

INFILTRATION TESTING REPORT

Report Reference: 477 – R1

PROPOSED RESIDENTIAL DEVELOPMENT
OF WESTMINSTER ROAD, MOSS, WREXHAM

MÔN CIVILS
LIMITED

August 2025
Revision P01

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1.0 Introduction

This report has been compiled to supplement the proposed drainage strategy for the construction of dwelling located Westminster Road, Lodge, Broughton, Summerhill, Moss, Wrexham, Wales, LL11 6DH (grid reference**: SJ 30855 52963**). The location and site boundary of the site is illustrated on the attached plan contained within **Appendix A**.

1.1 Scope of Report

In accordance with CIRIA C753 'SuDS Manual' 2015 and The Statutory SuDS Guidance for Wales 2018, surface water run-off generated from all new developments should consider a discharge into the ground via a proposed soakaway as the highest priority. In order to confirm the sites suitability infiltration testing should be undertaken.

This report provides a summary and conclusion of the infiltration testing carried out on site.

2.0 Infiltration Testing

Infiltration testing has been undertaken on the 5th of August 2025. Two trial holes were excavated within the site to a depth of 1.06m & 1.2m referenced TP1 & TP2. Infiltration testing was conducted within TP1 & TP2 in accordance with BRE digest 365 for the design of surface water infiltration systems. The location of the trial pits is provided in **Appendix B.** It was not possible to excavate further with a 3-tonne excavator due the presence of large boulders.

A trail pit logs along with comments and photographs of the trial hole is contained within **Appendix C**. The below ground strata located within the site consisted of very loose, slightly sandy, very silty gravels.

2.1 BRE Digest 365 Surface Water Infiltration Testing

In accordance with BRE digest 365 which outlines the best practice procedure for undertaking porosity tests, each trail pit should be filled and the rate in which the water level drops should be recorded until it is dry, this should be repeated for three consecutive tests. The design of any proposed soakaway structures should then be based upon the poorest infiltration rate of the three tests.

The test results of the infiltration tests undertaken are summarised within **Tables 1 – 6**.

TP1 (Tables 1-3)

Table 1. TP1 – Test 1 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
08:30	0	740mm	-
08:32	2	990mm	125mm
08:34	4	1060mm (Dry)	35mm
Infiltration Rate (f)		**1.25 x 10^{-3} m/s**	
Infiltration Rate (f)		**4.500 m/hr**	

Table 2. TP1 – Test 2 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
09:00	0	730mm	-
09:02	2	980mm	125mm
09:05	5	1060mm	26.67mm
Infiltration Rate (f)		**1.31×10^{-3} m/s**	
Infiltration Rate (f)		**4.7075m/hr**	

Table 3. TP1 – Test 3 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
11:00	0	740mm	-
11:02	2	950mm	105mm
11:05	5	1,060mm	36.67mm
Infiltration Rate (f)		**7.78×10^{-4} m/s**	
Infiltration Rate (f)		**2.8012 m/hr**	

TP2 (Tables 4-6)

Table 4. TP2 – Test 1 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
08:32	0	800mm	-
08:34	2	990mm	95mm
08:36	4	1,200mm (Dry)	105mm
Infiltration Rate (f)		**9.11×10^{-4} m/s**	
Infiltration Rate (f)		**3.2810 m/hr**	

Table 5. TP2 – Test 2 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
09:02	0	800mm	-
09:04	2	930mm	65mm
09:07	5	1200mm	90mm
Infiltration Rate (f)		**7.74×10^{-4} m/s**	
Infiltration Rate (f)		**2.7848m/hr**	

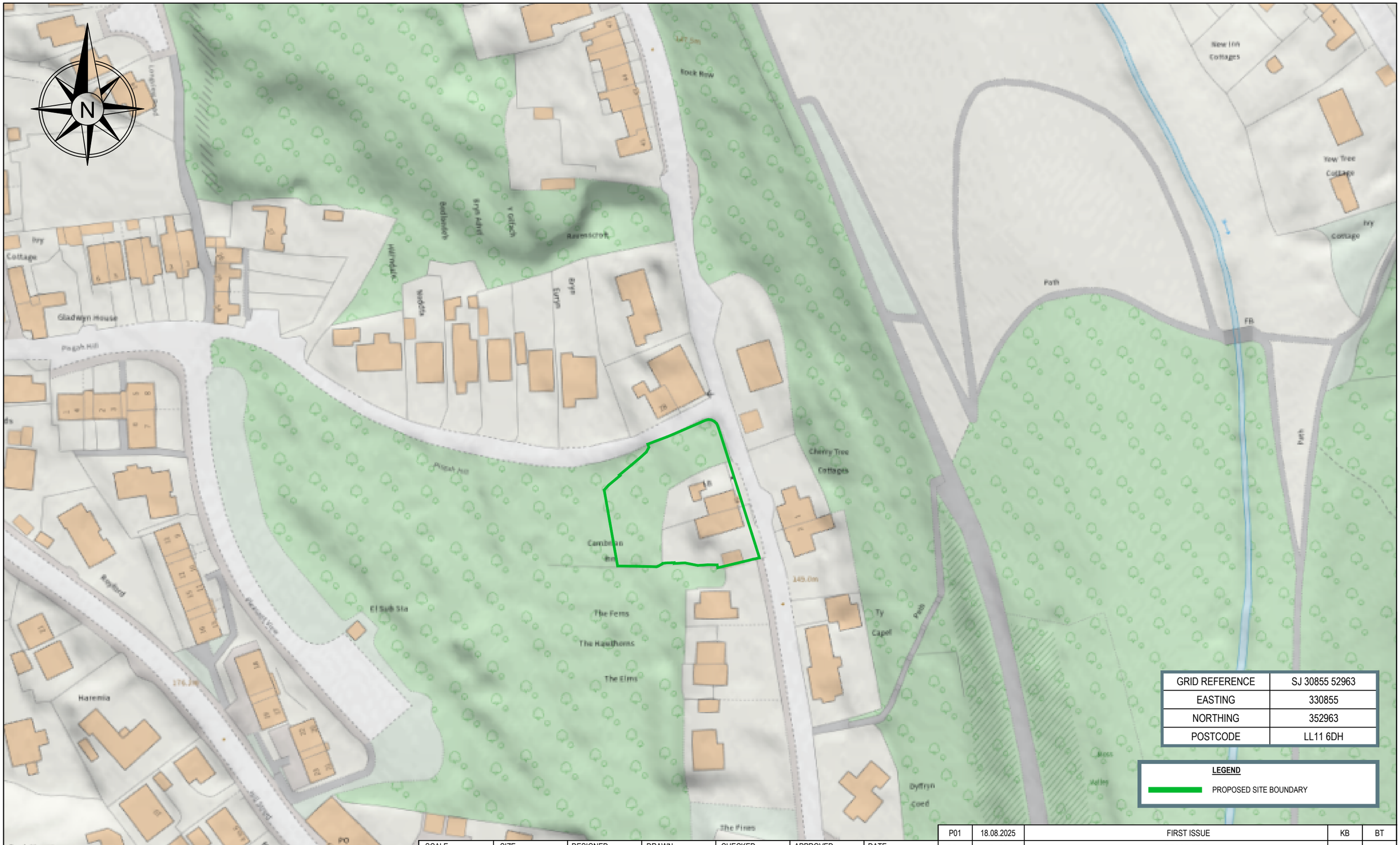
Table 6. TP2 – Test 3 results

Time	Duration (mins)	Depth to water from GL	Drop in water level (mm/min)
11:03	0	800mm	-
11:05	2	950mm	75mm
11:08	5	1,200mm	83.33mm
Infiltration Rate (f)		**7.37 x 10^{-4} m/s**	
Infiltration Rate (f)		**2.6536 m/hr**	

Based on the results, the ground is suitable for surface water infiltration structures. The lowest infiltration rate was recorded in TP2 during Test 3 therefore this should be used for the design of the soakaways in this location. Infiltration testing calculation sheets are provided in **Appendix D**.

APPENDICES

APPENDIX A
Site Location Plan



GRID REFERENCE	SJ 30855 52963
EASTING	330855
NORTHING	352963
POSTCODE	LL11 6DH

LEGEND

PROPOSED SITE BOUNDARY

REV	DATE	DESCRIPTION	BY	APP
P01	18.08.2025	FIRST ISSUE	KB	BT

SCALE:	SIZE:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
NTS	A3	B.Thorne	K.Blackwell	K.Blackwell	B.Thorne	AUGUST 2025

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PROJECT: WESTMINSTER ROAD, MOSS, WREXHAM

TITLE: SITE LOCATION PLAN

STATUS:	PROJECT No:	DRAWING No:	REV:
S2	477	**001**	P01

APPENDIX B
Trial Pit Location Plan



REV	DATE	DESCRIPTION	BY	CHK	APP
P01	22.08.2025	FIRST ISSUE	KB	KB	KB

DRAWING STATUS: **PRELIMINARY**

CLIENT: ROSS FREER

ARCHITECT: MATISCHOK & ROSS - ARCHITECTURAL SERVICES

PROJECT: WESTMINSTER ROAD, MOSS, WREXHAM

TITLE: TRIAL PIT LOCATION PLAN

STATUS:	PROJECT No.	DRAWING No.	REV:
S2	477	002	P01

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:100	BT	HI	KB	BT	AUGUST 2025

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APPENDIX C
Trial Pit Logs

Trail Pit 1 (TP1)

0.000m – 1.060m	Natural ground: very loose, slightly sandy, very silty, gravels, gravels are small to large sub angular.

Comments

1. Trial pit dimensions: 1.200m (L) x 0.800m (W) x 1.060m (D)
2. No ground water was encountered within the trail pit.
3. Sides of trail pit where stable throughout.







Trail Pit 2 (TP2)

0.000m – 1.200m	Natural ground: very loose, slightly sandy, very silty, gravels, gravels are small to large sub angular.

Comments

1. Trial pit dimensions: 1.200m (L) x 0.800m (W) x 1.200m (D)
2. No ground water was encountered within the trail pit.
3. Sides of trail pit where stable throughout.





APPENDIX D
Porosity Test Results

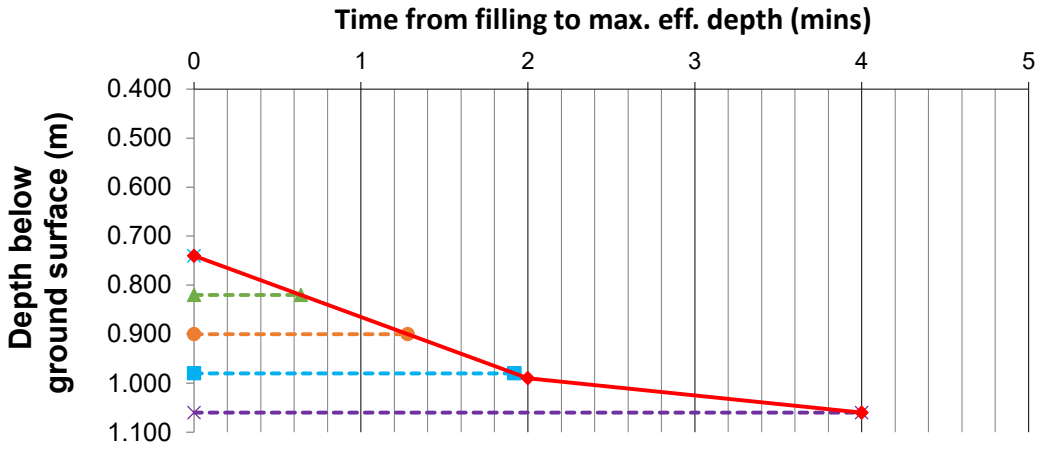
Infiltration Test Calcaultions - TP1 - Test 1

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.060

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
08:30	0	0.740	
08:32	2	0.990	0.12500
08:34	4	1.060	0.03500

depth (%Full)	depth (m)	time (min)
0%	1.060	0
	1.060	4.00
25%	0.980	0
	0.980	1.92
50%	0.900	0
	0.900	1.28
75%	0.820	0
	0.820	0.64
100%	0.740	0
	0.740	0.00

Effective depth (m)	0.320	m
Volume Outflow, Vp75-25	0.154	m^3
Surface Area, ap50	1.600	m^2
Time Taken, tp75-25	1.28	min



Soil Infiltration Rate, f **1.25E-03** **m/s**
Soil Infiltration Rate, f **4.5000** **m/hr**

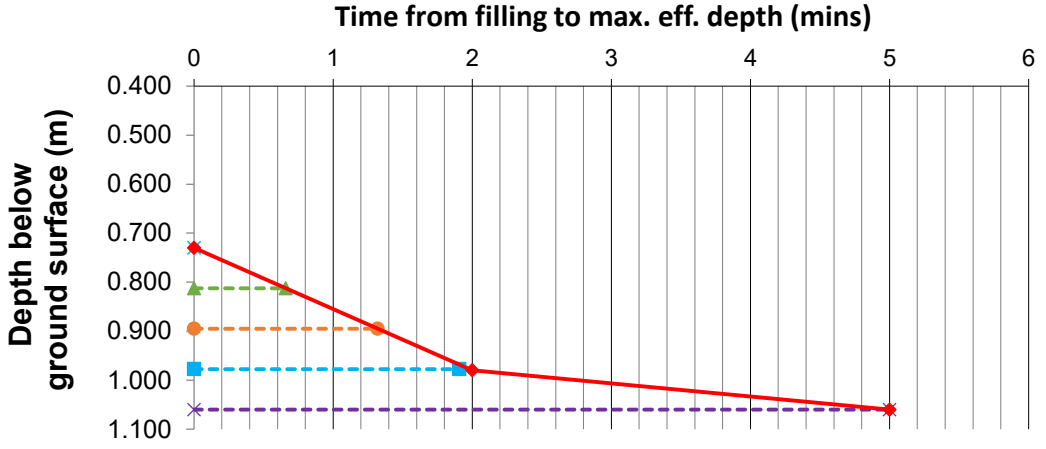
Infiltration Test Calcaultions - TP1 - Test 2

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.060

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
09:00	0	0.730	
09:02	2	0.980	0.12500
09:05	5	1.060	0.02667

depth (%Full)	depth (m)	time (min)
0%	1.060	0
	1.060	5.00
25%	0.978	0
	0.978	1.91
50%	0.895	0
	0.895	1.32
75%	0.813	0
	0.813	0.66
100%	0.730	0
	0.730	0.00

Effective depth (m)	0.330	m
Volume Outflow, Vp75-25	0.158	m^3
Surface Area, ap50	1.620	m^2
Time Taken, tp75-25	1.25	min



Soil Infiltration Rate, f **1.31E-03** **m/s**
Soil Infiltration Rate, f **4.7075** **m/hr**

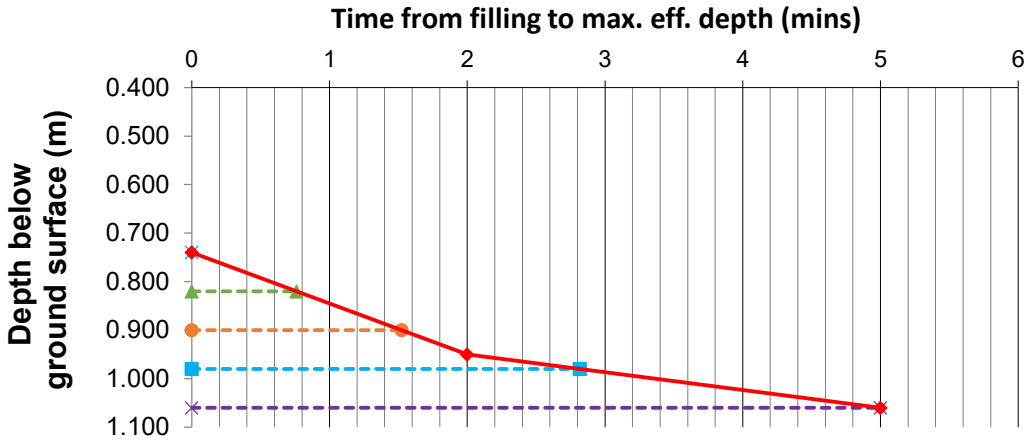
Infiltration Test Calcaultions - TP1 - Test 3

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.060

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
11:00	0	0.740	
11:02	2	0.950	0.10500
11:05	5	1.060	0.03667

depth (%Full)	depth (m)	time (min)
0%	1.060	0
	1.060	5.00
25%	0.980	0
	0.980	2.82
50%	0.900	0
	0.900	1.52
75%	0.820	0
	0.820	0.76
100%	0.740	0
	0.740	0.00

Effective depth (m)	0.320	m
Volume Outflow, Vp75-25	0.154	m³
Surface Area, ap50	1.600	m²
Time Taken, tp75-25	2.06	min



Soil Infiltration Rate, f 7.78E-04 **m/s**

Soil Infiltration Rate, f 2.8012 **m/hr**

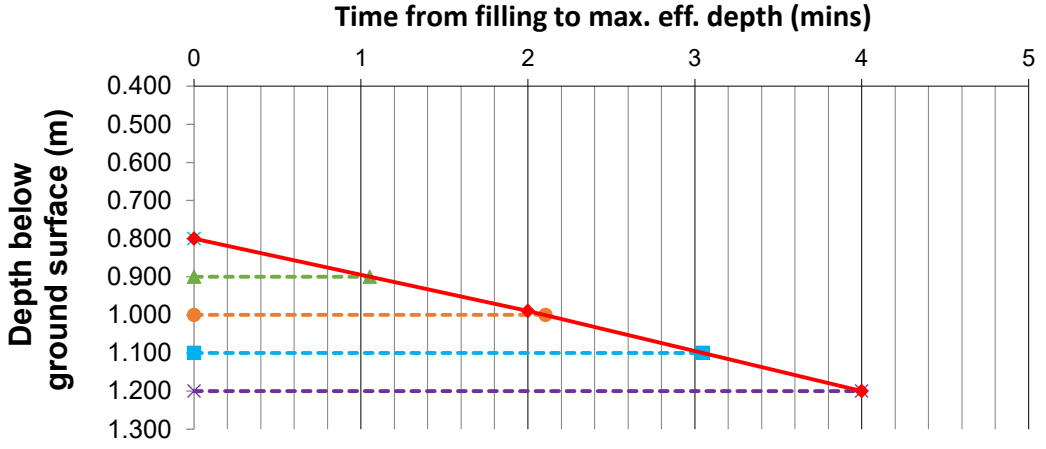
Infiltration Test Calcaultions - TP2 - Test 1

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.200

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
08:32	0	0.800	
08:34	2	0.990	0.09500
08:36	4	1.200	0.10500

depth (%Full)	depth (m)	time (min)
0%	1.200 1.200	0 4.00
25%	1.100 1.100	0 3.05
50%	1.000 1.000	0 2.11
75%	0.900 0.900	0 1.05
100%	0.800 0.800	0 0.00

Effective depth (m)	0.400	m
Volume Outflow, Vp75-25	0.192	m^3
Surface Area, ap50	1.760	m^2
Time Taken, tp75-25	1.99	min



Soil Infiltration Rate, f 9.11E-04 **m/s**
Soil Infiltration Rate, f 3.2810 **m/hr**

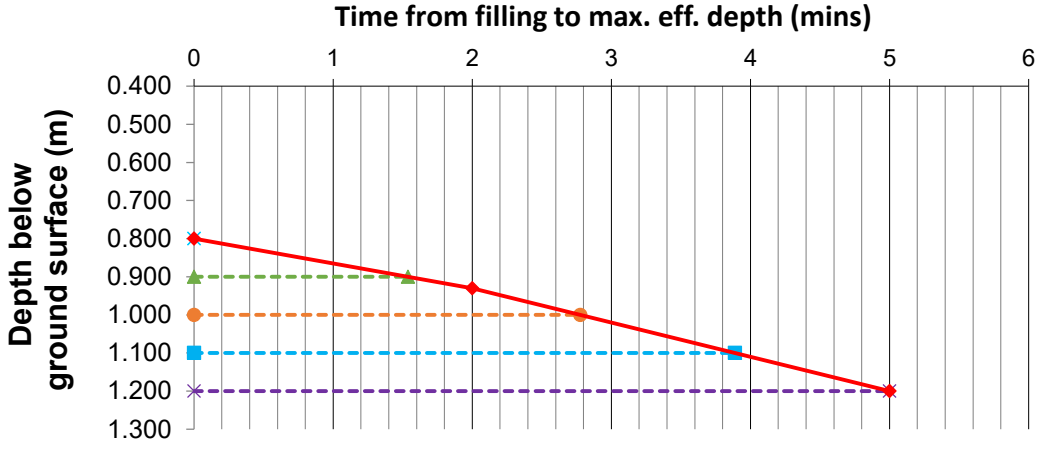
Infiltration Test Calcaultions - TP2 - Test 2

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.200

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
09:02	0	0.800	
09:04	2	0.930	0.06500
09:07	5	1.200	0.09000

depth (%Full)	depth (m)	time (min)
0%	1.200 1.200	0 5.00
25%	1.100 1.100	0 3.89
50%	1.000 1.000	0 2.78
75%	0.900 0.900	0 1.54
100%	0.800 0.800	0 0.00

Effective depth (m)	0.400	m
Volume Outflow, Vp75-25	0.192	m^3
Surface Area, ap50	1.760	m^2
Time Taken, tp75-25	2.35	min



Soil Infiltration Rate, f 7.74E-04 **m/s**
Soil Infiltration Rate, f 2.7848 **m/hr**

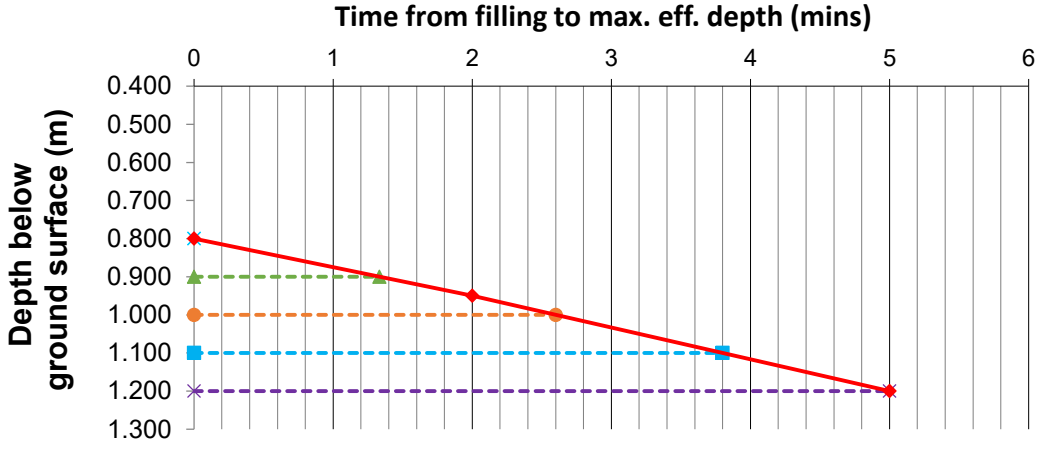
Infiltration Test Calcaultions - TP2 - Test 3

Trial Pit Dimensions: Length (m) 1.200 Width (m) 0.800 Depth (m) 1.200

Time	Time (mins)	Depth to water from (m)	Rate of change (m/min)
11:03	0	0.800	
11:05	2	0.950	0.07500
11:08	5	1.200	0.08333

depth (%Full)	depth (m)	time (min)
0%	1.200	0
	1.200	5.00
25%	1.100	0
	1.100	3.80
50%	1.000	0
	1.000	2.60
75%	0.900	0
	0.900	1.33
100%	0.800	0
	0.800	0.00

Effective depth (m)	0.400	m
Volume Outflow, Vp75-25	0.192	m³
Surface Area, ap50	1.760	m²
Time Taken, tp75-25	2.47	min



Soil Infiltration Rate, f 7.37E-04 **m/s**
Soil Infiltration Rate, f 2.6536 **m/hr**