

AGRICULTURAL LAND CLASSIFICATION
FAIRFIELD HOSPITAL, ARLESEY, BEDFORDSHIRE

1.0 BACKGROUND

- 1.1 The site, an area of 69.4 hectares is proposed for possible future development. A detailed survey was carried out in April 1996 by the ADAS Resource Planning Team in order to assess the agricultural land quality. Assessment was made following the guidelines in MAFF publication, "Revised Guidelines and Criteria for Grading the Quality of Agricultural Land".
- 1.2 Information was collected from thirty-three auger borings, on a 100 m grid system to a depth of 120 cm or an impenetrable layer if closer to the surface. Subsoil structure was assessed from four soil inspection pits.
- 1.3 On the provisional 1:63 360 scale map, Sheet No 147, the whole site is shown as non-agricultural. A survey in 1986 showed land of grades 2, 3a and 3b (pre-revision system).
- 1.4 At the time of the survey all the fields were under cereals apart from a small area in the north west which was under beans.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Climatic criteria are considered when classifying land as those may have an overriding limitation in terms of the agricultural use of the land. The main parameters used in the assessment of the overall climate limitation are average annual rainfall as a measure of overall wetness, and accumulated temperature (day °C Jan-June) as a measure of the relative warmth of an area.

- 2.2 A detailed assessment of the prevailing climate for the site has been made by interpolation from the 5 km grid dataset produced by the Meteorological Office (Met. Office 1989). The details are given in Table 1 and show that there is no overall climatic limitation affecting this site.

Table 1 : Climatic Interpolation

Grid Reference	TL 205346
Altitude (m, AOD)	72
Accumulated Temperature Day °C, Jan-June	1403
Average Annual Rainfall (mm)	580
Moisture Deficit, Wheat (mm)	107
Moisture Deficit, Potatoes (mm)	116
Field Capacity Days	109
Overall Climatic Grade	1

Altitude and Relief

- 2.3 The site is bounded in the east by the Hitchin Road and by arable land on the remaining boundaries. A broad ridge at approximately 72 m AOD runs through the site in a north/south direction. In the east it slopes gently to 65 m AOD along the Hitchin Road. In the west it slopes gently to 65/60 m AOD. Slopes are not in excess of 3° and are therefore not limiting in ALC terms.

Geology and Soils

- 2.4 The 1:253,440 scale map (GSGB, 1907) shows the mid and western part of the site to comprise boulder clay and the eastern part sand and gravel deposits. Both overlie chalk.
- 2.5 The reconnaissance soil survey map for the area (SSEW 1983, Scale

1:250,000) shows the site to comprise soils of the Hanslope Association (*1) and the Wantage 2 Association (*2).

- 2.6 The current survey of the site shows the presence of three soil types.
- 2.7 The first soil type occurs on the eastern side of the site and comprises slightly stony, calcareous sandy clay loam/medium clay loam topsoil over slightly stony calcareous sandy clay loam/heavy clay loam upper subsoil. Lower subsoil comprises extremely stony (hard chalk) silt loam/heavy silty clay loam. The lower horizon occurs at depths varied between 50/85 cm and rooting was not observed more than 20 cms from the start of the horizon. These soils were assessed as wetness class I.
- 2.8 The second soil type occurs in the south, central and extreme north east and north west parts of the site. Profiles typically comprise very slightly stony, calcareous heavy clay loam/clay topsoil over very slightly stony calcareous clay upper subsoil. Lower subsoil comprises slightly stony calcareous clay with chalky boulder clay being met at varying depths. Gleying occurs at 30/40 cms and ochreous mottling 35/45 cms. These soils were assessed as wetness class III.
- 2.9 The third soil type occurs to the west of the covered reservoir and south of the sewage works. Profiles typically comprise very slightly stony, calcareous heavy silty clay loam topsoil over soft weathered chalk with topsoil inclusions in fissures and worm channels. The texture of this horizon was assessed as

(*1) Hanslope Association: Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous soils. Slight risk of water erosion.

(*2) Wantage 2 Association: Shallow well drained calcareous silty soils over argillaceous chalk associated with similar soils affected by groundwater. Deeper well drained coarse loamy soils in places. Complex soil pattern locally.

silt loam and was free draining giving rise to wetness class I. Rooting was observed to 120 cm.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentage terms is shown in Table 2.

Table 2 : Agricultural Land Classification

Grade	ha	%
2	12.2	17.6
3a	18.3	26.4
Other Land	38.9	56.0
TOTAL	<u>69.4</u>	<u>100.0</u>

Grade 2

3.2 Land assessed as grade 2 occurs in four areas on the site. The profiles in the south east corner, those adjacent to the Hitchin Road in the north east, and both those around the covered reservoir and in the east central part are as described in paragraph 2.7. The hard chalk is reached at a greater depth (80 cm+) giving rise to a slight droughtiness restriction. Land to the west of the covered reservoir and south of the sewage works is also mapped as grade 2 and soil profiles are as described in paragraph 2.9. The soils are free draining but with a heavy fine silty topsoil a minor wetness and workability limitation restricts the land to grade 2.

Subgrade 3a

3.3 Land assessed as subgrade 3a occurs in the south, east and north east and north west part of the site. Soil profiles in the south/south central, north east and north west are as described in paragraph 2.8. In general they are fine

loamy/clayey topsoils over slowly permeable clay subsoils (wetness class III). The major limitation associated with these soils is a wetness and workability restriction which limits them to subgrade 3a. The soils in the east are as described in paragraph 2.7 but the hard chalk is encountered at shallower depths (50/55 cm) giving rise to a more severe droughtiness limitation which restricts the land to subgrade 3a.

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REFERENCES

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