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72/97

BRIDGEWATER NORTH

AGRICULTURAL LAND CLASSIFICATION SURVEY

CONTENTS

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AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of 353.0 ha of land north of Bridgwater, Somerset. Field survey was based on 151 auger borings and 9 soil profile pits, and was completed in December 1997. During the survey 5 samples were analysed for particle size distribution (PSD).

2. The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of Sedgemoor District Local Plan.

3. Information on climate, geology and soils, and from previous ALC surveys was considered and is presented in the relevant section. The published regional ALC map (MAFF, 1977), shows the site at a reconnaissance scale as mainly Grade 3, but with a small area of Grade 2 to the south west of Chilton Trinity. However, the site had not been surveyed previously. The current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF, 1988) and supersedes any previous ALC survey. Grade descriptions are summarised in Appendix I.

4. ALC surveys have been carried out previously on land adjacent to this site. To the south east, a survey at Sydenham (ADAS 1994) found mainly Subgrades 3b and 3a with smaller areas of Grade 2, all limited to varying degree by wetness. To the south west of the site, a contemporary survey at Wembdon (ADAS 1994) found mainly Subgrades 3a and 3b on soils developed on Keuper Marl, frequently with drift, but also Grades 2 and 1 on the sandier deposits immediately around Wembdon Village and adjacent to the current site.

5. At the time of survey land cover was mainly grass for dairying with some winter cereals. Other land which was not surveyed included roads, residential land, farm buildings and also the sewage works with amenity tree planting on a reclaimed spoil heap, a school and playing fields, a caravan site, several water filled disused brick pits and a section of the River Parrett.

SUMMARY

6. The distribution of ALC grades is shown on the accompanying 1:15 000 scale ALC map. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas. Areas are summarised in the Table 1.

Table 1: Distribution of ALC grades: Bridgwater North

Grade	Area (ha)	% Surveyed Area (283.4 ha)
2	30.6	11
3a	28.2	10
3b	222.6	78
5	2.0	1
Other land	69.6	
Total site area	353.0	

7. The shows that only 21% of the area surveyed was found to be best and most versatile. This is mainly Grade 2 to the south west of Chilton Trinity, limited mainly by droughtiness and workability, with smaller areas of Subgrade 3a limited by wetness. However the main part of the site was found to be Subgrade 3b, more seriously limited by wetness.

CLIMATE

8. Estimates of climatic variables for this site were derived from the published agricultural climate dataset "Climatological Data for Agricultural Land Classification" (Meteorological Office, 1989) using standard interpolation procedures. Data for key points around the site are given in Table 2 below.

9 Since the ALC grade of land is determined by the most limiting factor present, overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions. Parameters used for assessing overall climate are accumulated temperature, a measure of relative warmth and average annual rainfall, a measure of overall wetness. The results shown in Table 2 indicate that there is no overall climatic limitation.

10 Climatic variables also affect ALC grade through interactions with soil conditions. The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes, which are compared with the moisture available in each profile in assessing soil droughtiness limitations. These are described in later sections.

Table 2: *Climatic Interpolations: Bridgwater North*

Grid Reference		ST 313408	ST 287388
Altitude (m)		5	7
Accumulated Temperature (day °C)		1564	1563
Average Annual Rainfall (mm)		734	744
Overall Climatic Grade		1	1
Field Capacity Days		159	162
Moisture deficit (mm):	Wheat	113	111
	Potatoes	107	106

RELIEF

11. Much of the site is virtually level flood plain. Altitude ranges from 10 metres in the south west of the site to 5 metres at the north end of the site near Dunball, with mainly level and gentle slopes which are not limiting.

12. Arterial drainage is controlled by the water level in the River Parrett, through tidal flaps which are closed at high water. Therefore effective drainage is only possible at low water and this can lead to some delay in the discharge of surface water during times of heavy rainfall.

13. Areas of ridge and furrow, and redundant flood banks, remain in the lower lying ground. The current survey has recorded this as micro relief but nowhere as the primary limitation.

GEOLOGY AND SOILS

14. The underlying geology of the site is shown on the published geology map (IGS, 1975) as mainly alluvium with Keuper Marl on the slightly higher ground in the south west of the site, overlain by river gravel of the Burtle Beds to the south west of Chilton Trinity. The current survey found some distinction between the mainly grey marine alluvium through the centre to the north east of the site and the reddish river alluvium derived from Keuper Marl to the south west of the site. This survey also found drift overlying the Keuper Marl to varying depths in several places and also found the area shown as Burtle Beds to contain soft flaggy sandstone.

15. Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1:250 000 (SSEW, 1983) as mainly Newchurch 2 and Blacktoft associations on the marine alluvium with Compton association on the river alluvium. Newchurch 2 association is described as deep stoneless mainly calcareous clayey soils on flat land with ground water controlled by ditches and pumps. Blacktoft association is described as deep stoneless permeable calcareous fine and coarse silty soils with some calcareous clayey soils on flat land, also with groundwater control by ditches and pumps. Compton association is described as stoneless mostly reddish clayey soils affected by groundwater on flat land with a risk of flooding. The published information also shows mainly Whimple 1 association with some Whimple 3 and a small area of Hodnet association on the Keuper Marl with drift. The Whimple associations are described as reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. The Whimple 1 association is distinguished by being associated with similar well drained soils, some over gravel.

16. All this was largely borne out by the current survey although the Blacktoft soils were found to be less permeable than may have been expected from their published description.

AGRICULTURAL LAND CLASSIFICATION

17. The distribution of ALC grades found by the current survey is shown on the accompanying 15 000 scale map and areas are summarised in Table 1. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas.

Grade 2

18. The area shown as Grade 2 is found mainly where varying depths of drift overlie the Keuper Marl, including the area shown as Burtle Beds. Soils were found to have medium clay loam topsoil at Wetness Class I with a minor droughtiness limitation and are illustrated by Pits 2 and 4.

19. The area shown as Grade 2 also includes profiles with a heavy clay loam topsoil at Wetness Class I, limited by workability and droughtiness.

Subgrade 3a

20. The area shown as Subgrade 3a in the grey marine alluvium was found to be mainly heavy silty clay loam topsoil at Wetness Class II. This is illustrated by Pit 3 of the Sydenham survey. Porosity was found to be low through much of the profile but evidence of wetness and gleying was only found in the lower subsoil leading to identification of a slowly permeable layer (SPL) only below 58 cm.

21. Subgrade 3a could have been expected to be found more frequently in the area shown as Blacktoft association, based on the published description. However this was hardly found to be the case and Pit 8, which shows a clay topsoil at Wetness Class I, seemed to be somewhat exceptional.

22. Subgrade 3a was also found on the Keuper Marl in the south west of the site where the surface of the parent material is more deeply weathered. Typically these profiles have medium clay loam topsoil at Wetness Class III with the red native clay forming a slowly permeable layer at around 50 cm and with evidence of gleying immediately above the SPL.

23. One field around ASP 57 appears to have been subject to the surface tipping of brick factory waste, with tile waste, bricks and clinker on the topsoil, over an otherwise Subgrade 3a subsoil. This is illustrated by Pit 7 which was assessed as Subgrade 3b limited by topsoil stoniness.

Subgrade 3b

24. Much of the site, and most of the grey marine alluvium was found to be Subgrade 3b, predominately Wetness Class III with a slowly permeable layer in the middle subsoil associated with gleying or other evidence of wetness and heavy silty clay loam or heavier topsoil, frequently silty clay. This is illustrated by Pit 6. Generally the profile below the topsoil had the structure and porosity characteristics of a slowly permeable layer, so that identification of an SPL depended only on the evidence of wetness. This was frequently

difficult to see distinctly. The area of Subgrade 3b on the north east of the site contains several borings assessed as Grade 2 where such evidence of wetness could not be seen.

25. Where the slowly permeable layer is slightly lower but the topsoil is slightly heavier, as at Pit 9, the combination of clay or silty clay topsoil at Wetness Class II leads to the same grade. Conversely, where gleying is found above 40 cm and a slowly permeable layer is found above 45 cm, the profile is associated with Wetness Class IV, also Subgrade 3b. This is illustrated by Pits 1 and 5.

26. Subgrade 3b is also found on the fringe of the Keuper Marl with red riverine alluvium, with profiles assessed as Wetness Class III but with heavy clay loam topsoils.

27. On the raw Keuper Marl and generally in the absence of superficial drift, the red native clay was found to be slowly permeable, frequently in the upper subsoil and sometimes with evidence of gleying immediately above the SPL. This is illustrated by Pit 3 where the topsoil texture was found to be heavy clay loam.

28. A large area around the sewage works has been restored after waste tipping which has raised the land level. Borings in this area are recorded as disturbed and the clay cap was assessed as slowly permeable, with variable depth of topsoil and other soil forming material above. The top of this site is virtually level and at the time of survey showed evidence of extensive surface water ponding.

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December 1997

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SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 1(ASP38)	Level	Permanent Grass	Av Rainfall: 744 mm ATO: 1563 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	19/11/97	ST31273961	ML/HLJ		TS 0-25 cm ZC: (S4:Z49:C47%)

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	ZC	10YR42	0% (vis)	None	None	-	-	-	-	MF, VF	-	Clear Smooth
2	45	ZC	10YR53 (10YR51)	0%(vis)	CFFO (10YR56)	None	MDMAB	Firm	Good	Poor[*1]	CF, VF	-	Gradual Smooth
3	63	ZC	10YR52 (10YR51,61)	0% (vis)	CFFO (10YR56)	None	MDMPR [*3]	Firm	Moderate	Poor[*2]	FVF	-	Gradual Smooth
4	82+	ZC	10YR62 (10YR51)	0% (vis)	MDFO (10YR56)	None	MDM+CAB[*4]	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 23 cm

Slowly Permeable Horizon From: 45 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 144 mm

Potatoes: 121 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: 33 mm

Potatoes: 15 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

[*1] poor overall, many very small (<0.5mm)
[*2] one or two large pores
[*3] breaking to MDCAB
[*4] some WKCPR
Water coming into pit at 50 cm

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 2(ASP86)	1° South	Ley	Av Rainfall: 744 mm ATO: 1563 day °C	Sandstone
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	20/11/97	ST29003889	ML/HLJ		TS 0-25 cm HCL (S39:Z32:C29%)

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	25	HCL	7.5YR42	1%HR (vis)	None	None	-	-	-	-	MF, VF	-	Clear Smooth
2	46	HCL	7.5YR43	2%MSST(s)	None	None	WKCSAB	Friable	Moderate	Good	CF+VF	-	Abrupt Smooth
3	80	MSL	10YR53/263	10%>2cm (s) 2%<2cm (s+d) 12% MSST TOTAL	None	Few	WKCSAB	Very Friable	Good	Good	CF+VF	-	Clear Smooth
4	115	SCL	10YR62	8%HR (VIS) *1	CDFO (10YR66)	None	WKCSAB	Friable	Moderate	Good	FVF	-	-

Profile Gleyed From: 80 cm

Slowly Permeable Horizon From: No spl

Wetness Class: I

Wetness Grade: 2

Available Water	Wheat:	156 mm
	Potatoes:	114 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	106 mm
Moisture Balance	Wheat:	45 mm
	Potatoes:	8 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability, Droughtiness

Remarks: *1 many small shells

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 3(ASP116)	1° South	Cereal	Av Rainfall: 744 mm ATO: 1563 day °C	Keuper Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	21/11/97	ST2886 3860	ML/HLJ		None

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	24	H/MCL	75YR43	2%HR (vis)	None	None	-	-	-	Good	CF, VF	-	Clear Smooth
2	58	C	05YR44 (05YR53)	0%(vis)	CDOM (05YR56)	Few[*2]	MDCAB[*4]	Firm	Poor	Poor	[*1]CF, VF	-	Abrupt Smooth
3	95	C	2,5YR46	0% (vis)	None	Common[*3]	Massive[*5]	Very Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 24 cm

Slowly Permeable Horizon From: 24 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 128 mm

Potatoes: 102 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: 14 mm

Potatoes: -4 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

[*1] roots mainly ex-ped
[*2] becomiong common
[*3] in patches
[*4] breaking to WKMAB
[*5] breakiing to WKMAB

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 4(ASP171)	2° North	Permanent grass	Av Rainfall: 744 mm ATO: 1563 day °C	Keuper Marl
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/77	21/11/97	ST 2904 3760	ML/HLJ		TS0-25 cm MCL (S45:Z34:C21%)

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	25	MCL	75YR42	2%HR (vis)	None	None	-	-	-	Good	CF, VF	-	Clear Smooth
2	50	HCL	75YR43	15% HR TOTAL(s+d)*1	None	Few*2	WKCSAB	Friable	Moderate	Good	CF, VF	-	Gradual Smooth
3	95	C	05YR43 (7.5YR52)	18%HR TOTAL (vis)*2	FDFO *5 (10YR56)	Few	MCSAB	Friable	Moderate	Poor	CVF	-	Clear Smooth
4	120	C*4	05YR44,56 (75YR52)	18%HR TOTAL (vis)*3	FDFO *5 (10YR56)	Common*3	WKAD	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 95 cm

Slowly Permeable Horizon From: 95 cm

Wetness Class: I

Wetness Grade: 1

Available Water	Wheat:	123 mm
	Potatoes:	105 mm
Moisture Deficit	Wheat:	111 mm
	Potatoes:	106 mm
Moisture Balance	Wheat:	12 mm
	Potatoes:	-1 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Droughtiness

Remarks:

*1 all < 2cm
*2 all < 2 cm
*3 all < 2 cm
*4 plastic
*5 common in patches
*6 common in patches at bottom of horizon

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 5(ASP146)	Level	Permanent grass	Av Rainfall: 744 mm ATO: 1563 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	21/11/97	ST 2925 3832	HLJ		None

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	21	HZCL	10YR41	0% (vis)	None	None	-	-	-	Good	CF+VF	-	Clear Smooth
2	66	C	10YR51	0% (vis)	CDFO (10YR56)	Few*2	WKCAB	Firm	Poor	Good	CF+VF*1	-	Clear Smooth
3	80+	C	25YR61	0% (vis)	MDFO (10YR56)	None	WKCSAB	Firm	Poor	Poor	FF+VF	-	-

Profile Gleyed From: 21 cm

Slowly Permeable Horizon From: 21 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 127 mm

Potatoes: 104 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: 16 mm

Potatoes: -2 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: *1 ex ped
Water coming in below the topsoil

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 6(ASP 8)	Level	Permanent grass	Av Rainfall: 744 mm ATO: 1563 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	21/11/97	ST 3110 4028	HLJ		None

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	20	HZCL	10YR41,42	0% (vis)	None	None	-	-	-	Good	CF+VF	-	Clear Smooth
2	55	ZC	10YR51,61	0% (vis)	FDFO (10YR66)	Few	WKCPL	Friable	Poor	Poor	CF+VF	-	Clear Smooth
3	90+	C	25Y61	0% (vis)	CDFO (10YR56)	None	WKCAB[*1]	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 55 cm

Slowly Permeable Horizon From: 20 cm

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 123 mm

Potatoes: 100 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: 12 mm

Potatoes: -6 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Water at 45 cm
Roots mainly ex ped
[*1] Some prismatic tendencies

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 7 (ASP 57)	0°	PGR	Av Rainfall: 744 mm ATO: 1563 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	1/12/97	ST 3013 3913	HLJ/PB		None

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	9	HZCL	10YR31	2% HR(vis)	None	None	-	-	-	-	MF+VF	-	Clear Smooth
2	16	CSL	10YR31	70% HR(vis)	None	None	Too stony	FR	(M)	G	CVF	-	Clear Wavy
3	24	C	10YR52	30% HR (vis)	None	Few	WKCSAB	FM	M	G	CVF	-	Grad Smooth
4	90+	C	10YR42	1% HR (vis)	None	None	WKCSAB	FM	M	G (low)	FVF	-	-

Profile Gleyed From: -

Slowly Permeable Horizon From: -

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 127 mm

Potatoes: 103 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: +16 mm

Potatoes: -3 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Topsoil stoniness

Remarks:

H2 HR = clinker etc
H3 HR = bricks etc

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 8 (ASP 75E)	Level	PGR	Av Rainfall: 744 mm ATO: 1563 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 162 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	1/12/97	ST 3003 3901	PB/ HLJ		None

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	25	C/HZCL	10YR41	0% (vis)	None	None	-	-	-	Good	MF+VF	-	Gradual Smooth
2	45	C	10YR52 (10YR51)	0% (vis)	None	None	MDCPR (breakding to MDCSAB)	Firm	Poor	Good*	CF +VF	-	Gradual Smooth
3	65	C	10YR52 (10YR51)	0% (vis)	CFFO (10YR56)	None	MDCPR (breaking to MDCSAB)	Firm	Poor	Good*	CF+VF	-	Gradual Smooth
4	85+	C	10YR51 (2.5Y51)	0% (vis)	CDFO (10YR58)	None	WKCPR (breaking to MDCSAB)	Firm	Poor	Good* (low)	FVF	-	-

Profile Gleyed From: 45 cm

Slowly Permeable Horizon From: 65 cm

Wetness Class: I

Wetness Grade: 3a

Available Water Wheat: 124 mm

Potatoes: 101 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: +13 mm

Potatoes: -5 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks:

*Subsoil prosity due to large worm holes
Pit filled rapidly with water from below, to c 40 cm.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bridgwater North	Pit 9 (ASP 33)	Level	PGR	Av Rainfall: 734 mm ATO: 1564 day °C	Alluvium
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 159 Climatic Grade: 1 Exposure Grade: 1	PSD SAMPLES TAKEN
72/97	1/12/97	ST 3052 3957	PB/ HLJ		None

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	C	10YR32	None (vis)	None	None	-	-	-	Good	MF+VF	-	Gradual Smooth
2	62	C	10YR42	None (vis)	None	None	MDCPR	Firm	Poor	Poor (low)	CVF	-	Gradual Smooth
3	90+	C	10YR51 (10YR52)	None (vis)	FFFO (10YR56)	None	MDCPR (breaking to MDCAB)	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: Not gleyed

Slowly Permeable Horizon From: 62 cm

Wetness Class: II

Wetness Grade: 3b

Available Water Wheat: 125 mm

Potatoes: 102 mm

Moisture Deficit Wheat: 111 mm

Potatoes: 106 mm

Moisture Balance Wheat: +14 mm

Potatoes: -4 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Water entering slowly from bottom of pit