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Worthing Borough Local Plan
Site 1 Land at Goring Crossways
Agricultural Land Classification
ALC Map and Report
February 1995

AGRICULTURAL LAND CLASSIFICATION REPORT

WORTHING BOROUGH LOCAL PLAN
SITE 1 LAND AT GORING CROSSWAYS

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 Worthing Borough of West Sussex The work forms part of MAFF s statutory input to the preparation of the Worthing Borough Local Plan

1 2 The site comprises 27 6 hectares of land between Goring by Sea to the east and Ferring to the west near to Worthing West Sussex An Agricultural Land Classification (ALC) survey was carried out during February 1995 The survey was undertaken at a detailed level of approximately one boring per hectare of agricultural land surveyed A total of 30 borings and two 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 4 At the time of the survey the majority of the land was under winter wheat The area to the north of and immediately surrounding Ferring Rife which runs across the site was in set aside The Non agricultural land to the east of the site is an overgrown area between the rife and the road

1 5 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 10 000 It is accurate at this scale but any enlargement would be misleading

T ible 1 Distribution of Gr ides and Subgrades

Gr ide	Area (ha)	/ of Site	/ of Agricultur al Land
2	17 8	64 5	65 0
3b	9 6	34 8	35 0
Non Agricultural	0 2	0 7	100 0 (27 4ha)
Total area of site	27 6ha	100 0	

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 The agricultural land at this site has been classified as very good quality (Grade 2) and moderate quality (Subgrade 3b) Over the majority of the site deep silty brickearth derived soils cause a very slight soil droughtiness and wetness limitation Towards the centre of the site alluvial deposits give rise to silty topsoils and upper subsoils over slowly permeable clay at variable depths in the profile causing drainage to be impeded

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	TQ100036
Altitude (m AOD)	9
Accumulated Temperature (days Jan June)	1535
Average Annual Rainfall (mm)	758
Field Capacity Days	159
Moisture deficit wheat (mm)	121
Moisture deficit potatoes (mm)	117
Overall Climatic Grade	1

3 Relief

3 1 The site lies at approximately 9m AOD Overall the site falls gently towards Ferring Rife the canalised stream running across the site from east to west Nowhere on the site does relief or gradient affect agricultural land quality

4 Geology and Soils

4 1 The published geological information (BGS 1972) shows the majority of the site to be underlain by brickearth as a drift deposit over Upper and Middle Chalk An area either side of Ferring Rife is shown as alluvium

4 2 The published soils information (SSGB 1967) shows the site to be underlain by soils of the Hamble Hook Park Gate Series (deep phase) and Arundel Complex These are described as deep well to slightly imperfectly drained stone free silty soils (Hamble and Hook Series) Deep imperfectly drained silty soils with a few small flints (Park Gate Series) Stone free poorly drained silty and clayey soils (Arundel Complex) (SSGB 1967) Soils of these broad types were found on the site

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 2

5 3 Land of very good quality (Grade 2) extends over the majority of the site in two mapping units separated by the area of lower quality (Subgrade 3b) land The key limitations which were often found to be equally limiting are soil wetness and soil droughtiness Profiles affected by soil droughtiness were well drained (Wetness Class I see Appendix II) and associated with the slightly higher land towards the north and south of the site They commonly comprise a very slightly stony (up to 3% v/v total flints) medium silty clay loam topsoil passing to a similar upper subsoil This passes to an very slightly stony (up to 2% v/v total flints) heavy silty clay loam horizon which may be gleyed and either occurs to depth or overlies a similarly stony gleyed and slowly permeable clay lower subsoil horizon beyond 80cm depth The interaction between the local climatic parameters the soil textures encountered and the small flint percentage lead to a very slight reduction in profile available water likely to slightly limit plant growth and yield in some years On some occasions the topsoil was considered to border a silt loam texture Had this been the case then the increase in crop available water would result in some areas being considered as of Grade 1 quality Pit 1 (see Appendix III) is typical of this mapping unit

5 4 The remaining area of very good quality land is equally limited by soil wetness and soil droughtiness Soils here are essentially similar to those described above i e medium silty clay loam topsoil and upper subsoil passing to heavy silty clay loam and clay at depth However the depth at which the slowly permeable clay lower subsoil occurs is less between 65 and 80cm Soils of this nature given the local climatic regime are placed in Wetness Class II (see Appendix II) leading to a Grade 2 classification when the workability status of the topsoil is taken into account These wetness and workability 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 as well as being slightly limited in terms of crop available water as above (para 5 3)

Subgrade 3b

5 5 Land of moderate quality has been mapped across the area adjoining Ferring Rife The principal limitation is soil wetness due to impeded drainage Soil profiles typically comprise a stoneless to very slightly stony (up to 2% v/v total flints) heavy silty clay loam or clay topsoil which may be gleyed overlying a similarly stony gleyed and slowly permeable heavy silty clay loam or clay upper subsoil This passes to a deep stoneless to moderately stony (up to 20% v/v total flints) gleyed clay lower subsoil of a type which occasionally lies directly beneath the topsoil The description for Pit 2 (see Appendix III) shows that these clay horizons are slowly permeable by virtue of gleying low porosity and structural characteristics thereby significantly impeding drainage These soils are therefore appropriately assigned to Wetness Classes III and IV (see Appendix II) which given the heavy topsoil texture and prevailing field capacity level (159 days) restricts the land to Subgrade 3b These factors lead to restrictions on the versatility of the land in terms of the timing of cropping and stocking if structural damage to the soil is to be avoided Excessive soil wetness will also adversely affect crop growth and development

ADAS Ref 4207/292/94
MAFF Ref EL42/472

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1972) Sheet 317 Chichester 1 63 360 Drift Edition

British Geological Survey (1984) Sheet 318/333 Worthing / Brighton 1 50 000 Solid & Drift Edition

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 Great Britain (1967) Bulletin No 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 (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 fro 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

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	**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 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 **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

S t Name WORTHING LP SITE 1 Pit N mbe 1P

G id Refe e ce TQ10100330 A ag A l R f ll 758 mm
Acc m lated Temperat re 1535 degree days
F eld Capacity Le el 159 days
La d Use Wheat
Slope and Aspect deg ees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 35	MZCL	10YR42 00	0	3	HR					
35 52	MZCL	10YR54 56	0	0			MDCSAB	FR	M	
52 85	MZCL	10YR54 00	0	0		C	MDCSAB	FR	M	
85 120	HZCL	10YR64 00	0	0		C	MDCSAB	FR	M	

Wet ess Grade 1 Wetness Class I
Gl y ng c
SPL cm

Dro ght G ade 2 APW 160mm MBW 39 mm
APP 124mm MBP 7 mm

FINAL ALC GRADE 2
MAIN LIMITATION Dro ght ness

SOIL PIT DESCRIPTION

Site Name WORTHING LP SITE 1 Pit N mber 2P

Grid Refe e ce TQ10200350 A e age A al Rai fall 758 mm
Acc m l t d Tempe t 1535 degree days
F eld Capacity Le el 159 days
La d Use Set s d
Slope d Aspect deg ees

HORIZON		TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0	38	HZCL	10YR42 00	1	3	HR					
38	53	HZCL	10YR54 00	0	3	HR	C	MDCSAB	FR	M	
53	85	C	10YR63 00	0	5	HR	M	WKCSAB	FM	P	

Wet ess Grade 3B Wetness Class III
Gl y g 53 cm
SPL 53 cm

Dro ght G d APW mm MBW 0 mm
APP mm MBP 0 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wet ess

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	TQ09900360	SAS		65	65	2	2	142	21	121	4	2				WD	2	
1P	TQ10100330	WHT				1	1	160	39	124	7	2				DR	2	SL GLEY 52
2	TQ10000360	SAS		100	100	1	1	152	31	124	7	2				DR	2	QUERY ZL TS
2P	TQ10200350	SAS		53	53	3	3B		0		0					WE	3B	PIT85 SLGLEY38
3	TQ10100360	SAS		100		1	1	160	39	124	7	2				DR	2	QUERY ZL TS
4	TQ10200360	SAS		45		1	1	162	41	126	9	2				DR	2	QUERY ZL TS
5	TQ10300360	SAS		33		2	2	160	39	124	7	2				WD	2	
6	TQ09800350	SAS		0	29	4	3B		0		0					WE	3B	
7	TQ09900350	SAS		0	25	4	3B		0		0					WE	3B	
8	TQ10000350	SAS		55	55	3	3A		0		0					WE	3A	IMP FLINTS 70
9	TQ10100350	SAS		70	70	2	2	146	25	125	8	2				WD	2	
10	TQ10200350	SAS		35	50	3	3B		0		0					WE	3B	
11	TQ10300350	SAS		33	33	4	3B		0		0					WE	3B	
12	TQ09900340	WHT		26	73	2	2	145	24	123	6	2				WD	2	
13	TQ10000340	WHT		0	40	4	3B		0		0					WE	3B	
14	TQ10100340	WHT		33	33	4	3B		0		0					WE	3B	
15	TQ10200340	WHT		0	38	4	3B		0		0					WE	3B	
16	TQ10300340	WHT		55	55	3	3B		0		0					WE	3B	
17	TQ10400340	WHT		0	40	4	3B		0		0					WE	3B	
18	TQ09800330	WHT		65	65	2	2	148	27	122	5	2				WD	2	
19	TQ09900330	WHT		55	80	2	2	151	30	123	6	2				WD	2	
20	TQ10000330	WHT				1	1	150	29	124	7	2				DR	2	
21	TQ10100330	WHT		70	80	2	2	152	31	125	8	2				WD	2	
22	TQ10200330	WHT		80		1	1	161	40	125	8	2				DR	2	
23	TQ10300330	WHT		30	75	2	2	148	27	125	8	2				WD	2	
24	TQ10400330	WHT		30	30	3	3B		0		0					WE	3B	SL GLEY 30
25	TQ09900320	WHT				1	1	157	36	124	7	2				DR	2	
26	TQ10000320	WHT				1	1	152	31	125	8	2				DR	2	
27	TQ10100320	WHT		70	80	2	2	149	28	125	8	2				WD	2	
28	TQ10200320	WHT				1	1	143	22	120	3	2				DR	2	
29	TQ10300320	WHT				1	1	158	37	123	6	2				DR	2	
30	TQ10400320	WHT				1	1	158	37	123	6	2				DR	2	

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 30	mzcl	10YR42 43						0	0	HR	3						
	30 65	mz l	10YR54 53	10YR56 00	F		00MN00 00		0	0		0		M				
	65 100	c	10YR53 00	10YR66 00	C		00MN00 00	Y	0	0		0		P			Y	
	100 120	c	10YR53 00	10YR66 00	C		00MN00 00	Y	0	0	HR	10		P			Y	
1P	0 35	m cl	10YR42 00						0	0	HR	3						
	35 52	mzcl	10YR54 56						0	0		0	MDCSAB	FR M				
	52 85	m cl	10YR54 00	10YR56 00	C			S	0	0		0	MDCSAB	FR M				
	85 120	hzcl	10YR64 00	10YR56 00	C		00MN00 00	Y	0	0		0	MDCSAB	FR M		Y		
2	0 35	mzcl	10YR43 00						0	0	HR	2						
	35 55	mzcl	10YR56 00						0	0		0		M				
	55 100	h cl	10YR54 56	00MN00 00	F				0	0	HR	5		M				
	100 120	c	10YR62 63	10YR66 68	C		00MN00 00	Y	0	0	HR	5		P			Y	
2P	0 38	h cl	10YR42 00						1	0	HR	3						
	38 53	hzcl	10YR54 00	10YR58 00	C		00MN00 00	S	0	0	HR	3	MDCSAB	FR M				
	53 85	c	10YR63 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5	WKCSAB	FM P		Y		Y
3	0 35	mzcl	10YR42 00						0	0	HR	3						
	35 70	mzcl	10YR54 56						0	0		0		M				
	70 100	mzcl	10YR53 00						0	0		0		M				
	100 120	h cl	10YR53 00	10YR66 00	C		00MN00 00	Y	0	0	HR	2		M				
4	0 45	m cl	10YR42 00						0	0	HR	3						
	45 80	mzcl	10YR53 52	10YR56 00	C		00MN00 00	Y	0	0		0		M				
	80 120	h cl	25Y 53 52	10YR58 00	M		00MN00 00	Y	0	0		0		M				
5	0 33	m cl	10YR42 52						0	0	HR	2						
	33 80	mzcl	10YR63 62	10YR58 00	C		00MN00 00	Y	0	0		0		M				
	80 120	hzcl	25Y 61 62	10YR68 00	M		00MN00 00	Y	0	0		0		M				
6	0 29	c	10YR52 00	10YR56 00	C			Y	0	0	HR	2						
	29 60	c	*10YR62 71*	*10YR68 00*	*M*			Y	*0*	*0*		*0*		P			Y	
	60 80	c	10YR62 71	10YR68 00	M			Y	0	0	HR	10		P			Y	
7	0 25	c	10YR52 00	10YR58 00	C			Y	0	0		0						
	25 70	c	10YR62 71	10YR68 00	M			Y	0	0		0		P			Y	
8	0 35	mzcl	10YR42 43						0	0	HR	3						
	35 55	1	10YR54 56						0	0		0		M				
	55 70	c	10YR53 54	10YR58 00	C		00MN00 00	Y	0	0	HR	5		P			Y	
9	0 35	mzcl	10YR42 43						0	0	HR	1						
	35 50	mz l	10YR54 56						0	0		0		M				
	50 70	h cl	10YR54 56						0	0		0		M				
	70 120	c	10YR52 54	10YR58 00	C		00MN00 00	Y	0	0		0		P			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
10	0 35	hzcl	10YR42 00						0	0	HR	3						
	35 50	h cl	10YR53 54	10YR58 00	C			Y	0	0		0		M				
	50 80	c	25Y 53 51	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y	
11	0 33	hcl	10YR42 00						0	0	HR	3						
	33 55	c	10YR53 51	10YR56 00	C			Y	0	0		0		P			Y	
	55 80	c	25Y 52 51	10YR58 00	M			Y	0	0		0		P			Y	
	80 100	c	25Y 52 51	10YR58 00	M			Y	0	0	HR	20		P			Y	
12	0 26	mzcl	75YR52 00						0	0	HR	3						
	26 43	hzcl	75YR52 00	10YR56 00	C			Y	0	0		0		M				
	43 73	hzcl	75YR54 00	00MN00 00	C			S	0	0		0		M				
	73 120	c	10YR63 00	10YR78 73	C			Y	0	0		0		P			Y	
13	0 27	hzcl	10YR52 00	10YR56 00	C			Y	0	0		0						
	27 40	hzcl	10YR52 62	10YR68 00	C			Y	0	0		0		M				
	40 80	c	10YR62 00	10YR78 71	M			Y	0	0		0		P			Y	
14	0 33	h cl	10YR52 53	10YR56 00	C		00MN00 00	Y	0	0	HR	2						
	33 70	c	10YR63 00	10YR68 61	M			Y	0	0		0		P			Y	
15	0 25	hzcl	10YR52 00	10YR56 00	C			Y	0	0	HR	2						
	25 38	hzcl	10YR52 00	10YR58 51	C			Y	0	0		0		M				
	38 65	c	10YR54 00	10YR68 71	M			Y	0	0		0		P			Y	
16	0 30	hzcl	10YR52 00	00MN00 00	F				0	0	HR	4						
	30 55	hzcl	75YR53 00	00MN00 00	F				0	0		0		M				
	55 90	c	10YR54 62	10YR68 00	M			Y	0	0		0		P			Y	
17	0 30	hzcl	10YR52 00	10YR56 00	C		00MN00 00	Y	0	0	HR	2						
	30 40	hzcl	10YR52 00	10YR56 00	C		00MN00 00	Y	0	0		0		M				
	40 50	c	10YR54 00	00MN00 00	C			Y	0	0		0		P			Y	
	50 80	c	10YR54 62	10YR68 00	M			Y	0	0		0		P			Y	
18	0 28	mzcl	10YR42 00						1	0	HR	2						
	28 45	m cl	10YR42 00	10YR58 00	F				0	0	HR	1		M				
	45 65	h cl	10YR44 00	10YR58 00	F				0	0	HR	1		M				
	65 120	c	10YR54 00	10YR58 00	F		00MN00 00		0	0	HR	1		P			Y	
19	0 30	m l	10YR42 00						1	0	HR	2						
	30 40	mzcl	10YR42 00	10YR58 00	F				0	0	HR	1		M				
	40 55	hzcl	10YR44 00						0	0	HR	1		M				
	55 80	hzcl	10YR54 00	10YR58 00	C			S	0	0	HR	1		M				
	80 120	c	10YR53 00	10YR58 00	C			Y	0	0	HR	1		P			Y	
20	0 35	zcl	10YR42 00						1	0	HR	2						
	35 45	mzcl	10YR44 00						0	0	HR	1		M				
	45 70	hzcl	10YR54 00						0	0	HR	1		M				
	70 120	c	10YR54 00						0	0	HR	1		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
21	0 38	mzcl	10YR42 00						1	0	HR	2						
	38 48	mzcl	10YR44 00						0	0	HR	1		M				
	48 70	hzcl	10YR44 00						0	0	HR	1		M				
	70 80	hzcl	10YR54 00	10YR58 00	C			S	0	0	HR	1		M				
	80 120	c	10YR54 00	75YR58 00	C			S	0	0	HR	1		P			Y	
22	0 35	mzcl	10YR42 00						0	0	HR	2						
	35 65	mzcl	10YR54 00	00MN00 00	F				0	0		0		M				
	65 80	hzcl	10YR54 00	00MN00 00	F				0	0		0		M				
	80 120	hzcl	10YR62 63	10YR58 00	M			Y	0	0		0		M				
23	0 30	mzcl	75YR52 00						0	0		0						
	30 75	hzcl	75YR54 00	10YR56 00	C			S	0	0		0		M				
	75 120	c	75YR54 00	10YR58 00	C		00MN00 00	S	0	0		0		P			Y	
24	0 30	hzcl	10YR42 00	10YR56 00	F				0	0	HR	5						
	30 70	c	75YR53 00	75YR56 00	C			S	0	0		0		P			Y	
25	0 35	mzcl	10YR42 00						1	0	HR	2						
	35 75	zcl	10YR44 00						0	0	HR	1		M				
	75 105	hzcl	10YR54 00						0	0	HR	1		M				
	105 120	c	10YR54 00						0	0	HR	1		M				
26	0 38	mzcl	10YR42 00						1	0	HR	2						
	38 60	mzcl	10YR54 00				00MN00 00		0	0	HR	1		M				
	60 80	h cl	10YR54 00				00MN00 00		0	0	HR	1		M				
	80 120	c	10YR54 00	10YR58 00	F		00MN00 00		0	0	HR	1		M				
27	0 38	mzcl	10YR42 00	10YR58 00	F				1	0	HR	2						
	38 58	zcl	10YR58 00						0	0	HR	1		M				
	58 70	hzcl	10YR54 00	75YR58 00	F		00MN00 00		0	0	HR	1		M				
	70 80	hzcl	10YR63 00	75YR58 00	C			Y	0	0	HR	1		M				
	80 120	c	10YR63 00	75YR58 00	C		00MN00 00	Y	0	0	HR	1		P			Y	
28	0 25	mzcl	10YR42 00						1	0	HR	2						
	25 38	mzcl	10YR42 00	10YR58 00	F				0	0	HR	2		M				
	38 48	mzcl	10YR54 00				00MN00 00		0	0	HR	2		M				
	48 120	c	10YR54 00				00MN00 00		0	0	HR	2		M				
29	0 35	cl	10YR42 00						1	0	HR	3						
	35 75	hzcl	10YR54 00						0	0	HR	2		M				
	75 120	hzcl	10YR54 64	10YR58 00	F		00MN00 00		0	0	HR	2		M				
30	0 35	zcl	10YR42 00						1	0	HR	3						
	35 55	zcl	10YR44 00						0	0	HR	3		M				
	55 120	hzcl	10YR44 00						0	0	HR	2		M				