

Your ref:

Our ref:

Date:



CONSULTING ENGINEERS & SURVEYORS

Heworth House  
Melrosegate  
Heworth  
York YO31 0RP  
Tel: (01904) 438005  
Fax: (01904) 435988  
Web: [www.dossor.co.uk](http://www.dossor.co.uk)  
E Mail: [dossor@dossor.co.uk](mailto:dossor@dossor.co.uk)

**BROADHELM VENTURE  
GROUND INVESTIGATION  
BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON**

**REPORT NO. 5324**

John Dossor & Partners Ltd.

Established 1944

Registered Office at Heworth House, Melrosegate, Heworth, York, YO31 0RP  
Registered in England No. 01255850



Your ref:

Our ref:

Date: **RT/2007 1159**  
**15<sup>th</sup> September 2011**



CONSULTING ENGINEERS & SURVEYORS

Broadhelm Venture  
Colenso House  
Omega 1  
Monks Cross Drive  
Monks Cross  
York  
YO32 9GZ

Heworth House  
Melrosegate  
Heworth  
York YO31 0RP  
Tel: (01904) 438005  
Fax: (01904) 435988  
Web: [www.dossor.co.uk](http://www.dossor.co.uk)  
E Mail: [dossor@dossor.co.uk](mailto:dossor@dossor.co.uk)

**Report No. 5324**

Dear Sirs

**Ground Investigation**  
**Broadhelm Business Park, Southern Area, Pocklington**

We refer to your instructions to carry out a ground investigation of the site and have pleasure in reporting as follows:

**REPORT**

**1. INTRODUCTION**

- 1.1** The ground investigation described in this report has been prepared by Dossor Group on behalf of Broadhelm Venture. The area under investigation lies to the north of the A1079 and west of the former Hodsow Lane and forms the southern corner of the former Pocklington airfield site. A site location map is presented in Appendix A (Figure 1).
- 1.2** The fieldwork and testing were generally carried out in accordance with the recommendations of BS5930: 1999 "Code of Practice for Site Investigations" and all stratum descriptions are as recommended in that publication.

John Dossor & Partners Ltd.      Established 1944

Registered Office at Heworth House, Melrosegate, Heworth, York, YO31 0RP  
Registered in England No. 01255850





## Ground Investigation Report

- 1.3 The comments and opinions presented in this report are based upon the finding of the ground conditions encountered during the intrusive investigation works and on the results of testing carried out in the laboratory. There may be other conditions existing on site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for ground conditions not revealed by the investigation.
- 1.4 The extent of the investigation as agreed with the Client was to provide geotechnical information based upon fourteen machine excavated trial pits (TP's 1-14). The ground works were undertaken on Tuesday 28<sup>th</sup> June 2011. Trial pits were progressed to a maximum depth of 1.7mbgl.
- 1.5 The positions of trial pits are shown on a trial pit location plan (Figure 2) included in Appendix A.
- 1.6 The trial pit logs are presented in Appendix B

## 2. SITE DESCRIPTION

- 2.1 The site is generally level in topography with shallow embankments on the north and western boundaries of the site up to the recent new road construction. The site cover generally comprises rough grass with localised areas of gravel. The site is centred at approximate Ordnance Survey co-ordinates 479220E, 447880N



## Ground Investigation Report

### 3. DESK STUDY

- 3.1 Historic maps from the 1850's, 1890's and 1910's (Figures 3, 4 & 5) Appendix C show the site as open fields. By the 1950's (Figure 6) Appendix C the wartime airfield is shown as disused with the site located to the south of the perimeter apron. A similar condition is shown on the maps for the 1970's and 1990's (Figures 7 & 8) Appendix C with no buildings shown on the site footprint.
- 3.2 Inspection of the 1:50,000 BGS Geological Map shows the solid geology beneath the site as belonging to the Mercia Mudstone Group of the Triassic Period (Figure 9) Appendix D. The site is shown as underlain by drift deposits of Glaciofluvial Sheet Deposits comprising sand and gravel of the Quaternary Period (Figure 10) Appendix D.
- 3.3 The BGS ground stability reference guide, Appendix D, classifies the site as being in an area where slope stability problems are not thought to occur (Figure 11) Appendix D. The ground conditions are of predominantly low plasticity and running sand conditions may occur if the water table rises (Figures 12 & 13) Appendix D. The site is shown as clear of compressible or collapsible material (Figure 14) Appendix D.
- 3.4 The Environment Agency classifies the drift geology under the site as a Secondary A Aquifer and the solid geology as a Secondary B Aquifer.
- 3.5 In accordance with the procedure described in BRE Publication BR211 *Radon: Guide on protective measures for New Dwellings*, no radon protection measures are required for new buildings on the site.



## Ground Investigation Report

### 4. GROUND CONDITIONS

- 4.1 Made Ground was encountered in all of the trial pits to a maximum depth of 0.6mbgl (TP12, 13). The made ground generally comprised rough grass vegetation over dark brown silty sandy gravelly topsoil.
- 4.2 Natural deposits were encountered at depths of between 0.35mbgl (TP7) and 0.6mbgl and comprised medium dense cream/yellow/light brown slightly sandy gravel interspersed with occasional firm light brown silts and sands.
- 4.3 The water table was encountered at an average Ordnance Datum level of 21.95m falling from 22.3m at the north east corner of the site to 21.7m at the south west corner.

### 5. GEOTECHNICAL TESTING AND ASSESSMENT

- 5.1 Selected samples taken from the trial pits underwent a series of geotechnical tests in accordance with BS1377: Part 2: 1990. The geotechnical test results are presented in Appendix E.
- 5.2 Two samples from TP1 and TP5 were tested for their acidity and soluble sulphate content to assess whether the natural soils may be potentially aggressive to building concrete foundations. The results gave pH values of 8.6 and 8.5 and soluble sulphate levels of 0.08 and 0.16 SO<sub>4</sub> g/l. BRE Special Digest One (2005: 3<sup>rd</sup> Edition): "*Concrete in Aggressive Ground*" has been used to assess the risks posed to underground concrete and to establish the design measures required to mitigate the risks. The ground falls into Class DS-1, ACEC (Class AC-1) requirements for concrete protection assuming mobile groundwater conditions.
- 5.3 Atterberg limit tests on the silt samples from TP2 and TP8 classify the samples as a silt of intermediate plasticity. The Plasticity Indices of the samples were 15 and 12. The cohesive material is classified as having a low shrinkage potential in relation to NHBC guidance Chapter 4.2.

### 6. HAZARD ASSESSMENT

- 6.1 A desk study and basic intrusive geotechnical investigation and chemical analysis has been undertaken together with a walk over survey of the site.
- 6.2 On the basis of this investigation and the past land use hazards are not suspected and a detailed contamination investigation is not required.



Ground Investigation Report

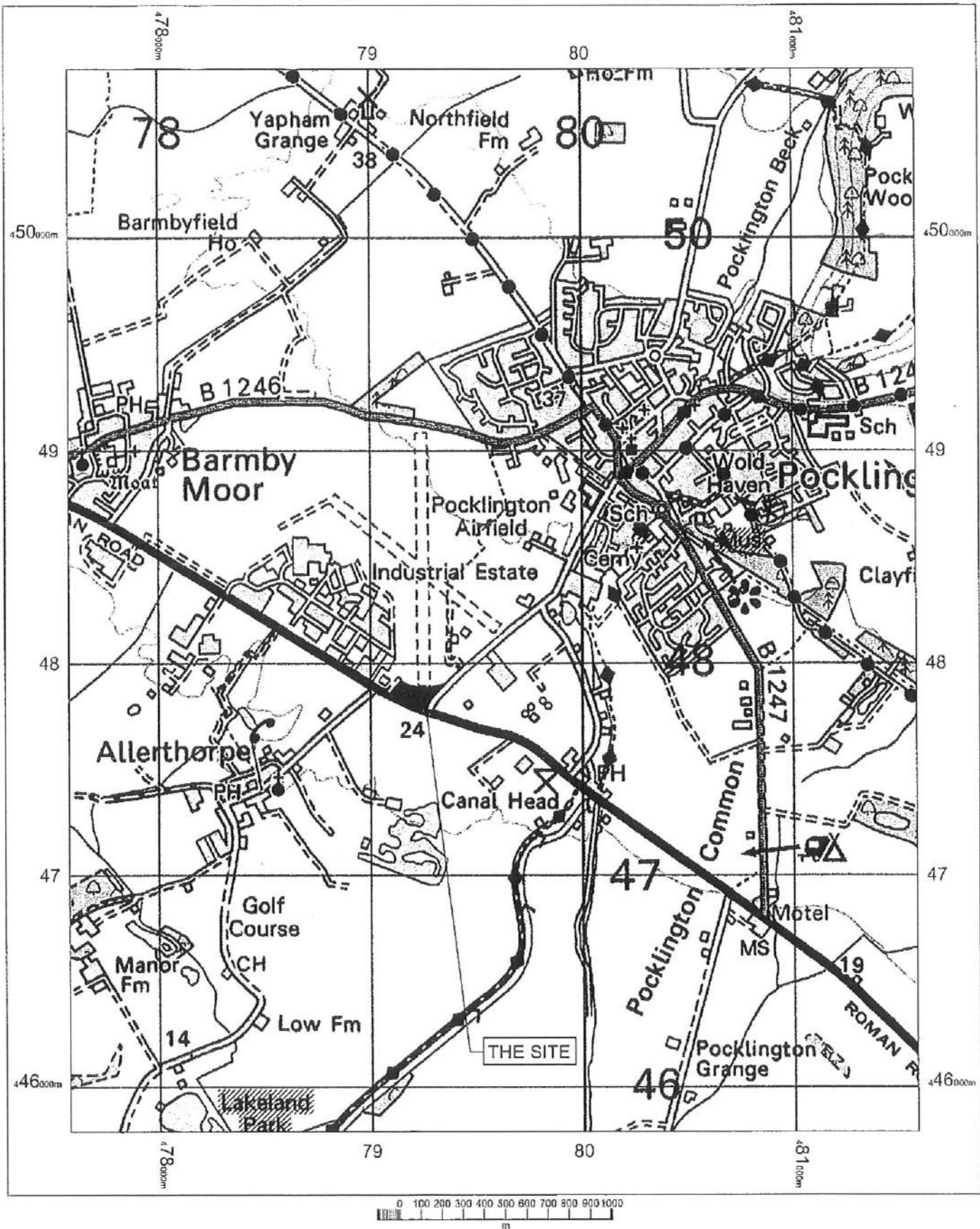
7. **FOUNDATIONS**

- 7.1 For conventional building structures of up to two storeys in height traditional concrete strip footings lightly reinforced with steel mesh should be appropriate.
- 7.2 Formation levels for the foundations should be a minimum of 0.75m below existing ground level and a minimum of 0.1m above water table.
- 7.3 Prior to placing foundations all exposed formations should be well compacted and any soft or loose material should be removed and backfilled with inert well compacted granular fill.

Yours sincerely,

Dr R Thew BSc, PhD, CEng, MStructE.  
for **Dossor Group**

**Appendix A**  
**Site Location Map**  
**Trial Pit Location Plan**



**FIGURE 1**  
**SITE LOCATION MAP**  
 BROADHELM BUSINESS PARK  
 SOUTHERN AREA  
 POCKLINGTON

BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
 www.centremapslive.co.uk  
 1:25000 scale print at A4, Centre: 479578 E, 448290 N  
 © Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved

Mapping sourced from  Ordnance Survey  **CENTREMAPSlive**  
 www.centremapslive.co.uk





**NOTES**  
 1. DO NOT SCALE  
 2. ALL LEVELS RELATE TO ORDNANCE DATUM

**FIGURE 2**

NO.	REVISION	DATE

**THE BROADHELT VENTURE**

**BROADHELT BUSINESS PARK,**  
**ROCKLINGTON**

**SOUTHERN AREA- TRAIL**  
**HOLE LOCATION PLAN**

**Dossor Group**

**ace**

Drawn by	CN	JUN 2011	1:250
Checked by	SD	JUN 2011	AT AI

0007 HES0

**Appendix B**

**Trial Pit Logs**

Project Broadhelm Business Park, Pocklington, York			Job no. 2007 1159			
Calcs for Southern Area Ground Investigation			Start page no./Revision 1			
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date	

**TRIAL PIT LOG**

Trial pit reference TP1 Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.67			
	23.27	X X X X	(0.40) 0.40	Loose to medium dense dark brown TOP SOIL
	22.57	o : o : o : : o : o : o : o : o : : o : o :	(0.70) 1.10	Medium dense cream subrounded slightly sandy fine to coarse GRAVEL
	22.27	o : o : o : : o : o :	(0.30) 1.40	Light brown subrounded slightly sandy fine to coarse GRAVEL
<u>v</u>	22.17	o : o : o :	1.50	Medium dense cream subrounded slightly sandy fine to coarse GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York				Job no. 2007 1159	
Calcs for Southern Area Ground Investigation				Start page no /Revision 2	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP2 Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.53			
	22.98	X X X X X X	(0.55) 0.55	Loose to medium dense dark brown TOP SOIL
	22.43	x x x x x x x x	(0.55) 1.10	Firm light brown and occasionally white SILT
<u>v</u>	22.03	o : o : o : o : o :	(0.40) 1.50	Cream subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 3	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP3 Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.36			
	22.86	X X X X X X	(0.50) 0.50	Loose to medium dense dark brown TOP SOIL
	22.56	x o x o o x o x	(0.30) 0.80	Firm light brown and occasionally white gravelly SILT
<u>v</u>	21.96 21.96	o : o : o : o : o : o : o : o	(0.60) 1.40	Cream subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York			Job no. 2007 1159		
Calcs for Southern Area Ground Investigation			Start page no./Revision 4		
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP4				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.30			
	22.85	X X X X X X	(0.45) 0.45	Loose to medium dense dark brown TOP SOIL
	22.50	: x : x : x : x : x	(0.35) 0.80	Medium dense light brown silty SAND
v	21.65 21.60	o : o : o : o : o : o : o : o : o : o : o : o : o	(0.90) 1.70	Medium dense to dense creamy Orange subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale  
Additional notes:

Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 5	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP5				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.56			
	23.06	X X X X X X	(0.50) 0.50	Loose to medium dense dark brown TOP SOIL
	22.36	o : o : o : o : o : o : o : o : o : o :	(0.70) 1.20	Creamy to light brown subrounded sandy GRAVEL
<u>v</u>	22.16 22.11	o o o o o	(0.25) 1.45	Medium dense to dense light brown subrounded GRAVEL
				Trial pit ends

Not shown to scale  
Additional notes:

Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 6	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP6				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.30			
	22.75	- w - w - w - w - - w - w -	(0.55) 0.55	Loose to medium dense dark brown ORGANIC CLAY
	22.00	x : x : x : x : x : x : x : x : x : x :	(0.75) 1.30	Medium dense light brown sandy SILT
	21.80	o : o : o	1.50	Medium dense brown sandy GRAVEL
v	21.70	o : o : o	(0.25)	Cream subrounded slightly sandy fine to coarse GRAVEL
	21.55	: o : o :	1.75	
				Trial pit ends
Not shown to scale				
Additional notes:				



Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 7	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP7				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.69			
	23.34	X X X X	(0.35) 0.35	Loose to medium dense dark brown TOP SOIL
	22.94	: : : : : :	(0.40) 0.75	Medium dense yellow SAND
	22.49	: x : x : x : x : x : x : x :	(0.45) 1.20	Medium dense brown silty SAND
<u>v</u>	22.09 22.04	o : o : o : o : o : o : o : o	(0.45) 1.65	Medium dense to dense cream subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York				Job no. 2007 1159	
Calcs for Southern Area Ground Investigation				Start page no./Revision 8	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP8

Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.30			
	22.80	X X X X X X	(0.50) 0.50	Loose to medium dense dark brown TOP SOIL
	22.25	x : x : x : x : x : x : x : x	(0.55) 1.05	Firm light brown and occasionally white slightly sandy SILT
<u>v</u>	21.70 21.65	o : o : o : o : o : o : o : o	(0.60) 1.65	Medium dense to dense cream subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York				Job no. 2007 1159	
Calcs for Southern Area Ground Investigation				Start page no./Revision 9	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP9

Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.15			
	22.80	X X X X	(0.35) 0.35	Loose to medium dense dark brown TOP SOIL
		o : o : o : o : o : o : o : o : o : o : o : o : o	(1.05)	Medium dense light brown subrounded sandy GRAVEL
<u>v</u>	21.75 21.75	o : o : o : o : o :	1.40	
Trial pit ends				

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York				Job no. 2007 1159	
Calcs for Southern Area Ground Investigation				Start page no./Revision 10	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP10					Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description	
	23.35				
	22.85	X X X X X X	(0.50) 0.50	Loose to medium dense dark brown TOP SOIL	
	22.05	o : o : o : : o : o : o : o : o : : o : o :	(0.80) 1.30	Medium dense light brown subrounded sandy GRAVEL	
	21.95	: o : o :	1.40	Medium dense brown gravelly SAND	
<u>v</u>	21.90 21.70	o : o : o : : o : o :	(0.25) 1.65	Medium dense brown subrounded sandy GRAVEL	
				Trial pit ends	
Not shown to scale					
Additional notes:					

Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 11	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP11

Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.70			
	23.20	X X X X X X	(0.50) 0.50	Loose to medium dense dark brown TOP SOIL
	22.95	x : x : x : x : x :	(0.25) 0.75	Firm brown sandy SILT
	22.50	o : o : o : o : o : o : o : o	(0.45) 1.20	Medium dense cream subrounded slightly sandy GRAVEL
v	22.30 22.25	o : o : o : o : o :	(0.25) 1.45	Medium dense to dense yellow subrounded slightly sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York		Job no. 2007 1159	
Calcs for Southern Area Ground Investigation		Start page no./Revision 12	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date
Approved by		Approved date	

**TRIAL PIT LOG**

Trial pit reference TP12 Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.70			
	23.10	X X X X X X	(0.60) 0.60	Loose to medium dense dark brown TOP SOIL
	22.80	x : x : x : x : x :	(0.30) 0.90	Firm yellow sandy SILT
	22.50	: x : x : x : x : x	(0.30) 1.20	Medium dense brown silty SAND
	22.30	o : o : o	1.40	Brown subrounded sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York				Job no. 2007 1159	
Calcs for Southern Area Ground Investigation				Start page no./Revision 13	
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP13 Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.65			
	23.05	X X X X X X	(0.60) 0.60	Loose to medium dense dark brown TOP SOIL
	22.75	: : : : : :	(0.30) 0.90	Compact light brown SAND
	22.55	o : o : o	1.10	Medium dense to dense brown subrounded sandy GRAVEL
	22.15	o o o o o	(0.40) 1.50	Medium dense to dense cream subrounded GRAVEL
v				Trial pit ends

Not shown to scale

Additional notes:

Project Broadhelm Business Park, Pocklington, York			Job no. 2007 1159		
Calcs for Southern Area Ground Investigation			Start page no./Revision 14		
Calcs by RT	Calcs date 08/09/2011	Checked by	Checked date	Approved by	Approved date

**TRIAL PIT LOG**

Trial pit reference TP14

Sheet 1 of 1

Water	Reduced Level (m)	Legend	Depth (m)	Description
	23.20			
	22.80	X X X X	(0.40) 0.40	Loose to medium dense dark brown TOP SOIL
	22.40	o o o o o	(0.40) 0.80	Medium dense cream GRAVEL
	22.20	x x x	1.00	Soft to firm light brown SILT
v	21.85 21.80	o : o : o : o : o :	(0.40) 1.40	Medium dense to dense light brown sandy GRAVEL
				Trial pit ends

Not shown to scale

Additional notes:



**Appendix C**  
**Historic Maps**

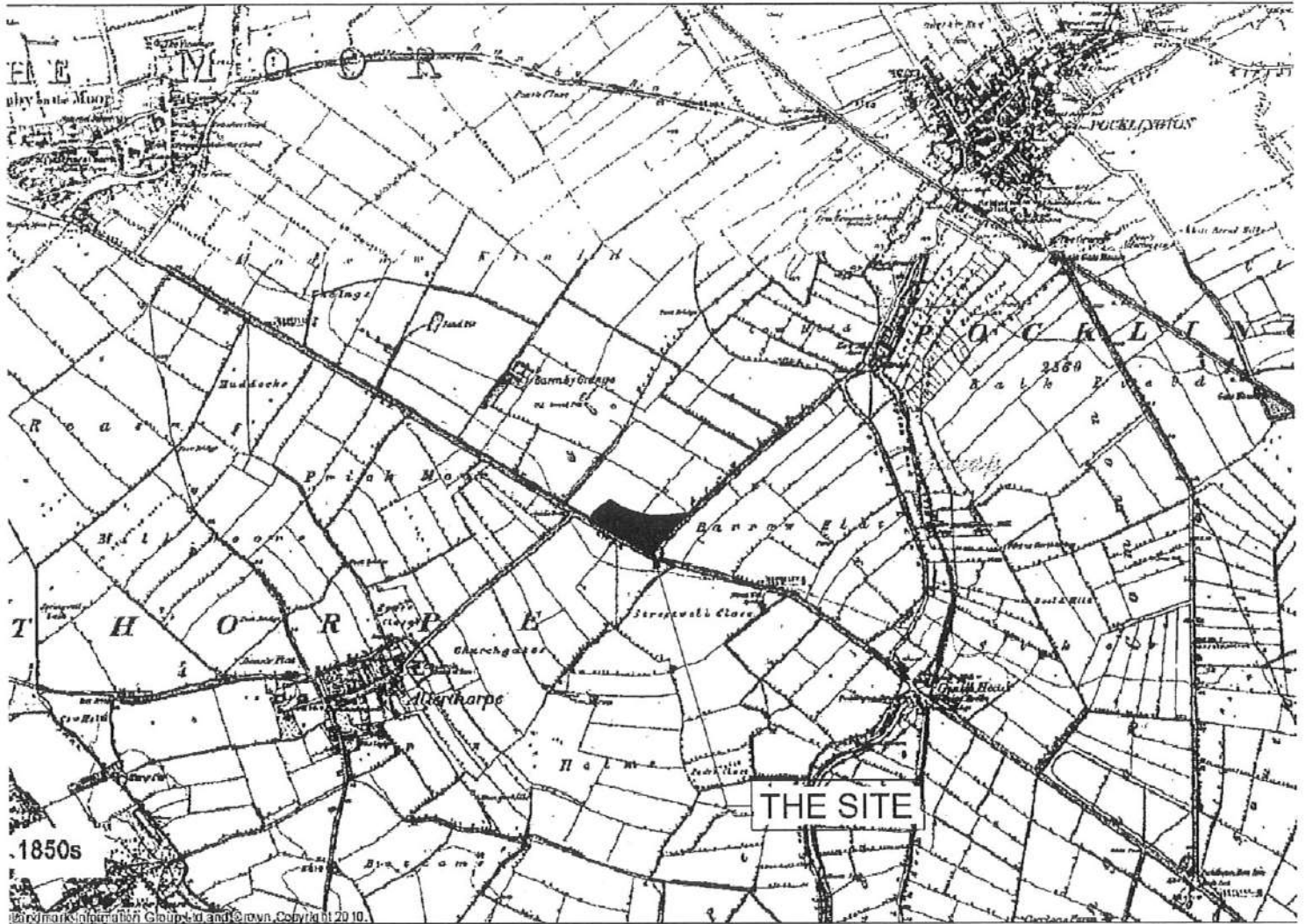


FIGURE 3  
1850'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON



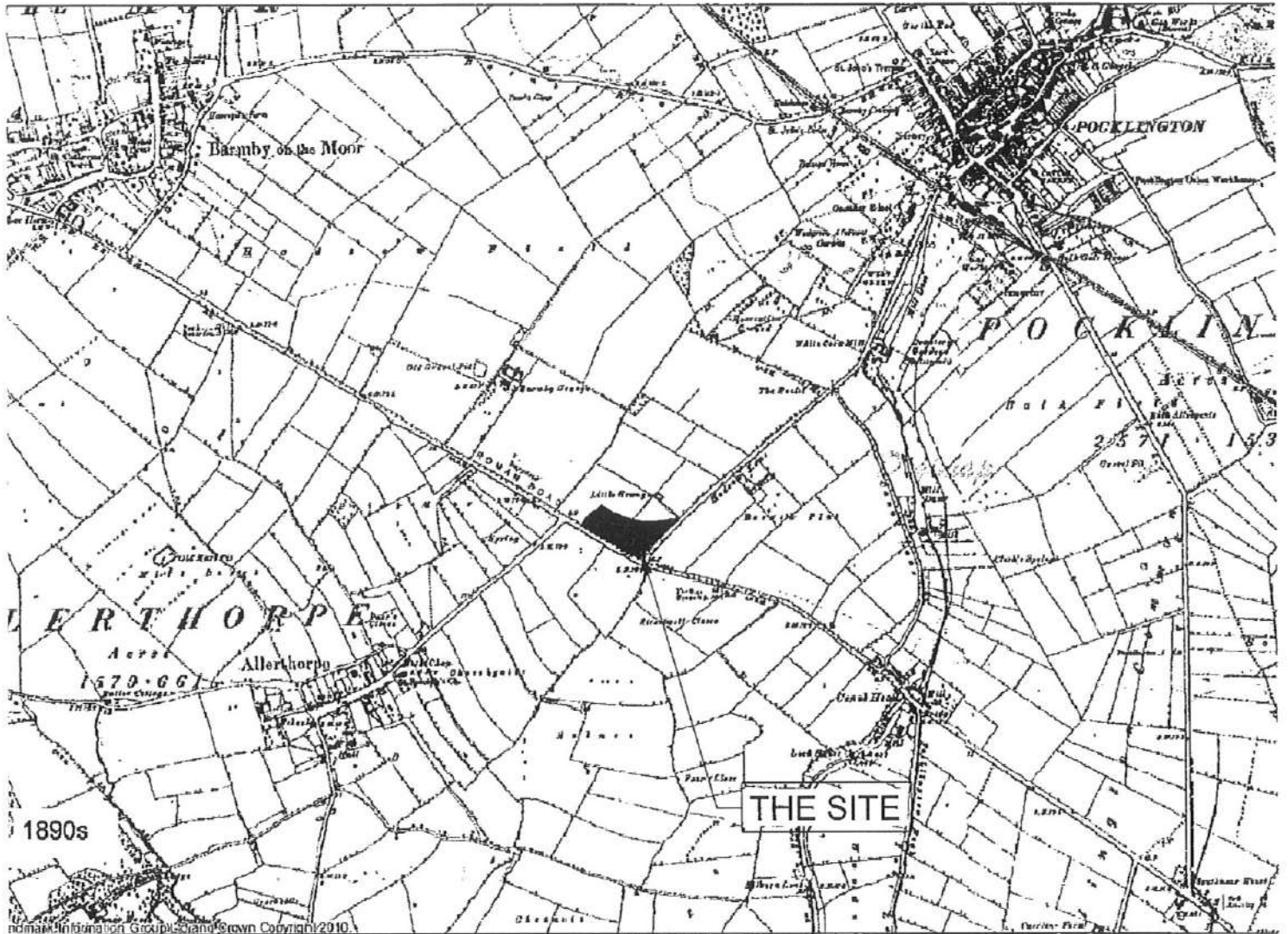


FIGURE 4  
1890'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON

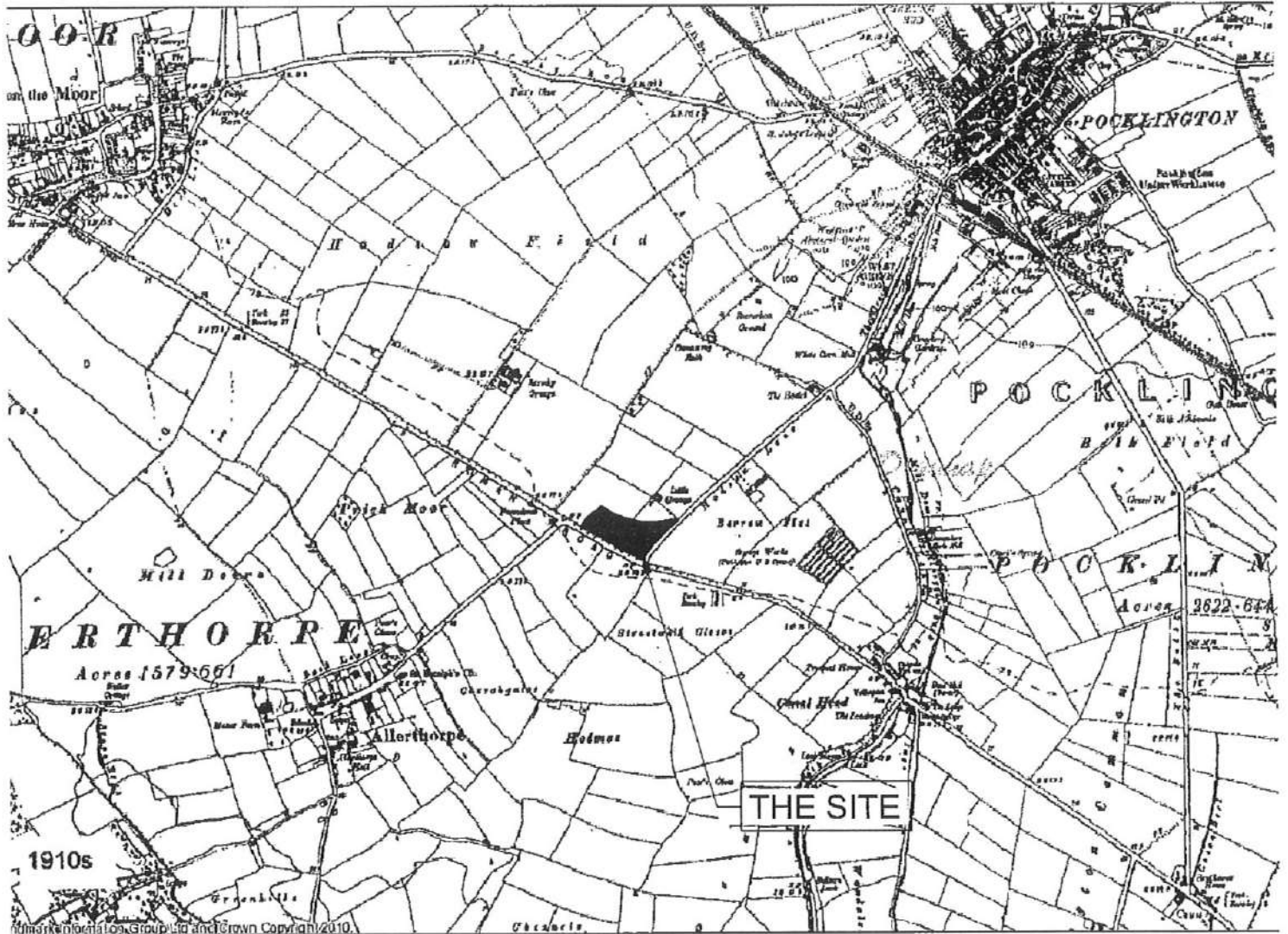
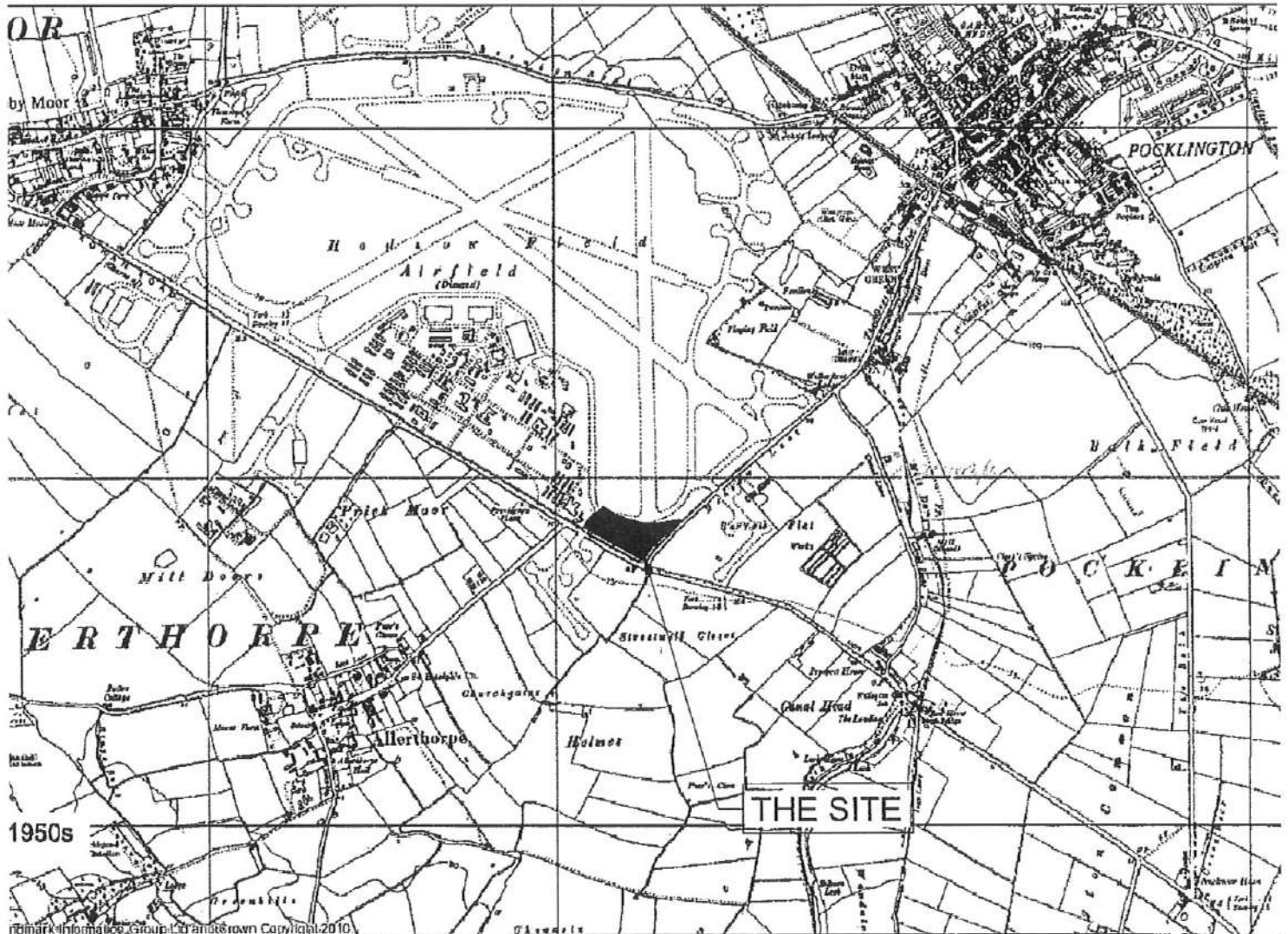


FIGURE 5  
1910'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON





© Ordnance Survey, 2010. Ordnance Survey is a registered trademark of Ordnance Survey.



FIGURE 6  
1950'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON

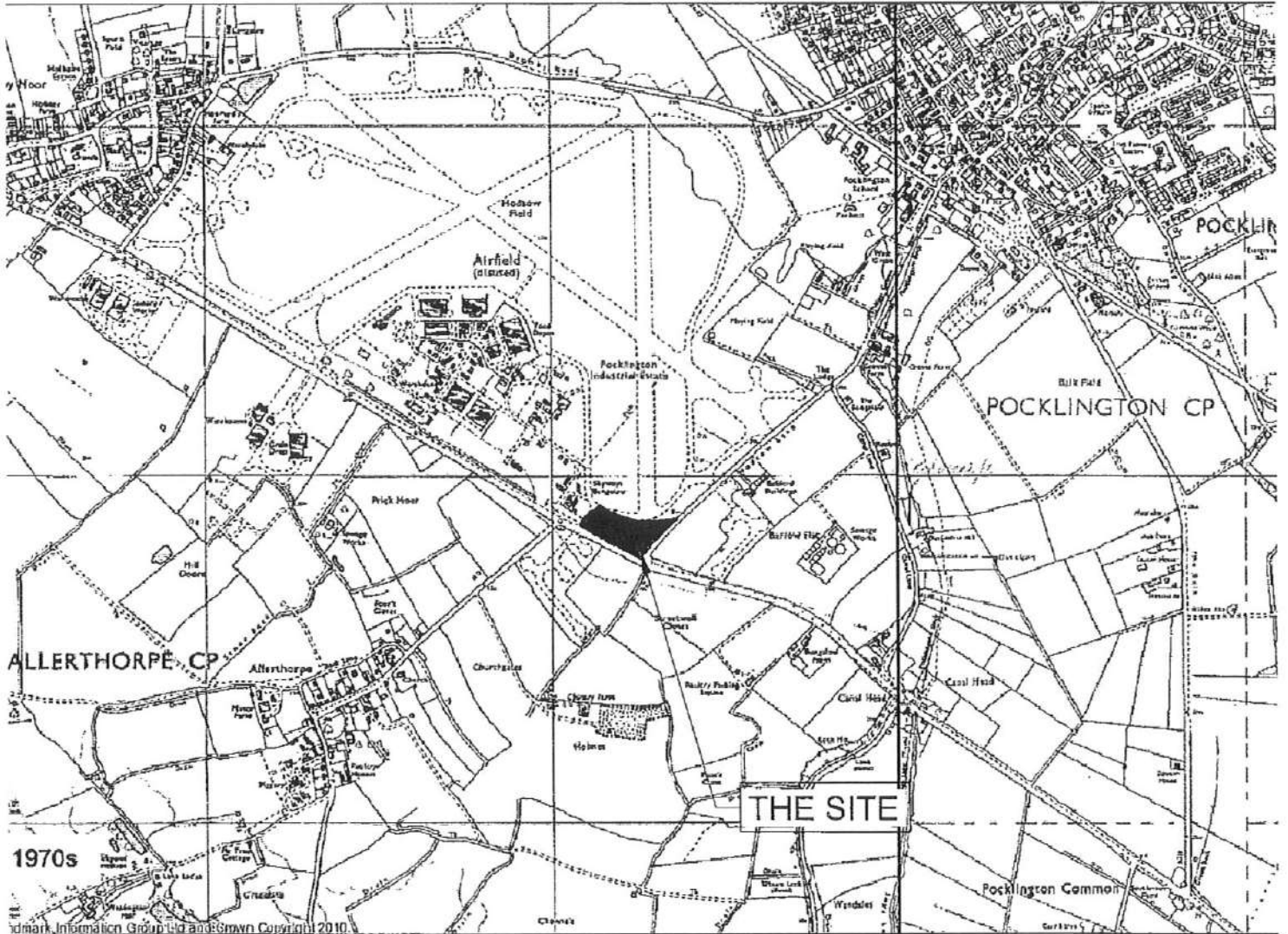


FIGURE 7  
1970'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON



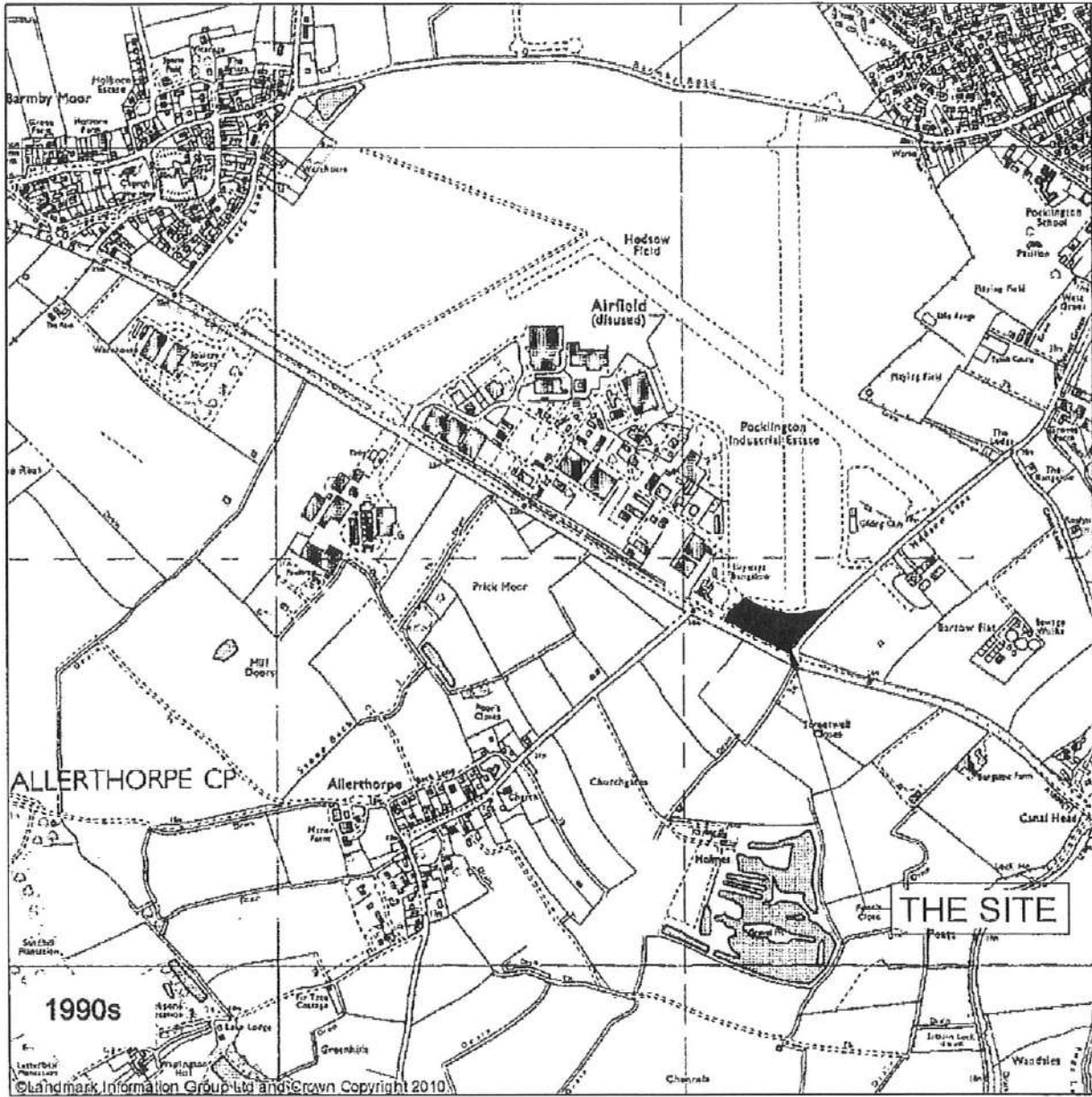
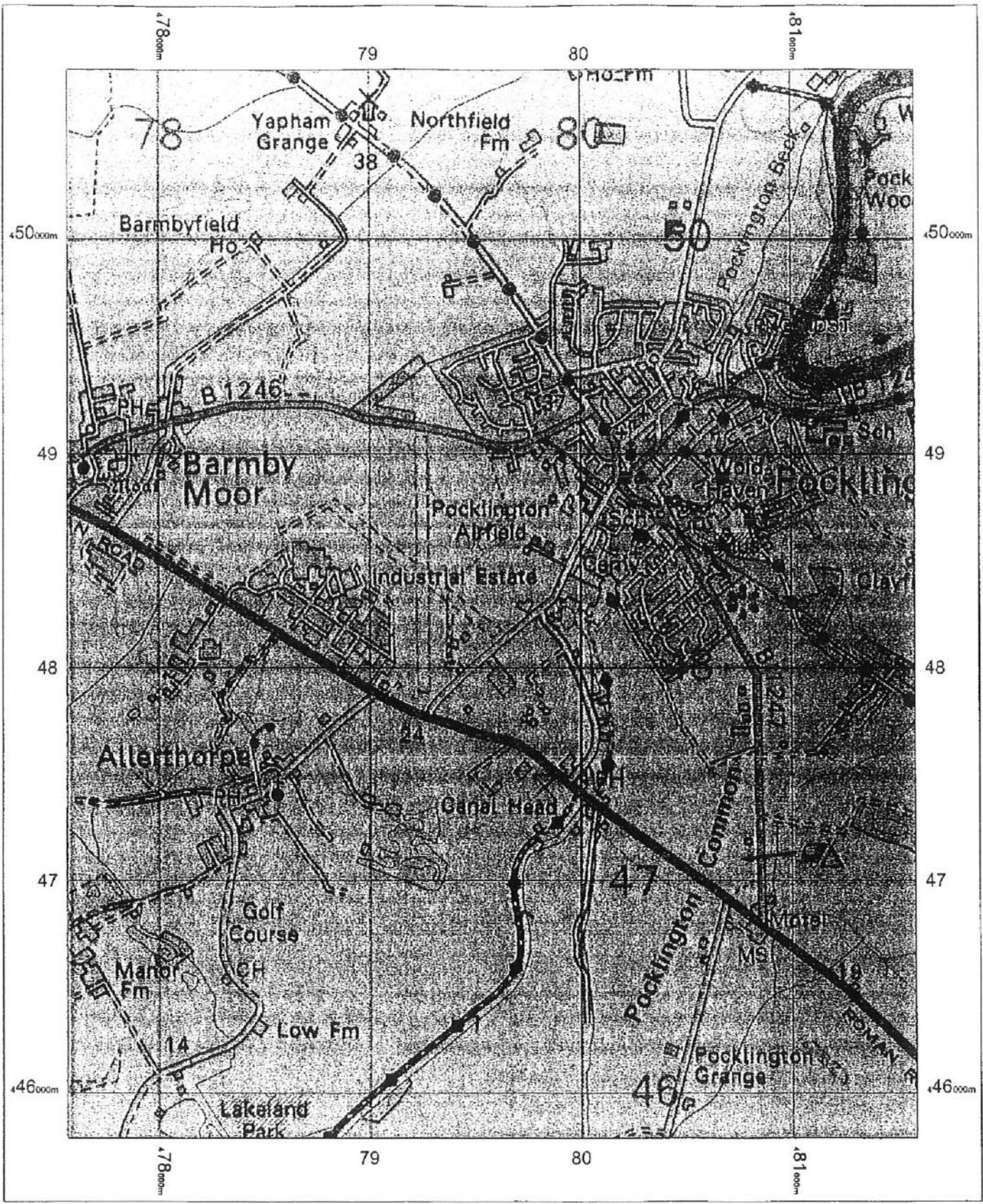


FIGURE 8  
1990'S HISTORIC MAP

BROADHELM BUSINESS PARK  
SOUTHERN AREA  
POCKLINGTON

**Appendix D**  
**Geological Maps**










**FIGURE 9**  
**SOLID GEOLOGY**  
 BROADHELM BUSINESS PARK  
 SOUTHERN AREA  
 POCKLINGTON

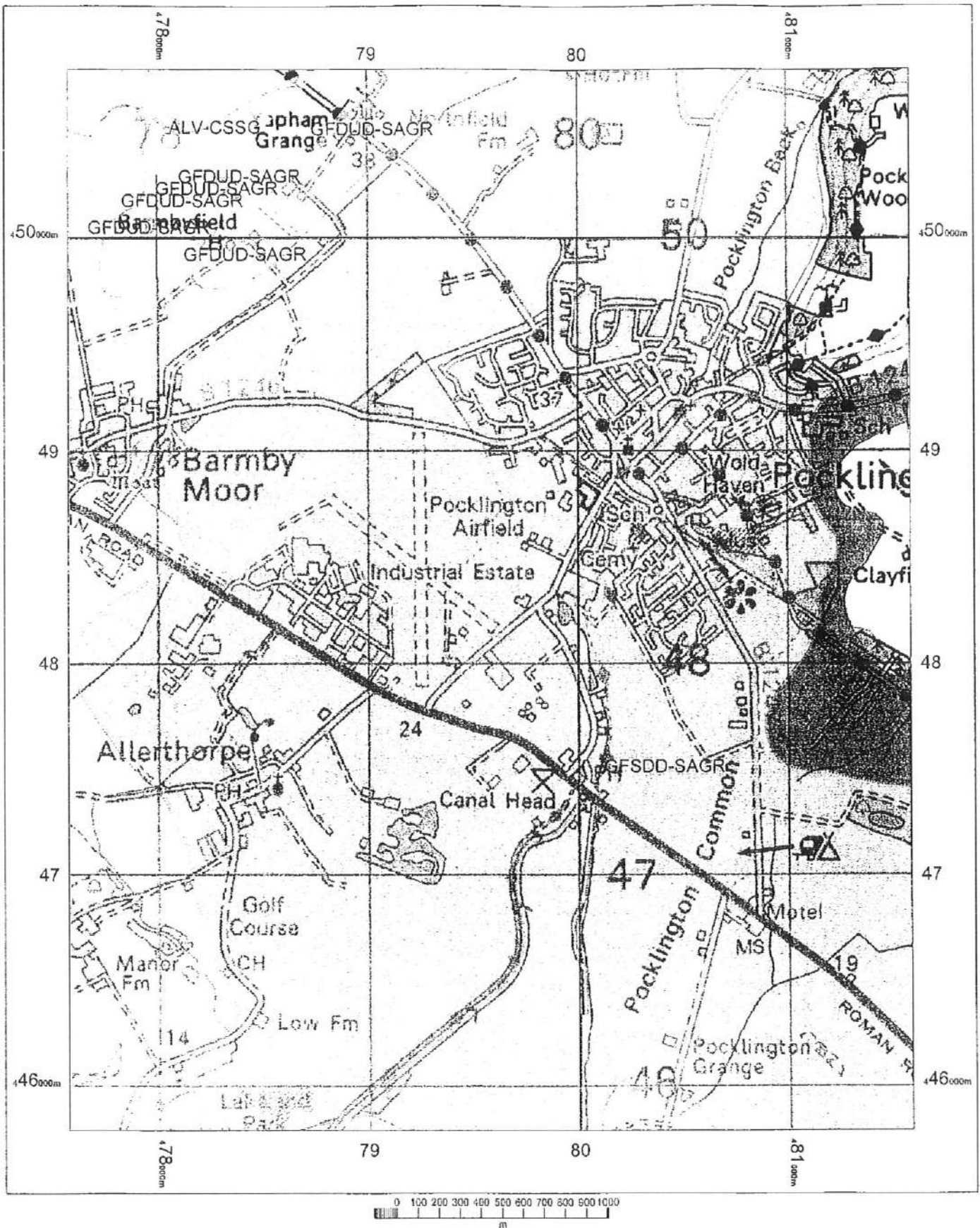
BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
[www.centremapslive.co.uk](http://www.centremapslive.co.uk)  
 1:25000 scale print at A4, Centre: 479578 E, 448290 N  
 © Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved

N  
↑

Mapping sourced from  Ordnance Survey  CENTREMAPSlive®  
[www.centremapslive.co.uk](http://www.centremapslive.co.uk)

## KEY TO BEDROCK GEOLOGY

Map Colour	LEX Code	Rock Name	Rock Type	Max Age (Period)
	RMU-MDST	Redcar Mudstone Formation <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=RMU">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=RMU</a>	Mudstone	Jurassic
	PNG-MDST	Penarth Group <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=PNG">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=PNG</a>	Mudstone	Triassic
	MMG-MDST	Mercia Mudstone Group <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=MMG">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=MMG</a>	Mudstone	Triassic



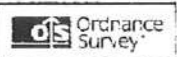
**FIGURE 10**  
**DRIFT GEOLOGY**  
 BROADHELM BUSINESS PARK  
 SOUTHERN AREA  
 POCKLINGTON


BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
 www.centremapslive.co.uk

1:25000 scale print at A4, Centre: 479578 E, 448290 N

© Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved

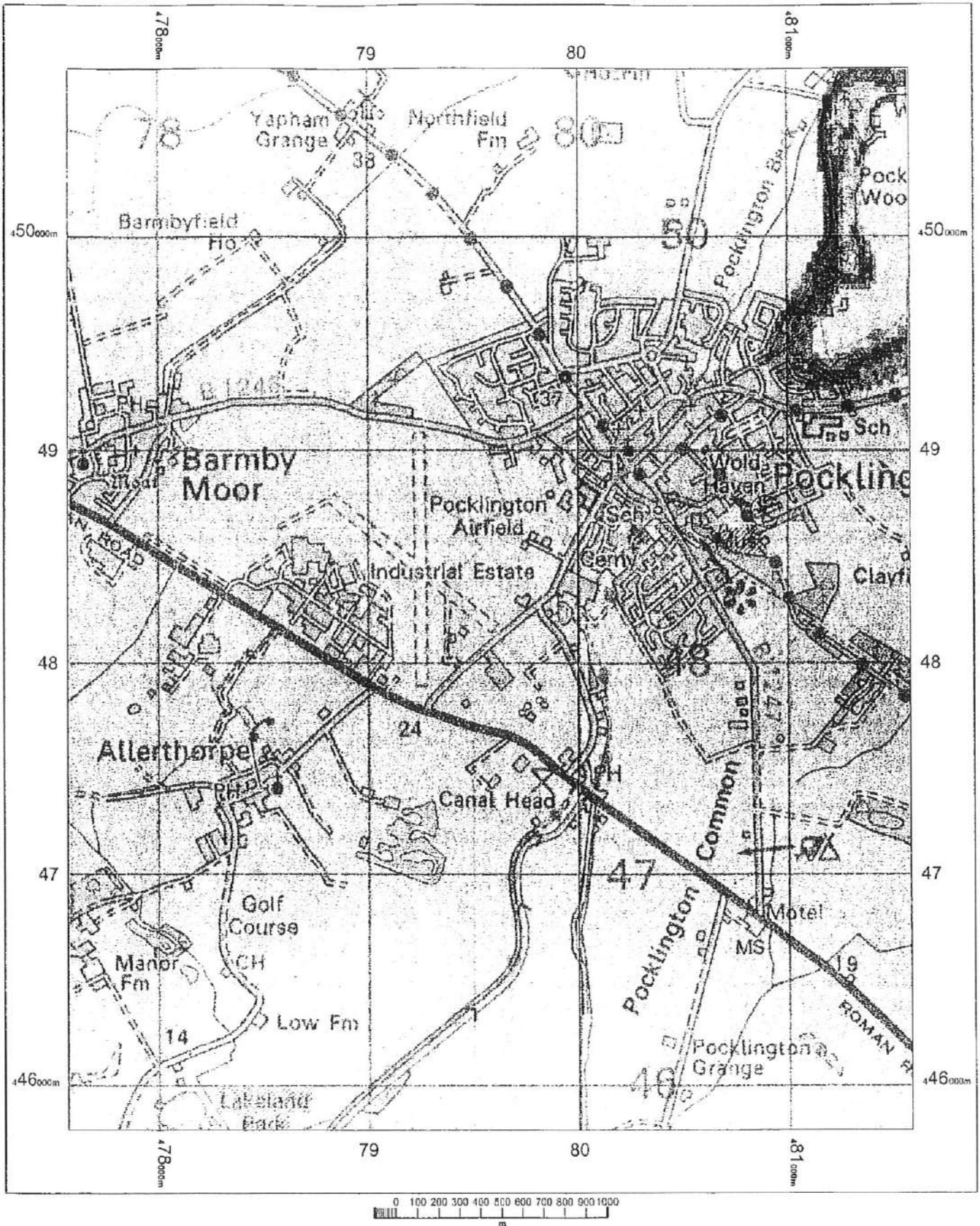
N  
↑

Mapping sourced from  **Ordnance Survey**

 **CENTREMAPSlive**  
 www.centremapslive.co.uk

## KEY TO SUPERFICIAL GEOLOGY

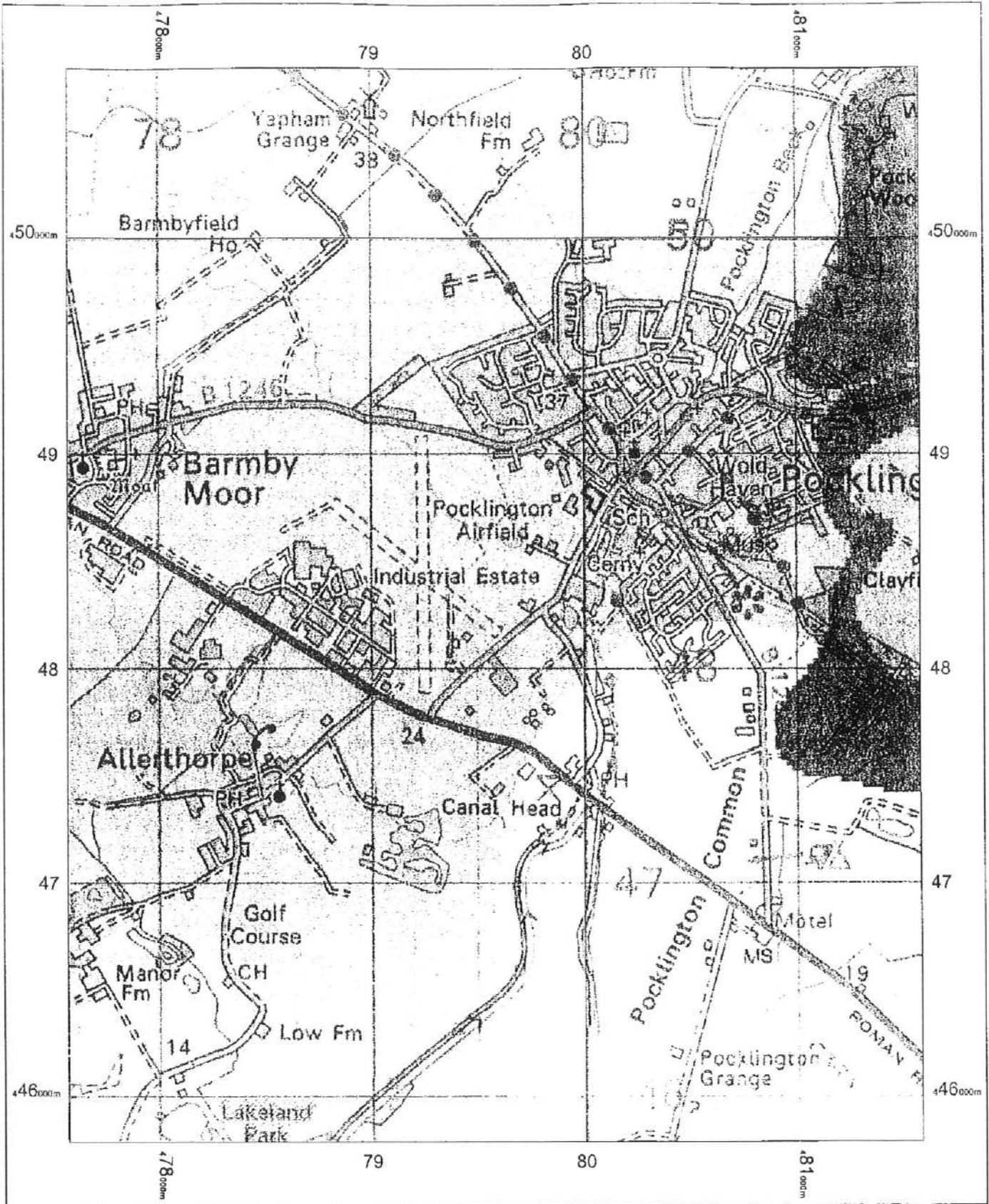
Map Colour	LEX Code	Rock Name	Rock Type	Max Age (Period)
	GFDUD-SAGR	Glaciofluvial Deposits, Undifferentiated, Devensian <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GFDUD">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GFDUD</a>	Sand And Gravel	Quaternary
	GFSDD-SAGR	Glaciofluvial Sheet Deposits, Devensian <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GFSDD">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GFSDD</a>	Sand And Gravel	Quaternary
	GLLDD-SAGR	Glaciolacustrine Deposits, Devensian <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GLLDD">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=GLLDD</a>	Sand And Gravel	Quaternary
	ALV-CSSG	Alluvium <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=ALV">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=ALV</a>	Clay, Silt, Sand And Gravel	Quaternary
	HEAD-CSSG	Head (Undifferentiated) <a href="http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=HEAD">http://www.bgs.ac.uk/Lexicon/lex_list.cfm?pub=HEAD</a>	Clay, Silt, Sand And Gravel	Quaternary



**FIGURE 11**  
**SLOPE STABILITY**  
 BROADHELM BUSINESS PARK  
 SOUTHERN AREA  
 POCKLINGTON

BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
 www.centremapslive.co.uk  
 1:25000 scale print at A4, Centre: 479578 E, 448290 N  
 © Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved

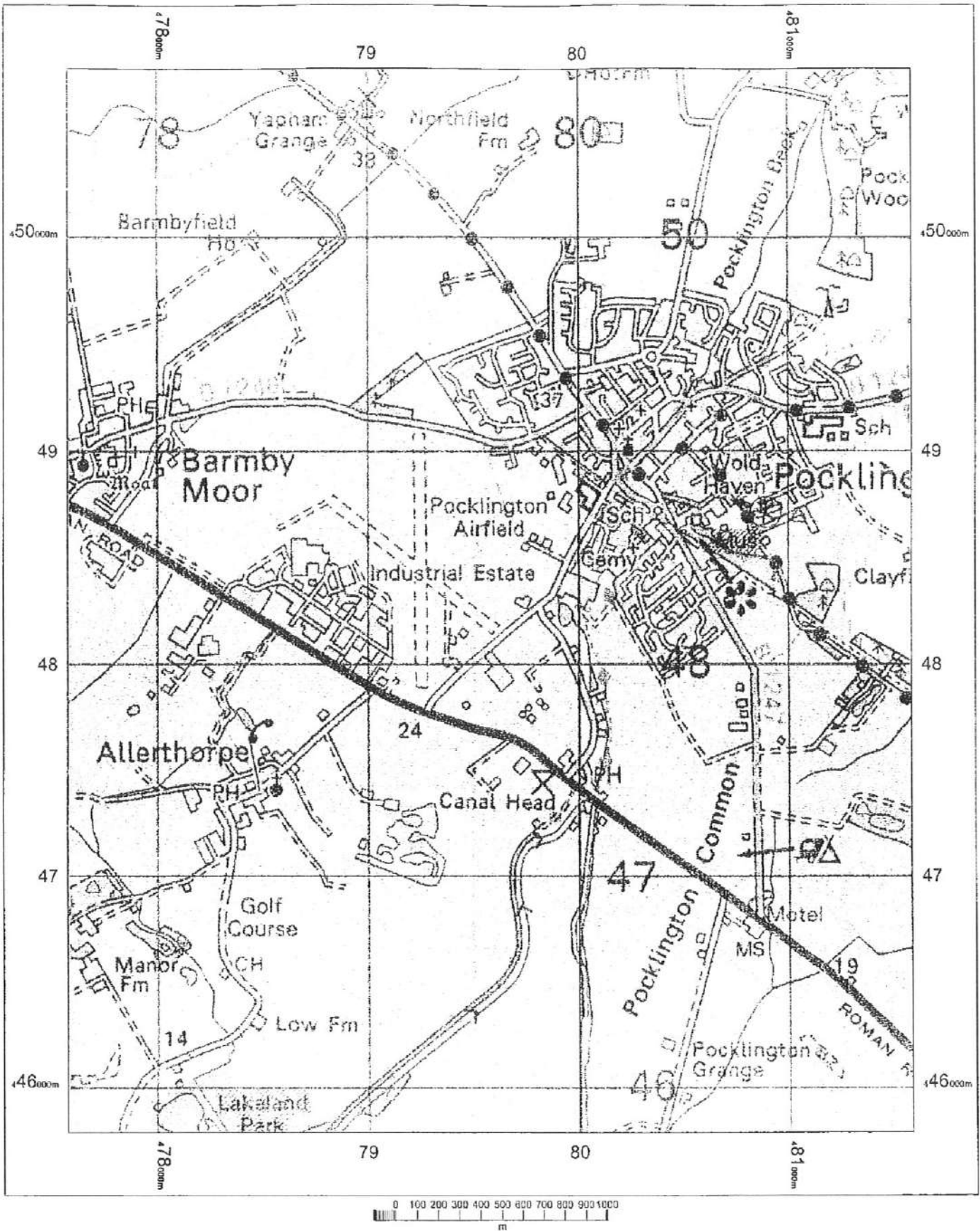




**FIGURE 12**  
**SHRINK / SWELL POTENTIAL**  
**BROADHELM BUSINESS PARK**  
**SOUTHERN AREA**  
**POCKLINGTON**

BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
[www.centremapslive.co.uk](http://www.centremapslive.co.uk)  
 1:25000 scale print at A4, Centre: 479578 E, 448290 N  
 © Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved







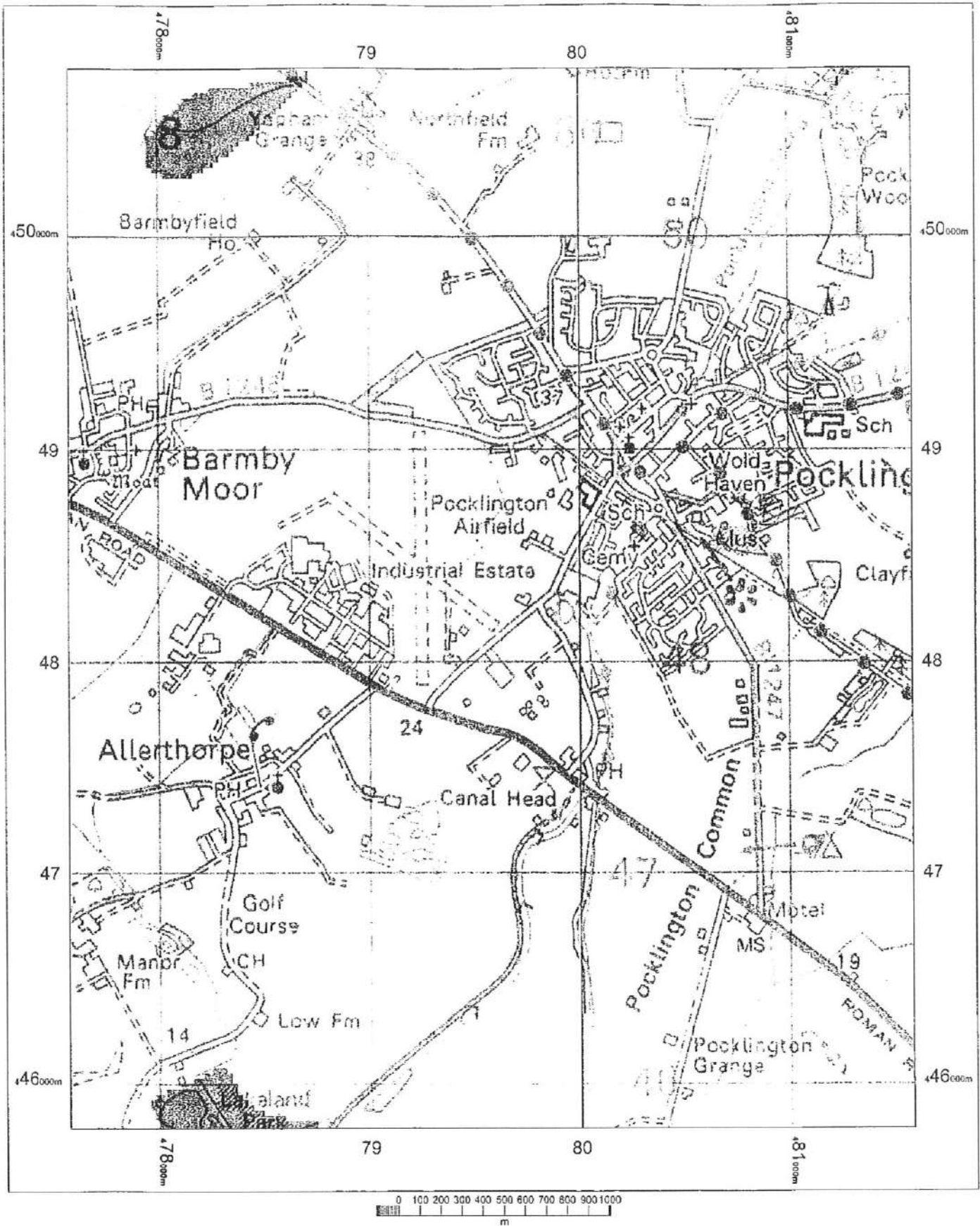
**FIGURE 13**  
**RUNNING SAND POTENTIAL**  
**BROADHELM BUSINESS PARK**  
**SOUTHERN AREA**  
**POCKLINGTON**

BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
[www.centremapslive.co.uk](http://www.centremapslive.co.uk)  
 1:25000 scale print at A4, Centre: 479578 E, 448290 N  
 © Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved

N  
↑

Mapping sourced from  **OS** Ordnance Survey

 **CENTREMAPSlive**  
[www.centremapslive.co.uk](http://www.centremapslive.co.uk)



**FIGURE 14**  
**POTENTIAL COMPRESSIBLE**  
**GROUND**  
**BROADHELM BUSINESS PARK**  
**SOUTHERN AREA**  
**POCKLINGTON**

BGS 50K Geology + BGS GeoSure + OS 1:50,000  
 Mapping  
 12 September 2011, ID: CM-00094567  
 www.centremapslive.co.uk

1:25000 scale print at A4, Centre: 479578 E, 448290 N

© Crown Copyright. Licence no. 10001998  
 ©NERC. All rights reserved



Mapping  
 sourced from



**CENTREMAPS**live®  
 www.centremapslive.co.uk





SLOPE INSTABILITY	SHRINK - SWELL	RUNNING SAND	COMPRESSIBLE	COLLAPSIBLE	SOLUBLE ROCKS
Slope instability problems almost certainly present and may be active. Significant constraint on land use.	Ground conditions predominantly very high plasticity.	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.	Highly compressible strata present. Significant constraint on land use depending on thickness.	Collapse may occur if material is wetted under a load.	Very significant soluble rocks, where there are numerous dissolution features and/or considerable recorded subsidence with high possibility of localised subsidence occurring naturally or in adverse conditions such as high surface or subsurface water flow.
Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.	Ground conditions predominantly high plasticity.	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.		Very significant soluble rocks, where there are numerous dissolution features, and no or very little recorded subsidence, but a low possibility of it occurring naturally or in adverse conditions such as high surface or subsurface water flow.
Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.	Ground conditions predominantly medium plasticity.	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.		Significant soluble rocks, but few dissolution features and no subsidence; unlikely to cause problems except with considerable surface or subsurface water flow.
Slope instability problems are not thought to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.	Ground conditions predominantly low plasticity.	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on land use due to running conditions.	Compressible strata are not thought to occur.		Soluble rocks are present, but unlikely to cause problems except under exceptional conditions.

**Appendix E**  
**Geotechnical Test Results**

**SUMMARY OF SOIL CLASSIFICATION TESTS**

BS1377: Part2: 1990

Hole No.	Sample type	Depth (m)	Classification tests									
			Moisture Content %	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	% Passing 425um	Casagrande Classification	pH	Sulphate content SO <sub>4</sub> g/l	Dry Density (Mg/m <sup>3</sup> )	Description
TH1	D	?	11						8.6	0.08		Brown and white fine to coarse subround to subangular GRAVEL with some sand
TH2	D	?	33	42	27	15	96	MI	8.5	0.16		Firm light brown and occasionally white SILT
TH5	D	?	11									Brown and white fine to coarse subround to subangular GRAVEL with some sand
TH8	D	?	31	38	26	12	97	MI				Firm light brown and occasional white SILT
GA Site Investigation Ltd 76 Thames Avenue Guisborough North Yorkshire TS14 8AR Tel: 07875 761729			Prepared by: GMA			Date: 14th July 2011			Contract Number: GA137.11			
Project: Broadhelm Business Park, Pocklington, York												