MAFF Ministry of Agriculture Fisheries and Food

STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION EASINGWOLD BYPASS (BORROW PITS) NORTH YORKSHIRE PROPOSED BORROW PITS FEBRUARY 1993

ADAS
Leeds Statutory Centre

Job No:- 27/93
MAFF Ref:- EL48/70

borrow.alc.mp

SUMMARY

A Statement of Physical Characteristics and Agricultural Land Classification survey of 3.7ha of land at Easingwold was carried out in January 1993.

At the time of survey, 95% of the site was in agricultural use of which 2.6 ha falls in Grade 2. Soils are either well drained and light to very light textured (in which case slight soil droughtiness and in places topsoils texture limit the ALC grade of the land) or moderately well to imperfectly drained and medium to heavy textured (in which case slight soil wetness and workability limits restrict the land to Grade 2).

0.8 ha of the agricultural land falls in Subgrade 3a. Profiles typically consist of medium clay loam topsoil; medium clay loam or sandy clay loam upper subsoils and heavy clay loam or clay lower subsoils. Most soils are imperfectly drained and are, thus, limited to Subgrade 3a by soil wetness and workability restrictions.

0.1 ha of Subgrade 3b land occurs on the site. Profiles are poorly drained (typically consisting of medium clay loam topsoils overlying slowly permeable clay subsoils). The ALC grade of this land is limited by soil wetness and workability restrictions.

CONTENTS

MAP

STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED BORROW PIT SITE AT EASINGWOLD, NORTH YORKSHIRE

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site lies 2 Km west of the town of Easingwold and is centred on Grid Reference SE500701. It covers a total of 3.7 ha. Survey work was carried out in January 1993 when soils were examined by hand auger borings at a density of four per hectare at points predetermined by the National Grid. Two soil pits were dug in order to collect further information on soil physical characteristics and to collect samples for laboratory analysis.

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, 95% of the site was in ley grass. The remainder consisted of a storage compound.

The site lies at an altitude of approximately 24m AOD and is flat to very gently sloping (typically 0-2°) with a southerly or easterly aspect.

1.3 Climate

Grid Reference	: SE 500701
Altitude (m)	: 24
Accumulated Temperature above 0°C (January - June)	: 1370 day°C
Average Annual Rainfall (mm)	: 641
Climatic Grade	: 1
Field Capacity Days	: 150
Moisture Deficit (mm) Wheat	: 104
Moisture Deficit (mm) Potatoes	: 94

1.4 Geology, Soils and Drainage

The site is underlain by Mercia mudstone in the south and Redcar mudstone in the north. Overlying these solid deposits is a considerable depth of post-glacial lacustrine clay which is in turn, particularly in the north of the site, overlain by deposits of wind blown sand.

Soils in the north of the site are well drained or moderately well drained (falling in Wetness Classes I or II) and typically consist of sandy loam or loamy sand topsoils overlying loamy sand or sand subsoils. Soils in the south are typically moderately well or imperfectly drained (falling in Wetness Classes II or III) and consist of medium clay loam topsoils overlying subsoils which vary in texture from sandy loam to clay.

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 very light textured soils (Unit T1/S1)
(Full Profile Description, Table 1)

This soil formed on deposits of aeolian sand occurs in the north and centre of the site. It is characterised by deep, well drained, light textured topsoils and subsoils

(b) Soil Type 2:- Medium to heavy textured soils (Unit T2/S2)
Full Profile Description, Table 2)

This soil formed on deposits of lacustrine clay occurs in the south and east of the site. It is characterised by medium textured topsoils overlying medium to heavy textured subsoils which contain bands of loamy sand or sand in places.

1.6 Soil Resources

(i) Topsoils

Unit T1 occurs in the north and centre of the site. It is light to very light textured (sandy loam or loamy sand) and stoneless. It has a weakly developed medium subangular blocky structure and a median depth of 35cm.

Unit T2 occurs in the south. It is medium textured (typically medium clay loam) and has a moderately developed medium coarse angular blocky structure. Median unit depth is 30cm.

(ii) Subsoils

Unit S1 occurs in the north and centre of the site. It is very light textured (typically loamy sand or sand) and has a single grain to weakly developed medium angular block structure. This soil unit is stoneless and has a mean thickness of 60cm.

Unit S2 occurs in the south and east of the site. Generally it is medium to heavy textured (consisting of medium clay loam, sandy clay loam, heavy clay loam or clay) but horizons of lighter textured material such as loamy fine sand or fine sandy loam occur in places at variable depths. Unit S2 has a moderately developed coarse angular blocky to medium prismatic structure (in the case of the medium and heavy textured horizons) or a weakly developed medium granular to single grain structure (in the case of the light textured horizons). Mean unit thickness is 65cm.

2. SOIL PROFILE DESCRIPTIONS

Table 1 Light to very light textured soil. T1/S1

Profile Pit 1 (Between auger borings 3 and 4)

Slope:- 0°
Land Use:- Ley grass
Weather:- Mild and overcast

Depth cm	Horizon Description
0-35	Dark brown (7.5YR3/2) loamy fine sand; no mottles; stoneless; slightly moist; weakly developed medium subangular blocky structure; friable; slightly porous; common fine and medium fibrous roots: non-sticky; non-plastic; non-calcareous; gradual irregular boundary
35-75	Dark brown (7.5YR4/3) loamy fine sand; common distinct strong brown (7.5YR5/6) mottles below 50cm; stoneless; slightly moist; weakly developed medium angular blocky structure; very friable; slightly porous; common fine and medium fibrous roots; non-sticky; non-plastic; non-calcareous; gradual irregular boundary.
75-120	Light grey (7.5YR7/2) fine sand; common coarse distinct brownish yellow (10YR6/6 and 10YR6/8) mottles; stoneless; slightly moist; single grain structure; few fine fibrous roots; non-sticky; non-plastic; non-calcareous

Table 2 Medium to heavy textured soil, T2/S2

Profile Pit 2 (near auger boring 14)

Slope:- 0°
Land Use:- Ley grass
Weather: Mild and overcast.

Depth cm	Horizon Description
0-20	*Very dark greyish brown (10YR3/2) medium clay loam; common coarse indistinct dark brown (10YR3/3) mottles; stoneless; moist; moderately developed medium to coarse subangular blocky structure; firm soil strength; slightly porous; many fine and medium fibrous roots; slightly sticky; slightly plastic; non-calcareous; clear smooth boundary.*
20-36	Greyish brown (10YR5/2) medium clay loam; common medium distinct strong brown (7.5YR5/6) mottles; stoneless; moist; moderately developed medium to coarse angular blocky structure; *firm to very firm soil strength; slightly porous; common fine and* medium fibrous roots; moderately sticky; moderately plastic; non-calcareous; clear smooth boundary.
35-60	Light grey (10YR7/2) fine sandy loam; common medium and coarse distinct reddish yellow (10YR6/8) mottles, becoming many below 50cm; stoneless; moist; weakly developed medium granular to single grain structure; very friable; moderately porous; slightly sticky; slightly plastic; non-calcareous; clear wavy boundary.

Depth cm	Horizon Description
60-100	Grey (7.5YR5/0) clay; common medium and coarse indistinct brown (7.5YR5/2) and brownish yellow (10YR6/8) mottles; slightly stony (approximately 8% small to large subrounded hard stones); moist; moderately developed medium, prismatic structure; extremely firm soil strength; very slightly porous (<0.5% pores >0.5mm); moderately sticky; very 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	2.6	70.3
3a	0.8	21.6
3b	0.1	2.7
4		
5		
(Subtotal)	(3.5)	(94.6)
Urban	0.2	5.4
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Subtotal)	(0.2)	(5.4)
TOTAL	3.7	100

3.1 Grade 2

Grade 2 land occurs in the north and south west of the site. The soils in the north are well drained (falling in Wetness Class I) and typically consist of sandy loam or loamy sand topsoils overlying loamy sand or sand subsoils. Profiles are stoneless and well drained (falling in Wetness Class I) but the land is limited to Grade 2 by slight soil droughtiness and, in places topsoil texture.

The Grade 2 land in the south west typically consists of sandy loam or medium clay loam topsoils overlying similarly textured upper subsoils and heavy clay loam or clay lower subsoils. Horizons of loamy sand occur in places at variable depths. Profiles are moderately well or imperfectly drained (Wetness Class II and III) and the ALC grade of the land is limited by slight soil wetness and workability restrictions.

3,2 Subgrade 3a

Land in this subgrade occurs in the centre and south east. Profiles are imperfectly drained (Wetness Class III) and typically consist of medium clay loam topsoil overlying medium clay loam or sandy clay loam upper subsoils and slowly permeable heavy clay loam or clay lower subsoils. This land is restricted to Subgrade 3a by soil wetness and workability limitations.

3.3 Subgrade 3b

Land in this subgrade occurs in the south east of the site. Profiles typically consist of medium clay loam topsoil overlying a slowly permeable clay subsoil at around 35cm depth. These soils are stoneless but poorly drained (falling in Wetness IV) and the land is, thus, limited to Subgrade 3b by soil wetness and workability restrictions.

3.4 Urban

This refers to a storage compound for engineering equipment which lies in the centre of the site.

MAPS