MAFF CENTRAL SCIENCE LABORATORIES
SAND HUTTON
PROPOSED SOIL DISPOSAL FIELDS
VALIDATION OF SOILS AND AGRICULTURAL LAND CLASSIFICATION REPORT

ADAS
Leeds Statutory Group

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MAFF CENTRAL SCIENCE LABORATORIES, SAND HUTTON, YORK: PROPOSED SOIL DISPOSAL FIELDS

VALIDATION OF SOILS AND AGRICULTURAL LAND CLASSIFICATION REPORT PREPARED BY ADAS CONSULTANCY FOR JOHN LAING CONSTRUCTION LTD

1.0 Introduction

The two proposed soil disposal fields lie immediately to the west and east of the main laboratory site on the south east side of the A64 (T) approximately 10 Km NE of York. The larger western field covering 20.1 ha adjoins the A64 at NGR SE 670582. The smaller field, totalling 8.0 ha is centred on NGR SE 679584.

A survey to validate the report prepared by ADAS Consultancy and to collect information for a Statement of Physical Characteristics, was carried out in July 1993. Soils were examined by hand auger borings, in traverses across the two sites, at points chosen to assess the nature and distribution of the soil types identified by ADAS Consultancy. Soil pits were also dug to examine structure in the main soil types occurring on the site.

1.1 Climate and Relief

Grid Reference	:	SE 675585 (mid point between the two fields)
Altitude (m)	:	25
Accumulated temperature above O°C (January - June)	:	1370 day °C
Average Annual Rainfall (mm)	:	629
Climatic Grade	:	I
Field Capacity Days	:	146
MD Wheat (mm)	:	108
MD Potatoes (mm)	:	99

The rainfall, accumulate temperature and field capacity values are virtually identical to those used in the ADAS Consultancy report. The very slight differences, which probably result from a different reference point having been used, have no effect on land quality.

1.2 Geology and Soils

The area is underlain by Triassic Sandstones over which there is a thick cover of till, glaciolacustrine clay and windblown fine sand. The ADAS Consultancy report indicates that soils in the two fields are formed largely on the windblown sand with smaller areas formed on clay or thin loamy deposits overlying clay. The sand soils are mainly well drained (Wetness Class I) whilst those on loamy drift and clay are poorly drained (Wetness Class IV). Our validation field survey confirmed these findings. Mean thicknesses of topsoil and subsoil horizons across the site were virtually identical to those described in the Consultancy report, except for upper subsoil thicknesses in the mapping unit containing medium and light loamy drift over clay at depth. The validation survey suggests that this horizon is only 20 cm in thickness rather than the 30 cm stated in the Consultancy report. This upper subsoil horizon, however, occurs only in small parts of the two sites. The difference between the two surveys is therefore of little practical significance.

The soil stripping and reprofiling proposals for both fields take into account the nature and volume of the soils and should enable land of a similar quality to be formed.

N.B. A description of the soil mapping units along with maps and soil thickness and volumes information is given as an Appendix to this report.

2.0 Agricultural Land Classification

The validation survey confirms that all land in the two fields falls within ALC Subgrades 3a and 3b.

Western Field OS 9400, 0S 1500

	(ha)	(%)
Subgrade 3a	12.0	59.70
Subgrade 3b	8.1	40.30
TOTAL	**20.1**	**100.00**

	(ha)	(%)
Subgrade 3a	6.5	81.25
Subgrade 3b	1.5	18.75
TOTAL	**8.0**	**100.00**

Subgrade 3a land in both fields consists of well drained (Wetness Class I) loamy fine sand topsoils and subsoils some of which pass into clay at about 90 cm depth. This land is limited to Subgrade 3a by wind erosion risk. The Subgrade 3b land consists either of poorly drained (Wetness Class IV) variable loamy topsoils and upper subsoils overlying slowly permeable heavy clay loam or clay or, poorly drained (Wetness Class IV) medium clay loam topsoils over slowly permeable heavy clay loam or clay subsoils. Both soil types are limited to Subgrade 3b by wetness.

3.0 Conclusion

The validation survey carried out in July 1993 confirmed that the land classification, soils data and maps in the ADAS Consultancy report are a fair representation of the soils and land quality on both soil disposal fields.

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APPENDIX I

A. Soil Properties

3 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 textured soils (Unit T1/S1)

This soil formed on aeolian fine sand occurs widely across both fields. It is characterised by loamy fine sand topsoils over similar subsoils. Topsoils are subject to wind erosion in early spring.

(b) Soil Type 2:- Medium/light over heavy textured soils (Unit T2/U1/S2a

This soil formed on loamy drift over clay occurs in the southern part of the eastern field (OS0041) and in the south western part of the western field (OS1500,9400). It is characterised by variable loamy topsoil and upper subsoil horizons over heavy clay loam or clay lower subsoils.

(c) Soil Type 3:- Medium over heavy textured soils (Unit T3/S2b

This soil formed on medium clay loam over heavy clay loam or clay is widespread on the eastern side of the western field (OS9400, 1500). It is characterised by slowly permeable subsoil horizons immediately below the topsoil.

1.6 Soil Resources

(i) Topsoils

Unit T1 is widespread in both fields. It is light textured and typically consists of stoneless loamy fine sand. It has a very weak fine subangular blocky structure and a mean thickness of 30 cm.

Unit T2 occurs at the southern end of the eastern field and adjoining the A64 in the western field. It is medium or occasionally light textured usually consisting of

stoneless fine sandy clay loam or occasionally fine sandy loam. It has a weakly to moderately developed medium subangular blocky structure. Mean thickness is 30 cm.

Unit T3 occurs in the central and eastern parts of the western field (OS9400, 1500). It is medium textured and usually consists of slightly stony medium clay loam. It has as moderately developed medium and coarse subangular blocky structure and a mean unit thickness of 25 cm.

(ii) Subsoils

(a) Upper subsoils

Unit U1 occurs only at the southern end of the eastern field (OS0041) and adjoining the A64 in the western field, where it forms a loamy (sandy clay loam or medium clay loam) upper subsoil over the underling clay. It has a moderately developed coarse subangular blocky structure and a mean thickness of 20 cm.

(b) Lower Subsoils

Unit S1 is widespread in both fields. It is light textured consisting usually of stoneless loamy fine sand or fine sand. It is almost loose and structureless. Clay occasionally occurs at around 90 cm depth. Mean thickness is 70 cm.

Unit S2 occurs at depth in the medium and heavy textured soils. It is especially widespread in the eastern part of the western field (OS1500). It consists usually of slightly stony heavy clay loam or clay with a moderately developed coarse angular blocky to prismatic structure. Unit S2a has a mean thickness of 50 cm and Unit S2b a mean thickness of 75 cm.

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