

Ref: H4163/MH/sg

1 Gordon Avenue
March
Cambridgeshire
PE15 8AJ

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PHASE 1

CONTAMINATION REPORT

FOR

PROPOSED REPLACEMENT DWELLING

AT

OLLARDS FARM

HALLGATE ROAD

THROCKENHOLT

SPALDING

LINCS

PE12 0QS

V.A.T 876 0014 34

Reg : 5525923

1.0 **INTRODUCTION**

1.1 **Client**

Mr & Mrs Proctor, Ollards Farm, Hallgate Road, Throckenholt, Spalding, Lincs, PE12 0QS

1.2 **Date of Investigation**

Tuesday 17th November 2015

1.3 **Brief**

To visit the site and excavate 4 No Trialholes to determine underlying soil strata and to subsequently give recommendations for any remedial works that may be required prior to the extension of the property and demolition of the existing property and replacement.

The objectives of this report are as follows:-

- To produce a preliminary risk assessment
- To produce an initial conceptual model for the site as a whole
- To review the desktop study
- To give appropriate recommendations for any remedial works that are required
- To review information on the former uses of the site from historical maps and also the surrounding area up to 250m away from the site

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1.4 **Site Proposal**

It is proposed to demolish the existing two storey detached dwelling and build a replacement two storey residential dwelling which is larger in plan area than the existing building.

The existing barn on site is also to be demolished and replaced with a triple garage.

A Planning Application has been submitted to South Holland District Council.

1.5 **Extent of Investigation**

A desktop study has been carried out to establish proposed present and past land uses. This has involved an Environmental Search combined with some research to establish the proposed, present and past land usage of the site.

A walkover survey has been made involving an Engineers examination of the existing site. Checks were made regarding the presence of containers, tanks, piping, drainage and other artifact structures and an assessment was made of any potential visible contamination through discoloured soil, effected vegetation, chemical odour and the quality of any surface water.

1.6 **Appendices**

There are the following appendices at the end of this report.

Appendix A	~	Sketch H4163/00	Site Plan
		Sketch H4163/01	Trialhole 1 Log
		Sketch H4163/02	Trialhole 2 Log
		Sketch H4163/03	Trialhole 3 Log
		Sketch H4163/04	Trialhole 4 Log
Appendix B	~	Photographic Survey	
Appendix C	~	Environmental Review Report by Groundsure	

2.0 **SITE WALKOVER**

A site walkover was undertaken on Tuesday 17th November 2015.

The site is located within the Fenland village of Throckenholt in relatively open Fenland. The approximate grid reference is 535672, 310513 as shown on the Groundsure Report.

This site is located in South Holland District Council durisdiction.

At the time of the site visit, there was a two storey dwelling which is in excess of 100 years age. At the time of the site visit this was unoccupied and is scheduled for demolition. The property has suffered from ground subsidence at various times and is structurally damaged beyond economical repair.

There is a brick built barn at the site which is also scheduled for demolition.

Both structures are brick built with timber roof construction. The main building is covered with slate tiles with the barn covered with corrugated metal sheeting.

Over the site there were no further outbuildings.

At the time of the site visit there were a number of Lime and Horse Chestnut trees both over and adjacent the site.

The remainder of the site was generally clear.

A temporary caravan is set on site whilst work is undertaken for the proposal.

Beyond the Southern boundary there is open Fenland.

Beyond the Eastern boundary there is open Fenland and also beyond the Western

boundary and beyond Hallgate Road, this is open Fenland.

Beyond the Northern boundary which would be in excess of 15m from the proposed residential dwelling, there are 2 No agricultural barns. The larger Dutch Barn has open sides and appears to be a steel framed construction.

The front brick built barn is of single storey construction.

Running part the way along the Western boundary there is a drainage ditch of approximately 1.5m in depth which is to be piped and filled.

There is a brick built septic tank within the rear garden which would be towards the Eastern boundary.

2.2 **Vegetation**

There is the following vegetation over or adjacent the site which may be of some significance due to the current or future root growth.

<u>Tree</u>	<u>Height</u>	<u>Distance from Property</u>
Lime	16m	3m from the West flank wall
Sycamore Sapling	8m	6m from the West flank wall
Horse Chestnut	16m	25m from the front elevation

2.3 **British Geological Survey Sheet**

The British Geological Survey Sheet Peterborough 158 indicates soils to comprise Barroway Drove Beds which are silty soils but can contain occasional bands of peat. On reviewing the 4 No trialholes excavated over the site, this soil is typical of the Geological Survey Sheet.

2.4 **Topography**

The site is generally level.

2.5 **Drains/Rivers**

Running parallel with the Western boundary of the site adjacent to Hallgate, there is a drainage ditch of approximately 1.5m which is to be piped and filled.

2.6 **Walkover Survey Summary**

At the time of the site visit there was decommissioned oil tank for heating purposes, in the Northern corner of the existing dwelling. This is to be removed.

There were no stockpiles of any materials at the time of the site visit.

Beyond the Eastern and Southern boundaries, this is open Fenland.

A brick built septic tank is located towards the Eastern boundary which is to be cleaned out and removed from the ground.

The two storey dwelling on the site is to be demolished and was unoccupied at the time of the site visit. This would have shallow brick corbelled foundations which are all to be removed.

The dwelling appeared to have timber first floor construction, masonry external and internal walls, timber roof construction with slate tiles. Chimney stacks were constructed of masonry.

The brick built barn towards the Northeast corner on the site, had a metal corrugated sheet covering and masonry external walls together with a timber roof construction. This barn is to be demolished and all foundations grubbed out.

Access to the site is via an existing access onto Hallgate Road.

3.0 **SUMMARY OF DESKTOP STUDY**

3.1 **Groundsure Assessment**

Reference should be made to Appendix C for the Groundsure Desktop Study.

The overall professional assessment on the contaminated land is that it passed and that Groundsure considers that there was not a high potential risk that the site will be identified as contaminated land.

3.2 **Past Land Use**

On page 10 of the Groundsure Report, no potentially contaminated past land uses was identified within 250m. The site was occupied by a Georgian Farmhouse of approximately 250 years age. The site appeared to have a history of agricultural usage.

3.3 **Landfill & Waste Sites**

On page 10 of the Groundsure Report, this indicates the nearest possible infill land is a pond from 1950, but this would be 118m Southwest of the site.

3.4 **Industrial Sites & Processes**

On page 15 of the Groundsure Report, this indicates that electrical features which would be a pylon is located 247m Northwest of the site. No petrol or fuel sites have been identified within 250m of the site.

3.5 **Environmental Setting**

On page 18 of the Groundsure Report, this indicates that there are no sites of ecological and environmental value within 250m of the site.

3.6 **Flood Risk**

On page 21 of the Groundsure Report, this indicates the site within Flood Zone 1.

No water table was noted within any of the trialholes.

Mining

On page 28 of the Groundsure Report, this indicates that the property is not within an area which may have been affected by past, present or proposed underground coal mining.

3.7 **Radon**

No Radon measures are deemed necessary within the Groundsure Report and it is advised that the property is not in a Radon affected area as less than 1% of the properties are above the action level.

4.0 **TRIALHOLE FINDINGS**

At the time of the site visit, four trialholes were excavated over the site with a JCB and a 600mm wide bucket, and the results are as follows:-

Trialhole 1

Trialhole 1 was excavated to beyond 3.1m depth and revealed the following layering of strata. In general the strata consists of silty top soil to 0.7m, overlying light brown sandy silt to 3.1m.

No water table was encountered.

Trialhole 2

Trialhole 2 was excavated to beyond 3.3m depth and revealed the following layering of strata. In general the strata consists of silty top soil to 0.5m, overlying light brown silt to 2.7m before this gave away to peat to 3.1m. Below this very soft grey/blue silty clay was encountered to 3.3m.

No water table was encountered.

Trialhole 3

Trialhole 3 was excavated to beyond 3.2m depth and revealed the following layering of strata. In general the strata consists of silty top soil to 0.5m, overlying light brown silt to 2.0m before this gave away to soft grey/brown silty clay to 2.7m, below this a layer of peat was encountered at 3.1m before this gave away to very soft grey / blue silty clay to 3.2m

No water table was encountered.

Trialhole 4

5.1 Contaminated land can be defined under Section 78A(2) the Environmental Protection Act 1990 IIA, as any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reasons of substances, on or under the land that

- 1) Pollution of controlled water
- 2) Significant harm is being caused or significant possibility of such harm being caused in the future to person

The findings of the site walkover, Groundsure Report and trial pits have been used to develop the conceptual model for this site which should identify potential pollutant leakages. The scope of the model is intended to identify potential impacts to persons health and the surrounding area receptors from potential on site and also off site sources. Current documents such as National Planning Policy Framework and CLR 11 – Models Procedure for the Management of Land Contamination can be used for risk assessment of potentially contaminated land and these suggest a conceptual model. It is critical that all pollution leakages and pathways, target elements are present and these elements are being defined as follows:-

- 1) A pathway is a means by which a contaminant comes into contact with or otherwise effects the receptor such as human.
- 2) The contaminant is a hazardous substance.
- 3) A receptor being such as a human.

POTENTIAL SOURCES OF CONTAMINATION

POTENTIAL SOURCE OF CONTAMINATION	SITE OF	DISTANCE TO SITE	DATES ON MAPS	IDENTIFIED HISTORICAL	DISCUSSIONS	PROBABILITY & RISK	WARRANT FURTHER ASSESSMENT?
Backfill		On site	N/A		No backfill was encountered in the trialholes however backfill may be encountered when foundation excavations take place, at present this is relatively unknown.	Low ~ as no petrol hydrocarbons were noted on site	No
Brick/Concrete		On site	N/A		It is proposed to demolish the existing dwelling which has timber, brickwork, concrete materials.	Low ~ as all rubble and debris will be removed from site and existing foundations would be grubbed out.	No
Existing Barn		On site	N/A		The existing barn is a brick built structure covered with corrugated steel sheeting.	Medium ~ all debris will be removed from site and a controlled demolition would take place.	No

Septic Tank	On site	N/A	A septic tank which is expected to be brick built is situated to the Southern side of the site for the bungalow	The septic tank will be cleaned out and backfilled with concrete.	No
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5.2 POTENTIAL RECEPTORS FOR THE SITE

No's	POTENTIAL RECEPTORS	IS THE RECEPTOR PRESENT?
1	Human beings (construction workers)	Yes
2	Human beings (future residents)	Yes
3	Human beings (future visitor occupants)	No
4	Human beings (adjacent properties)	Yes
5	Ecological systems	No
6	On site flora and fauna	No
7	Buildings on site	Yes
8	Adjacent buildings	Yes
9	Potable water mains (on site)	Yes
10	Potable water mains (off site)	No
11	Perched soil water (underlying site)	Not encountered during trialholes
12	Groundwater (underlying aquifer)	No
13	Groundwater abstractions	No

5.3 POTENTIAL FOR POLLUTION OF PATHWAYS

No's	POTENTIAL RECEPTOR	POTENTIAL PATHWAYS
1	Construction workers	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust
2	Future residents	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust Ingestion of home-grown produce from garden areas
3	Adjacent residents in properties	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust Ingestion of home-grown produce Inhalation of soil dust outdoors Inhalation of soil vapours outdoors

4	Buildings on site	Direct contact with possible ground conditions
5	Adjacent buildings	Direct contact with possible ground conditions
6	Potable water mains	Direct contact with possible ground conditions
		Direct contact with organic contamination

5.4 CONCEPTUAL MODEL

SOURCE	POLLUTANT(S)	RECEPTOR(S)	PATHWAYS RECEPTOR	TO	PROBABILITY	CONSEQUENCE	RISK
Demolition Rubble	Hydrocarbons	Construction workers	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust	Low	~Demolition will be undertaken in a controlled manner and all debris including foundations will be removed from site.	Low	Medium

Existing Barn	Demolition rubble	Construction workers	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust	Low to medium ~ specialist report to be undertaken and all materials to be removed from site prior to construction	Major	Medium
Oil Tank	Oil	Construction workers	Ingestion of soil dust Dermal contact with soil dust Inhalation of soil dust	Low to medium ~ At the time of the site visit, we understand the oil tank was empty and the tank together with all pipework will be removed from site.	Major	Low to Medium

6.0 **CONCLUSIONS**

6.1 **Protection of Ground workers**

It is prudent for construction ground workers to limit skin contact with soils by wearing gloves with sleeves rolled down. Protective boots should also be worn. Hygiene facilities will be required on site to allow for washing down.

6.2 **Clean Certified Topsoil**

To the Northern part of the site, immediately to the front of the proposed dwelling and single storey wing, a minimum of 0.3m of clean certified topsoil should be set in the garden areas only.

6.3 **Ground Floor Construction, Ventilation & Membrane**

It is essential that the proposed precast concrete ground floor construction is well ventilated to the external and internal sleeper walls, to allow good air transfer throughout to ensure no build-up of any potential gases.

A 1200 gauge polythene dampproof membrane should be set over the top of the beam and block floor linked to the external and internal walls dampproof courses, prior to insulating and screeding to further seal the floor.

6.4 **Parking Area**

Where parking areas are to be formed, it will be necessary to excavate out the topsoil and a suitable compacted hardcore sub base set together with terram and a permeable finish.

6.5 **Unexpected Contamination during Site Works**

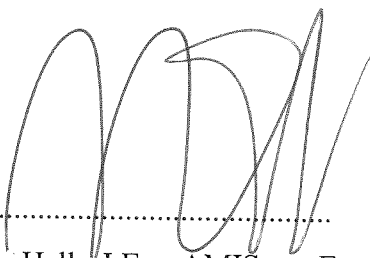
It is possible that further contamination may be found during the construction of the dwellings and any site clearance. If this is the case, the Engineers should be called together with the Local Authority Scientific Officer in order to provide further advice in this regard.

6.6 **Removal of all Demolition Rubble from the Dwelling & Barn**

It is essential that all debris and rubble arising from site with regards to the demolition of the existing building and barn, together with foundations is removed from site.

6.7 **Limitations**

These recommendations are based on the findings of our site investigation. We point out that other conditions may exist elsewhere on the site of which we have no knowledge and accept no responsibility.

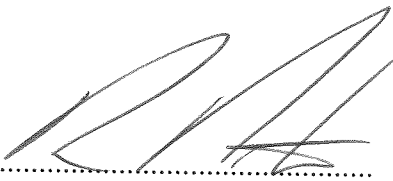
Signed 

Matthew Hall - I.Eng. AMIStructE
ACIOB MFPWS

Director

For and on behalf of

MORTON & HALL CONSULTING LTD

Signed 

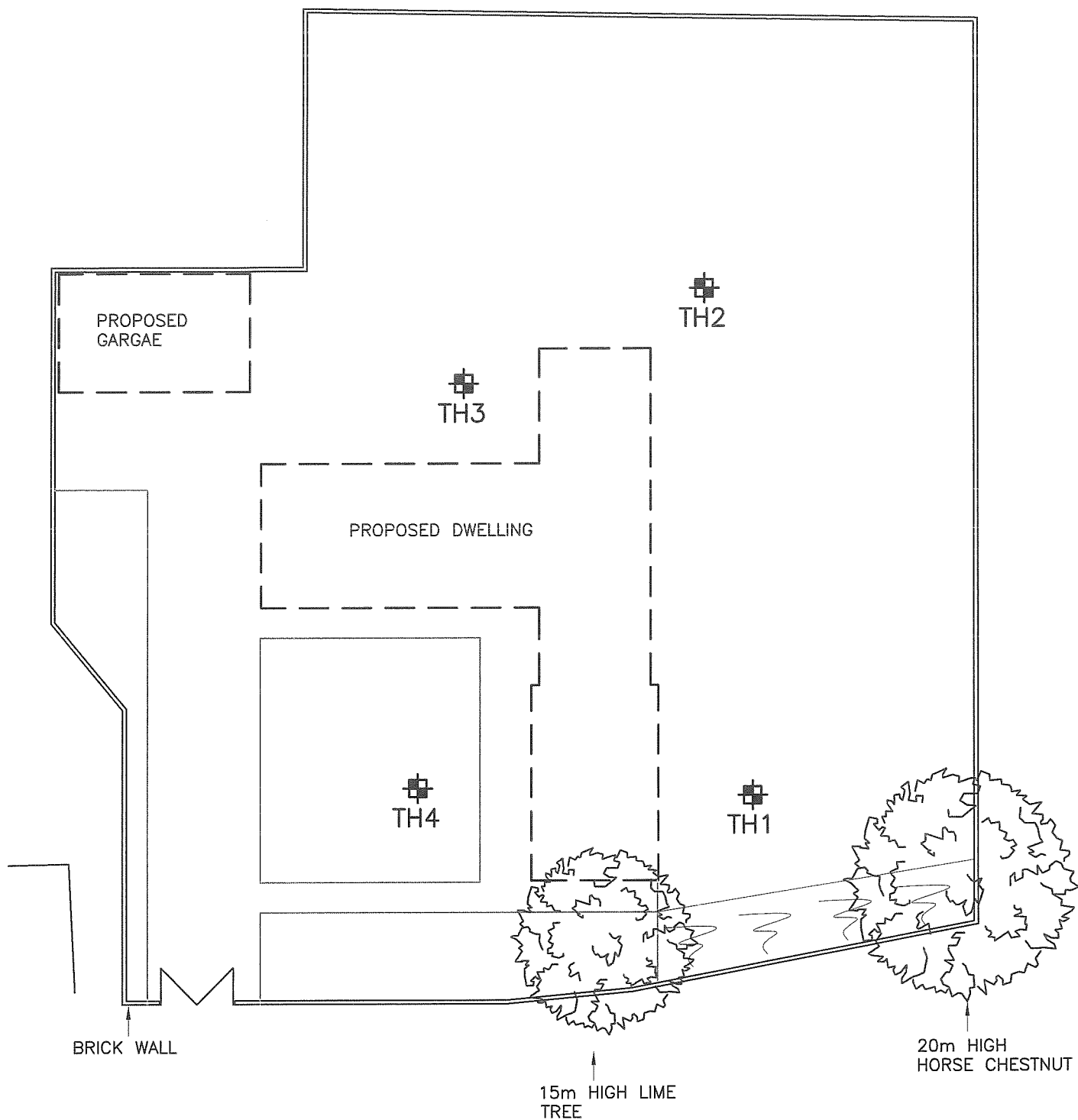
Richard A Morton, BSc. (Hons), C.Eng
MIStructE. RMaPS

Managing Director

For and on behalf of

MORTON & HALL CONSULTING LTD

APPENDIX A



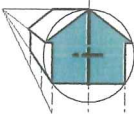
SITE PLAN

MORTON & HALL CONSULTING LIMITED CONSULTING STRUCTURAL ENGINEERS 1 Gordon Avenue, March, Cambridgeshire PE15 8AJ Tel: 01354 655454 Fax: 01354 660467 E-mail: info@mortonandhall.co.uk Website: www.mortonconsultingengineers.co.uk		client Mr and Mrs Proctor	
		scale 1:20	drawn MTH checked
title Siteplan	project Ollards Farm, Hallgate Road Throckenholt Cams		date Nov 2015
			drawing no H4163/00

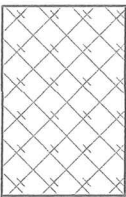
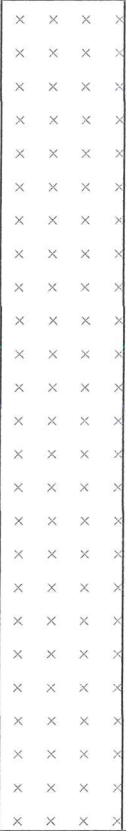
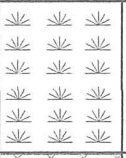
DESCRIPTION	SAMPLE	WATER	COMMENTS
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0.0					
	SILTY TOPSOIL				
0.5					
	LIGHT BROWN SANDY SILT				
3.1					

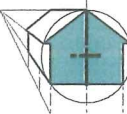
TRIALHOLE 01

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				scale 1:20	drawn MTH
title Trialhole 1		project Ollards Farm, Hallgate Road Throckenholt Cambs		date Nov 2015	
				drawing no H4163/01	

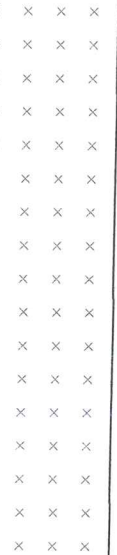
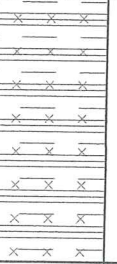
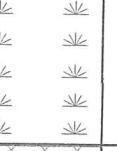
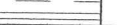
DESCRIPTION	SAMPLE	WATER	COMMENTS
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0.0		SILTY TOPSOIL			
0.5		LIGHT BROWN SILT			
2.7		PEAT			
3.1		VERY SOFT GREY/BLUE SILTY CLAY			
3.3					

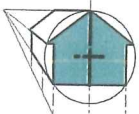
TRIALHOLE 02

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				scale 1:20	drawn MTH
title Trialhole 2		project Ollards Farm, Hallgate Road Throckenholt Cambs		date Nov 2015	
				drawing no H4163/02	

DESCRIPTION	SAMPLE	WATER	COMMENTS
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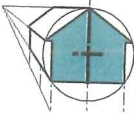
0.0		SILTY TOPSOIL			
0.5		LIGHT BROWN SILT			
2.0		SOFT GREY/BROWN SILTY CLAY			
2.7		PEAT			
3.1		VERY SOFT GREY/BLUE SILTY CLAY			
3.2					

TRIALHOLE 03

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				scale 1:20	drawn MTH
title Trialhole 3		project Ollards Farm, Hallgate Road Throckenholt Cams		date Nov 2015	
				drawing no H4163/03	

	DESCRIPTION	SAMPLE	WATER	COMMENTS
0.0	SILTY TOPSOIL/FILL			
0.8	LIGHT BROWN/GREY SILT			
2.4	SOFT GREY/BLUE CLAYEY SILT			
2.7	VERY SOFT GREY/BLUE CLAYEY SILT WITH SLIGHT PEAT CONTENT			
3.0				

TRIALHOLE 04

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				scale 1:20	drawn MTH checked
title Trialhole 4		project Ollards Farm, Hallgate Road Throckenholt Cambs		date Nov 2015	
				drawing no H4163/04	