

**DESK STUDY OF
LAND QUALITY IN THE HINCKLEY &
BOSWORTH DISTRICT**

Report 1454/1

7th May, 2020

Land
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**DESK STUDY OF LAND QUALITY IN THE
HINCKLEY & BOSWORTH DISTRICT**

L Thomas MSc

Report 1454/1
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7th May, 2020

1.0 Introduction

1.1 Land Research Associates have been commissioned by the Hinckley and Bosworth Borough Council (HBBC) to provide details on the agricultural quality of land across the District. This report will review relevant published information available for land surrounding fourteen settlements and the wider Borough. It aims to highlight areas of poorer agricultural quality land. A second report (1454/2) will detail the findings of a semi-detailed Agricultural Land Classification survey carried out on the fourteen settlements. A non technical summary will review the reports and set the information in context with National Planning Policy (see report 1454/3).

1.2 The following settlements have been focussed on as land adjoining them faces the greatest pressure from development (see Map 1 at the end of Section 1):

Bagworth	Hinckley
Barlestone	Market Bosworth
Barwell	Markfield
Burbage	Newbold Verdon
Desford	Ratby
Earl Shilton	Stoke Golding
Groby	Thornton

AGRICULTURAL LAND CLASSIFICATION

1.3 Agricultural Land Classification (ALC) is a system used in England and Wales to grade the quality of land for agricultural use, according to the extent by which physical or chemical characteristics impose long-term limitations. The system was devised and introduced by the former Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s and revised in 1988. The ALC system¹ classifies land into five grades numbered 1 to 5, with grade 3 divided into two sub-grades (3a and 3b). Best and most versatile (BMV) land is considered land grades 1, 2 and subgrade 3a; this land is of high agricultural quality and protected in

¹*Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*. MAFF, 1988.

National Planning Policy (National Planning Policy Framework, 2019, Chapter 15, paragraphs 170-171 footnote 53).

NATIONAL PLANNING POLICY

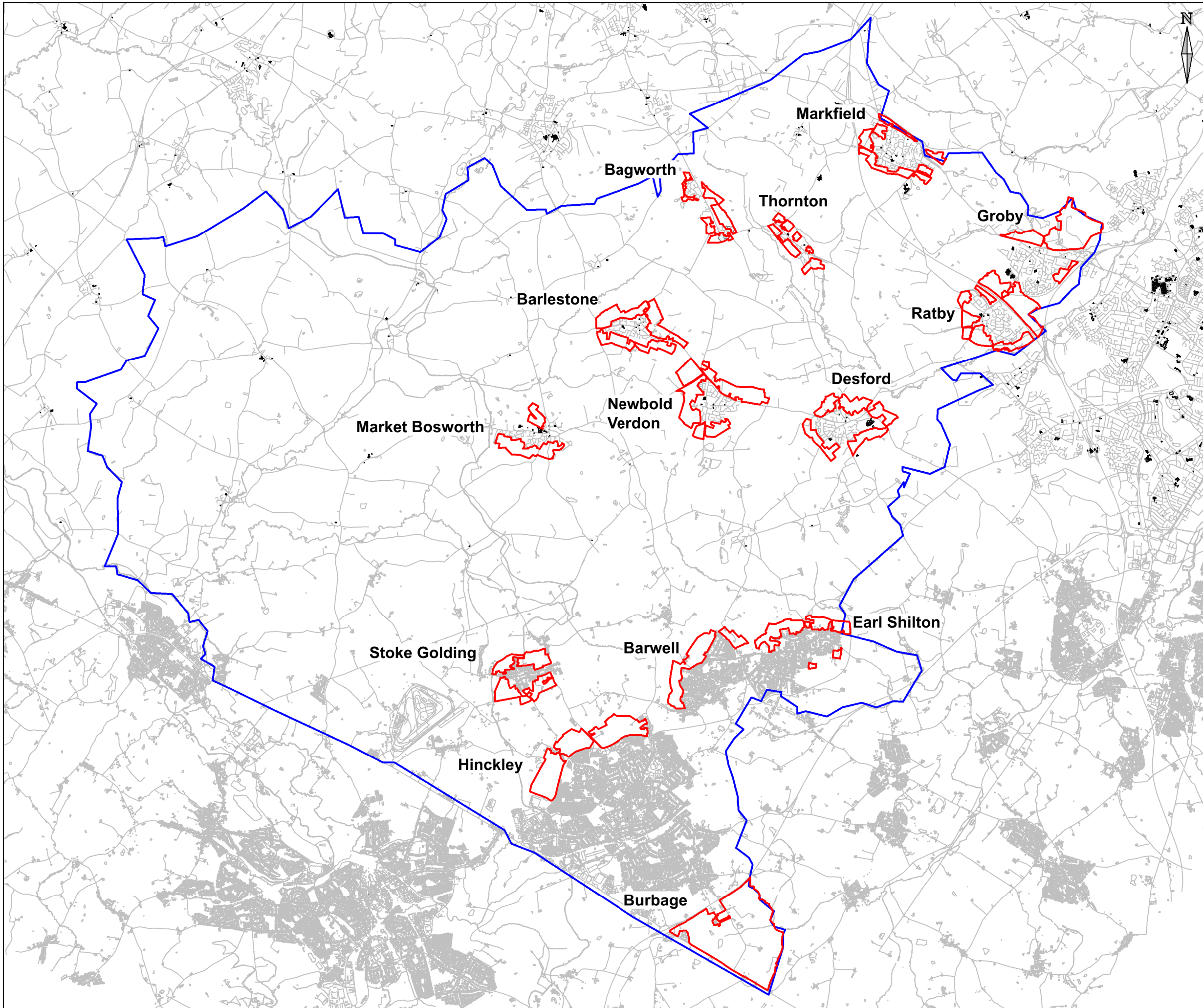
- 1.4** This piece of work will act as an evidence base to allow the Council, where possible, to guide development away from best and most versatile land in line with National Planning Policy. The applicable legislative framework is summarised as follows from the National Planning Policy Framework (NPPF, 2019):

“Planning policies and decisions should contribute to and enhance the natural and local environment by:


“a) ...protecting and enhancing... soils (in a manner commensurate with their... identified quality in the development plan)


b)...recognising the economic and other benefits of the best and most versatile agricultural land”


“Plans should:...allocate land with the least environmental...value, where consistent with other policies in this Framework...Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.”



KEY

 Survey area

 Hinckley and Bosworth Borough Council District


Client: 
Hinckley & Bosworth Borough Council

Site:

Hinckley and Bosworth District

Map title:

**Map 1
Survey areas in the
Hinckley and Bosworth District**



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Scale: 1:90,000

Date: 20/05/2019

2.0 Methodology

- 2.1** Prior to field investigations (see report 1454/2) survey areas for each of the fourteen settlements were identified and a desk study carried out for each site. The desk study also considered the wider Borough.

Assessment of available published information including:

- British Geological Survey 1: 50,000 scale mapping
- 1:250,000 national soil mapping²
- Detailed post 1988 ALC surveys (carried out by MAFF) available from Natural England records
- 1:25,000 scale Ordnance survey topographic mapping

REMOTE ASSESSMENT OF LIMITING FACTORS

- 2.2** The ALC system (1988) involves the consideration of a range of potential limiting factors, some of which are wholly or partly derived from desk study.

Climatic limitations

- 2.3** Climate varies significantly across England and Wales, with temperatures and precipitation rates influenced by altitude, latitude and longitude, as well as local factors (such as aspect). In some parts of the country climate (chiefly growing season temperatures and annual rainfall) poses an overall limitation to the range of crops which can be grown regularly and the level of average yield. The agricultural climate was calculated for each settlement individually for an average elevation using the *Climatological Data for Agricultural Land Classification*³.

- 2.4** None of the land was found to be subject to any overriding climatic limitations to agriculture, Leicestershire being a lowland county with a relatively warm dry climate. Calculated climatic data for each locality is included in Appendix 1.

Flooding limitations

- 2.5** Flooding is a significant factor to consider as it affects the choice of crops to be grown as at certain times of year flooding can have a detrimental effect on yield and soil management. Flooding was assessed using the Government 'Flood Risk from Rivers' map.

² Jarvis, M.G. (et al) 1984. *Soils and their Use in Midland and Western England*. Soil Survey of England and Wales Bulletin No. 15, Harpenden.

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

- 2.6** Of the fourteen settlements reviewed, only a small area of land within the Burbage survey area had flood limitations (see Section 6.0).

Slope limitations

- 2.7** The gradient of a site can have a significant effect on mechanised farm operations and soil erosion. Where land has a slope gradient of greater than 7° the safe and efficient use of machinery is compromised. Gradient of land was assessed using 1:25,000 scale Ordnance Survey topographic mapping and further assessed in field using a clinometer.

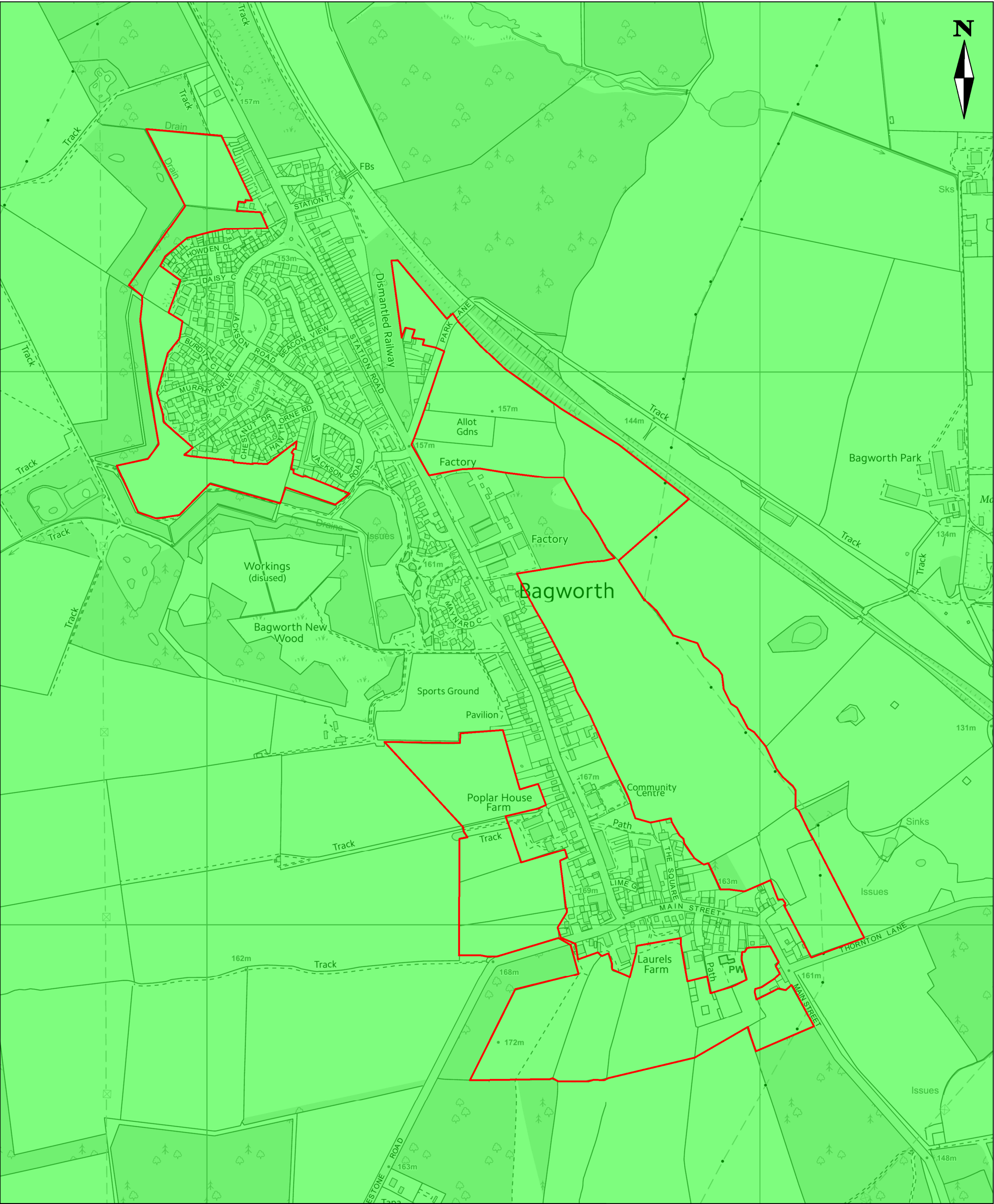
3.0 Bagworth

SITE ENVIRONMENT

- 3.1** The village is situated on an area of higher ground in the District with surrounding agricultural land sloping away from the settlement. A disused railway line bounds the survey area to the east; young woodland and disused mine workings lie to the north and north-west; and adjoining agricultural land and woodland to the west and south.
- 3.2** The land is gently to moderately steeply sloping, at an average elevation of approximately 165 m AOD.

PUBLISHED INFORMATION

- 3.3** 1:50,000 scale BGS information records the geology of the land as predominantly Edwalton Member mudstone with Gunthorpe Member mudstone in the north-west. Bands of Cotgrave Sandstone Member are located in the north-west. Superficial deposits of Oadby Member glacial till overlie the basal geology in the west; in the south and smaller areas in the east, sand and gravel deposits are mapped.
- 3.4** The National Soil Map (published at 1:250,000 scale) shows the land surrounding Bagworth to be mostly within the Beccles 1 Association: heavy soils with impeded drainage formed in chalky glacial till. Land to the north of Bagworth is mapped as within the Whimple 3 Association: fine loamy over clayey soils with slight drainage impedance formed in thin reddish drift over mudstone.
- 3.5** Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 (see Map 2). No detailed survey of the area has been published.



Client:



Hinckley & Bosworth
Borough Council

Site:

Hinckley and Bosworth District

Map title:

Map 2
Published ALC information
for Bagworth

KEY

Provisional grade 3

Survey area

Scale: 1:6,500

Date: 20/05/2019

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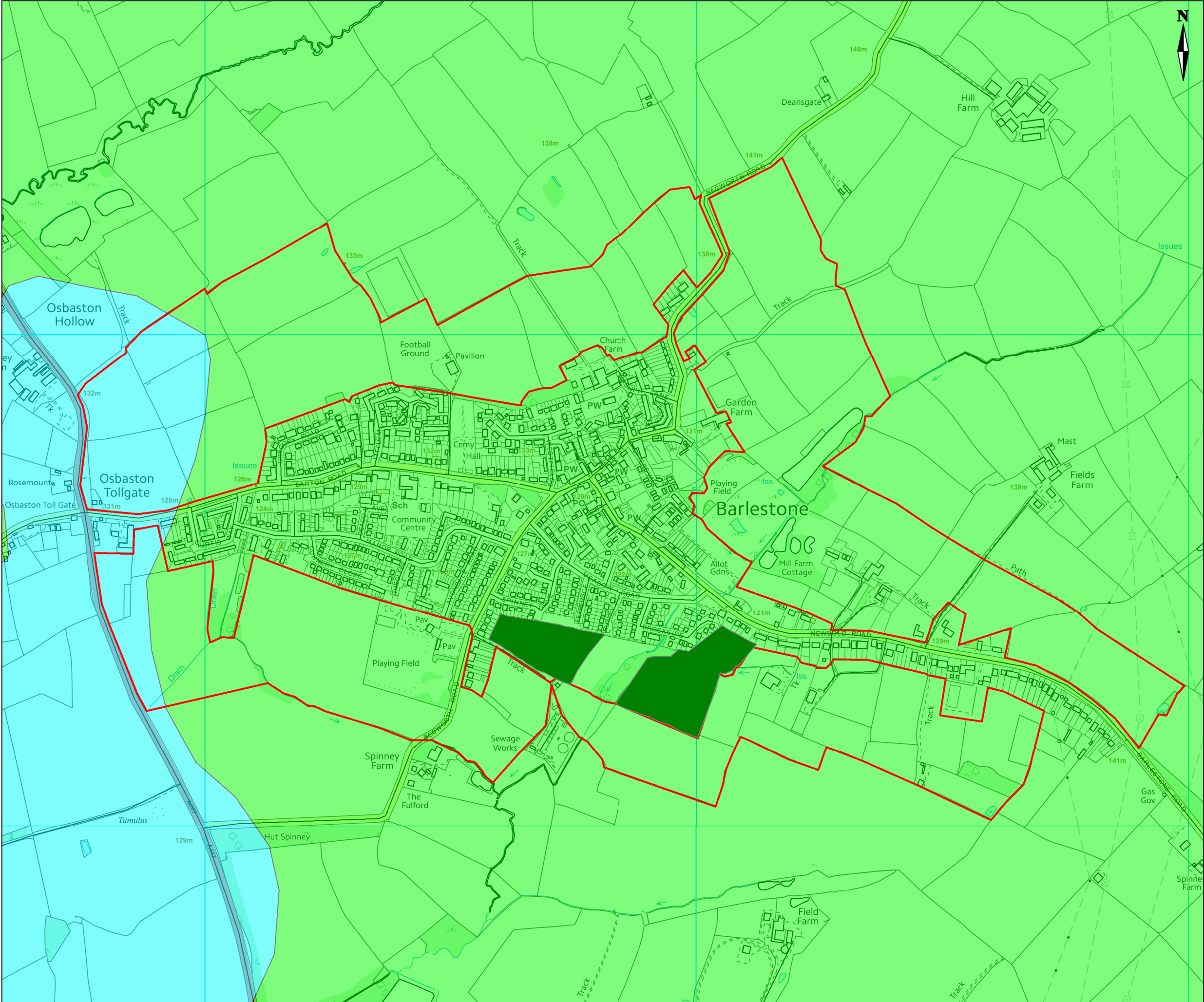
4.0 Barlestone

SITE ENVIRONMENT

- 4.1. Barlestone is surrounded on all sides by agricultural land in use for arable cropping (mainly autumn cereals at the time of survey) or grazing land for livestock or horses.
- 4.2. The land is level to the north of the village and gently sloping to the south, east and west, with an average elevation of approximately 130 m AOD.

PUBLISHED INFORMATION

- 4.3. 1:50,000 scale BGS information records the basal geology of the land as Gunthorpe Member mudstone. Extensive superficial deposits of Oadby Member till and glaciofluvial sand and gravel are recorded, with alluvium flanking the river running through the village in the east.
- 4.4. The National Soil Map (published at 1:250,000 scale) shows the land surrounding Barlestone to be within the Beccles 1 Association: heavy soils with impeded drainage formed in chalky glacial till.
- 4.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3. A detailed survey of land north of the sewage works has previously been completed to post 1988 guidelines showing the land to be of subgrade 3a agricultural quality (see Map 3).



KEY

-  Provisional grade 2
-  Provisional grade 3
-  Subgrade 3a
-  Survey area

Client:



Hinchley & Bosworth
Borough Council

Site:

Hinchley and Bosworth District

Map title:

Map 3
Published ALC information
for Barlestone



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Scale: 1:7,500

Date: 20/05/2019

5.0 Barwell

SITE ENVIRONMENT

- 5.1. The village of Barwell is bordered to the west by the settlement of Earl Shilton, with agricultural land surrounding the village on all other sides, most in use for cereal cropping at the time of survey.
- 5.2. The land is level to gently sloping, with an average elevation of approximately 110 m AOD.

PUBLISHED INFORMATION

- 5.3. 1:50,000 scale BGS information records the basal geology of the land as Gunthorpe Member mudstone in the north and Mercia Mudstone Group in the south. Superficial deposits of Oadby Member glacial till overlie most of the site with smaller areas of sand and gravel and Bosworth Clay Member.
- 5.4. The National Soil Map (published at 1:250,000 scale) shows the land surrounding Barwell to be within the Beccles 3 Association: mainly heavy soils with impeded drainage formed in chalky glacial till, with some better-draining soils.
- 5.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 (see Map 4). No detailed survey of the area has been published.








Client:

Hinckley & Bosworth
Borough Council

Site:
Hinckley and Bosworth District

Map title:
**Map 4
Published ALC information
for Barwell**

KEY

-  Provisional grade 3
-  Grade 2
-  Subgrade 3a
-  Subgrade 3b
-  Survey area

Scale: 1:8,000 at A3

Date: 20/05/2019

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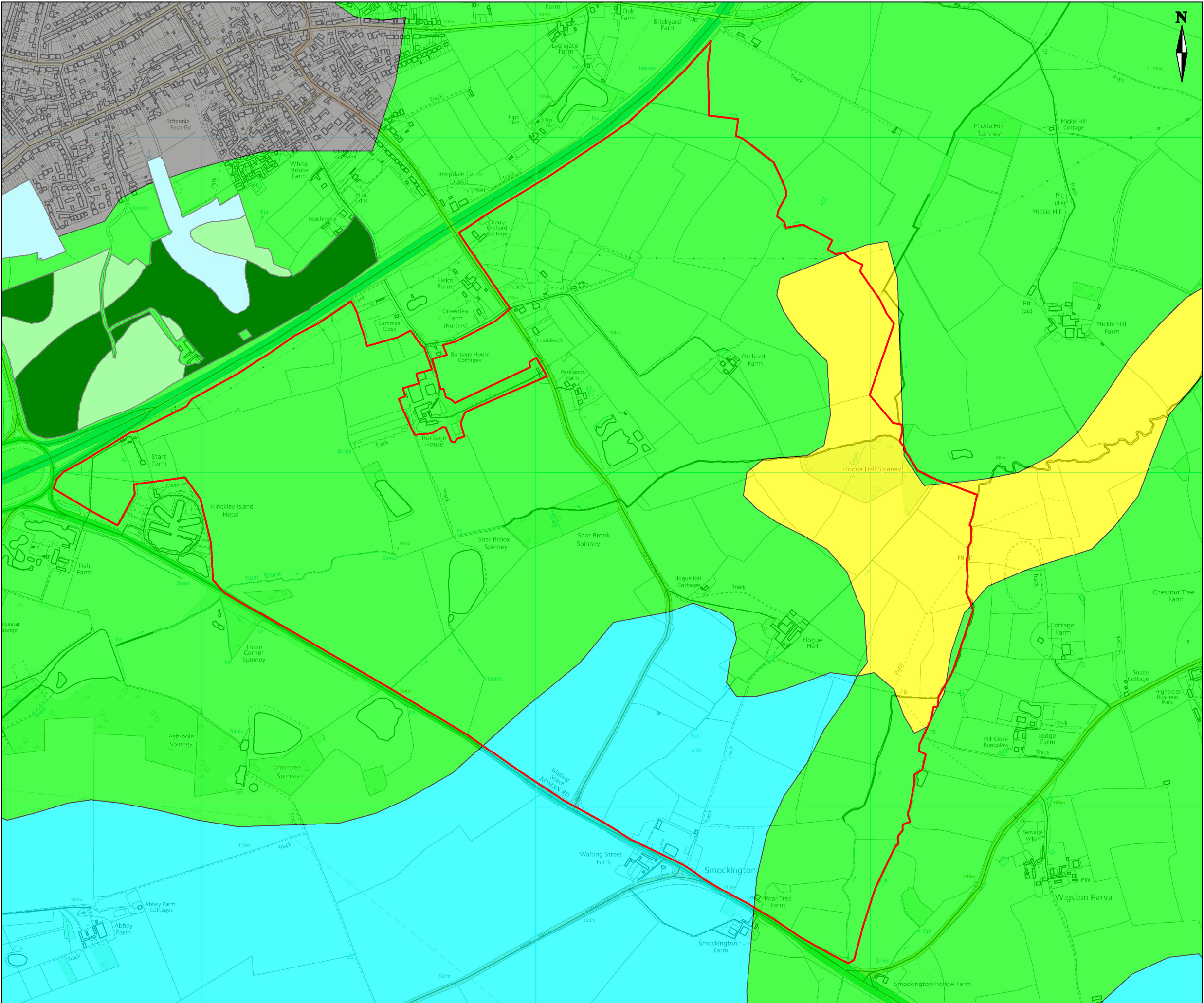
6.0 Burbage

SITE ENVIRONMENT

- 6.1 The study area comprises 352 ha south of the M69 and the settlement of Burbage. The land is bordered to the north by Hinckley, to the north-east by Stoney Stanton and Sapcote, to the east by Aston Flamville and Sharnford, and to the south-west by the A5.
- 6.2 At the time of survey the land was used for arable crop production (mainly cereals) livestock and horse grazing.
- 6.3 The land is mainly flat to gently sloping with an average elevation of 100 m AOD.


PUBLISHED INFORMATION

- 6.4 1:50,000 scale BGS information records the basal geology of the land as Mercia Mudstone Group. Superficial deposits of Oadby Member are recorded to cover the majority of the site; Dunsmore Gravel is mapped in the south of site; Wolston Sand and Gravel is recorded in patches in the west and Bosworth Clay Member deposits in the east. Alluvium is recorded along the Soar Brook.
- 6.5 The National Soils Map (published at 1:250,000 scale) shows most of the land within the survey area to be within the Flint Association: fine loamy soils with slight drainage impedance formed in thick reddish drift. In the south of the site soils are mapped to be within Wick 1 Association: mainly freely-draining coarse loamy and sandy soils formed in sand and gravel deposits.
- 6.6 In the west, land is mapped to be Beccles 3 Association: mainly heavy soils with impeded drainage formed in chalky glacial till, with some better-draining soils.
- 6.7 Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 with grade 2 in the south (see Map 5). No detailed survey of the area has been published.
- 6.8 Flood mapping on the EA website shows a small area of land flanking the Soar Brook to be affected by flooding. This land is in 'Flood Zone 3' with a high likelihood of flooding (1 in 100 or greater annual probability of flooding).



- KEY**
- Provisional Grade 2
 - Provisional Grade 3
 - Provisional Grade 4
 - Grade 2
 - Subgrade 3a
 - Subgrade 3b
 - Survey area

Client:


Hinckley & Bosworth
Borough Council

Site:

Hinckley and Bosworth District

Map title:

**Map 5
Published ALC information
for Burbage**


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Scale: 1:11,000

Date: 11/3/2019

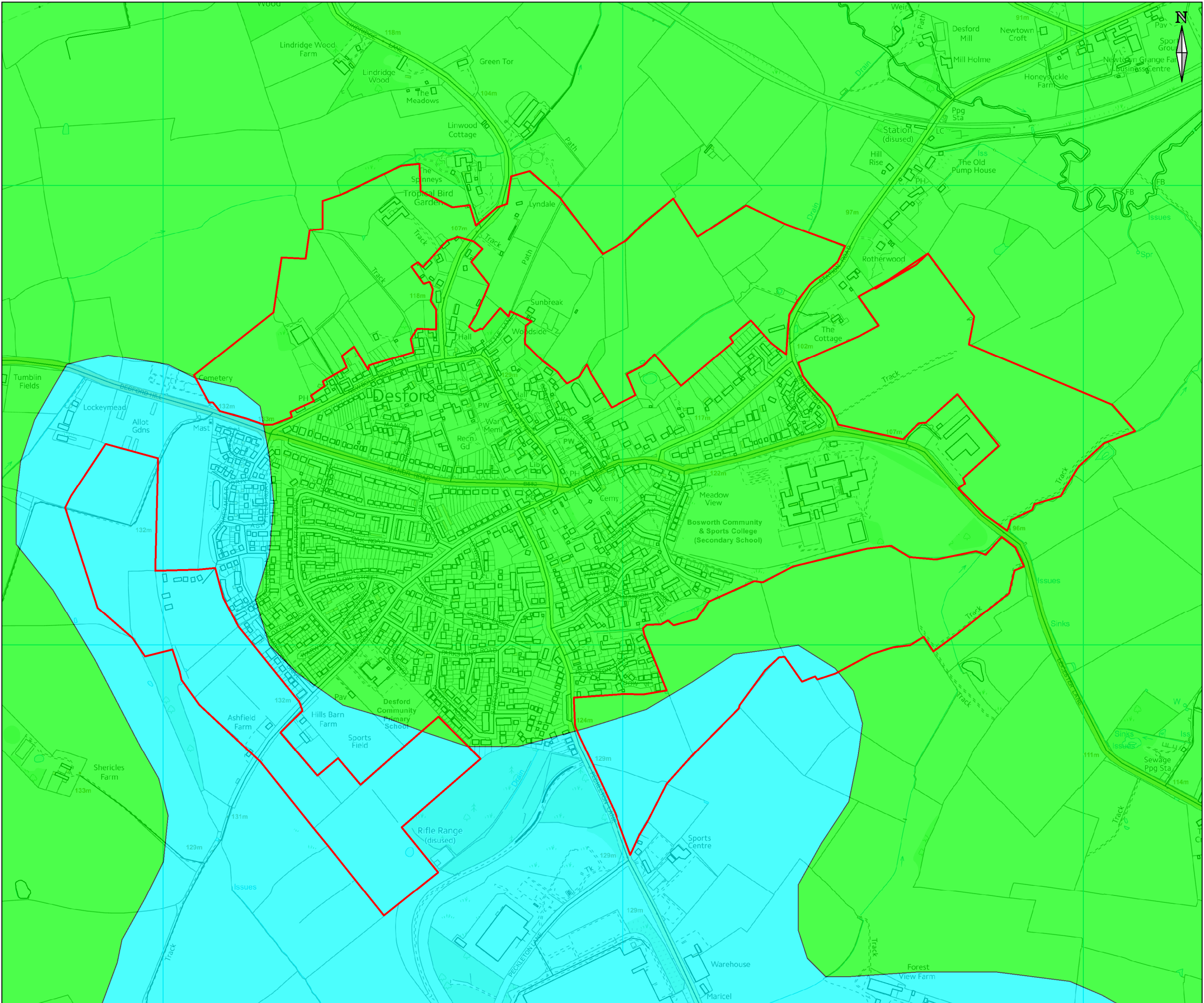
7.0 Desford

SITE ENVIRONMENT


- 7.1. The village is bordered by agricultural land on all sides, mainly sown to cereals at the time of survey, with grassland on the steeper slopes to the north.
- 7.2. The land is undulating in the south-west and steeply sloping in the north with flatter land in the west and east. The land has an average elevation of approximately 120 m AOD.


PUBLISHED INFORMATION


- 7.3. 1:50,000 scale BGS information records the basal geology of the land as Edwalton Member mudstone in the south and west with Gunthorpe Member mudstone in the north and east. Superficial deposits of sand and gravel are recorded in the south and west, with small areas of alluvium flanking a stream in the east.
- 7.4. The National Soil Map (published at 1:250,000 scale) shows land in the north to be within the Whimple 3 Association: fine loamy over clayey soils with slight drainage impedance formed in thin reddish drift over mudstone. In the west and east land is mapped to be within the Beccles 1 Association: heavy soils with impeded drainage formed in chalky glacial till. Land in the east is within the Salop Association: heavy soils with impeded drainage formed in reddish glacial till.
- 7.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 with grade 2 in the south (see Map 6).



KEY

 Provisional grade 2

 Provisional grade 3

 Survey area

Client:



**Hinckley & Bosworth
Borough Council**

Site:

Hinckley and Bosworth District

Map title:

**Map 6
Published ALC information
for Desford**



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Scale: 1:8,000 at A3

Date: 20/05/2019

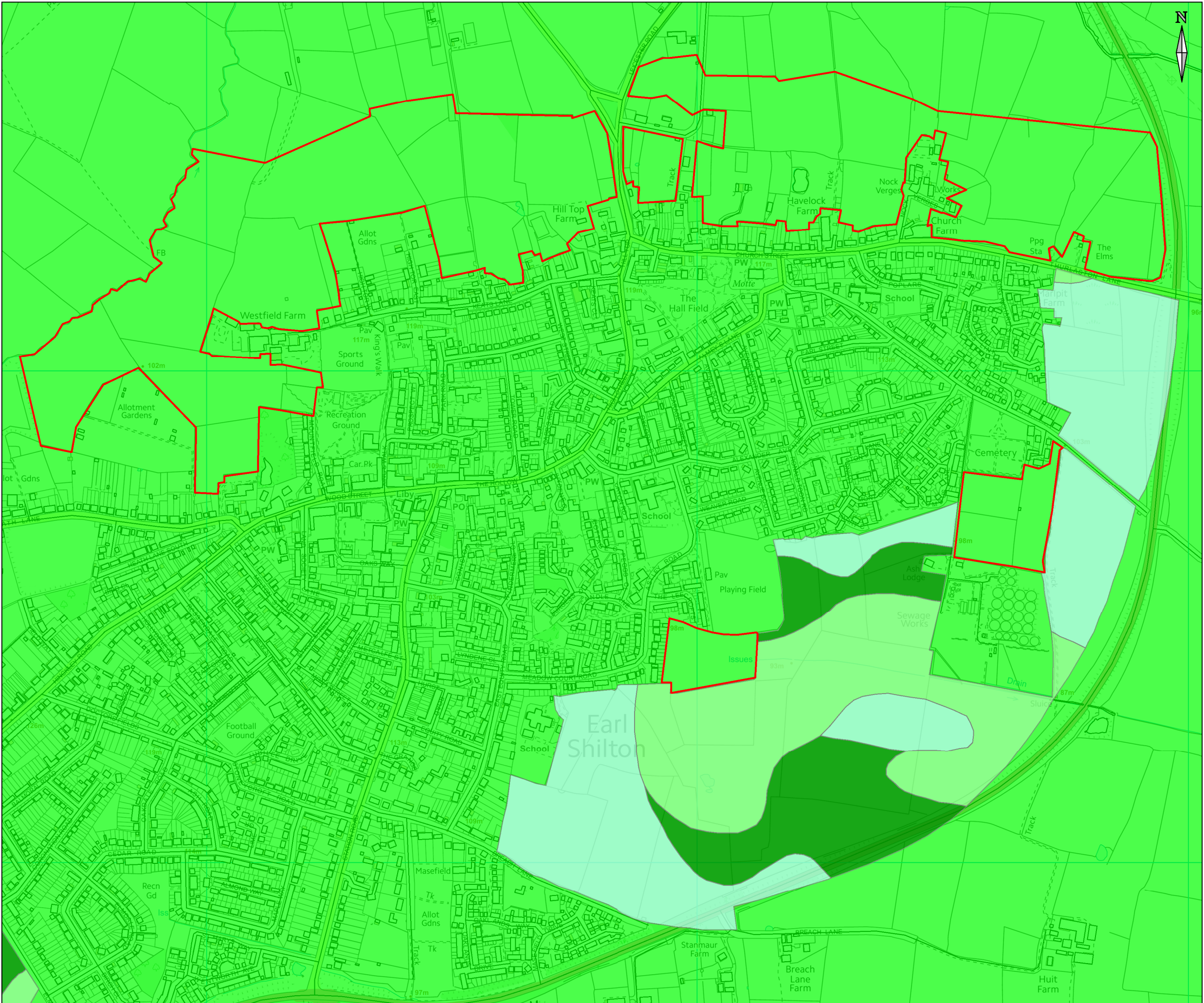
8.0 Earl Shilton

SITE ENVIRONMENT

- 8.1. The survey area covers land to the north of Earl Shilton, it comprises grassland mainly in use to graze horses with some livestock.
- 8.2. The land is mainly flat to gently sloping in the north-west with steeper sloping land in the north-east. The land has an average elevation of approximately 100 m AOD.

PUBLISHED INFORMATION

- 8.3. 1:50,000 scale BGS information records the basal geology of the land as Gunthorpe Member mudstone. Small areas of Wigston Member sand and gravel are mapped along the boundary of the town, with a patch of River Terrace sand and gravel Deposits in the north-west.
- 8.4. The National Soil Map (published at 1:250,000 scale) shows soils in the north to be within the Whimple 3 Association: fine loamy over clayey soils with slight drainage impedence formed in thin reddish drift over mudstone. Land bordering the town is shown to be within Wick 1 Association: mainly freely-draining coarse loamy and sandy soils formed in sand and gravel deposits.
- 8.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 (see Map 7). No more recent survey of the northern study area is available, although land in the south has been mapped to current guidelines showing land to be a combination of grade 2, subgrade 3a and subgrade 3b agricultural quality (see Natural England report: ALCC09596).



KEY

- Provisional Grade 3
- Grade 2
- Subgrade 3a
- Subgrade 3b
- Survey area

Client:



Hinckley & Bosworth
Borough Council

Site:

Hinckley and Bosworth District

Map title:

**Map 7
Published ALC information
for Earl Shilton**



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Scale: 1:7,500

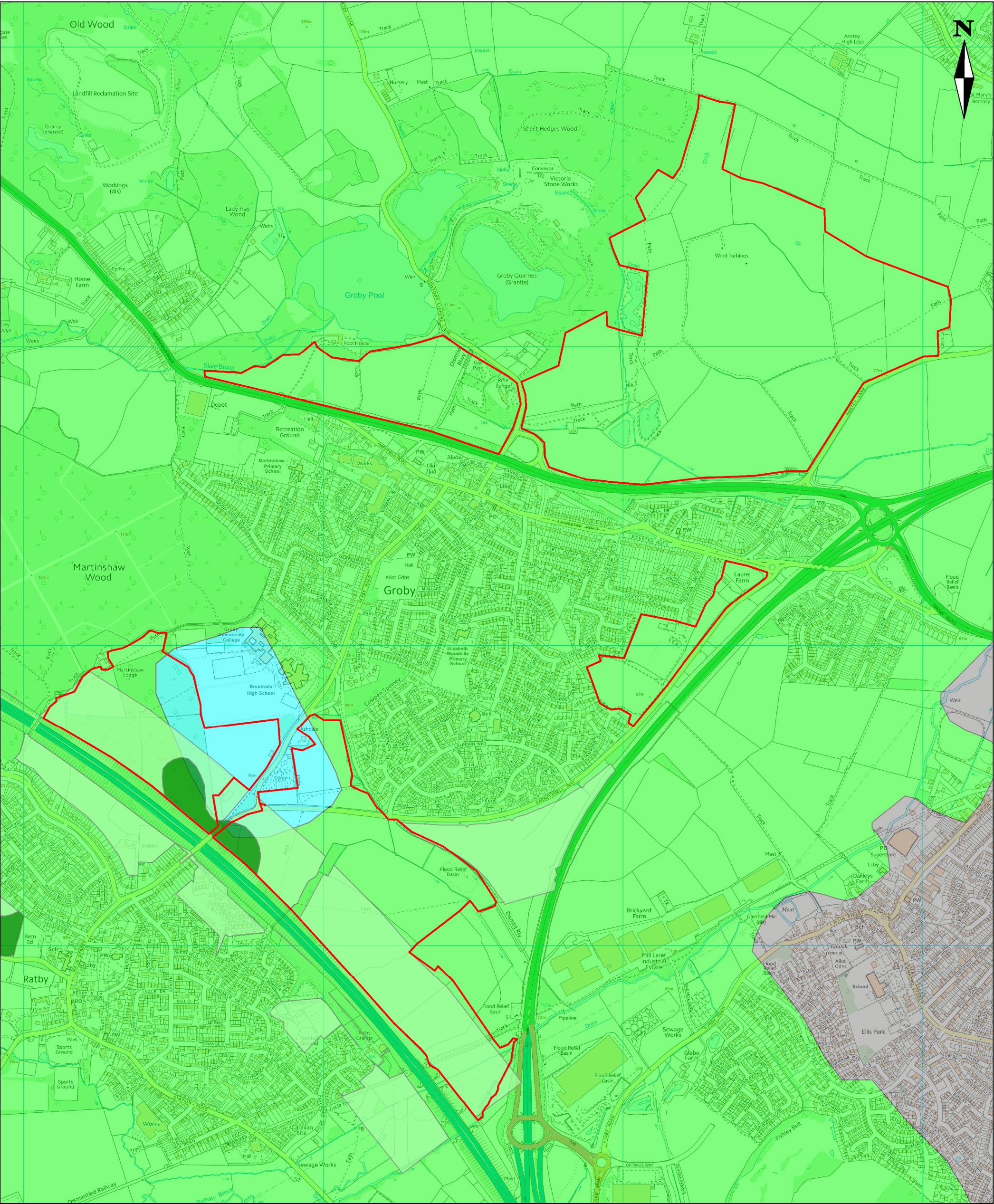
Date: 20/05/2019


SITE ENVIRONMENT

- 9.1. Groby is bordered to the east by the Leicester Western Bypass; to the south by agricultural land that runs up to the M1; to the west by a large woodland; and in the north by Groby Pools and further agricultural land, mainly in use for arable cropping livestock grazing.
- 9.2. The land is mainly flat to gently sloping, with an average elevation of 95 m AOD.







PUBLISHED INFORMATION

- 9.3. 1:50,000 scale BGS information records the basal geology of land to the south of the village as mudstones within the Edwalton Member. Edwalton Member is also recorded in the north, with a small area of South Charnwood Diorites. Superficial deposits of Thrussington Member glacial till are dominant in the south, with alluvium and River Terrace deposits in the south-east. In the north, deposits of alluvium flank rivers, with a small area of Oadby Member glacial till in the north-east.
- 9.4. The National Soil Map (published at 1:250,000 scale) shows Salop Association soils to the south-west of Groby: heavy soils with impeded drainage formed in reddish glacial till. In the south-east soils are shown to be within the Brockhurst 1 Association: fine loamy over clayey reddish soils with impeded drainage formed in mixed glacial till and drift over mudstone. To the north-west there Claverley Association soils are shown: mainly fine and coarse loamy reddish soils with impeded drainage formed in thin drift over glacial till. In the north-east soils are mapped as within Whimple 3 Association: fine loamy over clayey soils with slight drainage impedance formed in thin reddish drift over mudstone.
- 9.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 with a small area grade 2 to the west (see Map 8). A field of subgrade 3b land has been mapped in detail to the south-east of the village (see Natural England report (ALCC09596)).



Client: 
Site: **Hinckley and Bosworth District**
Map title: **Map 8
Published ALC information
for Groby**

KEY

 Grade 2	 Subgrade 3a
 Subgrade 3b	 Provisional grade 3
 Urban	 Survey area

Scale: 1:12,000
Date: 11/3/2019

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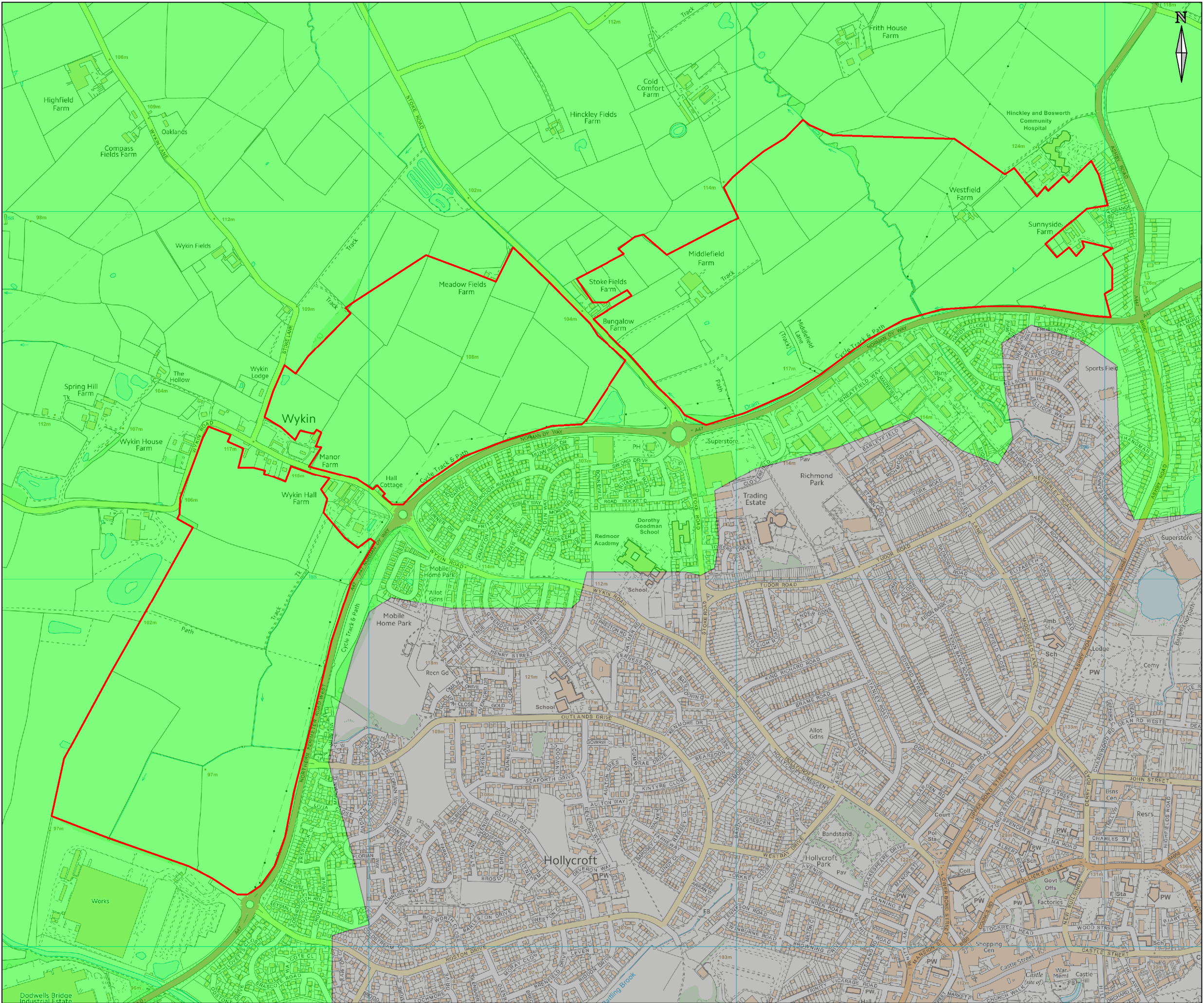
10.0 Hinckley

SITE ENVIRONMENT




- 10.1. The survey area lies to the north-west of Hinckley and comprises agricultural land in use for cereal and livestock production.
- 10.2. The land is mainly flat, but moderately sloping in the east, with an average elevation of 110 m AOD.

PUBLISHED INFORMATION

- 10.3. 1:50,000 scale BGS information records the basal geology of the land as Mercia Mudstone Group. Superficial deposits of Bosworth Clay member overlie much of the land, with areas of Oadby Member glacial till bordered by Wolston Sand and Gravel in the east and west. Alluvium flanks a stream in the east.
- 10.4. The National Soil Map (published at 1:250,000 scale) shows soils in the area surveyed as predominately within the Beccles 3 Association: mainly heavy soils with impeded drainage formed in chalky glacial till, with some better-draining soils. Flint Association soils are shown in the east: fine loamy soils with slight drainage impedance formed in thick reddish drift.
- 10.5. Provisional ALC mapping (published at 1:250,000 scale) from the 1970s shows the agricultural land at the site as grade 3 (see Map 9). No detailed survey of the area has been published.



KEY

-  Provisional grade 3
-  Urban
-  Survey area

Client:



Hinckley & Bosworth
Borough Council

Site:

Hinckley and Bosworth District

Map title:

Map 9
Published ALC information
for Hinckley



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Scale: 1:10,000

Date: 11/3/2019