

**AGRICULTURAL LAND CLASSIFICATION
BASINGSTOKE LOCAL PLAN
LAND OFF WINCHESTER ROAD (A30)
AND BEGGARWOOD LANE
BASINGSTOKE**

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**Resource Planning Team
ADAS Statutory Group
Reading**

AGRICULTURAL LAND CLASSIFICATION

LAND OFF WINCHESTER ROAD (A30) AND BEGGARWOOD LAND, BASINGSTOKE, HAMPSHIRE

1. SUMMARY

- 1.1 In October 1992, an Agricultural Land Classification (ALC) survey was carried out on approximately 82.1 hectares of land adjacent to Beggarwood Lane and the A30 Winchester Road south west of Basingstoke. ADAS was commissioned by MAFF to determine the quality of land in connection with proposals contained in the Basingstoke Local Plan.
- 1.2 The survey work was carried out at a detailed level of approximately one boring per hectare. A total of 79 auger borings and four soil inspection pits were described using 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 agricultural use.

At the time of the survey, the land was in a variety of uses including cereal stubble, set-aside, and the remainder recently drilled.

- 1.3 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 to a scale of 1:10,000. Any enlargement of this scale would be misleading.

Distribution of Grades and Subgrades

	<u>Area (ha)</u>	<u>% total agricultural land</u>
Grade 2	14.34	19
3a	61.86	81
Total agricultural land	<u>76.24</u>	100
Woodland	1.17	
Urban	2.73	
Non agricultural	<u>2.00</u>	
Total area of site	<u>82.14</u>	

- 1.4 Appendix 1 gives a general description of the grades and subgrades and land cover categories identified in this survey.
- 1.5 The majority of the site comprises good quality, grade 3a, land with smaller areas of grade 2 land. Soils on the site have developed over deposits of Cretaceous Upper Chalk and Recent and Pleistocene drift deposits. The depth of soil over the chalk varies, depending largely upon topography.

A greater part of the site has been graded 3a characterised by shallow soils over chalk within 40 cm. Within this grade a small area of land situated in a valley to the south of the site deeper soils have been graded 3a according to topsoil stone (flint) volume in excess of 10% >2 cm, topsoils being slightly stony.

Smaller areas of deeper soils over chalk have been graded 2 mainly south of Beggarwood Lane.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief and Altitude

2.1 The site lies at an altitude of 140-168 metres and slopes generally north and south from a central ridge. Gradient does not represent a limitation to ALC grade. However land at an altitude greater than 165 m has an overall climatic limitation.

Climate

2.2 Estimates of climatic variables were obtained by interpolation from a 5 km grid database (Met. Office, 1989) for representative locations in the survey area:-

Climatic Interpolation

Grid Ref	SU606484	SU606483	SU603479
Altitude (m)	140	155	165
Accumulated Temperature (day°)	1377	1360	1348
Annual Average Rainfall (mm)	839	851	862
Field Capacity Days	182	184	186
Moisture Deficit - wheat (mm)	92	90	88
Moisture Deficit - potatoes (mm)	80	77	75

2.3 Land above 165 m at this locality has an overall climatic limitation due to a combination of relatively low accumulated temperature and high average annual rainfall causing land above 165 m to be limited to ALC grade 2. Land below this altitude has no overall climatic limitation however both average annual rainfall and field capacity days are relatively high, in a regional context. Climate and soil factors, interact to affect soil wetness and droughtiness limitations.

Geology and Soils

2.4 British Geological Survey, Sheet 284, Basingstoke (1981) shows the site to be mapped as Cretaceous Upper Chalk. Two small deposits of Recent and Pleistocene Clay with flints are also mapped west of the A30 Winchester Road and to the south of Beggarwood Lane.

2.5 Soil Survey of England and Wales, Sheet 6, Soils of South-East England, (1983) shows the site to comprise two broad soil types. The majority of the site is shown as Carstens Association, described as 'deep and freely drained, usually with reddish clayey subsoils' (SSEW, 1984). Bordering the site to the north is the Andover 1 Association which is described as "variably flinty and chalky silty brown rendzinas over chalk" (SSEW, 1984). Detailed examination of the soils broadly confirms the presence of two soil types which overlie chalk.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 Grade 2

Very good quality agricultural land has been mapped in association with deeper soil profiles over chalk. Profiles typically comprise non calcareous and calcareous medium silty clay loam topsoils with 3-8% (by volume) flints >2 cm, typically 6-8%. Upper subsoils comprise very slightly to slightly stony heavy silty clay loam or heavy clay loam. Lower subsoils consist of heavy silty clay loam, heavy clay loam or clay which is very slightly to slightly stony and overlies chalk to depth. Chalk is encountered typically at 50-65 cm depth. Profiles are well drained wetness class I (very occasionally wetness class II). The field capacity day range combines with medium textured topsoils to impose a slight workability limitation whilst the depth to chalk results in a slight droughtiness limitation. In addition topsoil stone contents, typically, between 6-8% by volume >2 cm limit the land to grade 2. Consequently the combination of all these factors results in a grade of 2 for this land.

3.2 Subgrade 3A

Land of good quality covers the majority of the site and is associated with shallow soils over chalk. Profiles comprise topsoils of non calcareous and calcareous medium silty clay loam with between 3-14% flints by volume >2 cm. Subsoils consist of weathered chalk or a horizon of heavy clay loam or clay which passes into chalk by 40 cm. Profiles are well drained wetness class I. Land of this quality is principally limited by soil droughtiness which results from the shallow depth to chalk in combination with the very slightly to slightly stony topsoils. Consequently crops will suffer stress during the drier summer months of the growing season. At some locations topsoil stone between 10-14% (by volume) >2 cm also limits the land to 3A.

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SOURCES OF REFERENCE

- British Geological Survey (1981) Sheet 284 Basingstoke 1:50,000 scale
Solid and 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) Climatic datasets for Agricultural Land
Classification.
- Soil Survey of England and Wales (1983) Sheet 6, Soils of South-East
England 1:250,000 scale.
- Soil Survey of England and Wales (1984) Bulletin 15. Soils and their use
in South-East England.

APPENDIX I

DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

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 (eg 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.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.