



DEEP SOIL INFILTRATION TESTING

Client	Westbourne Homes Limited
Project Type	Deep Soil Infiltration Testing
Site	Ladds Garden Centre, Bath Road, Hare Hatch, RG10 9SB

Project	Version	Date
24-304.04	1	17 March 2026

1.0 INTRODUCTION

At the instruction of the Westbourne Developments Limited [The Client], Aviron Associates Limited [Aviron] has undertaken soil infiltration testing in general accordance with Building Research Establishment [BRE] Digest D365 - 2016, 'Soakaway Design' at the above referenced site.

The purpose of the works is to assess the infiltration of underlying soils in order to inform surface water drainage design. In accordance with our instruction two days of infiltration testing were completed.

2.0 THE SITE AND ENVIRONS

Table 1 provides a brief summary of the site and the environment it sits within. The British Geological Survey (BGS) and a previously completed Preliminary Risk Assessment (PRA) and Site Investigation (SI) report (reference 24-304.01, version 2 and dated September 2025) have been consulted in regard of anticipated geology and ground conditions.

Table 1: The Project and Site Environs

Site Location	The site is located on Bath Road (A4), in Hare Hatch, approximately 10 kilometres (km) to the north-east of Reading. Figure 1 is enclosed within Appendix I and is presented as the Site Location Plan.
Current Land Use	The site comprises the commercial premises of Ladds Garden Village. River Sand and Gravel Limited operates at the site, supplying sand, gravel and other aggregates along with Turf Supplies, supplied rolls of turf. Figure 2 is enclosed within Appendix I and is presented as the Existing Site Layout Plan, which also provides locations of exploratory holes.
Proposed Land Use	The proposed development comprises the demolition of the existing buildings and the construction of nineteen detached and semi-detached dwellings with private gardens, garages and parking as well as associated access drive and communal amenity space. Figure 3 is enclosed within Appendix I and is presented as the Proposed Development Plan, which also provides locations of exploratory holes..
Anticipated Geology	The British Geological Survey (BGS) website indicates the anticipated geology below the site as:  Solid Geology. Lambeth Group across the majority of the site.  Solid Geology. Seaford and Newhaven Chalk Formations sub-cropping the Lambeth Group and outcropping in the north of the site.
Known Ground Conditions	Ground Investigation previously completed by Aviron and reported within our aforementioned PRA and SI report recorded the following ground conditions:

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Badgemore House – Badgemore Park – Gravel Hill – Henley on Thames – RG9 4NR

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	- Topsoil and Made Ground of up between 0.2m and 1.1m below ground level (bgl). - Soft, firm and stiff silty gravelly CLAY (Lambeth Group) extending to depths of between 2.2m bgl to >5m bgl. - Predominantly structureless CHALK of weathering Grade Dc above Weathering Grade C and B locally proven to 5m bgl - Groundwater was not encountered to 5m bgl on 9 May 2025, nor during return standing level monitoring within monitoring wells WS1, WS4 and WS9 on 2 and 9 June 2025. A low risk (majority of the site) and moderate risk (north of the site) risk of ground dissolution (section 2.5) was reported in the aforementioned PRA and SI report. The results of saturation moisture content (SMC) testing completed as part of the PRA and SI indicate that in accordance with CIRIA C574, Engineering in Chalk, 2002, the chalk tested at depths of between 3.0m and 4.0m bgl are classified as being of predominantly low density and locally medium density.
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3.0 BRE D365 INFILTRATION TESTING

Trial pit SP4 was excavated using a JCB 3CX on 11 March 2026 to a depth of 3.3m bgl in order to complete infiltration tests and is shown within **Figures 2** and **3**. The rate of excavation rate was steady and sides of the trial pit were reasonably stable.

The **trial pit log** and **photographs** are presented in **Appendix II**. Ground conditions are summarised in table 2.

Table 2: Summary of Ground Conditions Encountered			
Unit	Description	From (bgl)	To (bgl)
Made Ground	Tarmac covered brown grey silty sandy clayey GRAVEL. Gravel is fine to coarse sub-rounded to angular of flint. Contains bricks and concrete.	GL	0.5m
Lambeth Group	Brown black silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint.	0.5m	0.8m
	Orange brown silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint.	0.8m	1.5m
	Orange brown silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint and fine to coarse sub-rounded to sub-angular of chalk.	1.5m	2.1m
Chalk Formations	Structureless CHALK composed of sandy silty sub-angular to rounded GRAVEL. Clasts are very weak and weak, low density, white, off-white and cream with occasional black specks. Matrix is light brown, brown. Occasional medium and coarse gravel sized flints. Grade Dc.	2.1m	3.3m
Groundwater	Not encountered to 3.3m bgl		
Bgl = below ground level. GL = Ground Level.			

4.0 TEST RESULTS

Trial pit SP4 was filled with drinking water standard water pumped from a tanker on 11 March 2026.

The subsequent fall in water level was recorded against time over the period specified within the **results** which are presented in **Appendix III**. The **calculation sheets** for are enclosed as **Appendix III** along with soil infiltration which are summarised within table 3.



Table 3: Soil Infiltration Rates				
Location (Test no.)	Testing Depths (bgl)	Strata Tested	Infiltration Rate (m/s)	Comments
SP4 – F1	~2.1m- 3.3m	CHALK	9.59 x10 ⁻⁵	
SP4 – F2			6.65 x10 ⁻⁵	
SP4 – F3			5.37 x10 ⁻⁵	

5.0 CONCLUSIONS

Soakaway drainage is considered suitable for the new development in the area of SP4 where soakaways should be constructed into the underlying CHALK strata.

The results of saturation moisture content (SMC) testing completed as part of the aforementioned PRA and SI indicate that in accordance with CIRIA C574, Engineering in Chalk, 2002, the chalk tested are classified as being of low and medium density respectively. Accordingly in accordance with C574 soakaways can be sited 10m from proposed and existing structures.

The results should be presented to the project's drainage engineer for incorporation within their design.

We trust that you find the above to be satisfactory, however should you require any further information please do not hesitate to contact the undersigned.

Prepared by
James Burkitt BEng (Hons) CEnv MRICS Managing Director



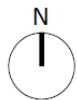
Appendix I

Figure 1 – Site Location Plan

Figure 2 – Existing Site Layout and Exploratory Hole Location Plan

Figure 3 – Proposed Development and Exploratory Hole Location Plan





Legend



Approximate Site Boundary

Notes

Figure 1

Drawing Title

Site Location Plan

Project Number 24-304.04

Project Title

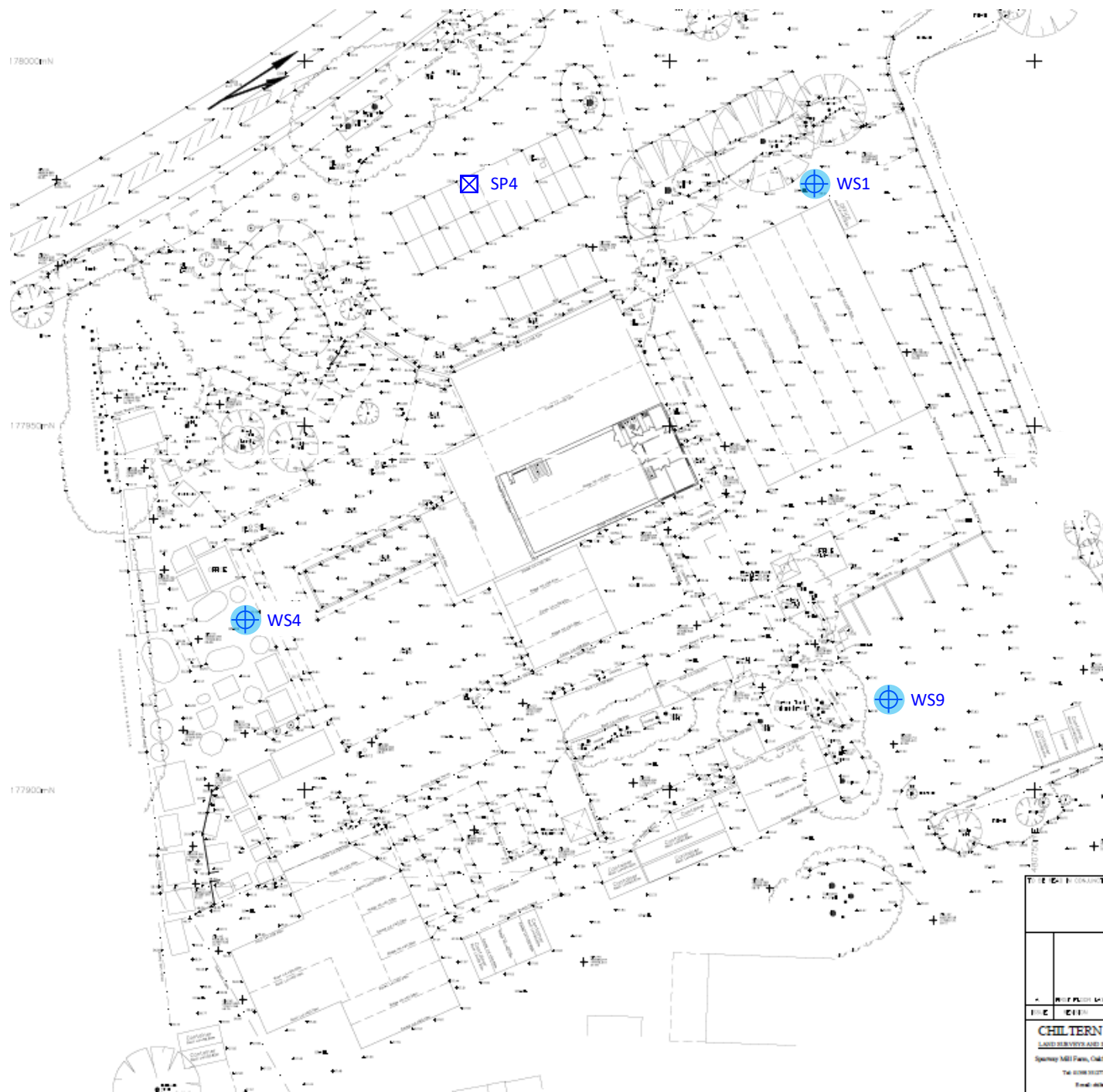
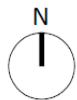
Ladds Garden Village, Bath Road,
Hare Hatch, RG10 9SB

Drawn by OB

Checked by JB

Scale NTS





Legend



Monitoring Well



Machine Excavated Trial Pit/
Infiltration Test

Notes

Figure 2

Drawing Title

Existing Site Layout and Exploratory Hole
Location Plan

Project Number 24-304.04

Project Title

Ladds Garden Village, Bath Road,
Hare Hatch, RG10 9SB

Drawn by OB

Checked by JB

Scale NTS





Legend

- Monitoring Well
- Machine Excavated Trial Pit/ Infiltration Test

Notes

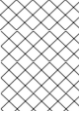
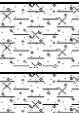
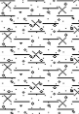
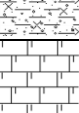
Figure 3

Drawing Title	
Proposed Development and Exploratory Hole Location Plan	
Project Number	24-304.04
Project Title	
Ladds Garden Village, Bath Road, Hare Hatch, RG10 9SB	
Drawn by	OB
Checked by	JB
Scale	NTS



Appendix II
Trial Pit Logs and Photographs



Project: Ladds Garden Centre, Bath Road, Hare Hatch, RG10 9SB						Project No: 24-304.04		Trial Pit: SP4					
Client: Westbourne Homes Limited						Start: 11/03/2026		End: 12/03/2026		Sheet: 1 of 1			
Method/Plant Used: JCB 3CX			Co-ordinates: NT					Ground Level: NT					
Description of Strata	Legend	Depth (m bgl) (thickness)	Well Cnstr.	Samples/Tests									Laboratory Test Details
				Depth	No	Type							
Tarmac covered brown grey silty sandy clayey GRAVEL. Gravel is fine to coarse sub-rounded to angular of flint. Contains bricks and concrete. (MADE GROUND)		(0.5) 0.5											
Brown black silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint.		(0.3) 0.8											
Orange brown silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint.		(0.7) 1.5											
Orange brown silty sandy gravelly CLAY. Gravel is fine to coarse sub-founded to angular of flint and fine to coarse sub-rounded to sub-angular of chalk.		(0.6) 2.1											
Structureless CHALK composed of sandy silty sub-angular to rounded GRAVEL. Clasts are very weak and weak, low density, white, off-white and cream with occasional black specks. Matrix is light brown, brown. Occasional medium and coarse gravel sized flints. Grade Dc. (SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION)		(1.2) 3.3											

Dimensions (m)			Water level observations (depths in metres below gl)						
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
2.40	0.45	3.30	11/03/2026	Dry	-	-	-		
Remarks No roots present in trial pit. No groundwater encountered. No visual or olfactory evidence of contamination. Trial pit backfilled with arisings.						By			
						Logged	OC		
						Checked	OB	Scale	01:25



SP4 Hole Photo



SP4 Arisings

Appendix III
BRE D365 Infiltration Test Results



Soil Infiltration Test

24-304.04: Ladds Garden Village, Bath Road, Hare Hatch, RG10 9SB



Test Pit SP4-1

Date: 11/03/2206

Readings Recorded By: OC

Pit Dimensions: 2.4m(l) x 0.45m(w) x 3.3m(d)
Start Water Level: 2.28m

Actual Storage Volume: 3.56 m³
Effective Depth: 1.02 m

Time (mins)	Depth BGL (m)
0	2.280
1	2.390
2	2.520
3	2.600
4	2.640
5	2.680
10	2.810
15	2.890
20	2.960
25	3.040
27	3.070

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

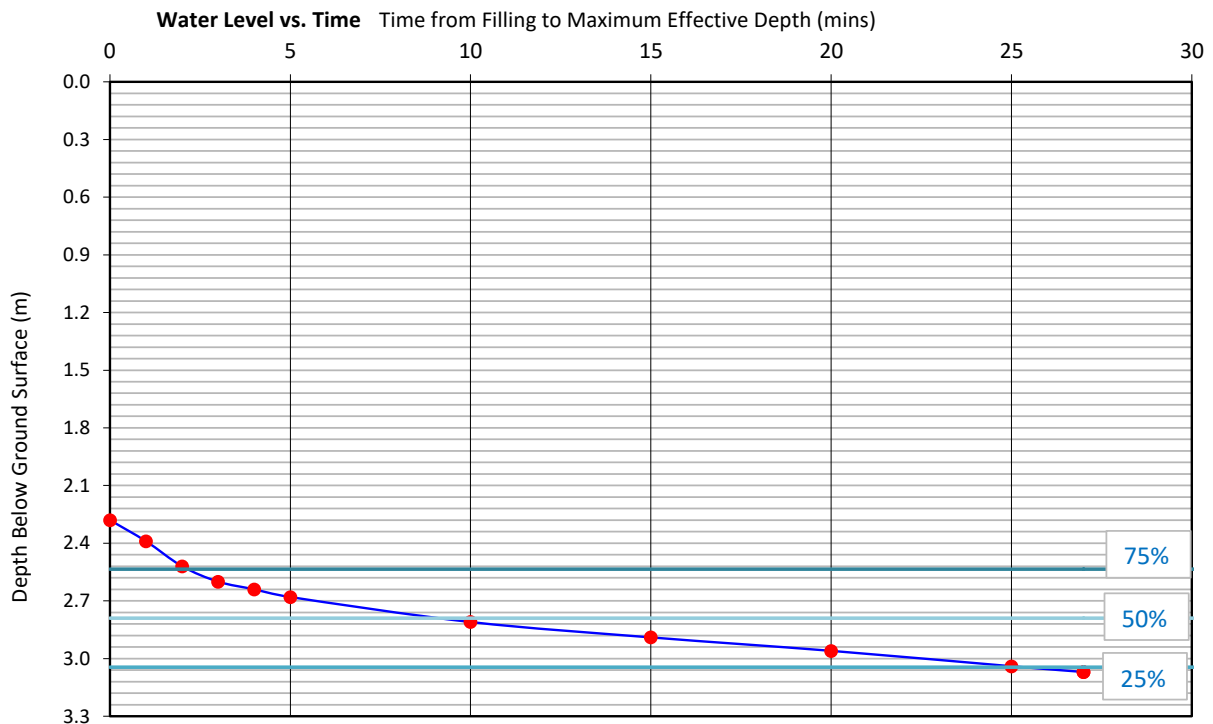
Effective Storage Volume, V : 2.4m x 0.45m x 1.02m
 V : 1.1016 m³

V_{p75-25} : 0.551 m³

Effective Internal Surface Area, a_{p50} : 2.448m² + 0.459m² + 1.08m²
 a_{p50} : 3.987 m²

Time of water level fall, t_{p75-25} : 26 - 2 mins
 t_{p75-25} : 24 mins
 t_{p75-25} : 1440 secs

Soil infiltration rate, f : 0.5508/(3.987 x 1440)
 f : 9.59E-05 ms⁻¹



Soil Infiltration Test

24-304.04: Ladds Garden Village, Bath Road, Hare Hatch, RG10 9SB



Test Pit SP4-2

Date: 11/03/2206

Readings Recorded By: OC

Pit Dimensions: 2.4m(l) x 0.45m(w) x 3.3m(d)
Start Water Level: 2.18m

Actual Storage Volume: 3.56 m³
Effective Depth: 1.12 m

Time (mins)	Depth BGL (m)
0	2.180
1	2.240
2	2.310
3	2.360
4	2.420
5	2.480
7	2.580
10	2.640
15	2.730
20	2.810
25	2.880
30	2.940
40	3.020

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

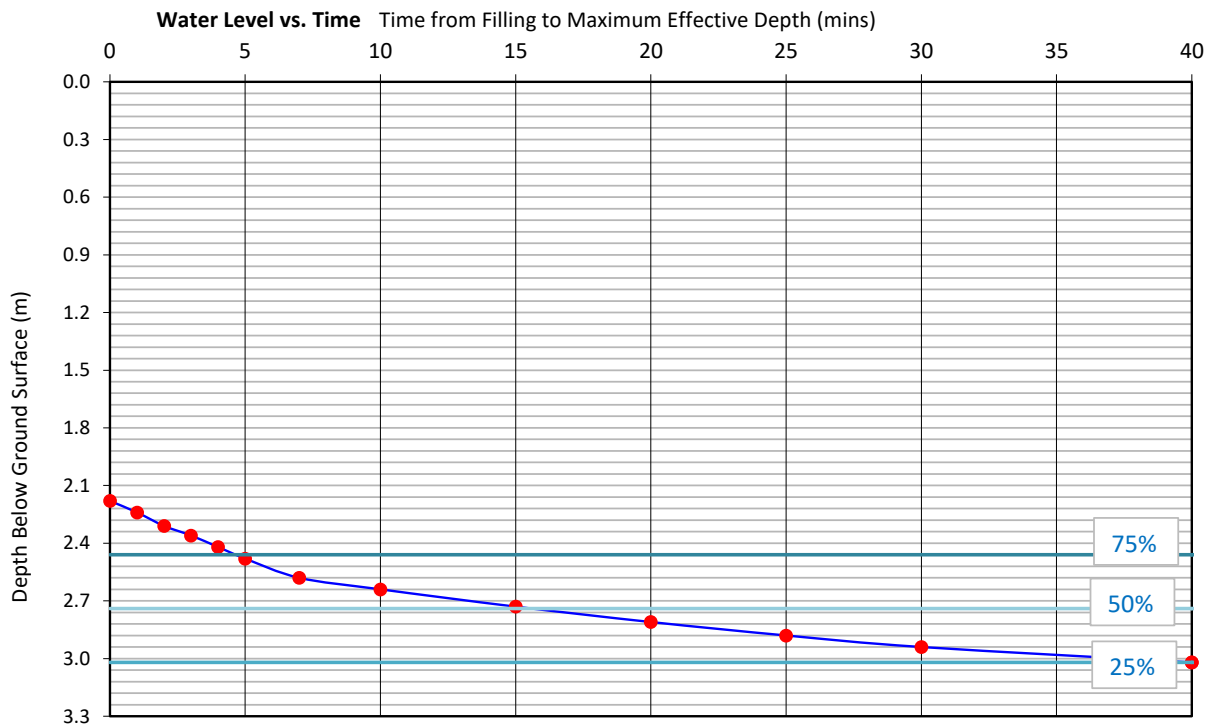
Effective Storage Volume, V : 2.4m x 0.45m x 1.12m
 V : 1.2096 m³

V_{p75-25} : 0.605 m³

Effective Internal Surface Area, a_{p50} : 2.688m² + 0.504m² + 1.08m²
 a_{p50} : 4.272 m²

Time of water level fall, t_{p75-25} : 40 - 4.5 mins
 t_{p75-25} : 35.5 mins
 t_{p75-25} : 2130 secs

Soil infiltration rate, f : 0.6048/(4.272 x 2130)
 f : 6.65E-05 ms⁻¹



Soil Infiltration Test

24-304.04: Ladds Garden Village, Bath Road, Hare Hatch, RG10 9SB



Test Pit SP4-3

Date: 11/03/2206

Readings Recorded By: OC

Pit Dimensions: 2.4m(l) x 0.45m(w) x 3.3m(d)
Start Water Level: 2.12m

Actual Storage Volume: 3.56 m³
Effective Depth: 1.18 m

Time (mins)	Depth BGL (m)
0	2.120
1	2.190
2	2.260
3	2.330
4	2.390
5	2.450
10	2.590
15	2.700
20	2.770
30	2.860
40	2.960
50	3.040

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Effective Storage Volume, V : 2.4m x 0.45m x 1.18m
 V : 1.2744 m³

V_{p75-25} : 0.637 m³

Effective Internal Surface Area, a_{p50} : 2.832m² + 0.531m² + 1.08m²
 a_{p50} : 4.443 m²

Time of water level fall, t_{p75-25} : 49 - 4.5 mins
 t_{p75-25} : 44.5 mins
 t_{p75-25} : 2670 secs

Soil infiltration rate, f : 0.6372/(4.443 x 2670)
 f : 5.37E-05 ms⁻¹

