



**SCOTTISHPOWER  
RENEWABLES**

# **East Anglia ONE North and East Anglia TWO Offshore Windfarms**

## **Infiltration Test Results (May 2021)**

Applicants: East Anglia TWO and East Anglia ONE North Limited  
Document Reference: EA1N\_EA2-DWF-ENV-REP-IBR-001104  
SPR Reference: ExA.AS-2.D11.5.V5

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Author: Royal HaskoningDHV

**Applicable to East Anglia ONE North and East Anglia TWO**



Revision Summary				
Rev	Date	Prepared by	Checked by	Approved by
01	11/06/2021	Paolo Pizzolla	Lesley Jamieson	Rich Morris

Description of Revisions			
Rev	Page	Section	Description
01	n/a	n/a	Final for Submission



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**Appendix 1: Results of May 2021 Infiltration Tests**

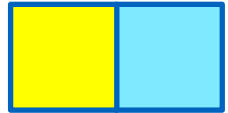
**Appendix 2: Trial Pit Log Records of May 2021 Infiltration Tests**

**Appendix 3: May 2021 Infiltration Tests Location Plan**



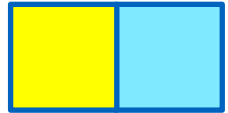
## Glossary of Acronyms

BRE	Building Research Establishment
DCO	Development Consent Order
ISH	Issue Specific Hearing
LLFA	Lead Local Flood Authority
mbGL	Metres below ground level
mm	Millimetres
mm/hr	Millimetres per hour
OODMP	Outline Operational Drainage Management Plan
SCC	Suffolk County Council
SuDS	Sustainable Drainage System



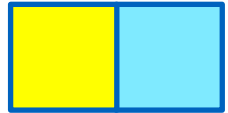
## Glossary of Terminology

Applicant	East Anglia TWO Limited / East Anglia ONE North Limited
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia ONE North / East Anglia TWO project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia ONE North / East Anglia TWO project Development Consent Order.
Onshore substation	The East Anglia ONE North / East Anglia TWO substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Sustainable Drainage System	A collection of water management practices and measures that aim to align modern drainage systems with natural water processes. This includes, amongst other measures, infiltration and attenuation.



# 1 Introduction

1. This report has been prepared by East Anglia TWO Limited and East Anglia ONE North Limited (the Applicants) to provide the results of infiltration testing undertaken in May 2021 (the May 2021 infiltration tests) for the East Anglia TWO project and East Anglia ONE North project (the Projects) in support of their Development Consent Order (DCO) applications (the Applications).
2. Results from the May 2021 infiltration tests are more comprehensive than those presented by the Applicants in the **Applicants Response to R17 Questions of 13 May Initial Infiltration Testing Preliminary Results** (AS-121) (the April 2021 infiltration tests) and therefore supersede the April 2021 infiltration tests.
3. Results of the May 2021 infiltration tests have allowed a more detailed understanding of infiltration rates in the area of the proposed sustainable drainage system (SuDS) basins associated with both the National Grid substation and the Projects' onshore substations. This has enabled the Applicants to further develop the outline design of the SuDS basins including, but not limited to, size, shape and micro-siting parameters for the SuDS, as presented within the **Outline Operational Drainage Management Plan** (OODMP) (document reference ExA.AS-1.D11.5.V5).
4. The **OODMP** will provide a framework from which the final Operational Drainage Management Plan will be prepared and which must be submitted to and approved by the relevant planning authority in consultation with Suffolk County Council (SCC) (as the Lead Local Flood Authority (LLFA)) and the Environment Agency prior to the commencement of Works Nos. 30, 34, 38 or 41. This is secured through Requirement 41 of the **draft DCO** (document reference 3.1).
5. **Section 2** of this document provides a brief overview of the May 2021 infiltration tests. **Section 3** of this document summarises the results of the May 2021 infiltration tests, with the technical results sheets set out within **Appendix 1** and the trial pit logs set out within **Appendix 2**. A location plan showing where the May 2021 infiltration tests were undertaken is set out within **Appendix 3**.
6. This document is applicable to both the East Anglia TWO and East Anglia ONE North Development Consent Order (DCO) applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's procedural decisions on document management of 23<sup>rd</sup> December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.



## 2 May 2021 Infiltration Tests

7. The Applicants commenced a significant onshore site investigation campaign in April 2021, which includes for the undertaking of infiltration testing at the substation site. The site investigation element of these works is being undertaken east to west, commencing at the landfall.
8. In order to obtain infiltration test results to inform representations at Issue Specific Hearing (ISH) 16, it was necessary to undertake initial infiltration testing (the April 2021 infiltration tests) out of sequence to the programmed works. Whilst it is acknowledged that the guidance adopted for undertaking infiltration testing (BRE-365 Digest: Soakaway Design (revised 2016)) recommends three infiltration tests to be undertaken per location, the need to obtain information for ISH16 did not allow for the undertaking of three tests per test location.
9. On full mobilisation of the onshore site investigation contractor to the substation site in May 2021, more comprehensive infiltration testing was undertaken (the May 2021 infiltration tests) which undertook three infiltration tests per location unless one of the following conditions have been met. Conditions a) to c) below ensure that, where infiltration rates are poor, the tests can be terminated within an appropriate time frame and in a consistent way between different test locations.
  - a) The water level has dropped to 0.25m above base level (0.75mbGL);
  - b) The water level has dropped by less than 50mm during the first 60 minutes of the test; or
  - c) The test duration has exceeded 120 minutes.
10. The infiltration test locations ensured that an even distribution of infiltration test results was obtained across the area of the potential SuDS basins' location.
11. The results of the May 2021 infiltration tests are considered valid for the purpose of updating of the **OODMP**.
12. The Applicants will undertake further infiltration testing at the SuDS basins in full accordance with BRE-365 at the detailed design stage, in order to verify the infiltration rates available and optimise the design of the SuDS basins. The May 2021 infiltration tests were undertaken between 21<sup>st</sup> May and 3<sup>rd</sup> June 2021 at points within the potential SuDS basins locations which serve both the onshore substations and the National Grid substation (as shown on the location plan provided as **Figure 1, Appendix 3**).



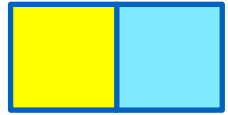
## 3 Results of May 2021 Infiltration Tests

13. **Table 3.1** presents a summary of the results of the May 2021 infiltration tests (rounded to the nearest whole number) at each test location. Whilst the results have been checked and quality assured, they will remain preliminary until close of the onshore site investigation contract, expected towards the end of 2021.

**Table 3.1 Summary of Results of May 2021 Infiltration Tests**

Test pit*	SuDS Basin	Infiltration rate (mm/hr)			
		Test 1	Test 2	Test 3	Average
TP012B	National Grid Substation	36	46	95	59
TP013B	National Grid Substation	12	10	7	10
TP014C	National Grid Substation	34	29	26	30
TP015B	Onshore Substations	75	63	91	76
TP016B	Onshore Substations	46	35	36	39
TP017B	Onshore Substations	98	66	50	71
TP330B	Between the National Grid and Onshore Substations	8	-	-	8
* TP014B was abandoned after one test due to time constraints and was replaced the next working day with TP014C.					

14. With the exception of TP017B (Test 1 and Test 2), all test results were extrapolated to calculated  $t_{25}$  (the time for the water level to fall to 25% effective storage depth) to aid with the calculation of the infiltration rates at each test location. The real-time recording of water depths at each test pit are illustrated on the graphs within **Appendix 1**, which were recorded from onsite readings.



15. The above results show a range of infiltration rates at seven different locations. Observations identified that the results at TP012B improved as the tests took place. This mirrors the results achieved at the adjacent TP012A pit (April 2021 infiltration tests), which demonstrates consistency in the soil characteristics. Although this is unusual, as typically the results reduce as the tests progress at that location, it is possible and may be due to the silt washing away in clusters of more gravely soils, therefore creating more favourable conditions in the infiltration pathway as the three tests progress.
16. For the National Grid substation SuDS basin, the average infiltration rate is considered to be unsuitable for a feasible infiltration system to be adopted. Therefore, an attenuation design for this SuDS basin will be adopted at this location as agreed with the LLFA.
17. For the onshore substations' basin, the average infiltration rate of the lowest test result for TP015B, TP016B and TP017B is 49.3mm/hr. In order to take a conservative approach at this location, the Applicants have agreed a 40mm/hr infiltration rate with the LLFA for drainage calculations at this outline design stage of the Projects, and agreed with the LLFA to progress a hybrid SuDS basin (i.e. a combination of infiltration and attenuation) at this location.
18. Post-consent, the infiltration rate of each SuDS basin will be verified by further BRE-365 compliant infiltration testing, the results of which will be used in the detailed design of the SuDS basins.



# Appendix 1: Results of May 2021 Infiltration Tests

# FULL SCALE SOAKAWAY TEST

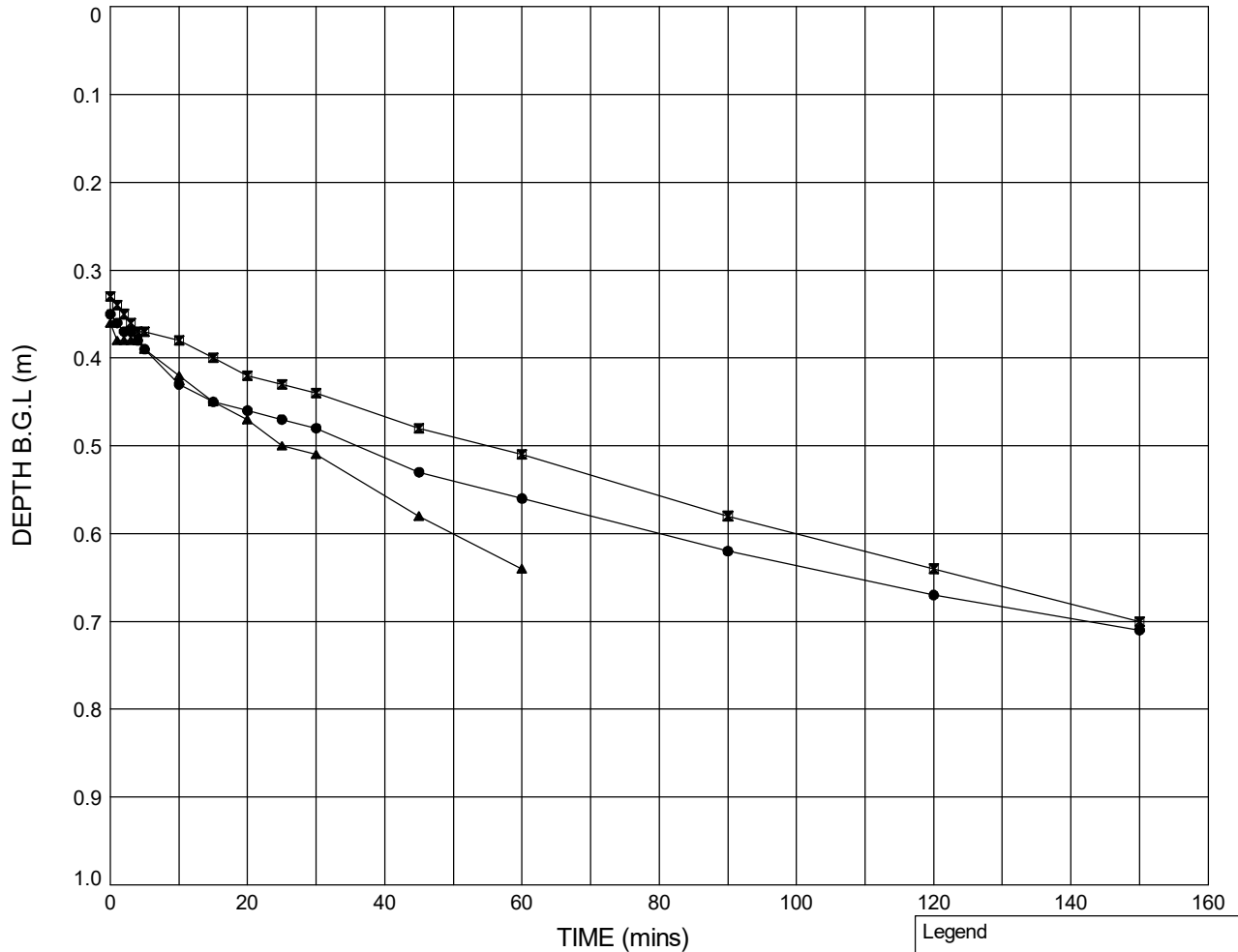
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP012B**

Ground Level (m AOD): **14.85**

National Grid Co-ordinates: **E:641050.1 N:261177.0**

## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



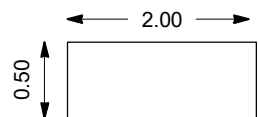
	Test 1	Test 2	Test 3	
Pit start depth:	= 1.00	1.00	1.00	m
Pit final depth:	= 1.00	1.00	1.00	m
Effective depth, $D_e$	= 0.65	0.67	0.64	m
Effective storage volume, $V_{p75-25}$	= 0.3250	0.3350	0.3200	m <sup>3</sup>
Surface area, $a_{p50}$	= 2.6250	2.6750	2.6000	m <sup>2</sup>
Time, $t_{p75-25}$	= 12353	9750	4671	secs
Infiltration rate, $f$	= $1.00 \times 10^{-5}$	$1.28 \times 10^{-5}$	$2.63 \times 10^{-5}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ . Notes: Test 3 - Soakaway Terminated at 6:10pm.

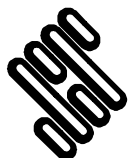
### Legend

- Test 1 (24.05.21)
- Test 2 (24.05.21)
- ▲ Test 3 (24.05.21)

### Plan (Not to scale)



No Bearing Taken



**STRUCTURAL SOILS**  
The Old School  
Stillhouse Lane  
Bedminster  
Bristol BS3 4EB

Compiled By

Date

Checked By

Date

*M. Addinall*

08/06/21

Contract

**EA HUB Onshore SI**

Contract Ref:

**735329**

# FULL SCALE SOAKAWAY TEST

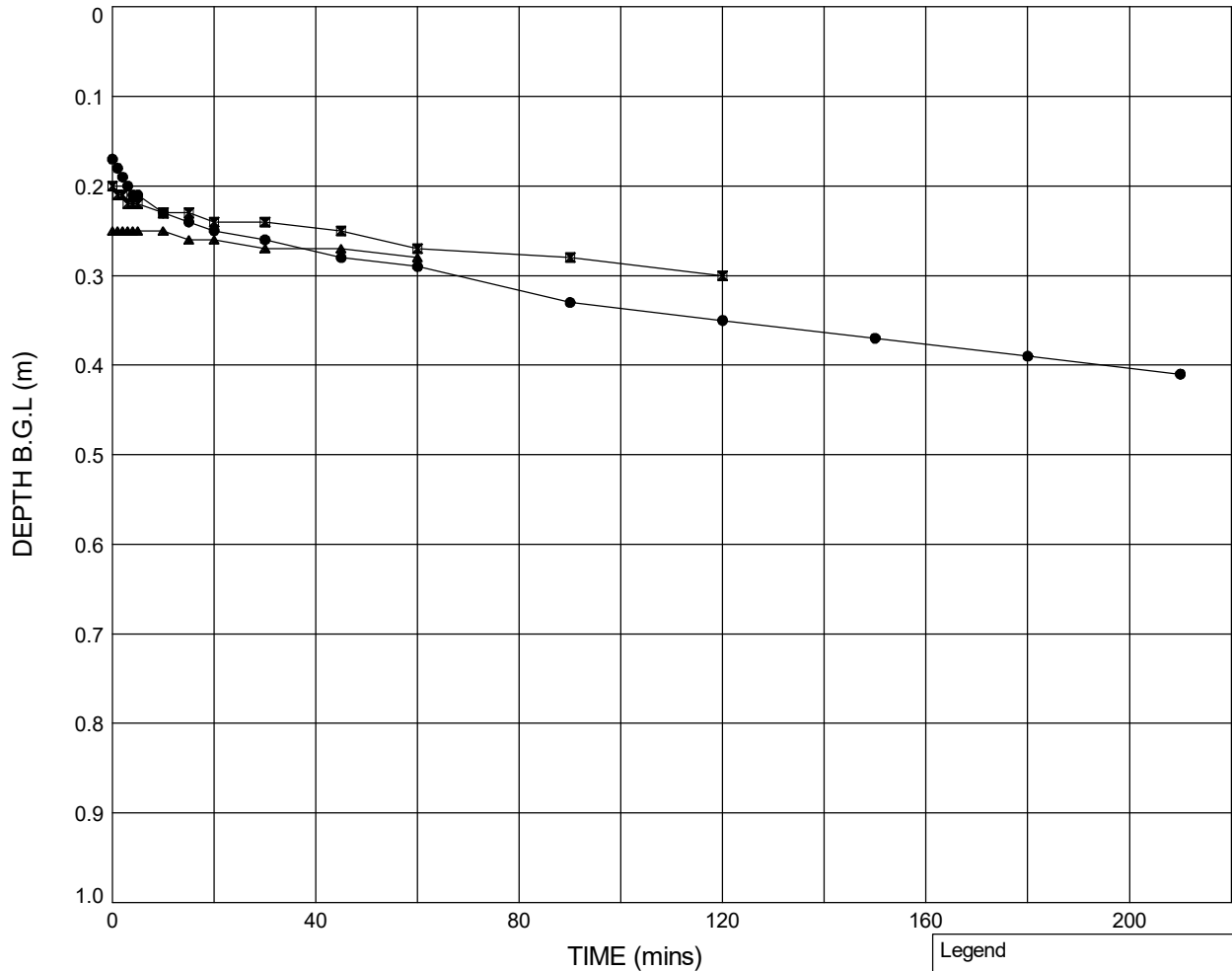
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP013B**

Ground Level (m AOD): **15.73**

National Grid Co-ordinates: **E:641148.8 N:261171.6**

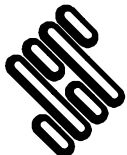
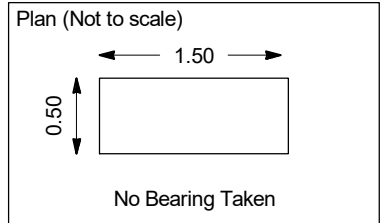
## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



	Test 1	Test 2	Test 3	
Pit start depth:	= 1.00	1.00	1.00	m
Pit final depth:	= 1.00	1.00	1.00	m
Effective depth, $D_e$	= 0.83	0.80	0.75	m
Effective storage volume, $V_{p75-25}$	= 0.3113	0.3000	0.2813	m <sup>3</sup>
Surface area, $a_{p50}$	= 2.4100	2.3500	2.2500	m <sup>2</sup>
Time, $t_{p75-25}$	= 37350	48000	67500	secs
Infiltration rate, $f$	= $3.46 \times 10^{-6}$	$2.66 \times 10^{-6}$	$1.85 \times 10^{-6}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ .

Legend		
●	Test 1	(26.05.21)
■	Test 2	(26.05.21)
▲	Test 3	(26.05.21)



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Compiled By	Date	Checked By	Date
<i>M. Addinall</i>	08/06/21		
Contract		Contract Ref:	
<b>EA HUB Onshore SI</b>		<b>735329</b>	

# FULL SCALE SOAKAWAY TEST

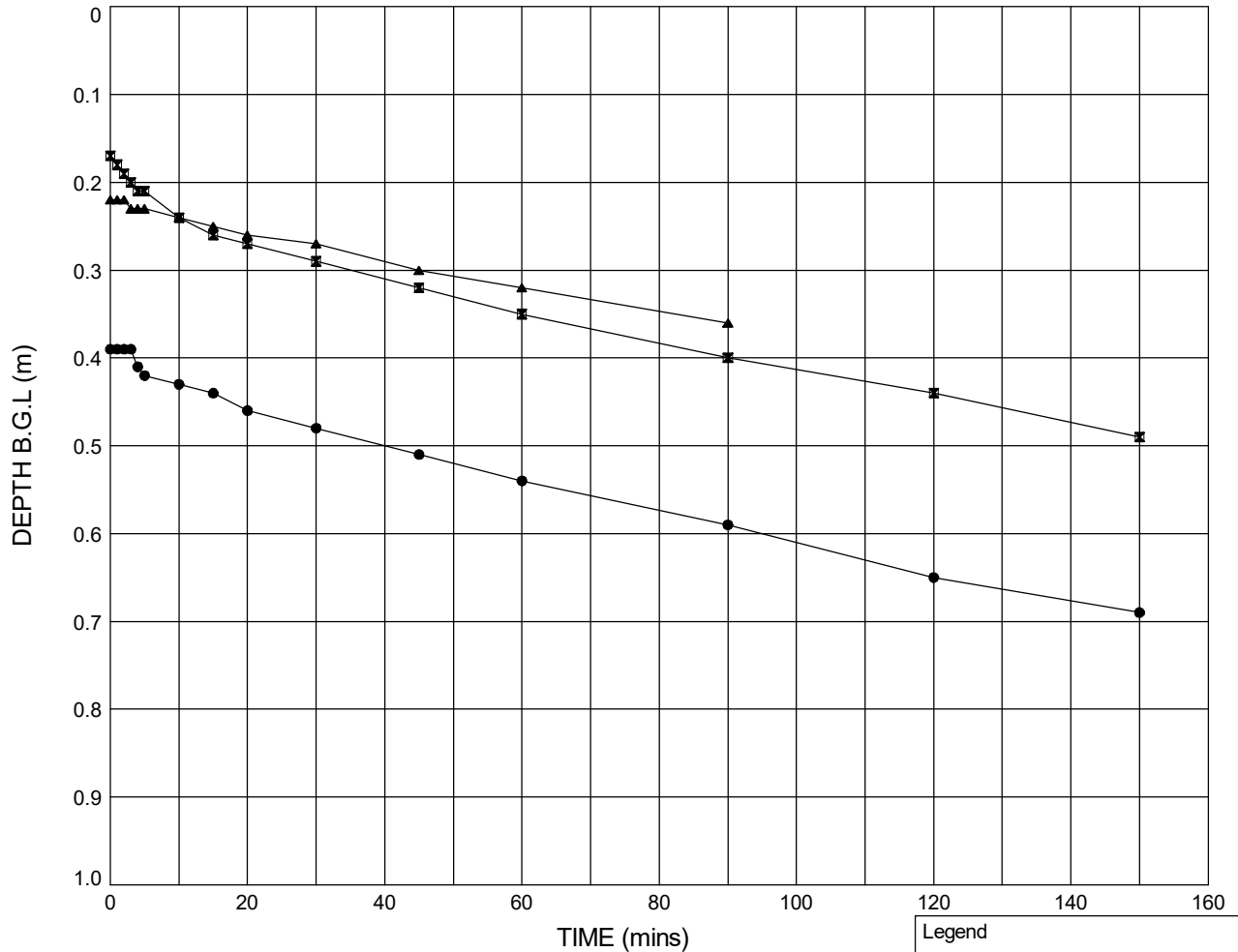
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP014C**

Ground Level (m AOD): **15.64**

National Grid Co-ordinates: **E:641119.1 N:261115.7**

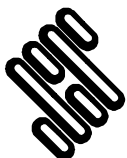
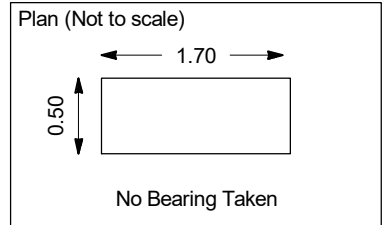
## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



	Test 1	Test 2	Test 3	
Pit start depth:	= 1.00	1.00	1.00	m
Pit final depth:	= 1.00	1.00	1.00	m
Effective depth, $D_e$	= 0.61	0.83	0.78	m
Effective storage volume, $V_{p75-25}$	= 0.2593	0.3528	0.3315	$m^3$
Surface area, $a_{p50}$	= 2.1920	2.6760	2.5660	$m^2$
Time, $t_{p75-25}$	= 12397	16510	17550	secs
Infiltration rate, $f$	= $9.54 \times 10^{-6}$	$7.98 \times 10^{-6}$	$7.36 \times 10^{-6}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ . Notes: Test 1 - Partial collapse of trial pit during test., Test 3 - Soakaway Terminated at 6:04pm.

Legend		
●	Test 1	(24.05.21)
■	Test 2	(24.05.21)
▲	Test 3	(24.05.21)



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# FULL SCALE SOAKAWAY TEST

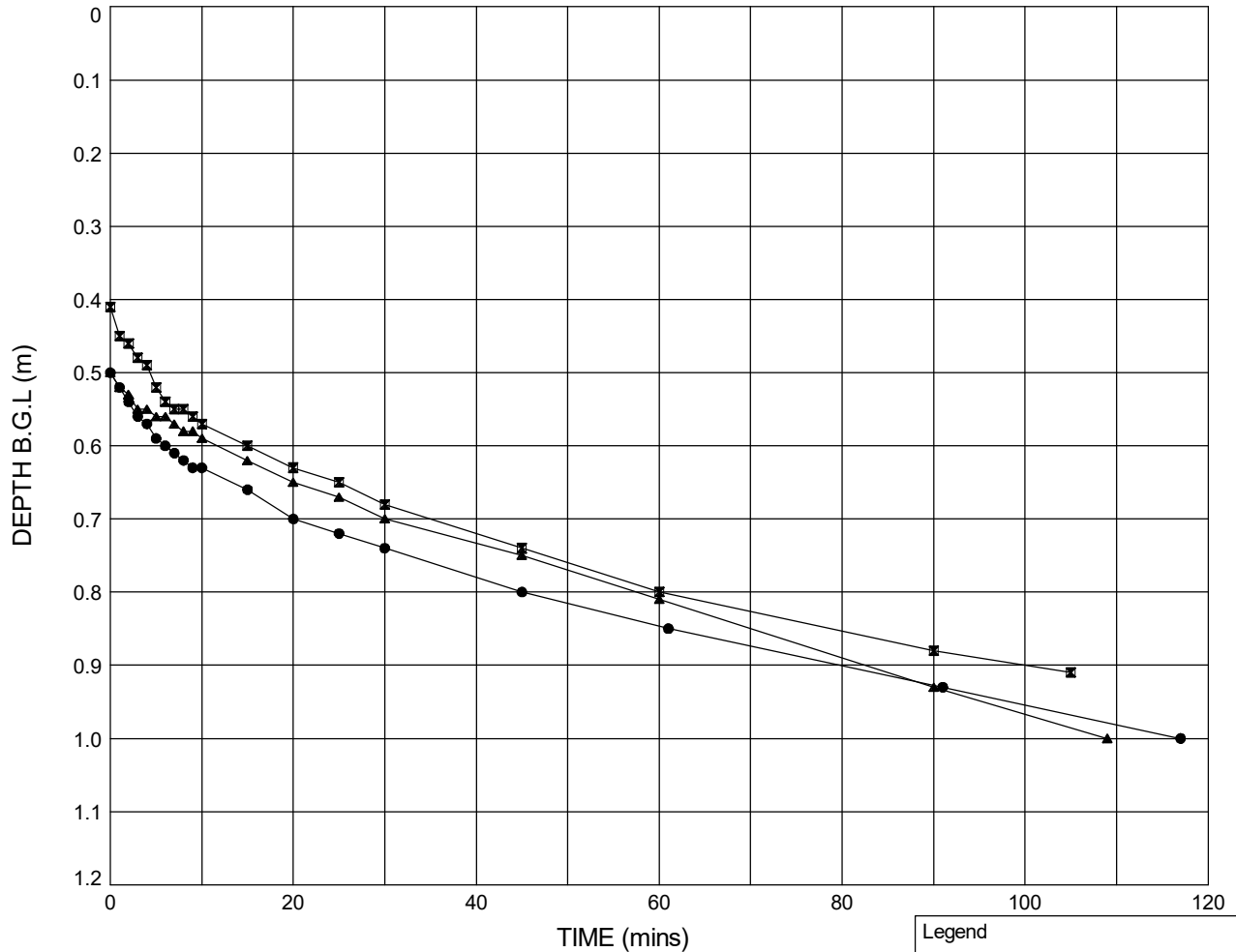
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP015B**

Ground Level (m AOD): **13.93**

National Grid Co-ordinates: **E:641189.4 N:260886.0**

## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



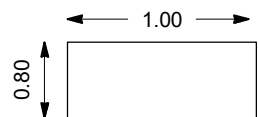
	Test 1	Test 2	Test 3	
Pit start depth:	= 1.20	1.20	1.20	m
Pit final depth:	= 1.20	1.20	1.20	m
Effective depth, $D_e$	= 0.70	0.79	0.70	m
Effective storage volume, $V_{p75-25}$	= 0.2800	0.3160	0.2800	$m^3$
Surface area, $a_{p50}$	= 2.0600	2.2220	2.0600	$m^2$
Time, $t_{p75-25}$	= 6567	8100	5397	secs
Infiltration rate, $f$	= $2.07 \times 10^{-5}$	$1.76 \times 10^{-5}$	$2.52 \times 10^{-5}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ .

### Legend

- Test 1 (26.05.21)
- Test 2 (26.05.21)
- ▲ Test 3 (26.05.21)

### Plan (Not to scale)



No Bearing Taken



**STRUCTURAL SOILS**  
The Old School  
Stillhouse Lane  
Bedminster  
Bristol BS3 4EB

Compiled By

Date

Checked By

Date

*M. Addinall*

08/06/21

Contract

**EA HUB Onshore SI**

Contract Ref:

**735329**

# FULL SCALE SOAKAWAY TEST

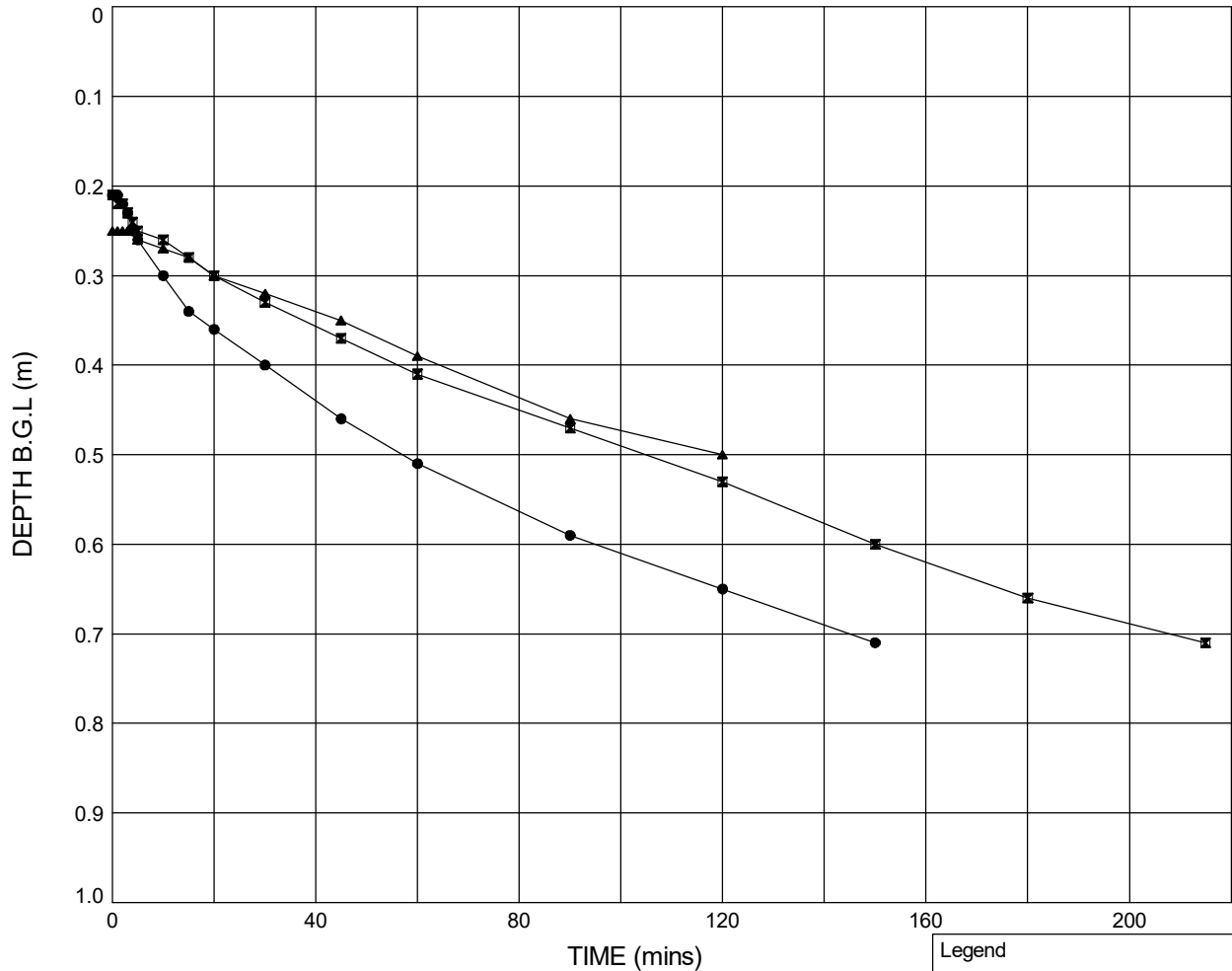
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP016b**

Ground Level (m AOD): **15.30**

National Grid Co-ordinates: **E:641278.1 N:260936.7**

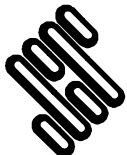
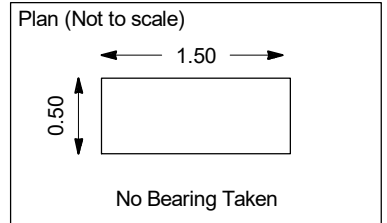
## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



	Test 1	Test 2	Test 3	
Pit start depth:	= 1.00	1.00	1.00	m
Pit final depth:	= 1.00	1.00	1.00	m
Effective depth, $D_e$	= 0.79	0.79	0.75	m
Effective storage volume, $V_{p75-25}$	= 0.4938	0.4938	0.4688	$m^3$
Surface area, $a_{p50}$	= 3.6200	3.6200	3.5000	$m^2$
Time, $t_{p75-25}$	= 9863	13241	12606	secs
Infiltration rate, $f$	= $1.29 \times 10^{-5}$	$9.60 \times 10^{-6}$	$9.92 \times 10^{-6}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ .

Legend		
●	Test 1	(25.05.21)
■	Test 2	(25.05.21)
▲	Test 3	(25.05.21)



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Compiled By	Date	Checked By	Date
M. Addinall	08/06/21		
Contract <b>EA HUB Onshore SI</b>		Contract Ref: <b>735329</b>	

# FULL SCALE SOAKAWAY TEST

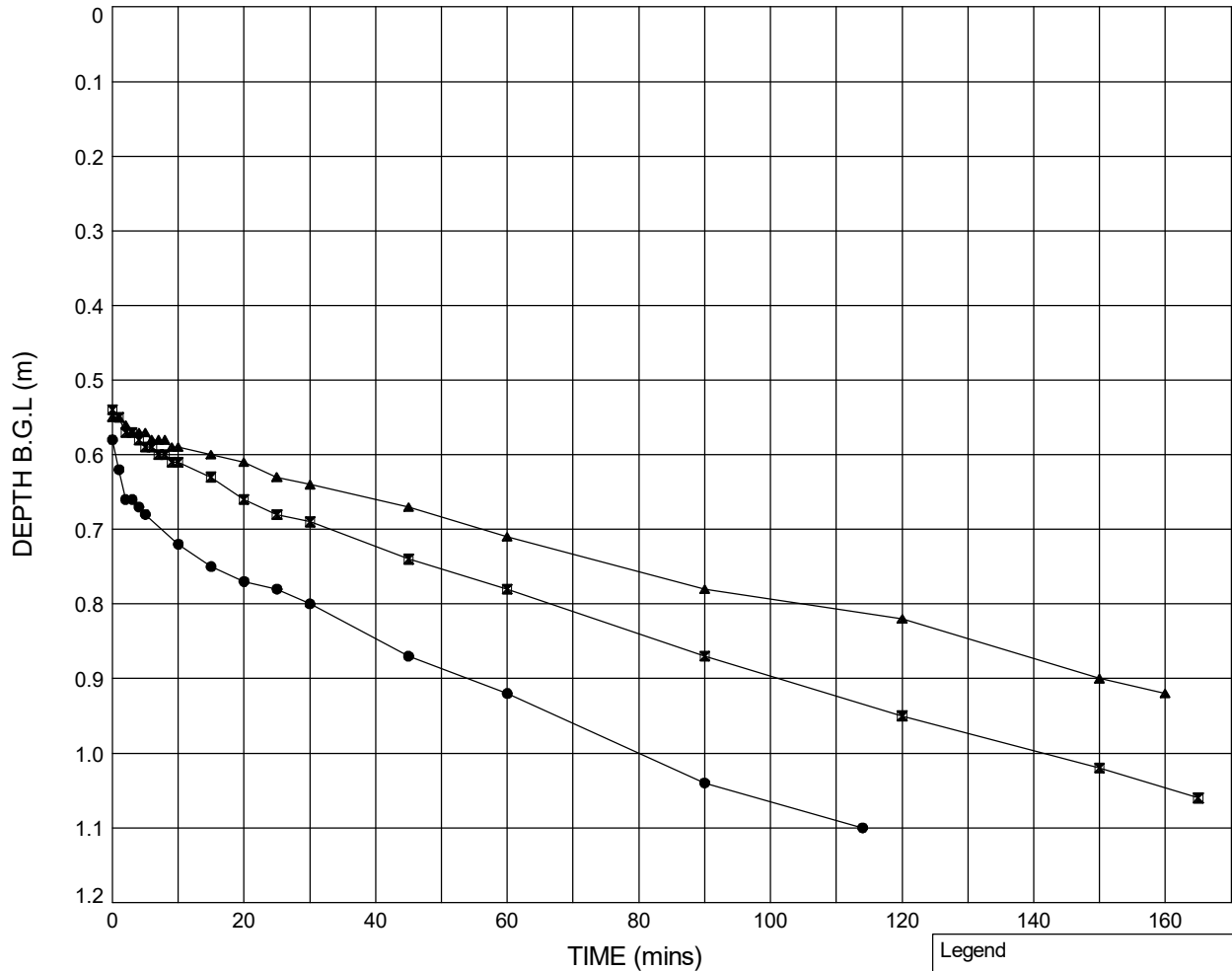
In accordance with BRE Digest 365

Soakaway Test - Position ID : TP017B

Ground Level (m AOD): **14.03**

National Grid Co-ordinates: **E:641284.5 N:260873.4**

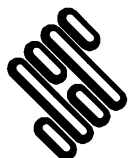
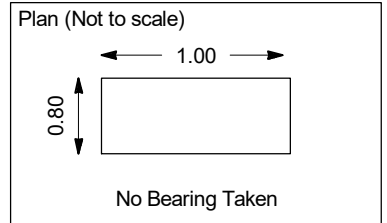
## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



	Test 1	Test 2	Test 3	
Pit start depth:	= 1.20	1.20	1.20	m
Pit final depth:	= 1.20	1.20	1.20	m
Effective depth, $D_e$	= 0.62	0.66	0.65	m
Effective storage volume, $V_{p75-25}$	= 0.2480	0.2640	0.2600	$m^3$
Surface area, $a_{p50}$	= 1.9160	1.9880	1.9700	$m^2$
Time, $t_{p75-25}$	= 4770	7267	9461	secs
Infiltration rate, $f$	= $2.71 \times 10^{-5}$	$1.83 \times 10^{-5}$	$1.39 \times 10^{-5}$	m/s

Please note test data was extrapolated to obtain  $t_{p75-tp25}$ .

Legend		
●	Test 1	(25.05.21)
■	Test 2	(25.05.21)
▲	Test 3	(25.05.21)



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M. Addinall	08/06/21		
Contract		Contract Ref:	
EA HUB Onshore SI		735329	

# FULL SCALE SOAKAWAY TEST

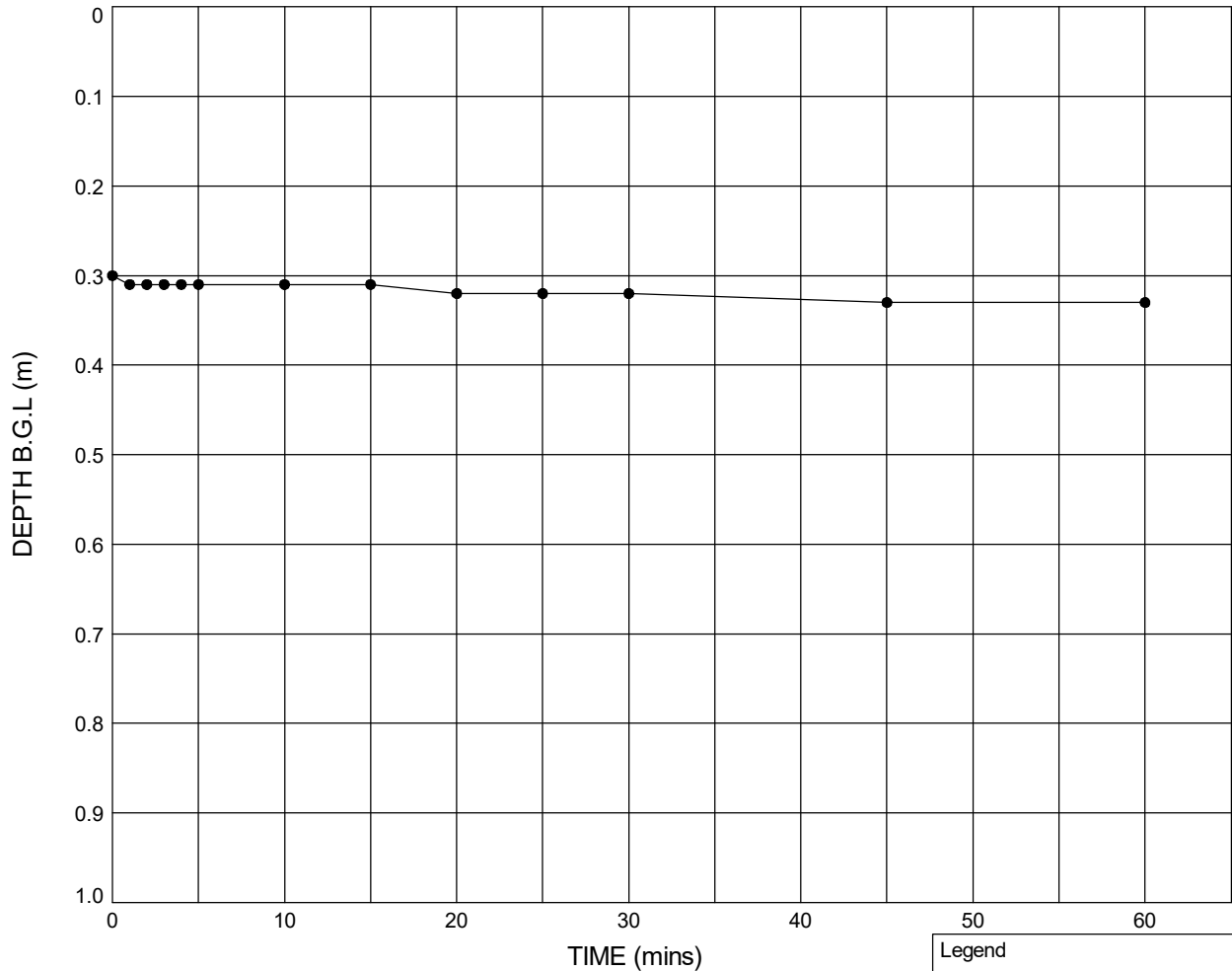
In accordance with BRE Digest 365

Soakaway Test - Position ID : **TP330B**

Ground Level (m AOD): **14.87**

National Grid Co-ordinates: **E:641168.8 N:261015.3**

## PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

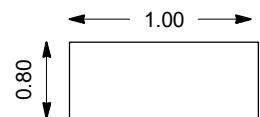
Pit start depth: = **1.00** m  
Pit final depth: = **1.00** m  
Effective depth,  $D_e$  = **0.70** m  
Effective storage volume,  $V_{p75-25}$  = **0.2800** m<sup>3</sup>  
Surface area,  $a_{p50}$  = **2.0600** m<sup>2</sup>  
Time,  $t_{p75-25}$  = **63000** secs  
Infiltration rate,  $f$  =  **$2.16 \times 10^{-6}$**  m/s

Please note test data was extrapolated to obtain tp75-tp25.

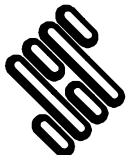
### Legend

● Test 1 (03.06.21)

### Plan (Not to scale)



No Bearing Taken



**STRUCTURAL SOILS**  
The Old School  
Stillhouse Lane  
Bedminster  
Bristol BS3 4EB

Compiled By

Date

Checked By

Date

*M. Addinall*

08/06/21

Contract

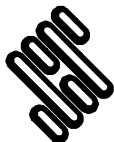
**EA HUB Onshore SI**

Contract Ref:

**735329**



## Appendix 2: Trial Pit Log Records of May 2021 Infiltration Tests



TRIAL PIT LOG

Contract: EA HUB Onshore SI			Client: EA Hub Projects		Trial Pit: TP012B	
Contract Ref: 735329		Start: 24.05.21	Ground Level (m AOD): 14.85	National Grid Co-ordinate: E:641050.1 N:261177.0		Sheet: 1 of 1
		End: 24.05.21				



Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Brown slightly silty fine to coarse SAND with occasional rootlets. (LOWESTOFT FORMATION)	14.40	0.45	
						Light brown mottled orangish brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to medium flint. (LOWESTOFT FORMATION)	13.85	1.00	
						Trial pit terminated at 1.00m depth.			

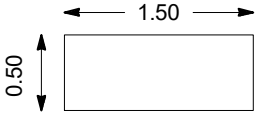
Plan (Not to Scale)			General Remarks				
			<div>1. Location scanned with GPR prior commencement.</div> <div>2. Location scanned with CAT and Genny prior to commencement.</div> <div>3. Trial pit easy to dig.</div> <div>4. No visual or olfactory evidence of contamination.</div> <div>5. Trial pit stable.</div> <div>6. No groundwater encountered.</div> <div>7. Soakaway testing undertaken in trial pit.</div> <div>8. Trial pit backfilled and reinstated on completion.</div>				
			All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: MEbling	Checked By:				

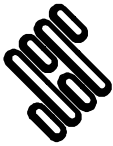
GINT LIBRARY\_V10\_01.GLB LibVersion: v8\_07 | Log TRIAL PIT LOG - A4P | 735329-EA-HUB-ONSHORE.GPJ - v10\_01.  
Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk | 09/06/21 - 11:25 | MA1 |

## TRIAL PIT LOG

Contract:		Client:		Trial Pit:	
<b>EA HUB Onshore SI</b>		<b>EA Hub Projects</b>		<b>TP013B</b>	
Contract Ref:	Start: <b>13.05.21</b>	Ground Level (m AOD):	National Grid Co-ordinate:	Sheet:	
<b>735329</b>	End: <b>13.05.21</b>	<b>15.73</b>	<b>E:641148.8 N:261171.6</b>	<b>1 of 3</b>	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Dark brown slightly gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint. (TOPSOIL)	15.43	0.30	
						Orange silty fine to medium SAND. (LOWESTOFT FORMATION)		(0.70)	
							14.73	1.00	
						Trial pit completed at 1.00m depth.			

<div>Plan (Not to Scale)</div> 		<div>General Remarks</div>	
		<ol style="list-style-type: none"> <li>1. Location scanned with GPR prior to commencement.</li> <li>2. Location scanned with CAT and Genny prior to commencement.</li> <li>3. Trial pit easy to dig.</li> <li>4. No visual or olfactory evidence of contamination.</li> <li>5. Trial pit stable.</li> <li>6. No groundwater encountered.</li> <li>7. Soakaway test undertaken in trial pit.</li> <li>8. Trial pit backfilled and reinstated on completion.</li> </ol>	
		<div>All dimensions in metres</div>	<div>Scale: 1:25</div>
<div>Method Used:</div> <div>Machine dug</div>	<div>Plant Used:</div> <div>13 Ton Tracked Excavator</div>	<div>Logged By:</div> <div>TClemente</div>	<div>Checked By:</div> <div></div>



TRIAL PIT LOG

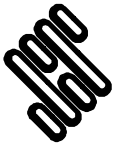
Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP013B</b>
Contract Ref: <b>735329</b>	Start: <b>13.05.21</b> End: <b>13.05.21</b>	Ground Level (m AOD): <b>15.73</b>	National Grid Co-ordinate: <b>E:641148.8 N:261171.6</b>	Sheet: <b>2 of 3</b>

TP013B - Pit



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Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk | 09/06/21 - 11:25 | MA1 |

Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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TRIAL PIT LOG

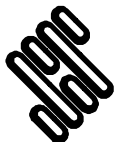
Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP013B</b>
Contract Ref: <b>735329</b>	Start: <b>13.05.21</b> End: <b>13.05.21</b>	Ground Level (m AOD): <b>15.73</b>	National Grid Co-ordinate: <b>E:641148.8 N:261171.6</b>	Sheet: <b>3 of 3</b>

TP013B - Spoil - Photo 1



TP013B - Spoil - Photo 2

Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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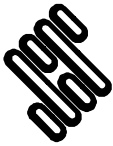
TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>			Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP014C</b>
Contract Ref: <b>735329</b>	Start: <b>24.05.21</b> End: <b>24.05.21</b>	Ground Level (m AOD): <b>15.64</b>	National Grid Co-ordinate: <b>E:641119.1 N:261115.7</b>		Sheet: <b>1 of 6</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Dark brown slightly gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint. (TOPSOIL)	15.24	(0.40)	
						Orange slightly silty gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint. (LOWESTOFT FORMATION)	14.64	(0.60)	
						Trial pit terminated at 1.00m depth.		1.00	

Plan (Not to Scale)		General Remarks			
		<div>1. Location scanned with GPR prior commencement.</div> <div>2. Location scanned with CAT and Genny prior to commencement.</div> <div>3. Trial pit easy to dig.</div> <div>4. No visual or olfactory evidence of contamination.</div> <div>5. Trial pit stable.</div> <div>6. No groundwater encountered.</div> <div>7. Soakaway testing undertaken in trial pit.</div> <div>8. Trial pit backfilled and reinstated on completion.</div>			
		All dimensions in metres		Scale:	<b>1:25</b>
Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:		

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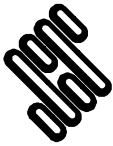
TRIAL PIT LOG

Contract: EA HUB Onshore SI		Client: EA Hub Projects		Trial Pit: TP014C
Contract Ref: 735329	Start: 24.05.21 End: 24.05.21	Ground Level (m AOD): 15.64	National Grid Co-ordinate: E:641119.1 N:261115.7	Sheet: 2 of 6

TP014C - Pit - Photo 1



Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: TClemente	Checked By:	
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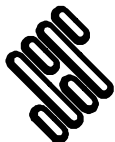
TRIAL PIT LOG

Contract: EA HUB Onshore SI		Client: EA Hub Projects		Trial Pit: TP014C
Contract Ref: 735329	Start: 24.05.21 End: 24.05.21	Ground Level (m AOD): 15.64	National Grid Co-ordinate: E:641119.1 N:261115.7	Sheet: 3 of 6

TP014C - Pit - Photo 2



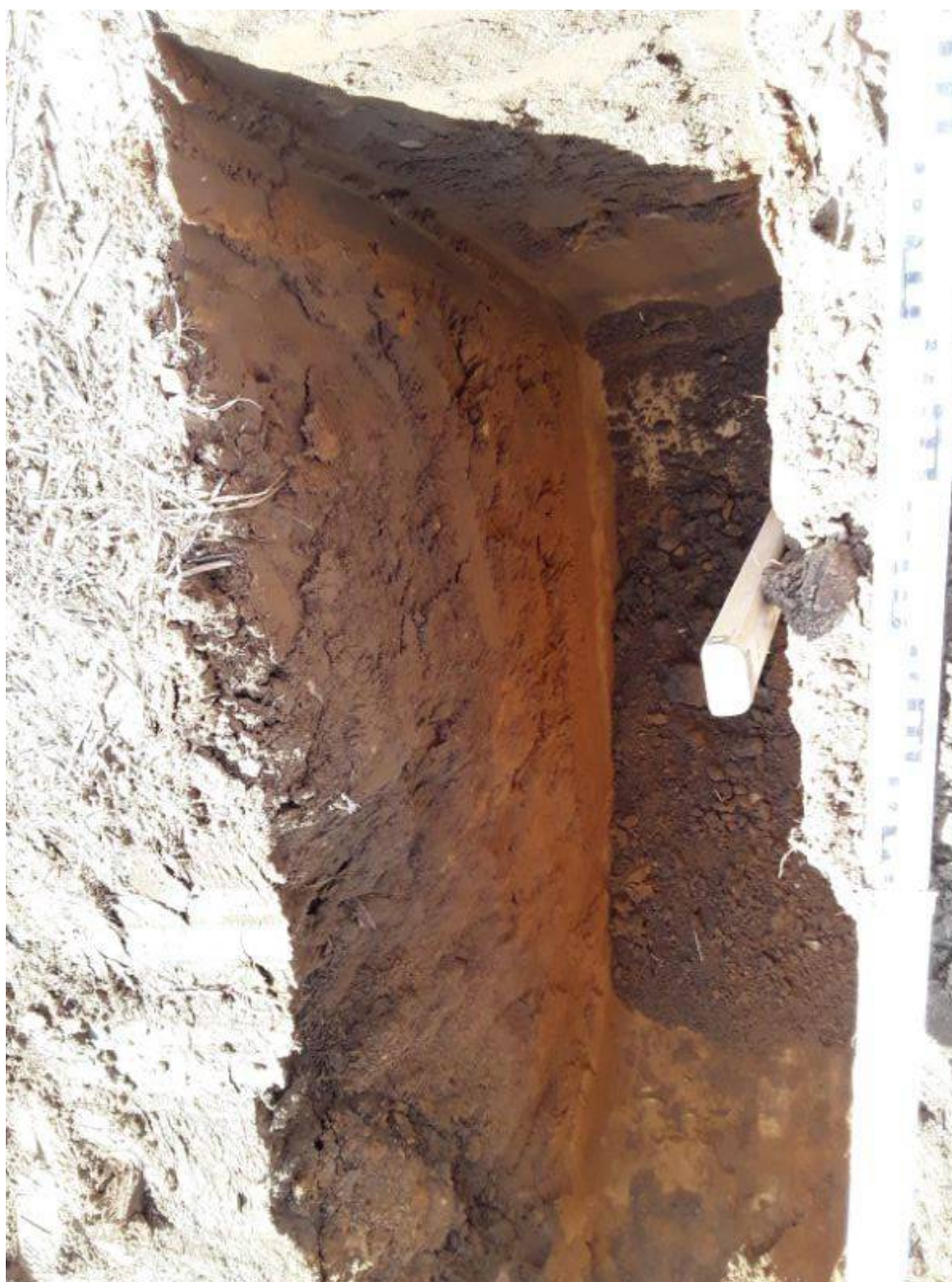
Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: TClemente	Checked By:	
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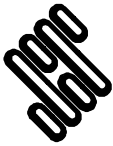
## TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP014C</b>
Contract Ref: <b>735329</b>	Start: <b>24.05.21</b> End: <b>24.05.21</b>	Ground Level (m AOD): <b>15.64</b>	National Grid Co-ordinate: <b>E:641119.1 N:261115.7</b>	Sheet: <b>4 of 6</b>

TP014C - Face - Photo 1



Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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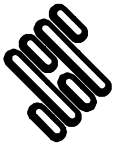
TRIAL PIT LOG

Contract: EA HUB Onshore SI		Client: EA Hub Projects		Trial Pit: TP014C
Contract Ref: 735329	Start: 24.05.21 End: 24.05.21	Ground Level (m AOD): 15.64	National Grid Co-ordinate: E:641119.1 N:261115.7	Sheet: 5 of 6

TP014C - Face - Photo 2



Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: TClemente	Checked By:	
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TRIAL PIT LOG

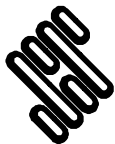
Contract: EA HUB Onshore SI		Client: EA Hub Projects		Trial Pit: TP014C
Contract Ref: 735329	Start: 24.05.21 End: 24.05.21	Ground Level (m AOD): 15.64	National Grid Co-ordinate: E:641119.1 N:261115.7	Sheet: 6 of 6

TP014C - Spoil - Photo 1



TP014C - Spoil - Photo 2

Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: TClemente	Checked By:	
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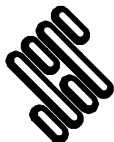
TRIAL PIT LOG

Contract: EA HUB Onshore SI			Client: EA Hub Projects			Trial Pit: TP015B	
Contract Ref: 735329		Start: 26.05.21	Ground Level (m AOD): 13.93	National Grid Co-ordinate: E:641189.4 N:260886.0		Sheet: 1 of 1	
		End: 26.05.21					

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Brown slightly silty fine to coarse SAND with occasional rootlets.	13.63	(0.30)	
						Brown slightly gravelly slightly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse flint.	13.33	(0.30)	
						Brown slightly silty fine to coarse SAND.	13.13	(0.80)	
						Light brown mottled orange brown fine to coarse SAND.	12.73	(1.20)	
						Trial pit completed at 1.20m depth.			

Plan (Not to Scale)			General Remarks				
			<div>1. Location scanned with GPR prior to commencement.</div> <div>2. Location Scanned with CAT and Genny prior to commencement.</div> <div>3. Trial pit easy to dig.</div> <div>4. No visual or olfactory evidence of contamination.</div> <div>5. Trial pit stable.</div> <div>6. No ground water encountered.</div> <div>7. Soakaway test undertakn in trial pit.</div> <div>8. Trial pit backfilled and reinstated on completion.</div>				
			All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: MEbling	Checked By:				

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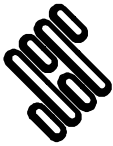
TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>			Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP016b</b>
Contract Ref: <b>735329</b>	Start: <b>25.05.21</b> End: <b>25.05.21</b>	Ground Level (m AOD): <b>15.30</b>	National Grid Co-ordinate: <b>E:641278.1 N:260936.7</b>		Sheet: <b>1 of 5</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Dark brown slightly gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse flint. (TOPSOIL)	14.90	0.40	
						Orange slightly gravelly fine SAND. Gravel is subangular to rounded fine to coarse flint. (LOWESTOFT FORMATION)	14.30	1.00	
						Trial pit terminated at 1.00m depth.			

Plan (Not to Scale)		General Remarks			
		<ul style="list-style-type: none"><li>1. Location scanned with GPR prior to commencement.</li><li>2. Location scanned with CAT and Genny prior to commencement.</li><li>3. Trial pit easy to dig.</li><li>4. No visual or olfactory evidence of contamination.</li><li>5. Trial pit stable.</li><li>6. No groundwater encountered.</li><li>7. Soakaway test undertaken in trial pit.</li><li>8. Trial pit backfilled and reinstated on completion.</li></ul>			
		All dimensions in metres		Scale:	<b>1:25</b>
Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:		

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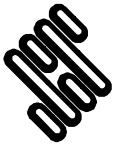
TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP016b</b>
Contract Ref: <b>735329</b>	Start: <b>25.05.21</b> End: <b>25.05.21</b>	Ground Level (m AOD): <b>15.30</b>	National Grid Co-ordinate: <b>E:641278.1 N:260936.7</b>	Sheet: <b>2 of 5</b>

TP016B - Pit - Photo 1



Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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TRIAL PIT LOG

Contract: EA HUB Onshore SI		Client: EA Hub Projects		Trial Pit: TP016b
Contract Ref: 735329	Start: 25.05.21 End: 25.05.21	Ground Level (m AOD): 15.30	National Grid Co-ordinate: E:641278.1 N:260936.7	Sheet: 3 of 5

TP016B - Pit - Photo 2



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Method Used: Machine dug	Plant Used: 13 Ton Tracked Excavator	Logged By: TClemente	Checked By:	AGS
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TRIAL PIT LOG

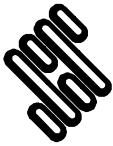
Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP016b</b>
Contract Ref: <b>735329</b>	Start: <b>25.05.21</b> End: <b>25.05.21</b>	Ground Level (m AOD): <b>15.30</b>	National Grid Co-ordinate: <b>E:641278.1 N:260936.7</b>	Sheet: <b>4 of 5</b>

TP016B - Face - Photo 1



TP016B - Face - Photo 2

Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>		Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP016b</b>
Contract Ref: <b>735329</b>	Start: <b>25.05.21</b> End: <b>25.05.21</b>	Ground Level (m AOD): <b>15.30</b>	National Grid Co-ordinate: <b>E:641278.1 N:260936.7</b>	Sheet: <b>5 of 5</b>

TP016B - Spoil - Photo 1



TP016B - Spoil - Photo 2

Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>TClemente</b>	Checked By:	
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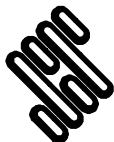
TRIAL PIT LOG

Contract: EA HUB Onshore SI			Client: EA Hub Projects		Trial Pit: TP017B	
Contract Ref: 735329		Start: 25.05.21	Ground Level (m AOD): 14.03	National Grid Co-ordinate: E:641284.5 N:260873.4	Sheet: 1 of 1	
		End: 25.05.21				

Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Brown slightly silty fine to coarse SAND.	13.63	(0.40)	
						Brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse flint.	13.23	(0.80)	
						Light brown mottled orange brown fine to coarse SAND.	12.83	(1.20)	
						Trial pit completed at 1.20m depth.			

Plan (Not to Scale)			General Remarks			
			<div>1. Location scanned with GPR prior to commencement.</div> <div>2. Location Scanned with CAT and Genny prior to commencement.</div> <div>3. Trial pit easy to dig.</div> <div>4. No visual or olfactory evidence of contamination.</div> <div>5. Trial pit stable.</div> <div>6. No ground water encountered.</div> <div>7. Soakaway test undertaken in trial pit.</div> <div>8. Trial pit backfilled and reinstated on completion.</div>			
			All dimensions in metres		Scale: 1:25	
Method Used: Machine dug		Plant Used: 13 Ton Tracked Excavator	Logged By: MEbling		Checked By:	

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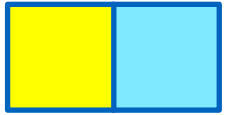
TRIAL PIT LOG

Contract: <b>EA HUB Onshore SI</b>			Client: <b>EA Hub Projects</b>		Trial Pit: <b>TP330B</b>
Contract Ref: <b>735329</b>	Start: <b>03.06.21</b> End: <b>03.06.21</b>	Ground Level (m AOD): <b>14.87</b>	National Grid Co-ordinate: <b>E:641168.8 N:261015.3</b>		Sheet: <b>1 of 1</b>

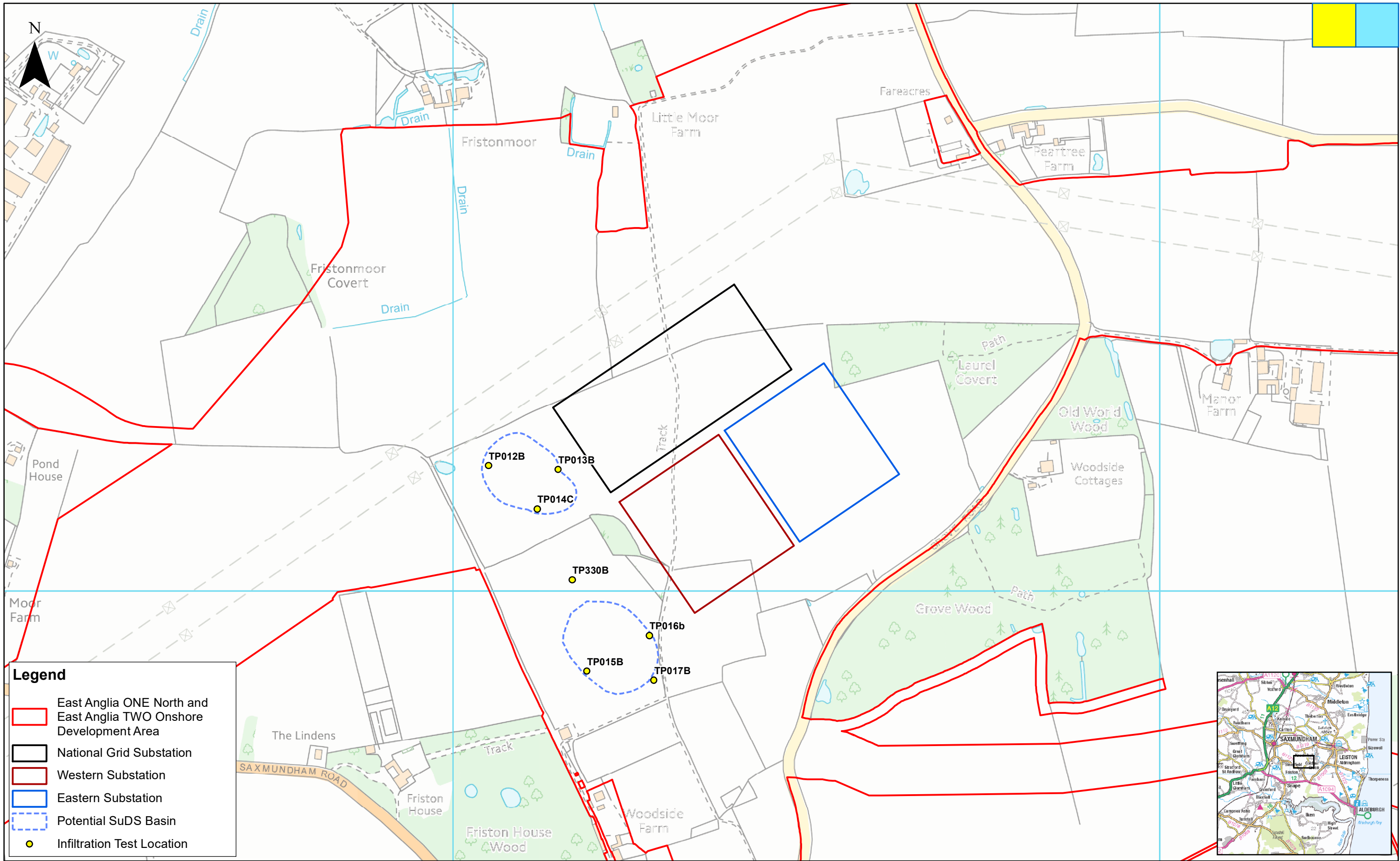
Samples and In-situ Tests				Water	Backfill	Description of Strata	Reduced Level	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results						
						Dark brown silty fine to coarse SAND.	14.47	(0.40) 0.40	
						Orangish brown clayey fine to coarse SAND.	14.07	(0.40) 0.80	
						Orangish brown very clayey fine to coarse SAND.	13.87	1.00	
						Trial pit completed at 1.0m depth. Soakaway testing undertaken.			

Plan (Not to Scale) 	General Remarks 1. Location scanned with GPR prior to commencement. 2. Location scanned with CAT and Genny prior to commencement. 3. Trial pit easy to dig. 4. No visual or olfactory evidence of contamination. 5. Trial pit stable. 6. No ground water encountered. 7. Soakaway test completed in trial pit. 8. Trial pit backfilled and reinstated on completion.			
All dimensions in metres		Scale: <b>1:25</b>		
Method Used: <b>Machine dug</b>	Plant Used: <b>13 Ton Tracked Excavator</b>	Logged By: <b>MEbling</b>	Checked By:	

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## Appendix 3: May 2021 Infiltration Tests Location Plan



Rev	Date	By	Comment
1	11/06/2021	FC	First Issue.

Prepared:	FC
Checked:	BD
Approved:	FM

1:5,000  
Scale @ A3

0 100 200 Metres

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**East Anglia ONE North and East Anglia TWO**  
**Infiltration Testing - May 2021 Infiltration Test Locations**

Drg No	EA1N-EA2-DEV-DRG-IBR-001318		
Rev	1	Coordinate System: BNG Datum: OSG36	
Date	11/06/21		
Figure	1		