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FRCA

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FARMING AND RURAL CONSERVATION AGENCY

An Executive Agency of the Ministry of Agriculture, Fisheries and Food and the Welsh Office

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OXFORD CITY LOCAL PLAN
Land at Barton

Agricultural Land Classification
ALC Map and Report

March 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

OXFORD CITY LOCAL PLAN
LAND AT BARTON

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 36.4 ha of land at Barton, northeast of Oxford. The survey was carried out during March 1998.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with MAFF's statutory input to the revision of the Oxford City Local Plan. This survey supersedes any previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. 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 the survey the agricultural land use was permanent grassland, approximately half of which was being grazed by cattle, horses and ponies. The areas mapped as 'Other land' include an area of allotments, an artificially raised sports ground, an electricity sub-station, farm buildings, trackways, woodland and scrub.

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.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	25.2	100	69.2
Other land	11.2	N/A	30.8
Total surveyed area	25.2	100	69.2
Total site area	36.4	-	100

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 26 borings and 3 soil pits are described.

[1] FRCA is an executive agency of MAFF and the Welsh Office

8. The entire site has been classified as Subgrade 3b (moderate quality) agricultural land. The principal limitation is soil wetness associated with slowly permeable clayey subsoils, principally derived from clayey head deposits.

9. Soils on this site comprise fine loamy topsoils resting over slowly permeable clayey subsoils at shallow depth. It is the depth to these less permeable horizons which determines the overall ALC grade. This combination of soil properties interacting with the local climate results in significant soil wetness and limits land quality to Subgrade 3b. The overall effect of poorly drained soils causes land utilisation to be restricted and yield potential to be reduced.

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	SP 545 084	SP 548 079
Altitude	m, AOD	67	86
Accumulated Temperature	day°C (Jan-June)	1435	1413
Average Annual Rainfall	mm	666	665
Field Capacity Days	days	139	139
Moisture Deficit, Wheat	mm	108	106
Moisture Deficit, Potatoes	mm	101	98
Overall climatic grade	N/A	Grade 1	Grade 1

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 do not affect land quality at this location. The site is climatically Grade 1.

Site

15. The survey area lies at altitudes in the range of approximately 65-95 m AOD. The highest land occurs in the extreme south-east of the survey area, adjacent to the Oxford City ring road. From this point the land falls gently northwards culminating in flatter land nearer the Bayswater Brook. The area is not affected by gradient or micro-relief limitations. The Bayswater Brook is not believed to flood to any significant extent.

Geology and soils

16. The most detailed published geological information for the site (BGS, 1994) indicates a number of lithologies. Outcropping on the higher ground, in the south-east of the site, is the Temple Cowley Member (fine-grained sandstones, sands and siltstones) and the West Walton Formation (silty mudstone). These give way, on the flatter lower lying land, to two large exposures of younger head and Upper Oxford Clay. Along the Bayswater Brook there are associated patches of alluvium and river terrace deposits.

17. The most detailed published soils information covering the site (SSEW, 1983) shows it to comprise mostly soils of the Shabbington association. These soils are described as 'deep fine loamy and fine loamy over sandy soils variably affected by groundwater. Some slowly permeable seasonally waterlogged fine loamy over clayey soils' (SSEW, 1983). A small area adjoining the Bayswater Brook is mapped as soils of the Wickham 2 association. These soils are described as 'slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. Small areas of slowly permeable calcareous soils on steeper slopes' (SSEW, 1983). The soils described during this detailed survey, accord with both these general descriptions: slowly permeable seasonally waterlogged fine loamy over clayey subsoils, sometimes with a noticeable sand fraction.

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 locations of the auger borings and pits are shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Subgrade 3b

20. Subgrade 3b (moderate quality agricultural land) is mapped over the entire agricultural area of the site. From auger boring observations it is believed that most of the soils surveyed are derived from deposits of 'younger' head or Oxford Clay.

21. Land of moderate quality suffers from a significant soil wetness limitation. Soils comprise non-calcareous stoneless medium or heavy clay loam topsoils. These directly overlie stoneless clayey subsoils which sometimes contained weathered calcareous fragments, particularly at depth. Occasionally there is a heavy clay loam or sandy clay loam upper subsoil. Three soil inspection pits (see Appendix II) confirmed the existence of poorly structured clay subsoil horizons which were slowly permeable. These profiles were all

gleyed within 40 cm, which coupled with the clay slowly permeable subsoils shows evidence of severely impeded drainage causing seasonal waterlogging. The depth to these slowly permeable subsoils (between 19 and 33 cm) results in soils being assigned to Wetness Class IV. This combination of poor drainage, topsoil texture and the local climate, gives rise to a land classification of Subgrade 3b.

22. Excessive soil wetness adversely effects seed germination and survival, partly by a reduction in soil temperature and partly because of anaerobism. It also inhibits the development of a good root system all of which can affect the range of crops that can be grown and the level of yield. Soil wetness also influences the sensitivity of the soil to structural damage and is therefore, a major factor in determining the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

Colin Pritchard
Resource Planning Team
Eastern Region
FRCA Reading

SOURCES OF REFERENCE

British Geological Survey (1994) *Sheet No. 237, Thame,* 1:50,000, Solid & 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.* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England* 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 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	**OTH**	Other
DCW:	Deciduous woodland	**BOG:**	Bog or marsh	**SAS:**	Set-Aside
HTH:	Heathland	**HRT:**	Horticultural crops	**PLO:**	Ploughed

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	**ST:**	Topsoil Stoniness
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
EX:	Exposure				

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	**FSST:**	soft, fine grained sandstone
ZR:	soft, argillaceous, or silty rocks	**CH:**	chalk
MSST:	soft, medium grained sandstone	**GS:**	gravel with porous (soft) stones
SI:	soft weathered igneous/metamorphic rock	**GH:**	gravel with non-porous (hard) stones

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		
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	**FM**: firm	**EH**: extremely hard
VF: very friable	**VM**: very firm	
FR: friable	**EM**: extremely firm	

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

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	SP54200850	PGR			26	26	4	3B	92	-16	104	3					WE	3B	SEE 2P
2	SP54300850	PGR			26	26	4	3B	85	-23	91	-10					WE	3B	SEE 2P
3	SP54000840	PGR			23	23	4	3B	91	-17	103	2					WE	3B	SEE 2P
4	SP54100840	PGR			24	24	4	3B	88	-20	95	-6					WE	3B	SEE 2P
5	SP54200840	PGR			0	25	4	3B	90	-18	102	1					WE	3B	SEE 2P
6	SP54300840	PGR			0	22	4	3B	97	-11	102	1					WE	3B	SEE 2P
7	SP54400840	PGR			0	25	4	3B	92	-16	104	3					WE	3B	SEE 2P
8	SP54500840	PGR			19	19	4	3B	90	-18	102	1					WE	3B	SEE 3P
9	SP54600840	PGR			0	25	4	3B	92	-16	104	3					WE	3B	SEE 3P
10	SP54100830	PGR			26	26	4	3B	92	-16	104	3					WE	3B	SEE 1P
11	SP54200830	PGR			26	26	4	3B	92	-16	104	3					WE	3B	SEE 1P
12	SP54300830	PGR	N	1	0	23	4	3B	91	-17	103	2					WE	3B	SEE 1P
13	SP54400830	PGR			25	25	4	3B	94	-14	106	5					WE	3B	SEE 1P
14	SP54500830	PGR			0	25	4	3B	94	-14	106	5					WE	3B	SEE 3P
15	SP54600830	PGR			25	25	4	3B	92	-16	104	3					WE	3B	SEE 3P
16	SP54700830	PGR			0	33	4	3B	96	-12	108	7					WE	3B	SEE 3P
17	SP54800830	PGR			0	35	4	3B	95	-13	107	6					WE	3B	SEE 3P
18	SP54300820	PGR	N	1	0	45	4	3B	133	25	109	8	2				WE	3B	SEE 1P
19	SP54400820	PGR	N	1	0	25	4	3B	127	19	104	3	2				WE	3B	DISTURBED TS?
21	SP54600820	PGR	N	1	0	22	4	3B	90	-18	102	1					WE	3B	SEE 3P
22	SP54700820	PGR	N	1	0	68	2	2	140	32	113	12	1				WE	2	SEE 3P
23	SP54780820	PGR	N	1	0	35	4	3B	130	22	107	6	2				WE	3B	SEE 3P
25	SP54510810	PGR	N	1	26	26	4	3B	92	-16	104	3					WE	3B	SEE 3P
26	SP54600800	PGR	N	1	0	22	4	3B	90	-18	102	1					WE	3B	SEE 3P
30	SP54600800	PGR	N	2	25	25	4	3B	98	-10	103	2					WE	3B	SEE 3P
35	SP54930785	PGR	N	3	25	40	3	3B	112	4	106	5					WE	3B	DISTURBED TS?
P	SP54300820	PGR	N	1	0	26	4	3B	101	-7	117	16					WE	3B	PIT1 AT AB18
P	SP54200850	PGR			22	22	4	3B	100	-8	116	15					WE	3B	PIT2 AT AB1
3P	SP54600830	PGR			0	26	4	3B	101	-7	117	16					WE	3B	PIT3 AT AB15

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-26	HCL	10YR41						0	0		0							
	26-42	C	25Y53	10YR56	C	D		Y	0	0		0		M			Y		
	42-70	C	25Y61	10YR58	C	D		Y	0	0		0		M			Y		
2	0-26	HCL	10YR41	10YR46	F			N	0	0		0							
	26-60	C	25Y51	10YR58	M	D		Y	0	0		0		M			Y		
3	0-23	MCL	10YR42	10YR46	F	D		N	0	0		0							OM.&F.SAND
	23-45	C	25Y52	10YR56	C	D		Y	0	0		0		M			Y		
	45-70	C	25Y63	10YR56	C	D		Y	0	0		0		M			Y		
4	0-24	MCL	10YR41						0	0		0							OM.&F.SAND
	24-55	C	25Y53	10YR58	M	D		Y	0	0		0		M			Y		
	55-65	SCL	10YR58	TOOWET					0	0	HR	10		M					WT 65CM
5	0-25	MCL	10YR41	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	25-40	HCL	25Y53	10YR56	C	D		Y	0	0		0		M			Y		SPL SEE 2P
	40-70	C	25Y53	10YR58	M	D		Y	0	0		0		M			Y		
6	0-22	MCL	10YR42	10YR46	C	D		Y	0	0		0							
	22-48	C	25Y64	10YR56	C	F		Y	0	0		0		M			Y		WT 40CM
	48-60	C	25Y64	10YR58	M	D		Y	0	0		0		M			Y		SL.SANDY
	60-80	C	25Y61	10YR56	C	D		Y	0	0		0		M			Y		
7	0-25	MCL	10YR41	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	25-70	C	25Y63	10YR58	M	D		Y	0	0		0		M			Y		
8	0-19	MCL	10YR41	10YR46	F	D		N	0	0		0							OM.&F.SAND
	19-55	C	25Y51	10YR56	M	D		Y	0	0		0		M			Y	Y	
	55-70	C	25Y62	10YR58	M	D		Y	0	0		0		M			Y	N	
9	0-25	HCL	10YR41	10YR56	C	D		Y	0	0		0							
	25-70	C	10YR51	10YR58	M	D		Y	0	0		0		M			Y		
10	0-26	MCL	10YR41						0	0		0							OM.&F.SAND
	26-50	C	25Y53	10YR58	C	D		Y	0	0		0		M			Y		
	50-70	C	25Y53	10YR58	M	D		Y	0	0		0		M			Y		
11	0-26	MCL	10YR41						0	0		0							HCL?
	26-46	C	25Y53	10YR58	C	D		Y	0	0		0		M			Y		
	46-70	C	25Y63	10YR58	C	D		Y	0	0		0		M			Y		WT 46CM
12	0-23	MCL	10YR42	10YR46	C	D		Y	0	0		0					N		OM.&F.SAND
	23-43	C	25Y64	10YR56	C	F		Y	0	0		0		M			Y		
	43-70	C	25Y61	10YR56	C	D		Y	0	0		0		M			Y		
13	0-25	MCL	10YR41						0	0		0							OM.&F.SAND
	25-50	C	25Y62	10YR56	M	D		Y	0	0		0		M			Y		SL.SANDY
	50-70	C	25Y51	10YR58	C	D		Y	0	0		0		M			Y	Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
14	0-25	MCL	10YR41	10YR46	F	D		N	0	0		0							OM.&F.SAND
	25-60	C	25Y51	10YR58	M	D		Y	0	0		0		M		Y	Y		
	60-70	C	25Y62	10YR58	M	D		Y	0	0		0		M		Y	Y		
15	0-25	MCL	10YR41	10YR56	C	D		Y	0	0		0							HCL?
	25-48	C	25Y53	10YR56	C	D		Y	0	0		0		M		Y			SL.SANDY
	48-70	C	25Y51	10YR58	M	D		Y	0	0		0		M		Y			
16	0-33	HCL	10YR41	10YR56	C	D		Y	0	0		0							
	33-70	C	10YR51	10YR58	M	D		Y	0	0		0		M		Y			
17	0-27	HCL	10YR41	10YR56	C	D		Y	0	0		0							
	27-35	HCL	25Y41	10YR56	C	D		Y	0	0		0		M					SPL SEE 3P
	35-70	C	10YR51	10YR58	M	D		Y	0	0		0		M		Y			
18	0-23	MCL	10YR42	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	23-45	HCL	25Y64	10YR56	C	F		Y	0	0		0		M		Y			SPL SEE 1P
	45-65	C	25Y61	10YR58	M	D		Y	0	0		0		M		Y			SL.SANDY
	65-75	SC	25Y52	10YR58	M	D		Y	0	0		0		M		Y			
	75-120	C	10B51	10YR56	C			Y	0	0	SLST	2		P		Y	Y		
19	0-25	HCL	10YR41	10YR46	C	D		Y	0	0		0							DISTURBED TS?
	25-45	C	25Y53	10YR56	C			Y	0	0		0		M		Y			SL.SANDY
	45-120	C	25Y63	10YR56	C	D		Y	0	0		0		M		Y			SL.SANDY
21	0-22	MCL	10YR41	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	22-70	C	25Y63	10YR56	C	D		Y	0	0		0		M		Y			
22	0-29	MCL	10YR41	10YR46	C	D		Y	0	0		0							
	29-68	SCL	25Y64	10YR56	C	F		Y	0	0		0		M					
	68-90	SCL	25Y64	10YR58	M	D		Y	0	0		0		M		Y			SPL SEE 3P
	90-120	C	10B51					Y	0	0		0		P		Y	Y		
23	0-27	MCL	10YR41	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	27-35	MCL	25Y53	10YR56	C	D		Y	0	0		0		M					
	35-120	C	25Y53	10YR58	M	D		Y	0	0		0		M		Y			
25	0-26	MCL	10YR42						0	0		0							
	26-65	C	25Y63	10YR56	C	D		Y	0	0		0		M		Y			
	65-70	C	25Y62	10YR58	M	D		Y	0	0		0		M		Y			
26	0-22	MCL	10YR41	10YR46	C	D		Y	0	0		0							OM.&F.SAND
	22-50	C	25Y63	10YR56	C	D		Y	0	0		0		M		Y			
	50-70	C	25Y62	10YR58	M	D		Y	0	0		0		M		Y			
30	0-25	MCL	10YR42						0	0		0							
	25-55	C	25Y64	10YR56	C	D		Y	0	0		0		M		Y	Y		
	55-80	C	25Y62	10YR58	M	D		Y	0	0	SLST	5		M		Y	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	
35	0-25	HCL	10YR41						0	0	HR	2							DISTURBED TS?
	25-40	SCL	10YR41	10YR46	C	D		Y	0	0		0		M					QSPL
	40-90	SC	25Y51	10YR58	M	D		Y	0	0		0		M				Y	
1P	0-26	MCL	10YR41	75YR46	C	D		Y	0	0		0							PSD=SCL
	26-43	C	25Y53	10YR56	C	F		Y	0	0		0	MDCPR	FR	M	Y		Y	SL.SANDY HCL?
	43-70	C	25Y61	10YR58	M	D		Y	0	0		0	MDCAB	FR	M	Y		Y	AUGERED 120CM
2P	0-22	HCL	10YR41						0	0		0							
	22-40	C	25Y53	10YR56	C	D		Y	0	0		0	MDCPR	FR	M	Y		Y	
	40-70	C	25Y51	10YR56	M	D		Y	0	0		0	STCAB	FR	M	Y		Y	AUGERED 120CM
3P	0-26	MCL	10YR41	10YR46	C	D		Y	0	0		0							PSD=HCL
	26-43	C	25Y52	10YR56	C	F		Y	0	0		0	MDCPR	FR	M	Y		Y	SL.SANDY
	43-53	C	25Y51	10YR58	C	D		Y	0	0		0	STCAB	FR	M	Y		Y	
	53-70	C	25Y52	10YR58	C	D		Y	0	0		0	MDCAB	FR	M	Y		Y	AUGERED 120CM