

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
AGRICULTURAL LAND CLASSIFICATION
BOSTON LOCAL PLAN
LAND NORTH OF SLIPPERY GOWT LANE, BOSTON, LINCOLNSHIRE

1.0 INTRODUCTION

- 1.1 An Agricultural Land Classification survey was carried out over approximately 31 ha of land to the north of Slippery Gowt Lane, Boston, Lincolnshire in connection with the Boston Local Plan Review.
- 1.2 A total of 31 inspections were made to a depth of 1.2 m using a spade and dutch auger. In addition three soil pits were dug, reflecting the soil types found, to assess subsoil conditions in more detail.
- 1.3 At the time of survey all the fields adjacent to Slippery Gowt Lane were in cereals, both wheat and barley, whilst to the north the fields were supporting crops of potatoes, daffodils and peas.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Climatic information for the site has been interpolated from the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 594 mm which is low by national standards. The number of days at which the soils of the area are likely to be at field capacity is also low at 113.
- 2.2 The accumulated temperature for this site is approximately 1434 degrees Celsius. This parameter indicates the cumulative build up of warmth available for crop growth and in conjunction with rainfall has an influence on the development of soil moisture deficits and susceptibility to drought. The moisture deficits for wheat and potatoes on this site are 118 mm and 114 mm respectively.
- 2.3 There is no overall climatic limitation to the agricultural use of the land, although soils will need a moderately high available water capacity to avoid drought stress.

Relief

- 2.4 The site is low lying having an altitude of 3 m AOD. It is relatively flat with only very minor undulations and is surrounded and crossed by a network of drainage ditches.

Geology and Soils

- 2.5 The site is located on the marine alluvium associated with the Wash.
- 2.6 The area is mapped as the Tanvats Association on the 1:250,000 scale soil map for Eastern England (Soil Survey of England and Wales 1983). The soils found on this survey correlate well with the soils contained in this mapping unit.
- 2.7 Three soil types were found.

The largest part of the site comprises soils which have dark brown heavy silty clay loam topsoils overlying a similar textured mottled grey brown subsoil. The soils are stoneless and non calcareous throughout. The subsoil has a very coarse subangular blocky or coarse prismatic structure and is generally moderately porous. In the middle of the site lighter textured variants were found having medium silty clay loam topsoils.

- 2.8 The soils in the middle and at the western end of the site consist of silt loam or medium silty clay loam topsoils overlying a faintly mottled silt loam upper subsoil over a more distinctly mottled silt loam or fine sandy loam lower subsoil. The soils are stoneless and generally non calcareous throughout although some deeper subsoils are calcareous especially where the texture becomes fine sandy loam or loamy very fine sand. The subsoils are moderately porous with many worm channels and coarse pores.
- 2.9 A small area of heavy textured soils was found adjacent to Slippery Gowt Lane. These soils have a silty clay topsoil overlying very firm silty clay or clay subsoils with distinct ochreous and grey mottling.

The subsoil has a coarse or very coarse prismatic structure although coarse pores occur intermittently throughout the subsoil. The soil is stoneless and non calcareous throughout.

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 document (MAFF 1988). A breakdown of the grades found is given below:

Grade	Area (Ha)	%
1	8.4	26.8
2	16.8	53.7
3a	5.0	16.0
Non agricultural	<u>1.1</u>	<u>3.5</u>
Total	<u>31.3</u>	<u>100.0</u>

Grade 1

3.2 The soils described in paragraph 2.8 and the lighter textured variants of the soils described in paragraph 2.7 have been classified as Grade 1. Although these soils display ochreous mottling, this is considered to be relict and not representative of the current drainage conditions. The subsoils contain many interlinking coarse pores and with the system of drainage ditches in the area it is unlikely that the soils would become waterlogged. Thus they have been assessed as Wetness Class I. The light nature of the silt loam or medium silty clay loam topsoils means that the workability of the soils is good. Although surface slaking may represent a very minor limitation this is not sufficient to warrant any downgrading.

3.3 Due to the silty texture of the soil profile, these soils have a high available water capacity and hence will not be susceptible to drought.

Grade 2

- 3.4 The heavier textured variant of the soils described in paragraph 2.7 have been mapped as Grade 2. These soils have also been assessed as Wetness Class I due to the coarse porosity in the subsoil. However with the heavy silty clay loam topsoils they will have a slight workability limitation which may impose restrictions on cultivations. It was evident at the time of survey that the topsoil was considerably more cloddy than the Grade I soils.
- 3.5 In addition to the workability limitation, these soils will suffer a minor droughtiness limitation. Soil moisture balance figures were calculated and in some instances slight droughtiness for potatoes was determined.

Grade 3a

- 3.6 The small area of heavy soils described in paragraph 2.9 has been classified as Grade 3a on account of both droughtiness and wetness/workability limitations. These soils have been assessed as Wetness Class II and with the silty clay topsoil will have a moderately severe workability limitation. This problem was evident in the field with the topsoils being very cloddy indicating the difficulties which may occur in preparing a seedbed and the potential for structural damage if trafficked under adverse conditions.
- 3.7 The high clay contents together with poor subsoil structure mean that crops grown on these soils will suffer from droughtiness in this low rainfall area. Moisture balance calculations indicated that the soils are moderately droughty for potatoes and slightly droughty for wheat.

Non agricultural

- 3.8 Four small areas of non agricultural land have been mapped. These represent old farm buildings, industrial buildings and an area of derelict land.

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References

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

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

SOIL SURVEY OF ENGLAND AND WALES (1983). Soils and their use in Eastern England.