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Ashford Borough Local Plan
Site 49, Park and Ride Site, South of the Warren, Ashford

Agricultural Land Classification
ALC Map and Report

April 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

ASHFORD BOROUGH LOCAL PLAN
SITE 49, PARK AND RIDE SITE,
SOUTH OF THE WARREN, ASHFORD

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 15 hectares of land between The Warren and the A20, to the north-west of Ashford in Kent. The survey was carried out during April 1997.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with its statutory input to the Ashford Borough 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 the 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 land on the site was under permanent pasture, in places being grazed by horses. The areas mapped as 'Other land' include a road, agricultural buildings and areas of scrub.

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)	% surveyed area	% site area
1	9.8	72.1	64.9
2	0.6	4.4	4.0
4	3.2	23.5	21.2
Other land	1.5	N/A	9.9
Total surveyed area	13.6	100.0	90.1
Total site area	15.1	-	100.0

7. The fieldwork was conducted at an average density of approximately one boring per hectare. A total of 18 borings and two soil pits were described.

8. The higher land on the site has been classified as Grades 1 and 2 (excellent and very good quality, respectively). Where Grade 1 land is mapped, the soils are deep, well or moderately well drained and comprise light textured topsoils over similar or medium loamy subsoils. The soils are very slightly stony and, at this locality, the reserves of soil available water will be sufficient to meet crop needs throughout the growing season in most years. As a result, this land has no or very minor limitations to agricultural use and is suitable for a very wide range of agricultural or horticultural crops. Where Grade 2 land is mapped, the soils are similar but pass into clay lower subsoils. These soils are imperfectly drained, and at this locality give rise to land with a slight soil wetness limitation. As such, this land may be subject to minor restrictions on the flexibility of cropping, stocking and cultivations.

9. The lower lying land on the site has been classified as Grade 4 (poor quality), because of severe soil wetness and workability limitations. This land is prone to high groundwater levels for much of the year, as indicated by the presence of hydrophilic vegetation such as sedges and rushes. Soil wetness can adversely affect seed germination and survival and also influences the sensitivity of soil to structural damage. This land is best suited to seasonal grazing and Grade 4 is appropriate.

FACTORS INFLUENCING ALC GRADE

Climate

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

11. 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	
Grid reference	N/A	TR 002 439	TQ 999 440
Altitude	m, AOD	50	55
Accumulated Temperature	day°C (Jan-June)	1449	1444
Average Annual Rainfall	mm	747	745
Field Capacity Days	days	156	155
Moisture Deficit, Wheat	mm	116	116
Moisture Deficit, Potatoes	mm	112	111
Overall climatic grade	N/A	Grade 1	Grade 1

12. 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.

13. 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.

14. The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. At this locality, the climate is relatively dry in regional terms. As a result the likelihood of soil droughtiness problems may be increased whilst soil wetness limitations may be reduced. No local climatic factors, such as exposure or frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

Site

15. The southern half of the site is relatively flat (0-1°) and lies at an altitude of approximately 50 to 55 m AOD. The lowest lying land on the site lies at an altitude of approximately 47 m AOD. This land follows the northern drain and extends in an easterly direction to where the A20 intersects the M20. Land to the immediate north and south of this lower lying area is gently sloping (2-3°). Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

16. The published geology map (BGS, 1982) shows most of the site to be underlain by Hythe Beds. In the north of the site a fault at the surface is mapped. The line of this fault approximates to the lower lying land on the site. To the north of the fault the land is shown to be underlain by Sandgate Beds. Sandgate Beds are also mapped to the immediate south west of the site; Folkestone Beds are mapped to the immediate north of the site.

17. The published soil map for this area (SSEW, 1983) shows the entire site to comprise soils of the Fyfield 2 Association. These soils are described as 'Well drained coarse loamy and sandy soils over sands and sandstone. Some very acid sandy soils with bleached subsurface horizons on heaths and in woodlands. Risk of water erosion.' (SSEW, 1983).

AGRICULTURAL LAND CLASSIFICATION

18. 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.

19. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II, page 9.

Grade 1

20. Grade 1, excellent quality, land occurs on the slightly higher areas of the site. This land has no or very minor limitations to agricultural use. Profiles comprise non-calcareous fine sandy silt loam topsoils which overlie similarly textured or fine sandy loam upper subsoils. These pass into heavier (medium clay loam, sandy clay loam) lower subsoils. In the extreme south of the site, subsoils tend to be heavier (medium clay loam, sandy clay loam) immediately below the topsoil and pass into heavy clay loam or clay lower subsoils at depth. Topsoils are very slightly stony, containing 0-5% total flints (all of which are smaller than 2 cm). Subsoils have a similar stone content. These profiles are gleyed between 45 and 85 cm. All subsoils are moderately structured and permeable. Consequently, these profiles are assessed as well drained (Wetness Class I). These profiles are typified by Pit 2 (see Appendix II).

21. The interaction between the well drained soils, light topsoil textures and the prevailing climate means that this land has no or very minor restrictions on the flexibility of cropping, stocking and cultivations. In addition, the fine sand content of the topsoils and, to a lesser extent, upper subsoils means that these profiles have adequate reserves of soil available water to support a wide range of agricultural or horticultural crops throughout the growing season in most years. Consequently Grade 1 is appropriate.

Grade 2

22. Land classified as Grade 2, very good quality, is equally limited by minor soil wetness and soil droughtiness. Profiles typically comprise calcareous fine sandy silt loam topsoils which overlie light textured (fine sandy loam, loamy medium sand) upper subsoils. Lower subsoils are slightly heavier (sandy clay loam, heavy clay loam) and pass into plastic clay at approximately 60 to 70 cm depth. The clay is slowly permeable and results in imperfect drainage conditions (Wetness Class III), as indicated by gleying within 40 cm depth. The topsoils and subsoils are very slightly stony, containing about 2% total flints by volume. Although imperfectly drained, the light topsoil textures and prevailing climate means that this land is only slightly limited by soil wetness. This land may be subject to minor restrictions on the flexibility of cropping, stocking and cultivations. In comparison to the land classified as Grade 1, the presence of loamy medium sand upper subsoils and poorly structured clay at relatively moderate depths means that this land has slightly lowered amounts of profile available water for uptake by crop roots. The resulting soil droughtiness limitation means that this land may have slightly lower and less consistent crop yields.

Grade 4

23. The lower lying land on the site has been classified as Grade 4 (poor quality) because of severe soil wetness and workability limitations. Profiles comprise non-calcareous fine sandy silt loams which overlie similarly textured or medium clay loam upper subsoils. All upper subsoils are permeable and moderately structured. Lower subsoils comprise permeable and moderately structured medium clay loams, heavy clay loams or sandy clay loams which sometimes pass into poorly structured, slowly permeable plastic clay at depth (90 to 95 cm). All of these profiles, which are typified by Pit 1 (see Appendix II), are heavily gleyed from the surface and given that no slowly permeable layer occurs within 80 cm are technically moderately well drained (Wetness Class II). However, the flat and low-lying nature of this land means that drainage measures are likely to prove inadequate, and that the groundwater

levels would be high for much of the year. At the time of survey, these profiles were moist from the surface and very moist at moderate depths within the profile. Given that March and April 1997 had been exceptionally dry months it was considered that in most years these profiles would be seasonally wet. Iron ochre deposits in the drain and the predominance of hydrophilic vegetation (sedges and rushes) across this area also indicate prolonged periods of waterlogging and anaerobic soil conditions. Consequently, this land was assessed as being very poorly drained (Wetness Class V). The interaction between these soil drainage characteristics, topsoil textures and the prevailing climate means that Grade 4 is appropriate. Excessive soil wetness adversely affects seed germination and survival, and inhibits 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. Consequently, this land is best suited to seasonal grazing.

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SOURCES OF REFERENCE

British Geological Survey (1982) *Sheet No. 289, Canterbury, 1:50,000 (solid and drift edition).* 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 6, 1:250,000 scale, Soils of South East England and accompanying legend.* 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:

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. **GLEY/SPL**: 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. **GLEY:** 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 peds 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 **VF**: very friable **FR**: friable **FM**: firm **VM**: very firm
EM: extremely firm **EH**: extremely hard

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

SOIL PIT DESCRIPTION

Site Name : ASHFORD BLP, SITE 49 Pit Number : 1P

Grid Reference: TR00304400 Average Annual Rainfall : 745 mm
Accumulated Temperature : 1444 degree days
Field Capacity Level : 155 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	FSZL	25 Y42 00	0	0		M				
20- 42	FSZL	25 Y52 62	0	0		M	MDCSAB	FR	M	
42- 67	MCL	25 Y63 00	0	5	HR	M	MDCSAB	FR	M	
67- 89	SCL	25 Y62 00	0	2	HR	M	MDCSAB	FR	M	
89-120	C	05 G07 00	0	5	HR	M	WVCSAB	FM	P	

Wetness Grade : 4 Wetness Class :
Gleying : 0 cm
SPL :089 cm

Drought Grade : APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 4
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : ASHFORD BLP, SITE 49 Pit Number : 2P

Grid Reference: TR00114393 Average Annual Rainfall : 745 mm
Accumulated Temperature : 1444 degree days
Field Capacity Level : 155 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 34	FSZL	10YR42 00	0	2	HR					
34- 49	FSZL	10YR43 00	0	0			MDCSAB	FR	M	
49- 72	FSL	25Y 72 00	0	0		C	MDVCPL	FR	M	
72-100	SCL	10YR62 00	0	2	HR	M	MDCAB	FR	M	
100-120	MSL	10YR62 00	0	2	HR	M			M	

Wetness Grade : 1 Wetness Class : I
Gleying :049 cm
SPL : No SPL

Drought Grade : 1 APW : 184mm MBW : 68 mm
APP : 143mm MBP : 32 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EXP	DIST	EROSN LIMIT	FROST	CHEM	ALC	COMMENTS
1	TR00204410	PGR	S	03	035	060	3	2	110	-6	114	3	3A				WD		2		Imp80 stone
1A	TR00304409	PGR	S	02	0		2	1	183	67	123	12	1						1		V nr wet area
1P	TR00304400	PGR			0	089	5	4		0		0					WE		4		Wet- g'water
2	TR00404410	PGR	SW	02	060		1	1	170	54	130	19	1						1		
2A	TR00384416	PGR	SE	03	060		1	1	175	59	135	24	1						1		Sl gley 30
2P	TR00114393	PGR			049		1	1	184	68	143	32	1						1		
3	TQ99904400	PGR	E	01	062	070	2	1	156	40	133	22	1						1		V nr wet area
4	TR00004400	PGR	E	01	078		1	1	188	72	148	37	1						1		
5	TR00104400	PGR	N	02	0		5	4		0		0					WE		4		Wet- g'water
6	TR00204400	PGR	N	02	0		5	4		0		0					WE		4		Wet- g'water
7	TR00304400	PGR	N	02	0	095	5	4		0		0					WE		4		Wet- g'water
8	TR00404400	PGR			045		1	1	176	60	138	27	1						1		
9	TR00504400	PGR			010		4	3B		0		0					WE		3B		Poached
10	TR00004390	PGR	E	01	068		1	1	186	70	145	34	1						1		
11	TR00104390	PGR			065		1	1	181	65	143	32	1						1		
12	TR00204390	PGR			075		1	1	179	63	141	30	1						1		
13	TR00304390	PGR			070		1	1	186	70	148	37	1						1		
14	TR00104380	PGR			085		1	1	169	53	131	20	1						1		Sl gleyed 35
15	TR00204380	PGR					1	1	167	51	127	16	1						1		Sl gleyed 45
16	TR00104380	PGR			055		1	1	158	42	133	22	1						1		

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	
1	0-25	fszl	10YR42 00						0	0	HR	2						Y	
	25-35	fsl	10YR64 63	10YR58	00	F			0	0	HR	2		M				Y	
	35-45	lms	10YR63 64	75YR58	00	C		Y	0	0	HR	2		M				Y	
	45-60	scl	10YR64 00	10YR58	00	C		Y	0	0	HR	2		M				Y	Fine sand
	60-80	c	25Y 61 00	75YR58	68	M		Y	0	0	HR	2		P			Y	Y	Imp 80 stone
1A	0-25	fszl	10YR42 00	10YR56	00	C		Y	0	0	HR	2							V near rushes
	25-35	fsl	10YR42 00	10YR56	00	C		Y	0	0	HR	2		M					
	35-48	lfs	10YR42 52	10YR58	00	C		Y	0	0	HR	2		M					
	48-80	lfs	25Y 62 00	10YR58	00	C		Y	0	0	HR	2		M					
	80-120	fsl	25Y 71 00	25Y 66	00	M		Y	0	0	HR	2		M					
1P	0-20	fszl	25 Y42 00	10YR58	00	M		Y	0	0		0							G' water probs
	20-42	fszl	25 Y52 62	75YR58	00	M		Y	0	0		0	MDCSAB	FR M					
	42-67	mcl	25 Y63 00	10YR56	00	M	00MN00	00 Y	0	0	HR	5	MDCSAB	FR M					
	67-89	scl	25 Y62 00	10YR66	00	M	00MN00	00 Y	0	0	HR	2	MDCSAB	FR M					
	89-120	c	05 G07 00	75YR68	00	M		Y	0	0	HR	5	WVCSAB	FM P		Y		Y	
2	0-25	fszl	10YR43 00						0	0	HR	2							
	25-60	fsl	10YR54 56						0	0	HR	2		M					
	60-120	scl	10YR53 54	10YR58	56	M		Y	0	0	HR	2		M					Border fsl
2A	0-30	fszl	10YR43 00						0	0	HR	2							
	30-60	fsl	10YR54 00	10YR56	00	C		S	0	0	HR	2		M					Sl gleyed
	60-70	fsl	10YR53 00	10YR56	00	C		Y	0	0	HR	2		M					
	70-120	scl	10YR53 00	10YR56	00	M		Y	0	0	HR	2		M					
2P	0-34	fszl	10YR42 00						0	0	HR	2							
	34-49	fszl	10YR43 00						0	0		0	MDCSAB	FR M					
	49-72	fsl	25Y 72 00	75YR68	00	C	00MN00	00 Y	0	0		0	MDVCPL	FR M					Pockets mcl, fszl
	72-100	scl	10YR62 00	75YR58	00	M	00MN00	00 Y	0	0	HR	2	MDCAB	FR M					Porous- not spl
	100-120	msl	10YR62 00	75YR58	00	M	00MN00	00 Y	0	0	HR	2		M					V wet
3	0-35	fszl	10YR43 00	000C00	00	F			0	0		0							
	35-62	mcl	10YR44 00						0	0		0		M					
	62-70	hcl	10YR62 00	10YR68	00	M		Y	0	0		0		M					
	70-120	c	10YR61 00	10YR68	00	M		Y	0	0		0		P			Y		Plastic
4	0-30	fszl	10YR53 00						0	0	HR	2							
	30-60	fszl	10YR54 00	10YR68	00	F			0	0	HR	2		M					
	60-78	fszl	10YR54 00	10YR68	00	C		S	0	0		0		M					Sl gleyed
	78-95	scl	10YR72 00	10YR58	00	M		Y	0	0	HR	2		M					Soft & friable
	95-120	scl	05Y 62 00	10YR58	00	M		Y	0	0	HR	5		M					Soft & friable
5	0-25	fszl	10YR62 00	75YR58	00	C		Y	0	0	HR	2							
	25-55	mcl	10YR62 63	75YR58	00	M		Y	0	0		0		M					
	55-80	mcl	10YR62 61	75YR58	00	M		Y	0	0		0		M					Border hcl

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	
6	0-25	fszl	25Y 52 00	75YR58 00	C			Y	0	0	HR	2							G'water probs
	25-55	fszl	25Y 62 00	75YR58 00	M			Y	0	0		0		M					
	55-90	hcl	25Y 62 61	75YR58 00	M			Y	0	0	HR	2		M					
	90-95	hcl	25Y 62 61	75YR58 00	M			Y	0	0	HR	20		M					
7	0-20	fszl	10YR52 00	75YR58 00	C			Y	0	0	HR	2							G'water probs
	20-30	fszl	25Y 52 00	75YR58 00	M			Y	0	0	HR	2		M					
	30-75	mcl	25Y 62 61	75YR58 00	M			Y	0	0		0		M					
	75-95	scl	25Y 62 61	75YR58 00	M	00MN00	00	Y	0	0		0		M					
	95-120	c	05Y 61 00	75YR58 00	M			Y	0	0		0		P			Y		
8	0-35	fszl	10YR44 00						0	0		0							
	35-45	fszl	10YR44 00	10YR56 00	F				0	0		0		M					
	45-82	mcl	25 Y53 00	10YR56 00	C			Y	0	0		0		M					
	82-120	scl	25 Y62 00	10YR56 00	M			Y	0	0		0		M					Soft & friable
9	0-10	omzcl	10YR32 00						0	0	HR	2							
	10-30	mzcl	25Y 51 00	75YR58 00	M	00MN00	00	Y	0	0	HR	10		M					
	30-65	hzcl	25Y 51 00	75YR58 00	M			Y	0	0	HR	2		M					
	65-95	omzcl	10YR32 00	05YR58 00	C			Y	0	0	HR	2		M					V wet
	95-120	scl	05Y 62 00	10YR58 00	C			Y	0	0	HR	10		M					V wet
10	0-32	fszl	10YR53 00						0	0	HR	5							
	32-68	fszl	10YR54 00						0	0	HR	2		M					
	68-78	fszl	10YR64 74	10YR58 00	C			Y	0	0		0		M					
	78-100	mcl	10YR64 00	10YR68 00	C			Y	0	0	HR	2		M					
	100-120	scl	25Y 63 00	75YR68 00	M			Y	0	0	HR	5		M					Soft & friable
11	0-30	fszl	10YR53 00						0	0	HR	5							
	30-55	fszl	10YR54 00						0	0	HR	2		M					Border mcl
	55-65	fszl	10YR64 74						0	0		0		M					
	65-75	mcl	10YR64 00	10YR68 00	C			Y	0	0		0		M					Soft & friable
	75-120	scl	10YR64 00	10YR68 00	C			Y	0	0	HR	5		M					Soft & friable
12	0-30	fszl	10YR43 00						0	0	HR	2							
	30-55	fszl	10YR46 00						0	0	HR	1		M					Border mcl
	55-75	mcl	10YR54 00	10YR58 00	C	00MN00	00	S	0	0		0		M					Border fszl
	75-120	mcl	10YR64 00	10YR68 00	C	00MN00	00	Y	0	0		0		M					Soft & friable
13	0-28	fszl	10YR43 00						0	0	HR	1							
	28-70	fszl	10YR46 00						0	0	HR	1		M					
	70-120	mcl	10YR64 00	10YR56 00	C	00MN00	00	Y	0	0		0		M					Soft & friable
14	0-35	fszl	10YR43 00						0	0		0							
	35-45	scl	10YR43 00	10YR56 00	C			S	0	0		0		M					Sl gleyed
	45-65	mcl	10YR44 42	10YR46 00	C			S	0	0	HR	2		M					Sl gleyed
	65-85	mcl	10YR44 00	10YR46 00	C			S	0	0	HR	2		M					Sl gleyed
	85-120	hcl	10YR53 00	10YR58 00	M			Y	0	0		0		M					Soft & friable

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	
15	0-35	fszl	10YR43 00						0	0	HR	2							
	35-45	scl	10YR43 00						0	0	HR	1		M					Fine sand
	45-55	scl	10YR43 00	10YR56 00	C			S	0	0	HR	5		M				Y	Sl gleyed; calc
	55-80	scl	10YR44 42	10YR56 00	C			S	0	0	HR	2		M					Sl gleyed
	80-120	scl	10YR44 00	10YR46 00	C			S	0	0		0		M					Sl gleyed
16	0-35	fszl	10YR43 00						0	0		0							
	35-55	mcl	10YR44 00						0	0		0		M					
	55-85	c	10YR53 00	10YR58 00	M			Y	0	0		0		M					Soft & friable
	85-120	c	25 Y53 00	10YR58 00	M		00MN00 00	Y	0	0		0		M					Soft & friable