

## AGRICULTURAL LAND CLASSIFICATION

## LAND AT BODSEY, RAMSEY, CAMBRIDGESHIRE

## 1.0 INTRODUCTION

1.1 An Agricultural Land Classification Survey was carried out over approximately 99.1 ha of land at Bodsey near Ramsey, Cambridgeshire. The site lies on the northern side of Ramsey bounded by roads on three sides, with a small area of agricultural land and a playing field to the south.

1.2 A total of 95 inspections were made to a depth of 1.2 m, unless stopped by impenetrable material, using a dutch auger. In addition four soil pits were dug, reflecting the soil types found, to assess subsoil conditions in more detail.

1.3 At the time of survey the land had been ploughed and many fields sown to winter cereals. The site had grown cereals and sugar beet during the 1989 cropping season.

## 2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

2.1 Climatic information for the site has been interpolated from the 5 km datasets produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 571 mm which is low by national standards. The number of days at which the site is likely to be at field capacity is also low at 95 days.

2.2 The accumulated temperature for this area is high at 1453 degrees celsius and the soil moisture deficits for wheat and potatoes are 124 and 120 mm respectively.

Relief

2.4 The site is gently undulating generally falling from the north and east to the flat lowlying fen in the south and west. The altitude ranges from 6 to 8 m along the north and east boundaries to approximately 2 m on the fen.

- 2.5 The lowlying fen is dissected by deep well maintained drainage ditches which lead to the main arterial pumped drainage system to the west of the site.
- 2.6 At the northern side of the site, the two fields either side of the area of concrete hardstanding, the land has been disturbed, probably the result of infilling of old pits. The soils were very variable with evidence of subsoil clay at the surface.

#### Geology and Soils

- 2.7 The area is shown on the  $\frac{1}{4}$  inch to one mile geology map (Geol Survey 1938) as Oxford Clay and Kellaways Beds overlain by Fen and Valley Gravels or Loams along the northern and eastern sides of the site. In addition peat is shown at the south western part of the site.
- 2.8 The soils found during the survey correlated well with this generalized geology map, with medium textured gravelly soils occurring on the north eastern and eastern edges of the site, and peaty soils on the low lying land to the south and west of the site. The remainder of the area has heavy textured soils over Oxford Clay predominating.
- 2.9 The gravelly soils had a medium clay loam topsoil which was non calcareous and slightly stony overlying a medium clay loam or sandy clay loam upper subsoil. The upper subsoil was generally slightly stony, increasing with depth, and showing slight evidence of periodic waterlogging in the form of ochreous mottling. Beneath this the soil became a very gravelly loamy sand which was generally impenetrable to the auger. However where the veneer of gravel was thin the underlying Oxford Clay was encountered.
- 2.10 On the remainder of the higher ground, the soils were developed directly on the Oxford Clays. These soils had a heavy clay loam topsoil which was generally non calcareous although localised slightly calcareous areas were found. Beneath the topsoil was a yellowish brown heavy clay loam upper subsoil with distinct ochreous mottling. Beneath this layer the blue grey Oxford Clay

was encountered, which had a very coarse prismatic structure and was considered to be slowly permeable. The depth to this clay was variable, with the northwest and southeast corner of the site being the shallowest at about 35-50 cm depth, increasing in depth to the south and north respectively.

- 2.11 On the flat lowlying area at the south and west of the site the soils were organic having a black peaty loam topsoil of variable depth ranging from 35 cm to 80 cm. In some profiles a layer of semi-fibrous loamy peat was found above the underlying mineral soil. Beneath the organic material the subsoil was a grey sandy material ranging in texture from sandy clay loam to loamy sand. The soils were freely draining due to the system of deep drainage ditches in the area. The soils were tested for layers of acidic material, but no profiles were found to have any.

### 3.0 AGRICULTURAL LAND CLASSIFICATION

- 3.1 The site has been classified using the guidelines contained in the Agricultural Land Classification of England and Wales (MAFF 1988). A breakdown of the grades found is given below:

Grade	Area (ha)	%
1	16.6	16.8
2	38.2	38.5
3a	37.6	37.9
3b	6.7	6.8
<hr/>		
Total	99.1	100

#### Grade 1

- 3.2 The organic soils on the lowlying land have been classified as Grade 1. These soils are free draining due to the well maintained deep drainage ditches of the area. They have a high available water capacity due to the organic nature of the soils and with no evidence of any acid layers, the crops are able to root deeply and are thus unlikely to suffer significantly from the effects of

drought. These soils are easily cultivated and can therefore support a wide range of crops.

#### Grade 2

3.3 On the fringes of the lowlying area referred to above where the organic soils pass into the heavier textured soils, organic clay loams are common. The organic matter content of these soils tends to be rather variable and due to the heavier textures they are limited by minor workability imperfections. In addition the soils will have a slight droughtiness limitation.

3.4 Toward the northeastern and southeastern corners of the site, the soils developed on the underlying gravels have also been classified as Grade 2. The main limitation associated with these soils is one of droughtiness and where the underlying gravels are found above about 75 cm have been further downgraded to 3a. The medium clay loam topsoils mean that these soils should not present major workability problems and that harvesting and cultivations are unlikely to cause significant structural damage in the soils.

#### Grade 3a

3.5 The heavier textured soils have been graded as 3a. These soils have a heavy clay loam topsoil which is generally non calcareous over a gleyed subsoil and have been assessed as wetness class II. They have both wetness and workability limitations which may restrict the timing of cultivations and limit the range of crops grown.

#### Grade 3b

3.6 At the northwestern and southeastern corners of the site similar soils to those described in the Grade 3a area exist, but differing in the depth to the slowly permeable Oxford Clays. These soils

have been assessed as wetness class III which will tend to make them more difficult to work and more susceptible to structural damage. Furthermore, to the north-west, as described in para 2.6 are two areas of disturbed soils which were somewhat variable with some subsoil clay being found on the surface.

December 1989

Resource Planning Group  
Cambridge

## References

Geological Survey (1938). Geological map of the country round Cambridge,  $\frac{1}{4}$  inch to 1 mile. Map prepared for the British Association for the Advancement of Science, 1938.

MAFF (1988). Agricultural Land Classification of England and Wales.

Meteorological Office (1989). Climatological data for Agricultural Land Classification.