

NORTH DEVON LOCAL PLAN
AGRICULTURAL LAND CLASSIFICATION

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NORTH DEVON LOCAL PLAN

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the North Devon Local Plan. The fieldwork was carried out at semi detailed density and covered four sites at Penhill, Upcott, Lake and Portmore Farm. It was completed in February 1995 at a scale of 1:10,000. Data on climate, soils, geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. The distribution of grades is shown on the accompanying ALC maps and summarised below.

Please note that information is believed to be correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Penhill and Upcott Sites

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (170.1 ha)
2	51.8	27.5	30.5
3a	44.7	23.8	26.3
3b	57.7	30.7	33.9
4	15.9	8.5	9.3
Urban	9.8	5.2	
Agricultural Buildings	3.1	1.6	
Not surveyed	5.1	2.7	
TOTAL	188.0		

57% of the agricultural land surveyed was found to be best and most versatile, with minor and moderate limitations due to workability and wetness.

Distribution of ALC grades: Lake Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (53.8 ha)
2	19.7	29.9	36.6
3a	12.5	19.0	23.2
3b	17.6	26.7	32.7
4	4.0	6.1	7.4
Urban	10.9	16.6	
Non Agricultural	0.3	0.4	
Agricultural Buildings	0.4	0.6	
Water	0.4	0.6	
TOTAL	65.8		

60% of agricultural land at Lake was found to be best and most versatile, also with minor and moderate limitations due to workability and wetness.

Distribution of ALC grades: Portmore Farm Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (112.0 ha)
3a	38.9	31.4	34.7
3b	26.7	21.5	23.8
4	46.4	37.4	41.4
Urban	5.2	4.2	
Non Agricultural	5.5	4.4	
Agricultural Buildings	1.2	1.0	
TOTAL	123.9		

Only 35% of agricultural land at this site was found to be best and most versatile, and even that was Subgrade 3a, with no better land having been found. Workability was the main limitation.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in February 1995 at four sites around Barnstaple on behalf of MAFF as part of its statutory role in the preparation of the North Devon Local Plan. The fieldwork covering 377.7 ha of land was conducted by ADAS at a scale of 1:10,000 with approximately one boring per 2 hectares of agricultural land (semi-detailed density). A total of 192 auger borings were examined and 11 soil profile pits used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (Sheet 163, MAFF 1974) shows the grades of the sites on the basis of a reconnaissance survey at that time.

Much of the area was also surveyed in 1981 at a scale of 1:25 000, but this was to a previous classification system and although the patterns of ALC grades shown in both this and the 1" reconnaissance survey are reflected in the recent survey, there are significant variations, both in boundaries and grades.

However, the recent survey supersedes previous surveys having been carried out using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120 cm of the soil profile and a description of the grades used in the ALC system can be found in Appendix 2.

2. 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 a lower grade despite other favourable conditions.

Estimates of climatic variables were interpolated for each site from the published agricultural climate dataset (Meteorological Office 1989) which gives data on a 5 km grid. The parameters used for assessing overall climate are accumulated temperature, a measure of the relative warmth of a locality, and average annual rainfall, a measure of overall wetness. The results shown in the relevant tables for each site indicate that there is no overall climatic limitation for any site.

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat and potatoes are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections.

3. PENHILL SITE

3.1 188.0 ha of land in 2 sites at Penhill to the north of Muddlebridge and Bickington and at Upcott near Roundswell were surveyed in January and February 1995 by examining a total of 91 auger borings and 6 soil profile puts.

3.2 Climate

Climatic data for the site was interpreted as described in Section 2. The results are shown below and indicate that there is no overall climatic limitation. In addition, no local climatic limitations were noted.

Table 1: Climatic Interpolations: Penhill and Upcott Sites

Grid Reference	SS538327	SS526334	SS544312
Altitude (m)	55	5	40
Accumulated Temperature (day °)	1528	1585	1546
Average Annual Rainfall (mm)	974	903	934
Overall Climatic Grade	1	1	1
Field Capacity Days	202	192	195
Moisture deficit (mm):			
Wheat	92	102	95
Potatoes	81	95	85

3.3 Relief and Landcover

Altitude ranges from 5 to 50 m AOD, with mainly long and gentle slopes which are not limiting. However, one significant bank of strong and moderately steep slopes is found at the east end of the site.

At the time of survey, landcover was mainly grass, with small areas of winter cereals and other small areas ploughed.

3.4 Geology and Soils

The geology of the site is shown on the published 1:50 000 scale Solid and Drift Geology map, Sheet 293, Barnstaple, British Geological Survey 1978. This shows that the site is mainly underlain by boulder clay in the south and various types of shale across the north facing slopes, with small areas of alluvial deposits around the north and west fringes.

Soils mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250 000 show mainly Newnham Association, with small areas of Hallsworth 2 Association along the Framington Pill, mainly outside the site. Newnham Association is described as being *well drained, reddish coarse and fine loamy soils over gravel, which can be locally deep and may be affected by groundwater.*

Soils found during the survey revealed considerable variation within this broad description, and in addition localised patches of poorly drained soils with a slowly permeable layer were found particularly at the north of the site and a small patch around Clampits.

3.5 Agricultural Land Classification

The distribution of ALC grades is shown in Table 2 and on the accompanying ALC map. This information could be misleading if shown at a larger scale.

Table 2: Distribution of ALC grades: Penhill and Upcott Sites

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (170.1 ha)
2	51.8	27.5	30.5
3a	44.7	23.8	26.3
3b	57.7	30.7	33.9
4	15.9	8.5	9.3
Urban	9.8	5.2	
Agricultural Buildings	3.1	1.6	
Not surveyed	5.1	2.7	
TOTAL	188.0		

Grade 2

The areas mapped as Grade 2 show minor limitations mainly due to workability. Mainly medium clay loam topsoil is found over heavy clay loam and clay subsoil, sometimes silty, particularly when over weathering shale. Mainly Wetness Class I with a minor limitation of workability due to topsoil texture.

Subgrade 3a

Much of the area shown as Subgrade 3a was found to have medium clay loam topsoil over clay subsoil with gleying at depths indicating mainly Wetness Class II which with the climatic data relevant to this site implies a moderate limitation due to wetness, Wetness Grade 3a.

A small area at the east end of the site was found to have heavy clay loam topsoil textures which although Wetness Class I indicates a moderate limitation due to workability, also Subgrade 3a.

Subgrade 3b

Land shown as Subgrade 3b was generally found to be Wetness Class IV with medium clay loam topsoil or Wetness Class III with heavy clay loam topsoil, the Wetness Class determined by the presence of a slowly permeable layer in the subsoil together with associated gleying.

Grade 4

Apart from a small area of moderately steep slopes, most of the Grade 4 shown on the ALC map occurs at the northern edge of the site where severe limitations due to wetness are found, with mainly heavy clay loam topsoil textures at Wetness Class IV. This area lies at the edge of the saltings along the estuary to the north.

Other Land

Areas of agricultural buildings shown include the horticultural glasshouses of Kneesworth Nursery.

Urban areas include domestic houses, gardens and roads.

5.1 ha was not surveyed as access was refused.

4. LAKE SITE

4.1 65.8 ha of land around Lake village to the south of Barnstaple Railway Station were surveyed in January and February 1995 by examining a total of 34 auger borings and 2 soil profile pits.

4.2 Climate

Climatic data for the site was interpolated as described in Section 2. The results are shown below and indicate that there is no overall climatic limitation. In addition, no local climatic limitations were noted.

Table 3: Climatic Interpolations: Lake Site

Grid Reference	SS569316	SS552321
Altitude (m)	5	55
Accumulated Temperature (day °)	1585	1528
Average Annual Rainfall (mm)	906	984
Overall Climatic Grade	1	1
Field Capacity Days	193	204
Moisture deficit (mm):		
Wheat	102	91
Potatoes	95	80

4.3 Relief and Landcover

Altitude ranges from 5 to 56 m AOD, with mainly gentle and moderate slopes, although short strong and moderately steep slopes also occur, particularly in the valley sides around Lake village.

At the time of survey landcover was mainly grass.

4.4 Geology and Soils

The geology of the site is shown on the published 1:50 000 scale Solid and Drift Geology map, Sheet 293, Barnstaple, British Geological Survey 1978. This shows a mixture of parent materials with boulder clay in the south-west, mainly shales in the north and east, and a small area of pebbly clay and sand to the south-west of Herton. Alluvial and river terrace deposits occur through Lake village and at the eastern edge of the site.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250 000, showing mainly Manod Association which are described as well drained fine loamy or fine silty soils over rock which is shallow in places and can have bare rock locally.

A small area of Hallsworth 2 Association is shown in the south-west corner of the site. This is described as slowly permeable seasonally waterlogged clayey, fine loamy and fine silty soils.

The current survey found that the area of Hallsworth 2 Association soils extended rather more to the north and east, more closely following the occurrence of boulder clay as shown on the geological map.

4.5 Agricultural Land Classification

The distribution of ALC grades is shown in Table 4 and on the accompanying ALC map. This information could be misleading if shown at a larger scale.

Table 4: Distribution of ALC grades: Lake Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (53.8 ha)
2	19.7	29.9	36.6
3a	12.5	19.0	23.2
3b	17.6	26.7	32.7
4	4.0	6.1	7.4
Urban	10.9	16.6	
Non Agricultural	0.3	0.4	
Agricultural Buildings	0.4	0.6	
Water	0.4	0.6	
TOTAL	65.8		

Grade 2

The areas shown as Grade 2 were mainly found to be Wetness Class I with medium clay loam topsoils, implying a minor limitation due to restricted workability in view of the climatic data for this site.

Subgrade 3a

Soils within the area shown as Subgrade 3a exhibit a range of characteristics, including Wetness Class III, medium clay loam topsoil with gleying evident above a slowly permeable layer in the lower subsoil implying a moderate wetness limitation, and also heavy clay loam or heavy silty clay loam topsoil textures on Wetness Class I, implying a moderate workability limitation.

Subgrade 3b

Areas shown as Subgrade 3b include soils with medium clay topsoil at Wetness Class IV with a slowly permeable layer starting in the upper subsoil, implying a more serious moderate wetness limitation.

Subgrade 3b also includes areas limited by gradient with strong slopes of 8-11°.

Grade 4

The small area of Grade 4 shown includes areas with moderately steep slopes and a small area of Wetness Class IV with heavy clay loam topsoil texture.

Other Land

This category includes mainly domestic houses and roads, shown as urban, and small areas of school playing fields shown as non-agricultural, a small area of largely redundant agricultural buildings, and a small area of open water.

5. PORTMORE FARM SITE

5.1 123.9 ha of land to the east of Barnstaple, around Portmore Farm, were surveyed in January and February 1995 by examining a total of 67 auger borings and 3 soil profile pits.

5.2 Climate

Climatic data for the site was interpolated as described in Section 2. The results are shown below and indicate that there is no overall climatic limitation. In addition, no local climatic limitations were noted.

Table 5: Climatic Interpolations: Portmore Farm Site

Grid Reference	SS581315	SS578322	SS597322
Altitude (m)	75	17	90
Accumulated Temperature (day °)	1505	1571	1487
Average Annual Rainfall (mm)	1015	941	1064
Overall Climatic Grade	1	1	1
Field Capacity Days	210	199	218
Moisture deficit (mm):			
Wheat	87	100	84
Potatoes	76	92	72

5.3 Relief and Landcover

Altitude ranges from 15 to 105 m AOD and the long slopes are mainly gentle to moderate, with small areas of middle slopes which are more strongly sloping.

At the time of survey, landcover was mainly grass with small areas of winter cereals and roots.

5.4 Geology and Soils

The geology of the site is shown on the published 1:50 000 scale Solid and Drift Geology map, Sheet 293, Barnstaple, British Geological Survey 1978. This indicates mainly Pilton shales to the south of the new A361 trunk road and at the north end of the site, with a broad band of alluvium and river terrace deposits in the valley and extending up the south-facing slopes on the north side of the road.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250 000, showing mainly Denbigh 1 Association on the shales and Hallsworth 2 Association on the alluvial deposits.

Denbigh 1 Association is described as well drained fine loamy and fine silty soils over rock with some similar soils having slowly permeable subsoils and slight seasonal waterlogging. Hallsworth 2 Association is described as slowly permeable seasonally waterlogged clayey, fine loamy and fine silty soils.

This distribution was largely borne out by the current survey.

5.5 Agricultural Land Classification

The distribution of ALC grades is shown in Table 6 and on the accompanying ALC map. This information could be misleading if shown at a larger scale.

Table 6: Distribution of ALC grades: Portmore Farm Site

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (112.0 ha)
3a	38.9	31.4	34.7
3b	26.7	21.5	23.8
4	46.4	37.4	41.4
Urban	5.2	4.2	
Non Agricultural	5.5	4.4	
Agricultural Buildings	1.2	1.0	
TOTAL	123.9		

Subgrade 3a

Areas shown as Subgrade 3a are mainly limited by workability, being Wetness Class I with heavy clay loam topsoils and heavy clay loam or clay subsoils over weathering shale. Although 60-80% soft rock was found from 33 cm in both pits examined, this does not cause a higher droughtiness limitation and a moderate limitation of workability due to heavy topsoil textures remains the principal limitation.

Subgrade 3b

Much of the land graded Subgrade 3b was found to be Wetness Class III, with gleying evident just above 40 cm depth. This combined with heavy clay loam topsoil textures implies a more serious moderate limitation due to wetness and workability.

Other areas shown as Subgrade 3b were found to be strongly sloping, 8-11°, and are mainly limited by gradient.

Grade 4

The large area of Grade 4 found on the lower south-facing slopes was consistently Wetness Class IV with a slowly permeable layer evident in the upper subsoil and typically a heavy clay loam or heavy silty clay loam topsoil texture giving Wetness Grade 4. A significant area of this unit had been woodland, Acland Wood, until some 25 years ago when it was cleared.

Other Land

Areas shown as non-agricultural include a golf driving range, a small horse gallop and field corners of new woodland.

Apart from roads and domestic houses which are shown as urban, other land also includes one block of farm buildings.

Resource Planning Team
Taunton Statutory Unit
February 1994

APPENDIX 1

REFERENCES

BRITISH GEOLOGICAL SURVEY 1978 Solid and Drift Edition, Sheet 293, Barnstaple, 1:50,000.

MAFF 1974 Agricultural Land Classification Map, Sheet 163, 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 Climatological Data for Agricultural Land Classification.

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

ADAS Resource Planning Group, 1981. Report of ALC Survey at Barnstaple, scale 1:25,000.

ADAS Resource Planning Team, 1993. Report of ALC Survey at Barnstaple, scale 1:10,000 (Lake site).

APPENDIX 2

DESCRIPTION OF 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 include 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 and horticultural crops can usually be grown but on some land in the 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.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In most 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Descriptions of other land categories used on ALC maps

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 park land, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

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 landcover types, eg buildings in large grounds, and where may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land), Alnwick.

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

Wetness Class 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 not wet within 40 cm depth for more than 30 days in most years.

Wetness Class 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 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 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years.

Notes: The number of days specified is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation), Soil Survey Field Handbook (revised edition).

SITE NAME Portmore Farm		PROFILE NO. Pit 1 (ASP 42)	SLOPE AND ASPECT 6° North	LAND USE PGR	Av Rainfall: 988 mm ATO: 1527 day °C FC Days: 206 Climatic Grade: 1 Exposure Grade: 1	PARENT MATERIAL Pilton Shales
JOB NO. 98/94		DATE 19/1/95	GRID REFERENCE SS 586 319	DESCRIBED BY PRW/HLJ		SOIL SAMPLE REFERENCES PRW 135

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Cones	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	33	HCL	10YR42	15% ZR Total (Vis)	None	None	-	-	-	Good	MF+VF	-	Clear smooth
2	60+	C	10YR56	56% ZR <2cm 56% ZR Total (S+D)	None	None	WCSAB (controlled by stones)	Friable	M	Good	CF+VF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

NL3361

Available Water Wheat: 127 mm

Potatoes: 105 mm

Moisture Deficit Wheat: 87 mm

Potatoes: 76 mm

Moisture Balance Wheat: 40 mm

Potatoes: 29 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks:

Pit dug to 60 cm.

SITE NAME		PROFILE NO.	SLOPE AND ASPECT	LAND USE	Av Rainfall: 988 mm	PARENT MATERIAL	
Portmore Farm		Pit 2 (ASP 52)	3° North	PGR	ATO: 1527 day °C	Pilton Shales	
JOB NO.		DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 206	SOIL SAMPLE REFERENCES	
98/94		19/1/95	SS 584 317	PRW/HLJ	Climatic Grade: 1	HLJ 116	
					Exposure Grade: 1		

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	23	HCL	10YR43	15% ZR Total (vis)	None	None	-	-	-	Good	MV+VF	-	Clear smooth
2	33	HCL	10YR46	30% ZR Total (Vis)	None	None	MMSAB	Friable	Good	Good	CF+VF	-	Abrupt smooth
3	60+	ZR	10YR54	80% ZR Total (Vis)	None	None	Determined by stones	-	Moderate	Good	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

NL336I

Available Water Wheat: 104 mm

Potatoes: 85 mm

Moisture Deficit Wheat: 87 mm

Potatoes: 76 mm

Moisture Balance Wheat: 17 mm

Potatoes: 9 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks:

TS PSD borderline HCL/MCL

SITE NAME Portmore Farm		PROFILE NO. Pit 3 (ASP 48)	SLOPE AND ASPECT 4° S	LAND USE PGR	Av Rainfall: 1064 mm ATO: 1487 day °C FC Days: 218 Climatic Grade: Exposure Grade:	PARENT MATERIAL River Terrace Deposits
JOB NO. 98/94		DATE 19/1/95	GRID REFERENCE SS 594 319	DESCRIBED BY PB		SOIL SAMPLE REFERENCES PB 228

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size, Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	27	HZCL	10YR53	0% (Vis)	RRC only	0	-	-	-	-	MF, VF	-	Abrupt smooth
2	90 (Pit)	ZC	5Y71	2% ZR (Vis)	MDCOM (10YR58)	C - Many in top 10 cm	WCPr	Fm	P	P	FVF	-	

Profile Gleyed From: 27 cm Depth to Slowly Permeable Horizon: 27 cm Wetness Class: IV Wetness Grade: 4 NL3361	Available Water Wheat: 127 mm Potatoes: 103 mm Moisture Deficit Wheat: 87 mm Potatoes: 76 mm Moisture Balance Wheat: +40 mm Potatoes: +27 mm Droughtiness Grade: 1 (Calculated to 120 cm)	Final ALC Grade: 4 Main Limiting Factor(s): We
	Remarks:	