LEVEL 1 INSPECTION AND TESTING

Dam Infilling
Lot 17 Overlander Avenue
Chatsworth

Report for Roberts Brothers Pty Ltd
Report No. 17297-001-Rev0
13 September 2017

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Document Review

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Report Distribution

Revision	Method of Delivery	Issued To
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1.0 INTRODUCTION

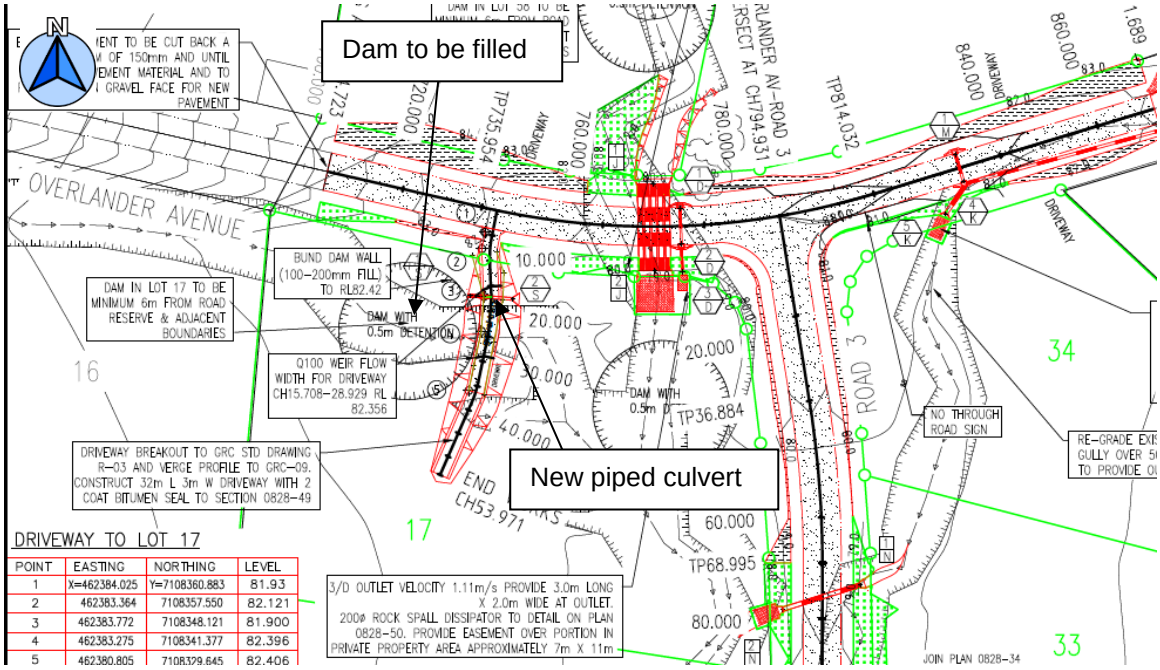
This report details the results of geotechnical inspection and testing conducted during filling of a small dam on Lot 17, Overlander Avenue, Chatsworth. Level 1 inspection and testing of placed fill was carried out in accordance with the following Australian Standards:

- AS1289 '*Methods of testing soils for engineering properties*'
- AS3798-2007 '*Guidelines on earthworks for commercial and residential developments*'

The geotechnical services were provided by Tectonic Geotechnical Pty Ltd (Tectonic) to Roberts Brothers Pty Ltd in accordance with proposal P17377-Rev0, dated 24 August 2017. Geotech (S.C.) Pty Ltd (Geotech) were sub-contracted by Tectonic to undertake full-time inspection of filling works, together with sampling and testing of fill materials. Roberts Brothers personnel and sub-contractors undertook the fill placement and compaction.

2.0 THE SITE

As shown in Text Figure 1 below, the dam that was filled was located near the north-west corner of Lot 17, within an existing shallow drainage channel.



Text Figure 1: Dam location (courtesy Callaghan & Toth)

We understand that the dam was filled in response to Gympie Shire Council requirements due to its close proximity to the boundary (within 6 m). The dam was to be filled and the final level shaped to maintain the existing drainage channel, and included a new piped culvert under the future driveway into Lot 17. Residential construction on Lot 17 is expected to be located to the south (upslope) of the infilled dam, with no construction expected on the filled area.

3.0 INSPECTIONS AND TESTING

Fieldwork consisted of:

- Inspections of surface stripping (to remove organic and unsuitable materials (saturated silts)) and subgrade proof rolling by an experienced geotechnical engineer from Tectonic.
- Full-time supervision, sampling and testing of placed fill by Geotech in accordance with the Level 1 requirements of AS3798.
- Determination of field density of compacted fill in accordance with AS1289.

The site was inspected by Tectonic on 29 August 2017 to witness removal of unsuitable materials and establishment of a suitable base for filling. Earthworks (fill placement and compaction) were supervised by Geotech on 29 August 2017.

Wet, very soft silt was excavated from the dam to expose natural stiff to very stiff gravelly clay. Weathered rock was exposed in the subgrade in the western part of the dam.

Text Figures 2 to 5 below and on the following pages show the site conditions following stripping and upon completion of construction.

Text Figure 2: Mucking out wet, very soft silt from base of dam

Text Figure 3: Stiff clay at base of dam

Text Figure 4: Fill source at Lot 18

Text Figure 5: Final fill shape (looking west)

Geotech conducted a total of 2 (No.) field and laboratory density tests on fill placed on 29 August 2017. Tests were located close to the middle of the dam area. Fill material (gravelly and sandy clays) was sourced from trimming of a ridge on Lot 18, located to the south of Lot 17.

Fill was placed to a depth of approximately 1 m, with the final level shaped to maintain drainage. Roberts Brothers have indicated to us that approximately 500 m^3 of fill was placed within the dam.

Dry density ratio reports prepared by Geotech are attached in Appendix A.

4.0 CONCLUSIONS

Prior to filling, the subgrade area was stripped of wet, very soft, organic material before being proof rolled to identify any soft spots. No significant soft spots were encountered, with the natural clay soils being in stiff (or stiffer) condition. Weathered rock was exposed in the western part of the dam. No groundwater seepage was observed in the subgrade.

Both samples tested and reported showed sufficient compaction had been achieved in accordance with Table 5.1 of AS3798-2007. Based upon our inspections, and the results of the testing, it has been confirmed that the fill has been adequately placed and compacted to achieve the required specification of a minimum dry density ratio (DDR) of 95% (Standard). DDR values were 95% and 98%.

The frequency of density testing conducted, that being 2 tests for approximately 450 m^3 of general fill (1 test per 225 m^3 of fill).

Our inspections and testing indicate that the fill may be classified as ‘controlled fill’ in accordance with the definitions given in AS 2870-2011 Residential Slabs and Footings. This certification only provides an assurance of the density of the fill tested, and suitability of the stripped surface for placement of that fill. This certification does not address any other issues that may be relevant to foundation and building construction.

5.0 LIMITATIONS

Your attention is drawn to the document “Limitations”, which is included in Appendix B of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be, and to present you with recommendations on how to minimise the risks associated with the services provided by Tectonic for this project.

APPENDIX A

Dry Density Ratio Reports

Geotech (S.C.) Pty Ltd ACN 074 982 979 ABN 39 074 982 979
Geotech
Geotechnical Testing Authority

3 Bearing Ave
Warana Qld 4575
PO Box 2
Buddina Qld 4575
Telephone: (07) 5493 1733
Facsimile: (07) 5493 6019
Email: geotechs@ozemail.com.au

Dry Density Ratio Report

Client :	**Roberts Bros.**	Report Number:	**G17058 - 11/1**
Address:	**123 Maple St Cooroy Qld 4563**		
Job Number :	**G17058**	Report Date :	**1/09/2017**
Project :	**Dam Fill Lot 17**	Order Number:	
Location :	**Stage 2 , Chatsworth**	Test Method:	**AS1289.5.4.1**

Lab No :	**109603**	**109604**		
ID No :	**-**	**-**		
Lot No :	**-**	**-**		
Item No :	**-**	**-**		
Date Sampled :	**29/8/2017**	**29/8/2017**		
Date/Time Tested :	**29/8/2017 / 12.45**	**29/8/2017 / 2.15**		
Material Source :	**Site**	**Site**		
For Use As :	**Fill**	**Fill**		
Sample Location :	Lot 17 Dam Fill E 0462367 N 7108346 Approx 0.8m < Final Lvl	Lot 17 Dam Fill E 0462369 N 7108347 Final Fill Lvl		
Test/Layer Depth (mm)	**150 /**	**150 /**		
Max Size (mm) :	**19.0**	**19.0**		
Oversize Wet (%) :	**7**	**3**		
Oversize Dry (%) :	**8**	**3**		
Field Moisture (%) :	**16.7**	**20.4**		
MDR No :	**109603**	**109604**		
Assigned MDR :	**No**	**No**		
Field Dry Density (t/m³)	**1.61**	**1.50**		
MDD (t/m³) :	**1.66***	**1.59***		
OMC (%) :	**20.5**	**23.5**		
Variation from OMC	**4% dry of omc**	**3% dry of omc**		
Field Density Method :	**AS1289.5.8.1**	**AS1289.5.8.1**		
MC Method :	**AS 1289.2.1.1**	**AS 1289.2.1.1**		
Compactive Effort :	**Standard**	**Standard**		
Moisture Ratio / Spec(%) :	**81 / -**	**87 / -**		
Dry Density Ratio (%) :	**98.0**	**95.0**		
Min Dry Dens Ratio (%)	**95**	**95**		

Remarks :

*** - Denotes corrected for oversize**

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for compliance with ISO/IEC 17025-Testing**	APPROVED SIGNATORY Mel Burnett NATA Accred No:1551	FORM NUMBER **REP ANUC-1-3**

APPENDIX B

Limitations

LIMITATIONS

This document has been prepared for the purpose outlined in Tectonic's proposal and no responsibility is accepted for the use of this document, in whole or in part, for any other purpose.

The scope of Tectonic's Services are as described in Tectonic's proposal, and are subject to restrictions and limitations. Tectonic did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the report. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Tectonic in regards to it.

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