Wormald Burrows Partnership Limited
Civil Engineering Consultants

HAVERHILL NORTH – PHASES 5a & 5c
SUFFOLK

DRAINAGE STRATEGY

July 2024

E4246-Haverhill-Drainage Strategy-5a&5c-Rev1

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HAVERHILL NORTH – PHASES 5a & 5c
SUFFOLK

DRAINAGE STRATEGY

Client: PERSIMMON HOMES (SUFFOLK) LIMITED

Engineer: Wormald, Burrows Partnership Limited
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Date: July 2024

Original Ref: E4246-Haverhill-Drainage Strategy-5a&5c-Rev0

Written By:	Checked By:	Approved By:
		
.....	.....	.....
Laurence Meiklereid *Senior Engineer*	Nick Kohli *Managing Director*	Nick Kohli *Managing Director*

Status: Final

REGISTRATION OF AMENDMENTS

Revision	Date	Amendment Details	Prepared by	Checked by
Rev 0	05.07.24	First issue	Laurence Meiklereid	Nick Kohli
Rev 1	17.07.24	Catchments plans updated within Appendix B. Phase 5a & c drainage now highlighted within Appendix E	Laurence Meiklereid	Nick Kohli

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 Wormald Burrows Partnership Limited (WBPL) has been appointed by Persimmon Homes (Suffolk) Limited to prepare a foul and surface water Drainage Strategy for Phases 5a & 5c of the residential development to the north of Haverhill.

1.2 The strategy follows the principles set out in the approved Drainage Strategy prepared by Wormald Burrows Partnership Ltd, original reference E3838-Haverhill-Drainage Strategy-Rev0, which formed part of the wider planning application.

1.3 The drainage strategy provided in this report sets out how the proposals will not increase off-site flood risk and has been designed in accordance with both the Suffolk County Council Surface Water Drainage (SUDS) Guidance Document, as well as the approved Drainage Strategy referred to above.

2 SITE DESCRIPTION

2.1 Site Context

2.1.1 The site is located to the north west of Haverhill, approximately 1.2 kilometres north of Haverhill Town Centre and occupies an area of approximately 2.02 Hectares.

2.1.2 The wider Haverhill development is predominately greenfield and has a number of watercourses running north to south towards Stour Brook, which ultimately discharges into the River Stour to the south east of Haverhill.

2.1.3 Phase 5a is bound to the east by a proposed school & community facilities, to the west by proposed public open space and to the south by part of the Haverhill infrastructure highway. Phase 5c is bound to the north and east by part of the Haverhill infrastructure highway, to the west by proposed public open space & an attenuation pond and to the south by existing residential development.

2.1.4 A Location Plan is provided in **Appendix A**.

2.2 Topography

2.2.1 The topographical survey for the wider site was undertaken by Survey Solutions in November 2017. This indicates several steep valleys across the development, each with watercourses running within them. Phase 5a generally falls from east to west with a high point of approximately 94.50m AOD and a low point of approximately 84.32m AOD. Phase 5c generally falls from east to west with a high point of approximately 89.40m AOD and a low point of approximately 82.55m AOD

2.3 Geology

2.3.1 Inspection of the Site Investigation Report prepared by Geosphere Environmental Limited dated December 2014, confirms that the site is generally underlain by the Lowestoft Formation, which is underlain by the Undifferentiated Lewes nodular and Seaford Chalk formations.

2.3.2 Percolation testing was carried out at various locations across the site, and confirms that infiltration techniques for surface water disposal are not feasible.

2.3.3 Extracts from the report are enclosed in **Appendix F** and these include the executive summary, borehole logs and percolation test results.

2.4 Site Proposals

2.4.1 The proposals consist of up to 115 residential dwellings, with associated highways and drainage infrastructure. The main access will be taken from Howes Road.

3 SURFACE WATER DRAINAGE STRATEGY

3.1.1 The proposed development will lead to an increase in impermeable area and as such will increase the volume of surface water run-off from the site, unless properly managed.

3.1.2 The Sustainable Drainage Systems (SuDS) hierarchy requires that surface water run-off be controlled and preferably re-used wherever possible. Where it is not practicable to reuse, the following methods of disposal shall be considered (in order of preference)

- Via Infiltration
- To a local watercourse
- To existing public sewers

3.1.3 Following a review of the existing geology (see Section 2.3), it is unlikely that any part of the site is suitable for the use of infiltration drainage techniques and therefore this option has been discounted. There are however several existing watercourses which pass through the wider site from the north and it is proposed that these are utilised as the main point of discharge.

3.1.4 Levels, development proposals and phasing has led to the wider Haverhill North site being split into five separate catchments, all with their own outfalls, flow controls and associated attenuation features. Phase 5a & 5c fall under what is referenced as Catchment 5 within the wider approval drainage strategy. This catchment has an approved surface water outfall rate of 23.5l/s.

3.1.5 The SCC SuDS Guidance document provides options for the discharge of surface water from the site:

- Option 1 – simple control, use QBar for discharge of surface water runoff.
- Complex – use greenfield rates and long term storage for the discharge of surface water runoff.

3.1.6 The proposed surface water strategy is based on Option 1, simple control. The

greenfield runoff rates were calculated using the ICP SuDS method within Microdrainage. Details of the QBar rates and catchment areas are included in **Appendix B and C**.

3.1.7 Catchment 5 has its own flow control and attenuation facility, in this case, an above ground dry pond.

3.1.8 The Suffolk SuDS Guidance outlines that drainage systems be designed to incorporate a number of surface water treatment stages based on the level of pollution entering the system. The Guide states that a minimum of one treatment stage is required for runoff from roofs and two stages for runoff from roads and parking areas.

3.1.9 Deep trapped gullies will provide an initial stage of treatment to highways and large parking areas, especially during the more polluting low intensity storms. All flows will then pass through existing balancing ponds, prior to discharge into existing watercourses.

3.1.10 There may also be options to explore additional treatment stages within the residential parcels such as filter strips, filter trenches and permeable paving.

3.1.11 The surface water drainage strategy indicating the proposed piped network and receiving attenuation facilities is depicted on drawing E4246/501 in **Appendix D**.

3.1.12 Catchment 5 has been modelled using Microdrainage drainage design software for a I in 100 year rainfall event with a 40% allowance for climate change. Results from the modelling simulations area included in **Appendix E**. All drainage within the phase 5a and 5c boundary is highted in yellow.

3.1.13 Due to the undulating nature of the site, careful consideration should be given to proposed site levels in accordance with normal good practice to ensure that there is no likelihood of flooding caused by overland flows and that any overland flows are directed around buildings in the event of a failure to the piped drainage system, or an event that exceeds currently accepted design parameters.

3.1.14 It is essential that drainage features are properly maintained to remain effective operation over the lifespan of the development. A maintenance schedule is included within **Appendix G**, which sets out the type of maintenance required and its frequency.

4 FOUL WATER DRAINAGE STRATEGY

4.1.1 A pre-development enquiry report has been obtained from Anglian Water, which provides details on proposed connection points and capacity within the existing public sewer network.

4.1.2 The findings of this report confirm that the Haverhill Water Recycling Centre has sufficient capacity to treat the proposed flows generated from the site, but a direct connection to the existing public sewer network may have a detrimental effect and the need for hydraulic modelling is required.

4.1.3 The results of the hydraulic modelling are awaited however, Anglian Water has a duty under Section 106 of the Water Industry Act 1991 to provide a connection to the proposed development,

4.1.4 The onsite foul water network will be directed to a new pumping station located along the southern boundary. The final discharge point has been allocated in the Anglian Water Pre-Planning Assessment Report (29/06/2021) as being existing foul manhole 9501 in Withersfield Road at National Grid Reference (NGR) TL 65955 46594. As a temporary measure, Anglian Water have confirmed that discharge can be directed to Manhole 7602 in Howe Road at NGR TL 66791 46641, where flows from up to a maximum of 170 dwellings can be directed from the new pumping station at a maximum rate of 5.0l/s.

5 CONCLUSIONS

5.1 Surface water from phases 5a & 5c will have a free discharge into the sewers that from part of Catchment 5. Surface water from the whole of Catchment 5 will be attenuated onsite and disposed of via a proprietary flow control device to an existing watercourse at existing greenfield rate of 23.5l/s.

5.2 Percolation testing has confirmed that the use of infiltration techniques for the disposal of surface water in not feasible.

5.3 Discharge rates will be limited to the Qbar values in accordance with SCC guidance.

5.4 Careful consideration should be given to proposed site levels to ensure that there is no likelihood of flooding caused by overland flows.

5.5 Further opportunities should be explored to incorporate additional SuDS measures into the development parcels, where practicable.

APPENDICES

APPENDIX A

PHASE 5A

PHASE 5C

Rev	Description	Date	Drawn	Checked

Drawing Approval Status:-

N/A Section 104 N/A Section 38 N/A Section 278

FOR COMMENT

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Scale:
1:2500 @ A1
1:5000 @ A3

afaq ISO 9001 Quality — UKAS MANAGEMENT SYSTEMS 022
Certified by Afnor UK

Project:
Haverhill North - Phases 5a & 5c

Drawing Description:
Location Plan

Drawing Number:
E4246/100

Client Reference:

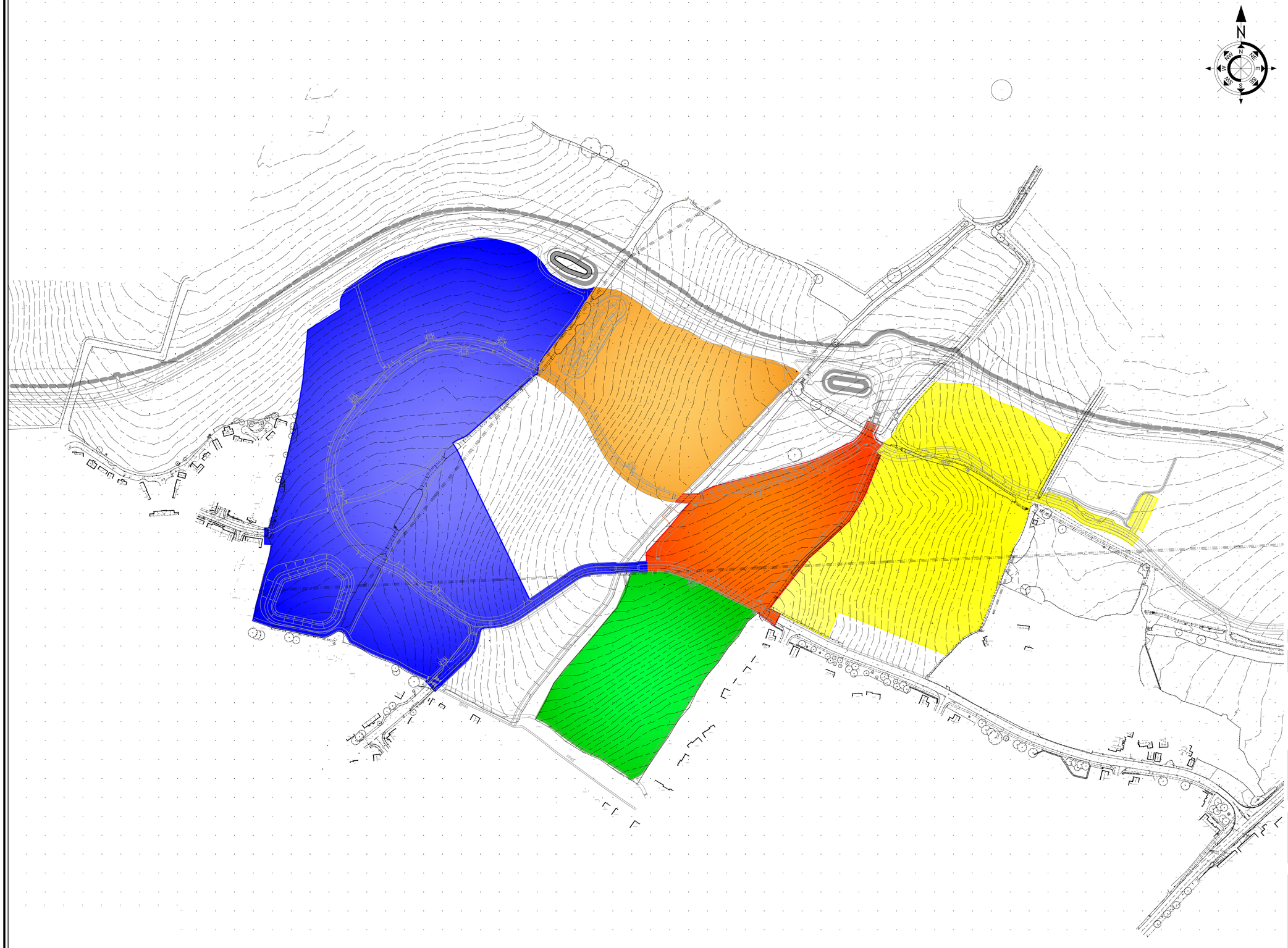
Designed By:	Drawn By:	Checked By:
Date:	Date:	Date:

Client:
PERSIMMON

Persimmon Homes Suffolk
Radio House
Orion Avenue
Great Blakenham
Ipswich, IP6 0LW

Scale 1:2500
0 50m 100m

APPENDIX B



LEGEND

- CATCHMENT AREA 1 - 5.064 Ha (Qbar - 11.7 litres/second)
- CATCHMENT AREA 2 - 2.305 Ha (Qbar - 5.3 litres/second)
- CATCHMENT AREA 3 - 2.699 Ha (Qbar - 6.3 litres/second)
- CATCHMENT AREA 4 - 3.314 Ha (Qbar - 7.7 litres/second)
- CATCHMENT AREA 5 - 10.149 Ha (Qbar - 23.5 litres/second)

Rev	Description	Date	Drawn	Checked
I	Catchments now presented as full areas, rather than detail parcel areas	17:07:24	DCA	LAM
H	Updated Catchment 5 to new phase 5a & 5c layouts	05:07:24	LAM	NK
G	Updated to latest phase 6 layout	17:03:22	LAM	LAM
F	Updated Catchment 3 to new phase 6 layout.	18:02:22	LAM	LAM
E	Updated to show catchment areas and outfall rates correctly	07:12:21	LAM	NK
D	Catchment areas updated to latest designs	06:09:21	LAM	NK
C	Updated Catchment areas to include phase 2A and 2B imermeable areas	25.08.21	LAM	NK
B	Catchment areas updated	22:07:20	TJW	TJW
A	Minor adjustment to catchment areas following layout change	08:01:20	TJW	TJW

Drawing Approval Status:-

N/A Section 104 N/A Section 38 N/A Section 278

FOR INFORMATION

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Web: www.wormburp.com
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Project:

Haverhill, Boyton Place - Phases 2-6

Drawing Description:

Catchment Areas Plan

Client:

PERSIMMON

Persimmon Homes (Suffolk) Ltd
Orion Court
Orion Court
Great Blakenham
Suffolk IP6 0LW

Drawing Number:
E3838/510/I

Client Reference:

Scale:
1:2000 @ A1
NTS @ A3

Designed By:	Drawn By:	Checked By:
TJW	JMW	
Date: 20.12.18	Date: 03.01.19	Date:

afaq ISO 9001 Quality
UKAS MANAGEMENT SYSTEMS 022
Certified by Afnor UK

Phase 5 - Drainage Areas

Manhole No.	Pipe No.	Adoptable IMP	Private IMP	Private UC	Total IMP + UC
Ph5-S1	2.000	421.679	0.000	0.000	421.679
Ph5-1a	2.001	0.000	1037.847	103.785	1141.632
Ph5-S2	2.002	0.000	631.588	63.159	694.747
Ph5-S4	2.003	392.791	537.116	53.712	983.619
Ph5-S5	2.004	570.871	522.021	52.202	1145.094
Ph5-S3	3.000	194.576	1060.984	106.098	1361.658

Infrastructure - Drainage Areas

Manhole No.	Pipe No.	Adoptable IMP	Private IMP	Private UC	Total IMP + UC
S318	2.006	0.000	677.889	67.789	745.678
S320	2.008	0.000	1770.242	177.024	1947.266
S317	4.000	0.000	481.643	48.164	529.807
S324	5.003	0.000	493.413	49.341	542.754
S329	5.009	0.000	2709.067	270.907	2979.974

Drawing Legend

- Proposed surface water sewer
- Proposed foul water sewer
- Existing surface water sewer
- Existing foul water sewer
- Existing surface water sewer to be relocated
- Proposed stub connection

General Notes

1. All dimensions are in metres unless noted otherwise.
2. Do not scale from the drawing.
3. the drawing is to be read in conjunction with all other relevant drawings.

Rev	Description	Date	Drawn	Checked

Drawing Approval Status:-

N/A Section 104 N/A Section 38 N/A Section 278

PRELIMINARY

Wormald Burrows Partnership Ltd
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Project:

Haverhill, Boyton Place - Phase 5A & 5C

Drawing Description:

Drawing Description: Drainage Areas Plan - Phase 5A & 5C

Client:

PERSIMMON

Persimmon Homes (Suffolk)
Persimmomn House
Orion Court
Great Blakenham
Suffolk IP6 0LW

Drawing Number: E4246/505

Client Reference:

Scale: 1:500 @ A1

Designed By:	Drawn By:	Checked By:
DCA	DCA	LAM
Date: 17.07.24	Date: 17.07.24	Date: 17.07.24

APPENDIX C

ICP SUDS Mean Annual Flood

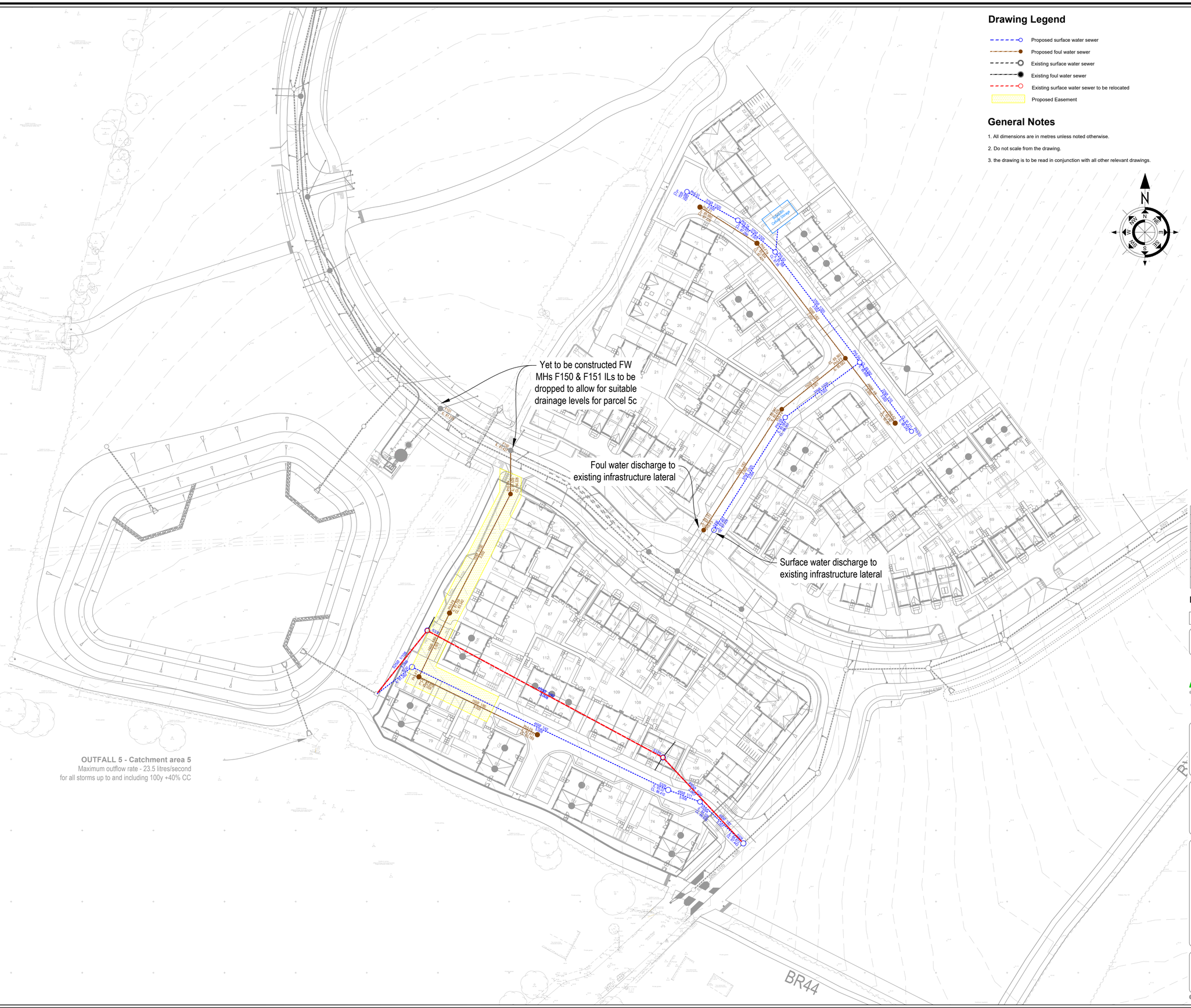
Input

Return Period (years)	100	Soil	0.370
Area (ha)	10.149	Urban	0.000
SAAR (mm)	583	Region Number	Region 5

Results l/s

QBAR Rural	23.5
QBAR Urban	23.5
Q100 years	83.8
Q1 year	20.5
Q30 years	56.6
Q100 years	83.8

APPENDIX D



Drawing Legend

- Proposed surface water sewer
- Proposed foul water sewer
- Existing surface water sewer
- Existing foul water sewer
- Existing surface water sewer to be relocated
- Proposed Easement

General Notes

1. All dimensions are in metres unless noted otherwise.
2. Do not scale from the drawing.
3. the drawing is to be read in conjunction with all other relevant drawings.

Drainage Notes

1. The contractor is reponsible at all times for carrying out their work strictly in accordance with the Health and Safety at Work Act 1974 and the CDM Regulations 2015.
2. The contractor is responsible for checking all tie-in work with existing for line and level before commencing work. Any discrepancies or errors shall be reported to the engineer in writing immediately.
3. All accommodation works necessary to establish a satisfactory link between existing and new work will have been allowed for in the contractors price.
4. It is the responsibility of the contractor to locate any service apparatus in the vicinity of the works and he will be deemed to have allowed for all hand digging and locating of service apparatus in their price. The developer will accept no claims whatsoever in respect of any loss or damage in respect of such apparatus, however caused.
5. At least one week prior to commencement of the drainage works, the contractor shall check the invert level of the existing sewers. If there are any discrepancies with the invert levels shown the engineer shall be informed immediately.
6. The contractor will be responsible for providing all necessary dewatering and trench support to execute the works in a satisfactory manner and will be deemed to have included for the same within their price.
7. All adoptable drainage work shall be constructed in accordance with the WRc publication 'Design and Construction Guidance (DCG)' and the adopting water authority's guidance. the drawing is intended for guidance only and must be read in conjunction with the above documents which will supersede the drawing in the event of conflict.
8. All sewer connections to be made soffit to soffit unless noted otherwise.
9. All materials for use in the contract are to be BSI kitemarked.
10. All redundant sewers to be grubbed up or grouted and manholes broken down and the void filled.
11. All buried concrete and mortar shall be sulphate resisting unless tests prove otherwise.
12. Imported granular backfill will be required in sewer trenches under carriageways unless otherwise agreed with the highway authority.
13. All pipe bedding shall be Class S granular bed and surround unless otherwise specified.
14. All adoptable pipework shall be extra strength vitrified clay to BS EN 295 and BS 65 or Class 120 concrete to BS EN 1916 and BS5911 unless otherwise specified.
15. The contractor must ensure that the gradients indicated on the longitudinal sections are checked between the levels shown prior to laying pipes. At no time must the contractor proceed with pipe laying by dialing the gradient shown into a laser without checking. Any discrepancy in the respect must be reported to the engineer immediately.
16. All lateral drains to be connected to main sewers with soffits level unless otherwise stated and shall be 150mm dia. extra strength vitrifies clay at a gradient of 1:80 unless otherwise stated.
17. All tree planting should be in accordance with DCG B5.1
18. The contractor is responsible for arranging a meeting with the drainage and highway clerk of works to ascertain any variations that are relevant to the development prior to work commencing.
19. The contractor is responsible for ensuring that all works are to the satisfaction of the drainage and highway authority engineer and will have included for any necessary testing in their price.
20. All road and drive gullies to be trapped.
21. Prior to commencing works, the Contractor is to review the ground investigation and report.
22. The Contractor is to allow for adjusting all existing ironwork and utility covers to suit proposed levels.
23. All proposed lateral drains should be capped until brought into use.
24. The Contractor is to use their best endeavours to prevent the transference of silt generated during construction to the downstream drainage system. the is particularly important for drainage features relying on infiltration.
25. All private drainage works to be in accordance with Part H of the current building regulations and BS EN 752.
26. The drawing is to be read in conjunction with all other relevant engineers, architects and specialist design drawings and details. If there any differences or discrepancies these should be reported to the engineer immediately.
27. Do not scale from the drawing, if in doubt ask.

0 5m 10m 20m 30m 40m
Scale 1:500

Rev	Description	Date	Drawn	Checked
A	Additional FW MH added in the road outside plot 17	17:07:24	DCA	LAM

Drawing Approval Status:-

N/A Section 104 N/A Section 38 N/A Section 278

PRELIMINARY

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Web: www.wormburp.com
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Project:
Haverhill, Boyton Place - Phase 5a &5c

Drawing Description:
Drainage Strategy Plan - Phase 5a & 5c

Client:
PERSIMMON
Persimmon Homes (Suffolk)
Persimmon House
Orion Court, Orion Avenue
Great Blakenham
Suffolk IP6 0LW

Drawing Number:
E4246/501/A

Client Reference:

Scale:
1:500 @ A1
1:1000 @ A3

Designed By:	Drawn By:	Checked By:
TA	SW	NK
Date: 01.07.24	Date: 01.07.24	Date: 08.07.24

afaq ISO 9001 Quality
UKAS MANAGEMENT SYSTEMS 022
Certified by Afnor UK

APPENDIX E

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 5

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	21.000	Add Flow / Climate Change (%)	0
Ratio R	0.422	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Surface Network 5

- Indicates pipe length does not match coordinates
« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	28.797	0.192	150.0	0.105	5.00	0.0	0.600		o	600	Pipe/Conduit	
1.001	15.611	0.031	500.0	0.469	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.002	26.383	0.176	150.1	0.067	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.003	30.451	0.203	150.0	0.089	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.004	19.680	0.131	150.0	0.660	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.005	30.069	0.201	150.0	0.148	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.006	20.333	0.136	149.9	0.024	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.007	29.597	0.197	150.0	0.161	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.008	25.457	0.727	35.0	0.604	0.00	0.0	0.600		o	675	Pipe/Conduit	
1.009	21.829	0.624	35.0	0.131	0.00	0.0	0.600		o	750	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.24	88.200	0.105	0.0	0.0	0.0	1.99	561.6	14.2
1.001	50.00	5.48	87.935	0.574	0.0	0.0	0.0	1.08	306.0	77.7
1.002	50.00	5.70	87.904	0.641	0.0	0.0	0.0	1.99	561.4	86.8
1.003	50.00	5.96	87.728	0.730	0.0	0.0	0.0	1.99	561.6	98.9
1.004	50.00	6.11	87.450	1.390	0.0	0.0	0.0	2.14	765.0	188.2
1.005	50.00	6.35	87.319	1.538	0.0	0.0	0.0	2.14	765.1	208.3
1.006	50.00	6.51	87.118	1.562	0.0	0.0	0.0	2.14	765.1	211.5
1.007	50.00	6.74	86.983	1.723	0.0	0.0	0.0	2.14	765.0	233.3
1.008	50.00	6.83	86.786	2.327	0.0	0.0	0.0	4.44	1588.6	315.1
1.009	50.00	6.91	85.983	2.458	0.0	0.0	0.0	4.74	2094.0	332.8

Network Design Table for Surface Network 5

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.010	28.164	0.805	35.0	0.149	0.00	0.0	0.600		o	750	Pipe/Conduit	
1.011	28.731	0.821	35.0	0.121	0.00	0.0	0.600		o	750	Pipe/Conduit	
1.012	26.028	0.744	35.0	0.898	0.00	0.0	0.600		o	825	Pipe/Conduit	
1.013	26.493	0.757	35.0	0.149	0.00	0.0	0.600		o	825	Pipe/Conduit	
1.014	9.900	0.633	15.6	0.024	0.00	0.0	0.600		o	825	Pipe/Conduit	
2.000	16.401	0.051	321.6	0.042	5.00	0.0	0.600		o	375	Pipe/Conduit	
2.001	13.751	0.043	319.8	0.109	0.00	0.0	0.600		o	375	Pipe/Conduit	
2.002	39.062	0.122	320.0	0.066	0.00	0.0	0.600		o	375	Pipe/Conduit	
3.000	24.263	2.426	10.0	0.130	5.00	0.0	0.600		o	225	Pipe/Conduit	
2.003	26.060	0.081	320.0	0.096	0.00	0.0	0.600		o	375	Pipe/Conduit	
2.004	37.476	0.117	320.0	0.112	0.00	0.0	0.600		o	375	Pipe/Conduit	
2.005	17.305	0.054	320.0	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
4.000	21.123	1.056	20.0	0.158	5.00	0.0	0.600		o	300	Pipe/Conduit	
2.006	14.054	0.703	20.0	0.075	0.00	0.0	0.600		o	375	Pipe/Conduit	
2.007	27.245	1.435	19.0	0.064	0.00	0.0	0.600		o	450	Pipe/Conduit	
2.008	32.772	1.064	30.8	0.258	0.00	0.0	0.600		o	450	Pipe/Conduit	
2.009	22.785	0.236	96.5	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.010	50.00	7.01	85.360	2.607	0.0	0.0	0.0	4.74	2093.9	353.0
1.011	50.00	7.11	84.555	2.728	0.0	0.0	0.0	4.74	2093.8	369.4
1.012	50.00	7.19	83.659	3.626	0.0	0.0	0.0	5.03	2687.8	491.0
1.013	50.00	7.28	82.915	3.775	0.0	0.0	0.0	5.03	2688.4	511.2
1.014	50.00	7.30	82.158	3.799	0.0	0.0	0.0	7.53	4024.2	514.4
2.000	50.00	5.27	85.882	0.042	0.0	0.0	0.0	1.00	111.0	5.7
2.001	50.00	5.50	85.831	0.151	0.0	0.0	0.0	1.01	111.3	20.4
2.002	50.00	6.15	85.788	0.216	0.0	0.0	0.0	1.01	111.3	29.3
3.000	50.00	5.10	88.242	0.130	0.0	0.0	0.0	4.16	165.5	17.6
2.003	50.00	6.58	85.666	0.443	0.0	0.0	0.0	1.01	111.3	60.0
2.004	50.00	7.20	85.584	0.555	0.0	0.0	0.0	1.01	111.3	75.2
2.005	50.00	7.48	85.467	0.555	0.0	0.0	0.0	1.01	111.3	75.2
4.000	50.00	5.10	86.544	0.158	0.0	0.0	0.0	3.53	249.6	21.3
2.006	50.00	7.54	85.413	0.787	0.0	0.0	0.0	4.07	449.2	106.6
2.007	50.00	7.64	84.635	0.851	0.0	0.0	0.0	4.68	744.8	115.2
2.008	50.00	7.79	83.200	1.109	0.0	0.0	0.0	3.67	584.3	150.1
2.009	50.00	7.97	82.136	1.109	0.0	0.0	0.0	2.07	329.2	150.1

Network Design Table for Surface Network 5

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.015	15.832	0.119	132.8	0.048	0.00	0.0	0.600		o	900	Pipe/Conduit	
1.016	21.434	0.381	56.3	0.000	0.00	0.0	0.600		o	900	Pipe/Conduit	
1.017	6.000#	0.050	120.0	0.000	0.00	0.0		0.045	3 \=/	500	1:3 Swale	
5.000	23.933	0.476	50.2	0.046	5.00	0.0	0.600		o	225	Pipe/Conduit	
5.001	26.561	1.328	20.0	0.025	0.00	0.0	0.600		o	225	Pipe/Conduit	
5.002	53.083	2.654	20.0	0.056	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.003	22.988	1.149	20.0	0.052	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.004	23.091	1.155	20.0	0.129	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.005	30.223	1.511	20.0	0.094	0.00	0.0	0.600		o	375	Pipe/Conduit	
5.006	28.822	1.945	14.8	0.045	0.00	0.0	0.600		o	375	Pipe/Conduit	
6.000	12.528	0.074	170.0	0.043	5.00	0.0	0.600		o	225	Pipe/Conduit	
5.007	16.857	0.767	22.0	0.013	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.008	9.576	0.886	10.8	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.009	79.858	1.885	42.4	0.298	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.010	12.484	0.210	59.3	0.260	0.00	0.0	0.600		o	525	Pipe/Conduit	
5.011	24.368	0.100	243.7	0.000	0.00	0.0	0.600		o	525	Pipe/Conduit	
5.012	5.971	0.075	79.6	0.000	0.00	0.0		0.045	3 \=/	500	1:3 Swale	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.015	50.00	8.07	81.450	4.956	0.0	0.0	0.0	2.72	1728.8	671.1
1.016	50.00	8.15	81.331	4.956	0.0	0.0	0.0	4.18	2659.9	671.1
1.017	50.00	8.38	80.950	4.956	0.0	0.0	0.0	0.43	61.6«	671.1
5.000	50.00	5.22	95.316	0.046	0.0	0.0	0.0	1.85	73.5	6.2
5.001	50.00	5.37	94.840	0.071	0.0	0.0	0.0	2.94	116.9	9.6
5.002	50.00	5.62	93.437	0.127	0.0	0.0	0.0	3.53	249.6	17.2
5.003	50.00	5.73	90.783	0.179	0.0	0.0	0.0	3.53	249.6	24.3
5.004	50.00	5.83	89.633	0.308	0.0	0.0	0.0	3.53	249.6	41.8
5.005	50.00	5.96	88.404	0.402	0.0	0.0	0.0	4.07	449.2	54.5
5.006	50.00	6.06	86.893	0.447	0.0	0.0	0.0	4.73	522.1	60.6
6.000	50.00	5.21	85.136	0.043	0.0	0.0	0.0	1.00	39.8	5.8
5.007	50.00	6.12	84.873	0.503	0.0	0.0	0.0	4.35	692.2	68.2
5.008	50.00	6.15	84.106	0.503	0.0	0.0	0.0	6.21	987.6	68.2
5.009	50.00	6.58	83.220	0.801	0.0	0.0	0.0	3.13	497.8	108.5
5.010	50.00	6.65	81.260	1.061	0.0	0.0	0.0	2.91	630.4	143.7
5.011	50.00	6.93	81.050	1.061	0.0	0.0	0.0	1.43	309.7	143.7
5.012	50.00	7.12	80.975	1.061	0.0	0.0	0.0	0.53	75.6«	143.7

Network Design Table for Surface Network 5

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
7.000	22.081	0.502	43.9	0.236	5.00	0.0	0.600		o	600	Pipe/Conduit	
7.001	6.000#	0.050	120.0	0.000	0.00	0.0		0.045	3 \=/	500	1:3 Swale	
1.018	9.350	0.045	206.4	0.000	0.00	0.0	0.600		o	600	Pipe/Conduit	
1.019	14.200	0.095	149.9	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
7.000	50.00	5.10	81.452	0.236	0.0	0.0	0.0	3.68	1040.6	32.0
7.001	50.00	5.33	80.950	0.236	0.0	0.0	0.0	0.43	61.6	32.0
1.018	50.00	8.48	80.900	6.253	0.0	0.0	0.0	1.69	478.2«	846.8
1.019	50.00	8.70	80.855	6.253	0.0	0.0	0.0	1.07	42.4«	846.8

Free Flowing Outfall Details for Surface Network 5

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.019	HW303	81.346	80.760	0.000	900	675

Simulation Criteria for Surface Network 5

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	21.000	Storm Duration (mins)	30
Ratio R	0.422		

Online Controls for Surface Network 5

Hydro-Brake® Optimum Manhole: S332, DS/PN: 1.019, Volume (m³): 7.8

Unit Reference	MD-SHE-0209-2350-1300-2350
Design Head (m)	1.300
Design Flow (l/s)	23.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	209
Invert Level (m)	80.855
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.300	23.5
Flush-Flo™	0.407	23.5
Kick-Flo®	0.892	19.6
Mean Flow over Head Range	-	20.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.1	1.200	22.6	3.000	35.1	7.000	52.8
0.200	20.2	1.400	24.3	3.500	37.8	7.500	54.6
0.300	23.1	1.600	25.9	4.000	40.3	8.000	56.4
0.400	23.5	1.800	27.5	4.500	42.7	8.500	58.1
0.500	23.3	2.000	28.9	5.000	44.9	9.000	59.7
0.600	22.9	2.200	30.2	5.500	47.0	9.500	61.3
0.800	21.5	2.400	31.5	6.000	49.0		
1.000	20.7	2.600	32.7	6.500	51.0		

Storage Structures for Surface Network 5

Cellular Storage Manhole: Ph5-1a, DS/PN: 2.001

Invert Level (m) 85.831 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	45.0	45.0	0.801	0.0	67.4
0.800	45.0	67.4			

Tank or Pond Manhole: HW302, DS/PN: 1.018

Invert Level (m) 80.900

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	2825.9	0.600	3225.9	0.601	3656.8	1.575	4583.2

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.422
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S300	15 Winter	1	+0%	100/15 Summer			
1.001	S301	15 Winter	1	+0%	100/15 Summer			
1.002	S302	15 Winter	1	+0%	100/15 Summer			
1.003	S303	15 Winter	1	+0%	100/15 Summer			
1.004	S304	15 Winter	1	+0%	100/15 Summer			
1.005	S305	15 Winter	1	+0%	100/15 Summer			
1.006	S306	15 Winter	1	+0%	100/15 Summer			
1.007	S307	15 Winter	1	+0%	100/15 Summer			
1.008	S308	15 Winter	1	+0%	100/15 Summer			
1.009	S309	15 Winter	1	+0%	100/15 Summer			
1.010	S310	15 Winter	1	+0%	100/15 Summer			
1.011	S311	15 Winter	1	+0%	100/15 Summer			
1.012	S312	15 Winter	1	+0%	100/15 Summer			
1.013	S313	15 Winter	1	+0%	100/15 Summer			
1.014	S314	15 Winter	1	+0%	100/15 Summer			
2.000	Ph5-S1	15 Winter	1	+0%	100/15 Summer	100/15 Winter		
2.001	Ph5-1a	15 Winter	1	+0%	30/15 Winter			

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S300	88.279	-0.521	0.000	0.03		15.3	OK	
1.001	S301	88.210	-0.326	0.000	0.43		73.5	OK	
1.002	S302	88.083	-0.421	0.000	0.19		80.8	OK	
1.003	S303	87.912	-0.417	0.000	0.20		91.7	OK	
1.004	S304	87.730	-0.395	0.000	0.36		168.4	OK	
1.005	S305	87.584	-0.410	0.000	0.32		183.7	OK	
1.006	S306	87.415	-0.379	0.000	0.40		187.0	OK	
1.007	S307	87.262	-0.396	0.000	0.36		202.1	OK	
1.008	S308	87.014	-0.447	0.000	0.25		269.6	OK	
1.009	S309	86.226	-0.508	0.000	0.23		281.7	OK	
1.010	S310	85.593	-0.517	0.000	0.21		295.4	OK	
1.011	S311	84.791	-0.514	0.000	0.22		306.1	OK	
1.012	S312	83.938	-0.546	0.000	0.25		406.6	OK	
1.013	S313	83.198	-0.542	0.000	0.25		420.0	OK	
1.014	S314	82.456	-0.527	0.000	0.28		421.7	OK	
2.000	Ph5-S1	85.958	-0.299	0.000	0.07		6.0	OK	1
2.001	Ph5-1a	85.940	-0.266	0.000	0.16		13.6	OK	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
2.002	Ph5-S2	15 Winter	1	+0%	30/15 Summer				85.908
3.000	Ph5-S3	15 Winter	1	+0%					88.295
2.003	Ph5-S4	15 Winter	1	+0%	30/15 Summer				85.850
2.004	Ph5-S5	15 Winter	1	+0%	30/15 Summer				85.783
2.005	S436	15 Winter	1	+0%	30/15 Summer				85.676
4.000	S317	15 Winter	1	+0%					86.610
2.006	S318	15 Winter	1	+0%	100/15 Summer				85.537
2.007	S319	15 Winter	1	+0%	100/15 Summer				84.744
2.008	S320	15 Winter	1	+0%	100/15 Summer				83.344
2.009	S500	15 Winter	1	+0%	30/15 Summer				82.338
1.015	S315	15 Winter	1	+0%	30/15 Summer				81.933
1.016	S316	15 Winter	1	+0%	100/15 Summer				81.718
1.017	HW300	15 Winter	1	+0%					81.381
5.000	S321	15 Winter	1	+0%					95.364
5.001	S322	15 Winter	1	+0%					94.886
5.002	S323	15 Winter	1	+0%					93.490
5.003	S324	15 Winter	1	+0%					90.848
5.004	S325	15 Winter	1	+0%					89.720
5.005	S326	15 Winter	1	+0%					88.494
5.006	S327	15 Winter	1	+0%					86.981
6.000	S331	15 Winter	1	+0%	100/15 Summer				85.202
5.007	S328	15 Winter	1	+0%	100/15 Summer				84.982
5.008	S328A	15 Winter	1	+0%	100/15 Summer				84.210
5.009	S329	15 Winter	1	+0%	100/15 Summer				83.362
5.010	S330	15 Winter	1	+0%	30/15 Summer				81.485
5.011	S447	15 Winter	1	+0%	30/15 Summer				81.325
5.012	HW301	600 Winter	1	+0%					81.197
7.000	S333	15 Winter	1	+0%	100/360 Winter				81.538
7.001	HW304	600 Winter	1	+0%					81.197
1.018	HW302	600 Winter	1	+0%	30/120 Winter				81.197
1.019	S332	600 Winter	1	+0%	1/30 Winter				81.216

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.002	Ph5-S2	-0.255	0.000	0.19		19.4	OK	
3.000	Ph5-S3	-0.172	0.000	0.13		19.4	OK	
2.003	Ph5-S4	-0.190	0.000	0.45		43.1	OK	
2.004	Ph5-S5	-0.176	0.000	0.54		54.8	OK	
2.005	S436	-0.166	0.000	0.59		54.2	OK	
4.000	S317	-0.234	0.000	0.11		23.5	OK	
2.006	S318	-0.251	0.000	0.23		77.0	OK	
2.007	S319	-0.341	0.000	0.13		83.9	OK	
2.008	S320	-0.306	0.000	0.22		112.9	OK	
2.009	S500	-0.248	0.000	0.41		112.8	OK	
1.015	S315	-0.417	0.000	0.56		534.8	OK	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.016	S316	-0.513	0.000	0.39		535.9	OK	
1.017	HW300	-1.094	0.000	0.06		537.0	OK	
5.000	S321	-0.177	0.000	0.10		6.8	OK	
5.001	S322	-0.179	0.000	0.09		9.9	OK	
5.002	S323	-0.247	0.000	0.07		17.0	OK	
5.003	S324	-0.234	0.000	0.11		23.6	OK	
5.004	S325	-0.214	0.000	0.18		39.9	OK	
5.005	S326	-0.285	0.000	0.13		51.7	OK	
5.006	S327	-0.287	0.000	0.13		57.5	OK	
6.000	S331	-0.159	0.000	0.19		6.4	OK	
5.007	S328	-0.341	0.000	0.13		65.5	OK	
5.008	S328A	-0.345	0.000	0.12		65.5	OK	
5.009	S329	-0.308	0.000	0.22		101.4	OK	
5.010	S330	-0.301	0.000	0.38		132.9	OK	
5.011	S447	-0.250	0.000	0.53		132.6	OK	
5.012	HW301	-1.278	0.000	0.00		15.8	OK	
7.000	S333	-0.514	0.000	0.05		35.0	OK	
7.001	HW304	-1.278	0.000	0.00		3.5	OK	
1.018	HW302	-0.303	0.000	0.15		45.2	OK	
1.019	S332	0.136	0.000	0.63		23.3	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.422
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S300	15 Winter	30	+0%	100/15 Summer			
1.001	S301	15 Summer	30	+0%	100/15 Summer			
1.002	S302	15 Winter	30	+0%	100/15 Summer			
1.003	S303	15 Winter	30	+0%	100/15 Summer			
1.004	S304	15 Winter	30	+0%	100/15 Summer			
1.005	S305	15 Winter	30	+0%	100/15 Summer			
1.006	S306	15 Winter	30	+0%	100/15 Summer			
1.007	S307	15 Winter	30	+0%	100/15 Summer			
1.008	S308	15 Winter	30	+0%	100/15 Summer			
1.009	S309	15 Winter	30	+0%	100/15 Summer			
1.010	S310	15 Winter	30	+0%	100/15 Summer			
1.011	S311	15 Winter	30	+0%	100/15 Summer			
1.012	S312	15 Winter	30	+0%	100/15 Summer			
1.013	S313	15 Winter	30	+0%	100/15 Summer			
1.014	S314	15 Winter	30	+0%	100/15 Summer			
2.000	Ph5-S1	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
2.001	Ph5-1a	15 Winter	30	+0%	30/15 Winter			

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S300	88.584	-0.216	0.000	0.09		37.4	OK	
1.001	S301	88.535	0.000	0.000	1.14		196.3	OK	
1.002	S302	88.227	-0.276	0.000	0.55		229.7	OK	
1.003	S303	88.067	-0.261	0.000	0.56		252.4	OK	
1.004	S304	87.981	-0.144	0.000	0.95		444.1	OK	
1.005	S305	87.883	-0.110	0.000	0.84		476.0	OK	
1.006	S306	87.752	-0.041	0.000	1.00		467.0	OK	
1.007	S307	87.492	-0.166	0.000	0.91		511.9	OK	
1.008	S308	87.181	-0.279	0.000	0.63		685.5	OK	
1.009	S309	86.401	-0.332	0.000	0.58		722.3	OK	
1.010	S310	85.759	-0.350	0.000	0.54		763.8	OK	
1.011	S311	84.961	-0.343	0.000	0.56		797.5	OK	
1.012	S312	84.147	-0.337	0.000	0.64		1051.0	OK	
1.013	S313	83.411	-0.329	0.000	0.66		1092.2	OK	
1.014	S314	82.905	-0.078	0.000	0.73		1096.2	OK	
2.000	Ph5-S1	86.229	-0.028	0.000	0.14		12.7	OK	1
2.001	Ph5-1a	86.209	0.003	0.000	0.50		42.0	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
2.002	Ph5-S2	15 Winter	30	+0%	30/15 Summer				86.188
3.000	Ph5-S3	15 Winter	30	+0%					88.329
2.003	Ph5-S4	15 Winter	30	+0%	30/15 Summer				86.147
2.004	Ph5-S5	15 Winter	30	+0%	30/15 Summer				86.062
2.005	S436	15 Winter	30	+0%	30/15 Summer				85.874
4.000	S317	15 Winter	30	+0%					86.649
2.006	S318	15 Winter	30	+0%	100/15 Summer				85.628
2.007	S319	15 Winter	30	+0%	100/15 Summer				84.820
2.008	S320	15 Winter	30	+0%	100/15 Summer				83.453
2.009	S500	15 Winter	30	+0%	30/15 Summer				82.835
1.015	S315	15 Winter	30	+0%	30/15 Summer				82.568
1.016	S316	15 Winter	30	+0%	100/15 Summer				82.079
1.017	HW300	15 Winter	30	+0%					81.617
5.000	S321	15 Winter	30	+0%					95.393
5.001	S322	15 Winter	30	+0%					94.916
5.002	S323	15 Winter	30	+0%					93.529
5.003	S324	15 Winter	30	+0%					90.898
5.004	S325	15 Winter	30	+0%					89.791
5.005	S326	15 Winter	30	+0%					88.567
5.006	S327	15 Winter	30	+0%					87.052
6.000	S331	15 Winter	30	+0%	100/15 Summer				85.244
5.007	S328	15 Winter	30	+0%	100/15 Summer				85.069
5.008	S328A	15 Winter	30	+0%	100/15 Summer				84.294
5.009	S329	15 Winter	30	+0%	100/15 Summer				83.489
5.010	S330	15 Winter	30	+0%	30/15 Summer				81.984
5.011	S447	15 Winter	30	+0%	30/15 Summer				81.710
5.012	HW301	600 Winter	30	+0%					81.611
7.000	S333	600 Winter	30	+0%	100/360 Winter				81.611
7.001	HW304	600 Winter	30	+0%					81.611
1.018	HW302	600 Winter	30	+0%	30/120 Winter				81.611
1.019	S332	600 Winter	30	+0%	1/30 Winter				81.615

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.002	Ph5-S2	0.026	0.000	0.44		44.2	SURCHARGED	
3.000	Ph5-S3	-0.138	0.000	0.31		47.8	OK	
2.003	Ph5-S4	0.107	0.000	0.93		90.4	SURCHARGED	
2.004	Ph5-S5	0.103	0.000	1.24		125.1	SURCHARGED	
2.005	S436	0.032	0.000	1.37		125.1	SURCHARGED	
4.000	S317	-0.195	0.000	0.26		57.8	OK	
2.006	S318	-0.160	0.000	0.59		194.4	OK	
2.007	S319	-0.265	0.000	0.34		212.7	OK	
2.008	S320	-0.197	0.000	0.58		293.9	OK	
2.009	S500	0.249	0.000	1.08		293.0	SURCHARGED	
1.015	S315	0.218	0.000	1.46		1392.6	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.016	S316	-0.152	0.000	1.00		1389.2	OK	
1.017	HW300	-0.858	0.000	0.17		1390.8	OK	
5.000	S321	-0.149	0.000	0.25		16.8	OK	
5.001	S322	-0.149	0.000	0.24		26.4	OK	
5.002	S323	-0.208	0.000	0.20		48.3	OK	
5.003	S324	-0.185	0.000	0.31		68.5	OK	
5.004	S325	-0.143	0.000	0.54		119.0	OK	
5.005	S326	-0.212	0.000	0.39		155.4	OK	
5.006	S327	-0.216	0.000	0.38		172.3	OK	
6.000	S331	-0.117	0.000	0.46		15.7	OK	
5.007	S328	-0.254	0.000	0.39		191.9	OK	
5.008	S328A	-0.262	0.000	0.36		190.1	OK	
5.009	S329	-0.181	0.000	0.64		298.9	OK	
5.010	S330	0.199	0.000	1.12		393.3	SURCHARGED	
5.011	S447	0.135	0.000	1.57		389.5	SURCHARGED	
5.012	HW301	-0.864	0.000	0.00		33.2	OK	
7.000	S333	-0.442	0.000	0.01		7.6	OK	
7.001	HW304	-0.864	0.000	0.00		7.2	OK	
1.018	HW302	0.111	0.000	0.11		31.1	SURCHARGED	
1.019	S332	0.535	0.000	0.63		23.4	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.422
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S300	15 Winter	100	+40%	100/15 Summer			
1.001	S301	15 Winter	100	+40%	100/15 Summer			
1.002	S302	15 Winter	100	+40%	100/15 Summer			
1.003	S303	15 Winter	100	+40%	100/15 Summer			
1.004	S304	15 Winter	100	+40%	100/15 Summer			
1.005	S305	15 Winter	100	+40%	100/15 Summer			
1.006	S306	15 Winter	100	+40%	100/15 Summer			
1.007	S307	15 Winter	100	+40%	100/15 Summer			
1.008	S308	15 Winter	100	+40%	100/15 Summer			
1.009	S309	15 Winter	100	+40%	100/15 Summer			
1.010	S310	15 Winter	100	+40%	100/15 Summer			
1.011	S311	15 Winter	100	+40%	100/15 Summer			
1.012	S312	15 Winter	100	+40%	100/15 Summer			
1.013	S313	15 Winter	100	+40%	100/15 Summer			
1.014	S314	15 Winter	100	+40%	100/15 Summer			
2.000	Ph5-S1	15 Winter	100	+40%	100/15 Summer	100/15 Winter		
2.001	Ph5-1a	15 Winter	100	+40%	30/15 Winter			

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S300	89.837	1.037	0.000	0.13		56.3	FLOOD RISK	
1.001	S301	89.769	1.234	0.000	1.89		324.6	FLOOD RISK	
1.002	S302	89.725	1.221	0.000	0.85		357.4	SURCHARGED	
1.003	S303	89.590	1.262	0.000	0.88		397.4	SURCHARGED	
1.004	S304	89.449	1.324	0.000	1.56		725.7	SURCHARGED	
1.005	S305	89.191	1.197	0.000	1.40		796.2	SURCHARGED	
1.006	S306	88.867	1.074	0.000	1.71		797.6	SURCHARGED	
1.007	S307	88.534	0.876	0.000	1.54		868.4	SURCHARGED	
1.008	S308	88.123	0.662	0.000	1.03		1111.9	SURCHARGED	
1.009	S309	87.392	0.659	0.000	0.91		1121.7	SURCHARGED	
1.010	S310	86.882	0.773	0.000	0.83		1165.6	SURCHARGED	
1.011	S311	86.333	1.028	0.000	0.85		1205.6	SURCHARGED	
1.012	S312	85.744	1.260	0.000	0.97		1586.7	SURCHARGED	
1.013	S313	85.031	1.290	0.000	0.99		1626.0	SURCHARGED	
1.014	S314	84.279	1.296	0.000	1.09		1637.1	SURCHARGED	
2.000	Ph5-S1	87.192	0.935	0.229	0.26		23.4	FLOOD	1
2.001	Ph5-1a	87.195	0.989	0.000	0.74		62.7	FLOOD RISK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
2.002	Ph5-S2	15 Winter	100	+40%	30/15 Summer				87.165
3.000	Ph5-S3	15 Winter	100	+40%					88.365
2.003	Ph5-S4	15 Winter	100	+40%	30/15 Summer				87.083
2.004	Ph5-S5	15 Winter	100	+40%	30/15 Summer				86.814
2.005	S436	15 Winter	100	+40%	30/15 Summer				86.346
4.000	S317	15 Winter	100	+40%					86.692
2.006	S318	15 Winter	100	+40%	100/15 Summer				86.134
2.007	S319	15 Winter	100	+40%	100/15 Summer				85.493
2.008	S320	15 Winter	100	+40%	100/15 Summer				85.083
2.009	S500	15 Winter	100	+40%	30/15 Summer				84.180
1.015	S315	15 Winter	100	+40%	30/15 Summer				83.524
1.016	S316	15 Winter	100	+40%	100/15 Summer				82.666
1.017	HW300	960 Winter	100	+40%					82.172
5.000	S321	15 Winter	100	+40%					95.423
5.001	S322	15 Winter	100	+40%					94.946
5.002	S323	15 Winter	100	+40%					93.564
5.003	S324	15 Winter	100	+40%					90.946
5.004	S325	15 Winter	100	+40%					89.871
5.005	S326	15 Winter	100	+40%					88.640
5.006	S327	15 Winter	100	+40%					87.122
6.000	S331	15 Winter	100	+40%	100/15 Summer				85.601
5.007	S328	15 Winter	100	+40%	100/15 Summer				85.494
5.008	S328A	15 Winter	100	+40%	100/15 Summer				85.199
5.009	S329	15 Winter	100	+40%	100/15 Summer				84.892
5.010	S330	15 Winter	100	+40%	30/15 Summer				82.817
5.011	S447	960 Winter	100	+40%	30/15 Summer				82.169
5.012	HW301	960 Winter	100	+40%					82.168
7.000	S333	960 Winter	100	+40%	100/360 Winter				82.167
7.001	HW304	960 Winter	100	+40%					82.167
1.018	HW302	960 Winter	100	+40%	30/120 Winter				82.167
1.019	S332	960 Winter	100	+40%	1/30 Winter				82.170

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.002	Ph5-S2	1.003	0.000	0.84		84.5	FLOOD RISK	
3.000	Ph5-S3	-0.102	0.000	0.57		87.1	OK	
2.003	Ph5-S4	1.043	0.000	1.72		166.7	SURCHARGED	
2.004	Ph5-S5	0.855	0.000	2.01		202.1	SURCHARGED	
2.005	S436	0.503	0.000	2.27		207.0	SURCHARGED	
4.000	S317	-0.152	0.000	0.48		105.3	OK	
2.006	S318	0.346	0.000	0.98		320.6	SURCHARGED	
2.007	S319	0.408	0.000	0.54		343.1	SURCHARGED	
2.008	S320	1.433	0.000	0.92		469.3	FLOOD RISK	
2.009	S500	1.594	0.000	1.71		465.0	FLOOD RISK	
1.015	S315	1.174	0.000	2.18		2087.8	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 5

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.016	S316	0.435	0.000	1.50		2084.7	SURCHARGED	
1.017	HW300	-0.303	0.000	0.02		195.7	FLOOD RISK	
5.000	S321	-0.118	0.000	0.45		30.7	OK	
5.001	S322	-0.119	0.000	0.45		48.2	OK	
5.002	S323	-0.173	0.000	0.37		87.9	OK	
5.003	S324	-0.137	0.000	0.57		124.8	OK	
5.004	S325	-0.062	0.000	0.98		216.7	OK	
5.005	S326	-0.139	0.000	0.71		283.1	OK	
5.006	S327	-0.146	0.000	0.68		313.9	OK	
6.000	S331	0.240	0.000	0.86		29.4	SURCHARGED	
5.007	S328	0.171	0.000	0.68		334.7	SURCHARGED	
5.008	S328A	0.643	0.000	0.60		319.7	SURCHARGED	
5.009	S329	1.222	0.000	1.03		483.5	FLOOD RISK	
5.010	S330	1.032	0.000	1.78		625.8	FLOOD RISK	
5.011	S447	0.594	0.000	0.17		41.5	SURCHARGED	
5.012	HW301	-0.307	0.000	0.00		41.4	FLOOD RISK	
7.000	S333	0.115	0.000	0.01		9.0	FLOOD RISK	
7.001	HW304	-0.308	0.000	0.00		8.5	FLOOD RISK*	
1.018	HW302	0.667	0.000	0.13		37.1	FLOOD RISK	
1.019	S332	1.090	0.000	0.64		23.5	FLOOD RISK	

APPENDIX F

APPENDIX 6 – EXPLORATORY HOLE LOGS

Borehole Logs

(BH1 to BH8)

Windowless Sample Hole Logs

(WS1 to WS19 and WSA to WSI)

Trial Pit Logs

(TP1 to TP*)

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH1
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 1.50mm cased from 0.0 to 10.0m	COORDINATES E N DATES 20/10/2014 - 20/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
20/10 09:00	0.00	Dry		TOPSOIL (Dark brown clay with rootlets).			0.00													Hand pit from GL to 1.2m
				Firm to stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			0.30		0.40-0.80	B	1									
				1.50 Becoming pale in colour with depth					1.20	D S	1	1 2 3 4 4 4	15	78	20	18	37			Moisture content, Atterberg Limit
									2.00	D S	2	1 2 3 3 4 4	14							
									3.00-3.45	U	U	(45)								
									3.45	D	3			89	21	17	35			Moisture content, Atterberg Limit
20/10	1.00	4.00							4.00	D S	4	1 2 3 5 5 6	19							Seepage inflow of water at 4m
				Stiff grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			4.80		5.00	D S	5	2 4 6 7 8 10	31							
									6.00	D	6									
									6.50	D S	7	2 4 6 6 6 7	25							pH and Sulphate
									7.50	D	8									
									8.00-8.45	U	2	(70)		90	18	17	33	2.14	272.4	Moisture content, Atterberg Limit, Triaxial test
									8.45	D	9									
									9.00	D	10									
									9.50	D S	11	3 5 7 8 9 9	33							
20/10 16:30	1.50	Damp																		
20/10 16:45	0.00						10.00													Borehole completed at 10.0m

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

HOLE No. BH1 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH2
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 4.50mm cased from 0.0 to 10.0m	COORDINATES E N DATES 21/10/2014 - 21/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
21/10 08:30	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Firm to stiff brown slightly sandy CLAY. (HEAD DEPOSITS)			0.30		0.40-0.80	B	1									
									1.20	D S	1	1 1 2 2 2 3	9							
				Firm brown slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			1.80		2.00-2.45	U	1	(45)								
									2.45	D	2			91	19	16	30			Moisture content, Atterberg Limit, pH and sulphate
									3.00	D S	3	2 2 3 3 3 3	12							
21/10 + 15 mins	1.50	4.00 1.60							4.00	D S	4	1 1 1 2 2 3	8							Inflow of water at 4m Water sealed out at 4.5m.
				Firm to stiff grey gravelly CLAY. Gravel of rounded fine to coarse rounded chalk. (LOWESTOFT FORMATION)			4.40		5.00-5.45	U	2	(35)			20			2.07	80.5	pH and sulphate, Triaxial test
									5.45	D	5									
									6.00	D	6									
									6.50	D S	7	1 2 3 4 5 8	20							
									7.50	D	8									
									8.00	D S	9	2 3 6 6 7 7	26							
									9.00	D	10									pH and sulphate
									9.50	D S	11	3 4 6 6 8 9	29							
21/10 13:00 21/10 13:15	4.50 0.00	Dry					10.00													Borehole completed at 10.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH2 . | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH3
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 1.50mm cased from 0.0 to 10.0m	COORDINATES E N DATES 21/10/2014 - 21/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
21/10 14:00	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Stiff dark brown slightly silty gravelly CLAY. Gravel of rounded fine to coarse chalk (LOWESTOFT FORMATION)			0.30		0.40-0.80	B	1								
									1.20	D S	1	2 2 4 4 4 6	18							
									2.00	D S	2	1 2 3 4 4 4	15							
									3.00	D S	3	1 2 3 3 5 5	16							
				Stiff to very stiff dark grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			3.70		4.00-4.45	U	1	(60)		90	18	19	48			Moisture content, Atterberg Limit
									4.45	D	4									
									5.00	D S	5	3 5 7 9 10 10	36							
									6.00	D	6									
									6.50-6.95	U	2	(80)								
									6.95	D	7									
									7.00	D	8									
									8.00	D S	9	5 7 8 8 9 10	35							pH and sulphate
									9.00	D	10									
									9.50	D S	11	4 8 9 10 12 13	44							
21/10 17:00	1.50	Dry																		
21/10 17:15	0.00						10.00		10											Borehole completed at 10.0m

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH3 . | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. BH4

LOGGED BY: AC
FIELDWORK BY: AGB
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Cable Percussion (shell and auger)
1.50mm cased from 0.0 to 10.0m

COORDINATES E N

DATES 23/10/2014 - 23/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
23/10 08:30	0.00	Dry		TOPSOIL			0.00													
				Stiff orange brown grey mottled gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			0.20		0.40-0.80	B	1									
									1.20	D S	1	6 10 10 12 8 8	38							
									2.00	D S	2	3 5 6 7 7 7	27							
									3.00-3.45	U	1	(80)			18			2.10	211.4	Triaxial test
				Very stiff to hard dark grey slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			3.30		3.45	D	3									
									4.00	D S	4	5 7 10 10 12 15	47							
									5.00	D S	D5	3 6 8 10 11 11	40							
									6.00	D	6									
									6.50	D S	7	5 5 8 10 12 12	42							
									7.50	D	8									
									60											
									8.00	D S	9	3 7 11 14 15 10	60*							
									9.00	D	10									
									9.50-9.95	U	2	(90)			16			2.14	349.4	pH and sulphate, Triaxial test
23/10 13:00	1.50	Dry																		
23/10 13:15	0.00						10.00		9.95	D	11									

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH4 . SHEET 1 OF 1 PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH5
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 1.50mm cased from 0.0 to 10.0m	COORDINATES E N DATES 22/10/2014 - 22/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata Leg	Strata Reduced Level	Strata Depth	Graphical Representation SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing Depths	Type	No.	Blows	SPT N	Laboratory Testing <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
22/10 09:00	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)			0.10		0.40-0.80	B	1									
									1.20-1.65	U	1	(55)			18			2.11	148.3	Triaxial test
									2.20	S D	2	2 2 4 5 5 6	20							
									3.00	D S	3	2 4 5 8 11 8	32							
									4.00	D S	4	3 5 6 8 9 12	35							
				Stiff to very stiff dark grey slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)			4.80		5.00	D S	5	3 5 6 8 8 9	31							
									6.00	D	6									
									6.50-6.95	U	2	(80)		93	17	17	42	2.15	312.5	Moisture content, Atterberg Limit, Triaxial test
									6.95	D	7									
									7.50	D	8									
									8.00	D S	9	2 4 7 8 10 10	35							
									9.00	D	10									
									9.50	D S	11	5 19 38 12	74*							
22/10 16:00	1.50	Dry																		
22/10 16:15	0.00						10.00													Borehole completed at 10.0m

*WATER ▼ Standing water level ▽ Water strikes PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH5 . | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH6
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 1.50mm cased from 0.0 to 8.3m	COORDINATES E N DATES 24/10/2014 - 24/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
24/10 08:30	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Firm to stiff orange brown grey mottled gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)			0.20		0.40-0.80	B	1									
									1.20	D S	1	5 5 6 7 8 8	29							
									2.00-2.45	U	1	(50)		94	18	19	48	2.09	174.1	Moisture content, Atterberg Limit, Triaxial test
									2.45	D	2									
									3.00	D S	3	2 4 5 5 6 8	24							
				Very stiff to hard dark grey slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)			4.00		4.00	D S	4	2 3 5 5 6 7	23							
									5.00-5.45	U	2	(70)								
									5.45	D	5									
									6.00	D	6									
									6.50	D S	7	2 4 5 6 8 10	29							
									7.50	D	8									
24/10 13:00	1.50	Dry							8.00	D S	9	17								
24/10 13:15	0.00						8.30													Borehole completed at 8.3m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH6 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. BH7
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Cable Percussion (shell and auger) 1.50mm cased from 0.0 to 8.2m	COORDINATES E N DATES 24/10/2014 - 24/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
24/10 14:00	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Firm to stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)			0.40		0.40-0.80	B	1									
									1.20-1.65	U	1	(40)								
									1.65	D	1									
									2.00	D S	2	1 2 3 4 4 6	17							
									3.00	D S	3	1 3 3 5 5 6	19							
				Very stiff dark grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			3.30													
									4.00-4.45	U	2	(55)		92	20	19	42	2.12	205.6	Moisture content, Atterberg Limit, pH and sulphate, Triaxial test
									4.45	D	4									
									5.00	D S	5	2 4 6 6 7 8	27							
									6.00	D	6									
									6.50	D S	7	2 4 5 6 8 9	28							
									7.50	D	8									pH and sulphate
24/10 17:00	1.50	Dry																		
24/10 17:15	0.00						8.20			C		25								Borehole completed at 8.20m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH7 . | SHEET 1 OF 1 | PROJECT No. 995,SI

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. BH8

LOGGED BY: AC
FIELDWORK BY: AGB
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Cable Percussion (shell and auger)
6.00mm cased from 0.0 to 10.0m

COORDINATES E N

DATES 23/10/2014 - 23/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
23/10 14:00	0.00	Dry		TOPSOIL			0.00													Hand pit from GL to 1.2m
				Firm brown slightly silty CLAY (HEAD DEPOSITS)			0.40		0.40-0.80	B	1									
									1.20	D S	1	1 2 2 3 4 5	14	100	24	20	51			Moisture content, Atterberg Limit
23/10		2.00		Soft brown very sandy CLAY. (HEAD DEPOSITS)			1.80		1.80	D	2									
				Soft to firm brown slightly gravelly sandy CLAY. Gravel of rounded fine to coarse chalk. (HEAD DEPOSITS)			2.20		2.00	D S	3	1 1 1 2 2 3	8							Seepage inflow of water at 2m
									3.00	D S	4	1 2 2 2 2 3	9							
23/10		4.50							4.00	D S	5	1 2 2 3 3 3	11							Seepage inflow of water at 4.5m
				Stiff grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)			5.20		5.00	D S	6	1 2 1 2 3 4	10							
									6.00	D	7									Water sealed out at 6.0m.
									6.50	D S	8	1 3 4 5 5 5	19							
				7.50 Becoming very stiff with depth.					7.50	D	9									
									8.00-8.45	U	1	(45)			18			2.16	217.2	Triaxial test
									8.45	D	10									
									9.00	D	11									
									9.50	D S	12	2 3 4 5 6 8	23							
23/10 17:00	6.00	Dry					10.00													Borehole completed at 10.0m
23/10 17:15	0.00																			

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. BH8 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS1

LOGGED BY: LF
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 4.0 m

COORDINATES E N

DATES 28/10/2014 - 28/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint and infrequent brick fragments)			0.00		0												Groundwater not encountered during drilling
									0.20	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.35	J	2									
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.45													
									0.70	J	3									Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.80	D	1									Shear vane test = 48kN/m²
									1.00	1 D C	2	1 1 2 2 3 4	11							Shear vane test = 50kN/m²
				1.20 Becomes brown grey mottled with depth																
									2.00	2 D C	3	11 5 5 5 5 7	22							Shear vane test = 87kN/m²
									3.00	3 D C	4	4 4 4 6 7 9	26							Collapse of sidewalls at 3.0m depth Shear vane test = 112kN/m²
							4.00		4.00	4 D C	5	5 7 8 10 12 14	44							50mm diameter monitoring well installed to 4.0m Windowless sample hole completed at 4.0m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS1. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS2
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 28/10/2014 - 28/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to coarse flint and infrequent fine to medium brick and charcoal fragments)			0.00		0												Groundwater not encountered during drilling
									0.10	J	1									No collapse of sidewalls during drilling
									0.30	J	2									
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.47													
				0.80 Becomes brown grey mottled with depth					0.70	J	3									
									0.80	D	1									Shear vane test = 70kN/m²
									1.00	D	2									Shear vane test = 76kN/m²
									2.00	D	3									Shear vane test = 82kN/m²
									3.00	D	4									Shear vane test = 91kN/m²
							4.00		4.00	D	5									50mm diameter monitoring well installed to 4.0m Shear vane test = 96kN/m² Windowless sample hole completed at 4.0m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road,
Bightwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

HOLE No. WS2. | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS3
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 1.8 m	COORDINATES E N DATES 29/10/2014 - 29/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown sandy clay with rootlets)			0.00		0											
				TOPSOIL (Brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.05		0.10	J	1									Groundwater not encountered during drilling
									0.20	J	2									No collapse of sidewalls during drilling
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.30													
									0.60	J	3									
									0.80	D	1									Shear vane test = 74kN/m²
									1.00	D	2									Shear vane test = 84kN/m²
							1.80		1.80	D	3									Infiltration test undertaken at 1.48m depth Shear vane test = 96kN/m²
																				Windowless sample hole completed at 1.8m depth

*WATER: Standing water level; Water strikes

PIEZOMETER: Upper seal; Response zone; Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample; B Bulk disturbed sample; U Undisturbed sample; P Piston sample; J Disturbed jar sample; ES Environmental soil sample; W Water Sample

S Standard penetration test; C Cone penetration test; K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count

SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating

<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS3. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS4

LOGGED BY: LF
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 29/10/2014 - 29/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.05		0.10	J	1									
				Stiff becoming very stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.25		0.50	J	2									No collapse of sidewalls during drilling
									0.80	D	1									Shear vane test = 68kN/m²
									1.00	D	2									Shear vane test = 82kN/m²
							2.00		2.00	D	3									Shear vane test = 87kN/m² Windowless sample hole completed at 2.0m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS4. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS5
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 29/10/2014 - 29/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.05		0.10	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm becoming stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.40		0.70	D	1									No collapse of sidewalls during drilling
				1.00 Becoming dark yellow brown grey mottled with depth					1	C		2 3 3 4 5 5	17							
				2.00 Becoming dark brown grey mottled with depth					1.60	D	2									
									2	C		3 3 4 4 5 6	19							
									2.60	D	3									
									3	C		4 4 5 5 7 6	23							
				3.50 Occasional iron oxide staining below 3.5m depth					3.60	D	4									
							4.00		4	C		5 5 5 7 7 9	28							Windowless sample hole completed at 4.0m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS5. | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS6
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 1.9 m	COORDINATES E N DATES 29/10/2014 - 29/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.05		0.10	J	1									
				Stiff becoming very stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.25		0.60	J	2									No collapse of sidewalls during drilling
									0.80	D	1									
				1.00 Becoming yellow brown grey mottled with depth below 1.0m					1											
																				Infiltration test undertaken at 1.41m depth
									1.80	D	2									
							1.89		2											Windowless sample hole completed at 1.89m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS6. | SHEET 1 OF 1 | PROJECT No. 995,SI

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS7

LOGGED BY: LF
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 4.0 m

COORDINATES E N

DATES 29/10/2014 - 29/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint, rare brick and charcoal fragments)			0.00		0											Groundwater not encountered during drilling
									0.10	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm becoming stiff brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.30													No collapse of sidewalls during drilling
									0.40	J	2									Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.80	D	1									
				1.00 Occasional iron oxide staining below 1.0m depth					1											Shear vane test = 56kN/m²
									1.80	D	2									
				2.00 Becoming dark yellow brown grey mottled with depth					2											Shear vane test = 82kN/m²
									2.60	D	3									
									3											Shear vane test = 94kN/m²
				3.50 Becoming dark grey with brown mottling with depth					3.60	D	4									
							4.00		4											Shear vane test = 88kN/m²
																				Windowless sample hole completed at 4.0m depth
																				50mm diameter monitoring well installed to 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS7 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS8
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 29/10/2014 - 29/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.00		0												Groundwater not encountered during drilling
									0.10	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm becoming stiff yellow brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.30														No collapse of sidewalls during drilling
									0.40	J	2									
				0.80 - Becoming yellow brown grey mottled with depth					0.80	D	1									
				1.00 - Becoming brown/grey mottled with depth					1											Shear vane test = 78kN/m²
									1.70	D	2									Infiltration test undertaken at 1.58m depth
							2.00		2											Shear vane test = 102kN/m²
																				Windowless sample hole completed at 2.0m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS8. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS9

LOGGED BY: LF
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 29/10/2014 - 29/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.00		0											Groundwater not encountered during drilling
									0.10	J	1									No collapse of sidewalls during drilling
				Stiff becoming very stiff yellow brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.30		0.50	J	2									
									0.80	D	1									
				1.00 - Becoming brown/grey mottled with depth					1	C		3 5 3 5 7 8	23							
									1.60	D	2									
							2.00		2											Windowless sample hole completed at 2.0m depth 50mm diameter monitoring well installed to 2.0m
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS9.

SHEET 1 OF 1

PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS10
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 30/10/2014 - 30/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of subangular to subrounded fine to medium flint and rare chalk)			0.00		0												
				Stiff pale brown gravelly CLAY. Gravel of subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)			0.15		0.10	J	1										Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
									0.75	D	1									
									1	C		2 5 3 4 4 5	16							Shear vane test = 108kN/m²
				Stiff dark grey brown mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			1.10		1.50	D	2									Shear vane test = 116kN/m²
							2.00		2											Shear vane test = 132kN/m² Windowless sample hole completed at 2.0m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS10 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS11
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 30/10/2014 - 30/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Desiccated dark brown sandy slightly gravelly clay with rootlets. Gravel of subangular fine to coarse flint and chalk with very rare brick fragments)			0.00		0												Groundwater not encounterd during drilling
				Stiff pale brown grey mottled gravelly slightly cobbly desiccated CLAY. Gravel of angular to subangular fine to coarse chalk. (LOWESTOFT FORMATION)			0.30		0.20	J	1									No collapse of sidewalls during drilling
									0.75	D	1									
				1.10 Becoming brown dark grey mottled and very stiff to hard with depth					1	C		3 2 4 4 4 6	18							Shear vane test = 104kN/m²
				1.30 Orange brown sandy pockets present with depth					1.50	D	2									Shear vane test = 136kN/m²
									2	C		3 4 4 5 6 6	21							Shear vane test = 136kN/m²
									2.50	D	3									Shear vane test = 120kN/m²
				2.80 Becoming dark brown dark grey mottled with depth																Shear vane test = 128kN/m²
									3	C		4 4 5 6 7	26							Shear vane test = 128kN/m²
																				Shear vane test = 140kN/m²
							4.00		4	C		5 7 7 8 10 12	37							Windowless sample hole completed 4.0m depth 50mm diameter monitorng well installed to 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS11 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS12
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 1.7 m	COORDINATES E N DATES 30/10/2014 - 30/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of subangular to subrounded fine to coarse flint with fragments of brick)			0.00		0											Groundwater not encontered during drilling
							0.10		0.10	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate Infiltration test undertaken at 0.15m depth No collapse of sidewalls during drilling Shear vane test = 72kN/m²
				Firm brown slightly gravelly CLAY. Gravel of subangular fine chalk. (LOWESTOFT FORMATION)					1											Shear vane test = 60kN/m²
																				Shear vane test = 52kN/m²
									1.50	D	1									Shear vane test = 72kN/m²
							1.68													Windowless sample hole completed at 1.68m depth
									2											
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS12 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS13

LOGGED BY: BG
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 4.0 m

COORDINATES E N

DATES 30/10/2014 - 30/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly silty slightly sandy slightly gravelly clay with rootlets. Gravel of subangular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
									0.20	J	1									No collapse of sidewalls with depth
				Stiff to very stiff gravelly CLAY. Gravel of subangular fine to coarse chalk and flint. (LOWESTOFT FORMATION)			0.40													
									0.75	D	1									
				Soft to firm brown and orange brown mottled slightly sandy slightly gravelly CLAY. Gravel of subangular coarse flint. (LOWESTOFT FORMATION)			1.00		1											
																				Shear vane test = 52kN/m²
				Very stiff to hard pale brown grey mottled gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			1.50		1.50	D	2									
																				Shear vane test = 52kN/m²
									2											Shear vane test = 68kN/m²
																				Shear vane test = 128kN/m²
									3											
									3.50	D	3									
							4.00		4											Windowless sample hole completed at 4.0m depth 50mm diameter monitorng well installed to 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS13 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS14

LOGGED BY: BG
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 30/10/2014 - 30/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly silty slightly sandy slightly gravelly CLAY with rootlets. Gravel of subangular fine to medium flint and chalk)			0.00		0											Groundwater not encountered during drilling
									0.15	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
				Stiff pale brown slightly gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			0.30													No collapse of sidewalls during drilling
				Stiff dark brown and dark grey mottled gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)			0.60													Shear vane test = 88kN/m²
																				Infiltration test undertaken at 0.70m depth
				1.10 Becoming hard with depth					1											Shear vane test = 132kN/m²
																				Shear vane test = 140kN/m²
									1.50	D	1									
				1.70 Orange brown sandy clay pocket present																Shear vane test = 100kN/m²
							1.97		2											Windowless sample hole completed at 1.97m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS14 | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WS15

LOGGED BY: BG
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 30/10/2014 - 30/10/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Desiccated dark brown slightly silty slightly gravelly desiccated CLAY with rootlets. Gravel of subangular to subrounded fine to coarse flint)			0.00		0											Groundwater not encountered during drilling
				Stiff to desiccated pale brown and grey mottled gravelly slightly cobbly desiccated CLAY. Gravel of subangular to rounded fine to coarse chalk (LOWESTOFT FORMATION)			0.20		0.10	J	1									No collapse of sidewalls during drilling
									0.75	D	1									Infiltration test undertaken at 0.9m depth
				1.00 Becoming hard and dark grey with depth					1											
									1.50	D	2									
							2.00		2											Windowless sample hole completed at 2.0m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS15 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS16
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 31/10/2014 - 31/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark grey brown slightly gravelly clay. Gravel of fine to medium flint with occasional brick).			0.00		0 0.10	J	1									Groundwater not encountered during drilling No collapse of sidewalls during drilling
				Firm becoming stiff dark yellow brown slightly gravelly desiccated CLAY. Gravel of fine to medium flint with occasional medium chalk. (LOWESTOFT FORMATION) 0.50 Rootlets present			0.30		1											
				1.50 No desiccation below 1.5m and becoming slightly sandy and firm with depth					2											
				2.20 Becoming gravelly and pale grey orange brown mottled below 2.2m. Gravel is fine to coarse chalk and flint					3											
							4.00		4											Windowless sample hole completed at 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS16 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS17
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 31/10/2014 - 31/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay. Gravel is fine to medium flint with occasional brick).			0.00		0											Groundwater not encountered with depth
									0.10	J	1									No collapse of sidewalls during drilling
				Firm dark brown slightly gravelly CLAY. Gravel of fine to coarse flint and chalk. (HEAD DEPOSITS)			0.35													
				Firm becoming stiff dark yellow brown gravelly CLAY. Gravel of fine to coarse flint and chalk. (LOWESTOFT FORMATION)			0.80		1											
				1.30 Becoming dark grey and dark orange brown mottled with depth																
				1.65 Cobbles of chalk present																
							2.00		2											Windowless sample hole completed at 2.0m
									3											
									4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS17 | SHEET 1 OF 1 | PROJECT No. 995,SI

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS18
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 31/10/2014 - 31/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint and infrequent charcoal fragments).			0.00		0											No collapse of sidewalls during drilling
				Firm becoming stiff dark brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint. (HEAD DEPOSITS)			0.30													
31/10	▽	1.00							0.80	D	1									
									1											Seepage inflow of water at 1m
									1.20	D	2									
				Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			1.50													
				2.20 Becoming brown grey mottled with depth					2											
									3.00	D	3									
									3											
							4.00		4											Windowless sample hole completed at 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS18 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WS19
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 31/10/2014 - 31/10/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown gravelly very desiccated clay. Gravel of frequent fine to coarse flint and chalk).			0.00		0											Groundwater not encountered during drilling No collapse of sidewalls during drilling
				Dark brown pale grey mottled gravelly cobbly very desiccated CLAY. Gravel of fine to coarse flint and chalk with frequent cobbles of chalk. (LOWESTOFT FORMATION)			0.40		1											
				2.80 Becoming dark grey with depth 3.00 No desiccation below 3.0m					2											
							4.00		3											
									4											Windowless sample hole completed at 4.0m 50mm diameter monitorng well installed to 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WS19 | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSA
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 18/11/2014 - 18/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown gravelly slightly silty clayey sand with occasional rootlets. Gravel is angular to subrounded fine to medium flint)			0.00		0												Groundwater not encountered during drilling
				Firm becoming very stiff yellow brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded fine to coarse chalk (LOWESTOFT FORMATION) 0.50 - Becoming desiccated with depth 0.60 - 1.00 - Becoming dark grey brown with depth			0.25		0.10	J	1								No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.30	J	2									
				1.00 - 4.00 - Becoming grey brown mottled with depth					1	C		11 12 9 8 8 9	34							
									2	C		6 6 7 7 8 9	31							
									3	C		6 8 9 9 10 12	40							
							4.00		4	C		8 9 10 12 13 14	49							Windowless sample hole completed at 4.0m

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WSA | SHEET 1 OF 1 | PROJECT No 995,SI

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSB
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 18/11/2014 - 18/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Depths	Sampling/In-Situ Testing: Type	Sampling/In-Situ Testing: No.	Sampling/In-Situ Testing: Blows	Sampling/In-Situ Testing: SPT N	Laboratory Testing: <425 %	Laboratory Testing: WC %	Laboratory Testing: PL %	Laboratory Testing: LL %	Laboratory Testing: ρ Mg/m³	Laboratory Testing: Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)			0.00		0												Groundwater not encountered during drilling No collapse of sidewalls during drilling
				Firm becoming stiff light orange brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded fine to coarse chalk (LOWESTOFT FORMATION)			0.30		0.20	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.40	J	2									Metals, PAH, TPH, Moisture content, pH and Sulphate
				0.80 - Becoming brown grey mottled with depth					1											Infiltration test undertaken at 0.69m depth
							2.00		2											Windowless sample hole completed at 2.00m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road,
Bightwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

HOLE No. WSB. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSC
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 18/11/2014 - 18/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to medium flint and occasional fine brick fragments)			0.00		0											
				Firm brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS)			0.30		0.20	J	1									No collapse of sidewalls during drilling
				0.60 - Becoming slightly sandy with depth					0.40	J	2									
				1.00 - 1.50 - Becoming soft with depth					1	C		1 1 1 1 2 2	6							
				Firm becoming stiff yellow brown/grey mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and frequent subrounded to rounded fine to coarse chalk (LOWESTOFT FORMATION)			1.50		2	C		4 3 4 3 5 5	17							
									3	C		3 3 4 4 5 6	19							50mm diameter monitoring well installed to 3.0m
18/11	3.50																			Inflow of water at 3.5m
							4.00		4	C		4 4 6 6 6 8	26							Windowless sample hole completed at 4.00m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
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HOLE No. WSC. | SHEET 1 OF 1 | PROJECT No 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSD
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 18/11/2014 - 18/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint)			0.00		0											
				Firm becoming stiff yellow brown CLAY with occasional fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)			0.30		0.20	J	1									Groundwater not encountered during drilling No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.40	J	2									Infiltration test undertaken at 0.55m depth
				0.70 - 2.00 - Becoming pale grey/orange brown mottled.					1											
							2.00		2											Windowless sample hole completed at 2.00m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
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HOLE No. WSD. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	**PROJECT: Land to the North West of Haverhill**	**GROUND LEVEL**	**HOLE No. WSE**
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m	COORDINATES E N DATES 18/11/2014 - 18/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark grey slightly sandy clay with occasional fine gravel of flint and brick)			0.00		0											No collapse of sidewalls during drilling
				Firm yellow brown sandy CLAY with occasional black speckling (HEAD DEPOSITS)			0.40													
				Stiff dark brown/pale grey mottled gravelly CLAY. Gravel is fine to coarse flint and chalk (HEAD DEPOSITS)			1.20		1	C		1 1 2 3 2 3	10							Rising to 0.8m on completion
18/11 + 20 mins		1.80 0.80		Orange brown fine to medium gravelly SAND. Gravel is fine to medium flint (HEAD DEPOSITS)			1.80													Moderate inflow of water at 1.8m
				Stiff dark brown/pale grey mottled gravelly CLAY. Gravel is fine flint and chalk (LOWESTOFT FORMATION) 2.25 - becoming dark grey			2.00		2	C		3 4 4 5 5 5	19							
									3	C		3 3 4 4 5 7	20							50mm diameter monitoring well installed to 2.6m
							4.00		4	C		3 3 4 5 5 9	23							Windowless sample hole completed at 4.0m depth

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WSE. | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WSF

LOGGED BY: SG
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 18/11/2014 - 18/11/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark grey slightly sandy clay with occasional fine gravel of flint and brick)			0.00		0											No collapse of sidewalls during drilling
				Firm becoming soft orange brown sandy CLAY with occasional fine to medium gravel of flint (HEAD DEPOSITS)			0.25		0.20	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
									0.45	J	2									
18/11	1.30								1											Inflow of water at 1.3m
				Stiff dark brown/pale grey mottled slightly gravelly CLAY. Gravel is fine to medium flint and chalk (LOWESTOFT FORMATION)			1.60													
							2.00		2											Window sample hole completed at 2.00m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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HOLE No. WSF

SHEET 1 OF 1

PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills

PROJECT: Land to the North West of Haverhill

GROUND LEVEL

HOLE No. WSG

LOGGED BY: LF
FIELDWORK BY: GEL
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Windowless sampler
Uncased to 2.0 m

COORDINATES E N

DATES 19/11/2014 - 19/11/2014

SHEET 1 OF 1

PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly slightly sandy clay with occasional rootlets. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
				Dark orange brown fine to medium SAND (HEAD DEPOSITS)			0.40													
				Firm dark orange brown very sandy slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS) 1.00 - Becoming gravelly with depth. Gravel is coarse flint 1.10 - 1.70 - Becoming black speckled			0.70		1											Shear vane test = 70kN/m² Infiltration test undertaken at 0.73m depth Shear vane test = 50kN/m²
				Orange brown clayey gravelly SAND. Gravel of angular to rounded fine to coarse chalk and flint (HEAD DEPOSITS)			1.70													
							2.00		2											Windowless sample hole completed at 2.00m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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Bightwell, Suffolk, IP10 0BJ
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HOLE No. WSG | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSH
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 19/11/2014 - 19/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
				Firm orange brown slightly gravelly CLAY with occasional sandy pockets. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS)			0.30		0.20	J	1									Borehole collapsed to 1.7m on completion Infiltration test undertaken at 0.24m depth
				0.40 - Becoming orange brown/grey mottled with depth					0.40	J	2									Shear vane test = 61kN/m²
				0.90 - Becoming slightly sandy with depth					1											Shear vane test = 40kN/m²
				1.70 - 2.00 - With a sandy clay pocket																Shear vane test = 36kN/m²
				Soft yellow brown/grey mottled sandy gravelly CLAY. Gravel of angular to rounded fine to coarse flint and chalk (LOWESTOFT FORMATION)			1.80 2.00		2											Shear vane test = 23kN/m² Windowless sample hole completed at 2.0m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal / Response zone / Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
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HOLE No. WSH | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

CLIENT: c/o Savills	**PROJECT: Land to the North West of Haverhill**	**GROUND LEVEL**	**HOLE No. WSI**
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 19/11/2014 - 19/11/2014	SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata: Leg	Strata: Reduced Level	Strata: Depth	Graphical Representation: SPT 'N' Value (0 10 20 30 40)	Sampling/In-Situ Testing: Depths	Type	No.	Blows	SPT N	Laboratory Testing: <425 %	WC %	PL %	LL %	ρ Mg/m³	Cu kN/m²	Additional Tests and Notes
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint)			0.00		0											Groundwater not encountered during drilling
									0.10	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm brown slightly sandy slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS)			0.25		0.30	J	2									No collapse of sidewalls during drilling
																				Shear vane test = 62kN/m²
				Firm becoming stiff brown/grey mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded chalk (LOWESTOFT FORMATION)			0.90		1	C		2 2 2 2 2 3	9							Shear vane test = 78kN/m²
																				Shear vane test = 80kN/m²
							2.00		2											Shear vane test = 76kN/m²
																				Widow sample hole completed at 2.0m depth
									3											
									4											

*WATER ▼ Standing water level ▽ Water strikes

PIEZOMETER Upper seal, Response zone, Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample
S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road,
Bightwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
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HOLE No. WSI | SHEET 1 OF 1 | PROJECT No. 995,SI

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

Geosphere Environmental Ltd
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Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
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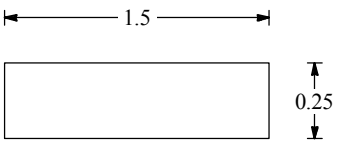
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP1**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	28-10-14 28-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark brown slightly gravelly clay. Gravel is fine to medium flint with occasional fine to medium brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.35-1.50	Stiff dark yellow brown slightly gravelly CLAY. Gravel is fine to medium flint and chalk (LOWESTOFT FORMATION)				
	0.80 - 1.50 - Becoming gravelly				
	1.00 - 1.50 - Becoming dark grey with occasional cobble of flint and chalk				
					Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

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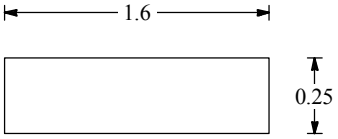
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP2**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	28-10-14 28-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown clay with occasional medium gravel of flint				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff dark yellow brown slightly gravelly CLAY. Gravel of fine to coarse flint and chalk with occasional cobble of chalk and flint (LOWESTOFT FORMATION)				
	0.60 - Becoming pale grey/orange brown mottled		0.60-0.80	1B	CBR
	1.00 - Becoming very gravelly				
					Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

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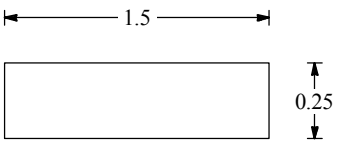
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP3**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	28-10-14 28-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown clay with occasional medium gravel of flint)				Groundwater not encountered during excavation
0.25-1.50	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of flint and chalk and occasional roots (2mm) (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.65 - Becoming gravelly				
	0.90 - Becoming pale grey/orange brown mottled				
					Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

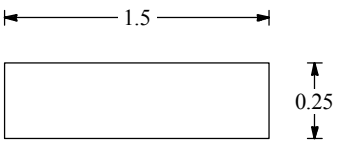
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP4**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	28-10-14 28-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of chalk, flint and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation
0.25-1.50	Firm becoming stiff dark yellow brown slightly gravelly CLAY. Gravel is fine to coarse chalk and flint (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.55 - Becoming gravelly		0.60-0.70	1B	Moisture content, CBR
	0.90 - Becoming pale grey with occasional cobbles of chalk, flint and ironstone				
					Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

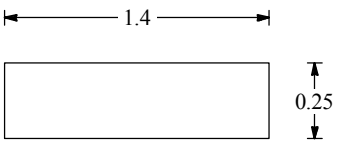
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP5**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	28-10-14 28-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff dark yellow brown CLAY with occasional fine to medium gravel of flint and chalk (LOWESTOFT FORMATION) 0.60 - Becoming gravelly 0.90 - Becoming pale grey with occasional cobbles of flint and chalk				Trial pil completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

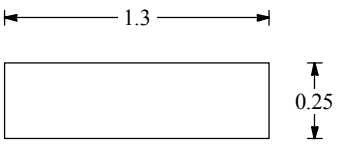
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP6**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	29-10-14 29-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff dark yellow brown very gravelly CLAY. Gravel is fine to coarse flint, chalk and occasionalvcobble of chalk (LOWESTOFT FORMATION)		0.70-1.00	1B	
	1.05 - Becoming pale grey				Very slow inflow of water at 1.5 m Rising to 1.45m after 20 minutes Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

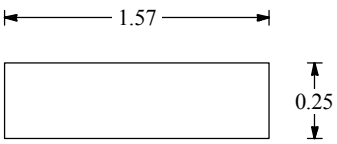
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP7**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasionalcoarse gravel of brick fragments				No collapse of sidewalls during excavation
0.30-1.20	Firm dark yellow brown very gravelly CLAY. Gravel is fine to coarse flint, chalk and occasional cobble of flint (HEAD DEPOSITS) 0.80 - Becoming pale grey				Moisture content, CBR
1.20-1.80	Soft orange brown very gravelly sandy CLAY. Gravel is fine to coarse chalk and flint (HEAD DEPOSITS)				
1.80-1.90	Stiff dark grey CLAY with frequent fine to coarse gravel of chalk and flint (LOWESTOFT FORMATION)				Slight seepage inflow of water at 1.8 m Trial pit completed at 1.9m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

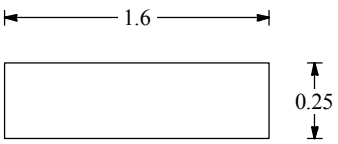
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP8**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.05	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION) 0.60 - Becoming dark yellow brown/pale grey mottled with occasional cobble of chalk 0.80 - Becoming pale grey				Trial pit completed at 1.05m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

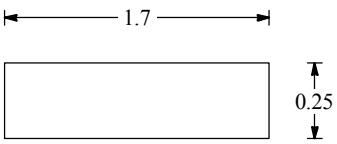
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP9**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-0.70	Firm dark brown CLAY with occasional fine to coarse gravel of flint (HEAD DEPOSITS)				
0.70-1.50	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel of fine to coarse flint and chalk (LOWESTOFT FORMATION)				Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

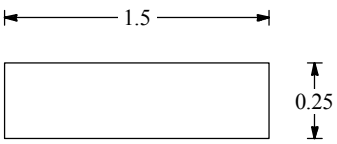
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP10**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-0.70	Firm dark brown CLAY with occasional fine to coarse gravel of flint (HEAD DEPOSITS)				
0.70-1.40	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION) 0.95 - Becoming pale grey/dark yellow brown mottled				Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

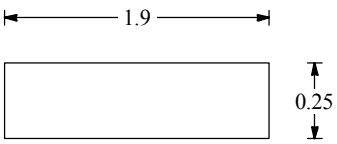
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP11**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.30	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)				Trial pit completed at 1.3m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

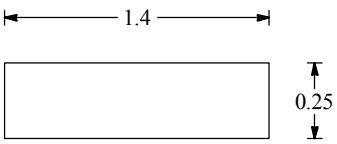
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP12**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.35-1.40	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION) 0.80 - Becoming dark yellow brown/pale grey mottled				Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

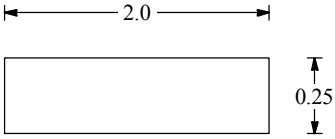
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP13**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	30-10-14 30-10-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation
0.25-1.40	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of chalk and flint (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
			0.70-0.80	1B	Moisture content, CBR
	0.80 - Becoming dark grey/dark yellow brown mottled				
	0.90 - With occasional cobble of flint and chalk				
					Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

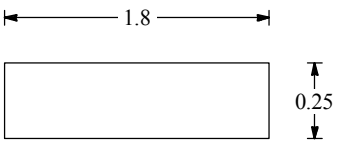
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP14**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION)				
	1.00 - Becoming pale brown				
					Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

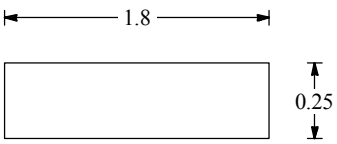
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP15**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.10	Firm becoming stiff brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.50 - With occasional cobbles of chalk 0.70 - Becoming brown/grey mottled				Trial pit completed at 1.1m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

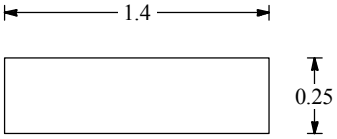
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP16**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.70 - With a cobble of metamorphic material 0.90 - Becoming brown/grey mottled 1.00 - With occasional iron oxide staining				Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

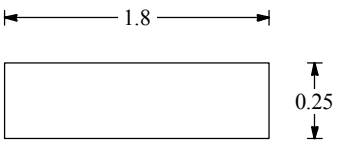
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP17**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff yellow brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.80 - Becoming yellow brown/grey mottled				Trial pit completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

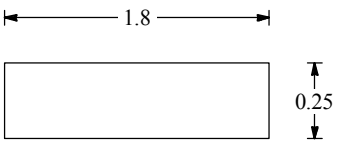
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP18**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff yellow brown gravelly CLAY. Gravel of fine to coarse subrounded to rounded chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION)				Trial pit completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

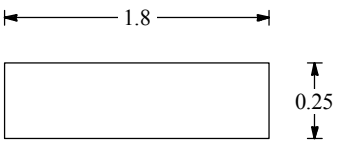
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP19**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	31-10-14 31-10-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.50	Firm becoming stiff yellow brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.90 - Becoming grey/brown mottled				Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

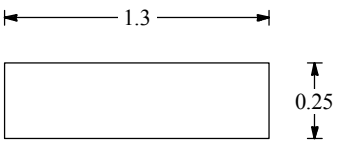
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP20**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				
					No collapse of sidewalls during excavation
0.30-1.45	Firm yellow brown grey CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded fine to coarse chalk (LOWESTOFT FORMATION)				
	0.60 - Becoming brown/grey mottled				
	1.00 - With frequent iron oxide staining				
					Seepage inflow of water at 1.45 m
					Trial completed at 1.45m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

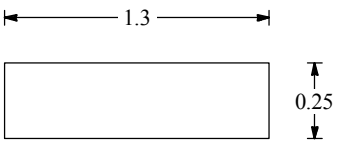
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP21**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.35	Firm becoming stiff brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded fine to coarse chalk (LOWESTOFT FORMATION) 1.00 - Becoming light brown				Trial completed at 1.35m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

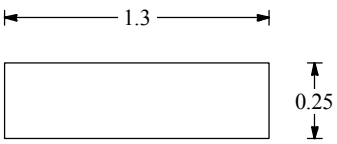
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP22**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.45	Firm orange brown Clay (HEAD DEPOSITS) 1.30 - Becoming sandy				Trial completed at 1.45m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

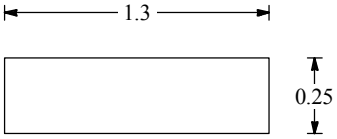
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP23**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)				
					No collapse of sidewalls during excavation
0.30-1.50	Firm orange brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint and chalk (LOWESTOFT FORMATION)				
	1.00 - Becoming slightly sandy with frequent gravel				
					Seepage inflow of water at 1.2 m
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

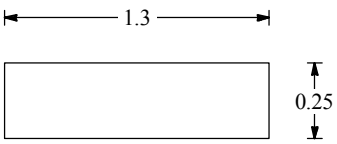
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP24**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.28	TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.28-1.20	Firm becoming stiff brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint with frequent subrounded fine to coarse chalk (LOWESTOFT FORMATION)				
	1.00 - Becoming grey/brown mottled				Trial completed at 1.2m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

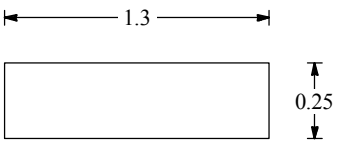
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP25**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				
0.30-1.40	Firm becoming stiff brown CLAY with occasional fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation Perched inflow of water at 0.3 m
	0.80 - Becoming pale grey/orange brown mottled				
					Trial completed at 1.4m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

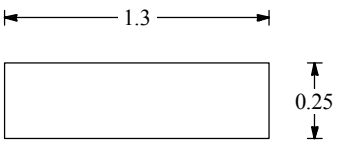
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP26**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				
0.20-1.20	Firm becoming stiff orange brown gravelly CLAY. Gravel of angular to rounded fine to coarse flint with frequent chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.90 - Becoming grey/brown mottled				
					Perched inflow of water at 1.2 m Trial completed at 1.2m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

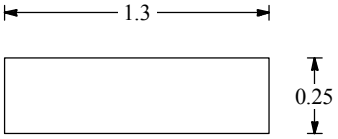
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP27**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	18-11-14 18-11-14		

Fieldwork By	Logged By	Sheet
GEL	LF	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				Groundwater not encountered during excavation
0.20-1.45	Firm becoming stiff yellow brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint with frequent subrounded to rounded fine to coarse gravel and cobbles of chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.80 - Becoming grey/brown mottled				
					Trial completed at 1.45m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

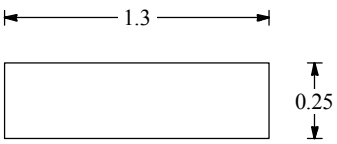
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP28**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm dark orange brown gravelly CLAY. Gravel of fine to coarse flint and chalk (HEAD DEPOSITS) 0.60 - becoming very gravelly 1.10 - with cobble of flint				Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

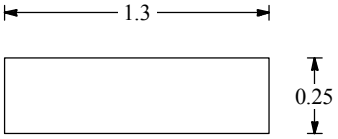
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP29**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation
0.25-0.60	Firm dark orange brown slightly sandy CLAY with occasional fine to coarse gravel of chalk and flint (HEAD DEPOSITS)				No collapse of sidewalls during excavation
0.60-1.20	Firm becoming stiff pale grey brown/orange brown mottled very gravelly CLAY. Gravel of fine to coarse flint and chalk (HEAD DEPOSITS)		0.70-0.80	1B	CBR
1.20-1.50	Stiff pale grey/pale orange brown mottled gravelly CLAY. Gravel of fine to coarse chalk (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

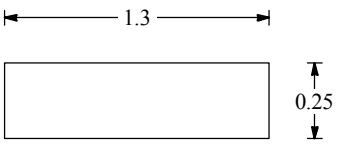
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP30**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation
0.20-0.60	Firm dark orange brown slightly sandy CLAY (HEAD DEPOSITS)		0.20 0.40	1J 2J	No collapse of sidewalls during excavation
0.60-1.50	Stiff pale grey/dark orange brown mottled gravelly CLAY. Gravel of fine to coarse chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

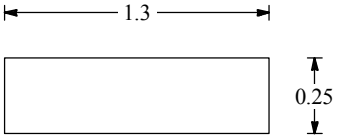
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP31**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation
			0.20	1J	No collapse of sidewalls during excavation
0.30-0.65	Firm becoming stiff pale grey/yellow brown mottled gravelly CLAY. Gravel of fine to medium chalk and flint (LOWESTOFT FORMATION)				
0.65-1.50	Stiff dark grey gravelly CLAY. Gravel of fine to medium flint (LOWESTOFT FORMATION)		0.70	2J	
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

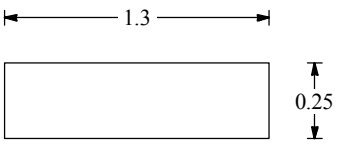
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP32**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.35-1.50	Firm becoming stiff pale grey/yellow brown mottled gravelly CLAY. Gravel is fine to medium chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

Geosphere Environmental Ltd
Brightwell Barns, Ipswich Road
Birghtwell, Suffolk, IP10 0BJ
Telephone: 01603 298 076
Fax: 01603 298 075

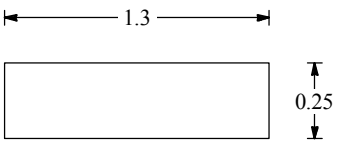
TRIAL PIT LOG

Project	Client	TRIAL PIT No
Land to the North West of Haverhill	c/o Savills	**TP33**

Job No	Date	Ground Level (m)	Co-Ordinates ()
995,SI	19-11-14 19-11-14		

Fieldwork By	Logged By	Sheet
GEL	SG	1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.50	Firm becoming stiff pale grey/yellow brown gravelly CLAY. Gravel is fine to medium chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth



Shoring/Support: NONE
Stability: STABLE

All dimensions in metres Scale 1:20.8333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD

APPENDIX 7 – INFILTRATION TEST RESULTS

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	1.48
1	1.48
2	1.48
3	1.48
4	1.48
5	1.48
10	1.48
15	1.48
20	1.48
30	1.48
45	1.48
60	1.48
90	1.48
120	1.48

Borehole Dimensions [m]	
Diameter	Depth
0.101	1.80

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.5600
h_{75}	[m]	1.7200
h_{75}-h_{25}	[m]	0.160
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
$v_{75\text{-}25}$	[m^3]	1.28E-03
effective area		
ap_{50}	[m^2]	5.88E-02
infiltration rate		
f	[m/s]	N/A

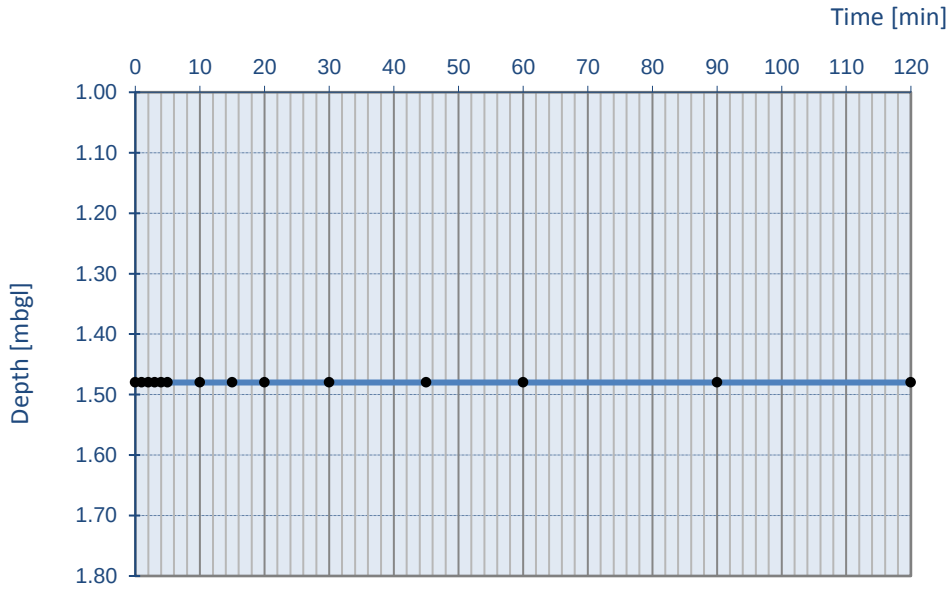
Borehole WS3

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS3

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	1.41
1	1.41
2	1.41
3	1.41
4	1.41
5	1.41
10	1.41
15	1.41
20	1.41
30	1.41
45	1.41
60	1.41
90	1.41
120	1.41

Borehole Dimensions [m]	
Diameter	Depth
0.101	1.89

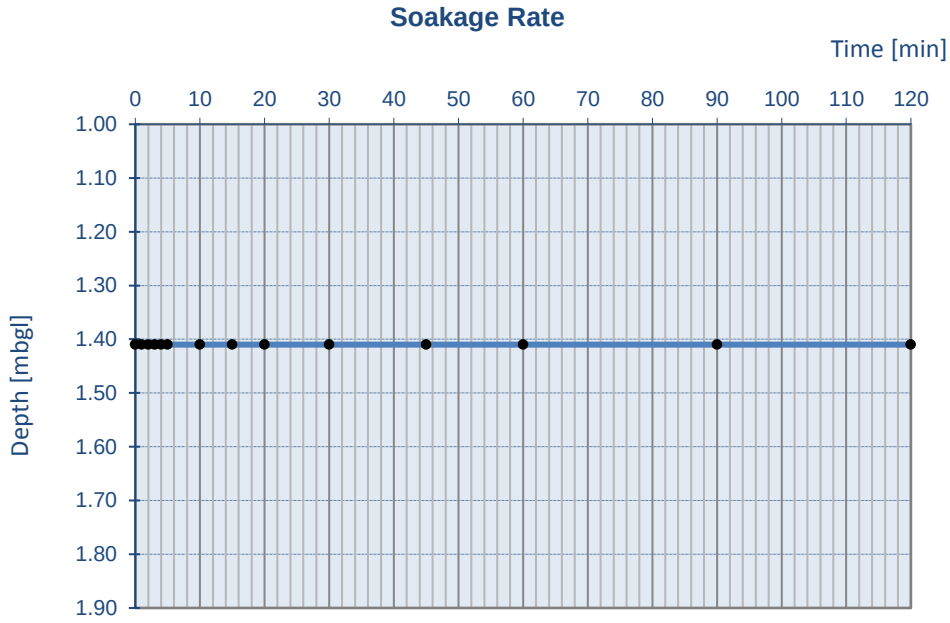
Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.5300
h_{75}	[m]	1.7700
h_{75}-h_{25}	[m]	0.240
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
v_{75-25}	[m^3]	1.93E-03
effective area		
ap_{50}	[m^2]	8.41E-02
infiltration rate		
f	[m/s]	N/A

Borehole WS6

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS6

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	1.58
1	1.58
2	1.56
3	1.56
4	1.56
5	1.56
10	1.56
15	1.56
20	1.56
30	1.56
45	1.56
60	1.56
90	1.56
120	1.56

Borehole Dimensions [m]	
Diameter	Depth
0.101	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.6500
h_{75}	[m]	1.8500
h_{75}-h_{25}	[m]	0.200
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
$v_{75\text{-}25}$	[m^3]	1.61E-03
effective area		
ap_{50}	[m^2]	8.73E-02
infiltration rate		
f	[m/s]	N/A

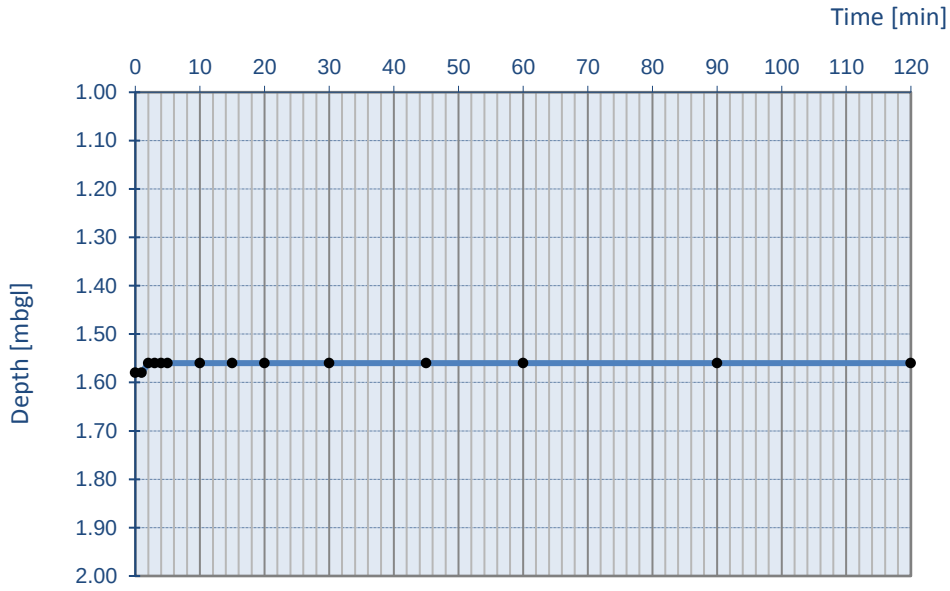
Borehole WS8

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS8

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.15
1	0.15
2	0.15
3	0.15
4	0.15
5	0.15
10	0.15
15	0.15
20	0.15
30	0.15
45	0.15
60	0.15
90	0.15
120	0.15

Borehole Dimensions [m]	
Diameter	Depth
0.101	1.68

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	0.5325
h_{75}	[m]	1.2975
h_{75}-h_{25}	[m]	0.765
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
v_{75-25}	[m^3]	6.14E-03
effective area		
ap_{50}	[m^2]	2.51E-01
infiltration rate		
f	[m/s]	N/A

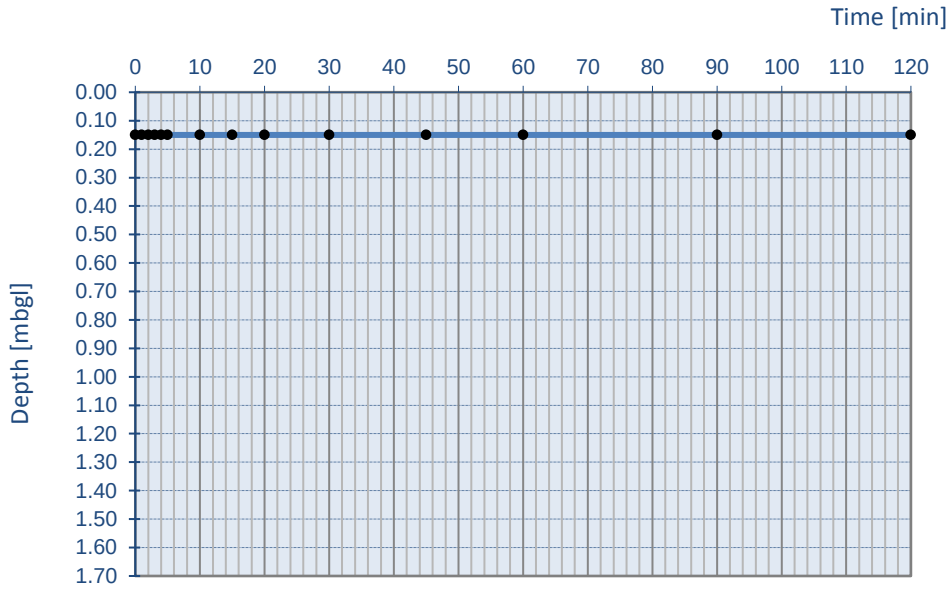
Borehole WS12

Run 1 of 1

Test Date 30/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS12

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.70
1	0.70
2	0.70
3	0.70
4	0.70
5	0.70
10	0.70
15	0.70
20	0.70
30	0.70
45	0.70
60	0.70
90	0.70
120	0.70

Borehole Dimensions [m]	
Diameter	Depth
0.101	1.97

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.0250
h_{75}	[m]	1.6750
h_{75}-h_{25}	[m]	0.650
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
v_{75-25}	[m^3]	5.22E-03
effective area		
ap_{50}	[m^2]	2.05E-01
infiltration rate		
f	[m/s]	N/A

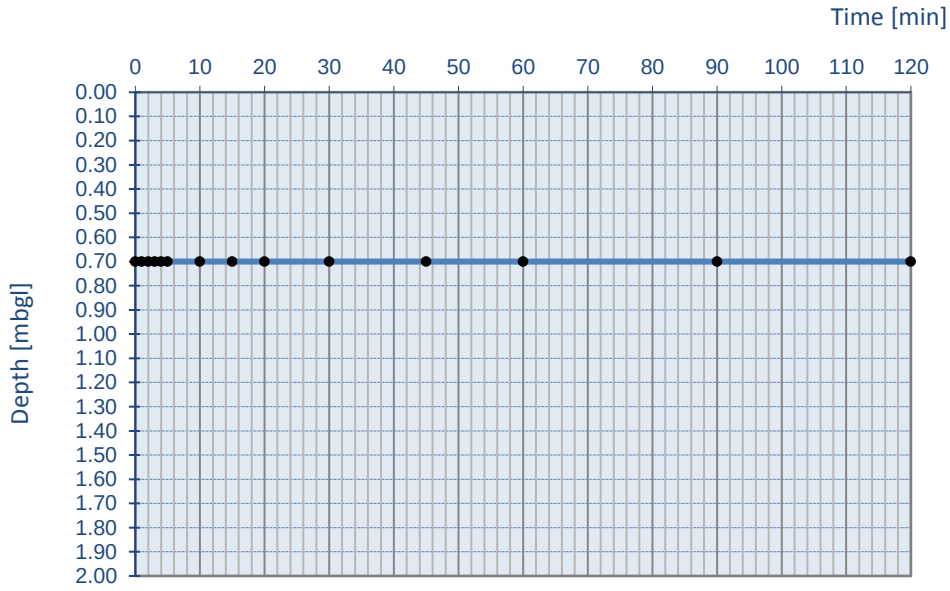
Borehole WS14

Run 1 of 1

Test Date 30/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS14

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.900
1	0.900
2	0.900
3	0.900
4	0.900
5	0.900
10	0.900
15	0.900
20	0.905
30	0.905
45	0.905
60	0.905
90	0.905
120	0.905

Borehole Dimensions [m]	
Diameter	Depth
0.101	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.1737
h_{75}	[m]	1.7250
h_{75}-h_{25}	[m]	0.551
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
v_{75-25}	[m^3]	4.43E-03
effective area		
ap_{50}	[m^2]	1.83E-01
infiltration rate		
f	[m/s]	N/A

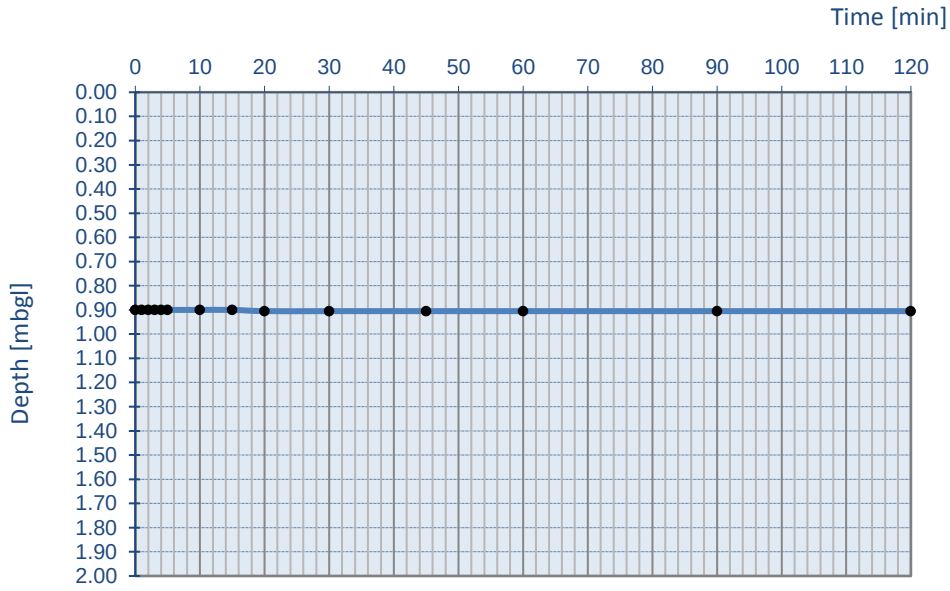
Borehole WS15

Run 1 of 1

Test Date 30/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WS15

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.69
1	0.69
2	0.69
3	0.69
4	0.69
5	0.69
10	0.69
15	0.69
20	0.69
30	0.69
45	0.69
60	0.69
90	0.69
120	0.69

Borehole Dimensions [m]	
Diameter	Depth
0.101	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.0175
h_{75}	[m]	1.6725
h_{75}-h_{25}	[m]	0.655
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
$v_{75\text{-}25}$	[m^3]	5.26E-03
effective area		
ap_{50}	[m^2]	2.16E-01
infiltration rate		
f	[m/s]	N/A

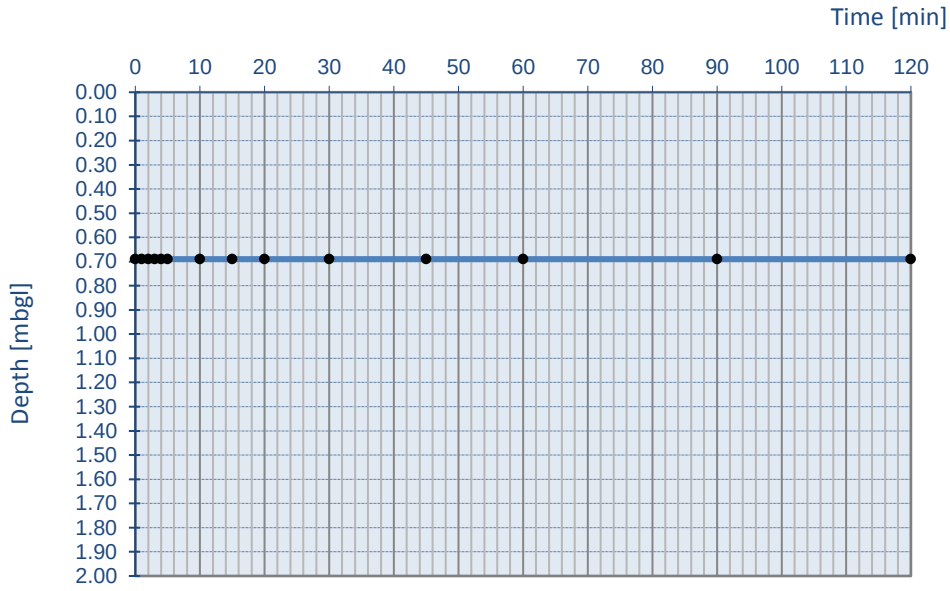
Borehole WSB

Run 1 of 1

Test Date 18/11/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WSB

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.550
1	0.550
2	0.550
3	0.560
4	0.560
5	0.560
10	0.560
15	0.560
20	0.570
30	0.580
45	0.595
60	0.600
90	0.610
120	0.620

Borehole Dimensions [m]	
Diameter	Depth
0.101	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	0.9125
h_{75}	[m]	1.6375
h_{75}-h_{25}	[m]	0.725
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
$v_{75\text{-}25}$	[m^3]	5.82E-03
effective area		
ap_{50}	[m^2]	2.38E-01
infiltration rate		
f	[m/s]	N/A

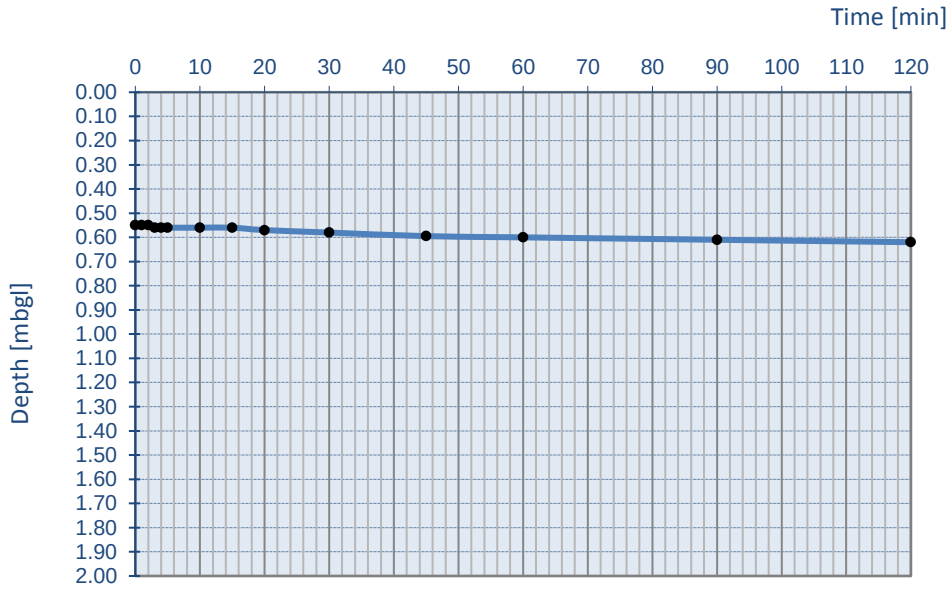
Borehole WSD

Run 1 of 1

Test Date 18/11/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WSD

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.730
1	0.750
2	0.760
3	0.765
4	0.765
5	0.770
10	0.790
15	0.800
20	0.810
30	0.830
60	0.870
90	0.900
120	0.930
180	0.970

Borehole Dimensions [m]	
Diameter	Depth
0.090	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	1.0475
h_{75}	[m]	1.6825
h_{75}-h_{25}	[m]	0.635
time		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
t_{75} - t_{25}	[s]	N/A
effective volume		
$v_{75\text{-}25}$	[m^3]	4.05E-03
effective area		
ap_{50}	[m^2]	1.86E-01
infiltration rate		
f	[m/s]	N/A

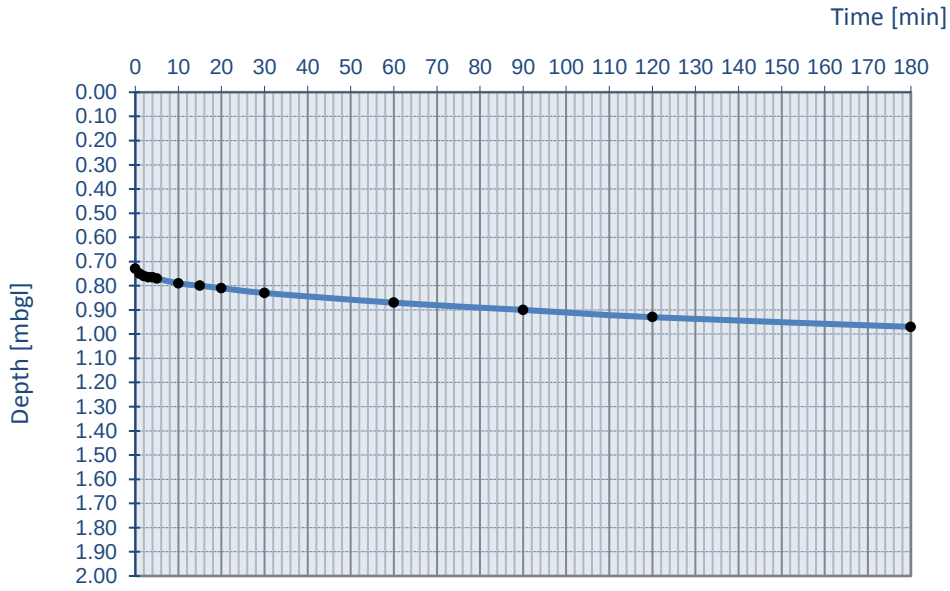
Borehole WSG

Run 1 of 1

Test Date 19/11/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WSG

BOREHOLE INFILTRATIOIN 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

Time [min]	Depth to Water [mbgl]
0	0.24
1	0.26
2	0.36
3	0.43
5	0.48
10	0.63
20	0.68
30	0.69
60	0.68
90	0.68
120	0.68

Borehole Dimensions [m]	
Diameter	Depth
0.090	2.00

Infiltration Rate Calculations		
Parameter	Unit	Result
height		
h_{25}	[m]	0.6050
h_{75}	[m]	1.3350
h_{75}-h_{25}	[m]	0.730
time		
t_{75}	[s]	N/A
t_{25}	[s]	540.00
t_{75} - t_{25}	[s]	N/A
effective volume		
v_{75-25}	[m^3]	4.65E-03
effective area		
ap_{50}	[m^2]	2.97E-01
infiltration rate		
f	[m/s]	N/A

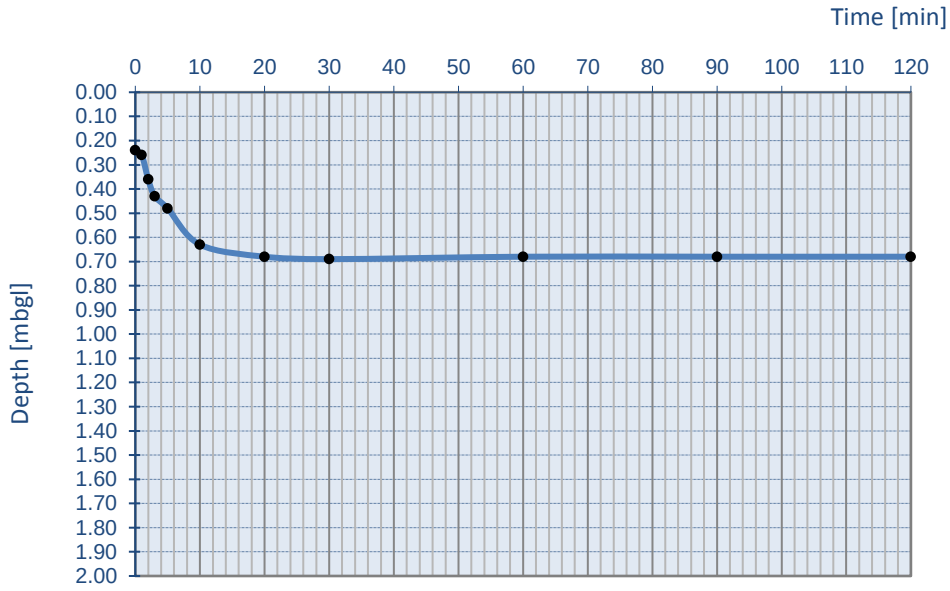
Borehole WSH

Run 1 of 1

Test Date 19/11/2014

Groundwater Encountered at: n/a

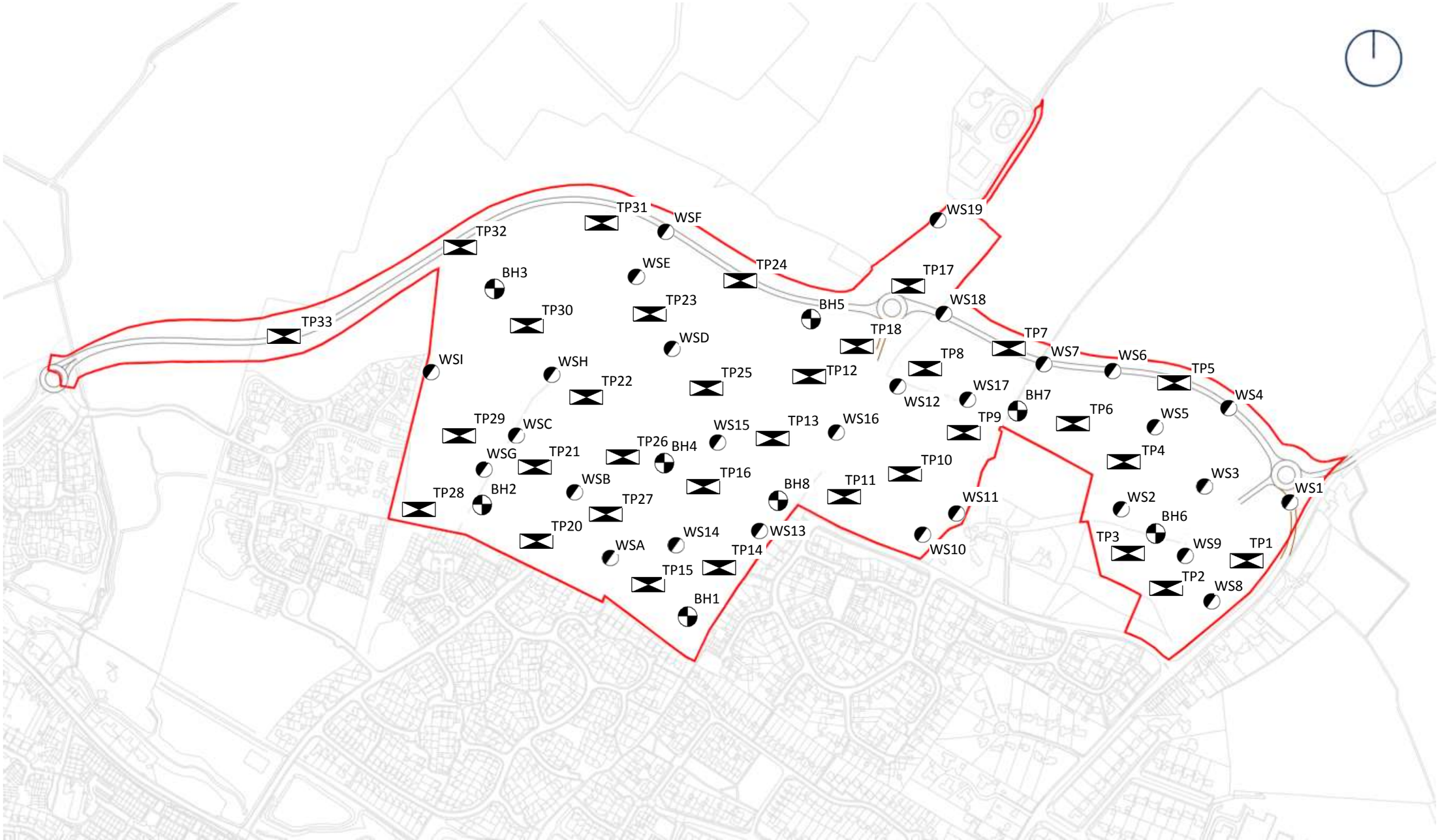
Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

C:\Geocloud\Shared\GeoCloud\Reports\995,SI, NW Haverhill, Savills, 08-10-14, SG\GEL Report\Soak\995,SI - BHFH Soak - WSH



LEGEND:

- Proposed borehole locations
- Proposed window sample locations
- Proposed Trial Pit Locations
- Site Boundary

N

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

SITE	TITLE	Ref.	DRAWING NO.	DATE
Land to the north west of Haverhill, Suffolk	Exploratory Hole Location Plan	995,SI	995,SI / Rev 0	December 2014
	CLIENT c/o Savills	**DRAWN BY** SG	**CHECKED** AD	**SCALE** Not to scale

geosphere environmental ltd

APPENDIX G

Below Ground Drainage Pipes Operation and Maintenance Plan

Below Ground Drainage Pipes Operation and Maintenance Plan		
Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Inspect and identify and areas that are not operating correctly. Take remedial action if required.	Monthly for three months, then annually.
	Remove debris from the catchment surfaces. (where it may cause risk to performance).	Monthly.
	Remove sediment from inspection chambers.	Annually, or as required
	Maintain vegetation to designed limits in the vicinity of below ground drainage pipes to avoid damage to drainage system.	Monthly, or as required.
Remedial Actions	Repair physical damage if necessary.	As required
Monitoring	Inspect all inlets and outlets to ensure they are in good condition and operating as designed.	Annually.
	Survey inside of pipe runs for sediment build up and remove as necessary.	Every five years, or as required.

Cellular Crate Storage Tanks Operation and Maintenance Plan

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Debris removal from catchment surface (where it may cause risk to performance)	Monthly
	Remove sediment from pretreatment structures	Annually
	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Annually or as required
Remedial Actions	Repair/rehabilitation of inlets, overflows, outlets, and vents	As required
Monitoring	Inspect/check all inlets outlets, vents, and overflows to ensure that they are in good condition and are operating as designed	Annually and after large storms.

Inlets, Outlets and Inspection Chambers Operation and Maintenance Plan

Inlets, Outlets and Inspection Chambers		
Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Inspect surface structures removing obstructions and silt as necessary.	Monthly.
	Check there is no physical damage. Strim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris.	Monthly.
	Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Annually.
	Undertake inspection after leaf fall in autumn	Annually.
Occasional Maintenance	Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage	As required
Remedial Actions	Check structures and repair or replace as design detail as necessary.	As required
	Check for the effects of erosion, particularly at headwall locations and make good to the banks and erosion protection materials.	As required and following large storms.
	Repair physical damage if necessary.	As required.