

**LAND SOUTH OF WOKINGHAM,
BERKSHIRE**

**AGRICULTURAL LAND
CLASSIFICATION
AND
CONSIDERATIONS**

December 2023





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CONTENTS

- 1 Introduction
- 2 Relevant Planning Policy and Guidance
- 3 Agricultural Land Quality of the Site
- 4 Policy Assessment
- 5 Summary and Conclusions

Appendices

- KCC1 Natural England's Technical Information Note TIN049
- KCC2 Agricultural Land Classification Report
- KCC3 Extracts from John Nix Pocketbook for Farm Management
- KCC4 Guide to Assessing Development Proposals on Agricultural Land (Natural England, 2021)

1 INTRODUCTION

1.1 This report considers the agricultural land quality of a parcel of land extending to 57.6 ha south of Wokingham, Berkshire.

1.2 The site comprises of 5 land parcels, which are shown edged in red on the aerial image below.

Insert 1: The Site (boundary approx.)



1.3 A detailed Agricultural Land Classification has been carried out over the site. The site is recorded as a mixture of Grade 2, Subgrade 3a and Subgrade 3b.

1.4 This report:

- (i) reviews the relevant planning policy in section 2;
- (ii) describes the site and the ALC survey and findings in section 3;
- (iii) assesses the findings against that policy in section 4; and
- (iv) ends with a summary and conclusions in section 5.

1.5 This report has been prepared by Kernon Countryside Consultants Ltd. We specialise in assessing the effects of development proposals on agricultural land and businesses.

2 RELEVANT PLANING POLICY AND GUIDANCE

National Planning Policy Framework

- 2.1 The National Planning Policy Framework (NPPF) (2023), paragraph 180 notes that planning policies and decisions should contribute to enhance the natural and local environment by, inter alia, recognising **“the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land”**.
- 2.2 The best and most versatile (BMV) agricultural land is defined in Annex 2 of the NPPF as land which is of Grade 1, 2 and subgrade 3a of the Agricultural Land Classification.
- 2.3 Paragraph 181 of the NPPF discusses plan making. It requires plans to, inter alia, allocate land with the least environmental or amenity value, where consistent with other policies in the Framework. Footnote 62 of the NPPF identifies that **“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. The availability of agricultural land used for food production should be considered, alongside the other policies in this framework, when deciding what sites are most appropriate for development”**.
- 2.4 There is no definition of what constitutes “significant” development. However, the “Guide to assessing development proposals on agricultural land” (Natural England, February 2021) advises local planning authorities to **“take account of smaller losses (under 20ha) if they’re significant when making your decision”**, suggesting that 20ha is a suitable threshold for defining “significant” in many cases.

Local Plan

- 2.5 Wokingham Borough Local Development Framework (adopted January 2010) refers to best and most versatile land within Core Strategy 1 (CP1). One of the criteria set out within CP1 states that **“planning permission will be granted for development proposal that avoid areas of best and most versatile land”**.

Guidance

- 2.6 Natural England’s “Guide to Assessing Development Proposals on Agricultural Land” (February 2021) describes the ALC process and sets out guidance on managing soils. It advises on the consultation process where more than 20ha of BMV land is involved.
- 2.7 The Institute of Environmental Management and Assessment (IEMA) produced a Guide “A New Perspective on Land and Soil in Environmental Impact Assessment” in February 2022.

Whilst this refers to EA development, it identifies in table 3 (page 49) the magnitude of the impacts on soil resources.

3 AGRICULTURAL LAND QUALITY AND THE SITE

The ALC System

- 3.1 The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on the agricultural use of the site. The ALC system divides agricultural land into five grades. Grade 1 of the ALC is described as being of excellent quality and Grade 5, at the other end of the scale, is described as being of very poor quality. The current guidelines and criteria for the ALC were published by the Ministry of Agriculture, Fisheries and Food (MAFF) in 1988.
- 3.2 The ALC system is further described in Natural England's Technical Information Note 049 which can be found reproduced in **Appendix KCC1**.

Detailed ALC Survey Results

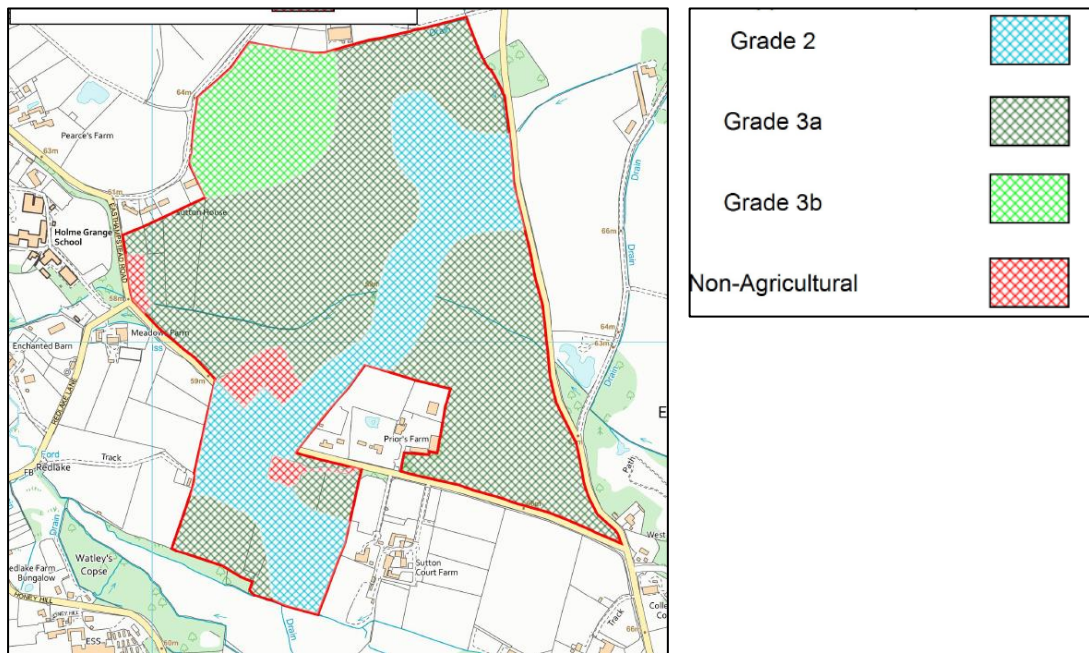
- 3.3 A detailed ALC survey was carried out by AMET Property on the 21st June 2023. 58 auger point inspection sites were examined on a regular 100m grid, using a spade and soil auger to a maximum depth of 120cm where possible.
- 3.4 Three soil pits were dug to measure the stoniness and to better describe the soil profiles. One sample was sent for laboratory analysis for the fractions of sand, silt and clay.
- 3.5 A detailed ALC report is set out in **Appendix KCC2**.
- 3.5 The Agricultural Land Classification found that the site was limited in places by both wetness and droughtiness, limiting land to Grade 2, Subgrade 3a and Subgrade 3b.
- 3.6 The results of the survey can be seen in the below table.

Table 1. KCC1 ALC Results

ALC Grade	Description	Area (ha)	Proportion
Grade 2	Very Good	13.9	24
Subgrade 3a	Good	36.0	62
Subgrade 3b	Moderate	6.1	11
Non-agricultural	-	1.6	3
Total	-	57.6	100

- 3.7 The distribution of grading can be seen on the extract of the ALC plan below. The full plan can be found at the back of the report within **Appendix KCC2**.

Insert 2. Extract of the ALC Plan



3.8 As a result, it is concluded that the site is Grade 2, Subgrade 3a and Subgrade 3b, thus being mostly BMV quality.

4 POLICY ASSESSMENT

- 4.1 The NPPF (2023) identifies land of Grades 1, 2 and 3a as the best and most versatile. Paragraph 180 requires the economic and other benefits of BMV land to be recognised. In plan making terms, therefore directed at local planning authorities, if significant development is involved then poorer quality land should be preferred, and food production should be considered.

Economic and Other Benefits

- 4.2 There is no research available that we are aware of that seeks to analyse the productive economic advantages of BMV to non-BMV land.
- 4.3 In the absence of any empirical data, an economic assessment is inevitably crude. Taking standard budgeting textbooks, such as the John Nix Pocketbook for Farm Management (extracts which have been reproduced in **Appendix KCC3**), it is possible to show the difference between moderate and high yields, as an illustration between crops.
- 4.4 Taking that crude measure and applying it to winter wheat and oilseed rape, the differences are shown below.

Table 2. Assessment of Economics of Farmed Land

Item	Winter Wheat		Oilseed Rape	
	Average	High	Average	High
Yield (t/ha)	8.6t/ha	10.0t/ha	3.5t/ha	4.0t/ha
Output (£)	£1,813/ha	£2,086/ha	£1,523/ha	£1,740/ha
Gross Margin (£)	£1,116/ha	£1,389/ha	£944/ha	£1,161/ha
Uplift (£)	-	£273/ha	-	£217/ha

John Nix Pocketbook for Farm Management, September 2023

- 4.5 The site is arable. Therefore, the economic benefits of the 49.9 ha of BMV land to non-BMV land would be under £14,000 (£10,830 - £13,620 on 2024 budgets). Hence the economic benefits of a land parcel of this size are moderately limited.
- 4.6 The Proposed Development will not have a significant adverse impact on a full-time farm business, nor will it result in any other agricultural land being affected or becoming unfarmable due to the severance of land. Other land can continue to be managed as it is now.
- 4.7 In terms of production, the difference between BMV and non-BMV land, if the crude assessment was accurate, would be 1.4 t/ha, or 70t for the BMV in the site. That is

insignificant when compared to UK production. In 2022 the UK produced over 24 million tonnes of cereals, of which 15.5 million tonnes was wheat.

Whether this is “Significant” Development

- 4.8 Paragraph 180 of the NPPF, and the related footnote 62, refer to plan making. To that end, therefore, they are directed at local authorities rather than applicants.
- 4.9 This proposal would be considered “significant development” of agricultural land in the context of the NPPF. Paragraphs 180 and 181 of the NPPF consider whether poorer quality land is available with the trigger for an assessment being that the proposal involved **“significant development of agricultural land”**. **“Significant Development”** is not defined in the NPPF. One threshold for determination of what is significant is the threshold for consultation with Natural England, which is set at the loss of 20ha or more of BMV land (as can be seen in the TIN049 in **Appendix KCC1**). This has been the threshold for consultation with MAFF since 1987.
- 4.10 In plan making terms the loss of above 20 ha of agricultural land triggers Footnote 62 of the NPPF which states, **“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”**.
- 4.11 The assessment of land in the area has been undertaken in this report which has taken into account predictive and provisional maps and Agricultural Land Classification Surveys within the area, none of which have identified poorer quality land that is available.

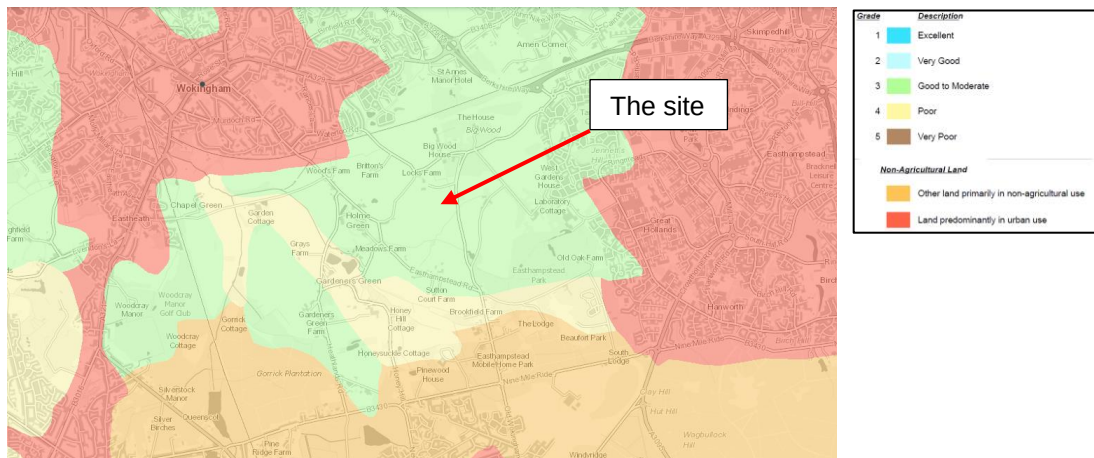
Land Quality in the Area Generally and Whether Poorer Quality Land is Available

- 4.12 The significance of development involving agricultural land needs to be considered in context. Across England it is estimated that 42% of farmland is of Grade 1, 2 and 3a quality (see TIN049, **Appendix KCC1**).
- 4.13 The MAFF statistics from the “provisional” ALC from the 1970's, graded 11,433,000ha. 42% of that land would be 4.8 million hectares.
- 4.14 The Utilised Agricultural Area (UAA) of England, which is less than the total amount of agricultural land, was 8.9 million hectares in 2022 (Agricultural Land Use in England on 1 June 2022, DEFRA, 29 September 2022). This suggests that 3.7 million hectares of BMV land is in active agricultural use.
- 4.15 Statistically about 40% of Grade 3 land falls within Subgrade 3a. However, in parts of the country the proportion of Subgrade 3a is expected to be much higher.

4.16 Therefore, it is not considered that BMV quality land is a rare resource.

4.17 On the published “provisional” ALC maps from the 1970’s the land is shown as Grade 3 land, as can be seen on the map below.

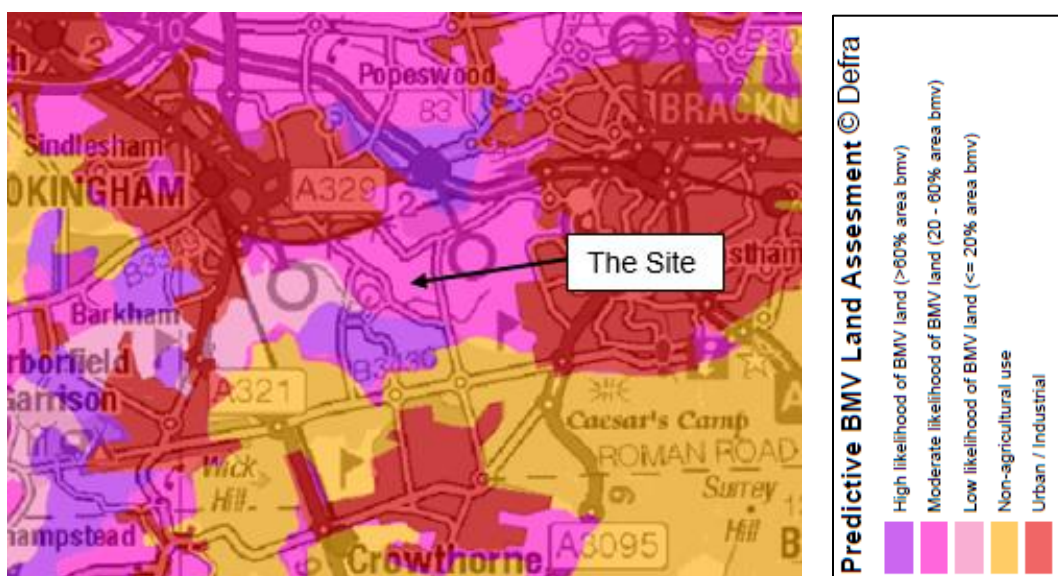
Insert 3. Provisional ALC Map



4.18 There are limitations with the “provisional” maps, which are described in TIN049 (**Appendix KCC1**). In 2017 Natural England produced predictive best and most versatile maps. These estimate the proportion of land within an area that is of BMV quality. There are three categories which are low (<20% area BMV), moderate (20-60% area BMV), and high (>60% area BMV). For this area the map shows the site as moderate likelihood of BMV land.

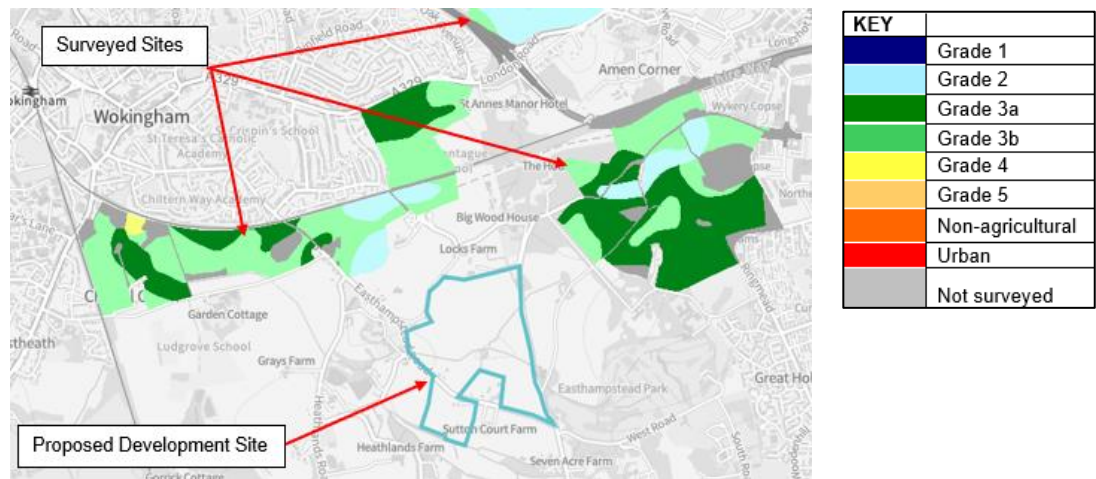
4.19 The predictive BMV likelihood maps predict that most of the land in the general area is in the 20-60% BMV category, although land at the south of the site is predicted to be >60% BMV. There is an area south of Wokingham predicted to be <20% area BMV.

Insert 4. Predictive BMV Map



4.20 There is ALC data near the site. The closest Agricultural Land Classification available is for a site to the north of the site, which comprise of Grade 2, Subgrade 3a and Subgrade 3b. The three surveyed sites can be seen highlighted below.

Insert 5. Surveyed sites close to the Proposed Development Site.



- 4.21 Based on this, it can be concluded, in terms of land quality in the local area:
- (i) surrounding the site the land is predicted to be a similar likelihood of being of BMV quality;
 - (ii) land to the south is predicted to be a higher proportion of BMV;
 - (iii) Most of the land in the area is expected to be a similar or higher proportion of BMV.

Conclusion

- 4.22 The site was surveyed in June 2023. This identified that the site was Grade 2, Subgrade 3a and Subgrade 3b.
- 4.23 The economic and other benefits of BMV land have been considered.
- 4.24 The site extends to 57.6 ha, the majority of which is BMV agricultural land. Whilst in plan-making terms this Site qualifies as significant development due to being over the 20 ha threshold for the consultation with Natural England, there are no other obvious areas of poorer quality land available in the locality.
- 4.25 This site is made up of five land parcels. There will be no significant adverse effects or severance on any active farming business. The Proposed Development on these parcels will not cause any severance of agricultural land. Therefore, the proposal would not cause any implications for any other remaining farmland.

- 4.26 The agricultural considerations need to be balanced against other considerations. The proposed development will result in a significant number of benefits that will flow from its delivery, and together these have a significant cumulative benefit for Berkshire and the wider District. In accordance with the NPPF and Development Plan, these benefits should be weighed against the harm created by the Proposed Development, including loss of BMV agricultural land.

5 SUMMARY AND CONCLUSIONS

- 5.1 The proposed site extends to 57.6 ha.
- 5.2 The land has been classified as comprising 13.9 ha (24%) Grade 2, 36 ha (62.5%) Subgrade 3a, 6.1 ha (10.5%) Subgrade 3b and 1.6 ha (3%) non-agricultural. Therefore the majority is BMV quality land.
- 5.3 The NPPF requires the economic benefits and other benefits of BMV land to be considered. The economic benefits of the site are limited, at under £15,800 per annum. The food production implications are very limited.
- 5.4 With regards to the NPPF, where in plan making terms “**Significant Development**” of agricultural land is necessary, poorer quality land in the area should be considered in preference. Other sites within the area that have been graded were also Grade 2, Subgrade 3a and Subgrade 3b.
- 5.5 No other significant areas of poorer quality are likely to be available in the developable areas around the town.

Appendix KCC1
Natural England's Technical
Information Note

Agricultural Land

Classification: protecting the best and most versatile agricultural land

Most of our land area is in agricultural use. How this important natural resource is used is vital to sustainable development. This includes taking the right decisions about protecting it from inappropriate development.

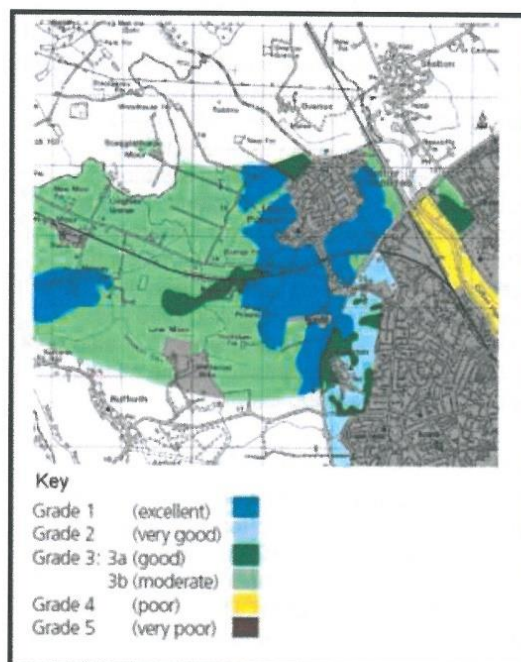
Policy to protect agricultural land

Government policy for England is set out in the National Planning Policy Framework (NPPF) published in March 2012 (paragraph 112). Decisions rest with the relevant planning authorities who should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of higher quality. The Government has also re-affirmed the importance of protecting our soils and the services they provide in the Natural Environment White Paper The Natural Choice:securing the value of nature (June 2011), including the protection of best and most versatile agricultural land (paragraph 2.35).

The ALC system: purpose & uses

Land quality varies from place to place. The Agricultural Land Classification (ALC) provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system. It helps

underpin the principles of sustainable development.



Agricultural Land Classification - map and key

Agricultural Land Classification: protecting the best and most versatile agricultural land

The ALC system classifies land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a by policy guidance (see Annex 2 of NPPF). This is the land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non food uses such as biomass, fibres and pharmaceuticals. Current estimates are that Grades 1 and 2 together form about 21% of all farmland in England; Subgrade 3a also covers about 21%.

The ALC system is used by Natural England and others to give advice to planning authorities, developers and the public if development is proposed on agricultural land or other greenfield sites that could potentially grow crops. The Town and Country Planning (Development Management Procedure) (England) Order 2010 (as amended) refers to the best and most versatile land policy in requiring statutory consultations with Natural England. Natural England is also responsible for Minerals and Waste Consultations where reclamation to agriculture is proposed under Schedule 5 of the Town and Country Planning Act 1990 (as amended). The ALC grading system is also used by commercial consultants to advise clients on land uses and planning issues.

Criteria and guidelines

The Classification is based on the long term physical limitations of land for agricultural use. Factors affecting the grade are climate, site and soil characteristics, and the important interactions between them. Detailed guidance for classifying land can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988):

- **Climate:** temperature and rainfall, aspect, exposure and frost risk.
- **Site:** gradient, micro-relief and flood risk.
- **Soil:** texture, structure, depth and stoniness, chemical properties which cannot be corrected.

The combination of climate and soil factors determines soil wetness and droughtiness.

Wetness and droughtiness influence the choice of crops grown and the level and consistency of yields, as well as use of land for grazing livestock. The Classification is concerned with the inherent potential of land under a range of farming systems. The current agricultural use, or intensity of use, does not affect the ALC grade.

Versatility and yield

The physical limitations of land have four main effects on the way land is farmed. These are:

- the range of crops which can be grown;
- the level of yield;
- the consistency of yield; and
- the cost of obtaining the crop.

The ALC gives a high grading to land which allows more flexibility in the range of crops that can be grown (its 'versatility') and which requires lower inputs, but also takes into account ability to produce consistently high yields of a narrower range of crops.

Availability of ALC information

After the introduction of the ALC system in 1966 the whole of England and Wales was mapped from reconnaissance field surveys, to provide general strategic guidance on land quality for planners. This Provisional Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile in the period 1967 to 1974. These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended and can be downloaded from the Natural England [website](http://magic.defra.gov.uk/). This data is also available on 'Magic', an interactive, geographical information website <http://magic.defra.gov.uk/>.

Since 1976, selected areas have been re-surveyed in greater detail and to revised

Agricultural Land Classification: protecting the best and most versatile agricultural land

guidelines and criteria. Information based on detailed ALC field surveys in accordance with current guidelines (MAFF, 1988) is the most definitive source. Data from the former Ministry of Agriculture, Fisheries and Food (MAFF) archive of more detailed ALC survey information (from 1988) is also available on <http://magic.defra.gov.uk/>. Revisions to the ALC guidelines and criteria have been limited and kept to the original principles, but some assessments made prior to the most recent revision in 1988 need to be checked against current criteria. More recently, strategic scale maps showing the likely occurrence of best and most versatile land have been prepared. Mapped information of all types is available from Natural England (see *Further information* below).

New field survey

Digital mapping and geographical information systems have been introduced to facilitate the provision of up-to-date information. ALC surveys are undertaken, according to the published Guidelines, by field surveyors using handheld augers to examine soils to a depth of 1.2 metres, at a frequency of one boring per hectare for a detailed assessment. This is usually supplemented by digging occasional small pits (usually by hand) to inspect the soil profile. Information obtained by these methods is combined with climatic and other data to produce an ALC map and report. ALC maps are normally produced on an Ordnance Survey base at varying scales from 1:10,000 for detailed work to 1:50 000 for reconnaissance survey

There is no comprehensive programme to survey all areas in detail. Private consultants may survey land where it is under consideration for development, especially around the edge of towns, to allow comparisons between areas and to inform environmental assessments. ALC field surveys are usually time consuming and should be initiated well in advance of planning decisions. Planning authorities should ensure that sufficient detailed site specific ALC survey data is available to inform decision making.

Consultations

Natural England is consulted by planning authorities on the preparation of all development

plans as part of its remit for the natural environment. For planning applications, specific consultations with Natural England are required under the Development Management Procedure Order in relation to best and most versatile agricultural land. These are for non agricultural development proposals that are not consistent with an adopted local plan and involve the loss of twenty hectares or more of the best and most versatile land. The land protection policy is relevant to all planning applications, including those on smaller areas, but it is for the planning authority to decide how significant the agricultural land issues are, and the need for field information. The planning authority may contact Natural England if it needs technical information or advice.

Consultations with Natural England are required on all applications for mineral working or waste disposal if the proposed afteruse is for agriculture or where the loss of best and most versatile agricultural land agricultural land will be 20 ha or more. Non-agricultural afteruse, for example for nature conservation or amenity, can be acceptable even on better quality land if soil resources are conserved and the long term potential of best and most versatile land is safeguarded by careful land restoration and aftercare.

Other factors

The ALC is a basis for assessing how development proposals affect agricultural land within the planning system, but it is not the sole consideration. Planning authorities are guided by the National Planning Policy Framework to protect and enhance soils more widely. This could include, for example, conserving soil resources during mineral working or construction, not granting permission for peat extraction from new or extended mineral sites, or preventing soil from being adversely affected by pollution. For information on the application of ALC in Wales, please see below.

Agricultural Land Classification: protecting the best and most versatile agricultural land

Further information

Details of the system of grading can be found in: *Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

Please note that planning authorities should send all planning related consultations and enquiries to Natural England by e-mail to consultations@naturalengland.org.uk. If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Natural England
Consultation Service
Hornbeam House
Electra Way
Crewe Business Park
CREWE
Cheshire
CW1 6GJ

ALC information for Wales is held by Welsh Government. Detailed information and advice is available on request from Ian Rugg (ian.rugg@wales.gsi.gov.uk) or David Martyn (david.martyn@wales.gsi.gov.uk). If it is not possible to consult us electronically then consultations should be sent to the following postal address:

Welsh Government
Rhodfa Padarn
Llanbadarn Fawr
Aberystwyth
Ceredigion
SY23 3UR

Natural England publications are available to download from the Natural England website: www.naturalengland.org.uk.

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Appendix KCC2
Agricultural Land
Classification Report



AGRICULTURAL LAND CLASSIFICATION SOUTH WOKINGHAM

CLIENT: KERNON COUNTRYSIDE CONSULTANTS
PROJECT: SOUTH WOKINGHAM
DATE: 21st JULY 2023 – ISSUE 1
ISSUED BY: JAMES FULTON MRICS FAAV

CONTENTS

1. EXECUTIVE SUMMARY
2. INTRODUCTION
3. PUBLISHED INFORMATION
4. CLIMATE
5. STONINESS
6. GRADIENT
7. SOILS

INTERACTIVE FACTORS

8. WETNESS
9. DROUGHTINESS
10. AGRICULTURAL LAND CLASSIFICATION

APPENDIX 1 – DETAILS OF THE AUTHORS EXPERIENCE

APPENDIX 2 – PLAN OF SITE WITH SAMPLING POINTS

APPENDIX 3 – AGRO-CLIMATIC DATA

APPENDIX 4 – SURVEY DATA

APPENDIX 5 – DESCRIPTION OF AGRICULTURAL LAND CLASSIFICATION GRADES

APPENDIX 6 – MAP OF LAND GRADING

1. EXECUTIVE SUMMARY

- 1.1 This report assesses the Agricultural Land Classification (ALC) grading of 57.6 hectares of land to the south of Wokingham.
- 1.2 The limiting factor found to be soil wetness, a combination of the climatic regime, soil water regime and texture of the top 25cm of the soil on the majority of the site and droughtiness on a small area to the south of the site.
- 1.3 The land is graded as follows:

Grade 2:	13.9 Ha
Grade 3a:	36 Ha
Grade 3b:	6.1 Ha
Non-agricultural:	1.6 Ha

2. INTRODUCTION

- 2.1 Amet Property Ltd have been instructed by Kernon Countryside Consultants to produce an Agricultural Land Classification (ALC) report on a 57.6-hectare site on land South of Wokingham.
- 2.2 The report's author is James Fulton BSc (Hons) MRICS FAAV who has worked as a chartered surveyor, agricultural valuer, and agricultural consultant since 2004, has a degree in agriculture which included modules on soils and over 10 years' experience in advising farmers on soil structure and cultivation methods and in producing agricultural land classification reports. Additional information on authors experience is found at **appendix 1**.
- 2.3 The report is based on a site visit conducted by 2 assistant surveyors on the 21st June 2023 during which the conditions were dry and overcast. The topsoil and upper regions of the upper subsoil were dry with the subsoil from around 60cm being moist.
- 2.4 During the inspections 3 trial pits were dug to a depth of 120cm. In addition to the trial pits an auger was used to take approximately one sample per hectare on the proposed development site to a depth of 120cm with smaller trial pits at some of these locations to confirm soil structure and colour where it was not clear from the auger samples. A plan of auger points and trial pit locations can be found at **appendix 2**. The trial pit locations were selected as they were representative of the soils found on site. Where subsoils were inspected with a spade, descriptions of structure have been recorded based on the soil survey field handbook¹; where an auger has been used the structure is described as good, moderate or poor based on figure 9,10 and 11 in the MAFF² guidance. Colours are described using Munsell Colours³.
- 2.5 The surveyed area extends to 57.6Ha bounded to the east by Old Wokingham Road and split by East Hampstead road. There are various areas with hardstanding mobile homes and horse paraphernalia totalling approximately 1.6ha across the site identified as non-agricultural.
- 2.6 Further information has been obtained from the MAGIC website, the Soil Survey of England and Wales, the British Geological Survey, the Meteorological Office and 1:250,000 series Agricultural Land Classification maps.
- 2.7 The collected information has been judged against the Ministry of Agriculture Fisheries and Food Agricultural Land Classification of England and Wales revised guidelines and criteria for grading the quality of agricultural land.
- 2.8 The principal factors influencing agricultural production are climate, site and soil and the interaction between them MAFF (1988) & Natural England (2012)⁴.

¹ Hodgson, JM (1997) Soil Survey Field Handbook

² MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications

³ Munsell Color (2009) Munsell Soil Color Charts

⁴ MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications

2.9 The report is prepared and formatted considering the latest BSSS guidance⁵.

3. PUBLISHED INFORMATION

3.1 The British Geological Survey 1:50,000 scale map shows the bedrock geology of the land to the north of the road to be London Clay Formation – Clay, silt and sand either with no superficial deposits recorded or variously with superficial deposits recorded as River Terrace Deposits 6 – sand and gravel or Head – Clay, silt, sand and gravel. The bedrock geology of the land to the south of the road is recorded as Bagshot formation – sand with no superficial deposits recorded.

3.2 The soils to the north of the land north of the road are identified as being Wickham 3 Association - Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging. The soils to the south of the land north of the road are identified as being Wickham 4 Association - Slowly permeable seasonally waterlogged fine loamy over clayey and silty over clayey soils associated with similar clayey soils often with brown subsoils. The land south of the road is identified as Fyfield 4 Association – deep well drained often stoneless coarse loamy and sandy soils.

1.1 The 1:250,000 series Agricultural Land Classification maps show the land to be Grade 3 with the very southern part of the site just shown as Grade 4. These plans are of strictly limited value, using an out-of-date methodology at a very small scale (low detail) level of survey. Further information on the limits of their use can be found in TIN049.

Natural England (2012) - *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition

⁵ BSSS (2022) Working with Soil Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales

2. CLIMATE

- 2.1 Climate has a major, and in places overriding, influence on land quality affecting both the range of potential agricultural uses and the cost and level of production.
- 2.2 There is published agro-climatic data for England and Wales provided by the Meteorological Office, such data for the subject site is listed in the table below.

Agro-Climatic Data – Full details can be found at **appendix 3**

Grid Reference	483354 167197
Altitude (ALT)	62
Average Annual Rainfall (AAR)	666
Accumulated Temperature - Jan to June (ATO)	1451
Duration of Field Capacity (FCD)	139
Moisture Deficit Wheat	112
Moisture Deficit Potatoes	107

- 2.3 The main parameters used in assessing the climatic limitation are average annual rainfall (AAR), as a measure of overall wetness; and accumulated temperature (ATO), as a measure of the relative warmth of a locality.
- 2.4 The AAR and ATO provide no climatic limitation to grade.
- 2.5 The majority of the site is shown to be in flood zone 1 – areas with a less than 1 in 1000 annual chance of flooding with small areas adjacent to the watercourses shown to be Flood Zone 3 – areas with greater than 1 in 100 annual chance of flooding. There was no evidence of flooding seen during the site visit and it is considered that will not result in a limitation to land grade.

3. STONINESS

- 3.1 Almost all of the sample points are recorded as being slightly to moderately stoney but the majority of the stones found are smaller than 2cm and so do not cause a direct limit to land grade but do have an impact on the droughtiness limitation.

4. GRADIENT AND MICRORELIEF

- 6.1 The site is flat to gently sloping. Gradient and microrelief do not cause a limit to land grade.

5. SOILS

- 5.1 The soils found on site largely follow the expectations set by the national soils map. Full information on the sample points along with trial pit descriptions and photographs and lab test results can be found at **appendix 4**.
- 5.2 All the soils to the north are a medium clay loam or sandy clay loam topsoil over a gleyed upper subsoil and slowly permeable lower subsoil. In places there is only one subsoil which is the slowly permeable clay occurring from a shallower depth.
- 5.3 To the south of the site there is a little more variability with medium sandy loam topsoil in places and some loamy medium sand and medium sand subsoils in the southwest corner.

INTERACTIVE FACTORS

6. WETNESS

- 6.1 An assessment of the wetness class of each sample point was made based on the flow chart at Figure 6 in the MAFF guidance. The wetness class and topsoil texture were then assessed against Table 6 of the MAFF guidance to determine the ALC grade according to wetness. The wetness assessment can be found at **appendix 4**.
- 6.2 Where there is a gleyed horizon at less than 40cm but no slowly permeable layer table 13 gives wetness class II.
- 6.3 Where there is a gleyed horizon starting at between 40 and 70cm and a slowly permeable layer starting at between 47 and 80cm figure 8 gives wetness class II.
- 6.4 Where there is a gleyed horizon starting at between 40 and 70cm and a slowly permeable layer starting at less than 47cm figure 8 gives wetness class III.
- 6.5 Where there is a gleyed horizon at less than 40cm and slowly permeable layer starting at between 37cm and 65cm figure 7 gives wetness class III
- 6.6 Where there is a gleyed horizon at less than 40cm and slowly permeable layer at less than 37cm figure 7 gives wetness class IV
- 6.7 Table 6 for 126-150FCD is then used to identify the grade limitation caused by wetness.

7. DROUGHTINESS

- 7.1 Droughtiness limits are defined in terms of moisture balance for wheat and potatoes using the formula:

$$MB \text{ (Wheat)} = AP \text{ (Wheat)} - MD \text{ (Wheat)}$$

and

$$MB \text{ (Potatoes)} = AP \text{ (Potatoes)} - MD \text{ (Potatoes)}$$

Where:

MB = Moisture Balance

AP = Crop Adjusted available water capacity

MD = Moisture deficit

- 7.2 Moisture deficit for wheat and potatoes can be found in the agro-climatic data and are as follows:

$$MD \text{ (Wheat)} = 112$$

$$MD \text{ (Potatoes)} = 107$$

- 7.3 Crop adjusted available water is calculated by reference to the total available water and easily available water which is calculated by reference to soil texture and structural condition and the stone content.
- 7.4 The moisture balance was calculated for the trial pit locations and locations where droughtiness was considered to be a potential limiting factor. This assessment can be found at **appendix 4**.
- 7.5 Droughtiness is the most limiting factor here there is no slowly permeable layer providing a wetness limitation and is most severe where soils are shallow over rock leading to a grade 3a limitation. There is a grade 2 droughtiness limitation across all of the site.

8. AGRICULTURAL LAND CLASSIFICATION

- 8.1 The Agricultural Land Classification provides a framework for classifying land according to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of four principal ways: they may affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it.
- 8.2 The principle physical factors influencing agricultural production are climate, site and soil and the interactions between them which together form the basis for classifying land into one of 5 grades; grade 1 being of excellent quality and grade 5 being land of very poor quality. Grade 3 land, which constitutes approximately half of all agricultural land in the United Kingdom is divided into 2 subgrades – 3a and 3b. A full definition of all of the grades can be found at **appendix 5**.
- 8.3 This assessment sets out that the site is limited by both wetness and droughtiness.
- 8.4 The breakdown of land by classification is:
- | | |
|-------------------|---------|
| Grade 2: | 13.9 Ha |
| Grade 3a: | 36 Ha |
| Grade 3b: | 6.1 Ha |
| Non-agricultural: | 1.6 Ha |
- 8.5 A plan of the land grading can be found at **appendix 6**.

Appendix 1 – Details of the Authors Experience

James Fulton

Professional Education and Qualifications

BSc (Hons) Agriculture, University of Nottingham (2004)

Member of the Royal Institution of Chartered Surveyors (MRICS) (2008)

Fellow of the Central Association of Agricultural Valuers (FAAV) (2009)

Relevant Work Experience

While working for a regional firm from 2004 until 2016 as part of my work I provided advice to farmers on soils, cultivation techniques and cropping and was involved in field trials which assessed cropping and cultivation techniques and how they impacted soil structure. At the same time I worked alongside an experienced surveyor who produced Agricultural Land Classification reports and I received training in field survey techniques and the ALC process to the point where I was able to produce ALC reports.

In 2016 I left my employer and formed Amet Property Ltd providing development consultancy and other rural practice surveying services. Of all of the services that we provide Agricultural Land Classification reports is the single largest area of work accounting for approximately 70% of all of my working time.

While I am not a member of the BSSS I meet the minimum competencies set out by the BSSS in Document 1 *Foundation skills in field soil investigation, description and interpretation* and Document 2 *Agricultural Land Classification (England and Wales)*

Professional Standards

As a member of the Royal Institution of Chartered Surveyors and Fellow of the Central Association of Agricultural Valuers I am bound by their professional standards and am only able to carry out work where I am suitably qualified and experienced to do so. Due to the formal and practical training that I have received I am able to competently produce Agricultural Land Classification reports.

Assistant Surveyors

All assistant surveyors have completed the BSSS working with soil course and have been trained to meet the requirements of BSSS Document 1 *Foundation skills in field soil investigation, description, and interpretation*.

Appendix 2 - Map of Sample Points

The map displays a grid of 58 numbered sample points (1-58) overlaid on a topographic map of a rural area. The points are arranged in a grid pattern, with some points missing (e.g., 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58). The map includes various geographical features such as roads, fields, and buildings. A red line outlines the area containing the sample points. A north arrow is located in the top left corner.

Appendix 3 – Climatic Data

Site Details: South Wokingham

Grid reference (centre of site): 483354 167197

Altitude: Mean 62.43m AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
48001650	67	648	0.5	325	1448	2420	112	106	135
48001700	46	650	0.5	320	1470	2444	115	110	136
48501650	97	685	0.6	330	1413	2383	108	100	143
48501700	71	676	0.4	325	1441	2414	111	105	141

Altitude Adjusted

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
48001650	645.72	1453.21	134.67	112.63	106.83	6.92%
48001700	658.22	1451.27	137.19	112.74	107.01	27.15%
48501650	664.26	1452.41	140.00	113.00	106.60	8.01%
48501700	672.57	1450.77	140.50	112.12	106.48	57.92%

Appendix 4a - sample point assessment

Sample No	Altitude	Topsoil					Upper Subsoil					Lower Subsoil					Wetness Assessment			Grade	Droughtiness Assessment		Grade	Grade by		
		Depth	Texture	Colour	Stoniness	Mottles	Depth	Texture	Colour	Stoniness	Mottles	Structure	Depth	Texture	Colour	Stoniness	Mottles	Structure	Depth to SPL	Gley	Wetness Class	limit by Wetness	MB Wheat	MB Potato	limit by Droughtiness	most limiting factor
1	65	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
2	65	0-40	MCL	10YR 5/3	10%		40-120	C	10YR 5/1		MOB	Poor							40	40 III		3a				3a
3	63	0-40	MCL	10YR 5/3	10%		40-120	C	10YR 5/1		MOB	Poor							40	40 III		3a				3a
4	63	0-40	MCL	10YR 5/3	10%		40-120	C	10YR 5/1		MOB	Poor							40	40 III		3a				3a
5	65	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
6	64	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
7	64	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
8	64	0-40	MCL	10YR 5/3	10%		40-120	C	10YR 5/1		MOB	Poor							40	40 III		3a				3a
9	63	0-40	MCL	10YR 5/3	10%		40-50	SCL	10YR 5/3		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	40 II		2				2
10	63	0-35	MCL	10YR 5/3	10%		35-50	SCL	10YR 5/2		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	35 III		3a				3a
11	64	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
12	63	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
13	63	0-35	MCL	10YR 5/3	10%		35-120	C	10YR 5/1		MOB	Poor							35	35 IV		3b				3b
14	64	0-40	MCL	10YR 5/3	10%		40-120	C	10YR 5/1		MOB	Poor							40	40 III		3a				3a
15	64	0-40	MCL	10YR 4/3	10%		40-50	SCL	10YR 5/2		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	40 II		2				2
16	64	0-40	MCL	10YR 5/3	10%		40-50	SCL	10YR 5/2		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	40 II		2				2
17	62	0-25	MCL	10YR 5/3	10%		25-50	SCL	10YR 5/1		MOB	Moderate	50-120	C	10YR 5/1		MO	Poor	50	25 III		3a				3a
18	62	0-20	MCL	10YR 4/3	10%		20-50	SCL	10YR 5/1		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	20 III		3a				3a
19	63	0-30	MCL	10YR 4/3	10%		30-50	SCL	10YR 5/1		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	30 III		3a				3a
20	63	0-20	MCL	10YR 5/3	5%		20-60	SCL	10YR 5/2		CO	C PLATY	60-120	C	10YR 5/1		MO	CAB	60	20 III		3a	20.61	2.34	2	3a
21	60	0-15	MCL	10YR 5/3	5%		15-50	SCL	10YR 5/2		CO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	15 III		3a				3a
22	62	0-30	MCL	10YR 4/3	10%		40-70	SCL	10YR 5/1		MO	Moderate	70-120	SC	10YR 5/1		CO	Poor	70	40 II		2				2
23	63	0-30	MCL	10YR 4/3	10%		40-50	SCL	10YR 5/1		MO	Moderate	50-120	SC	10YR 5/1		CO	Poor	50	40 II		2				2
24	59	Non-agricultural																								
25	60	0-25	MCL	10YR 5/3	10%		25-50	SCL	10YR 5/1		MOB	Moderate	50-120	C	10YR 5/1		MO	Poor	50	25 III		3a				3a
26	62	0-20	MCL	10YR 4/3	10%		20-50	SCL	10YR 5/1		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	20 III		3a				3a
27	64	0-30	MCL	10YR 4/3	10%		30-50	SCL	10YR 5/1		MO	Moderate	50-120	C	10YR 5/1		MO	Poor	50	30 III		3a				3a
28	61	0-30	MCL	10YR 5/4	15%		30-50	SCL	10YR 5/3	5%	CO	Moderate	50-120	C	10YR 5/1		MOB	Poor	50	30 III		3a				3a
29	60	0-30	MCL	10YR 4/3	10%		40-70	SCL	10YR 5/1		MO	Moderate	70-120	SC	10YR 5/1		CO	Poor	70	40 II		2				2
30	62	0-25	MCL	10YR 5/3	10%		25-50	SCL	10YR 4/1		MOB	Moderate	50-120	C	10YR 5/1		MO	Poor	50	25 III		3a				3a
31	62	0-30	MCL	10YR 4/2	10%		30-50	SCL	10YR 4/1		CO	CSAB	50-120	C	10YR 5/1		MO	CAB	50	30 III		3a	20.61	3.34	2	3a
32	58	0-25	SCL	10YR 5/3	10%		25-50	SCL	10YR 5/1		MOB	Moderate	50-120	C	10YR 5/1		MO	Poor	50	25 III		3a				3a
33	59	0-30	MCL	10YR 5/3	15%		30-60	SCL	10YR 5/2		COB	Moderate	60-120	C	10YR 5/1		CO	Poor	60	30 III		3a				3a
34	61	0-30	MCL	10YR 5/3	15%		30-60	SCL	10YR 5/2		COB	Moderate	60-120	C	10YR 5/1		CO	Poor	60	30 III		3a				3a
35	61	0-30	MCL	10YR 5/2	15%		30-60	SCL	10YR 5/2		COB	Moderate	60-120	C	10YR 5/1		CO	Poor	60	30 III		3a				3a
36	59	0-40	MCL	10YR 5/3	15%		40-60	SCL	2.5Y 5/1	5%	FO	Moderate	60-120	C	10YR 5/1		CO	Poor	60	40 II		2				2
36a	59	0-35	MCL	10YR 5/3	15%		35-60	SCL	2.5Y 5/1	5%	FO	Moderate	60-120	C	10YR 5/1		CO	Poor	60	35 III		3a				3a
37	60	0-25	MCL	10YR 5/3	10%		25-50	SCL	10YR 5/1		MOB	Moderate	50-120	C	10YR 5/1		MO	Poor	50	25 III		3a				3a
38	57	Non-agricultural																								
39	58	0-40	SCL	10YR 4/2	15%		40-60	SCL	10YR 5/1	10%	CO	CSAB	60	IMP						40 II		2	-18.39	-6.66	3a	3a
40	61	0-40	MCL	10YR 4/3	10%		40-60	SCL	10YR 5/1	5%	CO	Moderate	60-120	C	10YR 5/1		MOB	Poor	60	40 II		2				2
41	63	0-30	MCL	10YR 5/5	10%		30-60	SCL	2.5Y 5/1	5%	FO	Moderate	60-120	C	10YR 5/2		MO	Poor	60	30 III		3a				3a
42	63	0-30	SCL	10YR 5/5	10%		30-60	SCL	2.5Y 5/1	5%	FO	Moderate	60-120	C	10YR 5/2		MO	Poor	60	30 III		3a				3a
43	61	0-30	SCL	10YR 5/5	10%		30-60	SCL	2.5Y 5/1	5%	FO	Moderate	60-120	C	10YR 5/2		MO	Poor	60	30 III		3a				3a
44	61	0-40	MCL	10YR 4/3	10%		40-60	SCL	10YR 5/1	5%	CO	Moderate	60-120	C	10YR 5/1		MOB	Poor	60	40 II		2				2
45	63	0-40	MCL	10YR 4/3	10%		40-60	SCL	10YR 5/1		CO	Moderate	60-120	C	10YR 5/1		MOB	Poor	60	40 II		2				2
46	65	0-20	SCL	10YR 4/3	5%	FO	20-50	SCL	2.5Y 5/1	5%	MOB	Moderate	50-120	C	10YR 5/1		MOB	Poor	50	20 III		3a				3a
47	65	0-30	SCL	10YR 5/3	10%		30-50	mSL	2.5Y 5/1	5%	MOB	Moderate	50-120	C	10YR 5/1		MOB	Poor	50	30 III		3a				3a
48	64	0-40	SCL	10YR 4/2	10%		40-120	C	2.5Y 5/1		MO	Poor							40	40 II		2				2
49	63	0-40	SCL	10YR 4/3	10%		40-70	SCL	2.5Y 5/3		CO	Moderate	70-120	SC	2.5Y 5/3		MO	Poor	70	40 II		2				2
50	64	0-40	SCL	2.5Y 4/1	10%		40-120	SC	2.5Y 5/1		MO	Poor							40	40 III		3a				3a
51	64	0-30	SCL	10YR 4/3	10%		30-50	SCL	2.5Y 5/1		MO	Moderate	50-120	SC	10YR 5/1		MOB	Poor	50	30 III		3a				3a
52	65	0-30	SCL	10YR 5/3	15%		30-55	mSL	2.5Y 5/1	10%	COB	Moderate	55-120	C	10YR 5/1		COB	Poor	55	30 III		3a				3a
53	67	0-40	mSL	10YR 5/3	10%		40-50	mSL	10YR 5/3	5%	CO	Moderate	50-120	C	10YR 5/1		CO	Poor	50	40 II		1	8.61	-6.36	2	2
54	67	0-30	mSL	10YR 5/3	15%		30-50	mSL	2.5Y 5/1	5%	COB	CAB	50-120	C	10YR 5/1		MO	Poor	50							

Appendix 4b – Trial Pit Descriptions

Sample Point No. 20		
Horizon 1	0-20cm Brown (10YR 5/3) medium clay loam.	
Horizon 2	20-60 Greyish brown (10YR 5/2) sandy clay loam with a coarse platy structure, firm consistence, and common ochreous mottles, lots of roots and biopores obvious through horizon	
Horizon 3	60-120cm Grey (10YR 5/1) clay with a coarse angular blocky structure, firm consistence, and many ochreous mottles. Some small roots but very few biopores evident	
Pictures		
Horizon 1	Horizon 2	Horizon 3
		
Slowly permeable layer	Starts at 60cm – evidenced by firm coarse angular blocky structure with less than 0.5% biopores >0.5mm, mottles evidencing wetness	
Gleying	Starts at 20cm evidenced by greyish colours and ochreous mottles	
Wetness Class	III	
Wetness limitation	3a	
MB Wheat	20.61	
MB potatoes	2.34	
Droughtiness Limitation	2	

Sample Point No. 31		
Horizon 1	0-30cm Dark greyish brown (10YR 4/2) medium clay loam with 10% small and very small stones	
Horizon 2	30-50 Greyish brown (10YR 4/1) sandy clay loam with a coarse subangular blocky structure, firm consistence, and common ochreous mottles, lots of roots and biopores obvious through horizon	
Horizon 3	50-120cm Grey (10YR 5/1) clay with a coarse angular blocky structure, firm consistence, and many ochreous mottles. Some small roots but very few biopores evident	
Pictures		
Horizon 1	Horizon 2	Horizon 3
		
Slowly permeable layer	Starts at 50cm – evidenced by firm coarse angular blocky structure with less than 0.5% biopores >0.5mm, mottles evidencing wetness	
Gleying	Starts at 30cm evidenced by greyish colours and ochreous mottles	
Wetness Class	III	
Wetness limitation	3a	
MB Wheat	20.61	
MB potatoes	3.34	
Droughtiness Limitation	2	

Sample Point No. 39		
Horizon 1	0-40cm Dark greyish brown (10YR 4/2) sandy clay loam with 15% small to medium stones	
Horizon 2	40-60 Grey (10YR 5/1) sandy clay loam with a coarse subangular blocky structure, firm consistence, and common ochreous mottles, lots of roots and biopores obvious through horizon, 10% medium to large stones, with stoniness increasing with depth	
Horizon 3	60cm impenetrable due to rock/boulder layer	
Pictures		
Horizon 1	Horizon 2	Horizon 2
		
Slowly permeable layer	Not present	
Gleying	Starts at 40cm evidenced by greyish colours and ochreous mottles	
Wetness Class	II	
Wetness limitation	2	
MB Wheat	-18.39	
MB potatoes	-6.66	
Droughtiness Limitation	3a	

Auger core photographs

Sample point 11



Sample point 18



Sample point 30



Sample point 43



Sample point 55



ANALYTICAL REPORT

Report Number	77380-23	W250	AMET PROPERTY
Date Received	26-JUN-2023		HENWICK BARN
Date Reported	12-JUL-2023		BULWICK
Project	SOIL		CORBY
Reference	KERON		NORTHANTS
Order Number		NN17 3DU	

Laboratory Reference	SOIL633989	SOIL633990	SOIL633991	SOIL633992						
Sample Reference	WHAM 31	WHAM 51	WHAM 54	WHAM 55						
Determinand	Unit	SOIL	SOIL	SOIL	SOIL					
Coarse Sand 2.00-0.63mm	% w/w	5	2	5	4					
Medium Sand 0.63-0.212mm	% w/w	17	38	36	42					
Fine Sand 0.212-0.063mm	% w/w	22	29	24	32					
Silt 0.063-0.002mm	% w/w	31	6	20	10					
Clay <0.002mm	% w/w	25	25	15	12					
Textural Class **		MCL	SCL	msl	msl					

Notes

Analysis Notes

The sample submitted was of adequate size to complete all analysis requested.
The results as reported relate only to the item(s) submitted for testing.
The results are presented on a dry matter basis unless otherwise stipulated.

Document Control

This test report shall not be reproduced, except in full, without the written approval of the laboratory.
** Please see the attached document for the definition of textural classes.

Reported by

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ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

vf	Very Fine (more than 2/3's of sand less than 0.106 mm)
f	Fine (more than 2/3's of sand less than 0.212 mm)
c	Coarse (more than 1/3 of sand greater than 0.6 mm)
m	Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

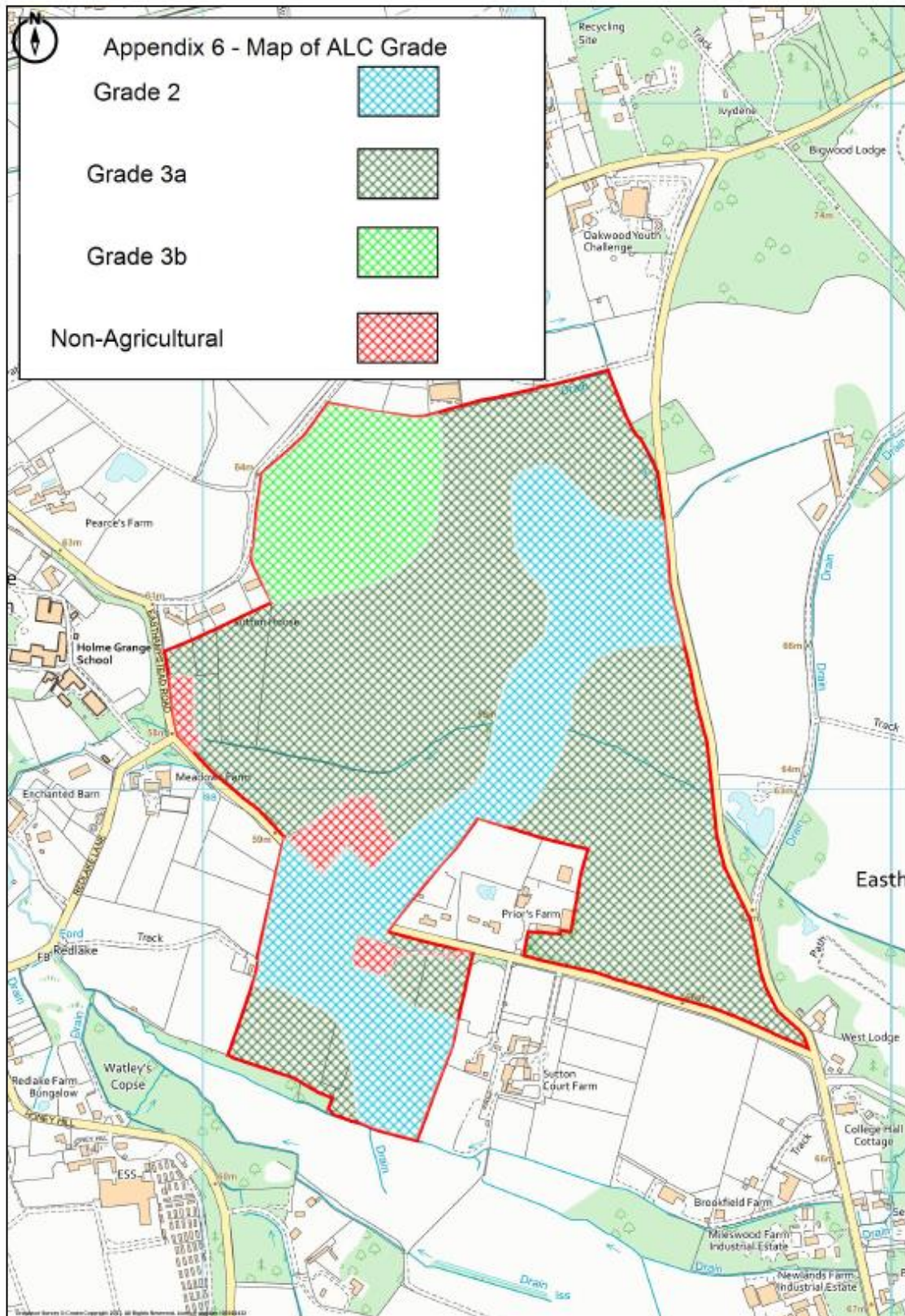
M	medium (less than 27% clay)
H	heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

APPENDIX 5 - DESCRIPTION OF ALC GRADES

- | | |
|---------------|---|
| Grade 1 - | excellent quality agricultural land Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality. |
| Grade 2 - | very good quality agricultural land Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1. |
| Grade 3 - | good to moderate quality agricultural land Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2. |
| Subgrade 3a - | good quality agricultural land Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops. |
| Subgrade 3b - | moderate quality agricultural land Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year. |
| Grade 4 - | poor quality agricultural land Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land. |
| Grade 5 - | very poor-quality agricultural land Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops. |



Appendix KCC3
Extracts from John Nix
Pocketbook for Farm Management



John Nix Pocketbook

FOR FARM MANAGEMENT



2024 54TH
EDITION

The most comprehensive business information in British agriculture

Graham Redman

WHEAT

Feed Winter Wheat

Production level	Low	Average	High	
Yield: t/ha (t/ac)	7.25 (2.9)	8.60 (3.5)	10.00 (4.1)	
	£	£	£	£/t
Grain at £195/t	1,414	1,677 (679)	1,950 (790)	
Straw in Swath	136 (55)	136 (55)	136 (55)	
Total Output	1,550 (628)	1,813 (734)	2,086 (845)	211
Variable Costs £/ha (£/ac):				
Seed.....		81 (33)		9
Fertiliser.....		324 (131)		38
Sprays.....		292 (118)		34
Total Variable Costs		697 (282)		81
Gross Margin £/ha (ac)	852 (345)	1116 (452)	1,389 (562)	130

Fertiliser Basis 8.6t/ha				Seed:		Sprays £/ha:	
Nutrient	Kg/t	Kg/Ha	£/Ha	£/t C2	£510	Herbicides	£127
N	22	190	£198	Kg/Ha	175	Fungicides	£116
P	7.0	60	£59	% HSS	30%	Insecticides	£3
K	10.5	90	£68	£/t HSS	£352	PGRs	£17
						Other	£29

1. *Yields.* The average yield is for all winter feed wheat, i.e. all varieties and 1st and subsequent wheats. See over for First and Second Wheats. The yield used for feed and milling wheats including spring varieties is 8.4t/ha.

The table below offers a weighted estimate of yield variations according to wheat type based on a national yield of 8.41t/ha. Percentages compare yield categories with 'all wheat'. These yields are used in the gross margins.

Calculation of spread of 'average yields depending on wheat type –

		Winter	1st WW	2nd WW	spring	Total
t/ha		101%	102%	93%	85%	
Total		100%	8.49	8.63	7.82	8.41
Feed		101%	8.58	8.71	7.90	8.49
Bread		93%	7.90	8.02	7.27	6.18
Biscuit		99%	8.41	8.54	7.74	8.32

2. *Straw* is sold in the swath. Fertiliser accounts for mineral depletion at £55/t.
3. *Seed* is costed with a single purpose dressing. Up to a third of growers require additional seed treatments, specifically to suppress BYDV. This can add £160/t of seed (£28/ha). This has not been added in the gross margins so should be considered.
4. This schedule does not account for severe *grass weed infestations* such as Black Grass or Sterile Brome. Costs associated with managing such problems can amount to up to £180/hectare additional agrochemical costs. Yield losses increase as infestation rises:

OILSEED RAPE

Winter Oilseed Rape

Production level	Low	Average	High	
Yield: t/ha (t/ac)	3.00 (1.2)	3.50 (1.4)	4.00 (1.6)	
	£	£	£	£/t
Output at £435/t	1305 (529)	1,523 (617)	1,740 (705)	435
Variable Costs £/ha (£/ac):				
Seed.....		70 (28)		20
Fertiliser.....		244 (99)		70
Sprays.....		265 (107)		76
Total Variable Costs		579 (234)		165
Gross Margin £/ha (ac)	726 (294)	944 (382)	1,161 (470)	270

Fertiliser Basis 3.5t/ha				Seed:		Sprays:	
Nutrient	Kg/t	Kg/Ha	£/Ha	£/Ha C	42	Herbicides	£131
N	46	160	£167	£/Ha Hy	85	Fungicides	£72
P	14	49	£48	£/Ha HSS	28	Insecticides	£17
K	11	39	£29	C:Hy:HSS	20:20:60	PGRs	£0
Seed write-off	7%			Kg/Ha	5.5	Other	£46

1. *Prices.* The price used is £410/t plus oil bonuses at 44% oil content making £435/. The bonus is paid on the percentage of oil over 40%, at 1.5 times the sale value of the crop and an equal but opposite penalty below 40%. For example, in this case, the bonus is on 4% oil $\times$ £410 $\times$ 1.5 = £25.

Spring Oilseed Rape

Production level	Low	Average	High	
Yield: t/ha (t/ac)	2.00 (0.8)	2.28 (0.9)	2.50 (1.0)	
	£	£	£	£/t
Output at £435/t	870 (352)	990 (401)	1,088 (441)	435
Variable Costs £/ha (£/ac):				
Seed.....		67 (27)		29
Fertiliser.....		123 (50)		54
Sprays.....		138 (56)		61
Total Variable Costs		328 (133)		144
Gross Margin £/ha (ac)	542 (219)	661 (268)	760 (308)	291

2. *Inputs:* Seed as per WOSR, but 45% conventional, 5% HSS, 50% hybrid. Fertiliser: N/P/K at 80/32/25 kg/ha. Sprays, Herbicides. £53, Fungicides, £43, Insecticides £13, and Others £29/ha
3. *Winter Versus Spring:* As little as 8,000 hectares of spring OSR are grown in the UK which is 2.5% of the entire crop. As can be seen, the financial reward is slim compared

Appendix KCC4
Guide to Assessing Development
Proposals on Agricultural Land
(Natural England, 2021)



(<https://www.gov.uk/government/organisations/natural-england>)

Guidance

Guide to assessing development proposals on agricultural land

Updated 5 February 2021

Applies to England

Contents

1. Policies to protect agricultural land and soil
2. LPAs: consult Natural England
3. LPAs: how to use agricultural land classification (ALC)
4. About ALC grades
5. LPAs: carry out ALC assessments to support your planning decisions
6. Use ALC to support your planning decisions
7. Developers: check if your proposal affects agricultural land



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This publication is available at <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land>

1. Policies to protect agricultural land and soil

Developers and local planning authorities (LPAs) should refer to the following government policies and legislation when considering development proposals that affect agricultural land and soils. They aim to protect:

- the best and most versatile (BMV) agricultural land from significant, inappropriate or unsustainable development proposals
- all soils by managing them in a sustainable way

Natural England uses these policies to advise on development proposals as a [statutory consultee](https://www.gov.uk/guidance/consultation-and-pre-decision-matters#Statutory-consultees) (<https://www.gov.uk/guidance/consultation-and-pre-decision-matters#Statutory-consultees>) in the planning process.

1.1 A Green Future: Our 25 Year Plan to improve the Environment 2018

[A Green Future: Our 25 Year Plan to Improve the Environment](https://www.gov.uk/government/publications/25-year-environment-plan) (<https://www.gov.uk/government/publications/25-year-environment-plan>) sets out the government's 25-year plan to improve the health of the environment by using natural resources more sustainably and efficiently. It plans to:

- protect the best agricultural land
- put a value on soils as part of our natural capital
- manage soils in a sustainable way by 2030
- restore and protect peatland

1.2 National Planning Policy Framework (NPPF)

LPAs should use the NPPF to make decisions about the natural and local environment to:

- protect and enhance landscapes, biodiversity, geology and soils
- recognise soils as a natural capital asset that provide important ecosystem services
- consider the economic and other benefits of BMV agricultural land, and try to use areas of poorer quality land instead of higher quality land
- prevent soil, air, water, or noise pollution, or land instability from new and existing development

Read [Chapter 15: Conserving and enhancing the natural environment](https://www.gov.uk/guidance/national-planning-policy-framework/15-conserving-and-enhancing-the-natural-environment) (<https://www.gov.uk/guidance/national-planning-policy-framework/15-conserving-and-enhancing-the-natural-environment>) for full details.

1.3 Town and Country Planning (Development Management Procedure (England) Order) (DMPO) 2015

Planning authorities must consult Natural England on all non-agricultural applications that result in the loss of more than 20 hectares (ha) of BMV land if the land is not included in a [development plan](https://www.gov.uk/guidance/national-planning-policy-framework/3-plan-making) (<https://www.gov.uk/guidance/national-planning-policy-framework/3-plan-making>). For example, this includes the likely cumulative loss of BMV land from the proposed development if it's part of a phased development.

This is required by [schedule 4\(y\) of the Order](http://www.legislation.gov.uk/ukxi/2015/595/schedule/4/made) (<http://www.legislation.gov.uk/ukxi/2015/595/schedule/4/made>).

1.4 Planning Practice Guidance for the Natural Environment

[Paragraphs 001 and 002: Planning Practice Guidance for the Natural Environment](https://www.gov.uk/guidance/natural-environment#brownfield-land-soils-and-agricultural-land) (<https://www.gov.uk/guidance/natural-environment#brownfield-land-soils-and-agricultural-land>) explain why planning decisions should take account of the value of soils and [agricultural land classification \(ALC\)](#) to enable informed choices on the future use of agricultural land within the planning system.

2. LPAs: consult Natural England

You must consult Natural England for development proposals that are both:

- likely to cause the loss (or likely cumulative loss) of 20ha or more of BMV land
- not in accordance with an approved development plan

Natural England will advise you on the level of impact the proposal may have on BMV agricultural land. Natural England will take into account the type of development and its likely long-term effects.

Email consultations@naturalengland.org.uk or write to:

Natural England consultation service
Hornbeam House
Electra Way
Crewe Business Park
Crewe
Cheshire
CW1 6GJ

3. LPAs: how to use agricultural land classification (ALC)

You can use ALC to help inform decisions on the appropriate sustainable development of land.

ALC uses a grading system to enable you to assess and compare the quality of agricultural land in England and Wales.

A combination of climate, topography and soil characteristics and their unique interaction determines the limitation and grade of the land. These affect the:

- range of crops that can be grown
- yield of crop
- consistency of yield
- cost of producing the crop

4. About ALC grades

ALC is graded from 1 to 5.

The highest grade goes to land that:

- gives a high yield or output
- has the widest range and versatility of use
- produces the most consistent yield
- requires less input

BMV agricultural land is graded 1 to 3a.

4.1 Grade 1 – excellent quality agricultural land

Land with no or very minor limitations. A very wide range of agricultural and horticultural crops can be grown and commonly includes:

- top fruit, for example tree fruit such as apples and pears
- soft fruit, such as raspberries and blackberries
- salad crops
- winter harvested vegetables

Yields are high and less variable than on land of lower quality.

4.2 Grade 2 – very good quality agricultural land

Land with minor limitations that affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown. On some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops, such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than grade 1.

4.3 Grade 3 – good to moderate quality agricultural land

Land with moderate limitations that affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in grades 1 and 2.

4.4 Subgrade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of crops including:

- cereals
- grass
- oilseed rape
- potatoes
- sugar beet
- less demanding horticultural crops

4.5 Subgrade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally:

- cereals and grass
- lower yields of a wider range of crops
- high yields of grass which can be grazed or harvested over most of the year

4.6 Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops or level of yields. It is mainly suited to grass with occasional arable crops (for example cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties using the land. The grade also includes arable land that is very dry because of drought.

4.7 Grade 5 – very poor quality agricultural land

Land with very severe limitations that restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

5. LPAs: carry out ALC assessments to support your planning decisions

For an overview of ALC use:

- [1:250,000 scale regional ALC maps](http://publications.naturalengland.org.uk/category/5954148537204736)
(<http://publications.naturalengland.org.uk/category/5954148537204736>) (grade 3 land is not divided into subgrades 3a and 3b)
- [1:250,000 scale regional maps predicting the likelihood of BMV agricultural land](http://publications.naturalengland.org.uk/category/5208993007403008)
(<http://publications.naturalengland.org.uk/category/5208993007403008>)

These maps are not at a scale suitable or accurate for assessment of individual fields or sites.

You can assess if a development proposal is likely to affect BMV agricultural land by using the [post 1988 ALC Magic map](http://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=dudleystampIndex,backdropDIndex,backdropIndex,europaIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex,baseIndex&box=449447:459357:467834:470294&useDefaultbackgroundMapping=false) (<http://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=dudleystampIndex,backdropDIndex,backdropIndex,europaIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex,baseIndex&box=449447:459357:467834:470294&useDefaultbackgroundMapping=false>) and [detailed site survey reports](http://publications.naturalengland.org.uk/category/6249382855835648) (<http://publications.naturalengland.org.uk/category/6249382855835648>).

If no site survey reports are available, a [new detailed survey](#) may be necessary.

6. Use ALC to support your planning decisions

Use ALC survey data to assess the loss of land or quality of land from a proposed development. You should take account of smaller losses (under 20ha) if they're significant when making your decision. Your decision should avoid unnecessary loss of BMV land.

6.1 Protect soil

You should make sure development proposals include plans to:

- [manage soils in a sustainable way during construction](https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites)
(<https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites>)

- avoid peat extraction
- protect soils from contamination
- [reclaim land after mineral working or landfilling](https://www.gov.uk/government/publications/reclaim-minerals-extraction-and-landfill-sites-to-agriculture)
(<https://www.gov.uk/government/publications/reclaim-minerals-extraction-and-landfill-sites-to-agriculture>)

6.2 Carry out new surveys

If there's not enough information from previous data, you may need to have a new field survey to plan for development or to inform a planning decision. You should use soil scientists or experienced soil specialists to carry out new surveys. They should be:

- members of the British Society of Soil Science, the British Institute of Agricultural Consultants or similar professional body
- knowledgeable about the [ALC 1988 guidelines](http://publications.naturalengland.org.uk/publication/6257050620264448)
(<http://publications.naturalengland.org.uk/publication/6257050620264448>)
- experienced in soil description and ALC assessments

6.3 Survey requirements

For a detailed ALC assessment, a soil specialist should normally make boreholes:

- every hectare on a regular grid on agricultural land in the proposed development area
- up to 1.2m deep using a hand-held auger

They should:

- dig small inspection pits by hand to a minimum depth of 1m to add supporting evidence to the borehole data
- dig pits where there's a change in main soil type and ALC grade to provide a good depiction of the site
- combine the survey results with local climate and site data to plot on an Ordnance Survey (OS) base map
- use a base map at an appropriate scale for detailed work, such as 1:10,000 scale

7. Developers: check if your proposal affects agricultural land

Use the [post 1988 ALC Magic map](http://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=dudleystampIndex,backdropDIndex,backdropIndex,europeIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex,baseIndex&box=449447:459357:467834:470294&useDefaultbackgroundMapping=false) (<http://magic.defra.gov.uk/MagicMap.aspx?chosenLayers=dudleystampIndex,backdropDIndex,backdropIndex,europeIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex,baseIndex&box=449447:459357:467834:470294&useDefaultbackgroundMapping=false>) and [detailed site survey reports](http://publications.naturalengland.org.uk/category/6249382855835648) (<http://publications.naturalengland.org.uk/category/6249382855835648>) to help you assess whether a development proposal is likely to affect BMV agricultural land. If no suitable data exists, you may need to carry out a [detailed survey](#) to support your planning application.

7.1 Free and chargeable advice

Natural England offers advice for proposals. Some initial advice is free. More [detailed advice is chargeable](https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals#when-you-can-pay-for-agency-advice) (<https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals#when-you-can-pay-for-agency-advice>), for example if your proposal is 20ha or more and requires more detailed advice.

Email: consultations@naturalengland.org.uk

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