



# **Level 1 Geotechnical Inspection, Testing and Assessment Cherrybrook Stages 11, 29 & 30**

11512/P/999

fgf Developments Pty Ltd



**Construction  
Sciences**

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### Document History

Effective Date	Description of Revision	Prepared By	Reviewed By	Approved By
16/02/2023		Craig Wilson	Peter Gode	Peter Gode

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## Introduction

Construction Sciences is the largest private provider of construction materials testing services across Australia. We have a total staff of over 600 staff in 48 permanent offices/laboratories.

We have provided QA testing services to some of the largest road and mining infrastructure projects in these states, as well as overseas.

Over the last 3 to 4 years, Construction Sciences has established more site laboratories for road, rail, mining, and other large infrastructure projects than any other company.

We benefit our clients with the following clear differentiators;

**Staff Mobilisation:** Construction Sciences' geographic expansion and mobility allow for teams to be available when required, and currently we have the lion's share of major projects in Australia.

**Quality Management:** Construction Sciences' purpose-built software, COMPLY provides our clients with confidence, by knowing project data is securely stored. COMPLY has a built-in secure audit trail and a fully tracked Quality system. We are also ISO9001 compliant and certified.

**Client Relationships:** We listen to your needs and respond with innovative solutions that are tailored for your business. We believe in building relationships with our staff and local community.

**Safety:** At Construction Sciences we embrace a 'safety' culture and it is a key consideration with every project. Currently we are over 2 years LTI (lost time injury) free.

Construction Sciences Pty Ltd was commissioned by **fgf Developments Pty Ltd** to provide Level 1 inspection and testing services for the placement of fill at the residential development:-

**PROJECT:** Cherrybrook Stages 11, 29 & 30

**ADDRESS:** Cherrybrook Drive Bentley Park QLD 4869

The earthworks were carried out from 19/09/2022 to 8/12/2022

Lots 1101, 1102, 1103, 1105, 1106, 1107, 1108, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 3001, 3002, 3003, 3004, and 3005 had fill placed during the earthworks.

## Specification Requirements

Filling was carried out in accordance with AS3798-2007 'Guidelines on earthworks for commercial and residential developments' and with the project specification prepared for the project.

The specification requirements were that all fill was to be placed and compacted in layers to a density ratio of not less than 95% of the maximum density as determined by AS1289.5.7.1 (standard compaction).

## Site Works

The Cherrybrook Stages 11, 29 & 30 project was a large scale cut to fill operation with approximately 11580m<sup>3</sup> of fill placed.

Areas to be filled were stripped and proof rolled in accordance with the specification requirements.

The fill material generally comprised of Silty CLAY.

## Compaction Control Testing

Compaction control tests were carried out at regular intervals throughout the placement of fill in accordance with the minimum test frequency recommendations included in AS3798-2007 'Guidelines on earthworks for commercial and residential developments'. All test results are included in the Appendix A. A summary of the test results is included as Table 1. A total of 26 field density tests were carried out throughout the earthworks. The average density ratio was 102.5 % with a standard deviation of **2.01** %.

## Conclusion

It is considered that the placement of fill at Cherrybrook Stages 11, 29 & 30, Cherrybrook Drive Bentley Park QLD 4869 was carried out in a controlled manner and the fill was compacted to a density ratio not less than the specified requirement. It is concluded that the fill may be deemed to be '*controlled fill*' in accordance with AS2870 – 2011 '*Residential Slabs & Footings*'.



**Craig Wilson**

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**Table 1-1 Summary of field density test results - Cherrybrook Stages 11, 29 & 30**

Date	Location	Density ratio (1)
19/09/2022	Lot 1108 / GST	105.0
19/09/2022	Lot 2907 / GST	103.5
19/09/2022	Lot 3005 / GST	103.5
21/09/2022	Lot 2908 / Fill	99.5
21/09/2022	Lot 1103 / Fill	101.0
28/09/2022	Lot 3204 / Fill	104.0
28/09/2022	Lot 3005 / Fill	103.0
28/09/2022	Lot 2907 / Fill	101.5
6/10/2022	Lot 2909 / Fill	101.0
11/10/2022	Lot 1205 / Fill	102.5
11/10/2022	Lot 1205 / Fill	104.5
11/10/2022	Lot 3101 / Fill	104.0
11/10/2022	Lot 3105 / Fill	105.5
11/10/2022	Lot 3105 / Fill	104.0
13/10/2022	Lot 1204/1107 /Fill	102.0
14/10/2022	Lot 2702 / Fill	105.0
14/10/2022	Lot 1101 / Fill	98.0
14/10/2022	Lot 2901 / Fill	106.0
14/10/2022	Lot 3206/3004 / Fill	104.0
31/10/2022	Lot 3109 / Fill	101.5
31/10/2022	Lot 2909 / Fill	102.5
16/11/2022	Lot 2907 / Fill	99.5
16/11/2022	Lot 2906 / Fill	101.0
16/11/2022	Lot 2904 / Fill	101.5
16/11/2022	Lot 3104 / Fill	100.5
8/12/2022	Lot 3104 / Fill	100.5

<b>No. of tests:</b>	26	<b>Mean:</b>	102.5 %	<b>Standard Dev:</b>	2.01%
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Notes:

- Standard laboratory compaction used, AS1289.5.7.1.

# Appendix A – Field Density Test Results



## WET DENSITY RATIO REPORT

Client: ffg Developments Client Address: PO Box 6665, Cairns Project: 220823 - Cherrybrook Stages 11, 29 & 30 Location: Cairns Component: Compliance Testing Area Description: Cherry Brook Stage 11,29,30	Report Number: 11512/R/42953-1 Project Number: 11512/P/999 Lot Number: Various Internal Test Request: 11512/T/21292 Client Reference/s: TR 2293   220823 Report Date / Page: 5/10/2022 <span style="float: right;">Page 1 of 1</span>
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Test Procedures:	AS1289.5.7.1, AS1289.5.8.1
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Sample Number	11512/S/110990	11512/S/110991	11512/S/110992	
ID / Client ID	TR 2293	TR 2293	TR 2293	
Lot Number	1108	2907	3005	
Date / Time Tested	19/09/2022 10:20	19/09/2022 10:26	19/09/2022 10:36	
Material Source	Insitu Material	Insitu Material	Insitu Material	
Material Type	Ground Surface Treatment	Ground Surface Treatment	Ground Surface Treatment	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	125 / 150 / 150	125 / 150 / 150	125 / 150 / 150	
Standard or Modified	Standard	Standard	Standard	
Lot No.	1108	2907	3005	
Location	1m from B/BDY	1m of B/BDY Lots 2907/3201	CL of Lot	
RL	N/S	N/S	N/S	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize (%)	0	3	2	
Compaction Sample Number	11512/S/110990	11512/S/110991	11512/S/110992	
Sample Description	Silty Clay Pale Brown	Silty Clay Brown	Silty Clay Brown	
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	-	-	-	
<b>Adjusted / Moist. Variation (%)</b>	<b>3.5</b>	<b>3.0</b>	<b>2.0</b>	
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.12	2.02	2.13	
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.01	1.96	2.06	
Density Ratio Required (%)	95	95	95	
<b>Hilf Density Ratio (%)</b>	<b>105.0</b>	<b>103.5</b>	<b>103.5</b>	

Remarks

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## WET DENSITY RATIO REPORT

<b>Client:</b> fgf Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Lot 2908,1103 SEW Line 9/H to 10/1	<b>Report Number:</b> 11512/R/43049-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21332 <b>Client Reference/s:</b> TR 2294   GF-1,2 And SEW -3,4 <b>Report Date / Page:</b> 11/10/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/111162	11512/S/111163		
ID / Client ID	TR 2294	TR 2294		
Lot Number	2908	1103		
Date / Time Tested	21/09/2022 10:04	21/09/2022 09:27		
Material Source	Insitu Material	Insitu Material		
Material Type	Insitu Material	Insitu Material		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200		
Standard or Modified	Standard	Standard		
Lot No.	2908	1103		
Location	4m from CL of Lot General Fill	5m From CL of Lot General Fill		
RL	61.2	61.000		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize (%)	0	2		
Compaction Sample Number	11512/S/111162	11512/S/111163		
Sample Description	Insitu Material	Insitu		
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	13.3	7.6		
<b>Adjusted / Moist. Variation (%)</b>	<b>0.0</b>	<b>4.0</b>		
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.20	2.28		
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.21	2.26		
Density Ratio Required (%)	95	95		
<b>Hilf Density Ratio (%)</b>	<b>99.5</b>	<b>101.0</b>		

Remarks

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## WET DENSITY RATIO REPORT

<b>Client:</b> fgf Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Lot 3204,3005,2907	<b>Report Number:</b> 11512/R/43203-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21398 <b>Client Reference/s:</b> TR 2296   General Fill <b>Report Date / Page:</b> 18/10/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/111552	11512/S/111553	11512/S/111554
ID / Client ID	TR 2296	TR 2296	TR 2296
Lot Number	3204	3005	2907
Date / Time Tested	28/09/2022 12:45	28/09/2022 12:30	28/09/2022 09:10
Material Source	Insitu Material	Insitu Material	Insitu Material
Material Type	Insitu Material	Insitu Material	Insitu Material
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200
Standard or Modified	Standard	Standard	Standard
Lot No.	3204	3005	2907
Location	2m from CL of Lot	5m from CL of Lot	CL of Lot
RL	65.800	62.000	63.500
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	2	0	8
Compaction Sample Number	11512/S/111552	11512/S/111553	11512/S/111554
Sample Description	Insitu Material	Insitu Material	insitu Material
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	10.9	11.4	9.6
<b>Adjusted / Moist. Variation (%)</b>	<b>0.0</b>	<b>1.0</b>	<b>2.5</b>
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.28	2.24	2.14
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.19	2.18	2.11
Density Ratio Required (%)	95	95	95
<b>Hilf Density Ratio (%)</b>	<b>104.0</b>	<b>103.0</b>	<b>101.5</b>

Remarks

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## WET DENSITY RATIO REPORT

<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b>	<b>Report Number:</b> 11512/R/43271-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> <b>Internal Test Request:</b> 11512/T/21460 <b>Client Reference/s:</b> TR 2297 <b>Report Date / Page:</b> 21/10/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/111849	11512/S/111850	
ID / Client ID	TR 2297	TR 2297	
Lot Number	-	-	
Date / Time Tested	6/10/2022	6/10/2022	
Material Source	Insitu Material	Insitu Material	
Material Type	Insitu Material	Insitu Material	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	
Standard or Modified	Standard	Standard	
Road	Rd 0/9	Lot 2909	
Chainage <span style="float: right;">m</span>	228	CL of Lot	
Offset <span style="float: right;">m</span>	62.300		
Level	General Fill	General Fill	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	
Sample Oversize (%)	0	0	
Compaction Sample Number	11512/S/111849	11512/S/111850	
Sample Description	Insitu	Insitu	
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	9.9	10.1	
<b>Adjusted / Moist. Variation (%)</b>	<b>2.5</b>	<b>2.0</b>	
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.24	2.22	
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.18	2.20	
Density Ratio Required (%)	95	95	
<b>Hilf Density Ratio (%)</b>	<b>102.5</b>	<b>101.0</b>	

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<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Lot 1205,3101,3105	<b>Report Number:</b> 11512/R/43523-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21506 <b>Client Reference/s:</b> TR 2298   General Fill <b>Report Date / Page:</b> 1/11/2022 <span style="float: right;">Page 1 of 2</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/112097	11512/S/112098	11512/S/112099	11512/S/112100
ID / Client ID	TR 2298	TR 2298	TR 2298	TR 2298
Lot Number	1205	1205	3101	3105
Date / Time Tested	11/10/2022 11:55	11/10/2022 12:20	11/10/2022 12:25	11/10/2022 15:02
Material Source	Insitu Material	Insitu Material	Insitu Material	Insitu Material
Material Type	Insitu Material	Insitu Material	Insitu Material	Insitu Material
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Lot No.	1205	1205	3101	3105
Location	5m from CL of Lot	1m from Cl	3m from CL Lot	3m from CL Lot
RL	66.6	63.8	65.0	66.5
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	0	0	0	0
Compaction Sample Number	11512/S/112097	11512/S/112098	11512/S/112099	11512/S/112100
Sample Description	Insitu	Insitu	Insitu	Insitu
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	9.6	8.0	9.0	8.3
<b>Adjusted / Moist. Variation (%)</b>	<b>2.5</b>	<b>4.5</b>	<b>3.5</b>	<b>4.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.27	2.20	2.22	2.24
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.22	2.10	2.13	2.12
Density Ratio Required (%)	95	95	95	95
<b>Hiif Density Ratio (%)</b>	<b>102.5</b>	<b>104.5</b>	<b>104.0</b>	<b>105.5</b>

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<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Lot 1205,3101,3105	<b>Report Number:</b> 11512/R/43523-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21506 <b>Client Reference/s:</b> TR 2298   General Fill <b>Report Date / Page:</b> 1/11/2022 <span style="float: right;">Page 2 of 2</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/112101		
ID / Client ID	TR 2298		
Lot Number	3105		
Date / Time Tested	11/10/2022 15:12		
Material Source	Insitu Material		
Material Type	Insitu Material		
Sampling Method	AS1289.1.2.1 CI 6.4b		
Depths: Test / Nom / Actual (mm)	175 / 200 / 200		
Standard or Modified	Standard		
Lot No.	3105		
Location	2m from CI of Lot		
RL	65.6		
Test Fraction (mm)	< 19.0 mm		
Sample Oversize (%)	0		
Compaction Sample Number	11512/S/112101		
Sample Description	Insitu		
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	10.3		
<b>Adjusted / Moist. Variation (%)</b>	<b>2.0</b>		
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.22		
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.13		
Density Ratio Required (%)	95		
<b>Hilf Density Ratio (%)</b>	<b>104.0</b>		

Remarks
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## WET DENSITY RATIO REPORT

<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Stormwater, General Fill	<b>Report Number:</b> 11512/R/43552-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> 1204 <b>Internal Test Request:</b> 11512/T/21563 <b>Client Reference/s:</b> TR 2300   Level 1 <b>Report Date / Page:</b> 2/11/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/112419		
ID / Client ID	GF-13		
Lot Number	1204		
Date / Time Tested	13/10/2022 12:25		
Material Source	Insitu Material		
Material Type	Insitu Material		
Sampling Method	AS1289.1.2.1 CI 6.4b		
Depths: Test / Nom / Actual (mm)	175 / 200 / 200		
Standard or Modified	Standard		
Lot No.	Lot 1204		
Location	B/BDY Lot 1204 1107 CL of Lot		
RL	63.5		
Test Fraction (mm)	< 19.0 mm		
Sample Oversize (%)	4		
Compaction Sample Number	11512/S/112419		
Sample Description	Insitu Material		
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	10.4		
<b>Adjusted / Moist. Variation (%)</b>	<b>0.0</b>		
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.24		
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.20		
Density Ratio Required (%)	95		
<b>Hilf Density Ratio (%)</b>	<b>102.0</b>		

Remarks
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## WET DENSITY RATIO REPORT

<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Cherry Brook Stage 11,29 & 30	<b>Report Number:</b> 11512/R/43526-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21570 <b>Client Reference/s:</b> TR 1151   General Fill, Stormwater <b>Report Date / Page:</b> 1/11/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/112467	11512/S/112468	11512/S/112469	11512/S/112470
ID / Client ID	GF14	GF15	GF16	GF17
Lot Number	2702	1101	2901	3206/3004
Date / Time Tested	14/10/2022 08:48	14/10/2022 09:56	14/10/2022 09:14	14/10/2022 09:48
Material Source	Insitu Material	Insitu Material	Insitu Material	Insitu Material
Material Type	Insitu Material	Insitu Material	Insitu Material	Insitu Material
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Lot No.	2702	1101	2901	3206/3004
Location	B/BDY CL of Lot	CL of Lot	B/BDY CL of Lot	B/BDY CL of Lot
RL	64.7	60.4	62.8	67.0
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	8	9	10	5
Compaction Sample Number	11512/S/112467	11512/S/112468	11512/S/112469	11512/S/112470
Sample Description	Brown/Red Silty Sandy Clay	Red/Brown Sandy Silty Clay	Grey/Brown Silty Sandy Clay	Brown/Red Silty Gravelly Sandy C
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	12.6	10.3	11.4	10.3
<b>Adjusted / Moist. Variation (%)</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>1.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.30	2.20	2.19	2.29
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.19	2.26	2.06	2.20
Density Ratio Required (%)	95	95	95	95
<b>Hiif Density Ratio (%)</b>	<b>105.0</b>	<b>98.0</b>	<b>106.0</b>	<b>104.0</b>

Remarks

Accredited for compliance with ISO/IEC 17025 – Testing  	<div style="text-align: center;">             Approved Signatory: Craig Wilson            Form ID: W5ASRep Rev 3         </div>
Accreditation Number: 1986 Corporate Site Number: 11512	



## WET DENSITY RATIO REPORT

<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Field Density <b>Area Description:</b> General Fill	<b>Report Number:</b> 11512/R/43598-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21714 <b>Client Reference/s:</b> MTR1152 <b>Report Date / Page:</b> 3/11/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/113460	11512/S/113461	
ID / Client ID	GF-18	GF-19	
Lot Number	3109	2909	
Date / Time Tested	31/10/2022 13:15	31/10/2022 13:25	
Material Source	Onsite	Onsite	
Material Type	General Fill	General Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	
Standard or Modified	Standard	Standard	
Lot No.	3109	2909	
Location	Top of Batter	Centre of Lot	
RL			
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	
Sample Oversize (%)	4	0	
Compaction Sample Number	11512/S/113460	11512/S/113461	
Sample Description	Gravelly Sandy Clay Red	Gravelly Sandy Clay Red	
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	10.4	6.8	
<b>Adjusted / Moist. Variation (%)</b>	<b>2.0</b>	<b>4.0</b>	
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.26	2.28	
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.23	2.22	
Density Ratio Required (%)	95	95	
<b>Hiif Density Ratio (%)</b>	<b>101.5</b>	<b>102.5</b>	

Remarks
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<div style="text-align: center;">Accredited for compliance with ISO/IEC 17025 – Testing</div>  <p>Accreditation Number: 1986          Corporate Site Number: 11512</p>	 Approved Signatory: Craig Wilson Form ID: W5ASRep Rev 3
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## WET DENSITY RATIO REPORT

<b>Client:</b> fgf Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Compliance Testing <b>Area Description:</b> Cherrybrook Estate	<b>Report Number:</b> 11512/R/43998-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> Various <b>Internal Test Request:</b> 11512/T/21842 <b>Client Reference/s:</b> TR 1155   220801 <b>Report Date / Page:</b> 27/11/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/114281	11512/S/114282	11512/S/114283	11512/S/114285
ID / Client ID	TR 1155	TR 1155	TR 1155	TR 1155
Lot Number	2907	2906	2904	3104
Date / Time Tested	16/11/2022	16/11/2022	16/11/2022	16/11/2022
Material Source	Onsite	Onsite	Onsite	Onsite
Material Type	General Fill	General Fill	General Fill	General Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200	175 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Lot No.	Lot 2907	Lot 2906	Lot 2904	Lot 3104
Location	5m F/BDY	12m F/BDY	6m F/BDY	12m F/BDY
	CL of Lot	CL of Lot	CL of Lot	CL of Lot
RL	General Fill	General Fill	General Fill	General Fill
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize (%)	1	0	10	3
Compaction Sample Number	11512/S/114281	11512/S/114282	11512/S/114283	11512/S/114285
Sample Description	Silty CLAY, red brown	Silty CLAY, red brown	Sandy CLAY, red brown	Silty CLAY, red brown
<b>Moisture Test Results:</b>				
Field Moisture Content (%)	9.1	7.5	6.6	7.9
<b>Adjusted / Moist. Variation (%)</b>	<b>4.5</b>	<b>4.5</b>	<b>4.0</b>	<b>4.5</b>
<b>Density Test Results:</b>				
Field Wet Density (t/m <sup>3</sup> )	2.16	2.21	2.25	2.14
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.17	2.19	2.22	2.13
Density Ratio Required (%)	95	95	95	95
<b>Hiif Density Ratio (%)</b>	<b>99.5</b>	<b>101.0</b>	<b>101.5</b>	<b>100.5</b>

Remarks

Accredited for compliance with ISO/IEC 17025 – Testing  	<div style="text-align: right; margin-bottom: 10px;">  </div> Approved Signatory: Craig Wilson Form ID: W5ASRep Rev 3
Accreditation Number: 1986 Corporate Site Number: 11512	





## WET DENSITY RATIO REPORT

<b>Client:</b> ffg Developments <b>Client Address:</b> PO Box 6665, Cairns <b>Project:</b> 220823 - Cherrybrook Stages 11, 29 & 30 <b>Location:</b> Cairns <b>Component:</b> Field Test <b>Area Description:</b> General Fill	<b>Report Number:</b> 11512/R/44469-1 <b>Project Number:</b> 11512/P/999 <b>Lot Number:</b> LOT 3104 <b>Internal Test Request:</b> 11512/T/22034 <b>Client Reference/s:</b> TR-1158 <b>Report Date / Page:</b> 20/12/2022 <span style="float: right;">Page 1 of 1</span>
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<b>Test Procedures:</b>	AS1289.5.7.1, AS1289.5.8.1, AS1289.2.1.1
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Sample Number	11512/S/115589		
ID / Client ID	GF-24		
Lot Number	LOT 3104		
Date / Time Tested	8/12/2022 12:00		
Material Source	Onsite		
Material Type	General Fill		
Sampling Method	AS1289.1.2.1 CI 6.4b		
Depths: Test / Nom / Actual (mm)	275 / 300 / 300		
Standard or Modified	Standard		
Lot No.	LOT 3104		
Location	Centre of Lot.		
RL	66.300		
Test Fraction (mm)	< 19.0 mm		
Sample Oversize (%)	5		
Compaction Sample Number	11512/S/115589		
Sample Description	General fill		
<b>Moisture Test Results:</b>			
Field Moisture Content (%)	9.0		
<b>Adjusted / Moist. Variation (%)</b>	<b>2.0</b>		
Optimum Moisture Content (%)	11.0		
Moisture Variation from OMC	(Drier than OMC)		
<b>Moisture Ratio (%)</b>	<b>82.0</b>		
<b>Density Test Results:</b>			
Field Wet Density (t/m <sup>3</sup> )	2.16		
Adj/Peak Conv Wet Density (t/m <sup>3</sup> )	2.16		
Density Ratio Required (%)	95		
<b>Hilf Density Ratio (%)</b>	<b>100.5</b>		

Remarks
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Accredited for compliance with ISO/IEC 17025 – Testing	
	
Accreditation Number: 1986 Corporate Site Number: 11512	Approved Signatory: Stephen Smith Form ID: W5ASMRRRep Rev 2

# Appendix B – Allotment Fill Map

# ISSUED FOR CONSTRUCTION

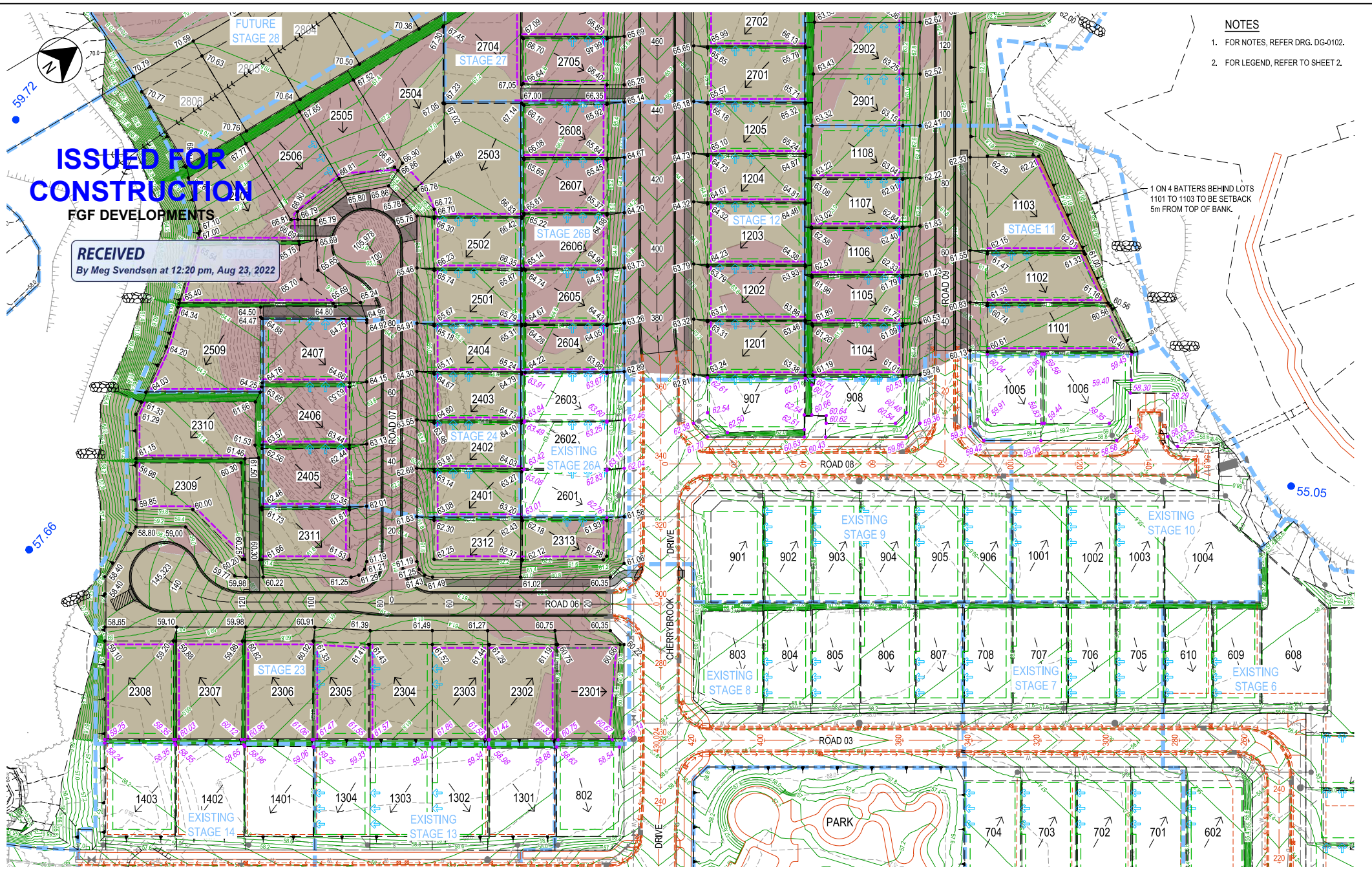
## FGF DEVELOPMENTS

**RECEIVED**

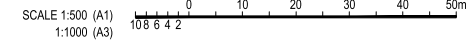
By Meg Svendsen at 12:20 pm, Aug 23, 2022

### NOTES

- FOR NOTES, REFER DRG. DG-0102.
- FOR LEGEND, REFER TO SHEET 2.



1 ON 4 BATTERS BEHIND LOTS 1101 TO 1103 TO BE SETBACK 5m FROM TOP OF BANK.



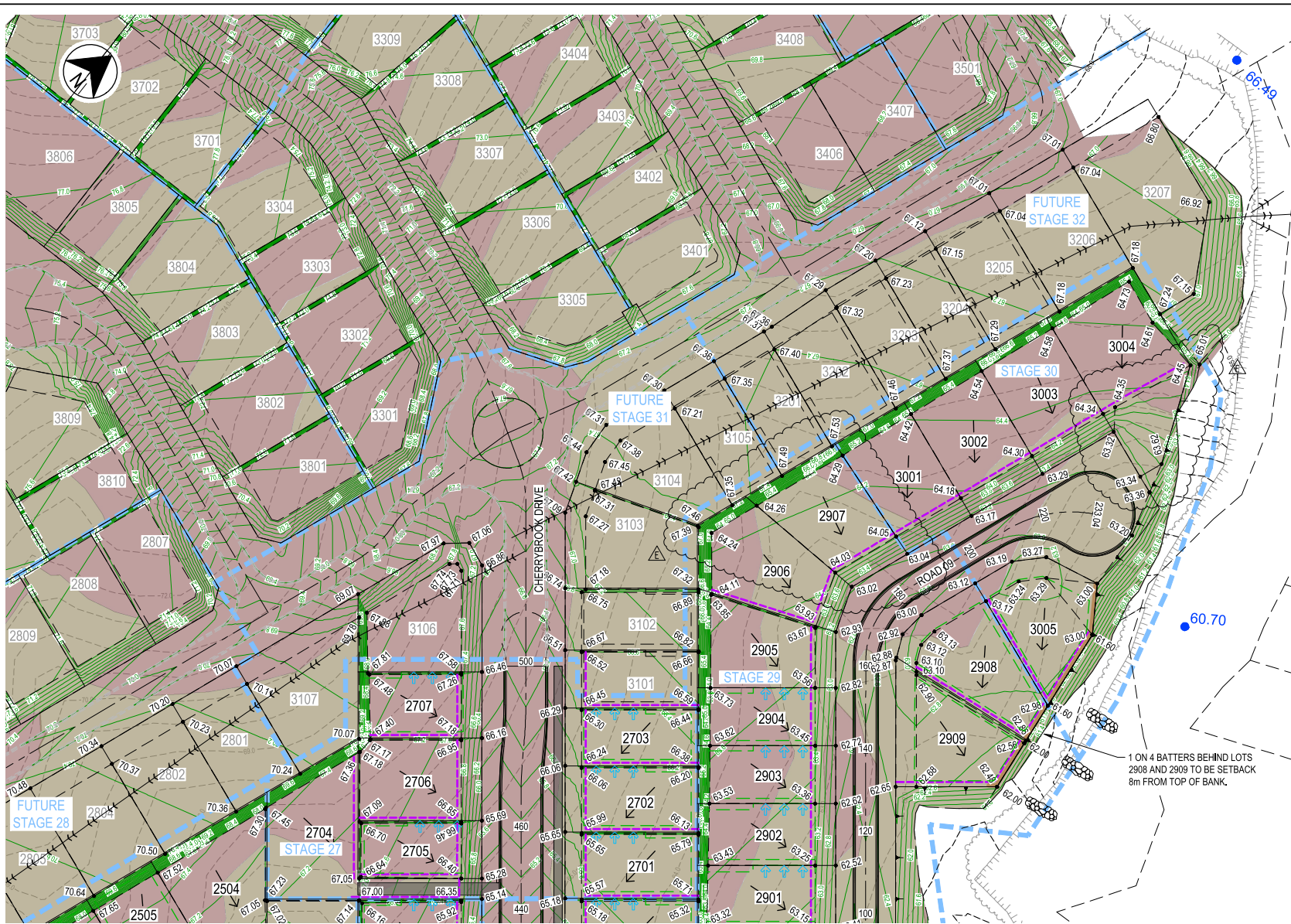
REV	DATE	DRAWN	REV'D	APP'D	REVISION	DRAWING NUMBER	REFERENCE DRAWING TITLE
D	10.08.22	GMS	RJB	RJC	FOR CONSTRUCTION ISSUE		
C	11.07.22	GMS	RJB	RJC	LOT DRAINAGE AMENDED, NOTE ADDED		
B	17.06.22	GMS	RJB	RJC	LOT GRADINGS AMENDED, RETAINING WALL ADDED		
A	08.12.21	GMS	NLL	RJC	INITIAL ISSUE		



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CLIENT: WALKER ROAD PTY LTD		TITLE: EARTHWORKS SHEET 1 OF 2	
PROJECT: CHERRYBROOK - STAGES 11, 12, 23 TO 25, 26B, 27, 29 & 30		SCALE: AS SHOWN	
DRAWN: GMS	DRAWING CHECK: RJB	REVIEWED: NLEE LONG	APPROVED: [Signature]
DESIGNED: GMS	DESIGN REVIEW: RJC	DATE: 08.12.21	DATE: 10.08.22

SCALE: AS SHOWN	DRAWING NO: IH035500-11-CL-DRG-0201	REV: D
-----------------	-------------------------------------	--------

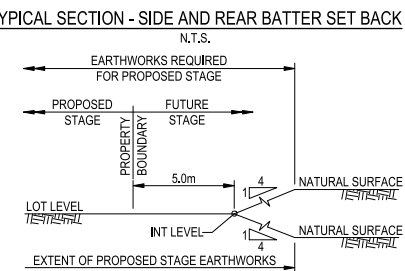
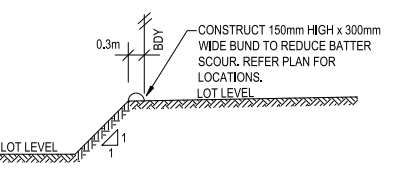
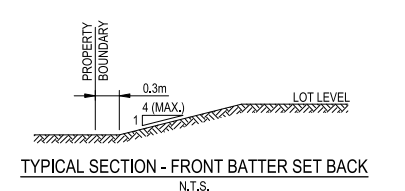


### LEGEND

- AREAS OF FILL
- AREAS OF CUT
- FINISHED SURFACE LEVEL
- NATURAL SURFACE LEVEL
- FALL OF LOTS
- TEMPORARY CUT-OFF DRAIN
- BATTERY
- BATTERY BUND
- RETAINING WALL (CONCRETE SLEEPERS, DESIGN AND CERTIFICATION BY CONTRACTOR)
- STAGE BOUNDARY
- DESIGN SURFACE CONTOURS (0.2m INTERVAL)
- EXISTING SURFACE CONTOURS (0.5m INTERVAL)
- Q100 FLOOD LEVEL + FREEBOARD
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER

### NOTES

1. FOR NOTES, REFER DRG. DG-0102.



SCALE 1:500 (A1)  
 1:1000 (A3)

**ISSUED FOR CONSTRUCTION**  
 FGF DEVELOPMENTS

**RECEIVED**  
 By Meg Svendsen at 12:20 pm, Aug 23, 2022

REV	DATE	DRAWN	REV'D	APP'D	REVISION	DRAWING NUMBER	REFERENCE DRAWING TITLE
E	22.08.22	GMS	RJB	RJC	EARTHWORKS AND LOT BOUNDARIES ADJUSTED		
D	10.08.22	GMS	RJB	RJC	FOR CONSTRUCTION ISSUE		
C	11.07.22	GMS	RJB	RJC	RETAINING WALL AND LOT DRAINAGE AMENDED, NOTE ADDED		
B	17.06.22	GMS	RJB	RJC	LOT GRADING AMENDED, RETAINING WALL ADDED		
A	08.12.21	GMS	NLL	RJC	INITIAL ISSUE		

**Jacobs**

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CLIENT: WALKER ROAD PTY LTD		TITLE: EARTHWORKS SHEET 2 OF 2	
PROJECT: CHERRYBROOK - STAGES 11, 12, 23 TO 25, 26B, 27, 29 & 30		SCALE: AS SHOWN	
DRAWN: GMS	DRAWING CHECK: RJB	REVIEWED: N.LEE LONG	APPROVED: [Signature]
DESIGNED: GMS	DESIGN REVIEW: RJB	DATE: 08.12.21	DATE: 10.08.22

SCALE: AS SHOWN	DRAWING NO: IH035500-11-CI-DRG-0202	REV: E
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