40/95

South Somerset Local Plan
Chard

Agricultural Land Classification

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Land Use Planning Unit

MAFF

SOUTH SOMERSET LOCAL PLAN

CHARD

AGRICULTURAL LAND CLASSIFICATION

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SOUTH SOMERSET LOCAL PLAN

CHARD

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 South Somerset Local Plan. The fieldwork at Chard was completed in August, September and October 1995 at a scale of 1:10,000 and is added to the results of the 1993 survey on the accompanying map. Data on climate, soils, geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Chard

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (293.4ha)
2	119.8	32.4	40.8
3a	119.4	32.3	40.7
3b	41.6	11.2	14.2
4	12.6	3.4	4.3
Urban	52.8	14.4	0.0
Non Agricultural	19.7	5.3	0.0
Agricultural Buildings	3.7	1.0	0.0
TOTAL	369.6	100.0	100.0

64.7% of the land surveyed has been mapped as "best and most versatile". Most of the Grade 2 land has a minor workability limitation, although there are some droughty profiles to the west of Chard. The rest of the land has moderate and severe wetness limitations for Subgrade 3a and 3b, and Grade 4 land respectively. The severity of the wetness limitation depends upon the combination of topsoil texture, the depth at which gleying starts, if it is present, and the depth to a slowly permeable layer in the subsoil.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in August, September and October 1995 at Chard, Somerset on behalf of MAFF as part of its statutory role in the preperation of the South Somerset Local Plan. The 1995 fieldwork covering 297ha of land was conducted by ADAS at a scale of 1:10,000 with approximately one boring per hectare of agricultural land. A total of 199 auger borings were examined and 14 soil profile pits used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (MAFF, 1974) shows the grade of the whole site at a reconnaissance scale. The land between Chardstock Lane and Cranway Farm, and around Crimchard is mapped as Grade 2. The rest of the land surrounding Chard is mapped as Grade 3, except for the shallow valleys near Chard Reservoir and the dismantled railway to the east of Chard which are mapped as Grade 4.

Much of the land around Chard was surveyed in 1979 and 1985. A few small sites were also resurveyed in 1983. An area around Holbear was re-surveyed in 1993 using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). The current survey now completes the survey work surrounding Chard. The results of the 1993 survey are presented elsewhere (MAFF, 1993) and this report details the findings of the most recent work.

The 1993 and 1995 surveys supersede previous surveys 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). 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. 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 from the published agricultural climate dataset (Meteorological Office 1989). 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 Table 1 indicate there is an overall Grade 2 minor climatic limitation above 120 m. There is also a potentially significant change in Field Capacity Days (FCD) values at about 75-80 m where it changes from below to above 200 FCD.

Table 1: Climatic Interpolations: Chard

Grid Reference		ST 324 096	ST 314 094	ST 336 082
Altitude (m)		120	176	85
Accumulated Temperature (day °)		1447	1383	1486
Average Annual Rainfall (mm)		1055	1119	1018
Overall Climatic Grade		2	2	1
Field Capacity Days		210	220	203
Moisture deficit (mm):	Wheat	84	75	90
	Potatoes	72	59	79

Table 1 cont.

Grid Reference		ST 317 078	ST 338 095
Altitude (m)		163	75
Accumulated Temperature (day °)		1398	1497
Average Annual Rainfall (mm)		1105	995
Overall Climatic Grade		2	1
Field Capacity Days		217	199
Moisture deficit (mm):	Wheat	77	92
	Potatoes	62	81

Climatic data on FCD values and Moisture Deficits for wheat and potatoes are shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections.

3. RELIEF AND LANDCOVER

The site covers land surrounding the town of Chard, Somerset. The land is all gently sloping, with gradients of less than 7°, and altitudes rise from 75 m Above Ordnance Datum (AOD) near Chard Reservoir to 180 m AOD above Newhouse Farm on the western side of the town. At the time of the survey the land was under permanent pasture, silage and arable cultivation.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 311 (Institute of Geological Sciences, 1973). This shows that most of the town and the surrounding land is underlain by Upper Greensand. Two areas of chalk are mapped, one around the A358 and Chardstock Lane to the south of Chard and the other along the high ground to the west of the town. Lower Lias (shales and limestones) are mapped on the eastern edge of the town, from Glynswood round to the dismantled railway with a small deposit of valley gravel being shown near Fordham Grange.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000 splitting the site into three areas. The first runs from the new business park on the northern edge of the town around to the dismantled railway. These soils belong to the Wickham 2 Association and are described as slowly permeable, seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. The higher ground to the west and south of Chard is mapped as being the Batcombe Association which are fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained soils occur over chalk and these are variably flinty. The rest of the site has soils from the Charity 1 Association. These are well drained fine silty over clayey soils, locally very flinty and some shallow over flint gravel.

The soils found during the current survey were similar to those described by the Soil Survey. Most of the profiles have medium clay loam and medium silty clay loam topsoils over clayey subsoils which are slowly permeable. There are also areas of well drained soils over both the flint deposits and chalk.

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: Chard

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (293.4ha)
2	119.8	32.4	40.8
3a	119.4	32.3	40.7
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Urban	52.8	14.4	0.0
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Grade 2

The land in these mapping units have minor workability and drought limitations. The profiles to the west of Crimchard have medium clay loam topsoils over heavy clay loam and clay subsoils, which were deep and well drained. They were assessed as Wetness Class I (see Appendix 3). Stone contents by volume of 34%, 34-39% and 5% hard rock (flint) were found in the topsoil and upper and lower subsoils respectively which cause the drought limitation. The medium clay loam and medium silty clay loam topsoils of the other Grade 2 mapping units lead to the workability limitation with the relatively high local FCD values of 200-220.

Subgrade 3a

This land mainly suffers from moderate wetness limitations. The profiles have medium clay loam topsoils over heavier subsoils. The clay lower subsoils are slowly permeable layers which start above 75 cm but the profiles are not gleyed, because of the matrix colours, or are gleyed below 40 cm. They were therefore assessed as Wetness Class III. Some of the slowly permeable layers only just have a low porosity and the profiles are therefore close to being assessed as Wetness Class I and Grade 2. There is an area of profiles to the north of Crimchard which are well drained but suffer from a moderate drought limitation. This is due to the high stone contents by volume of 5%, 38%, 54% and 65% hard rocks (limestone) found in the topsoil and subsoils respectively.

Subgrade 3b

The Subgrade 3b mapping units consist of several different groups of profiles but they all have a moderate wetness limitation. Some of the profiles are similar to the wet Subgrade 3a profiles and were also assessed as Wetness Class III but they have heavy clay loam topsoils which cause the greater limitation. Other profiles are gleyed above 40 cm and have the slowly permeable layers starting above 60 cm so they were assessed as Wetness Class IV but they have medium clay loam and medium silty clay loam topsoils.

Grade 4

The small areas of land mapped as Grade 4 have a severe wetness limitation to their agricultural use. The profiles are very similar to those in the Subgrade 3b mapping units that were assessed as Wetness Class IV except that they have heavy clay loam topsoils with clay subsoils at shallower depths.

Other land

Land mapped as urban includes gardens, roads, hard-core tracks and land which was in the process of being developed on the northern edge of Chard. The areas of non-agricultural land include sports fields, allotment gardens and areas of scrub while agricultural buildings have been mapped as such.

Resource Planning Team
Taunton Statutory Unit
October 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1976) Drift Edition, Sheet 311, Wellington, 1:50,000.

MAFF (1974) Agricultural Land Classification Map, Sheet 177, 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.

MAFF (1993) Agricultural Land Classification, South Somerset Local Plan, Chard, 1:10,000

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.

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 (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.

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 (e.g. 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, e.g. 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	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 1 (ASP 244)	2° East	Ley	Av Rainfall: 1055 mm ATO: 1447 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 210 Climatic Grade: 2	SOIL SAMPLE REFERENCES
40/95	12/7/95	ST 333 076	HLJ/PB	Exposure Grade: 1	RPT/HLJ/167

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	MSZL	10YR54	5% HR 72 cm (S) 8% HR < 2cm (S+D) 13% HR TOTAL	FFFGM 10YR63	None	-	-	-	Good	MF, VF	-	Clear Smooth
2	65	HCL	10YR54	12% HR > 2cm (S) 30% HR < 2cm (S+D) 42% HR TOTAL	CDFG, OM 10YR63,56	None	MMSAB	Friable	Good	Good	CF, VF	-	Gradual Smooth
3	95 +	C	10YR54	40% HR (VIS)	MDMOM 75YR56	None	WCSAB	Friable	Moderate	Poor	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 65 cm

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 116 mm

Potatoes: 96 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 28 mm

Potatoes: 24 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks: H3 dubious SPL : colours difficult to distinguish and high stone content may give good fissures.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 2 (ASP 295)	1° East	PGR	Av Rainfall: 1018 mm ATO: 1486 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 203 Climatic Grade: 1	SOIL SAMPLE REFERENCES
40/95	19/7/95	ST 333 069	PRW/NAD	Exposure Grade: 1	RPT/NAD/247

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	10YR43	2% TOTAL HR (VIS)	None	None	-	-	-	Good	MF + VF	None	Gradual Smooth
2	60	MCL	10YR44	2% HR > 2cm (s) 8% HR < 2cm (S+D) 10% HR TOTAL	None	None	MMAB	Friable	Moderate	Good	MF + VF	None	Clear Smooth
3	80	C	10YR46	20% HR TOTAL (S+D)	None	None	MCSAB	Friable	Moderate	Good	CF + VF	None	Abrupt Smooth
4	95 +	C	05YR46	5% HR TOTAL (VIS)	None	Common	WCSAB	Friable	Moderate	Poor	FF	None	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 80 cm

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 132 mm

Potatoes: 105 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 48 mm

Potatoes: 33 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability

Remarks: Borderline WC1 due to SPL starting just at 80 cm.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 3 (ASP 208)	1° South	Ley	Av Rainfall: 1018 mm ATO: 1486 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 203 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
40/95	19/7/95	ST 337 079	PRW/NAD		RPT/PRW/136

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	32	MCL	10YR33	1% > 2mm (S) 5% > 2mm (S+D) 6% HR TOTAL	Common rusty root channels in top 18cm	None	-	-	-	Good	MF + VF	None	Gradual Smooth
2	65	HCL	10YR44	6% HR TOTAL (VIS)	CDFO 7.5YR58	None	MCSAB	Friable	Moderate	Good	CF	None	Gradual Smooth
3	95 +	C	10YR53	1% HR TOTAL (VIS)	CDFO 7.5YR58	Common	MCSAB (borderline AB and Pr)	Friable	Moderate	Poor (just < 0.5% biopores)	FF	None	-

Profile Gleyed From: 65 cm

Depth to Slowly Permeable Horizon: 65 cm

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 139 mm

Potatoes: 112 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 55 mm

Potatoes: 40 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks: If no SPL at 65 cm then Wetness Class II due to gleying and Grade 3a.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 4 (ASP 205)	1° East	Wheat	Av Rainfall: 1105 mm ATO: 1398 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 217 Climatic Grade: 2	SOIL SAMPLE REFERENCES
40/95	19/7/95	ST 319 079	NAD/PRW	Exposure Grade: 1	RPT/PRW/137

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	10YR43	MZCL	2% HR TOTAL (VIS)	None	None	-	-	-	Good	MF + VF	-	Clear Wavy
2	45	10YR44	MCL	10% HR TOTAL (VIS)	None	None	MCSAB (estimate)	Friable	Moderate	Good	CF + VF	-	Gradual Smooth
3	80 +	75YR46	HZCL	15% HR TOTAL (VIS)	None	Few	MCSAB (estimate)	Friable	Moderate	Poor	CV + VF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 143 mm

Potatoes: 112 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 59 mm

Potatoes: 40 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability

Remarks: Pit dug to 80cm

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 5 (ASP 26)	0°	Bare Patch in Beans	Av Rainfall: 1055 mm ATO: 1447 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 210 Climatic Grade: 2 Exposure Grade: 1	SOIL SAMPLE REFERENCES
40/95	19/7/95	ST 320 097	PB/GMS		RPT/PB/298

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	MCL	10YR43	< 1% > 2cm HR 4½% > 2mm HR 5% TOTAL HR (S+D)	None	None	-	-	-	Good	None	-	Abrupt Smooth
2	40	HCL	10YR54	20% > 2cm HR 18% > 2mm HR 38% TOTAL HR (S+D)	None	None	WMAB	Friable	M	Low well fissured	FVF	-	Gradual Smooth
3	60	C	10YR46	40% > 2cm HR 14% > 2mm HR 54% TOTAL HR (S+D)	None	None	WCSAB	Friable	M	Low well fissured	FVF	-	Gradual Smooth
4	80 +	C	7.5YR56	45% > 2cm HR 20% > 2mm HR 65% TOTAL HR (S+D)	None	Common	WCSAB	Friable	M	Low well fissured	None	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 88 mm

Potatoes: 80 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: + 4 mm

Potatoes: + 8 mm

Droughtiness Grade: 3a (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Drought

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 6 (ASP 66)	3° North East	PGR	Av Rainfall: 995 mm ATO: 1497 day °C FC Days: 199 Climatic Grade: 1 Exposure Grade: 1	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
40/95	20/7/95	ST 338 093	PB/GMS		RPT/PB/299

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	FSZL	10YR42	20% > 2cm HR (10% > 6cm) 7% > 2mm HR 27% TOTAL HR (S+D)	CDMO 10YR56	None	-	-	-	Good	MVF	-	Gradual Smooth
2	46	SCL	10YR73	30% TOTAL HR (Visual)	MDMGO 10YR56,62	None	WMSAB	Friable	Good	Low	CF	-	Clear Wavy
3	80 +	C (with SL lenses)	10YR62	15% TOTAL HR (Visual)	MDMOG* 10YR68,61	None	WCSAB	Friable	Moderate	Low (Fissures round stones)	FF	-	-

Profile Gleyed From: Surface

Depth to Slowly Permeable Horizon: 46 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water	Wheat:	116 mm
	Potatoes:	95 mm
Moisture Deficit	Wheat:	84 mm
	Potatoes:	72 mm
Moisture Balance	Wheat:	+ 32 mm
	Potatoes:	+ 25 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness/top soil stones

Remarks: * Predominantly ochreous at top of H3

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 7 (ASP 88)	2° North East	PGR	Av Rainfall: 1018 mm ATO: 1486 day °C FC Days: 203 Climatic Grade: 1 Exposure Grade: 1	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
40/95	20/7/95	ST 337 090	PB/GMS		RPT/HLJ/170

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	30	MCL	10YR43	< 1% > 2cm HR 9% > 2mm HR 10% TOTAL HR	CRR to 15cm	None	-	-	-	Good	MF, VF	-	Gradual Smooth
2	65	MCL	10YR53	5%> 2cm HR 13% > 2mm HR 18% TOTAL HR	FFFO	Common	MCSAB	Friable	M	Poor	CF, VF	-	Gradual Smooth
3	110 +	SCL	2.5YR54	4% HR (Visual)	CDFO 75YR56	Few	WCAB	Friable	M	Poor	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 141 mm

Potatoes: 103 mm

Moisture Deficit Wheat: 85 mm

Potatoes: 72 mm

Moisture Balance Wheat: + 56 mm

Potatoes: + 31 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 8 (ASP 18)	0°	Beans	Av Rainfall: 1055 mm ATO: 1447 day °C	Lower Lias (Shales, Limestone)
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 210 Climatic Grade: 2 Exposure Grade: -	SOIL SAMPLE REFERENCES
40/95	1/8/95	ST 326 098	HLJ		RPT/HLJ/171

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	22	MZCL	10YR44	10% HR TOTAL (VIS)	FDVFO (10YR66)	None	-	-	-	Good	MF	-	Clear Smooth
2	40	HCL	10YR53	5% HR TOTAL (VIS)	CDFO (10YR66)	None	MCAB	Friable	Moderate	Good	CF + VF	-	Clear Smooth
3	70 +	C	7.5YR54	5% HR TOTAL (VIS)	CDFO, G (7.5YR56 10YR73)	None	WCSAB	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 22 cm

Depth to Slowly Permeable Horizon: 40 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 124 mm

Potatoes: 102 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 40 mm

Potatoes: 30 mm

Droughtiness Grade: 1 (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
Chard	Pit 9 (ASP 91)	0°	PGR	Av Rainfall: 995 mm ATO: 1497 day °C FC Days: 199 Climatic Grade: 1 Exposure Grade: 1	Lower Lias (Shales, Limestone)
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
40/95	1/8/95	ST 340 090	HLJ		RPT/HLJ/172

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	28	HCL	10YR42	5% HR TOTAL (VIS)	CDFO (10YR56)	Common	-	-	-	Good	CF + VF	-	Clear Smooth
2	42	HCL	10YR52	10% HR TOTAL (VIS)	CDFO (10YR56)	Common	WCSAB	Friable	Moderate	Good	FF + VF	-	Gradual Smooth
3	65 +	C	10YR52	5% HR TOTAL (VIS)	CDMO + G 10YR56,63	Common	WCAB	Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: Surface

Depth to Slowly Permeable Horizon: 42 cm

Wetness Class: IV

Wetness Grade: 4

Available Water Wheat: 125 mm

Potatoes: 103 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 41 mm

Potatoes: 31 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 4

Main Limiting Factor(s): Wetness

Remarks: Augured to 100cm

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 10 (ASP 253)	3° North	Wheat	Av Rainfall: 1105 mm ATO: 1398 day °C	Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 217 Climatic Grade: 2 Exposure Grade: 1	SOIL SAMPLE REFERENCES
40/95	2/8/95	ST 321 075	HLJ		RPT/HLJ/173

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	HCL	10YR54	10% HR TOTAL (VIS)	None	None	-	-	-	Good	CF + VF	-	Clear Smooth
2	70 +	C	10YR46	10% HR TOTAL (VIS)	CDFO 10YR66	Common	WCAB	Firm	Poor	Poor	CF + VF (decreasing to FVF)	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 27 cm

Wetness Class: III

Wetness Grade: 3b

Available Water Wheat: 116 mm

Potatoes: 95 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 32 mm

Potatoes: 23 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: Dug to 70 cm, augured to 110 cm.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 11 (ASP 47)	4° East	PGR	Av Rainfall: 1119 mm ATO: 1383 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 220 Climatic Grade: 2	SOIL SAMPLE REFERENCES
40/95	2/8/95	ST 315 094	HLJ	Exposure Grade: 1	RPT/HLJ/174

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	15	MCL	10YR43	10% HR > 2cm (S) 24% HR < 2cm (S+D) 34% HR TOTAL	None	None	-	-	-	Good	MF + VF	-	Clear Smooth
2	50	MCL	10YR44	15% HR > 2cm (S) 19% HR < 2cm (S+D) 34% HR TOTAL	None	None	WCSAB	Firm	Moderate	Good	CF + VF	-	Gradual Smooth
3	88	HCL	10YR54	5% HR > 2cm (S) 34% HR < 2cm (S+D) 39% HR TOTAL	FFFO (10YR66)	Few	WCAB	Firm	Poor	Good	FF	-	Clear Smooth
4	95 +	C	10YR46	5% HR TOTAL (VIS)	FFFG (10YR62)	None	WCSAB	Firm	Moderate	Poor	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 88 cm

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 98 mm

Potatoes: 72 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 14 mm

Potatoes: 0 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability and Drought

Remarks: H4 porosity is borderline; overall just poor.

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 12 (ASP 190)	2° East	Ploughed	Av Rainfall: 1105 mm ATO: 1398 day °C FC Days: 217 Climatic Grade: 2 Exposure Grade: 1	Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
40/95	2/8/95	ST 314 080	HLJ		RPT/HLJ/175

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	30	MCL	10YR44	5% HR 72 cm (S) 9% HR < 2cm (S+D) 14% HR TOTAL	None	None	-	-	-	Good	FF + VF	-	Clear Smooth
2	65	HCL	7.5YR46	10% HR > 2m (S) 8% HR < 2cm (S+D) 18% HR TOTAL	FDFO, G (10YR66,72)	Few	WCSAB	Friable	Moderate	Good	FVF	-	Clear Smooth
3	90 +	C	7.5YR56	15% HR TOTAL (VIS)	CDMO, G (10YR66,72)	Many	WCSAB	Firm	Poor	Poor	None	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 65 cm

Wetness Class: III

Wetness Grade: 3a

Available Water: Wheat: 119 mm; Potatoes: 99 mm

Moisture Deficit: Wheat: 84 mm; Potatoes: 72 mm

Moisture Balance: Wheat: 35 mm; Potatoes: 27 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 13 (ASP 126)	2° South	PGR	Av Rainfall: 1018 mm ATO: 1486 day °C	Upper Green Sand
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 203 Climatic Grade: 1	SOIL SAMPLE REFERENCES
40/95	3/8/95	ST 337 086	HLJ	Exposure Grade: 1	RPT/HLJ/176

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	10YR44	2% HR > 2cm (s) 13% HR < 2cm (S+D) 15% HR TOTAL	None	None	-	-	-	Good	MF + VF	-	Clear Smooth
2	65	MSL	7.5YR44	5% HR > 2cm (S) 9% HR < 2cm (S+D) 14% HR TOTAL	None	None	MCSAB	Firm	Moderate	Good	FF + VF	-	Abrupt Smooth
3	90 +	MCL	7.5YR54	5% HR > 2cm (S) 17% HR < 2cm (S+D) 22% HR TOTAL	None	None	MCSAB	Firm	Moderate	Good	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: Not SPL

Wetness Class: I

Wetness Grade: 2

Available Water Wheat: 129 mm

Potatoes: 97 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 45 mm

Potatoes: 25 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Wetness

Remarks:

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Chard	Pit 14 (ASP 155)	3° East	Wheat	Av Rainfall: 1105 mm ATO: 1398 day °C FC Days: 217 Climatic Grade: 2 Exposure Grade: 1	Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
40/95	3/8/95	ST 314 083	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	22	MCL	10YR43	12% HR > 2cm (s) 16% HR < 2cm (S+D) 28% HR TOTAL	None	None	-	-	-	Good	CF + VF	-	Clear Smooth
2	65	HCL	10YR44	15% HR > 2cm (s) 11% HR < 2cm (S+D) 26% HR TOTAL	FFFO (10YR66)	Few	WCSAB	Friable	Moderate	Good	FVF	-	Clear Smooth
3	90 +	C	10YR46	10% HR TOTAL (VIS)	CDFO (10YR66)	Few	WCSAB	Firm	Moderate	Poor	FVF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: 65

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 114 mm

Potatoes: 88 mm

Moisture Deficit Wheat: 84 mm

Potatoes: 72 mm

Moisture Balance Wheat: 30 mm

Potatoes: 16 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks: