5/92

WESTON-ON-TRENT - PROPOSED GOLF COURSE AND DRIVING RANGE

AGRICULTURAL LAND CLASSIFICATION

REPORT OF SURVEY

1. SUMMARY

Fifty-five hectares of land to the north of Weston-on-Trent were graded under the Revised Agricultural Land Classification System in Winter 1992. Almost half of the agricultural land was found to be grade 2, a further 46% to be sub-grade 3a, with a small area classified as sub-grade 3b.

2. INTRODUCTION

The site is located to the north of Weston-on-Trent. Weston Road and housing form the eastern boundary of the site. The site is bounded by agricultural land in the south and west and agricultural land and housing in the north. The survey was carried out as part of MAFF's statutory role in response to an ad hoc planning application made to the Local Plannning Authority.

The site was surveyed in 1992 using the MAFF Revised Agricultural Land Classification System, with soils being augered to a depth of 100cm at 100m grid intersections. Additional profiles were described as necessary to determine land quality boundaries and several soil pits were dug to examine soil structure.

3. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to lower grades, despite other favourable conditions. The main parameters used in the assessment of the climatic limitations are the Average Annual Rainfall (AAR), as a measure of overall wetness, and the Accumulated

Temperature above 0°C for the period January to June (ATO), as a measure of warmth. The figures for AAR and ATO indicate that there are no climatic limitations on this site.

4. SITE LIMITATIONS

The assessment of site factors is primarily concerned with the way topography influences the use of agricultural machinery and hence the cropping potential of the land. The site lies at a maximum altitude of 65m in the north west corner of the site, falling to 50m in the centre and a minimum of 42m in the east. The land is gently undulating and nowhere does gradient limit the classification of the land.

5. SOIL LIMITATIONS

The site is underlain by fluvio-glacial gravels in the south and boulder clay with over- and underlying sand and gravel in the north west. The remainder of the site is underlain by gypsum, which consists of red marl with beds of sandstone and bands of gypsum. There appears to be no relationship between this complex geology and the soils. The soils include medium sandy loam topsoils over medium sandy loam passing into the loamy medium sand to sandy clay loam and medium sandy loam topsoils over sandy clay loam over heavy clay loam. Stoniness is the limiting factor in the north eastern part of the site, where stones greater than 2cm in diameter exceed 10% of the topsoil volume.

6. INTERACTIVE LIMITATIONS

The interactions between climate, site and soil determines whether a soil will be prone to wetness, droughtiness or erosion.

Seasonal waterlogging affects the soil workability and crop yields, hence wetness is an important parameter in the classification of land. It is measured by reference to climate particularly field capacity days, soil water and topsoil texture. This site is at field

capacity for 147 days. Some of the soils have gley morphology within 40 cm and have a slowly permeable layer between 40-68cm, falling into Wetness Class III. Occasional profiles fall into Wetness Class IV being gleyed within 40cm and having a slowly permeable layer within 40cm. Other soils have gley morphology within 40cm and do not have a slowly permeable layer within 80cm of the surface, falling into wetness class I. These soils are light textured and are therefore prone to drought. A soil's susceptibility to drought is measures by the amount of water the profile can hold (Ap) in comparison to the potential soil moisture deficit for the area (MD). In this area the moisture deficit for wheat is 105 mm and for potatoes is 96mm.

7. LAND USE

At the time of survey the area was mainly under cereals and a fodder crop, with some of the land left ploughed.

8. AGRICULTURAL LAND CLASSIFICATION

Land quality ranges from grade 2 to sub-grade 3b.

8.1 GRADE 2

This grade occupies 26.3ha and accounts for 48% of the site. It includes soils which are too poorly drained for a higher grade showing distinct gleying in profiles within 40cm and have slowly permeable layers below 40cm. These soils are characterised by slightly stony medium sandy loam topsoils overlying sandy clay loam subsoils overlying heavy clay loam/clay. The majority of these soils fall into Wetness Class III, with occasional profiles falling into Wetness Class II where the heavy clay loam/clay lower subsoil occurs below 68cm.

In the north west and north east of the area mapped as grade 2 the soils are characterised by slightly stony medium sandy loam topsoils overlying slightly stony medium sandy loam subsoils overlying moderately stony sandy clay loam or, in the occasional profile, loamy

medium sand. These soils fall into Wetness Class I, having gley morphology within 40cm, but no slowly permeable layer within 80cm. In dry years crop yields may be slightly reduced due to a lack of available water, but these soils are very flexible and capable of supporting a wide range of crops. Stoniness is also a limiting factor for soils of this grade where stones larger than 2cm in diameter exceed 5% of the topsoil volume.

Isolated profiles of sub-grade 3a occur within the land mapped as grade 2, but these areas were too small to map separately at this scale.

8.2 SUB-GRADE 3A

This sub-grade is mapped to include 25.6ha and 46% of the site. In the western part of the site drought is the main limitation to the agricultural use of these soils. These soils are typified by slightly stony sandy loam topsoils overlying moderately stony medium sandy loam subsoils, which overlie moderately stony loamy medium sand. These soils fall into Wetness Class I, having gley morphology within 40 cm, but no slowly permeable layer within 80cm.

In the central part of the site the soils are too poorly drained for a higher grade showing distinct gleying in the profiles within 40cm and have a slowly permeable layer within 40cm. These soils fall into Wetness Class IV and are typified by medium sandy loam topsoils overlying heavy clay loam subsoils over clay.

Stoniness is the limiting factor for the soils in the north east of the site, where the topsoil is more stony than typical, with stones larger than 2cm in diameter exceeding 10% of the topsoil volume.

Isolated profiles of grade 2 occur within the land mapped as sub-grade 3a, but these areas were too small to map separately at this scale.

8.3 SUB-GRADE 3B

This sub-grade occupies 3.1ha and accounts for 6% of the site. The two areas of sub-grade 3b land are mapped where the soil has been disturbed. In the northern area the soils typically have sandy clay loam/medium sandy loam topsoils which pass into heavy clay loam/clay subsoils. The presence of gley morphology within 40cm and the proximity of the slowly permeable layer to the surface means that these soils falls into Wetness Class IV. The soils in the southern area are limited by drought. The soils in this are are typified by medium sandy loam topsoils passing into sand below 40cm.

8.4 AGRICULTURAL BUILDINGS

This grade accounts for 0.1ha and includes a field barn.

BREAKDOWN OF AGRICULTURAL LAND CLASSIFICATION GRADES

Grade	Area (ha)	% of Agricultural Land
2	26.3	48
3A	25.6	46
3B	3.1	6
Agricultural Building	0.1	
Total	55.1	100.0

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