AGRICULTURAL LAND CLASSIFICATION

LAND AT PORTLY FORD FARM, WELFORD, DAVENTRY DISTRICT LOCAL PLAN

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1.0 INTRODUCTION

1.1 The site, an area of approximately 26 hectares is the subject of a proposed development. In January 1995 ADAS Statutory Resource Planning Team undertook an Agricultural Land Classification (ALC) survey, carrying out a total of 25 auger borings. In addition four soil inspection pits were dug to provide more detailed information on subsoil conditions.

1.2 At the time of the survey most of the land was under autumn sown rape with the two western most fields under grass. The western most part of the site is partly grass and partly hard standing and was used in the past as a depot whilst the A14 was under construction.

1.3 On the published 1:63 360 scale ALC map, sheet 133 (MAFF, 1974) the whole site is mapped as grade 3 land. This map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the site.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climate data for the sites was interpolated from data contained in the published agricultural climatic dataset (Met Office, 1989). This indicates that for an average altitude of 155 m AOD, the average annual rainfall is 695 mm (27.4"). Accumulated temperature is given at 1301 day °C. It also indicates that field capacity days are 155 and that moisture deficits for wheat and potatoes are

92 mm and 79 mm respectively. The combination of a relatively high average annual rainfall and a slightly low cumulative build up of warmth available for crop growth (ATO) impose a slight climatic limitation on the site excluding the land from grade 1.

Altitude and Relief

2.2 The site is bounded by the A14 to the south, A50 to the southwest and the River Avon to the east. Portly Ford Farm lies on the northern boundary of the area. The site rises from approximately 143 m AOD adjacent to the River Avon westwards to a maximum altitude of approximately 161 m AOD. A small tributary of the River Avon dissects the southeast corner of the site in a shallow valley feature. Slopes typically range from 1°- 4° although along the southern boundary slopes of 5° - 6° are present. Neither gradient nor altitude constitute limitations to the ALC grade.

Geology and Soils

2.3 The published 1:63 360 scale solid and drift edition geology map, sheet 170 (Geological Survey of England and Wales 1969) shows the majority of the site to be covered by boulder clay. Upper Lias Clay is exposed on the lower slopes of the River Avon valley with alluvium mapped in a narrow band along the small tributary in the southeast corner of the site.

2.4 No detailed soil map is available of the area but the reconnaissance 1:250 000 scale soil map "Soils of Eastern England" (Soil Survey of England and Wales 1983) shows the presence of a single soil association, Beccles 3 (*1).

(*1) Beccles 3 Association: Slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with only slight seasonal waterlogging. Some calcareous clayey soils especially on steeper slopes.

During the current more detailed survey work three soil types were identified.

2.5 The first soil type is found largely on the upper slopes in the western end of the site. Topsoils typically comprise non calcareous very slightly stony medium clay loam or sandy clay loam. Upper subsoils comprise similar or slightly heavier textured soils which are typically slightly to moderately stony. Slowly permeable very slightly stony clay is generally encountered between 45/70 cm and the wetness class has been assessed as II/III.

2.6 The second soil type is found along the mid slopes and contains the heaviest textured soils on the site. Topsoil typically comprise very slightly stony non calcareous heavy clay loam or clay immediately over slowly permeable clay. Subsoils are non calcareous and generally contain very little stone, typically 0-2%. Soils have been assessed as wetness class IV due to the shallow depth to the slowly permeable layer.

2.7 The final soil type occurs along the southern and eastern edge of the site. These profiles comprise very slightly stony (occasionally slightly stony) medium clay loam or sandy clay loam topsoils. Upper subsoils are typically similar or slightly heavier with total stone content varying from 5 - 30%. Lower subsoils are variable ranging from medium sand to medium clay loam in texture and are moderately to very stony (typically 30-50%). At depth stoneless silty clay may be encountered below these stony horizons. These profiles show some evidence of imperfect drainage and have been assessed as wetness class II.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the ALC grades is provided in Appendix 1.

3.2 The site is graded predominantly subgrades 3a and 3b with a small area of grade 2 on the highest land to the south west of Portly Ford Farm. A precise

breakdown of the ALC grades in hectares and percentage terms is given below.

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Grade	Ha	%
2	3.1	12
Subgrade 3a	10.0	39
Subgrade 3b	9.5	37
Non Agricultural	2.1	8
Woodland	0.3	1
Urban	0.7	3
TOTAL	25.7	100

Grade 2

3.3 Grade 2 land is associated with the better drained variant of the fine loamy textured soils described in paragraph 2.5. These soils suffer from a slight drainage imperfection and have been assessed as wetness class II. The land is limited by minor wetness and workability constraints and together with the overall climatic limitations described in paragraph 2.1 this land is excluded from a higher grade.

Subgrade 3a

3.4 Subgrade 3a land occurs in two situations.

3.5 Firstly subgrade 3a land is mapped in association with the slightly poorer drained soils described in paragraph 2.5. Slowly permeable clays are typically encountered between 45/55 cm and thus have been assessed as wetness class III. The combination of topsoil texture and moderate drainage imperfections result in the land being excluded from a higher grade.

3.6 Secondly subgrade 3a land is associated with the soils described in paragraph 2.7. The combination of profile textures and high stone content in the subsoils result in a reduced water holding capacity and the land is therefore limited by moderate droughtiness imperfections.

3.7 Although slightly less droughty soils do occur sporadically within the land graded 3a, they occupy too small an area to delineate separately.

Subgrade 3b

3.8 The area graded 3b corresponds with the soils described in paragraph 2.6. These soils are heavy textured and poorly drained (wetness class IV). These factors combine to impose a significant limitation on the ability of the land to grow a wide range of crops. Thus, wetness and workability imperfections exclude the land from a higher grade.

Urban

3.9 A hard standing service track for the new A14 runs along the southern boundary and has been mapped as urban.

Non Agricultural

3.10 An area at the western end of the site which comprises grass and some hard standing has been mapped as non agricultural.

Woodland

3.11 A small copse and new woodland planting to the south of Portly Ford Farm is mapped as woodland.

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1969). Solid and drift edition sheet 170, Market Harborough 1:63 360 scale.

MAFF, (1974). Agricultural Land Classification Map sheet 133 Provisional 1:63 360 scale.

MAFF, (1988). Agricultural Land Classification of England and Wales (Revised Guidelines and criteria for grading the quality of Agricultural Land, Alnwick).

METEOROLOGICAL OFFICE, (1989). Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES (1983). Sheet 4, Soils of Eastern England 1:250 000 scale.

Appendix 1

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 include 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 and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 levels of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yield of which are variable. In most 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.