

AGRICULTURAL QUALITY
OF LAND EAST OF ASHBY ROAD
HINCKLEY

Report 2498/1

10th February 2025

**AGRICULTURAL QUALITY
OF LAND EAST OF ASHBY ROAD, HINCKLEY**

M W Palmer, PhD, MISoilSci, CSci

Report 2498/1
Land Research Associates Ltd
Tapton Park Innovation Centre
Brimington Road
Chesterfield
S41 0TZ
www.lra.co.uk

10th February 2025

SUMMARY

An agricultural land quality survey has been undertaken of 5.6 ha of land east of Ashby Road, Hinckley in January 2025.

The soils comprise fine loams over clays, mainly with poor drainage. Land quality is limited to Subgrade 3b by wetness.

1.0 Introduction

- 1.1 This report provides information on the agricultural quality of 5.6 ha of land east of Ashby Road, Hinckley, Leicestershire. The report is based on a survey of the land in January 2025.

SITE ENVIRONMENT

- 1.2 The survey area comprises two fields, bordered to the west by Ashby Road and adjoining properties, to the south by residential and allotment gardens, and to the north and east by adjoining agricultural land.
- 1.3 The land is level to very gently sloping, at an average elevation of approximately 122.5 m AOD.
- 1.4 At the time of survey the land was in arable rotation.

PUBLISHED INFORMATION

- 1.5 British Geological Survey 1:50,000 scale information records the underlying geology as Oadby Member (chalky) glacial till over Mercia Mudstone.
- 1.6 The National Soil Map (published at 1:250,000 scale) records most of the land as Flint Association: mainly slowly permeable fine loams over clay and fine loams formed in reddish glacial till¹.

¹ Ragg, J.M., et al., (1984). *Soils and their Use in Midland and Western England*. Soil Survey of England and Wales Bulletin No. 12, Harpenden.

2.0 Soils

- 2.1 An agricultural land quality survey was carried out in January 2025 in accordance with MAFF (1988) Agricultural Land Classification guidelines². It was based on observations at intersects of a 100 m grid, giving a density of one observation per hectare. Additional observations were made to provide further information where required. During the survey, soils were examined by hand augerings and pits to a maximum depth of 1.0 m. A log of the sampling points and a map (Map 1) showing their location is included in an appendix to this report.
- 2.2 The soils were found to comprise fine loamy topsoil over dense slowly permeable clay or sandy clay. The subsoils show evidence of seasonal waterlogging (pale/greyish colouration and ochreous mottles) to shallow depth. In places a moderately permeable sandy clay loam upper subsoil occurs, although the slowly permeable clay mainly directly underlies the topsoil. In places the clay becomes chalky at depth. The soils are mainly judged to be poorly-draining (Soil Wetness Class IV).
- 2.3 An example soil profile is described from a pit excavation at observation point 3 (see Map 1) in an appendix to the report.

²MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

3.0 Agricultural land quality

- 3.1 To assist in assessing land quality, the Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF ALC system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.
- 3.2 The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification³.
- 3.3 The relevant site data for an average elevation of 122.5 m and a central point at grid reference SP 432,961 is given below.

• Average annual rainfall:	663 mm
• January-June accumulated temperature $>0^{\circ}\text{C}$	1336 day°
• Field capacity period	151 days
• Summer moisture deficits for:	wheat: 97 mm potatoes: 85 mm
- 3.4 The survey described in the previous section was used in conjunction with the agro-climatic data above to classify the site using the revised guidelines for ALC issued in 1988 by MAFF⁴. There are no overriding climatic limitations at this locality.

SURVEY RESULTS

- 3.5 The agricultural quality of the land is primarily determined by wetness. Other factors have been assessed but do not affect the land grade. Land of Grade 3 quality has been identified.

Subgrade 3b

- 3.6 This land has moderately high topsoil clay content and poor drainage (Soil Wetness Class IV). This combination results in wet conditions in winter and spring, which would typically limit opportunities for arable cropping to autumn sowings.
- 3.7 Small patches were found to have slightly better drainage. However, this land could not be managed separately from the surrounding wetter land. This is regarded as natural

³Meteorological Office, (1989).*Climatological Data for Agricultural Land Classification*.

⁴MAFF, (1988).*Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

variation within the same soil type and all of the land is graded according to the dominant degree of wetness limitation.

Grade areas

3.8 The land grades are shown on Map 2 and the areas occupied shown below.

Table 1: Areas occupied by the different land grades (ha)

<i>Grade/subgrade</i>	<i>Area (ha)</i>	<i>% of the land</i>
Subgrade 3b	5.6	100
Total	5.6	100

APPENDIX
DETAILS OF OBSERVATIONS
MAPS

Land east of Ashby Road, Hinckley: Soils and ALC survey – Details of observations at each sampling point

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope (°)	Wetness	Agricultural quality		
	No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling		Grade	Main limitation	
1	0-28	MCL	<5	<u>28</u> -90+	C	xxx					1	IV	3b	W
2	0-30	SCL	<5	30-58	SCL	xxx	<u>58</u> -90+	SC	xxx	1	III	3a	W	
3	0-23	HCL	<5	<u>23</u> -37	C	xxx	<u>37</u> -66 <u>66</u> -100+	C Cchky	xxx xxx	1	IV	3b	W	
4	0-25	MCL	<5	<u>25</u> -73	C	xxx	<u>73</u> -90+	Cchky	xxx	0	IV	3b	W	
5	0-26	SCL	<5	26-41	SC	xxx	<u>41</u> -90+	C	xxx	1	III/IV	3a/3b	W	
6	0-31	MCL	<5	<u>31</u> -66	C	xxx	<u>66</u> -90+	Cchky	xxx	1	IV	3b	W	
7	0-27	SCL	<5	27-35	SCL	xxx	<u>35</u> -90+	C(r)	xxx	1	IV	3b	W	
8	0-27	SCL	<5	<u>27</u> -60	C/SC	xxx				1	IV	3b	W	

Soil log key

Gley indicators¹

- o unmottled
- x 1-2% ochreous mottles and brownish matrix
(or a few to common root mottles (topsoils))³
- xx >2% ochreous mottles and brownish matrix
and/or dull structure faces (slightly gleyed horizon)
- xxx >2% ochreous mottles
and greyish or pale matrix (gleyed horizon)
or reddish matrix and >2% greyish, brownish or ochreous
mottles and pale ped faces
mottles or f-m concentrations (gleyed horizon)
- xxxx dominantly blueish/greenish matrix, often with some reddish
mottles (gleyed horizon)

Slowly permeable layers⁴

a depth underlined (e.g. 50) indicates
the top of a slowly permeable layer

A wavy underline (e.g. 50) indicates
the top of a layer borderline to slowly permeable

¹Gley indicators in accordance with Hodgson, J.M., 1997. Soil Survey Field Handbook (third edition). Soil survey technical monograph No. 5

²Texture in accordance with particle size classes in Hodgson (1997)

³ Occasionally recorded in the texture box

⁴Permeability is estimated for auger borings and must be confirmed by full pit observations in accordance with the definitions in:
Revised Guidelines for grading the quality of Agricultural Land (Maff 1988)

⁵Soil Wetness Classes are defined in Hodgson (1997)

Texture²

- C – clay
- ZC - silty clay
- SC - sandy clay
- CL - clay loam (H-heavy, M-medium)
- ZCL - silty clay loam (H-heavy, M-medium)
- SZL - sandy silt loam (F-fine, M-medium,C-coarse)
- LS - loamy sand (F-fine, M-medium, C-coarse)
- SL - sandy loam (F-fine, M-medium, C-coarse)
- S - sand (F-fine, M-medium, C-coarse)
- SCL - sandy clay loam
- P - peat (H-humified, SF-semi-fibrous, F-fibrous)
- LP - loamy peat; PL - peaty loam

Wetness Class⁵

- I (freely drained) to VI (very poorly drained)

Limitations:

- W - wetness/workability
- D - droughtiness
- De - depth
- F - flooding
- St – stoniness
- G - gradient
- T – topography/microrelief
- C - Climate

Suffixes & prefixes:

- o - organic
- (vsl, sl, m, v, x)st – (very slightly, slightly, moderately, very, extremely) stony⁶

- (vsl, sl, m, v, x)ca
(very slightly, slightly, moderately, very, extremely) calcareous⁷

Other abbreviations

- fmn - ferri-manganiferous concentrations
- dist - disturbed soil layer; chky - chalky
- R – bedrock (CH – chalk, SST – sandstone)
- LST – limestone, MST – Mudstone)
- r-reddish, gn – greenish

Grades shown as intergrade e.g. **3a/3b** are close to the grade boundary. The estimate of which side of the boundary the grading falls is shown first (in bold here)
grades in brackets eg. (3a) raised by one grade due to calcareous topsoil

SOIL PIT DESCRIPTIONS

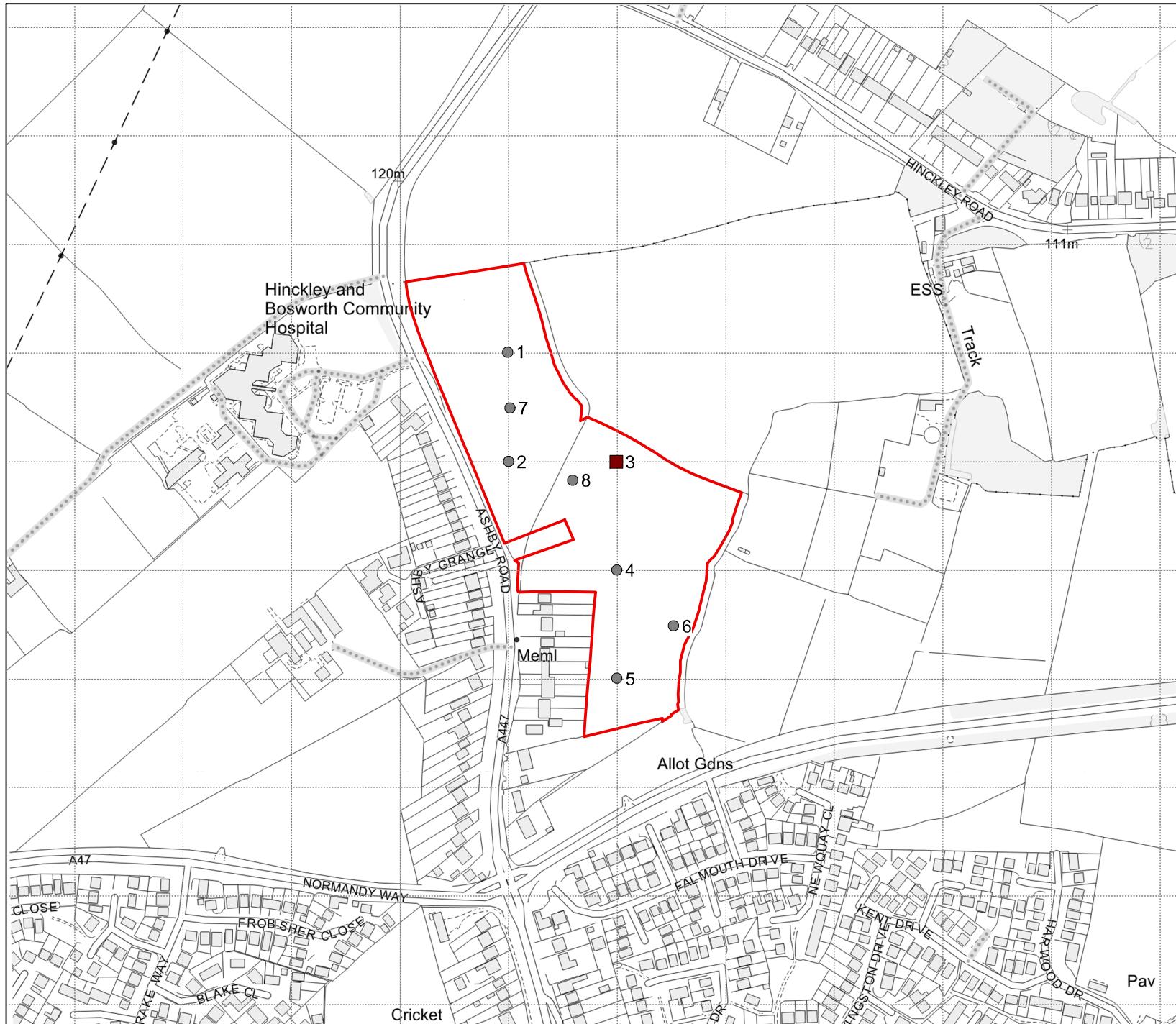
Observation 3

0-23 cm Dark greyish brown (10YR 4/2) heavy clay loam; 5% small and medium hard mixed rounded stones; moderately developed coarse angular blocky structure; firm; gradual smooth boundary to:

23-37 cm Greyish brown (10YR 5/2) sandy clay with 10% fine yellowish brown (10YR 5/6 & 5/8) mottles; slightly stony; moderately developed coarse angular blocky structure; firm; <0.5% macropores; gradual smooth boundary to:

37-66 cm Grey (10YR 5/1) clay with 20% medium strong brown (7.5YR 5/8 & 4/6) mottles; slightly stony; weakly developed very coarse angular blocky structure; very firm; <0.5% macropores; gradual smooth boundary to:

66-100 cm+ Grey (10YR 5/1) clay with 30% medium strong brown (7.5YR 5/6) mottles; slightly stony (5% hard stones and 5% soft chalk); structureless (massive); very firm; <0.5% macropores; calcareous.



KEY

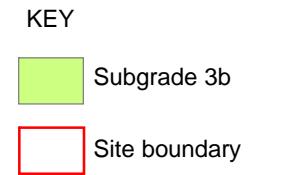
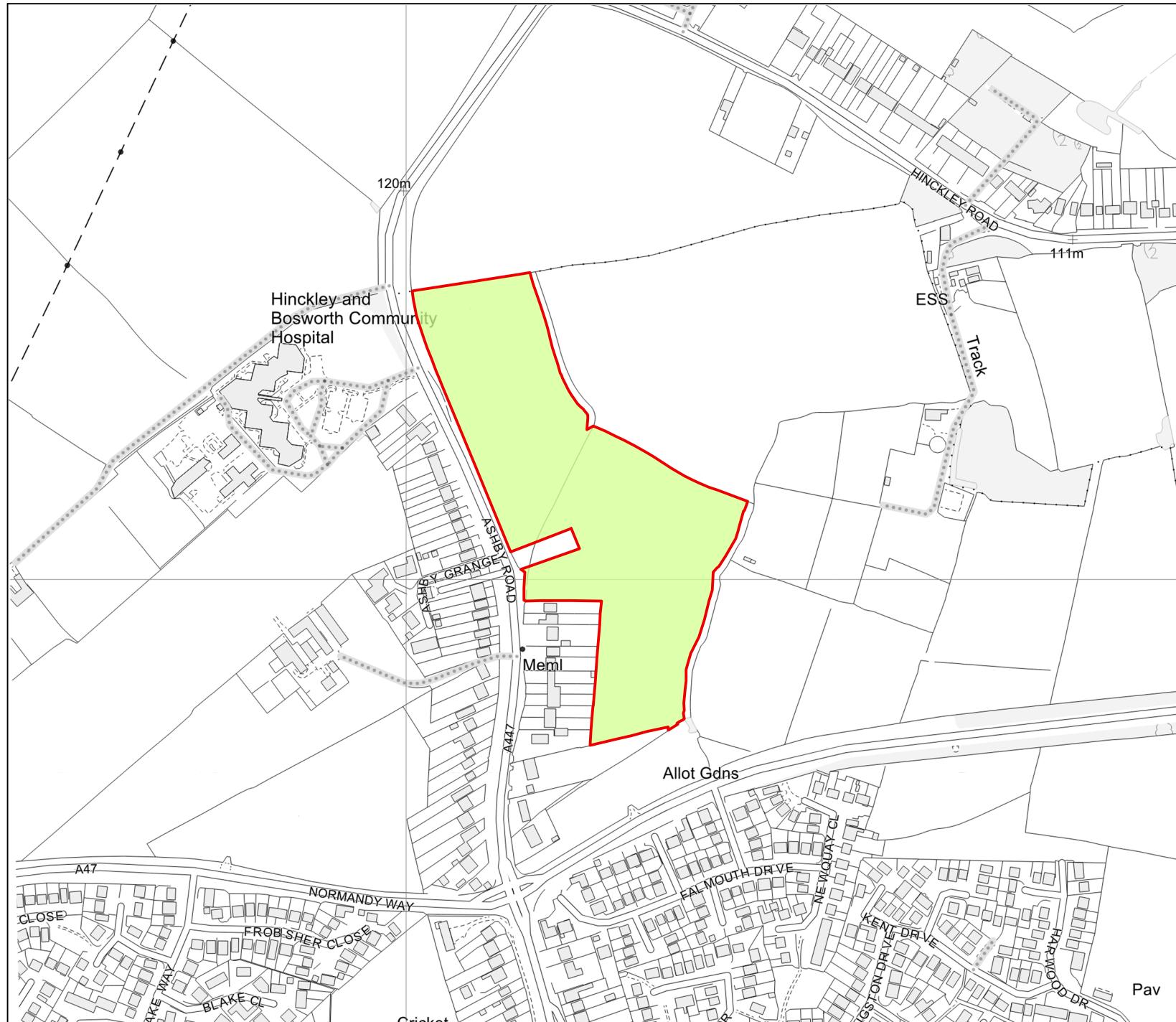
- Auger observations
- Pits
- Site boundary

Site:

Ashby Road
Hinckley

Map title:

MAP 1 Observations



Site:
**Ashby Road
Hinckley**

Map title:
**MAP 2
Agricultural Land
Classification**

**Land
Research
ASSOCIATES**

Date: 07/02/2025

Tapton Innovation Centre
Brimington Road
Chesterfield
S41 0TZ
www.lra.co.uk

Scale: 1:5,000