IMPRESSIVE ERECTIONS LTD

HERNE HOUSE, HERNE BAY CT6 8BB

INFILTRATION TEST REPORT

Reference: 1248/IR

14th October 2019

CLIENT: Impressive Erections Ltd
70 East Hill
Dartford
Kent

SITE: Herne House
Morris Avenue
Herne Bay
CT6 8BB

INFILTRATION TEST REPORT

Reference: 1248/IR

14th October 2019

Prepared By:

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REFERENCES

Reference 1 British Geological Survey

Reference 2 BRE365 Soakaway Design

FIGURE

1248/Figure 1 Site Plan

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FOREWORD

This document has been prepared by Peter Baxter Associates Ltd with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it by agreement with the client.

This document is confidential to the Client and Peter Baxter Associates Ltd accepts no responsibility whatsoever to third parties to whom this document, or any part thereof, is made known. Any such party relies upon the document at their own risk.

This document shall not be used unless the document status is 'Final', and Peter Baxter Associates Ltd's fees have been settled in full.

1.0 SUMMARY TEXT

1.1 Summary and Infiltration Test Results

1.1.1 Peter Baxter Associates (PBA) were commissioned by the Client; Impressive Erections Ltd, to carry out infiltration tests in accordance with BRE 365 at three locations at the redevelopment of Herne House, Herne Bay, Kent CT6 8BB (the Site). The Site's subsoil was London Clay. At each location three pits were excavated by the Client and flooded simultaneously with water supplied by the Client in a road tanker, under the supervision of a PBA geologist. The locations are shown on Figure 1.

1.1.2 The lowest soil infiltration test values at each location were: Location 1; 8.0×10^{-7} m/s, Location 2; 9.1×10^{-5} m/s, Location 3; 8.9×10^{-7} m/s. The test reports are included in Appendix B. The results at locations 1 and 3 were consistent with literature values for silty clay. The result at location 2 was higher than may be expected. No anomalies such as drains, fissures, or sand lenses were noted in the pits at location 2.

1.2 Site Location and Description

1.2.1 The Site's address is Herne House, Morris Avenue, Herne Bay, Kent CT6 8BB. The Site is approximately two miles west of Herne Bay Pier and overlooks the beach. The Site is level and low lying and approximately 1000m^2 in area. The Site was secure from unauthorised access.

1.2.2 The Site is shown on Figure 1 with the soakaway locations and proposed drainage layout.

1.3 Proposed Development

1.3.1 The Site is an existing detached residential property with garden that is to be redeveloped as a block of three apartments with hardstanding parking.

1.4 Site Geology

1.4.1 The geological maps of the area (Reference 1) indicated that the Site's geology was London Clay. Geological maps from Reference 1 are presented in Appendix A.

1.4.2 The Site geology in the test pits was confirmed to be London Clay beneath approximately 0.3m of topsoil. No anomalies such as drains, fissures, or sand lenses were observed in the pits. No groundwater was observed in the pits.

1.5 Test Dates, Locations and Methodology

1.5.1 The infiltration testing began on 30th September 2019 and was completed on 2nd October. The weather was cool with some rain during this period.

1.5.2 The Client excavated pits at three locations with an excavator, denoted soakaway test locations 1, 2 and 3, and which are shown on Figure 1. The pit dimensions were established by a PBA geologist and are given on the test reports in Appendix B.

1.5.3 The pits were excavated to 1.5m depth, which was similar to the proposed soakaway depth. The depths stated on the test reports in Appendix B are the depths of water immediately after filling.

1.5.4 The infiltration tests were carried out in accordance with a method detailed in BRE365 (Reference 2). At each soakaway test location, three pits were dug in close proximity and were flooded simultaneously with water imported to Site by the Client in a road tanker. The initial water depths were 0.5m. Readings of depth to water level were recorded against set datum bars. The depths given in the test reports are the depths below initial water level. Readings after 30th September were taken by a Client's representative.

1.5.5 The soil infiltration rates were calculated using the method given in BRE365 by a spreadsheet. The test reports include plots of depth with time, and the test durations were sufficient for the pits to soak away fully.

1.6 Results and Comparison with Literature Values

1.6.1 The test reports are included in Appendix B. The lowest soil infiltration rates at each location were: Location 1; 8.0×10^{-7} m/s, Location 2; 9.1×10^{-5} m/s, Location 3; 8.9×10^{-7} m/s.

1.6.2 The results at locations 1 and 3 were consistent with literature values for silty clay. The result at location 2 was higher than may be expected and in the range of infiltration rates quoted for sands. No anomalies such as drains, fissures, or sand lenses were noted in the pits at location 2.

Peter Baxter BEng CEng MICE

For and on behalf of Peter Baxter Associates Ltd

FIGURE

Based on DDA drg 1823/5001

SOAKWAY TEST LOCATION 2

SOAKWAY TEST LOCATION 1

SOAKWAY TEST LOCATION 3

RES5
8.800
8.350

Flat 01
75 m²
Kitchen and living

ICF1
8.800
7.600
Type 3A

ICF2
8.800
7.445
Type 3C

ICF3
8.780
7.240
Type 3C

ICS3
8.800
7.770
Type 3C

ICS4
8.800
7.610
Type 3C
600mmØ

ICS6
8.800
8.180
Type 3C

ICS7
8.700
7.505
Type CP
600mmØ

150mmØ @1:110.7

150mmØ @1:18.91

150mmØ @1:98.1

150mmØ @1:98.5

150mmØ @1:118.361

225mmØ @1:172.6

225mmØ @1:133.3

1:299.41

1:40

1:40

3.5m x 7m X 1.6m Deep Soakaway Crates (Wavin Aquacell Core or similar approved)
Inlet Level 7.482m
Base Level 6.195m
Top of crates level 7.795m

MH NOT LOCATED PLOTTED FROM RECORDS

KEY

- SURFACE WATER DRAIN, SIZE AND GRADIENT AS SHOWN
- 100mmø FOUL WATER DRAIN GRADIENT AS SHOWN
- 150mmø DIVERTED FOUL WATER SEWER LAID AT A GRADIENT OF 1:299.41
- THRESHOLD DRAIN
- PRIVATE SURFACE WATER RODDING EYE
- PRIVATE SURFACE WATER INSPECTION CHAMBER
- PRIVATE FOUL WATER INSPECTION CHAMBER
- ADOPTABLE FOUL WATER INSPECTION CHAMBER
- NOTE – ALL INSPECTION CHAMBERS TO BE 450mmø EXCEPT WHERE SHOWN OTHERWSIE ON THE PLAN
- YG YARD GULLY
- SURFACE WATER SOAKAWAY CRATES (WITH VENT BOX)
- VB

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Client
Impressive Erections Limited

Project
Herne House, Herne Bay
Infiltration Testing

Title
Site Plan

Rev.	Date	Drn.	App.	Revision

Drawn: PB
Checked: PB
Size: A3
Scale: NTS
Status: Information
Drawing No.: 1248/Fig 1
Rev.: A

APPENDICES

APPENDIX A
GEOLOGICAL MAPS

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	SLIP	Landslide Deposit	Clay, Silt and Sand	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand And Peat	Not Supplied - Holocene
	BTFU	Beach and Tidal Flat Deposits (Undifferentiated)	Clay, Silt and Sand	Not Supplied - Quaternary
	HEAD	Head	Clay and Silt	Not Supplied - Quaternary
	HEAD	Head	Gravel, Sand, Silt and Clay	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	LC	London Clay Formation	Clay and Silt	Not Supplied - Ypresian

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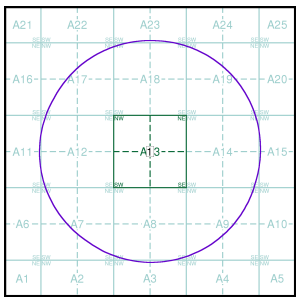
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**273**
Map Name:	**Faversham**
Map Date:	**1967**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Not Available**
Faults:	**Not Supplied**
Landslip:	**Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



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Customer Reference:	1248
National Grid Reference:	614690, 167690
Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

Site Details:

Herne House, Morris Avenue, HERNE BAY, CT6 8BB

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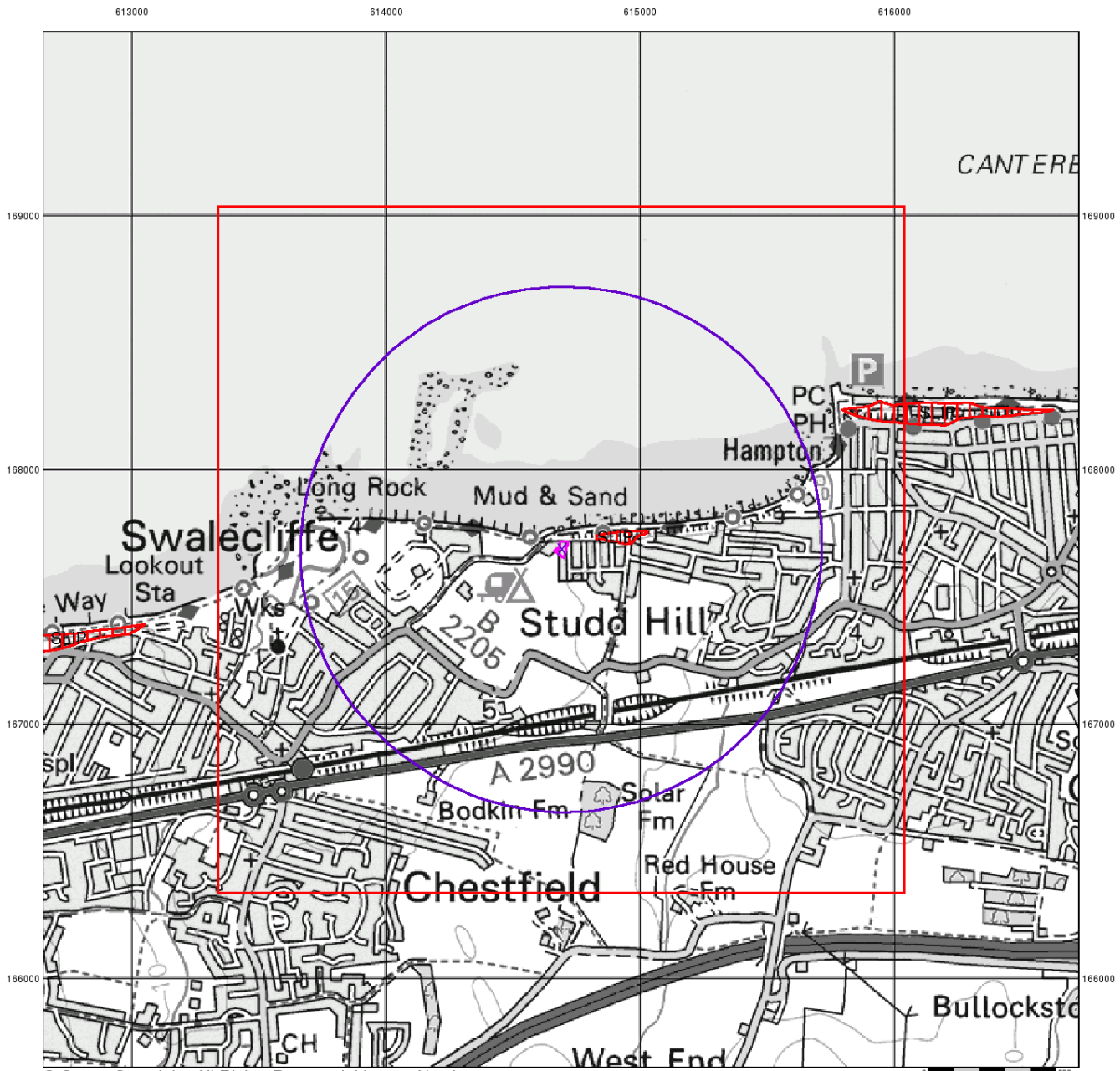

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Artificial Ground and Landslip

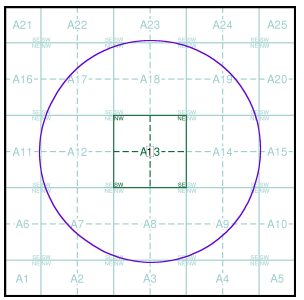
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



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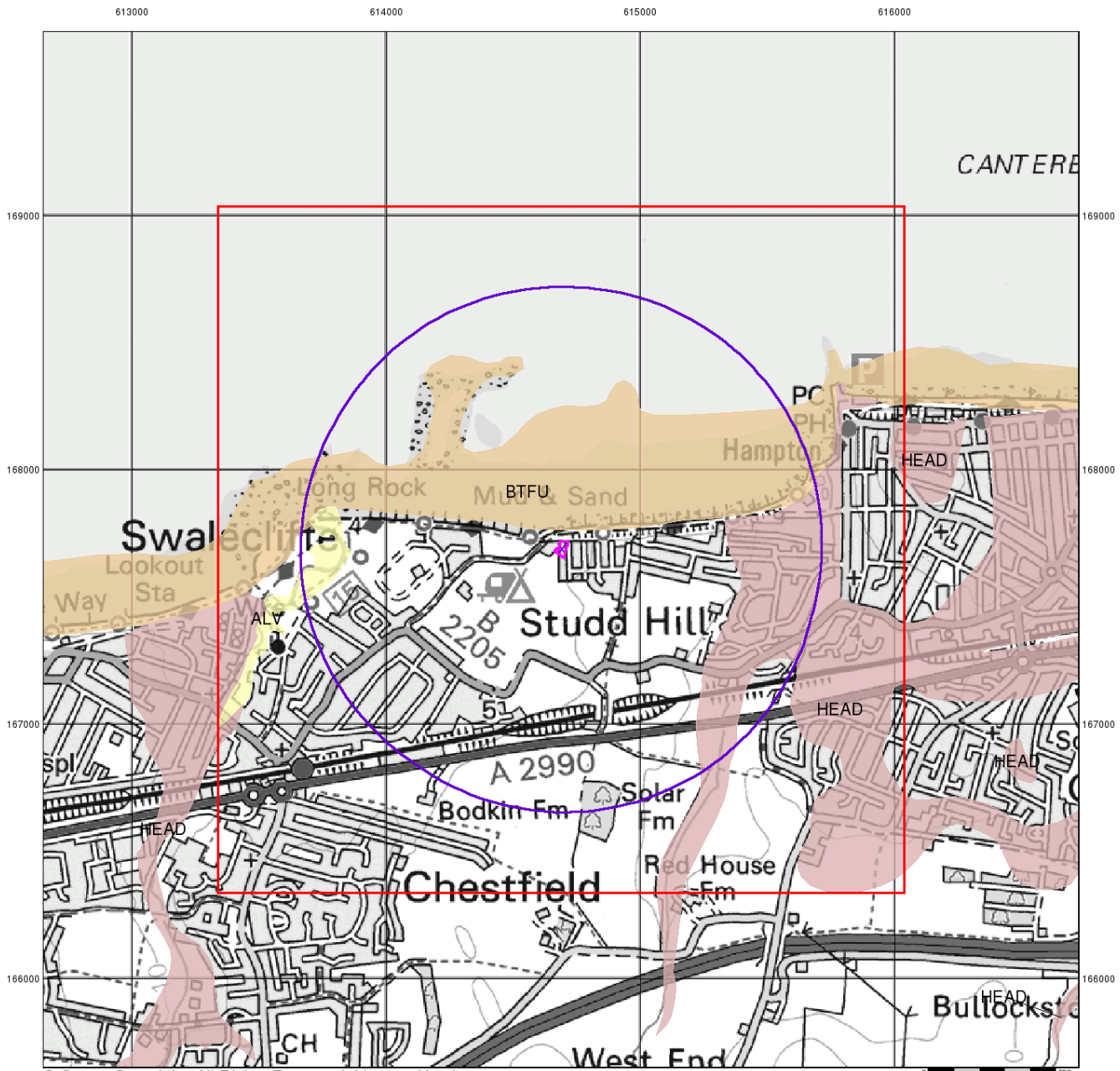

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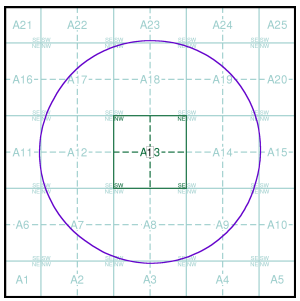
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



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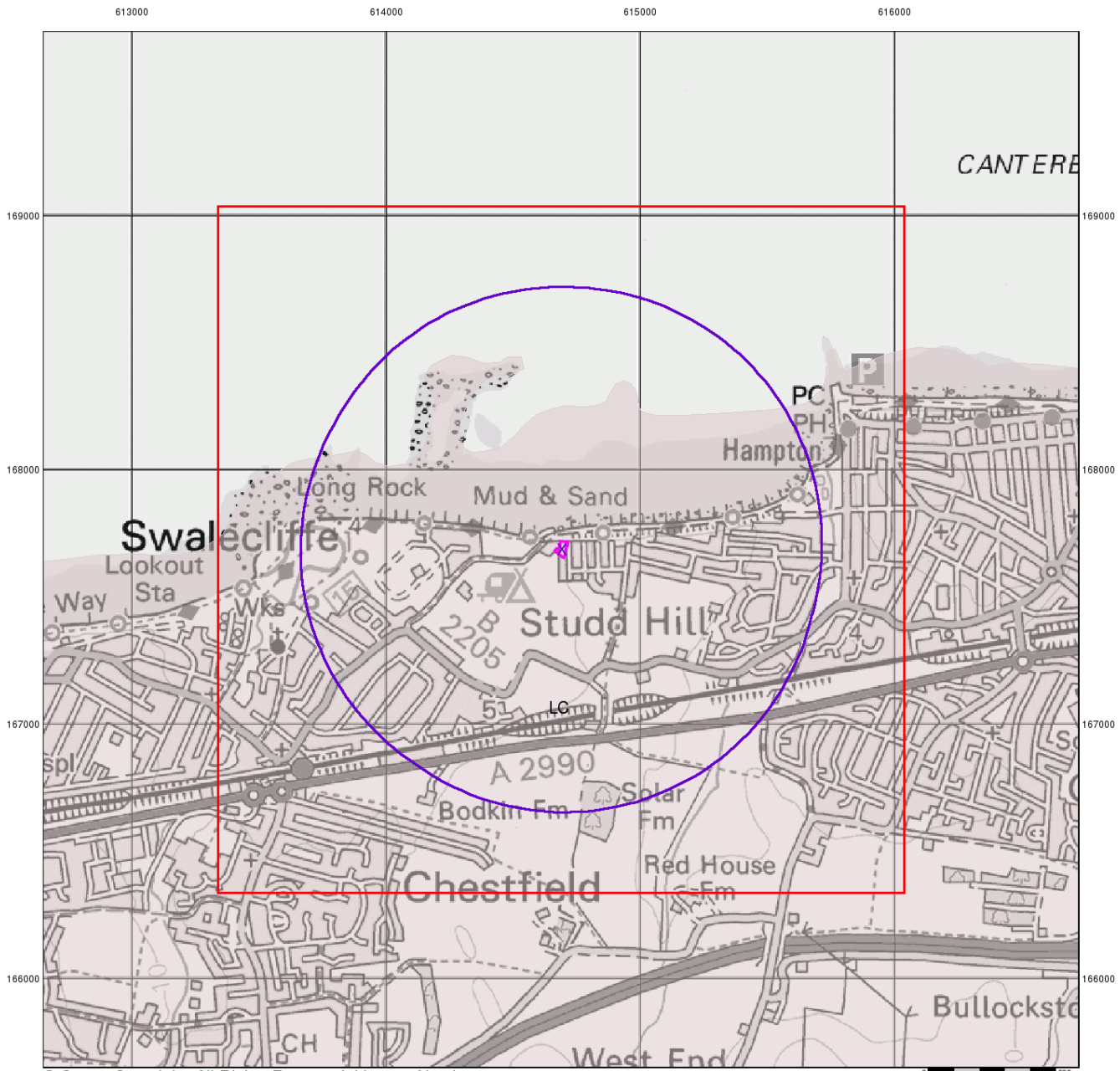

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Bedrock and Faults

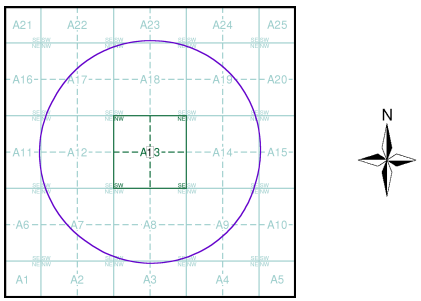
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



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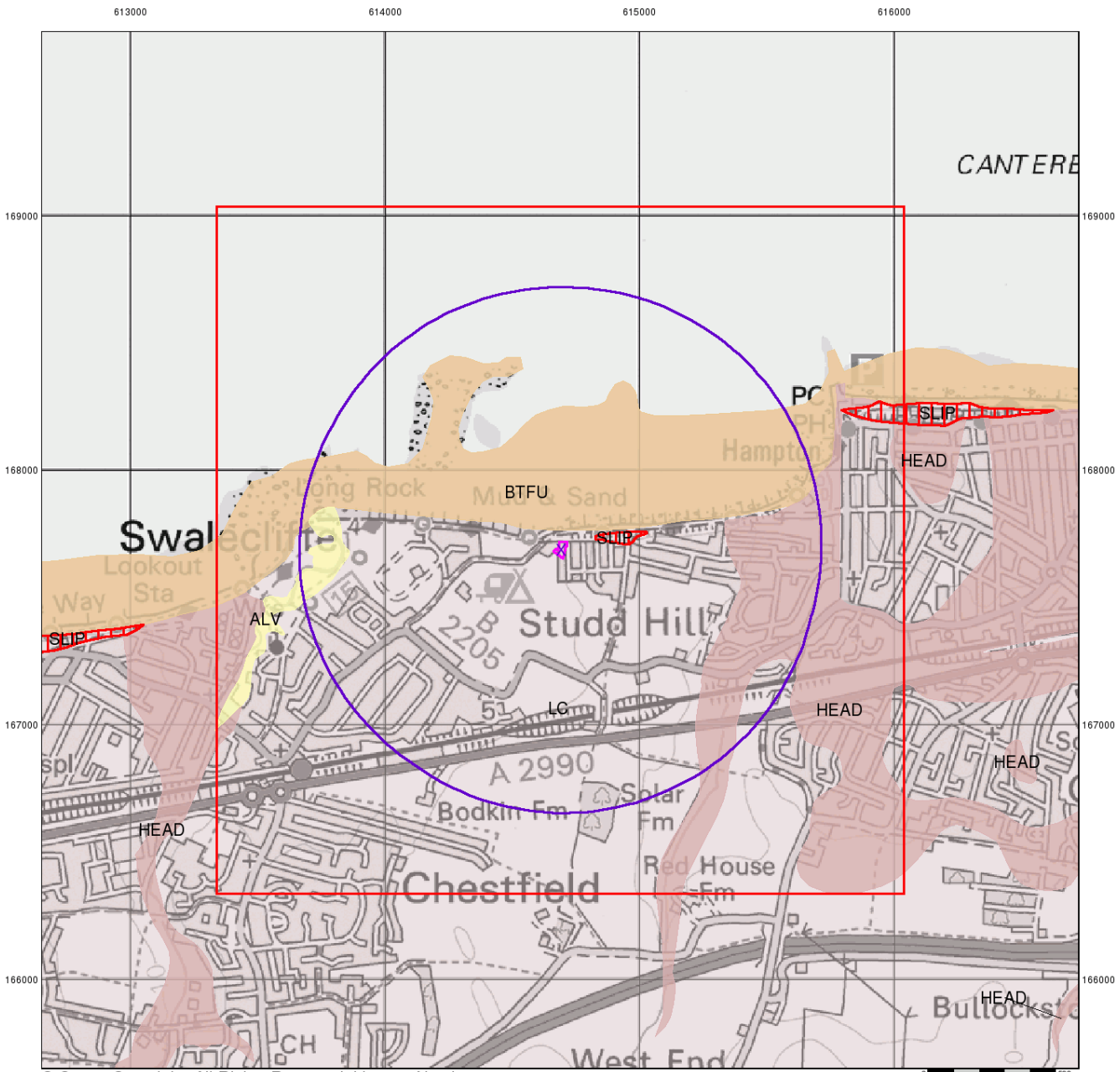

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

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NG12 5GG
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Fax: 0115 936 3276
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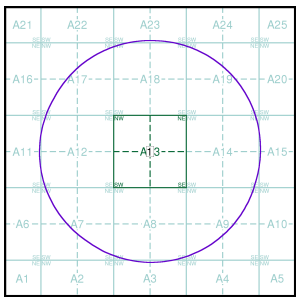
website: www.bgs.ac.uk

Combined Geology Map - Slice A



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Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

Site Details:

Herne House, Morris Avenue, HERNE BAY, CT6 8BB

APPENDIX B
TEST REPORTS

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP1A**

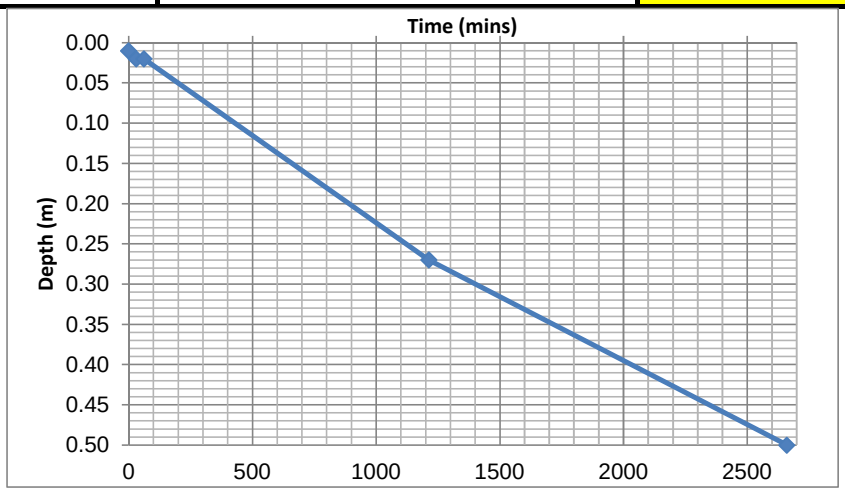
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.09**

	Volume (m3)	Depth (m)
75% Full	0.06890625	0.13
25% Full	0.02296875	0.38
Volume Outflowing	0.0459375	

	Area (m2)
Mean surface Area	0.64075

Time (mins) 75% outflow	600
Time (mins) 25% outflow	1900

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.40.00	0	0.01
14.10.00	30	0.02
14.41.00	61	0.02
1/10 09.53.00	1213	0.27
2/10 10.00.00	2660	0.50



Soil Infiltration Rate F (m/s)	**9.2E-07**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP1B**

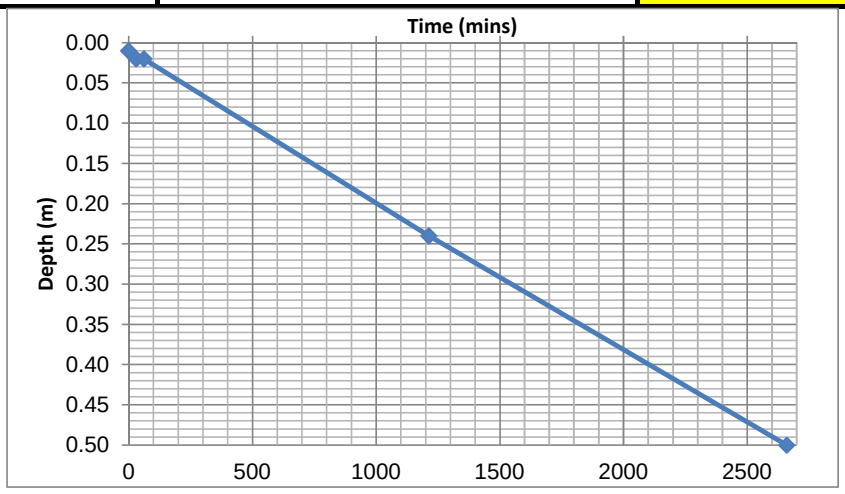
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.09**

	Volume (m3)	Depth (m)
75% Full	0.06890625	0.13
25% Full	0.02296875	0.38
Volume Outflowing	0.0459375	

	Area (m2)
Mean surface Area	0.64075

Time (mins) 75% outflow	600
Time (mins) 25% outflow	2000

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.40.00	0	0.01
14.10.00	30	0.02
14.41.00	61	0.02
1/10 09.53.00	1213	0.24
2/10 10.00.00	2660	0.50



Soil Infiltration Rate F (m/s)	**8.5E-07**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP1C**

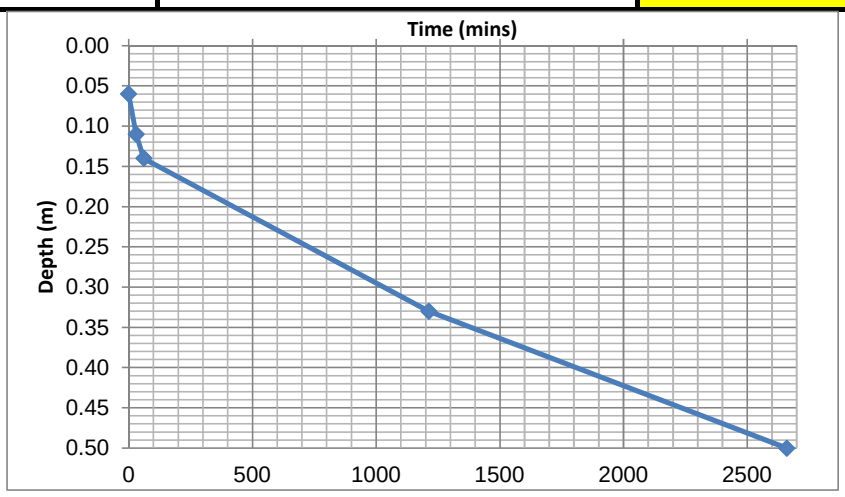
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.08**

	Volume (m3)	Depth (m)
75% Full	0.061875	0.17
25% Full	0.020625	0.39
Volume Outflowing	0.04125	

	Area (m2)
Mean surface Area	0.5945

Time (mins) 75% outflow	250
Time (mins) 25% outflow	1700

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.40.00	0	0.06
14.10.00	30	0.11
14.41.00	61	0.14
1/10 09.53.00	1213	0.33
2/10 10.00.00	2660	0.50



Soil Infiltration Rate F (m/s)	**8.0E-07**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP2A**

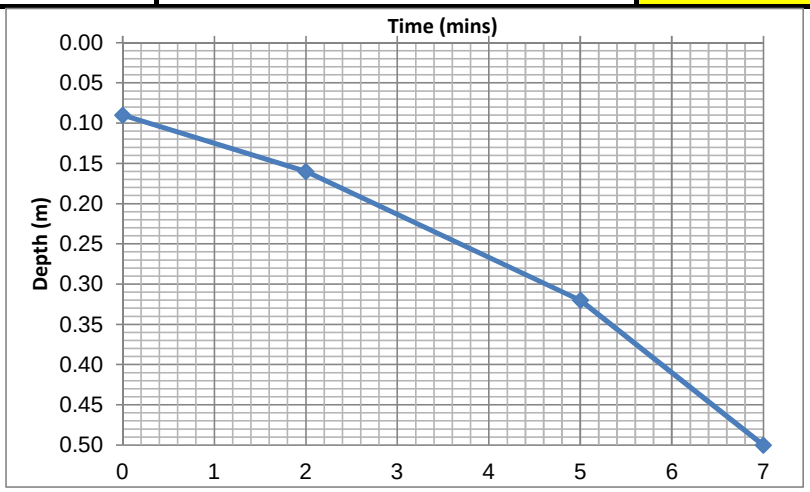
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.08**

	Volume (m3)	Depth (m)
75% Full	0.05765625	0.19
25% Full	0.01921875	0.40
Volume Outflowing	0.0384375	

	Area (m2)
Mean surface Area	0.56675

Time (mins) 75% outflow	2.7
Time (mins) 25% outflow	5.8

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.52.00	0	0.09
13.54.00	2	0.16
13.57.00	5	0.32
13.59.00	7	0.50



Soil Infiltration Rate F (m/s)	**3.6E-04**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP2B**

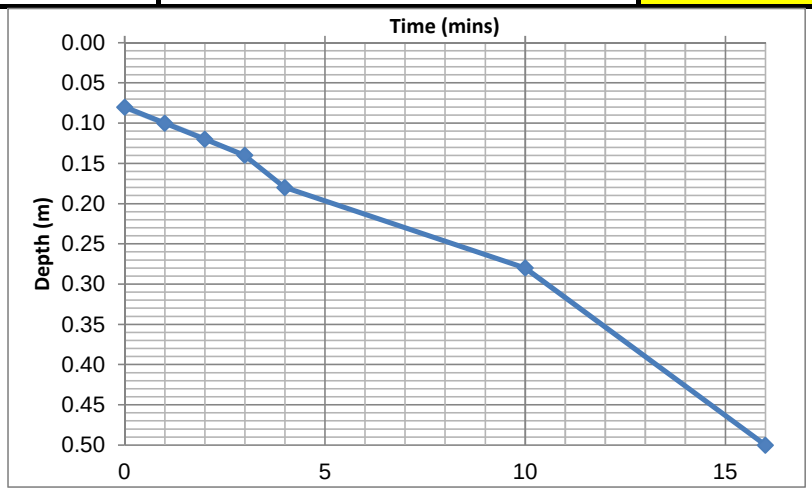
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.08**

	Volume (m3)	Depth (m)
75% Full	0.0590625	0.19
25% Full	0.0196875	0.40
Volume Outflowing	0.039375	

	Area (m2)
Mean surface Area	0.576

Time (mins) 75% outflow	4.5
Time (mins) 25% outflow	13.5

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
14.03.00	0	0.08
14.04.00	1	0.10
14.05.00	2	0.12
14.06.00	3	0.14
14.07.00	4	0.18
14.13.00	10	0.28
14.19.00	16	0.50



Soil Infiltration Rate F (m/s)	**1.3E-04**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP2C**

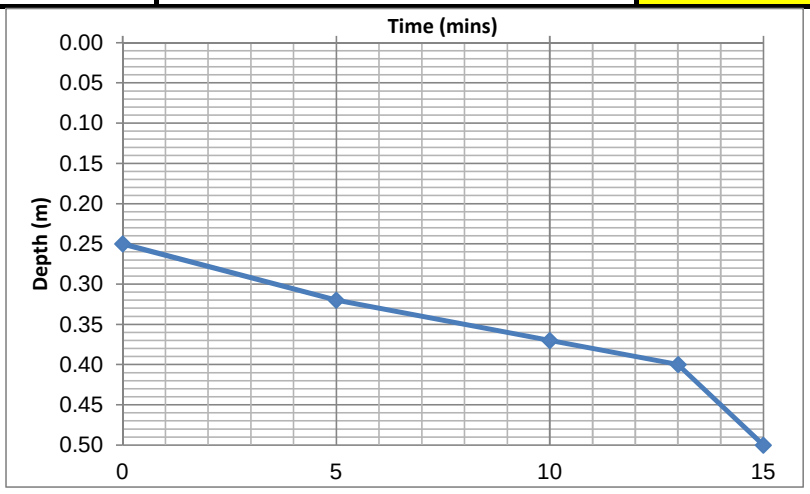
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.05**

	Volume (m3)	Depth (m)
75% Full	0.03515625	0.31
25% Full	0.01171875	0.44
Volume Outflowing	0.0234375	

	Area (m2)
Mean surface Area	0.41875

Time (mins) 75% outflow	3.5
Time (mins) 25% outflow	13.7

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.45.00	0	0.25
13.50.00	5	0.32
13.55.00	10	0.37
13.58.00	13	0.40
14:00:00	15	0.50



Soil Infiltration Rate F (m/s)	**9.1E-05**

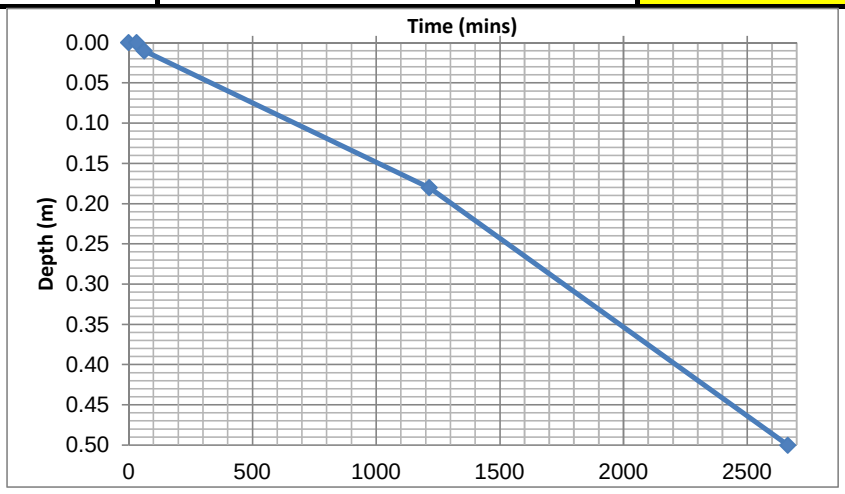
Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP3A**

Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.09**

	Volume (m3)	Depth (m)
75% Full	0.0703125	0.13
25% Full	0.0234375	0.38
Volume Outflowing	0.046875	

	Area (m2)
Mean surface Area	0.65
Time (mins) 75% outflow	850
Time (mins) 25% outflow	1900

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.36.00	0	0.00
14.08.00	32	0.00
14.39.00	63	0.01
1/10 09.50.00	1214	0.18
2/10 10.00.00	2664	0.50



Soil Infiltration Rate F (m/s)	**1.1E-06**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP3B**

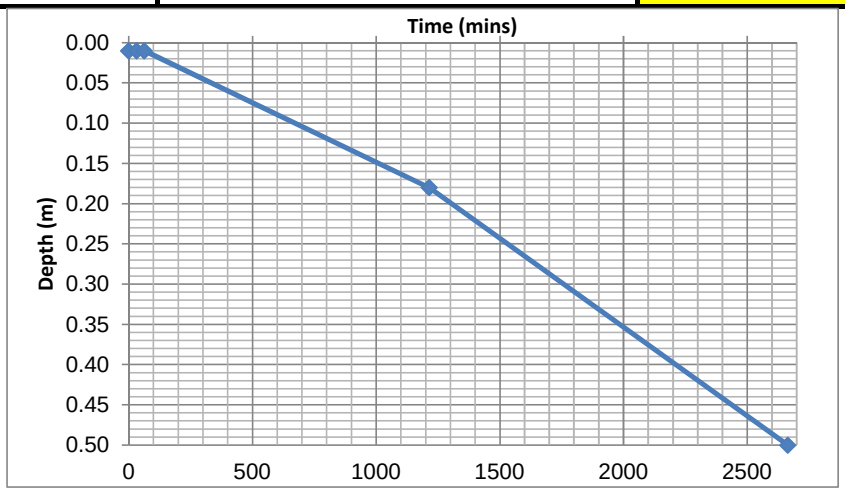
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.09**

	Volume (m3)	Depth (m)
75% Full	0.06890625	0.13
25% Full	0.02296875	0.38
Volume Outflowing	0.0459375	

	Area (m2)
Mean surface Area	0.64075

Time (mins) 75% outflow	850
Time (mins) 25% outflow	2100

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.36.00	0	0.01
14.08.00	32	0.01
14.39.00	63	0.01
1/10 09.50.00	1214	0.18
2/10 10.00.00	2664	0.50



Soil Infiltration Rate F (m/s)	**9.6E-07**

Project:	**Herne Bay, Herne House**	**Job No.**	**1248**
Client:	**Impressive Erections Ltd**	**Date:**	**30/09/2019**
Infiltration Test BRE 365		**Location:**	**TP3C**

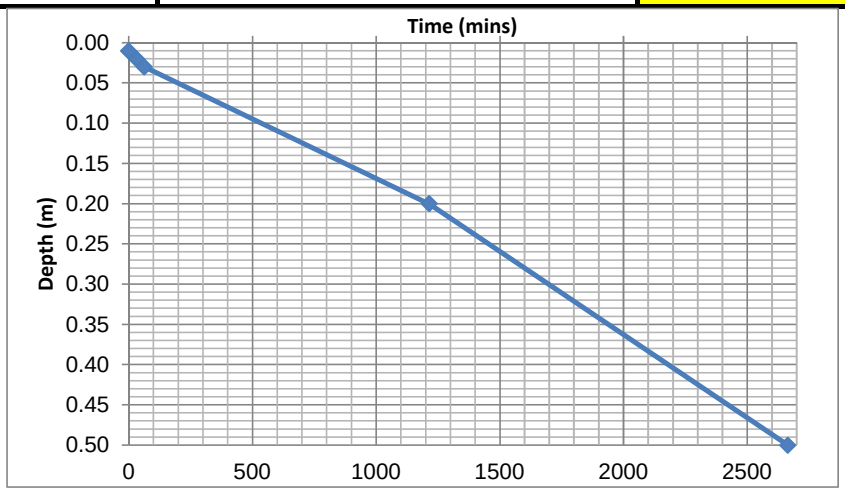
Trial Pit Details	Depth (m)	Length (m)	Width (m)	Effective Storage Volume (m^3)
Dimensions	0.50	0.63	0.30	**0.09**

	Volume (m3)	Depth (m)
75% Full	0.06890625	0.13
25% Full	0.02296875	0.38
Volume Outflowing	0.0459375	

	Area (m2)
Mean surface Area	0.64075

Time (mins) 75% outflow	750	
Time (mins) 25% outflow	2100	s

Time (24hr)	Elapsed Time (mins)	Depth to water (m)
13.36.00	0	0.01
14.08.00	32	0.02
14.39.00	63	0.03
1/10 09.50.00	1214	0.20
2/10 10.00.00	2664	0.50



Soil Infiltration Rate F (m/s)	**8.9E-07**