OMC (-Drier/+W	/etter) %	0.0	-0.5						
Specification Density Ratio	(Standard)	≥9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m		etops						
Shown on Drawing No		7747	/54-13						
Retested by Test	_	-	-						
Reduced Level	m	58.45	57.58						
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.07	2.08						
Field Moisture Content	%	18.5	18.0						
Material retained on 19mm Sieve	(wet) %	<5	<5						
Lab Compaction result from test number		657	658						
Lab Compaction Date Tested		13/09/2021	13/09/2021						
Peak Converted Wet Density	t/m³	2.08	2.09						
Apparent Optimum Moisture Content	%	18.5	18.5						
Number of Compaction Points		3	3						
Test Procedures - See Note Number Material Description - see below		12	12						
		2	2						
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 3. Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 14: RMS T111, T112, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 9: Full details of Test Procedure 6.8.1 available on reguest 17: RMS T120, T164, T173									
Material Description									
1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 11. DGS40 * Cement Stabilised 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Line Stabilised 3. CH-Clays of high plasticity 13. FCR40 \$ Gypsum Stabilised 4. SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete \$ 5. SM-Silty sands, gravel-sand-clay mixtures 16. RSB - Recycled Roadbase \$ 6. GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base \$ 7. SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone \$ 8. DGB20 18. RSS - Ripped Sandstone \$ 9. DGB40 19. Cowels Brown \$									
Form No R 020 Version 10 10/20 - issued by ER	A!!*	al fan 1999 - 1999	Kenne witt				h	05/14	V0004
NATA		d for comp C 17025 - ⁻				A K	ench <u>Approved</u> MM	25/10 I Signatory)/2021
Accreditation Number 2734							Key		
Corporate Site Number 2727							/		

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111 www.geotech.com.au

email: info@geotech.com.au



REDBANK COMMUNITIES	
PO BOX 1918	
PENRITH NSW 2750	

Laboratory:	Penrith
Job No:	7747/54
Date:	25/10/2021

Page 1 of 8

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		659	660	661	662	663			
DATE TESTED & SAMPLED	_			13/9/2021					
RESULTS									
Hilf Density Ratio Standard	%	98.5	101	99	99	99			
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.5	0.0	0.0	0.5			
Specification Density Ratio (Stand			Specific				om OM(<u> </u>	±2%
TEST LOCATION	,							-	
Chainage (Carriageway L/R)	m		So	outhern Heigl	hts				
Shown on Drawing No				7747/54-13					
Retested by Test	m	-	-	-	-	-			
Reduced Level	111	55.73	57.73	58.28	58.65	58.32			
FIELD & LABORATORY DATA	-							-	<u> </u>
Field Wet Density	t/m³	2.06	2.09	2.07	2.09	2.11			
Field Moisture Content	%	18.5	20.0	18.0	18.0	18.0			
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5			
Lab Compaction result from test number		659	660	661	662	663			
Lab Compaction Date Tested	4/3	13/09/2021	13/09/2021	13/09/2021	13/09/2021	13/09/2021			
Peak Converted Wet Density	t/m ³	2.09	2.07	2.09	2.11	2.13			
Apparent Optimum Moisture Content Number of Compaction Points	%	18.0	19.5	18.0	17.5	17.5			
Test Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12			
Material Description - see below		2	2	2	2	2			
Notes		2	Z	2	2	2			
 Assigned Values have been obtained from our Penrith laborato Assigned Values have been obtained from our Prestons laborat Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 	ory – Accredi	tation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1 b), 2.1.1, 5.7.1 166	, 5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 	γs	11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete 15. Recycled Roadbase 16. RSB - Recycled Sub-base 17. CSS - Crushed Sandstone 18. RSS - Ripped Sandstone 19. Cowels Brown							
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Accredited for co						A K	ench		0/2021
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\sim							Art.	,	
Accreditation Number 2734							Key		
Corporate Site Number 2727							. //		
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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

Page 2 of 16

TEST NUMBER		664	665	666			
DATE TESTED & SAMPLED			13/9/2021				
RESULTS			-	-			
Hilf Density Ratio Standard	%	98	99	98.5			
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0			
Specification Density Ratio (Standar	rd)	≥ 9 8%	Specific	ation Mo	bisture Variance from OMC ±2%		
TEST LOCATION							
Chainage (Carriageway L/R)	m		Ridgetops				
Shown on Drawing No			7747/54-13	1			
Retested by Test	m	-	-	-			
Reduced Level	111	58.87	57.72	57.95			
FIELD & LABORATORY DATA							
Field Wet Density	t/m³	2.09	2.11	2.09			
Field Moisture Content	%	18.0	17.5	18.0			
Material retained on 19mm Sieve (wet)	%	<5	<5	<5			
Lab Compaction result from test number		664	665	666			
Lab Compaction Date Tested		13/09/2021	13/09/2021	13/09/2021			
Peak Converted Wet Density	t/m³	2.13	2.13	2.12			
Apparent Optimum Moisture Content	%	18.0	17.5	18.0			
Number of Compaction Points Test Procedures - See Note Number		3	3	3			
Material Description - see below		12 2	12 2	12 2			
Notes		2	2	Ζ			
1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T116, T173 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 9: Full details of Test Procedure 5.8.1 available on reguest 17: RMS T120, T164, T173							
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 11. DGS40 * Cement Stabilised 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 12. FCR20 # Lime Stabilised 3. CH-Clays of high plasticity 13. FCR40 \$ Gypsum Stabilised 4. SC-Clayey sands, sand-clay mixtures 14. RC - Recycled Concrete 5. SM-Silty sands, sand-clay mixtures 15. Recycled Roadbase 6. GC-Clayey gravels, gravel-sand-clay mixtures 16. RSB - Recycled Sub-base 7. SP-Sand, crushed dust, filling sand, washed sand 17. CSS - Crushed Sandstone 8. DGB20 18. RSS - Ripped Sandstone 9. DGB40 19. Cowels Brown							
Form No R 020 Version 10 10/20 - issued by ER							
Accredited for compliance with ISO/IEC 17025 - Testing.				A Kench 25/10/2021 <u>Approved Signatory</u>			
Corporate Site Number 2727					/		

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/10/202
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 2 of 8

TEST NUMBER			667	668						
DATE TESTED & SA	MPLED)/2021	1	1		1		
						-		•	•	•
RESULTS										
Hilf Density Ratio	Standard	%	98	98						
Moisture Variation fro	m OMC (-Drier/+Wetter)	%	-1.0	-0.5						
Specification	Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m		n Heights						
Shown on Drawing No			(141)	/54-13						
Retested by Test Reduced Level		m	- 55.24	- 55.96						
			55.24	55.90						
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m ³	2.10	2.11						
Field Moisture Content	40 0: (1)	%	13.0	12.5						
Material retained on	19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from Lab Compaction Date Tes			667 23/09/2021	668 23/09/2021						
Peak Converted Wet Dens		t/m³	23/09/2021	23/09/2021						
Apparent Optimum Moistu	•	%	14.0	12.5						
Number of Compaction Po		,.	3	3						
Test Procedures - See No			12	12						
Material Description - see	below		1-2	1-2						
Notes						•				
2: Assigned Values have been of	2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accred	itation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description										
 CI-Clay of medium plasticity, g CH-Clays of high plasticity SC-Clayey sands, sand-clay n SM-Silly sands, sand-silt mixt. GC-Clayey gravels, gravel-sar SP-Sand, crushed dust, filling DGB20 DGB40 DGS20 	ures Id-clay mixtures sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stal	sed	
Form No R 020 Version 10 10/20			-1 (0.5/1	10004
NATA			d for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/10 <u>I Signatory</u>)/2021
Accreditation Number								Keff		
Corporate Site Number	2727							/		

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REDBANK CO		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NS\		Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER DATE TESTED & SAM	PLED		669	670	671	672 14/09	673 /2021	674	675	676
RESULTS										
lilf Density Ratio	Standard	%	98	98.5	99	98	99.5	99.5	98	98.5
Moisture Variation from	OMC (-Drier/+Wetter)	%	-1.0	-1.5	-1.5	-1.5	-1.5	-1.5	-0.5	0.0
Specification De	ensity Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %
TEST LOCATION										
Chainage (C	arriageway L/R)	m					etops			
Shown on Drawing No						7747/	/54-13			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	58.99	59.11	58.76	58.10	58.26	59.48	59.78	59.93
FIELD & LABORATO	DRY DATA									
Field Wet Density		t/m³	2.10	2.11	2.07	2.06	2.08	2.09	2.08	2.08
ield Moisture Content		%	13.0	13.5	13.0	13.0	13.0	12.5	13.0	12.0
Naterial retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from t			669	670	671	672	673	674	675	676
ab Compaction Date Tested. Peak Converted Wet Density		t/m³	23/09/2021			23/09/2021	23/09/2021		22/09/2021	22/09/20
Apparent Optimum Moisture		0111 %	2.14 14.0	2.14 14.5	2.09 14.5	2.10 14.0	2.09 14.5	2.10 14.0	2.12 13.5	2.11 12.0
Sumber of Compaction Point		70	3	3	3	3	3	3	3	3
est Procedures - See Note I			12	12	12	12	12	12	12	12
Aterial Description - see bel			1-2	2	1-2	1-2	1-2	1-2	1-2	1
Notes					. · -			<u> </u>	<u> </u>	
 Assigned Values have been obta Assigned Values have been obta Results have been calculated usi AS 1289 1.2.1 clause 6.4 (b), 2.1. AS 1289 1.2.1 clause 6.4 (b), 2.1. AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1. Full details of Test Procedure 5.8 	ined from our Prestons laboratory- ng infinite decimal places. Therefo 1, 5.1.1, 5.3.1, 5.4.1 1, 5.2.1, 5.3.1, 5.4.1 1, 5.2.1, 5.4.1, 5.8.1 1, 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description										
CL-Clays of low plasticity, gravelly Cl-Clay of medium plasticity, gravelly CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtu. SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-c SP-Sand, crushed dust, filling san DGB20 DGB40 DG220	elly clays, sandy clays, silty clays ires lay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stal 	ed	
0. DGS20 form No R 020 Version 10 10/20 - is:	,								05/10	10004
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PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER			677	678	679	680	681			
DATE TESTED & SAMPLED	1		-	9/2021	015	15/09/2021	001			
		I								
RESULTS										
Hilf Density Ratio	Standard	%	98.5	99	99.5	100	100			
Moisture Variation from OMC	(-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0			
•	Ratio (Standaro	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
Chainage (Carriage	way L/R)	m		So	outhern Heigl	hts				
Shown on Drawing No				1	7747/54-13					
Retested by Test Reduced Level		m	- 58.48	- 58.14	- 58.30	- 58.54	- 58.04			
			30.40	30.14	50.50	30.34	30.04			
FIELD & LABORATORY [DATA									
Field Wet Density		t/m³	2.10	2.09	2.06	2.07	2.06			
Field Moisture Content	e i ()	%	13.5	13.0	18.5	19.0	18.0			
Material retained on 19mm	()	%	<5	<5	<5	<5	<5			
Lab Compaction result from test num	nber		677	678	679	680	681			
Lab Compaction Date Tested Peak Converted Wet Density		t/m³	22/09/2021	22/09/2021	16/09/2021	16/09/2021	16/09/2021			
Apparent Optimum Moisture Conten	+	viii %	2.13 13.5	2.11 13.5	2.07 18.5	2.07 19.0	2.06			
Number of Compaction Points	l	/0	3	3	3	19.0 3	3			
Test Procedures - See Note Number	r		12	12	12	12	12			
Material Description - see below	<u>.</u>		1-2	1-2	2	2-3	2			
Notes			12	12	2	20	2		1	
 Assigned Values have been obtained from Assigned Values have been obtained from Results have been calculated using infinite AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 	n our Prestons laboratory – e decimal places. Therefor 5.3.1, 5.4.1 5.3.1, 5.4.1 5.4.1, 5.8.1 5.6.1, 5.8.1	Accredi	tation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sa					11. DGS40 12. FCR20			* Cement Sta # Lime Stabili		
 CI-Clay of medium plasticity, gravelly clays. CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtu SP-Sand, crushed dust, filling sand, washe DGB20 DGB40 DGS20 	res				12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		# Line Stabil \$ Gypsum Sta		
Form No R 020 Version 10 10/20 - issued by E										
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER			682	683	684	685	686	687	688	689
DATE TESTED & SAM	PLED		15/09/2021 16/09/2021							
RESULTS										
Hilf Density Ratio	Standard	%	100	100.5	100.5	100.5	100	103.5	103.5	104
Moisture Variation from	OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	-1.5	-1.5	-1.5
Specification De	ensity Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		1								
	arriageway L/R)	m				Ridg				
Shown on Drawing No						//4//	54-13			
Retested by Test		m	-	-	-	-	-	-	-	-
Reduced Level		111	58.02	59.30	58.94	59.64	60.88	61.52	61.84	62.86
FIELD & LABORATO	ORY DATA			-			-	-	-	
Field Wet Density		t/m³	2.09	2.06	2.06	2.05	2.07	2.07	2.08	2.09
Field Moisture Content		%	21.0	19.5	20.0	18.5	19.0	22.0	20.5	21.5
	19mm Sieve (wet) est number	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from te	est number		682	683	684	685	686	687	688	689
ab Compaction Date Tested			16/09/2021	16/09/2021	16/09/2021	16/09/2021	16/09/2021		24/09/2021	24/09/20
Peak Converted Wet Density		t/m³	2.09	2.05	2.05	2.04	2.07	2.00	2.01	2.01
Apparent Optimum Moisture		%	21.0	19.5	20.0	19.0	19.0	23.5	22.0	22.5
Number of Compaction Points			3	3	3	3	3	3	3	3
Test Procedures - See Note N			12	12	12	12	12	12	12	12
Material Description - see bel Notes	UW		2-3	2-3	2-3	2-3	2-3	3	2-3	2-3
 Assigned Values have been obtai Assigned Values have been obtai Results have been calculated usin AS 1289 1.2.1 clause 6.4 (b), 2.1. Sign A 1289 1.2.1 clause 6.4 (b), 2.1. Full details of Test Procedure 5.8. 	ned from our Prestons laboratory – Ig infinite decimal places. Therefor 1, 5.1.1, 5.3.1, 5.4.1 1, 5.2.1, 5.3.1, 5.4.1 1, 5.2.1, 5.4.1, 5.8.1 1, 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description . CL-Clays of low plasticity, gravelly 2. Cl-Clay of medium plasticity, gravelly 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtu 5. SM-Silty sands, sand-silt mixtures 5. GC-Clayey gravels, gravel-sand-cl 7. SP-Sand, crushed dust, filling sam	illy clays, sandy clays, silty clays res ay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crusi	oadbase vcled Sub-base		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
8. DGB20 9. DGB40 10. DGS20 Form No R 020 Version 10 10/20 - iss	•	redite	d for compl	iance with	18. RSS - Rippo 19. Cowels Bro		A K	ench	25/10	/2021
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Accreditation Number 2734								Mer		
Corporate Site Number 272	1							11		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER		690	691	692	693	694	695	696	697
DATE TESTED & SAMPLED					16/09	/2021			
RESULTS									
Hilf Density Ratio Standard	%	104.5	102.5	103.5	103	102.5	99	99	98
Noisture Variation from OMC (-Drier/+Wetter)	%	-1.5	-2.0	-1.5	-2.0	-1.5	0.0	0.5	0.5
Specification Density Ratio (Stand	lard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %
TEST LOCATION	1								
Chainage (Carriageway L/R)	m					etops			
Shown on Drawing No			1		//4//	54-13			
Retested by Test	m	-	-	-	-	-	-	-	-
Reduced Level		60.02	60.06	60.48	60.71	60.69	60.46	59.66	59.64
FIELD & LABORATORY DATA	_								
Field Wet Density	t/m³	2.09	2.06	2.09	2.07	2.06	2.06	2.07	2.08
Field Moisture Content	%	21.0	21.5	19.0	20.5	20.5	24.0	23.5	22.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		690	691	692	693	694	695	696	697
ab Compaction Date Tested Peak Converted Wet Density	t/m3	24/09/2021	24/09/2021		24/09/2021	24/09/2021			27/09/20
Apparent Optimum Moisture Content	t/m³ %	2.00	2.01	2.02	2.01	2.01	2.08	2.09	2.12
Number of Compaction Points	/0	22.0 3	23.0 3	21.0 3	22.0 3	22.0 3	24.0 3	23.0 3	21.5 3
Fest Procedures - See Note Number		12	12	12	12	12	12	12	3 12
Material Description - see below		2-3	2-3	2-3	2-3	2-3	3	2	2-3
Notes 1: Assigned Values have been obtained from our Prenrith laborato 2: Assigned Values have been obtained from our Prestons laborati 3: Results have been calculated using infinite decimal places. The 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request	ory – Accred	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description									
. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays	vs			11. DGS40 12. FCR20			* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
CI-Clay of medium plasticity, gravelly clays, sandy clays, silty cla CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGP30	-			13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Rippe 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone				
CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20				14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippe	oadbase vcled Sub-base hed Sandstone ed Sandstone				
CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 Org 20 Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for comp C 17025 - ⁻		14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crusi 18. RSS - Rippe	oadbase vcled Sub-base hed Sandstone ed Sandstone	A Ke	ench <u>Approved</u>	25/10 <u>Signatory</u>	/2021

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER			698	699	700	701				
DATE TESTED & S	AMPLED		16/09/2021	033	17/09/2021	701				
RESULTS										
Hilf Density Ratio	Standard	%	99	100.5	100.5	102.5				
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.5	0.5				
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMO)	±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m			n Heights					
Shown on Drawing No				7747,	/54-13					
Retested by Test		m	-	-	-	-				
Reduced Level		111	55.03	55.59	54.43	54.89				
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.07	2.10	2.07	2.08				
Field Moisture Content		%	22.0	17.0	17.0	18.0				
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result fro			698	699	700	701				
Lab Compaction Date Te			27/09/2021	23/09/2021	23/09/2021	23/09/2021				L
Peak Converted Wet Der	-	t/m³ %	2.09	2.09	2.06	2.03				
Apparent Optimum Moist Number of Compaction F		%	21.5	17.0	16.5	17.5				-
Test Procedures - See N			3 12	3 12	3 12	3 12				
Material Description - see			2-3	2	2	2				
Notes	5 501011		2-3	Z	Z	Ζ				
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 14234		e shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120, 17. RMS T120,	2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T166, T T119, T162 T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures				 11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 			* Cement Sta # Lime Stabili \$ Gypsum Sta	ised	
 GC-Clayey gravels, gravel-si SP-Sand, crushed dust, fillin DGB20 DGB40 DGS20 	g sand, washed sand				16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	hed Sandstone ed Sandstone				
Form No R 020 Version 10 10/2	,	credite	d for compl	iance with			Δκ	ench	25/1	0/2021
NATA			C 17025 - 1						d Signatory	0,2021
× .								MAN		
Accreditation Numbe								Mel		
Corporate Site Numbe	er 2/2/							/		

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

		Ī	702	703	704	705	706	707	708	
DATE TESTED & SA	AMPLED					17/09/2021				
RESULTS		r								
Hilf Density Ratio	Standard	%	1006.5	100.5	100.5	99.5	100.5	100	100	
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.5	0.5	0.5	0.5	0.0	0.5	0.0	
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m				Ridgetops				
Shown on Drawing No						7747/54-13		T		
Retested by Test			-	-	-	-	-	-	-	
Reduced Level		m	60.64	61.32	63.55	61.40	60.76	60.68	60.97	
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	20.83	2.11	2.08	2.06	2.05	2.04	2.07	
Field Moisture Content		%	#NUM!	18.0	17.5	19.0	18.0	17.5	17.0	
Material retained on	19mm Sieve (wet) from test number	%	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result fro	om test number		702	703	704	705	706	707	708	
ab Compaction Date Tes			23/09/2021	23/09/2021	23/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	
Peak Converted Wet Dens	•	t/m³	2.07	2.10	2.07	2.07	2.04	2.04	2.07	
Apparent Optimum Moistu		%	#NUM!	17.5	17.5	18.5	18.0	17.5	17.5	
Number of Compaction Po			3	3	3	3	3	3	3	
Test Procedures - See No			12	12	12	12	12	12	12	
Material Description - see Notes	below		2	2	2	2-3	23	2	2	
 Assigned Values have been 	obtained from our Penrith laboratory -							b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5		
 Assigned Values have been of Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1				e shown	12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.8.1	
 Assigned Values have been alculated Results have been calculated AS 1289 1.2.1 clause 6.4 (b), Evaluation of the transformation of the transformation	d using infinite decimal places. Therefo , 2.1, 5.1, 5.3, 5.4, 1 , 2.1, 5.2, 1, 5.3, 5.4, 1 , 2.1, 5.2, 1, 5.4, 1 , 2.1, 5.2, 1, 5.4, 5.8, 1 , 2.1, 1, 5.5, 1, 5.6, 1, 5.8, 1 5.8, 1 available on request				e shown	12. AS 1289 1. 13: RMS T111, 14: RMS T111, 15: RMS T120, 16. RMS T120,	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173	166	5.8.1	
 Assigned Values have been of Results have been calculated As 1289 1.2.1 clause 6.4 (b), S. AS 1289 1.2.1 clause 6.4 (b), As 1289 1.2.1 clause 6.4 (b), As 1289 1.2.1 clause 6.4 (b), Bay 1.2.1 clause 6.4 (b), Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra CI-Clays of high plasticity, S. CH-Clays of high plasticity S. CC-Clayey sands, sand-silt mixt G. CC-Clayey gravels, gravel-san S. SM-Silty sands, cand-silt mixt G. CC-Clayey gravels, gravel-san S. SP-Sand, crushed dust, filling B. DGB20 DGB40 	d using infinite decimal places. Therefo , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 a 5.8.1 available on request near the state of the state				e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173	166	pilised	
 Assigned Values have been of a. Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gravely 2. Cl-Clay of medium plasticity, 4. SC-Clayey sands, sand-silt mixt 5. SM-Silty sands, sand-silt mixt 5. GC-Clayey gravels, gravel-sand, 7: SP-Sand, crushed dust, filling 8. DGB20 2. DGB40 10. DGS20 	d using infinite decimal places. Therefo , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 , 3.1.1, 5.5.1, 5.6.1, 5.8.1 , 3.1.1, 5.1.1	re, calcul	ated values ma	y vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised	
 Assigned Values have been of A Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gravely 2. Cl-Clay of medium plasticity, gravely 2. Cl-Clayey find plasticity 4. SC-Clayey sands, sand-silt mixth 3. CC-Clayey gravels, gravel-sand, SP-Sand, crushed dust, filling 3. DGB20 2. DGB40 10. DGS20 	d using infinite decimal places. Therefo , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 a 5.8.1 available on request 1 welly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures und-clay mixtures a sand, washed sand D - issued by ER Acc	re, calcul		y vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	pilised	021
 Assigned Values have been of a. Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gravel- 2. Cl-Clays of high plasticity 4: SC-Clays gravels, gravel-sai 7: SP-Sand, crushed dust, filling 3. DGB20 	d using infinite decimal places. Therefo , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 a 5.8.1 available on request 1 welly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures und-clay mixtures a sand, washed sand D - issued by ER Acc	re, calcul	d for compl	y vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised 25/10/2	021
 Assigned Values have been of a. Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gravely 2. Cl-Clay of medium plasticity, 4. SC-Clayey sands, sand-silt mixt 5. SM-Silty sands, sand-silt mixt 5. GC-Clayey gravels, gravel-sand, 7: SP-Sand, crushed dust, filling 8. DGB20 2. DGB40 10. DGS20 	d using infinite decimal places. Therefo , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request 1 welly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures ind-clay mixtures g sand, washed sand 0 - issued by ER Acc	re, calcul	d for compl	y vary from thos	11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	12. AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120. 17. RMS T120. 17. RMS T120. 19. R	2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stat	bilised led bilised 25/10/2	021

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 5 of 8

TEST NUMBER DATE TESTED & SAMPLED		709 24/09/2021							
DATE TESTED & SAWFLED		24/03/2021	1		I	1		1	L
RESULTS	-								
Hilf Density Ratio Standard	%	100							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5							
Specification Density Ratio (Stan	dard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m		n Heights						
Shown on Drawing No		7747/54-13							
Retested by Test	m	-							
Reduced Level	m	59.35							I
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.06							
Field Moisture Content	%	18.5							
Material retained on 19mm Sieve (wet)	%	<5							ļ
Lab Compaction result from test number		709							
Lab Compaction Date Tested	t/m3	27/09/2021							
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.06							
Number of Compaction Points	/0	3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
Notes		-							
 Assigned Values have been obtained from our Penrith laborati Assigned Values have been obtained from our Prestons laboration Results have been calculated using infinite decimal places. Th AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SH 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	tory – Accred	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS20 					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete \$ Gypsum Stabilised 15. Recycled Roadbase \$ Recycled Sub-base 16. RSB - Recycled Sub-base \$ RSS - Crushed Sandstone 18. RSS - Ripped Sandstone \$ Cowels Brown				
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for comp	lianco with				ench	25/10)/2021
Accredited for compliance with ISO/IEC 17025 - Testing.								Signatory	72021
Corporate Site Number 2734									
							/		

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REDBANK COMMUNITIES					
PO BOX 1918					
PENRITH NSW 2750					

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER			710	711	712	713	714	715	716	717
DATE TESTED & SA	MPLED			24/09/2021				27/09/2021	-	-
RESULTS Hilf Density Ratio	Standard	%	99.5	100	99.5	98.5	98.5	98	98	98
Moisture Variation fro		%	0.5	0.5	0.0	0.5	0.5	0.5	0.0	0.5
Specification	Density Ratio (Standar							om OMC		±2%
TEST LOCATION	Denergy Hatte (Otaliaa	ч)	20070	opeenie						
Chainage	(Carriageway L/R)	m				Ridg	etops			
Shown on Drawing No						7747/	54-13			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	57.97	60.32	62.16	63.03	63.68	64.62	59.74	61.36
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.06	2.05	2.04	2.05	2.06	2.04	2.04	2.06
Field Moisture Content		%	16.5	18.5	17.5	16.5	17.5	18.5	18.0	30.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from			710	711	712	713	714	715	716	717
ab Compaction Date Tes			27/09/2021			28/09/2021	28/09/2021		28/09/2021	28/09/20
Peak Converted Wet Dens	•	t/m³	2.07	2.05	2.05	2.08	2.09	2.08	2.08	2.10
Apparent Optimum Moistu		%	16.5	18.0	17.5	16.5	17.5	18.0	18.5	30.0
Number of Compaction Po			3	3	3	3	3	3	3	3
Fest Procedures - See No Material Description - see			12	12	12	12	12	12	12	12
Notes			2	2	2	2	2	2	2	2
Notes 1: Assigned Values have been of 2: Assigned Values have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 7: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b),	obtained from our Penrith laboratory – bbtained from our Prestons laboratory using infinite decimal places. Therefo 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	ation No 2734 itation No 14234	1		10: AS 1289 1. 11: AS 1289 1. 12. AS 1289 1. 13: RMS T111.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T' T120, T166, T' T119, T162 T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.5.1, 5.6.1 5.7.1	2
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description	obtained from our Penrith laboratory – obtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request	- Accred	ation No 2734 itation No 14234	1	e shown	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16. RMS T120.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T' T120, T166, T' T119, T162 T162, T173	b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 b), 2.1.1, 5.7.1, 4 166 173	5.5.1, 5.6.1 5.7.1 5.8.1	2
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, grav. 2. Cl-Clay of medium plasticity, grav. 3. CH-Clayes ands, sand-silt mixt. 5: GC-Clayey gravels, gravel-sar 7: SP-Sand, crushed dust, filling 3. DGB20 3. DGB20	obtained from our Penrith laboratory – bbtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request velly clays, sandy clays, silty clays pravelly clays, sandy clays, silty clays inxtures ures res	- Accred	ation No 2734 itation No 14234	1		10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16: RMS T120. 17. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T' T120, T166, T' T119, T162 T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.5.1, 5.6.1 5.7.1 5.8.1 pillised	2
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 8: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gravel 2. CL-Clays of high plasticity 4: SC-Claye snads, sand-clay m 5: SM-Silty sands, sand-silt mixtu, 6: GC-Claye gravels, gravel-sar 7: SP-Sand, crushed dust, filling 3: DGB20	obtained from our Penrith laboratory – obtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request velly clays, sandy clays, silty clays rravelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand - issued by ER	– Accredi	ation No 2734 itation No 1423 lated values ma	t y vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16: RMS T120. 17. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal	5.5.1, 5.6.1 5.7.1 5.8.1 Dilised sed bilised	
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1: CL-Clays of low plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 3: CH-Clays of high plasticity, grav. 4: SC-Clayey sands, sand-silt mixt. 4: SC-Clayey gravels, gravel-sar 5: SM-Silty sands, sand-silt mixt. 5: GC-Clayed gravels, gravel-sar 5: SP-Sand, crushed dust, filling 8: DGB20 1: DGS20	obtained from our Penrith laboratory – obtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request velly clays, sandy clays, silty clays rravelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand - issued by ER	- Accredi	ation No 2734 itation No 1423 lated values ma	t y vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16: RMS T120. 17. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal Gypsum Stal ench 	5.5.1, 5.6.1 5.7.1 5.8.1 billised sed billised 25/10	/2021
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1: CL-Clays of low plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 3: CH-Clays of high plasticity, grav. 4: SC-Clayey sands, sand-silt mixt. 4: SC-Clayey gravels, gravel-sar 5: SM-Silty sands, sand-silt mixt. 5: GC-Clayed gravels, gravel-sar 5: SP-Sand, crushed dust, filling 8: DGB20 1: DGS20	obtained from our Penrith laboratory – obtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request velly clays, sandy clays, silty clays rravelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand - issued by ER	- Accredi	ation No 2734 itation No 1423 lated values ma	t y vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16: RMS T120. 17. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal Gypsum Stal ench 	5.5.1, 5.6.1 5.7.1 5.8.1 Dilised sed bilised	
Notes 1: Assigned Values have been of 2: Assigned Values have been of 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b), 5: AS 1289 1.2.1 clause 6.4 (b), 6: AS 1289 1.2.1 clause 6.4 (b), 9: Full details of Test Procedure Material Description 1: CL-Clays of low plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 2: Cl-Clay of medium plasticity, grav. 3: CH-Clays of high plasticity, grav. 4: SC-Clayey sands, sand-silt mixt. 4: SC-Clayey gravels, gravel-sar 5: SM-Silty sands, sand-silt mixt. 5: GC-Clayed gravels, gravel-sar 5: SP-Sand, crushed dust, filling 8: DGB20 1: DGS20	obtained from our Penrith laboratory – obtained from our Prestons laboratory using infinite decimal places. Therefore 2.1.1, 5.1.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.3.1, 5.4.1 2.1.1, 5.2.1, 5.4.1, 5.8.1 2.1.1, 5.5.1, 5.6.1, 5.8.1 5.8.1 available on request velly clays, sandy clays, silty clays reavelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand - issued by ER Acc	- Accredi	ation No 2734 itation No 1423 lated values ma	t y vary from thos	e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111. 14: RMS T111. 15: RMS T120. 16: RMS T120. 17. RMS T120. 17. RMS T120. 19.	2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (T119, T120, T T120, T160, T T119, T162 T162, T173 T164, T173	 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal Gypsum Stal ench 	5.5.1, 5.6.1 5.7.1 5.8.1 billised sed billised 25/10	

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email: info@geotech.com.au www.geote



REDBANK COMM PO BOX 1918	IUNITIES	Laboratory: Job No:	Penrith 7747/54
PENRITH NSW 2	2750	Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

Page 8 of 16

TEST NUMBER		718							
DATE TESTED & SAMPLED		27/09/2021							
RESULTS									
Hilf Density Ratio Standard	%	98.5							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standard)		≥ 9 8%	Specific	ation Mo	isture Va	ariance fr	om OMC	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	Ridgetops							
Shown on Drawing No		7747/54-13							
Retested by Test		-							
Reduced Level	m	62.21							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.04							
Field Moisture Content	%	18.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		718							
Lab Compaction Date Tested		28/09/2021							
··· ··· · ··· ··· ···	t/m³	2.07							
Apparent Optimum Moisture Content	%	18.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below Notes		2							
 Assigned Values have been obtained from our Penrith laboratory – Ac Assigned Values have been obtained from our Prestons laboratory – A Results have been calculated using infinite decimal places. Therefore, AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.6.1, 5.8.1 		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T119, T162		5.7.1			
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete \$ 15. Recycled Roadbase \$ 16. RSB - Recycled Sub-base \$ 17. CSS - Crushed Sandstone \$ 18. RSS - Ripped Sandstone \$ 19. Cowels Brown \$					
Form No R 020 Version 10 10/20 - issued by ER								05/1	10004
	credited for compliance with ISO/IEC 17025 - Testing.					A K	ench <u>Approved</u>	25/10 I Signatory)/2021
Corporate Site Number 2727							/		
							/		

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REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 6 of 8

TEST NUMBER		719							
DATE TESTED & SAMPLED		27/09/2021							
RESULTS									
Hilf Density Ratio Standard	%	99							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standar	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION				-	-	-			
Chainage (Carriageway L/R)	m		n Heights						
Shown on Drawing No		7747/54-13							
Retested by Test	m	-							
Reduced Level	111	62.78							-
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.05							
Field Moisture Content	%	19.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		719							
Lab Compaction Date Tested Peak Converted Wet Density	t/m³	28/09/2021 2.07							
Apparent Optimum Moisture Content	%	19.0							
Number of Compaction Points	,,,	3							
Test Procedures - See Note Number		12							
Material Description - see below		2-3							
Notes			-			-			
 Assigned Values have been obtained from our Penrith laboratory - 2: Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Thereful: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.2, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.2, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.2, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.2, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.2, 5.2.1, 5.4.1, 5.8.1 	- Accred	itation No 1423		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-clay mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete 5 Recycled Roadbase 15. Recycled Roadbase 16 RSB - Recycled Sub-base 17. CSS - Crushed Sandstone 18 RSS - Ripped Sandstone 19. Cowels Brown 19. Cowels Brown					
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734	Accredited for compliance with ISO/IEC 17025 - Testing.					A K	ench <u>Approved</u>	25/10 <u>I Signatory</u>	/2021
Corporate Site Number 2727							/		

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST LOCATION	Standard	% % d)	720 98.5 0.0	721 27/09/2021 98.5	722 98	723 100	724 28/09/2021	725		
RESULTS Hilf Density Ratio Moisture Variation from Specification E TEST LOCATION	Standard n OMC (-Drier/+Wetter) Density Ratio (Standard	%		98.5	98	100				
Hilf Density Ratio Moisture Variation from Specification E TEST LOCATION	n OMC (-Drier/+Wetter) Density Ratio (Standard	%			98	100	400			
Hilf Density Ratio Moisture Variation from Specification E TEST LOCATION	n OMC (-Drier/+Wetter) Density Ratio (Standard	%			98	100	400			
Moisture Variation from Specification E TEST LOCATION	n OMC (-Drier/+Wetter) Density Ratio (Standard	%			98	100	400			
Specification C TEST LOCATION	Density Ratio (Standard		0.0			100	100	99.5		
TEST LOCATION		d)		0.5	0.5	0.0	0.0	0.0		
	Carriageway L/R)		≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
Chainago ((Carriageway L/R)	_								
•		m			Ridg					
Shown on Drawing No					7747/	54-13				
Retested by Test			-	-	-	-	-	-		
Reduced Level		m	63.07	63.08	63.75	64.89	65.28	65.69		
FIELD & LABORAT	ORY DATA									
Field Wet Density		t/m³	2.05	2.04	2.03	2.05	2.04	2.05		
Field Moisture Content		%	17.0	17.0	17.5	16.5	17.5	21.5		
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
Lab Compaction result from			720	721	722	723	724	725		
ab Compaction Date Teste			28/09/2021	28/09/2021	28/09/2021	06/10/2021	06/10/2021	06/10/2021		
Peak Converted Wet Densit	•	t/m³	2.08	2.07	2.07	2.05	2.04	2.06		
Apparent Optimum Moisture		%	17.0	16.5	17.5	17.0	17.5	21.5		
Number of Compaction Poir			3	3	3	3	3	3		
Test Procedures - See Note			12	12	12	12	12	12		
Material Description - see be Notes	JUW		2	2	2	2	2	3		
2: Assigned Values have been obt	1.1, 5.2.1, 5.3.1, 5.4.1 1.1, 5.2.1, 5.4.1, 5.8.1 1.1., 5.5.1, 5.6.1, 5.8.1	- Accredi	tation No 14234		e shown	11: AS 1289 1.	2.1 clause 6.4 (k 2.1 clause 6.4 (k T119, T120, T1 T120, T166, T1 T119, T162 T162, T173		5.7.1	
Material Description										
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 				 DGS40 FCR20 FCR40 RC - Recycled Concrete Recycled Roadbase RSB - Recycled Sub-base CSS - Crushed Sandstone RSS - Ripped Sandstone RSS - Ripped Sandstone Cowels Brown 						
10. DGS20 Form No R 020 Version 10 10/20 - i	issued by ER									
~			d for comp				A Ke)/2021
NATA	I	SO/IE	C 17025 - ⁻	l esting.				Approved	Signatory	
								Man		
Accreditation Number 27	34							Key		
Corporate Site Number 2	727							/		

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email: info@geotech.com.au www.geote



REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:	Penrith
Job No:	7747/54
Date:	25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER		726	727	728	729				
DATE TESTED & SAMPLED		-		9/2021					
		-				-	•	-	•
RESULTS									
Hilf Density Ratio Standard	%	100	100	100	100.5				
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0				
Specification Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	rom OMC	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m			n Heights					
Shown on Drawing No			1	/54-13				-	
Retested by Test Reduced Level	m	- 57.39	- 57.44	- 56.91	- 58.15			-	
		57.55	57.44	50.91	50.15				
FIELD & LABORATORY DATA									
Field Wet Density	t/m ³	2.05	2.06	2.06	2.04				
Field Moisture Content	%	18.5	18.5	17.5	18.5				
Material retained on 19mm Sieve (wet) Lab Compaction result from test number	%	<5	<5	<5	<5				
Lab Compaction Date Tested		726 06/10/2021	727 06/10/2021	728	729 06/10/2021				
Peak Converted Wet Density	t/m³	2.05	2.06	06/10/2021 2.06	2.03				
Apparent Optimum Moisture Content	%	18.5	18.5	17.5	18.5				
Number of Compaction Points	, -	3	3	3	3				
Test Procedures - See Note Number		12	12	12	12				
Material Description - see below		2	2	2	2				
Notes 1: Assigned Values have been obtained from our Penrith laboratory – 2: Assigned Values have been obtained from our Prestons laboratory 3. Results have been calculated using infinite decimal places. Therefore 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request	- Accred	itation No 1423		se shown	11: AS 1289 1	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER									
NATA		ed for comp C 17025 - ⁻				A K	ench <u>Approvec</u>	25/10 <u>I Signatory</u>)/2021
Accreditation Number 2734							Keff		
Corporate Site Number 2727							/		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER DATE TESTED & SAMPLED		730	731	732 28/09/2021	733	734	734 735 736 737 01/10/2021			
RESULTS				-	-	-		1	1	
Hilf Density Ratio Standard	%	100	99.5	100.5	100	100	101.5	101	101	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%	
TEST LOCATION	i	r								
Chainage (Carriageway L/R)	m					etops				
Shown on Drawing No					//4//	54-13		1		
Retested by Test Reduced Level	m	- 59.14	- 60.75	- 62.16	- 62.62	- 63.34	- 63.97	- 65.70	- 66.30	
FIELD & LABORATORY DATA				02.10	02.02	00.01	00.07		00.00	
Field Wet Density	t/m³	2.05	2.03	2.05	2.06	2.04	2.20	2.18	2.19	
Field Moisture Content	%	17.5	17.0	17.5	22.0	18.5	17.0	16.0	16.5	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
Lab Compaction result from test number		730	731	732	733	734	735	736	737	
Lab Compaction Date Tested		06/10/2021	06/10/2021	06/10/2021	06/10/2021	06/10/2021	07/10/2021	07/10/2021	07/10/202	
Peak Converted Wet Density	t/m³	2.05	2.04	2.04	2.06	2.04	2.17	2.16	2.17	
Apparent Optimum Moisture Content	%	17.5	17.0	17.5	22.0	18.5	17.0	16.0	16.5	
Number of Compaction Points		3	3	3	3	3	3	3	3	
Test Procedures - See Note Number Material Description - see below		12	12	12	12	12	12	12	12	
Notes		2	2	2	3	2	2	2	2	
 Assigned Values have been obtained from our Penrith laborator Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. Then AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 54.1 AS 1289 1.2.1 clause 6.4 Xa 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Sa 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ory – Accred	itation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1		
Material Description										
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DC-220 	/S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stal 	ed		
10. DGS20 Form No R 020 Version 10 10/20 - issued by ER										
		d for compl C 17025 -				A K	ench Approved	25/10 Signatory	/2021	
			-				1 1	<u></u>		
NATA							AM			
Accreditation Number 2734							MA			

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

			738	739	740	741	742	743	744	745
DATE TESTED & SA	AMPLED					01/10	/2021			
<u>RESULTS</u> Hilf Density Ratio	Standard	%	101	100.5	101.5	101	101.5	101	101.5	101
-	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification	Density Ratio (Standar	d)	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION				_						
Chainage	(Carriageway L/R)	m					etops			
Shown on Drawing No						7747/	54-13			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	66.76	67.18	65.06	63.97	63.64	63.57	63.02	61.77
FIELD & LABORA	TORY DATA									
-ield Wet Density		t/m³	2.18	2.16	2.18	2.17	2.18	2.21	2.17	2.16
Field Moisture Content		%	15.5	16.5	16.0	19.0	18.0	17.5	19.5	18.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result fro	om test number		738	739	740	741	742	743	744	745
ab Compaction Date Tes			07/10/2021	07/10/2021	07/10/2021	07/10/2021	07/10/2021	07/10/2021	07/10/2021	07/10/20
Peak Converted Wet Den	•	t/m³	2.16	2.15	2.15	2.15	2.15	2.19	2.14	2.14
Apparent Optimum Moistu		%	15.5	17.0	16.0	19.0	18.0	17.5	19.5	18.5
Number of Compaction P			3	3	3	3	3	3	3	3
Test Procedures - See No	ote Number		12	12	12	12	12	12	12	12
Material Description - see Notes	below	A	2	2	2	2-3	2-3	2	2-3	2
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculater 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b)	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory – d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	2 ation No 2734 itation No 14234	2	2	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , , T120, T166, T ² , T119, T162 , T162, T173	2 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	2-3 5.5.1, 5.6.1 5.7.1	
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory – d using infinite decimal places. Therefor , 2.1.1, 5.1.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request	- Accred	2 ation No 2734 itation No 14234	2	2	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , , T120, T166, T ² , T119, T162 , T162, T173	2 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	2-3 5.5.1, 5.6.1 5.7.1	
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. Cl-Clay of medium plasticity, 3: CH-Clays of high plasticity 4: SC-Clayey gravels, gravel-sa 7: SP-Sand, crushed dust, filling 3. DGB20 2: DGB20	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.2.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures	- Accred	2 ation No 2734 itation No 14234	2	2	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , , T120, T166, T ² , T119, T162 , T162, T173	2 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	2-3 5.5.1, 5.6.1 5.7.1 5.8.1 billised	
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 8: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1. CL-Clays of low plasticity, gra 2. Cl-Clays of high plasticity, 4. SC-Clayey sands, sand-silt mixt 5: SM-Silty sands, sand-silt mixt 5: GC-Clayey gravels, gravel-sa 7: SP-Sand, crushed dust, filling 5: DGB20	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand	- Accred	2 ation No 2734 itation No 14234	2	2 e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled RC 15. Recycled R C 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , , T120, T166, T ² , T119, T162 , T162, T173	2 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis	2-3 5.5.1, 5.6.1 5.7.1 5.8.1 billised	
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1: CL-Clay of medium plasticity, gra 2: CL-Clay of medium plasticity, 1: SC-Clayey sands, sand-silt mixt 4: SC-Clayey gravels, gravel-sa 5: SM-Silty sands, cand-silt mixt 5: GC-Clayed dust, filling 8: DGB20 1: DGB20	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Ac	- Accred re, calcu	2 ation No 2734 itation No 1423 lated values ma	t y vary from thos	2 e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled RC 15. Recycled R C 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (7119, T120, T 7119, T162, T 7119, T162, T173 7164, T173	2 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal	2-3 5.5.1, 5.6.1 5.7.1 5.8.1 billised wed billised 25/10	
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1: CL-Clays of low plasticity, gra 2: CL-Clay of medium plasticity, 3: CH-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 3: CL-Clays of spands, sand-silt mixt 5: SC-Clayey sands, sand-silt mixt 5: SC-Clayey gravels, gravel-sa 5: SP-Sand, crushed dust, filling 8: DGB20 1: DGB20 1: DGB20	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand 0 - issued by ER Ac	- Accred re, calcu	2 ation No 2734 itation No 1423 lated values ma	t y vary from thos	2 e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled RC 15. Recycled R C 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (7119, T120, T 7119, T162, T 7119, T162, T173 7164, T173	2 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal	2-3 5.5.1, 5.6.1 5.7.1 5.8.1 bilised sed bilised	2
Material Description - see Notes 1: Assigned Values have been 2: Assigned Values have been 3: Results have been calculated 4: AS 1289 1.2.1 clause 6.4 (b) 5: AS 1289 1.2.1 clause 6.4 (b) 6: AS 1289 1.2.1 clause 6.4 (b) 9: Full details of Test Procedure Material Description 1: CL-Clays of low plasticity, gra 2: CL-Clay of medium plasticity, 3: CH-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 2: CL-Clays of low plasticity, gra 3: CL-Clays of spands, sand-silt mixt 5: SC-Clayey sands, sand-silt mixt 5: SC-Clayey gravels, gravel-sa 5: SP-Sand, crushed dust, filling 8: DGB20 1: DGB20 1: DGB20	a below a obtained from our Penrith laboratory – obtained from our Prestons laboratory – d using infinite decimal places. Therefor), 2.1.1, 5.1.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1, 5.5.1, 5.6.1, 5.8.1 e 5.8.1 available on request n avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures a sand, washed sand 0 - issued by ER Ac	- Accred re, calcu	2 ation No 2734 itation No 1423 lated values ma	t y vary from thos	2 e shown 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled RC 15. Recycled R C 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp	2-3 10: AS 1289 1. 11: AS 1289 1. 12: AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120 17. RMS T120 19. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	2-3 2.1 clause 6.4 (2.1 clause 6.4 (2.1 clause 6.4 (7119, T120, T 7119, T162, T 7119, T162, T173 7164, T173	2 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.3.1, 4 b), 2.1.1, 5.7.1, 4 166 173 * Cement Stat # Lime Stabilis \$ Gypsum Stal	2-3 5.5.1, 5.6.1 5.7.1 5.8.1 billised wed billised 25/10	2

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

DATE TESTED & SAMPLED RESULTS Hilf Density Ratio Standard Moisture Variation from OMC (-Drier/+Wetter) Specification Density Ratio (Standard) TEST LOCATION Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA Field Wet Density	% % ard) m t/m³ %	101 0.0 ≥98%	101 0.0 Specific	/2021 101 0.0 ation Mo /54-13 -	101 0.0 isture Va		06/10 100.5 0.5 om OMC	101.5 0.0	99 0.0 ±2%
Hilf Density Ratio Standard Moisture Variation from OMC (-Drier/+Wetter) Specification Density Ratio (Standard) TEST LOCATION Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level	% ard) m t/m³	0.0 ≥98%	0.0 Specific 7747/	0.0 ation Mo ⁷⁵⁴⁻¹³	0.0 isture Va	0.0 riance fr	0.5 om OMC	0.0	0.0
Moisture Variation from OMC (-Drier/+Wetter) Specification Density Ratio (Standa TEST LOCATION Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA	% ard) m t/m³	0.0 ≥98%	0.0 Specific 7747/	0.0 ation Mo ⁷⁵⁴⁻¹³	0.0 isture Va	0.0 riance fr	0.5 om OMC	0.0	0.0
Specification Density Ratio (Standa TEST LOCATION Chainage Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA	ard) m m	≥98% 	Specific 7747,	ation Mo /54-13 -	isture Va	riance fr	om OMC		
TEST LOCATION Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA	m m t/m³	-	7747,	/54-13 -					±2%
Chainage (Carriageway L/R) Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA	m t/m³	- 60.34	-	-	Ridg	etops	7747		
Shown on Drawing No Retested by Test Reduced Level FIELD & LABORATORY DATA	m t/m³	- 60.34	-	-	Ridg	etops	77/7		
Retested by Test Reduced Level FIELD & LABORATORY DATA	t/m³	- 60.34	-	-					
Reduced Level	t/m³	60.34	- 59.54	-			1141/	54-14	
FIELD & LABORATORY DATA	t/m³	60.34	59.54		-	-	-	-	-
				60.15	60.52	68.14	66.02	65.11	62.83
Field Wet Density					-		-		
2	%	2.20	2.17	2.14	2.16	2.12	2.10	2.09	2.12
Field Moisture Content		17.0	19.0	15.5	16.0	18.5	16.5	16.5	18.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		746	747	748	749	750	751	752	753
Lab Compaction Date Tested	1/3	07/10/2021	07/10/2021		07/10/2021	08/10/2021		08/10/2021	08/10/202
Peak Converted Wet Density	t/m³ %	2.18	2.15	2.12	2.13	2.14	2.09	2.06	2.14
Apparent Optimum Moisture Content Number of Compaction Points	%	17.0	19.0	15.5	15.5	18.0	16.0	16.5	18.5
Test Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Material Description - see below		2	2-3	2	2	2	2	2	2
Notes		2	2-3	2	2	2	2	2	Ζ.
 Assigned Values have been obtained from our Penrith laboratory. Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. Then AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ory – Accred	itation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l 2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB40	'S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled Re 16. RSB - Recy 17. CSS - Crust 18. RSS - Rippe 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
I0. DGS20 Form No R 020 Version 10 10/20 - issued by ER									
NATA		ed for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/10 <u>Signatory</u>	/2021
Accreditation Number 2734 Corporate Site Number 2727							men		

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REDBANK COM	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 8

TEST NUMBER		754							
DATE TESTED & SAMPLED		06/10/2021							
RESULTS			-	-	_	-	-	-	_
Hilf Density Ratio Standard	%	102							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Standard	I)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m		n Heights						
Shown on Drawing No		7747/54-14							
Retested by Test		-							
Reduced Level	m	60.33							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.12							
Field Moisture Content	%	22.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		754							
Lab Compaction Date Tested		08/10/2021							
Peak Converted Wet Density	t/m³	2.08							
Apparent Optimum Moisture Content	%	22.5							
Number of Compaction Points Test Procedures - See Note Number		3							
Material Description - see below		12							
Notes		2							
 Assigned Values have been obtained from our Penrith laboratory – A Assigned Values have been obtained from our Prestons laboratory – Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CH-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 					Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	- المعا	al fan aan				A 16	a a a b	05/40	0001
		ed for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/10 <u>Signatory</u>	₩ZUZ1
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER DATE TESTED & SAMPLED		755	756	757	758 06/10/2021	759	760	761	762 07/10/202
RESULTS			-	_	-	_	-	-	-
Hilf Density Ratio Standard	%	102	100.5	102	100.5	100.5	101.5	101.5	99
Moisture Variation from OMC (-Drier/+Wette	er) %	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (St	andard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m				0	etops			
Shown on Drawing No					7747/	54-14	1	1	
Retested by Test Reduced Level	m	- 68.74	- 69.11	- 68.70	- 69.04	- 65.73	- 66.07	- 65.43	- 66.24
		00.74	09.11	00.70	03.04	03.75	00.07	00.40	00.24
	113				A (A	a (a	a (a	A (A	
Field Wet Density Field Moisture Content	t/m³ %	2.08	2.08	2.11	2.10	2.10	2.13	2.13	2.11
Material retained on 19mm Sieve (we		16.5	16.5	16.0 <5	16.5	17.0	17.0	17.0	16.0
Lab Compaction result from test number	=l) /0	<5 755	<5 756	<5 757	<5 758	<5 759	<5 760	<5 761	<5 762
Lab Compaction Date Tested		755 08/10/2021	08/10/2021	08/10/2021		08/10/2021	08/10/2021	08/10/2021	09/10/202
Peak Converted Wet Density	t/m³	2.04	2.07	2.07	2.09	2.09	2.10	2.10	2.13
Apparent Optimum Moisture Content	%	16.5	17.0	16.5	16.5	17.5	17.0	17.0	16.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Penrith lat 2: Assigned Values have been obtained from our Prestons la 3. Results have been calculated using infinite decimal places 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request 	aboratory – Accred	itation No 1423		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description									
I. CL-Clays of low plasticity, gravelly clays, sandy clays, silty Cl-Clay of medium plasticity, gravelly clays, sandy clays, si CH-Clays of high plasticity SCH-Clayse sands, sand-clay mixtures SM-Silty sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures CP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DDS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER									
		d for comp C 17025 -				A K	ench <u>Approved</u>	25/10 Signatory	/2021
Accreditation Number 2734	ISO/IE	0 17020 -	g.				Mah		

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER			763	764	765	766	767	768	769	770
DATE TESTED & S	AMPLED		703	704	705	07/10	-	700	709	110
RESULTS										
Hilf Density Ratio	Standard	%	99.5	100	99.5	101	100	100	100	98.5
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m					etops			
Shown on Drawing No						7747/	54-14			
Retested by Test			-	-	-	-	-	-	-	-
Reduced Level		m	63.05	61.65	61.07	63.37	62.57	63.40	63.94	65.40
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.13	2.13	2.12	2.10	2.11	2.12	2.13	2.11
Field Moisture Content		%	16.5	17.5	20.0	17.0	16.5	17.0	17.0	19.0
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fro	om test number		763	764	765	766	767	768	769	770
Lab Compaction Date Te	sted		09/10/2021	09/10/2021	09/10/2021	09/10/2021	09/10/2021	09/10/2021	09/10/2021	09/10/202
Peak Converted Wet Der	nsity	t/m³	2.14	2.13	2.13	2.08	2.11	2.12	2.13	2.14
Apparent Optimum Moist		%	16.5	18.0	20.0	17.0	16.5	17.0	16.5	19.0
Number of Compaction P			3	3	3	3	3	3	3	3
Test Procedures - See No			12	12	12	12	12	12	12	12
Material Description - see Notes	e below		2	2	2	2	2	2	2	2
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description	n									
 CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGB40 	tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
10. DGS20 Form No R 020 Version 10 10/2	0 - issued by ER									
NATA			ed for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/10 Signatory)/2021
Accreditation Number	r 2734							Key		
Corporate Site Numbe	er 2727							/		

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REDBANK COMMUNITIES							
PO BOX 1918							
PENRITH NSW 2750							

Laboratory:PenrithJob No:7747/54Date:25/10/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

TEST NUMBER DATE TESTED & S	AMPLED		771	772 07/10/2021	773	774	775	776 08/10/2021	777	778
RESULTS										
Hilf Density Ratio	Standard	%	99.5	100	99.5	101	101	101	101.5	101
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	-0.5	-1.0	0.0	-0.5
Specification	Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		1								
Chainage	(Carriageway L/R)	m					etops			
Shown on Drawing No						//4//	54-14			
Retested by Test Reduced Level		m	- 66.11	- 68.58	- 69.64	- 68.41	- 70.53	- 71.06	- 71.30	- 61.29
			00.11	00.00	09.04	00.41	70.55	71.00	71.30	01.29
FIELD & LABORA	ATORY DATA			-	-			-		
Field Wet Density		t/m³	2.14	2.14	2.13	2.06	2.06	2.07	2.08	2.07
Field Moisture Content	10 O: (I)	%	16.5	18.0	17.0	15.0	15.5	14.5	15.0	15.5
Material retained on	19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result fro			771	772	773	774	775	776	777	778
Lab Compaction Date Te Peak Converted Wet Der		t/m³	09/10/2021	09/10/2021	09/10/2021		19/10/2021		19/10/2021	19/10/202
Apparent Optimum Moist	•	%	2.15 16.5	2.14 17.5	2.14 16.5	2.04 15.5	2.04 16.0	2.05 15.5	2.05 15.0	2.05 15.5
Number of Compaction F		70	3	3	3	3	3	3	3	3
Test Procedures - See N			12	12	12	12	12	12	12	12
Material Description - see			2	2	2	2	2	2	2	2
2: Assigned Values have been 3. Results have been calculate 4: AS 1289 1.2.1 clause 6.4 (b 5: AS 1289 1.2.1 clause 6.4 (b 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b 8: AS 1289 1.2.1 clause 6.4 (b 9: Full details of Test Procedure), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1 re 5.8.1 available on request	- Accredi	itation No 1423		e shown	11: AS 1289 1.	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/2	Ace		ed for comp C 17025 - ⁻				A K	ench <u>Approved</u>	25/10 Signatory	/2021
Accreditation Numbe Corporate Site Numbe								Ally		

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REDBANK COMM	IUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	2750	Date:	25/10/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE RIDGETOPS

Page 16 of 16

TEST NUMBER		770							
DATE TESTED & SAMPLED		779							
DATE TESTED & SAMPLED		08/10/2021							I
RESULTS									
Hilf Density Ratio Standard	%	100.5							
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5							
Specification Density Ratio (Standard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	Ridgetops							
Shown on Drawing No		7747/54-14							
Retested by Test		-							
Reduced Level	m	62.80							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.05							
Field Moisture Content	%	16.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		779							
Lab Compaction Date Tested		19/10/2021							
Peak Converted Wet Density	t/m³	2.04							
Apparent Optimum Moisture Content	%	17.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – A 2: Assigned Values have been obtained from our Prestons laboratory – A 3: Results have been calculated using infinite decimal places. Therefore 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 5.8.1 available on request	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER						A 17		05/40	10004
		ed for compl ℃ 17025 - ⁻				A K	ench <u>Approved</u>	25/10 Signatory)/2021
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Corporate Site Number 2727							/		

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REDBANK COMI		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 1 of 16

									Tage TOFT
TEST NUMBER		780	781	782	783	784	785	786	787
DATE TESTED & SAMPLED					18/10)/2021			
RESULTS									
Hilf Density Ratio Standard	%	98	98	98	99	100	99.5	100	99
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	0.0	-0.5	-0.5	0.0	0.0	0.0	0.0
Specification Density Ratio (Stand	lard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION			-						
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						/54-15			
Retested by Test					Ridg	etops			
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA	-								
Field Wet Density	t/m³	2.04	2.05	2.05	2.06	2.13	2.12	2.14	2.11
Field Moisture Content	%	17.0	16.5	16.5	16.0	16.5	16.0	17.0	16.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		780	781	782	783	784	785	786	787
ab Compaction Date Tested	t/m3	20/10/2021			20/10/2021			27/10/2021	
Peak Converted Wet Density	t/m³ %	2.08	2.09	2.09	2.08	2.13	2.13	2.14	2.13
Apparent Optimum Moisture Content Number of Compaction Points	70	17.0	16.5	17.0	16.5	16.5	16.5	17.0	16.5
Test Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
Material Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratis Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T [.] , T120, T166, T [.] , T119, T162 , T162, T173			
9: Full details of Test Procedure 5.8.1 available on request Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	γs			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stati # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - ⁻				ΗW	/ilson <u>Approved</u>	24/11 Signatory	/2021
34 Borec Road, Penrith NSW 2750				,		,	tons NSW 2	170	
alanhanay (02) 1722 2711				- · ·	(02) 0607	0444			

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 2 of 16

									1
		788	789	790	791	792	793		
DATE TESTED & SAMPLED		18/10/2021			19/10/2021				
<u>RESULTS</u>									
Hilf Density Ratio Standard	%	99.5	98.5	98.5	102	100	99.5		
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.0	0.0	0.0	0.0	0.5		
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION		-						-	
Chainage (Carriageway L/R)	m	-	-	-	-	-	-		
Shown on Drawing No					/54-15				
Retested by Test	m		1	Ridg	etops	1	1		
Reduced Level	m	-	-	-	-	-	-		
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.08	2.09	2.17	2.12	2.09		
Field Moisture Content	%	14.0	16.0	15.5	16.5	17.0	15.5		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
Lab Compaction result from test number		788	789	790	791	792	793		
Lab Compaction Date Tested		18/10/2021	20/10/2021	20/10/2021	20/10/2021		27/10/2021		
Peak Converted Wet Density	t/m³	2.10	2.11	2.12	2.13	2.12	2.10		
Apparent Optimum Moisture Content	%	14.0	16.0	15.5	16.5	17.0	15.0		
Number of Compaction Points		3	3	3	3	3	3		
Test Procedures - See Note Number Material Description - see below		12 2	12 2	12 2	12 2	12 2	12 2		
 Assigned Values have been obtained from our Penrith laboratory Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	/ – Accred	itation No 1423		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (f .2.1 clause 6.4 (f , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173		5.7.1	
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 5. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER A Accreditation Number 2734 Corporate Site Number 2727		ed for comp C 17025 - ⁻				нw	ilson <u>Approved</u> (24/1 <u>Signatory</u>	1/2021
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REDBANK COM	MUNITIES	Laboratory:	Penrith		
PO BOX 1918		Job No:	7747/54		
PENRITH NSW	/ 2750	Date:	24/11/2021		
PROJECT:	SITE FILL TESTING				

Page 1 of 9

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		I	704							
			794							
DATE TESTED & SAM	VIPLED		19/10/2021	l		l	l			
RESULTS										
Hilf Density Ratio	Standard	%	99							
Moisture Variation from	n OMC (-Drier/+Wetter)	%	0.0							
•	Density Ratio (Standard)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
	Carriageway L/R)	m	-							
Shown on Drawing No			7747/54-16							
Retested by Test			Souther	n Heights						
Reduced Level		m	-							
FIELD & LABORAT	ORY DATA									
Field Wet Density		t/m³	2.09							
Field Moisture Content		%	15.5							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result from			794							
Lab Compaction Date Teste			27/10/2021							
Peak Converted Wet Densit		t/m³	2.11							
Apparent Optimum Moisture		%	15.5							
Number of Compaction Poir Test Procedures - See Note			3							
Material Description - see b			12							
			2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 9: Full details of Test Procedure 5.8.1 available on reguest 17: RMS T120, T164, T173							5.7.1			
Material Description										
Internal Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayer gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20					11. DGS40 * Cement Stabilised 12. FCR20 # Lime Stabilised 13. FCR40 \$ Gypsum Stabilised 14. RC - Recycled Concrete * 15. Recycled Roadbase * 16. RSB - Recycled Sub-base * 17. CSS - Crushed Sandstone * 18. RSS - Ripped Sandstone * 19. Cowels Brown *					
Form No R 020 Version 10 10/20 -	,	redite	d for comp	liance with			нм	ilson	24/11	/2021
Accreditation Number 27 Corporate Site Number 2	ıs '34		C 17025 - ⁻				11 00		Signatory	/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744						20 Whyalla : (02) 9607		tons NSW 2	170	



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 3 of 16

TEST NUMBER		795	796	797	798	799	800	801	
DATE TESTED & SAMPLED			19/10)/2021			20/10/2021		
RESULTS									
Hilf Density Ratio Standard	%	99.5	98.5	101	101	99	99.5	99.5	
•								 	
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	0.0	0.0	-0.5	-0.5	-0.5	
Specification Density Ratio (Stand	lard)	≥98%	Specific	ation Mo	isture Va	iriance fr	om OMC		±2%
			1	1	1	1	1	,	
Chainage (Carriageway L/R) Shown on Drawing No	m	-	-	-	- 7747/54-15	-	-	-	
Retested by Test					Ridgetops				
Reduced Level	m		_	_	Ridgetops	_	_		
		-	-	-		-		-	
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.09	2.16	2.15	2.06	2.06	2.07	
Field Moisture Content	%	16.5	16.0	16.5	16.5	16.0	14.5	18.0	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	
Lab Compaction result from test number		795	796	797	798	799	800	801	
ab Compaction Date Tested	t/m³	27/10/2021	27/10/2021	27/10/2021	27/10/2021	21/10/2021	21/10/2021	21/10/2021	
Peak Converted Wet Density	%	2.10	2.12	2.14	2.13	2.08	2.07	2.08	
Apparent Optimum Moisture Content Number of Compaction Points	70	16.5	16.0	16.5	16.5	17.0	15.0	18.5	
Fest Procedures - See Note Number		3 12	3 12	3 12	3 12	3 12	3 12	3 12	
Material Description - see below		2	2	2	2	2	2	2	
 Assigned Values have been obtained from our Prestons laborat Results have been calculated using infinite decimal places. The AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 S AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T [.] , T120, T166, T [.] , T119, T162 , T162, T173			
9: Full details of Test Procedure 5.8.1 available on request									
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty cla 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20	γS			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Stal # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - ⁻				НW	ilson <u>Approved</u>	24/11/ I Signatory	2021
Accreditation Number 2734 Corporate Site Number 2727								<i>D</i>	
34 Borec Road, Penrith NSW 2750					20 Whyalla		tons NSW 2	2170	
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REDBANK COM	MUNITIES	Laboratory:	Penrith		
PO BOX 1918		Job No:	7747/54		
PENRITH NSW	/ 2750	Date:	24/11/2021		
PROJECT:	SITE FILL TESTING				

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

										Page 2 of 9
TEST NUMBER			802							
DATE TESTED & S	AMPLED		20/10/2021							
RESULTS										
Hilf Density Ratio	Standard	%	98							
Moisture Variation fr	om OMC (-Drier/+Wetter)	%	-0.5							
Specification	Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	-							
Shown on Drawing No			7747/54-16							
Retested by Test			Souther	n Heights						
Reduced Level		m	-							
FIELD & LABORA	ATORY DATA							-		
Field Wet Density		t/m³	2.07							
Field Moisture Content	40 O: (I)	%	15.5							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result fro Lab Compaction Date Te			802 21/10/2021							
Peak Converted Wet Der		t/m³	21/10/2021							
Apparent Optimum Moist	•	%	16.5							
Number of Compaction P		70	3							
Test Procedures - See No			12							
Material Description - see	below		2							
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description	n									
 CL-Clays of low plasticity, gra CH-Clays of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGS40 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/2		rodite	d for comp	lianco with				/ilson	21/14	1/2021
Accreditation Number Corporate Site Number	r 2734		ed for comp C 17025 - ⁻				H W		I Signatory	1/2021
34 Borec Road, Penrith Telephone: (02) 4722 2						20 Whyalla I : (02) 9607 (tons NSW 2	170	



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 4 of 16

TEST NUMBER DATE TESTED & SAMPLED	ŀ	803	804	805	806 20/10/2021	807	808	809	810 21/10/202
DATE TESTED & SAMIFLED					20/10/2021				21/10/202
RESULTS	r								
Hilf Density Ratio Standard	%	100.5	101	99.5	101	101	100	100.5	100.5
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	-0.5	-1.5	-0.5	-0.5	-1.0	-0.5
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						/54-15			
Retested by Test	m		1	r	Ridg	etops		1	.
Reduced Level	111	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.07	2.08	2.06	2.07	2.08	2.06	2.06	2.07
Field Moisture Content	%	16.5	16.0	14.0	16.5	14.0	16.0	15.5	21.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		803	804	805	806	807	808	809	810
ab Compaction Date Tested	[22/10/2021	22/10/2021	22/10/2021	22/10/2021	22/10/2021	22/10/2021	22/10/2021	28/10/202
Peak Converted Wet Density	t/m³	2.06	2.06	2.07	2.05	2.06	2.06	2.05	2.06
Apparent Optimum Moisture Content	%	16.5	16.5	14.5	18.0	14.5	16.5	16.5	21.5
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Aaterial Description - see below		2	2	2	2	2	2	2	2-3
 Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Ther AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T120, T162 , T119, T162 , T162, T173			
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clay CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 	S			 11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro 	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for comp	liance with			нw	'ilson	24/11	/2021
NATA		C 17025 - ⁻						<u>I Signatory</u>	
Accreditation Number 2734								$\mathcal{V}^{\mathbf{I}}$	
Corporate Site Number 2727								\sim	
A Deves Dead Devith NOW 0770					00 M/b 11			470	
4 Borec Road, Penrith NSW 2750					20 Whyalla		tons NSW 2	170	

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REDBANK COM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 5 of 16

	_								Tage 5 01
TEST NUMBER		811	812	813	814	815	816	817	818
DATE TESTED & SAMPLED			21/10/2021						
RESULTS	[
Hilf Density Ratio Standard	%	99.5	99	98	99	99.5	99.5	99	99
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.0	-1.0	-0.5	-0.5	0.5	0.0	0.0	-0.5
Specification Density Ratio (Standard	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 9
TEST LOCATION				1		1	1	1	
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						/54-15			
Retested by Test	m			1	Ridg	etops	1		1
Reduced Level	111	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA				-	-	-	-	-	
ield Wet Density	t/m³	2.06	2.07	2.06	2.08	2.09	2.07	2.06	2.06
Field Moisture Content	%	19.5	21.5	17.5	20.5	21.5	17.5	21.0	22.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
_ab Compaction result from test number		811	812	813	814	815	816	817	818
Lab Compaction Date Tested Peak Converted Wet Density	t/m³	28/10/2021	28/10/2021					25/10/2021	
Apparent Optimum Moisture Content	%	2.07 20.5	2.09 22.5	2.10 18.0	2.10 21.0	2.10 21.0	2.08 17.5	2.08 21.0	2.08 22.0
Number of Compaction Points	/0	20.5	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		2-3	2-3	2-3	2-3	2-3	2	2-3	2-3
 Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 EN 2189 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 EN 2189 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 EN 2189 1.2.1 clause 6.4 (b), 2.1.1, 3.5.1, 5.6.1, 5.8.1 EN 2189 1.2.1 clause 6.4 (b), 2.1.1, 3.5.1, 3.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DG840 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER	radita	d for compl	iance with			нw	'ilson	24/11	/2021
		C 17025 - 1						Signatory	
Accreditation Number 2734								$\mathcal{D}_{\mathbf{I}}$	
Corporate Site Number 2727								\cup	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

Telephone: (02) 9607 6111



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 3 of 9

TEST NUMBER		819	820						
DATE TESTED & SAMPLED)/2021						
				L				•	L
RESULTS									
Hilf Density Ratio Standard	%	99.5	101						
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	-2.0						
Specification Density Ratio (Standard				ation Mo	oisture Va	rianco fr	om OMC		±2%
TEST LOCATION	u)	20070	opecine			inance n			±2 /0
Chainage (Carriageway L/R)	m	-	-						
Shown on Drawing No		7747/	/54-16						
Retested by Test		Southerr	n Heights						
Reduced Level	m	-	-						
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.07	2.07						
Field Moisture Content	%	22.0	17.0						
Material retained on 19mm Sieve (wet)	%	<5	<5						
Lab Compaction result from test number		819	820						
Lab Compaction Date Tested		28/10/2021	28/10/2021						
Peak Converted Wet Density	t/m³	2.08	2.05						
Apparent Optimum Moisture Content	%	21.5	19.0						
Number of Compaction Points		3	3						
Test Procedures - See Note Number Material Description - see below		12	12						
Notes		2-3	2						
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	Accred	itation No 14234		se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB20 Form No R 020 Version 10 10/20 - issued by ER 				17. CSS - Cru	Roadbase cycled Sub-base shed Sandstone ped Sandstone		 Cement Stal # Lime Stabilis \$ Gypsum Stal 	sed	
	rodite	d for comp	lianco with				ileon	01/14	/2021
		ed for compl C 17025 - ⊺				ΗW	ilson <u>Approved</u>	24/11 <u>I Signatory</u>	/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla I e: (02) 9607 (tons NSW 2	170	

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REDBANK COMMUNITIES	
PO BOX 1918	
PENRITH NSW 2750	

Laboratory:PenrithJob No:7747/54Date:24/11/2021

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PROJECT:

SITE FILL TESTING PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER]	821	822	823	824	825		1	
DATE TESTED & SAMPLED		021	022	22/10/2021	024	020			
	L			22/10/2021					l
RESULTS	г		1	1	1	1	1	1	1
Hilf Density Ratio Standard	%	98.5	98.5	99.5	99	99			
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	0.5	0.5	-0.5	-0.5			
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	ariance fr	om OMO	;	±2%
TEST LOCATION	r		1	1	1	1	r	1	1
Chainage (Carriageway L/R)	m	-	-	- 7747/54-15	-	-			
Shown on Drawing No Retested by Test									
Reduced Level	m			Ridgetops	1	1			
		-	-	-	-	-			
FIELD & LABORATORY DATA			1	1			1		
Field Wet Density	t/m ³	2.14	2.11	2.09	2.07	2.04			
Field Moisture Content	%	17.5	17.0	15.0	15.5	17.5			
Material retained on 19mm Sieve (wet) Lab Compaction result from test number	%	<5 821	<5 822	<5 823	<5 824	<5 825			
Lab Compaction Date Tested		26/10/2021	822 26/10/2021	823 26/10/2021	824 26/10/2021	825 26/10/2021			
Peak Converted Wet Density	t/m³	2.17	20/10/2021	20/10/2021	2.09	2.06			
Apparent Optimum Moisture Content	%	17.0	16.5	14.5	16.0	18.0			
Number of Compaction Points		3	3	3	3	3			
Test Procedures - See Note Number		12	12	12	12	12			
Material Description - see below		2	2	2	2	2			
 Assigned Values have been obtained from our Prestons laborators. Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 SA 51289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SP Lill details of Test Procedure 5.8.1 available on request 				e shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 166		
Material Description									
L CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays L CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayes sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand B DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone red Sandstone		* Cement Sta # Lime Stabil \$ Gypsum Sta	ised	
Form No R 020 Version 10 10/20 - issued by ER									
NATA		d for compl C 17025 - ⁻				ΗW	ilson <u>Approve</u>	24/1 <u>d Signatory</u>	1/2021
Accreditation Number 2734								\sum	
Corporate Site Number 2727								S	
A Development Develle NOM OTES				11-11-1-10-1	00 14/1			0470	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2		Place, Prest	1002 N200	2170	

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Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COM	MUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	/ 2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

		ŕ			,					Page 4 of 9
TEST NUMBER		1	826							
DATE TESTED & S	AMPLED		22/10/2021							
RESULTS										
Hilf Density Ratio	Standard	%	99							
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.5							
Specification	Density Ratio (Standard	d)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	rom OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	-							
Shown on Drawing No			7747/54-16							
Retested by Test			Souther	n Heights						
Reduced Level		m	-							
FIELD & LABORA	ATORY DATA									
Field Wet Density		t/m³	2.06							
Field Moisture Content		%	16.0							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result fro			826							
Lab Compaction Date Te Peak Converted Wet Der		t/m³	26/10/2021 2.08							
Apparent Optimum Moist		%	16.0							
Number of Compaction P		70	3							
Test Procedures - See No			12							
Material Description - see			2							
2: Assigned Values have been), 2.1.1, 5.2.1, 5.3.1, 5.4.1), 2.1.1, 5.2.1, 5.4.1, 5.8.1), 2.1.1., 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ⁻ , T120, T166, T ⁻ , T119, T162 , T162, T173		5.7.1	
Material Description	n									
 CL-Clays of low plasticity, gra CI-Clay of medium plasticity, CH-Clays of high plasticity SC-Clayey sands, sand-clay SM-Silty sands, sand-silt mix GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGS40 DGS20 	avelly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays mixtures tures and-clay mixtures g sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/2	,	ro cl:+ -	d for same	lionooitt				liloon	04/44	1/2024
Accreditation Number Corporate Site Number	r 2734		ed for comp C 17025 - ⁻				ΗW	/ilson <u>Approved</u>	24/11 I Signatory	1/2021
34 Borec Road, Penrith Telephone: (02) 4722 2						20 Whyalla : (02) 9607 (tons NSW 2	170	

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory: Penrith Job No: 7747/54 Date: 24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 7 of 16

	-								-
TEST NUMBER		827	828	829	830	831	832		
DATE TESTED & SAMPLED		22/10)/2021		25/10)/2021			
RESULTS									
Hilf Density Ratio Standard	%	98.5	98.5	99	98.5	100.5	98.5		
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-0.5	0.5	-0.5	-1.0	0.5		
Specification Density Ratio (Standa				ation Mo	isture Va		om OMC		±2%
TEST LOCATION	,		-						
Chainage (Carriageway L/R)	m	-	-	-	-	-	-		
Shown on Drawing No				7747	/54-15				
Retested by Test				Ridg	etops				
Reduced Level	m	-	-	-	-	-	-		
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.06	2.07	2.06	2.03	2.07	2.10		
Field Moisture Content	%	16.5	16.5	18.5	17.5	16.0	18.0		
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5		
Lab Compaction result from test number		827	828	829	830	831	832		
Lab Compaction Date Tested		26/10/2021	26/10/2021	27/10/2021	27/10/2021	27/10/2021	27/10/2021		
Peak Converted Wet Density	t/m³	2.09	2.10	2.08	2.06	2.06	2.13		
Apparent Optimum Moisture Content	%	17.0	17.0	18.0	18.0	17.0	17.5		
Number of Compaction Points		3	3	3	3	3	3		
Test Procedures - See Note Number		12	12	12	12	12	12		
Material Description - see below Notes		2	2	2	2	2	2		
 Assigned Values have been obtained from our Penrith laborator, Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. Then AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Sa 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 	ry – Accredi	tation No 1423		se shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DCB40 DDS20	5			11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER	a and all t						lile e re	0.4/1	1/2024
NATA		d for compl C 17025 - ⁻				нvv	ilson <u>Approved</u>	24/1 Signatory	1/2021
Accreditation Number 2734 Corporate Site Number 2727									
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REDBANK COMMU PO BOX 1918	JNITIES	Laboratory: Job No:	Penrith 7747/54
PENRITH NSW 2	750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 5 of 9

TEST NUMBER		000							
		833							
DATE TESTED & SAMPLED		26/10/2021							
RESULTS									
Hilf Density Ratio St	andard %	99.5							
Moisture Variation from OMC (-D	Drier/+Wetter) %	0.0							
Specification Density F	Ratio (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriagewa	ay L/R) m	-							
Shown on Drawing No		7747/54-16							
Retested by Test		Souther	n Heights						
Reduced Level	m	-							
FIELD & LABORATORY D	ΑΤΑ								
Field Wet Density	t/m³	2.14							
Field Moisture Content	%	12.0							
Material retained on 19mm	Sieve (wet) %	<5							
Lab Compaction result from test numb	er	833							
Lab Compaction Date Tested		02/11/2021							
Peak Converted Wet Density	t/m³	2.15							
Apparent Optimum Moisture Content Number of Compaction Points	%	12.0							
Test Procedures - See Note Number		3 12							
Material Description - see below		12							
Notes		I							
 Assigned Values have been obtained from o 2: Assigned Values have been obtained from ou 3. Results have been calculated using infinite di 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5. 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.2 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.5 9: Full details of Test Procedure 5.8.1 available 	ur Prestons laboratory – Accred ecimal places. Therefore, calcu 3.1, 5.4.1 3.1, 5.4.1 4.1, 5.8.1 6.1, 5.8.1	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T119, T162		5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sand CI-Clay of medium plasticity, gravelly clays, sa CH-Clays of high plasticity Sc-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed s DGB20 DGB40 D.DGS20 Form No R 020 Version 10 10/20 - issued by ER	andy clays, silty clays s sand			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
		ed for compl	liance with			ЦМ	'ilson	24/11	/2021
Accreditation Number 2734 Corporate Site Number 2727		ic 17025 - ⁻				H W		<u>Signatory</u>	/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla : (02) 9607 (tons NSW 2	170	



REDBANK COMMU PO BOX 1918 PENRITH NSW 27		Laboratory: Job No: Date:
PROJECT:	SITE FILL TESTING	

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 8 of 16

Penrith

7747/54 24/11/2021

		834	835	836	837	838	839	840	841	
DATE TESTED & SAMPLED				26/10/2021						
RESULTS										
Hilf Density Ratio Standard	%	98.5	100	99	98.5	99	100.5	99.5	100	
Noisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.5	0.0	1.0	0.5	0.5	-0.5	0.5	
Specification Density Ratio (Standa	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±29	
TEST LOCATION	r									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-	
Shown on Drawing No	-					/54-15				
Retested by Test	m					etops -	-		-	
Reduced Level	111	-	-	-	-	-	-	-	-	
FIELD & LABORATORY DATA				•						
Field Wet Density	t/m³	2.15	2.15	2.14	2.13	2.15	2.14	2.14	2.15	
Field Moisture Content	%	13.0	12.5	12.0	12.5	12.5	12.0	12.0	12.5	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		834	835	836	837	838	839	840	841	
ab Compaction Date Tested		02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021		02/11/2021	02/11/20	
Peak Converted Wet Density	t/m ³	2.18	2.15	2.16	2.16	2.17	2.13	2.15	2.15	
Apparent Optimum Moisture Content	%	13.0	12.0	12.0	11.5	12.0	11.5	12.5	12.0	
Number of Compaction Points Fest Procedures - See Note Number	ŀ	3	3	3	3	3	3	3	3	
Aaterial Description - see below	-	12 1	12 1-2	12 1	12 1-2	12 1-2	12 1	12 1	12 1-2	
 Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173				
Material Description										
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 	5			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed		
Form No R 020 Version 10 10/20 - issued by ER		al fan					/:l	0.4/1	/0001	
NATA		d for compl C 17025 - ⊺				нw	'ilson <u>Approved</u>	24/11 Signatory	/2021	
Accreditation Number 2734								\mathcal{Q}_{1}		
Corporate Site Number 2727								\sim		
34 Borec Road, Penrith NSW 2750				Unit 4 18-3	20 Whyalla	Place Pres	tons NSW 2	170		

Telephone: (02) 4722 2744

Telephone: (02) 9607 6111



REDBANK COMMUNITIES								
PO BOX 1918								
PENRITH NSW 2750								

Laboratory:PenrithJob No:7747/54Date:24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 9 of 16

									- J
		842	843	844	845	846	847	848	849
DATE TESTED & SAMPLED		26/10/2021		27/10/2021		28/10/2021			
RESULTS									
Hilf Density Ratio Standard	%	98	99.5	99.5	99.5	100	100	101	100
Moisture Variation from OMC (-Drier/+Wetter)	%	0.5	-0.5	0.5	-0.5	0.0	-0.5	0.0	-0.5
Specification Density Ratio (Standa	rd)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						54-15			
Retested by Test	m		1	1	Ridg	etops	1	1	,
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.14	2.15	2.16	2.15	2.12	2.12	2.11	2.10
Field Moisture Content	%	13.0	12.5	12.0	13.0	13.5	13.5	13.0	12.5
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		842	843	844	845	846	847	848	849
ab Compaction Date Tested		02/11/2021	29/10/2021		29/10/2021	12/11/2021		12/11/2021	12/11/20
Peak Converted Wet Density	t/m³	2.18	2.16	2.17	2.16	2.12	2.12	2.09	2.10
Apparent Optimum Moisture Content	%	12.5	13.0	12.0	13.5	14.0	13.5	12.5	12.5
Number of Compaction Points Fest Procedures - See Note Number		3	3	3	3	3	3	3	3
Material Description - see below		12 2	12 1-2	12 1-2	12 1-2	12 2	12 2	12 2	12 1-2
 Assigned Values have been obtained from our Prestons laborator Results have been calculated using infinite decimal places. There AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (l , T119, T120, T1 , T120, T166, T1 , T119, T162 , T162, T173			
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20 - issued by ER	ccredite	ed for comp	liance with			нw	ilson	24/11	/2021
NATA		C 17025 - ⁻						Signatory	
Accreditation Number 2734								\mathcal{Q}	
Corporate Site Number 2727								-	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COM PO BOX 1918	MUNITIES	Laboratory: Job No:	Penrith 7747/54
PENRITH NSV	/ 2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 10 of 16

TEST NUMBER			850	851	852			1		
DATE TESTED & SA			000	28/10/2021	002					
				20/10/2021					I	
RESULTS					-			•		
Hilf Density Ratio	Standard	%	99	101	99					
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	0.5	-0.5	0.0					
Specification	Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	oisture Va	riance f	rom OMC	;	±2%
TEST LOCATION				•						
Chainage	(Carriageway L/R)	m	-	-	-					
Shown on Drawing No				7747/54-15	-					
Retested by Test				Ridgetops						
Reduced Level		m	-	-	-					
FIELD & LABORA										
Field Wet Density		t/m³	0.00	0.11	0.40				1	
Field Moisture Content		%	2.09 12.5	2.11 15.0	2.12 16.0					
Material retained on	19mm Sieve (wet)	%	<5	<5	<5					
Lab Compaction result fro	()	70	850	851	852					
Lab Compaction Date Tes			12/11/2021	12/11/2021	12/11/2021					
Peak Converted Wet Den		t/m³	2.11	2.09	2.14					
Apparent Optimum Moistu	•	%	12.0	15.5	16.0					
Number of Compaction Po			3	3	3					
Test Procedures - See No			12	12	12					
Material Description - see	below		1-2	2	2					
2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1	- Accred	itation No 14234		se shown	11: AS 1289 1	.2.1 clause 6.4 .2.1 clause 6.4 , T119, T120, T , T120, T166, T , T119, T162 , T162, T173		5.7.1	
Material Description	ı									
 CL-Clays of low plasticity, gra CI-Clay of medium plasticity, gra CH-Clays of high plasticity SC-Clayey sands, sand-clay r SM-Sity sands, sand-silt mixt GC-Clayey gravels, gravel-sa SP-Sand, crushed dust, filling DGB20 DGS20 	velly clays, sandy clays, silty clays gravelly clays, sandy clays, silty clays nixtures ures nd-clay mixtures sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Sta # Lime Stabili \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20		oro al:4 -	d for com-	100000 ····!+				liloon	04/4	1/2024
Accreditation Number Corporate Site Number	2734		ed for compl ℃ 17025 - ⊺				ΗV	√ilson <u>Approvec</u>	24/1 <u>d Signatory</u>	1/2021
34 Borec Road, Penrith Telephone: (02) 4722 2						20 Whyalla I : (02) 9607 6		tons NSW 2	2170	



REDBANK COM	IMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 6 of 9

		050							
		853			<u> </u>				
DATE TESTED & SAMPLED		28/10/2021							
RESULTS									
Hilf Density Ratio Standard	%	99							
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0							
Specification Density Ratio (Stand	dard)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION	-								
Chainage (Carriageway L/R)	m	-							
Shown on Drawing No		7747/54-16							
Retested by Test		Souther	n Heights						
Reduced Level	m	-							
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.08							
Field Moisture Content	%	15.5							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		853							
Lab Compaction Date Tested		12/11/2021							
Peak Converted Wet Density	t/m³	2.10							
Apparent Optimum Moisture Content	%	16.0							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		2							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 9: Full details of Test Procedure 5.8.1 available on reguest 17: RMS T120, T164, T173									
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CI-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 I0. DGS20 Form No R 020 Version 10 10/20 - issued by ER					Roadbase ycled Sub-base shed Sandstone ped Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
	Accredito	d for comp	liance with			Ц \//	'ilson	24/11	/2021
Accreditation Number 2734 Corporate Site Number 2727		c 17025 - ⁻				ΗW		<u>Signatory</u>	/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla I : (02) 9607 6		tons NSW 2	170	



REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Penrith Laboratory: Job No: 7747/54 Date: 24/11/2021

PROJECT: SITE FILL TESTING

> PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 11 of 16

TEST NUMBER]	854	855	856	857	858			
DATE TESTED & SAMPLED				29/10/2021					
RESULTS	г				1		1	1	1
Hilf Density Ratio Standard	%	101.5	98.5	100.5	99	98.5			
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5	-0.5	-1.0	-0.5	-0.5			
Specification Density Ratio (Standa	ard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-			
Shown on Drawing No				7747/54-15					
Retested by Test				Ridgetops					
Reduced Level	m	-	-	-	-	-			
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.12	2.09	2.11	2.13	2.09			1
Field Moisture Content	%	13.5	12.09	13.0	14.0	14.0		1	
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5			
Lab Compaction result from test number		854	855	856	857	858			
Lab Compaction Date Tested		15/11/2021	15/11/2021			15/11/2021			
Peak Converted Wet Density	t/m³	2.09	2.12	2.10	2.15	2.12			
Apparent Optimum Moisture Content	%	15.0	12.5	14.0	14.0	15.0			
Number of Compaction Points		3	3	3	3	3			
Test Procedures - See Note Number		12	12	12	12	12			
Material Description - see below		1-2	1	1-2	2	2			
 Assigned Values have been obtained from our Penrith laborator, Assigned Values have been obtained from our Prestons laborato Results have been calculated using infinite decimal places. Then AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 SA 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S Full details of Test Procedure 5.8.1 available on request 	ry – Accredi	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 DGS20 	S			11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	loadbase vcled Sub-base shed Sandstone ed Sandstone		* Cement Sta # Lime Stabili: \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issued by ER									
Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				ΗW	'ilson <u>Approvec</u>	24/1 <u>H Signatory</u>	1/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla : (02) 9607 (tons NSW 2	2170	

email: info@geotech.com.au www.geotech.com.au



REDBANK COMMU PO BOX 1918	JNITIES	Laboratory: Job No:	Penrith 7747/54
PENRITH NSW 2	750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 7 of 9

TEST NUMBER			859							
DATE TESTED & SA	MPLED		29/10/2021			<u> </u>				
			-0/10/2021	I	I	I	I	I		
RESULTS		Ī		1	1	r	1	1		
Hilf Density Ratio	Standard	%	98							
Moisture Variation fro	m OMC (-Drier/+Wetter)	%	-0.5							
Specification	Density Ratio (Standard	i)	≥ 9 8%	Specific	ation Mo	oisture Va	riance fr	om OMC		±2%
TEST LOCATION										
	(Carriageway L/R)	m	-							
Shown on Drawing No			7747/54-16							
Retested by Test			Souther	n Heights						
Reduced Level		m	-							
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.09							
Field Moisture Content		%	12.0							
Material retained on	19mm Sieve (wet)	%	<5							
Lab Compaction result from	m test number		859							
Lab Compaction Date Tes			15/11/2021							
Peak Converted Wet Dens		t/m³	2.13							
Apparent Optimum Moistu		%	12.5							
Number of Compaction Po			3							
Test Procedures - See Not			12							
Material Description - see	DEIOM		1							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166, T173 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 14: RMS T112, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T116, T113 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 9: Fuil details of Test Procedure 5.8.1 available on reguest 17: RMS T120, T164, T173					5.7.1					
Material Description										
 CL-Clays of low plasticity, grav CH-Clays of medium plasticity, grav CH-Clays of high plasticity, grav SC-Clayey sands, sand-clay m SM-Silty sands, sand-silt mixt. GC-Clayey gravels, gravel-sar SP-Sand, crushed dust, filling DGB20 DGS40 	velly clays, sandy clays, silty clays ravelly clays, sandy clays, silty clays nixtures rres nd-clay mixtures sand, washed sand					Roadbase ycled Sub-base shed Sandstone ped Sandstone		 * Cement Stat # Line Stabilis \$ Gypsum Stat 	ed	
Form No R 020 Version 10 10/20	,	rod:+-	d for some	lion oo			1134	lilaan	04/44	/2024
Accreditation Number 2 Corporate Site Number	1 2734		d for compi C 17025 - ⁻				нw	'ilson <u>Approved</u>	24/11 <u>Signatory</u>	/2021
34 Borec Road, Penrith	NSW 2750				Unit 4, 18-	20 Whyalla	Place, Prest	tons NSW 2	170	
Telephone: (02) 4722 27	744					: (02) 9607 (



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 12 of 16

TEST NUMBER DATE TESTED & SAMPLED			860 29/10	861 //2021						
		I		-				1		
RESULTS										
Hilf Density Ratio	Standard	%	101.5	100.5						
Moisture Variation fro	om OMC (-Drier/+Wetter)	%	-0.5	-2.0						
Specification	Density Ratio (Standard	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION										
Chainage	(Carriageway L/R)	m	-	-						
Shown on Drawing No			7747/	54-15						
Retested by Test			Ridg	etops						
Reduced Level		m	-	-						
FIELD & LABORA	TORY DATA									
Field Wet Density		t/m³	2.12	2.11						
Field Moisture Content		%	14.5	13.0						
Material retained on	19mm Sieve (wet)	%	<5	<5						
Lab Compaction result fro	()		860	861						
Lab Compaction Date Tes				15/11/2021						
Peak Converted Wet Den	sity	t/m³	2.09	2.10						
Apparent Optimum Moistu	ure Content	%	15.0	15.0						
Number of Compaction P	oints	Ì	3	3						
Test Procedures - See No	ote Number	Ì	12	12						
Material Description - see	below		2	2						
2: Assigned Values have been	, 2.1.1, 5.2.1, 5.3.1, 5.4.1 , 2.1.1, 5.2.1, 5.4.1, 5.8.1 , 2.1.1, 5.5.1, 5.6.1, 5.8.1	Accredi	tation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, 5 b), 2.1.1, 5.7.1, 5 166	5.7.1	
Material Description	ו									
	ures nd-clay mixtures sand, washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Brc	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
FUTTI NO K UZU VERSION 10 10/20	,	rodito	d for como	ianco with				ileon	01/11	/2021
Accreditation Number Corporate Site Numbe	I 2734	Accredited for compliance with H Wilson 24/11/2021 ISO/IEC 17025 - Testing. Approved Signatory						/2021		
34 Borec Road, Penrith						20 Whyalla		tons NSW 2	170	
Telephone: (02) 4722 2	744				Telephone	: (02) 9607 (6111			



REDBANK COM	IMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW	2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 8 of 9

TEST NUMBER	1	862							
DATE TESTED & SAMPLED		01/11/2021							
RESULTS	1		1	1	1				
Hilf Density Ratio Standard	%	101							
Moisture Variation from OMC (-Drier/+Wetter)	%	1.4							
Specification Density Ratio (Standard))	≥98%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-							
Shown on Drawing No		7747/54-16							
Retested by Test		Souther	n Heights						
Reduced Level	m	-							
FIELD & LABORATORY DATA									
	t/m³	2.14							
Field Moisture Content	%	11.0							
Material retained on 19mm Sieve (wet)	%	<5							
Lab Compaction result from test number		862							
Lab Compaction Date Tested		12/11/2021							
Peak Converted Wet Density	t/m³	2.12							
Apparent Optimum Moisture Content	%	11.5							
Number of Compaction Points		3							
Test Procedures - See Note Number		12							
Material Description - see below		1							
Notes 1: Assigned Values have been obtained from our Penrith laboratory – Accreditation No 2734 10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 2: Assigned Values have been obtained from our Prestons laboratory – Accreditation No 14234 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.6.1 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1, 5.3.1, 5.4.1 13: RMS T111, T119, T120, T166 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 14: RMS T111, T119, T120, T166, T173 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 15: RMS T120, T119, T162 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 16: RMS T120, T112, T162, T173 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 17: RMS T120, T164, T173 9: Fuil details of Test Procedure 5.8.1 available on request 17: RMS T120, T164, T173									
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGS40 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	- d:+ -	d for some	lionooiik			1134	iloon	04/44	/2024
		d for comp C 17025 - ⁻				ΗW	ilson <u>Approved</u>	24/11 <u>Signatory</u>	/2021
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla : (02) 9607 (ons NSW 2	170	



REDBANK COMMU		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW 2		Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS Page 13 of 16

	_								
TEST NUMBER		863	864	865	866	867	868	869	870
DATE TESTED & SAMPLED	l				01/11	/2021			
RESULTS									
Hilf Density Ratio Standard	%	100.5	101	100.5	99.5	99	99.5	100	100.5
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5	-1.5	-1.5	-0.5	-0.5	-0.5	0.0	-0.5
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						/54-15			
Retested by Test				1	Ridg	etops			
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.14	2.15	2.13	2.14	2.13	2.13	2.15	2.15
Field Moisture Content	%	12.5	12.0	12.5	17.0	17.5	17.5	17.0	12.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		863	864	865	866	867	868	869	870
Lab Compaction Date Tested Peak Converted Wet Density	t/m³	12/11/2021	12/11/2021	12/11/2021		12/11/2021		12/11/2021	
Apparent Optimum Moisture Content	%	2.13 14.0	2.13 14.0	2.12 14.0	2.15 17.5	2.15 18.0	2.14 18.0	2.15 17.0	2.14 12.5
Number of Compaction Points	70	3	3	3	3	3	3	3	3
Test Procedures - See Note Number	F	12	12	12	12	12	12	12	12
Material Description - see below	ŀ	1-2	1-2	1.5	2	2	2	2	1
 Assigned Values have been obtained from our Prestons laborator, Results have been calculated using infinite decimal places. Theref AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 				se shown	12. AS 1289 1 13: RMS T111	.2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173			
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis \$ Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER Ar Accreditation Number 2734 Corporate Site Number 2727		d for compl C 17025 - ⊺				ΗW	ilson <u>Approved</u>	24/11 Signatory	/2021
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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
Page 14 of 16

TEST NUMBER	I	871	872	873	874	875	876	877	878
DATE TESTED & SAMPLED					01/11/2021		1		02/11/202
RESULTS									
Hilf Density Ratio Standard	%	99.5	99.5	100.5	101.5	100.5	100	100	100
Moisture Variation from OMC (-Drier/+Wetter)	%	-0.5	-0.5	-0.5	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Standar	d)	≥ 9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%
TEST LOCATION	_								
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
Shown on Drawing No						/54-15			
Retested by Test					Ridg	etops			
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.13	2.13	2.15	2.11	2.10	2.08	2.12	2.12
Field Moisture Content	%	12.0	11.5	12.0	18.5	17.0	16.5	16.0	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
Lab Compaction result from test number		871	872	873	874	875	876	877	878
Lab Compaction Date Tested		15/11/2021	15/11/2021	15/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/202
Peak Converted Wet Density	t/m³	2.14	2.14	2.14	2.08	2.09	2.08	2.12	2.12
Apparent Optimum Moisture Content	%	12.5	12.0	12.0	18.5	17.0	16.5	16.0	17.0
Number of Compaction Points		3	3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12	12
Material Description - see below		1-2	1	1	2	2	2	2	2
 Assigned Values have been obtained from our Prestons laboratory - Results have been calculated using infinite decimal places. Therefo AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				e shown	12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.7.1, 5 166		
Material Description									
 CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity A. SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		 Cement Stat # Lime Stabilis Gypsum Stal 	ed	
Form No R 020 Version 10 10/20 - issued by ER	orodit-	d for com-	ionoo with				licon	04/44	1/2024
		ed for compl C 17025 - ⊺				ΗVV	ilson <u>Approved</u>	24/11 Signatory	1/2021
Accreditation Number 2734								\mathcal{V}^{I}	
Corporate Site Number 2727								\sim	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla	Place, Prest	tons NSW 2	170	

Unit 4, 18-20 Whyalla Place, Prestons NSW 2170 Telephone: (02) 9607 6111



REDBANK COMM		Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSW		Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

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		879	880	881	882	883	884	885	886
DATE TESTED & SAMPLED			02/11/2021				03/11/2021		
RESULTS									
Hilf Density Ratio Standard	%	100.5	100.5	100.5	99.5	99	98	100	101
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	0.0	-0.5	0.0	0.0	0.0	0.0	0.0
Specification Density Ratio (Star	ndard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	rom OMC		±2'
				1			1		1
Chainage (Carriageway L/R) Shown on Drawing No	m	-	-	-	- 7747/	- '54-15	-	-	-
Retested by Test						etops			
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.10	2.09	2.10	2.07	2.10	2.10	2.08	2.08
Field Moisture Content	%	18.0	15.5	16.5	16.5	18.0	16.0	17.5	17.0
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		879	880	881	882	883	884	885	886
ab Compaction Date Tested	t/m3	08/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/2021	08/11/20
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.09 18.0	2.08 15.5	2.09 17.0	2.08 16.5	2.12 18.0	2.14 15.5	2.08 17.5	2.06 17.0
lumber of Compaction Points	/0	3	3	3	3	3	3	3	3
est Procedures - See Note Number		12	12	12	12	12	12	12	12
Aaterial Description - see below		2	2	2	2	2	2	2	2
 Assigned Values have been obtained from our Prestons labo Results have been calculated using infinite decimal places. 1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown		2.1 clause 6.4 (, T119, T120, T [.] , T120, T166, T [.] , T119, T162 , T162, T173			
Material Description . CL-Clays of low plasticity, gravelly clays, sandy clays, silty clay. . Cl-Clay of medium plasticity, gravelly clays, sandy clays, silty. . CH-Clays of high plasticity . CH-Clays of high plasticity . SC-Clayey sands, sand-clay mixtures . SM-Silty sands, sand-silt mixtures . GC-Clayey gravels, gravel-sand-clay mixtures . SP-Sand, crushed dust, filling sand, washed sand . DGB20 . DGB20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase rcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER		d for comp C 17025 - ⁻				НW	/ilson <u>Approved</u>	24/11 <u>Signatory</u>	/2021
Accreditation Number 2734 Corporate Site Number 2727								\mathcal{Q}	

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REDBANK COMMUNITIES
PO BOX 1918
PENRITH NSW 2750

Laboratory:PenrithJob No:7747/54Date:24/11/2021

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS
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		007	000	000	000		1	ſ	1
TEST NUMBER		887	888	889	890		 	 	┨────
DATE TESTED & SAMPLED			03/11/2021		16/11/2021		I	1	1
RESULTS			-	-	-	-			
Hilf Density Ratio Standard	%	101	98.5	98	99.5				
Moisture Variation from OMC (-Drier/+Wetter)	%	0.0	-0.5	0.0	-2.0				
Specification Density Ratio (Standa	rd)	≥9 8%	Specific	ation Mo	isture Va	riance fi	om OMO	;	±2%
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-				
Shown on Drawing No				/54-15					
Retested by Test	m		Ridg	etops					
Reduced Level	111	-	-	-	-				
FIELD & LABORATORY DATA									
Field Wet Density	t/m³	2.09	2.05	2.09	2.08				
Field Moisture Content	%	18.0	15.5	15.0	11.5				
Material retained on 19mm Sieve (wet)	%	<5	<5	<5	<5				
Lab Compaction result from test number		887	888	889	890			I	ļ
Lab Compaction Date Tested	11 2	08/11/2021	08/11/2021						<u> </u>
Peak Converted Wet Density Apparent Optimum Moisture Content	t/m³ %	2.07	2.08	2.13	2.09				
Number of Compaction Points	70	18.0 3	16.0	15.0 3	14.0 3				<u> </u>
Test Procedures - See Note Number		12	3 12	12	12				
Material Description - see below		2	2	2	12				
 Assigned Values have been obtained from our Prestons laboratory Results have been calculated using infinite decimal places. Theref AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 S 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Full details of Test Procedure 5.8.1 available on request 				se shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111 14: RMS T111 15: RMS T120 16. RMS T120 17. RMS T120	2.1 clause 6.4 (, T119, T120, T , T120, T166, T , T119, T162 , T162, T173	(b), 2.1.1, 5.7.1, 166		
Material Description 1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays				11. DGS40			* Cement Sta	bilised	
 CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20 				11. D3340 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		# Lime Stabili \$ Gypsum Sta	ised	
Form No R 020 Version 10 10/20 - issued by ER	oorodito	d for comp	lionoo with			ц м	/ilson	24/1	1/2021
Accreditation Number 2734		ed for compl C 17025 - ⁻						d Signatory	1/2021
Corporate Site Number 2727								2	
34 Borec Road, Penrith NSW 2750 Telephone: (02) 4722 2744					20 Whyalla I : (02) 9607 (tons NSW :	2170	



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory:PenrithJob No:7747/54Date:24/11/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

									Page 9 of
TEST NUMBER		891	892	893	894	895	896	897	898
DATE TESTED & SAMPLED					16/11/2021				17/11/202
RESULTS									
Hilf Density Ratio Standard	%	99.5	102	101.5	103	101	102	100.5	99.5
Noisture Variation from OMC (-Drier/+Wetter)	%	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-0.5
Specification Density Ratio (Standar	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2 %
TEST LOCATION									
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-	-
shown on Drawing No						54-16			
Retested by Test					Southerr	n Heights			
Reduced Level	m	-	-	-	-	-	-	-	-
FIELD & LABORATORY DATA									
ield Wet Density	t/m³	2.09	2.08	2.08	2.11	2.08	2.09	2.07	2.08
Field Moisture Content	%	12.5	14.0	12.5	12.5	11.5	12.0	12.0	18.0
Aterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5	<5	<5	<5	<5
ab Compaction result from test number		891	892	893	894	895	896	897	898
ab Compaction Date Tested		17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021	19/11/20
Peak Converted Wet Density	t/m³	2.10	2.04	2.05	2.05	2.06	2.05	2.06	2.09
pparent Optimum Moisture Content	%	14.5	16.0	14.5	14.5	13.5	14.0	14.0	18.5
lumber of Compaction Points		3	3	3	3	3	3	3	3
est Procedures - See Note Number		12	12	12	12	12	12	12	12
laterial Description - see below		1-2	2	2	1-2	1-2	1-2	1	2
 Assigned Values have been obtained from our Penrith laboratory – Assigned Values have been obtained from our Prestons laboratory. Results have been calculated using infinite decimal places. Therefore AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 ENS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 ENS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 ENS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 	- Accred	itation No 14234		e shown	11: AS 1289 1. 12. AS 1289 1. 13: RMS T111	2.1 clause 6.4 (2.1 clause 6.4 (, T119, T120, T ² , T120, T166, T ² , T119, T162 , T162, T173		5.7.1	
Material Description									
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CL-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures CC-Clayey gravels, gravel-sand-clay mixtures CS-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	oadbase vcled Sub-base hed Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed	
Form No R 020 Version 10 10/20 - issued by ER	orodita	d for com-	ionoo with				ilson	04/44	/2024
		d for compl C 17025 - ⊺				υvv		Signatory	/2021
Accreditation Number 2734							,	$\sum_{i=1}^{n}$	
Corporate Site Number 2727								Re l	
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	20 Whyalla I	Place, Prest	tons NSW 2	170	

Telephone: (02) 4722 2744

Unit 4, 18-20 Whyalla Place, Prestons NSW 217 Telephone: (02) 9607 6111



REDBANK CO	MMUNITIES	Laboratory:	Penrith
PO BOX 1918		Job No:	7747/54
PENRITH NSV	V 2750	Date:	24/11/2021
PROJECT:	SITE FILL TESTING		

PROJECT:

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

Page 1 of 1

			899	900	901					
DATE TESTED & SAMPL	ED			17/11/2021						
RESULTS						1		T	-	T
Hilf Density Ratio	Standard	%	99.5	99.5	99.5					
Moisture Variation from O	MC (-Drier/+Wetter)	%	0.5	0.0	-0.5					
	sity Ratio (Standard	d)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC	;	±2%
TEST LOCATION										
	iageway L/R)	m	-	-	-					
Shown on Drawing No				7747/54-17						
Retested by Test		m		Promenade						
Reduced Level		m	-	-	-					
FIELD & LABORATOR	RY DATA				•					
Field Wet Density		t/m³	2.10	2.03	2.09					
Field Moisture Content		%	14.5	17.0	18.0					
	mm Sieve (wet)	%	<5	<5	<5					
Lab Compaction result from test	number		899	900	901					
Lab Compaction Date Tested Peak Converted Wet Density		t/m³	19/11/2021	19/11/2021	19/11/2021					
Apparent Optimum Moisture Co	ntont	//// %	2.11 14.0	2.04 17.0	2.10 18.5					
Number of Compaction Points		70	3	3	3					
Test Procedures - See Note Number			12	12	12					
Material Description - see below			2	2	2					
Notes			2	2	L					
 Assigned Values have been obtained Assigned Values have been obtained Results have been calculated using id AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 4 	d from our Prestons laboratory – infinite decimal places. Therefor 5.1.1, 5.3.1, 5.4.1 5.2.1, 5.3.1, 5.4.1 5.2.1, 5.4.1, 5.8.1 5.5.1, 5.6.1, 5.8.1	Accred	itation No 14234		e shown	11: AS 1289 1 12. AS 1289 1 13: RMS T111	, T162, T173	b), 2.1.1, 5.3.1, b), 2.1.1, 5.7.1, 166	5.7.1	
Material Description										
 CL-Clays of low plasticity, gravelly cla Cl-Clay of medium plasticity, gravelly CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures SM-Silty sands, sand-silt mixtures GC-Clayey gravels, gravel-sand-clay SP-Sand, crushed dust, filling sand, v DGB20 DGS20 	clays, sandy clays, silty clays mixtures washed sand				11. DGS40 12. FCR20 13. FCR40 14. RC - Recyc 15. Recycled R 16. RSB - Recy 17. CSS - Crus 18. RSS - Ripp 19. Cowels Bro	Roadbase ycled Sub-base shed Sandstone ed Sandstone		* Cement Sta # Lime Stabilis \$ Gypsum Sta	sed	
Form No R 020 Version 10 10/20 - issue	,								- • • •	10004
Accreditation Number 2734			ed for compl C 17025 - ⊺				ΗW	'ilson <u>Approvec</u>	24/11 <u>H Signatory</u>	/2021
Corporate Site Number 2727									U	
34 Borec Road, Penrith NSW	2750				Unit 4, 18-2	20 Whyalla	Place, Pres	tons NSW 2	2170	

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REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750

Laboratory: Penrith 7747/54 Job No: Date: 16/12/2021

Page 1 of 2

PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

TEST NUMBER DATE TESTED & SAMPLED		902	903	904 18/11/2021	905	906	907	908 29/11/2021	909	
RESULTS										
Hilf Density Ratio Stand	dard %	99.5	100	99.5	100	100	100	100	99.5	
Noisture Variation from OMC (-Drier.	/+Wetter) %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Specification Density Rat	io (Standard)	≥9 8%	Specific	ation Mo	isture Va	riance fr	om OMC		±2%	
TEST LOCATION			-	-		-	-			
Chainage (Carriageway L	/R) m	7747/54-18								
Shown on Drawing No			1		//4/	/54-18	1			
Retested by Test	m	-	-	- 200mm Dalauu	- FSL	- 1.0m Dolow	- 1 Em Doloui	- 1. Jm Dolow	- 000mm Da	
Reduced Level	111	900mm Below	600mm Below	300mm Below	FSL	1.8m Below	1.5m Below	1.2m Below	900mm Be	
FIELD & LABORATORY DAT	Α									
Field Wet Density	t/m ³	2.05	2.05	2.06	2.05	2.04	2.05	2.06	2.05	
Field Moisture Content	%	16.0	16.5	18.5	17.0	15.5	16.5	18.0	16.0	
	eve (wet) %	<5	<5	<5	<5	<5	<5	<5	<5	
ab Compaction result from test number		902	903	904	905	906	907	908	909	
ab Compaction Date Tested Peak Converted Wet Density	t/m³	30/11/2021							2.0/	
Apparent Optimum Moisture Content	win- %	2.06 15.5	2.05 16.0	2.07 18.5	2.05 17.0	2.04 15.5	2.05 16.5	2.06 18.0	2.06 16.0	
Number of Compaction Points	70	3	3	3	3	3	3	3	3	
Test Procedures - See Note Number		12	12	12	12	12	12	12	12	
Material Description - see below		2	2	2	2	2	2	2	2	
 Results have been calculated using infinite decima: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, § AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, § Call data (a Carbon de Carbo	5.4.1 5.4.1 5.8.1 5.8.1				13: RMS T111	, T119, T120, T , T120, T166, T , T119, T162 , T162, T173				
9: Full details of Test Procedure 5.8.1 available on re Material Description	equesi									
A Clave of low plasticity, gravelly claves, sandy cla 2. CI-Clave of low plasticity, gravelly claves, sandy cla 2. CI-Clave of high plasticity 4. SC-Claves of high plasticity 4. SC-Claves vands, sand-clay mixtures 5. GC-Claves gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20				11. DGS40 12. FCR20 13. FCR40 14. RC - Recycl 15. Recycled Re 16. RSB - Recyc 17. CSS - Crush 18. RSS - Rippe 19. Cowels Brow	badbase cled Sub-base ned Sandstone ed Sandstone		* Cement Stat # Lime Stabilis \$ Gypsum Stat	ed		
Form No R 020 Version 10 10/20 - issued by ER	Accredite	d for compl	ianco with			Ц \//	/ilson	16/10	/2021	
NATA		C 17025 - 1				11 VV		Signatory	4 202 I	
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Accreditation Number 2734 Corporate Site Number 2727							\	と		
34 Borec Road, Penrith NSW 2750				Unit 4, 18-2	0 Whvalla	Place, Presi	tons NSW 2	170		



REDBANK COMMUNITIES PO BOX 1918 PENRITH NSW 2750 Laboratory: Penrith Job No: 7747/54 Date: 16/12/2021

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PROJECT: SITE FILL TESTING

PROPOSED DEVELOPMENT, GROSE VALE ROAD, NORTH RICHMOND, STAGE SOUTHERN HEIGHTS

	I	010	011	010	010		Page 2
TEST NUMBER DATE TESTED & SAMPLED		910	911	912	913		
JATE TESTED & SAMPLED	02/12/2021						
RESULTS			1		· · · ·		- I
Hilf Density Ratio Standard	%	101	100	98	103		
Moisture Variation from OMC (-Drier/+Wetter)	%	-1.5	0.5	0.0	0.5		
Specification Density Ratio (Stand	ard)	≥9 8%	Specific	ation Mo	oisture Vari	ance from OM	C ±2
EST LOCATION					-		
chainage (Carriageway L/R)	m	-	-				
hown on Drawing No			//4//	/54-18			
Retested by Test	m	-	-	-	-		
Reduced Level	m	600mm Below	300mm Below	FSL	FSL		
IELD & LABORATORY DATA	_						
ield Wet Density	t/m ³	2.04	2.06	2.05	2.03		
ield Moisture Content	%	16.5	17.0	16.0	15.5		
Aaterial retained on 19mm Sieve (wet)	%	<5	<5	<5	<5		
ab Compaction result from test number		910	911	912	913		
ab Compaction Date Tested	1/2			/2021			
Peak Converted Wet Density	t/m ³	2.02	2.06	2.09	1.97		
Apparent Optimum Moisture Content Number of Compaction Points	%	18.0	16.5	16.0	15.5		
Test Procedures - See Note Number		3 12	3 12	3 12	3 12		
Aterial Description - see below		2	2	2	2		
 Results have been calculated using infinite decimal places. The: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 AS 1289 1.2.1 clause 6.4 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 Pull details of Test Procedure 5.8.1 available on request 	refore, caicu	ated values ma	iv vary from thos	ie snown	12. AS 1289 1.2.1 13: RMS T111, T 14: RMS T111, T 15: RMS T120, T 16. RMS T120, T 17. RMS T120, T	120, T166, T173 119, T162 162, T173	, 5.8.1
CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays CI-Clay of medium plasticity, gravelly clays, sandy clays, silty clays CH-Clays of high plasticity SC-Clayey sands, sand-clay mixtures GC-Clayey gravels, gravel-sand-clay mixtures SP-Sand, crushed dust, filling sand, washed sand DGB20 DGB40 DGS20	ıs				Roadbase ycled Sub-base shed Sandstone ped Sandstone	* Cement St # Lime Stabi \$ Gypsum St	lised
		d for compl C 17025 - ⁻				H Wilson Approve	16/12/2021 d Signatory
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Accreditation Number 2734 Corporate Site Number 2727							
4 Borec Road, Penrith NSW 2750 elephone: (02) 4722 2744					20 Whyalla Pla : (02) 9607 61	ace, Prestons NSW 11	2170
			com au v	•	. ,		