



Job No: 7508/89
Our Ref: 7508/89-AC
19 October 2016

Maryland Development Company Pty Ltd
C/- Orion Consulting Engineers Pty Ltd
PO Box 266
BAULKHAM HILLS NSW 1755
Email: Elloise@orionconsulteng.com

Attention: Ms E McWilliams

Dear Madam

re: **VC8 - Cullen Avenue, Jordan Springs
Site Fill Testing & Contamination Clearance Letter**

Geotech Testing Pty Ltd had been involved with the Jordan Springs Project since January 2010. In 2012, excess fill material from Stage 3B totalling about 15,000m³, was being placed and compacted at the location of the proposed VC6, VC7 & VC8.

This area was previously known as Main Lake Stockpile (Refer to our attached Drawing No 7508/89-1). From the information received, it is understood that the proposed works will involve minor cut/fill and site regrading, including placement of approximately 4000m³ of imported fill.

During bulk earthworks in 2012, twenty five compaction control tests were carried out and the results of the compaction tests and approximate locations are shown on our attached Drawing No 7508/89-1.

Based on the fill quantities, the frequency of field density was generally in accordance with the provisions set down in AS3798 "Guidelines on Earthworks for Commercial & Residential Development". Therefore, it is our professional opinion that the fill placed at the above site is classified as "Controlled" fill (Level 1) as defined in AS3870 and Council Design Guidelines and Construction specifications.

Stage 3B is part of the Western Precinct, an area which was covered in the Contamination Management Plan prepared by URS in their report dated July 2008. The report concluded that the entire Western Precinct is suitable for residential development without any contamination restrictions. Therefore, the fill material on site is suitable for the development and free of contamination. It should be noted that all material placed on site was gained from the site and no additional fill material was imported to the site.

Recommendations for further testing will include the following:

- Strip any topsoil and vegetation
- Proof roll exposed material using a static roller with a minimum weight of the order of ten tonnes.
- Place accepted fill material in layers not exceeding 200mm loose thickness in accordance with Level 1, as described in AS3798. Accepted density ratio should be according to the proposed future use of VC8.

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www.geotech.com.au

7508/89-AC
VC8 - Cullen Avenue, Jordan Springs

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECH TESTING PTY LTD



EMGED RIZKALLA
Director

Attached 7508/89 FDT Result Nos 1-25
Drawing No 7508/89-1 — Main Lake Stockpile

*Maryland Development Company Pty Ltd
C/- Orion Consulting Engineers Pty Ltd
ER.sf/19.10.2016*

MARYLAND DEVELOPMENT COMPANY PTY LTD
C/- LEND LEASE DEVELOPMENT P/L, PO BOX 1124
ST MARYS NSW 1790

Job No 7508/89

Date 14/03/2012

PROJECT: SITE FILL TESTING
VILLAGE LAKE - STOCKPILE RELOCATION - JORDAN SPRINGS

TEST NUMBER	1	2	3	4	5			
DATE TESTED	27/02/2012							
TEST LOCATION								
Chainage	(Carriageway L/R) m							
Shown on Drawing No	7508/89-1							
Retested by Test								
Reduced Level	m	35.09	35.36	35.49	35.70	35.42		
FIELD & LABORATORY DATA								
Field Wet Density	tm3	2.07	2.01	2.03	2.05	2.07		
Field Moisture Content	%	15.0	17.0	19.5	18.0	17.0		
Material retained on 19mm Sieve (wet)	%	<5%	<5%	<5%	<5%	<5%		
Lab Compaction result from test number		1	2	3	4	5		
Peak Converted Wet Density	tm3	2.08	2.11	2.10	2.08	2.12		
Apparent Optimum Moisture Content	%	15.0	15.0	17.5	16.5	15.0		
Number of Compaction Points		3	3	3	3	3		
Test Procedures - See Note Number		12	12	12	12	12		
Material Description - see below		2	2	2	2	2		
Specification	Standard	%	95	95	95	95	95	
Specification Moisture Variance		N/A	N/A	N/A	N/A	N/A		
RESULTS								
Hill Density Ratio	Standard	99.5	95.5	96.5	98.5	97.5		
Moisture Variation from apparent OMC		0.0	+ 2.0	+ 2.0	+ 1.5	+ 2.0		
Notes								
<p>1: Assigned Values have been obtained from our Penrith laboratory - Accreditation No 2734</p> <p>2: Assigned Values have been obtained from our Prestons laboratory - Accreditation No 14234</p> <p>3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown.</p> <p>4: AS 1289 1.2.1 clause 6.4(b), 2.1.1, 5.3.1, 5.3.1, 5.4.1</p> <p>5: AS 1289 1.2.1 clause 6.4(b), 2.1.1, 5.2.1, 5.3.1, 5.4.1</p> <p>6: AS 1289 1.2.1 clause 6.4(b), 2.1.1, 5.1.1, 5.4.1, 5.8.1</p> <p>7: AS 1289 1.2.1 clause 6.4(b), 2.1.1, 5.2.1, 5.4.1, 5.8.1</p> <p>8: AS 1289 1.2.1 clause 6.4(b), 2.1.1, 5.5.1, 5.8.1, 5.8.1</p> <p>9: Full details of test procedure 5.8.1 available on request</p> <p>10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.8.1</p> <p>11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1</p> <p>12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1</p> <p>13: RTA T11, T119, T120, T168</p> <p>14: RTA T11, T120, T168, T173</p> <p>15: RTA T120, T119, T162</p> <p>16: RTA T120, T162, T173</p> <p>17: RTA T120, T164, T173</p>								
Material Description								
<p>1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays</p> <p>2. CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clays</p> <p>3. CH-Clays of high plasticity</p> <p>4. SC-Clayey sands, sand-clay mixtures</p> <p>5. SM-Silty sands, sand-silt mixtures</p> <p>6. GC-Clayey gravels, gravel-sand-clay mixtures</p> <p>7. SP-Sand, crushed dust, filling sand, washed sand</p> <p>8. DGB20</p> <p>9. DGB40</p> <p>10. UGS20</p> <p>11. DGB39</p> <p>12. FCR19</p> <p>13. FCR39</p> <p>14. RC- Recycled Concrete</p> <p>15. Recycled Roadbase</p> <p>16. RSS - Recycled Sub-base</p> <p>17. CSS - Crushed Sandstone</p> <p>18. RSS - Ripped Sandstone</p> <p>19. Cowles Brown</p> <p>* Cement Stabilised</p> <p># Lime Stabilised</p> <p>\$ Gypsum Stabilised</p>								

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Accreditation Number 2734
Corporate Site Number 2727

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A Kench

14/03/2012

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FIELD/HILF DENSITY RESULTS

MARYLAND DEVELOPMENT COMPANY PTY LTD
C/- LEND LEASE DEVELOPMENT P/L, PO BOX 1124
ST MARYS NSW 1790

Job No 7508/89

Date 14/03/2012

PROJECT: SITE FILL TESTING
VILLAGE LAKE - STOCKPILE RELOCATION - JORDAN SPRINGS

TEST NUMBER	6	7	8	9	10	11	12	13
DATE TESTED	27/02/2012				28/02/2012			
TEST LOCATION								
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-
Shown on Drawing No	7508/89-1							
Retested by Test	-	-	-	-	-	-	-	-
Reduced Level	m	36.75	35.77	35.32	35.39	35.84	36.19	37.15
FIELD & LABORATORY DATA								
Field Wet Density	t/m3	2.07	2.11	2.00	1.96	2.06	2.06	2.07
Field Moisture Content	%	14.5	14.0	14.0	14.0	18.5	19.0	17.0
Material retained on 19mm Sieve (wet)	%	<5%	<5%	<5%	<5%	<5%	<5%	<5%
Lab Compaction result from test number		6	7	8	9	10	11	12
Peak Converted Wet Density	t/m3	2.13	2.12	2.04	2.03	2.07	2.14	2.19
Apparent Optimum Moisture Content	%	14.5	15.5	16.0	15.5	17.5	17.5	16.5
Number of Compaction Points		3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	2	2	2
Specification Standard	%	95	95	95	95	95	95	95
Specification Moisture Variance		N/A	N/A	N/A	N/A	N/A	N/A	N/A
RESULTS								
Hilf Density Ratio Standard		97	99.5	98	96.5	99.5	96.5	95
Moisture Variation from apparent OMC		+ 0.5	- 1.5	- 2.0	- 2.0	+ 1.0	+ 1.5	+ 3.0
Notes								
<p>1: Assigned Values have been obtained from our Penrith laboratory - Accreditation No 2734</p> <p>2: Assigned Values have been obtained from our Prestons laboratory - Accreditation No 14234</p> <p>3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown.</p> <p>4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1</p> <p>5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1</p> <p>6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.4.1, 5.8.1</p> <p>7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1</p> <p>8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1</p> <p>9: Full details of Test Procedure 6.8.1 available on request</p> <p>10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.8.1</p> <p>11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1</p> <p>12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1</p> <p>13: RTA T 111, T119, T120, T185</p> <p>14: RTA T 111, T120, T186, T173</p> <p>15: RTA T 120, T119, T182</p> <p>16: RTA T 120, T182, T173</p> <p>17: RTA T 120, T184, T173</p>								
Material Description								
<p>1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays</p> <p>2. CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clays</p> <p>3. CH-Clays of high plasticity</p> <p>4. SC-Clayey sands, sand-clay mixtures</p> <p>5. SM-Silty sands, sand-silt mixtures</p> <p>6. GC-Clayey gravels, gravel-sand-clay mixtures</p> <p>7. SP-Sand, crushed dust, filling sand, washed sand</p> <p>8. DGB20</p> <p>9. DGB40</p> <p>10. DGS20</p> <p>11. DGS39</p> <p>12. FCR19</p> <p>13. FCR39</p> <p>14. RC - Recycled Concrete</p> <p>15. Recycled Roadbase</p> <p>16. RSB - Recycled Sub-base</p> <p>17. CSS - Crushed Sandstone</p> <p>18. RSS - Rippled Sandstone</p> <p>19. Cowels Brown</p> <p>* Cement Stabilised</p> <p># Lime Stabilised</p> <p>\$ Gypsum Stabilised</p>								

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FIELD/HILF DENSITY RESULTS

MARYLAND DEVELOPMENT COMPANY PTY LTD
C/- LEND LEASE DEVELOPMENT P/L, PO BOX 1124
ST MARYS NSW 1790

Job No 7508/89

Date 14/03/2012

PROJECT: SITE FILL TESTING
VILLAGE LAKE - STOCKPILE RELOCATION - JORDAN SPRINGS

TEST NUMBER	14	15	16	17	18	19	20	21
DATE TESTED	28/02/2012				29/02/2012			
TEST LOCATION								
Chainage (Carriageway L/R)	m	-	-	-	-	-	-	-
Shown on Drawing No	7508/89-1							
Retested by Test	-	-	-	-	-	-	-	-
Reduced Level	m	36.24	36.61	37.55	37.35	36.59	37.01	37.32
FIELD & LABORATORY DATA								
Field Wet Density	t/m3	2.07	2.10	2.06	2.10	2.02	2.08	2.10
Field Moisture Content	%	20.5	18.5	20.0	17.5	17.0	17.0	18.0
Material retained on 19mm Sieve (wet)	%	<5%	<5%	<5%	<5%	<5%	<5%	<5%
Lab Compaction result from test number		14	15	16	17	18	19	20
Peak Converted Wet Density	t/m3	2.09	2.07	2.15	2.12	2.11	2.14	2.20
Apparent Optimum Moisture Content	%	18.5	19.5	17.5	15.5	16.0	17.0	15.0
Number of Compaction Points		3	3	3	3	3	3	3
Test Procedures - See Note Number		12	12	12	12	12	12	12
Material Description - see below		2	2	2	2	2	2	2
Specification Standard	%	95	95	95	95	95	95	95
Specification Moisture Variance		N/A	N/A	N/A	N/A	N/A	N/A	N/A
RESULTS								
Hilf Density Ratio Standard		99	101.5	96	99	95.5	97	95.5
Moisture Variation from apparent OMC		+ 1.5	- 1.0	+ 3.0	+ 2.0	+ 0.5	0.0	+ 3.0
Notes								
<p>1: Assigned Values have been obtained from our Penrith laboratory - Accreditation No 2734</p> <p>2: Assigned Values have been obtained from our Prestons laboratory - Accreditation No 14234</p> <p>3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown.</p> <p>4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.8.1</p> <p>5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1</p> <p>6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.4.1, 5.8.1</p> <p>7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1</p> <p>8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.8.1, 5.8.1</p> <p>9: Full details of Test Procedure 6.8.1 available on request</p> <p>10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.8.1</p> <p>11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1</p> <p>12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1</p> <p>13: RTA T 111, T118, T120, T185</p> <p>14: RTA T 111, T120, T188, T173</p> <p>15: RTA T 120, T119, T182</p> <p>16: RTA T 120, T182, T173</p> <p>17: RTA T 120, T184, T173</p>								
Material Description								
<p>1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays</p> <p>2. CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clays</p> <p>3. CH-Clays of high plasticity</p> <p>4. SC-Clayey sands, sand-clay mixtures</p> <p>5. SM-Silty sands, sand-silt mixtures</p> <p>6. GC-Clayey gravels, gravel-sand-clay mixtures</p> <p>7. SP-Sand, crushed dust, filling sand, washed sand</p> <p>8. DGB20</p> <p>9. DGB40</p> <p>10. DGB20</p> <p>11. DGB39</p> <p>12. FCR19</p> <p>13. FCR38</p> <p>14. RC - Recycled Concrete</p> <p>15. Recycled Roadbase</p> <p>16. RSB - Recycled Sub-base</p> <p>17. CSS - Crushed Sandstone</p> <p>18. RSS - Ripped Sandstone</p> <p>19. Corels Brown</p> <p>* Cement Stabilised</p> <p># Lime Stabilised</p> <p>\$ Gypsum Stabilised</p>								

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FIELD/HILF DENSITY RESULTS

MARYLAND DEVELOPMENT COMPANY PTY LTD
C/- LEND LEASE DEVELOPMENT P/L, PO BOX 1124
ST MARYS NSW 1790

Job No 7508/89

Date 14/03/2012

PROJECT: SITE FILL TESTING
VILLAGE LAKE - STOCKPILE RELOCATION - JORDAN SPRINGS

TEST NUMBER	22	23	24	25				
DATE TESTED	01/03/2012							
TEST LOCATION								
Chainage	(Carriageway L/R)			m	-	-	-	-
Shown on Drawing No					7508/89-1			
Retested by Test	TBA	-	-	TBA				
Reduced Level	m	37.89	37.75	37.98	37.62			
FIELD & LABORATORY DATA								
Field Wet Density	tm3	1.97	2.02	2.04	1.99			
Field Moisture Content	%	15.5	14.5	15.0	15.0			
Material retained on 19mm Sieve (wet)	%	<5%	<5%	<5%	<5%			
Lab Compaction result from test number		22	23	24	25			
Peak Converted Wet Density	tm3	2.11	2.12	2.14	2.12			
Apparent Optimum Moisture Content	%	16.5	16.5	17.0	17.0			
Number of Compaction Points		3	3	3	3			
Test Procedures - See Note Number		12	12	12	12			
Material Description - see below		2	2	2	2			
Specification	Standard	%	95	95	95	95		
Specification Moisture Variance		N/A	N/A	N/A	N/A			
RESULTS								
Hilf Density Ratio	Standard	93.5	95.5	95.5	94			
Moisture Variation from apparent OMC		- 1.0	- 2.0	- 2.0	- 1.5			
Notes								
<p>1: Assigned Values have been obtained from our Penrith laboratory - Accreditation No 2734 2: Assigned Values have been obtained from our Prestons laboratory - Accreditation No 14234 3: Results have been calculated using infinite decimal places. Therefore, calculated values may vary from those shown. 4: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.3.1, 5.4.1 5: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.3.1, 5.4.1 6: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.1.1, 5.4.1, 5.8.1 7: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.2.1, 5.4.1, 5.8.1 8: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.5.1, 5.6.1, 5.8.1 9: Full details of Test Procedure 6.8.1 available on request</p>								
<p>10: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.5.1, 5.8.1 11: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.3.1, 5.7.1 12: AS 1289 1.2.1 clause 6.4 (b), 2.1.1, 5.7.1, 5.8.1 13: RTA T 111, T119, T120, T105 14: RTA T 111, T120, T166, T173 15: RTA T 120, T119, T162 16: RTA T 120, T162, T173 17: RTA T 120, T164, T173</p>								
Material Description								
<p>1. CL-Clays of low plasticity, gravelly clays, sandy clays, silty clays 2. CI-Clays of medium plasticity, gravelly clays, sandy clays, silty clays 3. CH-Clays of high plasticity 4. SC-Clayey sands, sand-clay mixtures 5. SM-Silty sands, sand-silt mixtures 6. GC-Clayey gravels, gravel-sand-clay mixtures 7. SP-Sand, crushed dust, filling sand, washed sand 8. DGB20 9. DGB40 10. DGS20</p>								
<p>11. DGS39 12. FCR19 13. FCR39 14. RC - Recycled Concrete 15. Recycled Roadbase 16. RSB - Recycled Sub-base 17. CSS - Crushed Sandstone 18. RSS - Rippled Sandstone 19. Cowels Brown</p>								
<p>* Cement Stabilised # Lime Stabilised \$ Gypsum Stabilised</p>								

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