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ARUN DISTRICT LOCAL PLAN
Land between Felpham and Bognor, West Sussex

Agricultural Land Classification
ALC Map and Report

July 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

ARUN DISTRICT LOCAL PLAN

LAND BETWEEN FELPHAM AND BOGNOR

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 31.4 ha of land to the east of the Bognor-Barnham railway line and to the west of the Lidsey Rife, at South Bersted, West Sussex. This includes land to the south of the Lidsey Rife, together with land adjacent to Golf Links Road. Field survey work had been undertaken in this area in 1997 for the Arun District Local Plan (FRCA Ref: 4202\044\97), and this had previously classified these areas as 'Agricultural land not surveyed'. This was due to difficulties in obtaining permission to enter the land within the timescale for the original survey work. However, all survey work has now been completed during July 1998 and is shown, together with the 1997 work, on the accompanying ALC map. However, this report only describes the findings from the 1998 survey work.

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), in connection with its statutory input to the Arun District Local Plan. This survey supersedes any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern 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 the 1998 survey, the northern half of the land at Golf Links Road was in set-aside; the southern half was growing winter wheat. The agricultural land to the west and south of the Rife was under either permanent or rough grassland. The areas mapped in 1998 as 'Other land' comprise a former airfield and hangar, an electricity sub-station, disused agricultural buildings, woodland, areas of scrub plus land subject to past fly-tipping.

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 land surveyed in 1998 are summarised in Table 1. Table 2 shows the results from both the 1997 and 1998 survey work

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 29 borings and two soil pits were described in 1998.

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

Table 1: Area of grades and Other land - Land between Felpham and Bognor (1998 survey work)

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	5.6	24.5	17.8
3b	15.6	68.1	49.7
4	1.7	7.4	5.4
Other land	8.5	-	27.1
Total surveyed area	22.9	100.0	72.9
Total site area	31.4	-	100.0

Table 2: Area of grades and Other land - Land between Felpham and Bognor (all survey work)

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	8.1	23.3	18.7
3b	24.9	71.8	57.4
4	1.7	4.9	3.9
Other land	8.7	-	20.0
Total surveyed area	34.7	100.0	80.0
Total site area	43.4	-	100.0

8. The higher land, adjacent to Golf Links Road, has been classified as Grade 2 (very good quality). Most of the flatter, lower-lying land has been classified as Subgrade 3b (majority quality). Two smaller areas have been classified as Grade 4 (poor quality).

9. Land classified as Grade 2 is subject to a slight soil droughtiness limitation, arising from deep, well drained soils. Topsoils comprise medium (silty) clay loams. These overlie similarly textured, permeable subsoils which sometimes become heavier with depth. At this relatively dry locality, the soil available water may be insufficient to fully meet crop needs in some years. Consequently, this land may be subject to slightly lower and less consistent crop yields. The land is suitable for a wide range of cropping.

10. The land classified as Subgrade 3b is derived from heavy textured alluvial deposits, and is limited by soil wetness and workability. Typical profiles comprise medium and heavy textured topsoils which overlie clay subsoils at shallow depths within the soil profile. The clay subsoils act to impede drainage, and thus reduce the flexibility of cropping, stocking and cultivations. Given the low-lying nature of this land and its proximity to the Lidsey Rife, it should be noted that this land is also likely to be prone to flooding.

11. The area of Grade 4 land abutting the railway line has been disturbed in the past, giving rise to shallow soils containing foreign material. This land has limited potential for agricultural use. The smaller area of Grade 4 land, near the Rife, is subject to a significant soil wetness limitation. The hydrophilic vegetation established across this area suggests prolonged periods of waterlogging, which would preclude most crops being successfully grown and utilised.

FACTORS INFLUENCING ALC GRADE

Climate

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

13. The key climatic variables used for grading this site are given in Table 3 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 3: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 948 014	SU 949 008
Altitude	m, AOD	2	5
Accumulated Temperature	day°C (Jan-June)	1547	1544
Average Annual Rainfall	mm	740	738
Field Capacity Days	days	150	149
Moisture Deficit, Wheat	mm	121	121
Moisture Deficit, Potatoes	mm	118	118
Overall climatic grade	N/A	Grade 1	Grade 1

14. 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 favourable site or soil conditions.

15. 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 (ATO, January to June), as a measure of the relative warmth of a locality.

16. The combination of rainfall and temperature within this survey area means that there is no overall climatic limitation. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality, the soil moisture deficit values are above average for this region. The likelihood of soil droughtiness problems may therefore be increased. With regard to local climatic factors, frost risk is not believed to adversely affect the land quality on the site.

17. However, unpublished information suggests that this locality may be rather exposed (Met. Office, 1969). At the time of survey, there was no evidence of damage by salt-laden winds to the trees on this site. Given that the site is protected from south-westerly winds by the urban area of South Bersted, it was deemed that there is little or no risk of exposure at this site. All of the land on the site is, therefore, climatically Grade 1.

Site

18. The site is situated on the West Sussex Coastal Plain and, as such, occupies flat and low-lying land. The highest land is at Golf Links Road, and lies at approximately 5 m AOD.

Land adjacent to the railway line and the Lidsey Rife is flat and lies at approximately 2-3 m AOD. Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

19. The published geological information for this area (BGS, 1975) shows most of the site as alluvial deposits overlying Upper Chalk. Across the slightly higher land, in the east of the site, drift deposits of brickearth occur over the Chalk. A small area of the latter also occurs adjoining the Southern Cross Industrial Estate.

20. The most detailed published soils information covering the area (SSEW, 1967) maps three soil types across the land surveyed on this site, the predominant being soils of the Arundel Complex. The latter is mapped on the lower-lying land, in association with the alluvial deposits. These soils are described as 'groundwater gley soils.' (SSEW, 1967). Soils of the Park Gate and Hook Series (both shallow phase over loamy pebbly drift) are mapped in association with the brickearth deposits. The former are described as 'gley soils developed in brickearth.' (SSEW, 1967); the latter as 'brown earths with gleying...developed in silty drift' (SSEW, 1967).

AGRICULTURAL LAND CLASSIFICATION

21. The details of the classification of the survey area are shown on the attached ALC map and the area statistics of each grade are given in Tables 1 and 2. The following land quality grade descriptions only relate to the 1998 survey work.

22. The location of the auger borings and pits from the 1998 survey work is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Grade 2

23. Grade 2, very good quality, land occurs in association with the brickearth deposits, on the slightly higher land in the east of the site. This land is limited by minor soil droughtiness. Topsoils comprise non-calcareous medium (silty) clay loams which overlies similarly textured upper subsoils. These typically pass into heavy (silty) clay loam or clay lower subsoils. Topsoils tend to be slightly stony, containing 0-2% of hard stone > 2 cm and 2-5% total hard stone, by volume. Subsoils typically have a similar stone content. From Pit 2, which represents such profiles, the soils were found to be permeable (Wetness Class I) and with moderately structured subsoils. The interaction between the soil characteristics and the high soil moisture deficits means that the profile available water is not quite sufficient to fully meet crop needs. Consequently, there is a minor risk of drought stress for those crops which are grown. This will result in slightly lower yield potential and less consistent crop yields.

Subgrade 3b

24. Most of the lower-lying land on the site has been classified as Subgrade 3b. This land is subject to significant soil wetness and workability limitations. Topsoils typically comprise medium and heavy (silty) clay loams. These generally pass into clay and silty clay subsoils immediately below the topsoil. All of the subsoils are poorly structured and slowly permeable

(see Pit 1). As such, these profiles are poorly drained (Wetness Class IV). Despite the relatively dry local climate, the poor drainage and topsoil textures mean that this land is limited by soil wetness. Soil wetness can adversely affect seed germination and survival and can inhibit the development of a good root system. It also influences the sensitivity of soil to structural damage and is, therefore, a major factor in determining the number of days when cultivation, trafficking or grazing can take place.

25. At some locations, particularly abutting the Lidsey Rife, the soils are slightly more permeable. Topsoils typically comprise medium (silty) clay loams. These overlie similarly textured or heavy silty clay loam upper subsoils which pass into poorly structured clay lower subsoils. The flat and low-lying nature of this land means that drainage measures are likely to prove inadequate. Consequently, groundwater levels would be high for much of the year. The predominance of nearby hydrophilic vegetation (sedges and rushes) indicates prolonged periods of waterlogging and anaerobic soil conditions. Consequently, this land was assessed as being poorly drained (Wetness Class IV). Again, Subgrade 3b is appropriate on the basis of a soil wetness limitation.

26. Much of the land adjacent to the Lidsey Rife is also subject to a flood risk limitation, due to its flat and low-lying nature. Flooding may be significant in affecting the choice of crops to be grown, because at certain times of the year it can have a detrimental effect on yield, and may give rise to soil management problems. Given that the soils on this site have slowly permeable layers at shallow depths within the soil profile, if flooding occurs then the soils are likely to remain saturated for relatively long periods of time. Consequently, this land can be classified no higher than Subgrade 3b.

Grade 4

27. Land adjacent to the railway line has been classified as Grade 4 because of a severe soil droughtiness limitation. This land has been disturbed in the past, probably when the railway line and/or Industrial Estate were constructed. The soils in this area comprise medium and heavy clay loam topsoils which overlie soil containing foreign material (brick fragments) or sand deposits directly below the topsoil. The profiles in this area proved impenetrable to a soil auger between 30 and 60 cm depth. The lack of soil resource means that these profiles are severely limited by soil droughtiness. This area is likely to be suffer from poor plant growth and yield potential in most years and would be most suited to grazing at a low density of stocking.

28. The smaller area of Grade 4, near the Lidsey Rife, defines a small depression and is subject to severe soil wetness limitations. Here, seasonally high groundwater levels result in a predominance of hydrophilic vegetation (sedges and rushes). The land here is wet for much of the year and is likely to restrict agricultural land use. This land is best suited to seasonal grazing.

Gillian Iles
Resource Planning Team
Eastern Region
FRCA Reading

SOURCES OF REFERENCE

British Geological Survey (1975) *Sheet No. 332, Bognor Regis, 1:63,360, Drift Edition*.
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Met. Office (1989) *Climatological Data for Agricultural Land Classification*.
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Soil Survey of Great Britain (1967) *Bulletin No. 3, Soils of the West Sussex Coastal Plain and accompanying maps (Sheets TQ 00 and 10, Worthing, 1:25,000)*.
SSGB: Harpenden.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England, 1:250,000*.
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.

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil pit descriptions

Soil boring descriptions (boring and horizon levels)

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.
2. **USE:** Land use at the time of survey. The following abbreviations are used:

ARA: Arable	WHT: Wheat	BAR: Barley
CER: Cereals	OAT: Oats	MZE: Maize
OSR: Oilseed rape	BEN: Field beans	BRA: Brassicae
POT: Potatoes	SBT: Sugar beet	FCD: Fodder crops
LIN: Linseed	FRT: Soft and top fruit	FLW: Fallow
PGR: Permanent pasture	LEY: Ley grass	RGR: Rough grazing
SCR: Scrub	CFW: Coniferous woodland	OTH: Other
DCW: Deciduous woodland	BOG: Bog or marsh	SAS: Set-Aside
HTH: Heathland	HRT: Horticultural crops	PLO: Ploughed

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL:** Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS):** Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS):** Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT:** Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column:

MREL: Microrelief limitation	FLOOD: Flood risk	EROSN: Soil erosion risk
EXP: Exposure limitation	FROST: Frost prone	DIST: Disturbed land
CHEM: Chemical limitation		

9. **LIMIT:** The main limitation to land quality. The following abbreviations are used:

OC: Overall Climate	AE: Aspect	ST: Topsoil Stoniness
FR: Frost Risk	GR: Gradient	MR: Microrelief
FL: Flood Risk	TX: Topsoil Texture	DP: Soil Depth
CH: Chemical	WE: Wetness	WK: Workability
DR: Drought	ER: Erosion Risk	WD: Soil Wetness/Droughtiness
EX: Exposure		

Soil Pits and Auger Borings

1. **TEXTURE:** soil texture classes are denoted by the following abbreviations:

S: Sand	LS: Loamy Sand	SL: Sandy Loam
SZL: Sandy Silt Loam	CL: Clay Loam	ZCL: Silty Clay Loam
ZL: Silt Loam	SCL: Sandy Clay Loam	C: Clay
SC: Sandy Clay	ZC: Silty Clay	OL: Organic Loam
P: Peat	SP: Sandy Peat	LP: Loamy Peat
PL: Peaty Loam	PS: Peaty Sand	MZ: Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content:

M: Medium (<27% clay) **H:** Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **MOTTLE ABUN:** Mottle abundance, expressed as a percentage of the matrix or surface described:

F: few <2% **C:** common 2-20% **M:** many 20-40% **VM:** very many 40% +

4. **MOTTLE CONT:** Mottle contrast:

F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL:** Ped face colour using Munsell notation.

6. **GLEYS:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH:** Stone Lithology - one of the following is used:

HR: all hard rocks and stones	FSST: soft, fine grained sandstone
ZR: soft, argillaceous, or silty rocks	CH: chalk
MSST: soft, medium grained sandstone	GS: gravel with porous (soft) stones
SI: soft weathered igneous/metamorphic rock	GH: gravel with non-porous (hard) stones

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT:** the degree of development, size and shape of soil pedes are described using the following notation:

Degree of development	WK: weakly developed	MD: moderately developed
	ST: strongly developed	
Ped size	F: fine	M: medium
	C: coarse	
Ped shape	S: single grain	M: massive
	GR: granular	AB: angular blocky
	SAB: sub-angular blocky	PR: prismatic
	PL: platy	

9. **CONSIST:** Soil consistence is described using the following notation:

L: loose	FM: firm	EH: extremely hard
VF: very friable	VM: very firm	
FR: friable	EM: extremely firm	

10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** good **M:** moderate **P:** poor
11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.
12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** If the soil horizon is calcareous, a 'Y' will appear in this column.
15. Other notations:

APW:	available water capacity (in mm) adjusted for wheat
APP:	available water capacity (in mm) adjusted for potatoes
MBW:	moisture balance, wheat
MBP:	moisture balance, potatoes

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS	
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST		LIMIT
1	SU94800150	PGR	20	20	4	3B		0	0					WE	3B	
2	SU94800140	PGR	0	30	4	3B		0	0					WE	3B	
3	SU94790130	PGR	45	45	4	3A	152	31	129	11	1			WE	3A	Prob 3B flood
4	SU94750118	PGR	30	30	4	3B		0	0					WE	3B	
6	SU94400122	RGR	35		2	2	110	-11	119	1	3a			DR	2	Imp75 Prob 2DR
8	SU94590104	PGR	28	38	4	3B		0	0					WE	3B	
10	SU94520089	RGR	25	25	4	3B		0	0					WE	3B	
11	SU94600090	RGR	35	58	4	3B		0	0					WE	3B	G'water 3B WE
12	SU94900090	SAS			1	1	118	-3	116	-2	3a			DR	2	Imp85 see 2P
13	SU94380079	RGR			1	1	58	-63	58	-60	4		Y	DR	4	Disturbed
14	SU94510081	RGR	30	30	4	3B		0	0					WE	3B	
15	SU94590082	RGR	43	43	4	3B		0	0					WE	3B	G'water 3B WE
16	SU94800080	SAS			1	1	122	1	113	-5	2			DR	2	Imp95 see 2P
17	SU94900080	SAS			1	1	158	37	123	5	2			DR	2	
18	SU94300070	RGR			1	1	75	-46	77	-41	4		Y	DR	4	Disturbed
19	SU94400070	PGR	27	27	4	3B		0	0					WE	3B	
20	SU94500070	PGR	15	25	4	3B		0	0					WE	3B	
21	SU94700070	WHT			1	1	111	-10	122	4	3a			DR	2	Imp70 see 2P
22	SU94800070	WHT			1	1	129	8	123	5	2			DR	2	Imp90 see 2P
23	SU94300060	PGR	25	25	4	3B		0	0					WE	3B	
24	SU94400060	PGR	35	35	4	4		0	0					WE	3B	
25	SU94700060	WHT	90	90	1	1	153	32	123	5	2			DR	2	Pots limit DR
26	SU94620065	PGR	32	32	4	3B		0	0					WE	3B	
27	SU94400050	PGR	33	33	4	3B		0	0					WE	3B	
28	SU94300040	PGR	45	45	3	3B		0	0					WE	3B	
29	SU94400040	PGR	29	29	4	3B		0	0					WE	3B	
30	SU94400030	PGR	25	25	4	3B		0	0					WE	3B	
31	SU94500030	PGR	28	28	4	3B		0	0					WE	3B	
32	SU94640062	WHT			1	1	135	14	111	-7	2			DR	2	Imp105 see 2P
P	SU94400070	PGR	29	29	4	3B	131	10	110	-8	2			WE	3B	
2P	SU94800070	WHT			1	1	159	38	124	6				DR	2	Pots limit DR

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	
1	0-20	HCL	10YR52 53	10YR46	C		Y	0	0	0					
	20-40	ZC	25Y 62	10YR46	C		Y	0	0	0		P		Y	
	40-60	HCL	25Y 62	10YR68	C		Y	0	0	CH 1		M		Y	Y
	60-120	ZC	10YR51	75YR68	M		Y	0	0	0		P		Y	
2	0-30	MZCL	10YR53	10YR68	C		Y	0	0	0					
	30-120	C	10YR51	10YR68	M		Y	0	0	0		P		Y	Y
3	0-20	FSZL	10YR42					0	0	0					Y
	20-45	FSZL	10YR43 44	10YR46	F			0	0	0		M			Y
	45-120	C	25Y 52 53	10YR56	C		Y	0	0	0		P		Y	Y
4	0-30	MZCL	10YR42	10YR58	C		Y	0	0	0					
	30-65	ZC	10YR61	10YR58	M		Y	0	0	0		P		Y	
	65-90	C	05Y 51	10YR56	C		Y	0	0	0		P		Y	+ fine sand
6	0-20	MZCL	10YR43					0	0	HR 2					
	20-35	MZCL	10YR44	10YR58	F			0	0	HR 4		M			
	35-75	MZCL	10YR51	10YR68	M		Y	0	0	HR 4		M			Imp 75 stone
8	0-28	MZCL	10YR42	10YR56	C			0	0	0					
	28-38	MZCL	10YR62 52	10YR58	C		Y	0	0	0		M			+ fine sand
	38-60	HCL	05Y 51	10YR58	M		Y	0	0	0		M		Y	Y
	60-120	C	05Y 61	10YR56	C		Y	0	0	0		P		Y	Y
10	0-25	MCL	10YR31					0	0	0					
	25-60	C	25Y 51 52	10YR4656	C		Y	0	0	0		P		Y	Y
	60-85	C	10YR52 53	10YR5658	M		Y	0	0	0		P		Y	
11	0-35	MZCL	10YR22 32					0	0	0					Y
	35-58	HZCL	10YR53	10YR46	C		Y	0	0	CH 2		M			Y
	58-120	C	10YR46 58	10YR4658	M		Y	0	0	0		P		Y	Y
12	0-30	MCL	10YR43					0	0	0					+ fine sand
	30-55	MCL	10YR54					0	0	0		M			+ fine sand
	55-85	HCL	10YR54	00MN00	F			0	0	HR 10		M			Imp 85 flint
13	0-32	MCL	10YR42 43					0	0	0					Imp 32 bricks
14	0-30	MCL	10YR32 42					0	0	0					
	30-120	C	25Y 52 61	10YR5658	C		Y	0	0	0		P		Y	
15	0-32	MCL	10YR42					0	0	0					
	32-43	MCL	10YR43 44	10YR46	F			0	0	0		M			
	43-120	C	25Y 52 53	10YR58	C		Y	0	0	0		P		Y	
16	0-28	MCL	10YR43					2	0	HR 2					
	28-45	MCL	10YR54					0	0	HR 5		M			
	45-55	HCL	10YR54					0	0	HR 5		M			
	55-75	HCL	10YR54	10YR56	C		S	0	0	HR 5		M			S1. gleyed
	75-95	C	10YR56	75YR58	F			0	0	HR 5		M			

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT		GLEYS	>2	>6		LITH	TOT	STR	
17	0-30	MZCL	10YR42					0	0	HR	2				
	30-60	MZCL	10YR44					0	0	HR	2		M		
	60-120	MZCL	10YR44 54	10YR56	F			0	0	HR	2		M		Tending fsz1
18	0-40	HCL	10YR43	75YR58	F			0	0		0		M		Y
	40-60	MS	05Y 21					0	0	HR	10		M		Imp 60 distbd.
19	0-27	HZCL	10YR42					0	0		0				
	27-48	ZC	10YR53	10YR58	C			Y	0	0	0		M		Y
	48-80	C	25Y 53 61	10YR56	C			Y	0	0	0		P		Y
20	0-15	MZCL	10YR42					0	0		0				
	15-25	HCL	10YR52	10YR56	C			Y	0	0	0		M		+ fine sand
	25-45	C	10YR52 61	10YR56	C			Y	0	0	0		M		Y
	45-80	C	05Y 61	75YR58	M			Y	0	0	0		P		Y
21	0-30	MZCL	10YR42					0	0	HR	5				
	30-55	MCL	10YR44					0	0	HR	5		M		
	55-70	FSZL	10YR44					0	0	HR	5		M		Imp 70 flint
22	0-33	MZCL	10YR42					0	0	HR	3				
	33-60	MZCL	10YR44					0	0	HR	2		M		
	60-90	HZCL	10YR46					0	0	HR	2		M		Imp 90 flint
23	0-25	MZCL	10YR43					0	0		0				
	25-45	C	10YR51	75YR58	C			Y	0	0	0		P		Y
	45-80	C	05Y 51	75YR56	C			Y	0	0	0		P		Y
24	0-20	HZCL	10YR32					0	0		0				
	20-35	HZCL	10YR43					0	0		0		M		
	35-65	ZC	10YR61	75YR58	M			Y	0	0	0		P		Y
	65-80	C	25Y51	10YR58	M			Y	0	0	0		P		Y
25	0-30	MZCL	10YR42					0	0	HR	2				
	30-75	MZCL	10YR54 44					0	0	HR	2		M		
	75-90	HZCL	10YR54					0	0	HR	2		M		
	90-120	ZC	10YR53 54	10YR56	C			Y	0	0	0		P		Y
26	0-32	MZCL	10YR42					0	0		0				
	32-40	ZC	10YR53	10YR56	C			Y	0	0	0		P		Y
	40-70	ZC	25Y52	10YR56	M			Y	0	0	0		P		Y
27	0-33	MZCL	10YR42	10YR46	C			Y	0	0	0				
	33-70	ZC	10YR53	10YR46	C			Y	0	0	0		P		Y
28	0-26	HZCL	10YR42					0	0		0				
	26-45	ZC	10YR43					N	0	0	0		M		
	45-70	ZC	10YR53	10YR56	C			Y	0	0	0		P		Y

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED COL.	-----STONES-----			STRUCT/ CONSIST	SUBS			SPL	CALC	
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR			FOR
29	0-29	HZCL	10YR42						0	0	0						
	29-60	ZC	10YR53	10YR46	C			Y	0	0	0		P		Y		
30	0-25	HCL	10YR43	10YR58	C			S	0	0	HR	2				S1. gleyed	
	25-55	ZC	10YR71	10YR58	M			Y	0	0		0		P	Y	Y	
	55-80	C	10YR51	10YR51	M			Y	0	0		0		P	Y	Y	
31	0-28	HZCL	10YR43						0	0		0					
	28-40	ZC	75YR61	75YR58	M			Y	0	0		0		P	Y	Y	
	40-90	C	10YR51	75YR58	M			Y	0	0		0		P	Y	Y	
32	0-26	MCL	10YR43						1	0	HR	5					
	26-65	MCL	10YR44						0	0	HR	5		M			
	65-95	SCL	10YR44						0	0	HR	5		M			
	95-105	MSL	10YR44						0	0	HR	5		M		Imp 105 flint	
1P	0-29	HZCL	10YR42	10YR56	F				0	0		0					
	29-44	C	10YR53	10YR56	C				Y	0	0	0	MDMPR	FM	M	Y	Y
	44-68	C	10YR61	10YR56	M				Y	0	0	0	MDMPR	VM	P	Y	Y
2P	0-32	MZCL	10YR53						0	0		0					
	32-68	MZCL	10YR44				10YR44	N	0	0	HR	3	MDCSAB	FR	M		
	68-105	HZCL	75YR46				10YR44	N	0	0	HR	3	MDVCSB	FR	M		
	105-120	SCL	10YR46						0	0		0			M		