

**Lidbury Summers & Whiteman**

**Geotechnical Site Classification Report**

**Rawsons Stages 2B, 3A. 3B**

**Forest Lane, Old Bar**

Report No. RGS02061.1-AE

30 August 2023



RGS02061.1-AE

30 August 2023

Lidbury Summers & Whiteman  
PO Box 510  
FORSTER NSW 2428

**Attention: Phillip Lidbury**

Dear Phillip

**RE: Rawsons Stages 2B, 3A, 3B – Forest Lane, Old Bar  
Geotechnical Site Classification Report**

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a site classification in accordance with AS2870-2011 *Residential Slabs and Footings* for the residential lots within stages 2B, 3A and 3B of Rawsons subdivision at Forest Lane, Old Bar.

The report provided herein provides surface and subsurface conditions encountered at the site along with comments and recommendations on foundation conditions and site classification in accordance with Australian Standard AS2870-2011.

If you have any questions regarding this project, please contact the undersigned.

For and on behalf of

**Regional Geotechnical Solutions Pty Ltd**

Prepared by



**Champak Nag**

Senior Geotechnical Engineer

Reviewed by



**Steve Morton**

Principal Geotechnical Engineer



## Table of Contents

1	INTRODUCTION.....	1
2	METHODOLOGY.....	1
3	LABORATORY TESTING.....	1
4	SITE CONDITIONS.....	2
4.1	Surface Conditions.....	2
4.2	Subsurface Conditions.....	3
5	SITE CLASSIFICATION.....	5
6	CONSTRUCTION AND SITE MAINTENANCE CONSIDERATIONS.....	6
7	LIMITATIONS.....	6

## Figures

Figure 1 Investigation Location Plan

## Appendices

Appendix A Results of Field Investigations

Appendix B Laboratory Test Result Sheets



## 1 INTRODUCTION

Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a site classification in accordance with AS2870-2011 *Residential Slabs and Footings* for the residential lots within Stages 2B, 3A and 3B of the Rawsons subdivision at Forest Lane, Old Bar.

Lots within Stages 2B, 3A and 3B have been modified by regrading works comprising up to 0.9m of fill using site won materials. The filling was undertaken under Level 1 inspection and testing as defined in AS3798-2007 (Refer report RGS02061.1-AC dated May 2023). The fill meets the requirements of Controlled Fill as defined in AS2870 -2011.

The purpose of the assessment was to provide comments and recommendations on the following:

- Site classification to AS2870-2011 *Residential Slabs and Footings*; and
- Comments on foundation conditions at the site, founding strata and allowable bearing pressures.

In providing this report and site classification it has been assumed that the performance expectations of AS2870-2011 are acceptable for the proposed structures.

## 2 METHODOLOGY

Field work for the assessment included:

- Observation of site features and surrounding features relevant to the geotechnical conditions of the site;
- Drilling of eighteen (18) boreholes (BH100 to BH1117) within the proposed Stages 2B, 3A and 3B development; and
- Collection of U50 tube samples from soil horizons considered representative of cohesive soil profiles for shrink-swell testing.

Boreholes were undertaken using a 4WD mounted drill rig.

Engineering logs of the boreholes are presented in Appendix A. The locations of the boreholes within Stages 2B, 3A and 3B are shown on Figure 1. They were obtained on site by measurement relative to lot boundaries which were pegged at the time of investigation.

## 3 LABORATORY TESTING

Samples considered representative of foundation soils were submitted to a NATA accredited laboratory for the measurement of soil volume change over an extreme range of moisture content (shrink / swell index). Results are presented in Appendix B and summarised in Table 1.



**Table 1: Laboratory Testing Summary**

Location	Depth (m)	Lot	Material	Shrinkage (%)	Swell (%)	I <sub>ss</sub> (%)
BH101	0.7 – 1.2	37/38	Residual - Clay	8.2	-0.4	4.5
BH103	0.3 – 0.8	40/41	Residual – Clay	5.7	-0.8	3.2
BH106	0.7 – 1.2	54/55	Residual – Clay	9.7	-0.4	5.4
BH111	0.4 – 0.9	63/64	Residual – Clay	6.0	-1.4	3.4
BH113	0.5-1.0	49/50	Residual – Clay	5.9	-0.6	3.3
BH116	0.5-0.9	45/46	Fill - Clay	3.5	-0.8	1.9

## **4 SITE CONDITIONS**

### **4.1 Surface Conditions**

The development within Stages 2B, 3A and 3B is situated on the northern part of the site and north of previous Stages 1A, 1B and 2A at Forest Lane, Old Bar. The site comprises flat to gently undulating residual terrain grading down towards the south. The site generally slopes at 0 to 1° towards the south east.

The southern side of subject stages were regraded by fill up to approximately 0.9m and central and northern part by shallow fill up to 0.3m using site won clay which was placed and compacted as Controlled Fill (AS2870-2011) under Level One supervision and testing (AS3798-2007).

The site is well drained by runoff towards the drainage reserves to the south near Forest Lane. Drainage of the site will be via a combination of overland flow to the lot and street drainage systems, and minor infiltration into residual clay soils and lot fill.

Typical site conditions for the Stages 2B, 3A and 3B area are shown in the photographs below.



*View west from Lot 44, showing regraded site following fill placement.*



*View east from Lot 60 showing flat to gentle slopes towards the south east.*



*View east from Lot 38 showing flat to gentle slopes.*



*View south east from Lot 60 showing the Stages 2B, 3A and 3B following regrade by fill.*

## **4.2 Subsurface Conditions**

Reference to the NSW surface geology on Minview website indicates that the areas within Stages 2B, 3A and 3B are underlain by Devonian to Carboniferous aged sedimentary rocks which, in the Old Bar area, are typically overlain by variable depths of high plasticity residual clay.

The materials encountered during the investigation are summarised in Table 2 and Table 3. Further details are presented on the attached engineering logs.



**Table 2: Summary of Geotechnical Units**

Unit	Material	Material Description
UNIT 1	FILL – CLAY	CLAY, medium to high plasticity, stiff, trace sand fine to medium grained at top.
UNIT 2	TOPSOIL	Silty CLAY, low to medium plasticity, trace sand fine to medium grained, trace grass roots
UNIT 3	RESIDUAL	CLAY, high plasticity, stiff, trace to some sand fine to medium grained, trace to some gravel fine to medium grained

**Table 3: Summary of Subsurface Materials**

BH	Lot(s)	Depth of Material Layer (m)		
		Unit 1B Fill – Clay, stiff	Unit 2 Topsoil	Unit 4 Residual -Clay
BH100	35/36	0.0 -0.3	--	0.3 - ≥1.5
BH101	37/38	0.0 -0.15	--	0.15 - ≥1.5
BH102	39	0.0 – 0.2	--	0.2 - ≥1.5
BH103	40/41	0.0 – 0.2	--	0.2 - ≥1.5
BH104	42/43	0.0 – 0.4	--	0.4 - ≥1.5
BH105	44	0.0 – 0.4	--	0.4 - ≥1.5
BH106	54/55	0.0 -0.3	--	0.3 - ≥1.5
BH107	56/57	0.0 -0.15	--	0.15 - ≥1.5*
BH108	58/59	0.0 -0.15	--	0.15 - ≥1.5*
BH109	60	0.0 -0.3	--	0.3 - ≥1.5
BH110	61/62	0.0 -0.25	--	0.25 - ≥1.5
BH111	63/64	--	0.0 – 0.25	0.25 - ≥1.5
BH112	65/66	0.0 – 0.1	--	0.1 - ≥1.5^
BH113	49/50	0.0 -0.3	--	0.3 - ≥1.5
BH114	51/52	--	0.0 – 0.15	0.15 - ≥1.5
BH115	53	0.0 -0.35	--	0.35 - ≥1.5



BH	Lot(s)	Depth of Material Layer (m)		
		Unit 1B Fill – Clay, stiff	Unit 2 Topsoil	Unit 4 Residual -Clay
BH116	45/46	0.0 -0.9	--	0.9 - ≥1.5
BH117	47/48	0.0 -0.7	--	0.7 - ≥1.5

Note: ≥ Indicates that base of material layer was not encountered  
 -- Indicates that the material was not encountered at the test location  
 \* Indicates that extremely weathered siltstone encountered from 1.2m  
 ^ Indicates that Sandy Silty Clay, low plasticity, firm to stiff slope wash was encountered from 0.1 to 0.3m

Groundwater was not encountered in any of the boreholes except an inflow at 0.3m in BH105. Groundwater levels fluctuate as a result of seasonal variations, temperature, rainfall and other similar factors, the influence of which may not have been apparent at the time of the assessment.

## 5 SITE CLASSIFICATION

The site classification presented herein is provided on the basis that the performance expectations of AS2870-2011 are acceptable. In assessing the estimated characteristic surface movement ( $y_s$ ) values the following has been adopted:

- Suction change at ground surface of pf 1.2;
- Depth of suction change of 1.5m;
- Crack depth multiplication factor of 0.5;
- Characteristic  $I_{ss}$  of clay fill and residual clay ranges from 3.2 to 5.4.

The site classifications and expected shrink-swell related characteristic free surface movements estimated for each lot within Stages 2B, 3A and 3B are summarised in Table 4. The calculated free surface movements include the additional tree-induced movement for those lots close to existing large trees.

**Table 4: Estimated Surface Movement Summary**

Lots	Site Classification	Estimated Characteristics Surface Movement
35-66	H2*	60 – 70 mm

Note : \* Based on the profiles encountered at the time of the field investigations Lots 45 and 46 are classified as **Class P** in accordance with AS2870-2011 due to the presence of Controlled Fill of >0.4m thickness. In accordance with Clause 2.5.3 Section C of AS2870-2011, as the filling comprises Controlled Fill that was placed under Level One supervision as defined by AS3798-2007, the lots are re-classified as outlined in Table 4.



Footings founded within controlled fill or stiff to very stiff residual clay can be designed for an allowable bearing pressure of 100 kPa.

If further site regrading works are undertaken at the site, reclassification may be required once final cut and fill depths and fill material types are known.

## 6 CONSTRUCTION AND SITE MAINTENANCE CONSIDERATIONS

All structural footings should be founded as follows:

- All footings should be founded in controlled fill, or in stiff or very stiff residual clay below all topsoil, landscaping fill and uncontrolled fill materials;
- Footings can be designed on the basis of a maximum allowable base bearing pressure of **100kPa** for footings founded within controlled fill or residual soils of at least very stiff strength;
- All footings, edge beams and internal beams should be entirely founded on similar material and outside or below the zones of influence resulting from existing or future service trenches and other subsurface structures;
- Site drainage associated with the proposed development should be designed to avoid concentrated flows in the vicinity of any proposed cuttings and foundations and to discharge water downslope of the development in a controlled manner that limits erosion;
- Any foundations located within areas where tree removals or earthworks have previously been carried out or will occur in the future will need to be taken through the disturbed ground to be founded on the undisturbed natural ground beneath. All organic root material should be removed from within the building footprint;
- Prior to the placement of concrete we recommend that footings be observed and assessed by a suitably experienced geotechnical engineer to assess that the correct founding material has been achieved.

Site maintenance must comply with the recommendations and advice provided in CSIRO Sheet BTF18 "*Foundation Maintenance and Footing Performance: A Homeowners Guide*" a copy of which is available from the CSIRO website <http://www.publish.csiro.au/pid/7076.htm>

Shrink-swell related movements can be affected by alterations to the soil profile by cutting and filling, and by the suction related effects of trees close to the building area. The effects of any such cutting, filling, tree planting, or tree removal should be taken into account when selecting design values for differential movement across the building.

## 7 LIMITATIONS

This report comprises the results of an investigation carried out for a specific purpose and client as defined in the document. The report should not be used by other parties or for purposes or projects other than those assumed and stated within the report, as it may not contain adequate or appropriate information for applications other than those assumed or advised at the time of its preparation. The contents of the report are for the sole use of the client and no responsibility or liability will be accepted to any third party. The report should not be reproduced either in part or in full, without the express permission of Regional Geotechnical Solutions Pty Ltd.



Geotechnical site investigation is based on data collection, judgment, experience, and opinion. By its nature, it is less exact than other engineering disciplines. The findings presented in this report and used as the basis for the recommendations presented herein were obtained using normal, industry accepted geotechnical design practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

The recommended depth and properties of any soil, rock, groundwater, or other material referred to in this report is an engineering estimate based on the information available at the time of writing. The estimate is influenced and limited by the fieldwork and testing method carried out in the site investigation, and other relevant information as has been made available. In cases where information has been provided to Regional Geotechnical Solutions for the purposes of preparing this report it has been assumed that the information is accurate and appropriate for such use. No responsibility is accepted by Regional Geotechnical Solutions for inaccuracies within any data supplied by others.

If site conditions encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.

If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

For and on behalf of

**Regional Geotechnical Solutions Pty Ltd**

Prepared by

**Champak Nag**

Senior Geotechnical Engineer

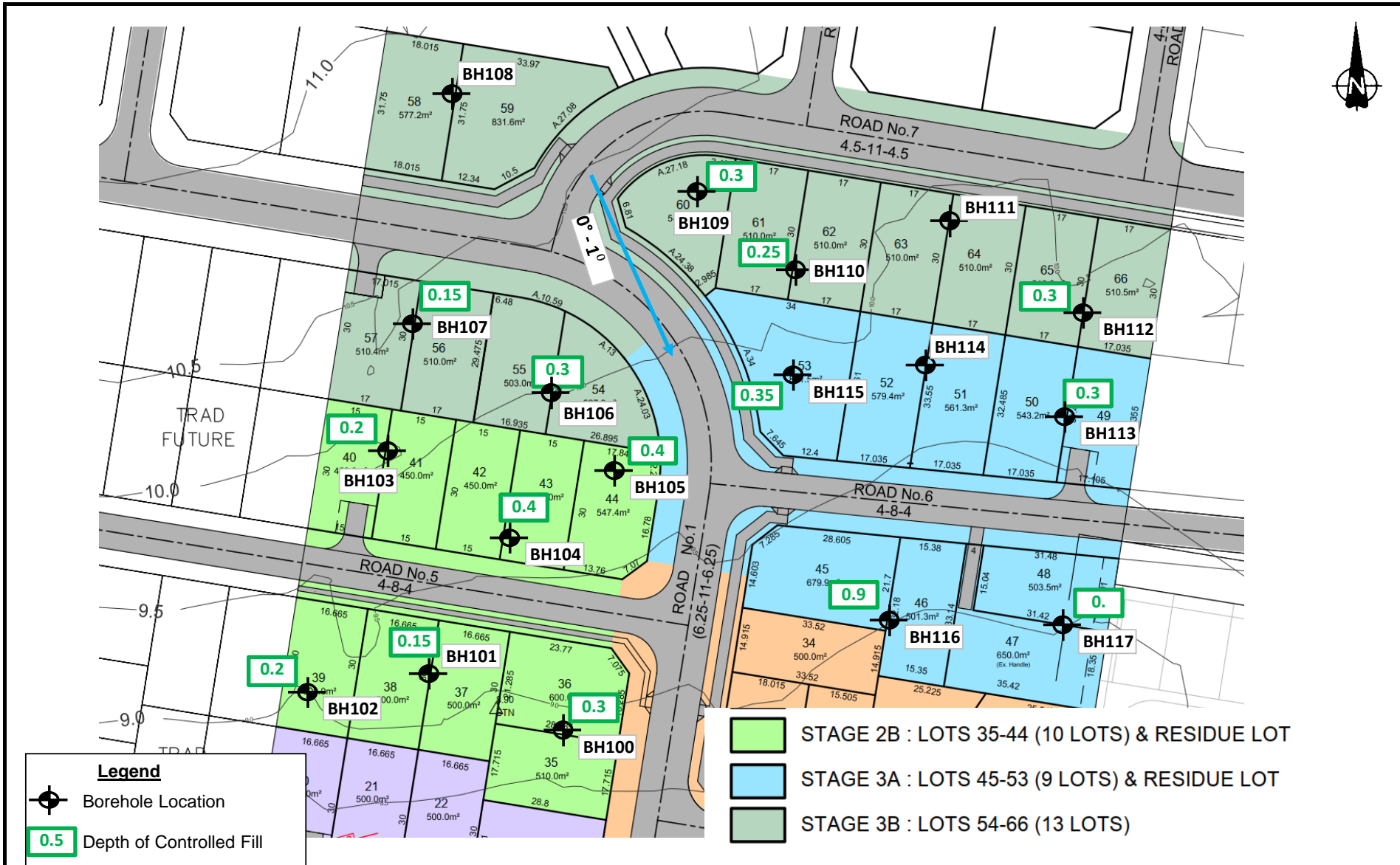
Reviewed by

**Steve Morton**

Principal Geotechnical Engineer



## Figures



\*Note: As per provided drawing titled " Road and Drainage Design for Subdivison of 591 DP1180317, Forster Lane, Old Bar Staging Plan A dt 22/06/20"

	<b>Client:</b>	Lidbury, Summers & Whiteman	Job No.	RGS02061.1-AE
	<b>Project:</b>	Rawsons Stages 2B, 3A and 3B (Lot 591 DP180317) Development	Drawn By:	CN
		Forest Lane, Old Bar	Scale:	NTS
	<b>Title:</b>	Test Location Plan	Date:	4-Aug-23
			Drawing No.	<b>Figure 1</b>



# **Appendix A**

## **Results of Field Investigations**



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH100**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459865 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462532 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered			0.2			<b>FILL:</b> CLAY medium to high plasticity, dark brown/dark grey/brown mottled, trace of sand and gravel fine to medium grained.	M > Wp	St	HP	120	FILL
				0.4		CH	<b>CLAY:</b> High plasticity, brown/pale brown, pale orange brown mottled, trace of sand and gravel fine to medium grained.	M > Wp	St	HP	180	RESIDUAL
				0.8		CH	<b>CLAY:</b> High plasticity, red with pale grey mottling, trace of sand and gravel fine to medium grained.			HP	200	
				1.50m			Hole Terminated at 1.50 m			HP	180	

RG-200.3.LIB.GLB.Log    RG-NON-CORED BOREHOLE - TEST P/T    RGS02061.1.BH.100.SERIES.GPJ    --DrawingFile--> 22/8/2023 16:59 10.02.00.04 D:\egit\lib and In Situ Tool - DGD [Lib, RG-200.3.2022-03-03.Pjt, RG-200.0.2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH101**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459831 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462548 m      DATUM: AHD

Drilling and Sampling				Material description and profile information						Field Test		Structure and additional observations		
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result			
AD/T	Not Encountered	U50		0.0			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown, trace of sand fine to medium grained, trace of organics.	M < Wp				FILL		
				0.15			<b>CLAY:</b> High plasticity, brown/pale brown, trace of sand fine to medium grained.	M > Wp	VSt	HP	230	RESIDUAL		
				0.2		CH						HP	280	
				0.50		CH		<b>CLAY:</b> High plasticity, red with pale grey/grey mottling, trace of sand fine to medium grained.		St - VSt		HP	250	
				0.6								HP	180	
		1.20m		1.2						HP	190			
				1.4										
				1.50			Hole Terminated at 1.50 m							
				1.6										
				1.8										

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\Lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

- U<sub>50</sub> 50mm Diameter tube sample
- CBR Bulk sample for CBR testing
- E Environmental sample
- ASS Acid Sulfate Soil Sample
- B Bulk Sample

**Field Tests**

- PID Photoionisation detector reading (ppm)
- DCP(x-y) Dynamic penetrometer test (test depth interval shown)
- HP Hand Penetrometer test (UCS kPa)

Consistency	UCS (kPa)	Moisture Condition
VS Very Soft	<25	D Dry
S Soft	25 - 50	M Moist
F Firm	50 - 100	W Wet
St Stiff	100 - 200	W <sub>p</sub> Plastic Limit
VSt Very Stiff	200 - 400	W <sub>L</sub> Liquid Limit
H Hard	>400	
Fb Friable		
Density	V Very Loose	Density Index <15%
L Loose	MD Medium Dense	Density Index 15 - 35%
D Dense	D Dense	Density Index 35 - 65%
VD Very Dense	D Dense	Density Index 65 - 85%
		Density Index 85 - 100%



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH102**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459803 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462544 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered			0.2			<b>FILL:</b> CLAY medium to high plasticity, dark brown/dark grey/brown, trace of sand and gravel fine to medium grained, trace of organics.	M > WP	St	HP	150	FILL
				0.20m		CH	<b>CLAY:</b> High plasticity, brown/pale brown, grey, trace of sand fine to medium grained.	M > WP	VSt	HP	220	RESIDUAL
				0.4						HP	200	
				0.6		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St - VSt		HP	
				0.60m						HP	170	
				1.50m			Hole Terminated at 1.50 m			HP	170	
				1.6								
				1.8								

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

U<sub>50</sub> 50mm Diameter tube sample  
 CBR Bulk sample for CBR testing  
 E Environmental sample  
 ASS Acid Sulfate Soil Sample  
 B Bulk Sample

**Field Tests**

PID Photoionisation detector reading (ppm)  
 DCP(x-y) Dynamic penetrometer test (test depth interval shown)  
 HP Hand Penetrometer test (UCS kPa)

<b>Consistency</b>		<b>UCS (kPa)</b>	<b>Moisture Condition</b>	
VS	Very Soft	<25	D	Dry
S	Soft	25 - 50	M	Moist
F	Firm	50 - 100	W	Wet
St	Stiff	100 - 200	W <sub>p</sub>	Plastic Limit
VSt	Very Stiff	200 - 400	W <sub>L</sub>	Liquid Limit
H	Hard	>400		
Fb	Friable			
<b>Density</b>				
V	Very Loose		Density Index <15%	
L	Loose		Density Index 15 - 35%	
MD	Medium Dense		Density Index 35 - 65%	
D	Dense		Density Index 65 - 85%	
VD	Very Dense		Density Index 85 - 100%	

RG 2.00.3.LIB.GLB Log RGS NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\lib and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH103**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459818 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462593 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered	U50		0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown, trace of sand and gravel fine to medium grained, trace of organics.	M > WP				FILL
				0.30m		CH	<b>CLAY:</b> High plasticity, brown/grey brown, trace of sand fine to medium grained.	M > WP	St	HP	150	RESIDUAL
				0.80m		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St - VSt	HP	230	
										HP	200	
										HP	160	
				1.50m			Hole Terminated at 1.50 m					

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 103 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egil\Lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03] P/T, RG 2.00.0 2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH104**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459849 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462583 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered			0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey with some organics, trace of sand and gravel fine to medium grained.	M > Wp	St			FILL
				0.4		CH	<b>CLAY:</b> High plasticity, brown/pale brown/grey, trace of sand fine to medium grained.	M > Wp	St	HP	130	RESIDUAL
				0.6						HP	180	
				0.8								
				1.0								
				1.1		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St			
				1.2						HP	150	
				1.4								
				1.5			Hole Terminated at 1.50 m			HP	140	
				1.6								
				1.8								

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

- U<sub>50</sub> 50mm Diameter tube sample
- CBR Bulk sample for CBR testing
- E Environmental sample
- ASS Acid Sulfate Soil Sample
- B Bulk Sample

**Field Tests**

- PID Photoionisation detector reading (ppm)
- DCP(x-y) Dynamic penetrometer test (test depth interval shown)
- HP Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)	Moisture Condition	
VS	Very Soft	<25	D	Dry
S	Soft	25 - 50	M	Moist
F	Firm	50 - 100	W	Wet
St	Stiff	100 - 200	W <sub>p</sub>	Plastic Limit
VSt	Very Stiff	200 - 400	W <sub>L</sub>	Liquid Limit
H	Hard	>400		
Fb	Friable			
Density		V	Very Loose	Density Index <15%
L	Loose			Density Index 15 - 35%
MD	Medium Dense			Density Index 35 - 65%
D	Dense			Density Index 65 - 85%
VD	Very Dense			Density Index 85 - 100%

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\Lab and In Situ Tool\_DGD\Lib\_RG 2.00.3 2022-03-03 P/T\_RG 2.00.0 2021-06-30



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH105**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459868 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462591 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations					
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result				
AD/T	▲			0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey with some gravel, fine to medium grained, organic material, trace of sand fine to medium grained.	M > WP	F	HP	70	FILL				
				0.4							0.40m		St	HP	100	RESIDUAL
				0.6							0.80m				HP	
				0.8									CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		
				1.0			Hole Terminated at 1.50 m									
				1.2												
				1.4												
				1.6												
				1.8												

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

- U<sub>50</sub> 50mm Diameter tube sample
- CBR Bulk sample for CBR testing
- E Environmental sample
- ASS Acid Sulfate Soil Sample
- B Bulk Sample

**Field Tests**

- PID Photoionisation detector reading (ppm)
- DCP(x-y) Dynamic penetrometer test (test depth interval shown)
- HP Hand Penetrometer test (UCS kPa)

Consistency	UCS (kPa)	Moisture Condition
VS Very Soft	<25	D Dry
S Soft	25 - 50	M Moist
F Firm	50 - 100	W Wet
St Stiff	100 - 200	W <sub>p</sub> Plastic Limit
VSt Very Stiff	200 - 400	W <sub>L</sub> Liquid Limit
H Hard	>400	
Fb Friable		
Density	V Very Loose	Density Index <15%
L Loose	MD Medium Dense	Density Index 15 - 35%
D Dense	VD Very Dense	Density Index 35 - 65%
		Density Index 65 - 85%
		Density Index 85 - 100%

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 105 SERIES.GPJ --DrawingFile--> 22/8/2023 16:59 10.02.00.04 D:\egit\lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 Pjt, RG 2.00.0 2021-06-30]



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH106**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459860 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462613 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations			
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result		
AD/T	Not Encountered	U50		0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey with some organic matter, trace of sand fine to medium grained.	M > Wp				FILL		
				0.30m										
				0.4		CH	<b>CLAY:</b> High plasticity, brown/pale brown, grey, trace of sand fine to medium grained.	M > Wp	St	HP	100		RESIDUAL	
				0.6										
		0.70m		0.70m		CH	<b>CLAY:</b> High plasticity, grey/pale grey/red and pale brown mottling, trace of sand fine to medium grained.		VSt	HP	250			
		1.20m		1.00m		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St		HP	180		
				1.2										
				1.4										
				1.50m			Hole Terminated at 1.50 m							
				1.6										
				1.8										

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

U<sub>50</sub> 50mm Diameter tube sample  
 CBR Bulk sample for CBR testing  
 E Environmental sample  
 ASS Acid Sulfate Soil Sample  
 B Bulk Sample

**Field Tests**

PID Photoionisation detector reading (ppm)  
 DCP(x-y) Dynamic penetrometer test (test depth interval shown)  
 HP Hand Penetrometer test (UCS kPa)

Consistency	UCS (kPa)	Moisture Condition
VS Very Soft	<25	D Dry
S Soft	25 - 50	M Moist
F Firm	50 - 100	W Wet
St Stiff	100 - 200	W <sub>p</sub> Plastic Limit
VSt Very Stiff	200 - 400	W <sub>L</sub> Liquid Limit
H Hard	>400	
Fb Friable		
Density	V Very Loose	Density Index <15%
L Loose	MD Medium Dense	Density Index 15 - 35%
D Dense	VD Very Dense	Density Index 35 - 65%
		Density Index 65 - 85%
		Density Index 85 - 100%

RGS 2.00.3.LIB.GLB Log RGS NON-CORED BOREHOLE - TEST PLOT RGS02061.1 BH 106 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\Lab and In Situ\Tool\_DGD\Lib\_RGS 2.00.3 2022-03-03.Plt.RGS 2.00.0 2021-06-30



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH107**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459825 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462623 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered						<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey with some gravel fine to medium grained, trace of sand fine to medium grained.	M > Wp				FILL
				0.2		CH	<b>CLAY:</b> High plasticity, brown/pale brown/grey, trace of sand fine to medium grained.	M > Wp	VSt			RESIDUAL
				0.4		CH	<b>CLAY:</b> High plasticity, pale brown/pale orange brown with red and grey mottling, trace of sand and gravel fine to medium grained.			HP	250	
				0.6		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand and gravel fine to medium grained.			HP	200	
				1.2		CH	<b>CLAY:</b> Medium to high plasticity, pale grey with pale orange brown/red mottling, trace of gravel fine to medium grained.	M < Wp	VSt / H			
				1.5			Hole Terminated at 1.50 m					

RG-2.00.3.LIB.GLB.Log - RG NON-CORED BOREHOLE - TEST P/T - RGS02061.1.BH.100.SERIES.GPJ -> Drawing File -> 22/8/2023 16:59 10.02.00.04 - D:\egil\lib and in situ\Tool - DGD - Lib. RG-2.00.3.2022-03-03.Pjt.RG.2.00.0.2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH108**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459835 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462682 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered					CL	<b>TOPSOIL:</b> Silty CLAY low plasticity, dark brown, trace of sand fine to medium grained, trace of grass roots.	M > WP				TOPSOIL
				0.2		CH	<b>CLAY:</b> Medium to high plasticity, brown/grey, trace of sand and gravel fine to medium grained.		St	HP	130	RESIDUAL
				0.4		CH	<b>CLAY:</b> High plasticity, pale brown/pale orange brown, grey mottling, trace of sand fine to medium grained.			HP	180	
				0.8		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		VSt	HP	250	
				1.2						HP	230	
				1.4		CH	<b>CLAY:</b> Medium to high plasticity, pale grey with pale brown/pale orange brown mottling, trace of gravel fine to medium grained.		VSt			EXTREMELY WEATHERED SILTSTONE
				1.5			Hole Terminated at 1.50 m					

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 108 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egil\lib and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH109**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459888 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462656 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations			
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result		
AD/T	Not Encountered			0.2			<b>FILL:</b> Gravelly Silty CLAY low plasticity, dark brown, gravel fine to medium grained, trace of sand fine to medium grained.	M < Wp		HP	250	FILL		
							0.15m	<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey/brown, trace of sand and gravel fine to medium grained.	M > Wp				VSt	
							0.30m	<b>CLAY:</b> High plasticity, pale brown/pale orange brown/grey, trace of sand and gravel fine to medium grained.	M > Wp				VSt	RESIDUAL
							0.4	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.	M > Wp				VSt	
				0.6		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.			HP	230			
				0.8		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.			HP	250			
				1.0										
				1.2										
				1.4										
				1.50m			Hole Terminated at 1.50 m			HP	280			
				1.6										
				1.8										

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 109 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\lib and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH110**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459916 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462648 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations		
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result	
AD/T	Not Encountered			0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/brown, trace of sand and gravel fine to medium grained, trace organic matter.	M > Wp				FILL	
				0.25		CH	<b>CLAY:</b> High plasticity, pale brown/brown, grey, trace of sand and gravel fine to medium grained.	M > Wp	St - VSt	HP	150	RESIDUAL	
				0.4							HP	170	
				0.6							HP	250	
				0.8		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		VSt	HP	270		
				1.0						HP	220		
				1.2									
				1.4									
				1.5			Hole Terminated at 1.50 m						
				1.6									
				1.8									

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 16:59 10.02.00.04 D:\egit\lib and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH111**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459951 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462651 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered	U50		0.00		CL	<b>TOPSOIL:</b> Silty CLAY low plasticity, dark brown, trace of sand fine to medium grained, trace grass roots.	M > WP	St	HP	110	TOPSOIL
				0.15		CH	<b>CLAY:</b> Medium to high plasticity, brown/grey brown, trace of sand and gravel fine to medium grained.					RESIDUAL
				0.30		CH	<b>CLAY:</b> High plasticity, pale brown/pale orange brown, grey, trace of sand fine to medium grained.					
				0.75		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.					
				1.50			Hole Terminated at 1.50 m					

RG 2.00.3.LIB.GLB.Log    RG NON-CORED BOREHOLE - TEST P/T    RGS02061.1.BH.100.SERIES.GPJ    --DrawingFile--> 22/8/2023 16:59 10.02.00.04 D:\egit\Lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH112**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459982 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462637 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered						<b>FILL:</b> Silty CLAY low plasticity, dark grey, trace of sand and gravel fine to medium grained.	M < Wp				FILL
				0.10m		CL	<b>Sandy Silty CLAY:</b> Low plasticity, dark brown/grey, sand fine grained, trace of gravel fine to medium grained.	M > Wp	F - St	HP	80	SLOPEWASH
				0.30m		CH	<b>CLAY:</b> High plasticity, pale brown/pale orange brown, grey, trace of sand and gravel fine to medium grained.		F - St	HP	80	RESIDUAL
				0.40m						HP	120	
				0.60m						HP	150	
		0.80m		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St - VSt		HP	200		
		1.50m					Hole Terminated at 1.50 m			HP	190	

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile--> 22/8/2023 16:59 10.02.00.04 D:\egit\Lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 Proj, RG 2.00.0 2021-06-30]

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH113**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459977 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462607 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations		
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result	
AD/T	Not Encountered	U50		0.2			<b>FILL:</b> Gravelly Silty CLAY low plasticity, dark brown, gravel fine to medium grained, trace of sand fine to medium grained.	M < Wp				FILL	
				0.3		CH	<b>CLAY:</b> Medium to high plasticity, pale brown/brown/grey, trace of sand and gravel fine to medium grained.	M > Wp	St		HP	150	RESIDUAL
				0.5		CH	<b>CLAY:</b> High plasticity, pale brown/pale orange brown, grey, trace of sand fine to medium grained.	M > Wp	St - VSt		HP	180	
				0.8							HP	220	
		1.00m		1.0		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.			HP	220		
				1.2									
				1.4									
				1.5			Hole Terminated at 1.50 m						
				1.6									
				1.8									

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 17:00 10.02.00.04 D:\egel\lab and in situ\Tool\_DGD\Lib\_RG 2.00.3 2022-03-03 Pjt.RG 2.00.0 2021-06-30

**LEGEND:**

**Water**

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

**Strata Changes**

- Gradational or transitional strata
- Definitive or distinct strata change

**Notes, Samples and Tests**

U<sub>50</sub> 50mm Diameter tube sample  
 CBR Bulk sample for CBR testing  
 E Environmental sample  
 ASS Acid Sulfate Soil Sample  
 B Bulk Sample

**Field Tests**

PID Photoionisation detector reading (ppm)  
 DCP(x-y) Dynamic penetrometer test (test depth interval shown)  
 HP Hand Penetrometer test (UCS kPa)

Consistency	UCS (kPa)	Moisture Condition
VS Very Soft	<25	D Dry
S Soft	25 - 50	M Moist
F Firm	50 - 100	W Wet
St Stiff	100 - 200	W <sub>p</sub> Plastic Limit
VSt Very Stiff	200 - 400	W <sub>L</sub> Liquid Limit
H Hard	>400	
Fb Friable		
Density	V Very Loose	Density Index <15%
L Loose	MD Medium Dense	Density Index 15 - 35%
D Dense	D Dense	Density Index 35 - 65%
VD Very Dense	D Dense	Density Index 65 - 85%
		Density Index 85 - 100%



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH114**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459945 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462620 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered					CL	<b>Silty CLAY:</b> Low plasticity, dark brown, trace of sand fine to medium grained, trace of grass roots.	M < Wp				TOPSOIL
				0.2		CH	<b>CLAY:</b> High plasticity, brown/pale brown, pale orange brown/grey, trace of sand and gravel fine to medium grained.	M > Wp	St	HP	180	RESIDUAL
				0.4						HP	180	
				0.6						HP	180	
				0.8		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		VSt	HP	250	
				1.0						HP	300	
				1.2								
				1.4								
				1.5			Hole Terminated at 1.50 m			HP	250	
				1.6								
				1.8								

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 17:00 10.02.00.04 D:\egil\lib and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03 P/T, RG 2.00.0 2021-06-30]

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH115**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459920 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462615 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations			
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result		
AD/T	Not Encountered			0.2			<b>FILL:</b> CLAY high plasticity, pale brown/brown/grey, trace of sand and gravel fine to medium grained.	M > Wp	St			FILL		
				0.35m				M > Wp						
					0.4		CH	<b>CLAY:</b> High plasticity, brown/pale brown/grey, trace of sand fine to medium grained.		St	HP	120	RESIDUAL	
					0.6									
					0.8							HP	180	
				0.8		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.		St					
				1.0						HP	170			
				1.2										
				1.4						HP	190			
				1.50m			Hole Terminated at 1.50 m			HP	190			
				1.6										
				1.8										

RG 2.00.3.LIB.GLB Log RG NON-CORED BOREHOLE - TEST P/T RGS02061.1 BH 100 SERIES.GPJ --DrawingFile-- 22/8/2023 17:00 10.02.00.04 D:\egil\Lab and In Situ Tool - DGD [Lib, RG 2.00.3 2022-03-03] Pjt, RG 2.00.0 2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH116**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459937 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462569 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations				
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result			
AD/T	Not Encountered	U50		0.15m			<b>FILL:</b> Silty CLAY low plasticity, dark orange with some organic matter, trace of sand and gravel fine to medium grained.	M < Wp		HP	70	FILL			
				0.2			<b>FILL:</b> Silty CLAY low to medium plasticity, dark grey/dark brown, trace of sand and gravel fine to medium grained, trace organic matter.	M > Wp					F		
				0.4			0.50m	<b>FILL:</b> CLAY high plasticity, pale brown/brown/grey/red mottled, trace of sand and gravel fine to medium grained.					M > Wp	HP	250
				0.6				HP					300		
				0.8			0.90m	<b>CLAY:</b> High plasticity, pale brown/pale orange brown, red mottled, trace of sand fine to medium grained.					M > Wp	VSt	HP
1.0	1.20m	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.													
				1.50m			Hole Terminated at 1.50 m			HP	220				

RG-200.3.LIB.GLB.Log - RG NON-CORED BOREHOLE - TEST P/T - RGS02061.1.BH.100.SERIES.GPJ - Drawing File -> 22/8/2023, 17:00 - 10.02.00.04 - D:\egil\lab and in situ\Tool - DGD - Lib. RG-200.3.2022-03-03.Pjt.RG.2.00.0.2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH117**

CLIENT: LSW Surveyors  
 PROJECT NAME: Proposed Residential Subdivision  
 SITE LOCATION: Forest Lane, Old Bar  
 TEST LOCATION: Refer to Site Plan

PAGE: 1 of 1  
 JOB NO: RGS02061.1  
 LOGGED BY: RW  
 DATE: 4/8/23

DRILL TYPE: RGS Ute Mounted Drill Rig      EASTING: 459969 m      SURFACE RL:  
 BOREHOLE DIAMETER: 100 mm      INCLINATION: 90°      NORTHING: 6462561 m      DATUM: AHD

Drilling and Sampling				Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (Not measured)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
AD/T	Not Encountered			0.2	[Cross-hatched pattern]		<b>FILL:</b> Silty CLAY low plasticity, dark brown, trace of sand and gravel fine to medium grained, trace of organic matter.	M < Wp				FILL
				0.4			<b>FILL:</b> Silty CLAY low to medium plasticity, dark brown/dark grey with some gravel fine to medium grained, trace of sand fine to medium grained.	M > Wp				
				0.6	[Horizontal line pattern]			M > Wp		HP	80	RESIDUAL
				0.7		CH	<b>CLAY:</b> Medium to high plasticity, pale brown/brown/grey, trace of sand and gravel fine to medium grained.	F - St		HP	90	
		0.8						HP	130			
				1.0	[Horizontal line pattern]							
				1.1		CH	<b>CLAY:</b> High plasticity, red and grey/pale grey mottled, trace of sand fine to medium grained.	St - VSt		HP	220	
				1.2	[Horizontal line pattern]							
				1.4								
				1.5			Hole Terminated at 1.50 m					
				1.6								
				1.8								

RG 2.00.3.LIB.GLB.Log RGS02061.1.BH.100.SERIES.GPJ --DrawingFile-- 22/8/2023 17:00 10.02.00.04 D:\egit\Lab and In Situ Tool\_DGD\Lib.RG.2.00.3.2022-03-03.Plt.RG.2.00.0.2021-06-30

<b>LEGEND:</b> <b>Water</b> Water Level (Date and time shown) Water Inflow Water Outflow <b>Strata Changes</b> Gradational or transitional strata Definitive or distinct strata change	<b>Notes, Samples and Tests</b> U <sub>50</sub> 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample	<b>Consistency</b> VS Very Soft <25 S Soft 25 - 50 F Firm 50 - 100 St Stiff 100 - 200 VSt Very Stiff 200 - 400 H Hard >400 Fb Friable	<b>UCS (kPa)</b> <25 25 - 50 50 - 100 100 - 200 200 - 400 >400	<b>Moisture Condition</b> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
	<b>Field Tests</b> PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)	<b>Density</b> V Very Loose L Loose MD Medium Dense D Dense VD Very Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	



# **Appendix B**

## **Laboratory Test Result Sheets**


**Report No: SSI:NEW23W-4240-S01**

**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW



Accredited for compliance with ISO/IEC 17025 - Testing.  
 Results provided relate only to the items tested or sampled.  
 This report shall not be reproduced except in full.

*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S01      **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay      **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu      **Date Submitted:** 11/08/2023

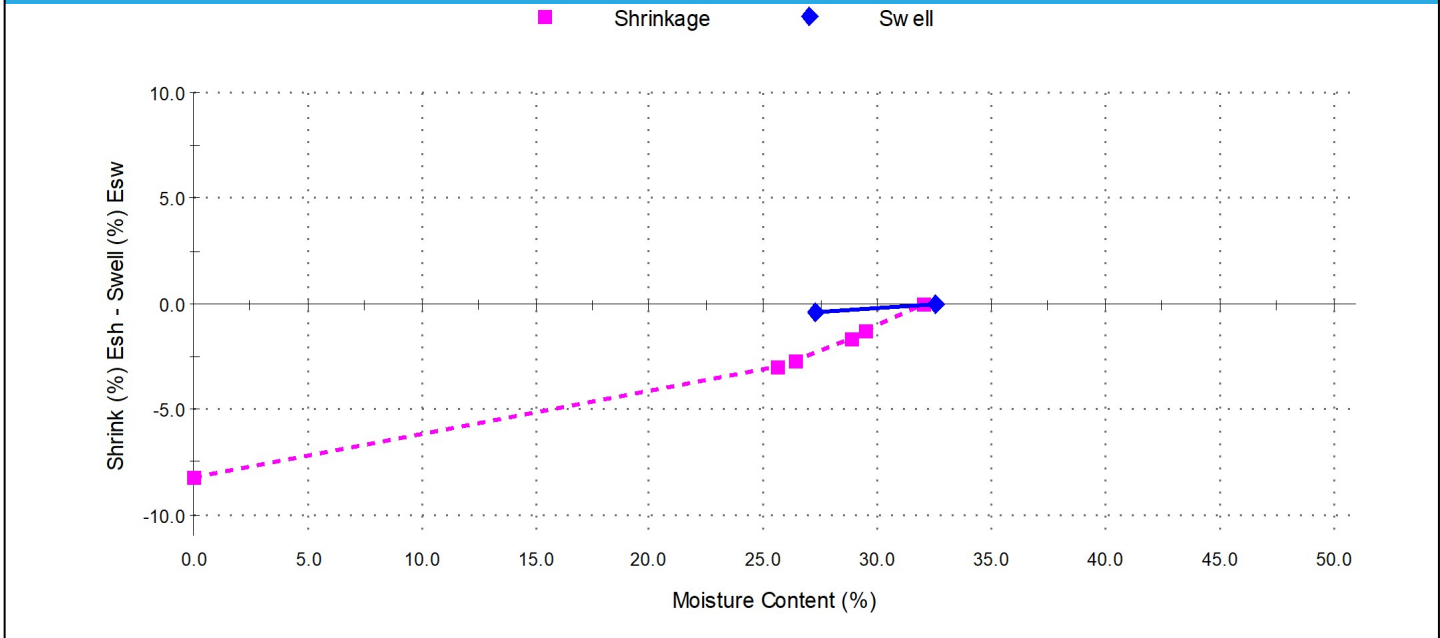
**Specification:** No Specification

**Sample Location:** BH101 - (0.7 - 1.2m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-0.4	<b>Shrink on drying (%):</b>	8.2
<b>Moisture Content before (%):</b>	32.5	<b>Shrinkage Moisture Content (%):</b>	32.0
<b>Moisture Content after (%):</b>	27.3	<b>Est. inert material (%):</b>	1%
<b>Est. Unc. Comp. Strength before (kPa):</b>	340	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	430	<b>Cracking during shrinkage:</b>	Nil

## Shrink Swell



**Shrink Swell Index - Iss (%): 4.5**

## Comments


**Report No: SSI:NEW23W-4240-S02**

**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW



Accredited for compliance with ISO/IEC 17025 - Testing.  
 Results provided relate only to the items tested or sampled.  
 This report shall not be reproduced except in full.

*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S02      **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay      **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu      **Date Submitted:** 11/08/2023

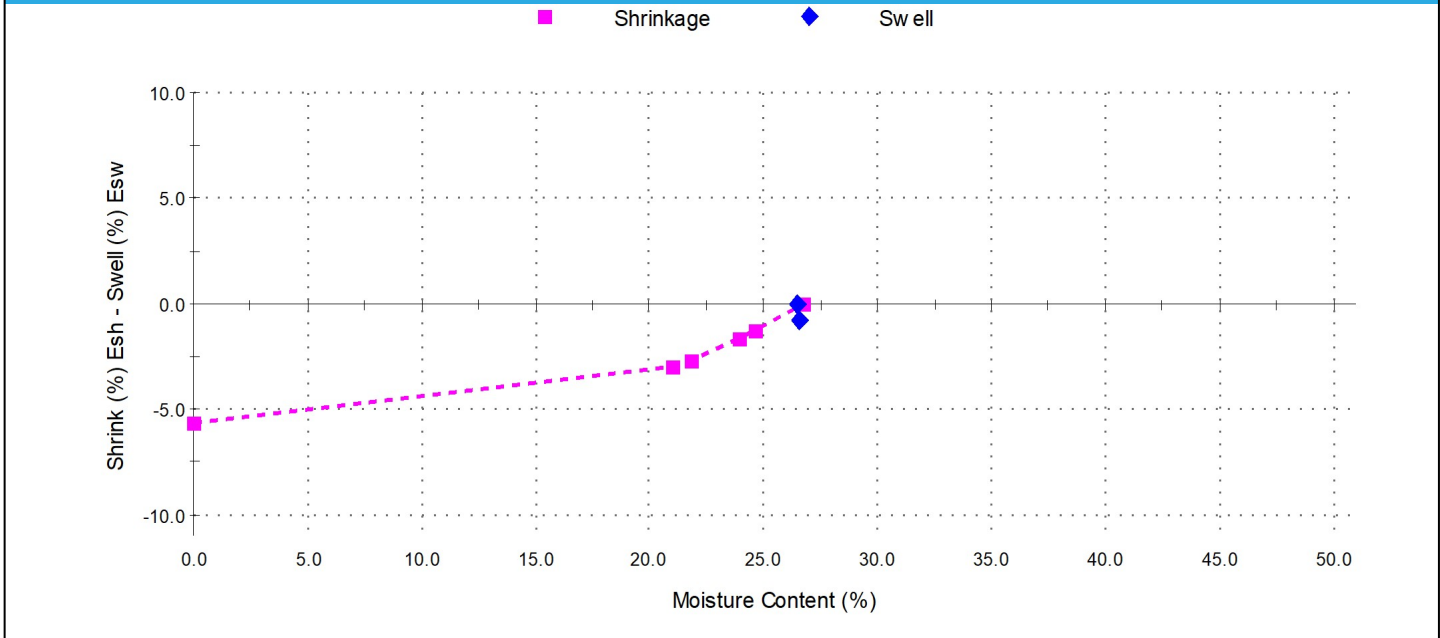
**Specification:** No Specification

**Sample Location:** BH103 - (0.3 - 0.8m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-0.8	<b>Shrink on drying (%):</b>	5.7
<b>Moisture Content before (%):</b>	26.4	<b>Shrinkage Moisture Content (%):</b>	26.7
<b>Moisture Content after (%):</b>	26.5	<b>Est. inert material (%):</b>	1%
<b>Est. Unc. Comp. Strength before (kPa):</b>	370	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	410	<b>Cracking during shrinkage:</b>	Minor

## Shrink Swell



**Shrink Swell Index - Iss (%): 3.2**

## Comments


**Report No: SSI:NEW23W-4240-S03**

**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW



Accredited for compliance with ISO/IEC 17025 - Testing.  
 Results provided relate only to the items tested or sampled.  
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*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S03      **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay      **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu      **Date Submitted:** 11/08/2023

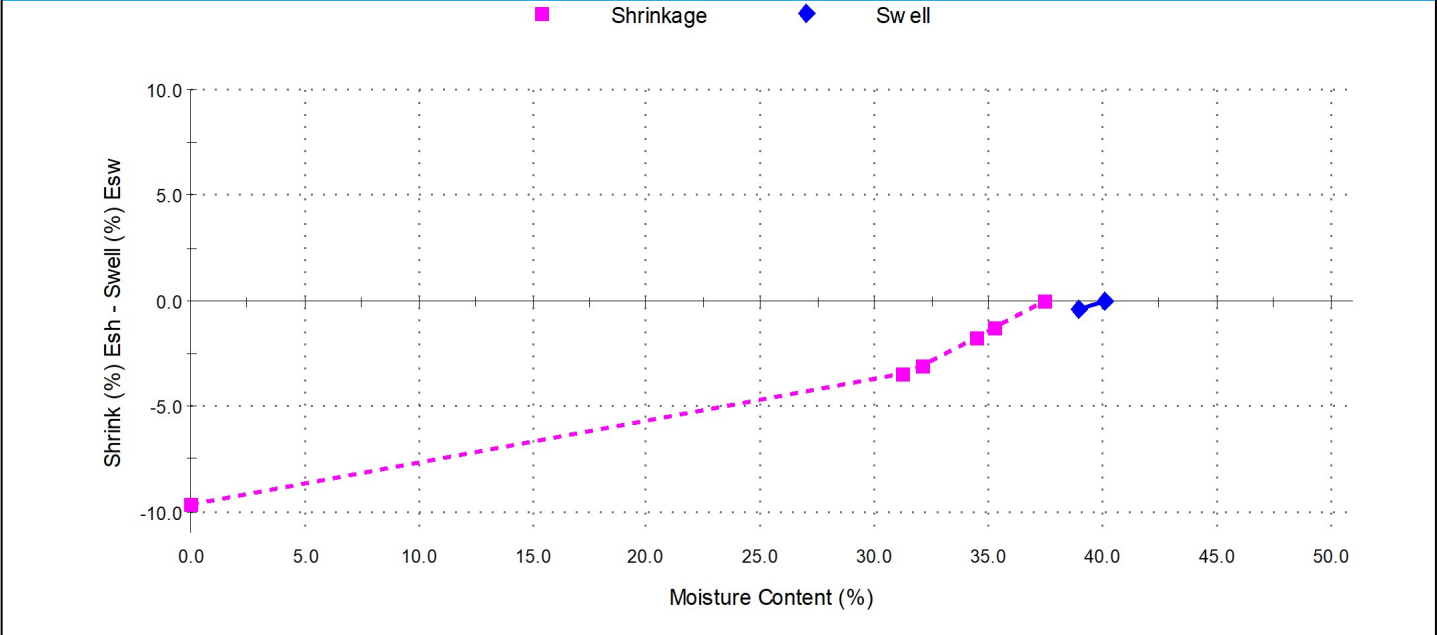
**Specification:** No Specification

**Sample Location:** BH106 - (0.7 - 1.2m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-0.4	<b>Shrink on drying (%):</b>	9.7
<b>Moisture Content before (%):</b>	40.1	<b>Shrinkage Moisture Content (%):</b>	37.5
<b>Moisture Content after (%):</b>	38.9	<b>Est. inert material (%):</b>	3%
<b>Est. Unc. Comp. Strength before (kPa):</b>	380	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	500	<b>Cracking during shrinkage:</b>	Nil

## Shrink Swell



**Shrink Swell Index - Iss (%): 5.4**

## Comments

**Report No: SSI:NEW23W-4240-S04**


**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW

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*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S04      **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay      **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu      **Date Submitted:** 11/08/2023

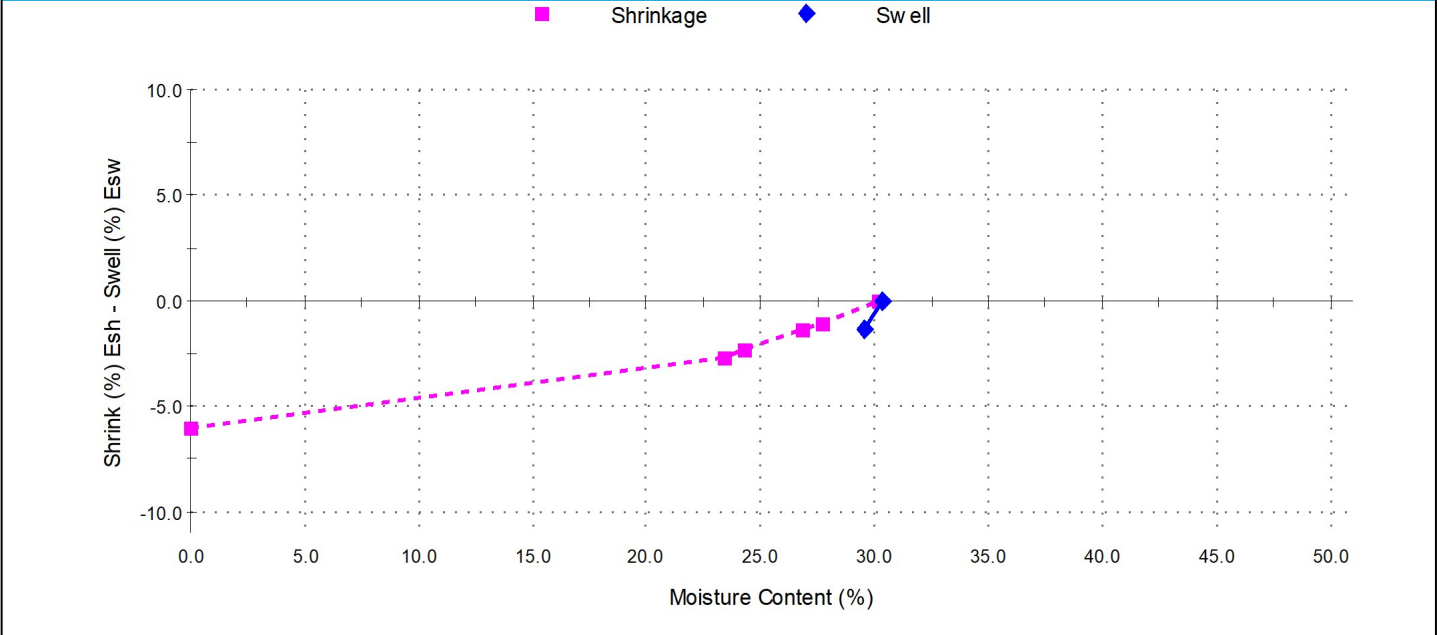
**Specification:** No Specification

**Sample Location:** BH111 - (0.4 - 0.9m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-1.4	<b>Shrink on drying (%):</b>	6.0
<b>Moisture Content before (%):</b>	30.3	<b>Shrinkage Moisture Content (%):</b>	30.2
<b>Moisture Content after (%):</b>	29.5	<b>Est. inert material (%):</b>	1%
<b>Est. Unc. Comp. Strength before (kPa):</b>	360	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	430	<b>Cracking during shrinkage:</b>	Minor

## Shrink Swell



**Shrink Swell Index - Iss (%): 3.4**

## Comments


**Report No: SSI:NEW23W-4240-S05**

**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW



Accredited for compliance with ISO/IEC 17025 - Testing.  
 Results provided relate only to the items tested or sampled.  
 This report shall not be reproduced except in full.

*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S05 **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu **Date Submitted:** 11/08/2023

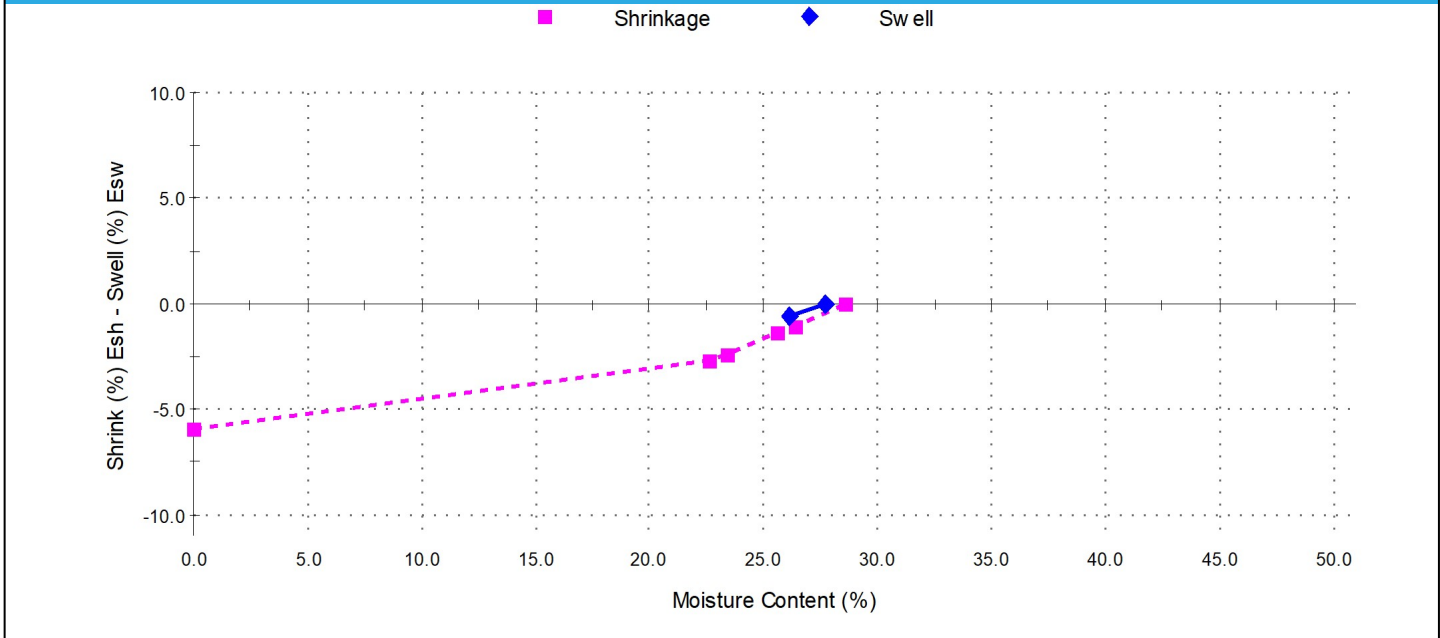
**Specification:** No Specification

**Sample Location:** BH113 - (0.5 - 1.0m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-0.6	<b>Shrink on drying (%):</b>	5.9
<b>Moisture Content before (%):</b>	27.7	<b>Shrinkage Moisture Content (%):</b>	28.6
<b>Moisture Content after (%):</b>	26.1	<b>Est. inert material (%):</b>	1%
<b>Est. Unc. Comp. Strength before (kPa):</b>	520	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	540	<b>Cracking during shrinkage:</b>	Minor

## Shrink Swell



**Shrink Swell Index - Iss (%): 3.3**

## Comments


**Report No: SSI:NEW23W-4240-S06**

**Issue No: 1**

# Shrink Swell Index Report

**Client:** Regional Geotechnical Solutions Pty Ltd  
 44 Bent Street  
 Wingham NSW 2429

**Project No.:** MNC16P-0001  
**Project Name:** Various Testing  
**Project Location:** Forest Lane, Old Bar, NSW



Accredited for compliance with ISO/IEC 17025 - Testing.  
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*B. Cullen*  
 Approved Signatory: Brent Cullen  
 (Engineering Geologist)  
 NATA Accredited Laboratory Number: 18686  
 Date of Issue: 21/08/2023

## Sample Details

**Sample ID:** NEW23W-4240-S06 **Test Request No.:** RGS02061.1

**Sampling Method:** The results outlined below apply to the sample as received

**Material:** Clay **Date Sampled:** 7/08/2023

**Source:** On-Site Insitu **Date Submitted:** 11/08/2023

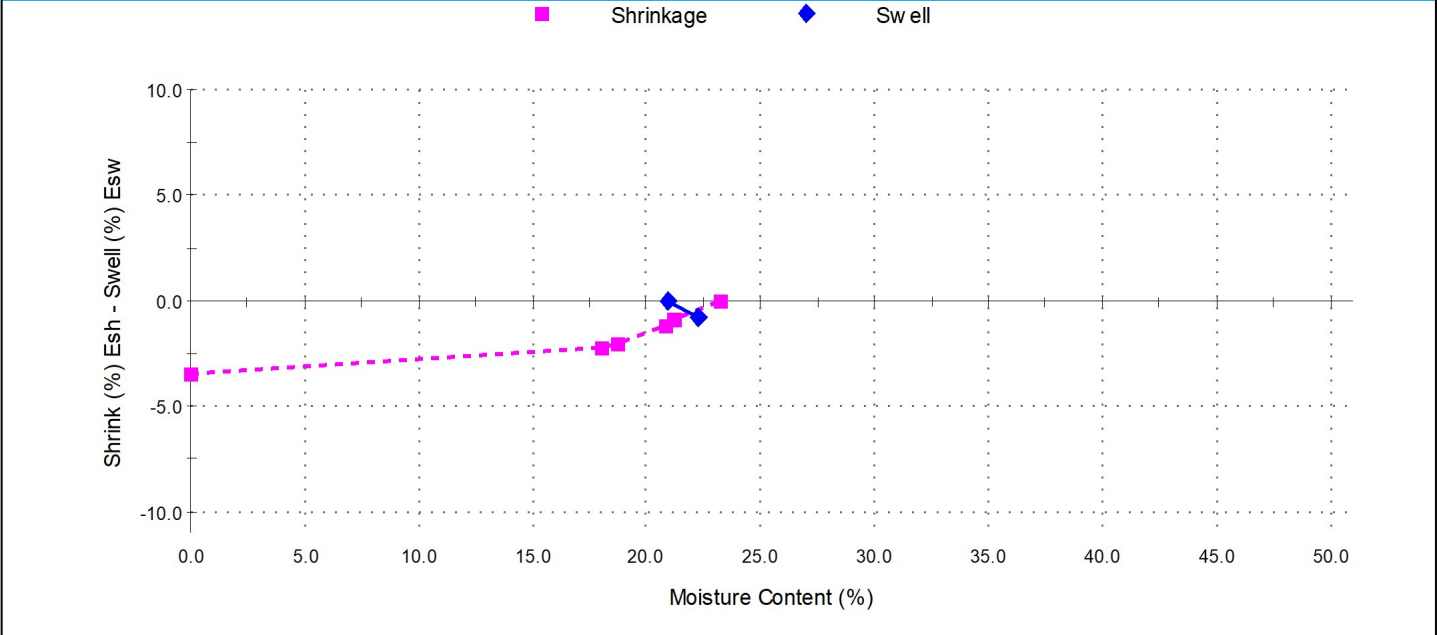
**Specification:** No Specification

**Sample Location:** BH116 - (0.5 - 0.9m)

**Date Tested:** 16/08/2023

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
<b>Swell on Saturation (%):</b>	-0.8	<b>Shrink on drying (%):</b>	3.5
<b>Moisture Content before (%):</b>	20.9	<b>Shrinkage Moisture Content (%):</b>	23.2
<b>Moisture Content after (%):</b>	22.2	<b>Est. inert material (%):</b>	2%
<b>Est. Unc. Comp. Strength before (kPa):</b>	550	<b>Crumbling during shrinkage:</b>	Nil
<b>Est. Unc. Comp. Strength after (kPa):</b>	>600	<b>Cracking during shrinkage:</b>	Moderate

## Shrink Swell



**Shrink Swell Index - Iss (%): 1.9**

## Comments