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SOUTH NORTHAMPTONSHIRE LOCAL PLAN
NORWOOD FARM

AGRICULTURAL LAND CLASSIFICATION

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1.0 BACKGROUND

1.1 The site, an area of 56.5 hectares, forms part of the South Northamptonshire Local Plan. The site is in agricultural use and was surveyed in November/December 1992, by the ADAS Statutory Unit, in order to assess the agricultural land quality.

1.2 At the time of the survey the site was sown with winter cereals.

1.3 On the published Agricultural Land Classification Map Sheet 133 (Provisional, 1:63,360, MAFF 1974) the site is shown as grade 3 land. Since this 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 for the site.

1.4 Information was collected from auger borings spaced at 100 metre intervals and subsoil conditions were assessed from two representative soil pits.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Site specific climatic information for two altitudes on the site have been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office 1989. This information is shown in summary below:

Norwood Farm	A	B
Annual Average Rainfall (mm)	634	649
Altitude (m)	75	111
Field capacity days	139	139
MD Wheat (mm)	110	105
MD potatoes (mm)	102	95
Accumulated Temperature (°C)	1400	1358

The table above illustrates the effect of altitude on droughtiness. At greater heights, rainfall increases, therefore reducing moisture deficit and thus droughtiness. However, these characteristics do not impose any climatic limitations to the ALC grade of the site.

Altitude and Relief

2.2 The site is on moderately sloping ground in a tributary valley of the river Nene. The land falls from 115 metres AOD to 70 metres AOD in the south. Slopes are generally 1 or 2° in the north and south of the site, with slopes of up to 7° in the central section. Small areas of steeper slopes also outcrop in the central section along the southerly drainline from Norwood Farm. These constitute a slight cultivation impediment but cover too small an area to map separately.

Geology and Soils

2.3 The published 1:50,000 scale geology map 185 (Solid and Drift Edition, GSEW 1980) shows the area to comprise a complex geological pattern, particularly towards the centre where the section is traversed by four fault lines. The southern third of the site is predominantly Upper Lias and Middle Lias Silts and Clays, with some Marlstone Rock Beds, while the northern section comprises boulder clay deposits. The central, faulted section comprises narrow bands of Northampton Sand, Upper and Lower Estuarine Series, and smaller proportions of glacial sands and gravels and Blisworth (Great Oolite) Limestone.

2.4 The Soil Survey of England and Wales have mapped the area at a reconnaissance scale of 1:250,000. This map, entitled "The Soils of Eastern England" (SSEW 1983) shows the site to comprise three main soil associations which broadly conform to the relief, namely; the Hanslope Association (*1) on the northern

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(*1) Hanslope Association. Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils.

higher ground, the Banbury Association (*2) within the central section and the Denchworth Association (*3) towards the south.

The current more detailed survey identified two main soil types:

2.5 The majority of the site comprises heavy textured clay loam topsoils over clay subsoils which are gleyed and generally non-calcareous. Within the northern section the soils may be calcareous at depth.

2.6 Within the central section, lighter textured, better drained profiles predominate. Soils typically comprise medium or sandy clay loam topsoils, (or occasionally heavy clay loams) over similar or heavier upper subsoils. At depths below 45/50 cm, the lower subsoil texture is either clay or similar to the above. Topsoils are very slightly or slightly stony. Subsoils are slightly to moderately stony, becoming less so if clay is encountered at depth.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The majority of the site has been assessed as subgrade 3b, with a smaller central area of 3a. A precise breakdown of the ALC grades in hectares and percentage terms is given below.

	AGRICULTURAL LAND CLASSIFICATION	
Grade	Hectares	%
3a	21.9	39.0
3b	33.3	59.0
Non Agricultural	0.4	0.5
Agricultural buildings	0.9	1.5
TOTAL	56.5	100.0

(*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.

(*3) 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.

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

Subgrade 3a

3.3 Land classed as subgrade 3a* occurs in the central area of the site, adjacent to Norwood Farm. Profiles correspond with those described in paragraph 2.6. Where clay textures occur at depth the wetness class has been assessed as II or III depending upon the depth at which a slowly permeable layer is encountered. Profile wetness and topsoil texture combine to impose a moderate limitation to the ALC grade. Elsewhere where lighter textures predominate the wetness class has been assessed as I or II. The fine profile textures, profile stone and the relatively dry climate combine to impose a moderate limitation on the available water for crop growth. Thus the land has been assessed as subgrade 3a (good quality agricultural land).

Subgrade 3b

3.4 The land classed as subgrade 3b corresponds with the poorly drained soils described in paragraph 2.5**, and lies in the northern and southern sections of the site. The heavy textured topsoil and slowly permeable clay horizon immediately below the topsoil (resulting in a wetness class assessment of IV) combine to impose a significant wetness and workability limitation to the land. Consequently the land has been classed as 3b (moderate quality agricultural land).

Non-Agricultural

3.4 A small area corresponding with a disused pit has been mapped as non-agricultural in the northwest of the site.

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* Pockets of grades 2 and 3b occur sporadically within this area but are too small to delineate separately. These reflect the complex geology of the central portion of the site, described in paragraph 2.3.

** Adjacent to the eastern edge small pockets of sandy soils outcrop sporadically, however they are too small to delineate separately.

Agricultural Buildings

3.5 The buildings at Norwood Farm and the nursery buildings in the northwest of the site have been mapped in this category.

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References

GEOLOGICAL SURVEY OF ENGLAND & WALES, 1980. Solid and Drift Edition, Sheet 185, 1:50,000.

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 Eastern England Sheet 4, Reconnaissance 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 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.