

PHYSICAL CHARACTERISTICS REPORT INCORPORATING AGRICULTURAL LAND
CLASSIFICATION

LAND AT POWER'S/PEVEREL'S FARMS BROOMFIELD, ESSEX

1.0 INTRODUCTION

1.1 A survey was carried out over 92.6 ha of land situated by Power's Farm and Peverel's Farm, Broomfield, Essex, in connection with a planning application by Mid-Essex Gravel Pits Ltd.

1.2 A total of 85 inspections were made using a dutch soil auger on a 100 metre grid superimposed on the national grid. In addition three soil pits were dug to assess subsoil structural conditions.

2.0 AGRICULTURAL LAND CLASSIFICATION

2.1 The definition of the Agricultural Land Classification grades are given in Appendix 1.

2.2 The table below shows the breakdown of ALC grades in hectares and percentage terms for the survey area.

AGRICULTURAL LAND CLASSIFICATION		
Grade	ha	%
2	39.8	43
3a	41.7	45
3b	7.5	8.1
Urban	3.4	3.7
Non Ag	0.2	0.2
Total	92.6	100

2.3 Soils are variably calcareous and typically comprise heavy clay loam (occasionally clay or medium clay loam) topsoils overlying clay subsoils. Soil drainage was assessed as wetness class II or III. The main limitation to agricultural land quality for this site arises from wetness/workability imperfections.

3.0 SITE PHYSICAL CHARACTERISTICS

CLIMATE

- 3.1 Climatic information for the site has been interpolated from the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989). The average annual rainfall for the site is 585 mm, which is low by national standards. The number of days at which the site is likely to be at field capacity is also low at 106.
- 3.2 The accumulated temperature for this area is approximately 1412 degrees celsius and soil moisture deficits for wheat and potatoes are 119 and 114 mm respectively.
- 3.3 These climatic characteristics do not impose a climatic limitation on the ALC grading of the site.

RELIEF

The land is relatively level across the site. The altitude is approximately 62m AOD, consequently gradient and altitude do not constitute limitations to ALC grade.

4.0 SOIL PHYSICAL CHARACTERISTICS

4.1 GEOLOGY

The published 1:50,000 solid and drift edition geology sheet 241 (Chelmsford) shows the site to comprise glacial boulder clay drift.

4.2 SOILS

During the course of this survey, a detail inspection of the soils indicated the presence of two main topsoil types and two main subsoil types. These soils are more fully described below.

There are two main topsoil types which vary according to calcareousness, texture and depth (MAP 1).

TOPSOIL TYPE 1

- 4.3 This topsoil type is located mainly towards the west of the site with a smaller area found towards the north east corner. These soils are calcareous and textures typically comprise heavy clay loams or occasionally medium clay extending to depths of 25-35 cm, commonly 28 cm.

Supplementary information

Colour: 2.5Y 4/4
Stone: 2% flints 1-2 cm diameter
Boundary: smooth, clear
Roots: Common, fine and very fine

TOPSOIL TYPE 2

- 4.4 The remaining area of the site comprises non calcareous heavy clay loams or occasionally medium clay textures to depths of 30-35 cm.

Supplementary information

Colour: 10 YR 4/2
Stone: 3% flints
Boundary: smooth, clear
Roots: Common, fine and very fine

Two subsoil types were identified which differ due to calcareousness and structure (MAP 2).

SUBSOIL TYPE 1

- 4.5 Subsoil type 1 is found over the majority of the site and typically comprises approximately 25 cm of clay in the upper subsoil which is firm with a moderately developed coarse subangular blocky structure. The lower subsoils comprises chalky clay with a firm weakly developed very coarse sub angular blocky structure. The subsoil is calcareous throughout.

Supplementary information

	<u>Upper</u>	<u>Lower</u>
Colour:	10 YR 5/6	7.5 YR 5/6
Stone:	Negligible	30% chalk fragments and 15% flints
Porosity:	0.3%	0.5%
Boundary:	smooth, clear	n/a
Roots:	Common, fine and very fine	n/a

SUBSOIL TYPE 2

- 4.6 Subsoil type 2 is found in the south east of the site and is characterised by medium clay to depth (120 cm+) and an upper subsoil with a firm, weakly developed coarse sub angular blocky structure extending for about 25 cm. The lower subsoil structure was found to have a firm consistence and a moderately developed medium prismatic structure. The subsoil is typically non calcareous.

Supplementary information

	<u>Upper</u>	<u>Lower</u>
Colour:	2.5 Y 5/4	10 YR 5/3
Stone:	10-12% small and medium flints	5% small flints
Porosity:	0.2%	0.2%
Boundary:	smooth, clear	n/a
Roots:	Common, fine and very fine	Few fine and very fine

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