

**Ground Investigation
Report for
High Street, Gosberton,
Lincolnshire**

Issued

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Ground Investigation Report for High Street, Gosberton, Lincolnshire

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Distribution

- 1 J H Walter, Steve
- 2 J H Walter, Steve Catney (PDF)
- 3 File

All technical matters within this report have been undertaken under the guidance of **Sam Wells, Senior Geotechnical Engineer**. Any enquiry relating to this report should be addressed to **Matt Huddleston** at Lincs Laboratory.

**GROUND INVESTIGATION
REPORT FOR
HIGH STREET, GOSBERTON**

CONTENTS

1. Introduction
2. Site Description and Geology
3. Site Work
4. Engineering Assessment and Recommendations.
5. References
6. Appendices

Appendix (i) - Drawings

Drawing No. 1 - Site Location Plan

Drawing No. 2 - Trial Pit and Existing Soakaway Location Plan

Appendix (ii) - Trial Pit Logs

TP1-4

Notes on Sample Descriptions and Symbols.

Appendix (iii) – Soakaway Test Sheets

TP1 - 3

**GROUND INVESTIGATION
REPORT FOR
HIGH STREET, GOSBERTON,
LINCOLNSHIRE**

1.0 INTRODUCTION

- 1.1 At the request of JH Walter, Lincs Laboratory has undertaken a ground investigation in accordance with the general principles of BS5930 ⁽¹⁾ and Building and Research Establishment Digest 365 ⁽²⁾ at High Street, Gosberton. The purpose of the testing was to determine the site's soil infiltration characteristics prior to the construction of a proposed residential development.

2.0 SITE DESCRIPTION AND GEOLOGY

- 2.1 The site is situated to the south east of Gosberton. (Drawing Number 1, Appendix (i)). The site is considered greenfield and consists of two essentially rectangular shaped adjacent plots of land approximately 0.50 and 1.3 hectares in area. It is mostly bound by residential properties, with commercial properties to the north east and the B1397 Boston Road to the east.
- 2.2 The site is flat and is accessed from High Street via a narrow private access. (Drawing Number 2, Appendix (i)).
- 2.3 The British Geological Survey 1:50,000 geological sheet for the Spalding area ⁽³⁾ shows Kellaways Formation and Oxford Clay Formation consisting of mudstone, siltstone and sandstone. Superficial deposits of clay, silt and sand are recorded.

3.0 SITE WORK

- 3.1 All site work was carried out on the 14 April 2016. Four trial pits (TP's 1 to 4) were excavated using a mechanical backhoe loader in positions selected by Lincs Lab; TP's 1-3 to a maximum depth of 1.0m below ground level (BGL) with the view to targeting 0.5m to 1.0m BGL for subsequent infiltration testing. TP4 was excavated to 2.0m to establish the depth of ground water.
- 3.2 All trial pits were logged during excavation prior to infiltration testing. Once dimensions were noted each pit was filled with water to 0.5m BGL and allowed to drain naturally. The water level and time was recorded as the water drained away so that an assessment of infiltration rates could be completed in accordance with BRE Digest 365 ⁽²⁾. Each pit, if considered feasible would then be filled and allowed to drain a total of three times.

4.0 ENGINEERING ASSESSMENT AND RECOMMENDATIONS

- 4.1 During the ground investigation the anticipated Kellaways Formation and Oxford Clay Formation was not encountered. Typical superficial deposits encountered generally consisted of orange/grey/brown clayey silts to a maximum proven depth of 2.0m BGL. Topsoil encountered ranged from 0.35m to 0.40m BGL.

Groundwater was encountered during the investigation in TP1 and TP3 at 1.0m BGL, and TP4 at 1.1m BGL. No ground water was encountered in TP2.

Trial pit logs, in Appendix (ii), give the details of the encountered soils.

- 4.2 Owing to the practically impervious characteristics of the soil types encountered there was little or no infiltration at the targeted depth of between 0.5 to 1.0m BGL. It was considered unfeasible to carry out further subsequent refills. Soakaway testing sheets in Appendix (iii), give details of infiltration rates for both trial pits.
- 4.3 The soils encountered in the trial pit did not show any visual or odorous signs of contamination. Additionally, the surrounding land showed no signs of superficial contamination. Considering all these factors, along with the history of the area and the present surrounding land uses, it is not considered that the site is chemically contaminated. Consequently, the risk of contamination associated with constructing and using the site is considered to be low.

However, as with all developments, the workforce should wear overalls, gloves and boots to minimise contact with soils and water. For example, the presence of water contaminated with Weil's disease (caused by rats) is a small probability and working on many developments increases the overall risk of infection to an individual. Care should be taken if any heavily discoloured or pungent smelling materials are encountered as this could indicate that small amounts of chemicals have been discarded. In the unlikely event of encountering suspicious materials, appropriate advice should be sought

- 4.4 This report is based on data from test results and site records obtained during the ground investigation. There is the possibility of variations in ground conditions that have not been revealed during the ground investigation. It should also be noted that changes in groundwater levels are likely to occur from season to season and that groundwater may be encountered during construction.

The report is also based on the information given to Lincs Laboratory by the client. Should there be any subsequent alterations to the project's design it will be necessary to check with Lincs Laboratory that the geotechnical assessments and recommendations are still valid.

5.0 REFERENCES

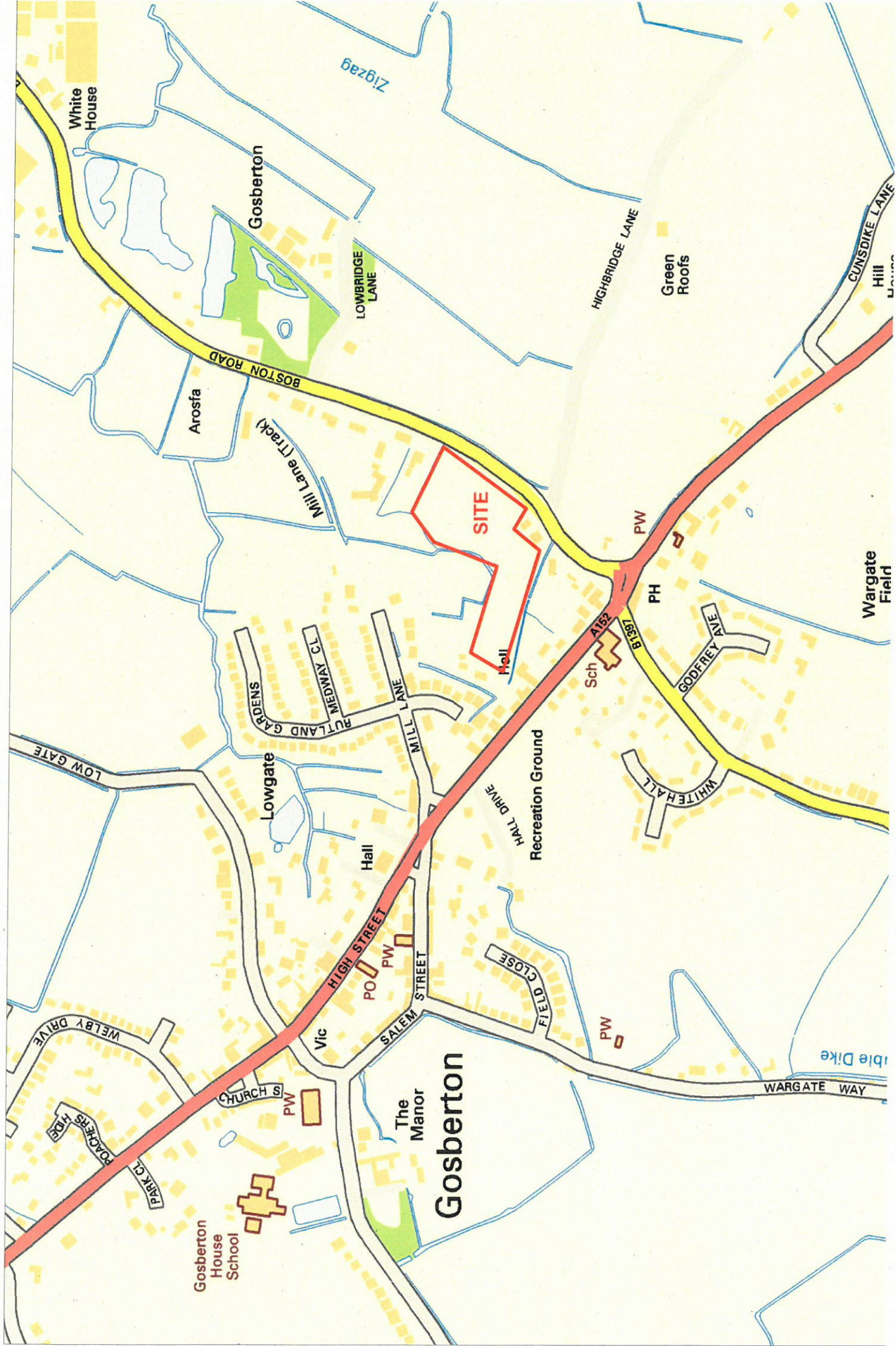
1. BS5930: 1990. "Code of Practice for Site Investigation". British Standards Institution.
2. Building Research Establishment Digest 365- Soakaway Design.
3. BGS 1:50,000 Geological Solid and Drift map for the Spalding Area. Sheet 14. Published 1992.

6.0 APPENDICES

APPENDIX (i)

DRAWINGS

1. Site Location Plan
2. Trial Pit Location Plan



Gostberton Option B



JH Walter

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Mr T & Mrs B Dennis

Land off High Street & Boston Road Gostberton
Proposed Residential Development
Site Layout Plan - PROPOSED

L-DEN-081-SLPP

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OS data provided by NGH Construction Ltd

ISO A2 sheet @ Scale 1:1250

Date: 14-03-2016

Drawn by: PAW

Checked by:

Revision

1

APPENDIX (ii)

TRIAL PIT LOGS

TP1 – 4

**GROUND INVESTIGATION
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LINCOLNSHIRE**

NOTES ON SAMPLE DESCRIPTIONS AND SYMBOLS

1. Sample Descriptions

Sample descriptions are in accordance with BS 5930: 1999 Code of Practice for Site Investigations⁽¹⁾ but with the following additional terms also being used.

rare	intermittent appearance less than 2%
occasional	intermittent appearance 2% to 5%
with a trace	less than 10%
with a little or with frequent	10% to 25%
with some or with numerous	25% to 40%
and	about equal

2. Geology

Only superficial deposits encountered.

Job Number: 39367						Site: High Street, Gosberton				Trial Pit.: TP 1				Sheet 1 of 1			
Remarks : Greenfield - formerly ploughed arable						Location: 524493E - 331592N				Orientation: Length : 1.20m Width : 0.40m Depth : 1.00 m							
						Client: JH Walter				Face Logged :							
						Excavation Method: JCB				Logged By: MH/RP							
						Log Scale: 2.50 m/page				Ground Level: - m AOD							
Date (2016)	No	Sample/Test		Change of Strata		Description of Strata	MPT Test Result	Atterberg Limits			Density		Shear Strength		Chemical		Other Tests
		Type	Depth (m)	Legend	Reduced Level below GL (m)			Thickness of Stratum (m)	NMC %	LL %	PL %	PI %	CBR %	Bulk ³ Mg/m	Dry ³ Mg/m	Cu kPa	
14/04	1.00				0.35	Light brown silty TOPSOIL with fine rootlets											
					0.35	Light grey orange brown mottled fine SILT with rare dark brown organics											
					0.70	Soft light brown orange grey silty CLAY											
					1.00	End of Trial Pit at 1.00 m											
Scale	Disturbed Samples	Undisturbed Samples	Symbols				Type of Shear Test			Notes : Geology and Other Tests :							
W	Water Sample	U100 105mm Diameter	PT Penetration Tests	V	Shear Vane	Cu	Undrained Cohesive Strength	See "Sample Descriptions & Symbols" at end of logs Soil strengths (in brackets) are assessed from on-site observations									
D	Small Bag	U38 U100	P Probe CBR	SB	Shear Box	Øu°	Internal Friction Angle										
B	Large Bag		(i) Other Tests Undertaken	TX	Triaxial (Undrained)												
Shown	T	Jar	Groundwater:	Struck	Rose to												

Job Number: 39367				Site: High Street, Gosberton				Trial Pit.: TP 2				Sheet 1 of 1													
Remarks : Greenfield - formerly ploughed arable				Location: 524421E - 331615N				Orientation: Length : 1.30m Width : 0.40m Depth : 1.00 m																	
				Client: JH Walter				Face Logged :																	
				Excavation Method: JCB				Logged By: MH/RP																	
				Log Scale: 2.50				m/page				Ground Level: - m AOD													
Date (2016)		14/04		Depth of Water (m)		1.00		Sample/Test		Change of Strata		Description of Strata		MPT Test Result		Atterberg Limits		Density		Shear Strength		Chemical		Other Tests	
								No		Type		Depth (m)		Legend		Depth below GL (m)		Reduced Thickness Level m AOD (m)		Stratum (m)					

Job Number: 39367

Remarks :
Greenfield - maintained lawn

Site: High Street, Gosberton

Location: 524307E - 331571N

Client: JH Walter

Excavation Method: JCB

Trial Pit.: TP 3

Orientation: Length : 1.40m
Width : 0.40m
Depth : 1.00 m

Face Logged :

Sheet 1 of 1

Dimensions:

Log Scale: 2.50 m/page

Ground Level: - m AOD

Date (2016)

14/04

Depth of Water (m)

1.00

Sample/Test

No

Type

Depth (m)

Change of Strata

Depth below GL (m)

Reduced Thickness of Stratum (m)

Legend

0.00

0.40

0.60

1.00

Description of Strata

Light brown silty TOPSOIL with fine rootlets

Soft light orange brown fine SILT

End of Trial Pit at 1.00 m

MPT Test Result

Atterberg Limits

NMC %

LL %

PL %

PI %

Density

CBR %

Bulk ³ Mg/m

Dry ³ Mg/m

Shear Strength

Cu kPa

Øu°

Type of Shear Test

Chemical

SO₄ g/l

pH

Other Tests

Scale as Shown

Disturbed Samples

W Water Sample

D Small Bag

B Large Bag

T Tin J Jar

Undisturbed Samples

U100 105mm Diameter

U38 U100

Groundwater: ▼ Struck ▽ Rose to

Symbols

PT Penetration Tests

P Probe CBR

(i) Other Tests Undertaken

Type of Shear Test

V Shear Vane

SB Shear Box

TX Triaxial (Undrained)

Cu Undrained Cohesive Strength

Øu° Internal Friction Angle

Notes : Geology and Other Tests :

See "Sample Descriptions & Symbols" at end of logs

Soil strengths (in brackets) are assessed from on-site observations

LINCS LAB

Telephone (01522) 530355

[illegible]

APPENDIX (iii)

SOAKAWAY TESTING SHEETS

TP1 – 3

TABLE 1

1

Test Measurements :

Infiltration Rates >

m/s

Note :

Test could not be completed

TABLE 2

2

Test Measurements :

Infiltration Rates >

m/s

Note :

Test could not be completed

High Street, Gosberton

TABLE 3

SUMMARY OF INFILTRATION RATE TEST RESULTS :

3

Test Started: 14 April 2016

Dimensions: 1.4m Long x 0.4m Wide x 1m Deep

Test Measurements :

TEST1		TEST2		TEST3	
Time (mins)	WATER LEVEL (mBGL)	Time (mins)	WATER LEVEL (mBGL)	Time (mins)	WATER LEVEL (mBGL)
0	0.50	0	0.00	0	0.00
1	0.52				
2	0.52				
3	0.52				
4	0.52				
10	0.52				
30	0.52				
60	0.53				
90	0.54				
180	0.53				

Infiltration Rates >

m/s

Note :

Test could not be completed