

**AGRICULTURAL LAND CLASSIFICATION  
AND SOIL PHYSICAL CHARACTERISTICS**

**INGHAM HARD CORE  
BURY ST EDMUNDS  
SUFFOLK**

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

INGHAM HARD CORE, BURY ST EDMUNDS, SUFFOLK (TL 856 716)

### 1. BACKGROUND

1.1 The site, an area of 10.2 ha is the subject of an application to extend an existing quarry at Ingham, near Bury St Edmunds, Suffolk. On the provisional one inch ALC map (MAFF 1972) the land has been graded 4. A reconnaissance survey carried out by ADAS in 1987 found land of grades 2, 3b and 4. ADAS carried out a more detailed survey of the site in July 1992 to assess the agricultural land quality and soil physical characteristics.

### 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 595 mm (23.4"), field capacity days are 108, and moisture deficits are 113 mm for wheat and 107 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 slopes gently from north to south and lies at an average altitude of 50m AOD. Neither altitude nor gradient constitute limitations to the ALC grade.

### 3. AGRICULTURAL LAND CLASSIFICATION

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

3.2 The site comprises a mix of ALC grades 2, 3b and 4. The table overleaf shows the breakdown of ALC grades in hectares and % terms for the survey area.

## AGRICULTURAL LAND CLASSIFICATION

Grade	ha	%
2	4.6	45
3b	4.2	41
4	<u>1.4</u>	<u>14</u>
TOTAL	10.2	100

### Grade 2

- 3.3 Land in the northern part of the site is graded 2. The profiles comprise deep, coarse loamy soils which merge into clays at depth (often chalky). The subsoils are permeable, and assessed as wetness class I. The light sandy textured of the topsoils and upper subsoils, and the moderately high moisture deficits produce slight droughtiness imperfections which restrict the land to grade 2 (very good quality agricultural land).

### Subgrade 3b

- 3.4 The middle section of sandy soils have graded 3b. Owing to their light texture these soils are significantly droughty and therefore graded 3b (moderate quality agricultural land).

### Grade 4 (Disturbed)

- 3.5 The southern part of the site consists of a restored land fill area. The soils have been disturbed and a mixture of soil textures were recorded. Soil contamination and compacted lower horizons impose severe limitations on land quality. Thus the land has been graded 4 (poor quality agricultural land).

#### 4. SOIL PHYSICAL CHARACTERISTICS

##### Geology

- 4.1 The published 1:50,000 scale Solid and Drift geology sheet 189 (Geology Survey of England and Wales 1982), shows that the majority of the site comprises Quaternary cover sand, with smaller areas of Quaternary glacial till to the north and Quaternary glacial sand and gravel and head deposits to the south. The southern part of the site consists of an area of restored land resulting from a previous sand and gravel extraction working.

##### Soils

- 4.2 The soils have been mapped at a reconnaissance scale of 1:250,000 (Soil Survey of England and Wales 1983). This map shows the Worlington Association (\*1) to the north half, and Newport 4 Association (\*2) to the south. 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 in the northern part of the site and occupy 4.6 hectares. Profiles typically comprise very slightly stony, calcareous, medium sandy loam topsoils to a depth of 30/35 cm. Very slightly stony, slightly calcareous, medium sandy loam (or occasionally sandy clay loam) upper subsoils pass into clays at 55/65 cm which often become chalky at depth.

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(\*1) Worlington Association: Deep well drained sandy soils, in places very acid with subsurface pan. Widespread small scale polygonal soil patterns.

(\*2) Newport 4 Association: Deep well drained sandy soils. Some very acid soils with bleached subsurface horizon especially under heath or in woodland.

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

This soil type occurs at the southern end of the site and occupies 5.6 hectares. Slightly stony, calcareous, medium sandy loam topsoils occur to 30/35 cm depth. Upper subsoils consist of slightly stony calcareous loamy medium sands which often become lighter with depth, emerging into medium sand lower subsoils below 55/65 cms.

Although disturbed, the restored soils at the southern end of the site contain textures similar to soil type 2 and have therefore been incorporated in this type.

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## REFERENCES

Geological Survey of England and Wales, 1982. Solid and Drift edition, Sheet 189 Bury St Edmunds, 1:50,000 scale.

MAFF, 1972. Agricultural Land Classification, Sheet 136, Provisional, 1:63,360 scale.

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, 1983. Soils of Eastern England, Sheet 4, 1:250,000 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

INGHAM HARD CORE, BURY ST EDMUNDS, SUFFOLK (TL 856 716)

SOIL TYPE 1 (4.6 ha)

Topsoil	Texture	:	medium sandy loam
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	dark yellowish brown (10YR3/4)
	Stone	:	5% flint
	Boundary	:	clear wavy
	Roots	:	common, fine and very fine
	Depth	:	30/35 cm
Upper Subsoil	Texture	:	medium sandy loam, occasionally sandy clay loam.
	CaCO <sub>3</sub>	:	slightly calcareous
	Colour	:	dark yellowish brown (10YR4/6)
	Stone	:	3% flint
	Boundary	:	clear smooth
	Structure	:	weakly developed coarse subangular blocky
	Roots	:	few, fine and very fine
	Depth	:	55/65 cm
Lower Subsoil	Texture	:	clay, becoming chalky clay below 70/80 cm
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	yellowish brown (10YR5/8)
	Stone	:	5% flints becoming 10% flint and chalk below 70/80 cm.
	Structure	:	moderately developed coarse subangular blocky.
	Roots	:	common, fine and very fine
	Depth	:	120 cm

SOIL TYPE 2 (5.6 ha)

Topsoil	Texture	:	medium sandy loam
	CaCO <sub>3</sub>	:	calcareous
	Colour	:	dark yellowish brown (10YR3/4)
	Stone	:	10% flint
	Boundary	:	abrupt smooth
	Roots	:	many, fine and very fine
	Depth	:	30/35 cm
	Upper Subsoil	Texture	:
CaCO <sub>3</sub>		:	calcareous
Colour		:	dark yellowish brown (10YR4/6)
Stone		:	5-10% flint
Boundary		:	clear wavy
Structure		:	structureless
Roots		:	many, fine and very fine
Depth		:	55/60 cm
Lower Subsoil	Texture	:	loamy medium sand or medium sand
	CaCO <sub>3</sub>	:	very slightly calcareous
	Colour	:	brownish yellow (10YR6/8)
	Stone	:	5% flint
	Boundary	:	clear irregular
	Structure	:	structureless
	Roots	:	many, fine and very fine
	Depth	:	120 cm

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**MAP 1 : AGRICULTURAL LAND CLASSIFICATION**

**MAP 2 : SOIL TYPES**