STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION

BLACK HILL QUARRY, BRAMHOPE

Proposed Landfill Site

MAFF

Leeds Regional Office

December 1989

lds.AL1Black.Hll

CONTENTS

MAPS

1. STATEMENT OF PHYSICAL CHARACTERISTICS

A. INTRODUCTION

The site is located around National Grid Reference SE 27304215 immediately to the north east of Golden Acre Park and adjoining the Leeds to Arthington road. The area surveyed covers a total of 7.8 hectares. Survey work was carried out in December 1989 when soils were examined by hand auger borings to a depth of one metre at a density of approximately one boring per hectare. Additional borings and soil pits were dug where necessary to confirm soil characteristics.

Land Use

The site consists of a single agricultural field in arable use. There is a small strip of planted woodland along the northern edge of the site.

Climate and Relief

The average annual rainfall is approximately 777 mm and the median accumulated temperature above 0°C (January-June) is 1233 day °C. The area is at field capacity for about 197 days each year. The rainfall and temperatures indicate that there is an overall ALC climatic limitation of grade 2 on this site. The moisture deficits of 79 mm for wheat and 62 mm for potatoes result in a moderate droughtiness limitation on the lighter soils on the site.

The altitude of the site varies between 150 m and 162 m a.o.d. and slopes are generally gentle.

The northern, western and southern edges of the site are on the higher land with a slight depression running through the centre and eastern side.

Geology

The area around Black Hill is free from the boulder clay drift which covers much of the surrounding area and the underlying coarse sandstone of the Milestone Grit Series lies close to the surface. Consequently, on the higher land on the site soils can be as shallow as 45 cm.

Drainage

The lighter soils are well drained (Wetness Class I) whilst the heavier soils are only poorly drained (Wetness Class 4).

B. SOIL PROPERTIES

The site contains two distinct soil types. Lighter shallow soils are found on the higher land with heavier soils on lower ground. Topsoils in the lighter soils are generally medium sandy loams with a mean depth of 25 cm. Subsoils consist of generally very stony loamy coarse sand with medium sandy loams or sands in places. Depth to the sandstone under these soils varied from about 40 cm to over 120 cm. Soils however were generally impenetrable to the soil auger below about 50 cm.

On the heavier soils topsoils were on average 22 cm deep and consisted of mainly heavy sandy clay loams and clay loams with occasional inclusions of subsoil material. Subsoils in these soils were predominantly heavy clays and heavy sandy clay loams. These subsoils also contained occasional very large sandstone stones, and extended to at least 100 cm in depth. These soils have the appearance of having been restored at some time in the past although soil structure is nevertheless strongly developed.

C. SOIL RESOURCES

The topsoil and subsoil resources on the site are shown on the accompanying maps along with soil depth information.

i. Topsoils

Unit T1

This unit consists of medium textured soils which are predominantly very slightly stony moderately well structured clay loams and heavy sandy clay loams with a mean thickness of 22 cm.

Unit T2

This unit consists of light soils which are mainly very slightly stony weakly structured medium sandy loams with a mean thickness of 25 cm.

ii. Subsoils

Unit S1

Subsoils in this unit are heavy and are mainly very slightly stony heavy clays with a strongly developed structure with heavy sandy clay loams and fine sandy clay loams in places. Mean unit depth is 78 cm.

Unit S2

This unit comprises light material, mainly very stony loose loamy coarse sands with sands and sandy loams. Depth to bedrock is variable and the thickness of this unit has been set at 25 cm although soil forming material will be found in places below this depth.

2. SOIL PROFILE DESCRIPTIONS

Black Hill Quarry, Bramhope

Pit A: Well drained, shallow, light soil over sandstone

Land Use: Arable

Gradient: 2°

Horizons
(cm)

0-30 Very dark grey (10YR 3/1) very slightly stony; unmottled; medium sandy loam; few medium subangular sandstone stones; moist; very weakly developed fine and medium subangular blocky breaking to medium granular; low packing density; very porous; moderately weak soil strength; slightly sticky and slightly plastic; many fine fibrous roots; non calcareous; abrupt irregular boundary.

30-50 Yellowish brown (10YR 5/6) very stony; unmottled loamy coarse sand; abundant very small to very large rounded and angular sandstone stones; moist; single grain; low packing density; extremely porous; loose soil strength; non sticky and non plastic; common very fine fibrous roots; non calcareous; abrupt irregular boundary.

50+ Blocky coarse grained sandstone of the Millstone Grit Series.

Pit B: Poorly drained, heavy soil

Land Use: Arable

Gradient: 0°

Horizons
(cm)

0-23 Dark grey (10YR 4/1) very slightly stony heavy sandy clay loam with common faint medium brown (10YR 5/3) mottles and containing small reddish yellow (10YR 6/8) subsoil lenses; few small subrounded sandstone stones; moist; moderately developed medium and coarse subangular blocky; medium packing density; moderately porous; moderately firm soil strength; moderately sticky and moderately plastic; many fine fibrous roots; non calcareous; abrupt wavy boundary.

23-85 Light grey (10YR 6/1) with grey (10YR 5/1) ped faces, becoming dark grey (N4) at the base of the horizon, very slightly stony heavy clay with many prominent medium and coarse reddish yellow (7.5YR 6/8) mottles especially at the top of the horizon; few very large angular sandstone stones; moist; strongly developed coarse prismatic; high packing density; slowly permeable; very firm soil strength; very sticky and very plastic; common very fine fibrous roots; non calcareous; abrupt even boundary.

85-100 Light grey (10YR 7/1) stoneless fine sandy clay loam with many distinct medium yellowish brown (10YR 5/8) mottles; moist; massive structure; high packing density; slowly permeable; moderately firm soil strength; moderately sticky and very very plastic; few very fine fibrous roots; non calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

Subgrade 3a (3.4 ha)

All the lighter land has been placed within this subgrade. Topsoils are generally medium sandy loams over very stony loamy coarse sands, sands, and sandy loams. These soils are placed in Wetness Class I and are easily worked at most times of the year. However, shallow soil depth over sandstone, high stone content in the subsoils, and light topsoil and subsoil textures result in an available water assessment for most profiles indicating a drought risk that limits ALC grade to subgrade 3a.

Subgrade 3b (4.2 ha)

All the heavier land has been placed within this subgrade. Topsoils are generally heavy sandy clay loams and clay loams over predominantly heavy clays. The soils are assessed as being in Wetness Class IV which, taken with the days the area is at field capacity and the texture of the topsoils, indicates an overall soil wetness limitation that places the area in subgrade 3b.

Non Agricultural (0.2 ha)

This consists of a small strip of planted woodland on the northern edge of the site.

RPG Leeds
December 1989