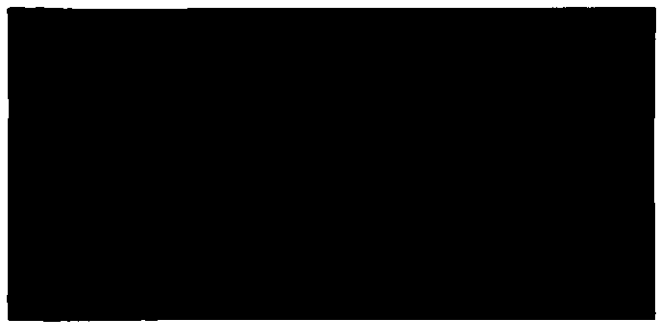

MAFF Ministry of Agriculture Fisheries and Food

STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION LINGS QUARRY SOUTH YORKSHIRE OCTOBER 1995

ADAS
Leeds Statutory Group

Job No:- 214/95
MAFF Ref:- EL 10751
Commission No:- 2144

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SUMMARY

A detailed Agricultural Land Classification (ALC) and Statement of Physical Characteristics survey of 23.8 ha of land around Ling House, Stainforth ("Lings Quarry") was carried out in October 1995. At the time of the survey, 17.7 ha of the site was in agricultural use and all of this falls in Subgrade 3b. The soils are well drained but very light-textured, with loamy medium sand topsoils overlying loamy medium sand or medium sand upper subsoils and medium sand lower subsoils in most cases. The topsoils are very slightly to slightly stony, and the subsoils are stoneless to moderately stony. The ALC grade is restricted by soil droughtiness.

The remaining land on the site consists of urban land (covering 5.7 ha and consisting of existing quarry workings, adjoining areas already stripped of topsoil, a metalled track, a soil mound and pigeon lofts), and Non Agricultural land (0.4 ha of gardens south of Ling House).

In terms of soil resources, one topsoil unit (TI) occurs with a median depth of 35cm and a weakly developed medium angular and subangular blocky structure. It is very slightly to slightly stony and is absent from the areas marked as Urban on the ALC map.

One main subsoil unit (S1) occurs, which has been subdivided into S1A, which is stoneless to slightly stony, and S1B, which is moderately stony. Both S1A and S1B are very light-textured (loamy medium sand or medium sand) and both have a weakly developed medium angular blocky to single grain structure. Mean depths are 83 cm and 85cm respectively, although in those areas where the topsoil has already been removed, Unit S1B occurs from the soil surface to 120 cm depth.

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1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

This site lies 2km south west of the village of Stainforth and covers 23.8 ha. Survey work was carried out in October 1995 when the soils were examined by hand auger borings at 100m intervals predetermined by the National Grid. In addition, two soil pits were dug to allow full profile descriptions to be made. The 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 the survey the western block of land was under potatoes, while the eastern block consisted of existing quarry workings and adjoining areas already stripped of topsoil, a track, a soil mound, pigeon lofts, a garden, an area of restored land sown to grass and an area of scrub/permanent grass. Of the total area of 23.8 ha, 17.7 ha was agricultural land at the time of the survey.

Site altitude varies from 11m AOD at Ling House to approximately 4m AOD in the existing quarry workings, and the land is generally level.

1.3 Climate

Grid Reference	:	SE 632 102
Altitude (m)	:	10
Accumulated Temperature above 0°C (January - June)	:	1409 day °C
Average Annual Rainfall (mm)	:	580
Climatic Grade	:	1
Field Capacity Days	:	118
Moisture Deficit (mm) Wheat	:	114
Moisture Deficit (mm) Potatoes	:	107

1.4 Geology, Soils and Drainage

This site is underlain by Bunter Sandstone over which lie river gravel deposits. The soils on the site (including the restored areas and those areas already stripped of their topsoil) are well drained, falling in Wetness Class I. The topsoils (where present) consist of loamy sands and overlie loamy sand or sand upper subsoils and sand lower subsoils. The topsoils vary between very slightly and slightly stony in most cases, with 5-15% very small and medium hard stones, while the subsoils vary from stoneless to moderately stony, with up to 35% very small to medium hard stones.

1.4 Soil Properties

One main soil type occurs on this site, a description of which is given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

(a) Soil Type 1:- Very light textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil, formed on river gravel deposits, occurs over the whole site with the exception of the existing quarry workings. In some areas adjoining the existing workings the topsoil has been removed, but the subsoil remains. This soil type is characterised by its very light texture, consisting of loamy medium sand or medium sand.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs over the whole site with the exception of the existing quarry workings and some adjoining areas. It is very light-textured, usually consisting of loamy medium sand, and is generally very slightly to slightly stony, with between 5% and 15% very small to medium hard stones. Unit T1 has a weakly developed medium angular and subangular blocky structure and a median unit depth of 35cm.

(ii) Subsoils

There is one main subsoil type on this site, Unit S1, which has been subdivided into Unit S1A, which is stoneless to slightly stony, and Unit S1B, which is moderately stony. Unit S1A occurs in the western block of land and also in the south eastern corner of the eastern block, whilst S1B occurs only in the centre and west of the eastern block. Both of these units are very light-textured, consisting of medium sand or, less commonly, loamy medium sand, and both have a weakly developed medium angular blocky to single grain structure. The main difference between units S1A and S1B is the stone content - Unit S1A is stoneless to slightly stony, containing up to 15% very small to medium hard stones, while Unit S1B is moderately stony, with between 20% and 35% very small to medium hard stones. Unit S1A has a mean depth of 83cm and Unit S1B has a mean depth of 85cm, with the exception of those areas where the topsoil has already been removed, where Unit S1B extends from the soil surface to 120cm depth.

2. SOIL PROFILE DESCRIPTIONS

Table 1 *Very light textured soil, T1/S1A*

Profile Pit 1 (Near auger boring 6)

Slope:- 0°
Land Use:- Potatoes
Weather:- Cool and overcast

Depth (cm)	Horizon	Description
0 - 37		Brown (10YR4/3) loamy medium sand; no mottles; very slightly stony; with around 3% small and medium hard stones (2% > 2cm); moist; weakly developed medium subangular blocky structure; very friable; extremely porous; common medium fleshy and fine fibrous roots; non-sticky; non-plastic, non-calcareous; abrupt smooth boundary.
37 - 120		Yellowish red (5YR5/8) medium sand; no mottles; stoneless; moist; weakly developed medium angular blocky structure; very friable; extremely porous; few very fine fibrous roots; non-sticky; non-plastic; non-calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2		
3a		
3b	17.7	74.4
4		
5		
(Sub total)	17.7	74.4
Urban	5.7	23.9
Non Agricultural	0.4	1.7
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	6.1	25.6
TOTAL	23.8	100

3.1 Subgrade 3b

All of the agricultural land on the site falls in Subgrade 3b. The soils are well drained (Wetness Class I) and consist of loamy medium sand topsoils overlying loamy medium sand or medium sand upper subsoils. The topsoils are very slightly to slightly stony (5 - 15% total very small to medium hard stones, with up to 11% > 2 cm) and the subsoils are stoneless to moderately stony, with up to 35% very small to medium hard stones. Although some irrigation water is available, the supply (from the Stainforth and Keadby Canal) is not sufficiently reliable to permit the upgrading of this land from Subgrade 3b, to which it is restricted by soil droughtiness.

3.2 Urban

Urban land includes existing quarry workings and adjoining areas already stripped of topsoil, a track, a soil mound, and pigeon lofts.

3.3 Non Agricultural

This category includes a garden to the south of Ling House.

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MAPS