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AGRICULTURAL LAND CLASSIFICATION OF LAND ADJACENT TO JUNCTION 10, M20, ASHFORD.

Background

The site covers approximately 13.16ha and lies to the east of Ashford in Kent. The site is bounded to the north by the M20 motorway and the roundabout at junction 10, to the east and south by fencelines, and to the west by Badmunsterfield Road.

The site was surveyed using a 110cm Dutch auger at sampling points approximately 100m apart.

Land use

At the time of survey (July 1989), the majority of the site was underused in agricultural terms. Overgrown barley, thistles and various grass species dominated the site. A small area in the south western corner of the site formed part of an orchard.

Physical Factors Affecting Land Quality

Relief

The site lies at approximately 50m A.O.D. and rises gently up either side of a small stream. Gradient was not a significant factor in relation to agricultural land quality at this site.

Climate

The average annual rainfall for this area is approximately 757mm. Soils are at field capacity for on average 158 days/annum. The median accumulated temperature above 0 degrees C for January to June is 1450 degree days/annum and the moisture deficits of the soils adjusted for wheat and potatoes are 116mm/annum and 111mm/annum respectively. Climatic factors per se place no limitation on agricultural land classification but do affect interactive limitations between soil and climate, namely soil wetness and droughtiness.

Geology and Soils

British Geological Survey Sheet 289 - Canterbury (1966), shows the site to be underlain by Hythe Beds (Lower Greensand) except along a strip either side of the stream. This strip is mapped as alluvium. Soil Survey of England and Wales Sheet 6 - Soils of South East England (1983), maps the site as well drained Malling Association soils. These are fine loamy soils over sandy limestone with associated loamy over slowly permeable clay soils. Sheet TR40 (Ashford) (1973), shows a more complex pattern with light brown earths of the Barming Association along the northern edge of the site (adjacent to the M20), associated with Malling soils. To the north of the stream heavier Fladbury and Ford End

soils are mapped with Rose Acre soils, gleyed brown earths, to the south of the stream.

Field examination of the soils found profiles to fall into three broad groups. Group 1 occurs in the lowest lying areas, in a strip along the north bank of the stream. Typically composed of dark grayish brown heavy clay loam topsoils over mottled and slowly permeable clay, these soils are chiefly limited by wetness.

Group 2 soils are found to the north of the stream where the land rises gently towards the M20 motorway and typically comprise heavy and occasionally medium clay loam topsoils. They overlie sandy clay loam or sandy clay subsoils which are frequently gleyed, passing into sandy clay to depth. Occasionally an horizon of heavy clay may be found within the profile. Group 2 profiles are variably gleyed due to either groundwater problems or the presence of a slowly permeable subsoil. They contain varying amounts of sand so that although most are chiefly limited by wetness, drought is the most limiting factor for a few sandier varients. A few profiles are limited by drought due to high percentages of flint and limestone stones in the subsoil.

Group 3 soils are found over the area to the south of the stream. They are relatively the lightest soils on the site having heavy and occasionally medium clay loam and silty clay loam topsoils over horizons of heavy clay loam, sandy clay loam, sandy loam and clay. The arrangement of the horizons is highly variable between profiles with no overall sequence with depth. The chief limitation of these soils is wetness due to fluctuating groundwater levels.

Agricultural Land Classification

Appendix 1 gives a general description of the grades used in this classification.

Areas of the Grades

Total area of site	13.16ha	
Water (area of stream)	0.19ha	
Total agricultural area	12.97ha	
Grade 3a	10.55ha	(81.3% total agricultural area)
Grade 3b	2.42ha	(18.7% total agricultural area)

Grade 3a

This grade is dominant across the site, occupying approximately 10.55 ha. Profiles are of two types; those chiefly limited by drought and those limited by wetness.

Those limited primarily by wetness typically consist of heavy and occasionally medium clay loam topsoils over sandy clay loams or heavy clay loams gleyed within 40cm. This may pass into gleyed sandy clay or sandy loam with depth although clay loams may persist through the profile. Generally gleying is the result of fluctuating groundwater levels although occasionally a layer of slowly permeable clay is found within the profile. These soils fall into wetness class I or II which in combination with the range of field capacity days for the area and the topsoil textures of the profiles allocate them to grade 3a. Occasional individual borings of Grade 2 and 3b were noted but it was not possible to delineate these small areas separately at the mapping scale employed.

Those soils limited by drought typically consist of sandy clay loam or medium clay loam topsoils overlying a variety of subsoils: 40% flints in sandy clay loam or heavy clay loam; sandy clay gleyed below 40cm but not slowly permeable; gleyed heavy clay loam becoming increasingly sandy with inclusions of Greensand material. The combination of the soil textures, the stone content and the moisture deficits for wheat and potatoes for the area makes these soils droughty.

Grade 3b

These soils occupy a strip of land lying adjacent to the northern bank of the stream. They are composed of heavy clay loam topsoils over clay in the subsoil. Owing to the poor structural conditions and evidence of wetness present at shallow depth, such profiles fall into wetness class IV. This, coupled with their topsoil textures in the range of field capacity days for the area has resulted in their allocation to this grade on the grounds of relatively difficult workability due to soil wetness. This will reduce their flexibility for agricultural use.

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References

British Geological Survey (1966)
Sheet 289 Canterbury

Meteorological Office (1989)
Climatological Data for Agricultural Land Classification

M.A.F.F. (1988)
Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

Soil Survey of England and Wales
Soils in Kent Sheet TR04 - Ashford (1973). Soil Survey record No.14

Soils of South East England Sheet 6 (1983)

APPENDIX 1

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 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 root 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 level of yields. It is mainly suited to grass with occasional arable crops (eg 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.