

**LAND AT DENHAM'S CORNER,
HORTON HEATH**

**AGRICULTURAL LAND
CLASSIFICATION AND
CONSIDERATIONS**

January 2025





LAND AT DENHAM'S CORNER, HORTON HEATH

AGRICULTURAL LAND CLASSIFICATION AND CONSIDERATIONS

January 2025

COPYRIGHT

The contents of this document must not be copied in whole or in part without the written consent of Kernon Countryside Consultants.

Authorised By EGC 01/25

*Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon SN5 4LL
T: 01793 771333 Email: info@kernon.co.uk Website: www.kernon.co.uk*

*Directors - **Tony Kernon** BSc(Hons), MRAC, MRICS, FBIAC **Sarah Kernon**
Consultants - **Ellie Clark** BSc(Hons), **Amy Curtis** BSc(Hons)*

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 ADAS Agricultural Land Classification Report & Plans (June 1995)
- 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 land extending to 10.3ha at Denham's Corner, Horton Heath.

1.2 The Site is outlined in red on the Google Earth image below.

Insert 1. The Site (boundary approx.)



1.3 A detailed Agricultural Land Classification was carried out in June 1995 by ADAS on behalf of MAFF. This survey found the Site to contain a mixture of Grade 2, Subgrade 3b, Grade 4 and non-agricultural land.

1.4 This report:

- (i) reviews the relevant planning policy in section 2;
- (ii) describes the Site and the ALC survey findings in section 3;
- (iii) assesses the findings against 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 PLANNING POLICY AND GUIDANCE

National Planning Policy Framework

- 2.1 The National Planning Policy Framework (NPPF) (2024), paragraph 187 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 188 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 65 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”**.
- 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 20 ha) 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 Within the Eastleigh Borough Local Plan (2016-2036) which was adopted in April 2022 reference is made to the protection of best and most versatile agricultural land and soils in part 2 of the Strategic Policy S5 (New development in the countryside). The policy states the following:
- “In permitting new development in the countryside the Borough Council will seek to:***
- a. avoid adverse impacts on the rural, woodland, riparian or coastal character, the intrinsic character of the landscape including the avoidance of adverse landscape impacts on areas adjoining national parks and their settings, the significance of heritage assets and on the biodiversity of the area;***
 - b. secure long-term beneficial management practices that will enhance the landscape and biodiversity of the countryside and coast;***

- c. avoid sterilisation of mineral resources, in accordance with the Hampshire Minerals and Waste Plan;*
- d. safeguard the best and most versatile agricultural land unless the benefit of the development clearly outweighs the loss; and*
- e. protect soils during construction wherever possible in line with the 'Defra code of practice for the sustainable use of soils on construction sites'*

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. Losses of between 5 and 20ha are defined as moderate magnitude losses.

3 AGRICULTURAL LAND QUALITY OF 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

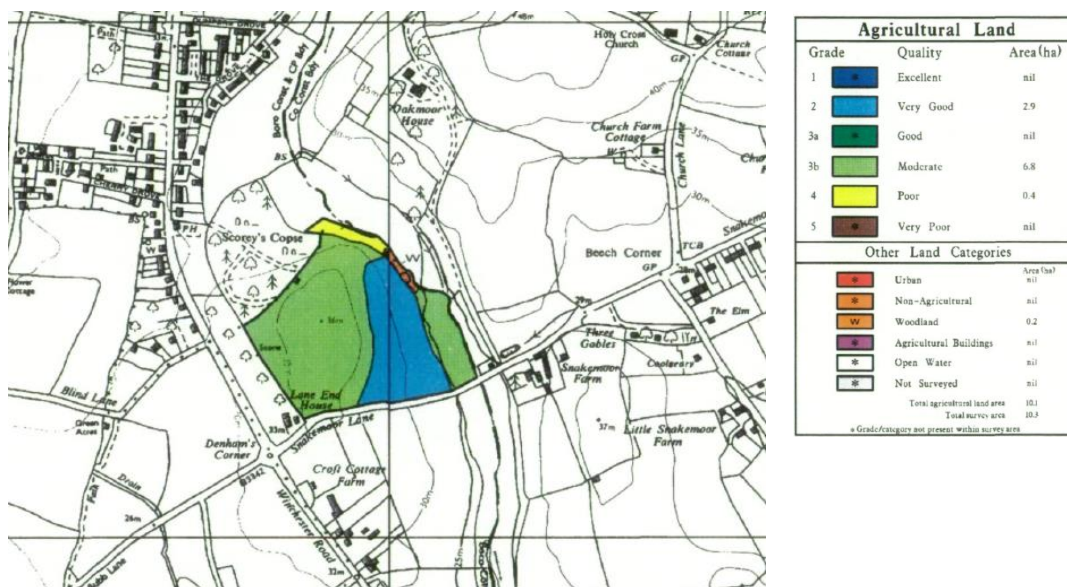
- 3.3 A detailed ALC survey was carried out in June 1995. 11 auger point inspection sites were examined.
- 3.4 Two sample pits were dug to measure the stoniness and to better describe the soil profiles.
- 3.5 A detailed ALC report is set out in **Appendix KCC2**.
- 3.6 The results of the survey can be seen in the table below.

Table 1. ALC Results

ALC Grade	Description	Area (ha)	Proportion (%)
Grade 2	Very Good	2.9	28
Subgrade 3b	Moderate	6.8	66
Grade 4	Poor	0.4	4
Non-Agricultural	-	0.2	2
Total	-	10.3	100.0

- 3.7 The distribution of grading can be seen on the extract of the ALC plan below. The full plan can be found at **Appendix KCC2** within the ADAS ALC from 1995.

Insert 2. Extract of the ALC Plan



4 POLICY ASSESSMENT

- 4.1 The NPPF (2024) identifies land of Grades 1, 2 and 3a as the best and most versatile agricultural land and requires, in the context of plan making, that where significant development of such land is demonstrated to be necessary, poorer quality land is to be used in preference.

Economic Benefits

- 4.2 The NPPF (2024) does not prevent the development of BMV land. It requires only that the economic and other benefits of BMV land be recognised.
- 4.3 There is no research available that we are aware of that seeks to analyse the productive economic advantages of BMV to non-BMV land.
- 4.4 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.
- 4.5 Taking that crude measure and applying it to winter wheat and oilseed rape, the differences are shown below.

Table 2. Assessment of Economic of Farmed Land

Item	Winter Wheat		Oilseed Rape	
	Average	High	Average	High
Yield (t/ha)	8.3t/ha	9.5t/ha	3.5t/ha	4.0t/ha
Output (£)	£1,765/ha	£1,993/ha	£1,488/ha	£1,700/ha
Gross Margin (£)	£1,110/ha	£1,338/ha	£906/ha	£1,118/ha
Uplift (£)	-	£228/ha	-	£212/ha

John Nix Pocketbook for Farm Management, September 2024

- 4.6 Based on this, the economic benefits of the 2.9ha of BMV land to non-BMV land would be under £700 per annum (£615 - £661 based on 2025 budgets). Hence the economic benefits of a land parcel of this size are moderately limited.
- 4.7 The Proposed Development will not have a significant adverse impact on a full-time farm business. It is not considered that it will impact farmland around the Site. Remaining land is considered to still be able to be managed effectively with an agricultural business.

- 4.8 In practice the BMV land is part of a larger field which also contains Subgrade 3b and Grade 4 land. The ability to farm the Grade 2 is affected by the poorer quality land within the field and the BMV land cannot be exploited to its potential.

Whether this is “Significant” Development

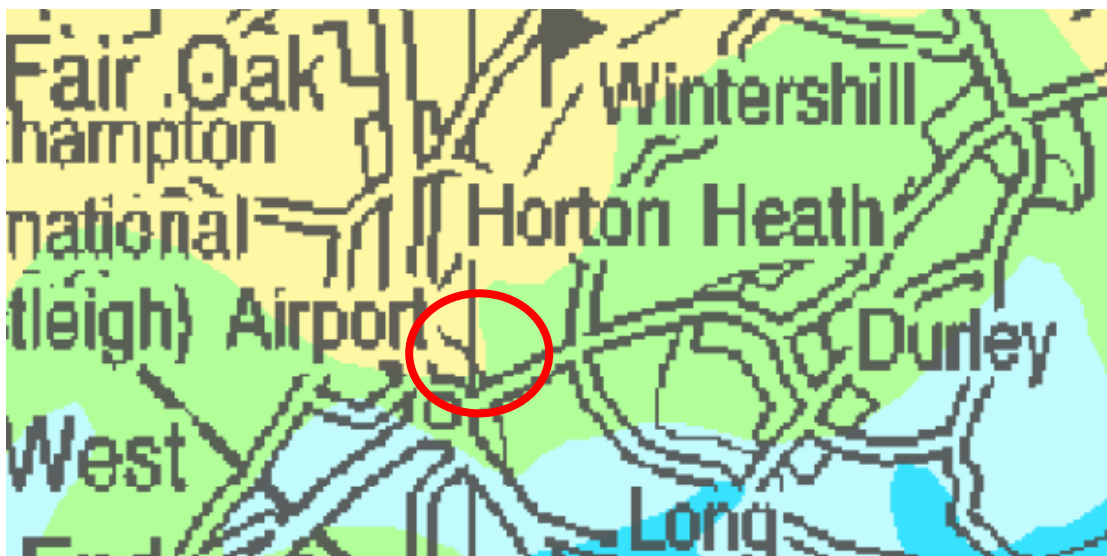
- 4.9 This proposal is not considered to be “significant” development of agricultural land in the context of the NPPF, were this relevant (it being a plan making policy).
- 4.10 Footnote 65 to paragraph 188 of the NPPF considers whether poorer quality land is available. This footnote is to paragraph 188, which is a plan making policy paragraph. Setting that aside, the trigger for an assessment of poorer quality land is that the proposal involves **“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.
- 4.11 At 2.9ha the quantum of BMV within the Site is less than 15% of the threshold for consultation with Natural England. Therefore, this quantum is not “significant development”.
- 4.12 The “Guide to assessing development proposals on agricultural land” (Natural England, 5th February 2021) (**Appendix KCC4**) does not define a threshold but does provide some guidance. This adds to our view that 20ha is a reasonable threshold for defining what is significant development:
- paragraph 6 states **“you should take account of smaller losses (under 20ha) if they are significant when making your decision”**, which suggests that losses of under 20ha would not be significant unless there are particular local circumstances. What those particular local circumstances are, is not defined but it would be reasonable consider that the loss of 20ha may be significant in an area where BMV land is rare, for example. That is not the case at this Site, where the predictive maps have a large proportion of the area as >60% BMV quality; and
 - paragraph 7.1 states that you can use Natural England’s chargeable discretionary advice system **“if your proposal is large, for example 20ha or more, and requires more detailed advice”**. The definition of large as being more than 20ha suggests that a site under 20ha is considered small, and hence, not significant.

- 4.13 This is not significant development of BMV land. Therefore, the requirement to consider if poorer quality land is available, under footnote 65, is not triggered. For completeness, however, we now turn to assess that.

Land Quality in the Area Generally and Whether Poorer Quality Land is available.

- 4.14 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**).
- 4.15 The Utilised Agricultural Area (UAA) of England, which is less than the total amount of agricultural land, was 8.7 million hectares in June 2024 (Agricultural Land Use in England on 1 June 2024, DEFRA, 26 September 2024). This suggests that about 3.7 million hectares of BMV land is in active agricultural use.
- 4.16 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.
- 4.17 Therefore, it is not considered that BMV quality is a rare resource.
- 4.18 On the published “provisional” ALC maps from the 1970’s the land is shown as a mixture of undifferentiated Grade 3 and Grade 4 land. This can be seen in the insert below.

Insert 2. Provisional ALC Maps

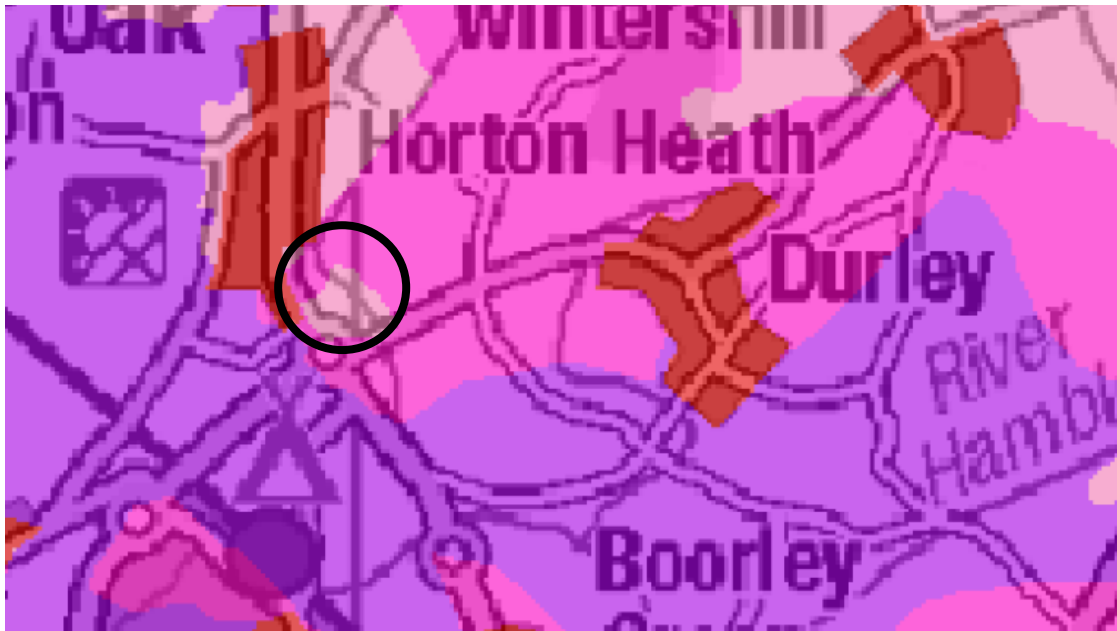


- 4.19 There are limitations with the “provisional” maps, which are described in TIN049 (**Appendix KCC1**). In 2017 Natural England produced predictive best and most versatile maps. These estimate the proportion of land within an area that is of BMV quality. There are three categories which are low (<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.

- 4.20 The predictive BMV likelihood maps predict that the land is of low (<20% likelihood of BMV) to moderate (20-60% likelihood of BMV). This can be seen indicated on the likelihood of BMV maps below.

Insert 3. BMV Likelihood maps



- 4.21 Based on the maps it is noted that land around the proposed site, especially to the southwest of the Site is predicted to be of high likelihood of BMV (>60% likelihood of BMV) and provisional mapping indicating the possibility of Grade 1 and Grade 2 quality land south of the Site.
- 4.22 Therefore, the Site is likely to be some of the poorest quality land within the area.

5 SUMMARY AND CONCLUSION

- 5.1 The Proposed Development Site extends to 10.3 ha.
- 5.2 The land has been classified as comprising 2.9ha (28%) of Grade 2, 6.8ha (66%) of Subgrade 3b, 0.4ha (4%) of Grade 4, and 0.2ha (2%) of non-agricultural land. Therefore, this Site contains only 2.9ha of the best and most versatile agricultural land.
- 5.3 The NPPF requires that economic and other benefits of BMV land be considered. The economic benefits of the Site are modest at under £800 per annum.
- 5.4 In terms of the NPPF, this is not significant development of agricultural land. Accordingly, poorer quality land does not need to be considered in preference.
- 5.5 Accordingly based on the small amount of BMV quality land that has been found it is concluded that only limited weight should be given to the loss of this small area of BMV agricultural land.

Appendix KCC1
Natural England's Technical
Information Note TIN 049

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.

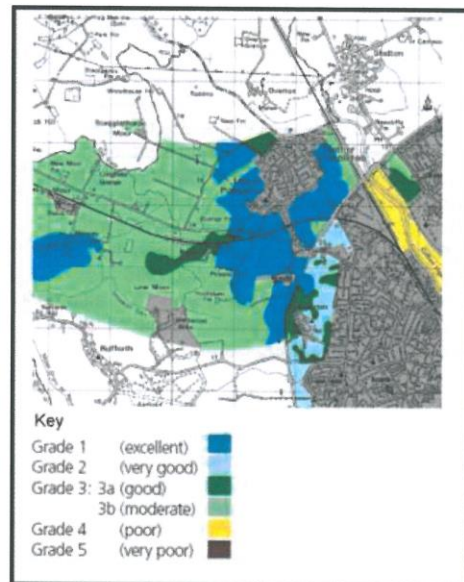
Policy to protect agricultural land

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

Second edition 19 December 2012

www.naturalengland.org.uk



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](#). 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 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.

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail enquiries@naturalengland.org.uk.

Copyright

This note is published by Natural England under the Open Government Licence for public sector information. You are encouraged to use, and re-use, information subject to certain conditions. For details of the licence visit www.naturalengland.org.uk/copyright. If any information such as maps or data cannot be used commercially this will be made clear within the note.

© Natural England 2012

Appendix KCC2
ADAS Agricultural Land Classification
Report (June, 1995)

A1
Eastleigh District Local Plan
Land north of Snakemoor Lane,
Horton Heath.
Agricultural Land Classification
ALC Map and Report
June 1995

AGRICULTURAL LAND CLASSIFICATION REPORT.

LAND NORTH OF SNAKEMOOR LANE, HORTON HEATH.

1. Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the vicinity of Eastleigh. This work was in connection with the Eastleigh District Local Plan.
- 1.2 The site comprises 10.3 ha of land to the south east of the village of Horton Heath. An Agricultural Land Classification (ALC) survey was carried out in June 1995. The survey was undertaken at a detailed level of approximately 1 boring per hectare of agricultural land surveyed. A total of 11 borings and 2 soil inspection pits were assessed according to MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.
- 1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of the survey the agricultural land on the site comprised mainly permanent grass, with a small area of rough grassland in the valley bottom. A small area of woodland has been identified on the eastern side of the site.
- 1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous ALC survey information for the site.

Table 1: Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% Ag. area
2	2.9	28.2	28.7
3b	6.8	66.0	67.3
4	0.4	3.9	4.0
Non-agricultural	0.2	1.9	100%(10.1ha)
Total area of Site	10.3	100%	

- 1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

- 1.7 The majority of the agricultural land on the site has been mapped as subgrade 3b, moderate quality agricultural land, with an area of grade 2, good quality agricultural land on the gently sloping land. A very small area of grade 4 has been mapped in the valley bottom at the northern end of the site where the land is very wet. The major limitation on the area mapped as subgrade 3b on the western half of the site is topsoil stoniness, these soils have very stony upper horizons over slowly permeable clay at depth. The remaining area of subgrade 3b in the valley bottom has been included within this subgrade due to a moderately severe wetness limitation. The gently sloping land has been mapped as grade 2 due to wetness limitation caused by the presence of slowly permeable lower subsoil horizons.

2. Climate

- 2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe climatic limitations will restrict land to low grades irrespective of favourable site or soil conditions.
- 2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature (day °C Jan-June), as a measure of the relative warmth of a locality.
- 2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.
- 2.4 However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The climate at this location is relatively warm and moist in a regional context, therefore the likelihood of a soil wetness limitation may be increased.
- 2.5 No local climatic factors such as exposure or frost risk are believed to affect the site.

Table 2 : Climatic Interpolation

Grid Reference	SU 500 164
Altitude (m)	36
Accumulated Temperature (Day °C, Jan-June)	1513
Average Annual Rainfall (mm)	836
Field Capacity (days)	172
Moisture Deficit, Wheat (mm)	106
Moisture Deficit, Potatoes (mm)	99
Overall Climatic Grade	1

3. Relief

- 3.1 The site comprises a relatively flat plateau area on the western side falling to the east and north toward a small river valley. Slopes are relatively gentle over the majority of the area with the exception of a small area of moderately steeply sloping land (10°) toward the northern end of the site. The altitude of the site ranges from 36 m AOD on the plateau

area to approximately 25 m AOD in the valley bottom. Relief therefore is not limiting to the agricultural use of the site with the exception of the small area of moderately steeply sloping land at the northern end of the site, where land quality is limited to subgrade 3b due to restrictions in the safe and efficient use of farm machinery.

4. Geology and Soils

- 4.1 The published geological map (BGS, 1987) shows the majority of the site to be underlain by the Bracklesham Beds, mainly interbedded clay and silty sands with thin loamy intercalations. A small area of Alluvium has been mapped in the valley bottom on the eastern side of the site.
- 4.2 The published Soil Survey map (SSEW, 1983) shows the soils on the site to comprise those of the Wickham 3 association. These are described as 'slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils, and more permeable soils with slight waterlogging' (SSEW, 1983). A more detailed soil map for the area (SSLRC, 1989) shows the site to comprise Hornbeam series on the plateau area with Bursledon series on the sloping land and Fladbury series in the valley bottom.
- 4.3 Detailed field examination found the soils correlated well with the more recent SSLRC publication. The soils on the plateau area comprise stony loamy upper horizons over slowly permeable clays, whilst on the gently sloping side slopes are very slightly stony, imperfectly drained fine loamy soils. The alluvial soils in the valley bottom are typically poorly drained fine loamy over clayey overlying waterlogged gravels.

5. Agricultural Land Classification

- 5.1 The location of the soil observation points are shown on the attached sample point map.

Grade 2

- 5.2 The gently sloping land on the eastern side of the site has been included in grade 2 due to both a wetness and droughtiness limitation. The soils in this area have a medium sandy silt loam topsoil over a brown medium clay loam upper subsoil. Below approximately 50 cm depth the subsoil is slowly permeable, typically a heavy clay loam with distinct ochreous mottling (see pit 2P). These soils are assessed as wetness class III but due to the light textured topsoil will only have a minor workability limitation restricting the land to this grade. Moisture balance calculations indicate that these soils also have a minor droughtiness restriction limiting them to this grade.

Subgrade 3b

- 5.3 Two areas of subgrade 3b have been identified on this site. The larger area which comprises the land on the plateau area on the western half of the site is restricted to this subgrade due to topsoil stoniness. The soils in this area have a sandy silt loam or medium clay loam topsoil which is moderately stony, typically 20% flints of which approximately 15% or more are greater than 2 cm. The upper subsoil comprises a very stony (40-45%) medium clay loam which overlies a slightly stony slowly permeable clay. The soils are

assessed as wetness class III. Moisture balance calculations indicate that the soils are moderately droughty due to the high stone content, but the major limiting factor is stoniness which will interfere with cultivations and harvesting and increase production costs due to implement and tyre wear. This land, which is limited to subgrade 3b, is typified by pit 1P.

- 5.4 The low lying land in the valley on the eastern side of the site has also been mapped as subgrade 3b due to a moderately severe wetness limitation. The alluvial soils in this area have a medium silty clay loam topsoil over a strongly gleyed heavy clay loam subsoil which will be subject to both a fluctuating groundwater table and also surface water ponding. These soils are assessed as wetness class IV and consequently have a moderately severe wetness and workability limitation restricting the land to this subgrade.

Grade 4

- 5.5 A small area of grade 4 has been mapped at the northern end of the site where the land is very wet due to high a groundwater table. The soils in this area are assessed as wetness class V and due to the lack of sufficient freeboard, drainage improvement is not considered feasible. This area is therefore restricted to rough grazing and has been included within this grade.

ADAS Ref: 1503/118/95
MAFF Ref: EL 15/584

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1987), Sheet No. 315, Southampton, 1:50,000 Series (drift edition).

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

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

Soil Survey of England and Wales (1983), Sheet 6, Soils of South East England, 1:250,000 and accompanying legend.

Soil Survey and Land Research Centre (1989), Applied Soil Mapping in the Southampton Area.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

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 or horticultural crops can usually be grown but on some land of this 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 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. ²
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

¹ The number of days is not necessarily a continuous period.

² 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. GRID REF: national 100 km grid square and 8 figure grid reference.

2. USE: Land use at the time of survey. The following abbreviations are used.

ARA: Arable	WHT: Wheat	BAR: Barley
CER: Cereals	OAT: Oats	MZE: Maize
OSR: Oilseed rape	BEN: Field Beans	BRA: Brassicae
POT: Potatoes	SBT: Sugar Beet	FCD: Fodder Crops
LIN: Linseed	FRT: Soft and Top Fruit	FLW: Fallow
PGR: Permanent Pasture	LEY: Ley Grass	RGR: Rough Grazing
SCR: Scrub	CFW: Coniferous Woodland	DCW: Deciduous Wood
HTH: Heathland	BOG: Bog or Marsh	FLW: Fallow
PLO: Ploughed	SAS: Set aside	OTH: Other
HRT: Horticultural Crops		

3. GRDNT: Gradient as estimated or measured by a hand-held optical clinometer.

4. GLEY/SPL: Depth in centimetres (cm) to gleying and/or slowly permeable layers.

5. AP (WHEAT/POTS): Crop-adjusted available water capacity.

6. MB (WHEAT/POTS): Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. DRT: Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

MREL: Microrelief limitation	FLOOD: Flood risk	EROSN: Soil erosion risk
EXP: Exposure limitation	FROST: Frost prone	DIST: Disturbed land
CHEM: Chemical limitation		

9. LIMIT: The main limitation to land quality. The following abbreviations are used.

OC: Overall Climate	AE: Aspect	EX: Exposure
FR: Frost Risk	GR: Gradient	MR: Microrelief
FL: Flood Risk	TX: Topsoil Texture	DP: Soil Depth
CH: Chemical	WE: Wetness	WK: Workability
DR: Drought	ER: Erosion Risk	WD: Soil Wetness/Droughtiness
ST: Topsoil Stoniness		

Soil Pits and Auger Borings

1. **TEXTURE:** soil texture classes are denoted by the following abbreviations.

S:	Sand	LS:	Loamy Sand	SL:	Sandy Loam
SZL:	Sandy Silt Loam	CL:	Clay Loam	ZCL:	Silty Clay Loam
ZL:	Silt Loam	SCL:	Sandy Clay Loam	C:	Clay
SC:	Sandy Clay	ZC:	Silty Clay	OL:	Organic Loam
P:	Peat	SP:	Sandy Peat	LP:	Loamy Peat
PL:	Peaty Loam	PS:	Peaty Sand	MZ:	Marine Light Silts

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

F:	Fine (more than 66% of the sand less than 0.2mm)
M:	Medium (less than 66% fine sand and less than 33% coarse sand)
C:	Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content:

M: Medium (<27% clay) H: Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **MOTTLE ABUN:** Mottle abundance, expressed as a percentage of the matrix or surface described.
F: few <2% C: common 2-20% M: many 20-40% VM: very many 40% +
4. **MOTTLE CONT:** Mottle contrast
F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon
5. **PED. COL:** Ped face colour using Munsell notation.
6. **GLEYS:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH:** Stone Lithology - One of the following is used.
HR: all hard rocks and stones SLST: soft oolitic or dolimitic limestone
CH: chalk FSST: soft, fine grained sandstone
ZR: soft, argillaceous, or silty rocks GH: gravel with non-porous (hard) stones
MSST: soft, medium grained sandstone GS: gravel with porous (soft) stones
SI: soft weathered igneous/metamorphic rock

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT:** the degree of development, size and shape of soil peds are described using the following notation:

<u>degree of development</u>	WK: weakly developed ST: strongly developed	MD: moderately developed
<u>ped size</u>	F: fine C: coarse	M: medium VC: very coarse
<u>ped shape</u>	S : single grain GR: granular SAB: sub-angular blocky PL: platy	M: massive AB: angular blocky PR: prismatic

9. **CONSIST:** Soil consistence is described using the following notation:

L: loose	VF: very friable	FR: friable	FM: firm	VM: very firm
EM: extremely firm		EH: extremely hard		

10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness: G: good M: moderate P: poor
11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.
12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** If the soil horizon is calcareous, a 'Y' will appear in this column.
15. **Other notations**
APW: available water capacity (in mm) adjusted for wheat
APP: available water capacity (in mm) adjusted for potatoes
MBW: moisture balance, wheat
MBP: moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : EASTLEIGH DLP SNAKEMOOR Pit Number : 1P

Grid Reference: SU49901630 Average Annual Rainfall : 836 mm
 Accumulated Temperature : 1513 degree days
 Field Capacity Level : 172 days
 Land Use : Permanent Grass
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSZL	10YR43 00	16	20	HR					
30- 60	MCL	10YR54 00	0	43	HR	F			M	
60-100	C	25Y 63 00	0	12	HR	M	M	VM	P	
100-120	C	05Y 62 00	0	10	HR	M	M	VM	P	

Wetness Grade : 2 Wetness Class : III
 Gleying : 060 cm
 SPL : 060 cm

Drought Grade : 3A APW : 109mm MBW : 3 mm
 APP : 86 mm MBP : -13 mm

FINAL ALC GRADE : 3B
 MAIN LIMITATION : Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name : EASTLEIGH DLP SNAKEMOOR Pit Number : 2P

Grid Reference: SU50001640 Average Annual Rainfall : 836 mm
 Accumulated Temperature : 1513 degree days
 Field Capacity Level : 172 days
 Land Use : Permanent Grass
 Slope and Aspect : 03 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSZL	75YR44 00	2	3	HR					
30- 50	MCL	75YR55 00	0	4	HR	F	MDCOSB	FM	M	
50-120	HCL	10YR64 00	0	2	HR	M	WKVCSB	FM	P	

Wetness Grade : 2 Wetness Class : III
 Gleying : 050 cm
 SPL : 050 cm

Drought Grade : 2 APW : 134mm MBW : 28 mm
 APP : 110mm MBP : 11 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Wetness

program: ALC012

LIST OF BORINGS HEADERS 13/05/96 EASTLEIGH DLP SNAKEHOLE

page 1

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEYS	SPL	CLASS	GRADE	AP	MB	AP	MB	M. REL	EROSN	FROST	CHEM	ALC	COMMENTS
1	SU49901660	RGR	W		000	030	5	4	100	-6	104	5	3A				WE	4 IMP 80
1P	SU49901630	PGR			060	060	3	2	109	3	86	-13	3A				ST	38 STONY
2	SU49901650	PGR	W		000		1	2	46	-60	46	-53	4				DR	3A SEE PIT1
2P	SU50001640	PGR	E	03	050	050	3	2	134	28	110	11	2				WE	2
3	SU50001650	PGR	E	04	050		2	2	151	45	114	15	1				WE	2
4	SU49801640	PGR	W	01	030		4	3B	78	-28	83	-16	3B				WE	38 IMP 58
5	SU49901640	PGR	E		000		1	1	44	-62	44	-55	4				ST	38 SEE PIT1
6	SU50001640	PGR	E	03	050	050	3	2	134	28	110	11	2				WE	2
7	SU50101640	PGR	E		000		4	3B	87	-19	92	-7	3A				WE	38
8	SU49801630	PGR			000		1	2	49	-57	49	-50	4				ST	38 SEE PIT1
9	SU49901630	PGR			000		1	2	57	-49	57	-42	3B				ST	38 SEE PIT1
10	SU50001630	PGR	E	02	000		2	2	89	-17	92	-7	3A				DR	2 WE
11	SU50101630	PGR	E	03	055	055	3	3A	135	29	111	12	2				WE	3A

program: ALC011

COMPLETE LIST OF PROFILES 13/05/96 EASTLEIGH DLP SNAKEMOOR

page 1

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED COL.	-----STONES-----				STRUCT/ STR	SUBS POR	IMP	SPL	CALC
				COL	ABUN	CONT		GLEI	>2	>6	LITH	TOT	CONSIST			
1	0-30	mzc1	10YR31 32 05YR46 00 C					Y	0	0	0					
	30-80	c	25Y 62 00 10YR66 61 M					Y	0	0	HR	10		P		Y
1P	0-30	msz1	10YR43 00						16	0	HR	20				
	30-60	mc1	10YR54 00 75YR56 00 F						0	0	HR	43		M		
	60-100	c	25Y 63 00 75YR58 00 M					Y	0	0	HR	12	M	VM P		Y
	100-120	c	05Y 62 00 05YR48 56 M					Y	0	0	HR	10	M	VM P		Y
2	0-27	msz1	10YR43 00						12	0	HR	18				
	27-30	mc1	10YR54 00						0	0	HR	35		M		
2P	0-30	msz1	75YR44 00						2	0	HR	3				
	30-50	mc1	75YR55 00 75YR56 00 F						0	0	HR	4	MDCOSB	FM M		
	50-120	hc1	10YR64 00 75YR68 00 M					Y	0	0	HR	2	HKVCSB	FM P		Y
3	0-25	mc1	75YR43 00						0	0	HR	3				
	25-50	mc1	75YR44 00						0	0	HR	2		M		
	50-120	hc1	75YR54 00 75YR56 00 C					S	0	0	HR	3		M		
4	0-30	mc1	10YR43 00 75YR56 00 C						8	0	HR	12				
	30-58	c	25Y 63 00 10YR68 62 M					Y	0	0	HR	5		P		
5	0-26	msz1	10YR43 00						16	0	HR	20				
	26-30	mc1	10YR54 00						0	0	HR	35		M		
6	0-28	msz1	75YR44 00						0	0	HR	3				
	28-50	mc1	75YR55 00						0	0	HR	2		M		
	50-120	hc1	10YR64 00 75YR68 00 M					Y	0	0	HR	2		P		Y
7	0-30	mzc1	75YR42 00 05YR48 00 M					Y	0	0		0				
	30-58	hc1	25Y 62 00 75YR56 00 M					Y	0	0		0		P		Y
	58-60	hc1	25Y 62 00					Y	0	0	HR	45		P		Y
8	0-30	mc1	10YR43 00 75YR56 00 C						15	0	HR	20				
	30-35	hc1	10YR54 00						0	0	HR	35		M		Y
9	0-30	msz1	10YR43 00 75YR56 00 C						15	0	HR	20				
	30-40	mc1	10YR54 00						0	0	HR	35		M		
10	0-26	msz1	75YR43 00 75YR56 00 C						2	0	HR	4				
	26-55	mc1	75YR55 00 00M00 00 F					S	0	0	HR	5		M		
11	0-30	mc1	10YR43 00 75YR56 00 C						0	0	HR	2				
	30-55	mc1	10YR54 00 75YR56 00 C					S	0	0		0		M		
	55-75	hc1	10YR63 00 10YR58 00 M					Y	0	0		0		P		Y
	75-120	hc1	10YR63 00 10YR58 62 M					Y	0	0		0		P		Y

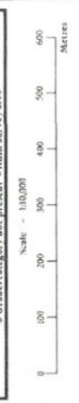


Agricultural Land Classification

Eastleigh District Local Plan
Land North of Snaikemoor Lane, Horton Heath

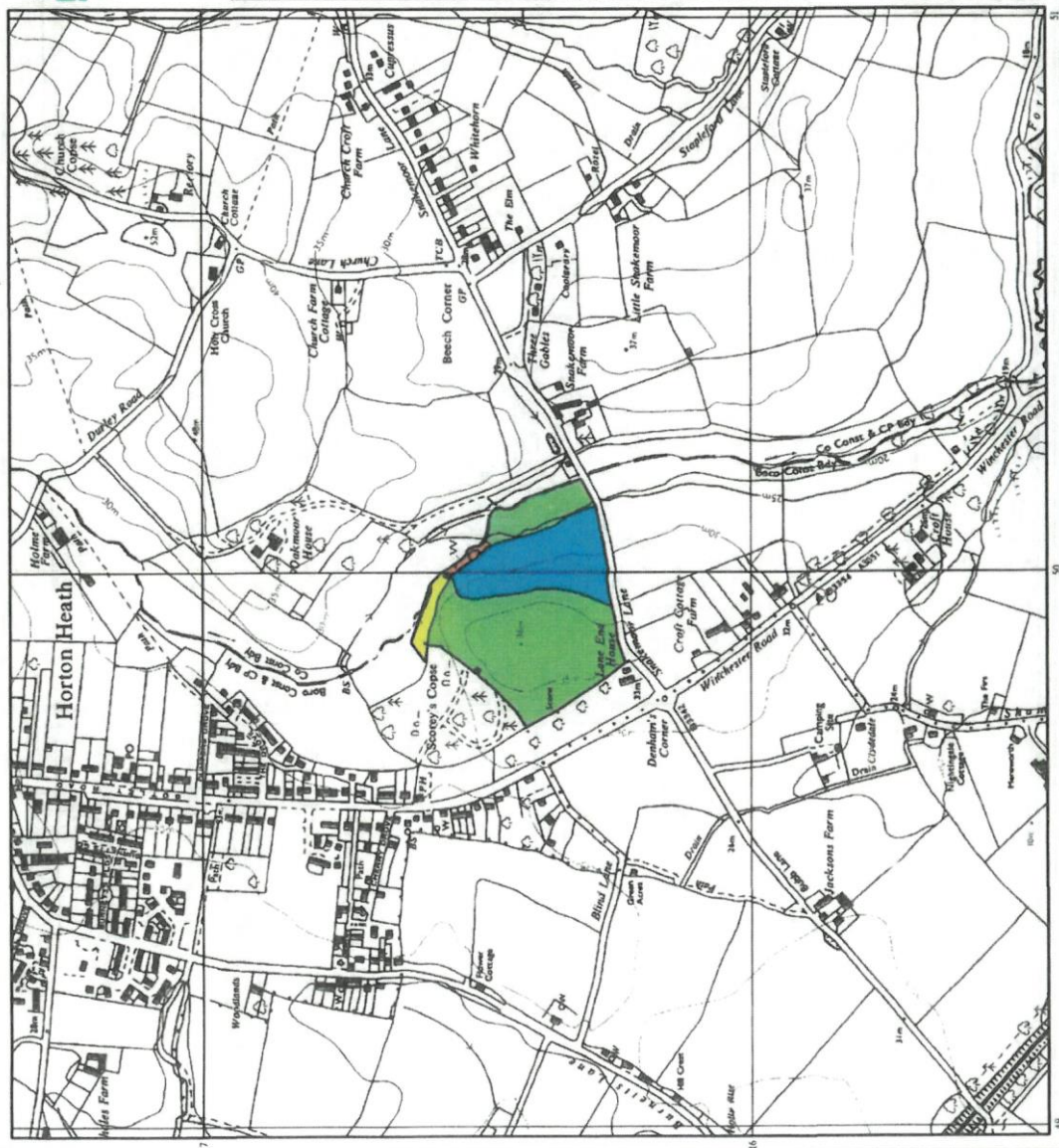
Agricultural Land		
Grade	Quality	Area (ha)
1	Excellent	nil
2	Very Good	2.9
3a	Good	nil
3b	Moderate	6.8
4	Poor	0.4
5	Very Poor	nil

Other Land Categories		Area (ha) n(i)
	Urban	
	Non-Agricultural	nil
	Woodland	0.2
	Agricultural Buildings	nil
	Open Water	nil
	Not Surveyed	nil
Total agricultural land area		10.1
Total survey area		10.3
a. Grade/category are present within survey area		

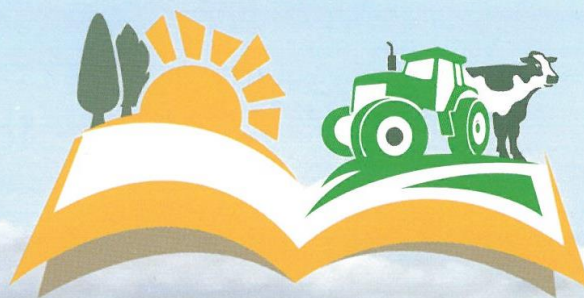


Further details contained in MAFF (1980) Agricultural Land Classification of England and Wales - Revised Guidelines and criteria for grading the quality of agricultural land MAFF Publications, London SE9 7TP. The information is accurate at the time of publication but is not intended to be a guarantee of accuracy. It is published in whole or in part by permission of MAFF.

Surveyed & drawn by the Resource Planning Team, A1AS Survey Unit Guildford
Based on the map: Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence No. GDS272964
© Crown Copyright Reserved 1999



Appendix KCC3
John Nix Pocketbook for Farm
Management (55th Ed) Extracts



NIX FARM MANAGEMENT POCKETBOOK

2025 55TH
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)	7.1 (2.9)	8.3 (3.4)	9.5 (3.8)	
	£	£	£	£/t
Grain at £190/t	1,349	1,577 (639)	1,805 (731)	
Straw in Swath	188 (76)	188 (76)	188 (76)	
Total Output	1,537 (622)	1,765 (715)	1,993 (807)	213
Variable Costs £/ha (£/ac):				
Seed.....		82 (33)		10
Fertiliser.....		295 (119)		36
Sprays.....		278 (112)		33
Total Variable Costs		655 (265)		79
Gross Margin £/ha (ac)	882 (357)	1110 (449)	1,338 (542)	134

Fertiliser Basis 8.3t/ha				Seed:	prays £/ha:		
Nutrient	Kg/t	Kg/Ha	£/Ha	£/t C2	£515	Herbicides	£121
N	23	190	£184	Kg/Ha	175	Fungicides	£110
P	7.0	58	£58	% HSS	30%	Insecticides	£3
K	10.5	87	£52	£/t HSS	£354	PGRs	£16
						Other	£27

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 8.18t/ha (overall 10-year average *Defra*).

The table below offers a weighted estimate of yield variations according to wheat type based on a national yield of 8.4t/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 –

	Yield					
	Adjustment	Winter	1st WW	2nd WW	spring	Total
t/ha		101%	102%	93%	85%	100%
Total	100%	8.27	8.40	7.61		8.18
Feed	101%	8.35	8.48	7.69		8.27
Bread	93%	7.69	7.81	7.08	6.02	7.61
Biscuit	99%	8.18	8.32	7.54		8.10

2. *Straw* is sold in the swath. Assuming 1 hectare is worth 2.5 tonnes baled straw at 4.2t/ha. So £75/tonne baled = £188/ha for winter wheat.
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 £170/t of seed (£30/ha). This has not been added in the gross margins.
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 £190/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)	3.0 (1.2)	3.50 (1.4)	4.0 (1.6)	
	£	£	£	£/t
Output at £425/t	1275 (516)	1,488 (602)	1,700 (689)	425
Variable Costs £/ha (£/ac):				
Seed.....		73 (29)		21
Fertiliser.....		257 (104)		73
Sprays.....		252 (102)		72
Total Variable Costs		582 (236)		166
Gross Margin £/ha (ac)	693 (281)	906 (367)	1,118 (453)	259

Fertiliser Basis 3.5t/ha				Seed:		Sprays:	
Nutrient	Kg/t	Kg/Ha	£/Ha	£/Ha C	43	Herbicides	£124
N	54	190	£184	£/Ha Hy	88	Fungicides	£68
P	14	49	£49	£/Ha HSS	29	Insecticides	£16
K	11	39	£23	C:Hy:HSS	20:20:60	PGRs	£0
	Seed write-off	8%		Kg/Ha	5.5	Other	£44

Spring Oilseed Rape

Production level	Low	Average	High	
Yield: t/ha (t/ac)	1.9 (0.8)	2.25 (0.9)	2.6 (1.1)	
	£	£	£	£/t
Output at £425/t	808 (327)	956 (387)	1,105 (448)	425
Variable Costs £/ha (£/ac):				
Seed.....		69 (28)		31
Fertiliser.....		115 (47)		51
Sprays.....		131 (53)		58
Total Variable Costs		316 (128)		140
Gross Margin £/ha (ac)	492 (199)	641 (259)	789 (320)	285

1. **Prices.** The price used is £399/t plus oil bonuses at 44% oil content making £425/. 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 x £410 x 1.5 = £25.
2. **Spring OSR Inputs:** Seed as per WOSR, but 35% conventional, 5% HSS, 60% hybrid. Fertiliser: N/P/K at 70/32/25 kg/ha. Sprays, Herbicides. £50, Fungicides, £41, Insecticides £13, and Others £27/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. The financial reward is slim compared with other combinable crops.

Appendix KCC4
Natural England's "Guide to
Assessing Development Proposals on
Agricultural Land"



(<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



© Crown copyright 2021

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

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/ukSI/2015/595/schedule/4/made) (<http://www.legislation.gov.uk/ukSI/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

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,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>) 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

[↑ Back to top](#)

OGL

All content is available under the [Open Government Licence v3.0](#), except where otherwise stated

© Crown copyright



Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon, Wiltshire SN5 4LL
Telephone: 01793 771333 • Email: info@kernon.co.uk • Website: www.kernon.co.uk

