

12457/DPD

31 May 2019

QuadConsult
Columbus House
Village Way
Greenmeadow Springs Business Park
Cardiff CF15 7NE

For the attention of Mr Steve McCarthy

Dear Sirs,

Sandfields County Flats, Sandfields, Port Talbot – Soil Infiltration Testing

Further to your recent instruction, we have now completed the soil infiltration testing at the above site and enclose for your attention a copy of the results.

This report (including all appendices to it and any subsequent addendums or correspondence) has been prepared for the sole benefit, use and information of Tai Tarian no third party is entitled or permitted to rely upon it. This report may not be used, reproduced or circulated (in whole or part) for any purpose without the written consent of Intégral Géotechnique (Wales) Limited. Intégral Géotechnique (Wales) Limited shall not be liable to any third party who does not have such express written permission to rely on the report for any losses they may suffer.

Fieldworks

We attended site on the 29th May 2019 to carry out soil infiltration testing at 5 No. locations (referenced S1, S2, S3, S4 and S5).

The testing locations were positioned by QuadConsult and a qualified geotechnical engineer from Integral Geotechnique.

The trial pits were excavated to depths of 1.0m in all the trial pits.

At all testing location, the pit was excavated by hand then rapidly filled with water from a 2000-gallon tractor towed agricultural tanker. The water was then monitored over a period of time at each test location.

The fieldworks were undertaken by a qualified geotechnical engineer from Intégral Géotechnique who logged the trial pits and monitored the soakaway tests.

The approximate locations of the soil infiltration tests are shown on Figure 1.

Ground Conditions

In the trial pits the ground conditions in general comprised of topsoil over made ground comprising of a brown gravelly sand with fragment of brick and concrete to depths between 0.3 to 0.5mbgl.

This was underlain natural loose yellow sand.

All excavations were dry prior to testing but locally minor collapses below 0.5mbgl.

See Appendix A for detailed trial pit logs.

Soil Infiltration Testing

The results for trial pits S1, S2, S3, S4 and S5 are presented in the table below. Please see appendix B for the infiltration test results.

Table 1: Summary of Soakaway Test Results				
Soakaway Test Location	Soil Infiltration Rate m/s			
	Cycle 1	Cycle 2	Cycle 3	Design Soil Infiltration Rate
<i>S1</i>	1.4×10^{-4}	1.1×10^{-4}	1.1×10^{-4}	1.1×10^{-4}
<i>S2</i>	1.2×10^{-4}	9.9×10^{-5}	9.3×10^{-5}	9.3×10^{-5}
<i>S3</i>	1.4×10^{-4}	1.1×10^{-4}	1.0×10^{-4}	1.0×10^{-4}
<i>S4</i>	1.8×10^{-4}	1.2×10^{-4}	1.3×10^{-4}	1.2×10^{-4}
<i>S5</i>	1.9×10^{-4}	1.3×10^{-4}	9.9×10^{-5}	9.9×10^{-5}

Note that the infiltration test results are specific to the location and depth of the test undertaken.

We trust the above and enclosed are to your satisfaction. However, if you have any queries, or require any further information, please do not hesitate to contact us.

Yours faithfully,



D P Davies
For
Intégral Géotechnique (Wales) Limited

Encl.

Appendix A – Trial Pit Logs
 Appendix B – Soil Infiltration Test Calculation
 Figures

Appendix A

Trial Pit Logs

		Integral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Sandfields County Flats		Project No.: 12457		Trial Pit No.: S1 Sheet 1 of 1	
Location: Sandfields				Client: Quad Consult		Logged By:		Scale: 1:25	
Equipment: Hand Dug				Coordinates:		Dimensions 0.50m			
Date Excavated: 29/05/2019				Level:		Depth : 1.00m 0.50m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description			
			0.10			TOPSOIL			
						Made Ground: Brown sand with some gravel			
			0.35			Made Ground: Dark grey gravel consisting of slag fine brick and concrete fragments			
			0.50			Light brown loose SAND			
			1.00			End of Trialpit at 1.00 m			
Remarks: No Groundwater encountered. Soakaway test carried out.			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Sandfields County Flats			Project No.: 12457		Trial Pit No.: S2 Sheet 1 of 1	
Location: Sandfields			Client: Quad Consult			Logged By:		Scale 1:25	
Equipment: Hand Dug			Coordinates:			Dimensions 0.50m			
Date Excavated: 29/05/2019			Level:			Depth : 1.00m		0.50m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.10						TOPSOIL			
						Made Ground: Brown sand with some gravel			
0.35						Made Ground: Dark grey gravel consisting of slag fine brick and concrete fragments			
0.50						Light brown loose SAND			
1.00						End of Trialpit at 1.00 m			
Remarks: No Groundwater encountered. Soakaway test carried out.			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

 Integral House, 7 Beddau Way Castle Gate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Sandfields County Flats			Project No.: 12457		Trial Pit No.: S3 Sheet 1 of 1	
Location: Sandfields			Client: Quad Consult			Logged By:		Scale: 1:25	
Equipment: Hand Dug			Coordinates:			Dimensions 0.50m			
Date Excavated: 29/05/2019			Level:			Depth : 1.00m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
			0.10			TOPSOIL			
						Made Ground: Brown sand with some gravel fragments of concrete and metal			
			0.30			Light brown loose SAND			
			1.00			End of Trialpit at 1.00 m			
Remarks: No Groundwater encountered. Soakaway test carried out.			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

 Integral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Sandfields County Flats			Project No.: 12457		Trial Pit No.: S4 Sheet 1 of 1	
Location: Sandfields			Client: Quad Consult			Logged By:		Scale 1:25	
Equipment: Hand Dug			Coordinates:			Dimensions 0.50m			
Date Excavated: 29/05/2019			Level:			Depth : 1.00m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
			0.10			TOPSOIL			
			0.30			Made Ground: Brown sand with some gravels fragments of concrete and metal			
						Light brown loose SAND			
			1.00		End of Trialpit at 1.00 m				
Remarks: No Groundwater encountered. Soakaway test carried out.			Groundwater:			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

 Intégral House, 7 Beddau Way Casilegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integraigeotec.com			Project Name: Sandfields County Flats			Project No.: 12457		Trial Pit No.: S5 Sheet 1 of 1	
Location: Sandfields			Client: Quad Consult			Logged By:		Scale 1:25	
Equipment: Hand Dug			Coordinates:			Dimensions 0.50m			
Date Excavated: 29/05/2019			Level:			Depth : 1.00m 0.50m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
			0.10			TOPSOIL			
						Made Ground: Brown sand with some gravel fragments of concrete and metal			
			0.30			Light brown loose SAND			
			1.00			End of Trialpit at 1.00 m			
Remarks:			Groundwater:			Key:			
No Groundwater encountered. Soakaway test carried out.			Stability:			D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			

Appendix B

Soil Infiltration Test Calculations

12457 Sandfields County Flats

Remarks

[illegible]

Outflow Time (min)				
Time for measured outflow	20			25
Time for 100% outflow	20			25
Time for 75-25% outflow	11			15
Volume of Outflow (m³)				
Over measured effective depth	0.23			0.23
Over 100% effective depth	0.23			0.23
From 75% - 25% effective depth	0.11			0.11
Surface Area (m²)				
For 100% effective storage	2.05			2.05
For 50% effective storage	1.15			1.15
Over measured depth	2.05			2.05
Soil Infiltration Rate (m/s)		Cycle 1	Cycle 2	Cycle 3
Over 100% effective depth	9.1E-05		7.3E-05	7.3E-05
Over measured depth	9.1E-05		7.3E-05	7.3E-05
Over 75% - 25% effective depth	1.4E-04		1.1E-04	1.1E-04



12457 Sandfields County Flats

Remarks



Intégral
Géotechnique

12457 Sandfields County Flats

Remarks



Intégral
Géotechnique

12457 Sandfields County Flats

Remarks



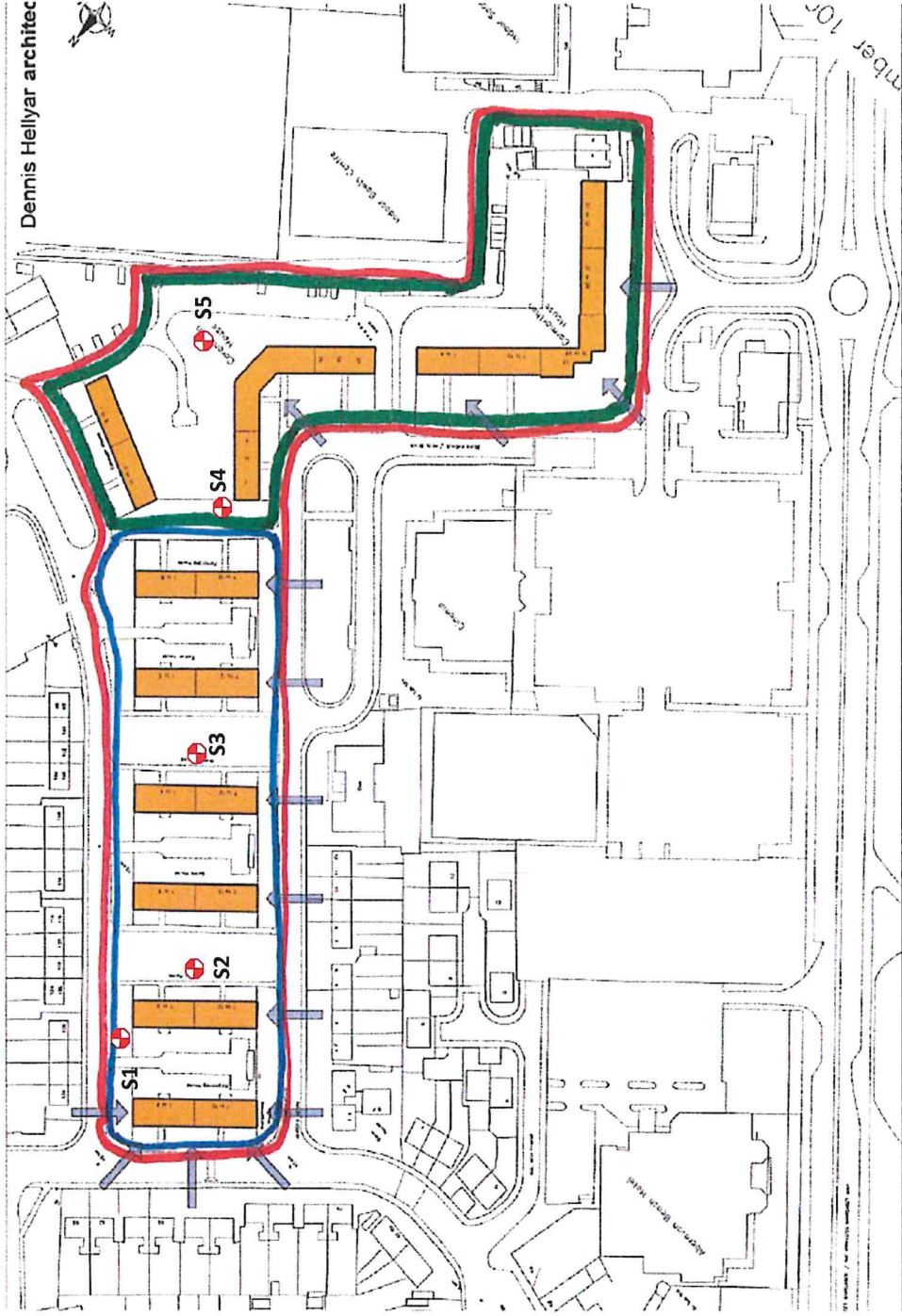
Intégral Géotechnique

12457 Sandfields County Flats

Remarks

Final Excavation Depth (m)		Cycle 1	Cycle 2	Cycle 3
At end of testing cycle		1.00	1.00	1.00
Water Depths (m)				
Water depth at start of test		0.10	0.10	0.10
Water depth at end of test		1.00	1.00	1.00
Effective depth (measured)		0.90	0.90	0.90
% Effective storage depth		1.00	1.00	1.00
Effective Storage Depths (m)				
Effective storage depth (100%)		0.90	0.90	0.90
Effective storage depth (75%)		0.68	0.68	0.68
Effective storage depth (50%)		0.45	0.45	0.45
Effective storage depth (25%)		0.23	0.23	0.23
Outflow Time (min)				
Time for measured outflow		17	21	25
Time for 100% outflow		17	21	25
Time for 75-25% outflow		8	13	16
Volume of Outflow (m³)				
Over measured effective depth		0.23	0.23	0.23
Over 100% effective depth		0.23	0.23	0.23
From 75% - 25% effective depth		0.11	0.11	0.11
Surface Area (m²)				
For 100% effective storage		2.05	2.05	2.05
For 50% effective storage		1.15	1.15	1.15
Over measured depth		2.05	2.05	2.05
Soil Infiltration Rate (ml/s)				
Over 100% effective depth		1.1E-04	8.7E-05	7.3E-05
Over measured depth		1.1E-04	8.7E-05	7.3E-05
Over 75% - 25% effective depth		1.9E-04	1.3E-04	9.9E-05





Legend

S1  Approximate Soakaway Location

NOT TO SCALE

Figure 1: SITE LAYOUT

Sandfield County Flats, Port Talbot

12457DPD