

Client

Project

Location

## **COMPACTION ASSESSMENT**

**CIVIL GEOTECHNICAL SERVICES** 

Job No Report No 11383 11383AA

6 - 8 Rose Avenue, Croydon, Vic 3136

Date Issued

28/10/11

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)

Tested by
Date tested

TG 14/10/11

ASTON - STAGE 1 CRAIGIEBURN

Checked by

JHF

Feature CT SUBBASE

Layer thickness

100 mm

Time:

08:10:41

A.S	12892	7 1 1	1 &	58	1

Test No		1	2	3	4
Location			Vada B	oulevard	
	Chainage	250	200	150	100
	Offset	2.5	3	2	2
		west	east	west	east
		of kerb	of kerb	of kerb	of kerb
Approximate depth from F.S.L.	m				
Measurement depth	mm	75	75	75	75
Field wet density	t/m³	2.35	2.32	2.34	2.33
Field dry density	t/m³	2.14	2.14	2.14	2.14
Field moisture content	%	10.0	9.0	9.5	9.0

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 233HWAG)

Date of assignment		14/10/11
Material source and location		20mm Class 3 +3% CTCR - Hanson, Wollert
Compactive effort		MODIFIED
Maximum Dry Density	t/m³	2.23
Optimum Moisture Content	%	9.0

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	
Percent of oversize material	wet	-	-	1	i	
Percent of oversize material	dry	-	-	-	i	
Adjusted Maximum Dry Density	t/m³	-	-	1	i	
Adjusted Optimum Moisture Content	%	-	-	-	-	

Moisture Variation From Optimum Moisture Content		1.0% wet	0.5% drv	0.0% wet	0.0% drv		
Moisture Ratio (R <sub>m</sub> )	%	109.0	96.0	100.0	98.0	<u>'</u>	1
,							

	Density Ratio (R <sub>D</sub> ) %	96.0	96.0	96.0	96.0		
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Location

## **COMPACTION ASSESSMENT**

CIVIL GEOTECHNICAL SERVICES

Job No Report No 11383 11383AB

6 - 8 Rose Avenue, Croydon, Vic 3136

Date Issued

28/10/11

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)

Project ASTON - STAGE 1

Tested by Date tested TG 14/10/11

ASTON - STAGE 1 CRAIGIEBURN

Checked by

JHF

Feature SUBBASE

Layer thickness

75 / 150

mm Time:

08:30:29

4.5	12892	1	1	R.	5	Я	1
$\neg$	12032		•	œ	v.	o.	•

Test No		5	6	7	8	9	10	
Location		\	/aliant Cresce	nt	Vada	Lush	Lush Drive	
					Boulevard			
	Chainage	120	80	40	60	30	25	
	Offset	2	1.8	2.2	2.5	3	2	
		south	north	west	east	west	south	
		of kerb	of kerb	of kerb	of kerb	of kerb	of kerb	
Approximate depth from F.S.L.	m	-	-	-	-	ı	-	
Measurement depth	mm	50	50	50	125	125	50	
Field wet density	t/m³	2.47	2.48	2.48	2.46	2.42	2.49	
Field dry density	t/m³	2.24	2.25	2.27	2.24	2.26	2.30	
Field moisture content	%	9.5	9.5	8.5	9.0	7.0	8.0	

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 203HWAM)

		, , , , , , , , , , , , , , , , , , , ,
Date of assignment		14/10/11
Material source and location		20mm Class 3 - Hanson, Wollert
Compactive effort		MODIFIED
Maximum Dry Density	t/m³	2.29
Optimum Moisture Content	%	8.5

Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	-	-	-	-	-	-
Percent of oversize material	dry	-	-	-	-	-	-
Adjusted Maximum Dry Density	t/m³	-	-	-	-	-	-
Adjusted Optimum Moisture Content	%	-	-	-	-	-	ı

Moisture Variation From Optimum Moisture Content		2.0% wet	2.0% wet	1.0% wet	1.0% wet	1.0% dry	0.0% wet
Moisture Ratio (R <sub>m</sub> )	%	125.0	123.0	109.5	114.5	88.5	101.0
Density Ratio (R <sub>D</sub> )	%	98.0	98.5	99.5	98.0	99.0	100.5

NATA

ADDREDUTED FOR TECHNICAL



BY LOT CHARACTERISTICS

## CIVIL GEOTECHNICAL SERVICES

Job No 11383

Report No 11383AC

6 - 8 Rose Avenue, Croydon 3136

Date Issued 17/11/11 Tested by TG

Time:

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Client **Project ASTON - STAGE 1** 

Date tested 09/11/11

08:30

Location **CRAIGIEBURN** Checked by JHF

> Feature Craigieburn West Road

LOT No 0 - 380 1 - SUBGRADE IMPROVEMENT Chainage

200mm Layer thickness

Test No		11	12	13	14	15	16
Location Cha	inage	38	101	165	228	291	355
	Offset	15m	0.2m	4m	5m	4.2m	1m
		south	south	south	south	south	south
		of existing					
		asphalt	asphalt	asphalt	asphalt	asphalt	asphalt
Approximate depth below FSL	m	-	-	-	-	-	-
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	2.09	2.16	2.05	2.31	2.15	2.13
Field moisture content	%	10.5	9.5	9.5	6.0	8.5	13.0
Test No		11	12	13	14	15	16
Compactive effort			<u> </u>		dard		
Oversize rock retained on sieve	mm	19.0	19.0	19.0	37.5	19.0	19.0
Percent of oversize material	wet	10	20	11	9	10	10
Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	-	-	-	-	-	-
Adjusted Peak Converted Wet Density	t/m³	2.09	2.17	2.06	2.26	2.13	2.13
Adjusted Optimum Moisture Content	%	13.0	11.0	12.5	8.5	11.0	11.0
Moisture Variation From		2.5%	1.5%	2.5%	2.5%	2.5%	2.0%
Optimum Moisture Content		Dry	Dry	Dry	Dry	Dry	Wet
Moisture Ratio (R <sub>m</sub> )	%	82.0	86.0	78.0	70.0	77.0	117.0
Density Ratio(R <sub>HD</sub> )	%	100.0	99.5	99.5	102.5	101.0	100.0

Lot Characteristics	RC 316 00
LUI Ullalaulelisilus	NC 310.00

Mean Density Ratio	%	100.4
Standard Deviation (Density Ratio)	%	1.2
Characteristic Density Ratio	%	99.3
Mean Moisture Variation	%	1.7
Standard Deviation (Moisture Variation,	%	1.9
Mean Moisture Ratio	%	85.1
Standard Deviation (Moisture Ratio)	%	16.7
Characteristic Moisture Ratio	%	69.7

## Material description

Test No 11 - 16 Type A Sandstone

## Field and Laboratory Test Procedures

AS 1289.2.1.1, 5.8.1, RC 316.00 & RC 316.10

Test procedures if no oversize present - AS 1289.5.7.1 & AS 1289.5.4.1 (Equations 4.2, 4.3 & 4.10)

Test procedures if oversize is present - AS 1289.5.4.1 (Equations 4.2, 4.3, 4.5, 4.10 & 4.11), 5.7.1 (AWv not reported) and VicRoads Code of Practice RC 500.05 - Clause 5 - Allowance for Oversize Material

TECHNICAL

Approved Signatory : Justin Fry

AVRLOT HILF V1.9 OCT 09

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Location

## **COMPACTION ASSESSMENT**

CIVIL GEOTECHNICAL SERVICES

Job No Report No 11383 11383AD

6 - 8 Rose Avenue, Croydon, Vic 3136

Date Issued

21/11/11

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)

Project ASTON - STAGE 1

Tested by Date tested TG 09/11/11

CRAIGIEBURN

Checked by

JHF

Feature SUBBASE

Layer thickness

75 mm

Time:

09:40:00

A.S	12892	7 1 1	1 &	58	1

Test No		17	18	19	20	21	
Location		(	Cavalier Grange			Anzacs	
					Road	Way	
	Chainage	35	85	140	25	30	
	Offset	1.8	1.2	1	2	1.5	
		east	west	east	north	south	
		of kerb	of kerb	of kerb	of kerb	of kerb	
Approximate depth from F.S.L.	m						
Measurement depth	mm	50	50	50	50	50	
Field wet density	t/m³	2.46	2.45	2.45	2.41	2.44	
Field dry density	t/m³	2.26	2.24	2.25	2.25	2.24	
Field moisture content	%	8.0	8.5	8.0	7.0	8.5	

Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 203HWAO)

Date of assignment		11/11/11
Material source and location	·	20mm Class 3 - Hanson, Wollert
Compactive effort		MODIFIED
Maximum Dry Density	t/m³	2.28
Optimum Moisture Content	%	8.5

## Test procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	
Percent of oversize material	wet	-	-	-	-	-	
Percent of oversize material	dry	-	ı	-	-	-	
Adjusted Maximum Dry Density	t/m³	-	-	-	-	-	
Adjusted Optimum Moisture Content	%	-	ı	-	-	-	

Moisture Variation From		0.0%	1.0%	0.5%	1.5%	0.5%	
Optimum Moisture Content		wet	wet	wet	dry	wet	
Moisture Ratio (R <sub>m</sub> )	%	102.0	109.5	103.5	84.5	105.0	
Density Ratio (R <sub>D</sub> )	%	99.0	98.0	98.5	98.5	98.0	

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ADDREDITED FOR TECHNICAL

Approved Signatory : Justin Fry

A581ASSIGNED V1.12 DEC 10



 CIVIL GEOTECHNICAL SERVICES
 Report No
 11383AE

 6 - 8 Rose Avenue, Croydon, Vic 3136
 Date Issued
 21/11/11

 Client
 WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Tested by
 TG

 Project
 ASTON - STAGE 1
 Date tested
 09/11/11

 Location
 CRAIGIEBURN
 Checked by
 JHF

FeatureSUBBASELayer thickness100 mmTime:09:55:00

Test No	22	23					
Location	Dashir	ng Road					
			]				
Chainag	e 35	80	]				
Offse	<i>t</i> 1	1.5					
	north	south					
	of kerb	of kerb					
Approximate depth from F.S.L. m							
Measurement depth mn	75	75					
Field wet density t/m		2.39					
Field dry density t/m		2.24					
Field moisture content %	7.0	6.5					
Laboratory Composition AS 1200 5 2 1 8 5	4.2. Assigned 1	Values (\$00	Danay Na 2024IMAO)				
Laboratory Compaction AS 1289.5.2.1 & 5.4 Date of assignment	1.2 Assigned	values (See i	11/11/11				
Material source and location	_	20mm Class 3 - Hanson, Wollert					
Compactive effort	+	MODIFIED					
Maximum Dry Density t/m	3		2.28				
Optimum Moisture Content %			8.5				
	<u></u>						
Test procedure AS 1289.5.4.1			······				
Oversize rock retained on sieve mm	19.0	19.0					
Percent of oversize material we	t -	-					
Percent of oversize material dry	-	-					
Adjusted Maximum Dry Density t/m		-					
Adjusted Optimum Moisture Content %	<u>-</u>	-					
	1.5%	2.0%					
Moisture Variation From	,						
Moisture Variation From Optimum Moisture Content	dry	dry					
		dry					
	dry	79.5					
Optimum Moisture Content	dry	<u> </u>					





BY LOT CHARACTERISTICS

#### **CIVIL GEOTECHNICAL SERVICES**

Job No 11383 Report No 11383AF

09:15

6 - 8 Rose Avenue, Croydon 3136 Report No 11363AF

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byTGProjectASTON - STAGE 1Date tested18/11/11LocationCRAIGIEBURNChecked byJHF

FeatureCraigieburn Road - West BoundLOT No1 - CAPPINGChainage1560 - 2020Time:

Layer thickness 200mm

Test No		24	25	26	27	28	29
Location Cha	ainage	1621	1698	1775	1851	1928	2004
	Offset	4.2m	0.6m	3m	10m	18m	10m
		north	north	north	north	north	north
		of kerb					
Approximate depth below FSL	т		-	-	-	-	-
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	2.27	2.16	2.30	2.24	2.14	2.20
Field moisture content	%	7.0	7.0	7.0	7.0	7.5	7.5
Test No		24	25	26	27	28	29
Compactive effort				Star	ndard		
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	6	9	19	13	9	19
Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	-	-				
Adjusted Peak Converted Wet Density	t/m³	2.18	2.15	2.25	2.18	2.14	2.23
Adjusted Optimum Moisture Content	%	10.0	11.0	9.0	10.0	11.5	9.5
Moisture Variation From		3.0%	3.5%	2.5%	3.5%	4.0%	2.5%
Optimum Moisture Content		Dry	Dry	Dry	Dry	Dry	Dry
Moisture Ratio (R <sub>m</sub> )	%	71.0	66.0	75.0	68.0	67.0	77.0
Density Ratio (R <sub>HD</sub> )	%	104.0	100.0	102.5	102.5	100.0	99.0

Lot Characteristics RC 316.00

Mean Density Ratio	%	101.3
Standard Deviation (Density Ratio)	%	1.9
Characteristic Density Ratio	%	99.5
Mean Moisture Variation	%	3.1
Standard Deviation (Moisture Variation)	%	0.6
Mean Moisture Ratio	%	70.8
Standard Deviation (Moisture Ratio)	%	4.5
Characteristic Moisture Ratio	%	66.7

Material description

Test No 24 - 29 Type A Fill

## Field and Laboratory Test Procedures

AS 1289.2.1.1, 5.8.1, RC 316.00 & RC 316.10

Test procedures if no oversize present - AS 1289.5.7.1 & AS 1289.5.4.1 (Equations 4.2, 4.3 & 4.10)

Test procedures if oversize is present - AS 1289.5.4.1 (Equations 4.2, 4.3, 4.5, 4.10 & 4.11), 5.7.1 (AWv not reported)

and VicRoads Code of Practice RC 500.05 - Clause 5 - Allowance for Oversize Material



Approved Signatory : Justin Fry

AVRLOT HILF V1.9 OCT 09

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BY LOT CHARACTERISTICS

## CIVIL GEOTECHNICAL SERVICES

Job No 11383

Report No 11383AG

6 - 8 Rose Avenue, Croydon 3136 Date Issued 14/12/11

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byTGProjectASTON - STAGE 1Date tested24/11/11LocationCRAIGIEBURNChecked byJHF

Feature West Bound Carriageway

**LOT No SUBGRADE IMPROVEMENT** Chainage 2040 - 2360 / 80 - 220 Time: 11:30

Layer thickness 200mm

Test No		30	31	32	33	34	35
Location Cha	inage	2086	2163	2239	2316	112	189
1	Offset	4.8m	12m	7.2m	5.6m	10	0.4m
		north	north	north	north	north	north
		of kerb					
Approximate depth below FSL	т						
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	2.23	2.21	2.24	2.16	2.13	2.13
Field moisture content	%	8.5	8.5	6.0	7.5	6.5	8.0
Test No		30	31	32	33	34	35
Compactive effort				Star	ndard		
Oversize rock retained on sieve	mm	37.5	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	14	13	14	13	11	11
Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	-	-	-	-	-	-
Adjusted Peak Converted Wet Density	t/m³	2.19	2.14	2.17	2.17	2.15	2.16
Adjusted Optimum Moisture Content	%	10.5	12.0	9.5	10.5	10.5	11.0
Moisture Variation From		2.5%	3.0%	3.5%	3.0%	4.0%	3.0%
Optimum Moisture Content		Dry	Dry	Dry	Dry	Dry	Dry
Moisture Ratio (R <sub>m</sub> )	%	78.0	74.0	63.0	73.0	63.0	72.0
Density Ratio(R <sub>HD</sub> )	%	102.0	103.0	103.0	99.5	99.5	98.5

Mean Density Ratio	%	101.0
Standard Deviation (Density Ratio)	%	2.0
Characteristic Density Ratio	%	99.2
Mean Moisture Variation	%	3.2
Standard Deviation (Moisture Variation,	%	0.5
Mean Moisture Ratio	%	70.5
Standard Deviation (Moisture Ratio)	%	6.1
Characteristic Moisture Ratio	%	64.8

## Material description

Test No 30 - 35 Type A Fill

## Field and Laboratory Test Procedures

AS 1289.2.1.1, 5.8.1, RC 316.00 & RC 316.10

Test procedures if no oversize present - AS 1289.5.7.1 & AS 1289.5.4.1 (Equations 4.2, 4.3 & 4.10)

Test procedures if oversize is present - AS 1289.5.4.1 (Equations 4.2, 4.3, 4.5, 4.10 & 4.11), 5.7.1 (AWv not reported)

and VicRoads Code of Practice RC 500.05 - Clause 5 - Allowance for Oversize Material

NATA

ACCREDITED FOR
TECHNICAL
COMPETENCE

July Jo.

AVRLOT HILF V1.9 OCT 09

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BY LOT CHARACTERISTICS

CIVIL GEOTECHNICAL SERVICES

Job No

11383

6 - 8 Rose Avenue, Croydon, Vic 3136

Date Issued 14/12/11

Report No 11383AH

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Client Tested by Project **ASTON - STAGE 1** Date tested 05/12/11 **CRAIGIEBURN** Checked by JHF Location

Feature West Bound Carriageway LOT No **LOWER SUBBASE** 

Chainage 1540 - 2030 Time: 11:00:00

Layer thickness 150 mm

## AS 1289.2.1.15.8.1 & RC 316.10

Test No		36	37	38	39	40	41
Location	Chainage Offset	1580 4m north	1662 4m north	1743 0.8m north	1825 3m north	1907 7m north	1988 0.2m north
Approximate depth from F.S.L.	т	of kerb	of kerb	of kerb	of kerb	of kerb	of kerb
Measurement depth	mm	125	125	125	125	125	125
Field wet density	t/m³	2.35	2.34	2.31	2.34	2.38	2.31
Field dry density	t/m³	2.22	2.21	2.21	2.21	2.25	2.22
Field moisture content	%	6.0	5.5	5.0	5.5	5.5	3.5

#### Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (see Report No 204HWAJ)

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Date of assignment	05/12/11
Material source and location	20mm Class 4 - Hanson, Wollert
Compactive effort	MODIFIED
Assigned Maximum Dry Density t/m³	2.25
Assigned Optimum Moisture Content %	9.0

## Test Procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	-	-	-	-	-	-
Percent of oversize material	dry	-	-	-	-	-	-
Adjusted Maximum Dry Density	t/m³	-	-	-	-	-	-
Adjusted Optimum Moisture Conte	nt %	-	-	-	-	-	-

Moisture Variation From	3.0%	3.0%	4.0%	3.0%	3.5%	5.0%
Optimum Moisture Content	dry	dry	dry	dry	dry	dry

Density Ratio (R <sub>D</sub> )	%	99.0	98.5	98.5	98.5	100.5	99.0

## Lot Characteristics RC 316.00

Mean Density Ratio	%	98.9
Standard Deviation (Density Ratio)	%	0.8
Characteristic Density Ratio	%	98.3
Mean Moisture Variation	%	3.6
Standard Deviation (Moisture Var)	%	0.8
Mean Moisture Ratio	%	59.3
Standard Deviation (Moisture Ratio)	%	9.5
Characteristic Moisture Ratio	%	50.6

Approved Signatory : Justin Fry

AVRLOT ASSIGNED V1.11 DEC 10

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BY LOT CHARACTERISTICS

## CIVIL GEOTECHNICAL SERVICES

Job No 11383 Report No 11383AI

Date Issued 14/12/11 6 - 8 Rose Avenue, Croydon 3136

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Tested by Client TG **Project ASTON - STAGE 1** Date tested 05/12/11 Location **CRAIGIEBURN** Checked by JHF

Feature West Bound Carriageway

LOT No 2030 - 2400 **CAPPING** Chainage Time: 11:45

> Layer thickness 200mm

Test No		42	43	44	45	46	47
Location Cha	inage	2067	2129	2190	2252	2313	2375
	Offset	10m	8m	0.6m	1.8m	2.5m	0.2m
		north	north	north	north	north	north
		of kerb					
Approximate depth below FSL	т						
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m³	2.25	2.27	2.23	2.31	2.32	2.17
Field moisture content	%	7.0	7.5	7.0	7.5	8.0	7.0
Test No		42	43	44	45	46	47
Compactive effort				Star	ndard		
Oversize rock retained on sieve	mm	37.5	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	8	18	16	15	13	15
Peak Converted Wet Density	t/m³	-	-	-	-	-	-
Optimum Moisture Content	%	-	-	-	-	-	-
Adjusted Peak Converted Wet Density	t/m³	2.17	2.18	2.17	2.22	2.21	2.19
Adjusted Optimum Moisture Content	%	11.0	11.0	10.5	10.5	11.0	10.5
Moisture Variation From		4.0%	3.5%	3.5%	3.0%	3.0%	3.5%
Optimum Moisture Content		Dry	Dry	Dry	Dry	Dry	Dry
Moisture Ratio (R <sub>m</sub> )	%	63.0	69.0	66.0	71.0	73.0	66.0
Density Ratio(R <sub>HD</sub> )	%	104.0	104.5	102.5	104.0	105.0	99.0

Lot Characteristics	DC 216 00
Loi Griaracieristics	KC 310.00

Mean Density Ratio	%	103.1
Standard Deviation (Density Ratio)	%	2.2
Characteristic Density Ratio	%	101.1
Mean Moisture Variation	%	3.5
Standard Deviation (Moisture Variation,	%	0.4
Mean Moisture Ratio	%	67.9
Standard Deviation (Moisture Ratio)	%	3.5
Characteristic Moisture Ratio	%	64.7

## Material description

Test No 42 - 47 Type A Fill

## Field and Laboratory Test Procedures

AS 1289.2.1.1, 5.8.1, RC 316.00 & RC 316.10

Test procedures if no oversize present - AS 1289.5.7.1 & AS 1289.5.4.1 (Equations 4.2, 4.3 & 4.10)

Test procedures if oversize is present - AS 1289.5.4.1 (Equations 4.2, 4.3, 4.5, 4.10 & 4.11), 5.7.1 (AWv not reported) and VicRoads Code of Practice RC 500.05 - Clause 5 - Allowance for Oversize Material

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Approved Signatory : Justin Fry

AVRLOT HILF V1.9 OCT 09

TECHNICAL

Accreditation No 9909



 CIVIL GEOTECHNICAL SERVICES
 Report No
 11383AJ

 6 - 8 Rose Avenue, Croydon, Vic 3136
 Date Issued
 07/12/11

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byTGProjectASTON - STAGE 1Date tested06/12/11LocationCRAIGIEBURNChecked byJHF

FeatureBASELayer thickness150 mmTime:11:05:00

Chainage	Road   Road	aliant Crescer		Test No
Chainage Offset	80 40 40 80 2 1.5 2 1.8 1.2 south east north south north b of kerb of kerb of kerb of kerb  125 125 125 125 125 2.31 2.36 2.34 2.36 2.28 2.16 2.20 2.19 2.21 2.17 6.5 7.0 6.5 6.5 5.0  126 Values (See Report No 202HWBO) 06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28		V	Location
Offset         1.5         2         1.5         2         1.8         1.8           North of kerb of k	2 1.5 2 1.8 1.2 south east north south north b of kerb of kerb of kerb of kerb of kerb  125 125 125 125 125 2.31 2.36 2.34 2.36 2.28 2.16 2.20 2.19 2.21 2.17 6.5 7.0 6.5 6.5 5.0  126 Values (See Report No 202HWBO) 06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28			
North of kerb of ker	south of kerb         east of kerb         north of kerb         south of kerb         north of kerb           125         125         125         125           2.31         2.36         2.34         2.36         2.28           2.16         2.20         2.19         2.21         2.17           6.5         7.0         6.5         6.5         5.0           ed Values (See Report No 202HWBO)           06/12/11           20mm Class 2 - Hanson, Wollert           MODIFIED           2.28	80	120	Chainage
Of kerb   Of k	b of kerb of kerb of kerb of kerb of kerb  125 125 125 125 125  2.31 2.36 2.34 2.36 2.28  2.16 2.20 2.19 2.21 2.17  6.5 7.0 6.5 6.5 5.0  126 Values (See Report No 202HWBO)  06/12/11  20mm Class 2 - Hanson, Wollert  MODIFIED  2.28	2	1.5	Offset
Approximate depth from F.S.L.   m   mm   125	125 125 125 125 125 125 125 125 125 125	south	north	
Measurement depth         mm         125         125         125         125         125         125         125         1           Field wet density         t/m³         2.29         2.31         2.36         2.34         2.36         2           Field dry density         t/m³         2.14         2.16         2.20         2.19         2.21         2           Field moisture content         %         7.0         6.5         7.0         6.5         6.5         6.5         5           Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 202HWBO)         Date of assignment         06/12/11           Material source and location         20mm Class 2 - Hanson, Wollert         MODIFIED           Maximum Dry Density         t/m³         2.28           Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1           Oversize rock retained on sieve         mm         19.0         19.0         19.0         1           Percent of oversize material         wet         -         -         -         -           Adjusted Maximum Dry Density         t/m³         -         -         -         -           Moisture Variation From Optimum Moisture Content	2.31 2.36 2.34 2.36 2.28 2.16 2.20 2.19 2.21 2.17 6.5 7.0 6.5 6.5 5.0  Med Values (See Report No 202HWBO) 06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28	of kerb	of kerb	
Field wet density         t/m³         2.29         2.31         2.36         2.34         2.36         2           Field dry density         t/m³         2.14         2.16         2.20         2.19         2.21         2           Field moisture content         %         7.0         6.5         7.0         6.5         6.5         5           Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 202HWBO)           Date of assignment         06/12/11           Material source and location         20mm Class 2 - Hanson, Wollert           Compactive effort         MODIFIED           Maximum Dry Density         t/m³         2.28           Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1         3.5         3.5           Oversize rock retained on sieve         mm         19.0         19.0         19.0         19.0         1           Percent of oversize material         wet         -         -         -         -         -           Adjusted Maximum Dry Density         t/m³         -         -         -         -         -           Moisture Variation From Optimum Moisture Content         1.0%         1.5%         1.0%         1.5%         <	2.31 2.36 2.34 2.36 2.28 2.16 2.20 2.19 2.21 2.17 6.5 7.0 6.5 6.5 5.0  Med Values (See Report No 202HWBO) 06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28			Approximate depth from F.S.L. m
Field dry density   t/m³   2.14   2.16   2.20   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.19   2.21   2.50   2.20   2.19   2.21   2.50   2.20   2.19   2.21   2.50   2.20   2.19   2.21   2.50   2.20   2.19   2.21   2.20   2	2.16   2.20   2.19   2.21   2.17   6.5   7.0   6.5   6.5   5.0	125	125	Measurement depth mm
Field moisture content         %         7.0         6.5         7.0         6.5         6.5         5           Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 202HWBO)           Date of assignment         06/12/11           Material source and location         20mm Class 2 - Hanson, Wollert           Compactive effort         MODIFIED           Maximum Dry Density         t/m³         2.28           Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1         Oversize rock retained on sieve         mm         19.0         19.0         19.0         19.0         19.0         1           Percent of oversize material         wet         -         -         -         -         -           Adjusted Maximum Dry Density         t/m³         -         -         -         -         -           Moisture Variation From Optimum Moisture Content         1.0%         1.5%         1.0%         1.5%         1.5%         1.5%         3.           Optimum Moisture Content         dry         dry <td>6.5 7.0 6.5 6.5 5.0  ned Values (See Report No 202HWBO)  06/12/11  20mm Class 2 - Hanson, Wollert  MODIFIED  2.28</td> <td>2.31</td> <td>2.29</td> <td>Field wet density t/m³</td>	6.5 7.0 6.5 6.5 5.0  ned Values (See Report No 202HWBO)  06/12/11  20mm Class 2 - Hanson, Wollert  MODIFIED  2.28	2.31	2.29	Field wet density t/m³
Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (See Report No 202HWBO)  Date of assignment 06/12/11  Material source and location 20mm Class 2 - Hanson, Wollert  Compactive effort MODIFIED  Maximum Dry Density t/m³ 2.28  Optimum Moisture Content % 8.5  Test procedure AS 1289.5.4.1  Oversize rock retained on sieve mm 19.0 19.0 19.0 19.0 19.0 1  Percent of oversize material wet	ned Values (See Report No 202HWBO) 06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28	2.16	2.14	Field dry density t/m³
Date of assignment         06/12/11           Material source and location         20mm Class 2 - Hanson, Wollert           Compactive effort         MODIFIED           Maximum Dry Density         t/m³         2.28           Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1           Oversize rock retained on sieve         mm         19.0         19.0         19.0         19.0         1           Percent of oversize material         wet         -         -         -         -         -           Adjusted Maximum Dry Density         t/m³         -         -         -         -         -           Moisture Variation From Optimum Moisture Content         1.0%         1.5%         1.0%         1.5%         1.5%         3.           Optimum Moisture Content         dry         dry </td <td>06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28</td> <td>6.5</td> <td>7.0</td> <td>Field moisture content %</td>	06/12/11 20mm Class 2 - Hanson, Wollert MODIFIED 2.28	6.5	7.0	Field moisture content %
Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1         Oversize rock retained on sieve mm         19.0         19.0         19.0         19.0         19.0         1           Percent of oversize material Percent of oversize material Adjusted Maximum Dry Density Vm³		20m		Compactive effort
Maximum Dry Density         t/m³         2.28           Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1           Oversize rock retained on sieve         mm         19.0         19.0         19.0         19.0         19.0         1           Percent of oversize material         wet         - <t< td=""><td>2.28</td><td>20m</td><td></td><td>Ÿ</td></t<>	2.28	20m		Ÿ
Optimum Moisture Content         %         8.5           Test procedure AS 1289.5.4.1         Oversize rock retained on sieve mm         19.0         19.0         19.0         19.0         19.0         1           Percent of oversize material Percent of oversize material Adjusted Maximum Dry Density t/m³         -				
Test procedure AS 1289.5.4.1           Oversize rock retained on sieve         mm         19.0         19.0         19.0         19.0         19.0         19.0         19.0         1           Percent of oversize material         wet         - </td <td>0.5</td> <td></td> <td></td> <td>, ,</td>	0.5			, ,
Percent of oversize material         wet         - <th< td=""><td></td><td></td><td></td><td>Test procedure AS 1289.5.4.1</td></th<>				Test procedure AS 1289.5.4.1
Percent of oversize material         dry         - <th< td=""><td>19.0 19.0 19.0 19.0 19.0</td><td>19.0</td><td>19.0</td><td></td></th<>	19.0 19.0 19.0 19.0 19.0	19.0	19.0	
Adjusted Maximum Dry Density         t/m³         - <t< td=""><td></td><td>-</td><td>-</td><td></td></t<>		-	-	
Adjusted Optimum Moisture Content         %         -		-	-	
Moisture Variation From       1.0%       1.5%       1.0%       1.5%       3.         Optimum Moisture Content       dry		-	-	, ,
Optimum Moisture Content dry dry dry dry dry		-	-	Adjusted Optimum Moisture Content %
	6 1.5% 1.0% 1.5% 1.5% 3.0%	1.5%	1.0%	Moisture Variation From
Moisture Ratio (R <sub>m</sub> ) % 88.5 81.5 89.0 81.5 79.5 6.	dry dry dry dry dry	dry	dry	Optimum Moisture Content
Moisture Ratio (R <sub>m</sub> ) %   88.5   81.5   89.0   81.5   79.5   6.				
	5         81.5         89.0         81.5         79.5         62.0	81.5	88.5	Moisture Ratio $(R_m)$ %
Density Ratio (R <sub>D</sub> ) % 94.0 95.0 96.5 96.5 97.5 99	0   95.0   96.5   96.5   97.5   95.0	95 N	94 N	Density Patio (P)



Approved Signatory: Justin Fry

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 Job No
 11383

 CIVIL GEOTECHNICAL SERVICES
 Report No
 11383AK

 6 - 8 Rose Avenue, Croydon, Vic 3136
 Date Issued
 14/12/11

ClientWINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)Tested byTGProjectASTON - STAGE 1Date tested06/12/11LocationCRAIGIEBURNChecked byJHF

FeatureBASELayer thickness150 mmTime:11:35:00

Test No		54	55	56	57				
Location		(	Cavalier Grang	е	Anzacs				
					Way				
Ch	ainage	40	95	150					
	Offset	2	1.8	1.5	1.2				
		east	west	east	south				
		of kerb	of kerb	of kerb	of kerb				
Approximate depth from F.S.L.	т								
Measurement depth	mm	125	125	125	125				
Field wet density	t/m³	2.27	2.25	2.24	2.27				
Field dry density	t/m³	2.15	2.13	2.12	2.15				
Field moisture content	%	5.5	5.5	5.0	5.5				
Material source and location Compactive effort			20n		: - Hanson, Wollert DIFIED				
		MODIFIED							
Maximum Dry Density	t/m³	2.28							
Optimum Moisture Content	%			8	.5				
Test procedure AS 1289.5.4.1							_		
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0				
Percent of oversize material	wet	-	-	-	-				
Percent of oversize material	dry	-	-	-	-				
Adjusted Maximum Dry Density	t/m³	-	-	-	-				
Adjusted Optimum Moisture Content	%	-	-	-	-				
Mainton Variation France		3.0%	3.0%	3.0%	3.0%				
Moisture Variation From									
Optimum Moisture Content		dry	dry	dry	dry				
Moisture Ratio (R <sub>m</sub> )	%	67.0	66.5	63.5	66.0				
	L.								
Density Ratio (R <sub>D</sub> )	%	94.5	93.5	93.5	94.5				





BY LOT CHARACTERISTICS

#### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon, Vic 3136

Job No 11383 Report No

11383AO Date Issued 20/12/11

WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) Tested by Project **ASTON - STAGE 1** Date tested 14/12/11 **CRAIGIEBURN** Location Checked by JHF

Feature West Bound Carriageway LOT No **LOWER SUBBASE** Chainage 2040 - 2420 Time: 13:00:00

Layer thickness 150 mm

## AS 1289.2.1.15.8.1 & RC 316.10

Test No		58	59	60	61	62	63
Location	Chainage	2046	2109	2172	2235	2298	2361
	Offset	2.7	1.6	2.4	0.7	6.3	3.5
		north	north	north	north	north	north
		of	of	of	of	of	of
		kerb	kerb	kerb	kerb	kerb	kerb
Approximate depth from F.S.L.	т						
Measurement depth	mm	125	125	125	125	125	125
Field wet density	t/m³	2.34	2.34	2.46	2.45	2.42	2.48
Field dry density	t/m³	2.22	2.22	2.32	2.31	2.29	2.34
Field moisture content	%	5.5	6.0	6.5	6.0	6.0	6.0

## Laboratory Compaction AS 1289.5.2.1 & 5.4.2 Assigned Values (see Report No 204HWAJ)

Date of assignment	05/12/11
Material source and location	20mm Class 4 - Hanson, Wollert
Compactive effort	MODIFIED
Assigned Maximum Dry Density t/m³	2.25
Assigned Optimum Moisture Content %	9.0

## Test Procedure AS 1289.5.4.1

Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	-	-	-	-	-	-
Percent of oversize material	dry	-	-	-	-	-	-
Adjusted Maximum Dry Density	t/m³	-	-	-	-	-	-
Adjusted Optimum Moisture Content	: %	-	-	-	-	-	-

Moisture Variation From		3.5%	3.0%	2.5%	2.5%	3.0%	3.0%
Optimum Moisture Content		dry	dry	dry	dry	dry	dry
Moisture Ratio (R)	%	61.0	66.0	72.5	69.0	67.5	66.5

Density Ratio (R <sub>D</sub> )	%	99.0	98.5	103.0	103.0	102.0	104.0

## Lot Characteristics RC 316.00

Mean Density Ratio	%	101.6
Standard Deviation (Density Ratio)	%	2.4
Characteristic Density Ratio	%	99.4
Mean Moisture Variation	%	2.9
Standard Deviation (Moisture Var)	%	0.3
Mean Moisture Ratio	%	67.1
Standard Deviation (Moisture Ratio)	%	3.9
Characteristic Moisture Ratio	%	63.5

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Accreditation No 9909

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