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West Wiltshire Local Plan

Trowbridge

Agricultural Land Classification
October 1996

Resource Planning Team
Taunton Statutory Group
ADAS Bristol

Job Number 20/96
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Ministry of Agriculture, Fisheries and Food
Land Use Planning Unit

WEST WILTSHIRE LOCAL PLAN
TROWBRIDGE

AGRICULTURAL LAND CLASSIFICATION SURVEY

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TROWBRIDGE

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 689.6 ha of land at Trowbridge. Field survey was based on 107 auger borings and seven soil profile pits, and was completed in October 1996.

2. The survey was conducted by the Resource Planning Team of ADAS Taunton Statutory Group on behalf of the MAFF Land Use Planning Unit in its statutory role in the preparation of West Wiltshire Local Plan.

3. Information on climate, geology and soils, and from previous ALC surveys was considered and is presented in the relevant section. Apart from the published regional ALC map (MAFF, 1977), which shows the site at a reconnaissance scale, part of the site was previously surveyed in 1980 at a scale of 1:25 000 (ADAS, 1980). The regional ALC map has an area of Grade 2 mapped corresponding with underlying Cornbrash limestone at Hilperton. On either side of this Grade 2 band, Grade 3 is mapped with other areas of Grade 3 at Drynham and Southwick. The rest of the area is mapped as Grade 4. The 1980 survey showed Subgrades 3b and 3c except for some 3a and 2 at Hilperton. However, 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. An area adjacent to the 1980 survey was surveyed in 1988 (ADAS, 1988), but using the Revised Guidelines. The current survey extends to the east and west of this. Together these surveys provide an updated indication of the land quality in this part of Trowbridge.

5. At the time of survey land cover was a mix of grassland and cereals. An area of 56.5 ha of agricultural land within the survey area was not surveyed because of access restrictions. Other land which was not surveyed included the Southwick Country Park, urban areas and sports fields.

SUMMARY

6. The distribution of ALC grades is shown on the accompanying 1:25 000 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: Trowbridge

Grade	Area (ha)	% Surveyed Area (524.6 ha)
3a	83.4	15.9
3b	384.7	73.3
Agricultural land not surveyed	56.5	10.8
Other land	165.0	-
Total site area	689.6	

7. 'Best and most versatile land is restricted to the Hilperton area where 83.4 ha of Subgrade 3a (good quality) land was identified. This land experiences a moderate droughtiness limitation, caused by stony soils developed over Cornbrash limestone. The rest of the area surveyed is limited to Subgrade 3b (moderate quality) by a moderate wetness limitation. These heavy poorly drained soils have restricted versatility for agriculture in terms of the timings of cultivations and the range of crops which could be grown.

8. It has been noted that there is a potential risk associated with the possible presence of Anthrax in the vicinity of the Biss Brook originating from the old tannery at Westbury Leigh. The extent of the risk in this area to livestock or humans from exposure to Anthrax spores by inoculation, inhalation or ingestion is unknown and beyond the scope of the current survey. If areas were identified with spores present then the land would probably be Grade 4, and the gradings presented in this report would be superseded.

CLIMATE

9. 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.

10. 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.

11. 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: Trowbridge

Grid Reference		ST 876 595
Altitude (m)		55
Accumulated Temperature (day °C)		1486
Average Annual Rainfall (mm)		758
Overall Climatic Grade		1
Field Capacity Days		169
Moisture deficit (mm):	Wheat	103
	Potatoes	96

RELIEF

12. Altitude ranges from 40 metres at Drynham to 64 metres at Whaddon Lane with gentle undulating land.

GEOLOGY AND SOILS

13. The underlying geology of the site is shown on the published geology map (IGS, 1965) as predominantly underlain by Jurassic Oxford Clay. The Trowbridge fault runs parallel with the Trowbridge Road, south of Hilperton, where a narrow band of Forest Marble is found adjacent to a larger band of Cornbrash limestone, also of Jurassic age. To the north of Hilperton Marsh, Oxford Clay again occurs. There are recent deposits of Head and alluvium around the Biss Brook and Hilperton Marsh. The geology was reflected in the findings of the current survey.

14. Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1:250 000 (SSEW, 1983) as the Wickham 3 and 4 Associations to the south of Trowbridge and at Hilperton Marsh. A small area of Wickham 4 is found south east of Hilperton. A band of better drained stony soils of the Elmton 1 Association runs east-west through Hilperton. Along the Biss Brook soils of the Fladbury 1 Association are mapped. Much of the Paxcroft Brook area is mapped as the Denchworth Association.

15. Wickham 3 and 4 Associations are described as slowly permeable waterlogged fine loamy over clayey soils. Wickham 3 may be more permeable. Denchworth Association is very similar. Fladbury 1 is described as a stoneless clay soil variably affected by groundwater. Elmton 1 is well drained brashy shallow soil over limestone.

16. The current survey found little distinction between soils of the Wickham, Denchworth and Fladbury Associations. Soils typical of Elmton 1 were found at Hilperton.

AGRICULTURAL LAND CLASSIFICATION

17. The distribution of ALC grades found by the current survey is shown on the accompanying 1:25 000 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.

Subgrade 3a

18. An area at Hilperton has been mapped as Subgrade 3a. These soils experience a moderate droughtiness limitation. The medium clay loam topsoils overlie stony subsoils. The soils are well drained and are assessed as Wetness Class I (see Appendix II). The stony subsoils combined with the Moisture Deficits for the area impose a moderate droughtiness limitation. There are slightly more stony patches within the unit as shown by Pit 6, but it was possible to auger to around 70cm in the surrounding area, so it is judged that Subgrade 3a is more representative of the area as indicated by Pit 5.

Subgrade 3b

19. The rest of the land surveyed has been mapped as Subgrade 3b. These soils experience a moderate wetness limitation. The clay and heavy clay loam topsoils overlie gleyed and slowly permeable subsoils. The soils were assessed in Pits 1, 2, 4 and 7 as Wetness Class IV. There are occasional Wetness Class III profiles, as described by Pit 3, within the mapping unit but these are also Subgrade 3b unless the topsoil was medium clay loam. These occasional medium clay loam Subgrade 3a profiles were scattered and at the scale of mapping have been included in the larger unit.

Other Land

20. There are three areas of agricultural land which were not surveyed because of access restrictions. Based on the evidence from surrounding land it is expected that these areas would be mapped as Subgrade 3b if they were to be surveyed.

G M Shaw
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ADAS Bristol
October 1996

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APPENDIX I

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 (e.g. 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.

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

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile.

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.

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson, 1974).

1. Terms used on computer database, in order of occurrence.

GRID REF: National 100 km grid square and 8 figure grid reference.

LAND USE: At the time of survey

WHT:	Wheat	**SBT:**	Sugar Beet	**HTH:**	Heathland
BAR:	Barley	**BRA:**	Brassicas	**BOG:**	Bog or Marsh
OAT:	Oats	**FCD:**	Fodder Crops	**DCW:**	Deciduous Wood
CER:	Cereals	**FRT:**	Soft and Top Fruit	**CFW:**	Coniferous Woodland
MZE:	Maize	**HRT:**	Horticultural Crops	**PLO:**	Ploughed
OSR:	Oilseed Rape	**LEY:**	Ley Grass	**FLW:**	Fallow (inc. Set aside)
POT:	Potatoes	**PGR:**	Permanent Pasture	**SAS:**	Set Aside (where known)
LIN:	Linseed	**RGR:**	Rough Grazing	**OTH:**	Other
BEN:	Field Beans	**SCR:**	Scrub		

GRDNT: Gradient as estimated or measured by hand-held optical clinometer.

GLEY, SPL: Depth in centimetres to gleying or slowly permeable layer.

AP (WHEAT/POTS): Crop-adjusted available water capacity.

MB (WHEAT/POTS): Moisture Balance. (Crop adjusted AP - crop potential MD)

DRT: Best grade according to soil droughtiness.

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				

LIMIT: The main limitation to land quality: The following abbreviations are used.

OC:	Overall Climate	**AE:**	Aspect	**EX:**	Exposure
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
ST:	Topsoil Stoniness				

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)

MOTTLE COL: Mottle colour using Munsell notation.

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%+

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.

PED. COL: Ped face colour using Munsell notation.

GLEY: If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

STONE LITH: Stone Lithology - One of the following is used.

HR:	All hard rocks and stones	**SLST:**	Soft oolitic or dolimitic limestone
CH:	Chalk	**FSST:**	Soft, fine grained sandstone
ZR:	Soft, argillaceous, or silty rocks	**GH:**	Gravel with non-porous (hard) stones
MSST:	Soft, medium grained sandstone	**GS:**	Gravel with porous (soft) stones
SI:	Soft weathered igneous or metamorphic rock		

Stone contents are given in % by volume for sizes >2cm, >6cm and total stone >2mm.

STRUCT: *The degree of development, size and shape of soil peds are described using* the following notation

Degree of development	**WK:**	Weakly developed	**MD:**	Moderately developed
	ST:	Strongly developed		
Ped size	**F:**	Fine	**M:**	Medium
	C:	Coarse	**VC:**	Very coarse
Ped Shape	**S:**	Single grain	**M:**	Massive
	GR:	Granular	**AB:**	Angular blocky
	SAB:	Sub-angular blocky	**PR:**	Prismatic
	PL:	Platy		

CONSIST: Soil consistence is described using the following notation:

L:	Loose	**VF:**	Very Friable	**FR:**	Friable	**FM:**	Firm
VM:	Very firm	**EM:**	Extremely firm	**EH:**	Extremely Hard		

SUBS STR: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** Good **M:** Moderate **P:** Poor

POR: Soil porosity. If a soil horizon has poor porosity with less than 0.5% biopores >0.5mm, a 'Y' will appear in this column.

IMP: If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

SPL: Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

CALC: If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a 'Y' will appear this column.

2. Additional terms and abbreviations used mainly in soil pit descriptions.

STONE ASSESSMENT:

VIS:	Visual	**S:**	Sieve	**D:**	Displacement

MOTTLE SIZE:

EF:	Extremely fine <1mm	**M:**	Medium 5-15mm
VF:	Very fine 1-2mm>	**C:**	Coarse >15mm
F:	Fine 2-5mm		

MOTTLE COLOUR: *May be described by Munsell notation or as ochreous (OM)* or grey (GM).

ROOT CHANNELS: In topsoil the presence of 'rusty root channels' should also be noted.

MANGANESE CONCRETIONS: Assessed by volume

N:	None		**M:**	Many	20-40%
F:	Few	<2%	**VM:**	Very Many	>40%
C:	Common	2-20%			

STRUCTURE: Ped Development *

WA:	Weakly adherent	**M:**	Moderately developed
W:	Weakly developed	**S:**	Strongly developed

POROSITY:

P: Poor - less than 0.5% biopores at least 0.5mm in diameter
G: Good - more than 0.5% biopores at least 0.5mm in diameter

ROOT ABUNDANCE:

The number of roots per $100cm^2$:		Very Fine and Fine	Medium and Coarse
F:	Few	1-10	1 or 2
C:	Common	10.25	2 - 5
M:	Many	25-200	>5
A:	Abundant	>200	

ROOT SIZE

VF:	Very fine	<1mm	**M:**	Medium	2 - 5mm
F:	Fine	1-2mm	**C:**	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS:

Sharp:	<0.5cm	**Gradual:**	6 - 13cm
Abrupt:	0.5 - 2.5cm	**Diffuse:**	>13cm
Clear:	2.5 - 6cm		

HORIZON BOUNDARY FORM: Smooth, wavy, irregular or broken.*

* See Soil Survey Field Handbook (Hodgson, 1974) for details.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Trowbridge	Pit 1 (Asp 108)	3°	PGR	Av Rainfall: 758 mm ATO: 1486 day °C	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
20/96	12/7/96	ST 8413 5622	GMS		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	23	MCL	10YR42	None (Visual)	FDFO (10YR46)	None	-	-	-	-	MVF	-	Clear smooth
2	43	HCL	10YR63	None (Visual)	MDMO+G (10YR56,52)	None	WCPr	Firm	Poor	Many	CVF	-	Clear smooth
3	70 +	C	2.5Y 62	None (Visual)	MDMO (10YR58)	None	MCPr	Firm	Poor	Some large worm holes esp. between peds but overall within ped just low	CVF	-	-

Profile Gleyed From: 23 cm

Depth to Slowly Permeable Horizon: 43 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 124 mm

Potatoes: 101 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: 21 mm

Potatoes: 4 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Depth to spl critical, if at 46cm profile would be 3a.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Trowbridge	Pit 2 (Asp 76)	0°	PGR	Av Rainfall: 758 mm ATO: 1486 day °C	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
20/96	8/8/96	ST 8720 5770	HLJ/GMS		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	C	10YR42	None (Visual)	None	None	-	-	-	-	MVF	-	Clear smooth
2	50 +	C	2.5Y64,62	None (Visual)	CDFO (7.5YR58)	Few	WCPr	Firm (possibly v. firm)	Poor	Poor	CVF	-	-

Profile Gleyed From: 20 cm

Depth to Slowly Permeable Horizon: 20 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 122 mm

Potatoes: 99 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: 19 mm

Potatoes: 3 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Trowbridge	Pit 3 (Asp 143)	0°	Maize	Av Rainfall: 758 mm ATO: 1486 day °C FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
20/96	9/8/96	ST 8617 5523	GMS		RPT/GMS/548

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	C	10YR42	None (Visual)	CDFO (7.5YR56)	None	-	-	-	-	MF,VF	-	Clear smooth
2	50	C	10YR62	None (Visual)	MDFO (7.5YR56)	Few	MCSAB	Friable	Moderate	Good	FVF	-	Clear smooth
3	80 +	C	2.5Y 62	None (Visual)	MDMO (7.5YR58,68)	None	WCAB	Friable	Moderate	Poor	FVF	-	-

Profile Gleyed From: Surface (0 cm)

Depth to Slowly Permeable Horizon: 50 cm

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 106 mm

Potatoes: 114 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: 3 mm

Potatoes: 18 mm

Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Depth to spl critical, if at 46cm profile would be 3a.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE	Av Rainfall: 758 mm	PARENT MATERIAL
Trowbridge	Pit 4 (Asp 139)	0°	PGR	ATO: 1486 day °C	Oxford Clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169	SOIL SAMPLE REFERENCES
20/96	9/8/96	ST 8498 5526	HLJ/GMS	Climatic Grade: 1	None
				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	13	HCL	10YR31	None (Visual)	CDFO/RR (7.5YR58)	None	-	-	-	Good	MF,VF	-	Clear smooth
2	26	HCL	10YR42	None (Visual)	CDFO/RR	None	WMPr	Firm	Poor	Poor	MF,VF	-	Clear smooth
3	67	C	10YR51,51	1 % HR (Flint)	MDF,MO (10YR56)	None	MMPr	Firm	Poor	Poor	CVF	-	Gradual smooth
4	80 +	C	2.5Y 62	1% HR	MDMO (10YR56)	Few	WCSAB	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: Surface (0 cm)

Depth to Slowly Permeable Horizon: 13 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 91 mm

Potatoes: 96 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: - 12 mm

Potatoes: 0 mm

Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Trowbridge	Pit 5 (Asp 49)	2° North	Stubble	Av Rainfall: 758 mm ATO: 1486 day °C	Cornbrash Limestone
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
20/96	9/8/96	ST 8695 5918	GMS/HLJ		RPT/HLJ/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	20	HCL	10YR33	1 % > 2 cm (s) 4 % < 2mm (s&d) 5 % HR Total	None	None	-	-	-	Good	MVF	-	Abrupt smooth
2	38	C	10YR44	2 % > 2 cm (s) 8 % < 2mm (s&d) 10 % HR Total	None	None	WMSAB	Friable	Good	Good	CVF	-	Clear smooth
3	65 +	C	10YR44	25 % > 2 cm (s) 34 % < 2mm (s&d) 59 % HR Total *2	None	None	None (insufficient soil)	-	-	Good	FVF*1	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No spl

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 88 mm

Potatoes: 91 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: - 15 mm

Potatoes: - 5 mm

Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Drought

Remarks:*1 observed to 65 cm
*2 probably underestimated due to crushing to powder with pick.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE	Av Rainfall: 758 mm	PARENT MATERIAL
Trowbridge	Pit 6 (near Asp 30 - 38)	0°	Cereals	ATO: 1486 day °C	Cornbrash limestone
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 169	SOIL SAMPLE REFERENCES
20/96	8/10/96	ST 8805 5965	PRW	Climatic Grade: 1	None
				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	26	HCL	10YR44	2 % > 2 cm (S) 18 % < 2 cm (S&D) 20 % HR Total	None	None	-	Friable	Moderate	Good	MF	Yese	Clear smooth
2	42	C	10YR56	10 % > 2 cm (S) 30 % < 2 cm (S&D) 40 % HR Total	None	None	MMSAB	Friable	Moderate	Good	FF	Yese	Abrupt smooth
3	70	C	10YR56	50 % > 2 cm (S) 30 % < 2 cm (S&D) 80 % HR Total	None	None	Not observed	Friable	Moderate	Many in soil & rock fissures <0.5 %	Not observed	Yese	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No spl

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 65 mm

Potatoes: 65 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: - 38 mm

Potatoes: - 31 mm

Droughtiness Grade: 3b (Calculated to 90 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Drought

Remarks: variability of limestone means this pit was shallower than the surrounding auger borings.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Trowbridge	Pit 7 (near Asp 13 - 19)	0°	Ploughed	Av Rainfall: 758 mm ATO: 1486 day °C FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	Oxford clay
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
20/96	8/10/96	ST 8700 6010	PRW		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	31	HCL	10YR43	None	FFFO	None	-	Friable	Moderate	Good	FF	-	Clear smooth
2	43	C	10YR53	None	CDMO (10YR58)	Few	MCSAB	Firm	Moderate	Good	FF	-	Clear smooth
3	80	C	10YR62	None	CDMO (75YR56)	Few	MCAB	Firm	Poor	Poor <0.5 %	FVF	-	-

Profile Gleyed From: 31 cm

Depth to Slowly Permeable Horizon: 43 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 105 mm

Potatoes: 110 mm

Moisture Deficit Wheat: 103 mm

Potatoes: 96 mm

Moisture Balance Wheat: 2 mm

Potatoes: 14 mm

Droughtiness Grade: 3a (Calculated to 80 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: