

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
WITTON PARK, COUNTY DURHAM
PROPOSED QUARRY EXTENSION
DECEMBER 1992

ADAS
Leeds Statutory Group

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SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 7ha of land at Witton Park was carried out in December 1992.

At the time of survey, 6.9 ha of this was in agricultural use of which 6.2ha falls within Grade 2. Soils are deep, light to medium-textured and well-drained (Wetness Class I), but the overall climate of the area as well as , in places, slight soil droughtiness, limit the land to a maximum of Grade 2.

The remainder of the agricultural land on the site (0.6ha) falls within Subgrade 3a. Profiles are well drained (Wetness Class I) and consist of medium clay loam topsoils overlying moderately stony loamy sand or sand subsoils at ground 35cm depth. Soil droughtiness is the factor which limits this land to Subgrade 3a.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON
THE PROPOSED QUARRY EXTENSION AT WITTON PARK, CO. DURHAM

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 2½ Km north east of Bishop Auckland on the south side of the River Wear on the river flood plain. It is centred on Grid Reference NZ 185305 and covers a total of 7.28ha. Survey work was carried out in December 1992 when soils were examined by hand auger borings at intervals predetermined by the National Grid. Overall boring density was approximately two per hectare and extra borings were made, where necessary, to refine grade boundaries. Two soil inspection pits were dug to allow detailed descriptions of soil structure to be made. Land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land" (MAFF, 1988).

1.2 Land Use and Relief

At the time of survey, most of the site was under grass. The remainder consisted of a farm track and a small area of deciduous woodland in the north west of the site. Site altitude varied from 75m in the north to almost 80m in the south. The land slopes very slightly away from the river (0-2°) towards the south.

1.3 Climate

Grid Reference	: NZ 185305
Altitude (m)	: 75
Accumulated Temperature above 0°C (January-June)	: 1292 day°C
Average Annual Rainfall (mm)	: 692
Climatic Grade	: 2
Field Capacity Days	: 186
Moisture Deficit (mm) Wheat	: 90
Moisture Deficit (mm) Potatoes	: 76

1.4 Geology, Soils and Drainage

The site is underlain by Carboniferous coal measures over which lies a thick cover of river alluvium. Soils are generally light to medium-textured (typically medium clay loams or medium sandy loams) although in the centre and east of the site there are areas with very light textured and gravelly subsoils. All soils on the site are well drained, falling in Wetness Class I.

1.5 Soil Properties

Two main soil types occur on this site, descriptions of which are given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

- (a) Soil Type 1:- Light to medium textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed on river alluvium occurs over most of the site. It is characterised by being deep well drained and only very slightly stony.

- (b) Soil Type 2:- Light to very light textured soils (Unit T1/S2)
(Full Profile Description, Table 1)

This soil, formed on deposits of gravel and river alluvium, occurs in the centre of the site. It is characterised by a very light textured, moderately stony subsoil.

1.6 Soil Resources

- (i) Topsoils

Unit T1 occurs over the whole site. It is light to medium textured and typically consists of medium sandy loam or medium clay loam which is stoneless to very slightly stony, containing 0-4% small and medium sized rounded hard stones. This topsoil has a well developed medium angular blocky structure and a median depth of 35cm.

(ii) Subsoils

Unit S1 occurs over most of the site. It is light to medium textured and consists of loamy sand, sandy loam, medium clay loam or medium silty clay loam. It is very slightly stony, containing 0-2% small and medium rounded hard stones. Unit S1 has a moderately developed medium angular blocky structure and a mean depth of 65cm.

Unit S2 occurs in the centre of the site. It is very light textured (typically sand or loamy sand) and moderately stony, containing 25-30% small to very large rounded hard stones. It has a weakly developed medium granular structure and a mean depth of 65cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Light textured soil, T 1/S1/S2

NOTE - This profile is intermediate between the 2 soil types; the second horizon is typical of Unit S1 and the third horizon is typical of Unit S2.

Profile Pit 1 (Near auger boring 14)

Slope:- 0°

Land Use:- Ley Grassland

Weather:- Frosty and overcast

Depth cm	Horizon	Description
0-25		Very dark greyish brown (10YR3/2) medium sandy loam; no mottles; very slightly stony (approximately 5% small and medium-sized subrounded hard stones); moist; well developed medium angular blocky structure; firm soil strength; slightly porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non-calcareous; gradual smooth boundary.
25-60		Dark brown (10YR3/3) medium sandy loam; no mottles; very slightly stony (approximately 5% small and medium-sized subrounded hard stones); moist; moderately developed medium angular blocky structure; friable; moderately porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non-calcareous; clear smooth boundary.
60-100		Dark brown (10YR3/3) loamy coarse sand; no mottles; moderately stony (approximately 30% small to very large subrounded and rounded hard stones); moist; weakly developed medium granular structure; very friable to loose; porous; few fine and medium fibrous roots; non-sticky; non-plastic; non-calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:-

<u>Grade/Subgrade</u> <u>Area</u>	<u>Hectares</u>	<u>Percentage of Total</u>
1		
2	6.24	85.7
3a	0.69	9.5
3b		
4		
5		
(Subtotal)	(6.93)	(95.2)
Urban		
Non Agricultural	0.35	4.8
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Subtotal)	(0.35)	(4.8)
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TOTAL	7.28	100
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3.1 Grade 2

Grade 2 land occurs over most of the site. Profiles are well drained (Wetness Class I) and consist typically of medium sandy loam or medium clay loam topsoils overlying loamy sand, sandy loam, medium clay loam or medium silty clay loam subsoils. Both topsoils and subsoils are stoneless to very slightly stony, typically containing 0-4% small and medium sized rounded hard stones. This land is limited to Grade 2 by the overall climatic limitation and, in places, slight soil droughtiness.

3.2 Subgrade 3a

Subgrade 3a land occurs in the centre of the site. Profiles consist of medium clay loam topsoils overlying loamy sand or sand subsoils at between 30cm and 40cm depth. The subsoil is moderately stony (typically containing 25-30% small to very large rounded hard stones). Although profiles are well drained (Wetness Class I), this land is limited to Subgrade 3a by moderate soil droughtiness.

3.3 Non Agricultural

This category includes a track in the west of the site and a small area of woodland in the north west.

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