2010-080-93

A1

Shepway District Local Plan
Site 13: Land At Stanford And Ashford Road, Westenhanger, Kent
Agricultural Land Classification
ALC Map And Summary Report
November 1993

SHEPWAY DISTRICT LOCAL PLAN
SITE 13: LAND AT STANFORD AND ASHFORD ROAD, WESTENHANGER, KENT

AGRICULTURAL LAND CLASSIFICATION, REPORT

1. SUMMARY

1.1 In July 1993, a detailed Agricultural Land Classification (ALC) survey was made on approximately 36 hectares of land at Stanford and Westenhanger Kent.

1.2 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS in response to a commission by MAFF's Land Use Planning Unit to provide information on the quality of agricultural land affected by proposals for development contained in the Shepway District Local Plan.

1.3 The classification has been made using MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.

1.4 The fieldwork was carried out with an observation density of approximately one per hectare. A total of 6 borings and 2 soil pits were examined at Stanford and 27 borings and 2 soil pits were examined at Ashford Road, Westenhanger.

1.5 All of the land at Stanford (4.4 hectares) is classified as moderate quality (Subgrade 3b). The key limitation is wetness, as evidenced by shallow gleyed and slowly permeable clay horizons within the profile.

The majority of land at Ashford Road, Westenhanger, is classified as very good quality (Grade 2). The key limitation is wetness as evidenced by groundwater gleying above 40 cm depth, though profiles were found to be permeable. A small area of land was classified as Subgrade 3a where slowly permeable clay was encountered in the lower subsoil. Slope gradients between 7.5° and 9° limits a further area to Subgrade 3b.

Table 2 : Distribution of Grades and Subgrades - Ashford Road

Grade	Area (ha)	% of Site	% of Agricultural Area
2	24.8	79.7	86.1
3a	1.9	6.1	6.6
3b	2.1	6.8	7.3
Urban	0.6	1.9	100% (28.8 ha)
Non-Agricultural	0.8	2.6	
Agricultural buildings	0.9	2.9	
Total Area of Site	31.1 ha	100%	

1.6 The distribution of the ALC grades is shown on the attached maps. The information is presented at a scale of 1:5,000; it is accurate at this level but any enlargement would be misleading. This map supersedes any previous ALC information for this site.

1.7 At the time of survey, the land at Stanford was in field beans, while the land at Ashford Road, Westenhanger was in cereals and permanent grass.

1.8 A general description of the grades and subgrades is provided as an appendix. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

2. Climate

2.1 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.

2.2 The main parameters used in the assessment of the overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4 No local climatic factors such as exposure or frost risk affect the site.

Table 3 : Climatic Interpolations

	Stanford	Westenhanger	Westenhanger
Grid Reference	TR131382	TR130371	TR131367
Altitude (m)	80	80	90
Accumulated Temperature (days)	1415	1415	1404
Average Annual Rainfall (mm)	780	774	776
Field Capacity (days)	163	161	161
Moisture Deficit, Wheat (mm)	111	112	112
Moisture Deficit, Potatoes (mm)	105	106	105
Overall Climatic Grade	1	1	1

3. Relief

3.1 The land at Stanford lies at approximately 80m AOD. The site is bisected by a small stream with slopes rising each side of the stream to the north and south. These slopes do not affect land quality.

The land at Westenhanger lies between approximately 80m and 90m AOD falling from a high point in the south-east in all directions. A small area towards the east of the site has gradients in the range 7° - 9°.

4. Geology and Soil

4.1 The published geological information for both sites (BGS 1978) shows the Stanford site to be underlain by recent Head deposits, either side of a band of Recent Alluvium. The Head deposit is a soliflucted brown silty loam. The Alluvium, a clayey river deposit. The Westenhanger site is shown as mostly underlain by Cretaceous Folkestone Beds described as a "loose uncemented cross bedded yellow quartz sand". An area towards the south-west of the site is underlain by Cretaceous Sandgate Beds, a fine, poorly sorted sand deposit. There is also a small area to the north-east of the site underlain by Recent Head deposits, similar to those described at Stanford.

4.2 The published soils information for the sites (SSEW 1980) shows the Stanford site to have soils principally from the Denchworth Series described as a clayey soil with impeded drainage causing occasional surface wetness. Soils of this general type were found at the site. The site at Westenhanger is underlain by soils from the Barming and Bearsted series. These are described as brown non-calcareous loamy soils unmottled above 70 cm either with or without a clay enriched subsoil, found in drift over Folkstone Beds. The soils at this site were found to be more mottled than stated in the general description.

5. Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points is shown on the attached sample point map.

5.3 Stanford Subgrade 3b

Soil wetness is the key limitation on this land. Pits 1 and 2 are typical of the soils that occur and describe Heavy Clay Loam topsoils overlying slowly permeable Clay subsoils. Subsoil structure ranges from moderately developed coarse angular blocky to weakly developed coarse subangular blocky. The soils are placed in Wetness Class IV and this, in combination with the heavy nature of the topsoils and the prevailing Field Capacity level (163 days), restricts the land to Subgrade 3b.

5.4 Westenhanger Grade 2

The majority of the site has been classified as Grade 2. Profiles typically comprise topsoils of medium clay loam, occasionally fine sandy silt loam, containing 0-3% total flints by volume. Upper subsoils are variable in texture but consist mainly of medium clay loam, fine sandy loam or sandy clay loam, containing 0-10% total flints. Lower

subsoils comprise stoneless heavy clay loam, occasionally fine sandy loam or loamy fine sand. Profiles experience a slight wetness limitation due to the presence of shallow groundwater gleying (see pits 3 and 4). Soils are assigned to a Wetness Class of II and this, combined with the medium topsoil textures and the prevailing Field Capacity level (161 days) restricts the land to Grade 2. Within this map unit profiles of better quality were encountered but not mapped separately due to their limited number and distribution.

5.5 Subgrade 3a

A small area of land to the south-west of the site has been classified as Subgrade 3a. Profiles typically comprise topsoils of medium clay loam containing 0-2% total flints by volume over upper subsoils of heavy clay loam containing 0-5% total flints. Lower subsoils consist of stoneless slowly permeable clay. Profiles experience a moderate wetness limitation due to the presence of shallow gleying and poorly structured slowly permeable clay from between 45-65 cm depth. Soils are assigned to Wetness Class III and the interaction of topsoil texture and Field Capacity Days restricts the flexibility of the land to Subgrade of 3a.

5.6 Subgrade 3b

An area of land south of Hillhurst Farm has been classified as Subgrade 3b due to slope angles of between 7.5 and 9°. Gradients of this nature restrict the safe and efficient operation of farm machinery.

ADAS REFERENCE: 2010/80/93
MAFF REFERENCE: EL 20/109

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

* British Geological Survey (1974) Sheet 305/306, Folkestone and Dover, 1:50,000.

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

* Meteorological Office (1989), Climatic datasets for Agricultural Land Classification.

* Small Survey of England and Wales (1980), Soils of Kent, 1:250,000 map and accompanying legend.

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on the 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.

Grade 3 : Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub-grade 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 (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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

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

Boring Header Information

1. **GRID REF** : national 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 **HRT** : Horticultural Crops **PGR** : Permanent Pasture **LEY** : Ley Grass **RGR** : Rough Grazing
SCR : Scrub **CFW** : Coniferous Woodland **DCW** : Deciduous Woodland **HTH** : Heathland **BOG** : Bog or Marsh
FLW : Fallow **PLO** : Ploughed **SAS** : Set aside **OTH** : Other

3. **GRDNT** : Gradient as measured by a hand-held optical clinometer.

4. **GLEY/SPL** : Depth in cm to gleying or slowly permeable layers.

5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)** : Moisture Balance.

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, an entry of 'Y' will be entered in the relevant column.

MREL : Microrelief limitation **FLOOD** : Flood risk **EROSN** : Soil erosion risk **EXP** : Exposure limitation **FROST** : Frost
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** : Soil Erosion Risk **WD** : Combined 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
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 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

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

6. **STONE LITH** : One of the following is used.

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

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

7. **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 **VC** : very coarse

- ped shape **S** : single grain **M** : massive **GR** : granular **AB** : angular blocky **SAB** : sub-angular blocky **PR** : prismatic **PL** : platy

8. **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

9. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G : good **M** : moderate **P** : poor

10. **POR** : Soil porosity. If a soil horizon has less than 0.5% biopores > 0.5 mm, a 'Y' will appear in this column.

11. **IMP** : If the profile is impenetrable a 'Y' will appear in this column at the appropiate horizon.

12. **SPL** : Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

13. **CALC** : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. 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 : SITE 13 SHEPWAY LP Pit Number : 1P

Grid Reference: TR130 384
Average Annual Rainfall : 776 mm
Accumulated Temperature : 1404 degree days
Field Capacity Level : 161 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 33	HCL	10YR42 00	0	2		
33- 55	C	25Y 53 00	0	0	M	MDCAB

Wetness Grade : 3B
Wetness Class : IV
Gleying :033 cm
SPL :033 cm

Drought Grade :
APW : 000mm MBW : 0 mm
APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : SITE 13 SHEPWAY LP Pit Number : 2P

Grid Reference: TR130 383
Average Annual Rainfall : 776 mm
Accumulated Temperature : 1404 degree days
Field Capacity Level : 161 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 27	HCL	10YR43 00	20	25		
27- 45	C	25Y 53 00	0	25	M	WKCSAB

Wetness Grade : 3B
Wetness Class : IV
Gleying :027 cm
SPL :027 cm

Drought Grade :
APW : 000mm MBW : 0 mm
APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : SITE 13 SHEPWAY LP Pit Number : 3P

Grid Reference: TR130 377
Average Annual Rainfall : 776 mm
Accumulated Temperature : 1404 degree days
Field Capacity Level : 161 days
Land Use : Cereals
Slope and Aspect : 02 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR42 00	0	1	C	
25- 60	MCL	10YR53 00	0	2	C	MDCSAB
60-120	MCL	25Y 66 64	0	0	C	MDCSAB

Wetness Grade : 2
Wetness Class : II
Gleying :000 cm
SPL : No SPL

Drought Grade : 1
APW : 154mm MBW : 42 mm
APP : 116mm MBP : 11 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : SITE 13 SHEPWAY LP Pit Number : 4P

Grid Reference: TR129 371
Average Annual Rainfall : 776 mm
Accumulated Temperature : 1404 degree days
Field Capacity Level : 161 days
Land Use : Permanent Grass
Slope and Aspect : 05 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 35	MCL	10YR53 00	0	2	C	
35- 50	MCL	25Y 63 00	0	3	C	MDCSAB
50- 65	MCL	25Y 63 00	0	0	M	MDCSAB
65- 85	MCL	05Y 72 00	0	0	C	MDCSAB
85-120	MCL	25Y 52 00	0	0	C	MDCSAB

Wetness Grade : 2
Wetness Class : II
Gleying :000 cm
SPL : No SPL

Drought Grade : 1
APW : 155mm MBW : 43 mm
APP : 117mm MBP : 12 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	ASPECT USE		GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TR130 383	BNS			033	033	4	3B		0		0					WE	3B	SPL 33
1P	TR130 384	BNS			033	033	4	3B		0		0					WE	3B	SPL 33 PIT 55
2	TR130 383	BNS	S	01	035	035	4	3B		0		0					WE	3B	SPL 35
2P	TR130 383	BNS			027	027	4	3B		0		0					WE	3B	SPL 27 PIT 50
3	TR131 383	BNS			027		2	2		0		0					WE	3B	IMP 30 SEE 2P
3P	TR130 377	CER	W	02	0		2	2	154	42	116	11	1				WE	2	
4	TR130 382	BNS	S	02	033	033	4	3B		0		0					WE	3B	SPL 33
4P	TR129 371	PGR	W	05	0		2	2	155	43	117	12	1				WE	2	
5	TR131 382	BNS	N	02	025	025	4	3B		0		0					WE	3B	SPL 25
6	TR131 381	BNS	NW	02	035	065	4	3B		0		0					WE	3B	SPL 35
7	TR129 372	PGR			0	070	3	3A	142	30	119	14	1				WE	3A	SPL 70
8	TR129 371	PGR	W	05	0		2	2	165	53	127	22	1				WE	2	
9	TR130 371	PGR			0		2	2	156	44	128	23	1				WE	2	IMP 100
10	TR131 371	PGR	W	02	0		2	2	145	33	122	17	1				WE	2	IMP 100
11	TR132 371	PGR	W	02	0		2	2	147	35	118	13	1				WE	2	IMP 110
12	TR129 370	CER	W	05	0		1	1	183	71	144	39	1					1	
13	TR130 370	CER			030		1	1	152	40	142	37	1					1	IMP 90
17	TR129 369	CER	SW	02	0		2	2	070	-42	070	-35	3B				DR	3B	IMP 40 Q2
18	TR130 369	CER			030		1	1	153	41	143	38	1					1	
19	TR131 369	PGR	E	04	0		2	2	157	45	119	14	1				WE	2	
20	TR132 369	CER	E		0		2	2	156	44	118	13	1				WE	2	
21	TR129 368	CER	W	02	030		2	2	067	-45	067	-38	3B				DR	3B	IMP 40 Q2
22	TR130 368	CER			025		2	2	151	39	121	16	1				WE	2	
25	TR131 368	CER	W	02	035		2	2	068	-44	068	-37	3B				DR	3B	IMP 40 Q2
26	TR129 367	CER	W	02	036	065	3	3A	138	26	114	9	2				WE	3A	SPL 65
27	TR130 367	CER			025		2	2	083	-29	083	-22	3B				DR	3B	IMP 50 Q2
28	TR131 367	CER	E	04	028		1	1	172	60	122	17	1					1	
29	TR132 367	CER	NE	03	028		2	2	159	47	116	11	1				WE	2	
30	TR133 367	CER	NE	02	034		2	2	156	44	118	13	1				WE	2	
31	TR128 366	CER			0	050	3	3A	115	3	111	6	3A				WE	3A	SPL 50
32	TR129 366	CER	W	03	030		2	2	161	49	112	7	2				WE	2	WEDR
33	TR130 366	CER			020		2	2	068	-44	068	-37	3B				DR	3B	IMP 40 Q2
34	TR131 366	CER	E	05	028		2	2	156	44	118	13	1				WE	2	
35	TR128 365	CER			030	045	3	3A	113	1	111	6	3A				WE	3A	
36	TR129 365	CER	SW	05	034		2	2	156	44	118	13	1				WE	2	
37	TR130 365	CER			045		1	1	138	26	122	17	2				DR	2	IMP 90 Q1
38	TR129 364	CER			020		2	2	135	23	119	14	2				WE	2	IMP 90

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0-33	hcl	10YR42 00						0	0		0							
	33-70	c	25Y 53 00	10YR56 00	M		00MN00 00	Y	0	0		0		P			Y		
	70-90	c	25Y 53 00	10YR56 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
1P	0-33	hcl	10YR42 00						0	0	HR	2							
	33-55	c	25Y 53 00	10YR56 00	M		10YR53 00	Y	0	0		0	MDCAB FM	P	Y		Y		
2	0-30	hcl	10YR43 00						0	0		0							
	30-35	hcl	10YR53 00						0	0		0		M					
	35-65	c	25Y 53 00	10YR56 00	M			Y	0	0		0		P			Y		
2P	0-27	hcl	10YR43 00						20	5	HR	25							
	27-45	c	25Y 53 00	10YR56 00	M		10YR53 00	Y	0	0	HR	25	WKCSAB VM	P	Y		Y		
3	0-27	mcl	10YR43 00						0	0	HR	3							
	27-30	c	25Y 53 00	10YR56 00	C			Y	0	0	HR	10		P					IMP STONES
3P	0-25	mcl	10YR42 00	10YR56 00	C			Y	0	0	HR	1							
	25-60	mcl	10YR53 00	75YR56 00	C			Y	0	0	HR	2	MDCSAB FM	M					
	60-120	mcl	25Y 64 66	75YR58 00	C			Y	0	0		0	MDCSAB FM	M					
4	0-33	hcl	10YR42 00						0	0	HR	3						Y	
	33-55	c	25Y 53 00	10YR56 00	M			Y	0	0	HR	5		P			Y	Y	
4P	0-35	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2							
	35-50	mcl	25Y 63 00	75YR58 00	C			Y	0	0	HR	3	MDCSAB FM	M					
	50-65	mcl	25Y 63 00	75YR58 00	M			Y	0	0		0	MDCSAB FR	M					
	65-85	mcl	05Y 72 00	75YR58 00	C			Y	0	0		0	MDCSAB FR	M					
	85-120	mcl	25Y 52 00	75YR56 00	C			Y	0	0		0	MDCSAB FR	M					
5	0-25	hcl	10YR42 00						0	0		0							
	25-50	c	25Y 53 42	10YR56 00	C			Y	0	0	HR	5		P			Y	Y	
	50-60	c	25Y 63 00	10YR66 00	M			Y	0	0	HR	5		P			Y	Y	
	60-90	c	25Y 63 00	10YR66 00	M			Y	0	0	HR	1		P			Y	Y	
6	0-35	hcl	10YR43 00						0	0	HR	2							
	35-65	c	25Y 53 00	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
	65-75	c	25Y 30 00	75YR46 00	M			Y	0	0		0		P			Y		
7	0-35	mcl	10YR62 00	10YR58 61	C			Y	0	0		0							
	35-55	mcl	25Y 64 00	10YR58 61	C			Y	0	0		0		M					
	55-70	mcl	10YR72 00	10YR58 61	C			Y	0	0		0		M					
	70-86	c	10YR52 00	10YR58 61	C			Y	0	0		0		P	Y		Y		
	86-110	scl	25Y 63 00	10YR58 61	C			Y	0	0		0		M					
8	0-35	mcl	10YR53 00	10YR56 00	C			Y	0	0		0							
	35-50	fszl	25Y 63 00	75YR58 00	C			Y	0	0		0		M					
	50-90	mcl	25Y 63 00	75YR58 00	C			Y	0	0		0		M					
	90-120	hcl	25Y 53 00	75YR56 00	C			Y	0	0		0		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
9	0-30	mcl	10YR53 00	10YR58 61	C			Y	0	0		0						
	30-50	mcl	10YR54 00	10YR58 61	C				0	0		0		M				
	50-90	fszl	10YR54 00						0	0		0		M				
	90-100	scl	10YR52 00					Y	0	0		0		M				
10	0-30	mcl	10YR53 00	10YR58 61	C			Y	0	0		0						
	30-50	mcl	10YR62 00	10YR58 61	C			Y	0	0		0		M				
	50-80	fsl	25Y 64 00	10YR58 61	C			Y	0	0		0		M				
	80-100	scl	10YR64 00	10YR58 61	C		00MN00 00	Y	0	0		0		M				
11	0-30	mcl	10YR63 00	10YR58 61	C		00MN00 00	Y	0	0		0						
	30-50	mcl	10YR53 00	10YR58 61	C			Y	0	0		0		M				
	50-85	mcl	10YR74 00	10YR58 61	C			Y	0	0		0		M				
	85-110	scl	10YR52 62	10YR58 62	C			Y	0	0		0		M				
12	0-33	fszl	10YR53 00	10YR56 00	C			Y	0	0	HR	1						
	33-55	fszl	25Y 52 00	75YR58 00	C			Y	0	0		0		M				
	55-65	fsl	25Y 73 00	75YR58 00	C			Y	0	0		0		M				
	65-105	hcl	25Y 63 00	75YR58 00	C			Y	0	0		0		M				
	105-120	scl	25Y 63 00	75YR58 00	C			Y	0	0		0		M				
13	0-30	fszl	10YR62 00						0	0		0						
	30-50	fszl	10YR63 00	10YR58 61	C			Y	0	0	HR	5		M				
	50-70	fsl	25Y 66 00	10YR58 00	C				0	0		0		M				
	70-90	scl	25Y 64 00	10YR58 61	C			Y	0	0		0		M				
17	0-35	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2						
	35-40	mcl	25Y 52 00	75YR58 00	C			Y	0	0		0		M				IMP PLO PAN
18	0-30	fszl	10YR53 00						0	0		0						
	30-45	fszl	10YR72 00	10YR58 61	C			Y	0	0		0		M				
	45-70	fsl	25Y 66 00						0	0		0		M				
	70-90	scl	10YR52 00						0	0		0		M				
19	0-35	mcl	10YR53 00	10YR56 00	C			Y	0	0		0						
	35-50	mcl	10YR53 54	10YR56 00	F				0	0	HR	2		M				
	50-120	mcl	10YR43 00						0	0		0		M				
20	0-33	mcl	10YR42 00	10YR56 00	C			Y	0	0	HR	1						
	33-56	mcl	25Y 72 00	75YR58 00	C			Y	0	0		0		M				
	56-70	hcl	25Y 72 00	75YR58 00	M			Y	0	0		0		M				
	70-120	scl	05Y 72 00	75YR58 00	M			Y	0	0		0		M				
21	0-30	mcl	10YR42 00						0	0	HR	3						
	30-40	mcl	10YR53 00	75YR58 00	C			Y	0	0	HR	10		M				IMP PLO PAN
22	0-25	mcl	10YR53 00						0	0		0						
	25-50	mcl	10YR52 00	10YR58 61	C			Y	0	0		0		M				
	50-70	fsl	25Y 66 00	10YR58 61	C				0	0		0		M				
	70-120	lfs	10YR56 00						0	0		0		M				

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
25	0-35	mcl	10YR42 00						0	0	HR	3						
	35-40	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	10		M				IMP PLO PAN
26	0-36	mcl	10YR53 00	10YR56 00	F				0	0	HR	2						
	36-65	hcl	25Y 63 00	75YR58 00	C			Y	0	0	HR	5		M				
	65-120	c	25Y 62 63	75YR58 00	M			Y	0	0		0		P		Y		
27	0-25	mcl	10YR42 00						0	0	HR	5						
	25-50	mcl	10YR52 00	10YR58 61	C			Y	0	0		0		M				IMP PLO PAN
28	0-28	fsl	10YR43 00						0	0	HR	1						
	28-35	fsl	25Y 64 00	75YR58 00	C			Y	0	0		0		M				
	35-55	mcl	25Y 53 54	75YR58 00	C				0	0		0		M				
	55-75	fsl	05Y 64 66					Y	0	0		0		M				
	75-120	fs	05Y 63 00	75YR58 00	C			Y	0	0		0		M				
29	0-28	mcl	10YR42 00	10YR56 00	C			Y	0	0		0						
	28-55	mcl	10YR53 00	75YR58 00	C			Y	0	0		0		M				
	55-75	scl	10YR54 00	75YR58 00	C				0	0		0		M				
	75-85	fsl	10YR54 00	75YR58 00	C			Y	0	0		0		M				
	85-120	mcl	25Y 63 64	75YR58 00	C			Y	0	0		0		M				
30	0-34	mcl	10YR42 00						0	0	HR	2						
	34-55	mcl	25Y 64 00	75YR58 00	C			Y	0	0		0		M				
	55-120	hcl	25Y 64 00	75YR56 58	C			Y	0	0		0		M				
31	0-25	mcl	10YR53 00	10YR58 61	C			Y	0	0		0						
	25-50	hcl	10YR53 00	10YR58 61	C			Y	0	0		0		M				
	50-75	c	10YR63 00	10YR58 61	C			Y	0	0		0		P	Y		Y	
	75-90	scl	10YR63 00	10YR58 61	C			Y	0	0		0						
32	0-30	mcl	10YR42 00						0	0	HR	2						
	30-45	mcl	25Y 64 54	10YR56 00	C			Y	0	0	HR	5		M				
	45-55	hcl	25Y 63 00	75YR58 00	C			Y	0	0		0		M				
	55-65	c	25Y 72 00	75YR58 00	C			Y	0	0		0		P				
	65-85	scl	25Y 63 00	75YR58 00	C			Y	0	0		0		M				
	85-120	lfs	75YR58 00						0	0		0		M				
33	0-20	mcl	10YR42 00						0	0		0						
	20-40	mcl	10YR52 00	10YR58 61	C			Y	0	0		0		M				IMP PLO PAN
34	0-28	mcl	10YR42 00	10YR56 00	C			Y	0	0		0						
	28-45	mcl	10YR53 54	75YR58 00	C			Y	0	0		0		M				
	45-120	hcl	10YR54 56	75YR58 00	C				0	0		0		M				
35	0-30	mcl	10YR43 00						0	0		0						
	30-45	hcl	25Y 73 00	10YR58 61	C			Y	0	0		0		M				
	45-90	c	25Y 63 00	10YR58 61	C			Y	0	0		0		P	Y		Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
36	0-34	mcl	10YR53 00						0	0	HR	2						
	34-90	mcl	25Y 63 00	75YR58 00	C			Y	0	0		0		M				
	90-120	hcl	25Y 63 00	75YR58 00	M			Y	0	0		0		M				
37	0-25	mcl	10YR43 00						0	0		0						
	25-45	mcl	10YR52 00						0	0		0		M				
	45-90	fsl	10YR52 00	10YR58 61	C			Y	0	0		0		M				
38	0-20	mcl	10YR42 00						0	0		0						
	20-40	mcl	10YR63 00	10YR58 61	C			Y	0	0		0		M				
	40-55	mcl	25Y 64 00	10YR58 61	C			Y	0	0		0		M				
	55-90	fsl	25Y 73 00	10YR58 61	C			Y	0	0		0		M				