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Agricultural Land Classification
Lynnbottom Landfill Extension
Standen Heath
Isle of Wight

Resource Planning Team
Guildford Statutory Group
ADAS

LYNNBOTTOM LANDFILL EXTENSION, STANDEN HEATH, ISLE OF WIGHT

Report of Survey

1. Introduction

In August 1992, an Agricultural Land Classification (ALC) was carried out on 26 hectares of land adjacent to the Lynnbottom Landfill site at Standen Heath in the Isle of Wight. ADAS was commissioned by MAFF to determine the land quality affected by the application for an adjoining landfill site.

The work was conducted by members of the Resource Planning Team within the Guildford Statutory Group with approximately 1 soil observation per 1.5 hectares. A total of 15 borings and 2 soil pits was described using MAFF's revised guidelines and criteria for grading the quality of Agricultural Land. Soils were also examined along some perimeter ditches. MAFF's guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.

The distribution of the grades and subgrades is shown on the attached ALC map and the area of each grade is given in the Table below. A map has been drawn at a scale of 1:10,000; the information is accurate at this level but any enlargement would be misleading.

The majority of the agricultural area has been placed in Subgrade 3B with a minor area of higher grade 3A land on the plateau soils in the south east of the survey area. The poor quality of the land is related to very steep gradients or the presence of upper subsoils of clay which cause a significant wetness limitation in the valley bottom. The area of higher quality land identifies soils on crest slopes which have very stony profiles but which contain adequate available water in the profile to qualify for Subgrade 3A.

The application area contains less than 20 hectares of best and most versatile land.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Agricultural Area
3A	9.0	37.8
3B	14.2	59.7
4	0.6	2.5
Non-Agric	2.0	100% (23.8 ha)
Urban	0.4	
	26.2 ha	

2. Climate

The climatic criteria are considered first when classifying land. Climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable soil or site conditions.

The main parameters used in the assessment of the climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

A detailed assessment of the prevailing climate has been made by interpolation from a 5 km gridpoint dataset. Details of the interpolation are given in the table below. These show that there is no overall climatic limitation affecting the site; the area is climatically Grade 1.

Upper crest slopes are affected by the local climatic factor, exposure, which limits these areas to no higher than Grade 2.

Table 2 : Climatic Interpolations

Grid Reference :	SZ530886	SZ530883	SZ533880
Altitude (m) :	65	85	100
Accumulated Temperature (°days):	1490	1468	1451
Average Annual Rainfall (mm) :	919	936	950
Field Capacity (days) :	187	190	192
Moisture Deficit, Wheat (mm) :	102	98	96
Moisture Deficit, Potatoes (mm) :	96	92	88

3. Agricultural Land Classification

3.1 Subgrade 3A : The eastern and southeastern soils in the survey area have been placed in this grade with droughtiness as the single most limiting factor. Pit 2 is typical of these soils which occur on the plateau and upper crest slopes. Subsoil stone contents gradually increase down the profile from 22-50% approximately and there was very little root penetration observed at the depth of the pit at 80 cm. The stone contents and the poor root penetration restrict the water available in the profile for extraction by crops and therefore limit the soils to 3A.

A minor area of Subgrade 3A has also been identified in the northwest of the survey area above the wet valley bottom soils, before slopes exceed 7°. These profiles experience a less significant wetness limitation than the valley bottom soils. Slowly permeable clay layers occur below 50 cm, allowing these soils to be placed in Wetness Class III (ie the soil profile is wet within 70 cm depth for 91-180 days in most years).

3.2 Subgrade 3B : Pit 1 is typical of the wet soils that are located in the valley bottoms and which are also found on some of the steeper sloping land adjacent to the Subgrade 3A soils in the south of the survey area. These soils experience shallow gleying as a result of drainage water obstructed by heavy clay horizons in the upper subsoil

which show clear evidence of very poor structure. This evidence of wetness places these soils in Wetness Class IV (ie the soils are believed to be wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years). This degree of wetness reduces the range of crops that can tolerate such conditions and also reduces the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

Much of the Subgrade 3B land has a gradient limitation, with slopes in the range 7-11°.

3.3 Grade 4 : A minor part of the survey area in the east includes restored soils on the Lynnbottom Site. These soils have been very badly restored. The original topsoil has been lost and the profiles now have a clay texture at the surface which has been significantly compacted during reinstatement which today causes an extreme wetness and workability limitation. As a result, this small area has been conservatively placed in Grade 4. These soils will be wet within 40 cm depth for 7-11 months in most years and there is therefore a minimal period when the soils can be trafficked by machinery or livestock without making conditions worse.

SOIL PIT DESCRIPTION

Site Name : STANDENNEATH I OF WIGHT Pit Number : 1P

Grid Reference: SZ529 885
Average Annual Rainfall : 936 mm
Accumulated Temperature : 1468 degree days
Field Capacity Level : 190 days
Land Use : Permanent Grass
Slope and Aspect : 0 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR42-00	0	5	F	MCSAB
25- 30	C	25Y 72-00	0	2	C	MCSAB
30- 65	C	25Y 72-00	0	1	M	MCP
65-120	C	05Y 62-00	0	0	M	MCP

Wetness Grade : 3B
Wetness Class : IV
Gleying :000 cm
SPL :035 cm

Drought Grade : 2
APW : 125mm MBW : 27 mm
APP : 102mm MBP : 10 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : STANDENNEATH I OF WIGHT Pit Number : 2P

Grid Reference: SZ530 882
Average Annual Rainfall : 936 mm
Accumulated Temperature : 1468 degree days
Field Capacity Level : 190 days
Land Use : Cereals
Slope and Aspect : 2 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR42-00	9	15		WDCSAB
25- 40	MCL	10YR42-00	0	22		WDMSAB
40- 50	SCL	10YR43-00	0	32		
50- 60	SCL	10YR43-00	0	34		
60- 80	MCL	10YR44-00	0	50		

Wetness Grade : 2
Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 3A
APW : 085mm MBW : -13 mm
APP : 087mm MBP : -5 mm

FINAL ALC GRADE : 3A

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DESCRIPTION OF THE GRADES AND SUB-GRADES

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which an be grazed or harvested over most of the year.

Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.