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**South Somerset Local Plan
Crewkerne and Misterton
Agricultural Land Classification**

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**SOUTH SOMERSET LOCAL PLAN
CREWKERNE AND MISTERTON
AGRICULTURAL LAND CLASSIFICATION**

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SOUTH SOMERSET LOCAL PLAN

CREWKERNE AND MISTERTON

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 Crewkerne and Misterton was completed in August and September 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 at 1:15,000 scale and summarised below. Information is correct at this scale but could be misleading if enlarged. Results from a survey of the land on the eastern side of Crewkerne, between the A30 and Hellings Farm, carried out in 1993, are also shown on the accompanying ALC map. The data from the 1993 survey are presented elsewhere (MAFF, 1993) and this report details the findings of the most recent work

Distribution of ALC grades: Crewkerne and Misterton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (294.2 ha)
1	40.7	11.0	13.8
2	49.5	13.3	16.8
3a	95.9	25.7	32.6
3b	66.1	17.7	22.5
4	33.6	9.0	11.4
5	8.4	2.3	2.9
Disturbed Land	1.1	0.3	0.0
Urban	56.2	15.1	0.0
Non Agricultural	18.5	5.0	0.0
Agricultural Buildings	2.4	0.6	0.0
TOTAL	372.4	100.0	100.0

50% of the land surveyed at Crewkerne and Misterton is "best and most versatile". The Grade 1 and Grade 2 land both have deep well drained sandy loam profiles but the grade 2 mapping units have slightly heavier topsoils (medium clay loam) causing a moderate workability limitation. Most of the Subgrade 3a land is well drained but where it is shallow there is a moderate drought limitation and in other areas there is a moderate workability limitation due to the heavy clay loam topsoils. There are a few areas which have a moderate wetness limitation due to the presence of slowly permeable layers in the subsoils. Some small areas of land mapped as Subgrade 3b and Grade 4 also have poor drainage and respectively have moderate and severe wetness limitations depending on the interaction of their topsoil texture and the depth at which gleying and their slowly permeable layers start. Most of the land mapped as Subgrade 3b and Grade 4, and all of the land mapped as Grade 5 has a limitation to its agricultural use because of steep gradients.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in August and September 1995 at Crewkerne and Misterton, Somerset on behalf of MAFF as part of its statutory role in the preparation of the South Somerset Local Plan. The 1995 fieldwork covering 297.6 ha 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 225 auger borings were examined and eight 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 site at a reconnaissance scale. This shows most of the site as Grade 3. There is a small area of Grade 1 land mapped to the north of Crewkerne, near Broadshard. To the south of this area is an area of Grade 2 land between Broadshard and the A30. Another area of Grade 2 land is mapped between Hewish Lane and Curriot Hill to the south of Crewkerne. The steep sided valleys at Misterton, Curriot Hill, Bincombe and below Crow Castle are mapped as Grade 4.

The area was also surveyed in 1979 at a scale of 1:25,000. This showed the area to have a mixture of Grade 2, Subgrade 3a, 3b and 3c and Grade 4 land. The land on the eastern side of Crewkerne, between the A30 and Hellings Farm, was surveyed in 1993 at a scale of 1:10,000. The results from this survey are shown on the accompanying ALC map.

This recent survey supersedes the 1974 and 1979 maps having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). 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 no overall climatic limitation.

Table 1: Climatic Interpolations: Crewkerne and Misterton

Grid Reference	ST 433 090	ST 455 107	ST 439 102
Altitude (m)	134	55	77
Accumulated Temperature (day °)	1428	1517	1492
Average Annual Rainfall (mm)	971	858	882
Overall Climatic Grade	1	1	1
Field Capacity Days	196	179	183
Moisture deficit (mm):			
Wheat	84	98	94
Potatoes	71	89	84

Grid Reference		ST 450 087	ST 458 078	ST 464 085
Altitude (m)		82	95	55
Accumulated Temperature (day °)		1487	1472	1518
Average Annual Rainfall (mm)		903	954	899
Overall Climatic Grade		1	1	1
Field Capacity Days		186	194	186
Moisture deficit (mm):	Wheat	93	90	97
	Potatoes	82	79	88

Grid Reference		ST 458 082
Altitude (m)		65
Accumulated Temperature (day °)		1506
Average Annual Rainfall (mm)		912
Overall Climatic Grade		1
Field Capacity Days		188
Moisture deficit (mm):	Wheat	96
	Potatoes	86

Climatic data on Field Capacity Days (FCD) 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 Crewkerne and Misterton. The relief of the site is relatively complicated with areas of high land to the north and west of Crewkerne, and between Crewkerne and Misterton at altitudes of 90-135 m Above Ordnance Datum (AOD). There are valleys with gradients greater than 7° and smaller areas which have gradients greater than 11° and 18° to the south and west of Crewkerne and to the south of Misterton. At the time of the survey landuses included cereal and maize cultivation and permanent pasture.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale solid and drift geology map, Sheet 312 (Institute of Geological Sciences, 1973). This shows that most of the site is underlain by Yeovil Sands. Within the site however there are areas underlain by Inferior Oolite (limestone) on the relatively flat land to the east of Broadshard, on the southern edge of Crewkerne and between Crewkerne and Misterton. Fullers Earth (clay) is mapped in patches to the east of Broadshard and around Misterton. There is also a small area of head mapped to the north-east of Misterton.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000. Land on the western edge of Crewkerne, from Broadshard to the B3165, is shown to belong to the South Petherton Association which is described as being deep well drained silty soils, some over soft rock. The area of land between the A30 and Broadshard is mapped as belonging to the Evesham 1 Association. This is described as being slowly permeable calcareous clayey soils associated with shallow well drained brashy calcareous soils over limestone. The land on the south side of Crewkerne is shown to belong to the Middleton Association which are described as reddish, fine silty soils with slowly permeable subsoils and slight seasonal waterlogging over shale and siltstone. There are some similar fine loamy soils and seasonally waterlogged fine silty soils in places. The land between Crewkerne and Misterton and around Misterton is mapped as the Elmton 1 Association which are described as shallow, well drained brashy calcareous fine loamy soils over limestone.

There may be some similar deeper soils and some non-calcareous and calcareous clayey soils. There is a band of the Denchworth Association running through Misterton along the valley from Mill Farm to Bullring Farm. These are described as being slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils. Some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils may also occur.

The soils found during the current survey were similar to those described by the Soil Survey. The three main types of profile were: deep, well drained sandy loams to the west of Crewkerne; shallow, well drained clay loams over limestone to the south of Crewkerne, around Misterton and in patches to the north of Crewkerne; and clay loam over slowly permeable clay soils in patches to the north of Crewkerne and around Misterton.

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: Crewkerne and Misterton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land (294.2 ha)
1	40.7	11.0	13.8
2	49.5	13.3	16.8
3a	95.9	25.7	32.6
3b	66.1	17.7	22.5
4	33.6	9.0	11.4
5	8.4	2.3	2.9
Disturbed Land	1.1	0.3	0.0
Urban	56.2	15.1	0.0
Non Agricultural	18.5	5.0	0.0
Agricultural Buildings	2.4	0.6	0.0
TOTAL	372.4	100.0	100.0

Grade 1

The two areas of Grade 1 land that have been mapped at Bincombe and to the north of the A30 consist of deep, well drained profiles which were assessed as Wetness Class I (see Appendix 3). They have coarse sandy loam and fine sandy silt loam topsoils over fine sandy loam subsoils with negligible stone contents and no limitation to their agricultural use.

Grade 2

The profiles mapped as Grade 2 consist of deep, well drained profiles which were assessed as Wetness Class I. The profiles are similar to those in the Grade 1 mapping units but they have medium clay loam topsoils which cause a minor workability limitation.

Subgrade 3a

There are two types of profile in this mapping unit. The areas to the south and north of Crewkerne, and the areas to the north-west and south-west of Misterton have a moderate drought limitation. These profiles have medium clay loam and medium sandy loam topsoils over clay loam subsoils. They are well drained but are shallow over weathered limestone. Stone contents by volume of 10%, 32-49% and more than 70% hard rock were found in the topsoil, and upper and lower subsoils respectively. The other areas mapped as Subgrade 3a, to the east of Broadshard in the valley bottom and on the south-east side of Misterton have moderate wetness and workability limitations. Some of the profiles have slowly permeable layers starting above 70 cm but are not gleyed above 40 cm so they were assessed as Wetness

Class III and as they have medium clay loam topsoils they are mapped as Subgrade 3a. Other profiles are well drained and were assessed as Wetness Class I but they have heavy clay loam topsoils which leads to a moderate workability limitation.

Subgrade 3b

The land mapped as Subgrade 3b to the north and east of Misterton has a moderate wetness limitation to its agricultural versatility. The profiles have heavy clay loam topsoils over clay subsoils and slowly permeable layers starting above 70 cm but are not gleyed above 40 cm so they were assessed as Wetness Class III. The small area of flat land to the east of Broadshard has profiles which were assessed as Wetness Class IV due to the gleying starting above 40 cm and slowly permeable layers starting above 50 cm but they have medium clay loam topsoils over the clay subsoils and so are were mapped as Subgrade 3b. The other areas of land mapped as Subgrade 3b, to the south of Misterton, on the southern and western edges of Crewkerne and the steeper land to the east of Broadshard have a moderate limitation to their agricultural use due to their gradients of 8-11° which restrict the safe use of certain agricultural machinery.

Grade 4

The small areas of land mapped as Grade 4 to the west and north of Crewkerne and on the south-east edge of Crewkerne have a severe limitation to their agricultural use caused by steep gradients of 12-18°. These limit the range of agricultural machinery which can be safely used. The two areas of land to the north of Misterton and to the north-east of Hellings Farm have a severe wetness limitation. The profiles have clay and heavy clay loam topsoils over slowly permeable clay subsoils. They are gleyed above 40 cm and the slowly permeable layers start above 50 cm so they were assessed as Wetness Class IV.

Grade 5

The small areas of land mapped as Grade 5 have a very severe limitation to their agricultural use due to their steep gradients. These are over 18° and limit the type of agricultural machinery which can be safely used.

Other land

Land mapped as urban includes gardens, roads and hard-core tracks. The areas of non-agricultural land include sports field and large areas of residential grassland while agricultural buildings have been mapped as such.

Resource Planning Team
Taunton Statutory Unit
October 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1973) Solid and Drift Edition, Sheet 312, Yeovil, 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.

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification.

MAFF (1993) Agricultural Land Classification, Crewkerne Local Plan, 1:10,000

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	Av Rainfall: 912 mm	PARENT MATERIAL
Misterton		Pit 1 (ASP 71)	3° East	Ley Grass	ATO: 1506 day °C	Inferior Oolite (Limestone)
JOB NO.		DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 188	SOIL SAMPLE REFERENCES
46/95		7/9/95	ST 460 078	HLJ/NAD	Climatic Grade: 1	RPT/HLJ/184
					Exposure Grade: -	

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	10YR44	1% SLST TOTAL (VIS)	None	None	-	-	-	-	Many F + VF	-	Clear Wavy
2	56	HCL	10YR46	5% SLST > 2cm (S) 10% SLST < 2cm (VIS) 15% SLST TOTAL	None	None	MMSAB	Friable	M	Good	Common F + VF	-	Clear Smooth
3	80 +	C	10YR53	None	CDFO (10YR56)	None	MCSAB	Friable	M	Poor	Few F + VF	-	-

Profile Gleyed From: 56 cm

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 3a

Available Water Wheat: 135 mm

Potatoes: 109 mm

Moisture Deficit Wheat: 96 mm

Potatoes: 86 mm

Moisture Balance Wheat: 39 mm

Potatoes: 23 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Workability

Remarks: Augured to 100cm. H3 is nearly a prismatic structure which would make it an SPL (WC III, Grade 4!)

SITE NAME Misterton		PROFILE NO. Pit 2 (ASP 18)	SLOPE AND ASPECT 0°	LAND USE Cereal	Av Rainfall: 912 mm ATO: 1506 day °C FC Days: 188 Climatic Grade: 1 Exposure Grade: -	PARENT MATERIAL Inferior Oolite (Limestone)	
JOB NO. 46/95		DATE 7/9/95	GRID REFERENCE ST 462 084	DESCRIBED BY NAD/HLJ	SOIL SAMPLE REFERENCES RPT/HLJ/185		

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	HCL	10YR41	2% HR TOTAL (VIS)	None	None	-	-	-	Good	CF + VF	-	Abrupt Smooth
2	38	C	25YR66 10YR66	5% HR TOTAL (VIS)	None	Common	MCSAB	Friable	Moderate	Poor	CV + VF	-	Clear Wavy
3	65 +	C	25YR63	5% CH TOTAL (VIS)	MDFO + G (10YR68,62)	Common	WACSAB	Very Firm	Poor	Poor	FVF	-	-

Profile Gleyed From: 38 cm

Depth to Slowly Permeable Horizon: 38 cm

Wetness Class: IV

Wetness Grade: 4

Available Water Wheat: 128 mm

Potatoes: 105 mm

Moisture Deficit Wheat: 96 mm

Potatoes: 86 mm

Moisture Balance Wheat: 32 mm

Potatoes: 19 mm

Droughtiness Grade: 1 (Calculated to 120 cm)

Final ALC Grade: 4

Main Limiting Factor(s): Wetness

Remarks: Augured to 100cm.