

PHYSICAL CHARACTERISTICS REPORT FOR NEWBOLD PROPOSED SAND AND GRAVEL EXTRACTION

Following the request for detailed information on the physical characteristics of soil at Newbold, a member of the Resource Planning Group visited the site during February 1992. An ALC survey was undertaken using a 100 metre grid with supplementary borings and soil inspection pits as necessary. Soils were augered to 100 cms.

**Location, Altitude & Relief**

The site lies to the west of the A38 and 2 kilometres to the north-east of Barton-Under-Needwood. It is bordered by existing gravel workings to the west and agricultural land on other sides. The land lies at an altitude of 50 metres and is almost level. Altitude and relief are non-limiting in the classification of this site.

**Climate & Rainfall**

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR) and accumulated temperature (ATO). For this site these figures are 621 mm and 1399°C respectively. The field capacity days figure for the site is 138 days. The mean last frost occurs in early May.

**Geology & Soils**

The area is underlain by Keuper Marl, with drift deposits of River Terrace sand and gravels. Within the site the associated soils are very variable, with sandy, peaty or clayey topsoils overlying sand and gravel.

## Land Use

At the time of survey the principal land uses were permanent pasture, winter cereals and cereal stubble.

### AGRICULTURAL LAND CLASSIFICATION

Sub-grade 3a accounts for 17.4 hectares and 31.2% of the site. It mainly occurs to the north of Green Lane where medium clay loams, sandy clay loams and peat loams overlie sand and gravel. These soils are variable, and include profiles of grade 2, but the complexity of the area has resulted in the soils being graded as sub-grade 3a on a 'pattern' limitation.

In the south of the site two small areas of sandy soils have been included in this sub-grade, where sandy loams overlie loamy sands and sand and gravel. Droughtiness is the main limitation to the agricultural use of this land.

Sub-grade 3b accounts for 32.6 hectares and 58.5% of the site. To the south of Green Lane, particularly around Black Meadow Wood, the soils are typically medium clay loams or organic medium clay loams overlying silty clay loams, sometimes with clay inclusions within the topsoils. These soils are underlain by sand and gravel at depth. Some profiles contained peaty layers. Soil wetness is the main limitation to the agricultural use of this land.

Other areas of sub-grade 3b land which broadly correspond to Soil Unit 4 on the Soil Resource map, exhibited sandy profiles, with medium sandy loams overlying sand and gravel. These soils had a variable stone content. In some areas surface stone cover exceeded 15%, and stoniness is the main limitation to the agricultural use of the land. Elsewhere soil droughtiness is the main limiting factor.

1.7  
Woodland accounts for 4.4 hectares and 7.9% of the site.

Non-agricultural land accounts for 1.3 hectares and 2.4% of the site and includes the Green Lane and the site of the demolished Gorse Hall.

#### SUMMARY

Grade	Area	% of site	% of Agric. Area
3a	17.4	31.2	42.4
3b	32.6	58.5	57.6
Non-Agric	1.3	2.4	-
Woodland	4.4	7.9	-
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	55.7	100.0	100.0

#### SOIL RESOURCES

Five distinct soil units have been identified which may require separate handling if the site is worked for sand and gravel.

##### Unit 1

This unit is mapped to the north of Green Lane, covering the slightly lower lying land. These soils are very variable but are typically peaty loams or organic heavy clay loams overlying peaty loams and peats often within a matrix of peat, sand and clay. Topsoil depths are equally variable, although generally between 30 and 40 cms, with upper subsoils extending to between 40 and 50 cms. Below this depth medium sands or sand and gravel occur, with occasional clay or peat inclusions.

##### Unit 2

This unit occurs to the south of Green Lane. Soils are typically medium clay loams, medium silty clay loams, or heavy clay loams

extending to 20 or 25 cms overlying silty clay or clay . Depth to sand and gravel was very variable within the unit, but typically between 60 and 80 cms.

### Unit 3

This unit is found immediately to the south of Black Meadow Wood and is similar to Unit 2, although the topsoils included a higher organic matter content, and peat occurred within the profiles. However, this unit could be stripped with Unit 2 if required.

### Unit 4

This unit occurs in four separate blocks within the site. Soils are typically stony sandy loams or occasionally sandy clay loams extend to 30 cms, overlying loamy sand or stony sandy loams, with sand below 50 cms. Several profiles were too hard to auger below 60 cms.

### Unit 5

This unit is limited to a small area north of Green Lane where soils are typically medium clay loams or sandy clay loams extend to between 25 and 30 cms, overlying heavy clay loams, often with sandier inclusions. A matrix of sand and gravel with clay generally occurs below 50 cms.

Areas of woodland were not surveyed.

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