



Geotechnical Survey Report

FSI Ref: 27445
Issue Date: November 2023

Risk Address: 11 Ferndale
Southampton
Hampshire
SO30 0PP

Engineer: Luke Pipes

Company: Crawford
Claim Ref: SU2203818

Managing Director:	Martin Rush MSc FGS
Finance Director:	Louise Banks BSc (Hons)
Geotechnical Compliance & Logistics Supervisor:	Perry Martin MCIHT
Laboratory Manager:	Jade McLellan
Senior Geologist:	Thomas Lee BSc (Hons)
Assistant Geologist:	Sarah Brand
Geotechnical Assistant:	Bradley Webb



Tyndales Farm, Southend Road, Woodham Mortimer,
Maldon, Essex, CM9 6TQ

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Appendix No: 1
FSI Ref: 27445

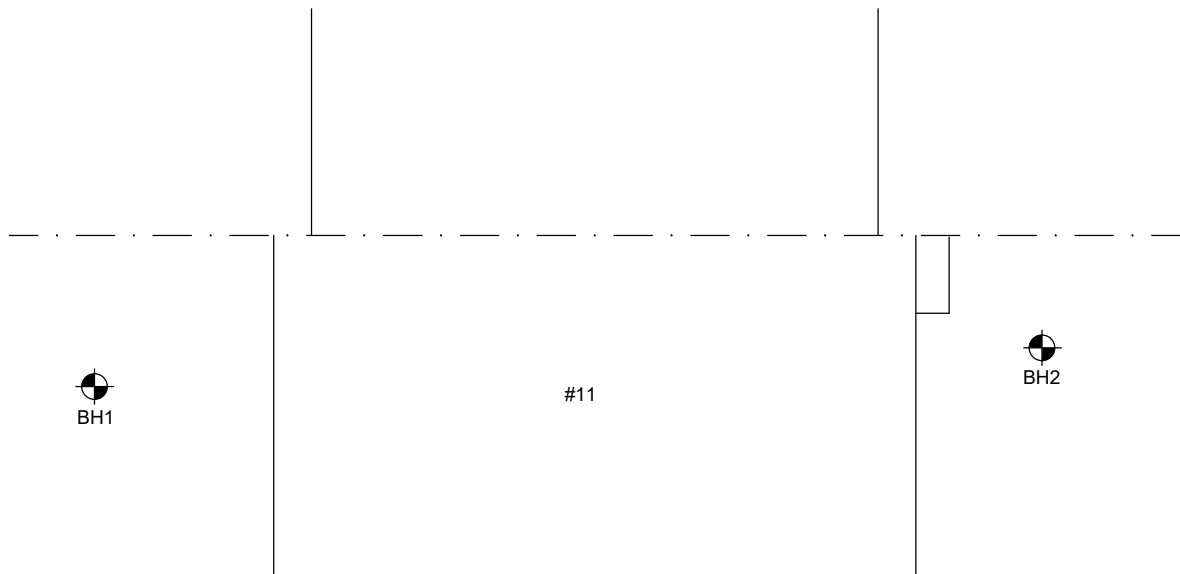
SITE PLAN

Property Address: 11 Ferndale, Southampton, Hampshire, SO30 0PP

Client Claim Ref: SU2203818

Survey date: 01/10/2023

Operative: SW1



Scale: NTS	Drawn by: SB	Key:  Trial Pit  Borehole  Manholes  Rain Water Pipe  Soil & Vent Pipe  Surface Water Gully  Foul Water Gully  Shrub  Tree (Conifer)  Tree (Deciduous)
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Fastrack Site Investigations Ltd
Unit 9, Tyndales Farm
Southend Road
Maldon CM9 6TQ

Borehole Log

Borehole No.

BH1

Sheet 1 of 1

Project Name: SU2203818

Project No.
27445

Site Date: 01/11/2023

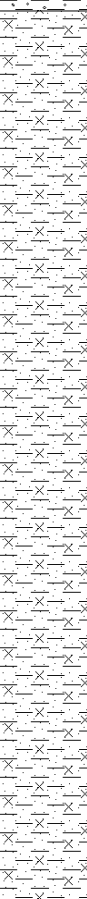
Hole Type
BH

Location: 11 Ferndale, Southampton, Hampshire, SO30 0PP

Scale
1:17

Client: Crawford

Logged By
SW1

Water Strikes	Sample and In Situ Testing			Depth (m)	Legend	Stratum Description	
	Depth (m)	Type	Results				
				0.20		Grass onto TOPSOIL	
	0.50	D	V (kPa) = 100 V (kPa) = 130			Orange/brown CLAY containing gravel	
	1.00	D	V (kPa) = 106 V (kPa) = 124	1.00		Grey silty CLAY containing orange mottle	1
	1.50	D	V (kPa) = 100 V (kPa) = 98				
	2.00	D	V (kPa) = 108 V (kPa) = 110				2
	2.50	D	V (kPa) = 102 V (kPa) = 106				
	3.00	D	V (kPa) = 104 V (kPa) = 112	3.00		End of Borehole at 3.000m	3

Key: D - Disturbed Sample V - Insitu Vane Test MP - Mackintosh Probe Test

Remarks: Borehole closed at 3.00m.
Standing water noted at base on completion.
No roots found.





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Southend Road
Maldon CM9 6TQ

Borehole Log

Borehole No.

BH2

Sheet 1 of 1

Project Name: SU2203818

Project No.
27445

Site Date: 01/11/2023

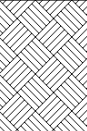
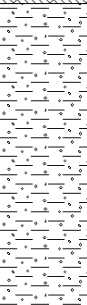
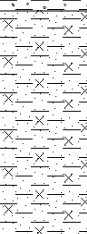
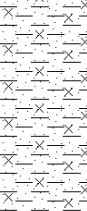
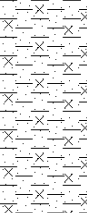
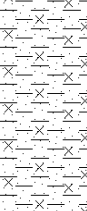
Hole Type
BH

Location: 11 Ferndale, Southampton, Hampshire, SO30 0PP

Scale
1:17

Client: Crawford

Logged By
SW1

Water Strikes	Sample and In Situ Testing			Depth (m)	Legend	Stratum Description	
	Depth (m)	Type	Results				
				0.30		Grass onto TOPSOIL	
	0.50	D	V (kPa) = 106 V (kPa) = 64			Brown CLAY containing gravel	
	1.00	D	V (kPa) = 76 V (kPa) = 82	1.00		Grey silty CLAY containing orange mottle	1
	1.50	D	V (kPa) = 76 V (kPa) = 80			Water strike noted at 1.50m	
	2.00	D	V (kPa) = 86 V (kPa) = 92				2
	2.50	D	V (kPa) = 128 V (kPa) = 136				
	3.00	D	V (kPa) = 108 V (kPa) = 138	3.00		End of Borehole at 3.000m	3

Key: D - Disturbed Sample V - Insitu Vane Test MP - Mackintosh Probe Test

Remarks: Borehole closed at 3.00m.
Standing water noted at 1.80m below ground level on completion.
No roots found.





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Appendix No:

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FSI Ref:

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LABORATORY RESULTS

Property Address: 11 Ferndale, Southampton, Hampshire, SO30 0PP

Client Claim Ref: SU2203818

Client: Crawford & Company

SAMPLE DETAILS

Investigation date: **01/11/2023**
Sample details: **Bags as received**
Samples received: **03/11/2023**
Schedule recieved: **03/11/2023**
Samples tested: **07/11/2023-13/11/2023**
Results reported: **13/11/2023**

ANALYSIS REQUESTED

Moisture Content	☒	PSD	☐
Liquid Limit	☒	Soil Suction	☒
Plastic Limit	☒	Shear Strength	☐
Plasticity Index	☒	Contamination	☐
Root ID	☒	Root/Tree DNA	☐
		No roots found	

TEST DETAILS

General

Sample descriptions were written in accordance with BS 5930:1999.

Samples were prepared in accordance with BS 1377: Part 1: 1990, section 7

Samples from this contract will be retained for 1 calender month following the issue of this report unless otherwise notified

Written approval is required from Fastrack Site Investigations Limited to reproduce report in full. The results shown within this report only relate to the samples tested

Moisture Content

Samples were tested in accordance with BS 1377: Part 2: 1990, section 3.2 (Oven drying method)

In accordance with Note 1 to paragraph 3.2.4 of BS 1377 Part 2 1990; these moisture contents have been corrected to give the equivalent moisture content of the fraction passing the 425µm sieve, to enable comparison with the liquid & plastic limits. (If condition of test is 'natural' the retained percentage is an estimated value, if condition is 'washed' the percentage is a measured value).

Samples are dried at 105-110°C unless otherwise stated.

Atterberg Limits

Samples were tested in accordance with BS 1377: Part 2: 1990, section 4.3 (4 drop LL), 4.4 (1 drop LL), 5.3 (PL) and 5.4 (PI)

Test results on samples with a sand content, may show less accurate results. If condition of test is 'washed' results relate to the fraction passing the 425µm sieve only.

* *Driscoll's rules deem the soil to be desicated where the moisture content is less than the value calculated using driscoll's rule 1 and/or 2*

Particle Size Distribution

Samples were tested in accordance with BS 1377: Part 2: 1990 section 9.2 (Wet sieving method)

Undrained Shear Stength

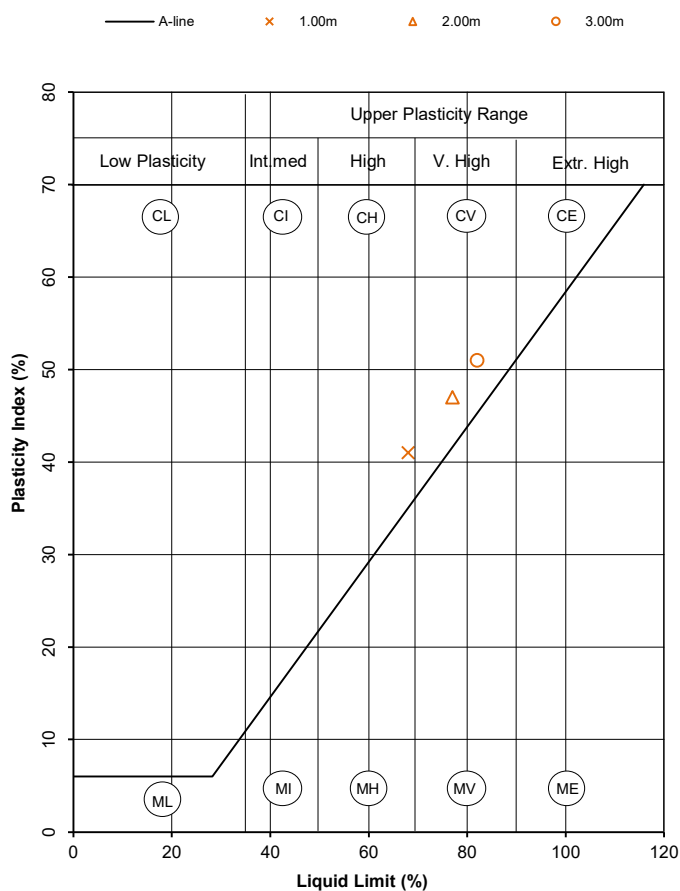
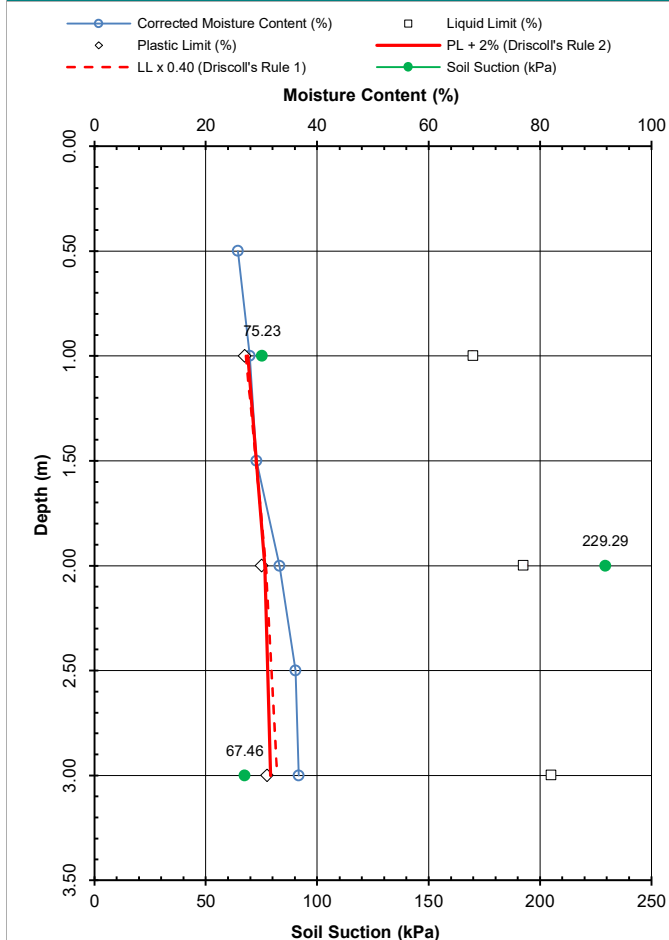
Samples were prepared in accordance with BS 1377: Part 7: 1990 section 8.3 and testing in accordance with BS 1377: Part 7: 1990: section 8.4 (undrained shear strength in triaxial compression without measurement of pore pressure (UU))

Soil Suction

Samples were prepared and tested based on the BRE digest No:IP4/93 (Corrected). 'A method of determining the state of desiccation in clay soils.' (Filter paper method).

Test results on samples with a sand or silt content, may show less accurate results. Deviation to standard procedure - Polythene bags are not used from weighing filter papers.

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[illegible]

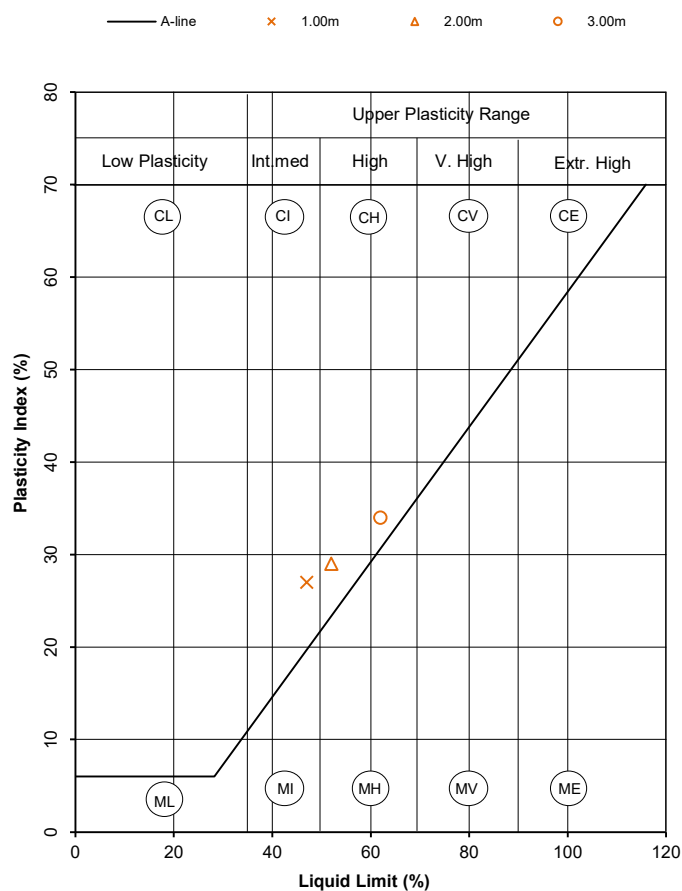
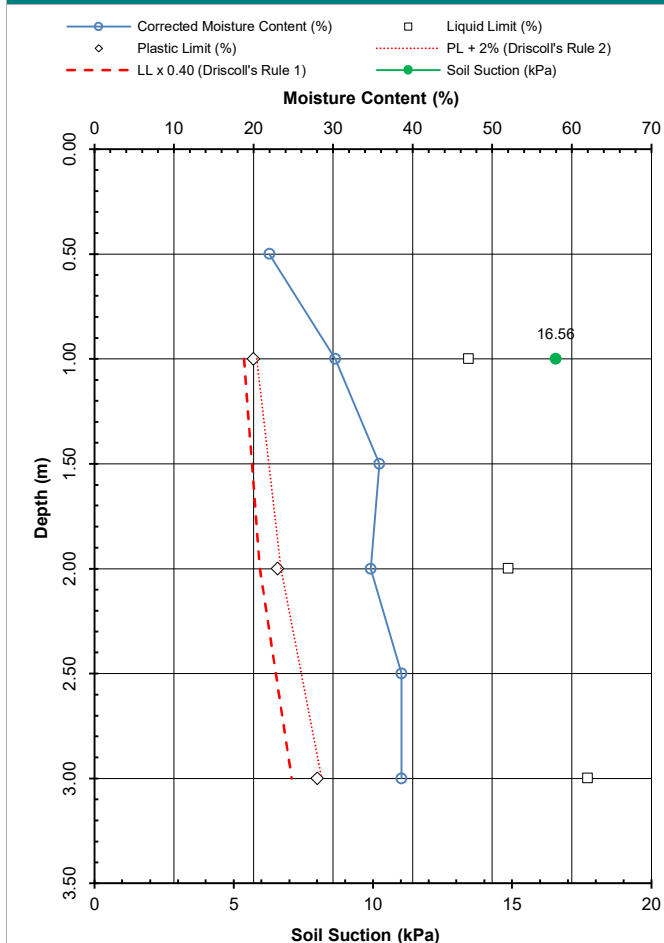
Comments:

Reported by: Issy Acerbis

Checked by:

Jade McLellan

Property Address:	11 Ferndale, Southampton, Hampshire, SO30 0PP
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[illegible]

Comments:	BH2 @ 2.00, 3.00m - Unable to perform soil suctions due to sample being too wet
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Reported by: Issy Acerbis

Checked by: Jade McLellan



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Section: 1

FSI Ref: 27445

HEAVE CALCULATION REPORT

Property Address: 11 Ferndale, Southampton, Hampshire, SO30 0PP

Client Claim Ref: SU2203818

Survey date: 03/11/2023

Operative: SE1

Heave Calculation

In accordance with your instructions we visited the above site on 3rd November 2023 in order to examine the subsoil conditions, and we have used these findings to provide information on potential heave that might occur following tree removal in a desiccated soil profile.

Selected samples were tested in accordance with BS1377, method of tests for soil for Civil Engineering purposes: 1990. Samples were tested for their full moisture content profile, with selected samples tested for the Atterberg limits. Selected samples were also tested in the laboratory for filter paper method testing for soil suction. All laboratory results can be found within Appendix 3.

A normal undesiccated soil profile will show a linear trend, with an increase in suction with depth. A desiccated soil will show a clear bulge effect with the soil suction increasing to a certain depth before returning back to a stable increase of suction with depth.

Sample suction profiles can be used to estimate the amount of ground heave that might occur following tree removal in a desiccated soil profile. The heave prediction is normally based on the soil suction profile compared to a control borehole. However, it is possible to determine heave potential using an estimated equilibrium line (Ko2.5). This is based on a high plasticity London Clay therefore; different stratas may give inaccurate results.

Other factors used in this equation are: plasticity index, layer thickness and the insitu effective stress. We would note that results obtained are only estimates, and should only be used to obtain an approximate magnitude of any potential heave.

The calculated heave potential for the borehole using the equilibrium line (Ko2.5) is:

BH	Depth (m)	Heave potential (mm)	Layer Heave (mm)
BH1	1.00m	6	5
BH1	2.00m	1	3
BH1	3.00m	-2	0

NB: The results shown in the tables are cumulative

The comments and opinions expressed within this report are based on the conditions encountered and on the subsequent laboratory testing. Therefore, it is possible that some special conditions prevailing on site have not been taken into account.

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