

# CIVILTEST ALBURY WODONGA

## SOILS ENGINEERING LABORATORY

16 Kane Road, Wodonga - Postal Address P.O Box 876, Wodonga 3689  
Telephone 0260 243960 Email peter@civiltestwodonga.net.au

10.07.2018  
Ref: 18CT728

Hutchinson Civil  
52 Conrad Place  
Lavington, NSW, 2641

**Re: Sienna Ridge Estate, Stage 3  
Lavington, NSW, 2641**

Attention: Mr Bede Hutchinson,

Civiltest Albury/Wodonga carried out site supervision and density testing at the above mentioned location in May and June 2018 during the civil construction works. The intention of Civiltest Albury/Wodonga through this process was to independently oversee the stripping, removal and replacement of materials, to form a consistent and solid working platform for the future development.

Civiltest Albury/Wodonga were assigned to supervise the excavation and filling process. During the excavation process if any areas of concern (soft spots) were found they were addressed by the civil contractors in consultation with Civiltest. Any material that was of concern has been removed from the site and replaced by suitable fill material. Proof rolls were conducted as necessary onsite to confirm base suitability.

Density testing of the fill material was carried out onsite. The fill material was compacted in layers to achieve optimum results.

Testing was carried out as required by AS3798-2007. Density testing was performed onsite with the results of any testing included in this certification.

The equipment used for the earthworks onsite to achieve the specified compaction included a pad foot roller, excavator, water truck and trucks. The equipment was used to move, moisture condition, place and compact the fill materials as required. After the review of field monitoring records and analysis of field density results it has been established that the required standards on this site have been achieved through these works.

The density results have exceeded the required 95% of Standard Compaction (AS1289.5.7.1). The fill material placed during these works has achieved a mean density ratio of 99.1% and a mean moisture variation of 0.8% dry of optimum.

The summary of the field density test results is shown in the below table:

Report No.	Test No.	Easting	Northing	DBFSL (mm)	Density Ratio (%)	Moisture Variation (%)	Lot
18CT671	1	492138	6011945	1000	101.5	4.5	40
18CT671	2	492124	6011951	800	98.5	1.5	41
18CT671	3	492119	6011946	500	102.0	4.0	41
18CT671	4	492134	6011943	200	101.0	1.5	40
18CT671	5	492134	6011952	Final Layer	99.0	2.0	40
18CT671	6	492113	6011953	Final Layer	101.0	2.0	41
18CT702	1	492169	6011946	400	97.5	0.5	42
18CT702	2	492178	6011943	300	100.0	0.0	43
18CT702	3	492193	6011940	700	98.0	0.0	43
18CT702	4	492204	6011938	400	100.0	0.5	44
18CT702	5	492213	6011937	400	97.5	0.5	44
18CT702	6	492170	6011945	200	98.5	0.5	42
18CT720	1	492173	6011936	300	96.5	1.5	42
18CT720	2	492187	6011942	200	96.5	0.0	43
18CT720	3	492175	6011949	Final Layer	97.5	0.5	42
18CT720	4	492188	6011938	Final Layer	100.5	0.0	43
18CT720	5	492208	6011931	Final Layer	101.0	0.5	44
18CT728	1	492208	6011885	500	98.5	-1.0	30
18CT728	2	492198	6011891	100	97.5	-2.5	30
18CT728	3	492192	6011891	Final Layer	99.0	0.0	30
<b>Mean Density Ratio (%)</b>					<b>99.1</b>	<b>0.8</b>	
<b>Mean Moisture Variation (%)</b>							
<b>*** moisture variation (%) 1 = 1% DRY    -1 = 1 % WET</b>							

As the appointed Geotechnical testing authority on this project, it is stated that the above mentioned site supervision and testing has exceeded the required standards to achieve Level 1 Certification, defined in AS3798-2007, Guidelines on Earthworks for Commercial and Residential Developments.

The fill materials that have been placed as fill across the site can therefore be certified as level 1 controlled fill in accordance with the requirements of AS2870-2011.

For further information or clarification on issues raised in the above report, please contact the undersigned.

Yours Faithfully



Peter Vella

# Civil Test Albury Wodonga

## SOILS ENGINEERING LABORATORY

16 Kane Road Wodonga-Postal Address P.O Box 876 Wodonga 3689 Telephone 0260243960

### FIELD DENSITY TEST RESULTS

CLIENT: <b>Hutchinson Civil</b>	REPORT NO: <b>18CT671</b>	
	DATE TESTED: <b>26.5.2018</b>	TIME:
JOB CONTRACTOR: <b>Hutchinson Civil</b>	MATERIAL DESCRIPTION: <b>Silty Sandy CLAY</b> <b>Site Cut</b>	
JOB LOCATION: <b>Sienna Ridge Estate Stage 3</b> <b>Lavington</b>		
LOCATION/CHAINAGE BOUNDS:	LAYER TESTED: <b>Lot Fill</b>	
	DEPTH BELOW FSL: <b>See Below</b>	
	DEPTH TESTED: <b>200mm</b>	

### TEST PROCEDURES IN ACCORDANCE WITH AS 1289:

Sections .1.1, .5.1.1, .5.4.1, .5.7.1, .5.8.1

SITE NO	1	2	3	4	5	6
LOT	40	41	41	40	40	41
EASTING	492138	492124	492119	492134	492134	492113
NORTHING	6011945	6011951	6011946	6011943	6011952	6011953
DBFSL mm	1000	800	500	200	0	0
OVERSIZE SIEVE mm	19	19	19	19	19	19
OVERSIZE(WET/DRY)%	0/0	0/0	0/0	0/0	0/0	0/0
COMPACTION METHOD	STD	STD	STD	STD	STD	STD
FIELD WET DENSITY t/m <sup>3</sup>	2.09	2.05	2.09	2.10	2.04	2.08
FIELD DRY DENSITY t/m <sup>3</sup>						
MOISTURE CONTENT %						
LAB PCWD t/m <sup>3</sup>	2.06	2.07	2.06	2.08	2.07	2.06
ADJUSTED PCWD t/m <sup>3</sup>						
LAB MDD t/m <sup>3</sup>						
ADJUSTED MDD t/m <sup>3</sup>						
OMC %						
ADJUSTED OMC %						
MOISTURE VARIATION %	4.5 DRY	1.5 DRY	4.0 DRY	1.5 DRY	2.0 DRY	2.0 DRY
MOISTURE RATIO %						
DENSITY RATIO %	<b>101.5</b>	<b>98.5</b>	<b>102.0</b>	<b>101.0</b>	<b>99.0</b>	<b>101.0</b>

ABBREVIATIONS: PCWD = Peak Converted Wet Density MDD = Maximum Dry Density OMC = Optimum Moisture Content

DENSITY METHOD: <b>Nuclear Transmission</b> SAMPLING: <b>AS1289.1.2.1 Clause 6.4b</b>	MEAN DENSITY RATIO: STANDARD DEVIATION: CHARACTERISTIC DENSITY RATIO:
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The results of tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

MANAGER: **P. VELLA**

DATE: 29.5.2018

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*P. Vella*

# Civil Test Albury Wodonga

## SOILS ENGINEERING LABORATORY

16 Kane Road Wodonga-Postal Address P.O Box 876 Wodonga 3689 Telephone 0260243960

### FIELD DENSITY TEST RESULTS

CLIENT: <b>Hutchinson Civil</b>	REPORT NO: <b>18CT702</b>	
	DATE TESTED: <b>31.05.2018</b>	TIME:
JOB CONTRACTOR: <b>Hutchinson Civil</b>	MATERIAL DESCRIPTION: <b>Silty Sandy CLAY</b> <b>On site</b>	
JOB LOCATION: <b>Sienna Ridge Estate Stage 3</b> <b>Lavington</b>		
LOCATION/CHAINAGE BOUNDS:	LAYER TESTED: <b>Lot Fill</b>	
	DEPTH BELOW FSL: <b>See Below</b>	
	DEPTH TESTED: <b>200mm</b>	

### TEST PROCEDURES IN ACCORDANCE WITH AS 1289:

Sections .1.1, .5.1.1, .5.4.1, .5.7.1, .5.8.1

SITE NO	1	2	3	4	5	6
LOT	42	43	43	44	44	42
EASTING	492169	492178	492193	492204	492213	492170
NORTHING	6011946	6011943	6011940	6011938	6011937	6011945
DBFSL mm	400	300	700	400	400	200
OVERSIZE SIEVE mm	19	19	19	19	19	19
OVERSIZE(WET/DRY)%	0/0	0/0	0/0	0/0	0/0	0/0
COMPACTION METHOD	STD	STD	STD	STD	STD	STD
FIELD WET DENSITY t/m <sup>3</sup>	2.11	2.18	2.15	2.16	2.13	2.14
FIELD DRY DENSITY t/m <sup>3</sup>						
MOISTURE CONTENT %						
LAB PCWD t/m <sup>3</sup>	2.16	2.18	2.19	2.16	2.18	2.18
ADJUSTED PCWD t/m <sup>3</sup>						
LAB MDD t/m <sup>3</sup>						
ADJUSTED MDD t/m <sup>3</sup>						
OMC %						
ADJUSTED OMC %						
MOISTURE VARIATION %	0.5 DRY	0.0	0.0	0.5 DRY	0.5 DRY	0.5 DRY
MOISTURE RATIO %						
DENSITY RATIO %	<b>97.5</b>	<b>100.0</b>	<b>98.0</b>	<b>100.0</b>	<b>97.5</b>	<b>98.5</b>

ABBREVIATIONS: PCWD = Peak Converted Wet Density MDD = Maximum Dry Density OMC = Optimum Moisture Content

DENSITY METHOD: <b>Nuclear Transmission</b> SAMPLING: <b>AS1289.1.2.1 Clause 6.4b</b>	MEAN DENSITY RATIO: STANDARD DEVIATION: CHARACTERISTIC DENSITY RATIO:
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MANAGER: **P. VELLA**

DATE: 04.06.2018

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16 Kane Road Wodonga-Postal Address P.O Box 876 Wodonga 3689 Telephone 0260243960

### FIELD DENSITY TEST RESULTS

CLIENT: <b>Hutchinson Civil</b>	REPORT NO: <b>18CT720</b>	
	DATE TESTED: <b>01.06.2018</b>	TIME:
JOB CONTRACTOR: <b>Hutchinson Civil</b>	MATERIAL DESCRIPTION: <b>Silty Sandy CLAY</b> <b>On site</b>	
JOB LOCATION: <b>Sienna Ridge Estate Stage 3</b> <b>Lavington</b>		
LOCATION/CHAINAGE BOUNDS:	LAYER TESTED: <b>Lot Fill</b>	
	DEPTH BELOW FSL: <b>See Below</b>	
	DEPTH TESTED: <b>200mm</b>	

### TEST PROCEDURES IN ACCORDANCE WITH AS 1289:

Sections .1.1, .5.1.1, .5.4.1, .5.7.1, .5.8.1

SITE NO	1	2	3	4	5	
LOT	42	43	42	43	44	
EASTING	492173	492187	492175	492188	492208	
NORTHING	6011936	6011942	6011949	6011938	6011931	
DBFSL mm	300	200	Final Layer	Final Layer	Final Layer	
OVERSIZE SIEVE mm	19	19	19	19	19	
OVERSIZE(WET/DRY)%	0/0	0/0	0/0	0/0	0/0	
COMPACTION METHOD	STD	STD	STD	STD	STD	
FIELD WET DENSITY t/m <sup>3</sup>	2.11	2.08	2.14	2.15	2.17	
FIELD DRY DENSITY t/m <sup>3</sup>						
MOISTURE CONTENT %						
LAB PCWD t/m <sup>3</sup>	2.18	2.16	2.19	2.14	2.15	
ADJUSTED PCWD t/m <sup>3</sup>						
LAB MDD t/m <sup>3</sup>						
ADJUSTED MDD t/m <sup>3</sup>						
OMC %						
ADJUSTED OMC %						
MOISTURE VARIATION %	1.5 DRY	0.0	0.5 DRY	0.0	0.5 DRY	
MOISTURE RATIO %						
DENSITY RATIO %	<b>96.5</b>	<b>96.5</b>	<b>97.5</b>	<b>100.5</b>	<b>101.0</b>	

ABBREVIATIONS: PCWD = Peak Converted Wet Density MDD = Maximum Dry Density OMC = Optimum Moisture Content

DENSITY METHOD: <b>Nuclear Transmission</b> SAMPLING: <b>AS1289.1.2.1 Clause 6.4b</b>	MEAN DENSITY RATIO: STANDARD DEVIATION: CHARACTERISTIC DENSITY RATIO:
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MANAGER: **P. VELLA**

DATE: 05.06.2018

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### FIELD DENSITY TEST RESULTS

CLIENT: <b>Hutchinson Civil</b>	REPORT NO: <b>18CT728</b>	
	DATE TESTED: <b>04.06.2018</b>	TIME:
JOB CONTRACTOR: <b>Hutchinson Civil</b>	MATERIAL DESCRIPTION: <b>Silty Sandy CLAY</b> <b>On site</b>	
JOB LOCATION: <b>Sienna Ridge Estate Stage 3</b> <b>Lavington</b>		
LOCATION/CHAINAGE BOUNDS:	LAYER TESTED: <b>Lot Fill</b>	
	DEPTH BELOW FSL: <b>See Below</b>	
	DEPTH TESTED: <b>200mm</b>	

### TEST PROCEDURES IN ACCORDANCE WITH AS 1289:

Sections .1.1, .5.1.1, .5.4.1, .5.7.1, .5.8.1

SITE NO	1	2	3			
LOT	30	30	30			
EASTING	492208	492198	492192			
NORTHING	6011885	6011891	6011891			
DBFSL mm	500	100	Final Layer			
OVERSIZE SIEVE mm	19	19	19			
OVERSIZE(WET/DRY)%	0/0	0/0	0/0			
COMPACTION METHOD	STD	STD	STD			
FIELD WET DENSITY t/m <sup>3</sup>	2.13	2.13	2.12			
FIELD DRY DENSITY t/m <sup>3</sup>						
MOISTURE CONTENT %						
LAB PCWD t/m <sup>3</sup>	2.17	2.19	2.13			
ADJUSTED PCWD t/m <sup>3</sup>						
LAB MDD t/m <sup>3</sup>						
ADJUSTED MDD t/m <sup>3</sup>						
OMC %						
ADJUSTED OMC %						
MOISTURE VARIATION %	1.0 WET	2.5 WET	0.0			
MOISTURE RATIO %						
DENSITY RATIO %	<b>98.5</b>	<b>97.5</b>	<b>99.0</b>			

ABBREVIATIONS: PCWD = Peak Converted Wet Density MDD = Maximum Dry Density OMC = Optimum Moisture Content

DENSITY METHOD: <b>Nuclear Transmission</b>	MEAN DENSITY RATIO:
SAMPLING: <b>AS1289.1.2.1 Clause 6.4b</b>	STANDARD DEVIATION:
	CHARACTERISTIC DENSITY RATIO:

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MANAGER: **P. VELLA**

DATE: 06.06.2018

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