PROPOSED EXTENSION TO GORLESTON GOLF CLUB, GORLESTON, SUFFOLK.

Agricultural Land Classification
ALC Map and Report

October 1998

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RPT Job Number: 67/98
MAFF Reference: EL/28/02820
FRCA Job Number: ME276JT

AGRICULTURAL LAND CLASSIFICATION REPORT

PROPOSED EXTENSION TO GORLESTON GOLF CLUB, GORLESTON, SUFFOLK.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 24.3 ha of land at Gorleston in Suffolk. The survey was carried out during October 1998.

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 the proposed extension of the existing Gorleston Golf Club. 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 most of the land on the site comprised cultivated cereal stubble, with one field under sugar beet. The areas mapped as 'Other land' include Long Belt (comprised of mature trees and a track) and a small wedge of woodland located between Long Belt and the former railway in the south 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
3a	11.5	49	47
3b	11.7	51	48
Other land	1.1	N/A	5
Total surveyed area	23.2	100	95
Total site area	24.3	-	100

7. The fieldwork was conducted at an average density of 1 auger boring per hectare. A total of 23 auger borings and 3 soil pits was described.

8. Just over half the site has been graded 3b (moderate quality agricultural land) due to significant droughtiness constraints. The remaining land has been assessed as moderately droughty and accordingly graded 3a (good quality agricultural land).

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	TG 525 010
Altitude	m, AOD	10
Accumulated Temperature	day°C (Jan-June)	1414
Average Annual Rainfall	mm	596
Field Capacity Days	days	111
Moisture Deficit, Wheat	mm	124
Moisture Deficit, Potatoes	mm	121
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 limitation to the agricultural quality of the land. The site is therefore of climatic grade 1.

Site

14. The site is located between Gorleston-on-Sea and Hopton-on-Sea. To the north, west and south it adjoins open fields, whilst to the east it abuts the tree lined route of a former railway. Long Belt dissects the site from north to south. A dry valley, with gently sloping sides, runs across the site in a north-east to south-westerly direction. The lowest altitude on site is approximately 10 m AOD and corresponds with the valley floor, whilst the highest points on site occur in the north and south on virtually level ground above the slopes of the valley. Maximum altitudes here are approximately 15 m AOD. Neither gradient nor altitude impose a limitation to the agricultural land quality on site.

Geology and soils

15. The published 1:50 000 scale geology map (British Geological Survey, 1990) maps most of the site as the Corton Formation (Undivided; mainly sand; some sandy clay, gravel), with small areas in the north-west, north-east and south-east mapped as Corton Woods Sands and Gravels.

16. The 1:250 000 scale reconnaissance soil map (Soil Survey of England and Wales, 1983) shows the site to comprise soils of the Wick 3 Association. These soils are briefly described as: 'deep well drained coarse loamy soils, often stoneless. Some similar sandy soils. Complex pattern locally. Risk of water erosion'.

17. The current survey identified the presence of two soil types.

18. The first soil type occurs along the northern boundary, in the valley and in a small area in the south-east of the site. Topsoils comprise very slightly stony non-calcareous medium sandy loam. Upper subsoils are very similar to the topsoils, and typically extend to 50/60 cm depth (occasionally to 70/85 cm). Stoneless medium sand is typically encountered directly beneath the upper subsoil, but occasionally, a thin loamy medium sand transitionary horizon occurs. Profiles occasionally become slightly to moderately stony at depth.

19. The second soil type mainly occurs in the southern half of the site, but also in a diagonal band across the north of the site, corresponding with the south-east facing slopes of the dry valley. Topsoils comprise non-calcareous medium sandy loams or occasionally loamy medium sands, they are 30/35 cm deep and generally very slightly stony (occasionally slightly stony). Typically, a thin loamy medium sand upper subsoil occurs directly beneath the topsoil and extends to 40/55 cm depth, at which depth it merges into a medium sand lower subsoil. Subsoil horizons are typically very slightly stony, but occasionally increase from slightly stony in the upper subsoil to very stony at depth.

20. The entire site, corresponding with both of the soils described above, has been assessed as free draining.

AGRICULTURAL LAND CLASSIFICATION

21. 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.

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

Subgrade 3a

23. Land of subgrade 3a corresponds with the soils described in paragraph 18. The combination of coarse loamy topsoils and upper subsoils (extending to at least 50 cm depth) over sandy lower subsoils, and the typically low profile stone contents, mean these soils have a moderate ability to retain water for crop growth. Land characterised by this soil type therefore suffers from a moderate droughtiness imperfection which precludes it from a higher grade.

Subgrade 3b

24. Land mapped as subgrade 3b corresponds with the soils described in paragraph 19. The coarse loamy/sandy topsoils and upper subsoils over sandy lower subsoils, in combination with their stone contents, have a limited ability to retain water for crop growth throughout the summer months. Moisture balance calculations indicate that in this area of relatively high expected soil moisture deficits, these soils will suffer from a significant droughtiness constraint. They are consequently restricted to subgrade 3b.

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SOURCES OF REFERENCE

British Geological Survey (1990) *Sheet No. 162, Great Yarmouth.*
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 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.