

**THORP ARCH GRANGE
WEST YORKSHIRE**

**Agricultural Land Classification (ALC)
Map and Report**

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AGRICULTURAL LAND CLASSIFICATION REPORT

THORP ARCH GRANGE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 11.3 ha of land lying to the north east of the village of Thorp Arch.
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 extend the Leeds United AFC training pitches. This area had been subject to a semi-detailed ALC survey in 1995 (Ref. 27/95, Leeds UDP Topic 895) which found Subgrade 3b land in the north west and Subgrade 3a land elsewhere. However, that survey was not sufficiently detailed to accurately grade a site as small as that in the present planning application. For that reason it was decided to undertake a full detailed survey of the area in question.
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 under winter cereals.

SUMMARY

5. The findings of the survey are shown on the attached 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) | % surveyed area | % site area |
|--------------------------------|-----------------|-----------------|-------------|
| 1 | | | |
| 2 | | | |
| 3a | 2.9 | 37.7 | 25.7 |
| 3b | 4.8 | 62.3 | 42.4 |
| 4 | | | |
| 5 | | | |
| Agricultural land not surveyed | | N/A | |
| Other land | 3.6 | N/A | 31.9 |
| Total surveyed area | 7.7 | 100 | - |
| Total site area | 11.3 | - | 100 |

8. Subgrade 3a, good quality agricultural land, occurs in the centre and north east of the site. The soils are generally well drained and consist of medium clay loam topsoils and upper subsoils overlying lower subsoils which vary in texture between medium clay loam and silty clay. *Weathering limestone bedrock occurs at between 45cm and 80cm depth in most cases* and the ALC grade of the land is limited by soil droughtiness.

9. Subgrade 3b, moderate quality agricultural land, covers the remainder of the agricultural area. Two main soil types occur in this area. The first occurs in the north and consists of poorly drained soils where medium clay loam topsoils overlie gleyed or reddish, slowly permeable clay subsoils. Soil wetness is the factor which limits the ALC grade of this area. The second soil type falling within this subgrade occurs in the west and consists of shallow soils where medium clay loam topsoils and, in places, thin subsoils, overlie weathering limestone at between 30cm and 45cm depth. Soil droughtiness is the grade-limiting factor in this case.

10. Other, non-agricultural, land occurs in the south east and consists of existing training pitches and playing fields.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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 | SE 436471 |
| Altitude | m, AOD | 35 |
| Accumulated Temperature | day°C (Jan-June) | 1369 |
| Average Annual Rainfall | mm | 678 |
| Field Capacity Days | days | 163 |
| Moisture Deficit, Wheat | mm | 100 |
| Moisture Deficit, Potatoes | mm | 90 |
| Overall climatic grade | N/A | Grade 1 |

13. 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.

14. 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.

15. The combination of rainfall and temperature at this site means that there is no overall climatic limitation.

Site

16. The site is level to gently sloping (0-2°), varying between 40m AOD in the north west and 35m AOD in the east. Neither gradient, flood risk nor microrelief constitute grade-limiting factors on this site.

Geology and soils

17. The site is underlain by Upper Magnesian Limestone or, in the north western corner, Upper Permian Marl (BGS, Sheet 70), and there is patchy cover of thin, locally derived till over parts of the site.

18. The 1:250,000 scale map "Soils of Northern England" shows the site as belonging to the Aberford association (soils developed in situ over Magnesian Limestone) while the more detailed "Soils of the Leeds District" shows most of the site to be Wothersome series (reddish till derived mainly from Permian rocks).

AGRICULTURAL LAND CLASSIFICATION

19. 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.

Subgrade 3a

20. Approximately 26% of the site consists of Subgrade 3a land. The soils are generally well drained (Wetness Class I). Typically medium clay loam topsoils and upper subsoils overlie medium clay loam, medium silty clay loam, heavy clay loam or heavy silty clay loam lower subsoils. Weathering limestone bedrock generally occurs at between 45cm and 80cm depth. Soil droughtiness is the factor which limits this land to Subgrade 3a.

Subgrade 3b

21. Subgrade 3b land covers the remainder of the agricultural land area. In the north the soils are poorly drained (Wetness Class IV) and consist of medium clay loam topsoils overlying gleyed or reddish clay subsoils. The subsoils typically begin at between 20cm and 35cm depth and form slowly permeable layers. The ALC grade of this land is limited by soil wetness. In the west the soils are well drained (Wetness Class I) and consist of medium clay loam topsoils and, in places, thin upper subsoils, overlying weathering limestone at between 30cm and 45cm depth. In this area soil droughtiness is the factor limiting the land to Subgrade 3b.

Other land

22. Other land on this site is found in the east and consists of existing training pitches and playing fields.

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SOURCES OF REFERENCE

British Geological Survey (1951) *Sheet No. 70, Leeds (Drift). 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 Northern England, 1:250,000 scale.*
SSEW: Harpenden.

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

Soil Survey of England and Wales (1970) *Soils of the Leeds District*
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.