

Our Ref: YEX1978

22<sup>nd</sup> March 2021

For the attention of Hawes Construction Group,

**Ref: Land at Fort Road East, Wick, Littlehampton, West Sussex, BN17 7QZ**

We thank you for your request to undertake permeability testing at the above mentioned site and take pleasure in enclosing the results of this work. The investigation was undertaken on the 18<sup>th</sup> March 2021 in accordance with your instruction to proceed. This letter describes the work undertaken, presents the data obtained and discusses the results of the tests.

### Geology

An examination of the available British Geological Survey data of the area for the site has been examined and indicates that the site has superficial drift deposits composed of Raised Marine Deposits (clay, silt, sand and gravel), and bedrock deposits recorded as the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (chalk).

### Fieldworks

The programme of this investigation included the excavation of one trial pit. The location of the soakaway test was selected by YourEnvironment in an accessible area.

During this work, the soils encountered were logged in general accordance with BS 5930: 1990, as amended in 2007, and full descriptions are given on the borehole records, which are also appended to this letter.

### Soakaway Tests

During the soakaway tests the water achieved a fall from 75% to 25% of the effective depth of the storage volume. The results obtained from the soakaway tests are summarised below:

**Table 1: Soakaway Test Results**

| WS         | Soakage Area Dimensions (m) | Depth (m) | Soil Description (Base of TP)                          | Infiltration Rate (m/sec) | Drainage Characteristics |
|------------|-----------------------------|-----------|--------------------------------------------------------|---------------------------|--------------------------|
| TP01 test1 | 1.40 x 0.30                 | 1.70      | Orange and mottled yellow SAND. Sand is fine - medium. | 4.0E-5                    | Good                     |
| TP01 test2 | 1.40 x 0.30                 | 1.70      | Orange and mottled yellow SAND. Sand is fine - medium. | 3.6E-5                    | Good                     |
| TP01 test3 | 1.40 x 0.30                 | 1.70      | Orange and mottled yellow SAND. Sand is fine - medium. | 3.1E-5                    | Good                     |

## Discussion

The soils encountered beneath the site were recorded as predominantly SAND. The soakage rates obtained during the investigation were found to be good and permeable. Given the data from the test, it is considered that the use of soakaways is suitable for this site.

## References

Building Research Establishment (BRE) Digest 365, *Soakaway Design*, September 1991.

British Standards Institution (1999) BS5930: *Code of practice for site investigations*, B.S.I., London.

British Standards Institution (2007), Amendment No 1, BS5930: *Code of practice for site investigations*, B.S.I., London.

We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For and on behalf of

YourEnvironment

Yours Faithfully,



Nick Hammond

Geo-Environmental Engineer

Enc.

Appendix A: Site Investigation Plan

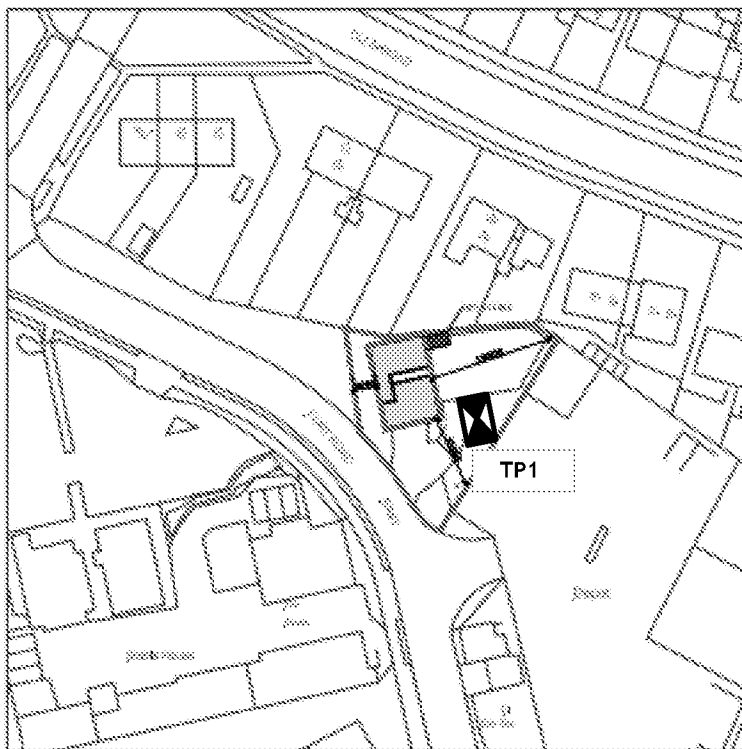
Appendix B: Trial Pit Logs

Appendix C: Soakaway Test Results

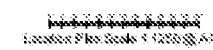
Appendix D: Photographs

## APPENDIX A: Site Investigation Plan





Lesson Plan, Seals 11260



### Ground Investigation Location Plan - Not to Scale

|                                                                                                                                                                                               |                                             |                                            |                        |                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------|---------------------------|
| <b>YourEnvironment</b><br>Chilgrove Business Centre, Chilgrove, Nr Chichester, PO18 9HU<br>Tel: 01243 787150<br>Email: <a href="mailto:info@yourenvironment.org">info@yourenvironment.org</a> | <b>Site Name:</b><br>Land at Fort Road East | <b>Client:</b><br>Hawes Construction Group | <b>Date:</b><br>Mar-21 | <b>Job No:</b><br>YEX1978 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------|---------------------------|

## APPENDIX B: Trial Pit Logs



Location Land at Fort Road East, Wick, Littlehampton, BN17 7QZ

Date March 18, 2021

Project Reference YEX1978

Water level data

Completion: Depth NA m  
Elevation NA m

Width 0.3 m

Length 1.4 m

Depth 1.7 m

24 hour: Depth m  
Elevation m

Method (Trial pit, window etc) Trial Pit - Machine Excavation

| Stratum   |      | Sample Depth |    | Sample Type | GW | Install Details | LITHOLOGY                                                                                                                                               |
|-----------|------|--------------|----|-------------|----|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| depth (m) |      | From         | To |             |    |                 |                                                                                                                                                         |
| From      | To   | m            | m  |             |    |                 |                                                                                                                                                         |
| 0.00      | 0.20 |              |    |             |    |                 | MADE GROUND. Brown clayey, sandy GRAVEL. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concrete fragments and mixed lithology. |
| 0.20      | 0.25 |              |    |             |    |                 | MADE GROUND. Black Asphalt.                                                                                                                             |
| 0.25      | 0.35 |              |    |             |    |                 | MADE GROUND. Brown clayey, sandy GRAVEL. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concrete fragments and mixed lithology. |
| 0.35      | 0.60 |              |    |             |    |                 | MADE GROUND. Orange and mottled brown SAND. Sand is fine - medium.                                                                                      |
| 0.6       | 1.70 |              |    |             |    |                 | Orange and mottled yellow SAND. Sand is fine - medium.                                                                                                  |
|           |      |              |    |             |    |                 | End of TP1                                                                                                                                              |

Remarks:

## APPENDIX B: Soakaway Test Results



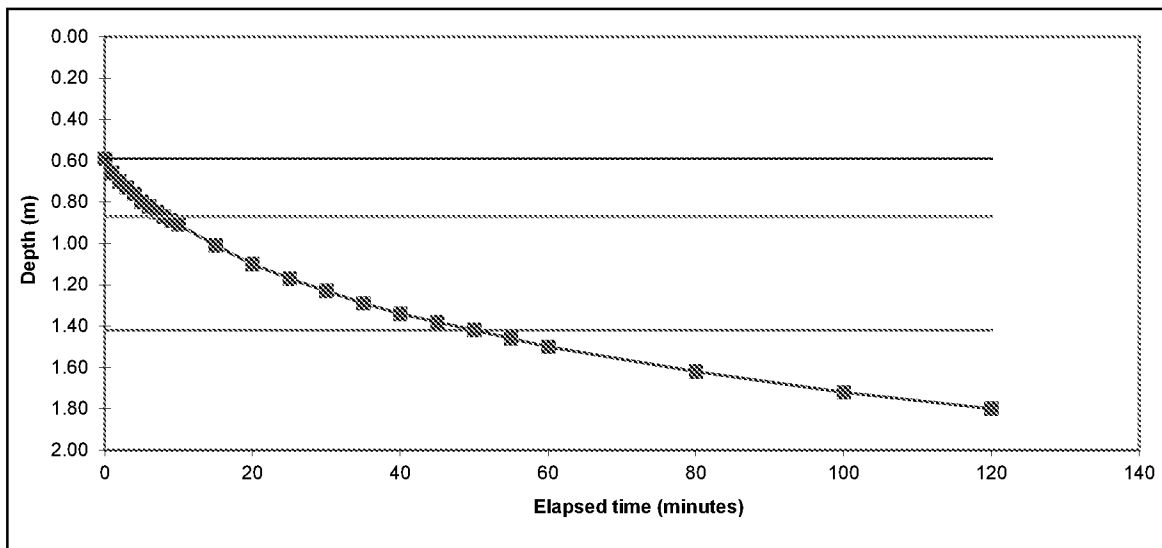
# Your Environment

## Soakaway Test

|               |       |                     |      |           |            |
|---------------|-------|---------------------|------|-----------|------------|
| Trial Pit No: | TP1   | Test No:            | 1    | Date:     | 18/03/2021 |
| Length (m):   | 1.400 | Datum Height:       |      |           | 0.00 m agl |
| Width (m):    | 0.30  | Granular infill:    | None |           |            |
| Depth (m):    | 1.70  | Porosity of infill: | 1    | (assumed) |            |

| Elapsed time (minutes) | Water Depth (m below datum) | Elapsed time (minutes) | Water Depth (m below datum) |
|------------------------|-----------------------------|------------------------|-----------------------------|
| 0                      | 0.590                       | 30                     | 1.230                       |
| 1                      | 0.660                       | 35                     | 1.290                       |
| 2                      | 0.700                       | 40                     | 1.340                       |
| 3                      | 0.730                       | 45                     | 1.380                       |
| 4                      | 0.760                       | 50                     | 1.420                       |
| 5                      | 0.800                       | 55                     | 1.460                       |
| 6                      | 0.820                       | 60                     | 1.500                       |
| 7                      | 0.850                       | 80                     | 1.620                       |
| 8                      | 0.870                       | 100                    | 1.720                       |
| 9                      | 0.890                       | 120                    | 1.800                       |
| 10                     | 0.910                       |                        |                             |
| 15                     | 1.010                       |                        |                             |
| 20                     | 1.100                       |                        |                             |
| 25                     | 1.170                       |                        |                             |



|                                                              |      |                      |       |
|--------------------------------------------------------------|------|----------------------|-------|
| Start water depth for analysis (mbgl):                       | 0.59 |                      |       |
| 75% effective depth (mbgl):                                  | 0.87 | Elapsed time (mins): | 8.0   |
| 50% effective depth (mbgl):                                  | 1.15 |                      |       |
| 25% effective depth (mbgl):                                  | 1.42 | Elapsed time (mins): | 50.0  |
| Base of soakage zone (mbgl):                                 | 1.70 |                      |       |
| Volume outflow between 75% and 25% effective depth (m³):     |      |                      | 0.231 |
| Mean surface area of outflow (m²):                           |      |                      | 2.29  |
| (side area at 50% effective depth + base area)               |      |                      |       |
| Time for outflow between 75% and 25% effective depth (mins): |      |                      | 42.0  |

|                                      |                                             |
|--------------------------------------|---------------------------------------------|
| <b>Soil infiltration rate (m/s):</b> | <b>4.0E-5</b>                               |
| <b>Remarks</b>                       | Results processed following BRE 365 (2007). |

|                |                          |            |
|----------------|--------------------------|------------|
| <b>Client:</b> | Hawes Construction Group | <b>TP1</b> |
| <b>Site:</b>   | Land at Fort Road East   |            |

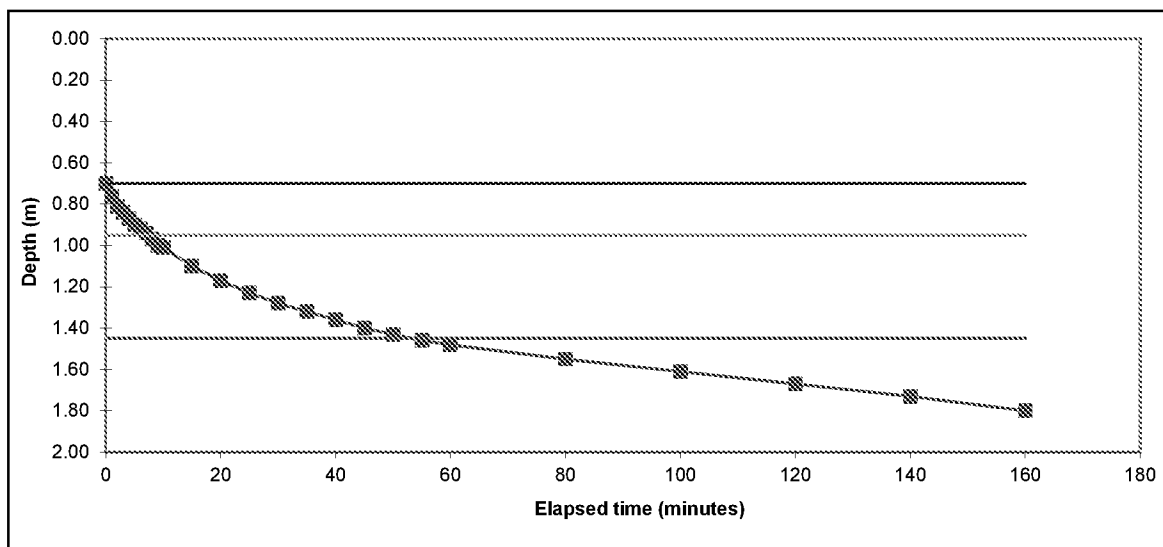
# Your Environment

## Soakaway Test

|               |       |                     |      |           |            |
|---------------|-------|---------------------|------|-----------|------------|
| Trial Pit No: | TP1   | Test No:            | 2    | Date:     | 18/03/2021 |
| Length (m):   | 1.400 | Datum Height:       |      |           | 0.00 m agl |
| Width (m):    | 0.30  | Granular infill:    | None |           |            |
| Depth (m):    | 1.70  | Porosity of infill: | 1    | (assumed) |            |

| Elapsed time (minutes) | Water Depth (m below datum) | Elapsed time (minutes) | Water Depth (m below datum) |
|------------------------|-----------------------------|------------------------|-----------------------------|
| 0                      | 0.700                       | 30                     | 1.280                       |
| 1                      | 0.760                       | 35                     | 1.320                       |
| 2                      | 0.810                       | 40                     | 1.360                       |
| 3                      | 0.840                       | 45                     | 1.400                       |
| 4                      | 0.870                       | 50                     | 1.430                       |
| 5                      | 0.900                       | 55                     | 1.460                       |
| 6                      | 0.920                       | 60                     | 1.480                       |
| 7                      | 0.940                       | 80                     | 1.550                       |
| 8                      | 0.970                       | 100                    | 1.610                       |
| 9                      | 1.000                       | 120                    | 1.670                       |
| 10                     | 1.010                       | 140                    | 1.730                       |
| 15                     | 1.100                       | 160                    | 1.800                       |
| 20                     | 1.170                       |                        |                             |
| 25                     | 1.230                       |                        |                             |



|                                                                       |      |                      |       |
|-----------------------------------------------------------------------|------|----------------------|-------|
| Start water depth for analysis (mbgl)                                 | 0.70 |                      |       |
| 75% effective depth (mbgl):                                           | 0.95 | Elapsed time (mins): | 7.3   |
| 50% effective depth (mbgl):                                           | 1.20 |                      |       |
| 25% effective depth (mbgl):                                           | 1.45 | Elapsed time (mins): | 53.3  |
| Base of soakage zone (mbgl):                                          | 1.70 |                      |       |
| Volume outflow between 75% and 25% effective depth (m <sup>3</sup> ): |      |                      | 0.210 |
| Mean surface area of outflow (m <sup>2</sup> ):                       |      |                      | 2.12  |
| (side area at 50% effective depth + base area)                        |      |                      |       |
| Time for outflow between 75% and 25% effective depth (mins):          |      |                      | 46.0  |

|                                                            |               |
|------------------------------------------------------------|---------------|
| <b>Soil infiltration rate (m/s):</b>                       | <b>3.6E-5</b> |
| <b>Remarks</b> Results processed following BRE 365 (2007). |               |

|                |                          |            |
|----------------|--------------------------|------------|
| <b>Client:</b> | Hawes Construction Group | <b>TP1</b> |
| <b>Site:</b>   | Land at Fort Road East   |            |

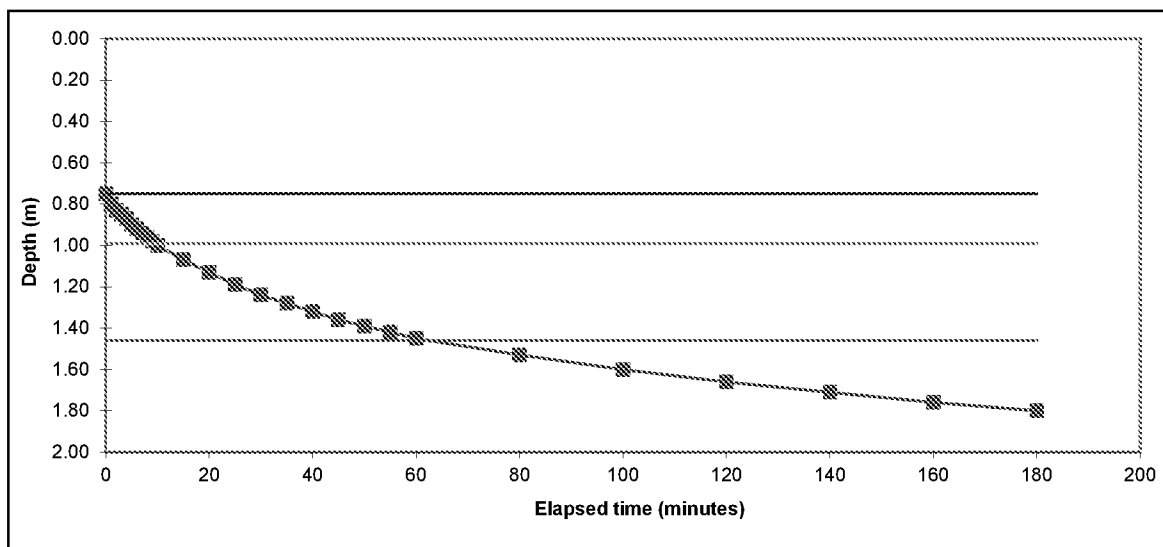
# Your Environment

## Soakaway Test

|               |       |                     |      |           |            |
|---------------|-------|---------------------|------|-----------|------------|
| Trial Pit No: | TP1   | Test No:            | 3    | Date:     | 18/03/2021 |
| Length (m):   | 1.400 | Datum Height:       |      |           | 0.00 m agl |
| Width (m):    | 0.30  | Granular infill:    | None |           |            |
| Depth (m):    | 1.70  | Porosity of infill: | 1    | (assumed) |            |

| Elapsed time (minutes) | Water Depth (m below datum) | Elapsed time (minutes) | Water Depth (m below datum) |
|------------------------|-----------------------------|------------------------|-----------------------------|
| 0                      | 0.750                       | 30                     | 1.240                       |
| 1                      | 0.800                       | 35                     | 1.280                       |
| 2                      | 0.830                       | 40                     | 1.320                       |
| 3                      | 0.850                       | 45                     | 1.360                       |
| 4                      | 0.870                       | 50                     | 1.390                       |
| 5                      | 0.900                       | 55                     | 1.420                       |
| 6                      | 0.920                       | 60                     | 1.450                       |
| 7                      | 0.940                       | 80                     | 1.530                       |
| 8                      | 0.960                       | 100                    | 1.600                       |
| 9                      | 0.980                       | 120                    | 1.660                       |
| 10                     | 1.000                       | 140                    | 1.710                       |
| 15                     | 1.070                       | 160                    | 1.760                       |
| 20                     | 1.130                       | 180                    | 1.800                       |
| 25                     | 1.190                       |                        |                             |



|                                                              |      |                      |       |
|--------------------------------------------------------------|------|----------------------|-------|
| Start water depth for analysis (mbgl)                        | 0.75 |                      |       |
| 75% effective depth (mbgl):                                  | 0.99 | Elapsed time (mins): | 9.5   |
| 50% effective depth (mbgl):                                  | 1.23 |                      |       |
| 25% effective depth (mbgl):                                  | 1.46 | Elapsed time (mins): | 62.5  |
| Base of soakage zone (mbgl):                                 | 1.70 |                      |       |
| Volume outflow between 75% and 25% effective depth (m³):     |      |                      | 0.197 |
| Mean surface area of outflow (m²):                           |      |                      | 2.02  |
| (side area at 50% effective depth + base area)               |      |                      |       |
| Time for outflow between 75% and 25% effective depth (mins): |      |                      | 53.0  |

|                                      |                                             |
|--------------------------------------|---------------------------------------------|
| <b>Soil infiltration rate (m/s):</b> | <b>3.1E-5</b>                               |
| <b>Remarks</b>                       | Results processed following BRE 365 (2007). |

|                |                          |            |
|----------------|--------------------------|------------|
| <b>Client:</b> | Hawes Construction Group | <b>TP1</b> |
| <b>Site:</b>   | Land at Fort Road East   |            |

## APPENDIX D: Photographs



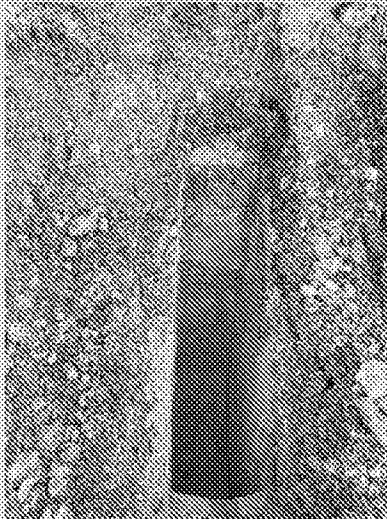
A.



B.



C.



D.



Your Environment

A. TP1

B. TP1

C. TP1

D. TP1

