LAND AT LONG STROPS, NEAR KESGRAVE, SUFFOLK.

Agricultural Land Classification and Soil Physical Characteristics Report

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AGRICULTURAL LAND CLASSIFICATION AND SOIL PHYSICAL CHARACTERISTICS REPORT

LAND AT LONG STROPS, NEAR KESGRAVE, SUFFOLK

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 45.8 ha of land at Long Strops, south east of Kesgrave, Suffolk. The site is located to the north of Foxhall road, next to open farmland and bounded to the east and west by Dobbs Lane and Bell Lane respectively. A track runs approximately two thirds along the northern boundary which is adjacent to wooded heathland and arable land. The survey was carried out during February 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 an application for a proposed golf course. 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 on page 7.

4. At the time of survey the land use on the site was under set-aside to the west and ploughed land with winter cereal to the east. The areas mapped as 'Other' include wooded heathland in the north eastern corner and a deep hollow filled with gorse and brambles at the southern end of the site.

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)	% surveyed area	% site area
3b	26.4	60.3	57.6
4	17.4	39.7	38.0
Other	2.0	N/A	4.4
Total surveyed area	43.8	100	95.6
Total site area	45.8	N/A	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 44 borings and 4 soil pits was described.

8. Approximately two thirds of the land to the east and a small area in the south west has been graded subgrade 3b (moderate quality agricultural land). Grade 4 land (poor quality agricultural land) occupies smaller areas in the west and north east. Droughtiness is the main limitation to all the land on the site, with the variation in grade being caused by different subsoil stone contents. Soils with few to common stones are significantly droughty and graded 3b whilst those with few to many stones are severly droughty and graded 4. The stones affect soil water capacity in the profile.

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 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	TM 233 447
Altitude	m, AOD	30
Accumulated Temperature	day°C (Jan-June)	1423
Average Annual Rainfall	mm	600
Field Capacity Days	days	107
Moisture Deficit, Wheat	mm	125
Moisture Deficit, Potatoes	mm	122
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 mean there is no overall climatic limitation on this land.

Site

14. The site is surrounded by ploughed land, set-aside and wooded heathland. The land is predominantly level throughout with gradients of less than 1° in any direction and altitude remaining constant across the site at approximately 30m AOD. Neither gradient nor altitude impose any agricultural limitation on the land.

Geology and soils

15. The 1: 50 000 solid and drift geology map (sheet 207; Ipswich) shows the site to be underlain by glacial and Kesgrave sand and gravels.

16. The 1: 250 000 soils map of Eastern England (sheet 4) shows the site as Newport 4 Association which comprises deep well drained sandy soils developed in glaciofluvial drift.

Soil Type I

17. A single soil type is evident on the site which comprises two soil variants that differ in subsoil stone contents. A full description of the soil type is described in the Statement of Soil Physical Characteristics in Appendix II on page 8. The soil type typically comprises very slightly stony (3%) non calcareous loamy medium sand (or very occasionally medium sandy loam) topsoils to 40cm depth. Subsoil textures to approximately 80cm depth are similar and non calcareous with the less stony variant showing very slightly to slightly stony subsoils occupying two thirds of the site in the east and south west (typically 0-10%). A more stony variant with very slightly to moderately stony subsoils occurs in the west and north east and covers one third of the site (typically 5-20% and up to 35%). Non calcareous medium sand typically occurs below 80cm depth to 100cm+ and reflects a similar pattern of soil variants across the site as the above horizon, with stone contents of typically 2-20% and up to 30%). Occasional subsoil horizons of sandy clay loam or sandy clays occur to typically 70cm depth (range 40-100cm) near the centre of the site, which are typically very slightly stony (0-5%) but can increase to 30% stones. These profiles are well drained, wetness class I.
Within this Association, soils can become acid with bleached subsurface horizons especially under heath or woodland. These features were not observed on the agricultural land surveyed.

AGRICULTURAL LAND CLASSIFICATION

18. 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 2.

19. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Subgrade 3b

20. Land graded 3b (moderate quality agricultural land) occupies two thirds of the site to the east and south west and corresponds to the less stonier variant of the soils described in paragraph 17. The land is limited to subgrade 3b by a significant droughtiness limitation. The combination of deep, (typically 100cm+) loose textured soils with typically few to common stones in the subsoil results in a freely draining soil with a low soil available water.

Grade 4

20. Land graded 4 occurs in the west and north east of the site and corresponds to the more stony variant of the soils as described in paragraph 17. The combination of coarse soil textures and a relatively high subsoil stone content severley limits the water available for crop growth. This land is therefore constrained by severe droughtiness and restricted to grade 4.

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SOURCES OF REFERENCE

British Geological Survey (1990) *Sheet No. 207, Ipswich and the Naze,* 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 4, Soils of England and Wales: Eastern England*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Eastern 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	:	Loamy medium sand, very occasionally medium sandy loam
	Colour	:	10YR3/2, very dark greyish brown
	Stones	:	Very slightly stony (typically 3%)
	Roots	:	Few to many fine and very fine
	Calcium carbonate	:	Non calcareous
	Boundary	:	Smooth sharp
	Depth	:	40cm
Upper subsoil			
	Texture	:	Loamy medium sand
	Colour	:	10YR4/6; dark yellowish brown to 10YR 5/4; yellowish brown
	Mottles	:	None
	Stones	:	Very slightly to slightly stony (typically 0-10%)
	Structure	:	Very weakly to weakly developed coarse subangular blocky
	Consistence	:	very friable
	Structural condition	:	moderate
	Pores	:	>0.5%
	Roots	:	Few to common fine and very fine
	Calcium carbonate	:	Non calcareous
	Boundary	:	Smooth sharp
	Depth	:	70cm (typically 60-85cm)
Lower subsoil			
	Texture	:	Medium sand (occassionally sandy clay loam or sandy clay)
	Colour	:	10YR6/6 and 10YR6/8 brownish yellow
	Mottles	:	None
	Stones	:	Very slightly stony (typically 0-5%, up to 35%)
	Structure	:	Apedal single grain (can be too stony to assess)
	Consistence	:	Loose (occassionally friable/firm with heavier textures)
	Pores	:	>0.5%
	Roots	:	None to few fine and very fine
	Calcium carbonate	:	Non calcareous
	Depth	:	110cm

Wetness Class I; Subgrade 3b

Grade 4 land shows similar soil physical characteristics to the 3b profile except that there is a difference in subsoil stone contents. Typically the upper and lower subsoils show few to many stones, 5-20% and up to 35% and 2-20% and up to 30% respectively.