

**AGRICULTURAL LAND CLASSIFICATION  
AND SOIL PHYSICAL CHARACTERISTICS**

**LAND NEAR SHIRE HILL FARM  
SAFFRON WALDEN  
ESSEX**

## AGRICULTURAL LAND CLASSIFICATION (ALC) AND SOIL PHYSICAL CHARACTERISTICS

LAND NEAR SHIRE HILL FARM, SAFFRON WALDEN, ESSEX (TL 555 377)

### 1. BACKGROUND

1.1 The site, an area of 2.8 ha is the subject of an application for spoil dumping to the south east of Saffron Walden in Essex. On the provisional one inch ALC map (MAFF 1968) the land has been graded 2. ADAS carried out a more detailed survey of the site in June 1992 to assess the agricultural land quality.

### 2. SITE PHYSICAL CHARACTERISTICS

#### Climate

2.1 Climate data for the site was obtained from the published agricultural climatic dataset (Met Office 1989). This indicates that for the survey area the annual average rainfall is 597 mm (23.5"), field capacity days are 116, and moisture deficits are 112 mm for wheat and 104 mm for potatoes. These climatic characteristics do not impose any limitation on the ALC grading of the survey area.

#### Altitude and Relief

2.2 The land comprises a shallow valley running east-west flanked to the north and south by gently sloping ground. The average height of the site is 90 m AOD. Neither altitude nor relief constitute limitations to the ALC grade.

### 3. AGRICULTURAL LAND CLASSIFICATION

3.1 The definition of the Agricultural Land Classification grades are included in Appendix 1.

3.2 The table overleaf shows the breakdown of ALC grades in hectares and % terms for the survey area.

## AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	1.8	65
3a	<u>1.0</u>	<u>35</u>
Total	2.8	100

### Grade 2

3.3 The majority of the site consists of grade 2 land which coincides with the lower slopes of the shallow valley feature which runs east-west through the centre of the site. The profiles comprise deep, calcareous soils, with heavy clay loam or clay topsoils over clayey upper and lower subsoils. The subsoils are permeable to depth, and assessed as wetness class II because a slowly permeable horizon was identified below 65/70 cms depth. The calcareous nature of the soils improves their structure and permeability, thus extending the seasons in which the land can be worked. Slight droughtiness and wetness/workability imperfections restrict the land to grade 2 (very good quality agricultural land).

### Subgrade 3a

3.4 Two smaller areas of the site, which correspond with the gently sloping valley sides, have been graded 3a. The soils comprise heavy clay loam topsoils over chalky clay loam or clay. The clayey upper subsoils overlie 'dirty' chalk rubble which occurs from 30/35 cm depth. The upper horizons are moderately stony and become very stony with depth as the chalk stone content increases. Although chalky, the soil remains friable and well rooted to depths of 120 cm or more. The high chalk stone content creates a poor subsoil structure which reduces the available water for crop growth. The land is consequently graded 3a (good quality agricultural land).

## 4. SOIL PHYSICAL CHARACTERISTICS

### Geology

4.1 The published small scale (1:250,000) drift edition geology sheet 16

(Geological Survey 1905), shows the entire site to consist of boulder clay deposits.

Soils

4.2 During the current survey a detailed inspection of the soils was carried out. Two main soil types were identified using information from auger borings and soil inspection pits.

4.3 Soil Type 1 (see Appendix 2 and Soil Types Map)

These soils occur over the majority of the site within the valley floor. Profiles typically comprise very slightly stony, calcareous heavy clay loam (or occasionally clay) topsoils over slightly stony, (chalk and flint stones) calcareous, clayey subsoils.

4.4 Soil Type 2 (see Appendix 2 and Soil Types Map)

This soil type occurs on the valley sides and consists of shallow, chalky fine loamy soils with slightly stony calcareous, heavy clay loam topsoils. 'Dirty' chalk rubble occurs below 30/35 cm depth and comprises 35% chalk and flints in a matrix of clay loam or clay.

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## References

Geological Survey of England and Wales, 1931. Drift edition sheet 16  
1:250,000 scale.

MAFF, 1968. Agricultural Land Classification sheet 148, 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. Climatic data extracted from the published  
agricultural climatic dataset.

Soil Survey of England and Wales, 1968. Saffron Walden sheet 148 1:63,360  
scale.

## 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 includes 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 root 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. When 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 level 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.

Appendix 2

SOIL PHYSICAL CHARACTERISTICS

LAND NEAR SHIRE HILL FARM, SAFFRON WALDEN, ESSEX

SOIL TYPE 1 (1.8 ha)

Topsoil	Texture	:	heavy clay loam or occasionally clay
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	dark greyish brown (10 YR 4/2)
	Stone	:	5% chalk fragments
	Boundary	:	abrupt smooth
	Roots	:	many fine and very fine, few medium
	Depth	:	30/35 cm
Subsoil	Texture	:	clay
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	brown (10 YR 5/3) becoming yellowish brown (10 YR 5/4) at depth.
	Stone	:	5% chalk and flints
	Structure	:	moderately developed coarse subangular blocky becoming weakly developed angular and subangular blocky below 65/75 cm.
	Mottling	:	common ochreous and manganese concretions below 65/70 cm.
	Roots	:	many fine and very fine
	Depth	:	120 cm

SOIL TYPE 2 (1.0 ha)

Topsoil	Texture	:	heavy clay loam
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	brown (10 YR 5/3)
	Stone	:	10% chalk and flint
	Boundary	:	abrupt smooth
	Roots	:	common fine and very fine, few medium
	Depth	:	30/35 cm
Subsoil	Texture	:	heavy clay loam or clay
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	very pale brown (10 YR 7/4), with common distinct ochreous mottles (10 YR 6/8)
	Stone	:	20 to 30% chalk and 5% flint
	Structure	:	moderately/weakly developed coarse subangular blocky.
	Roots	:	common fine and very fine becoming few
	Depth	:	120 cm +

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**MAP 1 : AGRICULTURAL LAND CLASSIFICATION**

**MAP 2 : SOIL TYPES**