

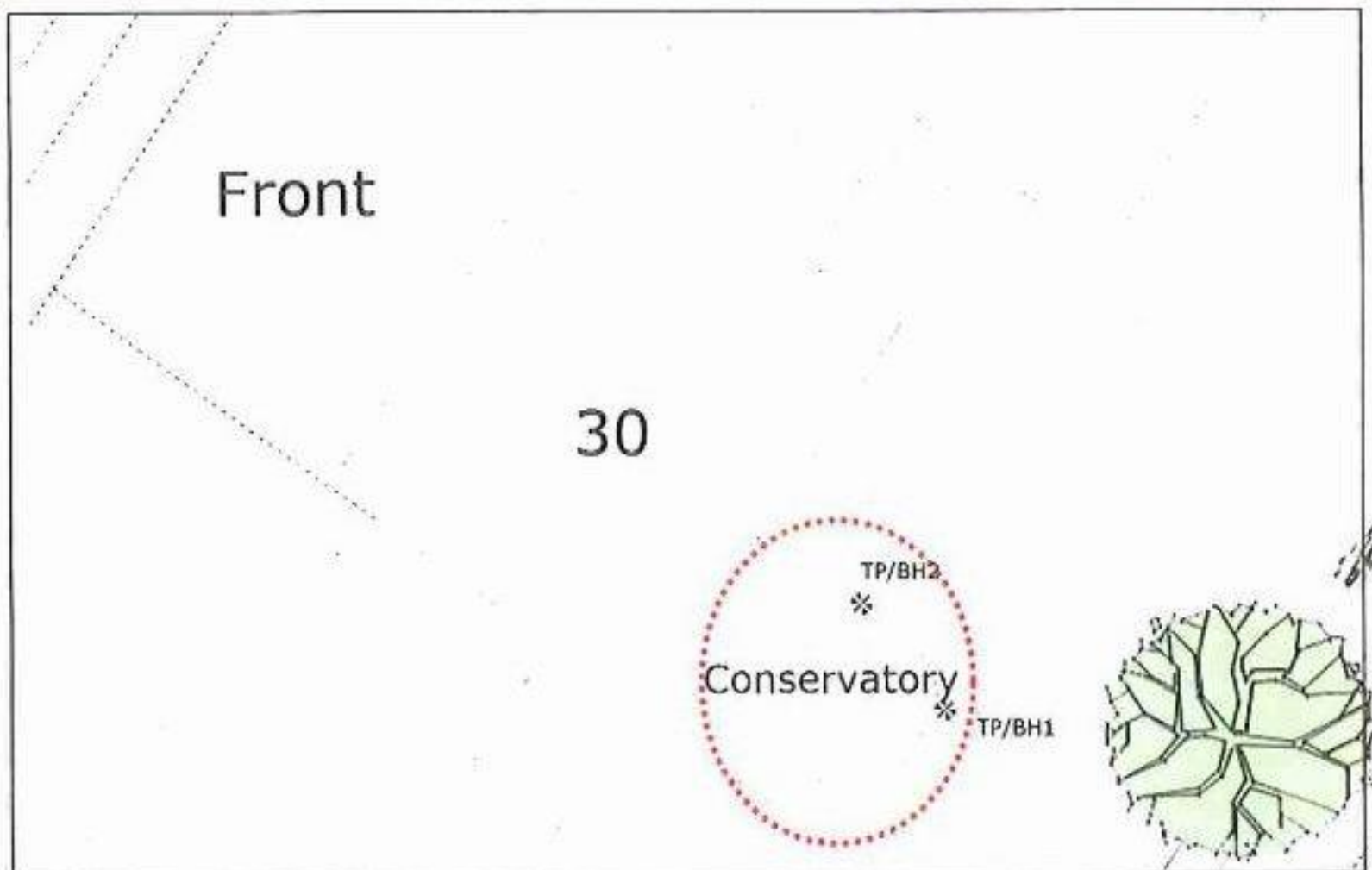
# GEOTECHNICAL

## for Subsidence Management Services

30 Oakmont Drive, Waterlooville, Hampshire, PO8 8TH

|                 |                                                |
|-----------------|------------------------------------------------|
| Client:         | Subsidence Management Services                 |
| Client Contact: | A Greaves                                      |
| Claim Number:   | IFS-ESU-SUB-16-0063691                         |
| Policy Holder:  | Tee                                            |
| Report Date:    | 15 <sup>th</sup> August 2017                   |
| Our Ref:        | Claim ID: 35568 - SI ID: 32711 - Geo ID: 16435 |

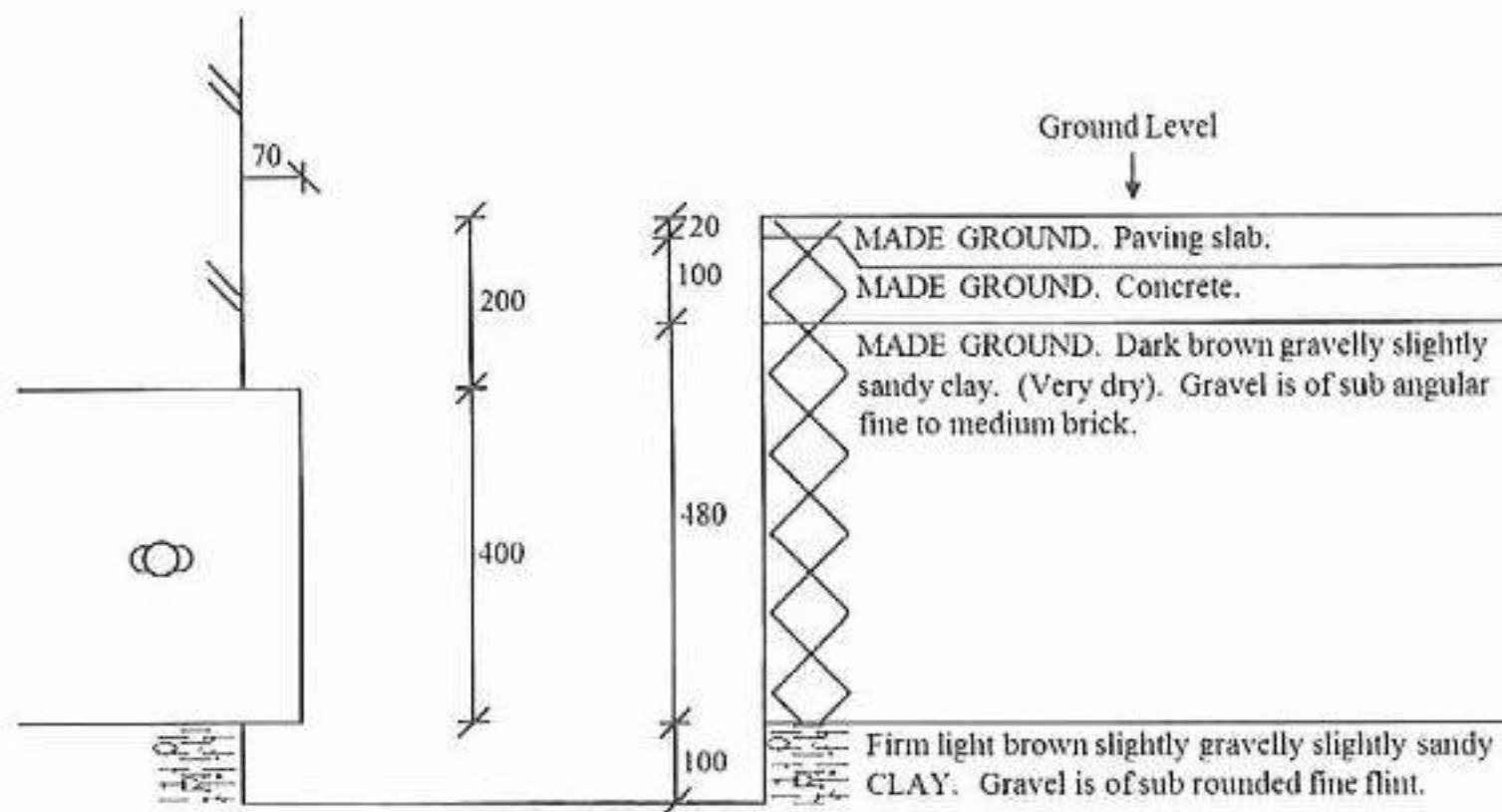
### Site Plan



SubsNetuk



## TP/BH1 Foundation Detail

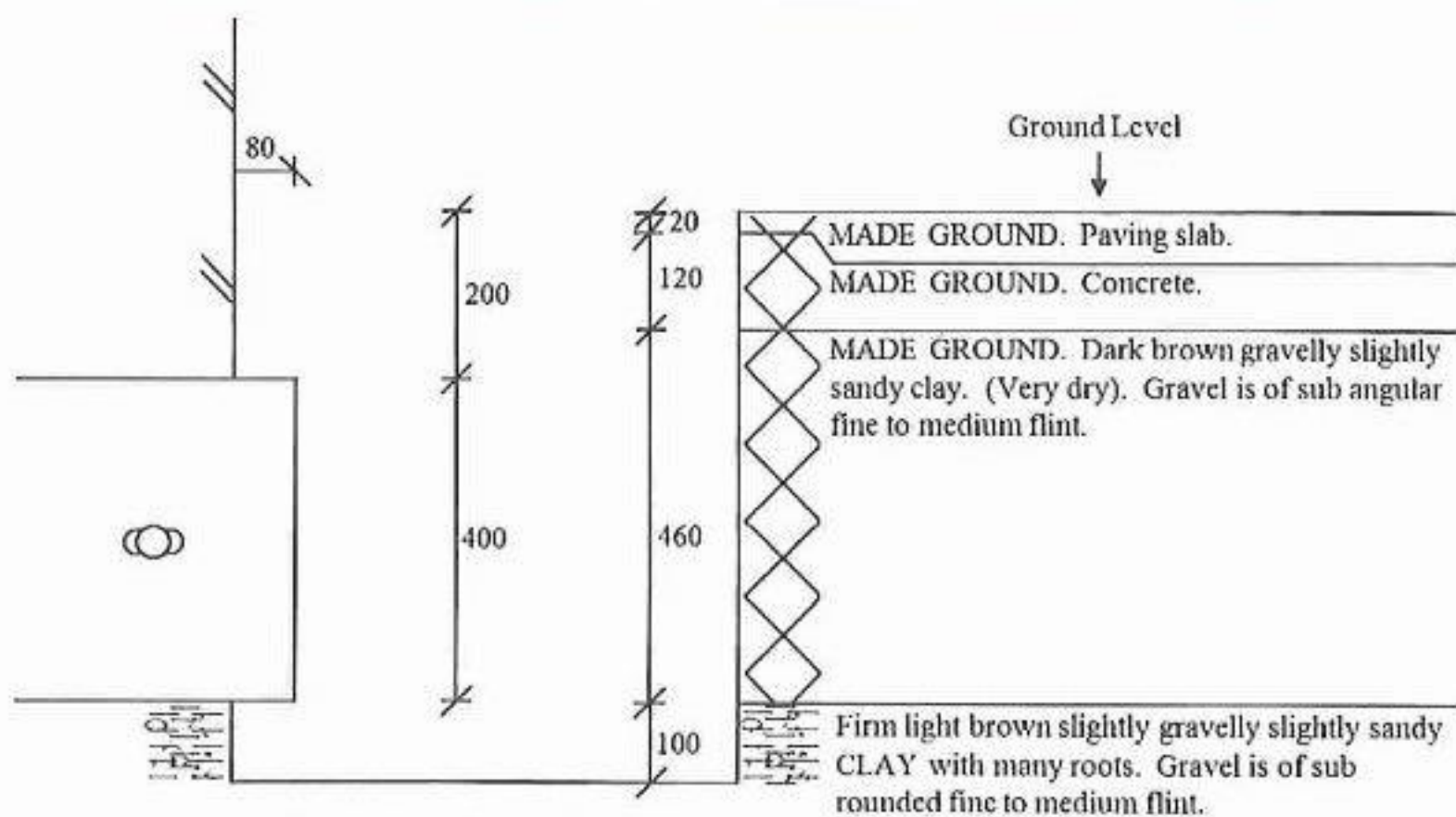


For strata information below 0.70m, please refer to borehole log TPBH1.

## TP/BH1 Borehole Log

| SAMPLES & TESTS                           |         |                               | Water        | STRATA         |           |                      |                                                                                                     | Instrument Backfill |      |                        |                                                                               |
|-------------------------------------------|---------|-------------------------------|--------------|----------------|-----------|----------------------|-----------------------------------------------------------------------------------------------------|---------------------|------|------------------------|-------------------------------------------------------------------------------|
| Depth                                     | Type No | Test Result                   |              | Reduced Level  | Legend    | Depth (Thickness)    | DESCRIPTION                                                                                         |                     |      |                        |                                                                               |
| 0.60-2.60                                 | RCOTS   |                               |              |                |           | 0.70                 | Trial pit                                                                                           |                     |      |                        |                                                                               |
| 0.70                                      | D1-HV   | 55kPa @ 0.7m                  |              |                |           | 0.70                 | Base of foundation 0.60m                                                                            |                     |      |                        |                                                                               |
| 0.70                                      | PP      | 2Kgf/cm <sup>2</sup> @ 0.7m   |              |                |           | 0.60                 | Firm light brown slightly gravelly slightly sandy CLAY. Gravel is of sub rounded fine flint         |                     |      |                        |                                                                               |
| 1.00                                      | B2-HV   | 70kPa @ 1.0m                  |              |                |           | 1.30                 | Still brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is of sub angular fine flint |                     |      |                        |                                                                               |
| 1.00                                      | PP      | 2.2Kgf/cm <sup>2</sup> @ 1.0m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 1.50                                      | B3-HV   | 75kPa @ 1.5m                  |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 1.50                                      | PP      | 2.6Kgf/cm <sup>2</sup> @ 1.5m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 2.00                                      | B4-HV   | 90kPa @ 2.0m                  |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 2.00                                      | PP      | 3Kgf/cm <sup>2</sup> @ 2.0m   |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 2.50                                      | B5-HV   | 90kPa @ 2.5m                  |              |                |           | 2.70                 |                                                                                                     |                     |      |                        |                                                                               |
| 2.50                                      | PP      | 2.8Kgf/cm <sup>2</sup> @ 2.5m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 3.00                                      | B6-HV   | 80kPa @ 3.0m                  |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 3.00                                      | PP      | 3.0Kgf/cm <sup>2</sup> @ 3.0m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 3.50                                      | B7-HV   | 100kPa @ 3.5m                 |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 3.50                                      | PP      | 3.2Kgf/cm <sup>2</sup> @ 3.5m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| 4.00                                      | B8-HV   | 100kPa @ 4.0m                 |              |                |           | 4.00                 |                                                                                                     |                     |      |                        |                                                                               |
| 4.00                                      | PP      | 3.6Kgf/cm <sup>2</sup> @ 4.0m |              |                |           |                      |                                                                                                     |                     |      |                        |                                                                               |
| Boring Progress and Water Observations    |         |                               |              |                |           | Chiselling           |                                                                                                     | Water Added         |      | GENERAL REMARKS        |                                                                               |
| Date                                      | Time    | Depth                         | Casing Depth | Casing Dia. mm | Water Dpt | From                 | To                                                                                                  | Hours               | From |                        | To                                                                            |
|                                           |         |                               |              |                |           |                      |                                                                                                     |                     |      |                        | Borehole terminated at 4.0m<br>Excavation remained open and dry on completion |
| All dimensions in metres<br>Scale 1:31.25 |         | Client Engineer<br>A Greaves  |              |                |           | Method<br>Plant Used |                                                                                                     | III Window Sampler  |      | Logged By<br>C Farrell |                                                                               |

## TP/BH2 Foundation Detail



## TP/BH2 Borehole Log

| SAMPLES & TESTS                            |             |                              | Water        | STRATA         |            |                      | Instrument Backfill                                                                                                    |                    |      |                        |                                                                               |
|--------------------------------------------|-------------|------------------------------|--------------|----------------|------------|----------------------|------------------------------------------------------------------------------------------------------------------------|--------------------|------|------------------------|-------------------------------------------------------------------------------|
| Depth                                      | Type No     | Test Result                  |              | Reduced Level  | Legend     | Depth (Thickness)    |                                                                                                                        | DESCRIPTION        |      |                        |                                                                               |
| 0.60-2.60<br>0.70                          | ROOTS<br>HV | 65kPa at 0.7m                |              |                |            | 0.70                 | Top pit<br>Base of foundation 0.6m                                                                                     |                    |      |                        |                                                                               |
|                                            |             |                              |              |                |            | 0.70                 |                                                                                                                        |                    |      |                        |                                                                               |
| 1.00                                       | HV          | 70kPa at 1.0m                |              |                |            | 0.65                 | Firm light brown slightly gravelly slightly sandy CLAY with many roots. Gravel is of sub angular fine to medium flint. |                    |      |                        |                                                                               |
| 1.35                                       |             |                              |              |                |            | 1.35                 |                                                                                                                        |                    |      |                        |                                                                               |
| 1.50                                       | HV          | 85kPa at 1.5m                |              |                |            |                      | Stiff brown mottled grey slightly gravelly slightly sandy CLAY<br>Gravel is of sub angular fine flint.                 |                    |      |                        |                                                                               |
| 2.00                                       | HV          | 90kPa at 2.0m                |              |                |            |                      |                                                                                                                        |                    |      |                        |                                                                               |
| 2.50                                       | HV          | 100kPa at 2.5m               |              |                |            |                      |                                                                                                                        |                    |      |                        |                                                                               |
| 3.00                                       | HV          | 100kPa at 3.0m               |              |                |            | 2.65                 |                                                                                                                        |                    |      |                        |                                                                               |
| 3.50                                       | HV          | 90kPa at 3.5m                |              |                |            |                      |                                                                                                                        |                    |      |                        |                                                                               |
| 4.00                                       | HV          | 95kPa at 4.0m                |              |                |            | 4.00                 |                                                                                                                        |                    |      |                        |                                                                               |
|                                            |             |                              |              |                |            |                      |                                                                                                                        |                    |      |                        |                                                                               |
| Boring Progress and Water Observations     |             |                              |              |                |            | Chiselling           |                                                                                                                        | Water Added        |      | GENERAL REMARKS        |                                                                               |
| Date                                       | Time        | Depth                        | Casing Depth | Casing Dia. mm | Water Dpt. | From                 | To                                                                                                                     | Hours              | From |                        | To                                                                            |
|                                            |             |                              |              |                |            |                      |                                                                                                                        |                    |      |                        | Borehole terminated at 4.0m<br>Excavation remained open and dry on completion |
| All dimensions in metres.<br>Scale 1:31.25 |             | Client Engineer<br>A Greaves |              |                |            | Method<br>Plant Used |                                                                                                                        | III Window Sampler |      | Logged By<br>C Farrell |                                                                               |

# SOIL ANALYSIS

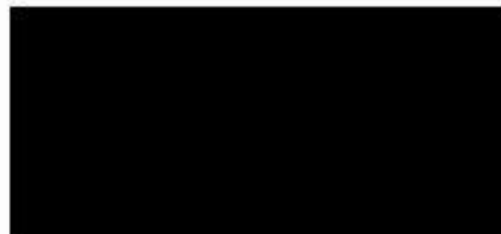
## for Subsidence Management Services

**30 Oakmont Drive, Waterlooville, Hampshire, PO8 8TH**

Client: Subsidence Management Services  
Client Contact: Andrew Greaves  
Claim Number: 4003351263  
Policy Holder: Mr Brian Tee  
Report Date: 21 August 2017  
Our Ref: C11647S35568  
Laboratory Ref: L12653

Compiled By:

Checked By:



Date samples received: 7 August 2017  
Moisture Content Test Date: 7 August 2017  
Atterberg Limits Test Date: 16 August 2017  
Oedometer Test Date: 15 August 2017

SubsNetUK



9265

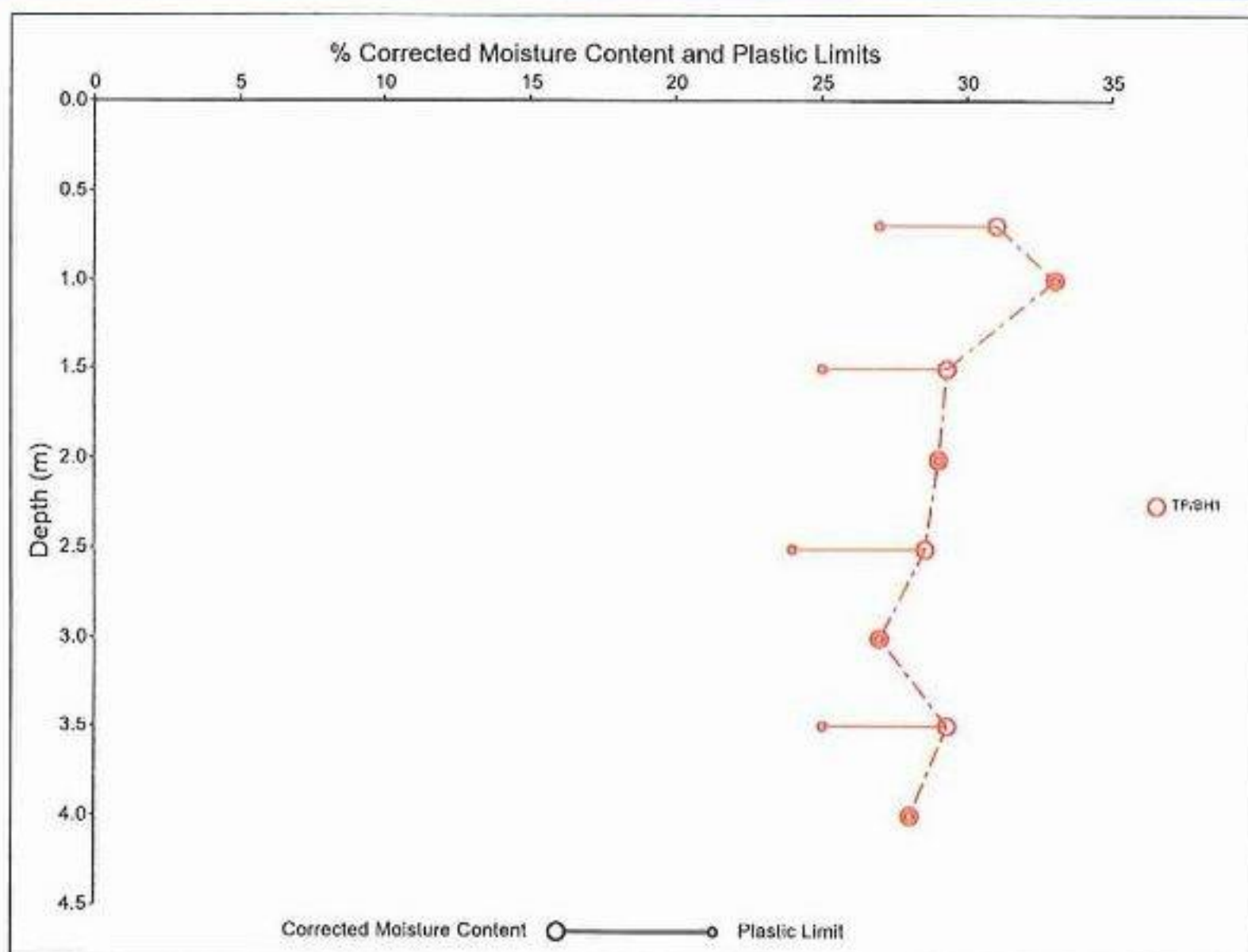
**Note**

Where appropriate moisture contents have been corrected to demonstrate the equivalent moisture content following the sample being passed through a .425 mm sieve for comparison with the Liquid & Plastic Limit. Where this is not available, uncorrected moisture contents have been used in the graph on the following page.

**Deviations to testing schedule:**

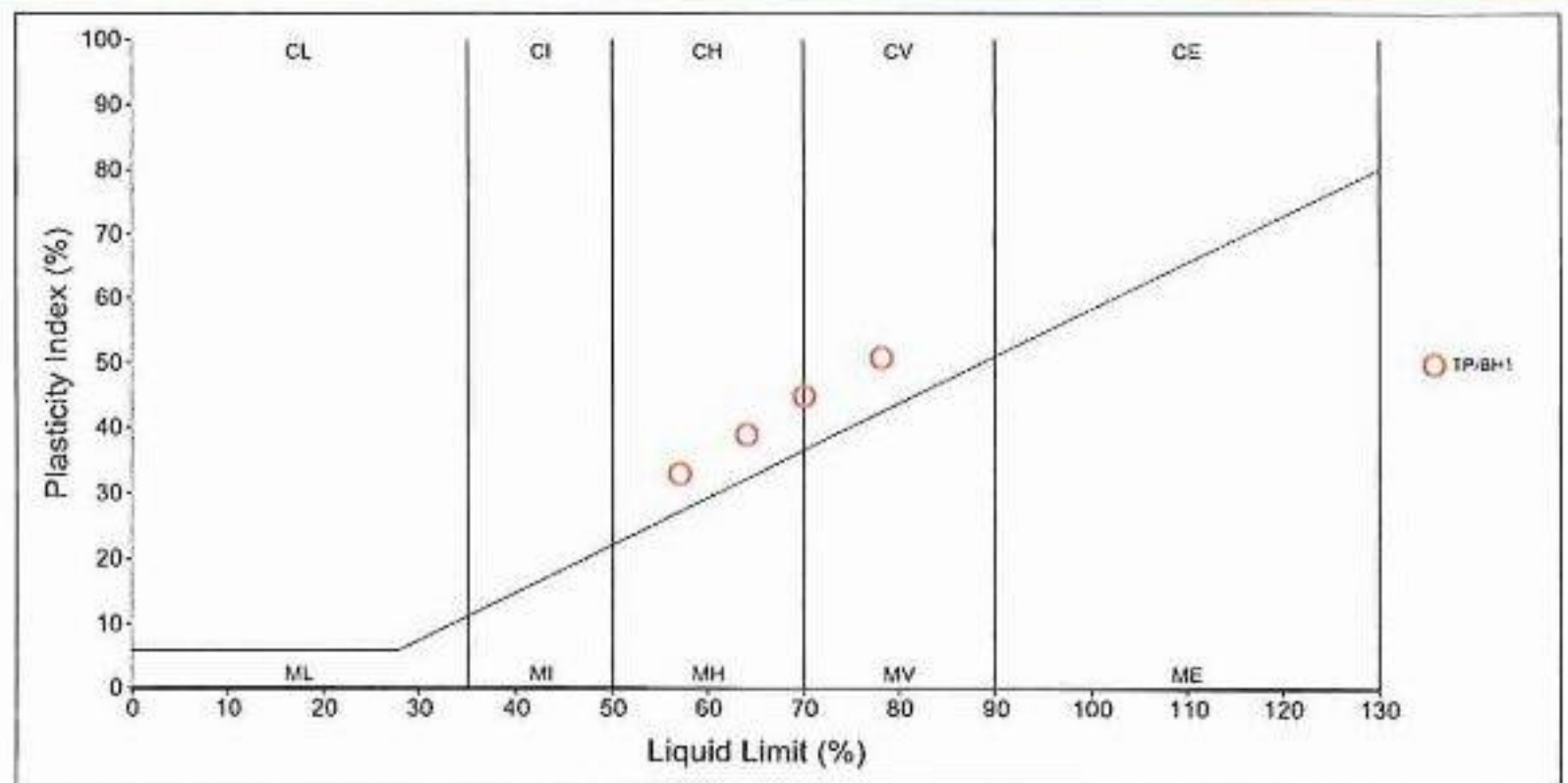
All testing has been undertaken in line with the soils testing schedule provided

| Lab Ref             | Depth (m) | MC (%) | Corr MC (%) | LL (%) | PL (%) | PI (%) | % Passing .425mm |
|---------------------|-----------|--------|-------------|--------|--------|--------|------------------|
| Samples from TP/BH1 |           |        |             |        |        |        |                  |
| 001                 | 0.70      | 31     | 31          | 78     | 27     | 51     | 100              |
| 002                 | 1.00      | 33     |             |        |        |        |                  |
| 003                 | 1.50      | 29     | 29          | 64     | 25     | 39     | 99               |
| 004                 | 2.00      | 29     |             |        |        |        |                  |
| 005                 | 2.50      | 28     | 29          | 57     | 24     | 33     | 98               |
| 006                 | 3.00      | 27     |             |        |        |        |                  |
| 007                 | 3.50      | 29     | 29          | 70     | 25     | 45     | 99               |
| 008                 | 4.00      | 28     |             |        |        |        |                  |

**Corrected Moisture Content and Plastic Limits Graph**

| Lab Ref             | Depth (m) | Description                                                                                            | BS:5930 | NHBC Chapter 4.2 |
|---------------------|-----------|--------------------------------------------------------------------------------------------------------|---------|------------------|
| Samples from TP/BH1 |           |                                                                                                        |         |                  |
| 001                 | 0.70      | Soft to firm light brown/light grey mottled CLAY with rare gravel and sand. Gravel is fine             | CV      | High             |
| 002                 | 1.00      | Soft to firm light brown/light grey mottled CLAY with rare gravel and sand. Gravel is fine             |         |                  |
| 003                 | 1.50      | Soft to firm light brown/light grey mottled CLAY with rare gravel and sand. Gravel is fine             | CH      | Medium           |
| 004                 | 2.00      | Soft to firm light brown/light grey mottled CLAY with rare gravel and sand. Gravel is fine and medium. |         |                  |
| 005                 | 2.50      | Soft to firm brown/light grey veined CLAY with rare gravel and sand. Gravel is fine and medium.        | CH      | Medium           |
| 006                 | 3.00      | Firm to stiff brown/light grey veined CLAY with rare gravel and sand. Gravel is fine and medium.       |         |                  |
| 007                 | 3.50      | Firm brown/light grey veined slightly sandy CLAY with rare gravel. Gravel is fine.                     | CH      | High             |
| 008                 | 4.00      | Firm to stiff brown/light grey veined CLAY with rare gravel and sand. Gravel is fine.                  |         |                  |

### Plasticity Chart for Casagrande Classification

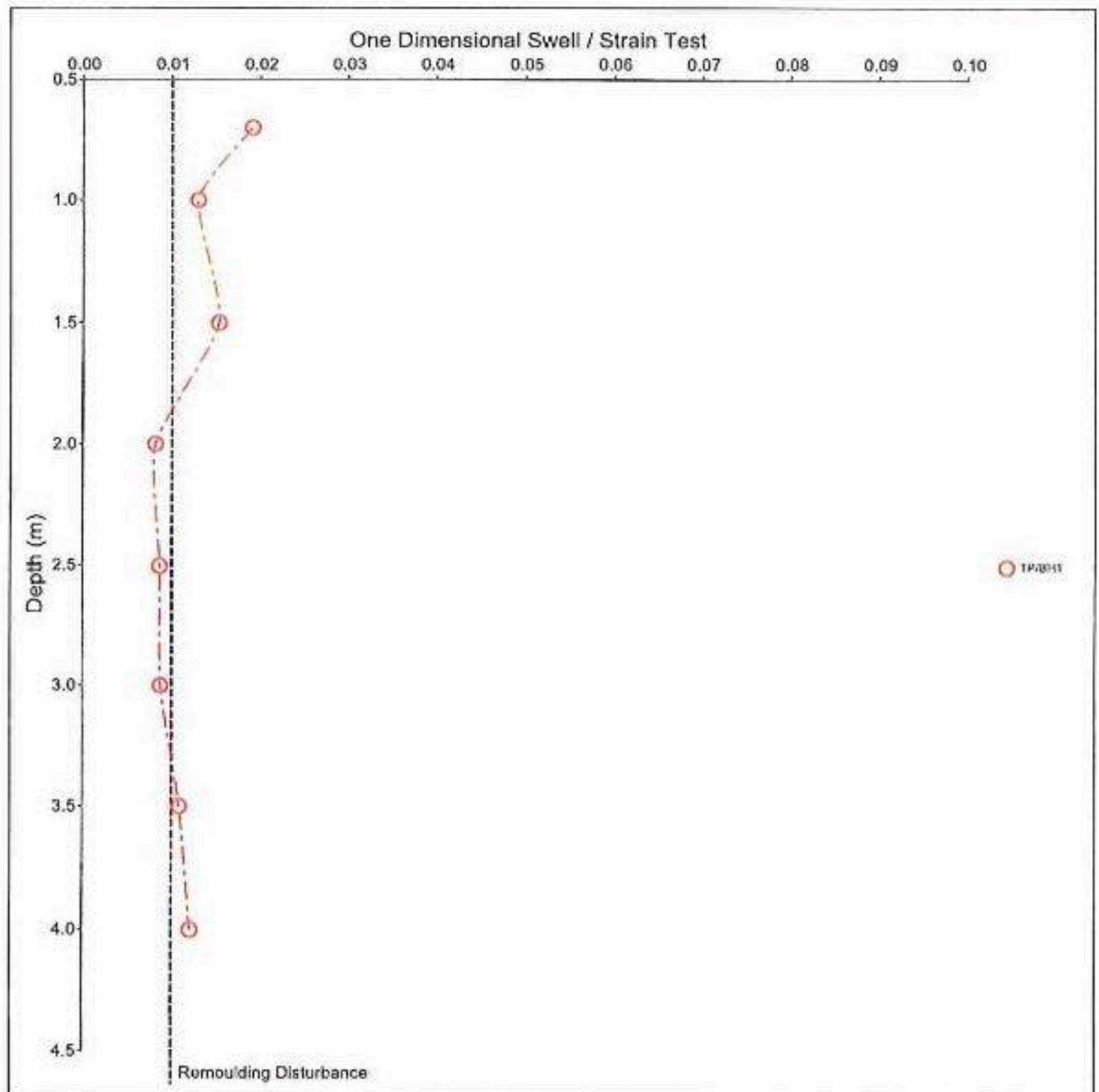


## Summary of Oedometer Testing

| Lab Ref             | Depth (m) | Strain | Dd (mm) | Remarks |
|---------------------|-----------|--------|---------|---------|
| Samples from TP/BH1 |           |        |         |         |
| 001                 | 0.70      | 0.0190 | 6.6     |         |
| 002                 | 1.00      | 0.0129 | 1.9     |         |
| 003                 | 1.50      | 0.0153 | 3.8     |         |
| 004                 | 2.00      | 0.0081 | 2.0     |         |
| 005                 | 2.50      | 0.0086 | 2.2     |         |
| 006                 | 3.00      | 0.0087 | 2.2     |         |
| 007                 | 3.50      | 0.0108 | 2.7     |         |
| 008                 | 4.00      | 0.0121 | 3.0     |         |

TP/BH1 Dd Total: 24.5mm

## Oedometer Strain



#### Notes relating to soils testing

Unless otherwise stated, all soils testing was undertaken at Environmental Services' soils laboratory at unit 10H Maybrook Business Park, B76 1AL.

Soil samples have been prepared in accordance with BS1377:Part 1: 2016 Section 7

Descriptions of soil samples within the laboratory have been undertaken generally in accordance with BS5930:2015

Following the issue of this soil analysis report, samples will be retained for at least 28 days should additional testing, or referencing, be required. It should be noted that any tests undertaken on soils retained subsequent to the issue of this report may not give an accurate indication of the in-situ conditions of the sample.

Water Content Tests are undertaken in accordance with ISO 17892:Part 1:2014

The Liquid Limit test is undertaken in accordance with BS1377:Part 2:1990 Section 4.4

The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990 Section 5

The Oedometer swell/strain test method is based upon BS1377:Part 5:1990 Section 4.4 'Determination of swelling and collapse characteristics' and unless otherwise stated is undertaken on a remoulded, disturbed, sample.

The Oedometer Swell/Strain Test is undertaken in a controlled environment within a temperature range of 16°C and 24°C

The uncertainty of measurement for the displacement transducers is within 0.002mm, typically 0.1% of the range of consolidation and swell of a sample, and the deformation of the consolidation apparatus typically at around 0.15% of the consolidation of a sample and adding these to other human factors the accuracy of the quoted strain measurement in an individual test is deemed to be within +/- 2.5%.

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#### References and Interpretation

The following provides a brief interpretation of the test results by comparison of the results to published classifications. The Atterberg Limit test may be used to classify the plasticity of soils; the plasticity classes defined in BS5930:1999 "Code of Practice for Site Investigations" are as follows.

|         |                                                                                            |
|---------|--------------------------------------------------------------------------------------------|
| CL (ML) | CLAY and CLAY/SILT of Low plasticity                                                       |
| CI (MI) | CLAY and CLAY/SILT of Intermediate plasticity                                              |
| CH (MH) | CLAY and CLAY/SILT of High plasticity                                                      |
| CV (MV) | CLAY and CLAY/SILT of Very High plasticity                                                 |
| CE (ME) | CLAY and CLAY/SILT of Extremely High plasticity                                            |
| O       | The letter O is added to prefixes to symbolise a significant proportion of organic matter. |
| NP      | Non-plastic                                                                                |

The Plasticity Index (PI) Result obtained from the Atterberg Limit tests may also be used to classify the potential for volume change of fine soils, in accordance with the National House Building Council's standards - Chapter 4.2 (2003) "Building Near Trees", as summarised below.

|                             |                                 |
|-----------------------------|---------------------------------|
| Modified PI < 10            | Non Classified.                 |
| Modified PI = 10 to <20     | Low volume change potential.    |
| Modified PI = 20 to <40     | Medium volume change potential. |
| Modified PI = 40 or greater | High volume change potential.   |

The 2003 edition of Chapter 4.2 also permits use of the Plasticity Index without modification. The classifications for this are grouped by soil type (soils with similar visual soils description and using unmodified Plasticity Indices.

# ROOT IDENTIFICATION

for Subsidence Management Services

30 Oakmont Drive, Waterlooville, Hampshire, PO8 8TH

Client: Subsidence Management Services  
 Client Contact: Andrew Greaves  
 Claim Number: 4003351263  
 Client Reference: IFS-ESU-SUB-16-0063691  
 Policy Holder: Mr Brian Tee  
 Report Date: 9 August 2017  
 Our Ref: R19101



Intec  
 Parc Menai, Bangor,  
 Gwynedd, North Wales  
 LL57 4FG  
 Tel: 01248 672652

| Sub Sample | Species Identified  |   | Root Diameter | Starch   |
|------------|---------------------|---|---------------|----------|
| TP/BH1:    |                     |   |               |          |
| 0.6-2.2m   | <i>Quercus</i> spp. | 1 | 1.5 mm        | N/A      |
| TP/BH2:    |                     |   |               |          |
| 0.6-2.4m   | <i>Quercus</i> spp. | 2 | 1 mm          | Abundant |

**Comments:**

- 1 - Plus 4 others also identified as *Quercus* spp.  
 2 - Plus 4 others also identified as *Quercus* spp.

*Quercus* spp. are oaks (both deciduous and evergreen).

**Signed:** M D Mitchell

Unless we are otherwise instructed in writing, the above sample material will normally be disposed of 6 years after the date of this report.