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Bracknell Forest Local Plan
Site H/Wink/16 : Land off Locks Ride, Forest Road and Chavey Down Road, Winkfield
Agricultural Land Classification
ALC Map and Report
November 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

BRACKNELL FOREST LOCAL PLAN
SITE H/WINK/16 : LAND OFF LOCKS RIDE, FOREST ROAD AND CHAVEY DOWN ROAD, WINKFIELD

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on a number of sites in the Bracknell district of Berkshire. The work forms part of MAFF's statutory input to the preparation of the Bracknell Forest Local Plan.

1.2 Site Wink 16 comprises 19.6 hectares of land off Locks Ride, Forest Road and Chavey Down Road in Winkfield, Berkshire. An Agricultural Land Classification, (ALC), survey was carried out during November 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 a long term limitation on its use for agriculture.

1.3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1.4 At the time of survey the land use on the site was permanent grass with, farm buildings, non-agricultural and open water to the west. A small area of woodland occurs to the south. Parts of the site were not surveyed since permission to enter onto the land was not sought.

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.

Table 1 : Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
3a	7.7	39.3	56.2
3b	6.0	30.6	43.8
Non-agricultural	0.8	4.1	100.0 (13.7 ha)
Urban	0.1	0.5	
Woodland	<0.1	<0.1	
Farm Buildings	0.2	1.0	
Open Water	<0.1	<0.1	
Not surveyed	4.8	24.5	
Total area of site	19.6	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 surveyed has been classified as a mixture of Subgrade 3a and Subgrade 3b. Good quality land, Subgrade 3a consists of permeable medium clay loams over slowly permeable clays below 40 cm depth, resulting in moderate soil wetness and workability restrictions. The remaining agricultural land is moderate quality, Subgrade 3b. Soil profiles are similar to the Subgrade 3a soils, but the slowly permeable clays occur at less than 40 cm depth resulting in significant soil wetness and workability restrictions.

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 (degree days Jan-June), 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. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations.

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

Table 2 : Climatic Interpolation

Grid Reference	SU901707
Altitude (m)	80
Accumulated Temperature (degree days, Jan-June)	1429
Average Annual Rainfall (mm)	690
Field Capacity (days)	143
Moisture Deficit, Wheat (mm)	108
Moisture Deficit, Potatoes (mm)	101
Overall Climatic Grade	1

3. Relief

3.1 The site is gently sloping upwards from the north to the south and lies at an altitude of 70m-85m AOD. Nowhere on the site do relief or gradient affect agricultural land quality.

4. Geology and Soil

4.1 The published geological sheet for the site, Sheet 269 (BGS, 1978) shows the whole area to be underlain by London Clay.

4.2 The published soils information for the area, Sheet 6 (SSEW, 1983) shows that the predominant soil type to be the Wickham 4 association. 'Slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils' (SSEW, 1983). Extending a small way into the site from the south is the Holidays Hill association. 'Naturally very acid sandy over clayey and loamy over clayey soils, locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. Some very acid well drained sandy soils, and some deep sandy soils, affected by groundwater, with humose surface horizons', (SSEW, 1983).

4.3 Detailed field examination of the soils on the site showed them to comprise clay loams overlying clay at variable depths, the clay horizons impeding drainage to varying degrees.

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 covers just over half of the agricultural land surveyed in a band running centrally from the north east to the south west of the site. Soil profiles typically comprise non-calcareous medium clay loam topsoils containing 1-6% total flints. These overlie moderately structured, gleyed, upper subsoils of similar or slightly heavier texture with 2-10% flints. These pass to gleyed clay with 2-4% flints. Soil pit 1 is typical of these soils and found the clay to be slowly permeable giving a Wetness Class of III. This in combination with a medium topsoil texture and the local climatic regime gives a resultant classification of Subgrade 3a. This land is restricted by a moderate soil wetness limitation which will affect crop growth and development and lead to restrictions on cultivations, trafficking and/or grazing by livestock.

Subgrade 3b

5.4 The remaining agricultural land surveyed is of moderate quality. Soil profiles comprise very slightly stony topsoils of medium clay loam. These pass to a moderately structured stoneless, gleyed, permeable medium or heavy clay loam upper subsoil. These directly overlie poorly structured, stoneless, slowly permeable clay. Soils are poorly drained and assigned to Wetness Class IV due to the presence of a slowly permeable layer from approximately 35 cm depth. This drainage status combined with a medium clay loam topsoil and local climatic factors limits land to Subgrade 3b. This land is restricted by significant soil wetness and workability limitations caused by shallow slowly permeable horizons which severely impede drainage. The utilisation of the land will be adversely influenced by such soil wetness.

ADAS Ref: 0201/268/94
MAFF Ref: EL02/388

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1978) Sheet No. 269, Windsor, 1:50,000 scale.

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 6, Soils of South-East England, 1:250,000 scale and accompanying legend.

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 Abbreviations - Explanatory Note

Soil Pit Descriptions

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 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).

8. **STRUCT** : the degree of development, size and shape of soil peds are described using the following notation:

degree of development	**WK** : weakly developed **ST** : strongly developed	**MD** : moderately developed
ped size	**F** : fine **C** : coarse	**M** : medium **VC** : very coarse
ped shape	**S** : single grain **GR** : granular **SAB** : sub-angular blocky **PL** : platy	**M** : massive **AB** : angular blocky **PR** : prismatic

9. **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

10. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness : **G** : good **M** : moderate **P** : poor

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

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

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

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

15. 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 : BRACK.LP. SITE WINK 16 Pit Number : 1P

Grid Reference: SU90207070 Average Annual Rainfall : 689 mm
Accumulated Temperature : 1440 degree days
Field Capacity Level : 143 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR32 00	2	6	HR					
30- 48	MCL	10YR72 00	0	10	HR	C	MDCSAB	FR	M	
48- 65	C	10YR62 00	0	4	HR	C	WDCSAB	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying :030 cm
SPL :048 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 : BRACK.LP. SITE WINK 16 Pit Number : 2P

Grid Reference: SU88507850 Average Annual Rainfall : 689 mm
Accumulated Temperature : 1440 degree days
Field Capacity Level : 143 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MCL	10YR42 00	0	2	HR	C				
28- 44	HCL	10YR63 00	0	2	HR	C	MDCSAB	FR	M	
44- 65	C	25Y 71 00	0	2	HR	C	MDMPR	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying : 0 cm
SPL :044 cm

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

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	--WETNESS-- GLEY	SPL	CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
	SU89807100	PGR			025	045	3	3A		0		0					WE	3A	
TP	SU90207070	PGR			030	048	3	3A		0		0					WE	3A	
2	SU89907100	PGR			020	045	3	3A		0		0					WE	3A	
P	SU88507850	PGR			0	044	3	3A		0		0					WE	3A	
	SU90007100	PGR			025	045	3	3A		0		0					WE	3A	
	SU89907090	PGR			025	035	4	3B		0		0					WE	3B	
	SU90007090	PGR			025	025	4	3B		0		0					WE	3B	
8	SU88507850	PGR			0	058	3	3A		0		0					WE	3A	
9	SU90057080	PGR			025	045	3	3A		0		0					WE	3A	
	SU90107080	PGR			0	028	4	3B		0		0					WE	3B	POACHED
11	SU90207080	PGR	N	01	0	035	4	3B		0		0					WE	3B	POACHED
	SU90307080	PGR	N	01	0	035	4	3B		0		0					WE	3B	
	SU90007070	PGR			025	035	4	3B		0		0					WE	3B	
15	SU90107070	PGR			035	065	3	3A		0		0					WE	3A	
16	SU90207070	PGR			030	050	3	3A		0		0					WE	3A	
17	SU90307070	PGR			030	060	3	3A		0		0					WE	3A	
18	SU90057060	PGR			030		2	2		0		0					WE	2	
	SU90107060	PGR			060		2	2		0		0					WE	2	
	SU90207060	PGR			028	050	3	3A		0		0					WE	3A	SANDY
21	SU89987055	PGR			035	070	2	2		0		0					WE	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	0-25	mcl	10YR42 00	10YR56 00	F				0	0	HR	2							
	25-45	mcl	10YR52 00	10YR56 00	C			Y	0	0	HR	2		M					
	45-65	c	10YR61 00	75YR56 00	M			Y	0	0	HR	1		P			Y		
1P	0-30	mcl	10YR32 00						2	0	HR	6							
	30-48	mcl	10YR72 00	75YR56 00	C			Y	0	0	HR	10	MDCSAB	FR M					MSL LENSES
	48-65	c	10YR62 00	75YR58 00	C			Y	0	0	HR	4	WDCSAB	FM P			Y		SAND LENSES
2	0-20	mcl	10YR32 00						0	0		0							
	20-45	hcl	10YR61 00	10YR58 00	C			Y	0	0		0		M					
	45-70	c	10YR52 00	10YR58 00	C			Y	0	0		0		P			Y		
2P	0-28	mcl	10YR42 00	75YR56 00	C			Y	0	0	HR	2							
	28-44	hcl	10YR63 00	75YR56 00	C			Y	0	0	HR	2	MDCSAB	FR M					
	44-65	c	25Y 71 00	75YR68 00	C			Y	0	0	HR	2	MDMPR	FM P			Y		
3	0-25	mcl	10YR32 00						0	0	HR	1							
	25-45	mcl	10YR61 00	10YR68 00	C			Y	0	0		0							
	45-70	c	10YR52 00	10YR68 00	C			Y	0	0		0		P			Y		
5	0-25	mcl	10YR32 00						0	0		0							
	25-35	hcl	10YR61 00	10YR58 00	C			Y	0	0		0		M					
	35-60	c	10YR52 00	10YR68 00	C			Y	0	0		0		P			Y		
6	0-25	mcl	10YR32 00						0	0	HR	2							
	25-60	c	10YR52 00	10YR58 00	C			Y	0	0		0		P			Y		
8	0-25	mcl	10YR52 00	75YR46 00	C			Y	0	0	HR	2							
	25-58	hcl	10YR52 53	10YR56 00	M			Y	0	0	HR	4		M					
	58-75	c	10YR61 00	10YR58 00	M			Y	0	0	HR	2		P			Y		
9	0-25	mcl	10YR42 00	75YR46 00	F				0	0	HR	2							
	25-45	mcl	10YR52 53	10YR56 00	M			Y	0	0	HR	3		M					
	45-65	c	10YR61 00	75YR58 00	M			Y	0	0	HR	1		P			Y		
10	0-28	mcl	10YR51 00	75YR46 00	M			Y	0	0	HR	3							
	28-55	c	10YR61 51	75YR58 00	M			Y	0	0	HR	1		P			Y		
11	0-28	mcl	10YR51 00	75YR46 00	M			Y	0	0	HR	2							
	28-35	hcl	10YR61 00	10YR58 00	M		00MN00 00	Y	0	0	HR	2		M					
	35-55	c	10YR61 00	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
12	0-28	mcl	10YR51 00	75YR46 00	M			Y	0	0	HR	3							
	28-35	hcl	10YR61 00	10YR58 00	M			Y	0	0	HR	1		M					
	35-60	c	10YR61 00	75YR68 00	M			Y	0	0		0		P			Y		
14	0-25	mcl	10YR32 00						0	0	HR	2							
	25-35	mcl	10YR61 00	10YR58 00	C			Y	0	0		0		M					
	35-70	c	10YR52 00	10YR58 00	C			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
15	0-35	mcl	10YR33 00						0	0	HR	2						
	35-55	lms	10YR52 00					Y	0	0		0		M				
	55-65	scl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	65-90	c	10YR52 00	10YR58 00	C			Y	0	0	HR	5		P		Y		
16	0-30	mcl	10YR33 00						0	0	HR	2						
	30-50	scl	10YR61 00	10YR58 00	C			Y	0	0	HR	2		M				
	50-80	c	10YR52 00	10YR58 00	C			Y	0	0	HR	2		P		Y		
17	0-30	mcl	10YR33 00						0	0	HR	2						
	30-60	scl	10YR61 00	10YR58 00	C			Y	0	0		0		M				
	60-80	c	10YR52 00	10YR58 00	C			Y	0	0	HR	2		P		Y		
18	0-30	mcl	10YR33 00						0	0	HR	2						
	30-120	scl	10YR52 00	10YR58 00	C			Y	0	0	HR	2		M				
19	0-30	mcl	10YR33 00						0	0	HR	1						
	30-60	msl	10YR44 00						0	0		0		M				
	60-120	scl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
20	0-28	mcl	10YR51 00	75YR68 00	F				0	0	HR	4						
	28-50	hcl	10YR62 00	10YR58 00	M			Y	0	0	HR	4		M				
	50-65	c	10YR61 00	75YR68 00	M			Y	0	0	HR	5		P		Y		
	65-70	msl	10YR61 00	75YR68 00	M			Y	0	0	HR	5		M				IMP.STONES 70
21	0-20	mszl	10YR42 00						0	0	HR	3						
	20-35	msl	10YR43 00						0	0	HR	5		M				
	35-70	msl	10YR62 00	10YR56 00	M			Y	0	0	HR	10		M				
	70-80	c	10YR61 00	75YR68 00	M			Y	0	0	HR	10		P		Y		IMP.STONES 70