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SOIL TESTING | PIPE TESTING | CONTRACT DRILLING

Level 1 Report – AS3798

Client: BL Civil
Project: Woodlinks Stage 13
Job No: J24/63
Docket No: 56590
Developer: Canberra Estates Consortium No.36 Pty Ltd
Consulting Engineer: Colliers



Version	Date	Author	Initials	Reviewer	Initials
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SOIL SCIENCE
AUSTRALIA



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Contents

1.0 Introduction	2
2.0 Site Description	2
3.0 Foundation Preparation	2
3.1 Site Stripping	2
3.2 Proof Rolling	2
4.0 Controlled Filling	2
5.0 Compaction Control Testing	2
6.0 Field Density Results	3
7.0 Report on Filling Operations	3
8.0 Notes	3
9.0 Constraints	3
Appendix 1: General Layout Plan	5
Appendix 2: Field Density Reports	6
Appendix 3: Typical Site Conditions	7
Appendix 4: Site Information	8



1.0 Introduction

Wagner Soil Testing has recently completed a Level One Overview of Earthworks, in accordance with the requirements of AS3798 – “Guidelines on Earthworks for Commercial and Residential Developments” for Woodlinks Village Stage 13.

Controlled fill (as defined in AS 2870) was placed by BL Civil. Stripping instructions, proof rolling, and compaction control testing was carried out by Wagner Soil Testing (on a fulltime basis) during all earthwork’s operations. Our onsite supervision component excludes assessments of fill quality and engineering properties that are outside the requirements of AS3798 – 2007, including CBR values and soil reactivity.

2.0 Site Description

The site is located at Woodlinks Village Stage 13, Collingwood Drive, Collingwood Park QLD 4301. The general location of the site is shown in the attached site plans (Appendix 1). The site is bound by existing residential developments.

2.0 Foundation Preparation

3.1 Site Stripping

Vegetation, topsoil, and organic rich materials were stripped and stockpiled onsite prior to the commencement of filling operations. As a safety factor several test pits were excavated in the proposed fill area to assess subsurface conditions & no significant issues were noted during this phase.

3.2 Proof Rolling

All stripped areas were proof rolled prior to any fill placement. Any compressible areas with apparent movement were excavated to a firm base before any fill being placed.

4.0 Controlled Filling

Fill materials (on-site) were compacted using a medium sized pad foot roller in layers not exceeding 0.3m loose. The natural ground in the areas of filling generally comprised of Gravelly Sandy Clay (CI) The fill material used was generally as above. Moisture contents of all fill material placed was monitored by Wagner Soil Testing. Total volumes of fill reached 800m³.

5.0 Compaction Control Testing

Compaction Control Testing was carried out by Wagner Soil Testing. Testing was carried out in accordance with the requirements of AS3798 Table 5.1 (Minimum Relative Compaction) and Table 8.1 (Frequency of Field Density Tests). During the works, nine (9) Field Dry Densities were carried out on fill materials together with Dynamic Cone Penetrometers



(DCP's) over the filled zones periodically & at the completion of earthworks operations to help quantify bearing capacities.

6.0 Field Density Results

All Nuclear Field Densities carried out on the fill indicated Density Ratios greater than the specified requirement of 95% (standard compaction) & AS3798 Table 5.1.

7.0 Report on Filling Operations

The results obtained from Compaction Control Testing, together with observations made during earthworks operations indicate that all fill materials were placed in a controlled manner in accordance with good engineering practices. The earthworks have been carried out to meet the requirements of Level 1 Certification as per AS3798 – “Guidelines on Earthworks for Commercial and Residential Developments”. This report excludes any of the previous earthworks completed by other contractors and only represents the filling operations completed by BL Civil.

8.0 Notes

Certified / Controlled (Level 1) Fill is only an assurance of its density. There are sites where long-term consolidations of fill can occur, unrelated to its actual density. Sites where fill has been placed over inferior material and sites where the depth of controlled fill varies dramatically over short distances are sites where differential consolidations must be considered. Although all Field Densities carried out reached density ratios greater than 95% as required, some material still may have bearing ratios below 100kPa as per AS2870 – Residential Slabs & Footings depending on material composition, and unfavourable site classifications and low subgrade design strengths still may be encountered.

All compacted fill is subject to secondary (creep) settlement, which is relational to the depth of the fill. Estimated secondary settlement may be of the order of 1% to 2% of the total fill height over 15 years. There is a possibility that additional fill has been placed after the date of the last field density test or at times when Wagner Soil Testing has not been notified that filling operations are in progress. The installation of services may cause disruption of the compacted fill.

Unless otherwise stated, Level 1 Certification does not address trench backfill operations, batter slope stability, retaining wall backfill, global stability analysis, acid sulfate testing and or management. The “supervision” component of this Level 1 Report is not NATA endorsed. Wagner Soil Testing must be contacted if any site levels are modified whatsoever. It is the client's responsibility to maintain site drainage after the issue of this report.

A full geotechnical site investigation / classification and foundation design for the specific ground conditions should be carried out by suitably qualified or experienced personnel prior to building. This service can be provided, if required, by contacting Wagner Soil Testing.



9.0 Constraints

This report was produced for the sole use of BL Civil. This report should not be used by or depended upon for other projects or purposes on the same or other projects or by a third party. In the preparation of this report Wagner Soil Testing has relied upon information provided by the client and or their agents.

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 Wagner Soil Testing's 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 Wagner Soil Testing and if required, amendments made.

Wagner Soil Testing 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.

To establish a geotechnical model as per AS1726-2017-5.2 we require extra testing. No differential settlement estimates have been calculated for this site.

For further technical support regarding this Geotechnical Report please contact Mr. Dean Wagner of Wagner Soil Testing.

Dean Wagner
Managing Director
Wagner Soil Testing





Appendix 2: Field Density Reports

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REPORT ON FIELD HILF DENSITY - NUCLEAR METER

Client:	BL Civil	Job No:	J24/63
Client Address:	PO Box 5501, Brendale Qld 4500	Date:	17-Jan-25
Project:	Woodlinks - Stage 13	Tested by:	NT
Location:	Collingwood Park, Qld	Checked:	JJ
Report Number:	5	Page	1 of 1
		Order No:	Evarn

Test Methods	AS 1289 5.8.1/5.7.1/5.1.1		
Sample Method	Earthworks Layer (Compact) AS1289 1.2.1 (6.4(b))		
Lab Number	ALF/005	ALF/006	ALF/007
Test Location	Lot 313	Lot 314 & 315	Lot 316 & 317
	North End	North End	North End
	Final Level	Final Level	Final Level
Layer / Elevation	Allotment Fill	Allotment Fill	Allotment Fill
Material Source	Onsite	Onsite	Onsite
Depth Tested	200	200	200
Layer Thickness	200	200	200
Date Tested	17-Jan-25	17-Jan-25	17-Jan-25
Time Tested	AM	AM	AM
Material Sampled	After Compaction	After Compaction	After Compaction
Material Description	Gravelly Sandy Clay [CI]	Gravelly Sandy Clay [CI]	Gravelly Sandy Clay [CI]
Test Results			
Insitu Wet Density (t/m ³)	1.97	1.96	1.95
Insitu Moisture Content (%)	N/A	N/A	N/A
PCWD (t/m ³)	2.04	2.03	2.03
APCWD (t/m ³)	N/A	N/A	N/A
Peak Added Moisture (%)	+2.4	+1.7	+1.7
Moisture Variation (%)	+2.7	+1.9	+1.9
Adjusted Moisture Variation (%)	N/A	N/A	N/A
Retaining Sieve (mm)	19.0	19.0	19.0
Percentage Oversize (wet)	0.0	0.0	0.0
HILF DENSITY RATIO (%)	97.0	97.0	96.0
Compaction Type	Standard	Standard	Standard
Degree of Compaction	95%	95%	95%
Remarks	Docket #56287		

REPORT ON FIELD HILF DENSITY - NUCLEAR METER

Client:	BL Civil	Job No:	J24/63
Client Address:	PO Box 5501, Brendale Qld 4500	Date:	17-Jan-25
Project:	Woodlinks - Stage 13	Tested by:	NT
Location:	Collingwood Park, Qld	Checked:	JJ
Report Number:	6	Page	1 of 1
		Order No:	Evarn

Test Methods	AS 1289 5.8.1/5.7.1/5.1.1		
Sample Method	Earthworks Layer (Compact) AS1289 1.2.1 (6.4(b))		
Lab Number	ALF/008	ALF/009	ALF/010
Test Location	Lot 320	Lot 319	Lot 318
	North End	North End	North End
	Final Level	Final Level	Final Level
Layer / Elevation	Allotment Fill	Allotment Fill	Allotment Fill
Material Source	Onsite	Onsite	Onsite
Depth Tested	200	200	200
Layer Thickness	200	200	200
Date Tested	17-Jan-25	17-Jan-25	17-Jan-25
Time Tested	AM	AM	AM
Material Sampled	After Compaction	After Compaction	After Compaction
Material Description	Gravelly Sandy Clay [CI]	Gravelly Sandy Clay [CI]	Gravelly Sandy Clay [CI]
Test Results			
Insitu Wet Density (t/m ³)	1.96	1.97	1.96
Insitu Moisture Content (%)	N/A	N/A	N/A
PCWD (t/m ³)	2.04	2.03	2.02
APCWD (t/m ³)	N/A	N/A	N/A
Peak Added Moisture (%)	+2.4	+1.7	+1.7
Moisture Variation (%)	+2.7	+1.9	+1.9
Adjusted Moisture Variation (%)	N/A	N/A	N/A
Retaining Sieve (mm)	19.0	19.0	19.0
Percentage Oversize (wet)	0.0	0.0	0.0
HILF DENSITY RATIO (%)	96.0	97.0	97.0
Compaction Type	Standard	Standard	Standard
Degree of Compaction	95%	95%	95%
Remarks	Docket #56287		

REPORT ON FIELD HILF DENSITY - NUCLEAR METER

Client:	BL Civil	Job No:	J24/63
Client Address:	PO Box 5501, Brendale Qld 4500	Date:	23-Jan-25
Project:	Woodlinks - Stage 13	Tested by:	NT
Location:	Collingwood Park, Qld	Checked:	JJ
Report Number:	7	Page	1 of 1
		Order No:	Evarn

Test Methods	AS 1289 5.8.1/5.7.1/5.1.1		
Sample Method	Earthworks Layer (Compact) AS1289 1.2.1 (6.4(b))		
Lab Number	ALF/011	ALF/012	ALF/013
Test Location	Lot 321	Lot 322	Lot 323
	North End	North End	North East End
	Final Level	1st Lift	Final Level
Layer / Elevation	Allotment Fill	Allotment Fill	Allotment Fill
Material Source	Onsite	Onsite	Onsite
Depth Tested	200	200	200
Layer Thickness	200	200	200
Date Tested	23-Jan-25	23-Jan-25	23-Jan-25
Time Tested	AM	AM	AM
Material Sampled	After Compaction	After Compaction	After Compaction
Material Description	Sandy Gravelly Clay [CI]	Sandy Gravelly Clay [CI]	Sandy Gravelly Clay [CI]
Test Results			
Insitu Wet Density (t/m ³)	1.97	1.96	1.96
Insitu Moisture Content (%)	N/A	N/A	N/A
PCWD (t/m ³)	2.04	2.06	2.04
APCWD (t/m ³)	N/A	N/A	N/A
Peak Added Moisture (%)	+2.4	+2.4	+1.7
Moisture Variation (%)	+2.7	+2.7	+1.9
Adjusted Moisture Variation (%)	N/A	N/A	N/A
Retaining Sieve (mm)	19.0	19.0	19.0
Percentage Oversize (wet)	0.0	0.0	0.0
HILF DENSITY RATIO (%)	97.0	95.5	96.0
Compaction Type	Standard	Standard	Standard
Degree of Compaction	95%	95%	95%
Remarks	Docket #57067		



Appendix 3: Typical Site Conditions



CONSTRUCTION

MATERIALS

TESTING



Appendix 4: Site Information

Important Information about your Report

As a client of Wagner Soil Testing Pty Ltd you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been provided to help you interpret and understand the limitations of your report.

Your report is project specific

Your report has been developed based on your unique project specific requirements as understood by Wagner Soil Testing and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structure on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-surface limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Wagner Soil Testing to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Wagner Soil Testing cannot accept responsibility for problems that may occur due to changed factors if they are not consulted. Our report does not take into account any existing filled ground or any other unforeseen subsurface conditions that may change anticipated site classification.

Subsurface conditions can change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. Do not rely on a geotechnical engineering report whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact Wagner Soil Testing before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners

should retain the services of Wagner Soil Testing through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Wagner Soil Testing, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of recommendations of this report, there is a risk that the report will be misinterpreted, and Wagner Soil Testing cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Wagner Soil Testing before passing your report on to another party who may not be familiar with the background and purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

It is a requirement that the client contacts Wagner Soil Testing Pty Ltd when the exact position of the proposed building is confirmed so we can check if our Boreholes fall in the footing area [our borelogs are only presumed indicative of the whole area until this is confirmed]. In the case of a cracked house investigation more testing may be required to conclude all possible causes of settlement and or movement. Initial drilling and lab testing may only identify some of the causes of the problem. Wagner Soil Testing should be contacted when additional testing is required. It is company policy that Wagner Soil Testing are contacted if the development (including any portion and/or envelope) is sold and/or changes title as the report is only for the use of our direct client. If the development is sold and/or changes title Wagner Soil Testing must be contacted and subsequently will carry out a comprehensive site inspection – evaluation at no cost to ensure the preliminary report is relevant and no changes whatsoever have been made.