

AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF SOIL CHARACTERISTICS, FIELD VIEW FARM, YARMOUTH ROAD, BLOFIELD, NORFOLK

1.0 BACKGROUND

1.1 The site covers an area of 42.9 hectares and is the subject of an application for a proposed golf course.

1.2 ADAS Statutory Resource Planning Team undertook a detailed Agricultural Land Classification (ALC) and soil physical characteristics survey of the site during January 1996. Information was collected from 43 auger borings, spaced at 100 m intervals, to a depth of 120 cm or shallower if an impenetrable layer was encountered near the surface. Subsoil conditions were assessed from six inspection pits and supplementary auger borings were carried out to confirm the boundaries of soil types.

1.3 On the published provisional 1:63 360 scale ALC map, Sheet 126 (MAFF 1972) the majority of the site is mapped as grade 2 with grade 3 land occurring in the southern and western boundary. However, this map is of a reconnaissance nature and the current detailed survey was undertaken to provide site specific details.

1.4 At the time of the survey part of the site was under winter cereals. Land on either side of Witton Run Dike was under grass with many weeds. The area on the western boundary had recently been ploughed. The remainder was untilled after sugar beet harvesting.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

- 2.1 Climate criteria are considered when classifying land as these 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 data set produced by the Meteorological Office (Mét. 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	TG 330 091
Altitude (m, AOD)	10
Accumulated Temperature Day °C, Jan-June	1415
Average Annual Rainfall (mm)	620
Moisture Deficit, Wheat (mm)	120
Moisture Deficit, Potatoes (mm)	115
Field Capacity Days	118
Overall Climatic Grade	1

Altitude and Relief

- 2.3 From the plateau area, in the eastern and central part of the site at a height of 18 m AOD the land slopes gently in a southerly direction to a height of 5 m AOD. On the western side the land falls sharply, with slopes in excess of 11°, to a small valley containing the Witton Run Dike. The valley side rises in a westerly direction to the boundary of the site which is at 15 m AOD. These slopes are less than 7° and are not limiting in ALC terms.

Geology and Soils

- 2.4 The 1:50 000 scale geology map (GSB, 1990) shows a complex geological pattern over the site. The western and southern edge comprises Crag, the south central and eastern part Kesgrave formation (sand and gravel), and the central and northern sandy clay (Till). The area in the small valley containing Witton Run Dike comprises Breyda formation (peat).
- 2.5 The reconnaissance soil survey map for the area (SSEW, 1983) shows the site to comprise soils of the Wick 2 Association (*1) apart from the valley encompassing the Witton Run Dike which is mapped as Hanworth Association (*2).
- 2.6 The current survey of the site shows the presence of three soil types.
- 2.7 Soil type 1 typically comprises non calcareous, very slightly stony sandy clay loam (occasionally medium sandy loam) topsoil with non calcareous very slightly stony loamy medium sand upper subsoil. Lower subsoil comprises stoneless medium sand. The soils are free draining and are assessed as wetness class I.
- 2.8 Soil type 2 comprises non calcareous, very slightly stony sandy clay loam (occasionally medium clay loam) topsoil with non calcareous very slightly stony sandy clay loam (occasionally medium clay loam) upper subsoil.

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- (*1) Wick 2 Association: - Deep well drained coarse loamy soils, often stoneless. Some similar soils with slowly permeable subsoils and slight seasonal waterlogging. Slight risk of water erosion.
- (*2) Hanworth Association: - Deep permeable coarse loamy often stoneless soils affected by groundwater, mainly with a peaty or humose surface horizon. Associated peat soils.

Lower subsoil comprises stoneless sandy clay loam (occasionally sandy clay). The soils are free draining and are assessed as wetness class I except those with a sandy clay lower subsoil. In these profiles gleying occurs at varying depths (40/75 cm) and soils are assessed as wetness class II or III.

- 2.9 Soil type 3 comprises non calcareous very slightly stony sandy clay loam topsoil with non calcareous very slightly stony sandy clay loam upper subsoil. Lower subsoil comprises stoneless peaty loam. Due to the variability in the effect of ground water, soils in the central and northern part are assessed as wetness class III and wetness class IV in the southern part.

3.0 AGRICULTURAL LAND CLASSIFICATION

- 3.1 The breakdown of Agricultural Land Classification (ALC) grades in hectares and percentage terms is shown below:

AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	23.7	55.3
3a	4.9	11.4
3b	12.8	29.8
4	1.5	3.5
TOTAL	<u>42.9</u>	<u>100.0</u>

The definitions of the ALC grades are shown in Appendix 2.

Grade 2

- 3.2 Land assessed as grade 2 occurs in three separate locations and is associated with soil type 2 as described in paragraph 2.8. The soil profiles are mainly fine loamy throughout and well drained giving rise to a slight droughtiness restriction. The occasional profiles with sandy clay lower subsoils below 60 cm depth are moderately well drained and are subject to slight droughtiness restricting the land to grade 2.

Subgrade 3a

- 3.3 Land of this grade occurs in the central and northern part of the Witton Run Dike valley and in the extreme south west of the site. It corresponds to the soils described in paragraph 2.9 (wetness class III) and to soils described in paragraph 2.8 where the lower subsoil is sandy clay occurring above 60 cm depth. The major limitation associated with these soils is a wetness and workability restriction which limits them to subgrade 3a.

Subgrade 3b

- 3.4 Land of this grade occurs in two locations and is associated with soil type 1 described in paragraph 2.7. The soils are well drained fine loamy over sand thereby limiting the available water capacity causing moderately severe droughtiness which limits the land quality to subgrade 3b. The southern part of the Witton Run Dike valley has been assessed as subgrade 3b. The soils are described in paragraph 2.9 (wetness class IV) and are subject to moderately severe wetness and workability restrictions.

Grade 4

- 3.5 Land on the eastern slopes of the Witton Run Dike valley have been assessed as grade 4 as measured slopes were in the range 12-14°.

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Resource Planning Team
ADAS Cambridge

REFERENCES

GEOLOGICAL SURVEY OF GREAT BRITAIN (England and Wales) 1990.

Sheet 162. Quaternary and Pre-Quaternary. 1:50 000 scale.

MAFF, 1972. Agricultural Land Classification map. Sheet 126. Provisional.

1:63 360 scale.

MAFF, 1983. Agricultural Land Classification of England and Wales. Revised
Guidelines and Criteria for Grading the Quality of Agricultural Land.

Alnwick.

METEOROLOGICAL OFFICE, 1989. Climatological data for Agricultural Land
Classification. Met. Office, Bracknell.

SOIL SURVEY OF ENGLAND AND WALES, 1983. Sheet 4, Eastern England.

1:250 000 scale.

Appendix 1

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE 1

Topsoil	Texture	:	medium sandy loam
	Colour	:	10YR4/4
	Stone	:	2% small and medium subrounded
	Roots	:	common, fine and very fine
	Depth	:	36 cm
Upper Subsoil	Texture	:	loamy medium sand
	Colour	:	10YR4/5
	Stone	:	5%, small and medium subrounded
	Structure	:	very weakly developed, fine and medium subangular blocky.
	Consistence	:	very friable
	Roots	:	few, fine and very fine
	Depth	:	44 cm
Lower Subsoil	Texture	:	medium sand
	Colour	:	10YR5/6 and 10YR6/6
	Stone	:	none
	Structure	:	single grain
	Consistence	:	loose
	Roots	:	none
	Depth	:	120 cm

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE 2

Topsoil	Texture	:	sandy clay loam
	Colour	:	10YR4/2
	Stone	:	2% small subrounded and angular
	Roots	:	common, fine and very fine
	Depth	:	36 cm
Upper Subsoil	Texture	:	medium clay loam
	Colour	:	7.5YR4/3
	Stone	:	3%, small and medium sub-rounded
	Structure	:	weakly developed, coarse subangular blocky.
	Consistence	:	friable
	Roots	:	few, fine and very fine
	Depth	:	55 cm
Lower Subsoil 1	Texture	:	medium clay loam
	Colour	:	7.5YR4/4 and 7.5YR4/5
	Stone	:	3% small and medium subrounded
	Structure	:	weakly developed, coarse subangular, blocky.
	Consistence	:	friable
	Roots	:	few, fine and very fine
	Depth	:	80 cm
Lower Subsoil 2	Texture	:	sandy clay loam
	Colour	:	10YR4/3 and 10YR4/4
	Stone	:	2% small and medium, angular
	Structure	:	weakly developed, coarse subangular, blocky.
	Consistence	:	friable
	Roots	:	few, fine and very fine
	Depth	:	120 cm

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE 2 - clay subsoil variant

Topsoil	Texture	:	sandy clay loam
	Colour	:	10YR4/3
	Stone	:	2% small and medium rounded and angular.
	Roots	:	few, fine and very fine
	Depth	:	35 cm
Upper Subsoil	Texture	:	sandy clay loam
	Colour	:	7.5YR4/4
	Stone	:	2%, small and medium subrounded
	Structure	:	weakly developed, coarse subangular blocky.
	Consistence	:	friable
	Roots	:	few, fine and very fine
	Depth	:	63 cm
Lower Subsoil 1	Texture	:	sandy clay loam
	Colour	:	10YR5/6
	Stone	:	2% small and medium subrounded
	Structure	:	weakly developed, coarse subangular, blocky.
	Consistence	:	very friable
	Roots	:	few, fine and very fine
	Depth	:	78 cm
Lower Subsoil 2	Texture	:	sandy clay
	Colour	:	10YR5/4
	Mottles	:	few ochreous, 10YR5/6
	Stone	:	3%, small and very small gravel
	Structure	:	weakly developed, coarse subangular, blocky.
	Consistence	:	friable
	Roots	:	few, fine and very fine
	Depth	:	120 cm

STATEMENT OF SOIL PHYSICAL CHARACTERISTICS

SOIL TYPE 3

Topsoil	Texture	:	sandy clay loam
	Colour	:	10YR4/3
	Stone	:	1% small, few medium, rounded and angular.
	Roots	:	many, medium and fine
	Depth	:	27 cm
Upper Subsoil	Texture	:	sandy clay loam
	Colour	:	10YR5/3
	Mottles	:	very many ochreous 7.5YR5/8
	Stone	:	1%, small rounded and angular
	Structure	:	weakly developed, very coarse subangular blocky.
	Consistence	:	friable
	Roots	:	common, fine and very fine
	Depth	:	42 cm
Lower Subsoil 1	Texture	:	peaty loam - common wood fragments
	Colour	:	5YR3/2
	pH	:	4.5
	Stone	:	none
	Structure	:	massive
	Consistence	:	firm
	Roots	:	common, fine and medium
	Depth	:	42 cm
Lower Subsoil 2	Texture	:	peaty loam - common plant fragments
	Colour	:	5YR4/2
	Stone	:	none
	Structure	:	massive
	Consistence	:	firm
	Roots	:	common, fine and very fine
	Depth	:	120 cm