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**Ashford Borough Local Plan  
Site 53: Appledore Road, Tenterden**

**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 53, APPLIEDORE ROAD, TENTERDEN

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 26 hectares of land to the south-east of Tenterden, near 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 sheep. The areas mapped as 'Other land' include a farmstead, ponds and an area to the north of the site thought to be gardens.

### 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
2	4.1	16.7	16.0
3a	11.1	45.1	43.2
3b	9.1	37.0	35.4
4	0.3	1.2	1.1
Other land	1.1	N/A	4.3
Total surveyed area	24.6	100	-
Total site area	25.7	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 27 borings and 3 soil pits were described.

8. The agricultural land on this site has been assigned to a range of grades from Grade 2, very good quality, to Grade 4, poor quality, with significant areas of Subgrades 3a and 3b (good and moderate quality, respectively). The soils are derived from deposits of Tunbridge Wells Sand, and as such predominantly comprise silty clay loam textures, which are variably affected by impeded drainage. The degree of drainage impedence determines the ALC grade, with poorly drained land being classified as Subgrade 3b, and that which is better drained being assigned to Subgrade 3a or Grade 2.

9. Three fields to the north-west of the site may have been disturbed in the past, (there is anecdotal evidence of a Victorian landfill site). This area has an undulating landform which may affect its agricultural potential, in addition to the soil wetness restrictions which prevail. A small unit of Grade 4 land has been mapped where a distinct hollow is associated with very poor drainage, (as evidenced by the presence of rushes), and signs of disturbance, such as blocks of concrete on the surface. It would be impractical to cultivate this area and it will therefore be restricted to grazing.

## 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	
		TQ 897 339	TQ 895 338
Grid reference	N/A		
Altitude	m, AOD	45	64
Accumulated Temperature	day°C (Jan-June)	1462	1440
Average Annual Rainfall	mm	732	749
Field Capacity Days	days	149	151
Moisture Deficit, Wheat	mm	117	114
Moisture Deficit, Potatoes	mm	113	108
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 temperature at this site mean that there is no overall climatic limitation. Local climatic factors, such as exposure and frost risk do not affect land quality at this location. The site is climatically Grade 1. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality, the number of days when soils are at field capacity ranges between 149 and 151. In terms of agricultural land classification, this represents an important cut-off, such that the higher land (above about 60 m), which is assigned to the higher FCD range, may be subject to an enhanced risk of soil wetness and/or workability restrictions.

#### Site

15. The site lies at altitudes in the range 45-65 metres AOD. The highest land is located towards the north of the site, and falls through gentle gradients towards the south and east. Most of the site is not affected by site restrictions (i.e., gradient, micro-relief or flooding). However, at the north-west of the site, the land has an undulating topography, related to disturbance in the past, and Subgrade 3b and Grade 4 are mapped on the basis of a micro-relief limitation, which will limit the range of mechanised operations.

#### Geology and soils

16. The most detailed published geological information for the site (BGS, 1981) shows the north to be underlain by solid deposits of Tunbridge Wells Sand, which are described as 'grey silt and yellowish fine silty sand, and consolidated beds of siltstone, sandstone and red clay' (BGS, 1981). Wadhurst Clay outcrops across the mid-slopes, through the centre of the site, whilst Sand in Wadhurst Clay is shown to underlie the southern part of the site.

17. The most detailed published soils information covering the area (SSEW, 1983) shows it to comprise entirely soils of the Curtisden association. These soils are described as, 'silty soils over siltstone with slowly permeable subsoils and slight seasonal waterlogging' (SSEW, 1983). Soils broadly consistent with this description were observed across the site.

#### 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.

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.

#### Grade 2

20. Very good quality agricultural land has been mapped across the southern part of the site in conjunction with the deposits of Sand in Wadhurst Clay.

21. The Grade 2 land on this site is influenced by minor soil wetness limitations. Profiles comprise non-calcareous medium silty clay loam topsoils which are generally stoneless. These overlie similar or slightly heavier (heavy silty clay loam) upper subsoils, but typically pass to lighter textures of medium silty clay loam or fine sandy silt loam in the lower subsoil. These

lower subsoil horizons often contain between 5 and 15% siltstone fragments, and may be impenetrable to the soil auger from 60cm.

22. Soils within the Grade 2 mapping unit experience seasonal waterlogging, as evidenced by gleying from the surface. The absence of poorly structured horizons which impede drainage suggests this is caused by a fluctuating water table. Soil pit 2 (see Appendix II) confirms this. These moderately well drained soils (wetness class II) combine with topsoil textures (which are easily workable), and the prevailing climate, to give rise to land which is classified as Grade 2, on the basis of minor soil wetness. Excessive soil wetness may adversely affect crop growth and development, as well as limiting the flexibility of the land due to the reduction in the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

### **Subgrade 3a**

23. The land which is classified as Subgrade 3a, good quality, is also affected by soil wetness restrictions. Soils comprise non-calcareous, medium silty clay loam topsoils which are free of stones and occasionally gleyed. Subsoils comprise similar textures in the upper part of the profile, but typically become heavier at depth, passing to heavy silty clay loam and silty clay between 40 and 55cm. All subsoils are stoneless throughout.

24. Soil pit 1 (see Appendix II) is representative of the soils within the Subgrade 3a mapping units. It indicates that the heavier lower subsoil horizons are poorly structured and slowly permeable. Drainage is impeded to the extent that subsoils are gleyed immediately below the topsoil. Such seasonal waterlogging is consistent with wetness class III, which when considered alongside topsoil textures and climatic factors, results in a land classification of Subgrade 3a, due to soil wetness restrictions. The effects of soil wetness are described in paragraph 22 above. They will be more apparent where Subgrade 3a has been mapped, than for land assigned to Grade 2.

### **Subgrade 3b**

25. Moderate quality land is found in conjunction with parts of the site affected by significant soil wetness. Soils typically comprise non-calcareous, medium silty clay loam topsoils which are stoneless. These pass to heavier subsoils, typically heavy silty clay loam and silty clay. These profiles are all gleyed from the surface, evidence of severely impeded drainage arising from the presence of slowly permeable horizons within 35cm. Such drainage characteristics equate to a wetness class of IV, which when considered alongside topsoil textures and the prevailing climatic conditions, results in a land classification of Subgrade 3b. Soil pit 3 (Appendix II) is representative of soils placed in the Subgrade 3b mapping unit.

26. A small area of the Subgrade 3b land to the north-west of the site is also affected by a micro-relief limitation, in addition to the one of soil wetness. There is anecdotal evidence to suggest that this part of the site may have been disturbed during Victorian times by landfilling activity. The uneven, undulating landform which has resulted, will place restrictions on the operation of conventional farm machinery such that the land will be best suited to grazing. In these circumstances, Subgrade 3b is appropriate.

#### Grade 4

27. A small unit of poor quality land has been delineated to the north-west of the site, where the disturbance described in paragraph 26 above, has resulted in the presence of a distinct hollow. This is associated with very poor drainage, as evidenced by the presence of rushes, and the appearance of blocks of concrete and other rubbish, at the surface. Such conditions mean it would be impractical to cultivate this area and give rise to land which is severely restricted in its agricultural use.

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## SOURCES OF REFERENCE

British Geological Survey (1981) *Sheet No. 304, Tenterden*, 1:50,000, Solid & 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, Soils of South-East England*, 1:250,000. SSEW: Harpenden.

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



**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:

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

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYS/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:

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

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

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

### Soil Pits and Auger Borings

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

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

<b>F:</b>	Fine (more than 66% of the sand less than 0.2mm)
<b>M:</b>	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C:</b>	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:

<b>M:</b>	Medium (<27% clay)	<b>H:</b>	Heavy (27-35% clay)
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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:

<b>HR:</b>	all hard rocks and stones	<b>FSST:</b>	soft, fine grained sandstone
<b>ZR:</b>	soft, argillaceous, or silty rocks	<b>CH:</b>	chalk
<b>MSST:</b>	soft, medium grained sandstone	<b>GS:</b>	gravel with porous (soft) stones
<b>SI:</b>	soft weathered igneous/metamorphic rock	<b>GH:</b>	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	<b>WK:</b> weakly developed	<b>MD:</b> moderately developed
	<b>ST:</b> strongly developed	
Ped size	<b>F:</b> fine	<b>M:</b> medium
	<b>C:</b> coarse	
Ped shape	<b>S:</b> single grain	<b>M:</b> massive
	<b>GR:</b> granular	<b>AB:</b> angular blocky
	<b>SAB:</b> sub-angular blocky	<b>PR:</b> prismatic
	<b>PL:</b> platy	

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

<b>L:</b> loose	<b>FM:</b> firm	<b>EH:</b> extremely hard
<b>VF:</b> very friable	<b>VM:</b> very firm	
<b>FR:</b> friable	<b>EM:</b> 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:**

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

SOIL PIT DESCRIPTION

Site Name : ASHFORD LP, SITE 53 Pit Number : 1P

Grid Reference: TQ89403390 Average Annual Rainfall : 736 mm  
 Accumulated Temperature : 1456 degree days  
 Field Capacity Level : 150 days  
 Land Use : Permanent Grass  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	MZCL	10YR52 00	0	0		C				
35- 47	MZCL	10YR62 54	0	0		C	MDCSAB	FR	M	
47- 80	HZCL	10YR72 00	0	0		M	WKCSAB	FM	P	
80-120	MZCL	10YR72 00	0	5	ZR	M	MASSVE	FM	P	

Wetness Grade : 3A Wetness Class : III  
 Gleying : 0 cm  
 SPL : 047 cm

Drought Grade : 2 APW : 148mm MBW : 31 mm  
 APP : 115mm MBP : 2 mm

FINAL ALC GRADE : 3A  
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : ASHFORD LP, SITE 53 Pit Number : 2P

Grid Reference: TQ89803350 Average Annual Rainfall : 736 mm  
 Accumulated Temperature : 1456 degree days  
 Field Capacity Level : 150 days  
 Land Use : Permanent Grass  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MZCL	10YR53 00	0	0		C				
32- 50	MZCL	10YR62 73	0	0		C	MDCSAB	FR	M	
50- 66	FSZL	10YR72.00	0	5	ZR	C	MDCSAB	FR	M	
66-120	FSZL	10YR61 71	0	15	ZR	M	WKCSAB	FR	M	

Wetness Grade : 2 Wetness Class : II  
 Gleying : 0 cm  
 SPL : No SPL

Drought Grade : 1 APW : 179mm MBW : 62 mm  
 APP : 131mm MBP : 18 mm

FINAL ALC GRADE : 2  
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : ASHFORD LP, SITE 53 Pit Number : 3P

Grid Reference: TQ89703390 Average Annual Rainfall : 736 mm  
 Accumulated Temperature : 1456 degree days  
 Field Capacity Level : 150 days  
 Land Use : Permanent Grass  
 Slope and Aspect : 03 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MZCL	10YR53 64	0	0		C				
32- 53	HZCL	05Y 62 72	0	0		M	WKCSAB	FM	P	
53- 80	ZC	10YR71 72	0	0		M	WKCOAB	VM	P	

Wetness Grade : 3B Wetness Class : IV  
 Gleying : 0 cm  
 SPL : 032 cm

Drought Grade : 3A APW : 103mm MBW : -14 mm  
 APP : 106mm MBP : -7 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		--HEAT--		--POTS--		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS	
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP						MB
1	TQ89403390	PGR		0	048	3	3A	000	0	000	0			WE	3A	
1P	TQ89403390	PGR		0	047	3	3A	148	31	115	2	2		WE	3A	
2	TQ89503390	PGR NE	01	045		1	1	120	3	120	7	3A		DR	3A	ALMOST 2
2P	TQ89803350	PGR		0		2	2	179	62	131	18	1		WE	2	
3	TQ89603390	PGR E	03	056	056	2	2	141	24	116	3	2		WD	2	SL. GLEY 33
3P	TQ89703390	PGR E	03	0	032	4	3B	103	-14	106	-7	3A		WE	3B	
4	TQ89703390	PGR E	03	0	030	4	3B	000	0	000	0			WE	3B	SEE 3P
5	TQ89203380	PGR S	03	0	045	3	3A	134	17	111	-2	2		WE	3A	
6	TQ89303380	PGR		0	035	4	3B	131	14	106	-7	2		WE	3B	SEEPAGE
7	TQ89403380	PGR W	03	028	045	3	3A	137	20	112	-1	2		WE	3A	
8	TQ89503380	PGR SW	02	025	050	3	3A	162	45	114	1	2		WE	3A	
9	TQ89603380	PGR E	03	030	030	4	3B	141	24	105	-8	2		WE	3B	
10	TQ89703380	PGR NE	02	023	056	3	3A	140	23	117	4	2		WE	3A	
11	TQ89103370	PGR S	03	010	020	4	3B	000	0	000	0			WE	3B	
12	TQ89203370	PGR		028	050	3	3A	136	19	115	2	2		WE	3A	
13	TQ89303370	PGR S	01	0	028	4	3B	096	-21	108	-5	3B		WE	3B	
14	TQ89403370	PGR S	01	0	035	4	3B	000	0	000	0			WE	3B	
15	TQ89503370	PGR		025	033	4	3B	116	-1	107	-6	3A		WE	3B	
16	TQ89603370	PGR E	01	0	047	3	3A	000	0	000	0			WE	3A	
17	TQ89703370	PGR N	01	045	045	3	3A	127	10	102	-11	3A		WE	3A	
18	TQ89803370	PGR NE	01	0		2	2	000	0	000	0			WE	2	
19	TQ89303360	PGR		0	055	3	3A	000	0	000	0			WE	3A	
20	TQ89403360	PGR		032	045	3	3A	000	0	000	0			WE	3A	
21	TQ89503360	PGR		0	053	3	3A	000	0	000	0			WE	3A	
22	TQ89603360	PGR		025	048	3	3A	000	0	000	0			WE	3A	SEE 1P
23	TQ89703360	PGR		0		2	2	126	9	125	12	2		WE	2	IMP 85, SEE 2P
24	TQ89803360	PGR		0		2	2	159	42	123	10	1		WE	2	
25	TQ89703350	PGR		0		2	2	100	-17	107	-6	3A		WE	2	IMP 60, SEE 2P
26	TQ89803350	PGR		0		2	2	111	-6	124	11	3A		WE	2	IMP 70, SEE 2P
27	TQ89743340	PGR		0	045	3	3A	000	0	000	0			WE	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS			CALC		
				COL	ABUN	CONT		GLY	>2	>6		LITH	TOT	STR		POR	IMP
1	0-32	mzc1	10YR62-63	10YR56-00	C			Y	0	0	0						
	32-40	mzc1	10YR62-00	10YR58-00	M			Y	0	0	0		M			Few Mn concs.	
	40-48	hzc1	10YR62-00	10YR58-00	M		00M00-00	Y	0	0	0		M			Border mzc1	
	48-75	hzc1	10YR72-73	10YR58-00	M			Y	0	0	0		P		Y		
	75-120	zc	10YR81-00	10YR58-00	M			Y	0	0	0		P		Y		
1P	0-35	mzc1	10YR52 00	10YR58 00	C			Y	0	0	0					At boring 1	
	35-47	mzc1	10YR62 54	10YR56 00	C		00M00 00	Y	0	0	0	MDCSAB	FR	M			
	47-80	hzc1	10YR72 00	10YR58 00	M			Y	0	0	0	WKCSAB	FM	P	Y	Y	Border mzc1
	80-120	mzc1	10YR72 00	10YR58 00	M			Y	0	0	ZR	5	MASSVE	FM	P	Y	Y
2	0-25	mzc1	10YR43 00						0	0	0					Border msz1	
	25-45	mzc1	10YR54 00						0	0	0			M			
	45-50	mc1	10YR64 00	75YR46 00	M			Y	0	0	0			M		Sandy	
	50-70	ms1	10YR76 00	10YR58 00	C			Y	0	0	0			M		+ much fs	
	70-80	lms	10YR66 00	10YR58 00	C			Y	0	0	0			M			
	80-90	ms	10YR66 00	10YR58 00	C			Y	0	0	0			M		Imp, sandstone	
2P	0-32	mzc1	10YR53 00	10YR56 00	C			Y	0	0	0					At boring 26	
	32-50	mzc1	10YR62 73	10YR58 00	C			Y	0	0	0	MDCSAB	FR	M			
	50-66	fsz1	10YR72 00	10YR58 68	C			Y	0	0	ZR	5	MDCSAB	FR	M		Border mzc1
	66-120	fsz1	10YR61 71	75YR58 00	M			Y	0	0	ZR	15	WKCSAB	FR	M		Fe concs.
3	0-33	mzc1	10YR54 00						0	0	0						
	33-56	hc1	10YR43 54	10YR56 00	C		00M00 00	S	0	0	0			M			
	56-65	zc	25 Y73 74	10YR68 00	C		00M00 00	Y	0	0	0			P		Y	
	65-75	zc	10YR72 00	10YR58 00	C			Y	0	0	0			P		Y	
	75-120	zc	10YR71 00	10YR56 00	C			Y	0	0	0			P		Y	
3P	0-32	mzc1	10YR53 64	10YR56 00	C			Y	0	0	0					At boring 4	
	32-53	hzc1	05Y 62 72	75YR58 00	M			Y	0	0	0	WKCSAB	FM	P	Y	Y	Few Mn concs.
	53-80	zc	10YR71 72	75YR58 00	M			Y	0	0	0	WKCOAB	VM	P	Y	Y	Few Mn concs.
4	0-30	mzc1	10YR52 00	10YR58 00	C		10YR62 00	Y	0	0	0						
	30-50	hzc1	10YR64 00	10YR58 00	C		10YR71 00	Y	0	0	0			P		Y	Few Mn concs.
	50-110	zc	10YR71 72	10YR58 00	M			Y	0	0	0			P		Y	
5	0-20	mzc1	10YR53 00	10YR46 00	C			Y	0	0	0						
	20-45	mzc1	10YR61 62	10YR58 00	M		00M00 00	Y	0	0	0			M			
	45-70	hzc1	25Y 63 71	75YR58 00	M		00M00 00	Y	0	0	0			P		Y	
	70-120	zc	25Y 71 72	75YR58 00	M			Y	0	0	0			P		Y	
6	0-22	mzc1	10YR51 41	10YR46 00	C			Y	0	0	0						
	22-35	mzc1	10YR53 63	10YR58 00	M		00M00 00	Y	0	0	0			M			
	35-50	hzc1	10YR62 63	75YR58 00	M		00M00 00	Y	0	0	0			P		Y	
	50-120	zc	25Y 61 62	75YR58 00	M		00M00 00	Y	0	0	0			P		Y	
7	0-28	mzc1	10YR53 00	10YR56 00	F				0	0	0						
	28-45	mzc1	10YR51 52	10YR56 00	C		00M00 00	Y	0	0	0			M			
	45-55	hzc1	10YR52 62	10YR58 00	M		00M00 00	Y	0	0	0			P		Y	
	55-85	zc	25Y 61 72	10YR58 00	M			Y	0	0	0			P		Y	
	85-120	zc	05Y 61 00	75YR58 00	M			Y	0	0	0			P		Y	



SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED		---STONES---			STRUCT/ CONSIST	SUBS				
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR	IMP	SPL
8	0-25	mzc1	10YR53 00	10YR56 00	F				0	0	0						Border fsz1
	25-50	mzc1	10YR62 63	10YR56 00	C		00M00 00	Y	0	0	0		M				
	50-65	hzc1	10YR72 73	10YR58 00	M		00M00 00	Y	0	0	0		P		Y		
	65-80	zc	25Y 71 72	10YR58 00	M			Y	0	0	0		P		Y		
	80-120	fs1	25Y 71 72	10YR58 00	M			Y	0	0	0		M				
9	0-30	mzc1	10YR53 00						0	0	0						
	30-50	hzc1	05Y 51 52	10YR58 00	M		00M00 00	Y	0	0	0		P		Y		
	50-70	mzc1	25Y 61 62	10YR56 00	M			Y	0	0	0		P		Y		
	70-90	fsz1	25Y 61 71	75YR58 00	M			Y	0	0	0		M				
	90-120	mzc1	25Y 61 71	75YR58 00	M			Y	0	0	0		P		Y		
10	0-23	mzc1	10YR54 00						0	0	0						
	23-33	mzc1	10YR53 54	10YR58 00	C			Y	0	0	0		M				Few Mn concs.
	33-56	mzc1	10YR73 74	10YR56 00	C		00M00 00	Y	0	0	0		M				
	56-75	zc	10YR82 00	10YR56 00	M			Y	0	0	0		P		Y		Few Mn concs.
	75-120	zc	10YR81 82	10YR56 00	C			Y	0	0	0		P		Y		
11	0-10	mzc1	10YR42 00						0	0	0						
	10-20	mzc1	10YR71 72	10YR58 00	M		00M00 00	Y	0	0	0		M				
	20-30	hzc1	10YR71 72	10YR58 00	M		00M00 00	Y	0	0	0		P		Y		
	30-60	zc	25Y 61 72	75YR58 00	M			Y	0	0	0		P		Y		
12	0-28	mzc1	10YR53 00	10YR56 00	F				0	0	0						
	28-39	mzc1	25Y 53 00	10YR58 00	M			Y	0	0	0		M				
	39-50	hzc1	25Y 53 62	75YR58 00	M		00M00 00	Y	0	0	0		M				Border mzc1
	50-90	hzc1	10YR53 00	75YR58 00	M		00M00 00	Y	0	0	0		P		Y		Border zc
	90-120	zc	25Y 71 72	75YR58 00	M		00M00 00	Y	0	0	0		P		Y		
13	0-28	mzc1	10YR53 54	10YR56 00	C			Y	0	0	0						
	28-70	c	25Y 62 00	10YR58 00	C			Y	0	0	0		P		Y		Few Mn concs.
14	0-30	mzc1	10YR52 00	75YR46 00	C			Y	0	0	0						
	30-35	hzc1	10YR62 00	10YR58 00	C		00M00 00	Y	0	0	0		M				
	35-70	c	25 Y63 00	10YR58 00	M			Y	0	0	0		P		Y		
15	0-25	mzc1	10YR54 00						0	0	0						
	25-33	mzc1	10YR53 00	10YR58 00	C			Y	0	0	0		M				
	33-52	hzc1	25Y 72 00	10YR56 00	C		00M00 00	Y	0	0	0		P		Y		
	52-100	c	10YR71 00	10YR66 00	M			Y	0	0	0		P		Y		
16	0-33	mzc1	10YR52 00	10YR58 00	C			Y	0	0	0						
	33-40	mzc1	10YR62 00	10YR58 00	C			Y	0	0	0		M				
	40-47	hzc1	10YR62 73	75YR46 00	M		00M00 00	Y	0	0	0		M				Border mzc1
	47-100	zc	10YR72 00	75YR58 00	M			Y	0	0	0		P		Y		
17	0-26	mzc1	10YR54 00						0	0	0						
	26-45	mzc1	10YR62 63		C		00M00 00		0	0	0		M				
	45-75	zc	10YR72 00	10YR58 00	C		00M00 00	Y	0	0	0		P		Y		
	75-120	zc	10YR81 00	10YR58 00	C		00M00 00	Y	0	0	0		P		Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED		---STONES---			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
18	0-30	mzc1	10YR53 00 10YR58 00 C						Y	0	0	0					
	30-65	hzc1	10YR52 62 10YR58 00 C				00M000	00	Y	0	0	0	M				Border mzc1
	65-120	mzc1	10YR71 00 10YR58 00 M						Y	0	0	0	M				+ much fs
19	0-25	mzc1	10YR52 00 75YR56 00 C						Y	0	0	0					
	25-55	mzc1	10YR63 00 75YR58 00 C				00M000	00	Y	0	0	0	M				
	55-65	hzc1	25 Y72 00 10YR58 00 C				00M000	00	Y	0	0	0	P			Y	
	65-90	zc	25 Y72 00 10YR58 00 C				00M000	00	Y	0	0	0	P			Y	
20	0-32	mzc1	10YR53 00							0	0	0					
	32-45	mzc1	25 Y62 63 75YR56 00 C				00M000	00	Y	0	0	0	M				
	45-80	zc	25 Y62 00 75YR58 00 C						Y	0	0	0	P			Y	Few Mn concs.
21	0-30	mzc1	10YR52 00 75YR56 00 C						Y	0	0	0					
	30-53	mzc1	10YR53 62 10YR58 00 C				00M000	00	Y	0	0	0	M				
	53-100	hzc1	25 Y71 00 10YR58 00 C				00M000	00	Y	0	0	0	P			Y	
22	0-25	mzc1	10YR53 00 75YR56 00 F							0	0	0					
	25-48	mzc1	25 Y62 00 75YR56 00 C				00M000	00	Y	0	0	0	M				
	48-80	hzc1	25 Y72 00 10YR58 00 C				00M000	00	Y	0	0	0	P			Y	
23	0-32	mzc1	10YR52 00 75YR56 00 C						Y	0	0	0					
	32-47	hzc1	25 Y62 00 75YR56 00 C						Y	0	0	0	M				Few Mn concs.
	47-85	mzc1	25 Y71 00 10YR58 00 C				00M000	00	Y	0	0	0	M				Imp, siltstone
24	0-28	mzc1	10YR52 62 75YR56 00 C						Y	0	0	0					
	28-45	hzc1	25 Y62 00 10YR58 00 C						Y	0	0	0	M				Much FS
	45-120	mzc1	25 Y71 00 10YR58 00 C				00FE00	00	Y	0	0	ZR 5	M				Common Mn concs.
25	0-30	mzc1	10YR62 00 75YR56 00 C						Y	0	0	0					
	30-45	hzc1	25 Y62 00 75YR58 00 C						Y	0	0	0	M				Border fsz1
	45-60	mzc1	25 Y72 73 10YR58 00 C				00M000	00	Y	0	0	ZR 10	M				Imp, siltstone
26	0-32	mzc1	10YR42 52 75YR56 00 C						Y	0	0	0					
	32-45	hzc1	10YR52 61 10YR58 00 C						Y	0	0	0	M				Few Mn concs.
	45-70	mzc1	25 Y71 00 10YR58 00 C				00M000	00	Y	0	0	ZR 5	M				Imp, siltstone
27	0-27	mzc1	10YR52 00 75YR56 00 C						Y	0	0	0					
	27-45	hzc1	25 Y62 72 75YR58 00 C				00M000	00	Y	0	0	0	M				Border mzc1
	45-100	zc	25 Y72 00 75YR58 00 C						Y	0	0	0	P			Y	