A1

Vale of White Horse Local Plan
Land South of A420, Botley, Oxfordshire.
Agricultural Land Classification Survey
ALC Map and Report
October 1996.

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference: 3304/134/96
MAFF Reference: EL 33/00127
LUPU Commission: 02801

AGRICULTURAL LAND CLASSIFICATION REPORT

VALE OF WHITE HORSE LOCAL PLAN
LAND SOUTH OF A420, BOTLEY, OXFORDSHIRE.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey on 16.1 hectares of land located between northern edge of Botley and the A420 trunk road near Oxford. The survey was carried out during September 1996.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit, in Reading, in connection with the Vale of White Horse Local Plan. The results of this survey supersede any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the agricultural land on this site was in stubble post harvest. The areas shown as 'Other Land' include a track crossing the centre of the site, some allotments to the south west of the site and doctors surgery buildings to the south east of the site.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% site area	% surveyed area
2	9.2	57.1	65.7
3b	4.8	29.8	34.3
Other Land	2.1	13.1	-
Total surveyed area	14.0	-	100.0
Total site area	16.1	100.0	-

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 15 borings and two soil pits were described.

8. The agricultural land on this site has been classified as Grade 2 (very good quality) and Subgrade 3b (moderate quality), the key limitation being soil wetness in both cases. The area of very good quality is located on the lower lying land to the south and west of the site. The soils commonly comprise medium and heavy clay loam topsoils overlying heavy clay loam upper subsoils passing to sandy clay loams and, occasionally, clays at depth. The subsoils in this area were affected by gleying which is indicative of soil wetness and leads, in the local climate, to a slight restriction in workability such that Grade 2 is appropriate.

9. The land of moderate quality is mapped towards the north east of the site. The soils in this area comprise a medium or heavy clay loam topsoil overlying a gleyed and slowly permeable clay subsoil. Slowly permeable horizons cause drainage to be impeded such that workability is restricted. In the local climate the depth of these slowly permeable horizons and the degree of soil wetness is sufficient to place this land in Subgrade 3b.

FACTORS INFLUENCING ALC GRADE

Climate

11. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

12. The key climatic variables used for grading this site are given in Table 2 below and were obtained from the published 5km grid datasets using standard interpolation procedures (Met. Office, 1989).

13. 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 and altitude data

Factor	Units	Values
Grid reference	N/A	SP 483 064
Altitude	m, AOD	70
Accumulated Temperature	day°C	1478
Average Annual Rainfall	mm	819
Field Capacity Days	days	165
Moisture Deficit, Wheat	mm	109
Moisture Deficit, Potatoes	mm	103

14. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Local climatic factors, such as exposure and frost risk, are not believed to significantly affect the site. The site is climatically Grade 1.

Site

16. The site lies at altitudes in the range 65-80m AOD. The land rises from the south of the site towards the north. Towards the centre of the site a spur of higher land occurs with a dry valley to the east and flatter land to the west. None of the slopes on the site are sufficient to affect agricultural land quality.

Geology and soils

17. The published geological information for the site (BGS, 1983), shows the majority of the site to be underlain by Oxford Clay. However an area of landslip is included within the site area.

18. The most detailed published soils information for the site (SSEW 1983) shows the site to comprise soils of the Denchworth association. These are described as 'Slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils. Landslips and associated irregular terrain locally.' (SSEW, 1983). The soils encountered at this site were found to be similar to those described above to the east of the site but significantly different across the remainder of the site.

Agricultural Land Classification

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1.

20. The location of the auger borings and pits is shown on the attached sample location map and details of the soils data are presented in Appendix III.

Grade 2

21. Land of very good quality extends across the majority of the site in a single unit. The principal limitation in this area is soil wetness and workability.

22. Soils in this area comprise stoneless to very slightly stony (up to 4% v/v hard limestone fragments), calcareous medium or heavy clay loam topsoils, passing to similar upper subsoil horizons which were commonly gleyed and often impenetrable to the soil auger. This was principally due to the dry soil conditions prevalent at the time of survey. The lower subsoil horizons comprise moderately structured heavy clay loams and sandy clay loams which were stoneless to slightly stony (up to 10% v/v hard or soft limestone fragments), gleyed and calcareous. Soils of this nature in the prevailing local climate are slightly restricted in terms of land utilisation due to soil wetness and topsoil workability limitations, such that Grade 2 is appropriate overall in this area. The pit observation, 1P, is indicative of this soil type at this site, although it is of slightly better quality than the majority of the surrounding land. In addition, occasional observations in this area were of a slightly worse quality as slowly

permeable clay occurred at depth but, as these observations were scattered, they have not been mapped as a separate unit.

Subgrade 3b

23. Land of moderate quality has been mapped across the remainder of the site to the north east. The principal limitation is soil wetness.

24. Soils in this area commonly comprise a very slightly stony (approximately 3% flints), occasionally calcareous, heavy clay loam topsoil which lies directly over deep similarly stony, poorly structured, gleyed and slowly permeable clay subsoils. The depth to the gleying and the slowly permeable horizons places these soils in Wetness Class IV in the local climate and a classification of Subgrade 3b is appropriate on the basis of soil wetness. This limits land use by restricting the number of days when fieldwork can occur without damaging the soil. The pit observation, 2P, is indicative of this soil type at this site.

M Larkin
Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

British Geological Survey (1981) *Sheet 253, Abingdon. Solid and Drift Edition. 1:63 360. Scale.*
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Meteorological Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1973) *Soils of the Wantage and Abingdon District. 1:63 360 Scale.*
SSEW: Harpenden.

Soil Survey of England and Wales (1983) *Soils of South East England. 1:250 000 Scale.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils of South East England. Bulletin No. 15.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS 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.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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.

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.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

[1] The number of days is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

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).

8. **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	

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 appropriate 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 : VOWH LP S OF A420 BOTLEY Pit Number : 1P

Grid Reference: SP48000620
Average Annual Rainfall : 819 mm
Accumulated Temperature : 1478 degree days
Field Capacity Level : 165 days
Land Use : Arable
Slope and Aspect : 1 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 24	MCL	25Y 41 42	1	4	HR					Y
24- 66	HCL	25Y 44 54	0	3	HR	F	MDCSAB	FR	M	Y
66- 80	HCL	25Y 52 00	0	5	HR	C	MDCSAB	FR	M	Y
80-100	SCL	25Y 51 52	0	10	HR	M		FR	M	Y

Wetness Grade : 1
Wetness Class : I
Gleying : 66 cm
SPL : cm

Drought Grade : 1
APW : 138mm MBW : 38 mm
APP : 113mm MBP : 10 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : VOWH LP S OF A420 BOTLEY Pit Number : 2P

Grid Reference: SP48300650
Average Annual Rainfall : 819 mm
Accumulated Temperature : 1478 degree days
Field Capacity Level : 165 days
Land Use : Arable
Slope and Aspect : 4 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	HCL	25Y 42 00	0	2	HR					Y
27- 55	C	25Y 41 42	0	5	SLST	C	MDCAB	VM	P	

Wetness Grade : 3B
Wetness Class : IV
Gleying : 27 cm
SPL : 27 cm

Drought Grade : 3B
APW : 77 mm MBW : -32 mm
APP : 77 mm MBP : -26 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP48500660	ARA	SE	5	28	48	3	3A		0		0					WE	3A	SEE 2P
1P	SP48000620	ARA	S	1	66		1	1	138	38	113	10	1					1	PIT85IMPAUG100
2	SP48300650	ARA	S	4	25	25	4	3B		0		0					WE	3B	SEE 2P
2P	SP48300650	ARA	S	4	27	27	4	3B		0		0					WE	3B	PIT 55
3	SP48400650	ARA	S	5	30	30	4	3B		0		0					WE	3B	SEE 2P
4	SP48500650	ARA	SE	3	22	22	4	3B		0		0					WE	3B	SEE 2P
5	SP48100640	ARA	S				1	1	65	-44	65	-38	3B				DR	3B	IMP 40 SEE 1P
6	SP48200640	ARA	S	2	28	75	2	2	143	34	117	14	1				WE	2	
7	SP48300640	ARA	SE	3	25	25	4	3B		0		0					WE	3B	SEE 2P
8	SP48400640	ARA	S	1	50		1	1	154	45	116	13	1					1	
9	SP48000630	ARA	S	1	40		1	2		0		0					WK	2	IMP 55 SEE 1P
10	SP48100630	ARA	S	1	25		2	3A		0		0					WE	3A	IMP 45 SEE 1P
11	SP48200630	ARA	S	2	75	75	2	3A	118	9	114	11	2				WE	3A	& WORKABILITY
12	SP48000620	ARA					1	2		0		0					WK	2	IMP 50 SEE 1P
13	SP48100620	ARA			20		2	2		0		0					WE	2	IMP 45 SEE 1P
14	SP48200620	ARA	S	1			1	2		0		0					WK	2	IMP 40 SEE 1P
15	SP48350632	ARA	SE	2	25	90	2	2	145	36	116	13	1				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	0-28	mcl	10YR42 00	10YR56 00	F				0	0	HR	3							
	28-48	hcl	10YR51 52	10YR56 58	C		00MN00 00	Y	0	0	HR	3		M					
	48-90	c	25Y 51 00	10YR58 00	M			Y	0	0		0		P			Y		
1P	0-24	mcl	25Y 41 42						1	0	HR	4						Y	
	24-66	hcl	25Y 44 54	10YR56 00	F				0	0	HR	3	MDCSAB	FR M				Y	
	66-80	hcl	25Y 52 00	10YR58 00	C		00MN00 00	Y	0	0	HR	5	MDCSAB	FR M				Y	
	80-100	scl	25Y 51 52	10YR56 00	M			Y	0	0	HR	10		FR M				Y	PIT 85 IMP AUG 100
2	0-25	hcl	10YR42 00	10YR56 00	F				0	0	HR	3							SEE 2P
	25-60	c	25Y 52 51	10YR56 00	M			Y	0	0		0		P			Y	Y	
2P	0-27	hcl	25Y 42 00						0	0	HR	2						Y	
	27-55	c	25Y 41 42	10YR56 00	C			Y	0	0	SLST	5	MDCAB	VM P	Y		Y		PIT 55
3	0-30	hcl	10YR42 00	10YR56 00	F				0	0	HR	3							
	30-65	c	25Y 51 52	10YR56 58	M			Y	0	0	HR	3		P			Y	Y	
4	0-22	hcl	25Y 42 00	10YR56 00	F				0	0	HR	3							
	22-70	c	25Y 51 00	10YR58 68	M		00MN00 00	Y	0	0		0		P			Y		
5	0-27	mcl	10YR41 42						1	0	HR	5							
	27-40	mcl	10YR44 54						0	0	HR	10		M					IMP STONES 40
6	0-28	mcl	10YR42 00						0	0	HR	2							
	28-50	mszl	10YR63 00	10YR58 00	C			Y	0	0		0		M					
	50-75	scl	10YR53 00	10YR68 00	M		00MN00 00	Y	0	0		0		M					
	75-120	c	05Y 52 00	10YR68 00	M			Y	0	0		0		P			Y		
7	0-25	hcl	10YR42 00						0	0	HR	3							
	25-70	c	25Y 42 00	10YR58 00	C		00MN00 00	Y	0	0		0		P			Y		
8	0-27	mcl	10YR42 00						0	0	HR	2							
	27-50	mcl	10YR54 00	10YR56 00	F				0	0		0		M					
	50-120	hcl	10YR54 53	10YR58 00	C		00MN00 00	Y	0	0		0		M					
9	0-25	hcl	25Y 42 43						0	0	HR	2						Y	
	25-40	hcl	25Y 53 54	10YR56 58	F		00MN00 00		0	0	HR	2		M				Y	
	40-55	scl	25Y 54 00	10YR56 58	C		00MN00 00	Y	0	0	SLST	2		M				Y	IMP STONES 55
10	0-25	hcl	25Y 42 00						1	0	HR	3						Y	IMP STONES 45
	25-45	c	25Y 51 52	10YR58 00	C		00MN00 00	Y	0	0	SLST	2		P			Q	Y	Q SPL (NOT 15cm)
11	0-25	hcl	25Y 42 00						0	0	HR	3						Y	
	25-75	hcl	25Y 43 00	25Y 46 56	F		00MN00 00		0	0	HR	2		M				Y	
	75-90	c	25Y 51 52	25Y 56 00	C		00MN00 00	Y	0	0	HR	2		P			Y	Y	
12	0-25	hcl	25Y 42 00						0	0	HR	2						Y	SEE 1P
	25-50	hcl	25Y 54 52	10YR58 00	F		00MN00 00		0	0	SLST	2		M				Y	IMP STONES 50

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	IMP	SPL	CALC	
13	0-20	hcl	25Y 42 00						1	0	HR	3						Y	
	20-35	c	25Y 51 52	10YR58	54	C		Y	0	0	HR	2		P				Y	
	35-45	hcl	25Y 51 52	10YR58	00	C		Y	0	0	SLST	3		M				Y	IMP STONES 45
14	0-20	hcl	25Y 42 00						0	0	HR	3						Y	
	20-40	hcl	25Y 53 00				00MN00	00	0	0	HR	3		M				Y	IMP STONES 40
15	0-25	mcl	10YR42 00						0	0	HR	2							
	25-40	hcl	10YR53 52	10YR58	00	C	00MN00	00 Y	0	0		0		M					
	40-90	mcl	25Y 53 00	75YR56	66	C	00MN00	00 Y	0	0		0		M					
	90-120	c	25Y 51 00	10YR56	00	C		Y	0	0		0		P			Y		