

**GARON PARK, SOUTHEND-ON-SEA,
ESSEX.**

**Agricultural Land Classification
ALC Map and Report**

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**Resource Planning Team
Eastern Region
FRCA Cambridge**

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AGRICULTURAL LAND CLASSIFICATION REPORT

Garon Park, Southend-on-Sea, Essex.

INTRODUCTION

1. This report presents the findings of an Agricultural Land Classification (ALC) survey of 34.2ha of land at Garon Park, Southend-on-Sea, Essex. The survey was carried out during August/September 1997.
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 to extend the existing Garon Park golf course. The southern part of the site was surveyed in 1982/3 by MAFF/ADAS and adjoining land to the north-west was surveyed by ADAS in 1992. These surveys found a mix of grades ranging from grade 1 to subgrade 3b. Limitations were due to varying degrees of droughtiness or wetness and workability constraints.
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). This survey supersedes previous ALC information mentioned in paragraph 2 as that survey preceded the 1988 revision of the ALC system. A description of the ALC grades and subgrades is given in Appendix 1.
4. At the time of survey the land use on the whole site was oil seed rape stubble.

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
2	7.3	21.4
3a	10.3	30.1
3b	16.6	48.5
Total site area	34.2	100

7. The fieldwork was conducted at an average density of 1 auger boring per hectare. A total of 37 auger borings and 4 soil pits was described.

8. Just under half the site has been assigned to subgrade 3b (moderate quality agricultural land). Within this area most of the land is limited by significant droughtiness, the remainder being limited by significant wetness and workability constraints. Land of subgrade 3a (good quality agricultural land) is mapped over approximately one third of the site and suffers from moderate droughtiness or equally by wetness and workability and droughtiness constraints. Grade 2 (very good quality agricultural land) land is mapped in two areas, the western and south-eastern edges of the site and is precluded from a higher grade due to slight drought risk.

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	TQ 906 871
Altitude	m, AOD	20
Accumulated Temperature	day°C (Jan-June)	1467
Average Annual Rainfall	mm	546
Field Capacity Days	days	92
Moisture Deficit, Wheat	mm	129
Moisture Deficit, Potatoes	mm	127
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 the site is relatively warm and dry and therefore has no climatic limitation. It is therefore of climatic grade 1.

Site

14. The site is situated to the immediate north-east of Eastern Avenue (A1159) Southend-on-Sea. Its western boundary abuts the existing golf course and the north-western boundary abuts Rebels Lane. The eastern boundaries are adjacent to agricultural land. The centre of the site occupies the maximum altitude at 22m AOD. From here the land slopes gently in a south-easterly direction to a minimum altitude of approximately 10m AOD in the southern corner. To the north-west the land slopes gently to about 15m AOD, adjacent to Rebels Lane, before rising again to about 20m AOD in the extreme west of the site. Nowhere on site do gradients exceed 2°, therefore neither gradient or altitude impose a limitation to the agricultural quality of the land.

Geology and soils

15. At a scale of 1:50 000 the geology sheet 258/259, Southend and Foulness (Geological Survey of Great Britain [England and Wales], 1976) maps the majority of the site as brickearth, including head brickearth. Projecting across the middle of the site from the south-west a broad tongue of 3rd river terrace sand and gravel is shown.

16. At a reconnaissance scale of 1:250 000 the Soil Survey of England and Wales, (Sheet 4, Soils of Eastern England, 1983) maps the whole site as the Hamble 2 Association. This is briefly described as: deep stoneless well drained silty soils and similar soils affected by groundwater; over gravel locally. Usually flat land.

17. The current survey identified 3 main soil types.

18. The first soil type predominates in the south central parts of the site. Topsoils extend to 30/35cm depth, are typically non calcareous, medium silty clay loams (occasionally medium clay loams) and slightly stony, containing 5-15% small and medium sized flints. Upper subsoils typically comprise moderately to very stony (20-40% stone) medium silty clay loams and are typically impenetrable to auger before 40cm depth. From pit information, lower subsoils were found to be very stony (40-60% stone) medium sandy loams or sandy clay loams becoming loamy medium sands or medium sands at depth.

19. The second soil type occurs in a band around the periphery of the first soil type. Topsoils typically comprise non calcareous, very slightly to slightly stony medium silty clay loams or medium clay loams (occ. heavy silty clay loam or heavy clay loam). Upper subsoils are typically heavy silty clay loam (occ. silty clay), are very slightly stony, and extend to 50/65cm depth. Lower subsoils comprise silty clay or clay and are very slightly stony or stoneless.

20. The third soil type is found in the west of the site and in the southern corner. The non calcareous very slightly stony medium silty clay loam (occ. heavy silty clay loam) topsoils overly heavy silty clay loam upper subsoils. Typically these are stoneless and extend to 65cm depth. The lower subsoils, also typically stoneless, comprise heavy (occ. medium) silty clay loams.

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 locations of the auger borings are shown on the attached sample location map.

Grade 2.

23. The grade 2 land (very good quality agricultural land) on site corresponds to the soils described in paragraph 20. The deep silty clay loam profiles are generally free draining and have been assessed as Wetness Class I, or occasionally Wetness Class II, where soils are slightly affected by groundwater. In this area of very high expected soil moisture deficits, these soils suffer a slight droughtiness constraint, the Wetness Class II profiles being equally limited by a slight wetness and workability imperfection. These minor limitations preclude this land from grade 1.

Subgrade 3a.

24. Land of subgrade 3a (good quality agricultural land) corresponds to the soils described in paragraph 19 and is limited to this subgrade by moderate droughtiness and sometimes also by wetness and workability constraints. The poorly structured lower subsoils in these soils reduce their available water capacity for crop growth sufficiently to impose a moderate droughtiness limitation. Where the lower subsoil is slowly permeable at moderate depth, the resultant Wetness Class assessment of III, combines with the fine silty topsoil texture to also impose a moderate wetness and workability limitation.

Subgrade 3b.

25. The majority of the subgrade 3b (moderate quality agricultural land) land corresponds with the soils described in paragraph 18. The combination of profile textures, high subsoil stone contents and the very high expected soil moisture deficits for this area result in this land suffering from a significant drought risk which restricts the land to subgrade 3b. Very occasionally, where the heavier textured variant of the soils described in paragraph 19 occurs in combination with profiles which have impeded drainage at shallow depth (Wetness Class III), this land is also graded 3b, due to a significant wetness and workability limitation.

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SOURCES OF REFERENCE

Geological Survey of Great Britain (England and Wales) (1976), *Sheet 258/259, Southend and Foulness, Solid and Drift Geology*
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.