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**EAST HAMPSHIRE DISTRICT LOCAL PLAN
Land at Kippences, West Liss**

**Agricultural Land Classification
ALC Map and Report**

May 1998

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

EAST HAMPSHIRE DISTRICT LOCAL PLAN LAND AT KIPPENCES, WEST LISS

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 19.5 ha of land located south of Kippences, near West Liss, in Hampshire. The survey was carried out during May 1998.
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 second review of the East Hampshire 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 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 agricultural land use on the site comprised mostly horticulture with rough grazing being confined to a small field in the south-west of the site (adjacent to the recreation ground).

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 overleaf.
7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 20 borings and two soil pits were described.
8. The agricultural land at this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality) and Subgrade 3b (moderate quality). The key limitations include soil wetness and soil droughtiness. Soils vary in nature and across short distances as a result of the complex, interbedded nature of the underlying Folkestone Beds.
9. The Grade 2 unit lies along the eastern edge of the site. Here, topsoils comprise medium sandy loam textures and are stoneless or very slightly stony. These overlie interbedded subsoils, which comprise a combination of both sandy and clayey textures that vary across the unit. The soil profiles are deep and generally well drained with very little stone throughout. The combination of these soil properties and the prevailing climate results in

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

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	4.8	25.4	24.6
3a	11.8	62.4	60.5
3b	2.3	12.2	11.8
Other Land	0.6	-	3.1
Total surveyed area	18.9	100	96.9
Total site area	19.5	-	100

either a minor soil wetness or soil droughtiness limitation which may adversely affect crop yield, consistency of yield, and crop quality. As a consequence of the variable nature of these soils, occasional borings of slightly better quality are found within the Grade 2 unit.

10. Land of Subgrade 3a quality occurs across most of the site. Soils are similar to those described in the Grade 2 unit above but the severity of the wetness and/or droughtiness restriction is greater. This is due to the soils being either more clayey (and therefore less well drained) or coarser textured (therefore reducing the amount of water available in the soil for uptake by plants). Given the prevailing climate, these soils may suffer from potentially lower and less consistent crop yields than those in the Grade 2 unit.

11. Land of moderate quality (Subgrade 3b) is limited by soil wetness as a result of either shallow clayey subsoils (which restrict drainage) or high groundwater levels (in the field adjacent to the recreation ground). Soil wetness problems will reduce the flexibility of cropping and the opportunities for cultivation or grazing by livestock.

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 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

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 (AT0, January to June), as a measure of the relative warmth of a locality.

16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Other local climatic factors such as exposure and frost risk are not believed to have a significant effect on the site. The site is climatically Grade 1.

Table 2: Climatic and altitude data

Factors	Units	Values	Values
Grid reference	N/A	SU 778 282	SU 774 284
Altitude	m,AOD	65	70
Accumulated Temperature	day°C	1468	1462
Average Annual Rainfall	mm	896	902
Field Capacity Days	days	198	199
Moisture Deficit, Wheat	mm	98	97
Moisture Deficit, Potatoes	mm	90	88
Overall Climatic Grade	N/A	Grade 1	Grade 1

Site

17. The agricultural land at this site lies at an altitude of 60m-70m AOD. The majority of the land at the site is flat or very gently sloping. Nowhere on the site does gradient, microrelief or flood risk limit land quality.

Geology and soils

18. The published geological information for the area (BGS, 1975) shows the site to be underlain mainly by Folkstone Beds with the remainder (along the eastern boundary) being underlain by Sandgate Beds. These two geological deposits consist of interbedded sands, sandstone, pebbles and clays.

19. The most recently published soil information for the area (SSEW, 1983) shows the Fyfield 4 association to cover the whole site. These soils are described as 'Deep well drained coarse loamy and sandy soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging and some slowly permeable seasonally waterlogged fine loamy over clayey soils.' (SSEW, 1983).

20. Upon detailed field examination, soils consistent with the Fyfield 4 association were found to exist across the survey area.

Agricultural Land Classification

21. 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.

22. 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.

Grade 2

23. Approximately one quarter of the survey area is mapped as Grade 2 (very good quality agricultural land). This land is mapped in the eastern side of the site. The land is affected by a combination of wetness and/or droughtiness restrictions. Occasional borings which are of slightly better or worse quality are also included within this unit.

24. The soils are mostly developed from interbedded sand and clay deposits, and the nature and characteristics of the soil profiles subsequently vary with depth. Certain key characteristics can be observed. The topsoils comprise mainly non-calcareous, stoneless or very slightly stony (0-5% total flints, 0-1% >2cm) medium sandy loam textures with occasional loamy medium sand textures. These rest upon similar upper subsoils (in terms of textures and stone contents) which are usually gleyed but friable and moderately structured. Lower subsoils vary considerably in texture and horizon sequences from loamy medium sands to clays, with a combination of textural classes in between.

25. Within the Grade 2 unit, areas occur where soil wetness is dominant over soil droughtiness. These soils tend to have heavier textured horizons in the profile and are gleyed at moderately shallow depths between 28cm and 50cm (see Pit 2, Appendix II). Depending on the depth to gleying and the texture of the various horizons, some of the soil profiles suffer from slight impeded drainage, causing them to be assigned to Wetness Class II. The interaction between these soils and the local climatic regime results in a minor wetness limitation which will restrict the utilisation of the land and lead to a reduction in crop growth and yields.

26. Areas affected by soil droughtiness commonly have similar, though significantly more sandy and better drained, profiles than those described above, causing them to be assigned to Wetness Class I. However, these profiles often have restricted reserves of available water, such that there is a slight risk of drought stress to plants in most years which, given the local climatic condition, leads to Grade 2 being appropriate. Soil Pit 2 (see Appendix II) is partially representative of this soil type.

Subgrade 3a

27. The majority of the site area is mapped as good quality agricultural land (Subgrade 3a). Soil profiles vary considerably within this unit. The land is affected by soil wetness and/or workability restrictions. The topsoils generally consist of stoneless to slightly stony, (0-8% total flints, with up to 2% >2cm diameter) medium sandy loams or sandy clay loams. These topsoils overlie subsoils which are similar or slightly heavier in texture. Soil drainage was found to be impeded to such an extent that gleying occurs at shallow to moderate depths in the profiles (between 25cm and 70cm). Some soil profiles within this unit have slowly permeable clayey horizons at variable depths (between 50cm and 78cm) in addition to gleying. The utilisation of the land is restricted to a moderate degree because the number of days when cultivation and/or grazing can occur without causing structural damage to the soil will be reduced. The combination of soil textures and local climatic regime places the soils in Wetness Class II or III. Pit 1 is representative of the soils in this unit). Consequently, Subgrade 3a is appropriate for this land.

Subgrade 3b

28. A small area of land running along the south-western edge of the site is mapped as Subgrade 3b (moderate quality) on the basis of soil wetness. Approximately half of this unit is subject to high groundwater levels due to poor drainage whilst the other half contains soils which have slowly permeable subsoils at shallow or moderate depths.

29. The lower lying land occurs in the south-west of the site and, here, seasonally high groundwater levels are likely to result in significant soil wetness limitations. Topsoils comprise medium clay loams. These overlie similarly textured or sandy clay loam upper subsoils which pass into medium clay loam or medium sand lower subsoils. All of these subsoils are permeable and moderately structured. These profiles are stoneless or very slightly stony throughout (containing up to 2% flints). They are either gleyed directly from the surface or just below the topsoil. Given that no slowly permeable layer occurs within 80 cm, such profiles are technically moderately well drained (Wetness Class II). However, the flat and low-lying nature of this land, which abuts the recreation ground and an area of housing (Mary's Road), means that drainage measures are likely to prove inadequate, and that groundwater levels would be high for much of the year. At the time of survey, these profiles were very moist from the surface and saturated from below the topsoil. Consequently, this land was assessed as being poorly drained (Wetness Class IV). Soil wetness of this degree adversely affects seed germination and survival, and inhibits the development of a good root system. Soil wetness also imposes restrictions on cultivations, trafficking by machinery or grazing by livestock.

30. Towards the north of this mapping unit, poorly drained profiles arise from slowly permeable clay subsoils which occur between a depth of 30cm and 48cm. Topsoils are variable in texture (heavy clay loam and medium sandy loam) and are very slightly stony (containing up to 5% flints). These occasionally pass into a sandy clay loam upper subsoil. The presence of the clay horizons at moderately shallow depths means that surface water movement through these layers will be significantly reduced, resulting in poor soil drainage (Wetness Class IV).

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SOURCES OF REFERENCE

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MAFF: London.

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

Met. Office: Bracknell.

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

SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*

SSEW: Harpenden.

APPENDIX I

DESCRIPTION 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 that 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 (eg. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5: Very Poor Quality Agricultural Land

Land with severe limitations that restricts 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	DCW: Deciduous Wood
HTH: Heathland	BOG: Bog or Marsh	FLW: Fallow
PLO: Ploughed	SAS: Set aside	OTH: Other
HRT: Horticultural Crops		

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	EX: Exposure
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
ST: Topsoil Stoniness		

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 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

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	SU77602850	HRT	52	70	3	3A	132	34	109	20	1			WE	3A	SEE PIT 1
2	SU77802850	HRT	25		2	3A	150	52	110	21	1			WE	3A	SEE PIT 1
3	SU77902850	HRT	28		2	2	151	53	111	22	1			WE	2	
4	SU77402840	HRT	25		2	2	131	33	108	19	1			WE	2	W/T90 SEE 1P
5	SU77502840	HRT	32	48	4	3B	126	28	105	16	2			WE	3B	SEE PIT 1
6	SU77602840	PLO	50	50	3	3A	127	29	105	16	2			WE	3A	SEE PIT 1
7	SU77702840	HRT	31		1	1	151	53	111	22	1				1	SEE PIT 1
8	SU77802840	HRT	29		1	1	153	55	111	22	1				1	SEE PIT 1
9	SU77902840	HRT	28		1	1	108	10	89	0	2			DR	2	SEE PIT 2
10	SU77502830	HRT	30	30	4	3B	91	-7	99	10	3A			WE	3B	SEE PIT 1
11	SU77602830	HRT	35	85	2	2	136	38	110	21	1			WE	2	SEE PIT 1
12	SU77702830	HRT	65	65	3	3A	103	5	106	17	2			WE	3A	IMP 80 STONY
13	SU77802830	HRT	33	78	3	3A	133	35	106	17	1			WE	3A	SEE PIT 1
14	SU77902830	HRT	35		1	1	123	25	106	17	2			DR	2	SEE PIT 2
15	SU77602820	HRT	30		2	3A	147	49	106	17	1			WE	3A	SEE PIT 1
16	SU77702820	HRT	70	70	3	3A	130	32	107	18	1			WE	3A	SEE PIT 1
17	SU77802820	HRT	50	75	2	2	137	39	109	20	1			WE	2	SEE PIT 2
18	SU77902810	HRT	70		1	1	89	-9	70	-19	3A			DR	3A	SEE PIT 2
19	SU77602810	RGR	30		4	3B	126	28	109	22	2			WE	3B	HIGH W/T 50CM
20	SU77552880	RGR	0		4	3B	155	57	117	28	1			WE	3B	HIGH W/T 70CM
P	SU77602850	HRT	52	72	3	3A	140	42	110	21	1			WE	3A	PIT TO 120
P	SU77902830	HRT	38	110	1	1	118	20	94	5	2			DR	2	PIT TO 120

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS STR POR IMP SPL CALC.							
				COL	ABUN	CONT		GLY	>2	>6		LITH	TOT	STR	POR	IMP	SPL	CALC.	
1	0-35	MSL	10YR32						0	0	HR	4							
	35-52	SCL	10YR4353	10YR56	F	D			0	0	HR	5	M						WITH SAND
	52-70	HCL	10YR5362	10YR4658	C	D		Y	0	0	HR	5	M						VARIABLE, DENSE
	70-120	C	10YR5263	10YR5263	M	D		Y	0	0	HR	3	P			Y			PLASTIC
2	0-25	SCL	10YR32						0	0		0							
	25-62	SCL	10YR53	10YR56	C	D			0	0		0	M						LOOSE
	62-120	SCL	25Y62	10YR46	C	D			0	0		0	M						LOOSE
3	0-28	MSL	10YR32						0	0		0							
	28-39	MSL	25Y62	10YR46	C	D		Y	0	0		0	M						
	39-55	SCL	25Y62	10YR68	C	D		Y	0	0		0	M						POROUS
	55-120	SCL	25Y62	10YR46	C	D		Y	0	0		0	M						LOOSE
4	0-25	MSL	10YR32						0	0	HR	3							
	25-50	SCL	25Y 5363	10YR446	M	D		Y	0	0	HR	2	M						
	50-90	SCL	25Y 5363	75YR4658	M	D		Y	0	0	HR	2	M						LOOSE
	90-120	LCS	25Y 5262	10YR5658	M	D		Y	0	0	HR	5	M						LOOSE
5	0-32	MSL	10YR32						0	0	HR	3							
	32-48	SCL	10YR53	10YR56	M	D		Y	0	0	HR	2	M						
	48-72	C	10YR6263	10YR5658	M	D		Y	0	0	HR	2	P			Y			
	72-120	C	25Y 5262	10YR5658	M	D		Y	0	0	HR	5	P			Y			
6	0-35	MSL	10YR32						0	0	HR	3							
	35-50	SCL	10YR53	10YR56	F	D			0	0	HR	2	M						POROUS
	50-120	C	25Y 5253	10YR5846	M	D		Y	0	0	HR	5	P			Y			PLASTIC
7	0-31	MSL	10YR32						0	0		0							
	31-46	MSL	10YR53	10YR46	C	D		Y	0	0		0	M						
	46-120	SCL	10YR62	10YR68	C	D		Y	0	0		0	M			Y			POROUS, LOOSE
8	0-29	MSL	10YR32						0	0		0							
	29-72	MSL	25Y62	10YR68	C	D		Y	0	0		0	M						MIXED
	72-120	SCL	25Y53	10YR46	C	D		Y	0	0		0	M						POROUS
9	0-28	MSL	10YR32						0	0		0							
	28-42	MSL	25Y52	10YR68	C	D		Y	0	0		0	M						
	42-120	LMS	25Y72	10YR66	C	D		Y	0	0		0	M						
10	0-30	HCL	25Y 42	10YR46	C	D		Y	0	0	HR	5							
	30-75	C	25Y 5253	75YR58	M	D		Y	0	0	HR	10	P			Y			PLASTIC
11	0-35	MSL	10YR32						0	0	HR	3							
	35-65	SCL	25Y 63	10YR56	C	D		Y	0	0	HR	2	M						LOOSE
	65-85	HCL	25Y 5253	10YR4658	M	D		Y	0	0	HR	3	M						POROUS
	85-120	C	25Y 5253	75YR58	M	D		Y	0	0	HR	10	P			Y			PLASTIC/DENSE

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			SPL	CALC		
				COL	ABUN	CONT		>2	>6	LITH		TOT	STR	POR			IMP	
12	0-33	MSL	10YR32					1	0	HR	5							
	33-65	SCL	10YR4656					0	0	HR	3		M			LOOSE		
	65-80	C	25Y 6171	10YR68	M	D		Y	0	0	HR	5		P		Y	PLASTIC IHR	
13	0-33	MSL	10YR42					1	0	HR	5							
	33-55	SCL	10YR5352	10YR56	C	D		Y	0	0	HR	5		M			POROUS	
	55-78	SCL	25Y 62	10YR58	C	D		Y	0	0	HR	5		M			LOOSE	
	78-120	C	25Y 61	10YR58	M	D		Y	0	0	HR	2		P		Y	PLASTIC	
14	0-35	MSL	10YR32					0	0		0							
	35-62	MSL	25Y52	10YR68	C	D		Y	0	0		0		M			VARIABLE	
	62-120	LMS	25Y73	10YR68	C	D		Y	0	0		0		M			MIXED S+C	
15	0-30	SCL	10YR42					2	0	HR	8							
	30-60	HCL	10YR52	75YR46	C	D		Y	0	0	HR	10		M			LOOSE	
	60-70	HCL	25Y 72	75YR46	C	D		Y	0	0	HR	5		M			POROUS	
	70-100	SCL	25Y 61	75YR46	C	D		Y	0	0		0		M			LOOSE	
	100-120	MSL	25Y 61	75YR46	C	D		Y	0	0		0		M				
16	0-35	MSL	10YR4333	10YR46	F	D		1	0	HR	5							
	35-50	MSL	10YR44	10YR46	F	D		0	0	HR	5		M					
	50-70	C	10YR5462	10YR56	F	D		0	0	HR	10		M				MIXED S+C	
	70-120	C	25Y 6163	10YR68	M	D		Y	0	0	HR	5		P		Y	DENSE	
17	0-33	MSL	10YR42					1	0	HR	5							
	33-50	MSL	10YR4463	10YR56	F	F		0	0		0		M					
	50-75	MSL	10YR5464	10YR56	C	F		Y	0	0		0		M			V. WET	
	75-120	C	25Y 7164	10YR68	C	D		Y	0	0	HR	3		P		Y	V. WET	
18	0-35	LMS	10YR43					0	0	HR	2							
	35-70	LMS	10YR44	10YR56	C	D		S	0	0		0		M				
	70-120	LMS	25Y 64	10YR58	M	D		Y	0	0		0		M				
19	0-30	MCL	10YR22					0	0	HR	2						POSS ORGANIC	
	30-65	SCL	25Y 61	10YR68	C	D		Y	0	0		0		M			HEAVY, WET	
	65-120	LMS	05Y 51	75YR58	M	D		Y	0	0		0		M			SATURATED	
20	0-25	MCL	10YR21	10YR46	C	D		Y	0	0		0					POSS ORGANIC	
	25-35	MCL	05Y 41	75YR46	C	D		Y	0	0		0		M			V. WET	
	35-120	MCL	25Y 61	75YR58	M	D		Y	0	0		0		M			SATURATED	
1P	0-34	SCL	10YR4232					0	0	HR	3							
	34-52	SCL	10YR53	10YR56	F	D		0	0	HR	3	MDCAB	FR	M			MIXED S+C	
	52-72	HCL	25Y 53	10YR4658	M	D	10YR43	Y	0	0	HR	3	MDCAB	FR	M		VARIABLE	
	72-100	HCL	25Y 52	10YR58	M	D	25Y 53	Y	0	0	HR	3	MDCAB	FM	P	Y	Y	MIXED S+C, FIRM
	100-120	C	25Y 5272	10YR4658	M	D	25Y 71	Y	0	0	HR	2	WDCAB	FM	P	Y	Y	PLASTIC, FIRM
2P	0-38	MSL	10YR3242					0	0	HR	2							
	38-48	MSL	25Y 4252	10YR56	C	D	25Y 52	Y	0	0		0	MDCAB	VF	M		VARIABLE	
	48-73	LMS	25Y 71	10YR68	C	D	25Y 71	Y	0	0	HR	2	HKCAB	VF	M		V. FRIABLE	
	73-110	LMS	25Y 72	10YR68	M	D	25Y 7271	Y	0	0		0	HKCAB	VF	M		LOOSE	
	110-120	SCL	25Y 72	10YR68	M	D	25Y 7172	Y	0	0		0	MDCAB	FR	M	Y	Y	SATURATED