SHIELDS WILSON
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STRUCTURAL AND CIVIL ENGINEERING

GROUND INVESTIGATION REPORT

UPON

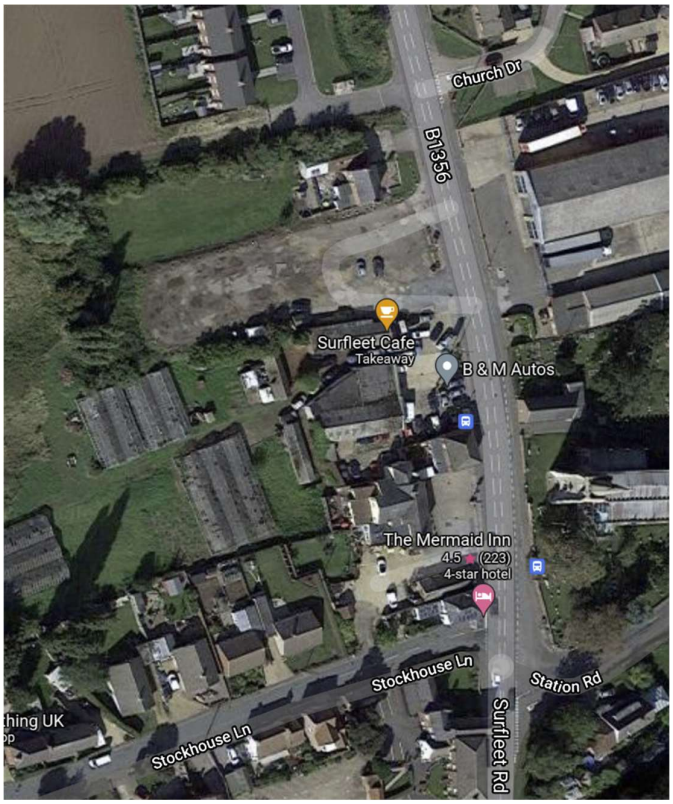
EXISTING SURFLEET CAFE

GOSBERTON ROAD

SURFLEET, SPALDING, LINCS

PROJECT No: SW 21-178

DOCUMENT REF: SW 21-178-GI-01



Scott Park Developments
Office 10, Welland Workspace
10 Pinchbeck Road,
Spalding,
Lincolnshire,
PE11 1QD

CONTENTS

1. INTRODUCTION 2
2. LOCATION & DESCRIPTION OF SITE 3
2.1. Site Location 3
2.2. Site History Description 3
2.3. Site Description 3
2.4. Geological Description 3
3. SITE WORK 5
4. GROUND CONDITIONS 6
5. CONCLUSIONS & RECCOMENDATIONS 7
APPENDIX A 8
APPENDIX B 10
APPENDIX C 12
APPENDIX D 14
APPENDIX E 20
APPENDIX F 24

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1. INTRODUCTION

Acting upon the instruction of Scott Park Developments, we attended site on 10th August 2021, the purpose being to observe the underlying ground conditions and determine the basic characteristics of the soil strata.

Mechanically excavated trial pits took place, and our comments are based upon a visual inspection of the disturbed samples obtained and the in-situ strata within the trial pits.

We would suggest the groundwater conditions may vary seasonally and that the water levels as recorded at the time of explorations should not necessarily be taken as being constant as they may be subject to fluctuations.

The opinions and comments expressed within this report are based upon ground conditions encountered in the trial pits excavated at the time of our visit.

This report has been prepared for the named client above and should not be relied upon by any other parties, with the exception of the client's professional advisors, for any use without the express written permission of Shields Wilson Limited.

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2. LOCATION & DESCRIPTION OF SITE

2.1. Site Location

The site is situated to the west of Gosberton Road, Surfleet, Spalding, Lincolnshire. Appropriate national grid reference TF 250 282.

A Location plan is contained with Appendix A.

2.2. Site History Description

Desktop study of publicly available historical maps has been undertaken and found the site has not been previously developed and has stood as residential garden. From local knowledge of the area, it is known that the proposed site has also previously been used for car parking for the local café and motor garage.

An extract of OS Lincolnshire map, 1973, is contained within Appendix B.

2.3. Site Description

The site currently stands as overgrown grassland and garden area with a gravel & road planning's covered parking area closest to the roadside.

The North of the site is bound by a neighbouring property.

The Western Boundary of the site is shared with an agricultural field.

The East of the site is boarded by Gosberton Road on which the proposed site will gain its access.

The Southern boundary is formed by a fence line between the proposed site and a neighbouring property.

At the time of our visit the weather was dry and clear, however there had been some precipitation in the days leading up to the visit.

2.4. Geological Description

Desktop study of the area has been undertaken using the British Geological Society Maps.

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The maps indicate the site to be underlain by superficial tidal flat deposits of Sand and Silt over the Ampthill Clay (Mudstone) formation.

This information is based upon publicly available records. An extract is contained with Appendix C.

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3. SITE WORK

Five Number trial pits and one number soakaway test pit were excavated with the use of mechanical excavator. The siting of these explorations is shown on the Location plan shown within Appendix D.

A visual inspection of the disturbed samples was undertaken. A description of the strata and test results are shown on sheets SW21-178/TP01 thru TP05. The Trial pit logs are contained within Appendix D along with infiltration test results.

The historical investigation indicates that no previous development has been present. The outbuildings adjacent the site have been utilised for a motor vehicle workshop and storage purposes along with the building directly next to the site being used a café.

As such specific investigations for contamination were undertaken by specialists and for results and recommendations related to contamination please refer to reporting by Elemental GI.

1No. Infiltration test was undertaken, however, after 1 hour the water level had not decreased meaning that the test was abandoned and provided sufficient evidence that the site would not be suitable for the use of soakaways.

A photographic record of site explorations is contained within Appendix E.

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4. GROUND CONDITIONS

The sequence of the strata encountered during the investigation generally conforms to the geology identified by the desk top studies.

The trial pits that were undertaken revealed that the ground conditions across the site are highly variable.

The explorations made it clear that there was a significant depth of made ground throughout the Southern portion of the site, with large objects being found like a toilet and concrete fence post.

The majority of the trial holes revealed that at depth the wet silty clays became soft and saturated significantly reducing the stability of the ground.

Trial pit logs can be found in Appendix D of this report.

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5. CONCLUSIONS & RECCOMENDATIONS

The proposed development is understood to comprise of 8 dwellings, varying in size from 3 bed to executive 4 bed, constructed using traditional load bearing masonry walls.

The ground floor should take the form of a suspended precast concrete beam and block system, design by the specialist supplier.

There should be a minimum clear void of 250mm beneath the suspended floor due to the Laboratory results returning results of medium-volume change potential. Laboratory results are contained within Appendix F.

Due to the soft underlying wet clays along with the made ground and fill material, this site will require a pile and ground beam foundation solution. Careful consideration should be taken with regards to the heave protection required due to the clays and large number of trees on some boundaries of the existing site. Engineer designed foundations in accordance with the NHBC chapter 4.2 guidance should be utilised.

Prior to construction detailed foundation designs should be undertaken by a competent structural engineer.

Furthermore, the results from the infiltration test show that the ground is not suitable for an infiltration surface water drainage system and would therefore require an engineered design to suit the requirement of the development.

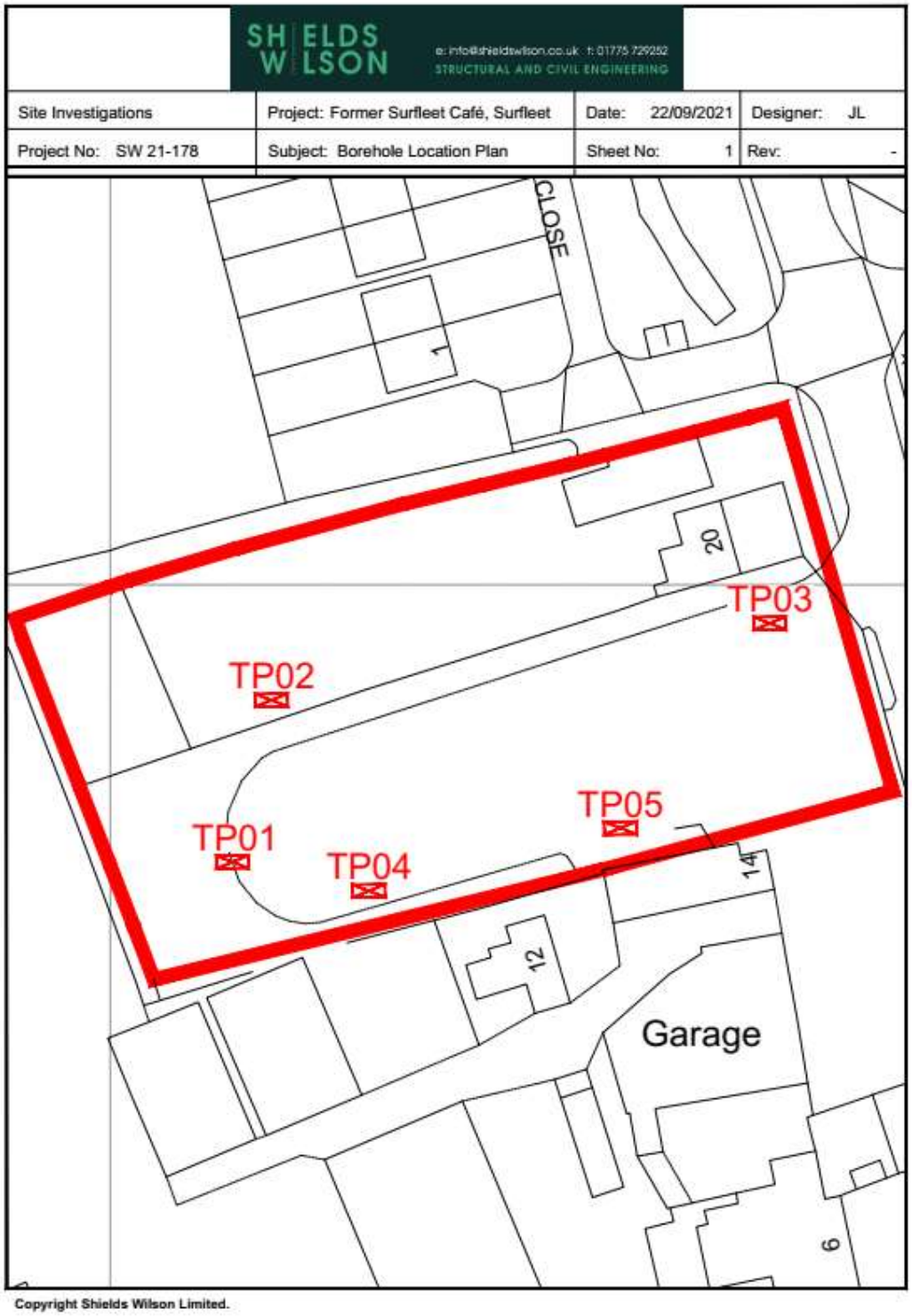
For and on behalf of **SHIELDS WILSON LIMITED**

A.P.Wilson CEng MIStructE **21st September 2021**

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APPENDIX A

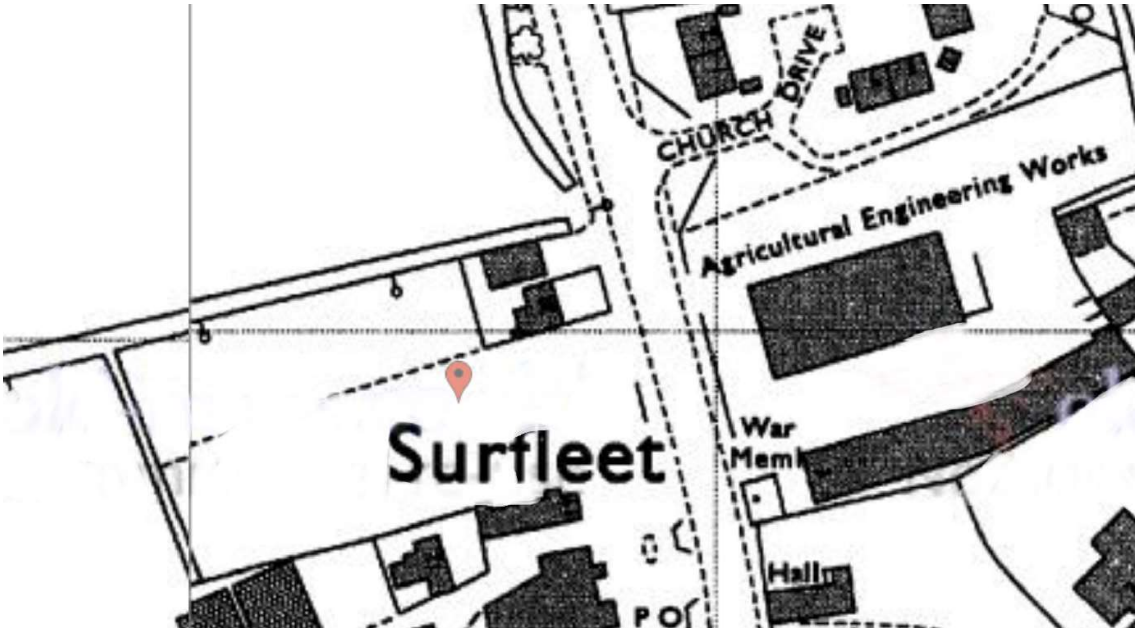
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APPENDIX B

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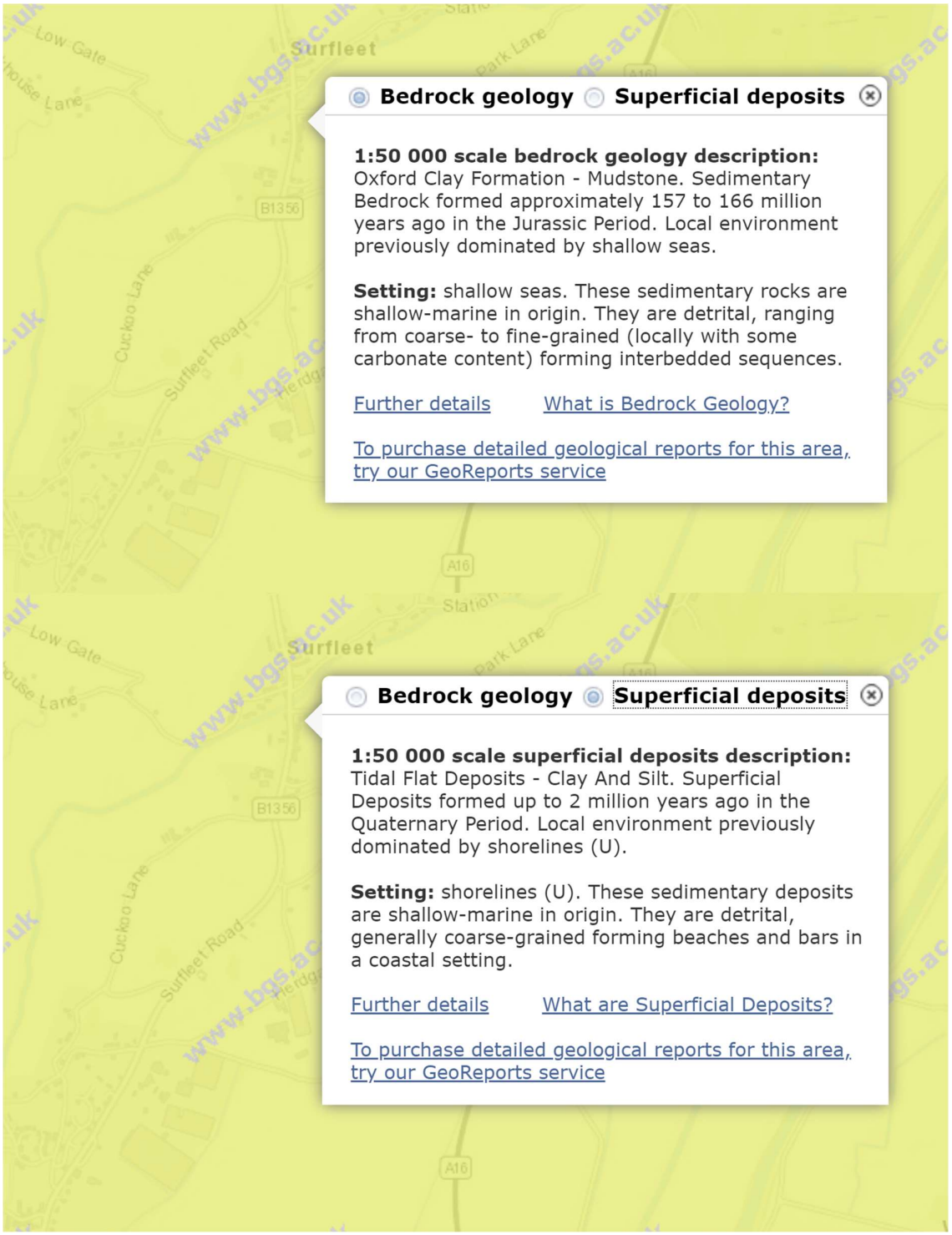


Extract OS County Series, 1973

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APPENDIX C

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Extract British Geological Society Maps

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APPENDIX D

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STRUCTURAL AND CIVIL ENGINEERING

Project No. SW21-178		Log Ref TP01	
Exploration Method Excavator			
Site Coordinates TF 250282			
Location Proposed Development, Land West of Gosberton Road, Surfleet, Spalding Former Surfleet Café Site	Carried Out For Scott Park Developments	Date Undertaken 10/08/21	
		Logged By APW	

Description	Reduced Level	Legend	Depth (Thick)	Samples: Depth	Samples: Sample Reference	Samples: Sample Type	Samples: Sample No.	Test Required	SHEAR VANE
ROAD PLANNINGS & HARDCORE			0.350m						
CLAYEY FILL, BRICK RUBBLE AND ROAD PLANNINGS, TOILET & STEEL.			(1.450m) 1.800m						
NATURAL SILTY SOFT FIRM BROWNEY GREY CLAY			(0.600m) 2.400m	2.200m	S01				2.400m – 20kPa [19mm VANE]
GETTING SOFT AND MOIST			(0.350m) 2.750m						

Remarks
Borehole Terminated @ 2.75m Below Ground Level.

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Project No. SW21-178			Log Ref TP02
Exploration Method Excavator			
Site Coordinates TF 250282			
Location Proposed Development, Land West of Gosberton Road, Surfleet, Spalding Former Surfleet Café Site	Carried Out For Scott Park Developments	Date Undertaken 10/08/21	
		Logged By APW	

Description	Reduced Level	Legend	Depth (Thick)	Samples Depth	Sample Reference	Sample Type	Sample No.	Test Required	SHEAR VANE
TOPSOIL WITH LIGHT STONE FILL			0.350m						
ORANGEY BROWN SANDY SILT			(0.600m) 0.950m						
GREY BROWN SILTY CLAY BECOMING MOIST WITH DEPTH			(0.350m) 1.300m						1.000m – 30kPa [19mm VANE]
WATER APPEARING AT BOTTOM OF EXCAVATION									

Remarks
Borehole Terminated @ 1.40m Below Ground Level.

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Project No.	SW21-178
Log Ref	TP03
Exploration Method	Excavator
Site Coordinates	TF 250282
Location	Proposed Development, Land West of Gosberton Road, Surfleet, Spalding Former Surfleet Café Site
Carried Out For	Scott Park Developments
Date Undertaken	10/08/21
Logged By	APW

Description	Reduced Level	Legend	Depth (Thick)	Samples Depth	Sample Reference	Sample Type	Sample No.	Test Required	SHEAR VANE
ROLLED IN PLANNINGS, VERY HARD			0.650m						0.600m – 65kPa [19mm VANE]
DARK GREY SLIGHTLY SILTY CLAY			(0.650m) 1.300m	0.750m	SO2			CBR	
WET SOFT SILTY GREY CLAY			(0.200m) 1.500m						
WET SOFT SILTY GREY CLAY WITH WATER RUNNING IN, LIGHTER AND SILTIER WITH DEPTH			(0.900m) 2.400m						

Remarks
Borehole Terminated @ 2.40m Below Ground Level.

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Project No.	SW21-178
Log Ref	TP04
Exploration Method	Excavator
Site Coordinates	TF 250282
Location	Proposed Development, Land West of Gosberton Road, Surfleet, Spalding Former Surfleet Café Site
Carried Out For	Scott Park Developments
Date Undertaken	10/08/21
Logged By	APW

Description	Reduced Level	Legend	Depth (Thick)	Samples Depth	Sample Reference	Sample Type	Sample No.	Test Required	SHEAR VANE
ROAD PLANNINGS, SAND & GRAVEL			0.450m						
CLAYEY BRICK RUBBLE & FILL [CONCRETE FENCE POST]			(1.350m) 1.800m						
BROWNEY GREY SOFT TO FIRM CLAY			(0.300m) 2.100m						
BLUEY GREY MOIST SOFT SILTY CLAY [FUEL ODOURS]			(0.900m) 2.400m						

Remarks
Borehole Terminated @ 2.40m Below Ground Level.

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Project No. SW21-178			Log Ref TP05
Exploration Method Excavator			
Site Coordinates TF 250282			
Location Proposed Development, Land West of Gosberton Road, Surfleet, Spalding Former Surfleet Café Site	Carried Out For Scott Park Developments	Date Undertaken 10/08/21	
		Logged By APW	

Description	Reduced Level	Legend	Depth (Thick)	Samples: Depth	Samples: Sample Reference	Samples: Sample Type	Samples: Sample No.	Test Required	SHEAR VANE
ROAD PLANNINGS, BRICK RUBBLE, SAND, GRAVEL, LARGE CONCRETE FRAGMENTS			0.700m						
GREY SAND, VERY FINE, LOOSE			(1.000m) 1.700m						
WATER ENTERING THE EXCAVATION			(0.550m) 2.250m						2.250m – 20kPa [19mm VANE]
ORANGEY DARK BROWN SANDY SOFT CLAY			2.400m						

Remarks
Borehole Terminated @ 2.40m Below Ground Level.

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APPENDIX E

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TEST CERTIFICATE

Determination of Liquid & Plastic Limits

Tested in accordance with BS 1377-2:1990: Clause 4.4 & 5: One Point Method

Client:	Shields Wilson Ltd	Certificate Number:	PL7565-1/1/704
Client Address:	Bank House Broad Street Spalding, Lincs PE11 1TB	Client Reference:	L10037
		Job Number:	PL7565-1
		Date Sampled:	Unknown
Contact:	Adam Wilson	Date Received:	13.08.2021
		Date Tested:	18.08.2021
Site Name:	Gosberton Road	Certificate of Sampling:	N/A
Site Address:	Surfleet	Sampling Certificate No.:	N/A
		Sampled By:	Client

Test Results:

Laboratory Reference: PL7565-1/1
Sample Reference: S01

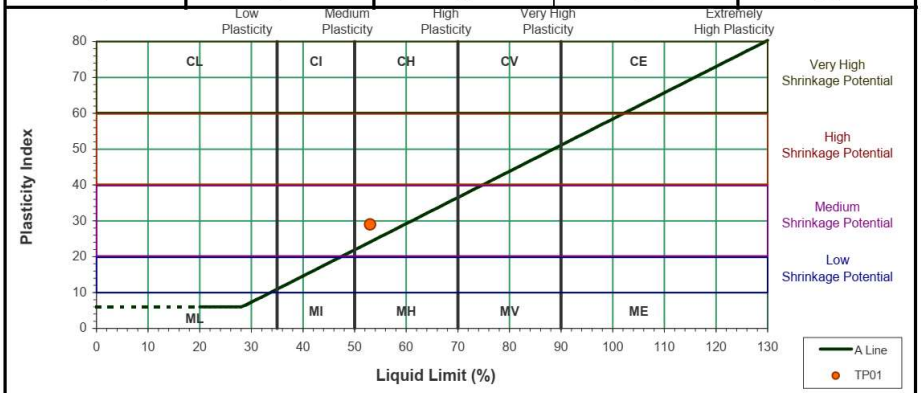
Sample Description: Soft brown grey orange-brown slightly silty CLAY with rare fine angular flint and brick.

Location: TP01 **Depth:** 2.10m

Sample Preparation: As Received

Estimated % Passing 425µm BS Test Sieve

Moisture Content (%)	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index	% Passing 425µm BS Test Sieve
35	53	24	29	100



Comments:

Approved Signatory: M. Hartnup - Laboratory Manager Signed:

for and on behalf of Ground Engineering Ltd

Date Reported: 19.08.2021 Page 1 of 1
Form Number: GELab/C/704 Version 46

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TEST CERTIFICATE

Determination of Moisture Content

Tested in Accordance with BS 1377-2: 1990: Clause 3.2

Client:	Shields Wilson Ltd	Certificate Number:	PL7565-1/1/705
Client Address:	Bank House Broad Street Spalding, Lincs PE11 1TB	Client Reference:	L10037
		Job Number:	PL7565-1
		Date Sampled:	Unknown
		Date Received:	13.08.2021
Contact:	Adam Wilson	Date Tested:	17.08.2021
		Certificate of Sampling:	N/A
Site Name:	Gosberton Road	Sampling Certificate No.:	N/A
Site Address:	Surfleet	Sampled By:	Client

TEST RESULTS

Laboratory Reference	Sample Reference	Location	Depth Top	Depth Base	Description	Moisture Content [%]
PL7565-1/1	S01	TP01	2.10m	N/A	Soft brown grey orange-brown slightly silty CLAY with rare fine angular flint and brick.	35

Comments:

Approved Signatory: M. Hartnup - Laboratory Manager Signed:

for and on behalf of Ground Engineering Ltd

Date Reported: 19.08.2021 Page 1 of 1
Form Number: GELab/C/705 Version 19

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