

PHYSICAL CHARACTERISTICS REPORT INCORPORATING AGRICULTURAL LAND
CLASSIFICATION

LAND AT SCOTLAND FARM, THORPE ON THE HILL, LINCOLNSHIRE

1.0 INTRODUCTION

1.1 A survey was carried out over 68.4 ha of land at Scotland Farm, Thorpe on the Hill, Lincolnshire in connection with a proposed sand and gravel extraction by Pioneer Aggregates (UK) Ltd.

1.2 A total of 70 inspections were made using a dutch auger, to a depth of 1.2 m unless stopped by impenetrable gravel. In addition three soil pits were dug to assess subsoil conditions.

2.0 AGRICULTURAL LAND CLASSIFICATION

2.1 The definition of the Agricultural Land Classification grades are included 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	14.2	20.8
3a	25.8	37.8
3b	26.7	39.0
Non Agricultural	0.6	0.9
Agricultural buildings	1.1	1.5
Total	<u>68.4</u>	<u>100</u>

- 2.3 The main limitations to agricultural land quality for this site is slight wetness or droughtiness which derives from a combination of soil texture and stoniness.
- 2.4 GRADE 2
- 2.4.1 Land graded 2 occurs in an area along the southern boundary of the site and is an area towards the west of the site immediately north of the Cocked Hat Plantation. Soils are slightly stony and comprise sandy clay loam or occasionally medium sandy loam topsoils over similar or occasionally heavy clay loam or clay subsoils.
- 2.5 GRADE 3a
- 2.5.1 Land graded 3a occurs in an area towards the centre of the site and also in two areas located towards the eastern and western site boundaries. These soils are slightly stony and typically comprise medium sandy loam topsoils over medium sandy loam, loamy medium sand or occasionally medium sand subsoils.
- 2.6 GRADE 3b
- 2.6.1 Land graded 3b was identified in an area towards the northern site boundary and in two smaller areas located towards the south west and in the eastern corner of the site. These soils typically comprise slightly stony loamy medium sand or medium sandy loam topsoils overlying loamy medium sand subsoils occasionally overlying medium sand or gravel at depth (commonly 65 cm+).
- 2.7 A full description of site and soil physical characteristics is given below.

3.0 SITE PHYSICAL CHARACTERISTICS

CLIMATE

- 3.1 Climatic information of the site has been interpolated from the 5 km grid datasets produced by the meteorological Office (Met Office, 1989). The average rainfall for the site is 578 mm. The number of days at which the site is likely to be at full capacity is 113.
- 3.2 The accumulated temperature for this area is approximately 1416 degrees Celsius and soil moisture deficits for wheat and potatoes are 113 and 106 respectively.
- 3.3 These climatic characteristics do not impose a climatic limitation on the ALC grading of the site.

Relief

The altitude of the site is approximately 16 m AOD. The land is typically level or occasionally very slightly sloping.

4.0 SOIL PHYSICAL CHARACTERISTICS

4.1 Geology

The published 1:50,000 solid and drift edition geology sheet 114 (Lincoln) shows the site to be underlain by pleistocene and recent sand and river gravel.

- 4.2 The published 1:250,000 Soil Survey of England and Wales Sheet 4 shows the majority of the site as Blackwood Association with a small area of Wickham 2 Association located in the south east. During the course of this survey, a detailed inspection of the soils confirmed the presence of two main soil types which are more fully described below.

Soil Mapping Unit 1

Topsoil

Texture: medium sandy loam or loamy medium sand.

CaCO₃: non calcareous

Colour: typically dark brown (10 YR 3/3), occasionally very dark greyish brown (10YR 3/2).

Stone: In the range 5-15%, typically 8% by volume, comprising mainly small and medium flints.

Depth: In the range 28-35 cm, typically 32 cm.

Structure: Cultivation zone - not applicable.

Boundary: smooth and clear

Roots: Common fine and very fine roots.

Upper Subsoil

Texture: typically loamy medium sand or less frequently medium sandy loam or medium sand.

CaCO₃: non calcareous

Colour: typically greyish brown (10 YR 5/2) or yellowish brown (10 YR 5/4).

Stone: in the range 2-20%, typically 8% by volume, small and medium flints.

Depth: typically 45 cm

Structure: typically weakly developed coarse and very coarse sub angular blocky, containing Mn cemented sand.

Consistence: Very firm

Boundary: Smooth and wavy

Roots: few fine and very fine

Lower Subsoil

Texture: typically medium sand or loamy medium sand, occasionally gravel.

CaCO₃: non calcareous

Colour: greyish brown (10YR 5/2) or pale brown (10 YR 6/3).

Stone: up to 20% but typically 2-5% by volume small and medium stones.

Depth: 120 cm +

Structure: typically granular or weakly developed coarse sub angular blocky.

Consistence: very friable or friable

Roots: few fine and very fine

Soil Mapping Unit 2

Topsoil

Texture: sandy clay loam or occasionally medium sandy loam.

CaCO₃: typically non calcareous

Colour: dark greyish brown (10 YR 4/2)

Stone: typically 6-8% by volume small and medium flints.

Depth: typically 30-35 cm

Structure: cultivations zone - not applicable

Boundary: smooth and clear

Roots: common fine and very fine roots

Upper Subsoil

Texture: typically sandy clay loam, occasionally medium sandy loam
heavy clay loam or clay.

CaCO₃: non calcareous

Colour: yellowish brown (10 YR 5/4) or greyish brown (2.5Y 5/2)

Stone: typically 2-7% by volume small stones.

Depth: variable in the range 45-100 cm, typically 50 cm

Structure: typically weakly developed medium and coarse and coarse
sub angular blocky.

Consistence: friable or firm

Boundary: clear and wavy

Roots: few fine and very fine

Lower Subsoil

Texture: typically clay or occasionally sandy clay or sandy clay loam.

CaCO₃: non calcareous

Colour: brown (10 YR 5/3), yellowish brown (10 YR 5/6) or grey (5 YR 6/1).

Stone: typically 5-8% by volume mainly small flints

Depth: 120 cm +

Structure: typically moderately developed coarse prismatic

Consistence: firm

Roots: few fine and very fine