ADAS LAND MANAGEMENT SERVICES

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A D A S

AGRICULTURAL LAND CLASSIFICATION

HOPGROVE FARM
MALTON ROAD
YORK

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Government Buildings
Otley New Road
Leeds
LS16 5PY

September 1989

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ADAS

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AGRICULTURAL LAND CLASSIFICATION
HOPGROVE FARM, MALTON ROAD, YORK

1.1 INTRODUCTION

The survey area is situated immediately south west of the A1237 York outer ring road at Hopgrove approximately 5 km north east of the city centre. It covers an area of 33.9 ha of which 32.9 ha are under cereals or pasture. The central grid reference is SE 632555.

Survey work for Agricultural Land Classification (ALC) was carried out on the 31st August 1989. Soils were examined at a total of 36 hand auger borings and 3 profile pits to determine soil structures.

Land quality assessments were made using the revised guidelines published by MAFF in 1988. Definitions of all terms used in this report can be found in this publication. Brief descriptions of the five land quality grades defined by MAFF are given below:-

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 includes 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 slight droughtiness or 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 can 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.

1.2 CLIMATE AND RELIEF

Mean annual rainfall at Hopgrove is approximately 619 mm and the accumulated temperature above 0°C (January to June) is 1384 day °C. The land is at field capacity for about 140 days each year. The maximum moisture deficit for wheat is calculated to be 111 mm and for potatoes 102 mm. Temperature and rainfall figures indicate that there is no overall climatic limitation on ALC grade. The site lies on level ground, approximately 15 m a.o.d.

1.3 GEOLOGY, SOILS AND DRAINAGE

The site is underlain by glaciolacustrine clay with patches of post glacial aeolian sand. Soils are derived from these materials and their composition and distribution can be complex. Three main soil types have been identified. The majority of the area has heavy, poorly drained soils. These usually have topsoils of sandy clay loam or medium clay loam and subsoils of heavy clay loam, heavy silty clay loam, silty clay or clay. They are wetness class IV. In the north western corner of the site and east of Sow Dike are small areas of lighter, moderately drained soils. These have sandy loam or sandy clay loam topsoils, similar textured upper subsoils and lower subsoils of silty clay. They fall into wetness classes II and III. Lighter, moderately well drained soils are found in the north east of the site where topsoils are loamy sands or sandy loams. Upper subsoils are of loamy sand or sand and lower subsoils of silty clay. They are generally wetness II.

2.0 AGRICULTURAL LAND CLASSIFICATION

ALC grades generally correspond with the 3 main soil types.

Grade	Area (ha)	% of total land area
2	3.8	11%
3a	4.7	14%
3b	24.4	72%
Non Agricultural	0.5	1.5%
Farm Buildings	0.5	1.5%
	33.9	100%

2.1 GRADE 2

The two areas of grade 2 consist of the medium to light textured topsoils underlain by medium textured upper subsoils and heavy textured lower subsoils. The moderate drainage of the subsoils put this land into wetness classes II or III. Topsoil workability therefore limits these areas to grade 2.

2.2 SUBGRADE 3A

The light textured soils found on the north east of the site are moderately well drained and easily worked. Their limited water holding capacity coupled with the relatively low rainfall of the area make these soils subject to drought and therefore limit them to this subgrade.

2.3 SUBGRADE 3B

This area corresponds to the large area of land with medium textured topsoils and heavy to very heavy subsoils. These are wetness class IV and topsoil workability is considerably restricted thus limiting classification to this subgrade.

2.4 NON AGRICULTURAL

This is the area of disused railway.

REFERENCE

MAFF (1988) Agricultural land classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

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APPENDIX

SCHEDULE OF SOIL AUGER BORINGS - GLOSSARY OF ABBREVIATIONS USED

LMS	Loamy medium sand
MSL	Medium sandy loam
MCL	Medium clay loam
HCL	Heavy clay loam
SCL	Sandy clay loam
HZCL	Heavy silty clay loam
ZC	Silty clay
SC	Sandy clay
C	Clay

MOTTLING

Col	Colour
Abun	Abundance
Cont	Contrast
o	Ochreous
m	Manganese
g	Grey
f	Few
c	Common
m	Many
f	Faint
d	Distinct
p	Prominent

PACKING DENSITY

M	Medium
H	High

Soil textures are defined according to the MAFF Agricultural Land Classification System.

All soil colours (eg 10YR4/2) are defined according to the Munsell soil colour system (Munsell Colour Company Inc; Baltimore, Maryland, 21218, USA).

Hopgrove Farm. Schedule of Auger Borings

SAMPLE	ALC	DEPTH	TEXTURE	COLOUR	----MOTTLES--- COL	ABUND	CONT
001	2	0-30	scl	10YR31			
		30-70	mcl	10YR53	OG	M	P
		70-120	zc	10YR33	0	F	D
002	2	0-35	msl	10YR33			
		35-60	mcl	10YR53	OG	C	P
		60-80	lms	10YR56	OG	M	D
		80-120	c	10YR41	OG	M	D
003	2	0-28	mscl	10YR31			
		28-45	mcl	10YR62	O	C	D
		45-70	msl	10YR62	O	C	D
		70-120	zc	10YR51	OG	C	D
004	3A	0-25	scl.msl	10YR42			
		25-40	scl	10YR52	OG	C	P
		40-120	zc	75YR52	O	C	D
005	3B	0-25	mcl	10YR42	O	C	D
		25-30	mcl	10YR53	OG	C	D
		30-100	zc	10YR52	OG	C	D
006	2	0-25	mcl	10YR32			
		25-35	scl	10YR53	OG	C	D
		35-50	zc	10YR61	OG	C	D
		50-100	msl	10YR53	OG	C	D
007	3B	0-25	scl	10YR32			
		25-35	mcl	10YR52	O	C	D
		35-100	c	10YR52	OG	C	D
008	3B	0-28	mcl	10YR42	O	F	F
		28-100	zc	10YR52	O	C	P
009	3B	0-25	hzcl	10YR31	R	F	D
		25-120	zc	10YR41	O	C	D
010	3B	0-35	fsl	10YR31			
		35-55	mcl	10YR41	OG	F	D
		55-95	zc	10YR51	OG	M	D
		95-120	c	25Y30			
011	3B	0-26	scl	10YR42	OG	C	D
		26-38	mcl	10YR53	OG	C	D
		38-100	zc	10YR61	O	C	D
012	3B	0-38	mzl	10YR31			
		38-120	zc	10YR41	O	M	D

Hopgrove Farm. Schedule of Auger Borings

SAMPLE	ALC	DEPTH	TEXTURE	COLOUR	----MOTTLES--- COL	ABUND	CONT
013	3B	0-28	zcl	10YR31			
		28-120	zc	10YR41	OG	C	D
014	2	0-50	fscl	10YR31			
		50-80	hcl	10YR41	OG	M	D
		80-120	c	25Y40	OG	C	D
015	3B	0-26	fsl	10YR31	R	F	D
		26-75	mcl	10YR41	OG	M	D
		75-95	ms	10YR46	G	C	F
		95-120	hcl	10YR51	OG	F	D
016	3B	0-28	mcl	10YR31	R	F	D
		28-105	mcl	10YR41	OG	C	D
		105-120	zc	10YR41			
017	3A	0-20	mzcl	10YR42	O	F	D
		20-45	scl	10YR53	OG	C	D
		45-60	msl	10YR64	O	C	
		60-120	zc	10YR61	O	C	P
018	3B	0-22	zc	10YR31	O	F	F
		22-120	zc	10YR41	O	C	D
019	2	0-42	mcl	10YR31			
		42-75	hcl	10YR41	OG	M	D
		75-120	c	10YR41	OG	M	D
020	3A	0-30	lfs	10YR32			
		30-80	lms	10YR53	OG	C	D
		80-120	zc	10YR51	OG	C	D
021	3B	0-35	mzcl	10YR31			
		35-60	hzcl	10YR41	OG	M	P
		60-120	zc	5Y51	O	F	F
022	2	0-28	scl	10YR42	O	F	D
		28-45	scl	10YR53	OG	C	D
		45-80	msl	10YR53	OG		D
		80-100	lms	10YR53	OG	C	D
023	3B	0-25	mzcl	10YR42	O	C	D
		25-35	hzcl	10YR42	OG	C	D
		35-120	zc	10YR42	O	C	D
024	3B	0-20	mzcl	10YR42	O	F	F
		20-30	hzcl	10YR42	OG	C	D
		30-120	zc	10YR41	O	C	D

Hopgrove Farm. Schedule of Auger Borings

SAMPLE	ALC	DEPTH	TEXTURE	COLOUR	----MOTTLES--- COL	ABUND	CONT
025	3B	0-24	mcl	10YR31			
		24-80	hcl	10YR41	OG	M	D
		80-120	c	10YR41	OG	M	P
026	3A	0-28	fsl	10YR32			
		28-80	lms	10YR53	OG	C	D
		80-100	ms	10YR53	OG	C	D
		100-120	zc	10YR51	O	C	D
027	3A	0-28	lfs	10YR32			
		28-100	lms	10YR53	O	C	D
028	3B	0-30	mzcl	10YR31			
		30-55	zc	25Y52	OG	C	D
		55-120	c	10YR41	OG	C	D
029	3B	0-22	mzcl	10YR31			
		22-75	mzcl	10YR41	OG	C	D
		75-95	hcl	10YR41	OG	C	D
		95-120	c	10YR41	O	F	F
030	3B	0-25	hzcl	10YR42	OG	C	D
		25-120	c	10YR51	OG	C	D
031	3B	0-25	scl	10YR42			
		25-35	scl	10YR42	OG	C	D
		35-120	zc	10YR52	OG	C	D
032	3A	0-33	lfs	10YR32	OG	C	D
		33-100	lms	10YR53	OG	C	D
033	2	0-30	lfs	10YR32			
		30-60	fs	10YR72	O	F	D
		60-120	zc	75YR52	OG	C	D
		120-121	zc	75YR52	OG	C	D
034	3A	0-20	scl	10YR42	O	F	D
		20-45	scl	10YR52	O	C	D
		45-60	msl	10YR54	O	C	D
		60-120	zc	75YR52	OG	C	D
035	3B	0-25	mzcl	10YR42	O	F	D
		25-35	hzcl	10YR52	OG	C	D
		35-100	zc	10YR52	O	C	D
036	3B	0-26	hzcl	10YR42	O	F	D
		26-120	zc	10YR41	OG	C	D