

BRE365 Infiltration Testing For:

Y Boblen

24 Bryn Road,
Cwmllynfell,
Swansea,
SA9 2FJ

Prepared for:

Avocet Civil Engineering

REF: Y Boblen

DATE: 27.10.2021



GibbsGeoTechnical

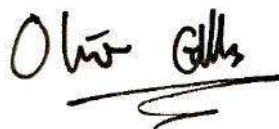
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Prepared By: **Oliver Gibbs**

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Contents

1	Introduction	3
1.1	Brief	3
1.2	Site Investigations	3
2	Site findings	4
2.1	Method of testing	4
2.2	British Geological Records	4
2.3	Trial pit soil conditions	4
3	Results	4
4	Conclusions	7
APPENDIX A: Site Test Plans		8
APPENDIX B: Site Photos		9
APPENDIX C: BGS Records		15

1 Introduction

1.1 Brief

Gibbs Geotechnical has been instructed by Joel Wall from Avocet Civil Engineering on Behalf of Mr Humayun Nasser (the Client) to undertake three soil infiltration tests to the BRE 365 digest standard at the derelict pub property at Y Boblen, 24 Bryn Road, Cwmllynfell, Swansea, SA9 2FJ

National Grid Reference: **SN 74576 12572**

Latitude, Longitude: **51.797685 , -3.8202274**

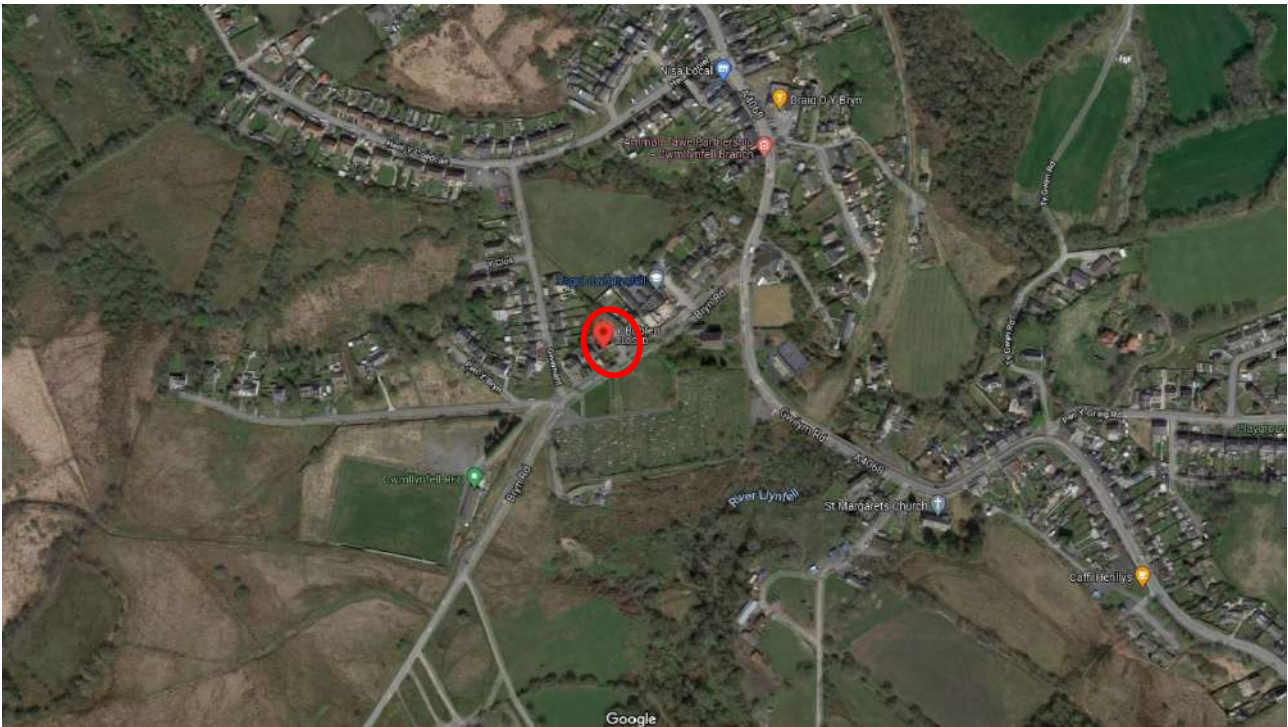


Figure 1 - Site location

Three infiltration tests have been proposed to determine the local geology and permeation rates on site. These tests will be approximately 0.5-1m³ in size and tested a maximum of 3 times or as many as possible in the timeframe allowed. Refer to **Appendix A – Site Test Plans**

1.2 Site Investigations

The site is old public house with car park set off Bryn Road in the village of Cwmllynfell to the east of the local school and north of the River Llynfell. The pub has recently burned down and the property was inaccessible. Water was not connected on site. The car park to the rear of the property was a compact gravel and concrete surface raised above a local footpath via a 1.5m high retaining wall. The site can be accessed from Bryn Road which can be seen falling away west to east at a steep gradient. The property to the west of the site was also raised up by another 1.8m high retaining wall.

The tests were performed on the 21st of October 2021 by Gibb Geotechnical. At the time of testing the weather was clear following heavy rain the night before. Refer to **Appendix B – Site photos**

2 Site findings

The following tests were performed to the BRE 365 Digest Standard and to the best of the ability of those involved were possible subject to site constraints and weather conditions. Both pits were dug without encountering bedrock, surface water or other issues to a depth of at least 1.0m in the location shown on Appendix A.

2.1 Method of testing

Water was not available on site and was supplied via 2 number of 1000 litre bowzers on the back of a trailer. Following excavation of the pits, water from the bowser was then delivered at a rapid rate using a high flow pump. Each pit was fill to the top and monitored. Water levels were taken via measuring staffs left in the pits.

2.2 British Geological Records

Local searches from the British Geological Survey (BGS) online records show the site to have the following superficial soils and bedrock:

Bedrock: South Wales Middle Coal Measures Formation - Mudstone, siltstone and sandstone. *Sedimentary bedrock formed between 318 and 309.5 million years ago during the Carboniferous period.*

Superficial soils Till, Devensian - Diamicton. *Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.*

Refer to **Appendix C** for BGS records <http://mapapps.bgs.ac.uk/geologyofbritain3d/>

2.3 Trial pit soil conditions

Soils encountered were logged at the following approximate depths:

Pit 1

Topsoil:	0-0.2m	- Topsoil
Superficial soils:	0.2-1.0m	- Light Red Brown Silty Clay

Pit 2

Topsoil:	0-0.8m	- Compact grave/Made ground
Superficial soils:	0.8-1.0m	- Light Red Brown Silty Clay

Pit 3

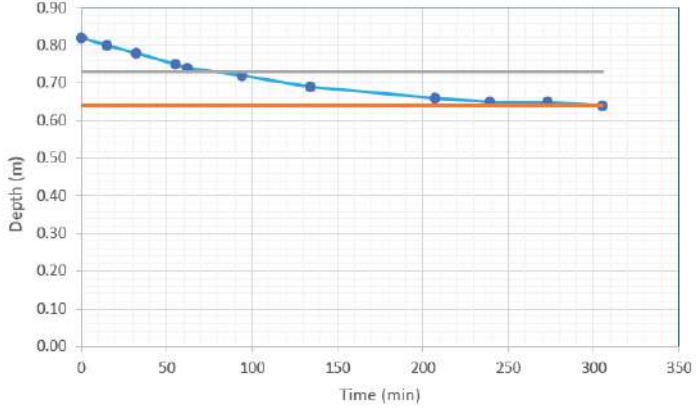
Topsoil:	0-0.8m	- Compact grave/Made ground
Superficial soils:	0.8-1.0m	- Light Red Brown Silty Clay

3 Results



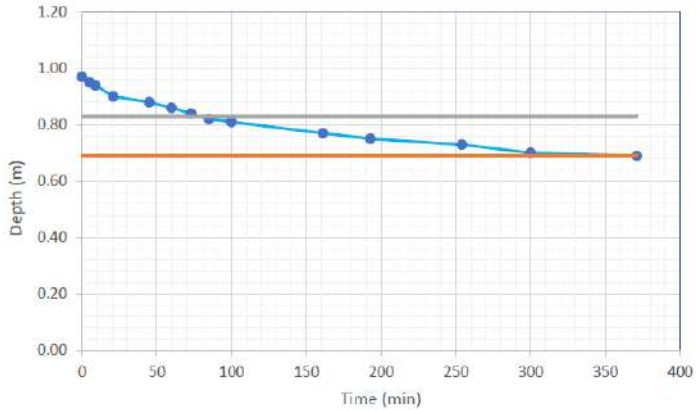
Trial Pit	1	Date:	21.10.21	 GibbsGeoTechnical
		Performed by:	Oliver Gibbs	
Dimensions	(m)	Weather:	Cloudy following heavy rain the night before	
Width	0.4	Topsoil:	Grass/Top soil	
Length	0.7	Superficial soil:	Light Red Brown Silty Clay	
Effective depth	0.9	Comments:	Water at bottom of pit before testing 30cm deep	
Total depth of hole	0.9			

Test No.	Time (min)	Depth (m)		
1	0	0.82	time 75% =	80
	15	0.80	time 25% =	305
	32	0.78	Area =	0.28
	55	0.75	Vp 75% =	0.73
	62	0.74	Vp 25% =	0.64
	94	0.72		
	134	0.69		
	207	0.66		
	239	0.65		
	273	0.65		
	305	0.64		
			Vp75-25 =	0.0252 m ³
			As50 =	0.379 m ²
			tp75-25 =	13500 s
			f =	4.93E-06 m/s



Trial Pit	2	Date:	21.10.21	 GibbsGeoTechnical
		Performed by:	Oliver Gibbs	
Dimensions	(m)	Weather:	Cloudy following heavy rain the night before	
Width	0.4	Topsoil:	Compacted grave/Made Ground	
Length	0.8	Superficial soil:	Light Red Brown Silty Clay	
Effective depth	1.1	Comments:	Water at bottom of pit before testing 32cm deep	
Total depth of hole	1.1			

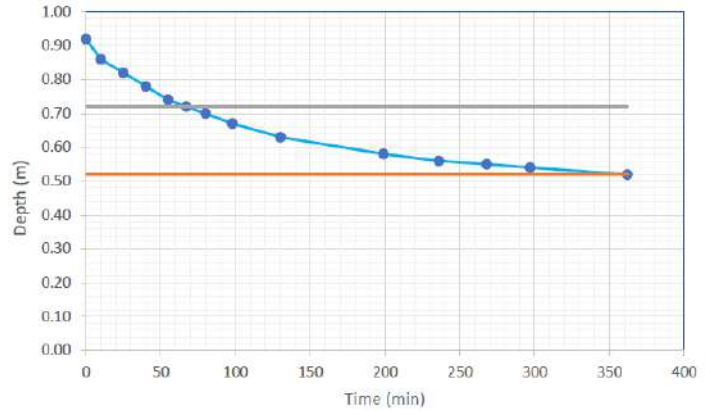
Test No.	Time (min)	Depth (m)		
1	0	0.97	time 75% =	80
	5	0.95	time 25% =	371
	9	0.94	Area =	0.32
	21	0.90	Vp 75% =	0.83
	45	0.88	Vp 25% =	0.69
	60	0.86		
	73	0.84		
	85	0.82		
	100	0.81		
	161	0.77		
	193	0.75		
	254	0.73		
	300	0.70		
	371	0.69		





Trial Pit	3	Date:	21.10.21	 GibbsGeoTechnical
Dimensions	(m)	Performed by:	Oliver Gibbs	
Width	0.4	Weather:	Cloudy following heavy rain the night before	
Length	0.8	Topsoil:	Compacted grave/Made Ground	
Effective depth	1.1	Superficial soil:	Light Red Brown Silty Clay	
Total depth of hole	1.1	Comments:	Water at bottom of pit before testing 32cm deep	

Test No.	Time (min)	Depth (m)		
1	0	0.92	time 75% =	67
	10	0.86	time 25% =	362
	25	0.82	Area =	0.32
	40	0.78	Vp 75% =	0.72
	55	0.74	Vp 25% =	0.52
	67	0.72		
	80	0.70		
	98	0.67		
	130	0.63		
	199	0.58		
	236	0.56	Vp75-25 =	0.064 m ³
	268	0.55	As50 =	0.56 m ²
	297	0.54	tp75-25 =	17700 s
	362	0.52	f =	6.46E-06 m/s



4 Conclusions

Gibbs Geotechnical has been instructed by Joel Wall from Avocet Civil Engineering on Behalf of Mr Humayun Nasser (the Client) to undertake three soil infiltration tests to the BRE 365 digest standard at the derelict pub Y Boblen, 24 Bryn Road, Cwmllynfell, Swansea, SA9 2FJ

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The tests were performed on the 21st of October 2021 by Gibb Geotechnical. At the time of testing the weather was clear following heavy rain the night before. Refer to **Appendix B** – Site photos

The ground was found to have a light red brown silty clay strata with build-up made ground along the eastern boundary. The test pits were dug on the 20th of October at which point ground water was not present. The following day when the pits were tested, approximately 30cm of water was found in the base of all 3 pits. Each pit was tested once and did not sufficiently drain in the day allowed to produce an accurate reading to the BRE 365 digest standards.

Interpolated results for the tests found infiltration results for the three pits of:

Test Pit 1: **$4.93 \times 10^{-6} \text{ m/s}$**
Test Pit 2: **$5.26 \times 10^{-6} \text{ m/s}$**
Test Pit 3: **$6.46 \times 10^{-6} \text{ m/s}$**

APPENDIX A: Site Test Plans

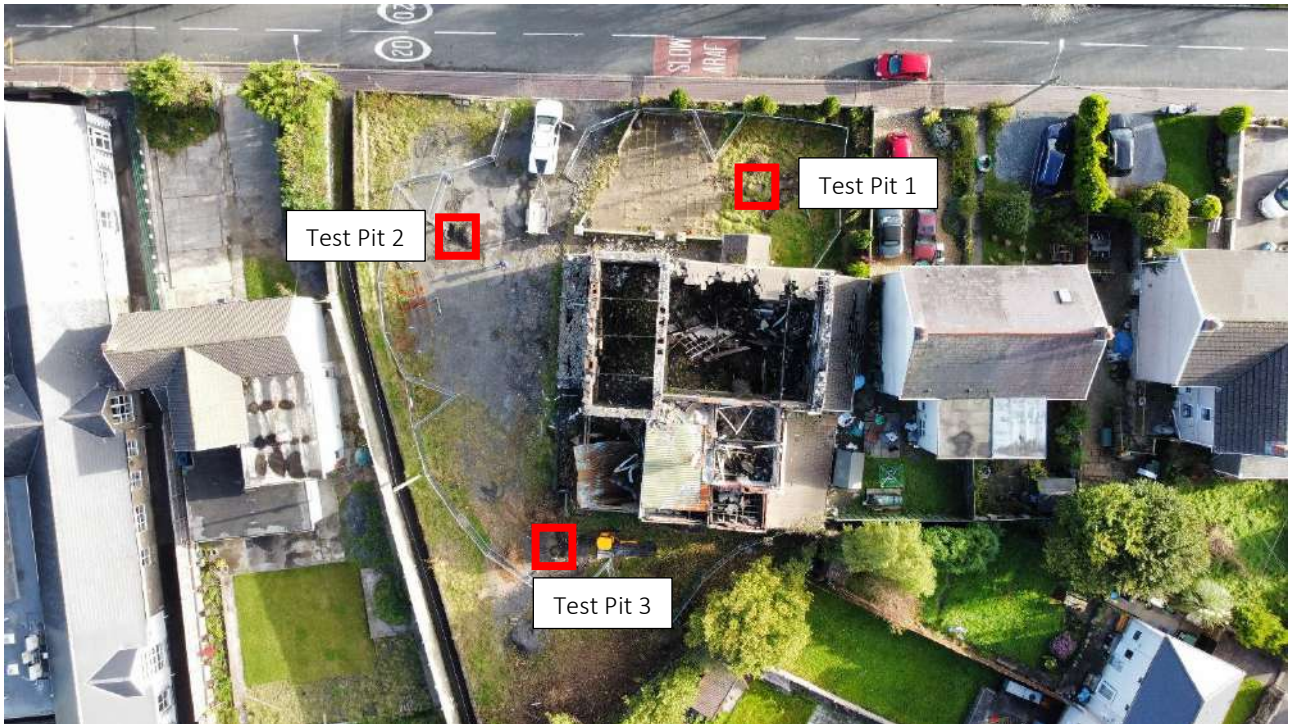


Figure 2 - Test pit location



APPENDIX B: Site Photos



Picture 1 – *Test Pit 1 Soil Strata. No water at base*



Picture 2 – *Test Pit 1 Location*



Picture 3 – Test Pit 2 Location



Picture 4 – Test Pit 3 Location



Picture 5 – *Test Pit 2 Ground Strata's*



Picture 6 – *Condition of Test pit 1 the morning of testing following heavy rain.*



Picture 7 – Condition of Test pit 1 the morning of testing following heavy rain.



Picture 8 – Test Pit 2 test.



Picture 9 – Test Pit 1 test



Picture 10 – Test Pit 2 reinstatement

APPENDIX C: BGS Records

