



**EAST CRAMLINGTON  
NORTHUMBERLAND  
PROPOSED GOLF COURSE**

**Agricultural Land Classification  
December 1996**

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

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# AGRICULTURAL LAND CLASSIFICATION REPORT

## EAST CRAMLINGTON , NORTHUMBERLAND PROPOSED GOLF COURSE

### INTRODUCTION

1. This report presents the findings of a detailed , Agricultural Land Classification (ALC) survey of 91.2 hectares of land at East Cramlington. The survey was carried out in December 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 develop an 18 hole golf course.
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 land in the east of the site , which comprises a restored former pit heap (see para 15 ) , was in non agricultural use comprising amenity grassland and coniferous woodland. Remaining land was in agricultural use and was all under grass , most of which was used for grazing horses.

### 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)	% total site area	% surveyed area
3b	28.1	30.8	100
Other land	63.1	69.2	-
Total survey area	28.1	-	100
Total site area	91.2	100	-

7. The fieldwork was conducted at an average density of one borings per hectare of agricultural land surveyed . Profiles within the restored pit heap were also examined. A total of 52 borings and two soil pits were described.

8. All agricultural land on the site is of Subgrade 3b quality . Profiles typically comprise medium or heavy clay loam topsoils over clayey , slowly permeable subsoils. This land is Soil Wetness Class IV and limited to this Subgrade by significant topsoil wetness and workability limitations. Remaining land comprising the restored former pit heap is classed as other non agricultural land.

## 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	NZ280770
Altitude	m, AOD	50
Accumulated Temperature	day°C	1298
Average Annual Rainfall	mm	664
Field Capacity Days	days	167
Moisture Deficit, Wheat	mm	93
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 (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 there is an overall climatic limitation of Grade 2.

## Site

14. Agricultural land is mostly gently sloping with a north east aspect. Slopes on the restored land are generally steeper and more complex; in places slopes of over 7° occur which limit the safe and efficient use of agricultural machinery. Altitude ranges from 40 m to 60 m A.O.D.

## Geology and Soils

15. Soils on the undisturbed land in the west of the site are derived from thick deposits of boulder clay which overlie the Carboniferous Coal Measures below (BGS Sheet 15 *Morpeth* 1:63 360, 1968). Topsoils are typically a medium or heavy clay loam over a clayey, slowly permeable subsoil. Soils on this area correspond to the Dunkeswick association as mapped by the Soil Survey and Land Research Centre (1984).

16. Most of the site comprises a former pit heap which was reclaimed about 20 years ago. Typical restoration soil profiles comprise 20 cm to 40 cm of gleyed, slowly permeable clayey material over black colliery waste.

## 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 is Subgrade 3b. Topsoils are typically medium or heavy clay loam over a clayey, gleyed, slowly permeable subsoil. Profiles are Wetness Class IV and suffer a significant topsoil wetness and workability limitation.

### Other Land

19. The restored pit heap is classed as other non agricultural and. Presently it contains amenity grassland and coniferous woodland. Most of this area would be classed as Grade 4 subject to a severe soil wetness and workability limitation if it were in agricultural use.

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## Sources of Reference

British Geological Survey (1968) *Sheet No. 15, Morpeth Solid and Drift, 1:63 360*  
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 (1984) *Soils Of England and Wales Sheet 1, Northern England.*SSEW: Harpenden.

Soil Survey of England and Wales (1983) *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.

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Wetness Class	Duration of waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years <b>or</b> , 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 <b>or</b> , 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 <b>or</b> , 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.

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#### 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).

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<sup>1</sup> The number of days is not necessarily a continuous period.

<sup>2</sup> 'In most years' is defined as more than 10 out of 20 years.