## WILTSHIRE MINERALS LOCAL PLAN S76 BLACKFORD FARM, CASTLE EATON

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

## 1. SUMMARY

Two hundred and sixty hectares of land at Blackford Farm, Castle Eaton were graded using the Agricultural Land Classification (ALC) System in November/December 1992 and February 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Wiltshire Minerals Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000. The information is correct at this scale but any enlargement would be misleading. A total of 223 auger borings and 8 soil profile pits were examined.

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

Distribution of ALC grades: Blackford Farm, Castle Eaton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a	86.7	33.4	33.7	
3Ь	153.6	59.1	59.6	
4	17.2	6.6	<u>    6.7  </u>	
Non Agric	0.6	0.2	100%	(257.5 ha)
Urban	1.3	0.5		
Agric Bldgs	0.5	0.2		
TOTAL	259.9	100%		

There are no climatic or site limitations for the survey area. The main limitation across the site is wetness downgrading the site to Subgrade 3a and 3b. Some of the 3a soils are also limited by droughtiness to Subgrade 3a. Part of the site is affected by flooding resticting the grade to 3b and 4. A third of the site is best and most versatile.

# 2. INTRODUCTION

Two hundred and sixty hectares of land at Blackford Farm, Castle Eaton were graded using the Agricultural Land Classification (ALC) System in November/December 1992 and February 1993. The survey was carried out on behalf of MAFF as part of its statutory role in the preparation of the Wiltshire Minerals Local Plan.

The fieldwork was carried out by ADAS (Resource Planning Team, Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at this scale but any enlargement would be misleading. A total of 223 auger borings and 8 soil profile pits were examined.

The published Provisional 1" to the mile ALC map of this area (MAFF 1973) shows the northern half of the site to be Grade 2: the southern part as Grade 3. The area was surveyed in 1979 at 1:25,000 scale as part of the Cotswold water Park ALC survey and mapped the site as mainly Subgrade 3a with small areas of Grades 2 and 3b. The recent survey supersedes these maps having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988).

The ALC provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120cm of the soil profile. A description of the grades used in the ALC System can be found in Appendix 2.

At the time of survey the site was under winter cereals with some oil seed rape and grass. Some fields had not yet been ploughed in from the previous seasons crop.

### 3. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to lower grades despite other favourable conditions.

Estimates of climatic variables were obtained for the site by interpolation from the 5km grid Meteorological Office Database (Meteorological Office 1989) and are shown in Table 1.

The parameters used for assessing overall climatic limitation are accumulated temperature, (a measure of the relative warmth of a locality) and average annual rainfall, (a measure of overall wetness). The values shown in Table 1 reveal that there is no overall climatic limitation.

No locally limiting climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in Section 6.

Table 1 Climatic Interpolations: Blackford Farm, Castle Eaton

Grid Reference		SU 153 953	SU 173 959
Height (m)		75	70
Accumulated Temperate	ure (day deg)	1441	1446
Average Annual Rainfal	l (mm)	679	680
Overall Climatic Grade		1	1
Field Capacity (Days)		153	151
Moisture Deficit,	Wheat (mm)	106	107
	Potatoes (mm)	98	99

### 4. RELIEF

The survey area is predominantly flat and lies at approximately 75m AOD. Neither gradient nor altitude impose a limitation to the ALC grade. There is a small area where microrelief imposes a limitation on agricultural versatility.

### 5. GEOLOGY AND SOILS

The published one inch scale solid and drift geology map, sheet 252 (Geological Survey of England and Wales 1974) shows the majority of the site to be underlain by Alluvial drift. The north east, north west and south west corners of the site are underlain by First Terrace River deposits.

The Soil Survey of England and Wales mapped the soils of the area in 1983, at a reconnaisance scale of 1:250,000. This map shows the soils at the site to be of three associations. In the north is the Badsey 2 Association, described as mainly well drained fine loamy soils over calcareous gravel. In the south west the Evesham 2 Association is mapped (deep clays with slowly permeable subsoils). The Thames Association covers the remaining area: this is described as calcareous clays affected by groundwater.

During the recent survey three soil types were identified. Most have heavy clay loam topsoils, with some clays. The first soil has a light textured stoney subsoil from 40cm. The second soil has this subsoils at a greater depth with stony heavy clay loam horizons above. The third soil has deep heavy clay loams and clay which overlie very stony light textures soil from 80cm.

### 6. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
3a 3b 4	86.7 153.6 17.2	33.4 59.1 6.6	33.7 59.6 6.7	
4 Non Agric Urban Agric Bldgs TOTAL	0.6 1.3 <u>0.5</u> 259.9	0.8 0.2 0.5 <u>0.2</u> 100%	100%	(257.5 ha)

Table 2 Distribution of ALC grades: Blackford Farm, Castle Eaton

### Subgrade 3a

These soils are affected by groundwater and evidence of waterlogging of the profile for part of the year was seen in the form of mottling and manganese. Based on the definitions of Wetness Classes in Appendix 3 the soils are Wetness Class II. The water table was observed at a depth of 30-40cm over much of the site, however this was after a period of exceptionally wet weather conditions. The topsoil texture is mainly heavy clay loam. These soils have light textures and stones in the subsoils. Some of these are high enough in the profile and stoney enough to impose a droughtiness limitation also restricting the soils to Subgrade 3a. Stone contents were determined by sieving horizon samples and calculating volumetric displacement by the stones in water.

#### Subgrade 3b

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Some of the soils mapped as Subgrade 3b are similar to those described above but they experience flooding occasionally in winter. This also affects soils which are described below. The flooding usually lasts for more than 4 days. The soils are therefore downgraded to 3b. The remaining areas mapped as 3b are downgraded because of a worse wetness limitation than the 3a soils. These soils have slowly permeable layers in the subsoils. The depth at which these are found is variable and the structures associated with them were confirmed in soil profile pits. These soils are either Wetness Class III or IV. The combination of the Wetness Class, the topsoil texture and Field Capacity Days restrict these soils to 3b. In the east of the site some of these soils have stonier subsoils but droughtiness is not a limiting factor in grading these soils. A small area has severe microrelief limitations limiting the versatility of the land and downgrading the land to 3b.

#### Grade 4

Two areas have been mapped as Grade 4. These experience worse flooding than the 3b areas. Here the flooding occurs frequently in winter and lasts for long periods.

### **APPENDIX 1**

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REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1974) Solid and drift edition. Sheet 252 Swindon, 1:63,360 scale

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MAFF (1973) Agricultural Land Classification Map sheet 157 Provisional 1:63,360 scale

MAFF (1988) Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of agricultural land) Alnwick

METEOROLOGICAL OFFICE (1989) Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1:250,000

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SITE NAME		PROFILE NUMB	ER	SLOPE AND ASPEC	т	LAND USE		Av Rainfall	:- 679		PARENT MAT	ERIAL	
Blackford	Farm	Pit 1		0		Cereals		ATO	:- 1441		First Terra	ace River	Deposits
JOB NO 73/92		DATE November 92		GRID REFERENCE SU 152 958		DESCRIBED BY		FC Days Climatic gra	:- 153 ade:- 1				
Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	27	10YR42	HCL	1% hard rock	-	Recently been ploughed	Many		Friable	Common - fine	-	None	Clear, smooth
2	35	10YR44	с	2% hard rock				Too shallow to assess					Very shallow + variable
3	57	75YR46 Ped = 10YR53 at 45cm	С	0	75YR58 - few, faint	MCSAB to 45 cm; mod C+M prismatic	0.3-0.4%	Mod.	Friable	Common fine		Few	Clear, smooth
4	90+	10YR54 ped = 10YR53	с	2 <b>%</b> hard rock	few faint 10YR58 10YR52	МСАВ	0.2%	Mod.	Friable	Common fine		Few	
Depth to	-	n:- Gleyed at - 45cm	60 cm	Available Water	Wheat :- 140mm Potatoes :- 116mm	• <u> </u>	<b> </b>	<u>, , , , , , , , , , , , , , , , , , , </u>	Final ALC Gr	ade	:- 3B	•	<u> </u>
Wetness C	lass :	- III		Moisture Defic	it Wheat :- 107mm				Main Limitir	ng Factor(s)	:- Wetness		
Wetness G	rade :	:- 3B		Moisture Baland	Potatoes :- 99mm ce Wheat :- +33mm								
					Potatoes :- +17mm				Remarks :-				
				Droughtiness Gr	rade :- 1				Pit dug to 9	10cm			

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SITE NAME		PROFILE NUMBER SLOPE AND ASPECT				LAND USE	:- 679		PARENT MATERIAL				
Blackford	Farm	Pit 2		0		Winter cereal		ΑΤΟ	:- 1441		First Terr	ace River	Deposits
JOB NO 73/92		DATE November 92		GRID REFERENCE SU 161 959		DESCRIBED BY		FC Days Climatic gr	:- 153 ade:- 1				
Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	25	10YR43	HCL	27 hard rock	None	-	Good	-	-	Common fine	-	-	Smooth
2	45	10YR54	HCL	8-10% hard rock (visual)	Few, faint ochreous	WCSAB	<0.5	Mod.	Friable	Common fine very fine	-	Few	Under water
3	120	10YR64/53	LCS	50% hard rock (visual)	cdom	Too wet to assess	Good	Mod.	Loose	Few very fine		Few	
Profile G Depth to S Permeable	Slowly		I <u></u>	Available Water	Wheat :- 93mm Potatoes :- 82mm	I	_1	-I	Final ALC Gr	`ade	I :- 3A	J	1
Wetness C	lass :	:- II		Moisture Defici	t Wheat :- 107mm Potatoes :- 99mm				Main Limitir	ng Factor(s)	:- Droughti	iness/wetr	éss
Wetness G	rade :	:- 3A		Moisture Balano					Romandua -				<u>.</u>
				Droughtiness Gr	Potatoes :17mm ade :- 3A (	(to 120 cm)			Remarks :- Water table	at 30 cm in	pit.		

SITE NAME		PROFILE NUMB	ER	SLOPE AND ASPECT LAND USE Av Rainfall :- 679					PARENT MAT	ERIAL			
Blackford	Farm	Pit 3		0		Stubble		ΑΤΟ	:- 1441		Alluvium		
JOB NO 73/92		DATE November 92		GRID REFERENCE SU 162 954		DESCRIBED BY		FC Days Climatic gr	:- 153 ade :- 1				
Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	25	10YR42	HCL.	2% hard rock	Few faint ochreous	-	Good	-	-	Many fine very fine	-	-	Smooth, clear
2	50	10YR53/51	с	Neg.	Common 10YR56	МСАВ	0.1%	Poor	Firm	Common fine, very fine			Clear, smooth
3	110	10YR53 25Y52	с	Neg.	75YR58 Common	WCSAB	<0.1%	Poor	Firm	Few fine		Common	
(4)	ļ		SC										
							:						
Profile G Depth to S Permeable	Slowly			Available Water	r Wheat :- 119mm Potatoes :- 103mm				Final ALC G	rade	:- 3B		
Wetness C		– IV		Moisture Defic					Main Limitir	ng Factor(s)	:- Wetness		
Wetness G	rade •	- 3B		Moisture Balan	Potatoes :- 99mm ce Wheat :- +12mm								
					Potatoes :- +4mm				Remarks :-				
				Droughtiness G	rade :- 2 (1	to 110 cm)			Water table 120 cm.	at 30 cm. F	Pit dug to 70	)cm. Aug	gered to

SITE NAME	1	PROFILE NUMBER SLOPE AND ASPECT LAND USE Av Rainfall :- 679					t	PARENT MATE	ERIAL				
lackford F	arm	Pit 4		0	,	Oil Seed Rape	!	ATO	:- 1441	)	Frist River	ir Ternace	Deposits
00B NO 73/92		DATE November 1992	12	GRID REFERENCE SU 162 954		DESCRIBED BY NAD		- FC Days Climatic gra	:- 153 rade:- 1				
lorizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	25	10YR44	HCL	5% small hard rock	None						Slightly calc.		Clear, smooth
2	50	10YR54	HCL.	18% hard rock sieved/displ.	None	WCSAB (very difficulty to assess therefore stones + wet)	>0.5%	Mod.	Friable	Common fine + very fine	Calc.	Few	Clear, smooth
3	120	10YR66/51	CS	55% hard rock sieved/displ.	10YR66/58 Gleyed	Too wet + stony	>0.5%	Mod.	Loose	Few, very fine	Very calc.	Com.	
Profile Glo	aved From					<sup>_</sup>	<u> </u>			<u> </u>			
Depth to S Permeable	Slowly			Available Water	r Wheat :- 97 Potatoes:- 82				Final ALC Gr	•ade	:- <b>3</b> A		
Wetness Cla	ass :	:- II	Moisture Deficit Wheat :- 107 Potatoes :- 99				Main Limitir	ing Factor(s)	:- Wetness/	/droughtir	YESS		
Wetness Gr	ade ;	:- 3A		Moisture Balanc	ce Wheat :10								
				Droughtiness Gr	Potatoes :17 rade :- 3A				Remarks :	: at 30 cm.			

SITE NAME		PROFILE NUMBER SLOPE AND ASPECT				LAND USE		Av Rainfall	:- 679		PARENT MAT	ERIAL	
Blackford	Farm	Pit 5		0		Winter Cereal		ΑΤΟ	:- 1441		Alluvium		
JOB NO 73/92		DATE 27.11.92		GRID REFERENCE SU 164 948		DESCRIBED BY		FC Days Climatic gr	:- 153 ade :- 1				
Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
1	25	10YR42	с	0	Common below 15cm - 10YR56	-	Many (e/ worms)				Non		Clear, smooth
2	45	10YR44/43	с	0	Few fine och. mottles	MC + VC SAB	0.4% (e/ worms)	Mod.	Friable	Fine + very fine common	Non		Clear, smooth
3	70	10YR51	С	10% hard rock	Many - 10YR58	SCAB	0.1 - 0.2 <b>%</b>	Poor (if ped faces gleyed)	Firm	Common - ped faces but not within pds	Non	Few	-
4	120	10YR74	LMS	50% (visual)	Common 10YR66	Too wet	-	Mod.		Few, very fine	Yes		
Depth to		n:- Gleyed 15c - SPL 45cm	cm	Available Water	Wheat :- 106mm Potatoes :- 104mm		- <b></b>	• • • • •	Final ALC Gr	rade	:- 38		
Wetness C	lass :	:- III		Moisture Defici	t Wheat :- 107mm Potatoes :- 99mm				Main Limitir	ng Factor(s)	:- Wetness		
Wetness G	rade :	:- 3B		Moisture Balanc	∞e Wheat :1mm								
					Potatoes :- +5mm				Remarks :-				
				Droughtiness Gr	rade :- 3A (t	co 120 cm)							
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SITE NAME		PROFILE NUMB	ER	SLOPE AND ASPEC	т	land use		Av Rainfall	:- 679		PARENT MAT	ERIAL	
lackford	Farm	Pit 6		0		Winter Cereals		ΑΤΟ	:- 1441		Alluvium		
				1			••••	FC Days	:- 153				
OB NO				GRID REFERENCE		DESCRIBED BY		Climatic gra	ade :- 1				
3/92	r	1.12.92	·····	SU 164 959		NAD	<b></b>		1	I			
lorizon lumber	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinciness and Form
	30	10YR32	HCL	0	None	-	>0.5	-	-	-	-	-	Clear, smooth
2	40	10YR53/54	С	0	Common distinct 10YR56	MC Prismatic	>0.5	Mod.	Friable	Common fine + very fine		Few common at bound- ary	
3	80	10YR53	С	0	Many coarse distinct ochreous and grey 10YR58 2.5Y52	MCAB (prismatic around upper boundary)	0.2-0.3%	Mod.	Friable	Few fine fibrous		Few common	
4	120	25¥62	CSL	Increasing	10YR56								
Profile G	leyed From	n:- 30 cm		Available Water	- Wheat :- 110mm				Final ALC Gr		. 30		
Depth to S Permeable		- 40 cm		Available hater	Potatoes :- 118mm				FINAL ALC GR	aue	:- 38		
Wetness Ci		:- IV Moisture Deficit Wheat :-						Main Limitin	g Factor(s)	:- Wetness			
Wetness Gr	rade :												
					Potatoes :- +19mm				Remarks :-				
				Droughtiness Gr	rade :- 3A	(to 120 cm)							

	PROFILE NUMB	ÉR	SLOPE AND ASPECT	Г	LAND USE		Av Rainfall	:- 679		PARENT MATE		
am	Pit 7		ο		Cereals		ATO	:- 1441		Alluvium -		
	DATE 16/2/93		GRID REFERENCE SU156 955		DESCRIBED BY PRW/GMS		FC Days Climatic gr	:- 155 ade :- 1				
Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form
21	10YR53	с	None	None	MCSAB	Many	Mod.	Friable	Many fine	No	No	Sharp, smooth
45	2.5756	С	None	Few ochreous not gleyed	MCSAB	>0.5%	Mod.	Friable	Few fine	No	No	Clear, smooth
80	2.5964	С	None	Common ochreous	MCSAB (tending to angular)	>0.5% <u>NO</u> SPL	Mod.	Friable	Few fine	No	No	-
110	2.5Y66	MS	40% hard rock sieved/displ.	Ochreous staining	-	Many	Mod.	Loose	None	Calcareous	No	-
lowly			Available Water	Wheat :- 118mm Potatoes :- 116mm	<b>.</b>		- <b>I</b>	Final ALC Gr	ade	:- 3a	1	
ass :	- I		Moisture Defici	t Wheat :- 107mm Potatoes :- 99mm				Main Limitir	ng Factor(s)	:- Wetness		
ade :	- <b>3</b> a		Moisture Balanc	e Wheat :- +11mm								
				Potatoes :- +17mm				Remarks :-		· · ·		
			Droughtiness Gr	ade :- 2(t	zo 120 cm)			Water table	75 cm.			
	Lowest Av Depth 21 45 80 110 110 eyed From lowly Horizon:- ass	Farm Pit 7 DATE 16/2/93 Lowest Av Depth Matrix and Ped Face Colours 21 10YR53 45 2.5Y56 80 2.5Y64 110 2.5Y66 110 2.5Y66 eyed From: - 45cm lowly Horizon: - None ass :- I	DATE 16/2/93 Lowest Av Depth Matrix and Ped Face Colours Texture 21 10YR53 C 45 2.5Y56 C 80 2.5Y64 C 110 2.5Y66 MS I10 2.5Y66 MS eyed From: - 45cm lowly Horizon: - None ass :- I	Farm  Pit 7  0    DATE  GRID REFERENCE    16/2/93  Suissession    Lowest  Matrix and Ped Face Colours  Texture    Stoniness: Size, Shape, Type, and Field Method    21  10YR53  C    45  2.5Y56  C    80  2.5Y64  C    110  2.5Y66  MS    402 hard rock sieved/disp1.    eyed From:-  45cm    howly  Available Materian    horizon:-  None    ass  :-  I    ade  :-  3a	iarm Pit 7 0 DATE GRID REFERENCE 16/2/93 GRID REFERENCE 16/2/93 SU156 955 Lowest Matrix and Ped Face Colours Texture Stare, Shape, Type, and Field Method 21 10YR53 C None None 45 2.5Y56 C None None 45 2.5Y56 C None Few othreous not gleyed 80 2.5Y64 C None Common othreous 110 2.5Y66 MS 407 hard rock sieved/disp1. Othreous staining 110 2.5Y66 MS 407 hard rock othreous staining eyed From:- 45cm Iowly Horizon:- None Available Mater Meat :- 118ma ade :- 3a Moisture Balance Meat :- 411ma Potatoes :- 99ma	arm  Pit 7  D  Cereals    DATE  GRID REFERENCE  DESCRIBED BY    16/2/93  SU156 955  PRW/GNS    Lowest  Matrix and Av Depth  Texture  Stoniness: Size, Shape, Type, and Field Method  Mottling Abundance, Contrast Size and Colour  Structure: Development    21  10/R53  C  None  None  MCSAB    45  2.5Y56  C  None  For ochreous not gleyed  MCSAB    80  2.5Y64  C  None  Comon ochreous not gleyed  MCSAB (tending to angular)    110  2.5Y66  MS  40% hard rock siewod/displ.  Ochreous staining  -    110  2.5Y66  MS  40% hard rock siewod/displ.  Ochreous staining  -    110  2.5Y66  MS  40% hard rock siewod/displ.  Ochreous staining  -    110  2.5Y66  MS  40% hard rock siewod/displ.  Ochreous staining  -    110  2.5Y66  MS  Available Mater  Moat  -  10m    ass  :-  I  Available Mater  Moat  :-  118m    ade  :-  3a  Moisture Balance  Meat  :-  +11m	arm  Pit 7  0  Cereals    DATE  GRID REFERENCE  DESCRIBED BY    16/2/93  SU156 955  PRV/GNS    Lowest  Matrix and Av Depth  Texture  Stoniness: Size, Shapo, Type, and Field Method  Mottling Abundance, Contrast Size and Colour  Structure: Development Size and Shape  Pores and Fisures    21  10YR53  C  None  None  MCSAB  Marry    45  2.5Y56  C  None  Few ochreacus not gleyed  MCSAB  20.5X    80  2.5Y64  C  None  Comon ochreacus  MCSAB (tending to angular)  30.5X    110  2.5Y66  MS  40% hand rock siewod/displ.  Ochreaus staining  -  Hany    110  2.5Y66  MS  40% hand rock siewod/displ.  Ochreaus staining  -  Hany    ayd Fron:-  4Scn ass  :-  1  Available Mater  Mesat  :-  10m and    ayde  Fron:-  None  Available Mater  Mesat  :-  10m and    ass  :-  I  Moisture Deficit  Mesat  :-  11m and    ade  :-  3a  Moisture Balance  Mesat  :-  +11m and	Prit 7  D  Cereals  ATD    DATE  GRID REFERENCE  DESCRIBED BY  FC Days    Id/2/93  Sui56 955  PBM/GNS  Climatic gn    Lowest Av  Matrix and Popth  Texture  Stoniness: Stoniness: Pisci Shape, Colours  Mottling Abundance, Contrast Size and Colour  Structure: Prevelopment Size and Shape  Pores Pissures  Structural Condition    21  107R53  C  None  None  MCSA8  Mary  Mod.    45  2.5Y56  C  None  Few cohrecus not gleood  MCSA8  30.52  Mod.    80  2.5Y64  C  None  Common ochreaus  MCSA8 (tending to angular)  30.52  Mod.    110  2.5Y66  NS  40% hard rock sieved/displ.  Ochreaus staining  -  Mary  Mod.    acged Front -  45m  Au  Autilable Mater  Meat  :-  118m	arm    Pit 7    0    Cereals    AT0    :-1443      DATE    GRID REFERENCE    DESCRIBED BY    Climatic grade :- 1      16/2/93    SU156 955    PBV/GNS    Climatic grade :- 1      Lowest    Matrix and Av Depth    Texture    Stoniness: Stoniness: Dives, Shape, Triol Nettod    Motbling Abundance, Contrast Size and Colour    Structure: Development Size and Shape    Pores and Fisures    Structural Condition    Consistence      21    10YR53    C    None    None    Mose    MSAB    >0.53    Mod.    Friable      45    2.5Y56    C    None    For obrocous    MSAB    >0.53    Mod.    Friable      80    2.5Y64    C    None    Comon ochrocous    MSAB (tending by 95R.    >0.53    Mod.    Friable      100    2.5Y66    MS    400 hand rock siewod/displ.    Chrocus staining    -    Hary    Mod.    Friable      Inoly    Loose    Mostlume Deficit    Most    :-    108    Friable    Final ALC G      Inoly    Inoly    Available Nater    Hoat    :-    107m    Potatoes :- <td< td=""><td>arm    Pit 7    0    Cereals    AT0    :-1441      DATE    GRID REFERENCE    GRID REFERENCE    DESCRIBED BY    Cinatic grade :- 1      16/2/93    Suits 955    PRM/GNS    Cinatic grade :- 1    1      Lewest    Matrix and Ped Face Oliurs    Texture    Stoniness: Stare, Snape, Type, and Field Method    Mutdince, Contrast Size and Colour    Structure: Davelopment    Pores and Size and Snape    Structure: Prisures    Consistence    Abords and Nature      21    10/R53    C    None    None    MCSAB    Mury    Mcd.    Friable    Per fine Nature      21    10/R53    C    None    None    MCSAB    Mury    Mcd.    Friable    Per fine Nature      25    2.5766    C    None    Common colmous    MCSAB    &gt;0.53    Mcd.    Friable    Fer fine      100    2.5766    K    None    Common colmous    MCSAB    Mod.    Friable    Fer fine      100    2.5766    K    None    Common colmous    MCSAB    Mod.    Icose    More      strowfold    Strowfold    Strowfold</td><td>Arm  Pit 7  D  Genesis  ATO  := 1441  Alluviue    DATE  SRID REFERENCE  DESCRIBED BY  Climatic grade := 1  Consistence  Roots  Calcium    16/2/93  SU156 955  SU156 955  PRM/GRS  Climatic grade := 1  Consistence  Roots  Calcium    21  10/K53  C  None  Mone  MSAB  Hany  Hod.  Friable  None frie dipoid  Note frie dipoid  Note frie dipoid  Roots  Calcium  Nature  Calcium    21  10/K53  C  None  None  MSAB  Hany  Hod.  Friable  Navy frie  Ho    45  2.5756  C  None  None  MSAB  20.52  Hod.  Friable  For frie  Ho    80  2.5764  C  None  Comon ochrosus  MSSB (tanding 20.53  Hod.  Friable  For frie  Ho    100  2.5766  MS  40% hard rock  Odmous staining   Hany  Hod.  Friable  For frie  Ho    100  2.5766  MS  40% hard rock  Odmous staining   Hany  Ince first calcium  Streating    100  2.5766  MS<td>ann    Pit 7    0    Cenals    ATO    := 141    All vitue      DATE    ORTD REFERENCE    DESCRIBED BY    FC Days    := 155    Climatic grade := 155</td></td></td<>	arm    Pit 7    0    Cereals    AT0    :-1441      DATE    GRID REFERENCE    GRID REFERENCE    DESCRIBED BY    Cinatic grade :- 1      16/2/93    Suits 955    PRM/GNS    Cinatic grade :- 1    1      Lewest    Matrix and Ped Face Oliurs    Texture    Stoniness: Stare, Snape, Type, and Field Method    Mutdince, Contrast Size and Colour    Structure: Davelopment    Pores and Size and Snape    Structure: Prisures    Consistence    Abords and Nature      21    10/R53    C    None    None    MCSAB    Mury    Mcd.    Friable    Per fine Nature      21    10/R53    C    None    None    MCSAB    Mury    Mcd.    Friable    Per fine Nature      25    2.5766    C    None    Common colmous    MCSAB    >0.53    Mcd.    Friable    Fer fine      100    2.5766    K    None    Common colmous    MCSAB    Mod.    Friable    Fer fine      100    2.5766    K    None    Common colmous    MCSAB    Mod.    Icose    More      strowfold    Strowfold    Strowfold	Arm  Pit 7  D  Genesis  ATO  := 1441  Alluviue    DATE  SRID REFERENCE  DESCRIBED BY  Climatic grade := 1  Consistence  Roots  Calcium    16/2/93  SU156 955  SU156 955  PRM/GRS  Climatic grade := 1  Consistence  Roots  Calcium    21  10/K53  C  None  Mone  MSAB  Hany  Hod.  Friable  None frie dipoid  Note frie dipoid  Note frie dipoid  Roots  Calcium  Nature  Calcium    21  10/K53  C  None  None  MSAB  Hany  Hod.  Friable  Navy frie  Ho    45  2.5756  C  None  None  MSAB  20.52  Hod.  Friable  For frie  Ho    80  2.5764  C  None  Comon ochrosus  MSSB (tanding 20.53  Hod.  Friable  For frie  Ho    100  2.5766  MS  40% hard rock  Odmous staining   Hany  Hod.  Friable  For frie  Ho    100  2.5766  MS  40% hard rock  Odmous staining   Hany  Ince first calcium  Streating    100  2.5766  MS <td>ann    Pit 7    0    Cenals    ATO    := 141    All vitue      DATE    ORTD REFERENCE    DESCRIBED BY    FC Days    := 155    Climatic grade := 155</td>	ann    Pit 7    0    Cenals    ATO    := 141    All vitue      DATE    ORTD REFERENCE    DESCRIBED BY    FC Days    := 155    Climatic grade := 155

SITE NAME		PROFILE NUMB	ER	SLOPE AND ASPECT	Г	LAND USE		Av Rainfall	:- 679		PARENT MATERIAL			
Blackford	Farm	Pit 8		0		Сгор		ΑΤΟ	:- 1441		First Terr	ace River	Deposits	
JOB NO 73/92		DATE 16/2/93		GRID REFERENCE SU 167 956		DESCRIBED BY GMS/PRW		FC Days Climatic gr	:- 153 ade:- 1					
Horizon Number	Lowest Av Depth	Matrix and Ped Face Colours	Texture	Stoniness: Size, Shape, Type, and Field Method	Mottling Abundance, Contrast Size and Colour	Structure: Development Size and Shape	Pores and Fissures	Structural Condition	Consistence	Roots Abundance Size and Nature	Calcium Carbonate Content	Mangan Concs etc	Horizon Boundary: Distinctness and Form	
1	28	10YR43	с	12% HR sieved/displ.	-	MMSAB	Good	-	Friable	Many fine	Slightly	-	Abrupt smooth	
2	52	2.5Y52	с	None	cdom gleyed	WCP	Low	м	Friable	Common fine	x	x	-	
3	65	2.5Y54	LMS	18 <b>%</b> HR sieved/displ.	cdom	-	-	M	-	-	/	-	-	
4	120	10YR73	MS	52% HR sieved/displ.	cdom			M	-	-	1	-	-	
Profile G	leyed From	n:- 28cm			[	<u> </u>		<u> </u>		.l <u></u>	_l	1	I	
Depth to S Permeable	Slowly Horizon:-	- 35cm		Available Water	Wheat :- 96mm Potatoes :- 90mm				Final ALC Gr	ade	:- 38			
Wetness C	lass :	- IV		Moisture Defici	t Wheat :- 107mm Potatoes :- 99mm				Main Limitir	g Factor(s)	:- Wetness			
Wetness G	rade :	- 3B		Moisture Balanc	e Wheat :11mm									
				Droughtiness Gr	Potatoes :9mm rade :- 3A				Remarks :-					