



Willow Cottage, Herne Lane, Rustington, West Sussex BN16 3EE

Castle Property Developments
1 & 2 The Barn
West Stoke Road
Lavant
Chichester
West Sussex
PO18 9AA

Our Ref: 1808/RTFC

Your Ref:

18 November 2019

Dear Sirs

The Cottage, Shripney Road

I write with regard to the groundwater monitoring and percolation testing that we carried out on your behalf early in 2018 and again in 2019 to support proposals for residential development of the site. I attach a plan indicating the existing site together with draft proposals, Drawing No. 1808/SK3.

I have tabulated the results below and have also attached them in graphical form.

Highest Groundwater Levels

GWP 1	1033 mm BGL	11 March 2018
GWP 2	918 mm BGL	11 March 2018
GWP 3	956 mm BGL	7 February 2019
GWP 4	451 mm BGL	4 March 2019
GWP 6	1220 mm BGL	12 February 2019
GWP 7	1280 mm BGL	12 February 2019

Lowest of Percolation Tests carried out in each location

BH1	4.399×10^{-5} m/s	19 May 2018
BH8	3.073×10^{-5} m/s	13 November 2019
BH9	8.347×10^{-6} m/s	13 November 2019
BH10	7.063×10^{-6} m/s	13 November 2019
BH11	2.036×10^{-5} m/s	16 November 2019
BH12	1.087×10^{-5} m/s	16 November 2019
BH13	2.915×10^{-6} m/s	13 November 2019
BH14	1.709×10^{-6} m/s	17 November 2019
BH15	5.974×10^{-6} m/s	17 November 2019

Ignoring BH1 test which was carried out in a drier period, the average of all the above test results is 1.1×10^{-5} m/s.

We installed two groundwater monitoring wells, referenced GWP 1 and GWP 2 in January 2018, and two supplementary wells referenced GWP 3 and GWP 4 in May 2018. These two latter wells were installed in drier weather conditions and at that time showed lowering groundwater levels.

We installed two further groundwater monitoring wells, referenced GWP 6 and GWP 7 in February 2019.

The above results show the highest groundwater levels reached but see the graphical results which show the variations with time.

We also carried out two preliminary percolation tests in May 2018 to BRE 365 principles in test pit referenced BH 1. This was in drier conditions with dropping groundwater levels.

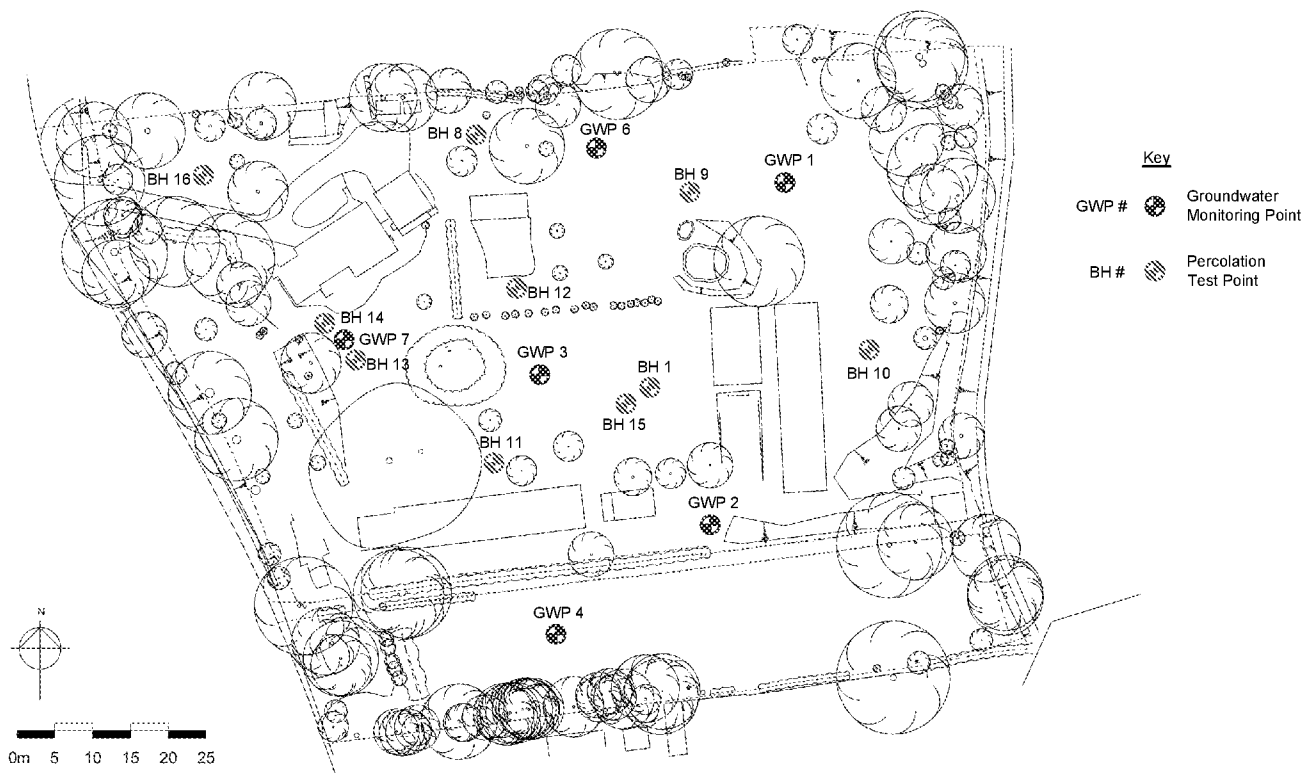
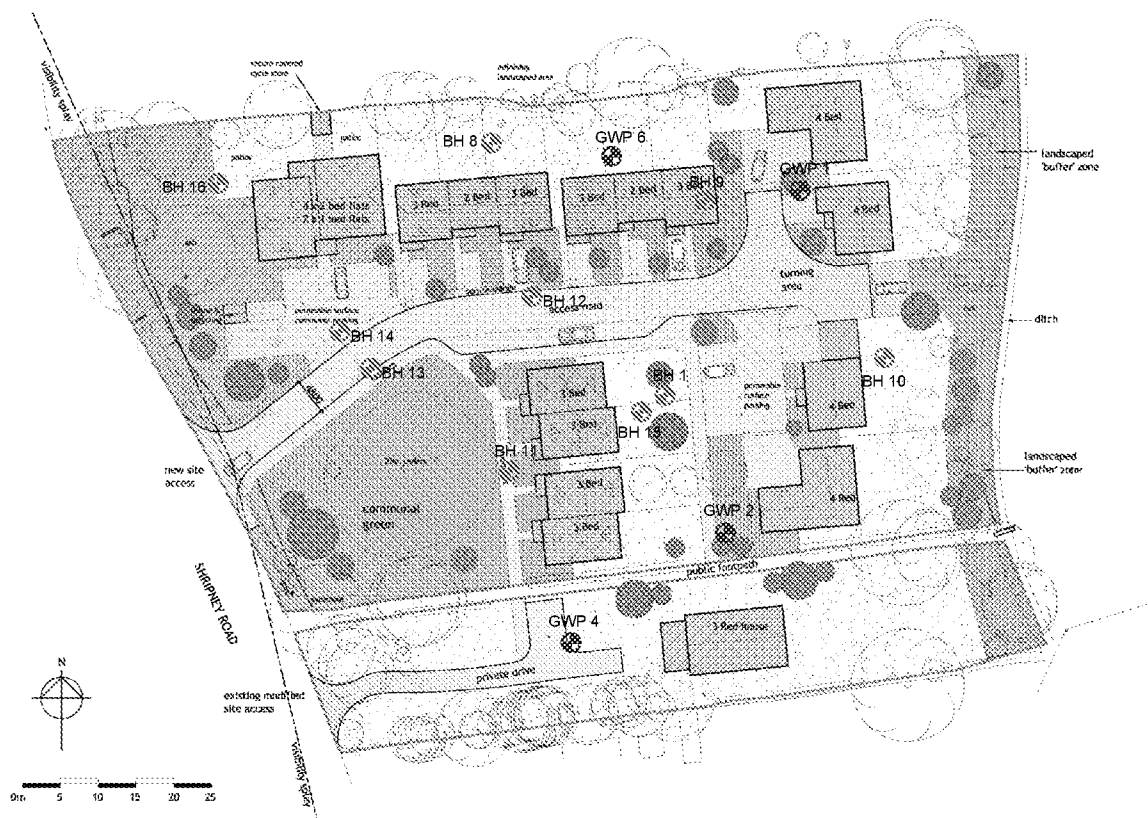
Further percolation testing has been carried out recently and this has shown significantly lower percolation rates than those in May 2018.

Please note the very low results in BH 13 and BH 14 which are in an area of very soft ground.

The percolation testing was carried out at shallow depth, as deep soakage was considered to be inappropriate for this site. The testing generally gave workable results, which we consider indicate that surface water disposal using soakage in the form of permeable paving and shallow geocells may be suitable for this site.

Kind regards

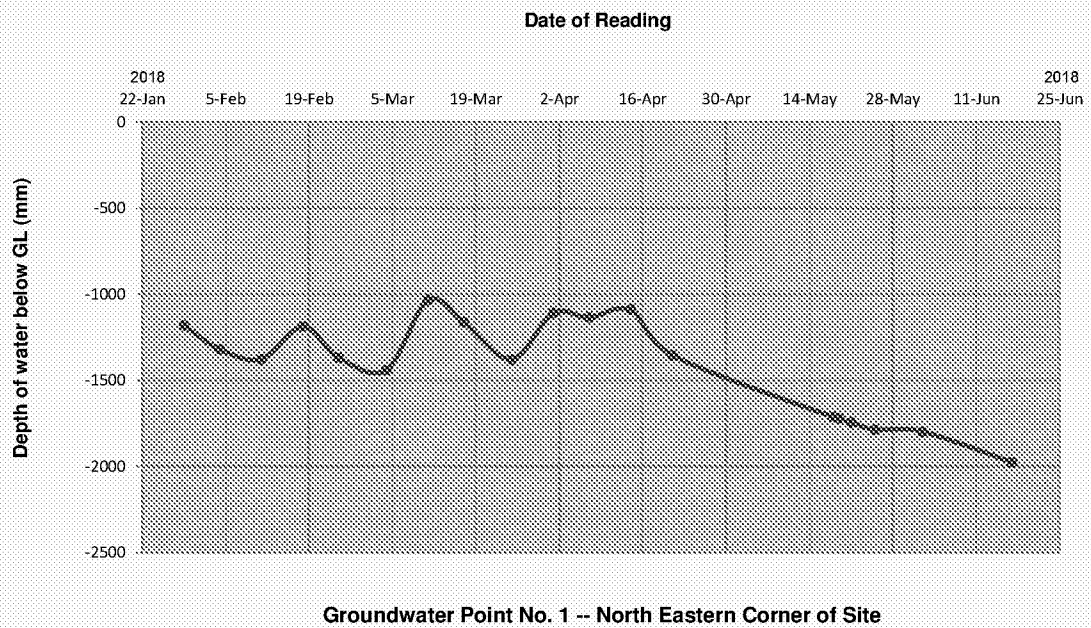
Robert Clark Associates Ltd



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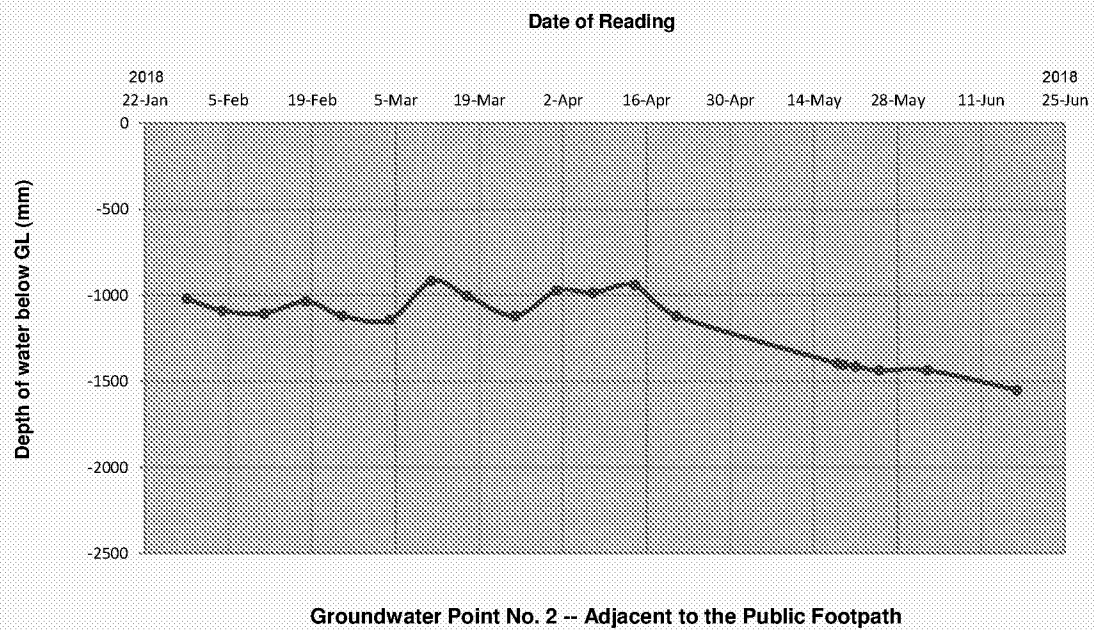
Client Castle Property Developments					
Project The Cottage, Shripney Road					
-	Original	PC	RTFC	18.11.19	
Rev.	Description	App.	Chk.	Dm.	Date

Title Location Plan			
Scale 1:1000	At original A4	© Robert Clark Associates Ltd	
Drawing Number	1808/SK3		Revision
			-



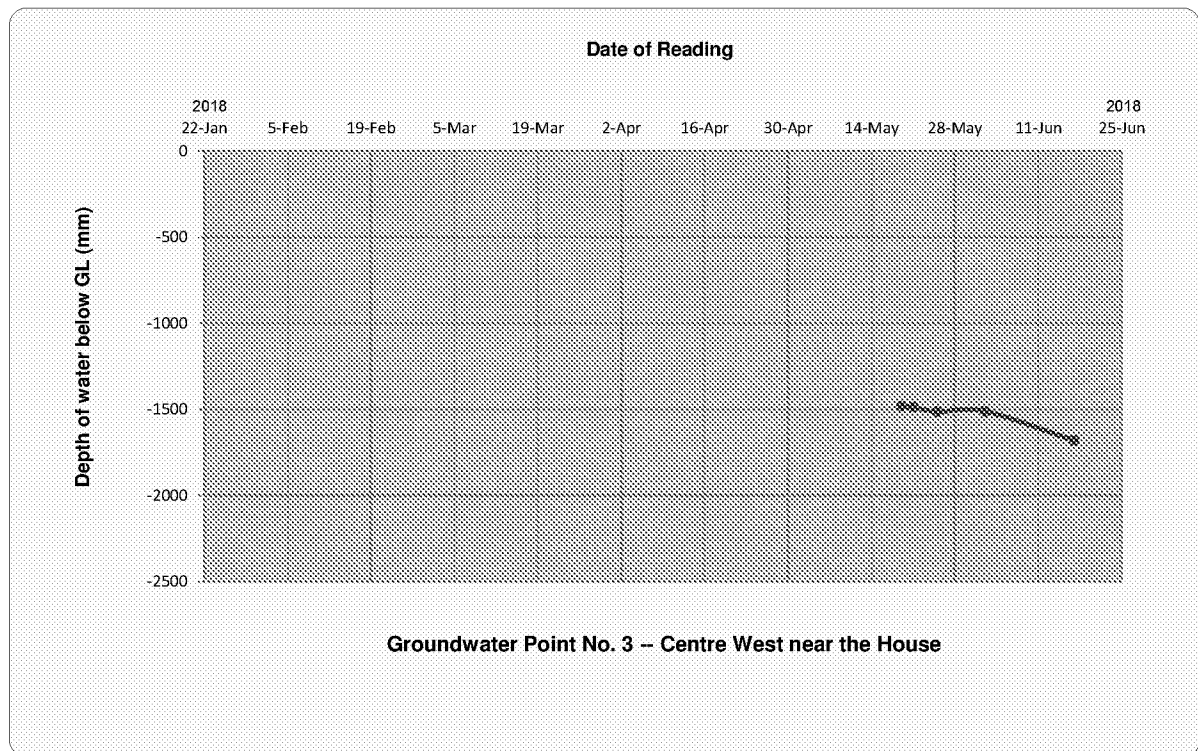
Maximum groundwater level: 1033mm below ground level on 11th March 2018

Minimum groundwater level: 1975mm below ground level on 17th June 2018



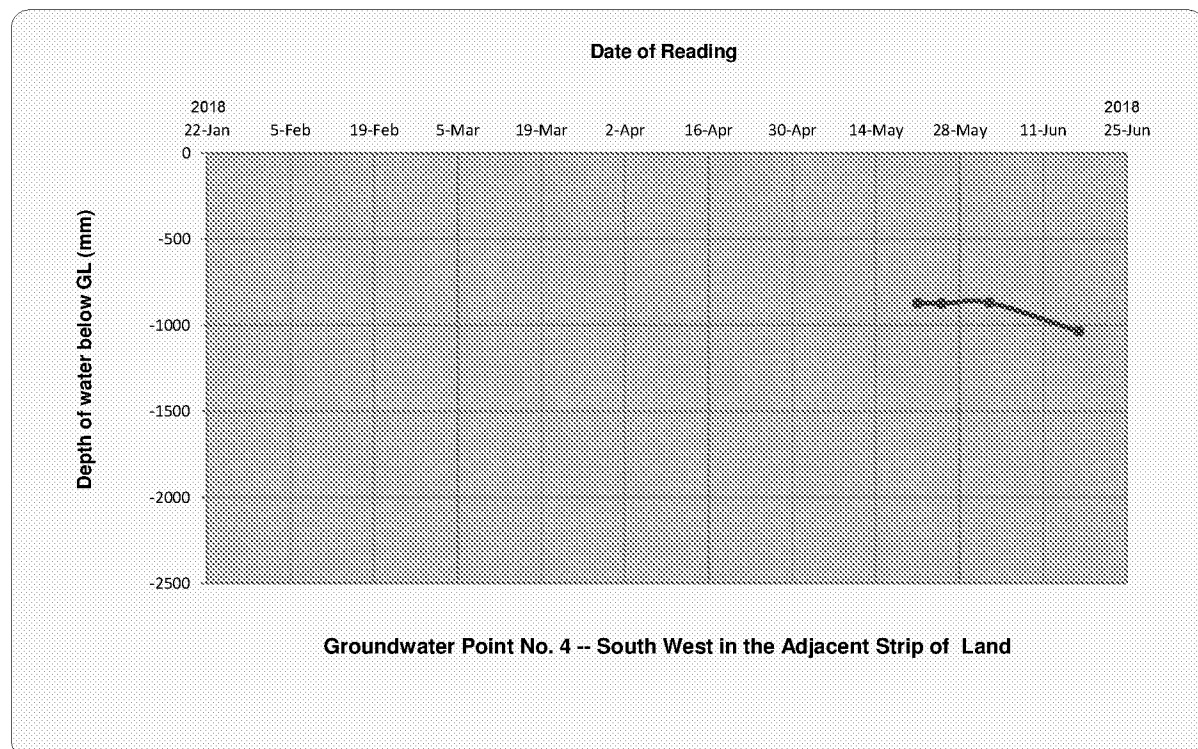
Maximum groundwater level: 918mm below ground level on 11th March 2018

Minimum groundwater level: 1550mm below ground level on 17th June 2018



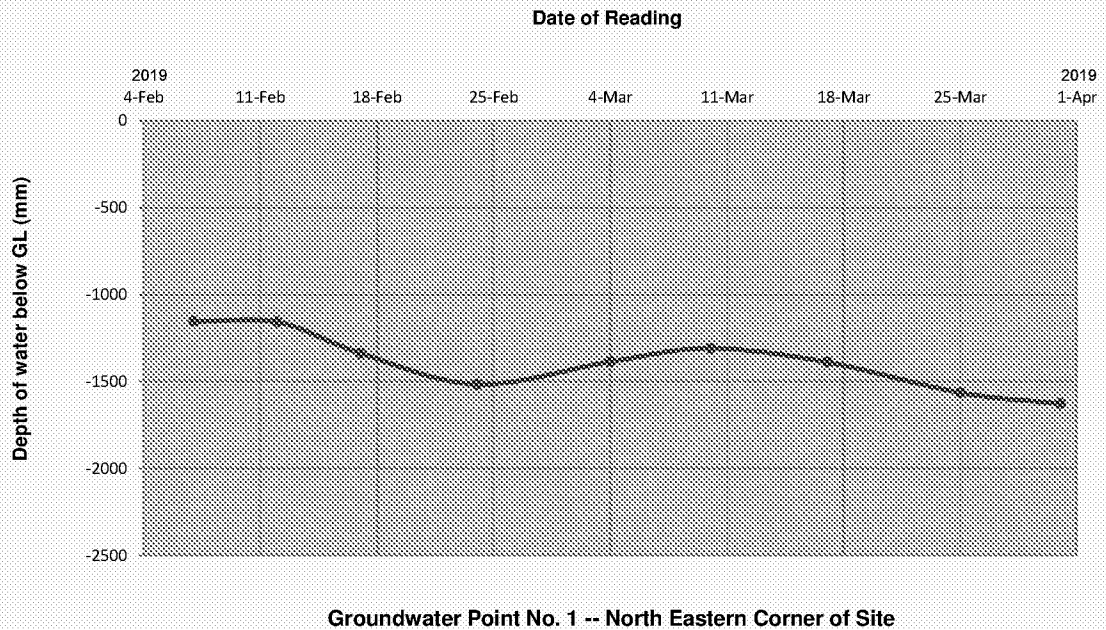
Maximum groundwater level: 1480mm below ground level on 19th May 2018 on Installation.

Minimum groundwater level: 1680mm below ground level on 17th June 2018



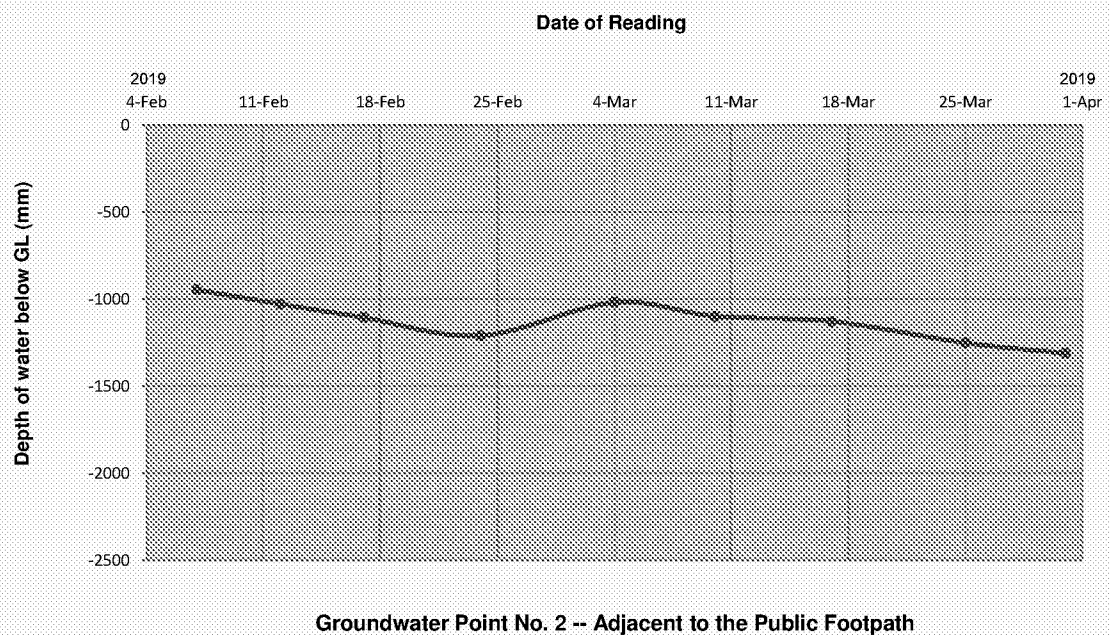
Maximum groundwater level: 869mm below ground level on 2nd June 2018

Minimum groundwater level: 1036mm below ground level on 17th June 2018



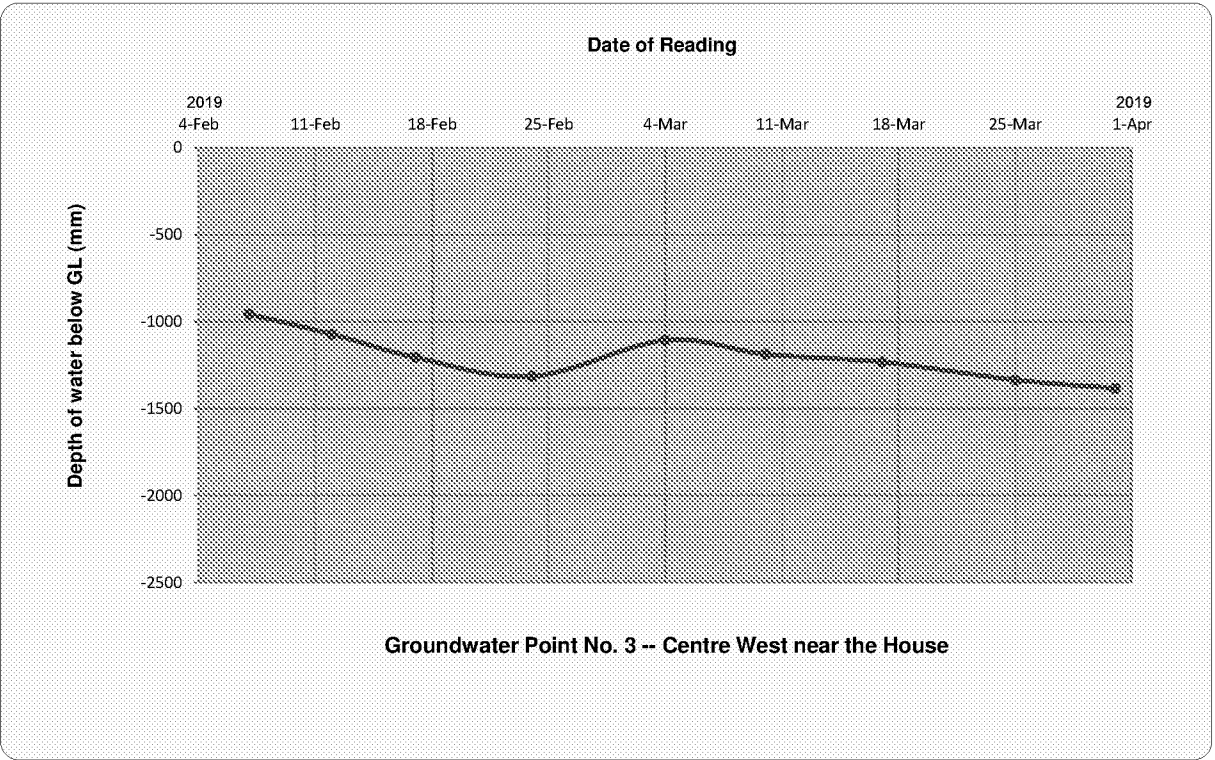
Maximum groundwater level: 1155mm below ground level on 7th February 2019

Minimum groundwater level: 1627mm below ground level on 31st March 2019

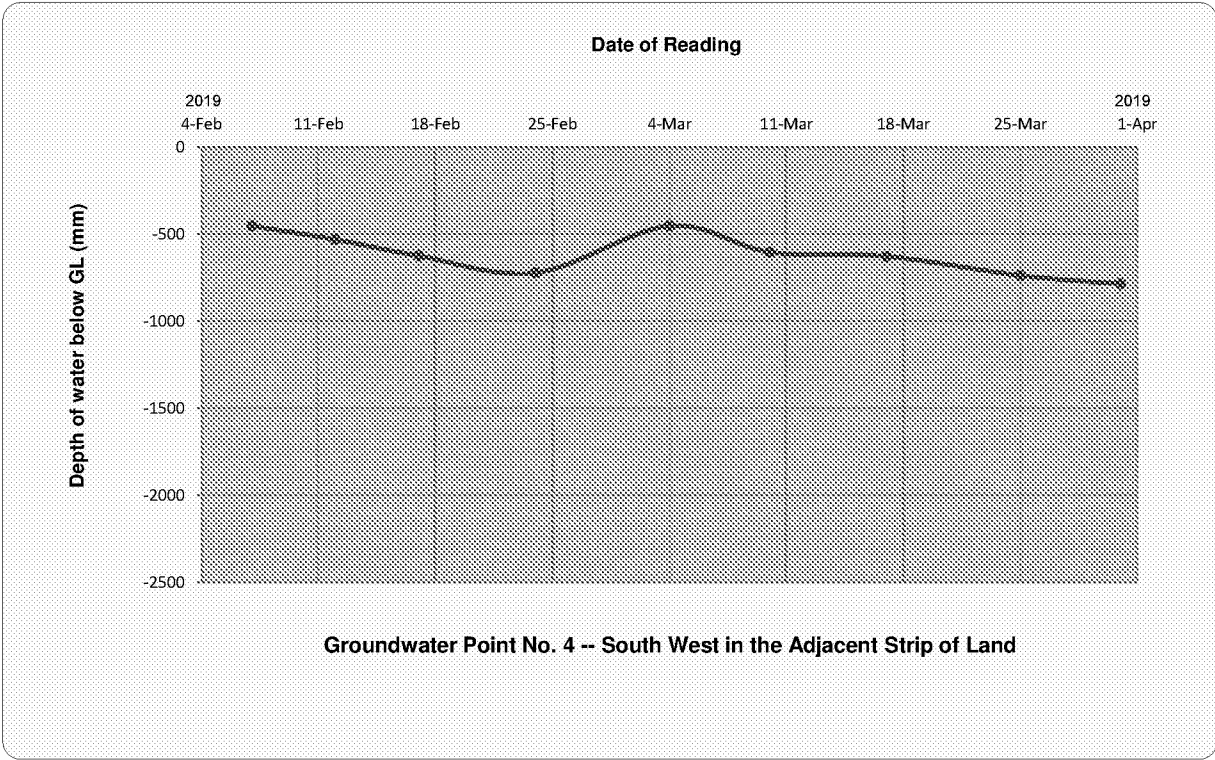


Maximum groundwater level: 946mm below ground level on 7th February 2019

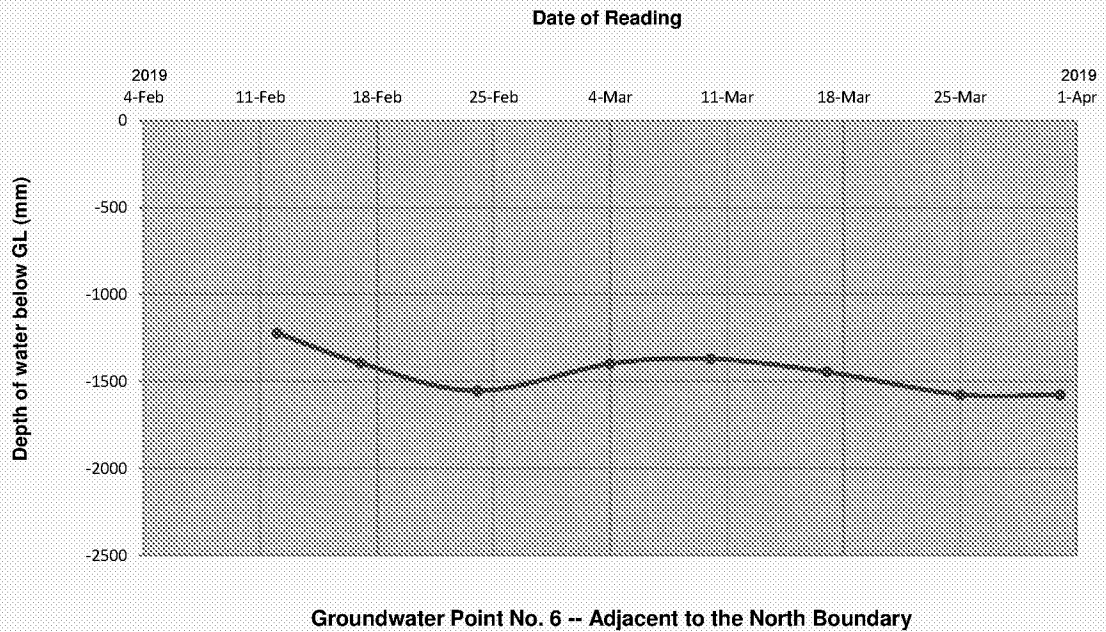
Minimum groundwater level: 1310mm below ground level on 31st March 2019



Maximum groundwater level: 956mm below ground level on 7th February 2019
Minimum groundwater level: 1383mm below ground level on 31st March 2019

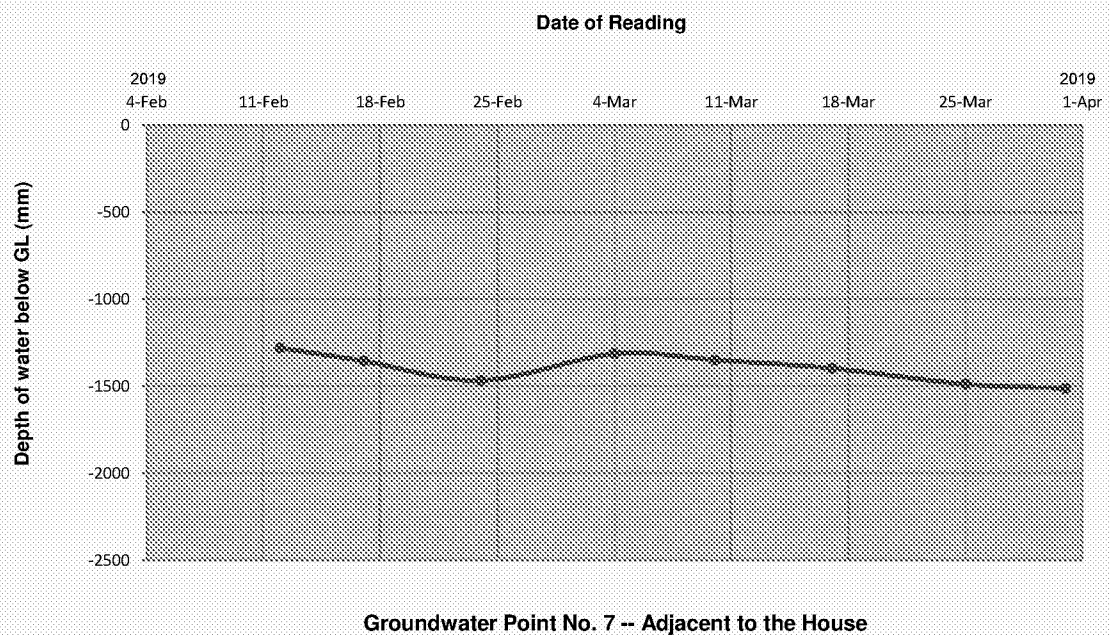


Maximum groundwater level: 451mm below ground level on 4th March 2019
Minimum groundwater level: 786mm below ground level on 31st March 2019



Maximum groundwater level: 1220mm below ground level on 12th February 2019

Minimum groundwater level: 1575mm below ground level on 31st March 2019



Maximum groundwater level: 1280mm below ground level on 12th February 2019

Minimum groundwater level: 1511mm below ground level on 31st March 2019

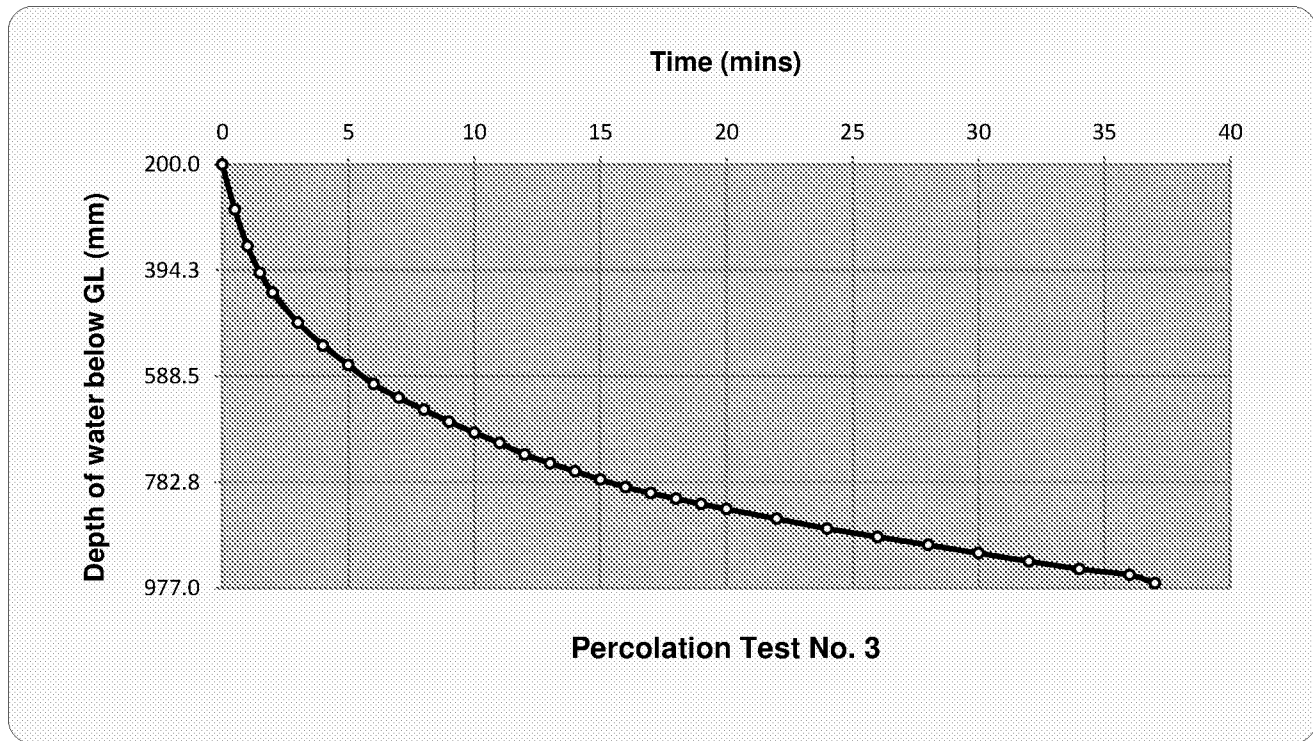
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Time mins	Depth to Water Surface
0.00	200
0.50	283
1.00	350
1.50	399
2.00	435
3.00	490
4.0	532
5.0	568
6	603
7	628
8	650
9	672
10	692
11	711
12	732
13	748
14	763
15	778
16	792
17	803
18	813
19	823
20	832
22	850
24	868
26	883
28	898
30	913
32	928
34	942
36	953
37	968

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #1

0.160metre diameter x 0.977metre deep drill



Soil infiltration rate: $f = \frac{0.008}{0.215 \times 13.7 \times 60} = 4.399\text{E-}05 \text{ m/s}$

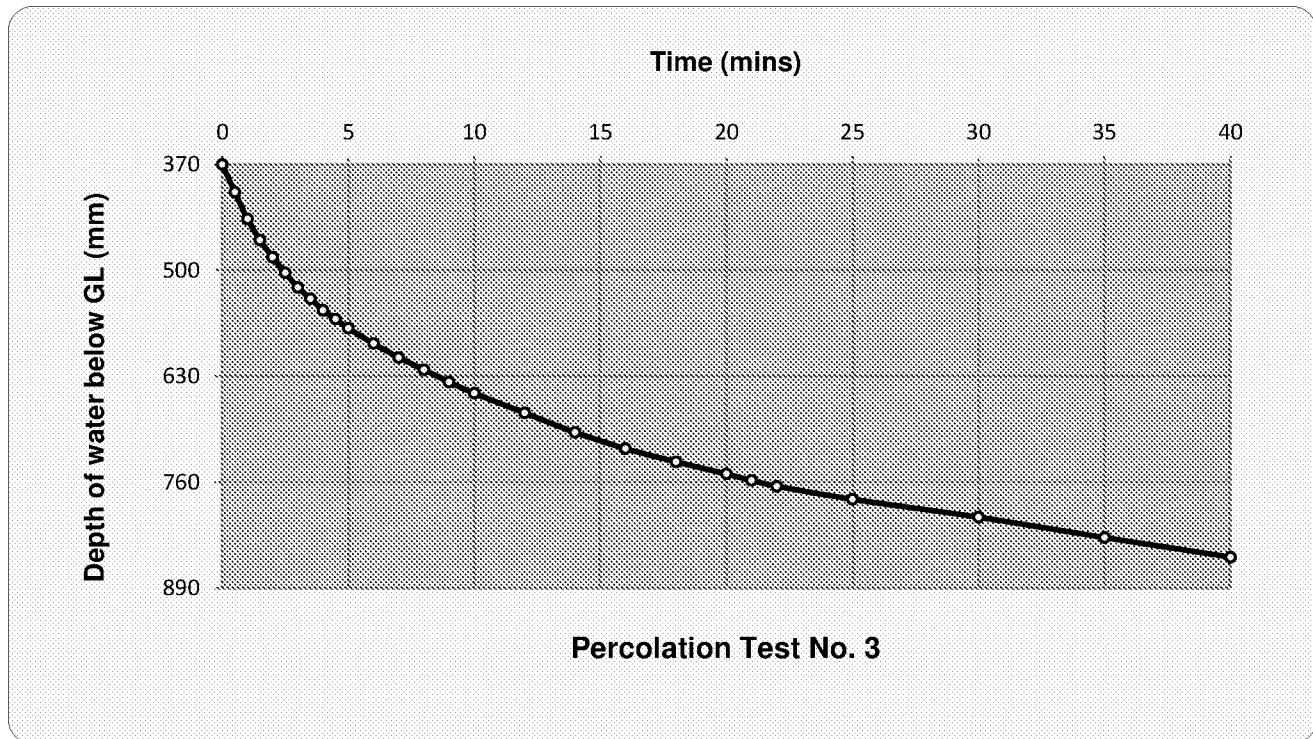
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Time (mins)	Depth to Water Surface
0.0	370
0.5	404
1.0	437
1.5	463
2.0	484
2.5	503
3.0	521
3.5	535
4.0	549
4.5	560
5.0	571
6	590
7	607
8	622
9	637
10	651
12	675
14	699
16	719
18	735
20	750
21	758
22	765
25	781
30	803
35	828
40	852

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #8

0.160metre diameter x 0.890metre deep drill



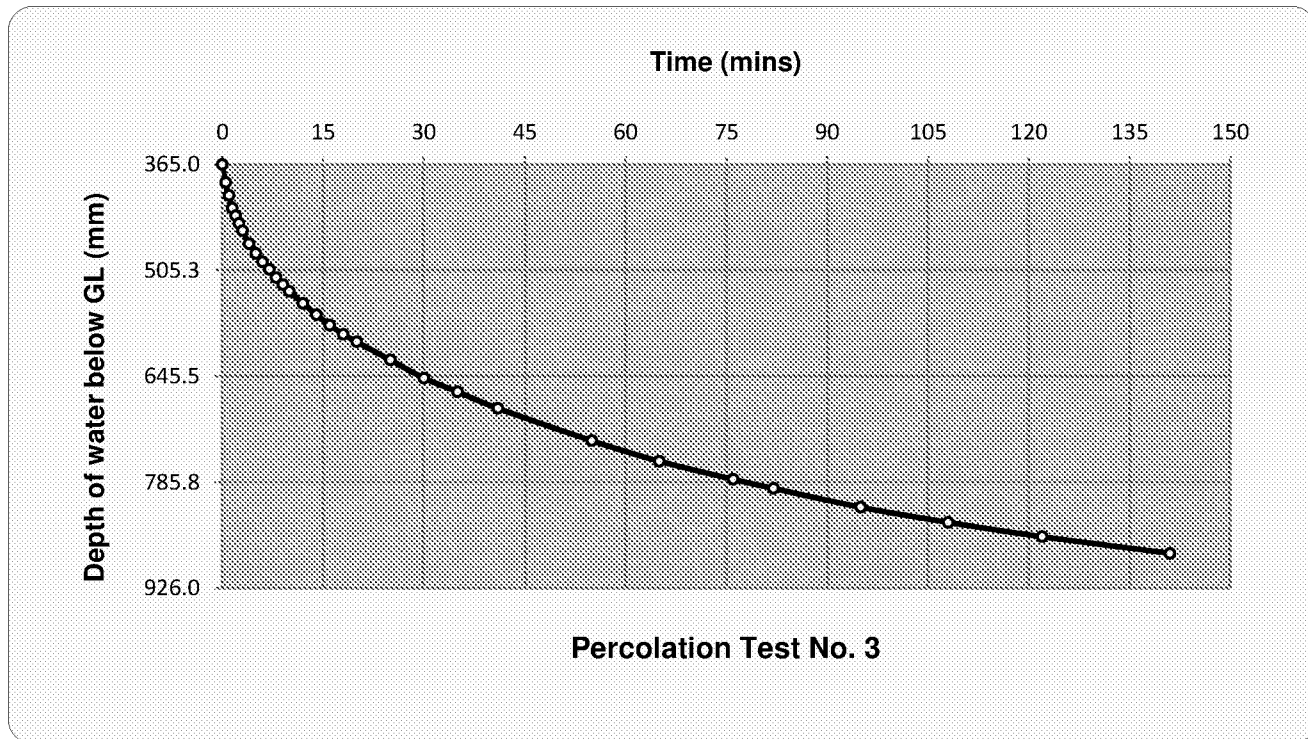
Soil infiltration rate: $f = \frac{0.005}{0.151 \times 18.8 \times 60} = 3.073\text{E-}05 \text{ m/s}$

Time (mins)	Depth to Water Surface
0.0	365
0.5	389
1.0	406
1.5	423
2.0	433
2.5	443
3.0	453
4.0	470
5.0	483
6	494
7	504
8	515
9	524
10	533
12	549
14	564
16	578
18	590
20	600
25	624
30	648
35	666
41	688
55	731
65	758
76	782
82	794
95	819
108	839
122	858
141	880

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #9

0.160metre diameter x 0.926metre deep drill



Soil infiltration rate: $f = \frac{0.006}{0.161 \times 69.9 \times 60} = 8.347\text{E-}06 \text{ m/s}$

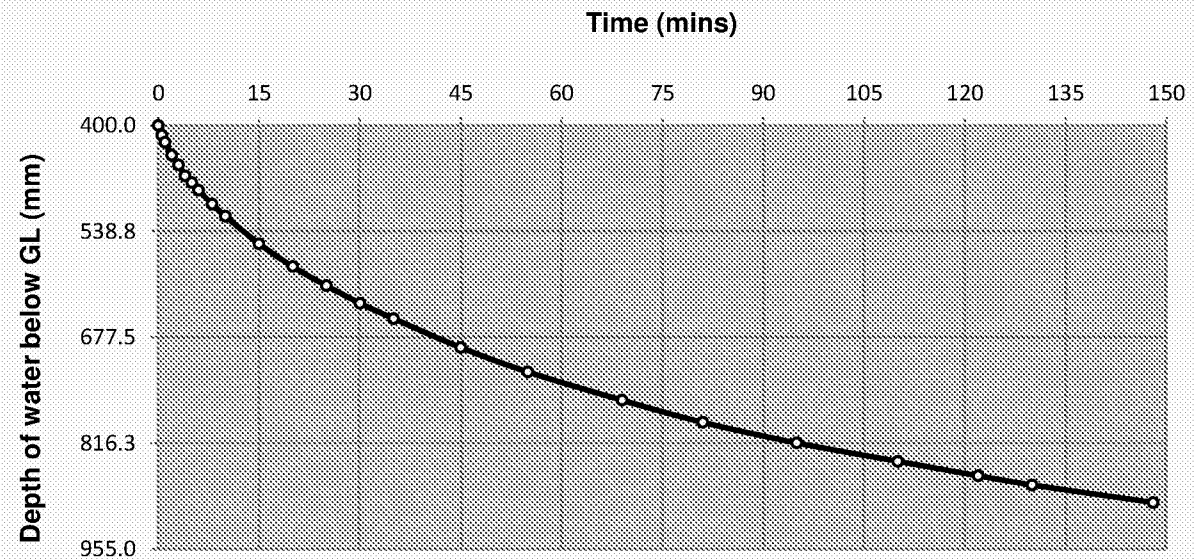
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Time (mins)	Depth to Water Surface
0.0	400
0.5	413
1.0	422
2.0	439
3.0	452
4.0	466
5.0	475
6.0	485
8.0	503
10	519
15	555
20	585
25	610
30	633
35	653
45	691
55	723
69	760
81	789
95	816
110	840
122	859
130	871
148	894

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #10

0.160metre diameter x 0.955metre deep drill



Percolation Test No. 3

Soil infiltration rate:

$$f = \frac{0.006}{0.160 \times 82.5 \times 60} = 7.063\text{E-}06 \text{ m/s}$$

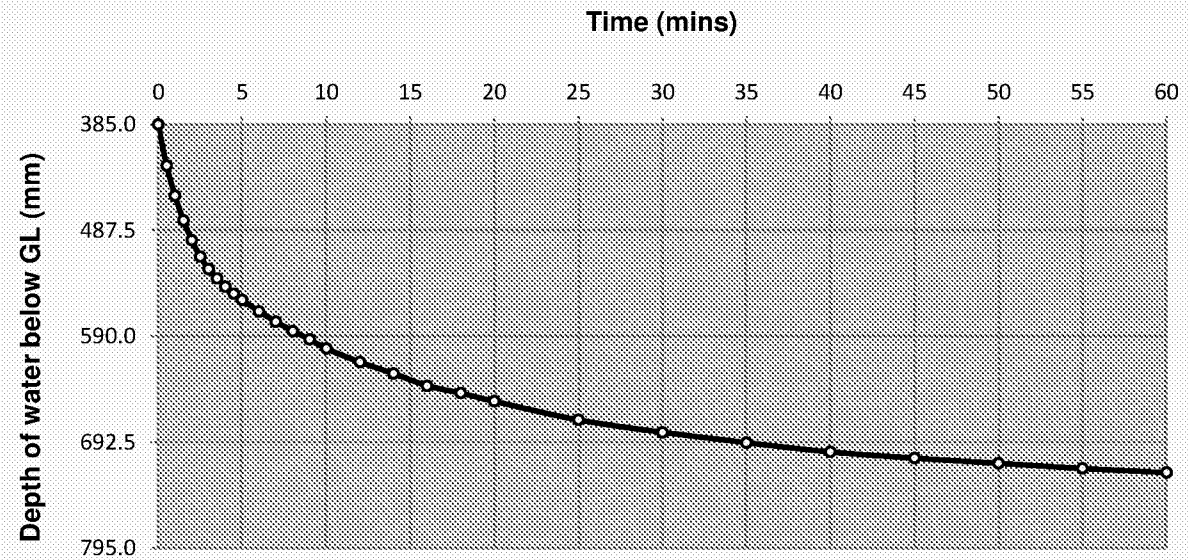
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Time (mins)	Depth to Water Surface
0.0	385
0.5	425
1.0	454
1.5	478
2.0	497
2.5	513
3.0	525
3.5	534
4.0	542
4.5	549
5.0	555
6	566
7	576
8	585
9	593
10	602
12	615
14	626
16	638
18	645
20	653
25	671
30	683
35	693
40	702
45	708
50	713
55	718
60	722

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #11

0.160metre diameter x 0.965metre deep drill



Percolation Test No. 3

Soil infiltration rate:
$$f = \frac{0.004}{0.103 \times 32.8 \times 60} = 2.036\text{E-}05 \text{ m/s}$$

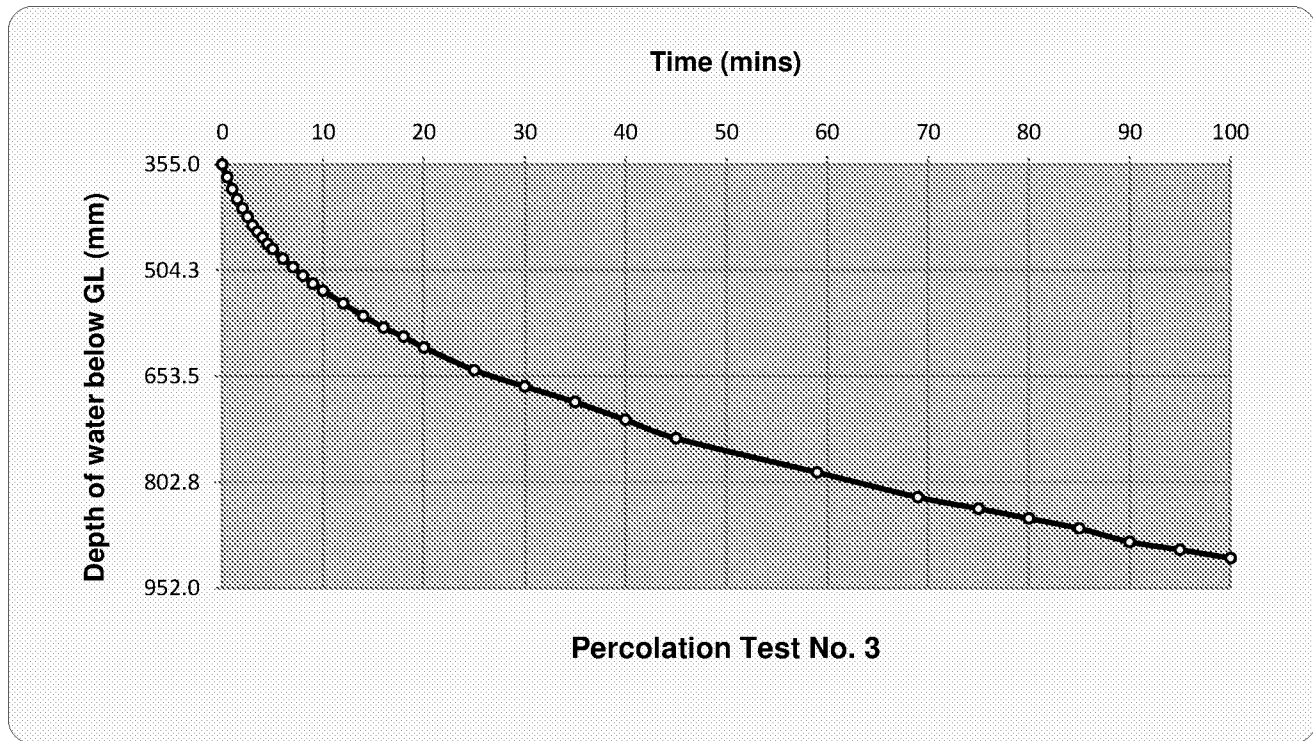
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Time (mins)	Depth to Water Surface
0.0	355
0.5	373
1.0	390
1.5	404
2.0	417
2.5	429
3.0	441
3.5	450
4.0	458
4.5	467
5.0	474
6	488
7	500
8	512
9	523
10	533
12	551
14	569
16	585
18	598
20	613
25	645
30	668
35	690
40	715
45	741
59	789
69	824
75	840
80	854
85	868
90	887

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #12

0.160metre diameter x 0.952metre deep drill



Soil infiltration rate: $f = \frac{0.006}{0.170 \times 54.1 \times 60} = 1.087\text{E-}05 \text{ m/s}$

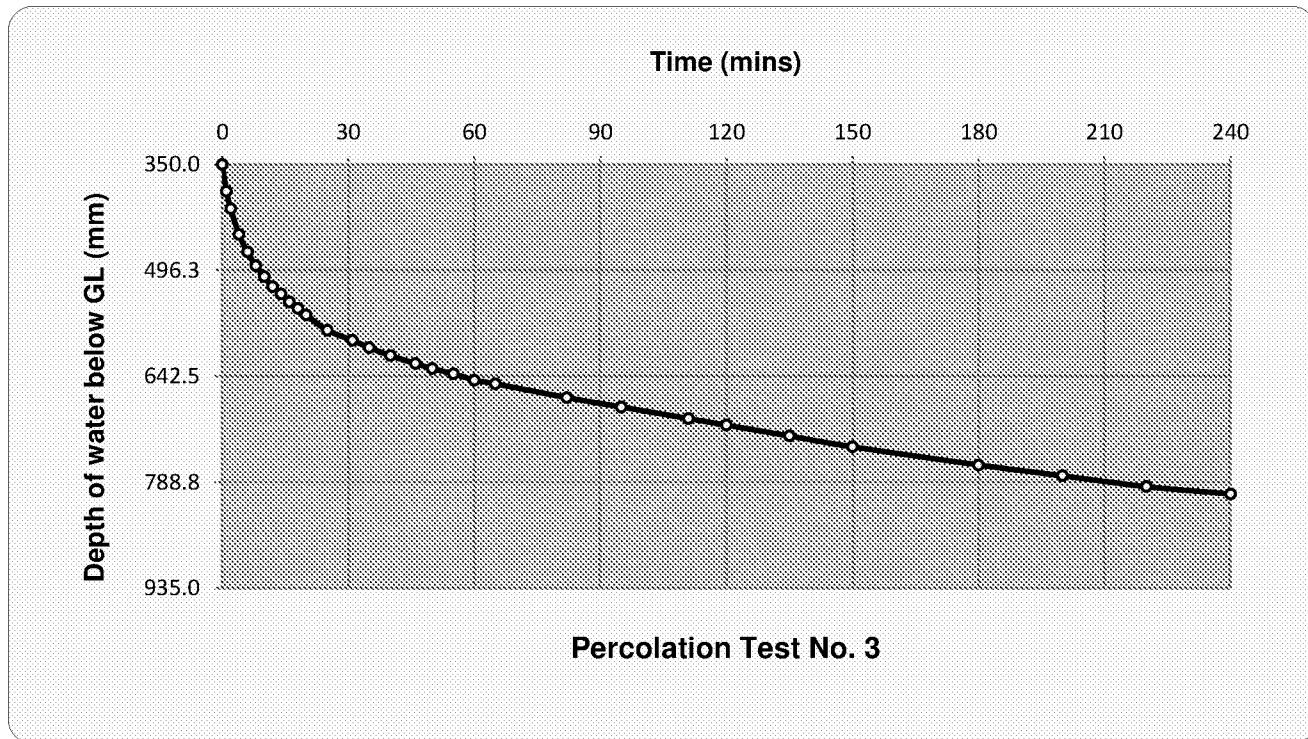
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Time (mins)	Depth to Water Surface
0	350
1	387
2	411
4	447
6	471
8	490
10	505
12	519
14	529
16	540
18	549
20	558
25	579
31	593
35	603
40	614
46	625
50	632
55	639
60	648
65	653
82	672
95	685
111	701
120	710
135	725
150	740
180	765
200	780
220	795
240	805

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #13

0.160metre diameter x 0.935metre deep drill



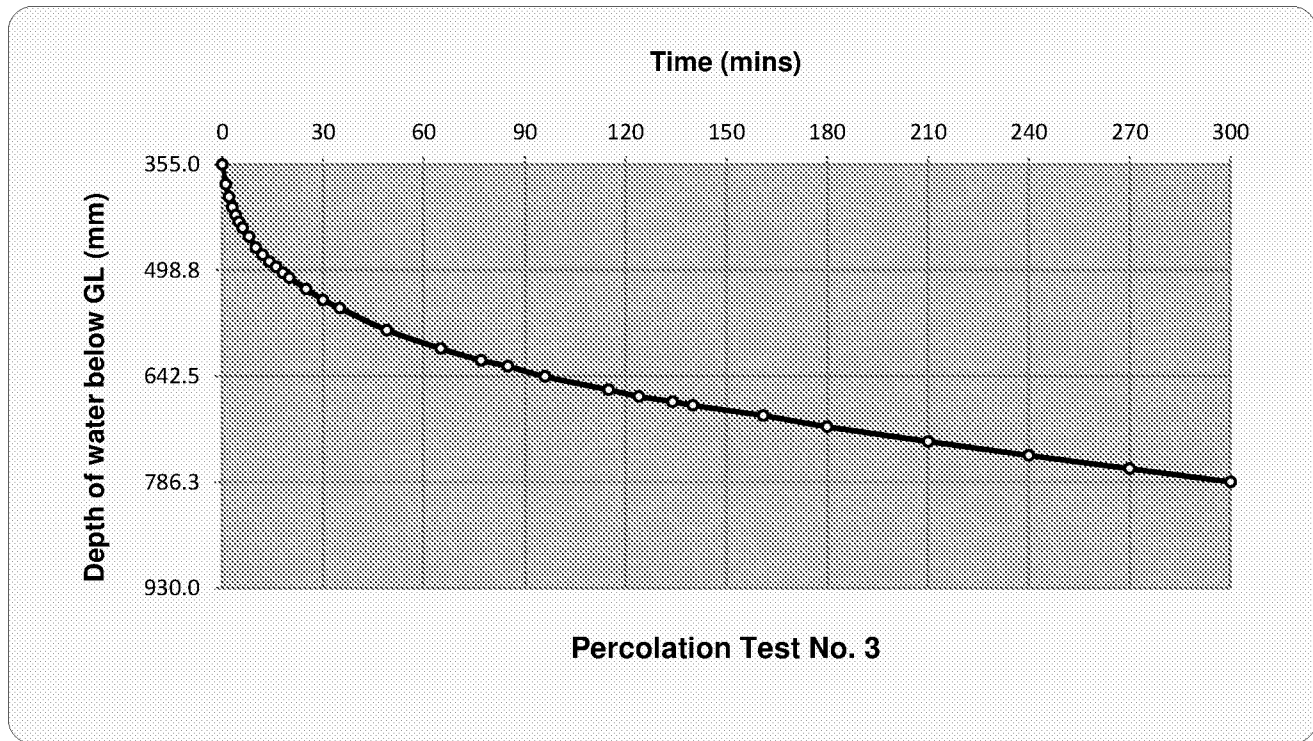
Soil infiltration rate: $f = \frac{0.006}{0.167 \times 201.2 \times 60} = 2.915E-06 \text{ m/s}$

Time (mins)	Depth to Water Surface
0.0	355
1.0	382
2.0	399
3.0	413
4.0	424
5	433
6	441
8	453
10	468
12	478
14	487
16	494
18	502
20	509
25	524
30	539
35	550
49	580
65	605
77	621
85	629
96	643
115	661
124	670
134	677
140	682
161	696
180	711
210	731
240	750
270	768
300	786

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #12

0.160metre diameter x 0.952metre deep drill



Soil infiltration rate: $f = \frac{0.006}{0.165 \times 342.5 \times 60} = 1.709\text{E-}06 \text{ m/s}$

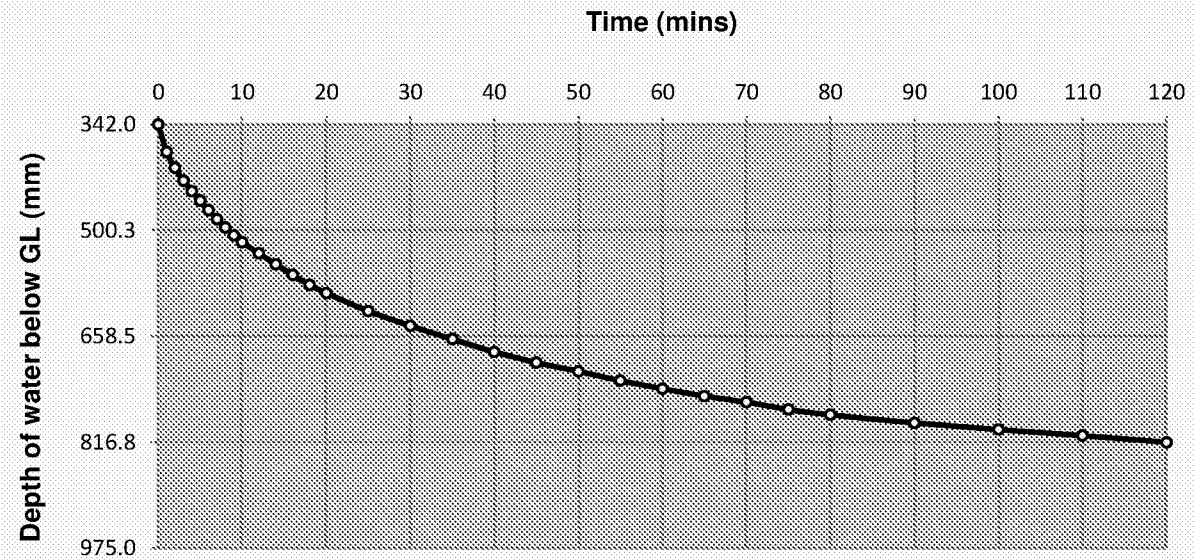
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Time (mins)	Depth to Water Surface
0.0	342
1.0	383
2.0	407
3.0	426
4.0	442
5.0	456
6	470
7	484
8	496
9	508
10	518
12	535
14	551
16	567
18	582
20	594
25	621
30	643
35	663
40	682
45	698
50	711
55	725
60	737
65	748
70	757
75	768
80	776
90	788
100	798
110	807
120	817

"The Cottage", Shripney Road, A29 Shripney

Percolation Test Borehole BH #12

0.160metre diameter x 0.952metre deep drill



Percolation Test No. 3

Soil infiltration rate: $f = \frac{0.006}{0.159 \times 111.6 \times 60} = 5.974\text{E-}06 \text{ m/s}$