

AGRICULTURAL LAND CLASSIFICATION

A1/A14 INTERCHANGE, BRAMPTON, CAMBRIDGESHIRE

1.0 BACKGROUND

- 1.1 The site an area of 43.3 hectares, is the subject of an application for a *warehousing/storage park*. In December 1993, ADAS Resource Planning Team undertook an Agricultural Land Classification (ALC) survey, carrying out a total of 44 auger borings. In addition, four soil pits were dug to provide more detailed information on subsoil conditions.
- 1.2 At the time of the survey the site was in arable production.
- 1.3 On the published 1:63,360 scale ALC map, sheet 134, (MAFF, 1969) the majority of the site is mapped as grade 2, with one small corner of grade 3 to the northwest. 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.

2.0 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 at an average altitude of 20 m AOD, the annual average rainfall is 582 mm. It also indicates that field capacity days are 109 and the moisture deficits for wheat and potatoes are 117 mm and 111 mm respectively. These climatic characteristics do not impose any climatic limitation on the ALC grade of the site.

Altitude and Relief

- 2.2 The eastern third of the site is flat, at an altitude of approximately 15 m AOD. West of Rectory Farm the land rises steadily at an angle of 3-5° to a maximum altitude of approximately 35 m AOD at the western site boundary. In the northwestern corner of the site the land falls at an angle of 5-6° in a northerly direction, towards the A14. Neither gradient nor altitude constitute limitations to the ALC grade.

Geology and Soils

- 2.3 The published 1:50,000 scale drift edition geology map sheet 187 (Geological Survey of Great Britain, 1975) shows three geological formations outcropping on the site, namely river gravels (drift) on the flat, eastern half of the site, mudstones (solid) outcropping on the rising land to the west, and glacial boulder clay (drift) outcropping in a 100-200 m wide band along most of the western boundary.
- 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 two soils associations. The Efford 1 Association (*1) covers the lower lying land on the eastern part of the site and the north western corner, and the Evesham 3 Association (*2) covers the western part of the site. The current more detailed survey also identified these two soil types and found them to occupy areas similar in extent to those previously delineated by the SSEW reconnaissance survey.
- 2.5 The heavier soil type is found in the eastern part of the site, the northwestern part of the site and the southwestern corner. Topsoils typically comprise heavy clay loam, or, occasionally, clay, to a depth of 30 cm. Upper subsoils comprise clay which is slowly permeable from 30 cm (wetness class III) and has a weakly developed, coarse subangular blocky structure. Lower subsoils comprise either clay or sandy clay both of which are slowly permeable. Topsoils are generally very slightly stony, and subsoils are either stoneless or very slightly stony. Both topsoils and subsoils are occasionally calcareous.

(*1) Efford 1 Association - well drained fine loamy soils often over gravel, associated with similar permeable soils variably affected by groundwater. Shabington soils, typical argillic gley soils, are common on low ground, especially at the margins of river terraces and in narrow valleys. They are affected by groundwater held up by underlying impermeable clays and are occasionally or seasonally waterlogged (wetness class II or III).

(*2) Evesham 3 Association - slowly permeable calcareous clayey, and fine loamy over clayey soils. Some slowly permeable seasonally waterlogged non-calcareous clayey soils.

2.6 To the west of the site, topsoils are slightly lighter and comprise heavy clay loam and occasionally medium clay loam to a depth of 30 cm. Upper subsoils are typically heavy clay loam or clay to a depth of 55/65 cm. These subsoils may or may not be gleyed, and the heavy clay loam exhibits a primary structure which is moderately well developed, very coarse prismatic. This breaks down to a secondary structure which is moderately well developed, coarse and very coarse subangular blocky. Lower subsoils comprise clay which is typically slowly permeable and exhibits a moderately well developed coarse subangular blocky structure. These profiles are occasionally calcareous throughout and are very slightly stony. Soil drainage is assessed as moderate (wetness class II) with occasional freely drained profiles (wetness class I).

3.0 AGRICULTURAL LAND CLASSIFICATION

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

3.2 The site has been mapped as predominantly subgrade 3a, with a large area of subgrade 3b to the north and east of Rectory Farm, along the western side of the northern boundary and in the southwestern corner. The table below shows the breakdown of the grades in hectares and % terms for the survey area.

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Grade	ha	%
3a	24.6	56.8
3b	17.2	38.8
(3b = stony)	(0.4)	(0.9)
Non Agricultural	0.2	0.5
Woodland	1.1	2.5
Agricultural Buildings	0.2	0.5
TOTAL	43.3	100.00

Subgrade 3a

3.4 This is associated with the soils described in paragraph 2.6 and occupies the sloping land rising at 3-5° to the east of Rectory Farm. Heavy clay loam topsoils overlie moderately well drained subsoils (wetness class II) with a slowly permeable layer

often present below 60 cm depth. These factors impose a moderate wetness and workability limitation and the land is restricted to subgrade 3a.

It should be noted that within this area of subgrade 3a, there are occasional profiles which are freely drained (wetness class I), some which have medium clay loam topsoils textures, and some which are calcareous throughout. All the aforementioned factors upgrade the relevant profiles to grade 2 land. However, these profiles are too dispersed to be separately delineated, and thus the entire unit of best and most versatile land has been classified as subgrade 3a.

Subgrade 3b

- 3.5 The land graded 3b is associated with the slightly heavier textured soils described in paragraph 2.5 and generally occupies the lower lying, flatter land to the north and east of Rectory Farm. Profiles are imperfectly drained, being slowly permeable directly below the topsoil, and wetness class is assessed as III. This factor, combined with the heavy textured topsoils results in a moderately severe wetness/workability limitation restricting the land to subgrade 3b.
- 3.6 Immediately to the east of Rectory Farm there is a small area with an additional limitation to subgrade 3b due to topsoil stoniness.

Urban

- 3.7 Farm buildings are mapped as urban.

Non-Agricultural

- 3.8 There is a concrete drain to the east of the site and an area of woodland at the northwest corner of the site. These areas are mapped as Non-Agricultural.

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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 yield 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 a wider 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.