APPENDIX B
FIELD MONITORING RECORDS

Groundwater Monitoring Records	B1
Groundwater Levels above Ordnance Datum	B2
Rising Head Results and Permeability Calculations	B3

APPENDIX B1
GROUNDWATER MONITORING RECORDS

Project Number R5123

Site: Marsh Lane. Tottenham

Date : 11/11/2015 **Technician:** Malcolm Gray

Weather: Overcast, no precipitation

WATER MONITORING

BOREHOLE NO.	Time of Purge	Installation (mm)	Depth to LNAPL (m bgl)	Depth to groundwater (m bgl)	Depth of Borehole (m bgl)	Saturated depth (m)	Volume Purged (litres)	Water Sample Obtained	Comments
WS20	09:40	50	1.47 *st <1mm	1.47	3.63	2.17	14	1x200ml, 1 x vial	No odours of oil. Slight sheen on PW. LNAPL for <1mm i/face probe
WS21	10:30	50	1.41 *st <1mm	1.41	4.01	2.60	16	1x200ml, 1 x vial	Slight odours of oil. Slight sheen on PW. LNAPL for <1mm i/face probe
WS22	11:10	50	nd	2.72	3.84	1.12	8	1x200ml, 1 x vial	No odours of oil. Slight sheen of oil on PW. No LNAPL with i/face probe
WS23	11:40	50	nd	2.63	3.69	1.06	7	1x200ml, 1 x vial	Slight pungent odour. No LNAPL with i/face probe
WS24	12:10	50	2.47 *st <1mm	2.47	3.57	1.10	7	1x200ml, 1 x vial	Slight odour of oil. Slight sheen on PW. LNAPL for <1mm i/face probe
WS25	12:40	50	1.39 *st <1mm	1.39	3.20	1.81	8	1x200ml, 1 x vial	Odour of oil. Slight sheen on PW. LNAPL for <1mm i/face probe
WS26	13:00								Not accessible due to car parked over
WS27	13:30	20	nd	2.70	3.36	0.66	0.5 (till dry)	1x200ml, 1 x vial	No evidence of oil. Slight sewage smell. No LNAPL with i/face probe
WS28	14:00	20	nd	2.71	3.17	0.46	0.4 (till dry)	1x200ml, 1 x vial	No evidence of oil. No LNAPL with i/f probe

pw purge water
st <1mm slight steady tone but for <1mm
nd non detected by interface probe

Project Number R5123

Site: Marsh Lane. Tottenham

Date : 16/11/2015 **Technician:** Malcolm Gray

Weather: Overcast, no precipitation, slight breeze

WATER MONITORING

BOREHOLE NO.	Time of Purge	Installation (mm)	Depth to LNAPL (m bgl)	Depth to groundwater (m bgl)	Depth of Borehole (m bgl)	Saturated depth (m)	Volume Purged (litres)	Water Sample Obtained	Comments
WS26	11:10	50	nd	2.08	2.86	0.78	2.5 (till dry)	1 x 200 ml, 1 x vial	No olfactory or visble evidence of oil

pw purge water
nd non detected by interface probe

Project Number R5123

Site: Marsh Lane. Tottenham

Date : 24/11/2015 **Technician:** Malcolm Gray

Weather: Overcast, occasional precipitation, cold @10C. Previous evening/night heavy rain, puddles in car park area and over some well covers

WATER MONITORING

BOREHOLE NO.	Time of Purge	Installation (mm)	Depth to LNAPL (m bgl)	Depth to groundwater (m bgl)	Depth of Borehole (m bgl)	Saturated depth (m)	Volume Purged (litres)	Water Sample Obtained	Comments
WS20	10:50	50	1.45 *st <1mm	1.45	3.60	2.15	14	1x200ml, 1 x vial	Slight odours of oil. No visible evidence. LNAPL for <1mm i/face probe
WS21	11:50	50	1.40 *st <1mm	1.40	4.01	2.61	16	1x200ml, 1 x vial	No odours of oil. Slight sheen on PW. LNAPL for <1mm i/face probe
WS22	15:20	50	nd	2.74	3.82	1.08	8	1x200ml, 1 x vial	No odours of oil. No LNAPL with i/face probe
WS23	13:20	50	2.78 *st <1mm	2.78	3.69	0.91	6	1x200ml, 1 x vial	Slight pungent odour. LNAPL for <1mm i/face probe
WS24	14:20	50	2.50 *st <1mm	2.50	3.56	1.07	12	1x200ml, 1 x vial	Slight odour of oil. LNAPL for <1mm i/face probe
WS25	14:55	50	nd	1.40	3.17	1.77	5	1x200ml, 1 x vial	Slight odour of oil. No LNAPL with i/face probe
WS26	14:10	50	2.06 *st <1mm	2.06	2.83	0.77	2.5 (nearly dry	1x200ml, 1 x vial	No odours of oil or visible evidence. LNAPL for <1mm i/face probe
WS27	09:00	20	nd	2.76	3.36	0.60	0.45 (dry)	1x200ml, 1 x vial	No evidence of oil. Slight sewage smell. No LNAPL with i/f probe
WS28	09:50	20	nd	2.72	3.19	0.47	0.3 (dry)	1x200ml, 1 x vial	No evidence of oil. No LNAPL with i/f probe

pw purge water
st <1mm slight steady tone but for <1mm
nd non detected by interface probe

APPENDIX B2

GROUNDWATER LEVELS ABOVE ORDNANCE DATUM

Project Number R5123

Site: Marsh Lane. Tottenham

Date : 21/12/2015

GROUND WATER LEVELS : METRES ORDNANCE DATUM (mOD)

BOREHOLE NO.	Ground Level (mOD)	First Monitoring Event. Groundwater (m bgl)	Second Monitoring Event. Groundwater (m bgl)	First Monitoring Event. Groundwater (mOD)	Second Monitoring Event. Groundwater (mOD)	Install Response Zone
WS20	8.935	1.47	1.45	7.470	7.485	Made Ground
WS21	9.229	1.41	1.40	7.819	7.832	Made Ground and Alluvium
WS22	9.571	2.72	2.74	6.851	6.827	Alluvium and River Terrace Deposits
WS23	9.569	2.63	2.78	6.939	6.790	Alluvium and River Terrace Deposits
WS24	9.353	2.47	2.50	6.883	6.858	Alluvium and River Terrace Deposits
WS25	9.610	1.39	1.40	8.220	8.210	Made Ground and Alluvium
WS26	9.656	2.08	2.06	7.576	7.596	Made Ground and Alluvium
WS27	9.372	2.70	2.76	6.672	6.617	Alluvium and River Terrace Deposits
WS28	9.330	2.71	2.72	6.620	6.608	Alluvium and River Terrace Deposits

APPENDIX B3

RISING HEAD RESULTS AND PERMEABILITY CALCULATIONS

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS20
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	1.00	m BGL
Base of response zone	3.60	m BGL
Groundwater level for analysis	1.42	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	2600	mm
Intake Factor (F)	4.55	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	1.51	0.09	1.00
0.5	1.455	0.04	0.39
1	1.44	0.02	0.22
1.5	1.44	0.02	0.22
2	1.435	0.02	0.17
2.5			
3	1.434	0.01	0.16
3.5	1.433	0.01	0.14
4	1.432	0.01	0.13
4.5	1.431	0.01	0.12
5	1.43	0.01	0.11
6	1.429	0.01	0.10
7	1.428	0.01	0.09
8	1.427	0.01	0.08
9	1.427	0.01	0.08
15	1.425	0.01	0.06

REMARKS

Depth to groundwater prior to test 1.42 m BGL

Depth to water measured from top of standpipe

Permeability calculated using BS 5930:1999 (Section 25.4.6)

0

CALCULATED VALUES

Differential head at start of test, H_0	0.09	m
Differential head at end of test, H_f	0.005	m
Time Elapsed at end of test	15	mins

General Approach

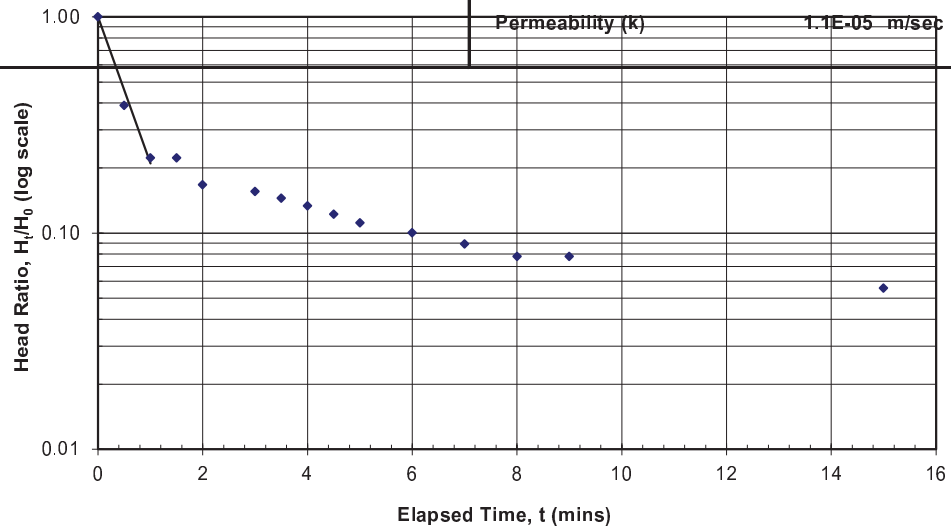
Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 1.000

t_2 = 1.0 mins H_2/H_0= 0.210

Head Ratio against Time

Permeability (k) 1.1E-05 m/sec



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS20T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head

DETAILS OF INSTALLATION:

Top of response zone	1.00	m BGL
Base of response zone	3.60	m BGL
Groundwater level for analysis	1.42	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	1.51	0.09	1.00
0.5	1.455	0.04	0.39
1	1.44	0.02	0.22
1.5	1.44	0.02	0.22
2	1.435	0.02	0.17
2.5			
3	1.434	0.01	0.16
3.5	1.433	0.01	0.14
4	1.432	0.01	0.13
4.5	1.431	0.01	0.12
5	1.43	0.01	0.11
6	1.429	0.01	0.10
7	1.428	0.01	0.09
8	1.427	0.01	0.08
9	1.427	0.01	0.08
15	1.425	0.01	0.06

BOREHOLE No.	WS20
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	87	mm
Length of response zone (L)	2600	mm
Intake Factor (F)	4.55	m

REMARKS

Depth to groundwater prior to test	1.42	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

0

CALCULATED VALUES

Differential head at start of test, H_0	0.09	m
Differential head at end of test, H_f	0.005	m
Time Elapsed at end of test	15	mins

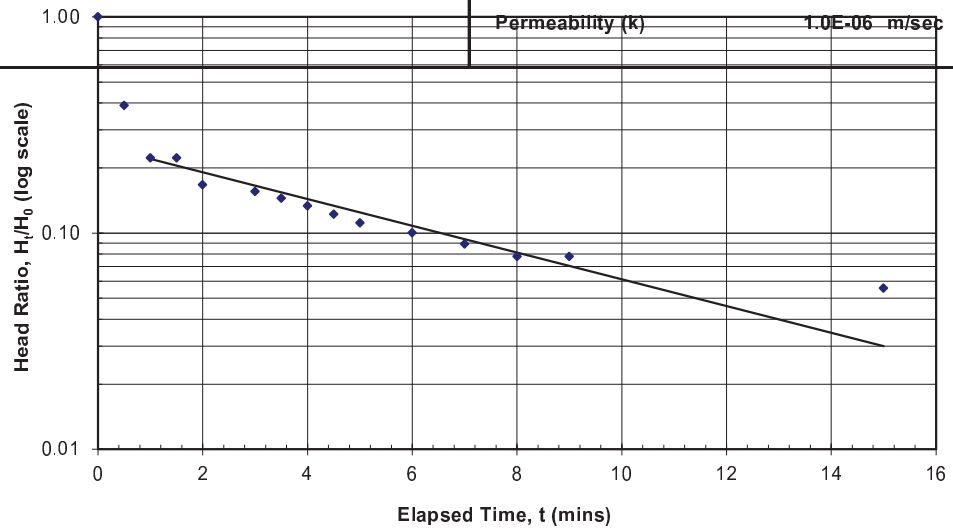
General Approach

Coordinates of best fit line to data:

t_1 = 1.0 mins	H_1/H_0 = 0.220
t_2 = 15.0 mins	H_2/H_0= 0.030

Head Ratio against Time

Permeability (k) 1.0E-06 m/sec



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS20T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS21
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	1.00	m BGL
Base of response zone	4.00	m BGL
Groundwater level for analysis	1.38	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	3000	mm
Intake Factor (F)	5.08	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	1.82	0.44	1.00
0.5	1.743	0.37	0.83
1	1.69	0.31	0.71
1.5	1.635	0.26	0.58
2	1.617	0.24	0.54
2.5	1.583	0.21	0.47
3	1.555	0.18	0.40
3.5	1.535	0.16	0.36
4	1.522	0.15	0.33
4.5	1.517	0.14	0.32
5	1.495	0.12	0.27
6	1.48	0.10	0.23
7	1.465	0.09	0.20
8			
9	1.45	0.07	0.16
10	1.441	0.06	0.14
15	1.419	0.04	0.09
20	1.409	0.03	0.07
25	1.402	0.02	0.06
30	1.398	0.02	0.05
35	1.393	0.02	0.04
40	1.39	0.01	0.03

REMARKS

Depth to groundwater prior to test	1.38	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.44	m
Differential head at end of test, H_f	0.013	m
Time Elapsed at end of test	40	mins

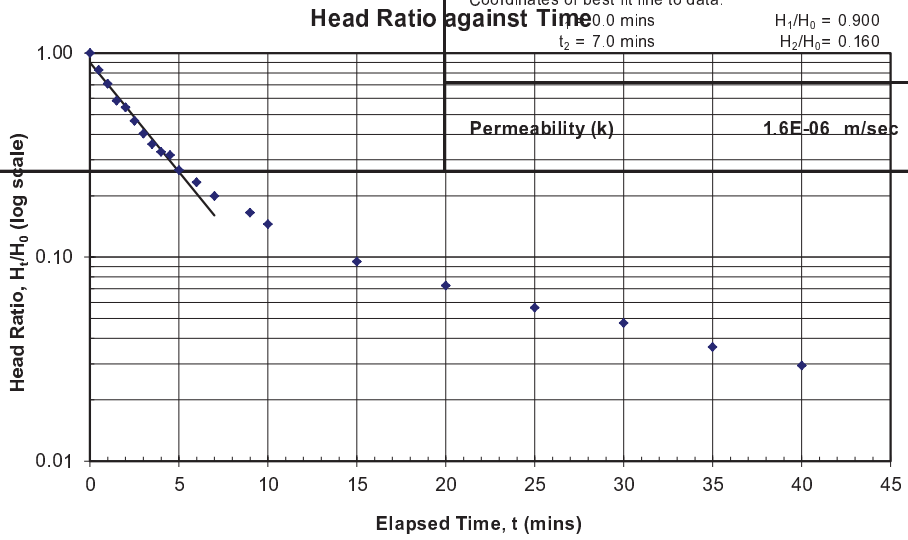
General Approach

Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 0.900

t_2 = 7.0 mins H_2/H_0 = 0.160

Permeability (k) **1.6E-06 m/sec**



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS21T1**

AGS

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS21
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	1.00	m BGL
Base of response zone	4.00	m BGL
Groundwater level for analysis	1.38	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	3000	mm
Intake Factor (F)	5.08	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	1.82	0.44	1.00
0.5	1.743	0.37	0.83
1	1.69	0.31	0.71
1.5	1.635	0.26	0.58
2	1.617	0.24	0.54
2.5	1.583	0.21	0.47
3	1.555	0.18	0.40
3.5	1.535	0.16	0.36
4	1.522	0.15	0.33
4.5	1.517	0.14	0.32
5	1.495	0.12	0.27
6	1.48	0.10	0.23
7	1.465	0.09	0.20
8			
9	1.45	0.07	0.16
10	1.441	0.06	0.14
15	1.419	0.04	0.09
20	1.409	0.03	0.07
25	1.402	0.02	0.06
30	1.398	0.02	0.05
35	1.393	0.02	0.04
40	1.39	0.01	0.03

REMARKS

Depth to groundwater prior to test	1.38	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.44	m
Differential head at end of test, H_f	0.013	m
Time Elapsed at end of test	40	mins

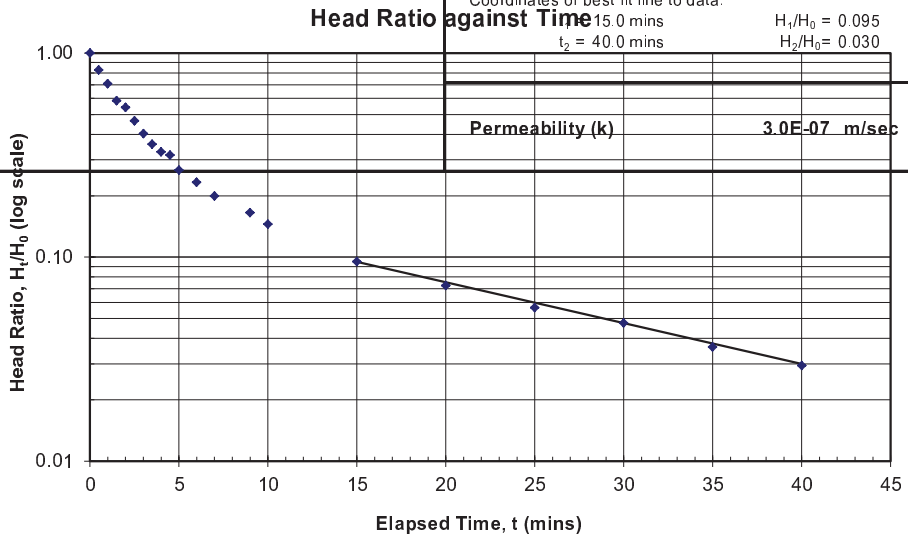
General Approach

Coordinates of best fit line to data:

t_1 = 15.0 mins H_1/H_0 = 0.095

t_2 = 40.0 mins H_2/H_0 = 0.030

Permeability (k) **3.0E-07 m/sec**



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS21T1**

AGS

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head

DETAILS OF INSTALLATION:

Top of response zone	3.00	m BGL
Base of response zone	4.00	m BGL
Groundwater level for analysis	2.72	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	3.02	0.30	1.00
0.5	2.86	0.14	0.46
1	2.804	0.08	0.27
1.5	2.774	0.05	0.17
2			
2.5	2.745	0.02	0.07
3	2.74	0.02	0.05
3.5	2.735	0.01	0.04
4	2.732	0.01	0.03
4.5			
5	2.728	0.00	0.01
6	2.728	0.00	0.01
7	2.727	0.00	0.01
8	2.726	0.00	0.01
9	2.726	0.00	0.01
10	2.726	0.00	0.01

BOREHOLE No.	WS22
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

REMARKS

Depth to groundwater prior to test	2.72	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.30	m
Differential head at end of test, H_f	0.002	m
Time Elapsed at end of test	10	mins

General Approach

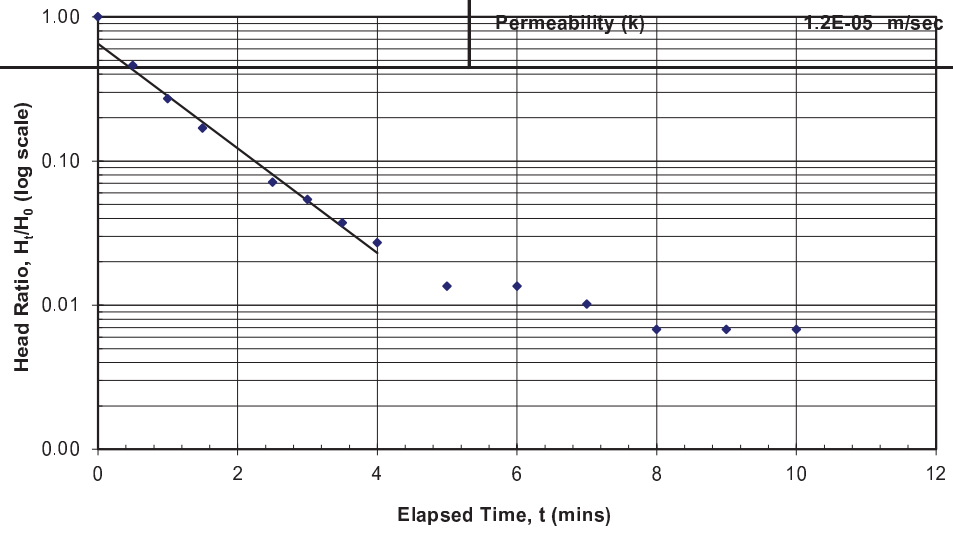
Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 0.650

t_2 = 4.0 mins H_2/H_0= 0.023

Head Ratio against Time

Permeability (k) 1.2E-05 m/sec



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS22T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS22
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	3.00	m BGL
Base of response zone	4.00	m BGL
Groundwater level for analysis	2.72	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	3.02	0.30	1.00
0.5	2.86	0.14	0.46
1	2.804	0.08	0.27
1.5	2.774	0.05	0.17
2			
2.5	2.745	0.02	0.07
3	2.74	0.02	0.05
3.5	2.735	0.01	0.04
4	2.732	0.01	0.03
4.5			
5	2.728	0.00	0.01
6	2.728	0.00	0.01
7	2.727	0.00	0.01
8	2.726	0.00	0.01
9	2.726	0.00	0.01
10	2.726	0.00	0.01

REMARKS

Depth to groundwater prior to test 2.72 m BGL

Depth to water measured from top of standpipe

Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

Differential head at start of test, H_0	0.30	m
Differential head at end of test, H_f	0.002	m
Time Elapsed at end of test	10	mins

General Approach

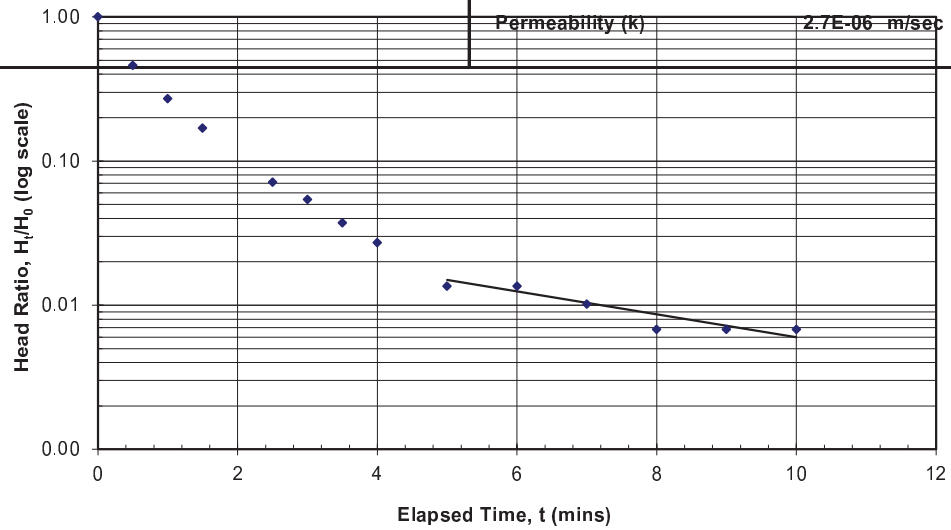
Coordinates of best fit line to data:

t_1 = 5.0 mins H_1/H_0 = 0.015

t_2 = 10.0 mins H_2/H_0 = 0.006

Head Ratio against Time

Permeability (k) 2.7E-06 m/sec



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS22T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head

DETAILS OF INSTALLATION:

Top of response zone	2.75	m BGL
Base of response zone	3.75	m BGL
Groundwater level for analysis	2.78	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.94	0.16	1.00
0.5	2.861	0.08	0.51
1	2.835	0.06	0.35
1.5	2.819	0.04	0.25
2	2.806	0.03	0.17
2.5	2.802	0.02	0.14
3	2.795	0.02	0.10
3.5	2.793	0.01	0.09
4.5	2.792	0.01	0.08
5	2.79	0.01	0.07
6	2.789	0.01	0.06
7	2.789	0.01	0.06
8	2.788	0.01	0.06
10	2.788	0.01	0.06
20	2.786	0.01	0.04
25	2.786	0.01	0.04

BOREHOLE No.	WS23
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

REMARKS

Depth to groundwater prior to test _____ m BGL

Depth to water measured from top of standpipe

Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

Differential head at start of test, H_0	0.16	m
Differential head at end of test, H_f	0.007	m
Time Elapsed at end of test	25	mins

General Approach

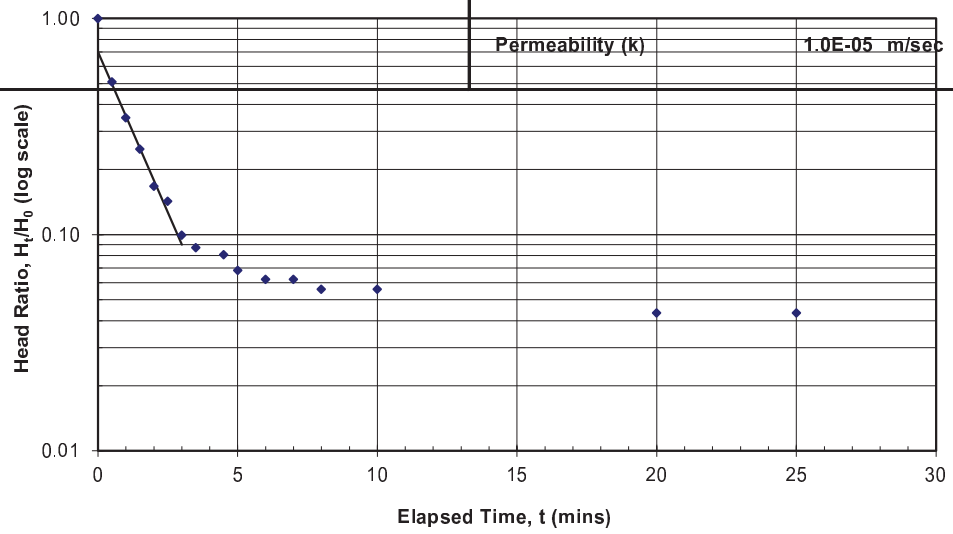
Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 0.700

t_2 = 3.0 mins H_2/H_0 = 0.090

Permeability (k) 1.0E-05 m/sec

Head Ratio against Time



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS23T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS23
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	2.75	m BGL
Base of response zone	3.75	m BGL
Groundwater level for analysis	2.78	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.94	0.16	1.00
0.5	2.861	0.08	0.51
1	2.835	0.06	0.35
1.5	2.819	0.04	0.25
2	2.806	0.03	0.17
2.5	2.802	0.02	0.14
3	2.795	0.02	0.10
3.5	2.793	0.01	0.09
4.5	2.792	0.01	0.08
5	2.79	0.01	0.07
6	2.789	0.01	0.06
7	2.789	0.01	0.06
8	2.788	0.01	0.06
10	2.788	0.01	0.06
20	2.786	0.01	0.04
25	2.786	0.01	0.04

REMARKS

Depth to groundwater prior to test 2.78 m BGL

Depth to water measured from top of standpipe

Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

Differential head at start of test, H_0	0.16	m
Differential head at end of test, H_f	0.007	m
Time Elapsed at end of test	25	mins

General Approach

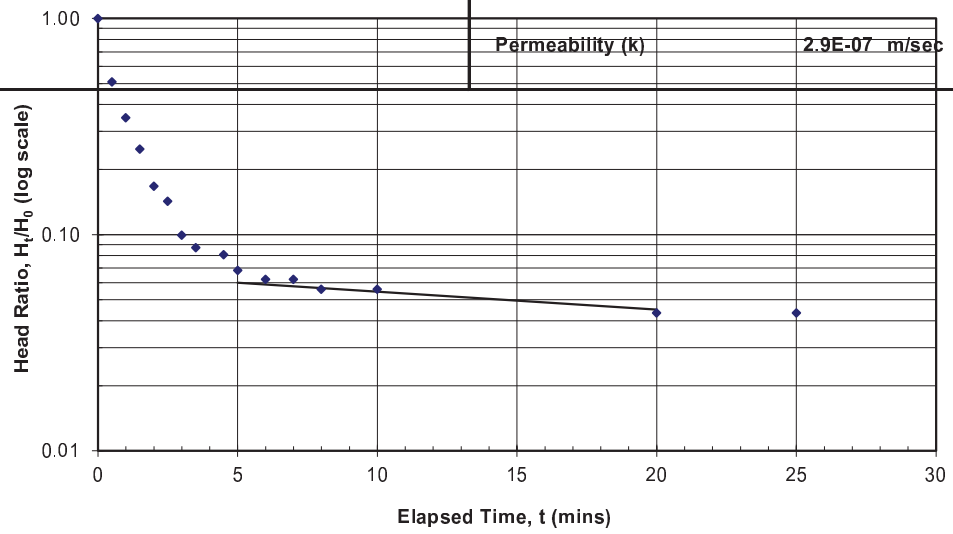
Coordinates of best fit line to data:

t_1 = 5.0 mins H_1/H_0 = 0.060

t_2 = 20.0 mins H_2/H_0= 0.045

Permeability (k) 2.9E-07 m/sec

Head Ratio against Time



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS23T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS24
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	2.65	m BGL
Base of response zone	3.65	m BGL
Groundwater level for analysis	2.50	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	3	0.51	1.00
0.5	2.785	0.29	0.57
1	2.685	0.19	0.38
1.5	2.614	0.12	0.24
2	2.56	0.06	0.13
2.5	2.542	0.05	0.09
3	2.528	0.03	0.07
3.5	2.52	0.02	0.05
4	2.512	0.02	0.03
5	2.505	0.01	0.02
6	2.503	0.01	0.02
7	2.501	0.01	0.01
8	2.499	0.00	0.01
9	2.499	0.00	0.01
10	2.498	0.00	0.01
15	2.498	0.00	0.01
20	2.497	0.00	0.00

REMARKS

Depth to groundwater prior to test 2.50 m BGL
Depth to water measured from top of standpipe
Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

Differential head at start of test, H_0	0.51	m
Differential head at end of test, H_f	0.002	m
Time Elapsed at end of test	20	mins

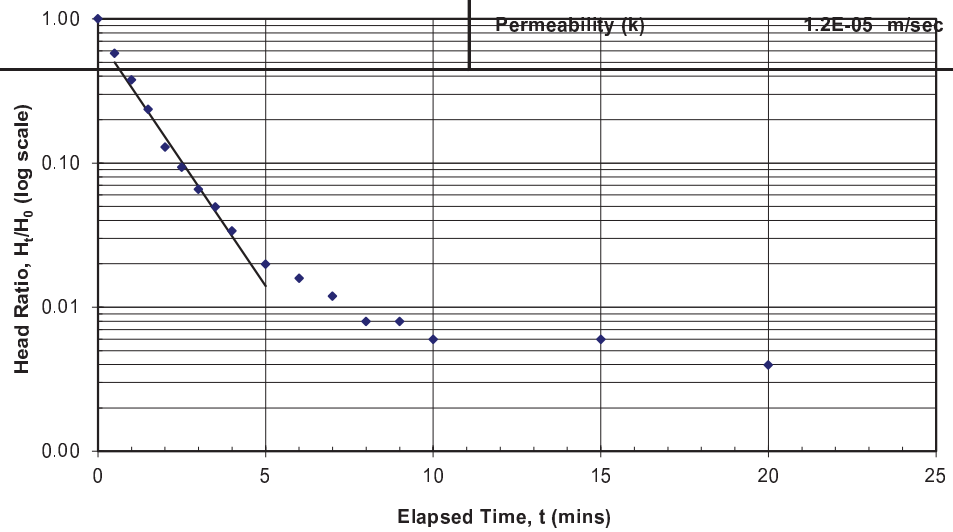
General Approach

Coordinates of best fit line to data:

t_1 = 0.5 mins H_1/H_0 = 0.500
t_2 = 5.0 mins H_2/H_0 = 0.014

Head Ratio against Time

Permeability (k) 1.2E-05 m/sec



Notes:

Project Marsh Lane, Tottenham
Project No. R5123
Carried out for Frankham

Test WS24T1

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head

DETAILS OF INSTALLATION:

Top of response zone	2.65	m BGL
Base of response zone	3.65	m BGL
Groundwater level for analysis	2.50	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	3	0.51	1.00
0.5	2.785	0.29	0.57
1	2.685	0.19	0.38
1.5	2.614	0.12	0.24
2	2.56	0.06	0.13
2.5	2.542	0.05	0.09
3	2.528	0.03	0.07
3.5	2.52	0.02	0.05
4	2.512	0.02	0.03
5	2.505	0.01	0.02
6	2.503	0.01	0.02
7	2.501	0.01	0.01
8	2.499	0.00	0.01
9	2.499	0.00	0.01
10	2.498	0.00	0.01
15	2.498	0.00	0.01
20	2.497	0.00	0.00

BOREHOLE No.	WS24
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	77	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.19	m

REMARKS

Depth to groundwater prior to test	2.50	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.51	m
Differential head at end of test, H_f	0.002	m
Time Elapsed at end of test	20	mins

General Approach

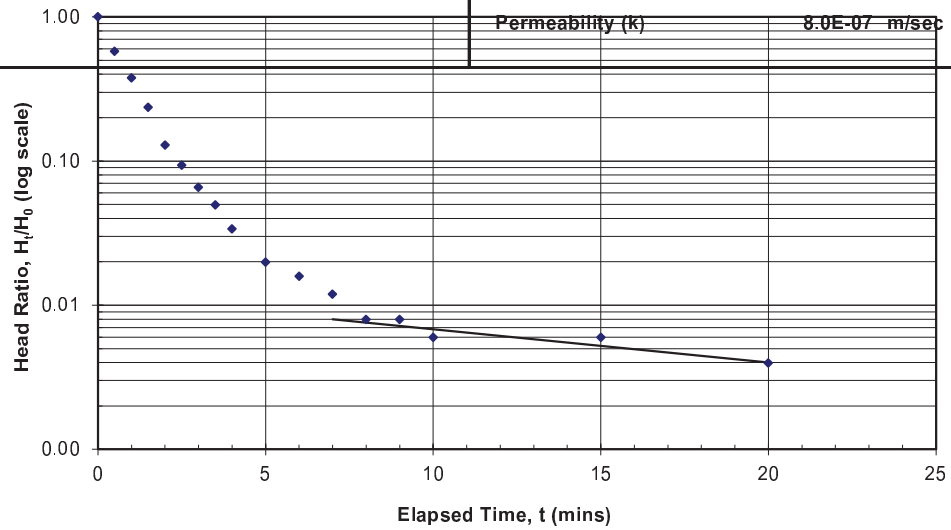
Coordinates of best fit line to data:

t_1 = 7.0 mins H_1/H_0 = 0.008

t_2 = 20.0 mins H_2/H_0= 0.004

Head Ratio against Time

Permeability (k) 8.0E-07 m/sec



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS24T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS25
TEST NUMBER	1
DATE OF TEST	24 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	2.25	m BGL
Base of response zone	3.25	m BGL
Groundwater level for analysis	1.40	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.27	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	3.07	1.67	1.00
0.5	3.05	1.65	0.99
1	3.043	1.64	0.98
1.5	3.03	1.63	0.98
2	3.02	1.62	0.97
3.5	2.98	1.58	0.95
4	2.972	1.57	0.94
4.5	2.963	1.56	0.94
5	2.955	1.56	0.93
6	2.935	1.54	0.92
7	2.915	1.52	0.91
8	2.9	1.50	0.90
9	2.878	1.48	0.89
10	2.854	1.45	0.87
15	2.8	1.40	0.84
20	2.75	1.35	0.81
25	2.696	1.30	0.78
30	2.648	1.25	0.75
35	2.6	1.20	0.72
40	2.545	1.15	0.69
45	2.491	1.09	0.65
50	2.44	1.04	0.62
55	2.388	0.99	0.59
60	2.34	0.94	0.56
70	2.23	0.83	0.50
80	2.115	0.72	0.43

REMARKS

Depth to groundwater prior to test	1.40	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	1.67	m
Differential head at end of test, H_f	0.715	m
Time Elapsed at end of test	80	mins

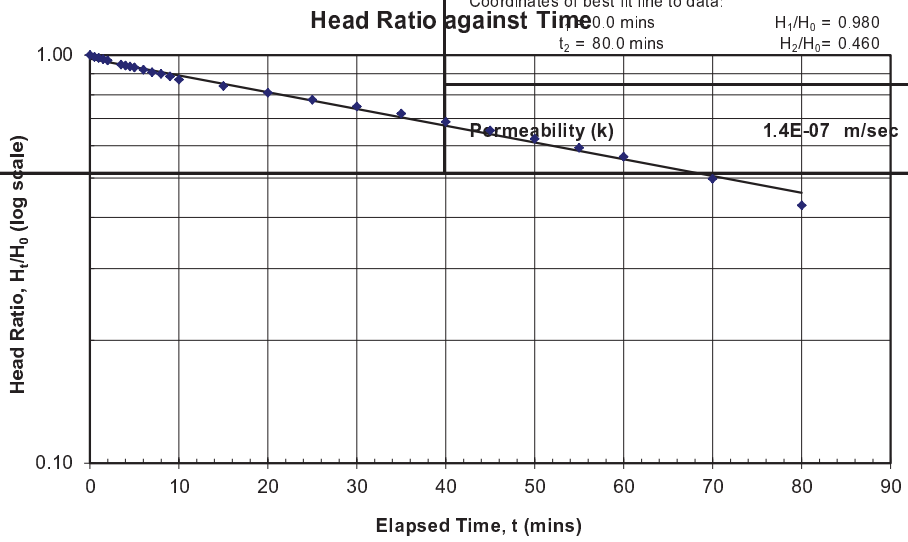
General Approach

Coordinates of best fit line to data:

t_1 = 10.0 mins H_1/H_0 = 0.980

t_2 = 80.0 mins H_2/H_0 = 0.460

Permeability (k) **1.4E-07 m/sec**



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS25T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS26
TEST NUMBER	1
DATE OF TEST	24 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	1.85	m BGL
Base of response zone	2.85	m BGL
Groundwater level for analysis	2.06	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.27	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.63	0.57	1.00
0.5	2.58	0.52	0.91
1	2.54	0.48	0.84
1.5	2.5	0.44	0.77
2	2.46	0.40	0.70
2.5	2.425	0.37	0.64
3	2.39	0.33	0.58
3.5	2.35	0.29	0.51
4	2.31	0.25	0.44
4.5	2.27	0.21	0.37
5	2.24	0.18	0.32
6	2.175	0.12	0.20
7	2.15	0.09	0.16
8	2.14	0.08	0.14
9	2.13	0.07	0.12
10	2.12	0.06	0.11
15	2.095	0.04	0.06
20	2.085	0.02	0.04
25	2.078	0.02	0.03
30	2.075	0.02	0.03
35	2.072	0.01	0.02
40	2.069	0.01	0.02
45	2.067	0.01	0.01
50	2.065	0.00	0.01
55	2.063	0.00	0.01

REMARKS

Depth to groundwater prior to test	2.06	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.57	m
Differential head at end of test, H_f	0.003	m
Time Elapsed at end of test	55	mins

General Approach

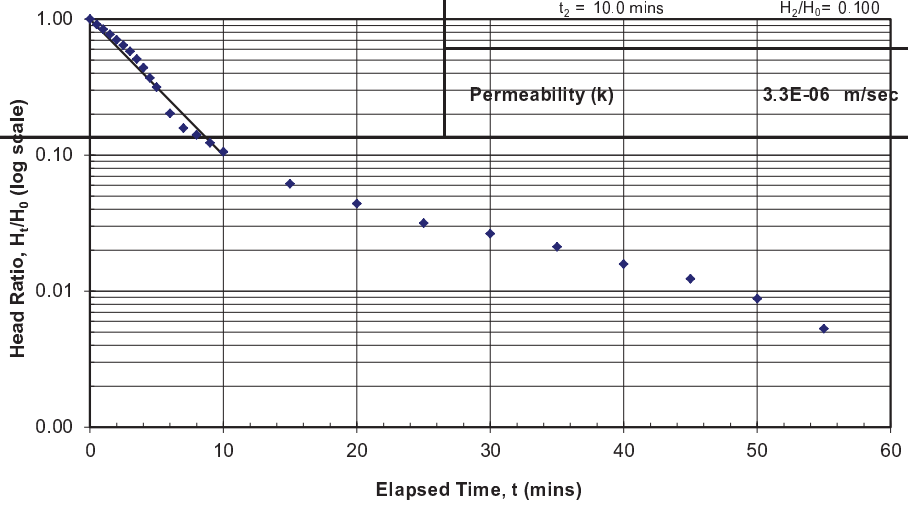
Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 1.000

t_2 = 10.0 mins H_2/H_0 = 0.100

Permeability (k) **3.3E-06 m/sec**

Head Ratio against Time



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS26T1**

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS26
TEST NUMBER	1
DATE OF TEST	24 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	1.85	m BGL
Base of response zone	2.85	m BGL
Groundwater level for analysis	2.06	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	50	mm

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil

Diameter of borehole (D)	87	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	2.27	m

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.63	0.57	1.00
0.5	2.58	0.52	0.91
1	2.54	0.48	0.84
1.5	2.5	0.44	0.77
2	2.46	0.40	0.70
2.5	2.425	0.37	0.64
3	2.39	0.33	0.58
3.5	2.35	0.29	0.51
4	2.31	0.25	0.44
4.5	2.27	0.21	0.37
5	2.24	0.18	0.32
6	2.175	0.12	0.20
7	2.15	0.09	0.16
8	2.14	0.08	0.14
9	2.13	0.07	0.12
10	2.12	0.06	0.11
15	2.095	0.04	0.06
20	2.085	0.02	0.04
25	2.078	0.02	0.03
30	2.075	0.02	0.03
35	2.072	0.01	0.02
40	2.069	0.01	0.02
45	2.067	0.01	0.01
50	2.065	0.00	0.01
55	2.063	0.00	0.01

REMARKS

Depth to groundwater prior to test	2.06	m BGL
Depth to water measured from top of standpipe		
Permeability calculated using BS 5930:1999 (Section 25.4.6)		

CALCULATED VALUES

Differential head at start of test, H_0	0.57	m
Differential head at end of test, H_f	0.003	m
Time Elapsed at end of test	55	mins

General Approach

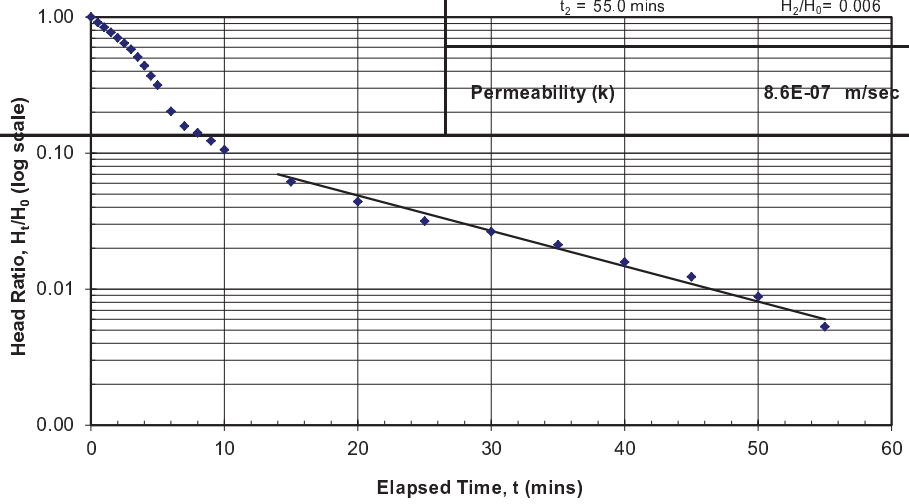
Coordinates of best fit line to data:

t_1 = 14.0 mins H_1/H_0 = 0.070

t_2 = 55.0 mins H_2/H_0 = 0.006

Permeability (k) **8.6E-07 m/sec**

Head Ratio against Time



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test **WS26T1**

AGS

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS27
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	2.40	m BGL
Base of response zone	3.40	m BGL
Groundwater level for analysis	2.76	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	20	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.9	0.15	1.00
0.5	2.86	0.11	0.72
1	2.85	0.10	0.66
1.5	2.835	0.08	0.55
2	2.825	0.07	0.48
2.5	2.818	0.06	0.43
3	2.81	0.06	0.38
3.5	2.802	0.05	0.32
4	2.795	0.04	0.28
4.5	2.79	0.04	0.24
5	2.785	0.03	0.21
6	2.78	0.03	0.17
7	2.775	0.02	0.14
8	2.77	0.02	0.10
9	2.767	0.01	0.08
10	2.765	0.01	0.07
15	2.765	0.01	0.07
20	2.761	0.01	0.04

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	30	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	1.71	m

REMARKS

Depth to groundwater prior to test 2.76 m BGL
Depth to water measured from top of standpipe
Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

Differential head at start of test, H_0	0.15	m
Differential head at end of test, H_f	0.006	m
Time Elapsed at end of test	20	mins

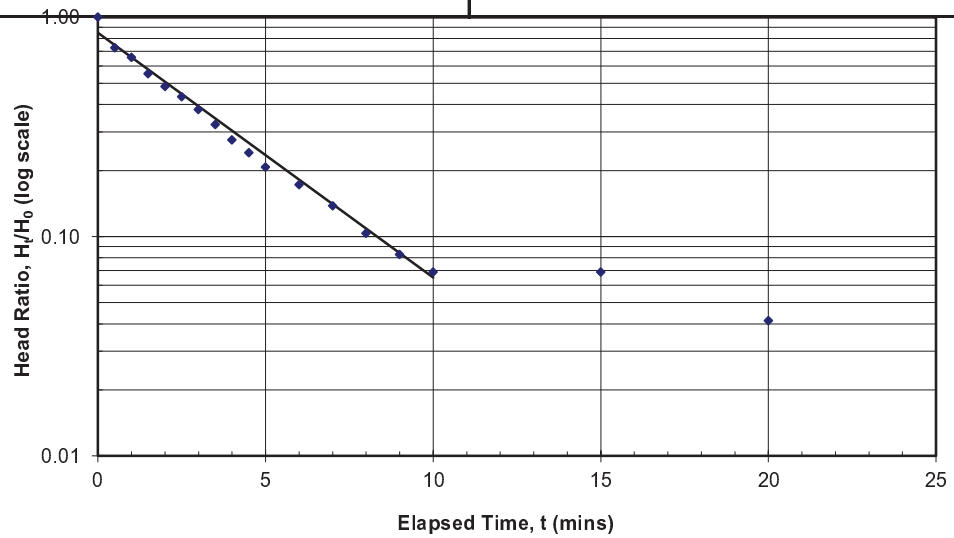
General Approach

Coordinates of best fit line to data:

t_1 = 0.0 mins H_1/H_0 = 0.850
t_2 = 10.0 mins H_2/H_0 = 0.065

Permeability (k) 7.9E-07 m/sec

Head Ratio against Time



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test WS27T1

Variable Head Permeability Test

TYPE OF TEST	Standpipe
	Rising Head
BOREHOLE No.	WS28
TEST NUMBER	1
DATE OF TEST	25 Nov 2015

DETAILS OF INSTALLATION:

Top of response zone	2.20	m BGL
Base of response zone	3.20	m BGL
Groundwater level for analysis	2.72	m BGL
Height of tubing above ground level (datum)	0.00	m
Diameter of standpipe tubing	20	mm

Elapsed time, t (minutes)	Depth to water from datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	2.775	0.05	1.00
0.5	2.765	0.04	0.81
1	2.75	0.03	0.53
1.5	2.743	0.02	0.40
2	2.738	0.02	0.30
2.5	2.736	0.01	0.26
3	2.732	0.01	0.19
3.5	2.73	0.01	0.15
4	2.728	0.01	0.11
4.5	2.726	0.00	0.08
5	2.725	0.00	0.06
6	2.723	0.00	0.02
7	2.723	0.00	0.02
8	2.723	0.00	0.02

CONDITIONS OF TEST ZONE

Ref BS 5930:1999+A2 (2010) Figure 7

Piezometer tip in uniform soil		
Diameter of borehole (D)	30	mm
Length of response zone (L)	1000	mm
Intake Factor (F)	1.71	m

REMARKS

Depth to groundwater prior to test 2.72 m BGL
Depth to water measured from top of standpipe
Permeability calculated using BS 5930:1999 (Section 25.4.6)

CALCULATED VALUES

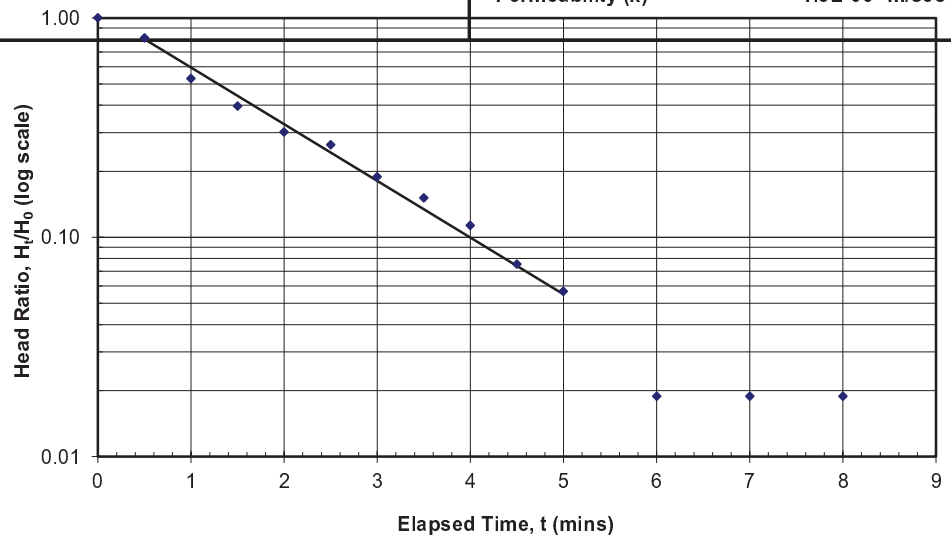
Differential head at start of test, H_0	0.05	m
Differential head at end of test, H_f	0.001	m
Time Elapsed at end of test	8	mins

General Approach

Coordinates of best fit line to data:

t_1 = 0.5 mins H_1/H_0 = 0.800
t_2 = 5.0 mins H_2/H_0 = 0.055

Head Ratio against Time **Permeability (k) 1.8E-06 m/sec**



Notes:

Project	Marsh Lane, Tottenham
Project No.	R5123
Carried out for	Frankham

Test WS28T1