

**AGRICULTURAL LAND CLASSIFICATION
SOUTH NORTHAMPTONSHIRE LOCAL PLAN
LAND ADJACENT TO QUINTON ROAD**

1.0 BACKGROUND

- 1.1 The site, an area of 19.7 hectares, forms part of the South Northamptonshire Local Plan. The agricultural land was surveyed in detail in January 1993, by the ADAS Resource Planning Team, in order to assess the agricultural land quality. Information was collected from auger borings spaced at 100 m intervals and two soil inspection pits were dug to assess subsoil conditions.
- 1.2 At the time of the survey the southern fields were in cereals with the remainder of the land under grass.
- 1.3 On the published 1:63,360 scale Agricultural Land Classification (ALC) map sheet 133 (MAFF, 1974) the site is shown as mainly grade 3, with a smaller area of grade 2 in the south. Since the map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality within the survey area.
- 1.4 In 1990 MAFF undertook a detailed ALC survey of land immediately to the west of the site. This identified areas of subgrade 3a and 3b due to wetness and workability constraints.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Climate data for the site was interpolated from data contained in the published agricultural climatic dataset (Met Office 1989). This indicated that for the site's mid altitude of 77 m AOD the annual average rainfall is 628 mm (24.7"). This data also indicates that field capacity days are 133 and moisture deficits for wheat and potatoes are 108 mm and 101 mm respectively. These climatic characteristics do not impose a limitation on ALC grade.

Altitude and Relief

- 2.2 From a high point of 82 m AOD in the SE of the site the land falls in a northern and westerly direction towards a tributary stream of the River Nene. A minimum altitude of 74 m AOD occurs where the stream crosses the Quinton Road on the northern boundary of the site.

Geology and Soils

- 2.3 The published 1:63,360 solid and drift edition map 202 (Geological Survey of Great Britain 1969) shows the area to comprise predominately Pleistocene and Recent fluvio-glacial gravels. To the north of this deposit, moving downslope, there are bands of Jurassic Upper Lias Clay which also underlies the drift deposits, and alluvium.
- 2.4 The Soil Survey of England and Wales have mapped the soils in the Northampton area at a reconnaissance scale of 1:250,000 (Soil Survey 1983). This map shows the occurrence of two soil associations. The southern two thirds of the site is mapped as Oxpasture Association (*1) with the northern third as Fladbury 1 Association (*2). The current more detailed survey identified three main soil types which broadly reflect the geology and soils as described above.
- 2.5 On the highest land in the south eastern part of the site soils typically comprise deep moderately well drained (wetness class II and III) medium sandy loam (occasionally sandy clay loam) topsoils and upper subsoils overlying slowly permeable clay at 45/80 cm. Soils are non calcareous throughout with topsoils being slightly stony and subsoils having occasional stony bands at variable depths.

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- (*1) Oxpasture Association : fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged clayey soils.
- (*2) Fladbury 1 Association: stoneless clayey soils, in places calcareous, variably affected by groundwater flat land. Risk of flooding.

2.6 Moving downslope to the north and west topsoil textures become heavier, typically consisting of medium clay loam or sandy clay loam over slowly permeable clay at 40/45 cm (wetness class III). Soils are non calcareous throughout and again there are occasional stony layers within the subsoil at varying depths.

2.7 On the lowest land in the valley, soils become heavier still with heavy clay loam or clay topsoils immediately over typically slowly permeable clay subsoils, (wetness class IV). Soils tend to be stoneless and occasionally calcareous in the lower subsoil.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definition of the ALC grades is given in Appendix 1.

3.2 The site has been graded 2, 3a and 3b, with the better grade land on the highest ground, and the worst in the stream valley. A precise breakdown of the ALC grades in hectares and percentage terms is given below.

AGRICULTURAL LAND CLASSIFICATION		
Grade	Hectares	%
2	6.1	31
Subgrade 3a	9.4	48
Subgrade 3b	4.0	20
Urban	<u>0.2</u>	<u>1</u>
TOTAL	19.7	100

Grade 2

3.3 The grade 2 land is associated with the light textured sandy loam (occasionally sandy clay loam) soils described in paragraph 2.5. These soils are generally moderately well drained (wetness class II and III) and the land is limited by a combination of minor winter wetness and summer droughtiness constraints.

Subgrade 3a

- 3.4 Land classed as subgrade 3a occurs on mid slopes and is associated with heavier textured soils described in paragraph 2.6. Soil drainage is moderate, (typically wetness class III), and this combined with the moderately heavy medium clay loam or sandy clay loam topsoils excludes the land from a higher grade on wetness and workability grounds.

Subgrade 3b

- 3.5 The remainder of the land has been graded 3b and is associated with the heaviest textured soils described in paragraph 2.7. Profiles are poorly drained, being slowly permeable directly below the topsoil, and are assessed as wetness class IV. The combination of heavy topsoil textures and poor soil drainage combine to restrict the land to subgrade 3b.

Urban

- 3.6 This small area contains a gas pumping centre.

January 1993

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES 1969. Solid and Drift Edition, Towcester. Sheet 202, 1:63,360.

MAFF 1974. Agricultural Land Classification Map Sheet 133, Provisional, 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. Published climatological data for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES 1983. The Soils of Midland and Western England. 1:250,000.

SOIL SURVEY OF ENGLAND AND WALES 1984. Soils and their use in Midland and Western England by J M Ragg, G R Beard, H George, F W Heaven, J M Hollis, R J A Jones, R C Palmer, M J Reeve, J D Robson and W A D Whitfield.

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 yields 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 winter 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.