AGRICULTURAL LAND CLASSIFICATION
and
Statement of Physical Characteristics

Gallymoor, Holme-Upon-Spalding Moor,
Humberside

Proposed Waste Disposal Site

MAFF
Leeds Regional Office

January 1992
File Ref: 2FCS 5721
Project No: 1/92

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CONTENT

MAPS

AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 Introduction and Site Characteristics

1.1 Location

National Grid Reference:-	SE 840400
Location Details:-	3 km east north east of Holme-Upon-Spalding Moor
Site Size:-	35 hectares

1.2 Survey Methods

Date Surveyed:-	January 1992
Boring Density and Spacing Basis:-	At 100m intervals on a grid pattern predetermined by the national grid.
Sampling Method:-	By hand auger borings to a depth of 1 metre.
Number of Borings:-	34
Number of Soil Pits (used for):-	2 soil pits were dug to examine structure and take samples from each soil type on the site.

The land quality assessments were made 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)"

1.3	Land use:-	At the time of survey the land was in arable use.
1.4	Climate and Relief	
	Average Annual Rainfall (AAR)-	662 mm
	Accumulated Temperature above 0°C (January-June):-	1394 day °C
	Field Capacity Days:-	156 days
	Altitude average:-	8m a.o.d.
	maximum:-	10m a.o.d.
	minimum:-	8m a.o.d.
	Climatic limitation (based on interaction of rainfall and temperature values:-	
	Relief:-	Virtually flat with little or no variation in altitude across the site.
	Slopes (°):-	0-1°
	Gradient Limitations:-	None

1.5 Geology and Soil

Solid Strata:-	Keuper Marl
Depth of solid rock from surface:-	Greater than 1 m except in the north.
Drift types:-	Fine blown sand.
Thickness of drift and distribution-	Fine sandy drift covers the whole site to a depth of at least 1 metre except in the north where reddish Keuper Marl occurs at 30 - 60 cm from the surface.
Soil Types and Distribution:-	Deep find sandy gley soils in the south. Fine sandy over heavy soils in the north.
Soil Textures (topsoils and subsoils):-	Topsoil textures of fine sandy loam or loamy fine sand over similar subsoils in the southern part of the site. Subsoils in the north consist of heavy silty clay loam or silty clay.
Soil Associations:-	
On 1/25000 map:-	Holme Moor and Everingham
Soil Limitations and type:-	Loamy fine sand topsoils are susceptible to wind erosion.

1.6 Drainage

Soil type and Wetness Class:-	The light soils all fall within Wetness Class I (well drained). The light over heavy soils fall within Wetness Class III and IV (imperfectly and poorly drained.
Drainage Limitations:-	Slowly permeable subsoils in the northern part of the site where Keuper Marl is close to the surface will tend to cause slight surface wetness in the winter months in this area. The deep sandy soils in the southern part of the site may contain ground water at depth. The excavation and use of the site for waste disposal could result in contamination of this ground water.

2.0 Agricultural Land Classification Grades

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

Grade/Subgrade	Hectares	Percentage of Agricultural Area	Percentage of Total Area
1			
2			
3a	34.0	100	94.2%
3b			
4			
5			
Non Agricultural (Farm Woodland)	1.5		4.1%
Agricultural Buildings	0.1		0.3%
Urban	0.5		1.4%
Other			
Total	36.1	100	100

Subgrade 3a

Distribution on site:-	The whole site falls within this subgrade.
Soil Type(s) and Texture(s):-	South and south west:- Deep fine sandy soils. North and north east:- Fine sandy top and upper subsoils over clay loam or clay at depth. Central eastern area and northern corner:- Sandy topsoils over clay subsoils.
Depth to Slowly Permeable Layers:-	30 - 70 cm in the north and east
Wetness and Drainage Class:-	Wetness Class I (well drained) in the south. Wetness Classes II to IV (moderately well drained to poorly drained in the north)
Stone Percentage and Type:-	A small area containing up to 10% stones occurs about 300m west of Bridgeholme Farm. Elsewhere topsoils contain between 0 - 5% stones.
Grade Limiting Factors:-	The risk of wind erosion of the fine sandy topsoils places an overall limitation of subgrade 3a on most of the site. Some areas in the north containing poorly drained soils (Wetness Clas IV) are also limited by slight soil wetness problems.

Non Agricultural

Type and location of land included:-	Farm woodland occurs in a strip along the southern edge of the site; at points along various field drains and in the corner of the northernmost field.
Type and location of building included:-	A large barn near the southern edge of of the site.

Urban

Type of land use included:-	The household waste disposal site located on the southern edge of the site.

3.0 STATEMENT OF PHYSICAL CHARACTERISTICS (SOIL PROPERTIES AND RESOURCES)

3.1 Soil Properties

Three soil types occur on the site. Their distribution along with soil depth and quantity information are shown on the accompanying maps.

Soil Type 1:-	Deep fine sandy soils
Occurrence:-	Southern half of the site
Textures:-	Loamy fine sand or fine sandy loam topsoils over similar subsoils.
Stone content:-	0 - 15%
Horizon thicknesses:-	Topsoil mean:- 35 cm Subsoil mean:- 65 cm
Profile pit features	Very weekly developed fine subangular blocky structure over similar or loose subsoil structure.
Other features:-	Evidence of topsoil movement from "blowing".
Soil Type 2:-	Fine sandy soils over light upper subsoils passing to medium or heavy textured material at depth.
Occurrence:-	Northern part of the site.
Textures:-	Loamy fine sand or fine sandy loam topsoils over loamy fine sand or fine sandy loam upper subsoils passing to sandy loam silty loam or silty clay at depth.

Stone content	0 - 5%
Horizon thicknesses:-	Topsoil: mean:- 35cm Upper subsoil: mean:- 35cm Lower subsoil: mean:- 30cm
Other features:-	Evidence of topsoil "blowing".
Soil Type 3:-	Fine sandy topsoils over heavy subsoils.
Occurrence:-	Central eastern part of the site and northern corner.
Textures:-	Loamy fine sand or fine sandy loam topsoils over heavy silty clay loam or silty clay subsoils.
Stone content:-	0 - 5%
Horizon thicknesses:-	Topsoil mean: 35cm Subsoil mean: 65cm
Profile pit features:-	Coarse prismatic structured subsoil.
Other features:-	Some evidence of topsoil "blowing".

3.2 Soil Resources

Topsoils

Unit T1

Textures/stone content:-	Light or very light (0 - 15% stones)
Structure:-	Very weakly developed fine subangular blocky.

Occurrence:- Over the whole site.

Thickness:- 30-55 cm (mean = 35 cm)

Subsoils

Upper Subsoils

Unit U1

Texture group/stone content:- Light or very light

Structure:- Weakly developed fine sub angular blocky.

Occurrence:- Northern and eastern parts of the site.

Thickness:- Mean: 35 cm

Subsoils

Lower Subsoils

S1

Texture group/stone content:- Very light

Structure:- Single grain, loose

Occurrence:- Southern part of site

Thickness:- Mean: 65 cm

Unit S2

Texture group/stone content:-	Heavy
Structure:-	Strongly developed coarse prismatic
Occurrence:-	Central eastern part of site and northern corner.
Thickness:-	Mean: 65 cm

Unit S3

Texture group/stone content:-	Medium or heavy
Structure:-	Moderately developed angular blocky to strongly developed coarse prismatic structure.
Occurrence:-	Northern and eastern part of the site. (Below upper subsoil unit U1).
Thickness:-	Mean: 30 cm

4.0 Soil Profile Descriptions

Pit A - Deep fine sandy soils (Soil Type 1)

Location: near boring 33
Slope: 0°
Climate: clear, dry, cold
Land Use: linseed

depth (cm)	Profile description
0 - 30	very dark greyish brown (10YR 3/2) loamy fine sand; unmottled; stoneless; moist; weakly developed fine subangular blocky structure; (low packing density; extremely porous; very friable; non sticky; non plastic; common fine fibrous roots; non calcareous; abrupt smooth boundary.
30 - 100	very pale brown (10YR 7/3) loamy fine sand; many medium distinct (10YR 6/8) mottles; stoneless; moist; weakly developed fine sub angular blocky to single grain structure; medium packing density; extremely porous; very friable; loose; non sticky; non plastic; no roots; non calcareous.

Pit B - Fine sandy topsoils over clay subsoils (Soil Type 3)

Land use: cereals
Location; between borings 18 and 19
Slope: 0°
Climate: clear dry cold

depth (cm)	Profile description
0 - 35	very dark greyish brown (10YR 3/2) fine sandy loam; unmottled; very slightly stony with small to medium angular flinty hard rocks and stones; moist; moderately developed fine subangular blocky structure; friable; non-sticky; non-plastic; common fine fibrous roots; non calcareous; abrupt smooth boundary.
35 - 100	strong brown (75 YR 5/6) silty clay; many coarse prominent mottles (5GY 7/1); stoneless with fragmented chalk and flint appearing at depth; moist; strongly developed medium to coarse prismatic structure; few fine pores and fissures; firm ped strength; moderately sticky; very plastic; few fine fibrous roots; non calcareous.

N.B. Soil Type 2 is similar to the above, but with the addition of an intermediate light textured upper subsoil horizon between the topsoil and clayey lower subsoil.

MAPS