Our Ref: 9153,SK,Ltr01,JK,RS,24-01-25,V1 - Draft

Lochailort Kentford Ltd
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24 January 2025

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INFILTRATION TESTING AT LANWADES COUNTRY PARK, NEWMARKET, CB8 7UU

1. INTRODUCTION

This letter report has been prepared on behalf of Cannon Consulting Engineers for Lochailort Kentford Ltd.

The primary objective of this ground investigation was to assess the infiltration potential of the natural soils beneath the site.

This was achieved by:

- Excavating a number of machine-dug trial pits across the site.
- Undertaking soakage testing in line with BRE Digest 365 guidance.
- Undertaking infiltration calculations to allow for an assessment of the suitability of soakaways or infiltration techniques for the future development of the site.

It is assumed that the proposed development will comprise residential housing.

The purpose of this letter report is to provide factual data only.

2. SITE WORKS

2.1 Methodology

This ground investigation was carried out on the basis of the practices set out in BRE Digest 365, 'Soakaway Design'. 2016, which requires, in summary, a total of three infiltration tests to be undertaken in succession over a 24 hour period or tests to be undertaken on consecutive days.

The exploratory holes were positioned at Client supplied locations.

In general, where a test location showed limited or no infiltration, it was allowed to continue for circa 24 hours, the data obtained, and the test ceased. Where a test exhibited appreciable infiltration and the "75%" infiltration level was achieved, a further infiltration "run", or more was undertaken.

2.2 Scope

Site works were carried out between 8th and 9th January 2025, and comprised the following:

- Excavation of five machine excavated trial pits, (TP01 to TP05), to a maximum depth of 2.00mbgl.
- Undertaking infiltration testing in line with BRE Digest 365 guidance.
- Undertaking infiltration calculations to allow for an assessment of the suitability of soakaways for the future development of the site.

An Exploratory Hole Location Plan, Drawing ref. 9153,SK/001/Rev0, is presented at the end of this letter report in Appendix 4.

2.3 Ground Conditions Encountered

The sequence of the strata encountered during the investigation generally confirms the anticipated geology as interpreted from geological mapping.

The sequence and indicative thickness of strata are summarised in Table 1 overleaf, with the Exploratory Hole Logs provided in Appendix 2:

Table 1 – Ground Conditions				
Strata	**Depth Encountered (mgl)**		**Strata Thickness (m)**	**Location and Composition**
	From	**To**		
Topsoil	0.00	0.32 – 0.40	0.32 – 0.40	**All exploratory locations:** A dark brown clayey gravelly organic sand. Gravel of fine and medium sub-angular and sub-rounded flint.
Superficial Deposits (Sand)	0.32 – 0.40	0.60 – 1.10	0.20 – 0.78	**All exploratory locations:** Orangish brown clayey gravelly sand. Gravel of fine and medium sub-angular and sub-rounded flint and chalk.
Chalk	0.60 – 1.10	2.00	Unproven	**All exploratory locations:** White structureless chalk, recovered as a gravel of medium sub-angular and sub-rounded chalk in a clay matrix.

2.4 Groundwater

No groundwater was encountered in any of the exploratory holes during the intrusive investigation.

2.5 Infiltration Testing Results

Soil infiltration testing was undertaken in accordance with BRE 365, 2016. The results are summarised in Table 2 below and are provided in full in Appendix 3, presented at the end of this letter report:

Table 2 – Summary of Soil Infiltration Results				
Location	**Test 1 (m/s)**	**Test 2 (m/s)**	**Test 3 (m/s)**	**Notes**
TP01	1.91x10-04	1.31x10-04	1.97x10-04	None
TP02	5.83x10-04	7.04x10-04	5.80x10-04	None
TP03	4.31x10-05	3.44x10-05	2.43x10-05	None
TP04	1.77x10-05	1.42x10-05	9.56x10-06	None
TP05	3.26x10-04	2.28x10-04	1.78x10-04	None

We trust the above is clear and acceptable. If you have any questions, please do not hesitate to contact us.

Yours sincerely

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Enclosures:

Appendix 1 – Report Limitations and Conditions
Appendix 2 – Exploratory Hole Logs
Appendix 3 – Infiltration Test Results
Appendix 4 – Drawings

APPENDICES

Appendix 1 – Report Limitations and Conditions

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report has been prepared for the sole use of the Client for the purposes described and no extended duty of care to any third party is implied or offered. Third parties using any information contained within this report do so at their own risk.

This report is prepared and written for the use stated herein; it should not be used for any other purposes without reference to Geosphere Environmental Limited. The report has been prepared in relation to the proposed end-use, should another end-use be intended, a further re-assessment may be required. It is likely that over time practises will improve and the relevant guidance and legislation be amended or superseded, which may necessitate a re-assessment of the site.

The accuracy of any map extracts cannot be guaranteed. It is possible that different conditions existed on site, between and subsequent to the various map surveys appended.

Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes discussed or on the possible presence of features based on visual, verbal or published evidence, this is for guidance only and no liability can be accepted for its accuracy.

Appendix 2 – Exploratory Hole Logs

Trial Pit Logs

TP01 – TP05

Geosphere Environmental Ltd
Unit 11 Brightwell Barns
IP10 0BJ
Telephone: 01603 298076

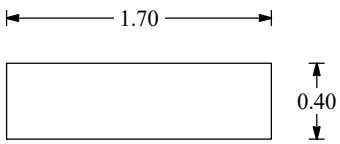
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Lanwades Country Park	Lochailort Kentford Ltd	**TP01**

Job No	Date	Ground Level (m)	Coordinates/Grid Reference ()
9153,SK	08-01-25	39.00	TL 69705 66458

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.32	Dark brown slightly silty gravelly ORGANIC SAND. Sand is fine and medium, gravel of fine and medium sub-angular and sub-rounded flint with fine active and inactive roots. [TOPSOIL]				
0.32-1.10	Dark orangish brown slighty gravelly SAND. Sand is fine and medium, gravel of fine and medium sub-rounded and sub-angular flint and chalk.				
1.10-2.00	Off-white structureless CHALK recovered as a slightly clayey sandy gravel of chalk.				
2.00	END OF EXPLORATORY HOLE				



Shoring/Support: GRAVEL
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used 2.7T Mechanical Excavator	Checked By JK

Geosphere Environmental Ltd
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IP10 0BJ
Telephone: 01603 298076

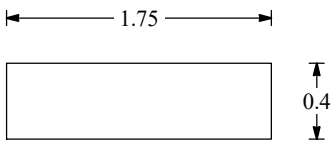
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Lanwades Country Park	Lochailort Kentford Ltd	**TP02**

Job No	Date	Ground Level (m)	Coordinates/Grid Reference ()
9153,SK	08-01-25	39.00	TL 69626 66433

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.36	Dark brown slightly silty gravelly ORGANIC SAND. Sand is fine and medium, gravel of fine and medium sub-angular and sub-rounded flint with fine active and inactive roots. [TOPSOIL]				
0.36-0.68	Dark orangish brown slighty gravelly SAND. Sand is fine and medium, gravel of fine and medium sub-rounded and sub-angular flint and chalk.				
0.68-2.00	Off-white and light brown structureless CHALK recovered as a slightly sandy slightly clayey putty matrix. Gravel of fine and medium sub-angular and sub-rounded flint.				
2.00	END OF EXPLORATORY HOLE				



Shoring/Support: GRAVEL
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used 2.7T Mechanical Excavator	Checked By JK

Geosphere Environmental Ltd
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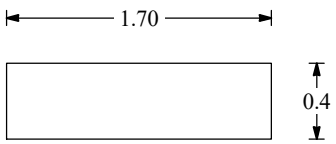
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Lanwades Country Park	Lochailort Kentford Ltd	**TP03**

Job No	Date	Ground Level (m)	Coordinates/Grid Reference ()
9153,SK	08-01-25	41.00	TL 69301 66285

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.38	Dark brown slightly gravelly slightly clayey ORGANIC SAND. Sand is fine and medium, gravel of fine and medium sub-angular and sub-rounded flint with fine active and inactive roots. [TOPSOIL]				
0.38-1.00	Light orangish brown slightly clayey gravelly SAND. Sand is fine and medium, gravel of fine to coarse sub-rounded and sub-angular flint and chalk.				
1.00-2.00	Off-white structureless CHALK, recovered as a fine to coarse sub-angular and sub-rounded gravel of chalk in a clay matrix.				
2.00	END OF EXPLORATORY HOLE				



Shoring/Support: GRAVEL
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used 2.7T Mechanical Excavator	Checked By JK

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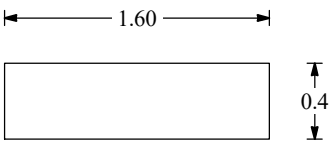
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Lanwades Country Park	Lochailort Kentford Ltd	**TP04**

Job No	Date	Ground Level (m)	Coordinates/Grid Reference ()
9153,SK	08-01-25	41.00	TL 69030 66179

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.40	Dark brown slightly gravelly slightly clayey ORGANIC SAND. Sand is fine and medium, gravel of fine and medium sub-angular and sub-rounded flint with fine active and inactive roots. [TOPSOIL]				
0.40-0.60	Dark orangish brown slightly clayey slightly gravelly SAND. Sand is fine and medium, gravel of fine to coarse sub-rounded and sub-angular flint and chalk.				
0.60-1.20	Off white mottled light brown structureless CHALK recovered as a sandy gravel of chalk in a putty matrix. Occasional medium sub-angular and sub-rounded flint gravel.				
1.20-2.00	White structureless CHALK recovered as a gravel of medium sub-angular and sub-rounded chalk in a clay matrix (dm).				
2.00	END OF EXPLORATORY HOLE				



Shoring/Support: GRAVEL
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used 2.7T Mechanical Excavator	Checked By JK

Geosphere Environmental Ltd
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Telephone: 01603 298076

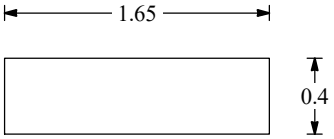
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Lanwades Country Park	Lochailort Kentford Ltd	**TP05**

Job No	Date	Ground Level (m)	Coordinates/Grid Reference ()
9153,SK	08-01-25	41.00	TL 68865 66121

Fieldwork By	Logged By	Sheet
GEL	FW	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.40	Dark brown slightly gravelly slightly clayey ORGANIC SAND. Sand is fine and medium, gravel of fine and medium sub-angular and sub-rounded flint with fine active and inactive roots. [TOPSOIL]				
0.40-0.60	Dark orangish brown slightly clayey slightly gravelly SAND. Sand is fine and medium, gravel of fine to coarse sub-rounded and sub-angular flint and chalk.				
0.60-1.40	Off white mottled light brown structureless CHALK recovered as a sandy gravel of chalk in a putty matrix. Occasional medium sub-angular and sub-rounded flint gravel.				
1.40-2.00	White structureless CHALK recovered as a gravel of medium sub-angular and sub-rounded chalk in a clay matrix (dm).				
2.00	END OF EXPLORATORY HOLE				



Shoring/Support: GRAVEL
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used 2.7T Mechanical Excavator	Checked By JK

Appendix 3 – Infiltration Test Results

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.68
1	1.73
1.5	1.77
2	1.81
2.5	1.84
3	1.88
3.5	1.90
4	1.91

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	174.00
t_{25}	[s]	19.80
t_{75} - t_{25}	[s]	154.20
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	1.91E-04

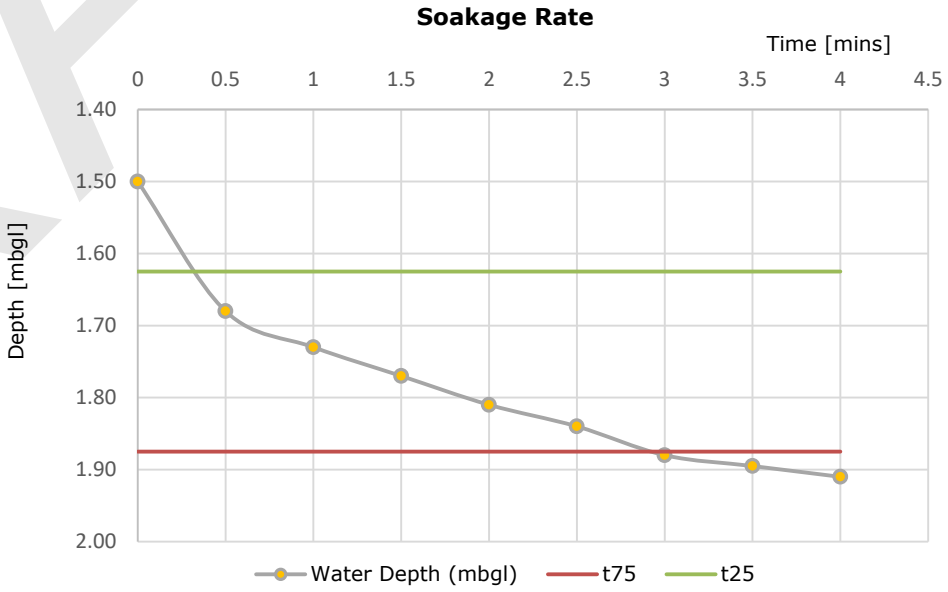
Trial Pit TP01

Run 1 of 3

Test Date 08/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.56
1	1.65
1.5	1.72
2	1.75
2.5	1.79
3	1.82
3.5	1.84
4	1.85
4.5	1.87
5	1.90

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	276.00
t_{25}	[s]	51.00
t_{75} - t_{25}	[s]	225.00
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	1.31E-04

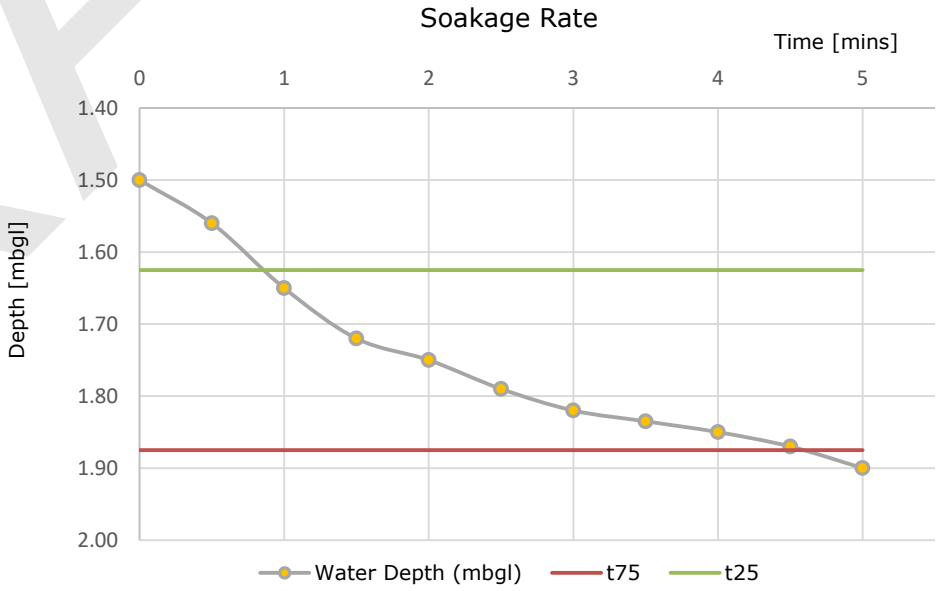
Trial Pit TP01

Run 2 of 3

Test Date 08/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.56
1	1.65
1.5	1.71
2	1.75
2.5	1.79
3	1.84
3.5	1.89
4	1.92
4.5	1.94

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	198.00
t_{25}	[s]	48.00
t_{75} - t_{25}	[s]	150.00
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	1.97E-04

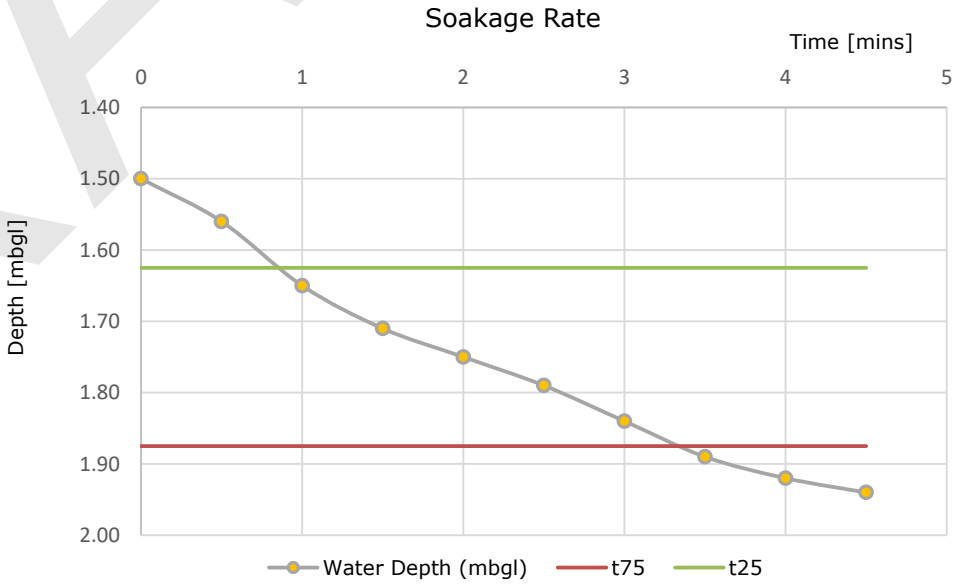
Trial Pit TP01

Run 3 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.66
1	1.81
1.5	1.96

Pit Size [m]		
Length	**Width**	**Depth**
1.75	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	73.50
t_{25}	[s]	22.80
t_{75} - t_{25}	[s]	50.70
effective volume		
v_{75-25}	[m^3]	0.053
effective area		
ap_{50}	[m^2]	1.775
soil infiltration rate		
f	[m/s]	5.83E-04

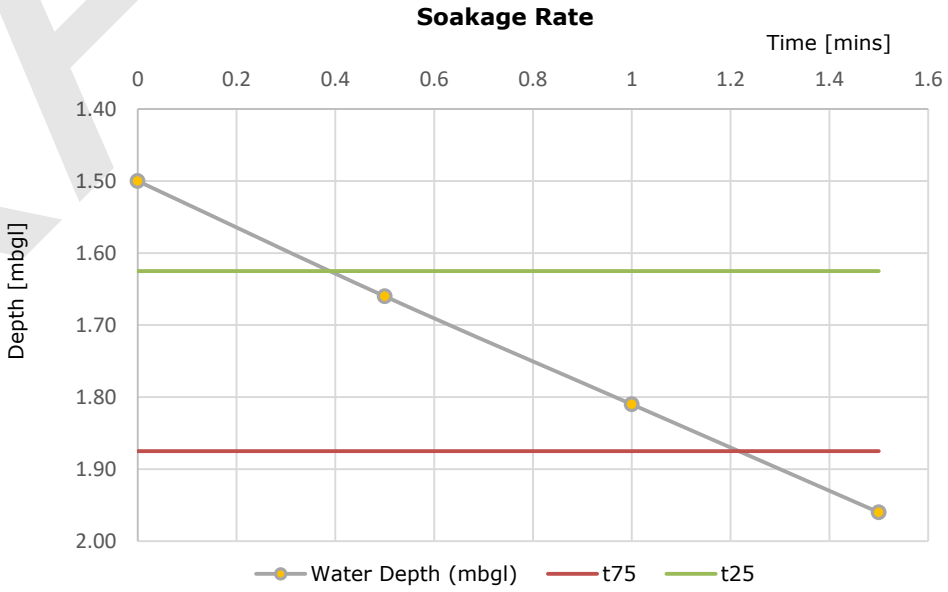
Trial Pit TP02

Run 1 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.33	1.59
0.66	1.71
1	1.83
1.33	1.94

Pit Size [m]		
Length	**Width**	**Depth**
1.75	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	67.20
t_{25}	[s]	25.20
t_{75} - t_{25}	[s]	42.00
effective volume		
v_{75-25}	[m^3]	0.053
effective area		
ap_{50}	[m^2]	1.775
soil infiltration rate		
f	[m/s]	7.04E-04

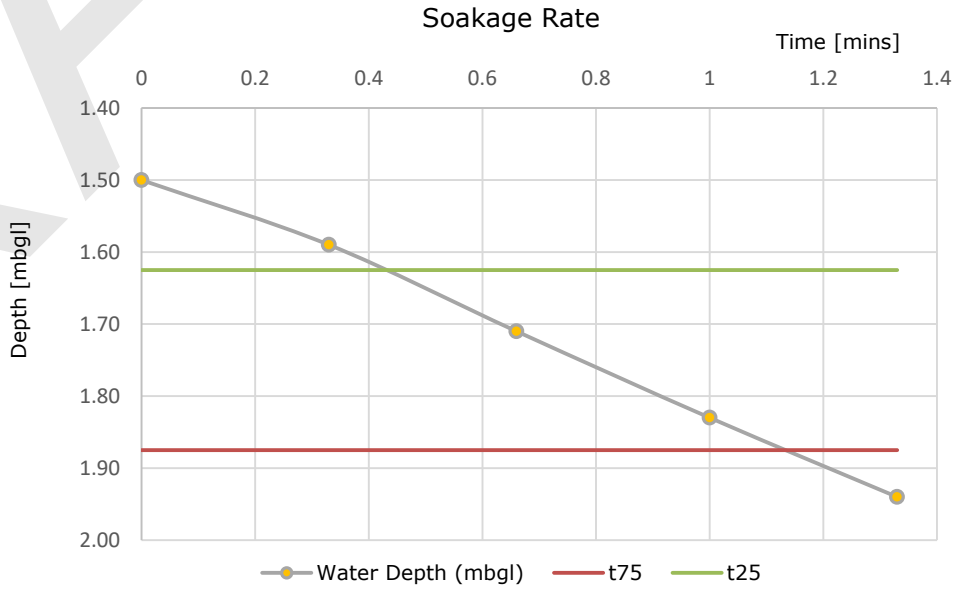
Trial Pit TP02

Run 2 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.16	1.56
0.33	1.62
0.5	1.66
0.66	1.71
0.83	1.76
1	1.81
1.16	1.86
1.33	1.91
1.5	1.96
1.66	2.00

Pit Size [m]		
Length	**Width**	**Depth**
1.75	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	72.00
t_{25}	[s]	21.00
t_{75} - t_{25}	[s]	51.00
effective volume		
v_{75-25}	[m^3]	0.053
effective area		
ap_{50}	[m^2]	1.775
soil infiltration rate		
f	[m/s]	5.80E-04

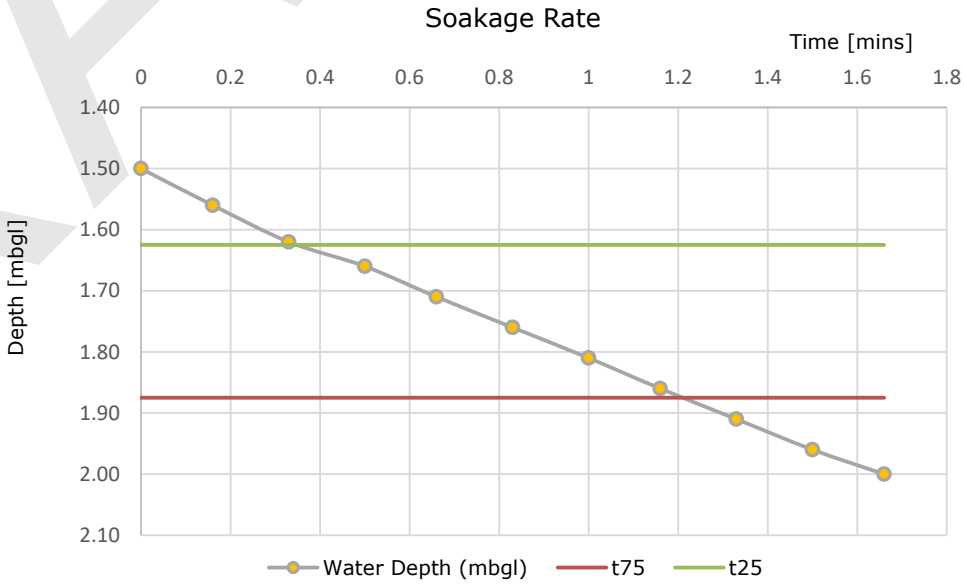
Trial Pit TP02

Run 3 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.58
1	1.62
2	1.67
3	1.72
4	1.75
5	1.77
10	1.85
14	1.89

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	750.00
t_{25}	[s]	66.00
t_{75} - t_{25}	[s]	684.00
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	4.31E-05

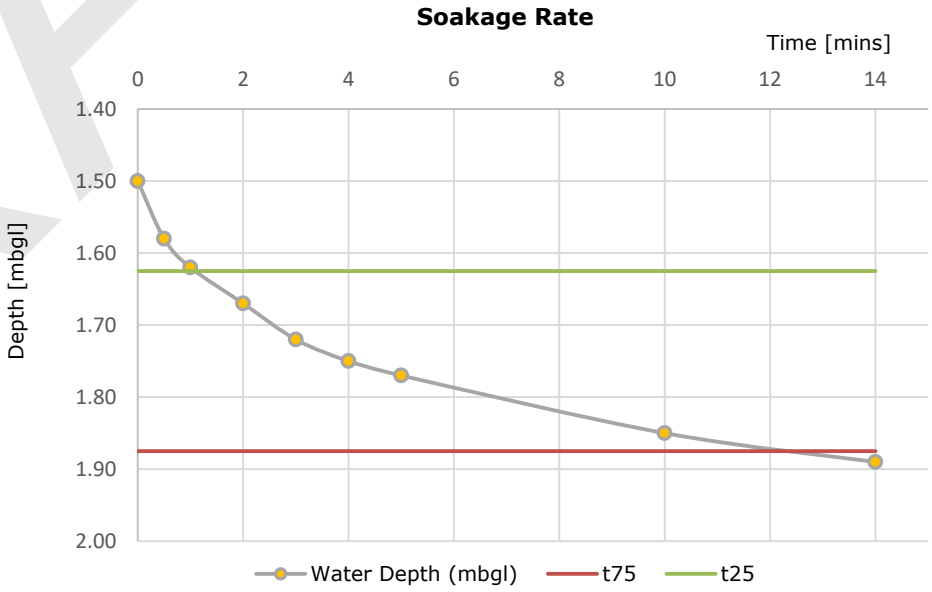
Trial Pit TP03

Run 1 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
1	1.61
2	1.67
3	1.71
4	1.74
5	1.76
10	1.83
15	1.87
19	1.90

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	930.00
t_{25}	[s]	72.00
t_{75} - t_{25}	[s]	858.00
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	3.44E-05

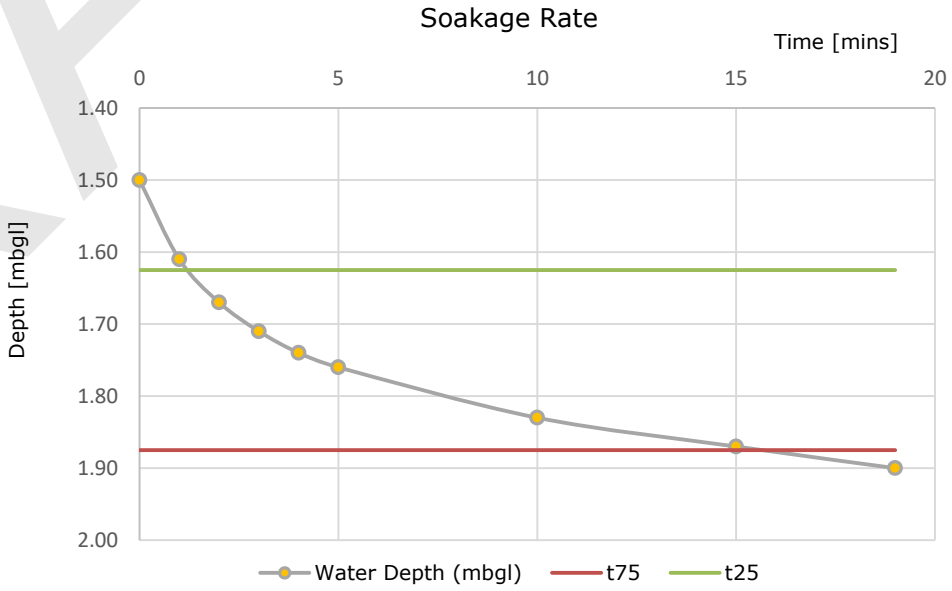
Trial Pit TP03

Run 2 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
1	1.58
2	1.64
3	1.67
4	1.70
5	1.73
10	1.80
15	1.84
20	1.86
25	1.90

Pit Size [m]		
Length	**Width**	**Depth**
1.70	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	1320.00
t_{25}	[s]	108.00
t_{75} - t_{25}	[s]	1212.00
effective volume		
v_{75-25}	[m^3]	0.051
effective area		
ap_{50}	[m^2]	1.730
soil infiltration rate		
f	[m/s]	2.43E-05

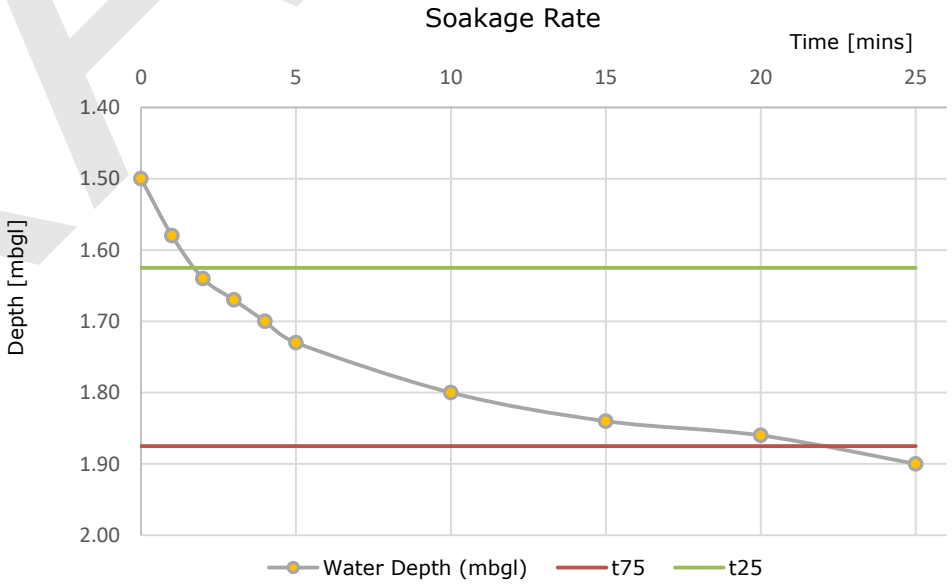
Trial Pit TP03

Run 3 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
1	1.56
2	1.61
3	1.64
4	1.67
5	1.71
10	1.74
15	1.79
20	1.82
25	1.85
30	1.88
32	1.89

Pit Size [m]		
Length	**Width**	**Depth**
1.60	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	1800.00
t_{25}	[s]	150.00
t_{75} - t_{25}	[s]	1650.00
effective volume		
v_{75-25}	[m^3]	0.048
effective area		
ap_{50}	[m^2]	1.640
soil infiltration rate		
f	[m/s]	1.77E-05

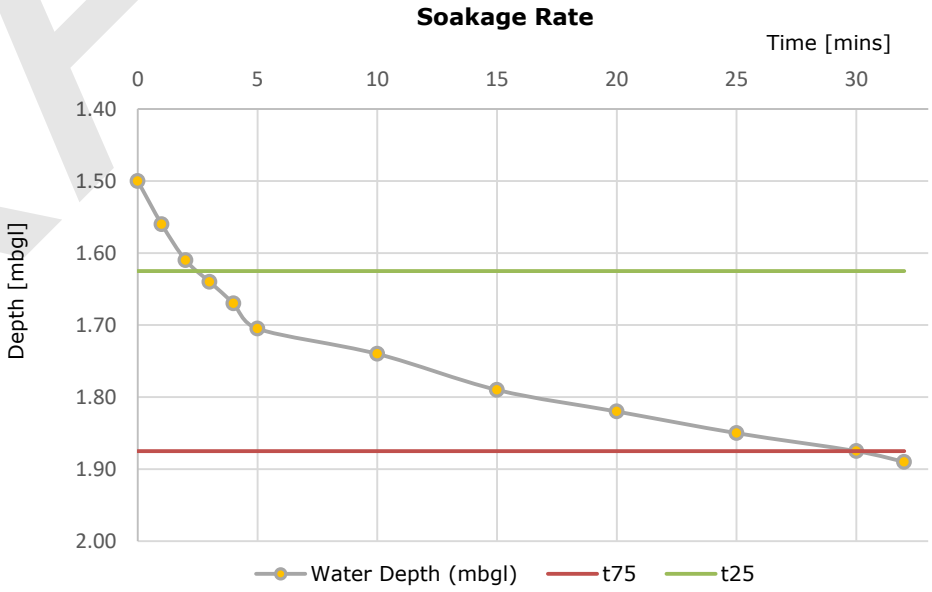
Trial Pit TP04

Run 1 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
1	1.56
2	1.60
3	1.64
4	1.66
5	1.68
10	1.72
15	1.76
30	1.85
38	1.88
40	1.90

Pit Size [m]		
Length	**Width**	**Depth**
1.60	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	2220.00
t_{25}	[s]	156.00
t_{75} - t_{25}	[s]	2064.00
effective volume		
v_{75-25}	[m^3]	0.048
effective area		
ap_{50}	[m^2]	1.640
soil infiltration rate		
f	[m/s]	1.42E-05

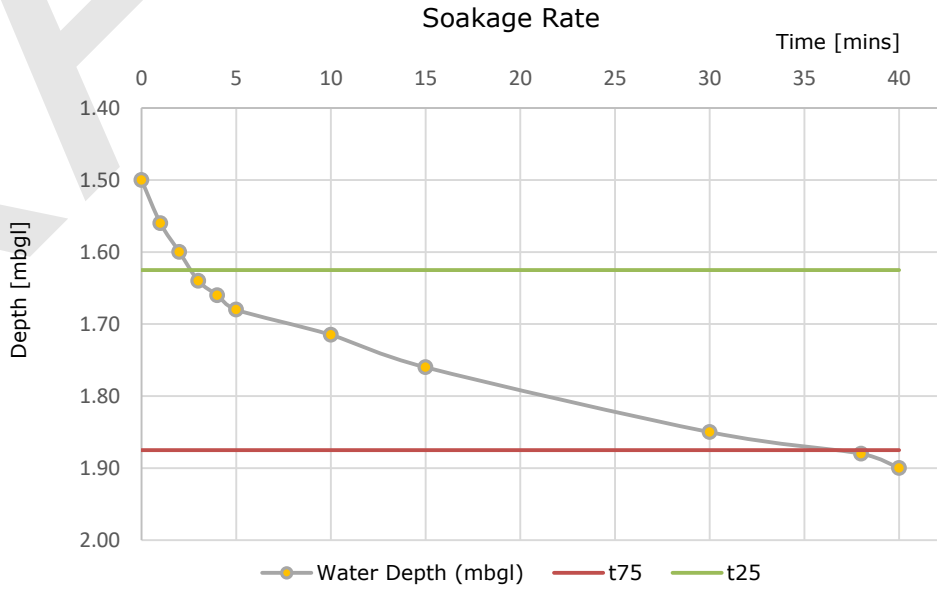
Trial Pit TP04

Run 2 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
1	1.54
2	1.59
3	1.63
4	1.65
5	1.66
10	1.70
15	1.73
20	1.77
30	1.80
45	1.85
55	1.88

Pit Size [m]		
Length	**Width**	**Depth**
1.60	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	3240.00
t_{25}	[s]	180.00
t_{75} - t_{25}	[s]	3060.00
effective volume		
v_{75-25}	[m^3]	0.048
effective area		
ap_{50}	[m^2]	1.640
soil infiltration rate		
f	[m/s]	9.56E-06

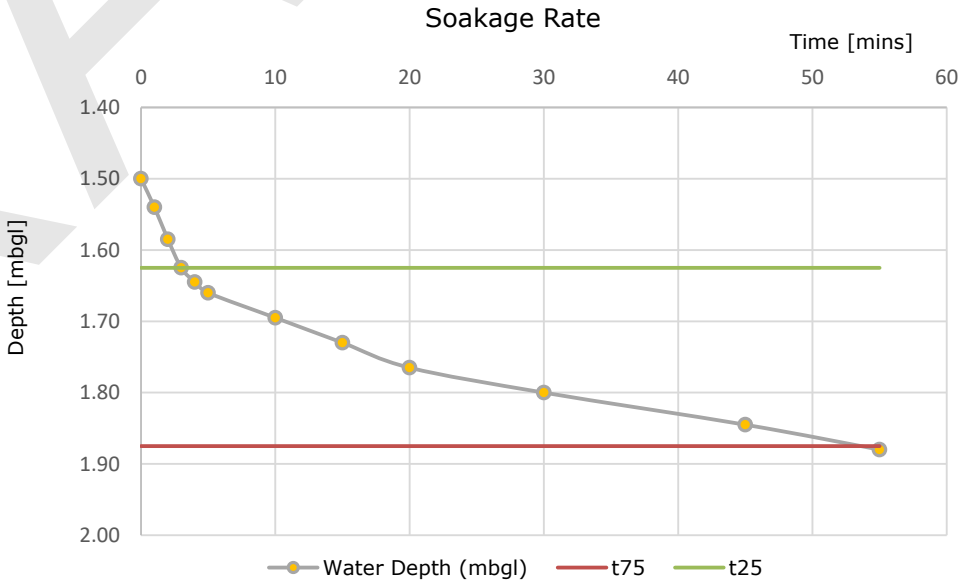
Trial Pit TP04

Run 3 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.5	1.69
1	1.77
1.5	1.84
2	1.90
2.5	2.00

Pit Size [m]		
Length	**Width**	**Depth**
1.65	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	108.00
t_{25}	[s]	18.00
t_{75} - t_{25}	[s]	90.00
effective volume		
v_{75-25}	[m^3]	0.050
effective area		
ap_{50}	[m^2]	1.685
soil infiltration rate		
f	[m/s]	3.26E-04

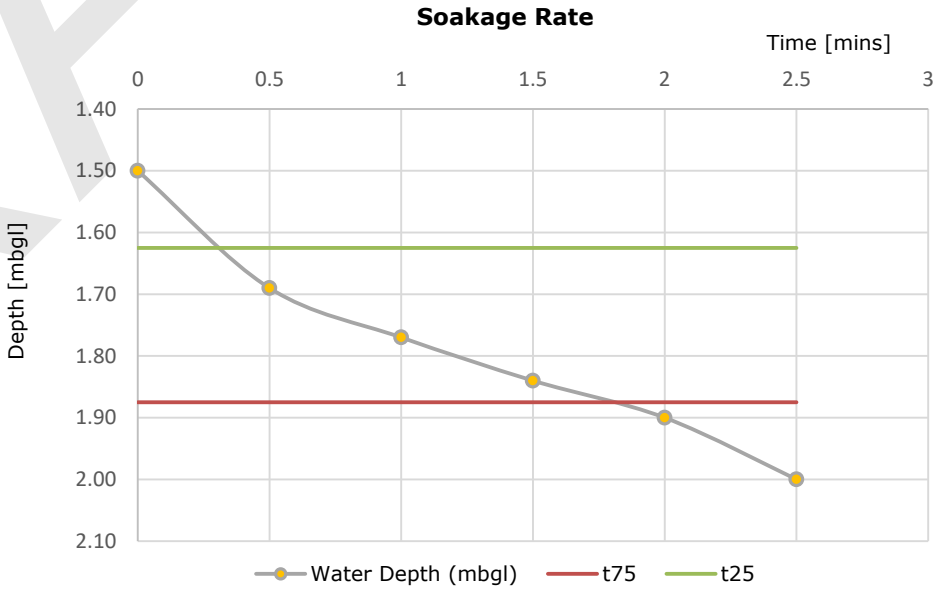
Trial Pit TP05

Run 1 of 3

Test Date 08/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.16	1.53
0.33	1.56
0.5	1.59
0.66	1.62
0.83	1.65
1	1.69
1.16	1.71
1.33	1.73
1.5	1.75
1.66	1.76
1.83	1.78
2	1.80
2.16	1.81
2.33	1.83
2.5	1.84
2.66	1.86
2.83	1.87
3	1.89
3.16	1.90
3.33	1.91
3.5	1.93
3.66	1.94

Pit Size [m]		
Length	Width	Depth
1.65	0.40	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	171.00
t_{25}	[s]	42.00
t_{75} - t_{25}	[s]	129.00
effective volume		
v_{75-25}	[m^3]	0.050
effective area		
ap_{50}	[m^2]	1.685
soil infiltration rate		
f	[m/s]	2.28E-04

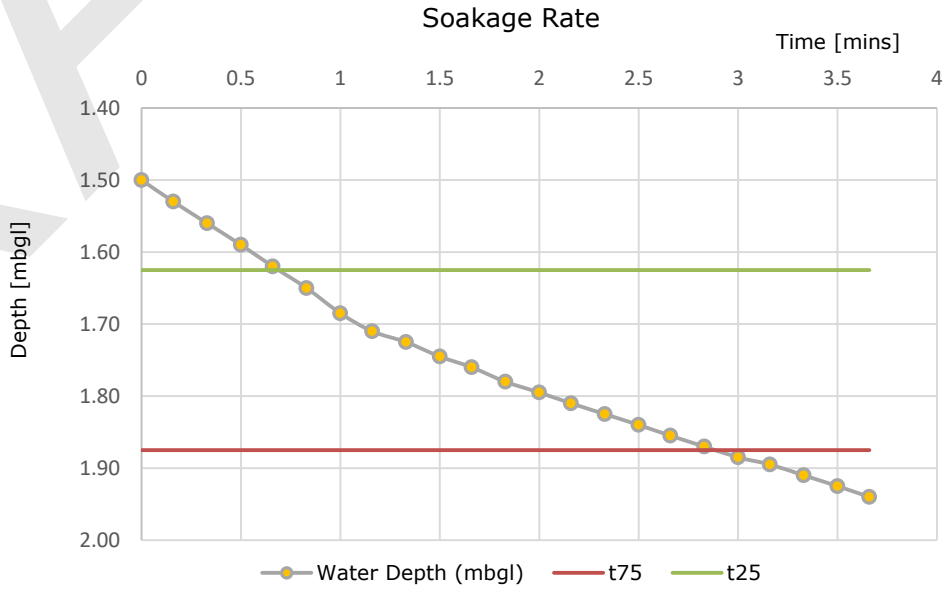
Trial Pit TP05

Run 2 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

Project Number: 9153,SK

Project Name: Lanwades Country Park, Newmarket, CB8 7UU

Date: 22/01/2025

Time [min]	Depth to Water [mbgl]
0	1.50
0.16	1.52
0.33	1.54
0.5	1.56
0.66	1.58
0.83	1.59
1	1.61
1.16	1.62
1.33	1.63
1.5	1.65
1.66	1.67
1.83	1.68
2	1.70
2.16	1.71
2.33	1.73
2.5	1.75
2.66	1.76
2.83	1.77
3	1.78
3.16	1.80
3.33	1.82
3.5	1.83
3.66	1.85
3.83	1.86
4	1.88
4.16	1.89

Pit Size [m]		
Length	**Width**	**Depth**
1.65	0.40	2.00

Infiltration Rate Calculations		
Parameter	**Unit**	**Result**
height		
h_{75}	[m]	1.875
h_{25}	[m]	1.625
h_{75}-h_{25}	[m]	0.250
time		
t_{75}	[s]	240.00
t_{25}	[s]	74.70
t_{75} - t_{25}	[s]	165.30
effective volume		
v_{75-25}	[m^3]	0.050
effective area		
ap_{50}	[m^2]	1.685
soil infiltration rate		
f	[m/s]	1.78E-04

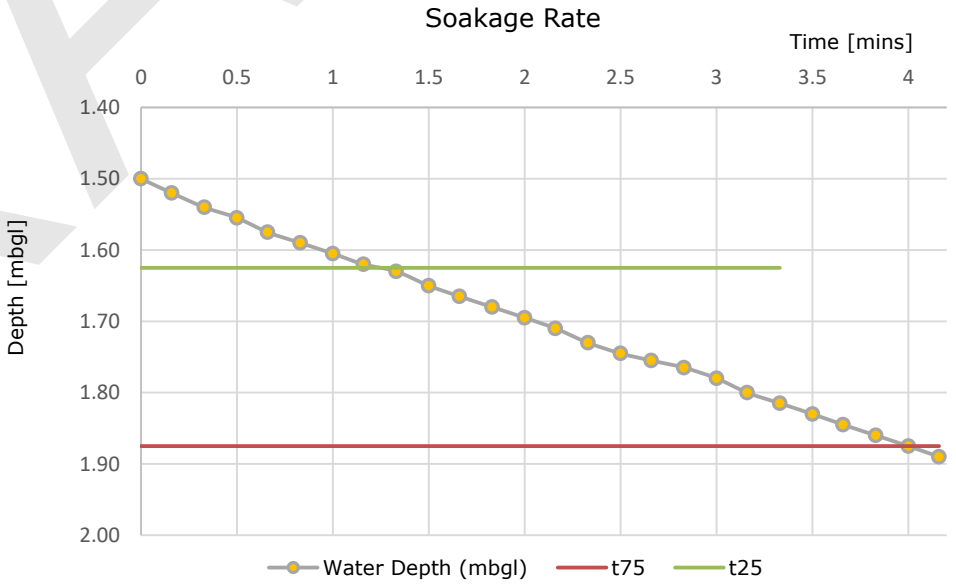
Trial Pit TP05

Run 3 of 3

Test Date 09/01/2025

Groundwater Encountered: N/A

Remarks: Backfilled with gravel. Effective volume multiplied by the voids ratio of the gravel (0.3).



Calculated by: JK

Checked by: RS

Appendix 4 – Drawings

Exploratory Hole Location Plan – Drawing ref. 9153,SK/001/Rev0

Legend

Site Boundary

Infiltration Test Locations

GEOSPHERE ENVIRONMENTAL

Project

Lanwades Country Park, Newmarket, CB8 7UU

Drawing Title

Exploratory Hole Location Plan

Drawing Number

9153,SK/001/Rev0

Date

22/01/2025

Author / Checked By

JK / FW

Source