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PHYSICAL CHARACTERISTICS REPORT INCORPORATING
AGRICULTURAL LAND CLASSIFICATION

LAND AT LODGE FARM, WOODHAM WALTER, ESSEX

1.0 INTRODUCTION

This 9.6 ha site was inspected on 1st March 1990, in connection with proposals to extract gravel for use in local road-building. Thirteen soil inspections were made over the site, supplemented by information from 2 soil profile pits. At the time of survey the land was in arable use, typical crops including winter wheat and sugar beet.

2.0 AGRICULTURAL LAND CLASSIFICATION

2.1 The site has been graded using the Revised guidelines and criteria for assessing the quality of agricultural land (MAFF, 1988).

2.2 The site is graded 3a and 3b. A breakdown of grades in ha and % terms is provided below.

Grade	ha	%
3a	3.4	35.4
3b	6.2	64.6
Total	9.6	100.0

2.3 Soils over the majority of the site have developed in glaciofluvial sands and gravels. Land graded 3b is limited by the quantity of topsoil stone present (16% + stone by volume > 2 cms diameter). That graded 3a is limited by moderate droughtiness imperfections which derive from the combination of soil texture and stone content in this relatively dry area.

2.4 In the south east of the site a small area of deeper clayey soils have been graded 3b due to moderate wetness limitations. Here, subsoils are

slowly permeable at 35 cms (wetness class III). This factor in combination with heavy topsoil textures, results in moderate wetness and workability constraints.

A full description of site/soil physical factors is provided below:

3.0 SITE PHYSICAL CHARACTERISTICS

Climate

3.1 Site specific climate data have been obtained by interpolating information contained in the published agricultural climatic dataset (Met. Office; 1989).

3.2 This indicates that the average annual rainfall is 562 mm (22.1") which is low by national standards. Soils are likely to be at field capacity for a relatively short period of approximately 98 days.

3.3 The accumulated temperature for the Lodge Farm area is estimated as 1429 degrees Celsius. This parameter indicates the cumulative build up of warmth available for crop growth, and influences the development of soil moisture deficits (SMD)* and susceptibility to drought. Soil moisture deficits at this site are 119 mm for potatoes and 122 mm for wheat. These figures are slightly higher than average for lowland England.

Relief

3.4 The site occupies gently sloping land between altitudes of 36m and 48m AOD. The land falls gently to the north and north-east from its highest point, in the south-east corner adjacent to Green Road (track).

* SMD represents the balance between rainfall and potential evapotranspiration occurring during the growing season.

4.0 SOIL PHYSICAL FACTORS

Geology

4.1 Geological information for this area is described in the Assessment of British Sand and Gravel Resources No 4: The sand and gravel resources of the country around Maldon, Essex (Report 73/1; Inst. of Geol. Sci.; 1973). This shows the majority of the site to comprise glacial sands and gravels, with the gravel deposit thinning out or becoming unworkable towards the south-east. Here, glacial head deposits of clay with varying amounts of sand and pebbles are mapped.

Soils

4.2 During this survey, a detailed inspection of soils identified one soil type, based on similarities in texture, depth and handling characteristics.

SOIL MAPPING UNIT I

Topsoil:	texture	:	medium clay loam
	depth	:	in the range 27 - 35 cms but generally 30 cms
	stone	:	variable; in the range 5% - 20% of soil volume comprising small and medium sub-angular flints and rounded pebbles.
	boundary	:	abrupt, smooth lower boundary
	roots	:	common fine and very fine plus few medium roots.

Upper Subsoil:	texture	:	sandy silt loam, heavy clay loam or occasionally sandy clay loam.
	depth	:	in the range 40 - 90 cms; typically 40/50 cms
	stone	:	variable: in the range 5% - 25% of soil volume. Size and composition as topsoil.
	structure	:	moderately developed coarse sub-angular blocky, friable to firm consistence.
	boundary	:	abrupt, smooth lower boundary.
	roots	:	few fine and very fine roots plus occasional medium roots.
Lower subsoil:	texture	:	clay
	depth	:	to 120 cms plus
	stone	:	variable; 0 - 15% of soil volume. Size and composition as topsoil.
	structure	:	weakly developed coarse sub-angular blocky, firm consistence.
	roots	:	few fine and very fine roots.

Soil variations: In the south-east of the site heavy-clay loam topsoils directly overlie clay subsoils to depth. Topsoil stone is in the range 5% - 10% with 5% - 10% stone in the subsoil. These soils are too inextensive to merit separate consideration.

ADDITIONAL INFORMATION:

Slowly permeable layer: identified in the clay ie. 35 -90 cms (typically 40/50 cms: wetness class II with small area of wetness class III in south-east).

$CaCO_3$: Profiles are generally non-calcareous throughout with very slightly calcareous topsoils recorded in isolated locations.

RESOURCE PLANNING GROUP
CAMBRIDGE RO
MARCH 1990

REFERENCES:

MAFF (1988): Revised guidelines and criteria for assessing the quality of agricultural land.

METEOROLOGICAL OFFICE (1989): Climatological Data for Agricultural Land Classification.

INSTITUTE OF GEOLOGICAL SCIENCES (1973): Assessment of British Sand and Gravel Resources No 4: The sand and gravel resources of the country around Maldon. Essex. Report 13/1.