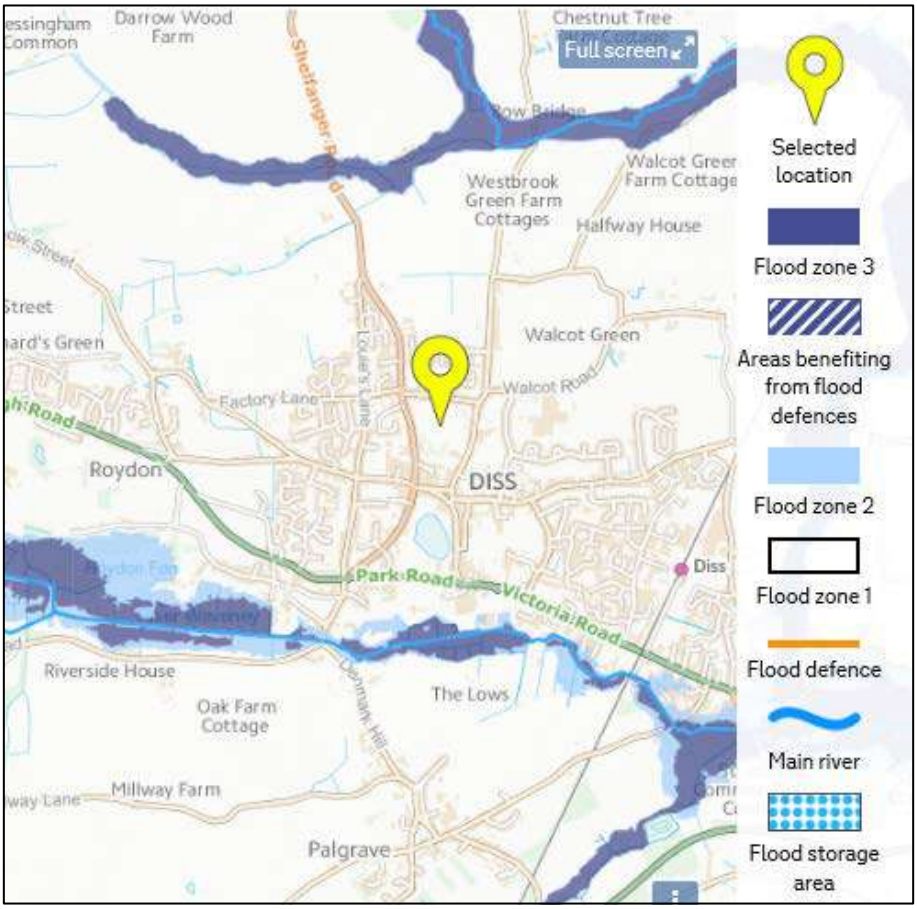
M721 – Land between Shelfanger Road and Mount Street, Diss, Norfolk
Flooding overview note
For Scott Properties
December 2018

Introduction

This note presents the findings of a desktop investigation into flooding risk for a potential residential development site in Diss, Norfolk. The site is identified as GNLP0341 in the Greater Norwich Local Plan Regulation 18 Consultation.

The site extends to approximately 3.0 ha of predominantly undeveloped greenfield land. The site lies to the west of Mount Street and east of Shelfanger Road, and is approximately centred on Ordnance Survey grid reference 611647, 280310.

The site lies in Flood Zone 1 (see map extract below) and is not therefore considered likely to be affected by floodwater from a watercourse (or tidal source).



Flood map for planning extract (14/12/2018)© Crown copyright and database rights 2018 Ordnance Survey 100047325

The surface water flood map for the area (see extracts below) shows some narrow bands of low risk, surface water flooding 'running' eastwards through the east of the site. These bands are most likely the result of rural runoff generated from within the site boundary. More notably the map also picks out some potential pooling in a topographically low spot in the east of the site (adjacent to Mount Street). The limited extent and/or low probability of the flooding means that it is not considered to pose any notable or unmanageable constraint to the development of the site. Any proposed units will be kept out of the low spot in the east of the site (as discussed in the HELAA). The small bands of low risk flooding would also be readily addressed by a combination of the surface water management scheme (a SuDS based scheme), and masterplanning (maintaining exceedance flow paths as normal).

Surface water flood map extract (14/12/2018)© Crown copyright and database rights 2018 Ordnance Survey 100047325

Surface water flood map extract - medium risk (14/12/2018)© Crown copyright and database rights 2018 Ordnance Survey 100047325

The appended Anglian Water sewer plan shows surface water sewers to the west and south of the site. The topography of the area means that any floodwater arising from overloading of the surface water sewer network would tend to follow the existing roads and be routed around, rather than towards and through the site. Any floodwater which was able to enter the site would tend to follow the ground levels eastwards/south-eastwards and either exit the site, or possibly accumulate in the informal basin feature on the eastern boundary.

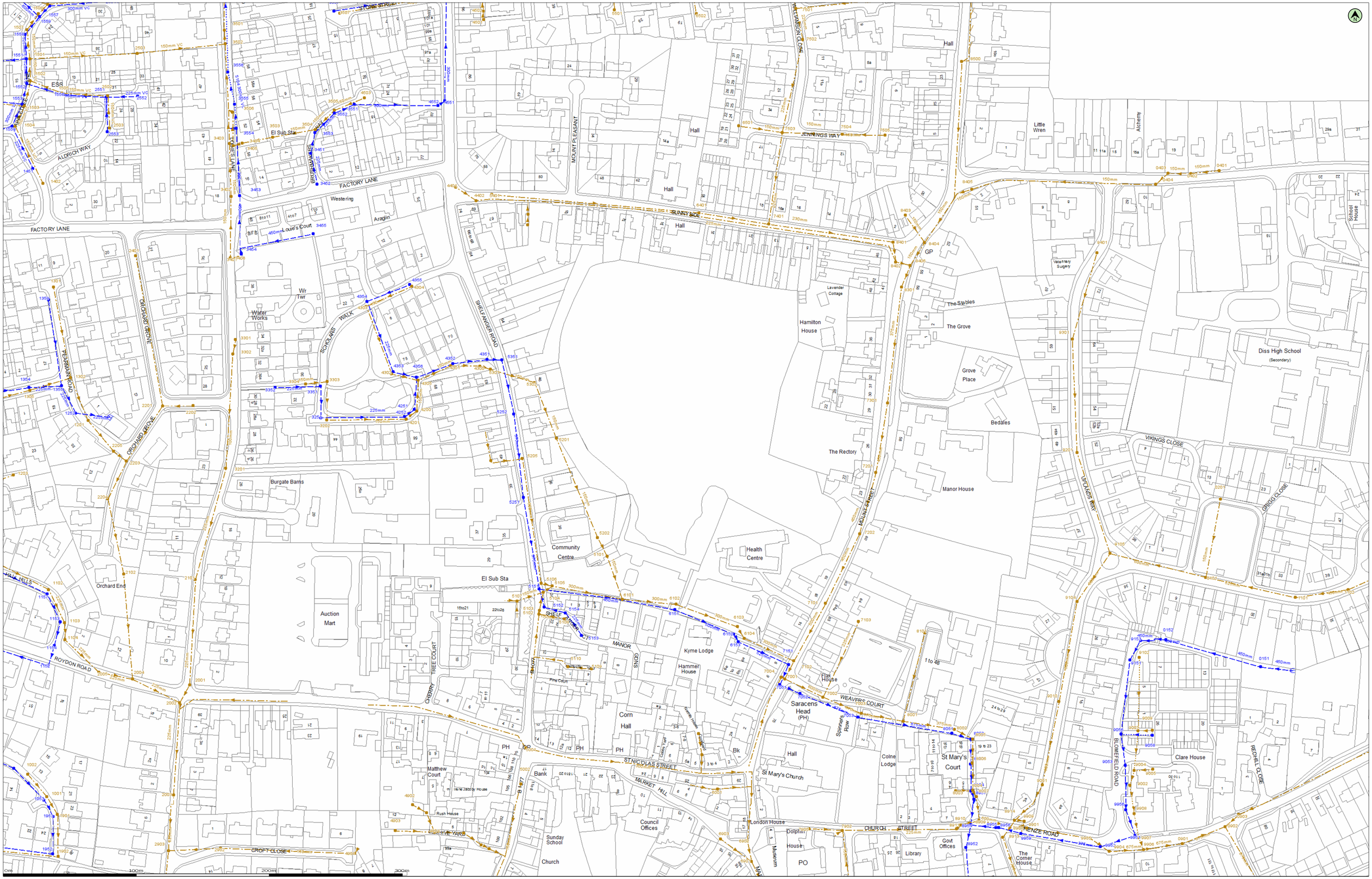
Groundwater was not encountered during a site investigation and geological data from the British Geological Survey (see appended reports) shows that groundwater levels for the majority of the site are predicted to be more than 5 m below ground level.

The site does not lie within a reservoir inundation area and is not therefore considered to be at risk of inundation as a result of a reservoir failure.

Based on this overview, the site is not considered to be at a significant or unmanageable risk of flooding.

Appended Information

Anglian Water asset plans.
British Geological Survey data.
Infiltration investigation.



Date: 17/08/15

Scale: 1:1250

Map Centre: 611648,280274

Data updated: 15/06/15

Our Ref: 153184 - 1

Wastewater Plan A1

- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent
- Rising Main (Colour denotes effluent type)
- Private Sewer (Colour denotes effluent type)
- Decommissioned Sewer (Colour denotes effluent type)
- Outfall (Colour denotes effluent type)
- Inlet (Colour denotes effluent type)
- Manhole (Colour denotes effluent type)
- Sewage Treatment Works
- Pumping Station

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Shelfhanger Road

love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0101	612039	280170	F	36.83	35.16	1.67
0201	612050	280229	F	39.21	37.94	1.27
0401	612049	280476	F	41.75	41.22	0.53
0402	612028	280473	F	41.78	41.12	0.66
0403	612010	280473	F	41.77	41.14	0.63
0404	612001	280465	F	41.69	41.08	0.61
0901	612021	279970	F	27.68	24.73	2.95
0902	612053	279983	F	28.11	24.69	3.42
0903	612064	279992	F	28.14	27.13	1.01
1001	611168	280005	F	36.53	34.62	1.91
1002	611154	280022	F	36.74	34.95	1.79
1101	612106	280155	F	37.2	35.66	1.54
1102	611169	280161	F	-	-	-
1102	612146	280161	F	37.23	35.79	1.44
1103	611181	280136	F	-	-	-
1104	611182	280123	F	-	-	-
1201	611199	280288	F	-	-	-
1203	611143	280247	F	-	-	-
1301	611173	280388	F	-	-	-
1302	611186	280320	F	-	-	-
1305	611155	280311	F	-	-	-
1402	611165	280466	F	41.288	40.385	0.903
1501	611155	280560	F	40.19	39.65	0.54
1502	611156	280543	F	40.805	39.835	0.97
1503	611151	280524	F	40.898	39.965	0.933
1504	611144	280509	F	41.04	40.078	0.962
1505	611179	280534	F	41.12	40.022	1.098
1506	611169	280600	F	39.602	38.372	1.23
1507	611153	280581	F	39.835	39.023	0.812
1508	611162	280593	F	39.574	38.926	0.648
1901	611176	279992	F	36.21	34.35	1.86
1902	611177	279961	F	35.47	33.96	1.51
2001	611275	280089	F	40.36	39.21	1.15
2002	611268	280076	F	40.35	37.94	2.41
2003	611263	280007	F	38.39	37.08	1.31
2004	611232	280094	F	40.32	38.16	2.16
2005	611207	280099	F	40.32	38.51	1.81
2101	611280	280169	F	41.89	40.71	1.18
2102	611226	280173	F	-	-	-
2201	611255	280299	F	-	-	-
2202	611278	280299	F	-	-	-
2203	611228	280257	F	-	-	-
2204	611214	280229	F	-	-	-
2205	611218	280265	F	-	-	-
2401	611235	280411	F	-	-	-
2501	611236	280564	F	40.12	39.252	0.868
2502	611214	280532	F	41.281	40.242	1.039
2503	611215	280508	F	41.287	40.402	0.885
2902	611299	279967	F	38.82	37.42	1.4
2903	611260	279965	F	-	-	-
3201	611303	280252	F	42.76	41.35	1.41
3202	611379	280288	F	42.569	40.574	1.995
3301	611310	280349	F	42.66	41.8	0.86
3302	611308	280338	F	42.7	-	-
3303	611379	280317	F	42.477	40.992	1.485
3304	611363	280315	F	42.606	41.141	1.465
3401	611306	280410	F	42.04	40.63	1.41
3402	611307	280456	F	41.42	40.06	1.36
3403	611305	280496	F	41.09	39.68	1.41
3404	611315	280496	F	41.48	39.69	1.79
3405	611308	280494	F	41.03	39.64	1.39
3406	611312	280410	F	-	-	-
3501	611301	280581	F	40.46	38.79	1.67
3502	611302	280571	F	40.51	38.88	1.63
3503	611338	280501	F	41.94	39.92	2.02
3504	611370	280506	F	42.1	40.15	1.95
3505	611384	280521	F	42.16	40.34	1.82
3506	611308	280519	F	40.77	39.5	1.27
3507	611388	280594	F	41.508	40.802	0.706
4200	611446	280295	F	42.343	39.853	2.49
4201	611438	280289	F	42.269	39.969	2.3
4300	611493	280329	F	42.025	39.235	2.79
4301	611472	280329	F	42.435	39.385	3.05
4302	611427	280323	F	42.749	39.804	2.945
4303	611408	280374	F	42.335	40.27	2.065
4304	611442	280389	F	42.161	40.446	1.715
4305	611447	280318	F	42.505	39.665	2.84
4401	611475	280463	F	42.49	41.23	1.26
4402	611491	280453	F	42.32	41.22	1.1
4501	611496	280589	F	42.35	41.39	0.96
4502	611496	280595	F	42.34	41.26	1.08
4503	611407	280530	F	42.21	40.63	1.58
4901	611400	279963	F	40.79	39.39	1.4
4902	611443	279999	F	-	-	-
4903	611430	279980	F	-	-	-
4904	611459	279979	F	-	-	-
5001	611528	280042	F	39.81	37.85	1.96
5002	611524	280015	F	39.78	38.83	0.95
5101	611589	280186	F	38.88	36.1	2.78
5102	611538	280143	F	39.94	37.94	2
5103	611538	280145	F	-	-	-
5104	611541	280159	F	-	38.23	-
5105	611548	280164	F	39.98	37.49	2.49
5106	611540	280166	F	40.08	37.67	2.41
5107	611521	280152	F	40.12	38.23	1.89
5108	611557	280139	F	39.92	38.11	1.81
5109	611577	280101	F	-	-	-
5110	611560	280103	F	-	-	-
5201	611551	280275	F	40.83	37.1	3.73
5202	611582	280200	F	39.52	36.22	3.3
5205	611525	280259	F	41.22	40.51	0.71
5301	611501	280326	F	41.96	37.87	4.09
5302	611534	280316	F	41.56	37.42	4.14

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
5401	611502	280458	F	-	-	-
5501	611595	280596	F	42.17	40.56	1.61
6001	611672	280011	F	-	-	-
6101	611600	280154	F	38.35	35.14	3.21
6102	611641	280150	F	35.65	32.7	2.95
6103	611687	280133	F	31.46	30.14	1.32
6104	611692	280124	F	31.89	29.92	1.97
6401	611658	280444	F	-	-	-
6501	611688	280509	F	41.59	39.62	1.97
6502	611656	280593	F	41.95	40.24	1.71
6901	611698	279957	F	27.75	26.8	0.95
6902	611694	279972	F	28.91	28.01	0.9
6903	611674	279974	F	29.49	28.53	0.96
7001	611722	280094	F	30.51	28.31	2.2
7002	611751	280080	F	29.4	27.32	2.08
7003	611780	280068	F	29.35	26.98	2.37
7004	611720	280095	F	30.45	29.24	1.21
7101	611753	280151	F	30.81	29.07	1.74
7102	611729	280107	F	30.46	28.57	1.89
7103	611778	280137	F	28.97	27.7	1.27
7201	611791	280249	F	33.42	31.45	1.97
7202	611779	280203	F	31.77	29.94	1.83
7301	611800	280301	F	34.7	33.04	1.66
7401	611710	280435	F	40.58	38.48	2.1
7501	611731	280597	F	41.62	39.05	2.57
7502	611736	280574	F	41.72	38.94	2.78
7503	611721	280504	F	41.45	38.63	2.82
7504	611766	280503	F	41.05	39.28	1.77
7505	611798	280502	F	-	-	-
7902	611766	279980	F	29.22	28.56	0.66
7905	611741	279981	F	30.43	29.8	0.63
8001	611812	280062	F	29.03	26.38	2.65
8002	611850	280056	F	28.09	26.34	1.75
8003	611851	280010	F	27.75	25.76	1.99
8004	611864	280010	F	27.75	25.6	2.15
8005	611864	280049	F	-	-	-
8006	611864	280031	F	-	-	-
8007	611866	280005	F	-	-	-
8101	611828	280128	F	29.11	27.35	1.76
8301	611810	280388	F	38.37	35.69	2.68
8401	611804	280422	F	39.64	38.03	1.61
8402	611806	280407	F	39.08	37.86	1.22
8403	611813	280442	F	40.4	40.17	0.23
8404	611827	280422	F	39.51	38.36	1.15
8405	611863	280462	F	40.89	39.77	1.12
8406	611817	280404	F	39.2	36.28	2.92
8500	611856	280557	F	-	-	-
8907	611899	279983	F	27.12	24.95	2.17
8909	611869	279988	F	26.98	25.11	1.87
8910	611855	279984	F	26.88	25.16	1.72
8911	611852	279981	F	26.92	26.11	0.81
8913	611886	279975	F	-	-	-
8914	611895	279988	F	-	-	-
9001	611916	280014	F	28.04	26.77	1.27
9002	611982	280014	F	29.4	27.69	1.71
9004	611985	280025	F	29.52	27.9	1.62
9005	611999	280026	F	29.53	28.13	1.4
9007	611988	280055	F	30.63	29.45	1.18
9009	611999	280055	F	30.8	29.71	1.09
9010	611929	280077	F	30.85	29.39	1.46
9102	611989	280110	F	32.7	31.3	1.4
9104	611942	280152	F	34.52	32.92	1.6
9105	611967	280188	F	37.25	33.79	3.46
9201	611942	280264	F	39.02	37.56	1.46
9301	611939	280349	F	41.09	39.27	1.82
9401	611957	280414	F	42.22	40.19	2.03
9901	611904	279982	F	27.19	24.99	2.2
9904	611966	279964	F	27.37	24.84	2.53
9905	611952	279974	F	27.35	24.9	2.45
9906	611992	279966	F	27.49	24.74	2.75
9907	611989	279975	F	27.5	26.57	0.93
9908	611985	279993	F	28.63	27.3	1.33
9909	611902	279987	F	-	-	-
0151	612080	280103	S	30.85	28.96	1.89
0152	612009	280123	S	30.84	-	-
1052	611143	280027	S	36.83	35.35	1.48
1053	611166	280003	S	36.16	34.75	1.41
1152	611169	280104	S	39.56	-	1.1
1153	611178	280137	S	-	-	-
1154	611174	280119	S	-	-	-
1157	611168	280158	S	-	-	-
1252	611190	280294	S	-	-	-
1354	611155	280313	S	42.32	41.21	1.11
1355	611179	280314	S	-	-	-
1359	611169	280379	S	-	-	-
1451	611158	280477	S	41.288	39.775	1.513
1551	611153	280559	S	40.19	38.83	1.36
1552	611153	280541	S	40.805	38.877	1.928
1553	611149	280525	S	40.898	39.237	1.661
1554	611142	280509	S	41.04	39.393	1.647
1556	611180	280533	S	40.25	39.222	1.028
1557	611170	280599	S	39.461	38.524	0.937
1558	611152	280578	S	39.835	38.336	1.499
1559	611163	280591	S	39.574	38.226	1.348
1951	611173	279991	S	36.16	34.75	1.41
1952	611173	279963	S	35.42	34.35	1.07
2551	611213	280531	S	41.281	39.344	1.937
2552	611236	280531	S	40.64	39.534	1.106
2553	611214	280505	S	41.233	39.544	1.689
3251	611374	280290	S	42.592	40.827	1.765
3351	611374	280314	S	42.397	41.022	1.375
3352	611340	280313	S	42.666	41.256	1.41
3451	611366	280489	S	42.06	40.2	1.86

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
3452	611371	280465	S	42.2	40.69	1.51
3453	611313	280457	S	41.48	40.55	0.93
3454	611314	280413	S	-	-	-
3455	611368	280428	S	-	-	-
3551	611399	280525	S	42.11	39.86	2.25
3552	611384	280519	S	42.17	39.91	2.26
3553	611369	280504	S	42.08	40.08	2
3554	611310	280507	S	41.03	40.21	0.82
3555	611309	280525	S	-	39.41	-
3556	611304	280549	S	-	39.15	-
3557	611384	280595	S	41.49	40	1.49
4251	611444	280296	S	42.352	40.152	2.2
4252	611437	280291	S	42.287	40.247	2.04
4351	611499	280334	S	42.175	39.555	2.62
4352	611473	280331	S	42.376	39.616	2.76
4353	611428	280325	S	42.659	40.059	2.6
4354	611409	280377	S	42.324	40.549	1.775
4355	611441	280390	S	42.156	40.826	1.33
4356	611446	280320	S	42.542	39.902	2.64
4551	611467	280528	S	42.47	39.52	2.95
4552	611462	280524	S	42.51	39.55	2.96
5151	611538	280161	S	40.08	37.07	3.01
5152	611542	280148	S	39.95	38.04	1.91
5153	611570	280127	S	39.53	38.3	1.23
5154	611558	280144	S	39.91	38.14	1.77
5251	611526	280230	S	40.92	38.99	1.93
5252	611519	280293	S	41.542	39.262	2.28
5351	611510	280333	S	42.057	39.517	2.54
6151	611640	280146	S	35.65	32.65	3
6152	611684	280128	S	31.46	29.59	1.87
6153	611688	280122	S	31.89	29.38	2.51
7051	611719	280090	S	30.5	28.22	2.28
7052	611734	280083	S	30.55	28.07	2.48
7053	611777	280065	S	29.35	26.71	2.64
7151	611725	280105	S	30.46	28.51	1.95
8051	611848	280053	S	28.09	25.39	2.7
8052	611862	280049	S	-	-	-
8053	611862	280030	S	-	-	-
8054	611862	280009	S	-	-	-
8952	611859	279967	S	27.4	23.68	3.72
8954	611862	279984	S	27.11	23.82	3.29
8955	611881	279982	S	27.06	24.51	2.55
8956	611883	279982	S	27.1	24.53	2.57
8957	611865	280004	S	-	-	-
9053	611978	280029	S	29.47	28.08	1.39
9056	611975	280052	S	30.4	28.94	1.46
9058	611999	280052	S	30.78	29.24	1.54
9151	611982	280108	S	32.74	31.43	1.31
9153	611990	280123	S	32.74	31.7	1.04
9951	611986	279976	S	27.5	25.98	1.52
9952	611960	279968	S	27.39	25.71	1.68
9956	611979	279996	S	28.4	26.8	1.6
9959	611900	279978	S	27.19	24.73	2.46

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

GeoReports

James howard
Cannon CE
Cambridge House
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Suffolk
CB8 7PN

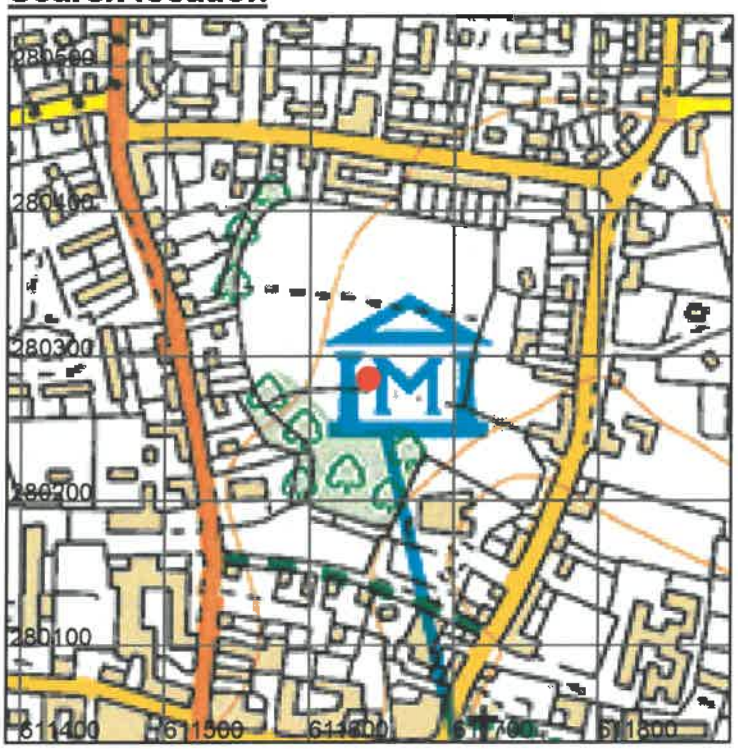
Infiltration SuDS GeoReport:

This report provides information on the suitability of the subsurface for the installation of infiltration sustainable drainage systems (SuDS). It provides information on the properties of the subsurface with respect to significant constraints, drainage, ground stability and groundwater quality protection.

Report Id: *GR_211669/1*

Client reference: M721 BGS JOH

Search location



Point centred at:
611641,280284

Search location indicated in red

Scale: 1:5 000 (1cm = 50 m)

OS Street View: Scale: 1:5 000 (1cm = 50 m)

Assessment for an infiltration sustainable drainage system

Introduction

Sustainable drainage systems (SuDS) are drainage solutions that manage the volume and quality of surface water close to where it falls as rain. They aim to reduce flow rates to rivers, increase local water storage capacity and reduce the transport of pollutants to the water environment. There are four main types of SuDS, which are often designed to be used in sequence. They comprise:

- **source control:** systems that control the rate of runoff
- **pre-treatment:** systems that remove sediments and pollutants
- **retention:** systems that delay the discharge of water by providing surface storage
- **infiltration:** systems that mimic natural recharge to the ground.

This report focuses on infiltration SuDS. It provides subsurface information on the properties of the ground with respect to drainage, ground stability and groundwater quality protection. It is intended principally for those involved in the preliminary assessment of the suitability of the ground for infiltration SuDS, and those involved in assessing proposals from others for sustainable drainage, but it may also be useful to help house-holders judge whether or not further professional advice should be sought. If in doubt, users should consult a suitably-qualified professional about the results in this report before making any decisions based upon it.

This GeoReport is structured in two parts:

- **Part 1. Summary data.**

  Comprises three maps that summarise the data contained within Part 2.

- **Part 2. Detailed data.**

  Comprises a further 24 maps in four thematic sections:

  - **Very significant constraints.** Maps highlight areas where infiltration may result in adverse impacts due to factors including: ground instability (soluble rocks, non-coal shallow mining and landslide hazards); persistent shallow groundwater, or the presence of made ground, which may represent a ground stability or contamination hazard.
  - **Drainage potential.** Maps indicate the drainage potential of the ground, by considering subsurface permeability, depth to groundwater and the presence of floodplain deposits.
  - **Ground stability.** Maps indicate the presence of hazards that have the potential to cause ground instability resulting in damage to some buildings and structures, if water is infiltrated to the ground.
  - **Groundwater protection.** Maps provide key indicators to help determine whether the groundwater may be susceptible to deterioration in quality as a result of infiltration.

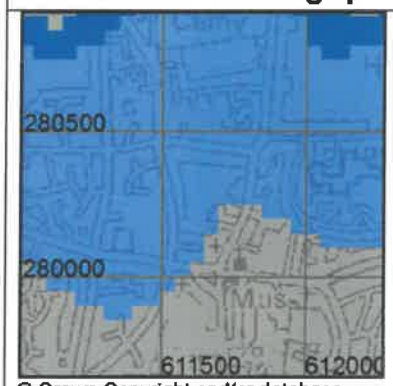
This report considers the suitability of the subsurface for the installation of infiltration SuDS, such as soakaways, infiltration basins or permeable pavements. It provides subsurface data to indicate whether, and which type of infiltration system may be appropriate. It does not state that infiltration SuDS are, or are not, appropriate as this is highly dependent on the design of the individual system. This report therefore describes the subsurface conditions at the site, allowing the reader to determine the suitability of the site for infiltration SuDS.

The map and text data in this report is similar to that provided in the '*Infiltration SuDS Map: Detailed*' national map product. For further information about the data, consult the '*User Guide for the Infiltration SuDS Map: Detailed*', available from http://nora.nerc.ac.uk/16618/.

PART 1: SUMMARY DATA

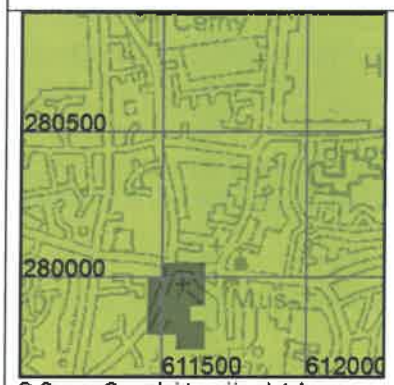
This section provides a summary of the data on the following pages.

In terms of the drainage potential, is the ground suitable for infiltration SuDS?



- Highly compatible for infiltration SuDS.
  The subsurface is likely to be suitable for free-draining infiltration SuDS.
- Probably compatible for infiltration SuDS.
  The subsurface is probably suitable although the design may be influenced by the ground conditions.
- Opportunities for bespoke infiltration SuDS.
  The subsurface is potentially suitable although the design will be influenced by the ground conditions.
- Very significant constraints are indicated.
  There is a very significant potential for one or more hazards associated with infiltration.

Is ground instability likely to be a problem?



- Increased infiltration is very unlikely to result in ground instability.
- Ground instability problems may be present or anticipated, but increased infiltration is unlikely to result in ground instability
- Ground instability problems are probably present. Increased infiltration may result in ground instability.
- There is a very significant potential for one or more geohazards associated with infiltration.

Is the groundwater susceptible to deterioration in quality?

- The groundwater is not expected to be especially vulnerable to contamination.
- The groundwater may be vulnerable to contamination.
- The groundwater is likely to be vulnerable to contaminants.
- Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

PART 2: DETAILED DATA

This section provides further information about the properties of the ground and will help assess the suitability of the ground for infiltration SuDS.

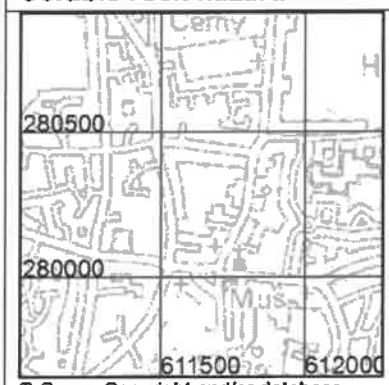
Section 1. Very significant constraints

Where maps are overlain by grey polygons, geological or hydrogeological hazards may exist that could be made worse by infiltration. The following hazards are considered:

- soluble rocks
- landslides
- shallow mining
- shallow groundwater
- made ground

For more information read 'Explanation of terms' at the end of this report.

Soluble rock hazard

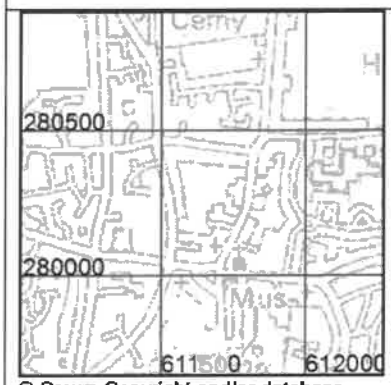


■ Very significant soluble rock hazard.

Soluble rocks are present with a very significant possibility of localised subsidence that could be initiated or made worse by infiltration. The site investigation should consider whether the potential for or the consequences of subsidence as a result of infiltration are significant.

☐ Very significant soluble rock hazards are not present; however this hazard may still need to be considered. See Part 3.

Landslide hazard

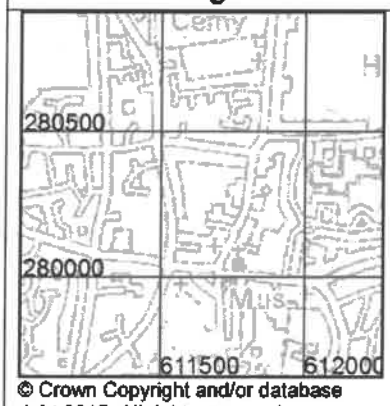


■ Very significant landslide hazard.

Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail. The site investigation should consider whether the potential for or the consequences of landslide as a result of infiltration are significant.

☐ Very significant landslide hazards are not present; however this hazard may still need to be considered. See Part 3.

Shallow mining hazard

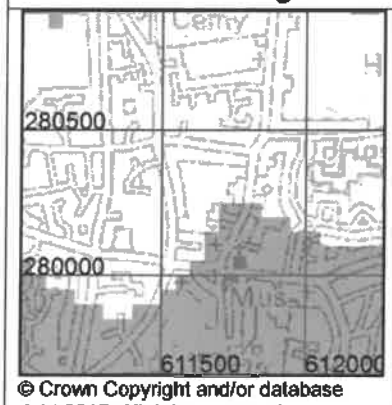


■ Very significant mining hazard.

Shallow mining is likely to be present with a very significant possibility of localised subsidence that could be initiated or made worse by increased infiltration. Also, infiltration may increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of subsidence and/or remobilisation of pollutants as a result of infiltration are significant.

☐ Very significant mining hazards are not present; however this hazard may still need to be considered. See Part 3.

Persistent shallow groundwater

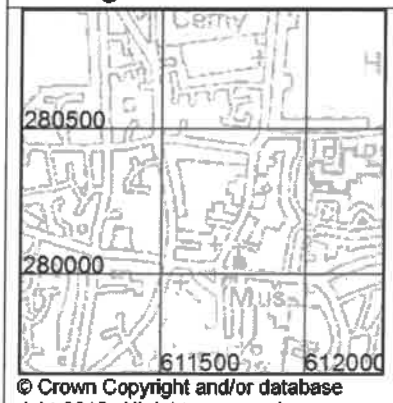


■ Very high likelihood of persistent or seasonally shallow groundwater.

Persistent or seasonally shallow groundwater is likely to be present. Infiltration may increase the likelihood of soakaway inundation, or groundwater emergence at the surface. The site investigation should consider whether the potential for or the consequences of groundwater level rise as a result of infiltration are significant.

☐ See Part 2 for the likely depth to water table.

Made ground



■ Made ground present.

Made ground is present at the surface. Infiltration may affect ground stability or increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of ground instability and/or pollutant leaching as a result of infiltration are significant.

☐ None recorded

Section 2. Drainage potential

The following pages contain maps that will help you assess the drainage potential of the ground by considering the:

- depth to water table
- permeability of the superficial deposits
- thickness of the superficial deposits
- permeability of the bedrock
- presence of floodplains

Superficial deposits are not present everywhere and therefore some areas of the *superficial deposit permeability* map may not be coloured. Where this is the case, the *bedrock permeability* map shows the likely permeability of the ground. Superficial deposits in some places are very thin and hence in these places you may wish to consider both the permeability of the superficial deposits and the permeability of the bedrock. The *superficial thickness* map will tell you whether the superficial deposits are thin (< 3 m thick) or thick (>3 m). Where they are over 3 m thick, the permeability of the bedrock may not be relevant.
For more information read 'Explanation of terms' at the end of this report.

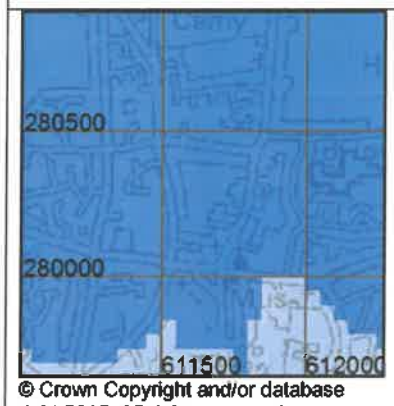
Depth to groundwater table

Groundwater is likely to be **more than 5 m** below the ground surface throughout the year.

Groundwater is likely to be between **3 and 5 m** below the ground surface for at least part of the year.

Groundwater is likely to be **less than 3 m** below the ground surface for at least part of the year.

Superficial deposit permeability



Superficial deposits are likely to be **free-draining.**

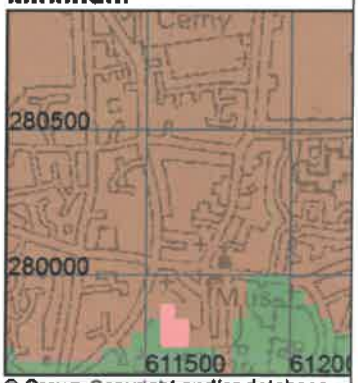
The superficial deposit permeability is **spatially variable**, but likely to permit moderate infiltration.

Superficial deposits are likely to be **poorly draining.**

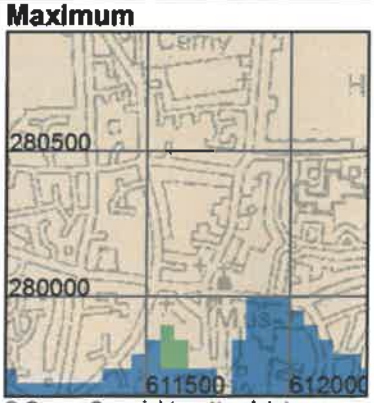
These maps show the permeability range that is summarised above.

- Very Low
- Low
- Moderate
- High
- Very High

Minimum



Maximum

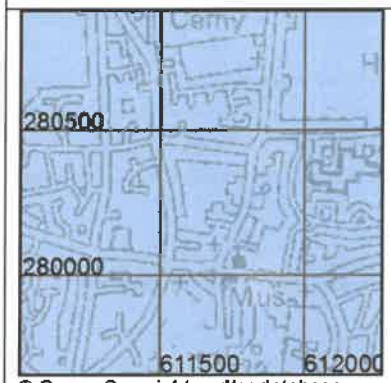


Superficial deposit thickness

The thickness of superficial deposits is **< 3 m** and hence the permeability of the ground may be dependent on both the superficial deposits (where present) and underlying bedrock (see below).

The thickness of superficial deposits is **> 3 m** and hence the permeability of the superficial deposits is likely to determine the permeability of the ground.

Bedrock permeability



Bedrock deposits are likely to be **free-draining**.

The bedrock permeability is **spatially variable**, but likely to permit moderate infiltration.

Bedrock deposits are likely to be **poorly draining**.

These maps show the permeability range that is summarised above.

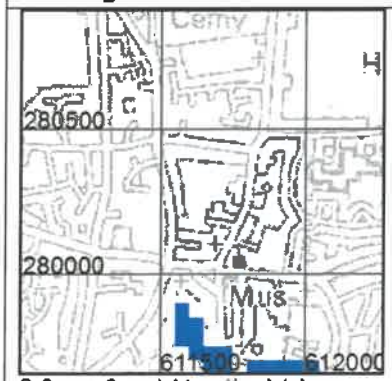
Key

- Very Low
- Low
- Moderate
- High
- Very High

Minimum

Maximum

Geological indicators of flooding



Superficial floodplain deposits or low-lying coastal areas have been identified. Groundwater levels may rise in response to high river or tide levels, potentially causing inundation of subsurface infiltration SuDS.

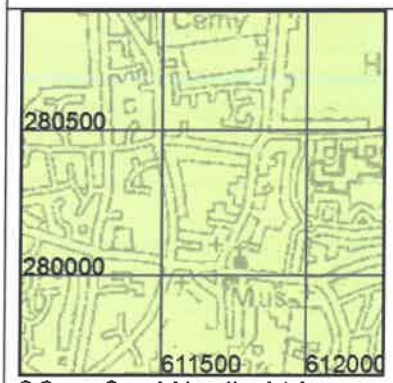
Section 3. Ground stability

The following pages contain maps that will help you assess whether infiltration may impact the stability of the ground. They consider hazards associated with:

- soluble rocks
- landslides
- shallow mining
- running sands
- swelling clays
- compressible ground, and
- collapsible ground

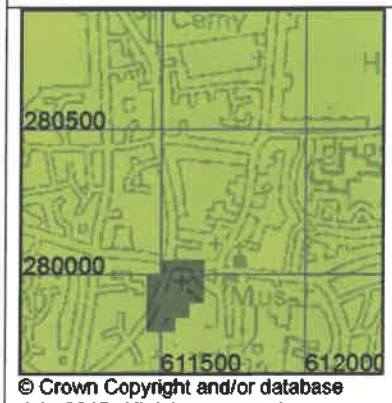
In the following maps, geohazards that are identified in green are unlikely to prevent infiltration SuDS from being installed, but they should be considered during design. For more information read 'Explanation of terms' at the end of this report.

Soluble rocks



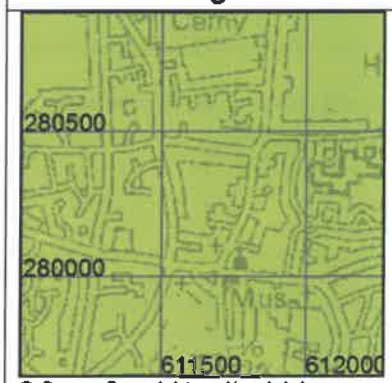
	Increased infiltration is unlikely to result in subsidence.
	Increased infiltration is unlikely to cause localised subsidence, but potential impacts should be considered.
	Increased infiltration may result in localised subsidence. The potential for or the consequences of subsidence associated with soluble rocks should be considered.
	Very significant possibility of localised subsidence that could be initiated or made worse by infiltration.

Landslides



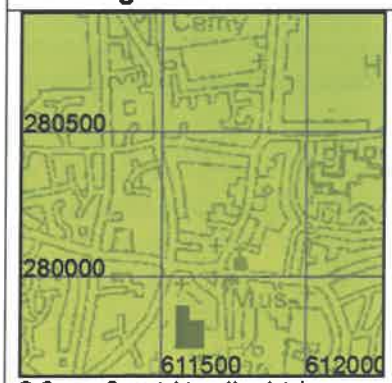
- Increased infiltration is unlikely to lead to slope instability.
- Slope instability problems may be present or anticipated, but increased infiltration is unlikely to cause instability
- Slope instability problems are probably present or have occurred in the past, and increased infiltration may result in slope instability.
- Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail.

Shallow mining



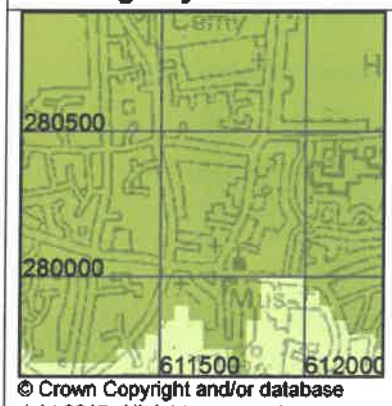
- Increased infiltration is unlikely to lead to subsidence.
- Shallow mining is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
- Shallow mining could be present with a significant possibility that localised subsidence could be initiated or made worse by increased infiltration.
- Shallow mining is likely to be present, with a very significant possibility that localised subsidence may be initiated or made worse by increased infiltration.

Running sand



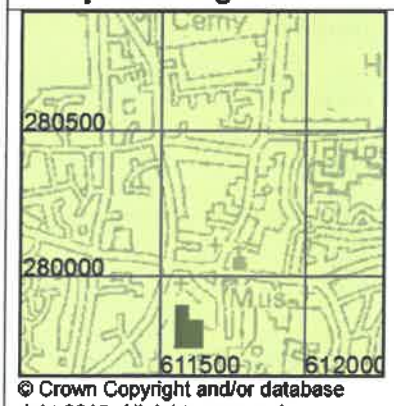
- Increased infiltration is unlikely to cause ground collapse associated with running sands.
- Running sand is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
- Significant possibility for running sand problems. Increased infiltration may result in a geohazard.

Swelling clays



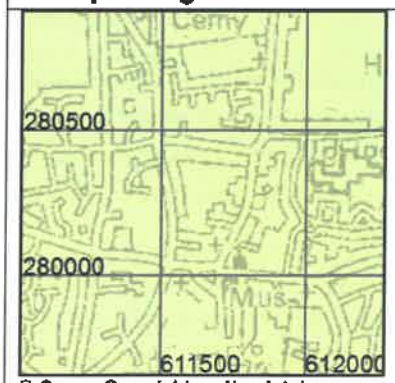
- Increased infiltration is unlikely to cause shrink-swell ground movement.
- Ground is susceptible to shrink-swell ground movement. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
- Ground is susceptible to shrink-swell ground movement. Increased infiltration may result in a geohazard.

Compressible ground



- Increased infiltration is unlikely to lead to ground compression.
- Compressibility and uneven settlement hazards are probably present. Increased infiltration may result in a geohazard.

Collapsible ground



- Increased infiltration is unlikely to result in subsidence.
- Deposits with potential to collapse when loaded and saturated are possibly present in places. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
- Deposits with potential to collapse when loaded and saturated are probably present in places. Increased infiltration may result in a geohazard.

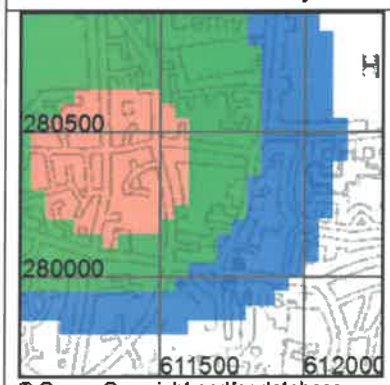
Section 4. Groundwater quality protection

The following pages contain maps showing some of the information required to ensure the protection of groundwater quality. Data presented includes:

- groundwater source protection zones (Environment Agency data)
- predominant flow mechanism
- made ground

For more information read 'Explanation of terms' at the end of this report.

Groundwater source protection zones

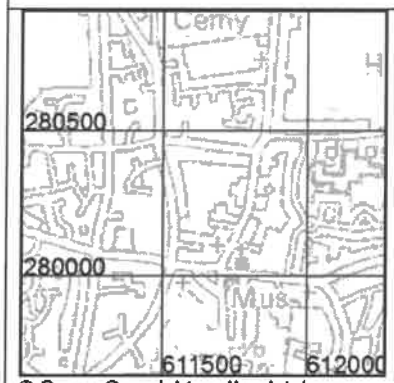


- Groundwater is not within a source protection zone.
- Source protection zone IV
- Source protection zone III
- Source protection zone II
- Source protection zone I.

Predominant flow mechanism

- Water is likely to percolate through the unsaturated zone to the groundwater through either the pore space in granular media or through porespace and fractures; these processes have some potential for contaminant removal and breakdown.
- Water is likely to percolate through the unsaturated zone to the groundwater through fractures, a process which has little potential for contaminant removal and breakdown.

Made ground

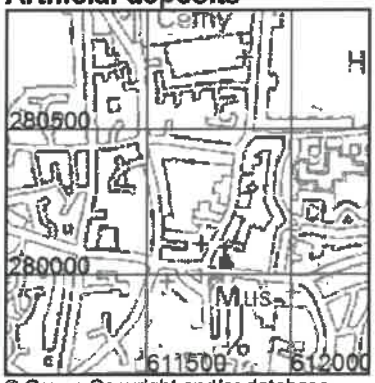


Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

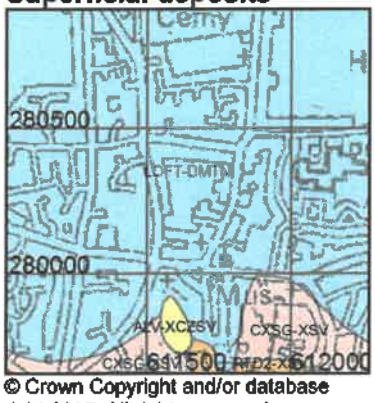
Section 5. Geological Maps

The following maps show the artificial, superficial and bedrock geology within the area of interest.

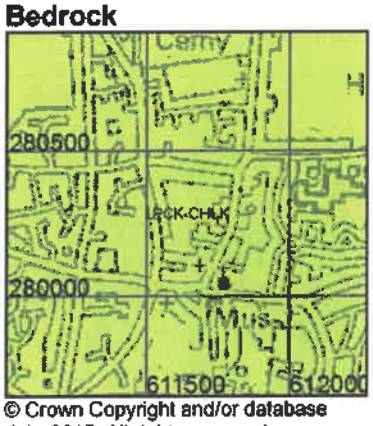
Artificial deposits



Superficial deposits



Bedrock



Fault

Coal, ironstone or mineral vein

Note: Faults and Coals, ironstone & mineral veins are shown for illustration and to aid interpretation of the map. Not all such features are shown and their absence on the map face does not necessarily mean that none are present

Key to Artificial deposits:
No deposits recorded by BGS in the search area

Key to Superficial deposits:

Map colour	Computer Code	Rock name	Rock type
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
	CXSG-XSV	CROXTON SAND AND GRAVEL MEMBER	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
	LOFT-DMTN	LOWESTOFT FORMATION	DIAMICTON
	RTD2-XSV	RIVER TERRACE DEPOSITS, 2	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

Key to Bedrock geology:

Map colour	Computer Code	Rock name	Rock type
	LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED)	CHALK

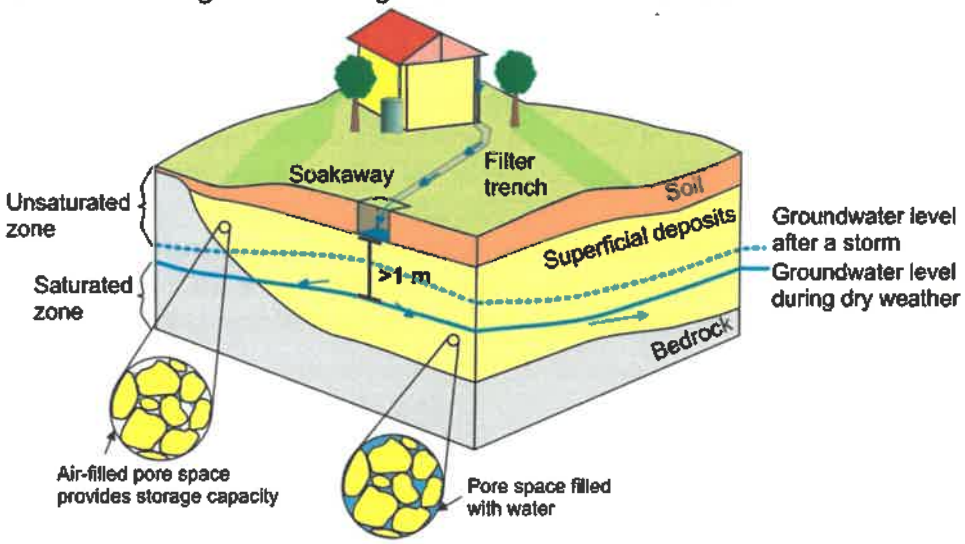
Limitations of this report:

- This report is concerned with the potential for infiltration-to-the-ground to be used as a SuDS technique at the site described. It only considers the subsurface beneath the search area and does NOT consider potential surface or subsurface impacts outside of that area.
- This report is NOT an alternative for an on-site investigation or soakaway test, which might reach a different conclusion.
- This report must NOT be used to justify disposal of foul waste or grey water.
- This report is based on and limited to an interpretation of the records held by the British Geological Survey (BGS) at the time the search is performed. The datasets used (with the exception of that showing depth to water table) are based on 1:50 000 digital geological maps and not site-specific data.
- Other more specific and detailed ground instability information for the site may be held by BGS, and an assessment of this could result in a modified assessment.
- To interpret the maps correctly, the report must be viewed and printed in colour.
- The search does NOT consider the suitability of sites with regard to:
    - previous land use,
    - potential for, or presence of contaminated land
    - presence of perched water tables
    - shallow mining hazards relating to coal mining. Searches of coal mining should be carried out via The Coal Authority Mine Reports Service: www.coalminingreports.co.uk.
    - made ground, where not recorded
    - proximity to landfill sites (searches for landfill sites or contaminated land should be carried out through consultation with local authorities/Environment Agency)
    - zones around private water supply boreholes that are susceptible to groundwater contamination.
- This report is supplied in accordance with the GeoReports Terms & Conditions available separately, and the copyright restrictions described at the end of this report

Explanation of terms

Depth to groundwater

In the shallow subsurface, the ground is commonly unsaturated with respect to water. Air fills the spaces within the soil and the underlying superficial deposits and bedrock. At some depth below the ground surface, there is a level below which these spaces are full of water. This level is known as the groundwater level, and the water below it is termed the groundwater. When water is infiltrated, the groundwater level may rise temporarily. To ensure that there is space in the unsaturated zone to accommodate this, there should be a minimum thickness of 1 m between the base of the infiltration system and the water table. An estimate of the *depth to groundwater* is therefore useful in determining whether the ground is suitable for infiltration.



Groundwater flooding

Groundwater flooding occurs when a rise in groundwater level results in very shallow groundwater or the emergence of groundwater at the surface. If infiltration systems are installed in areas that are susceptible to groundwater flooding, it is possible that the system could become inundated. The susceptibility map seeks to identify areas where the geological conditions and water tables indicate that groundwater level rise could occur under certain circumstances. A high susceptibility to groundwater flooding classification does not mean that groundwater flooding has ever occurred in the past, or will do so in the future as the susceptibility maps do not contain information on how often flooding may occur. The susceptibility maps are designed for planning; identifying areas where groundwater flooding might be an issue that needs to be taken into account.

Geological indicators of flooding
In floodplain deposits, groundwater level can be influenced by the water level in the adjacent river. Groundwater level may increase during periods of fluvial flood and therefore this should be taken into account when designing infiltration systems on such deposits. The *geological indicators of flooding* dataset shows where there is geological evidence (floodplain deposits) that flooding has occurred in the past.

For further information on flood-risk, the likely frequency of its recurrence in relation to any proposed development of the site, and the status of any flood prevention measures in place, you are advised to contact the local office of the Environment Agency (England and Wales) at www.environment-agency.gov.uk/ or the Scottish Environment Protection Agency (Scotland) at www.sepa.org.uk.

Artificial ground
Artificial ground comprises deposits and excavations that have been created or modified by human activity. It includes ground that is worked (quarries and road cuttings), infilled (back-filled quarries), landscaped (surface re-shaping), disturbed (near surface mineral workings) or classified as made ground (embankments and spoil heaps). The composition and properties of artificial ground are often unknown. In particular, the permeability and chemical composition of the artificial ground should be determined to ensure that the ground will drain and that any contaminants present will not be remobilised.

Superficial permeability
Superficial deposits are those geological deposits that were formed during the most recent period of geological time (as old as 2.6 million years before present). They generally comprise relatively thin deposits of gravel, sand, silt and clay and are present beneath the pedological soil in patches or larger spreads over much of Britain. The ease with which water can percolate through these deposits is controlled by their permeability and varies widely depending on their composition. Those deposits comprising clays and silts are less permeable and thus infiltration is likely to be slow, such that water may pool on the surface. In comparison, deposits comprising sands and gravels are more permeable allowing water to percolate freely.

Bedrock permeability
Bedrock forms the main mass of rock forming the Earth. It is present everywhere, commonly beneath superficial deposits. Where the superficial deposits are thin or absent, the ease with which water will percolate into the ground depends on the permeability of the bedrock.

Natural ground instability

Natural ground instability refers to the propensity for upward, lateral or downward movement of the ground that can be caused by a number of natural geological hazards (e.g. ground dissolution/compressible ground). Some movements associated with particular hazards may be gradual and of millimetre or centimetre scale, whilst others may be sudden and of metre or tens of metres scale. Significant natural ground instability has the potential to cause damage to buildings and structures, especially when the drainage characteristics of a site are altered. It should be noted, however, that many buildings, particularly more modern ones, are built to such a standard that they can remain unaffected in areas of significant ground movement.

Shrink-swell

A shrinking and swelling clay changes volume significantly according to how much water it contains. All clay deposits change volume as their water content varies, typically swelling in winter and shrinking in summer, but some do so to a greater extent than others. Contributory circumstances could include drought, leaking service pipes, tree roots drying-out the ground or changes to local drainage patterns, such as the creation of soakaways. Shrinkage may remove support from the foundations of buildings and structures, whereas clay expansion may lead to uplift (heave) or lateral stress on part or all of a structure; any such movements may cause cracking and distortion.

Landslides (slope stability)

A landslide is a relatively rapid outward and downward movement of a mass of ground on a slope, due to the force of gravity. A slope is under stress from gravity but will not move if its strength is greater than this stress. If the balance is altered so that the stress exceeds the strength, then movement will occur. The stability of a slope can be reduced by removing ground at the base of the slope, by placing material on the slope, especially at the top, or by increasing the water content of the materials forming the slope. Increase in subsurface water content beneath a soakaway could increase susceptibility to landslide hazards. The assessment of landslide hazard refers to the stability of the present land surface. It does not encompass a consideration of the stability of excavations.

Soluble rocks (dissolution)

Some rocks are soluble in water and can be progressively removed by the flow of water through the ground. This process tends to create cavities, potentially leading to the collapse of overlying materials and possibly subsidence at the surface. The release of water into the subsurface from infiltration systems may increase the dissolution of rock or destabilise material above or within a cavity. Dissolution cavities may create a pathway for rapid transport of contaminated water to an aquifer or water course.

Compressible ground
Many ground materials contain water-filled pores (the spaces between solid particles). Ground is compressible if a building (or other load) can cause the water in the pore space to be squeezed out, causing the ground to decrease in thickness. If ground is extremely compressible the building may sink. If the ground is not uniformly compressible, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The compressibility of the ground may alter as a result of changes in subsurface water content caused by the release of water from soakaways.

Collapsible deposits
Collapsible ground comprises certain fine-grained materials with large pore spaces (the spaces between solid particles). It can collapse when it becomes saturated by water and/or a building (or other structure) places too great a load on it. If the material below a building collapses it may cause the building to sink. If the collapsible ground is variable in thickness or distribution, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The subsurface underlying a soakaway will experience an increase in water content that may affect the stability of the ground. This hazard is most likely to be encountered only in parts of southern England.

Running sand
Running sand conditions occur when loosely-packed sand, saturated with water, flows into an excavation, borehole or other type of void. The pressure of the water filling the spaces between the sand grains reduces the contact between the grains and they are carried along by the flow. This can lead to subsidence of the surrounding ground. Running sand is potentially hazardous during the drainage system installation. During installation, excavation of the ground may create a space into which sand can flow, potentially causing subsidence of surrounding ground.

Shallow mining hazards (non coal)
Current or past underground mining for coal or for other commodities can give rise to cavities at shallow or intermediate depths, which may cause fracturing, general settlement, or the formation of crown-holes in the ground above. Spoil from mineral workings may also present a pollution hazard. The release of water into the subsurface from soakaways may destabilise material above or within a cavity. Cavities arising as a consequence of mining may also create a pathway for rapid transport of contaminated water to an aquifer or watercourse. The mining hazards map is derived from the geological map and considers the potential for subsidence associated with mining on the basis of geology type. Therefore if mining is known to occur within a certain rock, the map will highlight the potential for a hazard within the area covered by that geology.

For more information regarding underground and opencast **coal mining**, the location of mine entries (shafts and adits) and matters relating to subsidence or other ground movement induced by **coal mining** please contact the Coal Authority, Mining Reports, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG; telephone 0845 762 6848 or at www.coal.gov.uk. For more information regarding other types of mining (i.e. non-coal), please contact the British Geological Survey.

Groundwater source protection zones

In England and Wales, the Environment Agency has defined areas around wells, boreholes and springs that are used for the abstraction of public drinking water as source protection zones. In conjunction with Groundwater Protection Policy the zones are used to restrict activities that may impact groundwater quality, thereby preventing pollution of underlying aquifers, such that drinking water quality is upheld. The Environment Agency can provide advice on the location and implications of source protection zones in your area (www.environment-agency.gov.uk/)

Contact Details

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Terms and Conditions

General Terms & Conditions

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- The data, information and related records supplied in this Report by BGS can only be indicative and should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. You must seek professional advice before making technical interpretations on the basis of the materials provided.
- Geological observations and interpretations are made according to the prevailing understanding of the subject at the time. The quality of such observations and interpretations may be affected by the availability of new data, by subsequent advances in knowledge, improved methods of interpretation, and better access to sampling locations.
- Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
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- If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.
- The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
- Note that for some sites, the latest available records may be quite historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

Report issued by
BGS Enquiry Service

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investigate design resolve

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w: www.geosphere-environmental.co.uk

Our Ref 1363,SK/Ltr01/LF,PD/05-08-15/V1
Your Ref

Date 05 August 2015

M Scott Properties Ltd
Suite 5
Oyster House
Severalls Lane
Colchester
Essex
CO4 9PD

For the attention of Mr. Graham McCormick

By Email
- graham@mscott.co.uk

Dear Mr. McCormick

INFILTRATION TESTING AT
DISS LAWNS, MOUNT STREET, DISS, NORFOLK

1. Introduction

This report has been prepared for Scott Properties.

The primary objectives of this site investigation are to:

- Assess the infiltration potential for the natural soils beneath the site.

This is to be achieved by:

- Excavating a number of machine-dug trial pits across the site;
- Undertaking soakage tests within the machine-dug trial pits;
- Undertaking infiltration calculations to assess the suitability of soakaways for the future redevelopment of the site.

The above was undertaken broadly in line with the standards set out in BRE Digest 365, 'Soakaway Design'.

It is understood that the proposed development will comprise of five residential properties and a retirement home, together with associated gardens and car parking.

2. Site Works

2.1 Methodology

This site investigation was carried out on the basis of the practices set out in BRE Digest 365, 'Soakaway Design'. The locations of trial pits were defined by the client, Scott Properties, in order to assess the infiltration rate of the soil within proposed open areas, and beneath proposed access ways and car parking. A Trial Pit Location Plan, drawing ref 1363,SK 001/Rev 0, is provided at the end of this letter.

2.2 Scope

Site works were carried out on 30 July 2015 and comprised of the following:

- Excavation of four machine-dug trial pits, (TP1-TP4), to depths ranging from 1.65m to 2.00m bgl;
- Undertaking soakage tests within all of the trial pits.

A Trial Pit Location Plan, Drawing ref. 1363,SK 001/Rev 0, is presented within Appendix 4 to the rear of this letter.

2.3 Ground Conditions Encountered

The sequence of the strata encountered during the investigation generally confirms the anticipated geology as interpreted from British Geological Survey, (BGS), digital mapping.

The sequence and indicative thickness of strata are provided below:

Table 1 - Ground Conditions

Strata	Depth Encountered (mgl)		Strata Thickness (m)	Location and Composition
	From	To		
Topsoil	0.00	0.30 to 0.40	0.30 to 0.40	**TP1-TP4** Topsoil was encountered within every trial pit and was found to comprise a silty gravelly sand with flint and occasional brick fragments.
Superficial Deposits	0.30 to 0.40	0.55 to 0.60	0.20 to 0.30	**TP1, TP3 and TP4** Brown clayey fine sand.
Lowestoft Formation	0.55 to 0.60	Unproven	Unproven	**TP1-TP4** A yellow brown and grey mottled clay with chalk and flint gravel.

2.4 Groundwater

Groundwater was not encountered in any of the exploratory holes.

2.5 Infiltration Testing

Soil infiltration testing was undertaken within all of the trial pits within the natural soils and undertaken broadly in line with the guidance detailed in BRE Digest 365. The trial pits were filled with water on a single occasion with the fall in water level measured at regular intervals.

The monitoring results indicated no appreciable infiltration to have occurred over the monitoring period and therefore an infiltration rate could not be calculated. This is consistent with the dominant cohesive ground conditions.

The results are provided in full in Appendix 3 presented to the rear of this letter.

3. Conclusions and Recommendations

Based upon the above information, it is not considered suitable to adopt conventional soakaway drainage or permeable paving on the site, therefore an alternative drainage solution should be adopted.

We trust the above is clear and acceptable, however if you have any comments or queries please do not hesitate to contact us.

Yours sincerely

Lianne Fountain
Assistant Geoenvironmental Consultant
Geosphere Environmental Ltd

Enclosures:
Appendix 1 – Report Limitations and Conditions
Appendix 2 – Exploratory Hole Logs
Appendix 3 – Infiltration Testing Results
Appendix 4 – Drawings

APPENDICES

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APPENDIX 1 – REPORT LIMITATIONS AND CONDITIONS

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report has been prepared for the sole use of the Client for the purposes described and no extended duty of care to any third party is implied or offered. Third parties using any information contained within this report do so at their own risk.

This report is prepared and written for the use stated herein; it should not be used for any other purposes without reference to Geosphere Environmental Limited. The report has been prepared in relation to the proposed end-use should another end-use been intended a further re-assessment may be required. It is likely that over time practises will improve and the relevant guidance and legislation be amended or superseded, which may necessitate a re-assessment of the site.

The accuracy of any map extracts cannot be guaranteed. It is possible that different conditions existed on site, between and subsequent to the various map surveys appended.

Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes discussed or on the possible presence of features based on visual, verbal or published evidence, this is for guidance only and no liability can be accepted for its accuracy.

APPENDIX 2 – TRIAL PIT LOGS

(TP1 to TP4)

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Fax: 01603 298 075

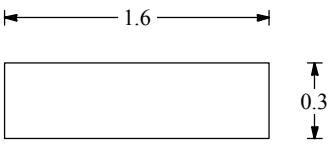
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Diss Lawns, Mount Street, Diss	M Scott Properties Ltd	**TP1**

Job No	Date	Ground Level (m)	Co-Ordinates ()
1363,SK	30-07-15 30-07-15		

Fieldwork By	Logged By	Sheet
DRILLT	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly silty fine to medium sand. Gravel of angular to subrounded fine chalk, flint and occasional brick)				No groundwater encountered during excavation No collapse of sidewalls during excavation
0.30-0.55	Dark yellow brown slightly gravelly slightly clayey fine SAND. Gravel of angular to subrounded fine to coarse flint and chalk				
0.55-1.80	Stiff yellow brown gravelly desiccated sandy CLAY. Gravel of angular to subrounded fine to coarse chalk and flint (LOWESTOFT FORMATION) 0.70 Becoming yellow brown/pale grey mottled with depth 0.85 No longer visually desiccated with depth				Soakage test undertaken at 1.01m
	1.30 Becoming dark grey/brown mottled with depth				Trial pit completed at 1.8m



Shoring/Support: None
Stability: Stable

All dimensions in metres Scale 1:19.1666666666667	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
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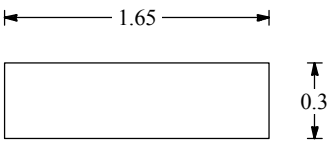
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Diss Lawns, Mount Street, Diss	M Scott Properties Ltd	**TP2**

Job No	Date	Ground Level (m)	Co-Ordinates ()
1363,SK	30-07-15 30-07-15		

Fieldwork By	Logged By	Sheet
DRILLT	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Dark brown slightly gravelly silty fine to medium sand. Gravel of angular to subrounded fine chalk, flint and occasional brick)				No groundwater encountered during excavation
0.20-1.65	Firm dark yellow brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint and chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.60 Becoming gravelly with depth				
	1.10 Becoming stiff and slightly desiccated with depth				Soakage test undertaken at 1.06m
	1.20 Orange brown sand pockets				
	1.30 Becoming grey with depth				
					Trial pit completed at 1.65m



Shoring/Support: None
Stability: Stable

All dimensions in metres Scale 1:19.1666666666667	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By

Geosphere Environmental Ltd
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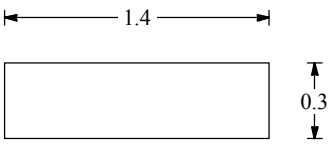
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Diss Lawns, Mount Street, Diss	M Scott Properties Ltd	**TP3**

Job No	Date	Ground Level (m)	Co-Ordinates ()
1363,SK	30-07-15 30-07-15		

Fieldwork By	Logged By	Sheet
DRILLT	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.40	TOPSOIL (Dark brown slightly gravelly silty fine to medium sand. Gravel of angular to subrounded fine chalk, flint and occasional brick)				No groundwater encountered during excavation No collapse of sidewalls during excavation
0.40-0.60	Brown very clayey fine SAND				
0.60-2.00	Firm dark yellow brown/grey mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse chalk and flint (LOWESTOFT FORMATION) 0.80 Becoming pale grey with depth 1.20 Occasional boulders of flint				Soakage test undertaken at 1.12m Trial pit completed at 2.0m



Shoring/Support: None
Stability: Stable

All dimensions in metres Scale 1:19.1666666666667	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Brightwell, Suffolk, IP10 0BJ
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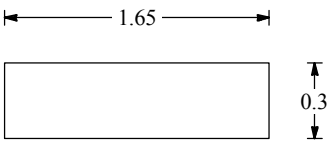
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Diss Lawns, Mount Street, Diss	M Scott Properties Ltd	**TP4**

Job No	Date	Ground Level (m)	Co-Ordinates ()
1363,SK	30-07-15 30-07-15		

Fieldwork By	Logged By	Sheet
DRILLT	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly silty fine to medium sand. Gravel of angular to subrounded fine chalk, flint and occasional brick)				No groundwater encountered during excavation No collapse of sidewalls during excavation
0.30-0.60	Dark yellow brown clayey silty fine SAND				
0.60-1.70	Firm yellow brown gravelly CLAY. Gravel of angular to subrounded fine to coarse chalk and flint (LOWESTOFT FORMATION) 0.80 Becoming grey with depth				Soakage test undertaken at 0.96m Trial pit completed at 1.7m



Shoring/Support: None
Stability: Stable

All dimensions in metres Scale 1:19.1666666666667	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By

APPENDIX 3 – INFILTRATION TESTING RESULTS

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TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

geosphere environmental ltd
Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
T 01603 298 076 E info@geosphere-environmental.co.uk

Pit Size [m]		
Length	**Width**	**Depth**
1.60	0.30	1.80

Time [min]	Depth to Water [mbgl]	
0.0	1.010	
0.5	1.010	
1.0	1.010	
2.0	1.010	
3.0	1.010	
4.0	1.010	
5.0	1.010	
10.0	1.010	
15.0	1.010	
20.0	1.015	
30.0	1.015	
45.0	1.015	
60.0	1.015	
90.0	1.020	
120.0	1.020	
180.0	1.020	

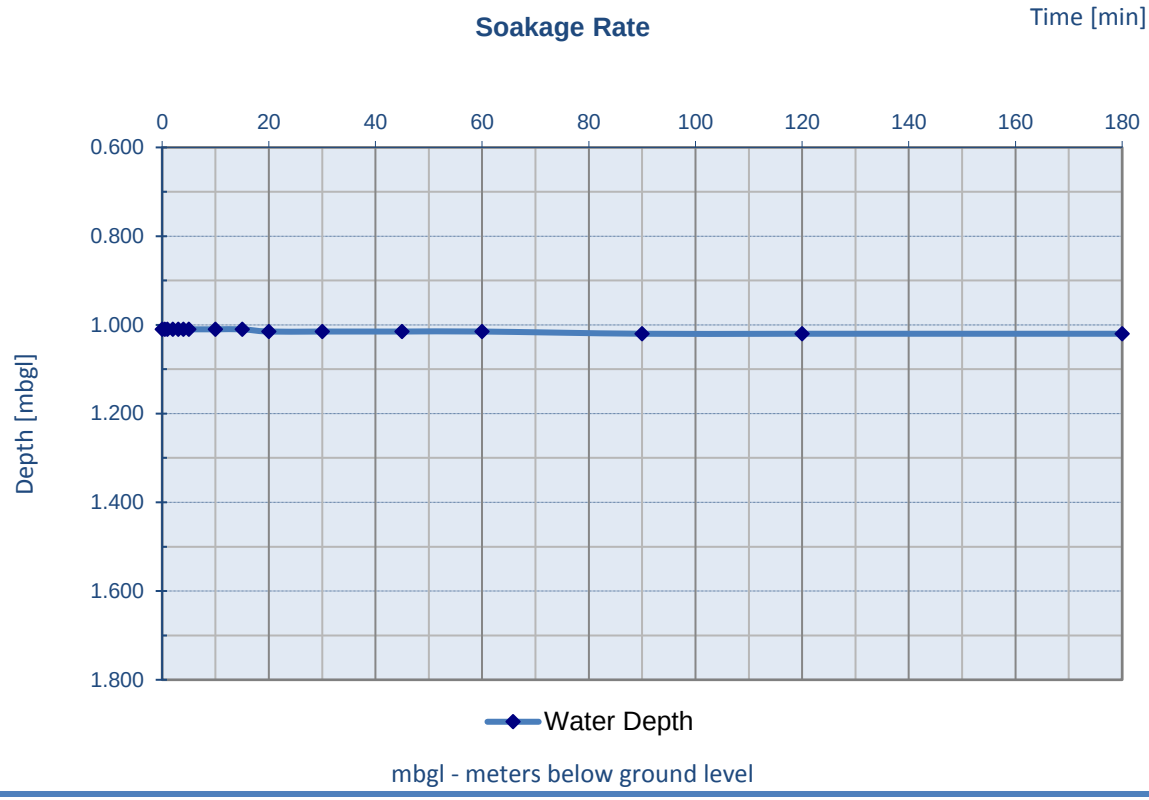
Pit TP1 **Run** 1 of 1

Test Date 30/07/2015

Groundwater Encountered at: n/a

Remarks:

It was not possible to undertake full-depth soakaway test. Maximum water depth achieved in the test = 1.020mbgl



mbgl - meters below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CHECKED BY	DATE
Land at Mount Street, Diss, Norfolk	Scott Properties	1363,SK	LF	SG	05 August 2015

C:\Egnyte\Shared\GeoCloud\Reports\1363,SK, Mount Street, Diss, Scott Properties,03-07-15\GEL Reports\Soak\1363,SK - TP1 Soak - NO CALCS - 3.8.15

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

geosphere environmental ltd
Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
T 01603 298 076 E info@geosphere-environmental.co.uk

Pit Size [m]		
Length	**Width**	**Depth**
1.65	0.30	1.65

Time [min]	Depth to Water [mbgl]	
0.0	1.060	
0.5	1.060	
1.0	1.060	
2.0	1.060	
3.0	1.060	
4.0	1.060	
5.0	1.060	
10.0	1.060	
15.0	1.060	
20.0	1.060	
30.0	1.060	
45.0	1.060	
60.0	1.060	
90.0	1.060	
120.0	1.060	
150.0	1.060	

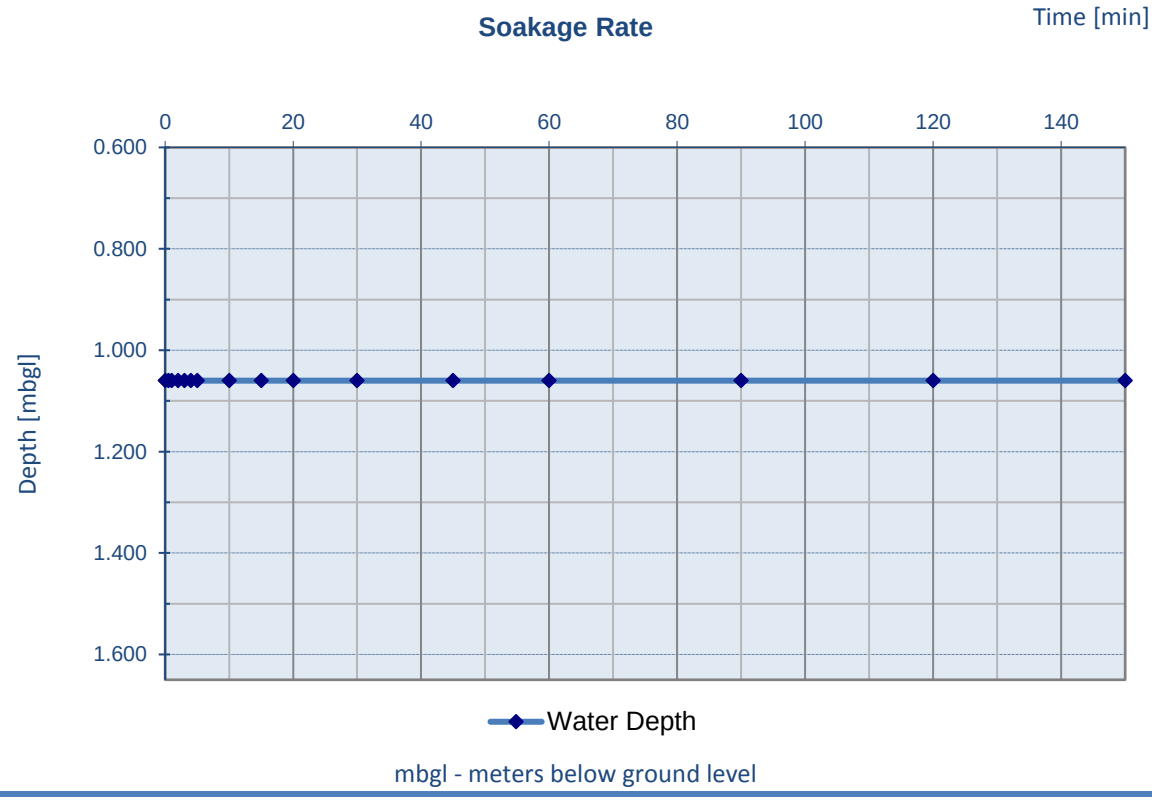
Pit TP2 **Run** 1 of 1

Test Date 30/07/2015

Groundwater Encountered at: n/a

Remarks:

It was not possible to undertake full-depth soakaway test. Maximum water depth achieved in the test = 1.060mbgl



SITE	CLIENT	REPORT NO	SITE SUPERVISION	CHECKED BY	DATE
Land at Mount Street, Diss, Norfolk	Scott Properties	1363,SK	LF	SG	05 August 2015

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TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

geosphere environmental ltd
Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
T 01603 298 076 E info@geosphere-environmental.co.uk

Pit Size [m]		
Length	**Width**	**Depth**
1.40	0.30	2.00

Time [min]	Depth to Water [mbgl]	
0.0	1.120	
0.5	1.120	
1.0	1.120	
2.0	1.120	
3.0	1.120	
4.0	1.120	
5.0	1.120	
10.0	1.120	
15.0	1.125	
20.0	1.125	
30.0	1.125	
45.0	1.125	
60.0	1.125	
90.0	1.120	
120.0	1.120	
150.0	1.120	

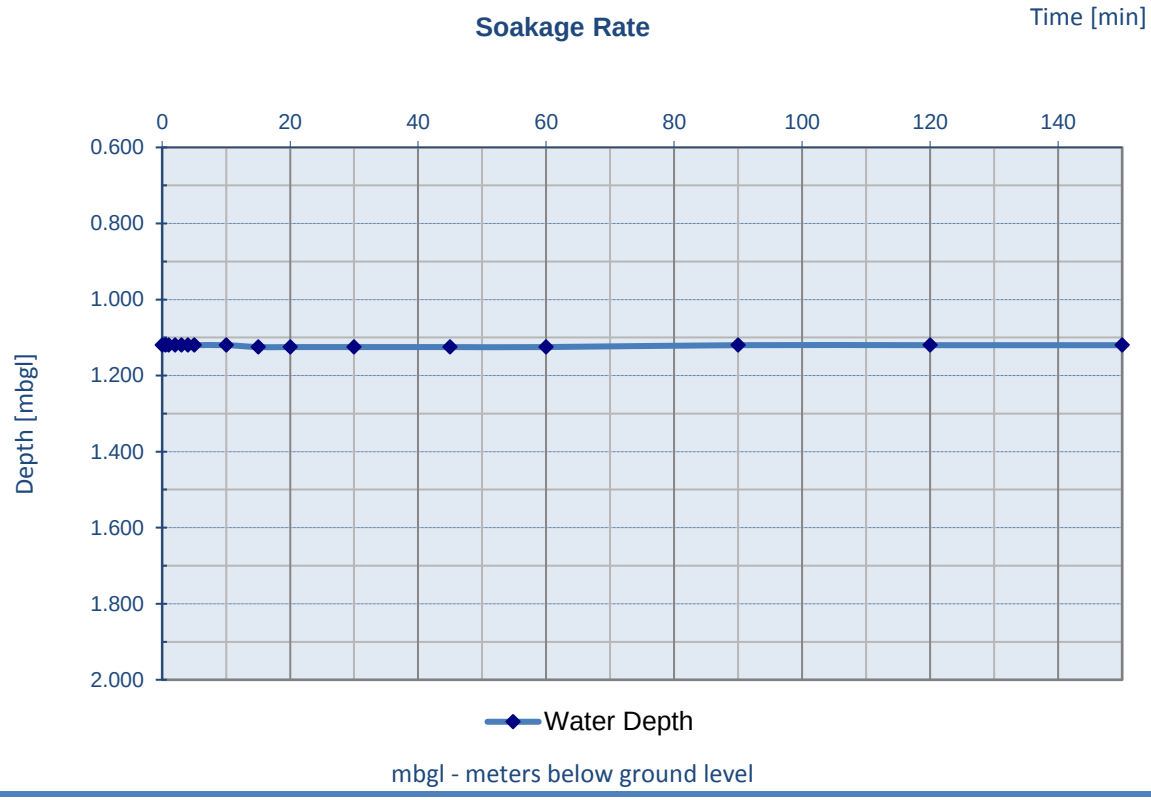
Pit TP3 **Run** 1 of 1

Test Date 30/07/2015

Groundwater Encountered at: n/a

Remarks:

It was not possible to undertake full-depth soakaway test. Maximum water depth achieved in the test = 1.025mbgl



mbgl - meters below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CHECKED BY	DATE
Land at Mount Street, Diss, Norfolk	Scott Properties	1363,SK	LF	SG	05 August 2015

C:\Egnyte\Shared\GeoCloud\Reports\1363,SK, Mount Street, Diss, Scott Properties,03-07-15\GEL Reports\Soak\1363,SK - TP3 Soak - NO CALCS - 3.8.15

TRIAL PIT INFILTRATION TEST - BRE DIGEST 365

geosphere environmental ltd
Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
T 01603 298 076 E info@geosphere-environmental.co.uk

Pit Size [m]		
Length	**Width**	**Depth**
1.65	0.30	1.70

Time [min]	Depth to Water [mbgl]	
0.0	0.960	
0.5	0.965	
1.0	0.965	
2.0	0.965	
3.0	0.965	
4.0	0.965	
5.0	0.965	
10.0	0.970	
15.0	0.970	
20.0	0.970	
30.0	0.970	
45.0	0.970	
60.0	0.970	
90.0	0.970	
120.0	0.970	

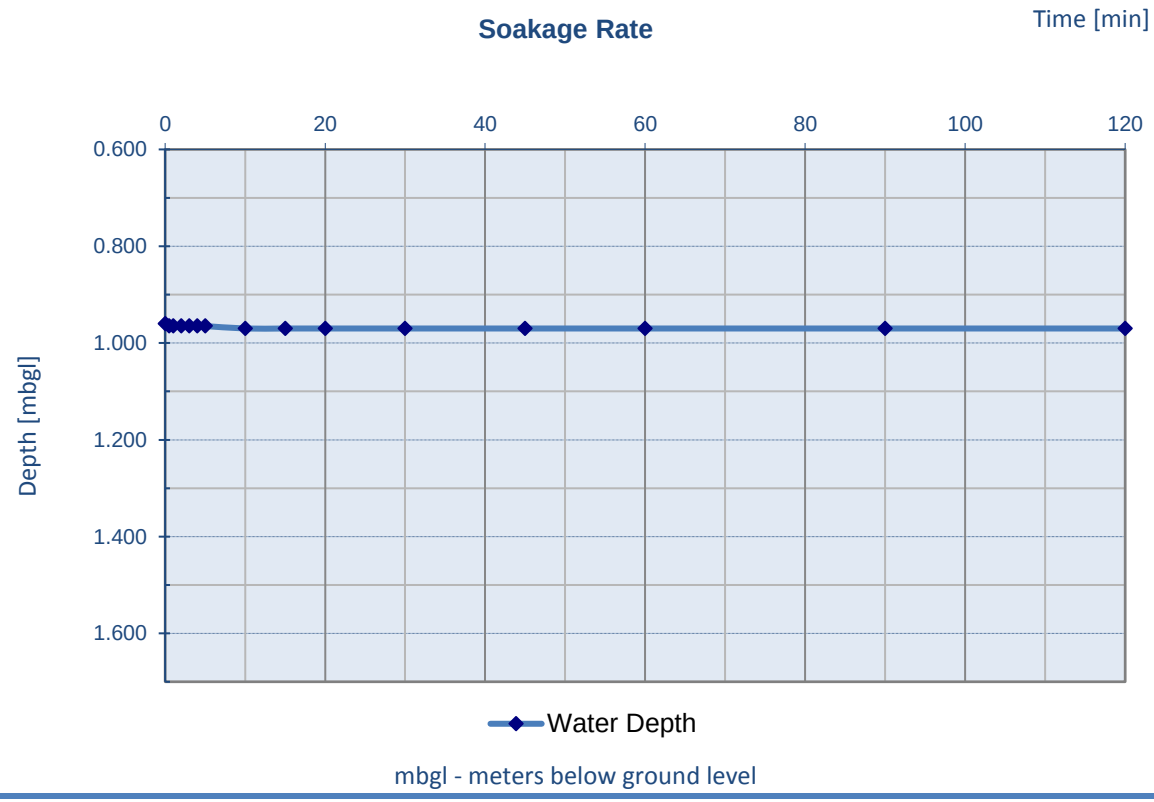
Pit TP4 **Run** 1 of 1

Test Date 30/07/2015

Groundwater Encountered at: n/a

Remarks:

It was not possible to undertake full-depth soakaway test. Maximum water depth achieved in the test = 0.970mbgl



mbgl - meters below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CHECKED BY	DATE
Land at Mount Street, Diss, Norfolk	Scott Properties	1363,SK	LF	SG	05 August 2015

C:\Egnyte\Shared\GeoCloud\Reports\1363,SK, Mount Street, Diss, Scott Properties,03-07-15\GEL Reports\Soak\1363,SK - TP4 Soak - NO CALCS - 3.8.15

APPENDIX 4 – DRAWINGS

Trial Pit Location Plan – Drawing ref. 1363,SK 001/Rev0

ADDRESS Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
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EMAIL info@geosphere-environmental.co.uk

LEGEND:

Trial pit locations

Site boundary

NOTE: Drawing based upon Poole and Pattle Chartered Architects drawing number 3201 03

N

geosphere environmental ltd

Brightwell Barn, Ipswich Road, Brightwell, Suffolk, IP10 0BJ
T 01603 298 076 F 01603 289 075
E info@geosphere-environmental.co.uk

SITE	TITLE	REPORT NO.	DRAWING NO.	DATE
Diss Lawns, Mount Street, Diss, Norfolk	Exploratory Hole Location Plan	1363,SK	001 / Rev 0	August 2015
	CLIENT	**DRAWN BY**	**CHECKED**	**SCALE**
	M Scott Properties Ltd	LF	SG	Not to scale

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