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Arun District Local Plan
Site 18C : Land west of the B2166, North Bersted
Agricultural Land Classification Report
April 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

ARUN DISTRICT LOCAL PLAN
SITE 18C : LAND WEST OF THE B2166, NORTH BERSTED

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 the Arun District of West Sussex. The work forms part of MAFF's statutory input to the preparation of the Arun District Local Plan.

1.2 Site 18C comprises approximately 28 hectares of land west of the B2166, north of North Bersted, West Sussex. An Agricultural Land Classification, (ALC), survey was carried out during April 1994. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 30 borings and 2 soil inspection pits were described 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 a long term limitation on its use for agriculture.

1.3 At the time of the survey the majority of the land on the site was under cereals, with the remainder under permanent grassland for grazing by ponies. Stable buildings are marked as agricultural buildings, a private dwelling and road as urban and scrub land as non-agricultural, on the attached ALC map.

1.4 The distribution of grades and subgrades is shown on the attached ALC map and the areas and extent are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement would be misleading.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
3a	4.5	16.1	16.8
3b	22.3	79.9	83.2
Non-agricultural land	0.1	0.4	100% (26.8 ha)
Urban	0.6	2.1	
Agricultural buildings	0.3	1.1	
Open water	0.1	0.4	
Total area of site	27.9	100%	

1.5 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.

1.6 The agricultural land on the site has been classified as Subgrades 3a and 3b, with soil wetness as the main limitation. Soil profiles typically comprise silt loam and medium silty clay loam topsoils which become heavier with depth. Poorly structured, slowly permeable heavy silty clay loam and clay horizons occur in the subsoil, causing a drainage impedance. The depth at which these slowly permeable horizons occur determines the severity of the limitation. This is reflected in the presence of both good and moderate quality land on the site. Poorly drained soils restrict plant growth, and the likelihood of damage to such soils from grazing livestock and agricultural machinery is increased.

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.

Table 2 :Climatic Interpolations

Grid Reference	SU907001	SZ906998
Altitude, (m, AOD)	7	7
Accumulated Temperature (°days, Jan-June)	1543	1544
Average Annual Rainfall (mm)	742	741
Field Capacity Days	150	150
Moisture deficit, wheat (mm)	120	121
Moisture deficit, potatoes (mm)	117	118

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 However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. At this locality, average annual rainfall and field capacity days are moderate in regional terms, whilst crop adjusted moisture deficits are comparatively high. However, given the heavy nature of the soils on this site, soil wetness is the overriding limitation.

3. Relief

3.1 The site is flat, lying at an altitude of 7 metres. On no part of the site do gradient or relief pose any limitation to agricultural use.

4. Geology and Soils

4.1 The published geology map for the site area, (BGS Sheet 332 (Drift) : Bognor, 1975) shows the underlying geology to be brickearth underlain by London clay.

4.2 The published soils information for the area (SSGB 1967, Sheet SU90, Bognor Regis, 1:25,000) shows the entire site to comprise soils of the Park Gate association (shallow and deep phases). These are described as ' stoneless silty soils variably affected by groundwater' (SSEW, 1983).

4.3 Detailed field examination broadly confirms soils with a wetness limitation. The majority of soils on the site were found to be of a silty nature, passing into slowly permeable silty clay subsoils.

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 are shown on the attached sample point map.

Subgrade 3a

5.3 Good quality land occurs in the south-eastern corner of the site. Profiles typically comprise non-calcareous silt loam or medium silty clay loam topsoils, which are generally stone free. These overlie a medium silty clay loam upper subsoil, which in turn overlies a heavy silty clay loam lower subsoil. The soils tend to show evidence of a wetness problem in the form of gleying below the topsoil. A soil inspection pit (Pit 1) indicated that the gleyed heavy silty clay loam lower subsoil has a poor substructural condition (moderately developed medium prismatic structure) and is slowly permeable, with drainage characteristics equating to Wetness Class III. Land is thereby assigned to Subgrade 3a on the basis of a moderate wetness limitation, given the climatic regime and moderately workable topsoil textures.

Subgrade 3b

5.4 The majority of the agricultural land on the site has been assigned to Subgrade 3b, moderate quality land, with soil wetness as the main limitation. This reflects the occurrence of heavier textured horizons directly below the topsoil. Profiles typically comprise stoneless, medium silty clay loam or silt loam topsoils which are non-calcareous. These overlie a gleyed heavy silty clay loam upper subsoil and pass to silty clay in the lower subsoil. A soil inspection pit (Pit 2) indicated both the upper and lower subsoils to be slowly permeable, thereby causing soil drainage to be significantly impeded. These soil characteristics, ie, the presence of shallow gleying and slowly permeable layers means that these soils are assigned to Wetness Class IV at this location. The land is therefore classified as Subgrade 3b as a result of soil wetness.

5.5 Poorly drained wet soils with slowly permeable subsoils restrict both plant and root development, thereby affecting potential yields. Furthermore, soils of this nature are more susceptible to poaching damage by grazing livestock and trafficking damage from agricultural machinery.

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MAFF Ref: EL42/460

Resource Planning Team
Guildford Statutory Group
ADAS Reading

REFERENCES

* British Geological Survey (1975), Sheet No. 332 (Drift), Bognor, 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), Climatological Data 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 Great Britain (1967), Bulletin 3, Soils of the West Sussex Coastal Plain.

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

Grade 5 : Very Poor Quality Agricultural Land

Land with severe limitations 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, religous buildings, cemetries. 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 (eg. 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, 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

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
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 90 days, but only wet within 40 cm depth for 30 days in most years.
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.
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.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

[1]The number of days specified is not necessarily a continuous period.
[2]'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 computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF** : national 100 km grid square and 8 figure grid reference.

2. **USE** : Land use at the time of survey. The following abbreviations are used.

ARA : Arable	**WHT** : Wheat	**BAR** : Barley
CER : Cereals	**OAT** : Oats	**MZE** : Maize
OSR : Oilseed rape	**BEN** : Field Beans	**BRA** : Brassicae
POT : Potatoes	**SBT** : Sugar Beet	**FCD** : Fodder Crops
LIN : Linseed	**FRT** : Soft and Top Fruit	**FLW** : Fallow
PGR : Permanent Pasture	**LEY** : Ley Grass	**RGR** : Rough Grazing
SCR : Scrub	**CFW** : Coniferous Woodland	**DCW** : Deciduous Wood
HTH : Heathland	**BOG** : Bog or Marsh	**FLW** : Fallow
PLO : Ploughed	**SAS** : Set aside	**OTH** : Other
HRT : Horticultural Crops		

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

4. **GLEY/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.

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

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

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

Soil Pits and Auger Borings

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

S :	Sand	**LS** :	Loamy Sand	**SL** :	Sandy Loam
SZL :	Sandy Silt Loam	**CL** :	Clay Loam	**ZCL** :	Silty Clay Loam
ZL :	Silt Loam	**SCL** :	Sandy Clay Loam	**C** :	Clay
SC :	Sandy Clay	**ZC** :	Silty Clay	**OL** :	Organic Loam
P :	Peat	**SP** :	Sandy Peat	**LP** :	Loamy Peat
PL :	Peaty Loam	**PS** :	Peaty Sand	**MZ** :	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F : Fine (more than 66% of the sand less than 0.2mm)
M : Medium (less than 66% fine sand and less than 33% coarse sand)
C : Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M** : Medium (<27% clay) **H** : Heavy (27-35% clay)

2. **MOTTLE COL** : Mottle colour using Munsell notation.

3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

F : few <2% **C** : common 2-20% **M** : many 20-40% **VM** : very many 40% +

4. **MOTTLE CONT** : Mottle contrast

F : faint - indistinct mottles, evident only on close inspection
D : distinct - mottles are readily seen
P : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour using Munsell notation.

6. **GLEY** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH** : Stone Lithology - One of the following is used.

HR :	all hard rocks and stones	**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	**GS** :	gravel with porous (soft) stones
SI :	soft weathered igneous/metamorphic rock		

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

SOIL PIT DESCRIPTION

Site Name : ARUN LOCAL PLAN SITE 18C Pit Number : 1P

Grid Reference: SZ90909990 Average Annual Rainfall : 741 mm
Accumulated Temperature : 1544 degree days
Field Capacity Level : 150 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 24	ZL	10YR52 00	0	1	C	
24- 46	MZCL	10YR62 00	0	0	C	MDCSAB
46- 80	HZCL	10YR63 72	0	0	M	MDMP

Wetness Grade : 3A Wetness Class : III
Gleying : 0 cm
SPL :046 cm

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

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : ARUN LOCAL PLAN SITE 18C Pit Number : 2P

Grid Reference: SZ90709990 Average Annual Rainfall : 741 mm
Accumulated Temperature : 1544 degree days
Field Capacity Level : 150 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 28	ZL	10YR53 00	0	0	M	
28- 40	HZCL	10YR63 00	0	0	M	WKCP
40- 80	ZC	10YR62 00	0	0	M	WKCSAB

Wetness Grade : 3B Wetness Class : IV
Gleying : 0 cm
SPL :028 cm

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

FINAL ALC GRADE : 3B
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	SU90600010	CER		0	025	4	3B		0		0					WE	3B	
1P	SZ90909990	PGR		0	046	3	3A		0		0					WE	3A	
2	SU90700010	CER		035	035	4	3B		0		0					WE	3B	
2P	SZ90709990	CER		0	028	4	3B		0		0					WE	3B	
3	SU90800010	CER		030	030	4	3B		0		0					WE	3B	
4	SU90400000	CER		030	030	4	3B		0		0					WE	3B	
5	SU90500000	CER		030	030	4	3B		0		0					WE	3B	
6	SU90600000	CER		025	025	4	3B		0		0					WE	3B	
7	SU90700000	CER		025	025	4	3B		0		0					WE	3B	
8	SU90800000	CER		030	030	4	3B		0		0					WE	3B	
9	SU90900000	PGR		0	060	3	3A		0		0					WE	3A	
10	SZ90409990	CER		030	030	4	3B		0		0					WE	3B	
11	SZ90509990	CER		035	035	4	3B		0		0					WE	3B	
12	SZ90609990	CER		030	030	4	3B		0		0					WE	3B	
13	SZ90709990	CER		0	020	4	3B		0		0					WE	3B	
14	SZ90809990	CER		025	025	4	3B		0		0					WE	3B	
15	SZ90909990	PGR		0	055	3	3A		0		0					WE	3A	
16	SZ90989993	PGR		0	045	3	3A		0		0					WE	3A	
17	SZ90409980	CER		025	025	4	3B		0		0					WE	3B	
18	SZ90509980	CER		0	030	4	3B		0		0					WE	3B	
19	SZ90609980	PGR		0	060	3	3A		0		0					WE	3A	
20	SZ90709980	PGR		0	030	4	3B		0		0					WE	3B	
21	SZ90809980	PGR		0	035	4	3B		0		0					WE	3B	
22	SZ90909980	PGR		030	055	3	3A		0		0					WE	3A	
23	SZ91009980	PGR		035	065	3	3A		0		0					WE	3A	BORDERLINE 3B
24	SZ90609970	PGR		0	028	4	3B		0		0					WE	3B	
25	SZ90709970	PGR		0	028	4	3B		0		0					WE	3B	
26	SZ90909970	PGR		0	025	4	3B		0		0					WE	3B	
27	SZ91009970	PGR		0	030	4	3B		0		0					WE	3B	
28	SU90880050	PGR		0	060	3	3A		0		0					WE	3A	
29	SZ91059985	PGR		0	045	3	3A		0		0					WE	3A	BORDERLINE 3B
30	SZ91079973	PGR		0	045	3	3A		0		0					WE	3A	

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	CALC
1	0-25	mzcl	10YR52 00	10YR58 00	C			Y	0	0		0						
	25-45	hzc	10YR62 00	10YR58 71	M			Y	0	0		0		P			Y	
	45-80	zc	10YR62 00	10YR68 72	M			Y	0	0		0		P			Y	
1P	0-24	zl	10YR52 00	10YR58 00	C			Y	0	0	HR	1						
	24-46	mzcl	10YR62 00	10YR58 00	C			Y	0	0		0	MDCSAB	FR M		Y		
	46-80	hzcl	10YR63 72	10YR58 00	M			Y	0	0		0	MDMP	FR P		Y		Y
2	0-35	zl	10YR52 00						0	0		0						
	35-60	hzcl	10YR62 00	10YR58 00	M			Y	0	0		0		P			Y	
	60-80	hzcl	10YR62 00	10YR68 72	M	00MN00	00	Y	0	0		0		P			Y	
2P	0-28	zl	10YR53 00	75YR56 00	M			Y	0	0		0						
	28-40	hzcl	10YR63 00	10YR56 00	M	00MN00	00	Y	0	0		0	WKCP	FR P		Y		Y
	40-80	zc	10YR62 00	10YR58 72	M	00MN00	00	Y	0	0		0	WKCSAB	FM P		Y		Y
3	0-30	mzcl	10YR52 00						0	0	HR	3						
	30-65	hzcl	10YR62 00	10YR58 61	M			Y	0	0		0		P			Y	
	65-80	zc	10YR62 00	10YR68 71	M			Y	0	0		0		P			Y	
4	0-30	zl	10YR52 00						0	0		0						
	30-65	hzcl	10YR62 00	10YR68 72	M			Y	0	0		0		P			Y	
	65-80	zc	10YR63 00	10YR68-72	M	00MN00-		Y	0	0		0					Y	
5	0-30	zl	10YR52 00						0	0		0						
	30-45	hzcl	10YR62 00	10YR68 71	M			Y	0	0		0		P			Y	
	45-65	zc	10YR62 00	10YR68 72	M	00MN00	00	Y	0	0		0		P			Y	
6	0-25	zl	10YR52 00						0	0		0						
	25-60	hzcl	10YR62 00	10YR68 72	M			Y	0	0		0		P			Y	
	60-80	zc	10YR63 00	10YR68 71	M	00MN00	00	Y	0	0		0		P			Y	
7	0-25	zl	10YR52 00						0	0		0						
	25-50	hzcl	10YR63 00	10YR68 71	M			Y	0	0		0		P			Y	
	50-70	zc	10YR62 00	10YR68 71	M	00MN00	00	Y	0	0		0		P			Y	
8	0-30	zl	10YR52 00						0	0		0						
	30-65	hzcl	10YR63 00	10YR68 72	M	00MN00	00	Y	0	0		0		P			Y	
9	0-30	zl	10YR52 00	10YR58 00	C			Y	0	0		0						
	30-60	mzcl	10YR64 00	10YR58 00	F			Y	0	0		0		M				
	60-90	hzcl	10YR62 00	10YR68 71	M			Y	0	0		0		P			Y	
10	0-30	zl	10YR52 00						0	0		0						
	30-50	hzcl	10YR53 00	10YR68 72	C			Y	0	0		0		P			Y	
	50-70	zc	10YR62 00	10YR68 71	M			Y	0	0		0		P			Y	
	70-71	zc	00ZZ00 00					Y	0	0	Z	0		M			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
11	0-35	zl	10YR52 00						0	0		0						
	35-50	hzcl	10YR63 00	10YR68 71	M			Y	0	0		0		P			Y	
	50-70	zc	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
12	0-30	zl	10YR52 00						0	0		0						
	30-45	hzcl	10YR63 00	10YR58 00	C			Y	0	0		0		P			Y	
	45-70	zc	10YR62 00	10YR68 71	M			Y	0	0		0		P			Y	
13	0-20	mzcl	10YR52 00	10YR58 61	C			Y	0	0		0						
	20-40	hzcl	10YR63 00	10YR58 71	M			Y	0	0		0		P			Y	
	40-70	zc	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
14	0-25	mzcl	10YR52 00						0	0		0						
	25-65	zc	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
15	0-25	zl	10YR52 00	10YR58 61	C			Y	0	0		0						
	25-55	mzcl	10YR62 00	10YR68 72	M			Y	0	0		0		M				
	55-80	hzcl	10YR63 00	10YR68 72	M			Y	0	0		0		P			Y	
16	0-30	zl	10YR52 00	10YR58 00	C			Y	0	0		0						
	30-45	mzcl	10YR53 54	10YR58 00	F			Y	0	0		0		M				
	45-70	hzcl	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
17	0-25	zl	10YR52 00						0	0		0						
	25-50	hzcl	10YR63 00	10YR68 00	C			Y	0	0		0		P			Y	
	50-70	zc	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
18	0-30	zl	10YR52 00	10YR56 00	C			Y	0	0		0						
	30-60	hzcl	10YR62 00					Y	0	0		0		P			Y	
	60-80	zc	10YR63 00	10YR68 71	M		00MN00 00	Y	0	0		0		P			Y	
19	0-20	zl	25Y 52 00	10YR58 00	C			Y	0	0		0						
	20-60	mzcl	10YR64 00	10YR58 00	C			Y	0	0		0		M				
	60-100	hzcl	25Y 62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
20	0-30	zl	25Y 52 00	10YR58 61	C			Y	0	0		0						
	30-55	hzcl	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	
	55-80	hzcl	25Y 63 00	10YR68 72	M			Y	0	0		0		P			Y	
21	0-35	zl	25Y 52 00	10YR58 61	C			Y	0	0		0						
	35-65	hzcl	25Y 63 00	10YR68 72	C			Y	0	0		0		P			Y	
	65-80	zc	25Y 63 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
22	0-30	zl	10YR53 00						0	0		0						Y
	30-40	zl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	40-55	mzcl	10YR62 00	10YR68 00	C			Y	0	0		0		M				
	55-80	hzcl	10YR62 00	10YR68 71	M		00MN00 00	Y	0	0		0		P			Y	

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	0-35	mzcl	10YR43 00						0	0	SLST	5						Y
	35-65	hzcl	10YR53 00	10YR58 00	C			Y	0	0	SLST	5		M				Y
	65-110	hzcl	10YR52 00	10YR58 61	M			Y	0	0	HR	10		P		Y		
24	0-28	zl	25Y 62 00	75YR56 00	C			Y	0	0		0						
	28-50	hzcl	25Y 63 00	10YR56 00	M			Y	0	0		0		P		Y		
	50-70	zc	25Y 63 00	10YR56 00	M			Y	0	0		0		P		Y		
25	0-28	zl	25Y 52 00	10YR56 00	C			Y	0	0		0						
	28-45	hzcl	25Y 62 00	10YR56 00	M			Y	0	0		0		P		Y		
	45-70	zc	25Y 72 00	10YR56 58	M			Y	0	0		0		P		Y		
26	0-25	zl	10YR52 00	10YR58 00	C			Y	0	0	Z	0						
	25-60	hzcl	10YR63 00	10YR68 72	M			Y	0	0		0		P		Y		
	60-80	zc	10YR63 52	10YR68 72	M		00MN00 00	Y	0	0		0		P		Y		
27	0-30	zl	10YR53 00	10YR58 61	C			Y	0	0		0						
	30-70	hzcl	10YR62 00	10YR58 71	M			Y	0	0		0		P		Y		
28	0-25	mzcl	10YR52 00	10YR56 00	C			Y	0	0		0						
	25-60	mzcl	10YR64 00	10YR56 00	C			Y	0	0		0		M				
	60-120	hzcl	10YR62 00	10YR58 00	M			Y	0	0		0		P		Y		
29	0-28	mzcl	10YR52 00	10YR58 00	C			Y	0	0	HR	1						
	28-35	mzcl	10YR64 00	10YR58 00	C			Y	0	0		0		M				
	35-45	hzcl	10YR63 00	10YR58 00	C			Y	0	0		0		M				
	45-65	zc	10YR62 00	10YR68 00	M			Y	0	0		0		P		Y		
	65-120	zc	10YR61 00	75YR56 00	M			Y	0	0		0		P		Y		
30	0-30	mzcl	10YR52 00	10YR58 61	M			Y	0	0		0						
	30-45	mzcl	10YR64 00	10YR58 00	C			Y	0	0		0		M				
	45-100	hzcl	10YR62 00	10YR58 61	M			Y	0	0		0		P		Y		