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LEVEL ONE COMPLIANCE REPORT

The Pocket Stage 5B

PREPARED BY:
PROTEST ENGINEERING

PREPARED FOR:
SHADFORTH CIVIL

PTP/12225 - Rev0| 6 September 2023

admin@protestengineering.com www.protestengineering.com

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Shadforth Civil
99 Sandalwood Lane, Forest Glen
QLD 4556

Project Number: PTP/ 12225
Letter Number: 0001 – Rev0
Project Name: The Pocket Stage 5B

Attention: Cameron Morison
Email: Cameron.Morison@shadcivil.com.au

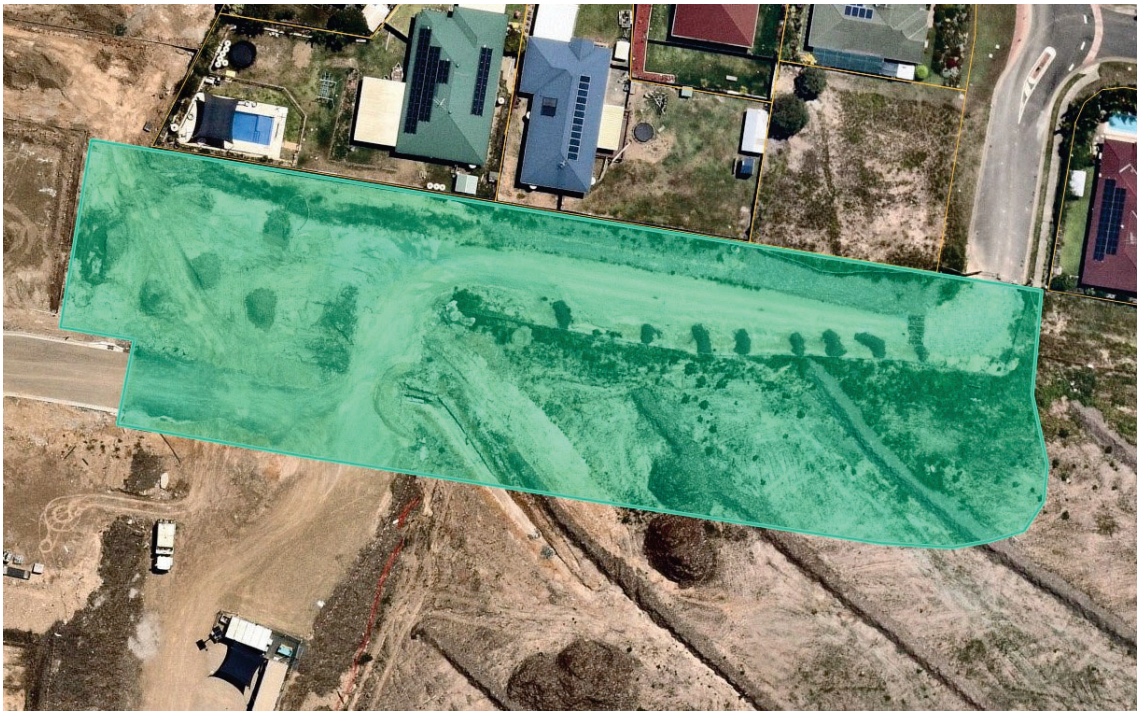
Report on Level 1 Earthworks
Proposed Residential Development
280 Collingwood Drive, Collingwood

1. Introduction

This report summarises the results of inspection and testing provided by Protest Engineering (Protest) for the bulk earthworks as part of the The Pocket Stage 5B project undertaken between 18/07/2023 to 08/08/2023. The works were undertaken at the request of Shadforth Civil (the client).

The scope of inspection and testing undertaken was in general accordance with AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments.* As part of the inspection and testing undertaken, Protest provided Level 1 supervision in accordance with Section 8.2 of AS3798-2007. Figure 1 indicates the approximate extent of Level 1 works carried out.

Figure 1: Approximate Extent of Level 1 Works



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Approximately 405 m^3 of fill was placed on site, Drawing No. 20-0240-5502-Rev1 – *Bulk Earthworks Layout Plan* attached is the bulk earthworks layout plan. The frequency of field density testing adopted for this project was based on AS3798-2007, Table 8.1 with a minimum of one test per 200 m^3 placed for a *Type 2 – Small Scale Operation*.

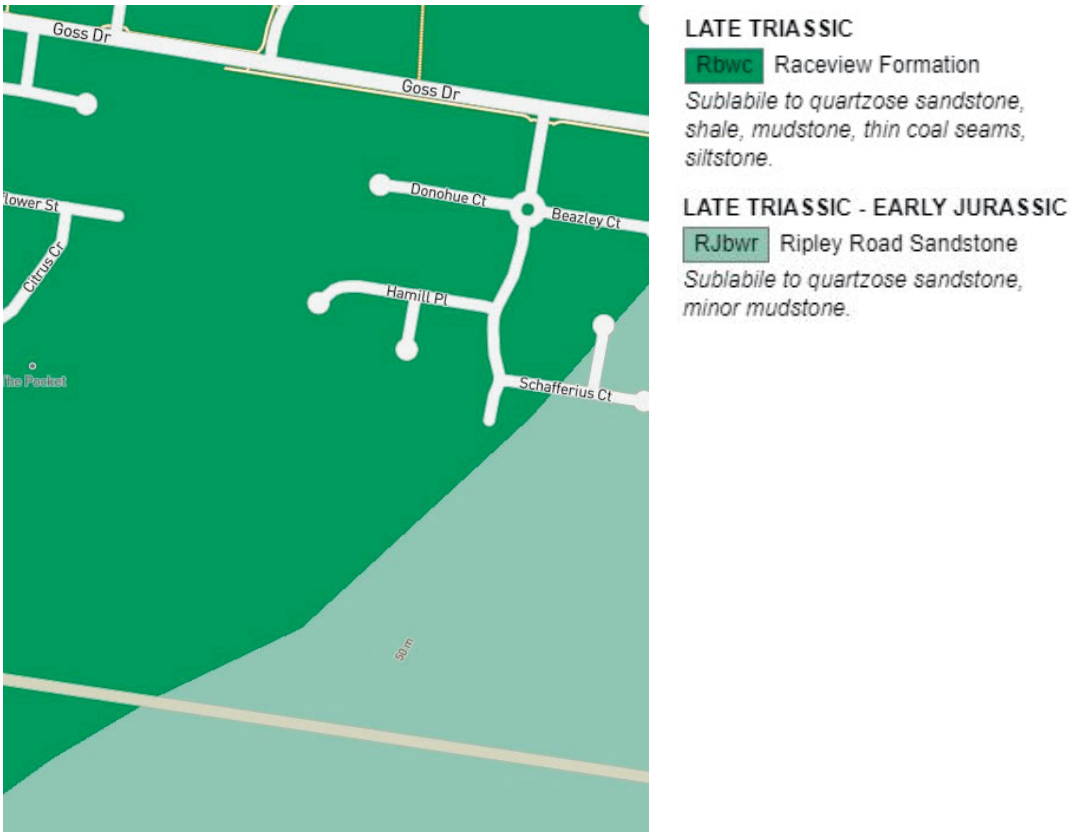
Based on the information provided within the Bulk Earthworks Notes (Drawing No. 20-0240-5501-Rev1 – General Notes), the minimum relative compaction requirements were specified, and a summary of the criteria is summarised in Table 1.

Table 1: Test Request Compaction and Moisture Content Specification

Fill Types	Minimum Dry Density Ratio (%)
Residential	>95%

2. Geology

Figure 2: Based on the information provided by qgd.org.au



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3. Earthworks Activities

Foundation preparation observed by Protest comprised the removal of topsoil and unsuitable materials across the fill area exposing the underlying natural materials. A test roll was performed on the natural soils using a pad foot roller and no noticeable movement was observed on the final pass.

Filling operations comprised the placement and compaction of material obtained from an Onsite source which were typically Sandy Clay. Materials were placed onsite in uniform layers not exceeding 300 mm.

The material used as fill was moisture conditioned at the fill source and during placement and blended to achieve suitable moisture content for compaction.
The following heavy plant were used throughout the bulk earthworks component:

- Excavator
- Padfoot Roller
- Body Trucks

A total of Five (5) field density ratio tests were undertaken at select locations during the filling operations. Field density testing was carried out using a nuclear gauge and in accordance with the test method outlined in AS1289.5.8.1. The relative compaction was then determined by comparing the recorded field density with the laboratory maximum dry density (standard compaction) outlined in test method AS1289.5.7.1.

A summary of the test results is presented in Table 2 with the reports attached and the approximate test locations shown in the Attachments.

Table 2. Summary of Density Testing

Item	Compaction	Moisture Variation
No. of tests	5	5
Mean	99%	2.7%(Dry of OMC[(1)])

(Notes: [(1)] Optimum Moisture Content)

4. Compliance

As far as it has been able to determine, it is our opinion that the earthworks placed and compacted at The Pocket Stage 5B by Shadforth Civil between 18/07/2023 to 08/08/2023 comply with the above-mentioned specifications and can be considered as Level 1 '*controlled*' or structural fill.

5. Comments

Based on the results of the inspections and field density testing whilst Protest were on-site, it is considered that the bulk earthworks at The Pocket Stage 5B between 18/07/2023 to 08/08/2023 have been undertaken in general accordance with AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments*. Protest believes consideration should be given to the following:

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I. This report only certifies the bulk earthworks activities supervised by Protest between 18/07/2023 to 08/08/2023. Protest does not take responsibility for any other bulk earthworks activities that have occurred before or after these dates;

II. The installation of services or any activities that may cause disruption of the compacted filling;

III. The suitability of the filled land to support the proposed structures; and

IV. Any variation in filling depth of extent of areas that is not noted within this report or on the individual test report sheets.

6. Constraints

- Protest has prepared this report for the bulk earthworks at The Pocket Stage 5B. This report was produced for the sole use of Shadforth Civil. It should not be used by or depended upon for other projects or purposes on the same or other site or by a third party. In the preparation of this report Protest has relied upon information provided by the client and/or their agents.

- Assessments of material quality such as soaked CBR and site classifications are excluded from this commission.

- This report is not to be relied upon for settlement analysis and soft soils engineering advice. This is beyond the scope of this report and outside our engagement.

- Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS3798 - 2007, including soil or fill reactivity and soaked CBR values. We note that the fill materials used may result in unfavourable site classifications and low subgrade design strengths.

- The results provided in this report are indicative of the subsurface conditions on the site only at the specific sampling or testing locations, and then only to the depths investigated along with the time the work was carried out. It is known that subsurface conditions can suddenly change due to irregular geological processes and as a result of human influences. Such changes may occur after Protest field testing has been completed.

- Certain ground conditions and the materials behaviour observed or contained at the test locations may alter from those which may be encountered elsewhere on the site. Should variations in subsurface conditions be encountered, then additional advice should be sought from Protest and, if required, amendments made.

- Protest cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.

- Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential. Assessments of these design parameters are beyond the scope of this Report.

The Following should also be considered:

1. This report is not a SITE CLASS REPORT as per AS2870-2011 and not a Geotechnical Site Investigation report as per AS1726-2017.

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2. The shrink/swell movements which can occur in the residual silty clays due to weather related natural moisture changes by the reduction in surface evaporation subsequent to covering the site with buildings and pavements. As outlined in AS2870-2011 ("Residential Slabs and Footings – Constructions").

3. It should be noted that there is a possibility that compaction levels may have increased during placement of subsequent layers especially when there have been fully laden earthmoving equipment frequently travel across the fill areas exerting high traffic loads.

4. All compacted filling is subject to decompaction phenomenon.

We trust that the above information is suitable for your present requirements. Should you have any queries, please do not hesitate to contact the undersigned.

Regards,

Written By:

Jay Nicholas
Technician

Reviewed By:

Your Name.
Position Title.
p | Phone Number.
e | Email Address.

Attachments:
1. Site Images;
2. Site Plan & Test Locations;
3. Density Reports;

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Attachment 1

Site Images

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Site Image 1 – Strip Natural Surface
(18/07/2023)

Site Image 2 – Filling Operations in Progress
(19/07/2023)

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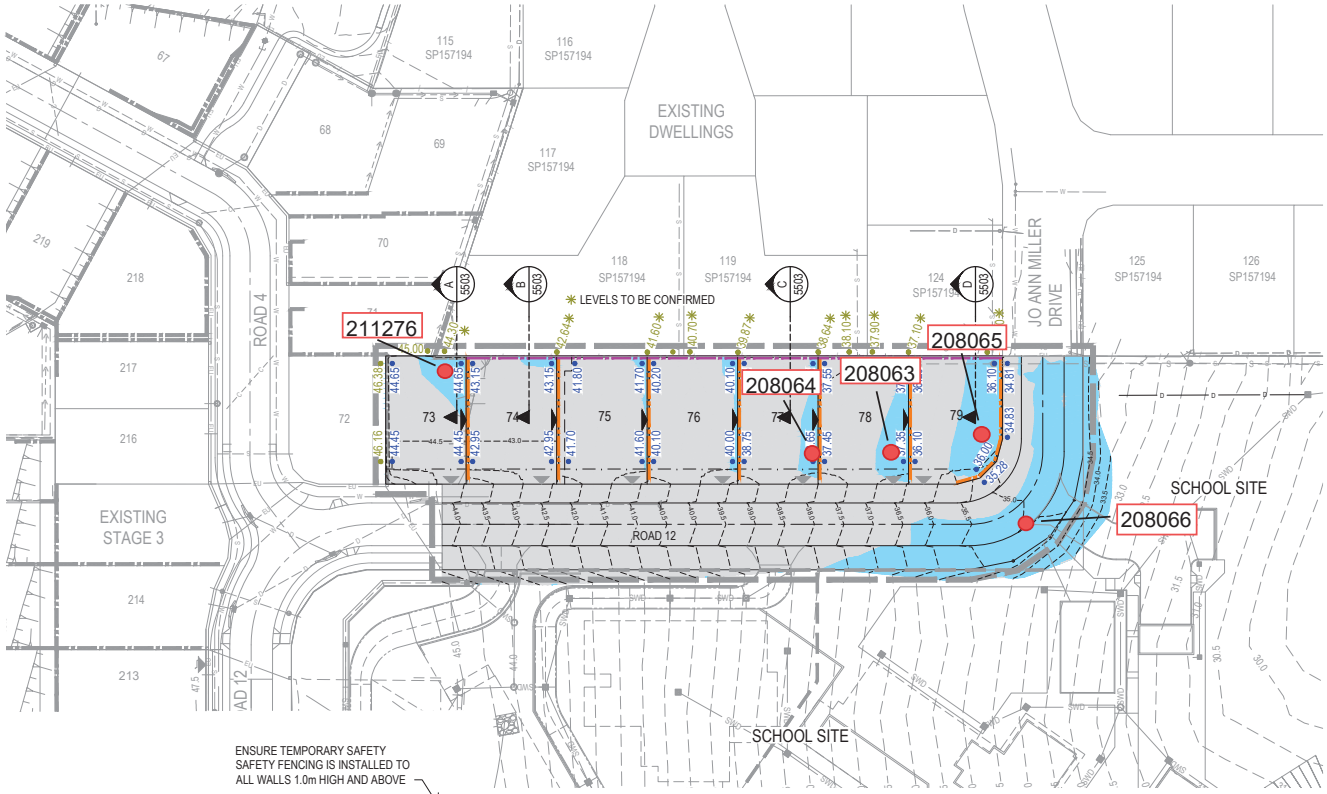
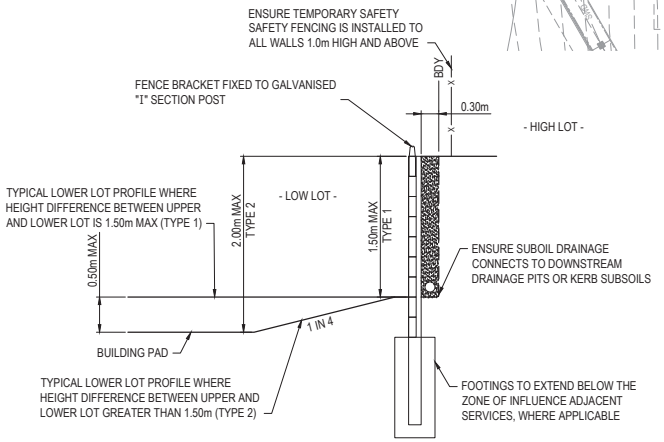
Attachment 2

Site Plan & Test Locations

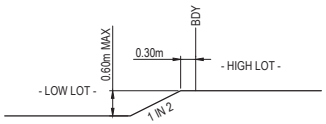


LEGEND

- PROPOSED AREA OF WORKS
- PROPOSED SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- PROPOSED EARTHWORKS PAD SETBACK LINE
- PROPOSED CONCRETE SLEEPER RETAINING WALL TYPE 1 & 2
- PROPOSED CONCRETE SLEEPER RETAINING WALL TYPE 5
- EXISTING SLEEPER RETAINING WALL
- 24.60 PROPOSED FINISHED SURFACE LEVEL (FSL) (AFTER TOPSOIL PLACEMENT)
- 24.60 EXISTING SURFACE LEVEL (ESL)
- PROPOSED AREA OF CUT
- PROPOSED AREA OF FILL
- INDICATIVE DRIVEWAY LOCATIONS
- EXISTING STORMWATER DRAINAGE PIPE
- EXISTING ROOFWATER DRAINAGE PIPE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- EXISTING WATER CONDUIT
- EXISTING ELECTRICAL CABLE U/G
- EXISTING ELECTRICAL CABLE O/H
- EXISTING TELECOMMUNICATION CABLE U/G
- EXISTING FIBRE OPTIC CABLE U/G
- EXISTING GAS MAIN



CONCRETE SLEEPER RETAINING WALL (TYPE 1 & 2)
TYPICAL DETAIL (SIDE/REAR BOUNDARIES - INTERNAL)
NOT TO SCALE



TYPICAL STEP BETWEEN LOTS DETAIL
SCALE 1:50 (A1)
SCALE 1:100 (A3)

RETAINING WALL NOTES:

1. ALL RETAINING WALLS ARE TO BE DELIVERED UNDER DESIGN AND CONSTRUCTION ARRANGEMENT - FORMS 15 AND 12 CERTIFICATIONS ARE TO BE PROVIDED BY THE CONTRACTOR.
2. DESIGN OF WALLS TO CONSIDER ALL LOADS (FENCES, DWELLINGS ETC) AS WELL AS ASSOCIATED IMPACTS FROM ANY ADJACENT SERVICES - FOOTING DEPTHS TO BE EXTENDED AS REQUIRED.
3. GEOTECHNICAL CONDITIONS ARE TO BE CONFIRMED AND APPROPRIATELY CONSIDERED FOR ALL WALLS.
4. REFER LANDSCAPE DRAWINGS FOR FURTHER INFORMATION ON RETAINING WALLS, PARTICULARLY RELATING TO FINISHES.
5. TEMPORARY SAFETY FENCING TO BE INSTALLED BEHIND ALL WALLS 1.0m HIGH AND GREATER.

WARNING! - EXISTING SERVICES

EXTREME CARE SHOULD BE TAKEN WHEN EXCAVATING IN THIS AREA. THE FOLLOWING EXISTING SERVICES ARE LIKELY TO BE PRESENT IN THE VICINITY OF THE SITE:

- ELECTRICAL CABLES
- TELECOMMUNICATIONS CABLES
- GAS MAINS
- WATER MAINS
- SEWER MAINS

THE CONTRACTOR SHOULD CONTACT THE SERVICE PROVIDER FOR FURTHER INFORMATION AND SATISFY THEMSELVES OF ANY SPECIFIC TREATMENT OR REQUIREMENTS.

BULK EARTHWORKS MUST REMAIN WITHIN SITE BOUNDARY

BATTERS STEEPER THAN 1 IN 6 ARE TO BE VEGETATED AND CERTIFIED AS STABLE BY AN EXPERIENCED AND SUITABLY QUALIFIED RPEQ ENGINEER.

* THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH VEGETATION CLEARING & FAUNA MANAGEMENT PLAN 9641 E 01 VMP C PREPARED BY SAUNDERS HAVILL GROUP DATED 04.06.201

REV	DATE	DESIGN	DRAWN	REVISION DETAILS
1	31.03.23	TR	JR	ORIGINAL ISSUE

DRAWN: JR
DESIGN: TR
STATUS: NOT FOR CONSTRUCTION
APPROVED: TROY SCHULTZ RPEQ 20631
FOR AND ON BEHALF OF COLLIERS INTERNATIONAL ENGINEERING & DESIGN PTY LTD
SCALE: 1:500 1:1000 10 5 0 10 20 A1 A3
CLIENT: HB QLD PTY LTD
ASSOCIATED CONSULTANT: SAUNDERS HAVILL GROUP PHONE: 1300 123 744
PROJECT NAME: THE POCKET - STAGE 5B
280 COLLINGWOOD DRIVE COLLINGWOOD PARK
DRAWING TITLE: BULK EARTHWORKS LAYOUT PLAN
PROJECT No.: 20-0240
DRAWING No.: 5502
REVISION: 1

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Attachment 3

Density Reports

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Soil Compaction and Density Tests Report - Compaction Control

Client :	**Shadforths**	Report Number :	**SR/PTP/12225 - 1/1**
Client Address :	**99 Sandalwood Lane, Forest Glen, 4556, QLD**	Report Date :	**30/08/2023**
Project Name :	**The pocket Stage 5B - LV1**	Test Request :	-
Project Number :	**PTP/12225**	**Page 1 of 1**	
Location :	**Collingwood Park**		

Test Methods :	**AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,**

Sample Number :	S/208063	S/208064	S/208065	S/208066		
Date Tested :	19/07/2023	19/07/2023	19/07/2023	19/07/2023		
Material Source :	Onsite	Onsite	Onsite	Onsite		
For use as :	Fill	Fill	Fill	Fill		
Test / Layer Depths :	175 / 200	175 / 200	175 / 200	175 / 200		
Sampling Method :	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b	AS1289.1.2.1 - cl6.4b		
Time :	10:30	10:45	11:00	11:15		
Lot Number :	-	-	-	-		
Location 1 :	Lot 78	Lot 77	Lot 79	Road 12		
Location 2 :	3m off front boundary	3m off front boundary	3m off front boundary	Ch 340		
Location 3 :	1m off RHS boundary	1m off RHS boundary	2m off RHS boundary	1m off RHS kerb		
Location 4 :	FSL	FSL	FSL	0.3m below FSL		
Test Fraction (mm) :	< 19mm	< 19mm	< 19mm	< 19mm		
Oversize Wet :	0%	0%	0%	0%		
Oversize Density - Dry (t/m³) :	-	-	-	-		
Assigned MDR (Yes/No) :	No	No	No	No		
MDR Sample Number :	S/208063	S/208064	S/208065	S/208066		
MDR Test Date :	10/08/2023	10/08/2023	10/08/2023	10/08/2023		
Compaction Type :	Standard	Standard	Standard	Standard		
Soil Description :	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay		
MDR Test Results						
PCWD (t/m3) :	1.87	1.95	2.01	1.98		
Moisture Variation :	3.0%	2.0%	2.0%	2.0%		
ADJ PCWD (t/m3) :	-	-	-	-		
ADJ Moisture Variation :	-	-	-	-		
Moisture Test Results :						
Field Moisture Content :	14.0%	12.0%	14.0%	16.5%		
Moisture Specification :	-	-	-	-		
Variation from OMC :	**3.0% Dry of OMC**	**2.0% Dry of OMC**	**2.0% Dry of OMC**	**2.0% Dry of OMC**		
Relative Moisture Ratio (Q250) :	-	-	-	-		
Moisture Ratio :	N/A	N/A	N/A	N/A		
Density Test Results						
Field Wet Density (t/m3) :	1.85	1.94	1.96	1.89		
Density Specification :	95%	95%	95%	95%		
Wet Density Ratio :	**98.5%**	**99.5%**	**97.0%**	**95.5%**		

Remarks :	

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for Compliance with ISO/ IEC 17025 - Testing
Protest Engineering (Darra) Accreditation Number - 2851
Base Laboratory Site Number - 2844 - Darra

Base Laboratory Address - 1/35 Limestone Street, Darra, QLD 4076

APPROVED SIGNATORY

Rhys Vanderkly - Signatory

Protest Engineering
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Soil Compaction and Density Tests Report - Compaction Control

Client :	**Shadforths**	Report Number :	**SR/PTP/12225 - 4/1**
Client Address :	**99 Sandalwood Lane, Forest Glen, 4556, QLD**	Report Date :	**30/08/2023**
Project Name :	**The pocket Stage 5B - LV1**	Test Request :	-
Project Number :	**PTP/12225**	**Page 1 of 1**	
Location :	**Collingwood Park**		

Test Methods :	**AS1289.5.4.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.5.7.1,**

Sample Number :	S/211276					
Date Tested :	8/08/2023					
Material Source :	Onsite					
For use as :	Fill					
Test / Layer Depths :	175 / 200					
Sampling Method :	AS1289.1.2.1 - cl6.4b					
Time :	08:30					
Lot Number :	-					
Location 1 :	Lot 73					
Location 2 :	2m off north boundary					
Location 3 :	1m off east boundary					
Location 4 :	FSL					
Test Fraction (mm) :	< 19mm					
Oversize Wet :	10%					
Oversize Density - Dry (t/m^3) :	2.41					
Assigned MDR (Yes/No) :	No					
MDR Sample Number :	S/211276					
MDR Test Date :	23/08/2023					
Compaction Type :	Standard					
Soil Description :	Sandy Clay With Gravel					
MDR Test Results						
PCWD (t/m3) :	1.92					
Moisture Variation :	5.0%					
ADJ PCWD (t/m3) :	1.96					
ADJ Moisture Variation :	4.5%					
Moisture Test Results :						
Field Moisture Content :	7.0%					
Moisture Specification :	-					
Variation from OMC :	**4.5% Dry of OMC**					
Relative Moisture Ratio (Q250) :	-					
Moisture Ratio :	N/A					
Density Test Results						
Field Wet Density (t/m3) :	1.96					
Density Specification :	95%					
Wet Density Ratio :	**100.0%**					

Remarks :	

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for Compliance with ISO/ IEC 17025 - Testing
Protest Engineering (Darra) Accreditation Number - 2851
Base Laboratory Site Number - 2844 - Darra

Base Laboratory Address - 1/35 Limestone Street, Darra, QLD 4076

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