

AGRICULTURAL LAND CLASSIFICATION**WEST OF THE WISBECH ROAD, MARCH, CAMBRIDGESHIRE****1.0 INTRODUCTION**

Land on this 43 hectare site was inspected in October 1987 in connection with industrial development proposals. It was resurveyed in February 1989 under the Revised criteria for assessing the quality of agricultural land (MAFF, 1988). A total of 57 soil inspections were made on site using a hand held Dutch soil auger, and this information was supplemented by two soil profile pits. The land is used in an arable rotation, typical crops including winter cereals oilseed rape, sugar beet and potatoes.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITYClimate

- 2.1 Site specific climate data was obtained by interpolating information contained in the 5km agro-climatic data set produced by the Meteorological Office (Met Office, 1989). This indicates that average annual rainfall is approximately 544mm, which is low by national standards. Soils are likely to be at field capacity for a relatively short period of approximately 93 days between the months of and December and March.
- 2.2 The accumulated temperature is approximately 1452 degrees celsius. This parameter indicates the cumulative build up of warmth available for crop growth and also influences the development of soil moisture deficits (SMD)*. The soil moisture deficits for wheat and potatoes are approximately 122mm and 118mm respectively.
- 2.3 The site is neither particularly frost prone nor exposed.
- 2.4 Climatic factors do not constitute an overriding limitation to agricultural land quality.

Relief and Drainage

- 2.5 The majority of the site occupies level or very gently undulating land between -1m and 0m below ordnance datum. A maximum altitude of 2m occurs along the gentle ridge which lies immediately adjacent to the A141 Westry Road. Altitude and relief do not constitute limiting factors to agricultural land quality.
- 2.6 Ground water levels are controlled by a series of deep ditches and dykes which relay water to a pumping station, located a short distance from the site. Drainage freeboard is believed to be adequate for current needs.

* SMD: represents the balance between rainfall and potential transpiration occurring during the growing season.

Geology and Soils

- 2.7 The geology of this area is shown on the 1:50,000 solid and drift edition geology map, sheet number 158 (Peterborough) (Geol. Surv, 1984). This indicates that the majority of the site is underlain by Marine Alluvium which in turn rests on Corallian Limestone at depth. On the elevated ground adjacent the A141 Westry Road, small exposures of calcareous boulder clay drift and estuarine sands and gravels are mapped.
- 2.8 This description is basically in accordance with field survey observations. However, the occurrence of some non calcareous clay soils was noted on the elevated ground south of "Woodville". (TL400982). In addition, the Marine Alluvium was found to contain a complex network of shallow ridges (rodhams) which represent the routes of former silt creeks. These rodhams are larger, and occupy more significant areas towards the west of the site, and become smaller and more complex in pattern towards the east and north.
- 2.9 On the low lying ground, soils have developed from Marine Alluvium and are relatively uniform in nature. Typical profiles are stoneless, calcareous throughout and comprise organic or slightly organic silty clay, silty clay loam or clay loam textures overlying Marine Alluvium (silty clay) below 40cm depth. Due to the presence of many continuous vertical reed channels within the subsoil, the soils are free draining and are classed as wetness class I.
- 2.10 Occurring within the area of Marine Alluvium are smaller areas of lighter textured soils which have developed on the routes of former silt creeks (rodhams). Topsoil textures range from very fine sandy loam or medium silty clay loam to heavy silty clay loam or organic silty clay, depending on the proximity of the underlying silt to the surface. Subsoil textures typically comprise of very fine sandy loam or loamy fine sand textures, which may contain lenses of heavier silty clay loam or silty clay at depth. Soils of this type occur randomly in the north and east of the site, but tend to occupy slightly larger and more discrete areas to the west, where the pattern of rodhams is more pronounced.
- 2.11 In common with soils described in paragraph 2.9, soils of the above type are calcareous throughout, contain numerous vertical reed channels, and are classed as wetness class I.
- 2.12 On the gentle ridge, adjacent the A141 Westry Road a small area of contrasting, and slightly variable soils occur. Topsoils textures typically comprise heavy clay loam or clay which overlies clay, sandy clay loam or hoggin at depth. To the north and west of "The Bungalow" (TL 398984) profiles are generally calcareous, whilst to the South of Woodville, non calcareous soil types were noted. Reed channels were absent in the subsoils south of Woodville, and both soil types have been assessed as wetness class II.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The site is graded predominantly 2, with smaller areas of 1 and 3a. A breakdown of ALC grades in hectares and percentage terms is provided below:

| ALC | Ha | % |
|-------|-------|-------|
| 1 | 5.0 | 11.5 |
| 2 | 37.1 | 85.7 |
| 3a | 1.2 | 2.8 |
| | <hr/> | <hr/> |
| Total | 43.3 | 100.0 |
| | <hr/> | <hr/> |

Grade 1

3.2 This is mapped towards the west of the site where the rodham network is well developed and occurs in larger, more discrete areas. Profiles typically comprise of organic or slightly organic very fine sandy loam medium silty clay loam or medium clay loam textures which overlie lighter textured subsoils below 40/45 cm. (See paragraph 2.10). Soils are free draining (wetness class I), hold large reserves of plant available water and are capable of producing consistently high yields of a wide range of crops.

Grade 2

3.3 This is mapped over the majority of the site, where soils have developed directly onto the Marine Alluvium* (see paragraph 2.9). Although soils are free draining they are limited by workability imperfections which derive from their reduced organic matter content and relatively high clay content, within the topsoil. Soils of this type require well timed cultivations if structural damage is to be avoided. However, they remain capable of producing good yields of a somewhat narrower range of crops.

3.4 Grade 2 land is also mapped to the north and west of "The Bungalow" where a small area of calcareous clayey soils occurs, (see paragraph 2.12). Land in this area is limited by minor wetness and workability imperfections which derive from slightly reduced subsoil permeability and heavier topsoil textures.

Grade 3a

3.5 This occurs in a small area south of "Woodville" where clayey soils with reduced subsoil permeability occur. These non calcareous soil variants are more prone to soil structural damage than their calcareous counterparts to the north (see paragraph 3.4). The land is consequently limited by moderate wetness and workability imperfections.

*Note that individual profiles of grade 1 may occur randomly within this area, coinciding with the complex network of rodhams. However they do not occupy sufficiently large and/or discrete areas, to permit separate delineation.

Sources of Reference

MET. OFFICE (1989) Climatological data for Agricultural Land Classification.

GEOLOGICAL SURVEY (1984) 1:50,000 scale solid and drift edition geology map, sheet number 158, (Peterborough).

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