

**Proposed Motorway Service  
Area near Cobham, Surrey**

**Agricultural Land Classification  
August 1995**

**Resource Planning Team  
Guildford Statutory Group  
ADAS Reading**

**ADAS Reference 4001/149/95  
MAFF Reference EL 40/01268  
LUPU Commission 02108**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## PROPOSED MOTORWAY SERVICE AREA AT COBHAM, SURREY

### Introduction

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 21.9 ha of land at Cobham Surrey. The survey was carried out during August 1995.

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) Land Use Planning Unit Reading in connection with an *ad hoc* application for a proposed motorway service area. This survey supersedes previous ALC surveys on this land.

3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group in 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 land use on the site was permanent grass. Land mapped as Urban comprises hard surfaced roads. Land shown as Non agricultural includes road embankments woodland a tractor storage area and an all weather horse exercise area.

### Summary

5 The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10000 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.

**Table 1 Area of grades and other land**

Grade/Other land	Area (hectares)	% site area	% agricultural area
3a	3.7	16.9	18.3
3b	16.5	75.3	81.7
Urban	0.2	0.9	
Non Agricultural	1.5	6.9	
<hr/>			
Total survey area	20.2		100.0
<hr/>			
Total site area	21.9	100.0	
<hr/>			

7 The fieldwork was conducted at an average density of one boring per hectare. A total of 22 borings and one soil pit were described. The survey was undertaken during one of the driest summers on record.

8 The sloping land in the west of the site has been classified as Subgrade 3a good quality. This land is limited by soil wetness and workability. Slowly permeable clay occurs at moderate depths within the soil profile causing imperfect soil drainage conditions. The interaction between such soil drainage and medium textured topsoils with the prevailing climate acts to restrict the flexibility of cropping, stocking and cultivations.

9 Elsewhere on the site the clay either occurs directly below the topsoil or at shallow depths within the soil profile. Consequently this land is subject to more severe soil wetness and workability limitations than that of Subgrade 3a land. This land is thus classified as Subgrade 3b moderate quality. To the south of the M25 in the east of the site landscaping from the construction of the M25 has created slopes of greater than 7° to 11°. Such gradients act to restrict the range of agricultural machinery that may be safely and efficiently used limiting the land to Subgrade 3b. In addition it is likely that the land within this vicinity will be disturbed as a result of past earth movement.

## Factors Influencing ALC Grade

### Climate

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

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

Table 2 Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	TQ 111 574
Altitude	m AOD	35
Accumulated Temperature	day°C	1481
Average Annual Rainfall	mm	692
Field Capacity Days	days	145
Moisture Deficit Wheat	mm	113
Moisture Deficit Potatoes	mm	108

12 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

13 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

14 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 adversely affect the site. The site is climatically Grade 1. However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The field capacity days for at this locality are slightly below the regional average thus partially offsetting the likelihood of soil wetness limitations

### **Site**

15 Most of the site is flat and lies at approximately 30 m AOD. In the west of the site the land rises gently through gradients of 1.3° to lie at approximately 35 m AOD. To the south of the M25 landscaping arising from the construction of the motorway has resulted in slopes of greater than 7° to 11°. Such slopes will act to limit the land quality

### **Geology and soils**

16 The published geological information (BGS 1978) shows the entire site to be underlain by London Clay

17 The published soils information (SSEW 1983) maps the soils on the site as the Wickham 4 Association. These soils are described as 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)

### **Agricultural Land Classification**

18 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 page 1

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

### *Subgrade 3a*

20 The sloping land in the west of the site has been classified as Subgrade 3a good quality. This land is limited by soil wetness and workability. Non calcareous medium clay loam topsoils overlie similarly textured permeable upper subsoils. At approximately 45 to 55 cm depth these profiles pass into poorly structured clay lower subsoils. The clay is slowly permeable and acts to cause imperfect soil drainage conditions as indicated by gleying from the surface. Consequently these profiles have been assigned to Wetness Class III (see Appendix II). Such profiles are represented by Pit 1. The interaction between the medium

textured topsoils and impeded soil drainage with the prevailing climate acts to restrict the flexibility of cropping stocking and cultivations

*Subgrade 3b*

21 Land classified as Subgrade 3b moderate quality is mostly restricted by soil wetness and workability Topsoils comprise non calcareous medium clay loams and occasionally heavy clay loams These either directly overlie clay subsoils or occasionally shallow permeable medium clay loam upper subsoils Where the latter occurs these profiles pass into clay subsoils at approximately 35 cm depth The clay is slowly permeable and its presence at shallow depths within the soil profile acts to cause poor soil drainage conditions This is indicated by gleying from the surface Consequently these profiles are assessed as Wetness Class IV The interaction between the topsoils and soil drainage status with the prevailing climate means that this land is subject to significant restrictions on the flexibility of cropping stocking and cultivations

22 To the south of the M25 in the east of the site landscaping arising from the construction of the motorway has resulted in slopes of greater than 7° to 11° Such gradients will act to restrict the range of agricultural machinery that may be safely and efficiently used In addition it is also likely that the land within this vicinity may be also be disturbed as a result of past earth movement

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## SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No 286 Reigate 1 50 000 (drift edition)*  
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

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

Soil Survey of England and Wales (1983) *Sheet 6 Soils of South East England 1 250 000 and accompanying legend*  
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.

## **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 (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

### 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 <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years <sup>2</sup>
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).

<sup>1</sup> The number of days is not necessarily a continuous period

<sup>2</sup> In most years is defined as more than 10 out of 20 years

**APPENDIX III**

**SOIL DATA**

**Contents**

**Sample location map**

**Soil abbreviations - Explanatory Note**

**Soil Pit Descriptions**

**Soil boring descriptions (boring and horizon levels)**

**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:

<b>ARA</b> Arable	<b>WHT</b> Wheat	<b>BAR</b> Barley
<b>CER</b> Cereals	<b>OAT</b> Oats	<b>MZE</b> Maize
<b>OSR</b> Oilseed rape	<b>BEN</b> Field Beans	<b>BRA</b> Brassicae
<b>POT</b> Potatoes	<b>SBT</b> Sugar Beet	<b>FCD</b> Fodder Crops
<b>LIN</b> Linseed	<b>FRT</b> Soft and Top Fruit	<b>FLW</b> Fallow
<b>PGR</b> Permanent Pasture	<b>LEY</b> Ley Grass	<b>RGR</b> Rough Grazing
<b>SCR</b> Scrub	<b>CFW</b> Coniferous Woodland	<b>DCW</b> Deciduous Wood
<b>HTH</b> Heathland	<b>BOG</b> Bog or Marsh	<b>FLW</b> Fallow
<b>PLO</b> Ploughed	<b>SAS</b> Set aside	<b>OTH</b> Other
<b>HRT</b> Horticultural Crops		
- 3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer
- 4 **GLEYSPL** 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

<b>MREL</b> Microrelief limitation	<b>FLOOD</b> Flood risk	<b>EROSN</b> Soil erosion risk
<b>EXP</b> Exposure limitation	<b>FROST</b> Frost prone	<b>DIST</b> Disturbed land
<b>CHEM</b> Chemical limitation		

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

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

## Soil Pits and Auger Borings

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

<b>S</b>	Sand	<b>LS</b>	Loamy Sand	<b>SL</b>	Sandy Loam
<b>SZL</b>	Sandy Silt Loam	<b>CL</b>	Clay Loam	<b>ZCL</b>	Silty Clay Loam
<b>ZL</b>	Silt Loam	<b>SCL</b>	Sandy Clay Loam	<b>C</b>	Clay
<b>SC</b>	Sandy Clay	<b>ZC</b>	Silty Clay	<b>OL</b>	Organic Loam
<b>P</b>	Peat	<b>SP</b>	Sandy Peat	<b>LP</b>	Loamy Peat
<b>PL</b>	Peaty Loam	<b>PS</b>	Peaty Sand	<b>MZ</b>	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

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

The clay loam and silty clay loam classes will be subdivided 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

<b>HR</b>	all hard rocks and stones	<b>SLST</b>	soft oolitic or dolimitic limestone
<b>CH</b>	chalk	<b>FSST</b>	soft fine grained sandstone
<b>ZR</b>	soft argillaceous or silty rocks	<b>GH</b>	gravel with non porous (hard) stones
<b>MSST</b>	soft medium grained sandstone	<b>GS</b>	gravel with porous (soft) stones
<b>SI</b>	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 PROPOSED M25 MOTORWAY SA Pit Number 1P

Grid Reference TQ10905740  
 Average Annual Rainfall 692 mm  
 Accumulated Temperature 1481 degree days  
 Field Capacity Level 145 days  
 Land Use Permanent Grass  
 Slope and Aspect 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR42 00	0		2	HR	C				
30 45	MCL	10YR53 63	0		2	HR	M			M	
45- 65	C	25Y 52 00	0		0		M	MDCPR	VM	P	

Wetness Grade 3A  
 Wetness Class III  
 Gleying 0 cm  
 SPL 45 cm

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

FINAL ALC GRADE 3A  
 MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	ASPECT		WETNESS				WHEAT-		-POTS		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
		USE	GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD					
1	TQ10905770	PGR	SE	03	0	45	3	3A	0	0						WE	3A	
1P	TQ10905740	PGR	E	01	0	45	3	3A	0	0						WE	3A	S1 sandy
2	TQ11005770	PGR			0	45	3	3A	0	0						WE	3A	
3	TQ11105770	PGR			0	35	4	3B	0	0						WE	3B	S1 sandy
4	TQ11205770	PGR			0	35	4	3B	0	0						WE	3B	
5	TQ10805760	PGR	NE	02	0	45	3	3A	0	0						WE	3A	
6	TQ11205760	PGR			0	35	4	3B	0	0						WE	3B	
7	TQ11305760	PGR			0	25	4	3B	0	0						WE	3B	
8	TQ11405760	PGR			0	25	4	3B	0	0						WE	3B	
9	TQ10905750	PGR	NE	02	0	45	3	3A	0	0						WE	3A	S1 sandy @ 45
10	TQ11005750	PGR			0	30	4	3B	0	0						WE	3B	Q hcl horizon2
11	TQ11105750	PGR			0	30	4	3B	0	0						WE	3B	
12	TQ11205750	PGR			0	28	4	3B	0	0						WE	3B	
13	TQ11305750	PGR	E	01	0	26	4	3B	0	0						WE	3B	
14	TQ10905740	PGR	E	01	0	55	3	3A	0	0						WE	3A	
15	TQ11055740	PGR			20	20	4	3B	0	0						WE	3B	
17	TQ11205740	PGR	W	02	30	30	4	3B	0	0						WE	3B	Impen 50 dry
18	TQ11305740	PGR	S	01	0	28	4	3B	0	0						WE	3B	
19	TQ11445744	PGR			0	30	4	3B	0	0						WE	3B	
20	TQ11105730	PGR			0	30	4	3B	0	0						WE	3B	
21	TQ11205730	PGR	S	03	0	30	4	3B	0	0						WE	3B	Feint mottles
22	TQ11305730	PGR	SE	03	0	30	4	3B	0	0						WE	3B	Feint mottles
23	TQ10735776	PGR	NW	01	0	28	4	3B	0	0						WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES		PED	STONES			STRUCT/	SUBS	SPL	CALC				
				COL	ABUN		CONT	COL	GLE					>2	>6	LITH	TOT
1	0-26	mc1	10YR42 00	10YR56 00	C				Y	0	0	HR	3				
	26-45	mc1	10YR53 00	10YR58 00	M				Y	0	0		0		M		
	45-80	c	25Y 52 51	75YR68 00	M				Y	0	0		0		P		Y
1P	0-30	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	30-45	mc1	10YR53 63	10YR58 00	M				Y	0	0	HR	2		M		
	45-65	c	25Y 52 00	10YR58 51	M				Y	0	0		0	MDCPR	VM	P	Y
2	0-26	mc1	10YR42 00	10YR56 00	C				Y	0	0	HR	2				
	26-45	mc1	10YR53 51	10YR58 68	M			00MN00	Y	0	0		0		M		
	45-75	c	25Y 53 51	75YR58 00	M				Y	0	0		0		P		Y
3	0-25	mc1	10YR42 00	10YR56 00	C				Y	0	0	HR	2				
	25-35	mc1	10YR53 00	10YR58 00	M				Y	0	0	HR	2		M		
	35-60	c	25Y 53 00	10YR58 68	M				Y	0	0		0		P		Y
4	0-25	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	25-35	mc1	10YR53 00	10YR58 00	M				Y	0	0	HR	2		M		
	35-60	c	25Y 51 00	10YR68 00	M				Y	0	0		0		P		Y
5	0-25	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	25-45	mc1	10YR53 00	10YR58 00	M				Y	0	0	HR	2		M		
	45-65	c	25Y 52 00	10YR58 51	M				Y	0	0		0		P		Y
6	0-25	mc1	10YR42 00	10YR56 00	C				Y	0	0	HR	2				
	25-35	mc1	10YR53 00	10YR58 00	M				Y	0	0		0		M		
	35-70	c	25Y 53 61	75YR68 00	M				Y	0	0		0		P		Y
7	0-25	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	25-60	c	25Y 52 00	10YR58 51	M				Y	0	0		0		P		Y
8	0-25	hc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	25-60	c	25Y 52 00	10YR68 51	M				Y	0	0		0		P		Y
9	0-30	mc1	10YR42 00	10YY58 00	C				Y	0	0	HR	2				
	30-45	mc1	10YR53 00	10YR58 00	M				Y	0	0	HR	2		M		
	45-65	c	10YR53 00	10YR58 51	M				Y	0	0		0		P		Y
10	0-30	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	30-40	c	25Y 52 00	10YR58 51	C				Y	0	0		0		P		Y
	40-60	c	25Y 51 00	10YR58 61	M			00MN00	Y	0	0		0		P		Y
11	0-30	mc1	10YR42 00	10YR58 00	C				Y	0	0	HR	2				
	30-60	c	25Y 52 00	10YR58 51	M				Y	0	0		0		P		Y
12	0-28	hc1	10YR42 00	10YR46 00	C				Y	0	0	HR	5				
	28-60	c	10YR53 00	10YR58 00	M				Y	0	0		0		P		Y

Very dry/hard



SAMPLE	DEPTH	TEXTURE	COLOUR	- MOTTLES -			PED COL	STONES		STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT		GLEY >2	>6 LITH TOT		STR	POR	IMP	
13	0-26	mc1	10YR42 00	10YR56 00	C		Y	0	0	HR	2			
	26-70	c	25Y 42 52	10YR58 00	M		Y	0	0		0	P		Y
14	0-30	mc1	10YR42 00	10YR56 00	C		Y	0	0	HR	2			
	30-55	mc1	10YR53 00	10YR56 00	C		Y	0	0		0	M		
	55-80	c	25Y 53 00	10YR58 00	M		Y	0	0		0	P		Y
15	0-20	mc1	10YR42 00					0	0	HR	2			
	20-100	c	25Y 42 52	10YR58 00	M		Y	0	0		0	P		Y
17	0-30	hc1	10YR43 00	10YR56 00	C		S	0	0	HR	3			
	30-50	c	10YR53 00	10YR58 00	M		Y	0	0		0	P		Y
18	0-28	mc1	10YR42 00	10YR56 00	C		Y	0	0	HR	3			
	28-65	c	25Y 42 52	10YR58 00	M		Y	0	0		0	P		Y
19	0-30	mc1	10YR42 00	10YR56 00	C		Y	0	0	HR	3			
	30-70	c	25Y 52 00	75YR58 00	M		Y	0	0	HR	2	P		Y
20	0-30	mc1	10YR42 00	10YR58 52	C		Y	0	0		0			
	30-60	c	25Y 52 00	10YR68 00	M		Y	0	0		0	P		Y
21	0-30	hc1	10YR42 00	10YR56 00	C		Y	0	0		0			
	30 50	c	10YR31 00	10YR56 00	C		Y	0	0		0	P		Y
	50-60	c	10YR31 00	10YR56 00	C		Y	0	0	HR	5	P		Y
22	0-30	hc1	10YR42 00	10YR56 00	C		Y	0	0		0			
	30-60	c	10YR31 00	10YR56 00	C		Y	0	0	HR	5	P		Y
23	0 28	mc1	10YR42 00	10YR56 00	C		Y	0	0	HR	2			
	28 120	c	25Y 53 52	10YR58 00	M		Y	0	0		0	P		Y

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