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NORTH GEELONG VIC 3215
Ph : (03) 52771900
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GEOTEST
Civil Services

Material Testing and Laboratory Services for the Construction Industry

Mr Sidney Glenister
Drapers Civil Contracting Pty Ltd
PO Box 287
Belmont VIC 3216

17th October 2024
Ref : 7544

Dear Sir

RE : SUPERVISION OF FILL PLACEMENT
ESTUARY ESTATE II – STAGE 4
LOTS 2011 – 2014 AND RESERVE

I write with reference to your request for Geotest Civil Services to provide Level One supervision of fill placement in accordance with the requirements of AS 3798:2007, Guidelines for Earthworks on Commercial and Residential Developments to fill placed on the above project.

I confirm that over the period 18th September to 20th September 2024, Geotest Civil Services performed Level One supervision and surveillance activities by observing site stripping and clearing works and then monitoring the placement of structural fill for placement of clays on the above Lots.

Background :

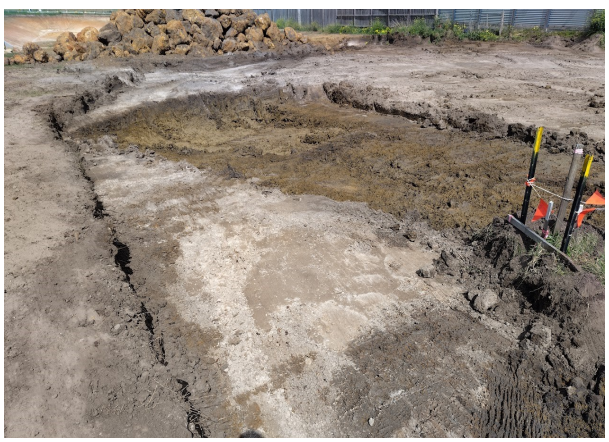
The construction Drawings for Stage Four required that fill was to be placed along the boundaries of Lots 2001 to 2014 and adjacent properties to the west to maintain a smooth transition in surface level between properties.

A inspection of the site showed that the extent of fill required was greater than 200mm in depth. To achieve the required final level, it was necessary to remove overlying topsoil and raise the underlying natural clay before reinstating the topsoil to final surface level.

Site Preparation :

All overlying topsoils and surface vegetation was removed by excavation to expose the underlying natural sandy Clays on the affected Lots.

Following Proof Rolling with a loaded water cart, unsuitable material on which further clay fill could be placed was identified in the area of Lots 2013 and 2014. This unsuitable material was directed to be removed to expose firm natural ground.



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Once these works were completed, approval to commence placement of fill was granted.

Fill Source :

Fill material for the works were sourced from within the development site using a sandy clay won from other excavation works associated with construction activities. Surplus materials had been stockpiled on site close to the area of placement.

Placement Methodology :

All fill was placed by loading material from the site stockpile and transporting to the placement area using a dump truck where it was placed as a tipped load.

The material was then spread using a Compactor in approximately 200mm layers loose before being moisture conditioned and then compacted into place to the required level.

At the completion of each nominal 300mm layer, compaction testing was performed on random Lots to assess the quality of the completed works. Once testing was completed, approval was given to continue with placement in the same manner until the final design level had been achieved.

Verification of compliance of all fill was based on the compaction test results which were undertaken as each layer was completed.

The Level One supervision does not include placement of topsoil used to complete landscaping of the project.

Compliance Statement :

Based on the results of our testing, and as far as we have been able to determine, we conclude that the filling placed within the filled area on the above Lots meets or exceeds the requirements of the specification, that is, 95% relative Standard compaction in accordance with Australian Standard 3798 – 2007 and the project specification.

Test results from the testing program are attached.

We trust that this information meets your requirements. Should you have any further queries in regards to the above, please do not hesitate to contact me on telephone 0418 525775.

Yours Sincerely

Rod Bennett
Geotest Civil Services

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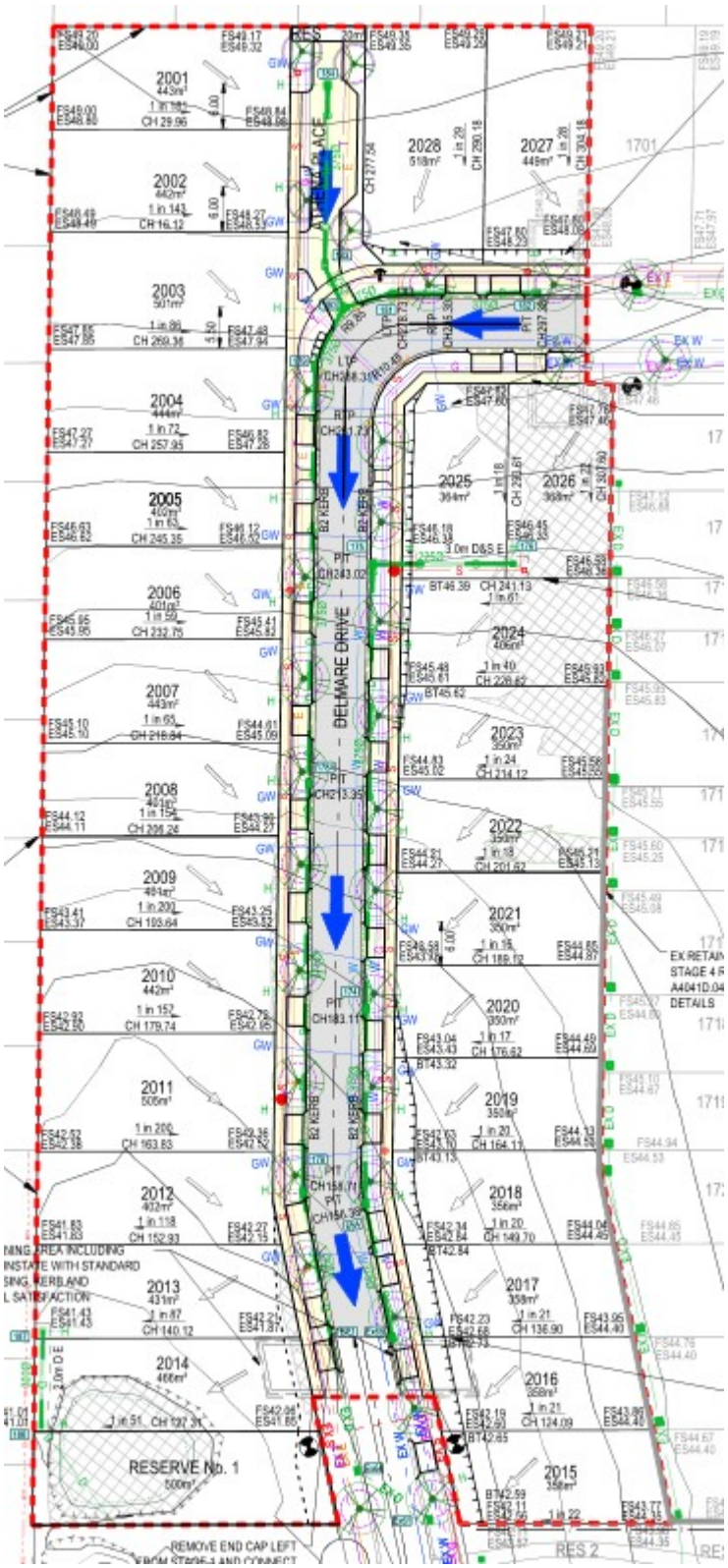

Extract Drawing A4041D-05 – RD200 Rev B (preliminary) showing extent of fill required on Lots

GEOTEST Civil Services

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REPORT OF COMPACTION CONTROL (HILF RAPID METHOD)

Job No.: 7544/24/796

AS 1289 2.1.1, 5.7.1, 5.8.1 RC 316.00			Using Humboldt: 8639	Date field tested :	19/09/24
Compaction Report Ref. No.	7544/24/796		K Value : 0	Time :	9:30:00
Project: Estuary II estate Stage 4 -Lot Fill					
Client : Drapers Civil Contracting Pty Ltd PO Box 287 Belmont VIC 3216					
Material:	Clay ex Site		Compactive effort:	Standard	
Sand used:	no	Standard count:	DS: 2690	MS:	336
Layer depth of	250 mm		Test depth of 225	mm	for 60 secs
Test Lot Bounds	NA	to NA		Client Ref:	

Site No.	1	2	3	4		
Location	Lot 2014 Layer 1 E277786 N5769022	Lot 2012 Layer 1 E277788 N5769042	Lot 2011 Layer 1 E277796 N5769063	Reserve E277801 N5769009		
wet density (t/m³)	2.01	2.05	1.92	1.83		
field mc%	17.3	15.4	12.7	28.2		
dry density (t/m³)	1.71	1.78	1.70	1.43		
pcwd (t/m³)	1.94	1.91	1.93	1.93		
omc (%)	22.0	20.0	16.0	30.0		
Oversize material retained on sieve…(mm)	19.0	19.0	19.0	19.0		
% wet oversize	0	0	0	0		
% dry oversize	0	0	0	0		
adjusted pcwd	1.94	1.91	1.93	1.93		
adjusted omc	21.6	19.7	15.6	30.5		
moisture variation (+ wet / - dry of omc)	-4.5	-4.5	-3.0	-2.5		
moisture ratio (%)	80.1	78.1	81.4	92.5		
density ratio (%)	**103.5**	**107.5**	**99.5**	**95.0**		

Tested over period : 19/09/2024 to 23/09/2024

mean moisture ratio	83.0
mean density ratio	101.4

Sampling Method Used :

AS1289.1.2.1 Clause 6.4 – from layers in pavement or earthworks

Notes:

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Testing Facility : Accreditation Number : No 10664
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: R.Bennett

Date: 23/09/2024

compactn.r.h 1/5/23

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REPORT OF COMPACTION CONTROL (HILF RAPID METHOD)

Job No.: 7544/24/797

AS 1289 2.1.1, 5.7.1, 5.8.1 RC 316.00			Using Humboldt: 8639	Date field tested :	19/09/24
Compaction Report Ref. No.	7544/24/797		K Value : 0	Time :	12:20:00
Project: Estuary II estate Stage 4 - Lot Fill					
Client : Drapers Civil Contracting Pty Ltd PO Box 287 Belmont VIC 3216					
Material:	Clay ex Site		Compactive effort:	Standard	
Sand used:	no	Standard count:	DS: 2688	MS:	334
Layer depth of	250 mm		Test depth of	225 mm	for 60 secs
Test Lot Bounds	NA	to	NA	Client Ref:	

Site No.	1	2	3			
Location	Lot 2014 Layer 2 E277786 N5769037	Lot 2012 Layer 2 E277792 N5769060	Lot 2011 Layer 2 E277800 N5769072			
wet density (t/m³)	2.00	2.02	2.01			
field mc%	18.2	19.7	19.5			
dry density (t/m³)	1.69	1.68	1.68			
pcwd (t/m³)	1.99	1.99	1.98			
omc (%)	19.0	22.0	22.0			
Oversize material retained on sieve...(mm)	19.0	19.0	19.0			
% wet oversize	0	0	0			
% dry oversize	0	0	0			
adjusted pcwd	1.99	1.99	1.98			
adjusted omc	18.5	21.9	21.7			
moisture variation (+ wet / - dry of omc)	-0.5	-2.0	-2.0			
moisture ratio (%)	98.4	90.0	89.9			
density ratio (%)	**100.0**	**101.5**	**101.5**			

Tested over period : 19/09/2024 to 23/09/2024

mean moisture ratio	92.7
mean density ratio	101.0

Sampling Method Used :

AS1289.1.2.1 Clause 6.4 – from layers in pavement or earthworks

Notes:

NATA
WORLD RECOGNISED ACCREDITATION

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: R.Bennett

Date: 23/09/2024

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REPORT OF COMPACTION CONTROL (HILF RAPID METHOD)

Job No.: 7544/24/802

AS 1289 2.1.1, 5.7.1, 5.8.1 RC 316.00			Using Humboldt: 8639	Date field tested :	20/09/24
Compaction Report Ref. No.	7544/24/802		K Value : 0	Time :	9:20:00
Project: Estuary II estate Stage 4 - Lot Fill					
Client : Drapers Civil Contracting Pty Ltd PO Box 287 Belmont VIC 3216					
Material:	Clay ex Site		Compactive effort:	Standard	
Sand used:	no	Standard count:	DS: 2692	MS:	338
Layer depth of	250 mm		Test depth of 225	mm	for 60 secs
Test Lot Bounds	NA	to	NA	Client Ref:	

Site No.	1	2	3			
Location	Lot 2014 / 2013 Layer 3 (FSL) E277791 N5769031	Lot 2012 / 2011 Layer 3 (FSL) E277791 N5769050	Lot 2011 Layer 3 (FSL) E277795 N5769074			
wet density (t/m³)	2.12	2.05	1.98			
field mc%	18.6	20.9	17.6			
dry density (t/m³)	1.79	1.70	1.68			
pcwd (t/m³)	2.03	2.04	1.97			
omc (%)	20.0	21.0	20.0			
Oversize material retained on sieve…(mm)	19.0	19.0	19.0			
% wet oversize	1	0	0			
% dry oversize	1	0	0			
adjusted pcwd	2.03	2.04	1.97			
adjusted omc	20.3	21.0	19.8			
moisture variation (+ wet / - dry of omc)	-1.5	0.0	-2.0			
moisture ratio (%)	91.7	99.5	88.9			
density ratio (%)	**104.5**	**101.0**	**101.0**			

Tested over period : 20/09/2024 to 24/09/2024

mean moisture ratio	93.4
mean density ratio	102.2

Sampling Method Used :

AS1289.1.2.1 Clause 6.4 – from layers in pavement or earthworks

Notes:

NATA
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NATA Accredited Testing Facility : Accreditation Number : No 10664
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Approved Signatory: R.Bennett

Date: 24/09/2024

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