

PREPARED BY:	Quantum Geotechnic Ltd	DATE:	09/09/19
CLIENT:	Alan Thomas	AUTHOR:	Steffan Picton
PROJECT TITLE:	Church Building, Pontardawe	OUR REF:	Q0086/LR01
RE:	Site Investigation		

Introduction

Upon the instruction of the Project Manager, CB3 Consult acting on behalf of Alan Thomas (client), Quantum Geotechnic Ltd was commissioned to undertake a soakaway testing at a parcel of land at the New Evangelical Church, Coedcae, Pontardawe.



Figure 1: Site location. Not to Scale © Ordnance Survey

This report sets out the existing conditions on site and details the findings of the testing.

Site Setting

The site comprises of a square plot of land currently overgrown with vegetation approximately 20m by 30m in size with neighbouring housing present on the northern side and Coedcae Road to the south.

The topography of the site is generally flat.

The Ordnance Survey Grid reference of the site is 272737E 204722N

Geology Review

Published Geological Information:

Geological Survey Sheet 230 "Ammanford" at a scale of 1:50,000 indicates superficial deposits of Glaciofluvial material consisting of sand and gravel. The solid geology that underlies the site comprises the Brithdir Member of sandstone of the Carboniferous period.

Ground Investigation Works Undertaken

The fieldworks were undertaken on 27th August 2019 and comprised of 2 No. machine excavated trial pits with soakaway testing undertaken within each.

Table 1 below indicates the termination depths of the Soakaway Pits

Table 1: Termination depth of Exploratory Pits

Exploratory Hole I.D.	Termination Depth (mbgl)	Comments	Pit Location
TP01	1.70	Target Test Depth Achieved	Within rear of site
TP02	2.10	Target Test Depth Achieved	Within rear of site

Soakaway tests were undertaken in all trial pits to assess the suitability of the strata for use as a drainage solution. The tests were undertaken in accordance with BRE 365 and involves filling the trial pit with water and measuring the time elapsed whilst the water level drops within the pit.

A copy of the exploratory hole logs are located in Appendix II, with an exploratory hole location plan presented in appendix I.

Ground Conditions Encountered

The sequence of deposits encountered during the investigation is detailed within the Engineering Geologist's logs presented in Appendix II. The logs highlight the nature of the soils encountered and provide descriptions of the strata revealed at the site. This section gives a summary of the ground conditions encountered across the site and illustrated in Table 2 below.

Table 2: General sequence of strata

General Strata Description	Elevation of base of strata (mbgl) in each exploratory hole	
	TP01	TP02
Made Ground	GL – 1.05m	GL – 1.10m
Glacial Till	1.05 – 1.70m	1.10 – 2.10m

Full Soakaway test results are found within Appendix III

Groundwater

No ground water was encountered within either of the trial pits.

Test Summary

Soakaway testing was carried out at each of the trail pit locations and the below table (Table 3) indicates the strata in which the test was undertaken along with a test summary.

Table 3: Soakaway Test Summary

Exploratory Hole I.D.	Soakaway Test Strata/Depths	Soil Infiltration Rates (m/s)
TP01	<i>Made Ground</i> <i>0.80mbgl – 1.05mbgl</i> <i>Glacial Till</i> <i>1.05mbgl – 1.70mbgl</i>	No reduction in water level measured during test
TP02	<i>Glacial Till</i> <i>1.30mbgl – 2.10mbgl</i>	No reduction in water level measured during test



Conclusions

Soakaway tests within TP01 and TP02 were undertaken in the rear of the site. The tests extended through a layer of Made Ground into the underlying Glacial Till. The permeability of the Glacial Till was extremely low, with the infiltration over the test period being minimal it was not possible to calculate a soil infiltration rate. Soakaways within in the Glacial Till are therefore considered unlikely to be feasible for the proposed development.

We trust that the above is of assistance; however, if you need any further clarification or have any queries please do not hesitate to contact us.

Yours faithfully,

**For and on behalf of
QUANTUM GEOTECHNIC LTD**

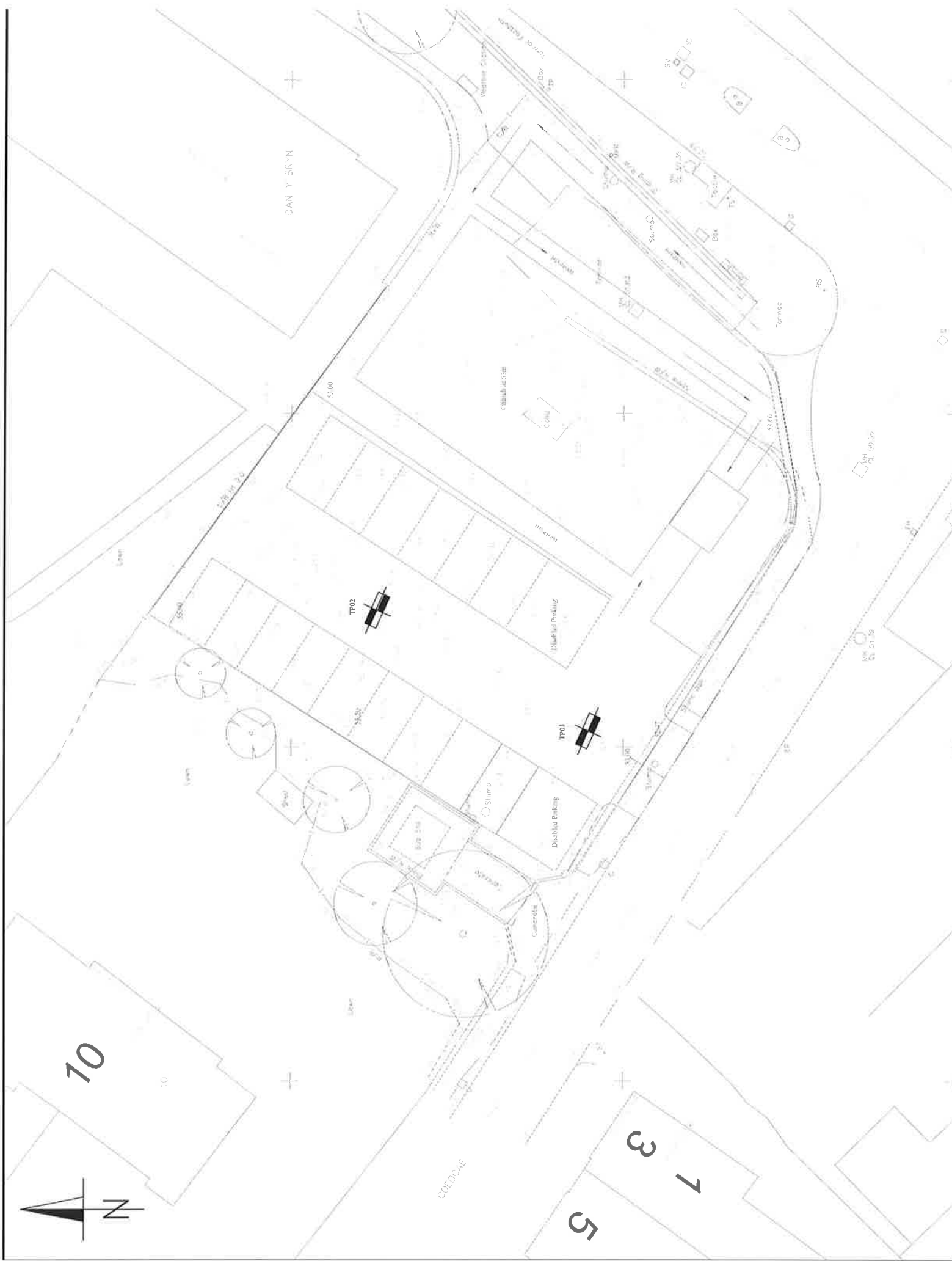
Lee Simlett, *B.Sc. (Hons).*
Engineering Geologist

APPENDIX I –EXPLORATORY HOLE LOCATION PLAN



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3
7
5



APPENDIX II –EXPLORATORY HOLE LOGS

Contract : Church Building, Pontardawe Client : CB3						Trial Pit No. TP01			
Dates : 27/8/19 - 27/8/19 Location : North-West Locality			Job Number : Q0086 Engineer : Quantum Geotechnic Ltd		Ground Level : 54.51 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 272738.31 E 204686.94 N <i>Co-ordinates to National Grid</i>				
m B.G.L.	Samples		Tests		Strata			WATER	
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend		Red. Level A.O.D.
1					0.40	MADE GROUND: Grass over soft dark brown black slightly clayey slightly sandy slightly gravelly organic SILT with low angular siltstone cobble content. Gravel is fine to coarse angular mudstone siltstone brick. Sand is fine. Organics are rootlets. [MADE GROUND]			
					0.40 0.65	REWORKED NATURAL: Soft brown grey black slightly gravelly slightly sandy gravelly CLAY/SILT. Gravel is fine to coarse angular siltstone sandstone brick. Sand is fine to medium. [MADE GROUND] 0.90m: At 0.90mbgl a 50mm clay land drain			54.11
					1.05 0.65	Orange brown mottled grey slightly silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to sub-angular siltstone sandstone. Sand is fine to medium.			53.46
					1.70	Trial Pit Terminated Upon Client Instruction			52.81
PLAN 			Groundwater: No Groundwater Strike Observed Stability: N/A Shoring: N/A		Remarks : TP marked out by QGL. Area CAT scanned and services checked.				
Equipment Used: JCB-3CX									
Ty Bervig, Bynau, Llanelli SA14 9ST Tel: 01554 744880 Fax: email: enquiries@quantumgeotech.co.uk				Operator: QGL	Logged By: L simlett	Sheet No. 1 Of 2	m Per Page 3	All measurements in metres unless otherwise stated	

Contract : Church Building, Pontardawe		Trial Pit No.
Client : CB3		TP01
Dates : 27/8/19 - 27/8/19	Job Number : Q0086	Ground Level : 54.51 m A.O.D. <i>Level to Ordnance Datum</i>
Location : North-West Locality	Engineer : Quantum Geotechnic Ltd	Coordinates: 272738.31 E 204686.94 N <i>Co-ordinates to National Grid</i>



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m Per
Page

All measurements in
metres unless
otherwise stated



Contract : Church Building, Pontardawe Client : CB3						Trial Pit No. TP02		
Dates : 27/8/19 - 27/8/19 Location : North-East Locality			Job Number : Q0086 Engineer : Quantum Geotechnic Ltd		Ground Level : 55.33 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 272753.82 E 204698.44 N <i>Co-ordinates to National Grid</i>			
m B.C.L.	Samples		Tests		Strata			WATER
	Depth	Type No.	Depth	Test Results	Depth (Thickness)	Description	Legend	
-1					0.35	MADE GROUND: Grass over soft dark brown black slightly sandy slightly gravelly organic SILT with low angular siltstone cobble content. Gravel is fine to coarse angular mudstone siltstone brick. Sand is fine to medium. Organics are rootlets. [MADE GROUND]		
					0.35	REWORKED NATURAL: Soft brown grey black slightly gravelly slightly sandy gravelly CLAY/SILT with medium angular to sub-angular siltstone sandstone cobble content. Gravel is fine to coarse angular siltstone sandstone brick ceramic. Sand is fine to medium. [MADE GROUND]		54.98
					0.75			
						1.10	Orange brown mottled grey slightly silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to sub-angular siltstone sandstone. Sand is fine to medium.	
					1.00			
-2					2.10	Trial Pit Terminated Upon Client Instruction		53.23
PLAN 			Groundwater: No Groundwater Strike Observed Stability: N/A Shoring: N/A		Remarks : TP marked out by QGL. Area CAT scanned and services checked.			
Equipment Used: JCB-3CX								
Ty Berwig, Bynna, Llanelli SA14 9ST Tel: 01554 744880 Fax: email: enquiries@quantumgeotech.co.uk			Operator: QGL		Logged By: L Simlett		Sheet No. 1 Of 2	
					m Per Page 3		All measurements in metres unless otherwise stated 	

Contract : Church Building, Pontardawe

Client : CB3

Trial Pit No.

TP02

Dates : 27/8/19 - 27/8/19

Job Number : Q0086

Ground Level : 55.33 m A.O.D.
Level to Ordnance Datum

Location : North-East Locality

Engineer : Quantum Geotechnic Ltd

Coordinates: 272753.82 E
204698.44 N
Co-ordinates to National Grid



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All measurements in
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APPENDIX III –SOAKAWAY TEST RESULTS



Client : CB3

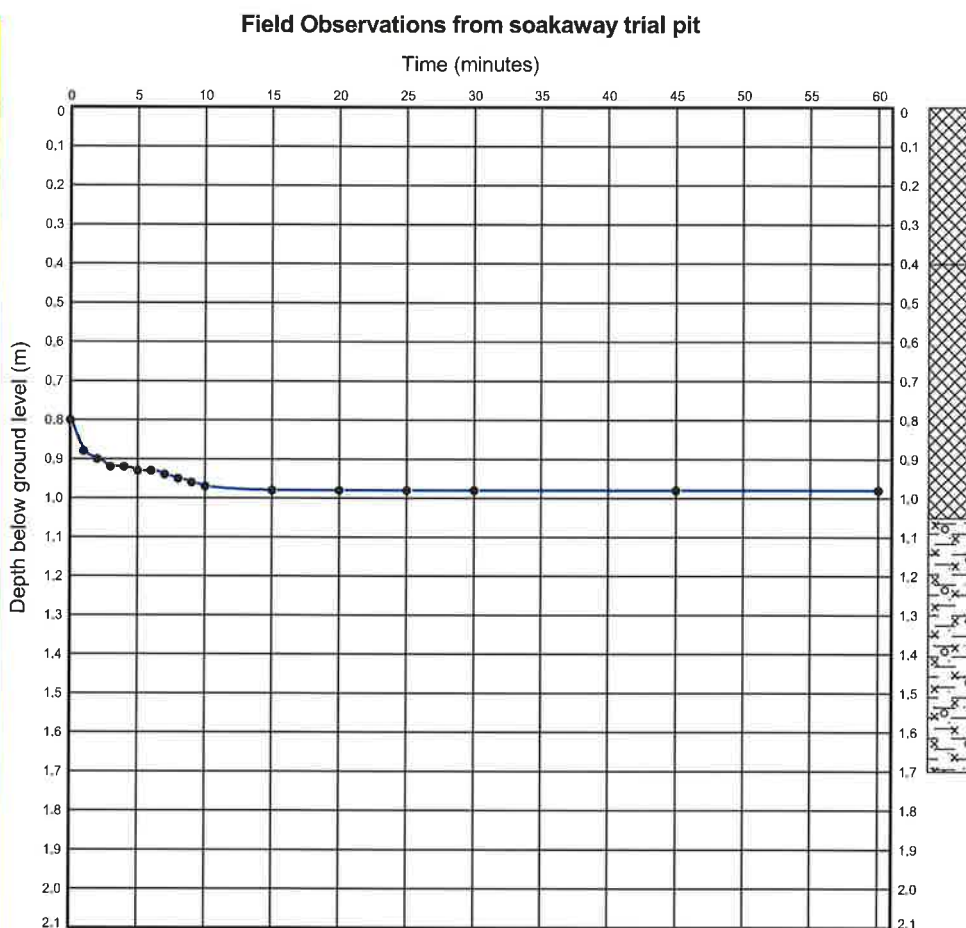
Point Plotted
TP01,1

Job Number : Q0086

Engineer : Quantum Geotechnic Ltd

SOAKAWAY TEST CALCULATION SHEET

Time (Minutes)	Depth of water from ground level (m)
0.0	0.8
1.0	0.88
2.0	0.9
3.0	0.92
4.0	0.92
5.0	0.93
6.0	0.93
7.0	0.94
8.0	0.95
9.0	0.96
10.0	0.97
15.0	0.98
20.0	0.98
25.0	0.98
30.0	0.98
45.0	0.98
60.0	0.98



Remarks: Failed to soakaway

Soakaway test for soil infiltration rate design method based on BRE Digest 365

Permeability Test on Strata

Trial Pit Depth	2.100 m	$V_{p75-25} =$	0.828 m ³
Trial Pit Length	2.300 m	$a_{p50} =$	4.630 m ²
Trial Pit Width	0.900 m	$t_{p75-25} =$	minutes
Effective Depth	0.800 m		
Outflow Time	mins from 75% to 25% full		

f = m/sec



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Project File: Q0086 - CHURCH BUILDING, PONTARDAWE.GPJ

All measurements in metres unless otherwise stated

Figure No.
1

Contract : Church Building, Pontardawe

Point Plotted
TP02,1

Client : CB3

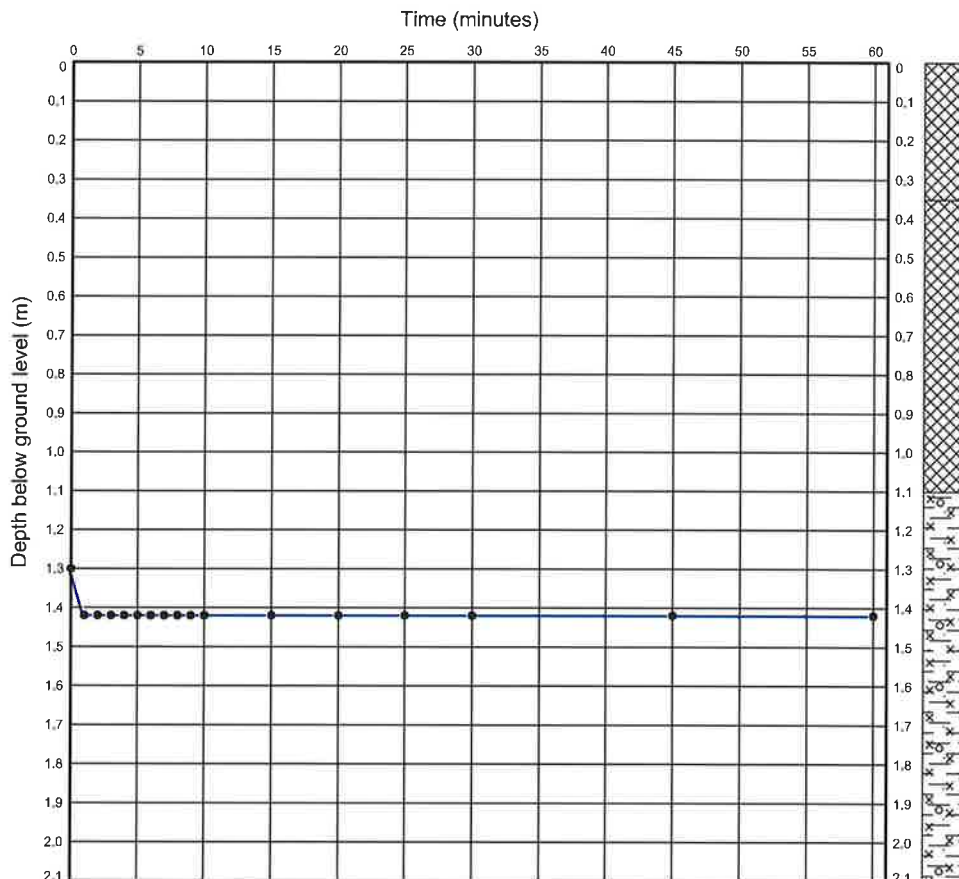
Job Number : Q0086

Engineer : Quantum Geotechnic Ltd

SOAKAWAY TEST CALCULATION SHEET

Field Observations from soakaway trial pit

Time (Minutes)	Depth of water from ground level (m)
0.0	1.3
1.0	1.42
2.0	1.42
3.0	1.42
4.0	1.42
5.0	1.42
6.0	1.42
7.0	1.42
8.0	1.42
9.0	1.42
10.0	1.42
15.0	1.42
20.0	1.42
25.0	1.42
30.0	1.42
45.0	1.42
60.0	1.42



Remarks: Failed to soakaway

Soakaway test for soil infiltration rate
design method based on BRE Digest 365

Permeability Test on Strata

Trial Pit Depth	2.100 m	$V_{p75-25} =$	1.346 m ³
Trial Pit Length	2.300 m	$a_{p50} =$	6.230 m ²
Trial Pit Width	0.900 m	$t_{p75-25} =$	minutes
Effective Depth	1.300 m		
Outflow Time	mins from 75% to 25% full		

$f =$ m/sec



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Figure No.
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