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EAST SUSSEX MINERALS PLAN
LAND AT PLUMPTON AGRICULTURAL COLLEGE EAST SUSSEX
ALC MAP AND REPORT
JULY 1992

AGRICULTURAL LAND CLASSIFICATION

EAST SUSSEX MINERALS PLAN

LAND AT PLUMPTON AGRICULTURAL COLLEGE

1. INTRODUCTION

1.1 In July 1992, an Agricultural Land Classification, (ALC) survey was carried out on 20.82 hectares of land near Plumpton, East Sussex. ADAS was commissioned by MAFF to determine the quality of land affected by the proposal to include this site for development in the East Sussex Minerals Plan.

1.2 The survey work was carried out by members of the Resource Planning Team within the Guildford Statutory Group at a detailed scale of 1 boring per hectare. A total of 18 auger borings were sampled and the site was graded 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 and chemical limitations impose long term limitations on its agricultural use.
At the time of survey the site was in a variety of uses, including permanent pasture, oilseed rape, wheat and maize. The area in oilseed rape was not surveyed due to access difficulties.

1.3 The distribution of grades is shown on the attached ALC map and the area and extent is given in the table below. The map has been drawn at a scale of 1:5000. Any enlargement of this would be misleading.

Distribution of Grades and Sub-grades

Grade	Area (ha)	% total agricultural land
3a	3.72	22
3b	10.06	59
4	3.17	19
Total agricultural area	16.95	100
Non-agricultural	0.35	
Not surveyed	3.52	
Total area of site	20.82	

1.4 Grades 3a, 3b and 4 have been mapped across the site. The combination of climatic regime, topsoil textures and depth to gleyed and slowly permeable horizons at this locality cause the land to be limited by wetness and workability. Higher quality grade 3a land has been mapped where slowly permeable horizons are present below about 50 cm. Grade 4 has been mapped where slowly permeable horizons occur at relatively shallow depth and topsoil textures are heavy, which combine with high field capacity days to cause a severe wetness and workability restrictions.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief

2.1 The site lies at an altitude of 45-50 m AOD, falling very gently from the south towards the north and east. Nowhere on the site does gradient or altitude represent a significant limitation to agricultural use.

Climate

2.2 Estimates of climatic variables relevant to the assessment of agricultural land quality, were obtained by interpolation from a 5km grid point dataset, (Met. Office, 1989), for a representative location in the survey area.

Climatic Interpolations

Grid Reference	TQ 359 146
Altitude (m AOD)	50
Accumulated Temperature (°days, Jan-June)	1478
Average Annual Rainfall (mm)	923
Field Capacity Days	194
Moisture deficit, wheat (mm)	103
Moisture deficit, potatoes (mm)	95

2.3 There is no overall climatic limitation at this locality. However, it should be noted that average annual rainfall and field capacity days are relatively high, whilst moisture deficits are low, in a regional context. These factors will interact with soil factors to influence soil wetness and droughtiness limitations. The risk of soil wetness will be enhanced at this locality, given the high number of field capacity days.

Geology and Soils

2.4 British Geological Survey, Sheet 318/333, Brighton and Worthing (1984) shows a variety of geological deposits to outcrop at this locality. Relatively small mapping units of Gault Clay and Folkestone Beds are shown towards the centre and south of the site, whilst the remaining part of the site, (the majority of it), is underlain by Recent Head deposits which comprise silty loam material with a variable content of flint and sandstone fragments.

2.5 Soil Survey of England and Wales, Sheet 6, Soils of South-East England, (1983), shows the entire site to comprise soils of the Kingston Association. These soils are described as, 'typical stagnogleys which have grey and ochreous mottled fine loamy upper horizons over clayey subsoils' (SSEW, 1984).

2.6 Detailed field examination of the soils on the site indicates the presence of soils similar to those described by the Soil Survey, ie, deep clayey profiles of moderate to poor drainage status.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The ALC grading of this site is determined by the interaction of soil drainage characteristics and climatic factors, giving rise to a moderate to severe soil wetness/workability limitation.

Grade 3a

3.2 Land of this quality represents 22% of the total agricultural land surveyed and it is limited by slight wetness/workability. Profiles comprise medium or sandy clay loam topsoils which are non-calcareous and generally free of stones. These overlie similar textures or more usually heavy clay loam in the subsoil passing to clay in the lower subsoil.
Gleying was evident typically between 40 and 50 cm depth and slowly permeable horizons were encountered at similar depths. Given these drainage characteristics, wetness class III is appropriate, which when combined with medium topsoil textures and a climate in which there are 194 days per year when soils are at field capacity, gives rise to a slight soil wetness/workability limitation. Subgrade 3a is assigned as a consequence.

Grade 3b

3.3 The majority of the land surveyed on this site has been graded as subgrade 3b, moderate quality.
Profiles are similar to those described in Section 3.2 above. Medium clay loam topsoils overlie heavy clay loam and clay in the subsoil, with occasional sandier lenses of sandy clay loam, sandy loam, or loamy sand.
Gleying occurs higher in the profile, ie, from 27-32 cm in association with shallower slowly permeable horizons which were identified within 35 cm of the surface. Wetness class IV is appropriate with these drainage characteristics and when the medium topsoil textures are taken into account, subgrade 3b is assigned. The soil water regime typical of this site will adversely affect plant growth or impose restrictions on cultivations or grazing by livestock such that the land is capable of providing only moderate yields of a narrow range of crops, such as cereals and grass.

Grade 4

3.4 Land is assigned to this grade due to a severe soil wetness/workability limitation to agricultural use. Profiles are very similar to those described in Section 3.3 above in terms of textural characteristics and drainage status. The difference is that topsoil textures are heavier, ie, heavy clay loams, thereby giving rise to an increased risk of soil wetness and workability problems. The combination of poorly drained, heavy soils, with a relatively moist climatic regime will restrict the period during which soils are in a workable condition and are suitable for cultivation, trafficking by machinery or grazing by livestock. This land is severely limited in its use for agriculture and is mainly only suitable for grass with occasional arable crops, the yields of which may be variable.

SOURCES OF REFERENCE

- British Geological Survey (1984) Sheet 318/333, Brighton and Worthing.

- 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.

- Soil Survey of England and Wales (1984) Bulletin 15, Soils and their use in South-East England.