GREAT NORTH FOREST PLAN
TYNE AND WEAR

Agricultural Land Classification (ALC)
Map and Report

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Resource Planning Team
Northern Region
FRCA, Leeds

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AGRICULTURAL LAND CLASSIFICATION REPORT

GREAT NORTH FOREST PLAN

INTRODUCTION

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 357.0 ha of land lying between Boldon Colliery and Cleadon. The field survey was mostly carried out during in March 1998 although two areas (at Boldon and Cleadon) had been subject to detailed ALC surveys in December 1996.

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 Great North Forest Plan. With the exception of the detailed survey areas at Boldon (Ref. 119/96) and Cleadon (Ref. 122/96), this report supersedes any previous ALC information for this area.

3. The work was conducted by members of the Resource Planning Team in the Northern 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 the agricultural land on the site was mainly in arable use (oilseed rape and winter cereals) in the east and south, with permanent grass elsewhere. Large areas of Other land, consisting of roads, derelict industrial land, public open space and woodland, occur in the centre and west. Two small areas of agricultural land in the south were not surveyed due to problems in gaining access.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:25,000. 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
1			
2	54.8	20.8	15.4
3a	2.6	1.0	0.7
3b	197.7	75.2	55.4
4			
5	8.0	3.0	2.2
Agricultural land not surveyed	8.6	N/A	2.4
Other land	85.3	N/A	23.9
Total surveyed area	263.1	100	-
Total site area	357.0	-	100

7. The fieldwork was conducted at an average density of one boring per four hectares. A total of 57 borings and three soil pits were described.

8. Grade 2, very good quality agricultural land, is found in the far east. The soils are generally well or moderately well drained, and typically consist of medium clay loam or sandy clay loam topsoils and upper subsoils overlying medium clay loam, sandy clay loam, heavy clay loam or clay lower subsoils. The ALC grade of this land is limited by the climate of the area, and, in places, by soil wetness.

9. Subgrade 3a, good quality agricultural land, occurs in a small area at Boldon. The soils are imperfectly drained and consist of medium clay loam topsoils overlying medium clay loam, heavy clay loam or clay upper subsoils and, at between 40cm and 50cm depth, gleyed and slowly permeable heavy clay loam or clay lower subsoils. The ALC grade of this land is limited by soil wetness.

10. Subgrade 3b, moderate quality agricultural land, covers much of the centre and west of the area. The soils are generally poorly drained, with medium clay loam or heavy clay loam topsoils overlying gleyed and slowly permeable clay subsoils. A more significant soil wetness limitation than on the adjoining Grade 2 and Subgrade 3a land further restricts these areas to Subgrade 3b.

11. Grade 5, very poor quality agricultural land, occurs in the centre of the site. Topsoils are very thin (typically 10cm of medium clay loam) and overlie overburden and ash. This land is only suitable for permanent grass and is limited to Grade 5 by soil depth.

12. Agricultural land not surveyed occurs in the south, where either permission to carry out survey work was refused or the landowner/tenant could not be contacted.

13. Other land accounts for 24% of the total site area and occurs mainly in the centre and west. This land consists of derelict industrial land, public open spaces, school playing fields, areas of woodland and roads.

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 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989). Although this site covers a large area, there is relatively little difference between the far east and far west in terms of moisture deficits and Field Capacity Days. For this reason one central grid reference was used to obtain climatic data for the whole site.

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	NZ 365 625
Altitude	m, AOD	25
Accumulated Temperature	day°C (Jan-June)	1331
Average Annual Rainfall	mm	625
Field Capacity Days	days	150
Moisture Deficit, Wheat	mm	100
Moisture Deficit, Potatoes	mm	88
Overall climatic grade	N/A	Grade 1

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 (ATO, January to June), as a measure of the relative warmth of a locality.

18. The combination of rainfall and temperature at this site means there is no overall climatic limitation over most of the area, but that the higher land in the east is limited to Grade 2.

Site

19. Generally this site is level to gently sloping (0-2°) with variable aspect. In the east slopes are gently to moderately sloping (2-4°) with a westerly aspect. As such, slope is not a grade-limiting factor on this site, and nor are microrelief nor flood risk.

Geology and soils

20. The area is underlain by Carboniferous Coal Measures and Magnesian Limestone (BGS, Sheet 21) over which lie Head deposits (Pelaw Clay) or, in the far east, till. Much of the centre and west has been disturbed to varying degrees by past mining activity.

21. The soils have been mapped as belonging to the Foggathorpe 1 association or, in the far west, the Nercwys association (Soils of England and Wales, Sheet 1).

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, page 1.

Grade 2

23. Land in this grade occurs in the far east of the site, where boulder clay overlies the Magnesian Limestone at relatively shallow depth. The soils are well or moderately well drained, falling in Wetness Classes I and II. Typically very slightly stony medium clay loam or sandy clay loam topsoils and upper subsoils overlie medium clay loam, sandy clay loam, heavy clay loam or clay lower subsoils. The heavier-textured lower subsoils, which typically begin at between 55cm and 65cm depth, are gleyed and slowly permeable. The ALC grade of this land is limited by climate and, where the soils are moderately well drained, by a very slight soil wetness restriction.

Subgrade 3a

24. A small area of Subgrade 3a land was mapped at Boldon. The soils here are imperfectly drained (Wetness Class III) and consist of medium clay loam topsoils overlying permeable medium clay loam, heavy clay loam or clay upper subsoils and, at between 40cm and 50cm depth, gleyed and slowly permeable heavy clay loam or clay. The ALC grade of this land is limited by a slight soil wetness problem.

Subgrade 3b

25. Most of the agricultural land on this site has been mapped as Subgrade 3b. The soils are typically poorly drained, falling in Wetness Class IV. Medium clay loam or heavy clay loam topsoils overlie gleyed and slowly permeable clay subsoils at between 20cm and 40cm depth in most cases. Included within this subgrade is an area of restored soils south of Biddick Hall, and many other areas have had their topsoil contaminated by colliery spoil/overburden associated with past mining activity. However, it is the soil wetness restriction which limits the ALC grade of all these areas.

Grade 5

26. A small area of Grade 5 land is found in the centre of the site. Thin (typically only 10cm) medium clay loam topsoils overlie ash and colliery overburden. This land is only suitable for permanent grass and is restricted to Grade 5 by the shallow depth of soil.

Agricultural land not surveyed

27. Land in this category covers 8.6 ha in the south, where permission to carry the survey was refused or where the land owner/tenant could not be contacted.

Other land

28. Other, non-agricultural, land on this site covers 8.5 ha and consists of derelict industrial land, public open spaces, school playing fields, areas of woodland and roads.

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SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No. 21, Sunderland, 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.* MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.* Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 1, Soils of Northern England, 1:250,000 scale.* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Northern England* SSEW: Harpenden

[ALC Map]

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.