AGRICULTURAL LAND CLASSIFICATION

BOSTON WEST GOLF CENTRE, HUBBERT'S BRIDGE, BOSTON, LINCS

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1. BACKGROUND

1.1 ADAS Statutory Group were requested on behalf of MAFF to assess the agricultural land classification (ALC) and soil physical characteristics of the site at Hubbert's bridge in connection with an application to extend an existing golf course.

1.2 The ALC survey was undertaken in December 1995 using a hand held dutch auger, soils were sampled at 100 m grid intersections to 120 cm depth or to an impenetrable layer if this occurred closer to the surface. This information was supplemented by data collected from 2 soil pits.

1.3 On the published Provisional 1:63 360 scale Agricultural Land Classification Map, sheet 114 (MAFF, 1974) the site is shown entirely as grade 1 land. Since this map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed site specific information on land quality.

1.4 At the time of the survey the agricultural land at the site was either bare soil, having been ploughed, or under sugar beet.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic criteria are considered when classifying land as these may have an overriding limitation in terms of the agricultural use of the land. The main parameters used in the assessment of the overall climatic limitation are

annual rainfall, as a measure of overall wetness, and accumulated temperature (day °C Jan-June) as a measure of the relative warmth of an area.

2.2 A detailed assessment of the prevailing climate for the site has been made by interpolating from data contained within the 5 km grid climatological datasets for ALC produced by the Meteorological Office (1989). The details are given in table form below.

Grid Reference	TF 263 440
Altitude (m, AOD)	3
Accumulated Temperature Day °C, Jan-June	1432
Average Annual Rainfall (mm)	567
Moisture Deficit, Wheat (mm)	121
Moisture Deficit, Potatoes (mm)	117
Field Capacity Days	102
Overall Climatic Grade	1

2.3 These characteristics do not impose any overall climatic limitation to land quality at the site. However, climatic factors do interact with soil factors to influence soil wetness and droughtiness.

Altitude and Relief

2.4 The site lies at an altitude of approximately 3m AOD and is generally flat. Therefore, neither gradient nor altitude constitute limitations to agricultural land quality.

Geology and Soils

2.5 The published 1:233 440 reconnaissance scale drift edition geology map, sheet 12 (Geological Survey of Great Britain, 1964) shows the site to comprise post glacial and recent alluvium, peat and fen silts.

2.6 On the published 1:50 000 scale soils map, sheet 131 (Soil Survey and Land Research Centre, 1989) the site is shown as comprising mainly soils of the

Wisbech Series with a slightly smaller area of Stockwith Series in the west of the site adjacent to the Ten Foot Drain. The current detailed survey also identified two main soil types.

2.7 In the north eastern half of the site soils are developed from the underlying fen silt deposits and closely resemble those of the mapped Wisbech Series. These profiles typically comprise medium silty clay loam, medium clay loam or occasionally fine sandy silt loam topsoils over fine sandy silt loam or occasionally medium clay loam or medium silty clay loam upper subsoils. Lower subsoils typically comprise laminated fine sandy silt loam or occasionally fine sandy loam textures, with a stable coarse pore network. These soils are generally free draining (wetness class I) and stoneless throughout.

2.8 The remainder of the site comprises soils corresponding to the mapped Stockwith Series and are slightly heavier textured. Topsoils typically comprise medium silty clay loam, medium clay loam, fine sandy silt loam or very occasionally, in the west of the site, heavy silty clay loam. These overlie upper subsoils of similar textures, typically fine sandy silt loam or occasionally silty clay loams being heavy in the west of the site. Lower subsoils are typically slowly permeable and consist of clay or silty clay loam. Profiles have therefore been assessed as wetness class II or very occasionally III due to the imperfect drainage.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification (ALC) grades are included in Appendix 1.

3.2 The table overleaf provides a breakdown of the ALC grades in hectares and percentage terms.

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Grade	ha	%
1	10.8	51
2	8.6	41
Other land	1.6	8
TOTAL	21.0	100

Grade 1

3.3 Land graded 1 is present in the northeast of the site, coinciding with the well drained soils developed over fen silts described in paragraph 2.7. These soils are water retentive, having high available water capacities. The land is easily cultivated and highly versatile, allowing a wide range of crops to be grown and has no or very minor limitations to agricultural use and is therefore graded 1 (excellent quality agricultural land).

Grade 2

3.4 In the southwest of the site grade 2 land occurs, corresponding to the slightly heavier textured soils described in paragraph 2.8. These profiles are typically moderately well drained (wetness class II) and this factor in combination with topsoil textures excludes land from a higher grade. This land is therefore graded 2 (good quality agricultural land) due to slight wetness and workability limitations. Although individual profiles within this mapping unit on the south west edge of the site are, or approach subgrade 3a, these are too small to delineate separately.

Other land

3.5 The existing golf course and a track are present at the northeastern edge of the site.

REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (ENGLAND AND WALES), 1964. Sheet 12, drift edition, scale 1:233 440.

MAFF, 1974. Agricultural Land Classification Map (Provisional), sheet 114, scale 1:63 360.

MAFF, 1988. Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of Agricultural Land). Alnwick.

METEOROLOGICAL OFFICE, 1989. Climatological Datasets for Agricultural Land Classification. Meteorological Office, Bracknell.

ROBSON, J D, 1990. Soils of the Boston and Spalding district. Memoirs of the Soil Survey of Great Britain England and Wales.

SOIL SURVEY AND LAND RESEARCH CENTRE, 1989. Sheet 131, Soils of the Boston and Spalding district, scale 1:50 000.

Appendix 1

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield of which are variable. In most climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.