

REPORT OF THE MAFF AGRICULTURAL LAND CLASSIFICATION SURVEY  
MANSFIELD LOCAL PLAN

1. Summary:

The land has been classified following the Agricultural Land Classification of England and Wales - revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). Of the Site 1 nearly 65% is classified as Grade 2 12% sub grade 3a. Of Site 2 61% is classified as Grade 2 with 25% in Sub-grade 3a.

2. Climatic Limitations:

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR), as a measure of overall wetness and accumulated temperature (ATO), as a measure of the relative warmth of the locality. The figures of AAR and ATO indicate that there are climatic limitations on these sites restricting the highest possible grade to 2.

3. Site Limitations:

The assessment of site factors is primarily concerned at the way in which topography influences the use of agricultural machinery and hence the cropping potential of the land. There are no limitations affecting the use of the land on three sites.

4. Soil Limitations:

The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. These may act as limitations separately, in combination or through interactions with climate or site factors. The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness, and erosion.

To achieve full yield potential a crop requires an adequate supply of soil moisture through the season. Droughtiness is most likely to be a significant limitation to crop growth in the areas with relatively low rainfall or high evapo-transpiration or where the soil holds only small reserves of moisture available to plant roots. The severity of the limitation in an area depends on the relationship between the soil properties and climatic factors and the moisture requirements of the crops grown. These relationships are complex and the degree of moisture stress varies from year to year according to the weather. In the ALC system the method used to assess the droughtiness provides an indication of the average droughtiness based on two reference crops, winter wheat and main crop potatoes. The method used to assess droughtiness takes account of crop rooting and foliar characteristics to obtain an estimate of the average soil moisture balance (MB) for the reference crops at a given location. The moisture balance is calculated on the basis of two parameters - the crop adjusted available water capacity of the soil profile and the moisture deficit. Reference will be made to droughtiness where it is a limiting factor in Section 7.

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock. The soil wetness assessment takes account of a climatic regime, the soil water regime and the texture of the top 25cm of the soil. Reference will be made to soil wetness where it is a limiting factor in Section 7.

## 5. Background Information

The underlying solid geology is mapped as Lower Magnesian Limestone (sheet 12, Chesterfield, scale 1:50,000) covered by deposits of head material.

## 6. Agricultural Land Use:

At the time of the survey December 1991 both sites were mainly under cereals or fallow with a small area of grass present on Site 1. At the south eastern corner of site 2 an area of ungrazed grass was

present.

## 7. Agricultural Land Classification:

### Site 1

Grade 2 - land in this grade covers much of the site. The soils typically have either a sandy silt loam or medium clay loam topsoil overlying medium clay loam to depth of 110 cm or in places to about 85 cm where sandstone is present. The main limitations to the agricultural use of this land are either droughtiness or climatic factors where soils of Grade 1 quality are downgraded to Grade 2.

Sub-grade - 3a land in this grade is found where topsoils of a sandy silt loam texture overlie clay at below 30 cm. The combination of the field capacity of 161 days and the depths to the slowly permeable layer place these soils into wetness class IV and hence a classification of sub-grade 3a. The main limitation to the agricultural use of this land is soil wetness.

Sub-grade 3b - land in this grade is found where soils of a medium clay loam texture overlie clay below 30 cm. These soils fall into wetness class IV and hence are classified as sub-grade 3b. The main limitation to the agricultural use of the land is soil wetness. Close to Penniment Farm soils on a slight knoll have a sandy loam texture overlying medium sand and sandstone at 70 cm. The main limitation to the agricultural use of the land here is droughtiness.

Other Land - this includes a small gas station at the south east corner of the site and farm buildings at Penniment Farm.

### Site 2

Grade 2 - the soils typically have a deep sandy silt loam texture or occasionally a medium clay loam texture overlying fine sandy loam. In places profiles of Grade 1 quality land are present, but are downgraded because of climatic limitation. Occasionally clay is present at depth and these soils fall into wetness class III and

hence are classified as Grade 2. Main limitation to the agricultural use of this land is soil wetness.

Sub-Grade 3a - the soils typically have a medium clay loam texture overlying heavy clay loam and clay at depths of between 45 and 70 cm. These soils fall into wetness class III and are classified as sub-grade 3a. The main limitation to the agricultural use of this land is soil wetness.

Sub-Grade 3b - the soils typically have a medium clay loam texture overlying clay below 30 cm. These soils fall into wetness class IV and hence are classified as Sub-Grade 3b. The main limitation to the agricultural use of this land is soil wetness.

Grade 4, - on gentle slopes shallow soils are typically of a sandy silt loam texture overlying sandstone by 30 cm. The main limitation to the agricultural use of this land is droughtiness.

Resource Planning Group

December 1991

Agricultural Land Classification  
Mansfield Local Plan

Site 1

Grade 1 Sub-grade	ha	% of area	% of agricultural land
2	15.0	65	67
3a	2.8	12	13
3b	4.4	19	20
Other land	0.83	4	
TOTAL	<u>23.03</u>	<u>100</u>	<u>100</u>

Site 2

Grade/sub-grade	ha	% of area	% of agricultural land
2	9.3	61	62
3a	3.9	25	26
3b	0.6	4	4
4	1.1	7	7
Other land	0.4	3	
TOTAL	<u>15.3</u>	<u>100</u>	<u>100</u>