

A1

Hampshire Minerals Plan
Omission Site 23: Rookery Farm East
Agricultural Land Classification
ALC Map and Report
December 1994

AGRICULTURAL LAND CLASSIFICATION REPORT.

HAMPSHIRE MINERALS PLAN OMISSION SITE 23: ROOKERY FARM EAST

1. Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in Hampshire. The work forms part of MAFF's statutory input to the Hampshire Minerals Plan.
- 1.2 Site 31 comprises 14.5 hectares of land to the north of Rookery Farm, south west of Kingsley, near Alton in Hampshire. An Agricultural Land Classification (ALC) survey was carried out in December 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 18 borings and two soil inspection pits were assessed in accordance with 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. This survey was in addition to one carried out in November 1994 (ADAS Ref: 1502/283/94) adjacent to this site (see attached map), from which data was extrapolated to confirm the classification of this survey.
- 1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of the survey the majority of the land was in winter cereals. Towards the north of the site, one area was in permanent grass and fenced. The small Non-Agricultural area mapped to the north of the site was a track used for access.
- 1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous ALC survey information for this site.

Table 1: Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
1	4.5	31.1	31.1
2	7.5	51.7	51.7
3a	1.6	11.0	11.0
3b	0.9	6.2	6.2
Non-Agricultural	<0.1	0.0	<u>100% (14.5ha)</u>
Total area of Site	<u>14.5ha</u>	<u>100%</u>	

- 1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. 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.
- 1.7 Land quality on the site ranges between excellent quality, Grade 1 and moderate quality, Subgrade 3b. The land has been classified principally on the basis of soil wetness and/or droughtiness limitations. Variable soils were encountered on the site and the grade is determined by the severity of wetness or droughtiness, when the local climatic parameters are applied. Soil wetness is overriding where imperfectly drained clayey soils occur, whilst droughtiness may be a problem where lighter topsoils and subsoils are present.

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 an 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 are believed to affect the site. However, climatic and soil factors interact to influence soil wetness and droughtiness limitations.

Table 2: Climatic Interpolation

Grid Reference	SU776376	SU776374
Altitude, (m, AOD)	75	80
Accumulated Temperature (°days, Jan.-June)	1425	1420
Average Annual Rainfall (mm)	759	768
Field Capacity Days	180	181
Moisture deficit, wheat (mm)	101	100
Moisture deficit, potatoes (mm)	93	92
Overall Climatic Grade	1	1

3. Relief

- 3.1 The site lies between approximately 75 and 80m AOD. The land rises gently from the northern boundary towards the south and west of the site. Nowhere in this area does relief or gradient affect agricultural land quality.

4. Geology and Soils

- 4.1 The published geological information (BGS, 1975), shows the entire site to be underlain by Cretaceous Folkestone Beds (ferruginous sands).
- 4.2 The published soils information (SSEW, 1983), shows the site to be underlain by soils of the Frilford Association. The legend accompanying the map describes these as, 'deep well drained sandy and coarse loamy soils. Some ferruginous soils variably affected by groundwater. A risk of water erosion.' (SSEW, 1983). Soils encountered at the site, comprised either deep stoneless coarse and fine loamy topsoils and subsoils, or fine loamy over slowly permeable clayey upper subsoils, becoming coarse loamy with depth.

5. Agricultural Land Classification

- 5.1 Paragraph 1.5 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 are shown on the attached sample point map.

Grade 1

- 5.3 Land of excellent quality is mapped towards the east of the site in a single mapping unit. No significant limitations exist to affect the agricultural land quality in this area. Typically, profiles comprise a stoneless medium sandy loam topsoil, over stoneless medium sandy loam or sandy clay loam upper subsoil horizons. These overlie variable lower subsoils comprising stoneless, occasionally slightly gleyed medium sand, loamy medium sand, medium sandy loam, sandy clay loam and/or heavy clay loam. As the soils are free draining, Wetness Class I (see Appendix II) is assigned. *Within the local climate soils of this nature contain sufficient quantities of available water for plant growth and as such there is no droughtiness limitation.* The pit observation, 1p (see Appendix III) is representative of this land.

Grade 2

- 5.4 Land of very good quality is mapped over the majority of the site. Principal limitations include minor soil droughtiness and soil wetness. Profiles affected by soil droughtiness typically comprise a stoneless loamy medium sand topsoil, over a

stoneless loamy medium sand or medium sandy loam upper subsoil. These pass to stoneless medium sand, medium sandy loam, sandy clay loam or heavy clay loam lower subsoil horizons. Profiles of this nature cannot be classified as Grade 1 due to the presence of loamy medium sand topsoils, and in most cases a slight droughtiness limitation exists to limit them to Grade 2 due to slightly restricted profile available water. Plant growth and yield may be slightly affected as a result.

Some of the land classified as Grade 2 is limited by soil wetness, partly due to the proximity of Kingsley stream, at the northern boundary of the site. The stream creates an elevated groundwater level such that Wetness Class II (see Appendix II) is appropriate. In addition, some profiles were affected by impeded drainage. Typical profiles within this category comprise stoneless medium sandy loam topsoils, over a stoneless medium sandy loam, sandy clay loam, medium clay loam or heavy clay loam upper subsoil, which was commonly slightly gleyed or gleyed. This passes to a gleyed and slowly permeable clay horizon, (as confirmed by 2p on the adjacent site, Appendix III ADAS Ref.: 1502/282/94) commonly reverting to heavy clay loam at depth. The slowly permeable horizon impedes drainage to the extent that Wetness Class II (see Appendix II) is appropriate and subsequently Grade 2 given the light topsoil textures. These factors lead to slight restrictions on the versatility of the land, principally in terms of the timing of cultivations and stocking, if structural damage to the soil is to be avoided. Occasional observations within this soil unit were of both slightly better and slightly worse quality, but due to the variable nature of the unit, Grade 2 is most appropriate.

Subgrade 3a

- 5.5 Land of good quality is shown in two mapping units. The area towards the south is principally limited by soil droughtiness, the area to the west by soil wetness. In the southerly unit profiles typically comprise a stoneless loamy medium sand topsoil, passing to a loamy medium sand and medium sand subsoils, to depth (120cm). Within the local climatic regime these freely draining soils are moderately drought prone due to restricted profile available water. The pit observation, 2p (see Appendix III) is representative of this area. The northern boundary of this area is marked by a break in slope and noticeably poorer crop establishment, when compared to the remainder of the site.

Soil wetness is principally limiting towards the west of the site. Profiles in this area comprise a stoneless sandy clay loam topsoil, passing to a stoneless gleyed sandy clay loam to depth (120cm). Within the local climate, a profile of this nature is placed in Wetness Class II (see Appendix II), but due to the medium workability status of the topsoil, Subgrade 3a is applied. These wetness and workability factors lead to moderate restrictions on the versatility of the land, principally in terms of the timing of cultivations and stocking.

Subgrade 3b

- 5.6 Land of moderate quality is mapped towards the north of the site. The principal limitation is soil wetness. Profiles in this area typically comprise a stoneless medium clay loam topsoil, passing to a gleyed and slowly permeable (see 2p, ADAS Ref.: 1502/283/94) stoneless clay upper subsoil. This passes to stoneless gleyed heavy clay loam, medium clay loam, loamy medium sand and medium sand lower subsoil horizons. The depth to the slowly permeable horizon is such that within local climatic parameters Wetness Class IV is appropriate (see Appendix II) and subsequently Subgrade 3b is mapped on the basis that this degree of soil wetness places severe restrictions on the versatility of land in terms of the timing of cultivations and stocking.

ADAS Reference: 1502/282/94
MAFF Reference: EL15/107

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

ADAS (1994), Hampshire Minerals Plan, Omission Site 24, Rookery Farm, West, Agricultural Land Classification Report. Ref.: 1502/283/94

British Geological Survey (1975), Sheet 300, Alresford, Drift Edition. 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.

Soil Survey of England and Wales (1983), Sheet No. 6, Soils of South-East England, 1:250,000, and Accompanying Legend.

Soil Survey of England and Wales (1984), Bulletin No.15, Soils and their use in South-East England.

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 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.

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: 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. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural Buildings

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

Open Water

Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, e.g. 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

DEFINITION OF SOIL WETNESS CLASS

Wetness Class I

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

Wetness Class II

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

Wetness Class III

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

Wetness Class IV

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

Wetness Class V

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

Wetness Class VI

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

APPENDIX III
SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

Sample Point Map

Soil Abbreviations - explanatory note

Database Printout - soil pit information

Database Printout - boring level information

Database Printout - horizon level information

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

- GRID REF** : national grid square and 8 figure grid reference.
- 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		
- GRDNT** : Gradient as measured by a hand-held optical clinometer.
- GLEYSPL** : Depth in cm to gleying or slowly permeable layers.
- AP (WHEAT/POTS)** : Crop-adjusted available water capacity.
- MB (WHEAT/POTS)** : Moisture Balance.
- DRT** : Best grade according to soil droughtiness.
- 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		
- 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	ST : Topsoil Stones
CH : Chemical	WE : Wetness	WK : Workability	
DR : Drought	ER : Erosion Risk	WD : Soil Wetness/Droughtiness	

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 **SLST** : soft oolitic or dolimitic limestone
CH : chalk **FSST** : soft, fine grained sandstone
ZR : soft, argillaceous, or silty rocks **GH** : gravel with non-porous (hard) stones
MSST : soft, medium grained sandstone **GH** : gravel with non-porous (hard) stones
SI : soft weathered igneous/metamorphic rock
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 appropriate 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 : HANTS MINS OM SITE 23 Pit Number : 1P

Grid Reference: SU7723725 Average Annual Rainfall : 805 mm
 Accumulated Temperature : 1452 degree days
 Field Capacity Level : 180 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSL	10YR33 00	0	0						
30- 54	SCL	75YR43 00	0	0			MDCSAB	FR	M	
54- 72	MSL	10YR46 00	0	0			SDCSAB	FR	M	
72-120	MSL	10YR54 00	0	0		C	MDCSAB	VF	M	

Wetness Grade : 1 Wetness Class : I
 Gleying : cm
 SPL : cm

Drought Grade : 1 APW : 158mm MBW : 57 mm
 APP : 111mm MBP : 18 mm

FINAL ALC GRADE : 1
 MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : HANTS MINS OM SITE 23 Pit Number : 2P

Grid Reference: SU77673744 Average Annual Rainfall : 805 mm
 Accumulated Temperature : 1452 degree days
 Field Capacity Level : 180 days
 Land Use : Cereals
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 35	LMS	10YR33 00	0	0			MDCSAB	FR	M	
35-120	LMS	75YR43 00	0	0			MDCSAB	VF	G	

Wetness Grade : 1 Wetness Class : I
 Gleying : cm
 SPL : cm

Drought Grade : 3A APW : 110mm MBW : 9 mm
 APP : 079mm MBP : -14 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN	FROST		CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1	SU77513759	CER N	02	25	25	4	3B	110	9	101	8	2				WE	3B	SPL 25
1P	SU77723725	CER				1	1	158	57	111	18	1					1	PIT 120
2	SU77603760	CER N	02	25	25	4	3B	139	38	107	14	1				WE	3B	SPL 25
2P	SU77673744	CER				1	1	110	9	079	-14	3A				DR	3A	PIT 120
3	SU77703760	CER N	02	45	90	1	1	135	34	112	19	1					1	SL GLEY 28
4	SU77803760	PGR		35	75	3	3A	140	39	116	23	1				WE	3A	SPL 75
5	SU77903760	PGR		50		1	1	152	51	112	19	1					1	WET 70+
6	SU77523750	CER N	02	55		1	1	132	31	113	20	1					1	
7	SU77603750	CER E	01	55	35	3	3A	139	38	104	11	1				WE	3A	SLGLEY & SPL35
8	SU77703750	CER N	01			1	1	151	50	111	18	1					1	WET 80+
9	SU77803750	CER N	01	55	55	3	3A	141	40	108	15	1				WE	3A	QSPL 55
10	SU77893750	CER				1	1	151	50	113	20	1					1	
11	SU77503740	CER		30		2	3A	151	50	111	18	1				WE	3A	
12	SU77603740	CER				1	1	154	53	111	18	1					1	
13	SU77703740	CER				1	1	140	39	111	18	1					1	
14	SU77803740	CER				1	1	138	37	111	18	1					1	
15	SU77623730	CER				1	1	141	40	103	10	1				TS	2	LMS TOPSOIL
16	SU77703730	CER				1	1	118	17	081	-12	3A				DR	3A	
17	SU77803730	CER				1	1	129	28	085	-8	2				DR	2	
18	SU77703721	CER				1	1	084	-17	067	-26	3A				DR	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED		----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		
1	0-25	mc1	10YR42 00						0	0	0						SANDY
	25-65	c	25Y 53 62 10YR58 00 M					Y	0	0	0		P		Y		SL SANDY
	65-70	lms	75YR56 00 00M00 00 C					Y	0	0	0		G				
	70-120	ms	10YR62 72 10YR58 78 M					Y	0	0	0		G				
1P	0-30	ms1	10YR33 00						0	0	0						
	30-54	sc1	75YR43 00						0	0	0	MDCSAB	FR M				
	54-72	ms1	10YR46 00						0	0	0	SDCSAB	FR M				
	72-120	ms1	10YR54 00 10YR56 00 C						0	0	0	MDCSAB	VF M				
2	0-25	mc1	10YR42 00						0	0	0						SANDY
	25-60	c	10YR53 52 10YR56 00 C					Y	0	0	0		P		Y		SANDY
	60-75	hc1	25Y 52 00 10YR58 00 M					Y	0	0	0		M				SANDY
	75-110	mc1	10YR52 00 10YR56 00 C					Y	0	0	0		M				SANDY
	110-120	lms	25Y 62 00 10YR68 00 C					Y	0	0	0		G				
2P	0-35	lms	10YR33 00						0	0	0	MDCSAB	FR M				
	35-120	lms	75YR43 00						0	0	0	MDCSAB	VF G				
3	0-28	ms1	10YR42 00						0	0	0						
	28-45	hc1	10YR43 00 10YR46 00 C					S	0	0	0		M				SL GLEYED SANDY
	45-90	sc1	10YR63 62 10YR58 00 M					Y	0	0	0		M				
	90-110	c	25Y 63 72 10YR68 00 M					Y	0	0	HR 10		P		Y		IMP 110 FLINTS
4	0-35	sc1	10YR42 00						0	0	0						
	35-75	hc1	10YR53 54 10YR56 00 C					Y	0	0	0		M				SANDY
	75-120	c	10YR52 00 10YR56 00 M					Y	0	0	0		P		Y		SANDY
5	0-35	ms1	10YR42 00						0	0	0						
	35-50	sc1	10YR44 00						0	0	0		M				
	50-70	sc1	10YR52 43 10YR56 00 C					Y	0	0	0		M				
	70-120	sc1	10YR53 52 10YR56 00 C					Y	0	0	0		M				
6	0-28	ms1	10YR42 00						0	0	0						
	28-40	hc1	10YR43 00 10YR46 00 F				00M00 00		0	0	0		M				SANDY
	40-55	hc1	75YR34 00 00M00 00 F						0	0	0		M				SANDY
	55-80	ms1	10YR53 54 10YR58 00 C					Y	0	0	0		M				
	80-90	lms	10YR63 62 10YR68 00 M					Y	0	0	0		G				
	90-120	ms	10YR63 62 10YR68 00 M					Y	0	0	0		G				
7	0-25	ms1	10YR42 00						0	0	0						
	25-35	mc1	10YR43 00						0	0	0		M				
	35-55	c	10YR54 00 10YR56 00 C					S	0	0	0		P		Y		SL GLEYED
	55-80	c	10YR53 54 10YR56 00 C					Y	0	0	0		P		Y		
	80-120	hc1	10YR53 54 10YR56 00 C					Y	0	0	0		M				
8	0-30	ms1	10YR42 00						0	0	0						
	30-40	ms1	10YR43 00 00M00 00 F						0	0	0		M				
	40-80	sc1	10YR46 00 00M00 00 F						0	0	0		M				
	80-120	mc1	75YR34 00 00M00 00 F						0	0	0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED		----STONES----			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		
9	0-30	ms1	10YR42 00						0	0	0						
	30-45	ms1	10YR44 00						0	0	0			M			
	45-55	sc1	10YR46 00						0	0	0			M			
	55-90	c	10YR53 52	10YR56 58 C					Y	0	0	0			P	Y	SANDY
	90-120	hc1	10YR53 00	10YR58 00 C					Y	0	0	0			M		SANDY
10	0-30	ms1	10YR33 00						0	0	0						
	30-50	sc1	10YR44 00						0	0	0			M			
	50-120	hc1	10YR56 00						0	0	0			M		SANDY	
11	0-30	sc1	10YR42 00						0	0	0						
	30-120	sc1	10YR53 00	25YR46 00 C					Y	0	0	0		M			
12	0-30	ms1	10YR33 00						0	0	0						
	30-80	ms1	10YR44 00						0	0	0			M			
	80-120	sc1	10YR54 00						0	0	0			M			
13	0-30	ms1	10YR33 00						0	0	0						
	30-80	sc1	10YR44 00						0	0	0			M			
	80-120	lms	10YR54 00						0	0	0			G			
14	0-30	ms1	10YR33 00						0	0	0						
	30-80	ms1	10YR43 00						0	0	0			M			
	80-105	lms	10YR54 00						0	0	0			G			
	105-120	ms	10YR58 00						0	0	0			G			
15	0-35	lms	10YR33 00						0	0	0						
	35-50	ms1	10YR44 00						0	0	0			M			
	50-85	hc1	10YR56 00						0	0	0			M		SANDY	
	85-120	sc1	10YR54 00						0	0	0			M			
16	0-30	lms	10YR33 00						0	0	0						
	30-65	lms	10YR44 00						0	0	0			G			
	65-110	hc1	10YR56 00						0	0	0			M		SANDY	
	110-120	ms	10YR56 00						0	0	0			G			
17	0-35	lms	10YR33 00						0	0	0						
	35-60	lms	10YR44 00						0	0	0			G			
	60-80	ms1	10YR46 00						0	0	0			M			
	80-120	hc1	10YR56 00						0	0	0			M		SANDY	
18	0-30	lms	10YR33 00						0	0	0						
	30-45	lms	10YR44 00						0	0	0			G			
	45-120	ms	10YR54 00						0	0	0			G			