

RUGELEY
Cawarden Springs Farm (18)
Agricultural Land Classification
ALC Map and Report
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AGRICULTURAL LAND CLASSIFICATION REPORT
RUGELEY
Cawarden Springs Farm (18)

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on 137.5 hectares of land. The results of this survey supersede any previous ALC information for this land. The land is located to the north east of Rugeley and the River Trent, between Rugeley Junction and Hill Ridware. The survey was in connection with the Staffordshire Structure Plan Development Study.
2. The survey was undertaken on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF) between the months of October and December 1998 by the Resource Planning Team of the Farming and Rural Conservation Agency (FRCA) - Northern region of FRCA.
3. The land has been graded in accordance with the publication "Agricultural Land Classification of England and Wales - Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988) .
4. At the time of survey the agricultural land on this site was under cereals, grass and oilseed rape. To the west of Cawarden Springs Farm there are areas where inert fill is present at varying depths within the soil profile - see paragraphs 42, 47, 51 & 53.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10000 with an average auger boring density of 1 per hectare. The ALC map is only accurate at this base map scale and 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
1	-	-	-
2	19.4	16	14
3a	39.4	32	29
3b	56.9	46	41
4	3.8	3	3
5	3.2	3	2
Agricultural land not surveyed	-	N/A	-
Other land	14.8	N/A	11
Total surveyed area	122.7	100	-
Total site area	137.5	-	100

7. The agricultural land on this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality), Subgrade 3b (moderate quality), Grade 4 (poor quality) and Grade 5 (very poor quality). The key limitations to the agricultural use of this land include gradient, soil depth, topsoil stone content, soil droughtiness and soil wetness.

8. The area of very good quality land is mapped as three units to the west of Cawarden Springs Farm. The soil has a sandy loam topsoil texture over sandy loam, loamy sand and sand to depth. The topsoils are slightly stony (between 5% and 10% greater than 2cm in size) and subsoils are slightly to moderately stony. The moisture balance places these soils in Grade 2. Occasionally sandy clay loam is present within the soil profile.

9. The area of good quality land is found in a number of units across the site. The soil in these units has a clay loam topsoil texture over sandy clay loam, clay loam and clay. The depths to gleying and the slowly permeable layer place the profiles in Wetness Class III. To the east of Ten Acre Covert the amount of topsoil stones greater than 2cm in size is between 10% and 15%, limiting the land to Subgrade 3a.

10. The area of moderate quality land is mapped in a number of places across the site. In the south and west of the site the majority of the soil profiles have either a clay loam or a sandy clay loam topsoil texture over clay loam and clay. The depths to gleying and the slowly permeable layer place these soils in Wetness Class IV.

11. To the north and north west of Cawarden Springs Wood the soil has either a sandy clay loam or a sandy loam topsoil texture over sandy loam, loamy sand and sand to depth. Here the land is strongly sloping (8° to 9°), limiting the grade of the land to Subgrade 3b.

12. In the vicinity of Black Spinney the soil has either a sandy clay loam or a sandy loam topsoil texture over sandy loam, loamy sand and sand to depths of between 50cm and 80cm where sandstone is encountered. The topsoils are slightly stony with the subsoils becoming very stony in places. Occasionally clay loam is present within the soil profile. The moisture balance places these soils in Subgrade 3b.

13. To the north west of Cawarden Springs Wood the soil profile has been disturbed due to the tipping of inert fill material.

14. The area of poor quality land is strongly influenced by the presence of sandstone within the soil profile. There is much evidence that historically sandstone was quarried in this area (sandstone exposures).

15. The soil has either a sandy loam or a sandy clay loam topsoil texture over sandstone or clay at depths of between 15cm and 40cm. Occasionally sandstone outcrops at the surface. The complex changes of slope angle and direction and the depth to sandstone (and outcrops) severely limit the use of agricultural machinery on this land. At the eastern end of this unit the soils are more variable in texture due to the tipping of material on the surface (including clays, sands, bricks, concrete, stone and tarmac). At the time of the survey this land was being used as rough grazing (cattle).

16. The area of very poor quality land is found where sandstone is encountered at, or just below the surface of the soil profile. Where the sandstone does not outcrop, the soil has a sandy loam topsoil texture over sandstone at depths of between 0cm and 15cm. Occasionally this grade is also found on steeply sloping land of between 18° and 20°. At the northern edge of this grade of land and in the old quarry south east of Ten Acre Covert there are deposits of tipped materials on the surface of these soils (including clays, sands, bricks, concrete, stone and tarmac). This land is only suitable for rough grazing.

FACTORS INFLUENCING ALC GRADE

Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values	
		SK 055 187	SK 074 182
Grid reference	N/A	SK 055 187	SK 074 182
Altitude	m, AOD	96	70
Accumulated Temperature	day°C (Jan-June)	1365	1394
Average Annual Rainfall	mm	737	715
Field Capacity Days	days	174	169
Moisture Deficit, Wheat	mm	93	97
Moisture Deficit, Potatoes	mm	81	87
Overall climatic grade	N/A	Grade 1	Grade 1

19. 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.

20. 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.

21. The combination of rainfall and temperature at this site means that there is no overall climatic limitation. The site is climatically Grade 1.

Site

22. The site lies at an altitude of 68 to 99 metres AOD. The majority of the site is above 75 metres and is associated with a ridge extending north westwards from Ten Acre Covert

towards Colton Hall Farm and then westwards to Rugeley Junction. The lowest lying land is found next to the railway to the south west of Cawarden Springs Wood.

23. The three site factors of gradient, microrelief and flooding are considered when classifying the land.

24. Gradient limits the agricultural use of the land in areas to the west of Cawarden Springs. Here the land is strongly to steeply sloping (8° to 20°), limiting the land to Subgrade 3b, Grade 4 and Grade 5.

25. Microrelief is a limitation to the south of Colton Mill Farm where there is an old quarry with complex changes in slope angle and direction and soil depth over short distances. The microrelief limits the agricultural use of this land to Grade 4.

26. Flooding does not impose any known limitations on the agricultural use of the land.

Geology and Soils

27. The solid geology of the area is comprised of Bromsgrove Sandstone and Mercia Mudstones. This is overlain with First and Second River Terrace deposits and Boulder Clay - British Geological Survey (1982).

28. The soils that have developed on this geology are generally of either a sandy loam or a clay loam texture over clay or sand.

Agricultural Land Classification

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

Grade 2

30. Land of very good quality occupies 19.4 hectares (14 %) of the site area and is found in three units to the west of Cawarden Springs Farm.

31. The soil has a sandy loam topsoil texture over sandy loam, loamy sand and sand to depth. The topsoils are slightly stony (between 5% and 10% greater than 2cm in size) and subsoils are slightly to moderately stony. The moisture balance places these profiles in Grade 2. Occasionally sandy clay loam is present within the soil profile.

32. The main limitations to the agricultural use of this land include topsoil stone content and soil droughtiness.

Subgrade 3a

33. Land of good quality occupies 39.4 hectares (29%) of the site area and is found in a number of units across the site.
34. The soil has a clay loam topsoil texture over sandy clay loam, clay loam and clay. The depths to gleying and the slowly permeable layer place these profiles in Wetness Class III. Where the depth to the slowly permeable layer is greater (Wetness Class II) there are isolated borings of Grade 2 land within this unit. These borings cannot be shown separately at this scale of mapping.
35. To the east of Ten Acre Covert the amount of topsoil stones greater than 2cm in size is between 10% and 15%, limiting the land to Subgrade 3a.
36. The main limitations to the agricultural use of this land are topsoil stone content and soil wetness.

Subgrade 3b

37. Land of moderate quality occupies 56.9 hectares (41%) of the site area and is mapped in a number of places across the site.
38. In the south and west of the site the majority of the soils have either a clay loam or a sandy clay loam topsoil texture over clay loam and clay. The depths to gleying and the slowly permeable layer place these soils in Wetness Class IV.
39. To the north and north west of Cawarden Springs Wood the soil has either a sandy clay loam or a sandy loam topsoil texture over sandy loam, loamy sand and sand to depth. Here the land is strongly sloping (8° to 9°), limiting the grade of the land to Subgrade 3b.
40. In the vicinity of Black Spinney the soil has either a sandy clay loam or a sandy loam topsoil texture over sandy loam, loamy sand and sand to depths of between 50cm and 80cm where sandstone is encountered. The topsoils are slightly stony with the subsoils becoming very stony in places. Occasionally clay loam is present within the soil profile. The moisture balance places these soils in Subgrade 3b.
41. In places (particularly to the west of Cawarden Springs Wood) the surveyors observed that sandstone had been brought to the surface by cultivations.
42. To the north west of Cawarden Springs Wood the soil profile has been disturbed due to the tipping of inert fill material. Here the restored soil profile has either a sandy loam or a sandy clay loam texture over sandy clay loam and an inert fill and rubble matrix at a depth of between 40cm and 55cm. There are inclusions of clay throughout the soil profile. The moisture balance places these soils in Subgrade 3b.
43. The main limitations to the agricultural use of this land include gradient, soil wetness and soil droughtiness.

Grade 4

44. Land of poor quality is found to the south of Colton Mill Farm and occupies 3.8 hectares (3%) of the site area.

45. The soils in this area are strongly influenced by the presence of sandstone within the soil profile. There is much evidence that historically sandstone was quarried in this area (sandstone exposures).

46. The soil has either a sandy loam or a sandy clay loam topsoil texture over sandstone or clay at depths of between 15cm and 40cm. Occasionally sandstone outcrops at the surface. The complex changes of slope angle and slope direction and the depth to sandstone (and outcrops) severely limits the use of agricultural machinery on this land. The microrelief and the moisture balance place these soils in Grade 4.

47. At the eastern end of this unit the soils are more variable in texture due to the tipping of material on the surface (including clays, sands, bricks, concrete, stone and tarmac). At the time of the survey this land was being used as rough grazing (cattle).

48. The main limitations to the agricultural use of this land are microrelief and soil droughtiness.

Grade 5

49. Land of very poor quality occupies 3.2 hectares (2%) of the site area and is located in two areas - north west of Cawarden Springs Farm and south east of Ten Acre Covert.

50. This grade of land is found where sandstone is encountered at, or just below, the surface of the soil profile. Where the sandstone does not outcrop, the soil has a sandy loam topsoil texture over sandstone at depths of between 0cm and 15cm. Occasionally this grade is also found on steeply sloping land of between 18° and 20°.

51. At the northern edge of this grade of land and in the old quarry in the south of the site there are deposits of tipped material on the surface of these soils (including clays, sands, bricks, concrete, stone and tarmac). This land is only suitable for rough grazing.

52. The main limitations to the agricultural use of this land are gradient and soil depth.

Other Land

53. Other land occupies 14.8 hectares (11%) of the site area and includes farms, housing, ponds, a tip, trackways and woodland. The tip consists of inert fill to the surface (including clays, sands, bricks, concrete, stone and tarmac etc.) with very steeply sloping southern flanks.

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SOURCES OF REFERENCE

British Geological Survey (1982) Sheet 140, Burton upon Trent Solid and Drift Edition.
1:50,000 Scale.
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.
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Meteorological Office (1989) Climatological Data for Agricultural Land Classification.
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