

**EASINGTON DISTRICT LOCAL PLAN**

**RESERVE SITE AT HAWTHORN  
COKEWORKS**

**Agricultural Land Classification  
ALC Map and Report**

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Northern Region  
FRCA, Leeds**

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**AGRICULTURAL LAND CLASSIFICATION REPORT**

**INTRODUCTION**

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 97 ha of land between the villages of Murton and South Hetton in County Durham. The survey was carried out in July 1997.
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 proposal to include the land in the Easington District Local Plan.
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 under arable crops (wheat, barley and oilseed rape). Most of the south of the site is non-agricultural land consisting of the site of the former Hawthorn Cokeworks and associated land such as spoil heaps.

**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)	% surveyed area	% site area
1			
2	11.4	20.4	11.8
3a	2.8	5.1	2.9
3b	41.6	74.5	42.9
4			
5			
Agricultural land not surveyed			
Other land	41.2	N/A	42.4
Total surveyed area	55.8	100	-
Total site area	97.0	-	100

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

8. Grade 2, very good quality agricultural land, covers 11.4 ha in the north of the site. The soils are typically either well drained or imperfectly drained and consist of sandy loam or medium-clay-loam topsoils overlying sandy loam, medium-clay loam, sandy clay loam or heavy clay loam upper subsoils and sandy loam, medium clay loam, heavy clay loam or clay lower subsoils. In some places the lower subsoils form slowly permeable layers which begin below 45 cm depth. The ALC grade of this land is limited by soil wetness and by an overall climatic restriction.

9. Subgrade 3a, good quality agricultural land, occurs in the south. The soils are moderately well and imperfectly drained, with medium clay loam or medium sandy loam topsoils overlying medium clay loam, medium sandy loam or heavy clay loam upper subsoils and sandy clay loam, heavy clay loam or clay lower subsoils. The subsoils become gleyed and slowly permeable at or below 40 cm in places and the ALC grade of the land is limited by soil wetness. Although some profiles meet the requirements for Grade 2, they do not occur over a sufficiently wide area to allow them to be mapped together as a separate unit.

10. Subgrade 3b, moderate agricultural land, covers the remainder of the agricultural land on the site. The soils are poorly drained, with medium clay loam topsoils overlying gleyed and slowly permeable sandy clay loam, heavy clay loam or clay subsoils at between 25 cm and 35 cm depth. Soil wetness in this area is more significant than on the adjoining Subgrade 3a land and it is this factor which limits this land to Subgrade 3b. In addition, an area in the north of the site is limited to Subgrade 3b by slopes of 8°.

11. Other land covers 41.2 ha, mainly in the south of the site. Most of this land is found on the site of the former Hawthorn Cokeworks and includes associated land such as spoil heaps. In addition, a small area of scrub occurs in the north of the site.

## FACTORS INFLUENCING ALC GRADE

### Climate

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

13. 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).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	NZ 392461
Altitude	m, AOD	112
Accumulated Temperature	day°C (Jan-June)	1239
Average Annual Rainfall	mm	685
Field Capacity Days	days	169
Moisture Deficit, Wheat	mm	87
Moisture Deficit, Potatoes	mm	72
Overall climatic grade	N/A	Grade 2

14. 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.

15. 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.

16. The combination of rainfall and temperature at this site means that there is an overall climatic limitation to Grade 2.

#### **Site**

17. The land on the site is typically level to gently sloping (0-3°) with variable aspect, although in part of the north of the site slopes are moderate to strong (4-8°). However, only in the north-eastern corner of the site do slopes exceed 7° and this area is thus limited to Subgrade 3b. Neither microrelief nor flood risk are of significance on this site.

#### **Geology and soils**

18. The site is underlain by Magnesian Limestone over which lie deposits of till (BGS, Sheet 27).

19. The soils on the site have been mapped as Dunkeswick association by the Soil Survey of England and Wales (Soils of England and Wales, Sheet 1).

#### **AGRICULTURAL LAND CLASSIFICATION**

20. 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.

#### **Grade 2**

21. Land in this grade occurs in the north of the site. The soils are either well or imperfectly drained (Wetness Class I or Wetness Class III). Topsoils are very slightly to slightly stony, containing between 5% and 15% sandstones and limestones (3-8° greater than 2 cm in most cases) whilst subsoils are very slightly to moderately stony, with up to 25% sandstones and limestones. In terms of texture the topsoils consist of medium sandy loam or medium clay loam while the upper subsoils consist of medium sandy loam, medium clay loam, sandy clay loam or heavy clay loam. The lower subsoils consist of medium sandy loam, medium clay loam, heavy clay loam or clay. The soils are not gleyed within 40 cm depth but slowly permeable layers occur in places below 45 cm. The ALC grade of this land is limited by overall climate and, in places, by soil wetness and topsoil stoniness.

### **Subgrade 3a**

22. An area in the south of the site has been mapped as Subgrade 3a. The soils are moderately well or imperfectly drained, falling in Wetness Class II or Wetness Class III. Generally medium clay loam or medium sandy loam topsoils overlie medium clay loam, medium sandy loam or heavy clay loam upper subsoils and sandy clay loam, heavy clay loam or clay lower subsoils. The subsoils become gleyed and slowly permeable at or below 40 cm in places. Although some soils meet the requirements for Grade 2 they do not occur over a sufficiently wide area to allow them to be mapped together as a separate unit, and soil wetness limits the remaining area to Subgrade 3a.

### **Subgrade 3b**

23. Land in this subgrade, defined as moderate quality agricultural land, covers 41.6 ha. The soils are generally poorly drained (Wetness Class IV) and typically consists of medium clay loam topsoils overlying gleyed and slowly permeable sandy clay loam, heavy clay loam or clay subsoils at between 25 cm and 35 cm depth. Soil wetness is the grade-limiting factor in this case. In addition, an area in the north-eastern corner of the site is limited to Subgrade 3b by slopes of 8°.

### **Other land**

24. This includes the site of the former Hawthorn Cokeworks, associated land such as spoil tips, and a small area of scrub in the north-east of the site.

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RPT File: 20,200

## SOURCES OF REFERENCE

British Geological Survey (1965) *Sheet No. 27, Durham. 1:63,360 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 England and Wales, 1:250,000 scale.*  
SSEW: Harpenden.

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

## 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.