Cambs 120/93

AGRICULTURAL LAND CLASSIFICATION

RUSHTON GOLF CENTRE, KETTERING, NORTHAMPTONSHIRE

1.0 BACKGROUND

1.1 An Agricultural Land Classification (ALC) survey of the 72.4 ha site was undertaken on behalf of MAFF in October 1993 using guidelines contained in MAFF publication Revised Guidelines and Criteria for Grading the Quality of Agricultural Land.

1.2 The survey was undertaken using a hand held dutch auger and soils were sampled at 100 m grid intersections to at least 100 cm or to an impenetrable layer if closer to the surface. This information was supplemented by data collected from 3 soil profile pits.

1.3 On the provisional 1:63,360 scale ALC map, sheet No. 133, the site has been mapped as grade 3. The map is of a provisional nature and the current survey was undertaken to provide more detailed site specific information on land quality.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the site was extrapolated from data published in Agricultural Climatic Dataset (Meteorological Office 1989). This indicates that for an average site altitude of 115 m AOD, the annual average rainfall is 627 mm (24.7"), the field capacity days are 134 and moisture deficits for wheat and potatoes are 104 mm and 94 mm respectively. These climatic characteristics do not impose any limitation on the ALC grade for the site.

Altitude and Relief

2.2 From a high point of 125 m AOD at the northern end of the site the land slopes gently in a southerly direction to an open valley running in an east-west direction in the central part of the site at a height of 110 m AOD. From this point the land rises on to a shallow ridge at approximately 120 m AOD before falling away in the

southerly direction where it meets the upper valley slopes of the river Ise at an AOD of 100 m.

Geology and Soils

2.3 The solid geology of the site consists of Lower Lincolnshire (Oolite) Limestone, underlain by Lower Estaurine series sands and clays. These deposits are only exposed in a small area on the upper valley slopes of the river Ise in the extreme south of the site. Elsewhere the Limestone is masked by superficial spreads of glacial boulder clay drift.

2.4 No detailed soil map exists for this area, but the reconnaissance 1;250,000 scale soil map "Soils of England and Wales" shows the bulk of the site to be comprised of Ragdale Association soils (*1) and the southern extremity comprised of Banbury Association soils (*2). The current more detailed survey identified two main soil types and indicated that the soils in the southern extremity more closely resemble those of the Aberford Association soils (*3).

2.5 The first soil type occurs extensively over the central and northern parts of the site. In general terms profiles typically comprise very slightly stony (1-5%), non-calcareous heavy clay loam topsoils over stoneless (<1%) variably calcareous clay upper subsoil, over chalky boulder clay which varies in depth from surface between 30 cm and 70 cms. Gleying typically occurs between 35 cm and 70 cm giving rise to wetness classes II and III.

2.6 The second main soil type occurs in the extreme south of the site and correlates with the underlying limestone. Topography in this area is rather undulating giving

(*1) Ragdale Association - slowly permeable seasonally waterlogged clayey and fine loamy over clayey soils. Some slowly permeable calcareous clayey soils especially on slopes.

(*2) Banbury Association - well drained brashy fine and coarse loamy ferruginous soils over ironstone. Some deep fine loamy over clayey soils with slowly permeable subsoils and slight season waterlogging.

(*3) Aberford Association - shallow locally brashy well drained calcareous fine loamy soils over limestone. Some deeper calcareous soils in colluvium.

rise to some variations in soil depth. Soil profiles on the ridges typically comprise slightly stony (6-15%) calcareous medium clay loam topsoil over moderately stony (20-35%) heavy clay loam subsoils, which in turn overlay impenetrable limestone below 35 cm to 70 cm. Soils in the troughs are much deeper and comprise very slightly stony (3-5%), variably calcareous medium clay loam topsoil over slightly stony (10-15%), calcareous heavy clay loam subsoils which extend to 100+ cm. The soils were generally free draining (wetness class I).

2.7 Two areas were identified as of non-agricultural use. One area, at the eastern edge in the middle of the site has been used for tipping soil/rubble, the other, at the southern end of the site is a disused quarry, now covered with scrub.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The distribution of Agricultural Land Classification (ALC) grades is shown below:

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
3a	38.92	53.8
3b	31.66	43.7
Non Agricultural	1.82	2.5
TOTAL	72.40	100.00

The definitions of the ALC grades are shown in Appendix 1.

Subgrade 3a

3.2 This occurs at the northern end and in the south central part of the site in areas of moderately well drained fine loamy over clayey soils, more fully described in paragraph 2.5. This land is limited by moderate winter wetness and workability imperfections.

Subgrade 3b

3.3 This occurs in two main areas. Firstly on the north central part of the site in areas of imperfectly drained (wetness class III) fine loamy over clayey soils more fully described in paragraph 2.5. This land is limited by more severe winter wetness and workability imperfections than occur on the land classified as 3a.

3.4 Secondly grade 3b is mapped at the extreme south of the site where soils have a variable depth over the limestone. These soils are described in detail in paragraph 2.6. The area comprises a series of ridges and troughs with very shallow soils on the ridges and deeper soils in the trough, giving rise to both high and low quality profiles (grade 2 to 3b) in close proximity. The main limitation to the agricultural use of this area is therefore due to the variability over short distances, with the shallow soils restricting the overall land use.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1966. Drift Edition Sheet 171, Kettering. Scale 1:63,360.

MAFF, 1970. Agricultural Land Classification Map Sheet 133. Provisional. Scale 1:63,360.

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

METEOROLOGICAL OFFICE 1989. Published climatic data extracted from the agricultural dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES 1983. Sheet 4, Soils of Eastern England. Scale 1:250,000.

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 (eg. 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.