AGRICULTURAL LAND CLASSIFICATION

Grange Farm

Nun Monkton

Proposed Holiday Park

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AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT GRANGE FARM, NUN MONKTON, YORK

1.1 INTRODUCTION

The site is located around national Grid Reference SE 500597 close to the River Ouse about 2 km north of Nun Monkton and 5 km north of the A59 York-Harrogate road. The nearest settlement is the village of Linton-on-Ouse which lies about 1 km to the north on the other side of the river. The site covers an area of 15.6 ha most of which is in arable use. The only area under grass is the smaller field adjoining Widdington Grange in the south eastern part of the site. Agricultural Land Classification (ALC) Survey work was carried out in July 1989 when soils were examined by hand auger borings to a depth of one metre. Borings were made at 15 points predetermined by the National Grid at a density of 1 boring per hectare. Additional borings were made at 3 points outside this grid to check and refine grade boundaries.

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

Average annual rainfall at Grange Farm is 629 mm and the accumulated temperature above $0^{o}C$ (January to June) is 1391 day ^{o}C. The land is at field capacity for about 144 days each year. The temperature and rainfall figures indicate that there is no overall climatic limitation on ALC grade.

Most of the site is very gently undulating or almost level and lies just above the floodplain of the River Ouse at an altitude of about 40 m aod. The north eastern corner, however, is somewhat lower and subject to winter flooding in most years. Flooding in this area is frequent enough to place an overall flooding restriction on ALC grade.

1.3 GEOLOGY SOILS AND DRAINAGE

Soils in much of the central and western parts of the site are formed on heavy, stoneless glaciolacustrine clay. Topsoils in this material consist of heavy clay loam about 25 cm in thickness over stoneless clay subsoils some of which contain thin seams and lenses of sandy material. Lighter soils are more common in the north and east and along the southern boundary where there is a patchy cover of variable sandy and loamy postglacial drift over the clay. Topsoils in these areas vary from medium clay loam to sandy loam and overlie subsoils which can be of sandy clay loam, loamy sand or clay depending on the thickness of postglacial drift over the underlying clay. Alluvial soils occur only in the lower lying north eastern corner of the site where stoneless heavy silty clay loam topsoils occur over alluvial silty clay.

Drainage is variable. The small areas of light coarse loamy and sandy soil contain no slowly permeable layers and fall generally within Wetness Class I. The more common loamy over clayey soils are usually

slowly permeable between 40 cm and 60 cm depth and fall within Wetness Class III. The heavy soils in the central part of the site and in the alluvial area in the north east are slowly permeable immediately below the topsoil at 25-35 cm depth and are thus placed in Wetness Class IV. On the lightest soils summer droughtiness is likely to be a problem in some years.

2. AGRICULTURAL LAND CLASSIFICATION

Grade	Area (ha)	% of total land area
2	0.7	5%
3a	6.9	44%
3b	8.0	51%
	15.6	100%

2.1 GRADE 2

The small area of Grade 2 land in the north eastern part of the site consists of sandy loam topsoils over similar upper subsoils which pass into loamy medium sand at depth. These soils are well drained (Wetness Class I) and easy to work, but are likely to suffer from slight droughtiness and are restricted to Grade 2 for this reason.

2.2 SUBGRADE 3a

This subgade is widespread in the northern and eastern parts of the site and along the southern edge. It corresponds with the areas containing variable thicknesses of loamy drift over the underlying clay. Top and upper subsoils are usually of medium clay loam or occasionally sandy loam over clayey lower subsoils. These soils fall largely within Wetness Class III and are limited to subgrade 3a by slight wetness and workability problems.

2.3 SUBGRADE 3b

Subgrade 3b land covers much of the central area and also occurs on the lower lying alluvial land in the north east. Soils are predominantly heavy and consist of heavy clay loams or silty clay loams over clay or silty clay subsoils. Soils in both areas fall within Wetness Class IV. The larger central area, where soils are formed on lacustrine clay, is limited to the subgrade by wetness and workability problems which are

more severe then on the adjoining subgrade 3a land. The alluvial area is restricted to Subgrade 3b by the overriding flooding risk limitation as well as wetness and workability problems.

Reference

MAFF (1988) Revised guidelines and criteria for grading quality of agricultural land.

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 Agricutlural 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)

NUN MONKTON, SCHEDULE OF SOIL AUGER BORINGS

BORING	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUND	MOTTLES CONT	STONY	PACK DENSITY
001	0-25	mcl	10YR43					M
	25-65	hcl	10YR52	O	C	D		H
	65-100	zc	75YR44	O	C	F		H
002	0-25	mcl	10YR42					M
	25-40	hcl	10YR53	OG	M	D		
	40-100	c	75YR44	G	M	D		
003	0-30	msl	10YR43					M
	30-45	msl	10YR44					
	45-100	lms	10YR44	G	F	F		
004	0-35	hzcl	10YR32					
	35-100	zc	10YR42	0	C	D		
005	0-25	hcl	10YR42					
	25-55	c	10YR52	OG	M	D		H
	55-65	msl	75YR56	G	F	F		
	65-100	c	75YR44	G	C	F		H
006	0-25	hcl	10YR42					
	25-55	c	10YR52	OG	M	D		H
	55-100	c	75YR44	G	C	D		H
007	0-30	mcl	10YR43					M
	30-55	scl	10YR54	O	C	D		M
	55-100	c	75YR44	G	C	F		H
007a	0-25	mcl	10YR43					M
	25-50	mcl	10YR44	O	C	F		M
	50-100	c	75YR44	G	F	F		H
008	0-25	mcl	10YR42					M
	25-62	hcl	10YR53	OG	M	P		H
	62-100	scl	10YR54	OGM	C	D		
009	0-25	hcl	10YR42					
	25-60	c	10YR52	O	C	D		H
	60-100	c	75YR44	G	C	D		H
010	0-25	msl	25					
	25-55	msl	10YR44	OG	C	D		
	55-100	hcl	10YR53	OG	C	D		H
011	0-20	msl	20					
	20-55	scl	10YR53	O	C	D		M
	55-100	sc	10YR61	O	C	P		H
012	0-35	mcl	10YR42					
	35-70	hcl	10YR52	OG	C	D		H
	70-100	c	10YR52	OG	C	D		H

BORING	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUND	MOTTLES CONT	STONY	PACK DENSITY
013	0-25	hcl	10YR42					
	25-50	c	10YR53	OG	M	P		H
	50-100	sc	5YR54	G	C	F		H
014	0-15	hcl	10YR32	O	F	F		M
	15-25	hcl	10YR53	O	C	D		M
	25-50	c	10YR53	O	M	D		H
	50-100	hcl	10YR53	O	C	D		H
015	0-25	mcl	10YR43					
	25-45	mcl	10YR44		F	F		
	45-100	hcl	10YR53	OG	M	P		H
016	0-40	mcl	10YR43					H
	40-80	hcl	75YR52	OG	M	D		H
	80-100	zc	10YR52	O	C	D		H
017	0-30	mcl	10YR53					
	30-55	mcl	10YR54	O	C	F		
	55-80	mcl	10YR53	O	C	D		H
	80-100	scl	10YR54	OGM	C	F		