

## **RUTLAND LOCAL PLAN**

### **AGRICULTURAL LAND CLASSIFICATION - OAKHAM SITES 1 AND 3**

#### **1. BACKGROUND**

- 1.1 The two sites cover an area of 22.4 ha in total, with Site 1 being 13.6 ha and Site 3 8.8 ha in extent. The two sites are adjacent and lie to the north of Oakham and to the west of the railway near to the village of Barleythorpe.
- 1.2 A previous survey in January 1993 was carried out on land to the west of the present sites but included a small area in the west of the present Site 1.
- 1.3 ADAS Statutory Resource Planning Team undertook a detailed Agricultural Land Classification (ALC) survey of the present sites in June 1995. Information was collected from auger borings, spaced at 100 m intervals, to a depth of 120 cm or shallower if an impenetrable layer was encountered nearer the surface. Subsoil conditions were assessed from a soil pit dug during the present survey and similar information derived from the 1993 survey.
- 1.4 On the published provisional 1:63 360 scale ALC map, sheet 122 (MAFF, 1972) the north western area of the sites and the extreme south of Site 1 is shown as grade 3. The eastern and central areas of the sites are shown as grade 2.

#### **2. PHYSICAL FACTORS AFFECTING LAND QUALITY**

##### Climate

- 2.1 Climatic data for the site were extrapolated from the Agricultural Climatic Dataset (Meteorological Office, 1989). This indicated that for an average site altitude of 112 m AOD the average annual rainfall is 671 mm, with an accumulated temperature (ATO) of 1332 days °C. The field capacity days are

146 and moisture deficits for wheat and potato are 96 mm and 86 mm respectively. These climatic characteristics do not impose any climatic limitation on the ALC grading of the sites.

### Altitude and Relief

- 2.2 The sites range from approximately 120 m AOD in the north west to approximately 110 m AOD in the east. A shallow valley runs west to east along the southern boundary of Site 1. The sites are generally level or gently sloping with some slight surface undulation and ridge and furrow landform. Gradient and relief do not therefore constitute limitations to ALC grading of the area.

### Geology and Soils

- 2.3 The published 1:50 000 scale solid and drift edition geology map, sheet 157; Stamford (Geol. Survey, 1987) shows the site to comprise Upper Lias clays in the north and north west of the sites. The remainder of the sites consist of Middle Lias Marlstone.
- 2.4 No detailed soil map exists for the area but the reconnaissance 1:250 000 scale map, Sheet 4, Eastern England (Soil Survey of England and Wales, 1983) shows the northern half of the site to consist of soils of the Denchworth Association (\*1). The southern half of the site is shown as soils of the Banbury Association (\*2).

---

(\*1) Denchworth Association - slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils.

(\*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 seasonal waterlogging.

- 2.5 During the present survey two main soil types were identified which were similar to the mapped Soil Associations.
- 2.6 In the north west and centre of the site the soils consisted of a medium or heavy clay loam topsoil overlying a relatively thin upper subsoil of heavy clay loam texture. A lower clay textured subsoil extended to below sampling depth. The soil profiles within this type were assessed as predominantly wetness class III but occasionally were found to be wetness class II or IV depending on the depth to the slowly permeable clay subsoil.
- 2.7 The remainder of the site was found to consist of medium clay loam or silty clay loam topsoil, usually overlying a heavy clay loam or silty clay loam subsoil. This in turn overlay the underlying Ironstone rock. The subsoil varied in thickness and was occasionally absent with the topsoil directly overlying the Ironstone. At a small number of sample points a clay textured lower subsoil was found to overlie the Ironstone rock. The soil profiles within this soil type were generally assessed as wetness class I but where clay was found within the subsoil wetness class was classed as II or III depending on the depth to the slowly permeable clay textured horizon.

### **3. AGRICULTURAL LAND CLASSIFICATION**

- 3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentage terms for the two sites is shown overleaf.

Site 1

AGRICULTURAL LAND CLASSIFICATION

Grade	Area (ha)	% of Site area
2	1.1	8.1
3a	7.0	51.5
3b	5.5	40.4
TOTAL	<u>13.6</u>	<u>100.00</u>

Site 3

3a	5.8	65.9
3b	3.0	34.1
TOTAL	<u>8.8</u>	<u>100.00</u>

Definitions of the ALC grades are shown in Appendix 1.

Grade 2

- 3.2 The deep free draining soils developed over the ironstone have been mapped as grade 2. These soils are found in a small area in the west of site 1 and consist of a medium silty clay loam topsoil overlying heavier textured subsoil with the depth to the underlying rock being in excess of 80 cm. Therefore the soils will have a slight wetness and workability limitation (wetness class II) and a minor droughtiness limitation for deeper rooting crops such as wheat, restricting such soils to grade 2.

Grade 3a

- 3.3 Two areas of grade 3a have been identified in the west and east of the sites, These areas correlate with both the soil types described in paragraphs 2.6 and 2.7. The deep soils described in paragraph 2.6 which were assessed as grade 3a were those in which the depth to any slowly permeable layer was sufficient for the profile to be assessed as wetness class II or III and having a topsoil of either medium or heavy clay loam texture. Where the soils are medium clay

loam and wetness class III or heavy clay loam textured topsoils and wetness class II they will have a workability restriction which limits them to a grade 3a potential.

- 3.4 In areas of the shallow soil type described in paragraph 2.7 the depth to the underlying Ironstone is generally between 50-90 cm. The available water capacity within these profiles will therefore be restricted resulting in these soils being moderately droughty for deeper rooting crops such as wheat. Occasionally within the area mapped as grade 3a the deeper profiles of this soil type may be of a higher grade, however these areas were too small to be delineated separately from the grade 3a land.

#### Grade 3b

- 3.5 Areas of the sites assessed as grade 3b were found within the soil types described in paragraphs 2.6 and 2.7. The areas of soils described in paragraph 2.6 were those in which the depth to any slowly permeable layer was shallow and hence wetness class was assessed as III or IV. Where topsoil textures were found to be medium clay loam and wetness class IV or where topsoil texture was heavy clay loam and wetness class III or IV then wetness and workability limitations restricts the land to grade 3b.
- 3.6 In areas of the soils described in paragraph 2.7 the very shallow nature of the soil profile being between 27-40 cm to the underlying Ironstone restricts the availability of moisture for plant growth. Hence these profiles are limited by droughtiness restrictions to grade 3b. At a single sample point the total soil depth overlying the Ironstone was found to restrict land quality to grade 3b.

June 1995

Resource Planning Team  
ADAS Cambridge

## REFERENCES

Geological Survey, (1978). Solid and Drift edition Geology Map. Sheet 157

Stamford 1:50 000 scale.

MAFF, (1972). Provisional Agricultural Land Classification Map. Sheet 122,

1:63 360 scale.

Meteorological Office, (1989). Climatological Data for Agricultural Land

Classification.

## 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.