AGRICULTURAL LAND CLASSIFICATION
LAND ADJOINING MANSTON ROAD/NASH ROAD
MARGATE, KENT

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1. BACKGROUND

1.1 Land on this 9.3 ha site was inspected on 2 September 1991 in connection with residential development proposals. At the time of survey the land was mainly under weedy overgrown grass, although an area to the west of the site had been cut.

1.2 11 auger borings were made using a 1.2 m Dutch soil auger across the site at approximately 100 m intervals on a regular sampling grid. 1 small soil pit was also dug.

2. PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Climatic data was obtained by interpolation from a 5 km grid point data set adjusted for the height and location of the site (Met. Office, 1989). The site specific data is as follows:

	Altitude	
Grid Reference TR 354694	20 m	30 m
Average Annual Rainfall (mm)	591	591
Accumulated Temperature (day °C)	1464	1453
Moisture Deficit (Wheat - mm)	130	129
Moisture Deficit (Potatoes - mm)	129	128
Field Capacity Days	117	117

2.2 Climate factors per se place no limitation on agricultural land quality at this location. However they do affect interactions between climate and soil, namely soil wetness and droughtiness. The site has a low average annual rainfall with high moisture deficits. This increases the risk and degree of droughtiness on

soils which lack good reserves of available moisture. Conversely the dry climate (117 field capacity days) reduces the likelihood of soil wetness problems and increases the opportunities for landwork in favourable soil conditions.

Relief

2.3 The site lies at altitudes of between about 20-30 m A.O.D. The land has a northerly to northwesterly aspect with falls of <1-2° maximum in those broad directions. The highest land occurs adjoining St Johns Cemetery at the southern boundary of the site.

Geology and Soils

2.4 The published geological map sheet which covers the site (No. 274 Ramsgate; I.G.S., 1980) indicates the underlying geology as Upper Chalk. Over the majority of the site this is masked by a thin superficial drift deposit in which the soils are developed.

2.5 There is no published detailed soils map, covering the site. The 'Soils of South England' map sheet (SSEW, 1983) at 1:250,000 scale indicates the presence of the Coombe 1 Soil Association is this general vicinity. The accompanying legend describes this as comprising "well drained calcareous fine silty soils, deep in valley bottoms, shallow to chalk on valley sides in places, slight risk of water erosion" (SSEW, 1983). Detailed survey of the site confirms this broad description.

3. AGRICULTURAL LAND CLASSIFICATION

3.1 The distribution of the agricultural land classification (ALC) grades on the site is indicated on the accompanying coloured plan. The breakdown of the ALC grades in terms of area and extent is as follows.

	Ha	%
Grade 2	7.0	75.3
Grade 3a	2.3	24.7
Total	9.3	100

3.2 The main limitation in terms of agricultural land quality is one of droughtiness. The severity of this limitation places the land in either 2 or 3a depending upon the soil available moisture characteristics.

Grade 2

3.3 The majority of land on the site falls into grade 2. Soils are typically well drained (wetness class I) calcareous medium silty clay loams topsoils and subsoils to at least 80-90 cm overlying soft chalk or chalky drift. Soils are generally very slightly flinty throughout (<5% by volume), although a narrow band of flints may sometimes occur around 60 cm from the surface and/or at the junction with the chalk substratum. The soils are slightly drought-prone having an insufficient available water capacity to match the high moisture deficits of this locality and consequently the exacting requirements for grade 1.

3.4 The soils are easy to work and are suitable for a range of agricultural and horticultural uses, although top fruit may suffer from iron deficiency due to the calcareous nature of the soils.

Grade 3a

3.5 Land of the quality is found in a relatively small area to the west of the site where the subsoils become slightly sandier and/or are thinner over the chalk substratum. This increases the risk of drought in comparison with the land graded 2 which is described above.

3.6 The associated soils are well drained (wetness class I) with calcareous medium silty clay loam or silt loam topsoils overlying similar textures or having slightly sandier (sandy clay loam) subsoils with depth. The chalk substratum may be encountered from 50-75 cm. Stone content throughout the soil profile is typically less than 5% by volume of flints, although occasional thin stonier subsoil bands were noted.

3.7 In common with land graded 2 these soils are flexible in use and suitable for a range of cropping. The slightly increased risk of drought in this dry climate area may, however, reduce consistency of yield.

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SOURCES OF REFERENCE

INSTITUTE OF GEOLOGICAL SCIENCES Geological Map Sheet No. 274 (Ramsgate) Solid and Drift Edition 1:50,000 scale.

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

METEOROLOGICAL OFFICE (1989) Climatological datasets for agricultural land classification.

SOIL SURVEY OF ENGLAND AND WALES (1983) Soil Map of S.E. England 1:250,000 scale.

APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

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.

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six revised soil wetness classes (Hodgson, in preparation) are identified and are defined in Table 11.

Table 11 Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years[2].
II	The soil profile is wet within 70 cm depth for 31-90 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

[1] The number of days specified is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.