

Liberty Care Developments
Honeycomb West
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CH4 9QH

Our Ref: YTC-BWB-ZZ-XX-LRP-YE-0001
Contact: Mike Harper
Direct Dial: 0113 233 8000

Date: 12th July 2023

Dear Sir/Madam

SOAKAWAY TEST INVESTIGATION – YEW TREE MANOR, WYTHENSHAW

BWB were instructed by Liberty Care Developments (the Client) to undertake BRE soakaway tests at the site on Yewtree Ln, Wythenshawe, Manchester, M23 0EA. The testing was undertaken in accordance with the recommendations of BRE 365, but the low permeability of the soils meant that the required multiple tests could not be completed. The testing was required to assess the suitability of the underlying geology at the site to support soakaway drainage for a proposed development.

The site comprises a roughly rectangular plot of land on the corner of Yew Tree Lane and Willenhall Road and is occupied by the now vacant Yew Tree Manor Care home.

Previous investigations undertaken at the site indicate that the site is underlain by Topsoil (to a maximum depth of 0.50m bgl) or Made Ground (to a maximum depth of 1.30mbgl) beneath which were Glaciofluvial Sheet Deposits (to a maximum depth of 4.90m bgl) comprising predominantly medium dense to dense sand, or a loose to dense sand and gravel. A medium dense gravel was also encountered in WS3. Soft to stiff clay was encountered towards the base of the boreholes (to a depth of at least 5.0m bgl).

Scope of Works

A ground investigation was undertaken between 28th and 29th June 2023 which comprised the completion of soakaway testing at one location in the north of the site in general accordance with the requirements of 'BRE365: Soakaway Design 2016' guidance to assess the permeability characteristics of the soils present on-site. The location, named SA01, is depicted on the exploratory hole location plan presented within **Drawing 1**. The excavated location was filled with gravel prior to testing due to the expected granular ground conditions and potential unstable conditions of the pit side walls.

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Encountered Ground Conditions

SA01

Made Ground was recorded in SA01 recovered as dark brown gravelly fine to medium sand with occasional concrete cobble content to 0.7m bgl; beneath the Made Ground a dark brown slightly gravelly fine to medium sand was encountered to 1.2m bgl, underlain by a light brown and orange mottled fine to medium sand to termination at 2.1m bgl.

The exploratory hole log is presented as **Appendix 1**.

Soakaway Test Results

Results of the soakaway test are presented as **Appendix 2** and a summary of the results are presented below in **Table 1**.

Table 1: Summary of Soakaway Test Results

Location	Test No.	Permeability Rate (m/s)	Drainage Characteristic*	Permeability Classification*
SA01	1	2.9×10^{-07}	Poor	Very Low/Low

*Figure 4.1 in Correlations of Soil Properties (Cater and Bentley 2016)

The soakaway test results have identified low to very low permeability and poor drainage characteristics with reference to Figure 4.1 in Correlations of Soil Properties (Cater and Bentley 2016).

Conclusions

The drainage characteristics of the natural soils on site are indicated to be poor. It is considered that soakaway drainage is not viable.

I trust that the above provides you with a suitable summary of the soakaway assessment undertaken at Sim Balk Lane.

Yours sincerely,



Mike Harper
Principal Consultant

Enc.
Drawing 1 – Soakaway Testing Location Plan
Appendix 1 – Exploratory location log
Appendix 2 – Soakaway Test Data

DRAWING 1

SOAKAWAY TESTING LOCATION PLAN



NOTES

1. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/ VERIFIED ON SITE. IF IN DOUBT ASK.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
- 3.ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METERES UNLESS NOTED OTHERWISE.
4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

LEGEND

Infiltration Test Location

BW B

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Client:

Liberty Care Developments

Project Title:

Yew Tree Care Home
Wythenshawe

Drawing Title:

Drawing 1 - Site EHLP

Scale:	Date:	Drawn:	Authorised:
Not to Scale	Jul-23	O.Stewart	M.Harper

Drawing Status:

FINAL

Drawing No:

001

Revision:

R1

APPENDIX 1

EXPLORATORY HOLE LOG

TRIAL PIT LOG

Scale: 1:50

Sheet 1 of 1

Sheet 1 of 1

LOCATION ID:	Project Name: Yew Tree Care Home		1.50 0.50 Pit Dimensions (m) Degrees	
SA01	Project Number: 220454			
	Client: Liberty Care Developments Ltd			
	Plant: Minidigger	Start & End Date: 28/06/2023		
Ground Level (m AOD): 33.76		Eastings & Northings: 382123E 390610N	Engineer: PM	Checker: MH

Strata						Samples			In-Situ Tests		
Groundwater Strike	Backfill	Level (m AOD)	Description	Legend	Depth (m bgl)	Type	From (m)	To (m)	Type	Depth (m)	Result
		0.70m	Dark brown gravelly fine to medium SAND with occasional concrete cobble content. (Made Ground)								
		33.06	Dark brown slightly gravelly fine to medium SAND. Gravel is angular to subrounded fine to medium sandstone and coal. (Glaciofluvial Sheet Deposits)		0.70						
		0.50m									
		32.56	Light brown and orange mottled fine to medium SAND. (Oadby Member) <u>1.4-2.1: More orange with depth</u>		1.20						
		0.90m									
		31.66	Hole Terminated at 2.10m bgl.		2.10						

Remarks

Reason for Termination:

Designation depth reached.

Groundwater Notes:

No groundwater encountered.

Other Remarks:

Location cleared of buried services.



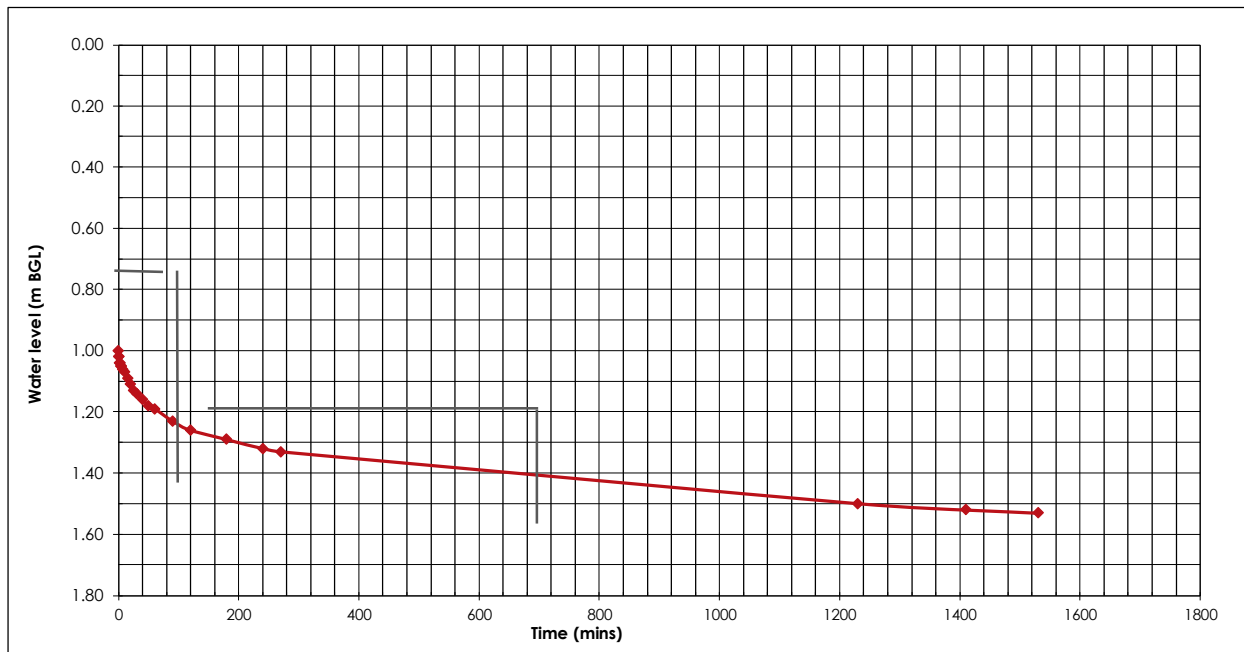
APPENDIX 2

SOAKAWAY TEST DATA

TRIAL PIT SOAKAWAY TEST

Project Information	
Project:	Yew Tree Care Home
Project No:	220454
Client:	Liberty Care Developments Ltd
Pit reference:	SA01
Test reference:	1

TEST DATA	
Test start time:	11.45am
Pit depth (m):	2.10
Pit width (m):	0.50
Pit length (m):	1.20
Depth to standing water (m):	1.00



Time (min)	Depth (m)
0.0	1.00
0.5	1.02
1.0	1.02
2.0	1.04
3.0	1.04
4.0	1.05
5.0	1.05
7.0	1.06
10.0	1.07
15.0	1.09
20.0	1.11
25.0	1.13
30.0	1.14
40.0	1.16
50.0	1.18
60.0	1.19
90.0	1.23
120.0	1.26
180.0	1.29
240.0	1.32
270.0	1.33
1230.0	1.50
1410.0	1.52
1530.0	1.53

Test Information and Calculation	
Method of calculation	Linear extrapolation
Pit gravel filled? (Yes/No)	yes
Max. depth (m)	2.10
Effective depth (m)	1.00
Effective drop (m)	1.10
75% effective full depth (m)	1.28
50% effective full depth (m)	1.55
25% effective full depth (m)	1.83
t75 (min)	200.00
t50 (min)	1600.00
t25 (min)	3000.00
Vp 75-25	0.33
Adjusted Vp for gravel fill	0.12
ap 50	2.47
tp 75-25	2800.00
Soil infiltration rate (m/s)	2.9E-07
Soil infiltration rate (mm/hr)	1.03E+00

Notes:	
1	Pale green cells require input data.
2	Method of calculation Infiltration calculated to method in 'BRE Digest 365 (2007) - Soakaway Design' extrapolation is non BRE Digest method, but perhaps more accurate.