

**Agricultural Land Classification
Slate Hall (including Proposed
Road Adjacent to A604)
03391**

3.0. SUMMARY: AGRICULTURAL LAND CLASSIFICATION

3.1 SLATE HALL (MAP 1)

The site is predominantly graded 3a, with smaller areas of grade 2 and 3b. A breakdown of land quality in hectares and percentages is provided below:

AGRICULTURAL LAND CLASSIFICATION		
Grade	ha	%
2	19.8	28.1
3a	36.1	51.2
3b	3.8	5.4
Non Agricultural/Urban	<u>10.8</u>	<u>15.3</u>
TOTAL	<u>70.5</u>	<u>100.0</u>

Details of the MAFF agricultural land classification system, the methodology used, and the chief limitations to agricultural land quality are provided in section 5.0 of this proof.

3.2 PROPOSED ROAD ADJACENT TO A604 (MAP 2)

The site is predominantly graded 3b, with smaller areas of grade 3a. A breakdown of land quality in hectares and percentages is provided below.

AGRICULTURAL LAND CLASSIFICATION		
Grade	ha	%
3a	12.9	37.5
3b	20.1	58.4
Non Agricultural/Urban	<u>1.4</u>	<u>4.1</u>
TOTAL	<u>34.4</u>	<u>100.0</u>

Details of the MAFF agricultural land classification system, the methodology used, and the chief limitations to agricultural land quality are provided in section 6.0 of this proof.

4.0 THE MAFF AGRICULTURAL LAND CLASSIFICATION SYSTEM

- 4.1 The MAFF Agricultural Land Classification (ALC) system assesses land quality based on its long term physical potential. Land is assigned to an ALC grade according to the degree to which its inherent physical characteristics impose long term limitations on agricultural use.
- 4.2 The main physical factors which are taken into account in assessing ALC grade are climate, site and soil. These may act singly, or in combination to result in varying degrees of constraint on agricultural use. The ALC grade is determined by the most limiting factor present.
- 4.3 Five main grades of land are recognised ranging from grade 1 land of excellent quality to grade 5 land of very poor quality. Other issues, such as the location of farms, the standard of fixed equipment and the accessibility of land do not affect grading although they may influence land use decisions. The definitions of the five ALC grades are included in Annex 1.

5.0 SLATE HALL

Background

- 5.1 This 70.5 hectare site was inspected during January and February 1990. A total of 72 soil inspections were made on site supplemented by information from five soil pits on site and two soil pits on adjacent land. At the time of survey the majority of the site was under plough.
- 5.2 On the provisional 1" to 1 mile ALC map sheet 135 (MAFF 1971), the area is shown as mainly grade 2 with smaller areas of grade 3 in the vicinity of New Close Farm and the south east corner of the site. The current survey was undertaken to provide a more detailed representation of agricultural land quality within the proposed development area.

Geology and Soils

- 5.9 The published 1:50,000 scale drift edition geology map sheet 187 (Geological Survey of GB 1975) shows the survey area to comprise Lower Greensand deposits through the central part and smaller deposits of Kimmeridge Clay and Gault Clay to the northwest and southeast corners of the site respectively.
- 5.10 The current detailed survey broadly confirms that the soils on site are derived from the above geological deposits. Three main soil types were identified.
- 5.11 In the vicinity of the depot, GR:TL 391642 and west of Slate Hall Farm very slightly stony deep fine loamy soils predominate. They typically comprise sandy clay loam or occasionally sandy loam topsoils over (sandy) clay, (sandy) heavy clay loam (or occasionally sandy clay loam) subsoils to depth. (50/120 cm+) At depth, in two areas, the profiles variably overlie the following:
- 5.12 North east of the depot subsoils typically merge into loamy medium sand at depths 85/100cm+.
- 5.13 Adjacent to the track running between New Close Farm and Slate Hall Farm subsoils generally merge into gleyed calcareous clays 50/115cm+.
- 5.14 East of the depot and in the west and southeast corners of the site clayey soils predominate. These soils typically comprise heavy clay loam or clay (in the south east) topsoils over clay (or occasionally heavy clay loam) subsoils which often become calcareous at depth (50/60cm+). Towards the southeast profiles are often calcareous in the upper horizons too but topsoil clay content typically exceeds 50%.
- 5.15 Gravelly soils outcrop in a small area south of New Close Farm. The soils typically comprise medium clay loam (or occasionally heavy clay loam) topsoils over slightly stony gleyed heavy clay loam subsoils which

generally merge into gravelly material ** at depths 50/60 cm+. Subsoils often become moderately stony in thin bands directly above the gravelly material.

AGRICULTURAL LAND CLASSIFICATION (REFER TO MAP 1)

5.16 The site is predominantly graded 3a, with smaller areas of grades 2 and 3b. A full description of the Agricultural Land Classification grades is provided below.

Grade 2

5.17 This occurs in the central part of the site and in a smaller area adjacent the northern boundary.

Two main situations occur.

5.18 The majority of the grade 2 land is associated with the freely draining, slightly droughty soils described in paragraphs 5.11 and 5.12. Fine loamy profile textures and very slight profile stone (and coarse textures at depth where they occur) impose a slight limitation on the water holding capacity of these soil profiles. Consequently, the minor droughtiness limitation restricts this land to grade 2.

5.19 Adjacent to the northern boundary the remaining grade 2 land is associated with the soil variant described in paragraph 5.13. Profile pit observations indicate that the fine loamy upper horizons overlie slowly permeable clays at depths 50/115 cm+ (ie wetness class I or II). These profiles are slightly droughty because the fine textures impose a slight limitation on the available profile moisture reserves. Consequently slight droughtiness, and where profiles are wetness class II, slight wetness and workability imperfections exclude this land from a higher grade.

** Gravelly material: typically comprises 50% flints in a matrix of medium sand and clay loam lenses.

Subgrade 3a

- 5.20 The majority of the site has been mapped as subgrade 3a. Two main situations occur.
- 5.21 Most of the land graded 3a occurs in association with the better drained variants of the soils described in paragraph 5.14. Soil profile pit observations indicated that the subsoils are slowly permeable at depth, typically 45/55 cm+ (ie wetness class II). This land is consequently limited by moderate wetness and workability imperfections which derive from the reduced subsoil permeability at depth combined with the heavy, decalcified***, topsoil textures. These factors restrict the land to subgrade 3a (Good quality agricultural land).
- 5.22 The remainder of the land graded 3a occurs in association with the moderately droughty gravelly soil described in paragraph 5.15. The presence of flints, in varying densities, throughout the profile moderately reduces the waterholding capacity of these soils. As a result droughtiness constitutes the chief limitation to the ALC grade.

Subgrade 3b

- 5.23 The remainder of the site has been mapped as subgrade 3b. These areas occur at the southeast corner of the site.
- 5.24 Towards the southeast corner of the site the land is associated with the soils described in paragraph 5.14. Topsoils comprise heavy clays which overlie subsoils of similar textures. Subsoils are slowly permeable directly below the topsoil and as a result the drainage status is assessed as wetness class III. The wetness and workability imperfections combine to impose a significant limitation on the agricultural potential of this land. Thus the land is restricted to subgrade 3b (Moderate quality agricultural land).

*** Decalcified: Towards the southeast profiles may be calcareous throughout but topsoil clay content typically exceeds 50%.

Non Agricultural/Urban

5.25 Associated Department of Transport land is shown as non agricultural whilst major roads appear as urban.

6.0 PROPOSED ROAD ADJACENT TO A604

Background

6.1 This 34.4 hectare site was inspected in August 1991. A total of 45 soil inspections were made on site supplemented by information from five soil profile pits. At the time of survey the majority of the site was under cereals with a smaller area of peas and grass.

6.2 On the provisional 1" to 1 mile ALC map sheet 135 (MAFF 1971), the area is shown as mainly grade 3 with a smaller area of grade 2 to the northwest of the Crematorium. The current survey was undertaken to provide a more detailed representation of agricultural land quality within the proposed development area.

6.3 Physical Factors Affecting Land Quality

Climate

6.4 Site specific data has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989).

6.5 This indicates that the Oakington area has an average annual rainfall of approximately 547 mm (21.5"), which is low by national standards. This data also indicates that soils are at field capacity for 89 days and moisture deficits are 118 mm for wheat and 113 mm for potatoes.

6.6 These climatic characteristics do not impose any climatic limitations on the ALC grading of the site.

Altitude and Relief

6.7 The land surveyed is level or gently undulating and lies at an altitude of approximately 15 m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and Soils

6.8 The published 1:50,000 scale drift edition geology sheet 187 (Geol Surv. 1975) and 1:63360 scale geology sheet 188 (Geol Surv. 1965) show the site to comprise Gault Clay. Field survey observations broadly support this mapping and identify two main soil types.

6.9 The majority of the site typically comprises calcareous clayey soils with a wetness class of II or III.

6.10 North of the Crematorium lighter textured soils over gravel deposits predominate. These profiles typically comprise heavy clay loam or clay topsoils over clay upper subsoils which overlie gravel at moderate depths.

AGRICULTURAL LAND CLASSIFICATION (REFER TO MAP 2)

6.11 The site is predominantly graded 3b with approximately one third of the site graded 3a. A full description of each ALC grade is provided below.

Subgrade 3a

6.12 To the northwest, north of the Crematorium and adjacent to Grange Farm land has been graded 3a. Two main situations occur.

6.13 The majority of the grade 3a land is associated with the soils described in paragraph 6.9. To the northwest profiles are slowly permeable in the lower horizons (ie wetness class II). Heavy topsoil textures and the reduced profile permeability at depth combine to exclude the land from a higher grade. In the vicinity of Grange Farm profile pit observations indicate that these soils are slowly permeable directly below the topsoil (ie wetness class III). Relatively heavy topsoils and reduced subsoil

permeability combine to impose a moderate wetness and workability limitation on this land.

6.14 The remaining grade 3a land occurs to the north of the Crematorium in association with the gravelly soils described in paragraph 6.10. Profiles have relatively heavy topsoils, a wetness class of II and overlie gravelly material at moderate depths. Consequently wetness, workability and droughtiness imperfections combine to restrict the ALC grade to 3a.

Subgrade 3b

6.15 The majority of the site has been mapped as 3b. This land is associated with the heavier variant of the clayey soils described in paragraph 6.9. Topsoils are heavy in texture and directly overlie slowly permeable subsoils (ie wetness class III). Thus wetness and workability imperfections impose a significant limitation on the agricultural potential of this land. Consequently the land is restricted to subgrade 3b (moderate quality agricultural land).

Non Agricultural/Urban

6.16 Woodland is shown as Non Agricultural and Grange Farm appears as Urban.

September 1991

SARAH ESCOTT
Resource Planning Group
Cambridge Regional Office

References

GEOLOGICAL SURVEY OF GREAT BRITAIN 1965 Geology Sheet No 188 1:63360 scale.

GEOLOGICAL SURVEY OF GREAT BRITAIN 1975 Drift edition Geology Sheet No 187,
1:50,000 scale.

MAFF 1971, Agricultural Land Classification Map Sheet 135, scale 1:63360

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

METEOROLOGICAL OFFICE 1989. Data extracted from the published ALC
agroclimatic dataset.

ANNEX 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 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 will affect the choice of crops, 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, 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 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.