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SOUTH TYNESIDE UDP
Land at Hillhead Poultry Farm
Whitburn

Agricultural Land Classification
February 1997

Resource Planning Team
Leeds Statutory Group
ADAS Leeds

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AGRICULTURAL LAND CLASSIFICATION REPORT

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INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 15.5 ha of land at Hillhead Poultry Farm, Whitburn. The survey was carried out in February 1997.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Northallerton in connection with aUDP objectors proposal to quarry limestone from the site.

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 agricultural land on the site was all under grass and used for the grazing of horses. The site also contains a poultry unit and a number of redundant, concrete, military buildings erected over 50 years ago. South of Hillhead Farm the military structures occur within grazing areas at a high density and they form a significant limitation to any potential intensive agricultural use such as arable cropping. Such small areas can not therefor be graded any higher than Subgrade 3b due to this management limitation.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:5 000. 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)	% Total site area	% Surveyed area
3b	12.9	83.2	100
Other Land	2.6	16.8	--
Total survey area	12.9	--	100
Total site area	15.5	100	--

7. The fieldwork was conducted at an average density of one boring per hectare of land surveyed. A total of 11 borings and one soil pit were described.

8. All agricultural land on the site was Subgrade 3b. Soils were generally shallow over limestone bedrock at between 20cm and 35cm depth. These profiles are subject to a significant (Subgrade 3b) droughtiness limitation due to their low water holding capacity. Remaining land was all classed as other non agricultural land and includes farm building and the poultry unit.

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	NZ 401 638
Altitude	m, AOD	70
Accumulated Temperature	day°C	1278
Average Annual Rainfall	mm	634
Field Capacity Days	days	148
Moisture Deficit, Wheat	mm	96
Moisture Deficit, Potatoes	mm	83

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

13. The combination of rainfall and temperature at this site and above average wind exposure problems associated with the sites close proximity to the North Sea impose an overall climatic limitation of Grade 2.

Site

14. The site is typically level or gently sloping and does not contain any significant areas with slopes likely to limit ALC grade i.e. slopes over 7°. The land has a south easterly aspect with average altitude of 70m A.O.D.

Geology and Soils

15. Solid Magnesian Limestone strata outcrop within a metre of the surface on the site, BGS Sheet 21, Sunderland, solid and drift (1978). Drift deposits over a metre in depth were not found during the survey.

16. Topsoils are medium textured and usually slightly stony (6-15%). Subsoils are often absent but where present are also medium textured and slightly or moderately stony (6-38%). These shallow profiles have a low water holding capacity and are significantly droughty. These soils correspond with the Aberford association as mapped by the Soil Survey of England and Wales.

AGRICULTURAL LAND CLASSIFICATION

17. 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.

Subgrade 3b

18. All agricultural land on the site was Subgrade 3b. Topsoils are medium textured and usually slightly stony (6-15%). Subsoils are often absent but where present are also medium textured and slightly or moderately stony (6-38%). Bedrock is generally exposed at between 20cm and 35cm depth. These profiles are subject to a significant Subgrade 3b droughtiness limitation due to their low water holding capacity.

Other Land

19. Remaining land was all classed as other non agricultural land and includes farm building and the poultry unit.

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Sources of Reference

British Geological Survey (1978) *Sheet No.* 21, Sunderland solid and drift, 1:50 000. 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 (1986) *Soils and their Use in Northern England* SSEW: Harpenden

APPENDIX I

DESCRIPTION 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
II	The soil profile is wet within 70 cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

[1] The number of days is not necessarily a continuous period.
[2] 'In most years' is defined as more than 10 out of 20 years.