SHROPSHIRE STRUCTURE PLAN
WHITCHURCH
LAND NORTH OF ALKINGTON ROAD

Agricultural Land Classification
ALC Map and Report

June 1999

Resource Planning Team
Northern Region
FRCA Wolverhampton

RPT Reference: 25/RPT/0954 & 086/98
MAFF Reference: EL35/11859

AGRICULTURAL LAND CLASSIFICATION REPORT

SHROPSHIRE STRUCTURE PLAN
WHITCHURCH, LAND NORTH OF ALKINGTON ROAD

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 35.6 ha of land north of Alkington Road, to the south-west of Whitchurch. The survey was carried out in June 1999.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). This survey was carried out in connection with MAFF's statutory input to the Shropshire Structure Plan, and supersedes any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Northern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the site was under grass. Areas mapped as 'Other Land' include fishing ponds in the north, a large drain across the centre, and three areas of gardens in the north-west of the site. As access to a number of fields in the south of the site was not obtained, this area is mapped as 'Agricultural Land Not Surveyed'.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000. It is accurate at this scale but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total agricultural land area	% Total survey area
1	-	-	-
2	18.8	83	53
3a	0.8	3	2
3b	1.3	6	4
4	0.6	3	2
5	1.1	5	3
Agricultural land not surveyed	12.1	-	34
Other land	0.9	-	2
Total agricultural land area	22.6	100	-
Total survey area	35.6	-	100

[1] FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total 24 borings and 2 soil pits were described.

8. The agricultural land on this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality), Subgrade 3b (moderate quality), Grade 4 (poor quality) and Grade 5 (very poor quality). The main limitations to the agricultural use of this land are soil wetness and soil droughtiness.

9. Land of very good quality (Grade 2), occurs across the centre of the site, largely on the slightly higher land. Soil wetness and droughtiness are the main limitations to the agricultural use of this land.

10. Land of good quality (Subgrade 3a) occurs in the north of the site, and immediately east of the drain. Soil wetness is the main limitation to the agricultural use of this land.

11. Land of moderate quality (Subgrade 3b) occurs on lower lying ground in the centre of the site to the north-west of the drain. Soil wetness is the main limitation to the agricultural use of this land.

12. Land of poor quality (Grade 4) occurs in the north of the site on low lying ground either side of the drain. Soil wetness is the main limitation to the agricultural use of this land.

13. Land of very poor quality (Grade 5) occurs in the north of the site, on lower lying ground east of the drain. Soil wetness is the main limitation to the agricultural use of this land.

FACTORS INFLUENCING ALC GRADE

Climate

14. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

15. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SJ535404	SJ533411
Altitude	m, AOD	110	95
Accumulated Temperature	day°C (Jan-June)	1351	1368
Average Annual Rainfall	mm	748	744
Field Capacity Days	days	170	170
Moisture Deficit, Wheat	mm	90	91
Moisture Deficit, Potatoes	mm	76	78
Overall climatic grade	N/A	Grade 1	Grade 1

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

17. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

18. The combination of rainfall and temperature at this site means that there is no overall climatic limitation. The site is climatically Grade 1.

Site

19. The site lies at an altitude of 95-110m AOD, and slopes towards a depression in the north of the site. The site is bounded to the south-west by the Whitchurch by-pass, to the south-east by Alkington Road and associated dwellings, to the north-west by Belton road and associated dwellings, and to the north-east by fishing pools and an abattoir. The site is bisected by a large drain flowing north-eastwards across the site.

Geology and soils

20. Upper Keuper Saliferous Beds comprise the solid geology underlying this area (BGS, 1967a). The site is overlain by drift comprising glacial and post-glacial sand and gravel (BGS, 1967b).

21. The most detailed published soils information (SSEW, 1983 & 1984) maps the soils as being 'typical brown earths' of the Wick 1 association.

22. Upon detailed field examination, soil profiles closely matching descriptions of the above associations were found.

AGRICULTURAL LAND CLASSIFICATION

23. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

Grade 2

24. Land of very good quality occupies 18.8 ha (53%) of the total survey area, and occurs predominantly on the higher, and more favourably drained land across the centre of the site. The main limitations to the agricultural use of this land are soil wetness and droughtiness.

25. Within the Grade 2 mapping unit, soils comprise a very slightly stony medium sandy loam topsoil, over very slightly or slightly stony medium sandy loam, loamy medium sand or sandy clay loam upper subsoils. Within the lower subsoil horizons, sandy clay loam and medium sand textures dominate. Occasionally a heavy clay loam or clay horizon occurs towards the base of the profile. Depths to gleying and slowly

permeable layers in relation to the local climatic regime, place these soils into Wetness Classes I, II and III. Occasional borings of Grade 1 were included within this mapping unit.

Subgrade 3a

26. Land of good quality occupies 0.8 ha (2%) of the total survey area, and occurs in the north of the site and immediately to the east of the drain. The main limitation to the agricultural use of this land is soil wetness.

27. Within the Subgrade 3a mapping unit, soils comprising a very slightly stony medium clay loam or medium sandy loam topsoil over a sandy clay loam upper subsoil and heavy clay loam lower subsoil were found. Depths to gleying and slowly permeable layers in relation to the local climatic regime, place these soils into Wetness Class III and Subgrade 3a.

Subgrade 3b

28. Land of moderate quality occupies 1.3 ha (4%) of the total survey area, and occurs on lower lying land near the centre of the site, north west of the drain. The main limitation to the agricultural use of this land is soil wetness.

29. Within the Subgrade 3b mapping unit, two different soil profiles were encountered. In the north east of the mapping unit, a profile comprising a very slightly stony sandy clay loam topsoil over clay was found. In the south west of the mapping unit, a profile comprising a stoneless medium sandy loam topsoil over medium sandy loam upper subsoils and loamy medium sand and medium sand lower subsoils was found. Land in the vicinity of this profile was heavily poached and waterlogged. Both these profiles showed gleying within their topsoils, and the second profile was also waterlogged within its upper subsoil. Depths to gleying, slowly permeable layers and waterlogged soil in relation to the local climatic regime, places these profiles into Wetness Class IV and Subgrade 3b.

Grade 4

30. Land of poor quality occupies 0.6 ha (2%) of the total survey area, and occurs in the north of the site, on low lying ground either side of the drain. Soil wetness is the main limitation to the agricultural use of this land.

31. Soils within this mapping unit comprise an organic medium sandy loam or sandy clay loam topsoil, overlying sandy clay loam, medium sandy loam, medium clay loam, heavy clay loam and peaty loam subsoils. Profiles were gleyed and waterlogged within their topsoils. It is considered that this waterlogging, and the difficulties associated with effectively drainage places the land into Wetness ClassV and Grade 4.

Grade 5

32. Land of very poor quality occupies 1.1 ha (3%) of the total survey area, and occurs to the north of the site on low lying ground east of the drain. Soil wetness is the main limitation to the agricultural use of this land.

33. At the time of survey, land within this mapping unit was under standing water. The soil profile consists of a medium sandy loam topsoil over humified peat. Taking into account the presence of standing water and the unlikelihood of being able to effectively drain this area, the land is placed into Wetness Class VI and Grade 5.

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SOURCES OF REFERENCE

British Geological Survey (1967a) *Sheet No. 122, Nantwich, Solid Edition, 1:63360 scale.* BGS: London.

British Geological Survey (1967b) *Sheet No. 122, Nantwich, Drift edition, 1:63360 scale.* BGS: London

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet No. 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.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS OF THE 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 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 or horticultural crops can usually be grown but on some land of this 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 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When 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 the level of yields. It is mainly suited to grass with occasional arable crops (e.g. 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 severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY SPL	—WETNESS— CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	LIMIT	ALC	COMMENTS
1P	SJ53104090	PGR	SE	03	057	1	1	96	5	82	4	2				DR	2	
2P	SJ53204080	PGR	N	02	035 067	3	3A	121	30	108	30	1				WE	3A	
3	SJ53204100	PGR	SE	05		1	1	093	2	074	-4	2				DR	2	
4	SJ53304100	PGR	SE		001	4	3B	116	25	117	39	1				GW	4	WET SURF
4A	SJ53294095	PGR	SE		001 033	4	3B	085	-6	091	13	3A				WE	3B	
5	SJ53404100	PGR			025 055	3	2	000	0	000	0	1				GW	4	WET SURF
5A	SJ53364100	PGR	SE		025 060	3	2	000	0	000	0	2				WE	2	3A
8	SJ53004090	PGR		01	039	1	1	102	11	074	-4	2				DR	2	
9	SJ53104090	PGR	SE	03	055	1	1	092	1	078	0	2				DR	2	
10	SJ53204090	PGR	SE		001 077	2	1	118	27	088	10	1					1	
11	SJ53304090	PGR	N	02	040	1	1	126	35	110	32	1					1	
12	SJ53404090	PGR	N		001	6	5	246	155	135	57	1				GW	5	SWAMP
13	SJ53504090	PGR	N		037 100	1	1	105	14	081	3	2				DR	2	
14	SJ53604090	PGR	N		035 047	3	2	138	47	098	20	1				WE	2	
15	SJ53704090	PGR	N	03	045 085	1	1	095	4	071	-7	2				DR	2	
16	SJ53004080	GRA	N	02		1	1	078	-13	078	0	2				DR	2	CHECK
17	SJ53104080	GRA	N	01	035	2	2	102	11	108	30	2				WE	2	
18	SJ53204080	PGR	W	02	035 067	3	3A	132	41	110	32	1				WE	3A	2 IF MSL
19	SJ53304080	PGR	N	02	055 065	2	1	138	47	109	31	1					1	SPL
20	SJ53404080	PGR	W	03	025 060	2	1	138	47	102	24	1					1	
21	SJ53504080	PGR	NW	03	054 105	1	1	091	0	067	-11	2				DR	2	
22	SJ53604080	PGR	NW	05	055 075	2	1	151	60	110	32	1					1	
23	SJ53704080	PGR	NW	04	001	2	1	119	28	109	31	1				DR	1	DA-105
24	SJ53104070	GRA	N	02	025 025	4	3B	110	19	108	30	2				WE	3B	
25	SJ53204070	GRA	N	01	045	1	1	129	38	119	41	1				WE	1	RUTH 2
29	SJ53204060	GRA	N	03		1	1	097	6	081	3	2				DR	2	

				MOTTLES			PED			STONES			STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1P	0-25	msl	75YR42 00						0	0	HR	1						
	25-57	lms	75YR54 00						0	0	HR	1	WKCAB	FR	G			
	57-80	lms	10YR63 00				00MN00	00 Y	0	0	HR	1	MDCPR	FR	M			
	80-100	lms	25YR56 00	10YR58	00	C		Y	0	0	HR	1	WKCAB	FR	G			
2P	0-35	mcl	75YR42 00						0	0	HR	3						
	35-67	scl	75YR63 00	75YR68	00	C	00MN00	00 Y	0	0	HR	10	MDCPR	FR	M			
	67-100	scl	05YR54 00	10YR68	00	C	00MN00	00 Y	0	0	HR	10	MDCPR	FM	P	Y		Y
3	0-25	msl	10YR33 00						0	0	HR	2						
	25-55	lms	10YR43 00						0	0	HR	1			G			
	55-75	lms	10YR52 00	75YR58	00	F			0	0	HR	1			M			
	75-120	lms	10YR61 62						0	0		0			M			
4	0-36	scl	10YR41 00	10YR46	00	C		Y	0	0	HR	2						
	36-55	scl	10YR42 00	10YR58	00	M		Y	0	0		0			M			
	55-60	pl	75YR21 00					Y	0	0		0			M			
	60-75	scl	10YR52 00	10YR46	00	C		Y	0	0		0			M			
	75-80	msl	10YR52 00	10YR58	00	C		Y	0	0		0			M			
4A	0-33	scl	10YR42 00	10YR58	00	C		Y	0	0	HR	1						
	33-60	c	10YR51 61	10YR46	58	M		Y	0	0		0			P	Y		Y
5	0-25	oms1	75YR31 00						0	0	HR	1						
	25-35	scl	10YR42 00	10YR58	00	M		Y	0	0	HR	1			M			
	35-55	mcl	75YR42 00	10YR46	00	M		Y	0	0		0			M			
	55-80	hcl	75YR52 00	75YR46	00	M		Y	0	0		0			P	Y		Y
5A	0-25	msl	75YR31 00						0	0	HR	2						
	25-60	scl	75YR42 00	75YR58	00	C		Y	0	0	HR	1			M			
	60-80	hcl	05YR44 00	75YR58	00	C		Y	0	0		0			P	Y		Y
8	0-27	msl	75YR42 00						0	0	HR	5						
	27-39	lms	75YR44 00						0	0	HR	5			G			
	39-65	lms	75YR53 00	75YR58	00	C		Y	0	0		0			M			
	65-88	lms	75YR53 00	75YR58	00	C	00MN00	00 Y	0	0		0			M			
	88-110	msl	25YR56 00					Y	0	0		0			M			

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
9	0-28	ms1	75YR42 00						0	0		0						
	28-55	1ms	75YR54 00						0	0		0		G				
	55-75	1ms	10YR63 00				00MN00 00	Y	0	0		0		M				
	75-110	1ms	25YR56 00	10YR58 00	C			Y	0	0		0		M				
10	0-26	ms1	75YR31 00	75YR34 00	C			Y	0	0		0						
	26-38	ms1	10YR53 00	10YR58 00	C			Y	0	0		0		G				
	38-45	ms1	10YR53 00	10YR58 00	C			Y	0	0		0		M				
	45-55	1ms	10YR62 00	10YR58 00	C			Y	0	0		0		M				
	55-77	ms	10YR62 00	10YR58 00	C			Y	0	0		0		M				
	77-120	c	10YR61 00	10YR68 00	C			Y	0	0		0		P	Y		Y	
11	0-23	ms1	75YR42 00						0	0		0						
	23-40	ms1	75YR54 00						0	0		0		G				
	40-75	ms1	75YR53 00	05YR58 00	C			Y	0	0		0		M				
	75-85	1ms	75YR62 00	75YR56 00	C			Y	0	0		0		M				
	85-120	ms	75YR62 00	75YR56 00	C			Y	0	0		0		M				
12	0-60	ms1	10YR41 00	10YR58 00	C			Y	0	0		0						
	60-120	hp	10YR31 00					Y	0	0		0		M				
13	0-25	ms1	75YR42 00						0	0	HR	5						
	25-37	ms1	75YR54 00						0	0	HR	5		G				
	37-67	1ms	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	67-100	1ms	10YR72 00	10YR58 00	C			Y	0	0		0		M				
	100-120	c	10YR53 00	10YR58 00	C			Y	0	0		0		P	Y		Y	
14	0-25	ms1	25YR31 00						0	0	HR	5						
	25-35	ms1	75YR44 00						0	0	HR	5		G				
	35-47	1ms	10YR53 00	10YR68 00	C			Y	0	0		0		M				
	47-120	sc1	05YR54 00	05YR58 00	C		00MN00 00	Y	0	0		0		P	Y		Y	
15	0-27	ms1	75YR42 00						0	0	HR	5						
	27-45	1ms	75YR54 00						0	0	HR	10		G				
	45-65	1ms	75YR63 00	10YR58 00	C			Y	0	0	HR	10		M				
	65-85	ms	75YR63 00	10YR58 00	C			Y	0	0	HR	10		M				
	85-120	hc1	05YR54 00					Y	0	0	HR	10		P	Y		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
16	0-35	mcl	10YR33 00						0	0		0						
	35-45	scl	75YR46 00						0	0		0		M				
17	0-35	mcl	75YR53 00						0	0		0						
	35-60	scl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	60-70	lms	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	70-75	ms	10YR53 00					Y	0	0		0		M				
18	0-35	mcl	75YR42 00						0	0		0						
	35-67	scl	75YR63 00	75YR68 00	C		00MN00 00	Y	0	0	HR	10		M				
	67-120	hcl	05YR54 00	10YR68 00	C		00MN00 00	Y	0	0	HR	10		P	Y		Y	
19	0-22	msl	10YR32 00						0	0	HR	2						
	22-55	msl	10YR43 53	75YR46 00	F				0	0	HR	1		M				
	55-65	scl	05YR43 00	75YR58 00	C			Y	0	0	HR	1		P	Y		Y	
	65-110	hcl	05YR44 00	75YR58 00	M		00MN00 00	Y	0	0	HR	1		P	Y		Y	
20	0-25	msl	10YR41 00						0	0	HR	5						
	25-33	msl	10YR62 00	10YR46 00	C			Y	0	0	HR	10		M				
	33-60	scl	10YR53 00	10YR68 00	C			Y	0	0	HR	10		M				
	60-120	scl	05YR54 00	05YR58 00	C			Y	0	0	HR	10		P	Y			
21	0-24	msl	75YR42 00						0	0	HR	5						
	24-54	lms	75YR44 00						0	0	HR	10		G				
	54-105	ms	05YR54 00				00MN00 00	Y	0	0	HR	5		M				
	105-120	scl	05YR54 00					Y	0	0	HR	5		P	Y		Y	
22	0-30	msl	10YR32 00						0	0	HR	2						
	30-55	msl	10YR43 00						0	0	HR	1		G				
	55-75	msl	75YR53 00	75YR58 00	C			Y	0	0		0		M				
	75-120	scl	05YR44 00	75YR58 00	C			Y	0	0	HR	2		P	Y		Y	
23	0-22	msl	10YR41 00	10YR46 00	C			Y	0	0	HR	2						
	22-50	scl	10YR43 00					Y	0	0		0		M				
	50-75	msl	10YR53 00	10YR58 00	C			Y	0	0		0		M				
	75-80	lms	10YR52 00					Y	0	0	HR	1		M				
	80-105	ms	10YR63 00					Y	0	0	HR	3		M				

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
24	0-25	scl	75YR33 00						0	0	HR	2						
	25-82	scl	05YR44 00	75YR56 00	F			Y	0	0	HR	2		P	Y		Y	
25	0-45	mcl	75YR33 00						0	0		0						
	45-90	scl	75YR42 00	75YR56 00	C			Y	0	0		0		M				
29	0-35	msl	75YR33 00						0	0		0						
	35-48	lms	75YR46 00						0	0		0		G				
	48-120	ms	75YR46 00						0	0	HR	5		M				