Wyre Forest Golf Course

Agricultural Land Classification

January 1999

Resource Planning Team
FRCA Worcester
Western Region

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WYRE FOREST GOLF CENTRE

AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

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AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 66 4ha land at the Wyre Forest Golf Centre South of Kidderminster The survey on the Golf Course was carried out only on areas of land that had not been remodelled Areas of land including greens tees and bunkers were not surveyed Field survey was based on 55 auger borings and 4 soil profile pits and was completed in January 1999 During the survey 5 samples were analysed for particle size distribution (PSD)

2 The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in connection with an application to the Planning Authority under the Town and Country Planning Act 1990 for a remodelling of the existing 18 hole Golf Course by importing 494000m³ of soil and an extension of a further 9 hole course

3 Information on climate geology and soils and from previous ALC surveys was considered and is presented in the relevant section Apart from the published regional ALC map (MAFF 1977) which shows the golf course site at a reconnaissance scale as Grade 3 and the extension site as Grade 4 the site was previously surveyed in 1982 at a scale of 1 25000 (ADAS 1982) However the current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988) and supersedes any previous ALC survey Grade descriptions are summarised in Appendix I

5 At the time of survey the area for the 9 hole extension was under rough grassland and the golf course under permanent managed grassland Other land which was not surveyed included the Club House and buildings trackways and Kingsway Road

SUMMARY

6 The distribution of ALC grades is shown on the accompanying 1 10000 scale ALC map The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas Areas are summarised in the Table 1

Table 1 Distribution of ALC grades Wyre Forest Golf Centre

Grade	Area (ha)	/ Surveyed Area (62 5ha)
3a	42 0	67 2
3b	18 1	29 0
4	2 4	3 8
Other land	3 9	
Total site area	66 4	100 0

7 Both sites are largely of good quality agricultural land the soils generally have light loamy sand textures and are limited by moderate soil droughtiness to Subgrade 3a In the east of Golf Course site where the soils are stonier the soils are more droughty and are limited to Subgrade 3b in quality Areas of steeply sloping land on both sites are also limited to Subgrade 3b with some poor quality Grade 4 land in the west of the Golf course site where slope gradients exceed 11°

CLIMATE

8 Estimates of climatic variables for this site were derived from the published agricultural climate dataset Climatological Data for Agricultural Land Classification (Meteorological Office 1989) using standard interpolation procedures Data for key points around the site are given in Table 2 below

9 Since the ALC grade of land is determined by the most limiting factor present overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions Parameters used for assessing overall climate are accumulated temperature a measure of relative warmth and average annual rainfall a measure of overall wetness The results shown in Table 2 indicate that there is no overall climatic limitation

10 Climatic variables also affect ALC grade through interactions with soil conditions The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes which are compared with the moisture available in each profile in assessing soil droughtiness limitations These are described in later sections

Table 2 Climatic Interpolations Wyre Forest Golf Centre

Grid Reference		SO 806 731	SO 810 733	SO 814 730
Altitude (m)		65	48	40
Accumulated Temperature (day C)		1426	1445	1454
Average Annual Rainfall (mm)		704	690	680
Overall Climatic Grade		1	1	1
Field Capacity Days		158	156	154
Moisture deficit (mm)	Wheat	100	103	104
	Potatoes	90	93	96

RELIEF

12 Altitude ranges from 75 metres in the west of the site north of Malham Road to 35m in the east of the site along Minster Road

13 In the West of the site slope gradients of 7 to 15 were found limiting part of the 18 hole Golf course to Grade 4 and Subgrade 3b On the extension slopes over 7° limited a small area of land to Subgrade 3b

GEOLOGY AND SOILS

14 No published geology map is available for the underlying geology of the site however a general description taken from the Soil Survey of England and Wales (SSEW 1984) describes the site as underlain by Permo Triassic Sandstones

15 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) as the Bridgnorth and Newport Soil Associations More detailed soils information is also available in the 1 25000 scale survey of the Kidderminster area (SSEW 1974)

16 The Newport 4 Soil Association occurring east of the 45 metre contour is described as having deep well drained sandy soils associated with some very acid bleached soils These soils may be at risk of wind erosion

17 The Bridgnorth Soil Association which covers the rest of the site is described as having well drained sandy and coarse loamy soils over soft sandstone These soils are at risk of water and wind erosion

18 The soils in the recent survey were found to be sandy and in some areas more stony soils were found to correspond well to the more detailed distribution of soils described in the Kidderminster survey (SSEW 1974)

AGRICULTURAL LAND CLASSIFICATION

19 The distribution of ALC grades found by the current survey is shown on the accompanying 1 10000 scale map and areas are summarised in Table 1 The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas

20 **Subgrade 3a**

Land of good quality has been mapped across the majority of the extension site and across the centre of the Golf course The soils which were similar on both sites were described as generally having loamy sand topsoils which overlay loamy sand and sand subsoils to depth the soils were slightly stony Three soil profile pits confirmed that the light soil textures and low number of field capacity days in this area would limit the available water in the profiles and restrict the quality of the soils by a moderate soil droughtiness limitation

21 **Subgrade 3b**

Land mapped as Subgrade 3b or of moderate quality occurs both on the extension site and on the Golf course On eastern side of the Golf course the soils were described as having loamy sand topsoils overlying stony loamy sand and sand subsoils A soil profile pit confirmed that the light soil textures and stony nature of the soil profile imposed a soil droughtiness limitation on these soils

22 In the west of the Golf course site south of the club house and in a small area in the south west of the extension sites slope gradients of over 7 limited these areas to Subgrade 3b

23 **Grade 4**

An area of poor quality land was mapped in the west of the Golf course site north of Malham Road where slope gradients of over 11 and up to 15 limited the area of land to Grade 4

24 ***Other land***

Other land which was not surveyed included the Golf Club House and buildings trackways and Kingsway Road

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January 1999

REFERENCES

HODGSON J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

MAFF (1977) 1 250 000 series Agricultural Land Classification South West Region MAFF Publications Alnwick

MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for grading the quality of agricultural land MAFF Publications Alnwick

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification Meteorological Office Bracknell

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 3 Soils of Midland and Western England 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in Midland and Western England Bulletin No 12 SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1974) Sheet 5087 Name Soils in Worcester 1 (Kidderminster) 1 25000 scale SSEW Harpenden

APPENDIX I

DESCRIPTION OF GRADES AND SUBGRADES

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 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 most 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

Source MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land MAFF Publications Alnwick

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years

Wetness Class II

The soil profile is wet within 70 cm depth for 31 90 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 90 days but not wet within 40 cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70 cm depth for 91 180 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31 and 90 days in most years

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 40 cm depth for 91 210 days in most years

Wetness Class V

The soil profile is wet within 40 cm depth for 211 335 days in most years

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years

Notes The number of days specified is not necessarily a continuous period

In most years is defined as more than 10 out of 20 years

Source Hodgson J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Wye Forest Golf Centre	Pit 1 (ASP3 6)	4 S	SCR	Av Rainfall ATO	701mm 1434day C	Sandstone
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days Climatic Grade Exposure Grade	156 1	PSD SAMPLES TAKEN
1/99	7/1/99	SO 8049 7365	SH/SK			Topsoil 0 25cm LMS s 85% z 9% c 6%

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	37 (35 39)	LMS	75YR 3/3	7% HR (S&D)	none	none				G	MF+VF		Wavy abrupt
2	64	LMS	5YR3/4 4/4	14% <2 m 14% HR(S+D)	none	none	MDCAB	FR	G	G	CF+VF		Smooth abrupt
3	102	MS	25YR3/4	21% < 2 m 21% HR (S+ D)	none	none	MDCAB	VF	G	G	FVF		Smooth clear
4	120	MS	25YR3/4	26%<2cm 26%HR(S+D)	none	none	WKMAB	VF	M	G	FVF		

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: no SPL

Wetness Class: I

Wetness Grade: 2 Topsoil texture

Available Water: Wheat 82 mm; Potatoes 70mm

Moisture Deficit: Wheat 101mm; Potatoes 91mm

Moisture Balance: Wheat 19mm; Potatoes 21mm

Droughtiness Grade 3a (Calculated to 120 cm)

Final ALC Grade 3a

Main Limiting Factor(s) DR

Remarks

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Wyre Forest Golf Centre	Pit 2 (ASP 53)	1 E	PGR	Av Rainfall ATO	686mm 1457day C	Sandstone
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days Climatic Grade Exposure Grade	156 1	PSD SAMPLES TAKEN
1/99	12 1 99	SO 8090 7290	SH/SK			Topsoil 0 25cm LMS s 81% z12% c 7%

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	34	LMS	75YR 3/2	3% < 2 cm HR	none	none				G	MF+VF		Smooth clear
2	45	LMS	75 YR 3/2 3/3	0	none	none	MDCAB tending to platy	FR	G	G	CF+VF		Wavy gradual
3	86	LMS	75 YR 4/4	0	none	none	MDCAB	FR	G	G	FF+VF		Smooth gradual
4	120	MS	75 YR 4/6	14% HR (S&D) From 86 100 m	none	none	MD/WK/CAB	VF	G	G	FF+VF		

Profile Gleyed From	Not gleyed	Available Water	Wheat	97mm	Final ALC Grade 3a
Slowly Permeable Horizon From	Not slowly permeable		Potatoes	78mm	Main Limiting Factor(s) DR
Wetness Class	I	Moisture Deficit	Wheat	104mm	Remarks
			Potatoes	95mm	
Wetness G ade	2 Topsoil Texture	Mo sture Balance	Wheat	6 mm	
			Potatoes	15mm	
		Droughtiness Grade 3a		(Calculated to 120cm)	

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Wyre Forest Golf Centre	Pit 3 (ASP 33)	1 E	PGR	Av Rainfall ATO	690 mm 1445day C	Sandstone
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days Climatic Grade Exposure Grade	156 1	PSD SAMPLES TAKEN
1/99	12 1 99	SO 8100 7320	SH/SK			Topsoil 0 25cm LMS s 81% z 12% c 7%

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	35	LMS	75YR 3/2	1% > 2 m 1% 2 m 2% HR S	none	none				G	MF+VF		Wavy abrupt
2	56	LMS	75YR 4/4	0	none	none	MDCAB	FR	G	G	CF+VF		Smooth gradual
3	66	MS	75YR 4/6	1% 2 m 1% HR ( )	none	none	MDCAB	VF	G	G	FF+VF		Smooth abrupt
4	83	stony layer LMS	75YR 4/6	5% > 2 m 4% < 2cm 9% HR (S&D)	none	none	WKCSAB	FR	G	G	FVF		Wavy abrupt
5	120	MS	5YR 4/6	0	none	none	WKCSAB	VF	M	G	none seen		

Profile Gleyed From	Not gleyed	Available Water	Wheat	94mm	Final ALC Grade 3a
Slowly Permeable Horizon From	No SPL		Potatoes	74mm	Main Limiting Factor(s) DR
W t es Clas	I	Mo st re Deficit	Wheat	103 mm	Remarks
			Potatoes	93 mm	
Wetness Grade	2 Topsoil Texture	Moisture Balance	Wheat	9 mm	
			Potatoes	19 mm	
		Droughtiness Grade 3a		(Calculated to 120 cm)	

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE			PARENT MATERIAL
Wyre Forest Golf Course	Pit 4 (ASP47)	2 S	PGR	Av Rainfall ATO	680mm 1454day C	Sandstone
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY	FC Days Climatic Grade Exposure Grade	156 1	PSD SAMPLES TAKEN
1/99	14 1 99	SO 8120 7300	SH/SK			Topsoil 0 25cm LMS s 82% z 11% c 7%

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	38	LMS	75YR3/2 3/3	0 25 8% > 2cm 18%< 2cm 26 HR 23-46 7% >2 m 21%<2 cm 29% HR (S&D)	no	o e				G	MF+VF		Smooth abrupt
2	60	LMS	75YR4/4 05YR 4/4	6%> 2 m 21%< 2 cm 28% HR (S&D)	e		WKMAB	VF	M	G	MF+VF		Smooth gradual
3	90	MS	5 YR 4/6	5% > 6 m 6% 2 m 28% < 2cm 39% HR (S&D)		o e	WKMAB	VF	M	G	CF+VF		Smooth gradual
4	120	CS	75YR 5/6 4/6	3% > 2 m 42% 2 cm 45% HR (S&D)		o e	WKMSAB	VF	M	G	FVF		

Profile Gleyed From	Nor gleyed	Available Water	Wheat	60mm	Final ALC Grade 3b
Slowly Permeable Horizon From	No SPL		Potatoes	52mm	Main Limiting Factor(s) DR
Wetness Class	I	Moisture Deficit	Wheat	104mm	Remarks
			Potatoes	96 mm	
Wetness Grade	2 Topsoil Texture	Moisture Balance	Wheat	44mm	
			Potatoes	44mm	
		Droughtiness Grade 3b		(Calculated to 120 cm)	