Cambs 73/89

AGRICULTURAL LAND CLASSIFICATION

LAND AT BOSTON ROAD, SLEAFORD, LINCOLNSHIRE

1.0 INTRODUCTION

1.1 An Agricultural Land Classification survey was carried out over approximately 23.5 ha (58 acres) of land on the eastern side of Sleaford. The site lies immediately to the east of the railway line, bounded by Boston Road to the south and the old course of the River Slea to the north. The eastern boundary abuts open farmland.

1.2 A total of 25 inspections were made to a depth of 1.2 m, unless stopped by impenetrable material, using a Dutch auger. In addition a soil pit was dug to assess the subsoil structural conditions.

1.3 At the time of survey the majority of the land was growing onions, with a small area on the eastern side under cereal stubble.

1.4 The area is supplied with irrigation water, by a six inch main, the outlet of which is located on the eastern boundary. Over the previous few years the site has grown winter barley, potatoes, sugar beet and wheat. Potatoes, sugar beet and the onions all receive irrigation as required.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

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 588 mm which is low by national standards. The number of days at which the site is likely to be at field capacity is moderately low at 117.

2.2 The accumulated temperature for this area is approximately 1425 degrees celsius and the soil moisture deficit for wheat and potatoes are 114 and 108 respectively.

2.3 There is therefore no overall climatic limitation to agricultural use on this land.

Relief

2.4 The site is relatively level with a gentle fall toward the old river channel in the north. A few minor undulations do occur locally. The altitude of the site falls from 13m at the southern end of the site to approximately 11m in the north.

Geology and Soils

2.5 The 1:50000 Geology map for the area (Geol.Surv 1972) shows the area to be underlain by Fen Sand and Gravel with Oxford clays shown to occur to the northeast of the site.

2.6 The 1:250,000 soil map for Eastern England (Soil Survey 1984) shows the area as the Ruskington Association. These are deep permeable calcareous coarse and fine loamy and sandy soils, developed on glaciofluvial sand and gravel with a calcareous substrate of limestone stones, flint and quartzite pebbles.

2.7 The detailed survey carried out revealed soils which correlated well with those described above, and also an area of slightly heavier alluvial soils adjacent to the old course of the River Slea.

2.8 Over the majority of the area the soils had a very dark brown medium sandy loam topsoil, which was generally slightly calcareous. The amount of stone in the topsoil was variable, but generally in the range 3-5% very small, small and medium limestone and flint stones. However, locally, some larger pieces of flaggy limestone were evident. Beneath the topsoil the upper subsoil was generally a brown medium sandy loam or occasionally sandy clay loam with a similar stone content to the topsoil. Beneath this the soil became loamy sand or sand with a variable gravel content which in places made the soil impenetrable to the auger. Toward the northern end of the site the soils were faintly mottled and the subsoil texture slightly heavier with Oxford clay encountered at depth in a few profiles.

2.9 The soil pit revealed the upper subsoil structure to be weakly developed medium subangular blocky. Furthermore the underlying sand and gravel in the pit was cemented preventing root penetration, however this hard pan was not continuous over the site.

2.10 At the northern end of the site adjacent to the river course, alluvial soils were found. These soils had a medium clay loam topsoil which was calcareous and stone free. Beneath the topsoil the texture was a heavy silty clay loam with faint ochreous mottling. In one profile peat was found to occur at depth.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site has been assessed using the criteria contained in the Agricultural Land Classification of England and Wales (MAFF 1988) and has been assigned to Grade 2.

3.2 The major limitation associated with the majority of the site is droughtiness. Moisture balance calculations have been carried out on all the inspections and the soils are slightly droughty. The majority of the inspections are Grade 2 but the shallower, more sandy profiles are Grade 3a. However the site has irrigation potential with a six inch main outlet on the eastern boundary of the site. The

Farm Manager indicates that potatoes, sugar beet and onions are all irrigated and that sufficient irrigation water exists to meet requirements. Consequently, the droughty profiles have been upgraded on account of the irrigation facility as indicated in the ALC guidelines.

3.3 The alluvial soils at the north of the site are not considered to be droughty, but due to the heavier textures and slight evidence of seasonal wetness they are likely to have minor workability limitations. Consequently this area has also been classified as Grade 2.

December 1989

RESOURCE PLANNING GROUP
Cambridge

References

Geological Survey (1972) 1:50,000 scale solid and drift geology - sheet 127 Grantham.

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

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

Soil Survey of England Wales (1984) Soils and their use in Eastern England.