Cambs 33/93

AGRICULTURAL LAND CLASSIFICATION
HENHAM ESTATE, STRADBROKE, SUFFOLK

1. BACKGROUND

1.1 The site, an area of 227.9 hectares, is the subject of an application for a variety of golfing facilities. In March 1993, ADAS Resource Planning Team undertook an Agricultural Land Classification (ALC) survey, carrying out a total of 187 auger borings. In addition two soil pits were dug to provide more detailed information on subsoil conditions.

1.2 At the time of the survey the majority of the site was in arable production, with a large proportion of land in winter cereals. Much of the remaining land was being prepared for sugar beet and pea planting. Some fields in the north of the site were in set aside.

1.3 On the published 1:63,360 scale ALC Map, sheet 137 (MAFF 1973) the majority of the site is mapped as Grade 3 with a small area in the south west corner which is graded 4. 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.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data was obtained from the published agricultural climatic dataset (Met Office, 1989). This indicates that for the survey area's average altitude of 20m AOD, the annual average rainfall is 604mm (23.8"). It also indicates that field capacity days are 125 and the moisture deficits for wheat and potatoes are 121mm and 117mm respectively. These climatic characteristics do not impose any climatic limitation on the ALC grade of the site.

Altitude and Relief

2.2 The site is gently undulating with shallow valley features running in an easterly direction in both the northern and southern parts of the site. The land surveyed

rises gently in altitude from 10m AOD in the valley bottoms to 25m AOD on the plateau running through the centre of the site. Neither gradient nor altitude constitute limitations to the ALC grade.

Geology and Soils

2.3 The published 1:253,440 scale solid edition geology map sheet 16 (Geological Survey of Great Britain 1909) shows the whole site to comprise Norwich and Red Crags.

2.4 No detailed soil map is available of the area but the reconnaissance 1:250,000 scale soil map "Soils of Eastern England" (Soil Survey of England and Wales, 1983) shows the presence of three soil associations. The Beccles 1 Association (*1) covers most of the northern part of the site, except for a lense of Newport 3 Association (*2) which runs along the northern valley in an easterly direction from Valley Farm. The southern block of land to the south of The Clamps is mapped as Newport 4 Association (*3). During the current more detailed survey work three soil types were identified, covering approximately equal areas of the site.

2.5 The better bodied soil type is found to the north of Valley Farm and Henhamgreen Farm, around Heron Wood and a small area to the west of The Clamps. Typically these soils comprise heavy clay loam topsoils to a depth of 30/35cm over slowly permeable sandy clay or clay upper subsoils. The lower subsoil typically comprises chalky boulder clay containing up to 20% chalk and flint fragments or occasionally non calcareous clay. Topsoils and upper subsoils are generally very slightly stony and non calcareous and soil drainage is assessed as wetness class III.

(*1) Beccles 1 Association - Slowly permeable seasonally waterlogged fine loamy over clayey soils, associated with similar clayey soils.

(*2) Newport 3 Association - Deep well drained sandy and coarse loamy soils. Some coarse and fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging.

(*3) Newport 4 Association - Deep well drained sandy soils. Some very acid soils with bleached subsurface horizon especially under heath or in woodland.

2.6 To the east and south of Valley Farm profiles are broadly similar to those described above but have topsoils which are lighter in texture. Topsoils typically comprise sandy clay loams to a depth of 30/35cm, which are very slightly or slightly stony and non calcareous. The subsoils typically consist of sandy clay or clay (occasionally chalky boulder clay from 50cm+) and are slowly permeable immediately below the topsoil (Wetness Class III). Subsoils are generally very slightly or slightly stony except to the west and south of Valley Farm where subsoils were moderately or very stony below 50/70cms.

2.7 The light textured sandy soils are found on the southern flank of the valley running east from Valley Farm and south of The Clamps. Topsoils typically consist of medium sandy loam or loamy medium sands to a depth of 30/35cms. Upper subsoils are typically loamy medium sand (occasionally medium sandy loam or medium sand) to a depth of 50/75cm, and are very slightly or slightly stony. Lower subsoils typically comprise loamy medium sand or medium sands (occasionally sandy clay or clay was encountered below 85cm) with slight or moderate stoniness. Generally these profiles are non calcareous throughout and freely draining (ie. Wetness Class I).

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the ALC grades are included in Appendix 1.

3.2 The site has been mapped as predominately subgrade 3a with smaller areas of subgrade 3b along the northern boundary, around Herons Wood and to the west of The Clamps. The table below shows the breakdown of the grades in hectares and % terms for the survey area.

	AGRICULTURAL LAND CLASSIFICATION	
Grade	ha	%
3a	141.7	62
3b	74.2	33
Non Agricultural	8.2	3
Urban	3.8	2
TOTAL	227.9	100

Irrigation

3.3 The entire site is irrigated. The irrigation facility enhances the potential of the lighter agricultural land described in paragraph 2.7 for crop production, and consequently the ALC grades mapped in this area, take into account the reduction in drought risk afforded by irrigation.

Subgrade 3a

The land graded 3a occurs in two main situations.

3.4 Firstly grade 3a land is associated with the soils described in paragraph 2.6. The fine loamy topsoils directly overlie poorly drained heavier textured subsoils which are slowly permeable (ie. Wetness Class III). The combination of non calcareous topsoil textures and slow permeability at shallow depth imposes a moderate wetness and workability limitation. Consequently the land is restricted to subgrade 3a (good quality agricultural land).

3.5 Land graded 3a is also associated with the light sandy soils which are described in paragraph 2.7. The presence of light textures has a limiting effect on the available water for crop growth, however this droughtiness imperfection is alleviated somewhat by the availability of irrigation. The prevailing moderate droughtiness imperfections preclude the land from a higher grade.

Subgrade 3b

3.6 The land graded 3b is associated with the heavy textured soils found on the site described in paragraph 2.5. Profiles are poorly drained, being slowly permeable directly below the topsoil, consequently the wetness class has been assessed as III. This factor, combined with the heavy textured topsoils and decalcified nature of the upper horizons restricts the land to subgrade 3b (moderate quality agricultural land).

Urban

3.7 Several houses within the survey area have been mapped as urban.

Non Agricultural

3.8 Areas mapped as Non Agricultural indicate areas of woodland, scrub and some ponds.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND & WALES (1909). Solid Edition Geology Sheet 16 1:253,440.

MAFF (1973). Agricultural Land Classification Map No. 137. Provisional 1:63360.

MAFF (1988). Agricultural Land Classification of England & Wales. Revised Guidelines and Criteria for grading the quality of Agricultural Land. Alnwick.

METEOROLOGICAL OFFICE (1989). Data extracted from the published agroclimatic dataset.

SOIL SURVEY OF ENGLAND & WALES (1983). Soils of Eastern England, Sheet 4 1:250000.

SOIL SURVEY OF ENGLAND & WALES (1984). Soils and their use in Eastern England by C A Hodges, R G O Burton, W M Corbett, R Evans and R S Searle, Harpenden.

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.