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MANOR FARM, ELSTED, WEST SUSSEX
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
AUGUST, 1993

MANOR FARM, ELSTED, WEST SUSSEX
AGRICULTURAL LAND CLASSIFICATION REPORT

1.0 Summary

1.1 In August, 1993, a detailed Agricultural Land Classification (ALC) was made on approximately 72 hectares of land at Manor Farm, Elsted, south-west of Midhurst in West Sussex.

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 the development of a golf course.

1.3 The classification has been made using MAFF's revised guidelines and criteria for grading the quality of agricultural land. 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 50 borings and 2 soil pits was examined.

1.5 The table below provides the details of the grades found across the site. There is only a limited amount of best and most versatile land on the site (9 hectares of Sub-grade 3A). The majority of the land is classified as a mixture of Sub-grade 3B and Grade 4. Soil wetness is the main limitation on the better quality land where the clay subsoils are permeable. On the lowest lying land, poorly structured clay horizons lead to a significant wetness problem above and greatly restrict the flexibility of this land (mostly placed in Grade 4). The Sub-grade 3B land on the higher fields near Manor Farm has a droughtiness limitation caused by limited soil depth over compacted sandstone layers.

Table 1 : Distribution of Grades and Sub-grades

Grade	Area (ha)	%of Site	% of Agricultural Area
3A	9.0	12.1	15.0
3B	23.3	31.2	38.9
4	27.6	37.0	46.1
Non-agric.	4.0	5.4	100% (59.9 ha)
Woodland	10.7	14.3	
TOTAL	74.6 ha	100%	

1.6 The distribution of the ALC grades is shown on the attached map. 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 supercedes any previous ALC information for this site.

1.7 At the time of survey the land use on the site was mostly cereals on the higher land with a Set Aside use or a ploughed condition on the lower land.

1.8 A general description of the grades and sub-grades 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.

2.0 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 conditiions.

2.2 The main parameters used in the assessment of the overall climatic limitation are annual average 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. 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 2 : Climatic Interpolations

Grid Reference :	SU816200	SU820203
Altitude (m) :	90	50
Accumulated Temperature (days) :	1442	1487
Average Annual Rainfall (mm) :	948	920
Field Capacity (days) :	207	202
Moisture Deficit, Wheat (mm) :	90	97
Moisture Deficit, Potatoes (mm) :	80	89
Overall Climatic Grade :	1	1

3.0 Relief

3.1 Three topographic areas occur on the site. A higher area of flatter land at 90 metres is separated from an area of lowerlying flat land at 50 metres by a band of steep slopes which are often wooded.

4.0 Geology and Soil

4.1 The relevant geological sheet for the site shows the underlying geology to be Upper Greensand on the higher land with Gault Clay on the lower land.

4.2 Shallow stony profiles occur on the higher land of the Upper Greensandwith heavy clay profiles on the lower land of the Gault Clay.

5.0 Agricultural Land Classification

5.1 Table 1 provides the details of the area measuements 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 Sub-Grade 3A : a limited area of this grade occurs in the centre of the site just below the steep slopes at Cooksland Hanger. Soil wetness is the key limitation on these soils. The profiles typically are Medium Clay Loam topsoils overlying Heavy Clay Loam subsoils which exhibit clear evidence of shallow gleying. The subsoils

are not slowly permeable and are classified as moderate in condition. These profiles are placed in Wetness Class II and this, in combination with the topsoil texture and the prevailing Field Capacity level (207 days) restricts the soils to no better than Sub-grade 3A.

5.4 Sub-Grade 3B : all of the higher flatter land has been placed in this grade. Pit 1 is typical of these soils which possess Medium Clay Loam topsoils with very stony (60%) subsoils of similar texture overlying compacted layered sandstone with little root penetration. Soil droughtiness is the key limitation as the profiles contain insufficient water for the deeper rooting crops.

5.5 An area of Sub-grade 3B is mapped on the lowerlying flat land in the south-east of the site where profiles similar to the adjacent Grade 4 land are distinguished as a better grade due to lighter topsoil textures (Medium Clay Loam as opposed to Heavy Clay Loam and Clay). See 5.7 below.

5.6 Three other limited areas of Sub-grade 3B occur on the site where gradients are in the range 7-11 degrees.

5.7 Grade 4 : Pit 2 is typical of the very poor quality land that occurs on the northern and eastern fringe. Clay topsoils overlie clay subsols that are gleyed and slowly permeable with Weakly Developed Coarse Angular Blocky structures. These profiles are placed in Wetness Class IV. This land is greatly restricted in the range of cropping (mainly suited to grass and occasional cereals) and in the number of days when it will be in a suitable condition for cultivation, trafficking by machinery and grazing by livestock.

5.8 The areas marked as Non-agricultural include grassland that is being invaded by trees and scrub.

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.

Sub-grade 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.

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture : housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including : private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

Open Water

Includes lakes, ponds and rivers as map sclae permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

APPENDIX II

REFERENCES

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

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

* British Geological Survey (1957), Sheet No.317, Chichester, 1:63,360

APPENDIX III

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 IV

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 : ELSTED GOLF COURSE Pit Number : 1P

Grid Reference: SU816 1985 Average Annual Rainfall : 0 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 0 days
Land Use : Wheat
Slope and Aspect : degrees NW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 22	MCL	10YR42 00	0	0		
22- 55	MCL	10YR52 00	0	60		
55- 75	MSST	00ZZ00 00	0	0		

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

Drought Grade : 3B APW : 069mm MBW : -21 mm
APP : 071mm MBP : -9 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : ELSTED GOLF COURSE Pit Number : 2P

Grid Reference: SU820 2015
Average Annual Rainfall : 0 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 0 days
Land Use : Bare Soil
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 18	C	10YR42 00	0	0	C	
18- 55	C	05Y 63 00	0	0	M	WCAB

Wetness Grade : 4
Wetness Class : IV
Gleying :000 cm
SPL :018 cm

Drought Grade : 3A
APW : 076mm MBW : -14 mm
APP : 079mm MBP : -1 mm

FINAL ALC GRADE : 4
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	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	SU819 207	RGR			000	035	4	4	098	8	110	30	2				WE	4	
1P	SU816 1985	WHE	NW		000		1	2	069	-21	071	-9	3B				DR	3B	
2	SU817 2060	PGR	NW		000	020	4	4	082	-8	088	8	3A				WE	4	SPL
2P	SU820 2015	PLO			000	018	4	4	076	-14	079	-1	3A				WE	4	
3	SU818 2060	PLO	N	01	018	018	4	4	085	-5	097	17	3A				WE	4	PLASTIC
4	SU819 2060	PLO	N	01	025	025	4	4	094	4	106	26	3A				WE	4	PLASTIC
5	SU820 2060	PLO			020	020	4	4	084	-6	090	10	3A				WE	4	
8	SU818 2050	PLO	N	01	020	020	4	4	091	1	103	23	3A				WE	4	PLASTIC
9	SU819 2050	PLO			000	018	4	4	083	-7	089	9	3A				WE	4	PLASTIC
10	SU820 2050	PLO			000	025	4	4	087	-3	093	13	3A				WE	4	PLASTIC
15	SU818 2040	PLO	N	01	000	020	4	4	087	-3	099	19	3A				WE	4	PLASTIC
16	SU819 2040	PLO	E	01	018	018	4	4	079	-11	085	5	3A				WE	4	PLASTIC
17	SU820 2040	PLO			025	035	4	4	088	-2	094	14	3A				WE	4	SPL
20	SU814 2030	PLO			000		1	2	036	-54	036	-44	4				DR	3B	IMPEN 20
21	SU815 2030	PLO			025		2	3A	093	3	101	21	3A				WE	3A	IMPEN 60
22	SU816 2030	PLO			025		2	3A	115	25	117	37	2				WE	3A	
23	SU817 2030	PLO			020		2	3B	098	8	114	34	2				WE	3B	NO SPL
24	SU818 2030	PEA	E	05	000	030	4	4	087	-3	093	13	3A				WE	4	
25	SU819 2030	PEA	E	03	025	025	4	4	092	2	104	24	3A				WE	4	
26	SU820 2030	PLO			000	030	4	4	081	-9	084	4	3A				WE	4	SPL
27	SU812 2020	SAS	NW	04	000		2	3A	094	4	100	20	3A				WE	3A	NOSPL
28	SU813 2020	PLO			025		2	3A	104	14	116	36	2				WE	3A	IMPEN 70
29	SU814 2020	FAL	NW		060		2	3A	158	68	120	40	1				WE	3A	
31	SU816 2020	STB	NE	03	000		1	3A	086	-4	086	6	3A				WK	3A	DARK SS
32	SU817 2020	CER			025		2	3A	097	7	104	24	2				WE	3A	IMPEN 60
33	SU818 2020	SAS			025	025	4	4	092	2	104	24	3A				WE	4	
34	SU819 2020	PLO			020	020	4	4	082	-8	088	8	3A				WE	4	
35	SU820 2020	SAS	E	04	020	050	4	4	112	22	110	30	2				WE	4	JUST WC4
38	SU812 2010	SAS	W	04	000		2	3A	156	66	118	38	1				WE	3A	NOSPL
40	SU814 2010	WHE	NW	02	000		1	2	041	-49	041	-39	3B				DR	3B	IMPX2QDR
41	SU815 2010	CER			025		2	3A	085	-5	085	5	3A				WE	3A	IMPEN 50
42	SU816 2010	STB	E	02			1	2	070	-20	070	-10	3B				WE	3A	POSS MCL
45	SU819 2010	PEA	E	03	025	035	4	3B	090	0	096	16	3A				WE	3B	
46	SU820 2010	PLO			000	020	4	4	080	-10	086	6	3A				WE	4	PLASTIC
47	SU821 2010	PEA			000	020	4	4	091	1	103	23	3A				WE	4	
50	SU812 2000	SAS	W	04	000		2	3A	072	-18	072	-8	3A				WE	3A	IMP
51	SU813 2000	WHE	W	03	000		1	2	051	-39	051	-29	3B				DR	3B	IMPX2QDR
52	SU814 2000	WHE	W	02	000		1	2	058	-32	058	-22	3B				DR	3A	IMPQDR
53	SU815 2000	CER			000		1	2	045	-45	045	-35	3B				WK	2	IMPEN 25
54	SU816 2000	STB	E	03	000		1	2	069	-21	069	-11	3B				WK	2	IMP 40
57	SU819 2000	PLO	E	04	000	020	4	4	000	0	000	0					WE	4	HZCL T-S
58	SU820 2000	PEA			030	040	4	4	111	21	109	29	2				WE	4	

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
59	SU821 2000	PEA	N	01	030	038	4	3B	096	6	108	28	2				WE	3B	
60	SU822 2000	PLO	E		025	035	4	3B	087	-3	090	10	3A				WE	3B	MZCL TOP
61	SU823 2010	PLO	E		020	030	4	4	082	-8	085	5	3A				WE	4	SPL
62	SU812 1990	SAS	SW	03	030		2	3A	160	70	124	44	1				WE	3A	NOSPL
63	SU813 1990	WHE	W	03	000		1	2	058	-32	058	-22	3B				DR	3A	IMPX2QDR
65	SU815 1990	CER			000		1	2	070	-20	070	-10	3A				WK	2	IMPEN 40
66	SU816 1990	STB	N	01	000		1	2	000	0	000	0					WK	3A	IMP30-X3
70	SU813 1980	WHE	W	03	045		2	3A	095	5	099	19	2				WE	3A	IMP
71	SU814 1980	WHE			000		1	2	059	-31	059	-21	3B				DR	3A	IMPQDR
72	SU815 1980	CER			000		1	2	117	27	119	39	2				DW	2	

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
1	0-25	hzcl	10YR42 00	10YR58 00	C			Y	0	0		0						
	25-35	hzcl	10YR53 52	10YR58 00	M		00MN00 00	Y	0	0		0		M				
	35-70	c	10YR52 00	10YR68 00	M			Y	0	0		0		P	Y		Y	
1P	0-22	mcl	10YR42 00						0	0		0						
	22-55	mcl	10YR52 00						0	0	MSST	60		M				
	55-75	msst	00ZZ00 00						0	0		0		M				
2	0-20	hcl	10YR42 00	000C00 00	C			Y	0	0		0						
	20-60	c	25Y 63 00	000C00 00	M			Y	0	0		0		P				
2P	0-18	c	10YR42 00	10YR56 00	C			Y	0	0		0						
	18-55	c	05Y 63 00	10YR68 00	M		05Y 52 00	Y	0	0		0	WCAB FM	P	Y		Y	
3	0-18	c	10YR42 00						0	0		0						
	18-70	c	25Y 51 00	10YR58 00	M			Y	0	0	HR	2		P	Y		Y	
4	0-25	hzcl	10YR42 00						0	0		0						
	25-70	c	25Y 51 00	10YR58 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
5	0-20	hzcl	10YR32 00						0	0		0						
	20-60	c	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
8	0-20	hzcl	10YR42 00						0	0		0						
	20-70	c	10YR51 00	10YR68 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
9	0-18	hzcl	10YR41 00	10YR56 00	C			Y	0	0		0						
	18-60	c	10YR51 00	10YR68 00	M			Y	0	0		0		P	Y		Y	
10	0-25	hzcl	10YR41 00	10YR56 00	C			Y	0	0		0						
	25-60	c	10YR51 00	10YR68 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
15	0-20	c	10YR41 00	10YR58 00	C			Y	0	0		0						
	20-70	c	10YR51 00	10YR68 00	M			Y	0	0		0		P	Y		Y	
16	0-18	c	10YR32 00	10YR56 00	F				0	0		0						
	18-60	c	10YR51 00	10YR58 00	M			Y	0	0		0		P	Y		Y	
17	0-25	hcl	10YR32 00						0	0		0						
	25-35	c	05Y 61 00	000C00 00	M			Y	0	0		0		M				
	35-60	c	05Y 61 00	000C00 00	M			Y	0	0		0		P	Y		Y	
20	0-20	hcl	10YR42 00						0	0		0						
21	0-25	hcl	10YR42 00						0	0		0						
	25-60	c	25Y 53 00	10YR58 00	C		00MN00 00	Y	0	0		0		M				
22	0-25	hcl	10YR42 00						0	0		0						
	25-50	c	05Y 62 00	10YR58 00	C			Y	0	0		0		M				
	50-80	hcl	05Y 53 00	10YR58 00	C			Y	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
23	0-20	c	10YR42 00						0	0		0						
	20-70	c	25Y 52 00	10YR58	61	C		Y	0	0		0		M				
24	0-30	hcl	10YR41 00	10YR58	00	C		Y	0	0		0						
	30-60	c	10YR61 00	10YR58	71	M		Y	0	0		0		P	Y		Y	
25	0-25	hcl	10YR42 00						0	0		0						
	25-70	c	10YR61 00	10YR68	00	M		Y	0	0		0		P	Y		Y	
26	0-18	hcl	10YR32 00	000C00	00	C		Y	0	0		0						
	18-30	c	05Y 61 00	000C00	00	M		Y	0	0		0		M				
	30-55	c	05Y 61 00	000C00	00	M		Y	0	0		0		P	Y		Y	
27	0-30	mcl	10YR52 00	000C00	00	C		Y	2	0	MSST	5						
	30-60	hcl	25Y 62 00	000C00	00	C		Y	0	0		0		M				
28	0-25	hcl	10YR42 00						0	0	HR	2						
	25-70	hcl	25Y 63 00	10YR58	00	C		Y	0	0		0		M				
29	0-25	mzcl	10YR42 00						0	0		0						
	25-60	mcl	10YR62 00						0	0		0		M				
	60-90	mcl	10YR62 00	000C00	00	C		Y	0	0		0		M				
	90-120	hcl	10YR62 00	000C00	00	M		Y	0	0		0		M				
31	0-30	hcl	10YR32 00						0	0		0						
	30-50	mcl	10YR33 00						0	0		0		M				
32	0-25	hcl	10YR42 00						0	0	MSST	2						
	25-60	hzcl	10YR52 00	10YR58	00	C		Y	0	0		0		M				
33	0-25	hcl	10YR42 00						0	0		0						
	25-70	c	10YR52 00	10YR58	61	M		Y	0	0		0		P	Y		Y	
34	0-20	hcl	10YR42 00						0	0		0						
	20-60	c	05Y 62 00	10YR58	00	M		Y	0	0		0		P	Y		Y	
35	0-20	hcl	10YR53 00						0	0		0						
	20-50	hcl	25Y 62 00	10YR58	61	C		Y	0	0		0		M				
	50-90	c	05Y 61 00	10YR58	00	M		Y	0	0		0		P	Y		Y	
38	0-35	mcl	10YR42 00	000C00	00	C		Y	0	0	MSST	2						
	35-120	hcl	25Y 63 00	000C00	00	M		Y	0	0		0		M				
40	0-22	mzcl	10YR52 00						2	0	MSST	2						
41	0-25	hcl	10YR42 00						0	0		0						
	25-50	mcl	05Y 63 00	10YR58	00	C		Y	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
42	0-28	hcl	10YR32 00						0	0		0						
	28-40	mcl	10YR52 00	10YR56 00	C			Y	0	0		0		M				
45	0-25	mzcl	10YR52 00						0	0		0						
	25-35	c	25Y 62 00	000C00 00	M			Y	0	0		0		M				
	35-60	c	25Y 62 00	000C00 00	M			Y	0	0		0		P	Y		Y	
46	0-20	c	10YR41 00	10YR46 00	C			Y	0	0		0						
	20-60	c	10YR61 00	10YR68 00	M			Y	0	0		0		P	Y		Y	
47	0-20	hzcl	10YR42 00	10YR58 00	C			Y	0	0		0						
	20-70	c	10YR51 00	10YR68 00	M			Y	0	0		0		P	Y		Y	
50	0-30	mcl	10YR52 00	000C00 00	C			Y	2	0	MSST	2						
	30-42	mcl	25Y 62 00	000C00 00	C			Y	0	0		0		M				
51	0-22	mzcl	10YR52 00						2	0	MSST	2						
	22-28	mcl	25Y 62 00						0	0		0		M				
52	0-22	mzcl	10YR52 00						2	0	MSST	2						
	22-32	mzcl	25Y 62 00						0	0		0		M				
53	0-25	mcl	10YR53 00						0	0		0						
54	0-25	mcl	10YR32 00						0	0		0						
	25-40	mcl	10YR52 00	000C00 00	F				0	0		0		M				
57	0-20	mzcl	10YR32 00	10YR58 00	M			Y	0	0		0						
	20-70	c	10YR51 00	10YR58 00	M			Y	0	0		0		P	Y		Y	
58	0-30	hcl	10YR42 00						0	0		0						
	30-40	hcl	10YR52 00	10YR58 62	C			Y	0	0		0		M				
	40-90	c	05Y 62 00	75YR58 61	M			Y	0	0		0		P	Y		Y	
59	0-30	mcl	10YR42 00						0	0		0						
	30-38	c	10YR52 00	10YR58 00	M			Y	0	0		0		M				
	38-70	c	10YR51 00	10YR58 00	M			Y	0	0		0		P	Y		Y	
60	0-25	mzcl	10YR42 00						0	0		0						
	25-35	c	25Y 62 00	000C00 00	C			Y	0	0		0		M				
	35-55	c	25Y 62 00	000C00 00	M			Y	0	0		0		P	Y		Y	
61	0-20	hcl	10YR43 00						0	0		0						
	20-30	c	25Y 52 00	000C00 00	M			Y	0	0		0		M				
	30-55	c	25Y 52 00	000C00 00	M			Y	0	0		0		P	Y		Y	
62	0-30	mzcl	10YR42 00						0	0	MSST	2						
	30-120	hzcl	25Y 63 00	000C00 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
63	0-22	mzcl	10YR42 00						2	0	MSST	2						
	22-32	mzcl	10YR62 00						0	0		0		M				
65	0-30	mcl	10YR52 00						0	0		0						
	30-40	mcl	05Y 72 00						0	0		0		M				
66	0-20	mcl	10YR32 00						0	0		0						
	20-30	mcl	25Y 53 00	000C00	00	F			0	0		0		M				
70	0-25	mzcl	10YR52 00						0	0		0						
	25-45	mzcl	25Y 62 00						0	0		0		M				
	45-55	mzcl	25Y 62 00	000C00	00	C		Y	0	0		0		M				
71	0-25	mzcl	10YR42 00						0	0		0						
	25-32	mcl	10YR62 00						0	0		0		M				
72	0-35	mcl	10YR52 00						0	0		0						
	35-80	mcl	05Y 72 00						0	0		0		M				