THE AGRICULTURAL LAND CLASSIFICATION REPORT FOR BREDON FIELD FARM, STRENSHAM

INTRODUCTION

This 185.75 hectare site lies east of the M5 motorway at its junction with the M50 motorway adjacent to the Strensham service area. The M5 motorway forms the western boundary and the River Avon the eastern boundary. To the north and south is open countryside with the exception of the north east corner which adjoins the Severn Trent Water Treatment Works.

The land is level or gently undulating and falls away from the motorway at an altitude of approximately 40 m towards the River Avon at an altitude of 11 m. The area is crossed by two small streams which flow north west to south east through the northern and southern portions of the site and drain into the River Avon. The River Avon floodplain is one field wide and terminates in a short steep bank which follows the 12 m contour. Immediately west of this bank is a further extensive level area composed of sand and gravel of former river terraces. From here the land rises gradually to the highest parts of the site in the north and north east.

The area receives an average annual rainfall of approximately 630 mm and has a mean accumulated temperature above °C (January to June) of 1484. Rainfall is evenly distributed with a slightly drier period from February to June. The balance between summer rainfall and evapotranspiration creates a moisture deficit of 113 mm for wheat and 107 mm for potatoes. The mean date of last frost is the end of April and the growing season last about 250 days from late March to late November. There is a slight but measurable trend towards slightly drier and warmer conditions towards the south along the Avon valley. There are no overall nor local climate restrictions to the agricultural use of this land.

The soils found on the site are derived from 3 main naturally occurring parent materials. Firstly, the deep uniform deposits of heavy alluvium which occur on the floodplain and give rise to soils of the Fladbury series. Locally the alluvium is calcareous (Uffington soil series) reflecting the origin of some of the alluvial material from Jurassic Limestones and derived drift. Adjoining the floodplain but at slightly higher elevations are extensive level areas of Fluvio-glacial river terrace deposits, which give rise to sandy textured soils of variable depth and stone content. These sandy soils cover the land between the river terrace and the track which joins Mill Land with Bredon Field Cottages. The third and most extensive type of soil parent material underlies the remainder of the site west of the river terrace. The material is composed of sandy drift of variable thickness and stoniness overlying clay rich subsoils which are calcareous where the drift thins to expose the underlying Jurassic calcareous clay shales. Calcareous soils mainly occur along the concave slopes above the floodplain and on the higher areas away from the river terrace deposits.

The remaining part of the site not included in the above descriptions lie south of the M50/M5 motorway junction. The soils here have been restored from motorway spoil storage area when the M5 was built. The soils have a thin sandy topsoil overlying a very compacted clay or clay loam subsoil which is often highly calcareous.

The wide range of parent materials produces a similar variation in soil types with poorly drained groundwater gleys on the floodplain to well drained, easily worked slightly droughty soils on the river terraces. The remaining area has a range of soil types reflecting the nature and depth of the glacial drift, but for the most part the soils have a sandy loam or sandy clay loam topsoil with evidence of waterlogging in the clay rich subsoil. The predominant limitations to the agricultural use of the land are either soil wetness or soil droughtiness. Along the river flooding occurs in most year and is the main limitation to the agricultural use of this land. Although many topsoils are stony, the stone content of the top 25 cm did not constitute the main limiting factor in any instance. The affect of the stones in determining grade is most acutely felt by reducing the soil available water in the drought assessment.

Over most of the site the limitations to agriculture are minor which is reflected in the wide range of crops that are grown. During the survey (July to September 1989) the following crops were noted growing on the site; barley, cabbages, kale, onions, potatoes, peas, leeks, sugar beet, stubble turnips and wheat. In the recent past soft fruit has also been grown on the site.

The land was surveyed using a 110 cm Dutch soil auger with borings taken on a 100 m grid with supplementary observations where necessary. The soils were augered to 100 cm unless prevented by stony or compacted layers. The average density of observations is approximately one boring per hectare. Fewer observations were taken on the river floodplain where flooding rather than soil factors is the main limiting factor. In addition, several soil pits were excavated to obtain a better assessment of soil structure and stone content and to obtain samples for analysis. Several small soil pits were also excavated for assessing topsoil stone content by sieving.

AGRICULTURAL LAND CLASSIFICATION

Grade 2 land occupies 71.3 hectares and accounts for 38% of the site. The Grade 2 land is widespread and occurs over 2 main soil types. Most of the Grade 2 land has sandy loam or sandy clay loam topsoils with a slightly heavier subsoil and clay is often present within 1 m. These soils belong to the Bishampton soil series and occur on the higher, gently sloping land where thicker, sandier drift covers the underlying clay. They typically have slowly permeable layers below about 45 cm, exhibit some signs of gleying within the profile and generally fall within Wetness Class II or III. These latter soils only quality for Grade 2 if they have a sandy loam topsoil. In several locations sandy clay subsoils are absent and deep, freely drained sandy soils of the Wick soil series occur (eg borings 36, 56 and 144). These soils fall within Wetness Class I and are excluded

from Grade 1 by droughtiness. This land occupies level or gentle sloping areas and is only slightly stony. The sandier more drought prone soils generally occur on the deeper river terraced deposits where there is at least 90 cm of soil over the gravel.

This is very good quality agricultural land capable of growing a wide range of agricultural and horticultural crops. At the time of survey land in this Grade was growing leeks, onions, peas, potatoes, sugar beet, cereals and grass.

Grade 3a land occupies 40 hectares and accounts for 21.5% of the site. This land occurs over a range of soil types but is concentrated on the sandy soils overlying the river terraces towards the east of the site. The soils belong to the Wick soil series and typically have a sandy loam topsoil with variably textured subsoils with loamy sand and sand predominating. In some cases thin layers of sandy clay loam or more exceptionally heavier material may occur but over virtually all of this land, gravel is encountered within 1 m and more frequently within 75 cm. These soils are also characterised by slightly stony topsoils which develop into a moderately stony subsoil before passing into true gravel deposits. These soils are similar in general to the Grade 2 land but either have a higher stone content or a more sandy subsoil.

The other main type of Grade 3a land occurs away from river terraces where sandy drift overlies heavier textured subsoils with clay or sandy clay typically found within 50 cm. In some places, particularly on the higher ground towards the north and west and on the concave slopes immediately above the floodplain, the clay subsoil may be calcareous (eg borings 86, 88 and 89). Locally, there are areas where the subsoils can be very variable over short distances with clay encroaching within 40 cm of the surface. In such areas (eg borings 112) the soils can be a mixture of 3a, 3b and 2 and are accorded an overall Grade of 3a. These soils typically have a sandy loam or sandy clay loam topsoil and exhibit gleying within 40 cm and belong in Wetness Class III or IV.

The main limitations to the agricultural use of this land are either; (1) drought, particularly on the sandier terrace soils or (2) soil wetness where sandy loam and sandy clay loam topsoils overlie heavier clay subsoils. This is good quality agricultural land and at the time of survey was growing a wide range of crops including barley, leeks, onions, peas, potatoes, grass and wheat.

Grade 3b land occupies 40.1 hectares and accounts for 21.5% of the site. This land occurs on a fairly restrictive range of soil types towards the northern and southern parts of the site. The soils north of Bredon Field Farm typically have a clay loam or sandy clay loam topsoil or more rarely clay, with clay or sandy clay subsoils within approximately 40 cm and in places within 30 cm of the surface (eg borings 87, 105, 109 and 177A). These heavy soils belong to the Pinder and Wickham Soil Series and are generally Wetness Class IV. The main limitation to the agricultural use of this land is soil wetness which restricts the time during which non-damaging farm operations can be carried out.

The second main area of subgrade 3b land occurs in the south of the site and corresponds to the slightly better quality restored land on the site of the former motorway spoil storage area. The soils typically have at least 20 cm of sandy loam overlying a compacted clay subsoil. The compacted clay subsoil is very slowly permeable and signs of wetness are present in the topsoil. These soils are generally Wetness Class IV but the moderately deep sandy topsoils are easily worked and will allow arable cultivation.

Although this is considered a moderate quality agricultural land a wide range of crops was observed growing on this land during the survey including barley, leeks, onions, potatoes, grass and wheat.

Grade 4 land occupies 30.4 hectares and accounts for 16.5% of the site. This land occurs in 2 very discrete and different locations. The larger area of Grade 4 land covers the flood meadows adjacent to the River Avon. The soils are clay throughout with some calcareous clays of the Uffington soil series within the predominantly non-calcareous Fladbury soil series. The soils are groundwater gleys, mainly Wetness Class IV, with prolonged waterlogging during the winter months. The other major limitations to the agricultural use of this land is the frequent winter and more particularly the frequent summer (mid March to mid November) flooding. The combination of flooding and prolonged waterlogging exacerbated by the heavy soil textures restrict the use of this land to permanent pasture and a Grade 4 classification.

The other main area of Grade 4 land is found on the restored motorway spoil storage area where sandy clay loam or clay loam topsoil overlie compacted clay or where sandy loam topsoils of less than 20 cm depth overlie the compacted clay. Many of these soils exhibit signs of gleying and soil wetness to the surface and are best suited to carefully managed grazing to minimise poaching.

Grade 5 land occupies 0.8 hectares and accounts for 0.4% of the site. These two small parcels of land occur over spring seepage areas within the restored land. Despite having some drainage work, the soils are waterlogged even in the driest summers and support a sparse marshy vegetation of very limited grazing value.

Woodland occupies 2.2 hectares and accounts for 1.1% of the site. There is one large and two small parcels of woodland within the application site, the larger area of Arle Covert is situated on the bank adjoining the floodplain. The two smaller areas correspond to scrub woodland and ponds and occur just north of Arle Covert and in the far north west corner respectively.

Agricultural buildings cover one hectare and account for 0.5% of the site. This covers the farmhouse and buildings of Bredon Field Farm.

SUMMARY

This is an area of very high quality farmland with a significant amount of best and most versatile land. The land is well farmed and is producing a wide range of agricultural and horticultural crops.

ALC grade	Area (hectares)	% of total area
2	71.3	38
3a	40	21.5
3b	40.1	21.5
4	30.4	16.5
5	0.8	0.4
Woodland	2.2	1.1
Agricultural buildings	1.0	0.5