

**PROPOSED SUBSOIL TIP, DRAYTON  
FIELDS FARM, DAVENTRY,  
NORTHAMPTONSHIRE.**

**Agricultural Land Classification and  
Statement of soil physical characteristics**

**April 1999**

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Eastern Region  
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**RPT Job Number: 33/99  
MAFF Reference: EL29/02980  
LURET Ref: MLEG02980A**

# AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF SOIL PHYSICAL CHARACTERISTICS REPORT

## PROPOSED SUBSOIL TIP, DRAYTON FIELDS FARM, DAVENTRY, NORTHAMPTONSHIRE.

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 7.6 ha of land to the north-west of Daventry, Northamptonshire. The survey was carried out during April 1999.
2. The survey was carried out by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with a planning application by the land owner for a subsoil tip to receive soils from adjacent industrial development sites. This survey supersedes previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the land use within the site consisted of a single grass field.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000; it is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

**Table 1: Area of grades and other land**

Grade/Other land	Area (hectares)	% site area
3b	7.6	100
Total site area	7.6	100

7. The fieldwork was conducted at an average density of one boring per hectare. A total of eight borings and a soil pit was described.
8. The agricultural land within the site has been assessed as Subgrade 3b (moderate quality agricultural land). The limiting factor influencing the quality of the land is wetness and workability.

## FACTORS INFLUENCING ALC GRADE

### Climate

9. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

10. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SP 558 647
Altitude	m, AOD	150
Accumulated Temperature	day°C (Jan-June)	1316
Average Annual Rainfall	mm	688
Field Capacity Days	days	155
Moisture Deficit, Wheat	mm	93
Moisture Deficit, Potatoes	mm	82
Overall climatic grade	N/A	Grade 1

11. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

12. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site impose no overall limitation to land quality and hence the site has a climatic grade of 1.

### Site

14. The site lies at a maximum altitude of 156 m AOD in the south falling towards the north to a minimum altitude of 135 m AOD. Slopes are generally gentle to moderate with some undulations principally in the centre of the site, however, there are no slopes in excess of 6°. There are therefore no gradient or relief limitations to the quality of the agricultural land.

### Geology and soils

15. The published 1:50 000 scale geology map of the area, sheet 185, Northampton, (British Geol. Survey, 1980) shows the site to comprise Boulder Clay over Marlstone Rock Bed (ironstone and ferruginous limestone).

16. The 1:250 000 reconnaissance scale soil survey map for the area (Soil Survey, 1983) shows the site as comprising soils of the Ragdale Association. This soil association is briefly described as slowly permeable seasonally waterlogged clayey and fine loamy over clayey soils with some slowly permeable calcareous clayey soils especially on slopes.

17. During the current, more detailed survey, a single soil type was identified, and is described below.

#### *Soil Type I*

18. The soil within the site consists of a very slightly stony heavy or medium clay loam textured topsoil which usually overlies a very thin (median thickness of only 6 cm) clay or occasionally heavy clay loam textured upper subsoil. This upper subsoil is very slightly stony and overlies a slowly permeable clay textured lower subsoil. The lower subsoil is also only very slightly stony with some small chalk fragments evident deep in the soil profile. This soil type is imperfectly drained.

### **AGRICULTURAL LAND CLASSIFICATION**

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

20. The location of the auger borings and pits is shown on the attached sample location map.

#### **Subgrade 3b**

21. The whole of the site comprises land of Subgrade 3b quality associated with Soil Type I (paragraph 18). This soil type is assessed as Wetness Class IV which together with the topsoil textures and the prevailing climatic conditions result in a significant wetness and workability constraint restricting the land to Subgrade 3b.

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## SOURCES OF REFERENCE

British Geological Survey (1980) *Sheet No. 185, Northampton. Solid and Drift Edition, scale 1:50 000*. BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*. MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*. Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 3, Midland and Western England*. SSEW: Harpenden.

## APPENDIX I

### DESCRIPTIONS OF THE GRADES AND SUBGRADES

#### **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 or horticultural crops can usually be grown but on some land of this 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 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## Appendix II

### Statement of Soil Physical Characteristics

#### Soil Type I

##### Topsoil

Texture	:	Heavy clay loam or medium clay loam
Colour	:	10YR4/2, dark greyish brown, 10YR4/3, brown
Stones	:	Very slightly stony (typically 2%)
Roots	:	Many fine
Calcium carbonate	:	Non calcareous
Boundary	:	Abrupt, smooth
Depth	:	26 cm

##### Upper subsoil (where present)

Texture	:	Clay, occasionally heavy clay loam
Colour	:	2.5Y5/3, light olive brown or 10YR5/3, brown
Mottles	:	None to common ochreous
Stones	:	Very slightly stony (typically 2%)
Structure	:	Too thin to determine
Roots	:	Many fine
Calcium carbonate	:	Non calcareous
Depth	:	32 cm

##### Lower subsoil (or subsoil where upper subsoil absent)

Texture	:	Clay
Colour	:	10YR5/3, brown, 5Y5/3,4/1, olive, dark grey
Mottles	:	Common to many ochreous and grey
Stones	:	Very slightly stony (typically 4%)
Structure	:	Moderately developed coarse angular blocky
Consistence	:	Firm
Structural condition	:	Poor (ped faces gleyed)
Pores	:	<0.5% biopores
Roots	:	Many fine
Calcium carbonate	:	Non calcareous, occasionally calcareous at depth
Depth	:	120 cm

#### Wetness Class IV