

**GATE ROYD OCCS**  
**Agricultural Land Classification**  
**and Statement of Physical Characteristics**  
**September 1996**

**Resource Planning Team**  
**Leeds Statutory Group**  
**ADAS Leeds**

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# AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF PHYSICAL CHARACTERISTICS REPORT

## GATE ROYD OCCS

### Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) and Statement of Physical Characteristics survey of 13.3 ha of land at Gate Royd, West Bretton. The survey was carried out during September 1996.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Northallerton in connection with a proposal to extract coal by open cast methods. This survey supersedes any previous ALC surveys on this land.
3. The work was conducted by members of the Resource Planning Team in the Leeds Statutory Group in ADAS. 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 on the site was in arable use having grown cereals this year.

### Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:5000. 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)	% Total site area	% Surveyed Area
3a	3.4	25.6	25.6
3b	9.9	74.4	74.4
Total surveyed area	13.3	100	100
Total site area	13.3	100	-

7. The fieldwork was conducted at an average density of one boring per hectare. A total of 15 borings and three soil pits were described.

8. Subgrade 3a land was found in the south of the site. Soils are generally moderately well drained (Soil Wetness Class III) and subject to a soil wetness and workability limitation.

9. Remaining land was all Subgrade 3b. Mostly soils were poorly drained with clayey slowly permeable subsoils (Soil Wetness Class IV). A more significant soil wetness and workability limitation restricted the ALC Grade of this land. A small area of 3b in the north of the site adjacent to Bretton Lane contains shallow, stony soils with a significant droughtiness limitation.

10. Soil Units are illustrated on the attached Soil Maps:-

11. One topsoil type is found across the site. It is medium textured and either 30 cm (T1a and T1c) or 25cm (T1b) thick on average. T1a is significantly stony.

12. One upper subsoil was mapped USS1:- It is also medium textured and on average 20cm thick and only found in the south of the site.

13. Lower subsoil LSSI is distributed across most of the site. It is heavy textured and between 70cm and 90cm thick. Weathering shale bedrock is often encountered at around 100cm depth.

## Factors Influencing ALC Grade

### Climate

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

15. 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	SE 297 142
Altitude	m, AOD	110
Accumulated Temperature	day°C (Jan-June)	1301
Average Annual Rainfall	mm	710
Field Capacity Days	days	170
Moisture Deficit, Wheat	mm	90
Moisture Deficit, Potatoes	mm	77

16. 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.

17. 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.

18. The combination of rainfall and temperature at this site mean that an overall climatic limitation of Grade 2 applies across the site.

#### Site

19. Slopes are generally moderate or gentle (up to 7°) with a north east or easterly aspect. Altitude ranges from a maximum of 130m A.O.D. where Bretton Lane meets Bramley Lane down to 90m A.O.D. in the extreme north east of the site.

#### Geology and soils

20. Drift deposits in excess of a meter in thickness are absent from the site and soils are all developed from weathering Carboniferous Coal Measure deposits, mostly of shale. (BGS sheet 78, Wakefield, Drift, 1962, 1:50 000).

21. Topsoils are typically medium textured, as are upper subsoils where present. Clayey, slowly permeable lower subsoils occur at between 25 and 60cm depth. Profiles are mostly Soil Wetness Class IV although better drained soils with an upper subsoil meet the criteria for Soil Wetness Class III. A small but distinctly different soil type is found in the north of the site adjacent to Bretton Lane. Here are found shallow, stony, medium textured soils derived from weathering sandstone which typically outcrops at between 30cm and 40cm depth. Subsoils are generally absent. Soils correspond with the Dale association as mapped by the Soil Survey of England and Wales (1986).

#### Agricultural Land Classification

22. 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.

23. The location of the soil profile pits is shown on the attached soils maps and the details of the soils data are presented in Appendix III.

#### *Subgrade 3a*

24. Found in the south of the site this Subgrade contains medium textured topsoils and upper subsoils over clayey, slowly permeable lower subsoils. Profiles are generally Soil Wetness Class III and restricted to this Subgrade because of a soil wetness and workability limitation.

### *Subgrade 3b*

25. All remaining land on the site is Subgrade 3b. Mostly profiles have medium textured topsoils over clayey, slowly permeable subsoils. These characteristics place the profiles within Soil Wetness Class IV. A more significant soil wetness and workability limitation restrict the ALC Grade of this land. A small distinctly different area of land in the north of the site adjacent to Bretton Lane is also classed as Subgrade 3b. Here shallow, stony soils suffer a significant droughtiness problem.

### **Statement of Physical Characteristics**

26. One major soil type occurs on the site, a description of which is given below. Topsoil and subsoil resources are shown on the accompanying maps along with soil thickness and volume information.

Soil Type 1 (T1/USS1/LSS1). Medium textured over heavy textured soil. This soil is formed on weathering Carboniferous Coal Measures, mostly of shale. Upper and lower subsoils are occasionally absent.

#### *Topsoils*

27. T1 is found across the whole site and it occurs in 3 subtypes T1a, T1b and T1c. T1a only occurs in the north of the site and is medium textured and moderately stony (up to 35% volume weathering sandstone), with a strongly developed, medium subangular blocky structure. Mean soil thickness is 30cm. Below this unit is weathering sandstone bedrock. T1b is distributed widely over the site and is medium textured and very slightly stony. It also has a strongly developed medium subangular blocky structure but is shallower with a mean soil thickness of 25cm. T1c is very similar to T1b but is deeper having a mean soil thickness of 30cm.

#### *Upper Subsoils*

28. These are only present in the south of the site. The unit is medium textured and has a strongly developed medium angular blocky structure. Typically USS1 is 20cm thick.

#### *Lower Subsoils*

29. LSS1 is found across all the site except in a small area in the north where bedrock outcrops within a meter. It is heavy (clayey) textured and generally stoneless. It has a weakly developed coarse angular blocky structure. Usually the unit extends to 120cm depth although occasionally bedrock is encountered within a meter. LSS1a is 95cm thick and LSS1b is 70cm thick.

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