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Taunton Deane Local Plan

AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY

Resource Planning Team
Taunton Statutory Unit

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ADAS

TAUNTON DEANE LOCAL PLAN
AGRICULTURAL LAND CLASSIFICATION

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TAUNTON DEANE LOCAL PLAN

AGRICULTURAL LAND CLASSIFICATION

SUMMARY

Land at six sites in the Taunton Deane area totalling 322 ha was surveyed and graded in June and July 1994 using the Agricultural Land Classification (ALC) system (MAFF 1988) The surveys were undertaken on behalf of MAFF as part of its statutory role in the preparation of the Taunton Deane Local Plan

The field work was carried out by ADAS at a scale of 1 10 000 providing information which is correct at this scale but which could be misleading of enlarged Information on climate geology soils and previous ALC surveys was used and is presented in the report The distribution of ALC grades found in the survey areas is detailed below and is illustrated on the accompanying maps

Distribution of ALC grades Creech St Michael

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	2 3	9 4	9 8
2	4 6	18 9	19 4
3a	13 9	57 0	58 6
3b	2 9	11 9	12 2
Urban	0 4	1 6	0
Agricultural Buildings	0 3	1 2	0
TOTAL	24 4	100	100

Nearly 90% of the agricultural land surveyed was best and most versatile There was a small area of Grade 1 land which has no limitation to its agricultural land use The Grade 2 land suffers from a minor droughtiness limitation due to the stone contents down the profile On the higher ground this increased to a moderate limitation due to an increase in the subsoil stone content The lower ground to the north and south of Northend Farm and near the canal suffers from a moderate wetness limitation The difference between the Subgrade 3a and the Subgrade 3b land is the depth to gleying and the slowly permeable layer

Distribution of ALC grades Maidenbrook Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	8 9	89	89
3a	1 1	11	4
TOTAL	10 0	100	100

The whole site was mapped as best and most versatile The Grade 2 profiles had a minor droughtiness limitation due to the stone content down the profiles These profiles were well drained where as the small area of Subgrade 3a land was gleyed caused by a slowly permeable layer imposing a moderate wetness limitation

Distribution of ALC grades Ruishton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	1 2	0 7	0 8
2	25 0	15 3	16 0
3a	43 2	26 5	27 8
3b	86 6	53 1	55 4
Urban	2 9	1 8	0
Non Agricultural Land	0 7	0 4	0
Agricultural Buildings	3 4	2 2	0
TOTAL	163 0	100	100

Nearly 45% of the agricultural land surveyed at Ruishton is best and most versatile This included a small area of Grade 1 land but most of the land has a minor or moderate limitation The Grade 2 land includes droughty areas with 5 30% hard rocks by volume in the subsoil and well drained areas which have a heavy topsoil and therefore an overall minor workability limitation Where there are slowly permeable layers at depth an overall minor wetness limitation was found As the depth to the slowly permeable layer decreases the severity of the wetness limitation increases to be mapped as Subgrade 3a Slightly better drained profiles had a moderate workability limitation due to clay topsoils and some of the higher ground had moderate droughtiness limitations where the subsoil stone content increased to 30 50% hard rocks by volume The Subgrade 3b land had a moderate wetness limitation due to a combination of heavy clay loam and clay subsoils with slowly permeable layers in the red clay subsoils

Distribution of ALC grades Sherford

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	38 7	32 0	33 2
3a	23 0	19 1	19 8
3b	46 0	38 1	39 6
4	8 6	7 1	7 4
Urban	0 9	0 7	0
Non Agricultural Land	1 2	1 0	0
Agricultural Buildings	1 9	1 6	0
Open Water	0 5	0 4	0
TOTAL	120 8	100	100

Nearly half of the agricultural land surveyed at Sherford was best and most versatile All of the profiles had either an overall workability limitation or an overall wetness limitations The Grade 2 profiles near Sherford Bridge were well drained but had heavy clay loam topsoils causing a minor workability limitation Elsewhere the Grade 2 profiles had medium clay loam topsoils and were assessed as Wetness Class II with deep slowly permeable layers Where the topsoil was heavier and the depth to the slowly permeable layers was reduced the profiles were mapped as Subgrade 3a and 3b having a moderate wetness limitation The difference between the two subgrades was the depth to the slowly permeable layer which meant they were assessed as Wetness Class III and IV The small area of Grade 4 land was assessed as Wetness Class III because of a slowly permeable layer in the red clay subsoil but it was mapped as having a severe wetness limitation because of its clay topsoil and Field Capacity days value of more than 175

Distribution of ALC grades Staplegrove

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	2 9	100	100
TOTAL	2 9	100	100

All of the agricultural land surveyed at Staplegrove is Grade 2 The profiles are freely drained but most of them suffer from a minor droughtiness limitation The profiles along the northern edge of the site have fewer stones but their topsoil is heavier causing a minor workability limitation

Distribution of ALC grades West Buckland

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	0 9	100	100
TOTAL	0 9	100	100

All of the land at West Buckland was mapped as Subgrade 3b This was due to a moderate wetness limitation where the profiles were gleyed below 30 cm and a moderate workability limitation where the profiles were better drained but the clay topsoils and high Field Capacity Days value combined to be limiting overall

1 INTRODUCTION

Land at six sites in the Taunton Deane area amounting to 322 ha was surveyed and graded in June and July 1994 using the Agricultural Land Classification (ALC) system (MAFF 1988) The surveys were undertaken on behalf of MAFF as part of its statutory role in the preparation of the Taunton Deane Local Plan

This report refers to surveys at Creech St Michael Maidenbrook Farm Taunton Rushton Sherford Taunton Staplegrove The field work was carried out by ADAS (Resource Planning Team Taunton Statutory Unit) at a scale of 1 10 000 (approximately one auger sample point for every hectare of agricultural land) The 304 borings were supplemented by 19 soil inspection pits and were used to assess the subsoil conditions The information is correct at the scale shown but any enlargement would be misleading

A description of the published geology and soils information is included in a section for each site as well as any previous ALC survey information The published provisional 1 to the mile ALC maps (MAFF 1971 1974) show the grades of the sites at a reconnaissance scale and for some of the sites more detailed work has been carried out However these are considered inadequate for Local Plan purposes and the current surveys which supersede all previous work were undertaken to provide a more detailed representation of the agricultural land quality 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 its 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 most limiting factor present The overall climate is considered first as it can have an overriding influence on restricting land to lower grades despite other favourable conditions

Estimates of climatic data for each site were interpolated from the published climatic dataset (Meteorological Office 1989) The parameters used for assessing climates are accumulated temperature a measure of the relative warmth of a locality and annual average rainfall a measure of overall wetness The results shown in Table 1 indicate that there is no overall climatic limitation for any of the sites

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for Wheat and potatoes are also shown These soil data are used in assessing the soil wetness and droughtiness limitations referred to in Sections 3 4 4 4 5 4 6 4 7 4 and 8 4 Local climatic factors such as exposure were assessed in the survey area as having no effect on the grading of any of the sites A description of the soil wetness classes used is included in Appendix 3

Table 1 Climatic Interpolations

		Creech St Michael	Creech St Michael	Maidenbrook Farm
Grid Reference		ST 267 257	ST 275 265	ST 248 263
Altitude (m)		20	20	15
Accumulated Temperature (day °)		1554	1554	1560
Average Annual Rainfall (mm)		742	742	744
Overall Climatic Grade		1	1	1
Field Capacity Days		161	161	161
Moisture deficit (mm)	Wheat	111	111	112
	Potatoes	106	105	106

		Ruishton	Ruishton	Ruishton
Grid Reference		ST 256 239	ST 262 244	ST 268 247
Altitude (m)		15	27	10
Accumulated Temperature (day °)		1561	1547	1566
Average Annual Rainfall (mm)		752	759	750
Overall Climatic Grade		1	1	1
Field Capacity Days		162	163	162
Moisture deficit (mm)	Wheat	112	110	113
	Potatoes	107	105	108

		Sherford	Sherford	Sherford
Grid Reference		ST 225 223	ST 233 233	ST 230 227
Altitude (m)		70	23	38
Accumulated Temperature (day °)		1500	1553	1536
Average Annual Rainfall (mm)		848	796	822
Overall Climatic Grade		1	1	1
Field Capacity Days		179	170	175
Moisture deficit (mm)	Wheat	101	109	106
	Potatoes	92	103	99

		Staplegrove	West Buckland
Grid Reference		ST 213 268	ST 177 203
Altitude (m)		40	63
Accumulated Temperature (day °)		1533	1510
Average Annual Rainfall (mm)		782	872
Overall Climatic Grade		1	1
Field Capacity Days		169	184
Moisture deficit (mm)	Wheat	105	99
	Potatoes	98	90

3 CREECH ST MICHAEL

3 1 An area of 24 4 ha at Creech St Michael and Creech Heathfield was surveyed in June 1994 The area is covered by sheet 177 (MAFF 1974) of the national 1 to the mile provisional ALC map series This shows the sites to the west of Creech St Michael to be Grade 2 the sites to the north and south of Northend Farm to be Grade 2 on the higher land and Grade 3 on the lower land and the site at Creech Heathfield to be Grade 3 Northend Farm itself is shown as predominantly urban land

The area had previously not been surveyed in any detail so this survey carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) forms the only data A total of 26 auger borings and two soil inspection pits were examined

3 2 Relief and Landcover

The sites occupy land around Creech St Michael which rises from an altitude of 15m AOD on the valley floor near Northend Farm up the slopes to flatter areas at altitudes of about 25m AOD near Rocketts Cottages and Creech Heathfield At the time of survey most of the fields were under permanent pasture or grass leys although there were a few areas of cereal cultivation

3 3 Geology and Soils

The published 1 50 000 solid and drift edition geological map of the area sheet 295 (British Geological Survey 1984) shows that the sites are underlain by a mixture of alluvium Keuper Marl and valley gravel and head The valley floor to the north and south of Northend Farm is underlain by the Keuper Marl The gravel and head deposits are on the higher ground near Rocketts Cottages and Creechwood Terrace

The Soil Survey of England and Wales mapped the area in 1983 at the reconnaissance scale of 1 250 000

This shows that the sites consist of soils from the Whimple 1 Association and the Newnham Association The Whimple 1 soils are described as being reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal water logging They are associated with similar well drained soils some of which may be over gravel These were mapped at the Creech Heathfield site and on the lower ground to the north and south of Northened Farm Soils from the Newnham Association are described as being well drained reddish coarse and fine loamy soils over gravel which can be locally deep Some similar soils may be affected by ground water These soils were mapped at the three sites to the west of Creech St Michael and on the higher ground to the north and south of Creechwood Terrace

The soils found during the recent survey were similar to those identified by the Soil Survey of England and Wales Poorly drained clayey loams over clay with negligible stone contents less than 1% hard rocks by volume in the topsoil and 5 10% hard rocks by volume in the subsoils were found on the valley floor coinciding with the Whimple 1 soil profiles Poorly drained profiles were also found near the canal below Rocketts Cottages The site at Creech Heathfield had stony profiles which had some drainage problems and stone contents by volume of 10% hard rocks by volume in the topsoil increasing to 47% hard rocks by volume in the subsoil The higher areas of land around Rocketts Cottages to the south of Creechwood Terrace and near Salts Farm were well drained and had relatively high stone contents of hard rocks by volume of 5% in the topsoil and 20% hard rocks by volume in the subsoil which increased to 60% hard rocks by volume in the lower subsoil near the Creech St Michael school

3 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 2 and is illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement would be misleading

Table 2 Distribution of ALC grades Creech St Michael

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	2 3	9 4	9 8
2	4 6	18 9	19 4
3a	13 9	57 0	58 6
3b	2 9	11 9	12 2
Urban	0 4	1 6	0
Agricultural Buildings	0 3	1 2	0
TOTAL	24 4	100	100

Grade 1

The small area of Grade 1 land relates to profiles where the medium clay loam topsoils overlie heavy clay loam subsoils They are well drained and are assessed as Wetness Class I These profiles do not experience any droughtiness limitation

Grade 2

There are two types of profiles found in this mapping unit those with a minor droughtiness limitation and those with a minor wetness limitation The small area with a wetness limitation is on the slope above the canal Here the medium clay loam overlies clay with the profile being gleyed below 25 cm and therefore assessed as Wetness Class II The areas of droughty Grade 2 land are to the

south of Rocketts Cottages and on the higher land near Salts Farm These profiles are assessed as Wetness Class I being well drained but can experience a deficit in the soil moisture during the summer months This is due to the stone contents of 5% hard rocks by volume in the topsoil 5-25% by volume in the upper subsoil and 15-40% hard rocks by volume in the lower subsoil which reduced the available water

Subgrade 3a

The majority of the site is mapped as Subgrade 3a having either a moderate drainage limitation or a moderate wetness limitation There are two areas which both have a drainage limitation one at Creech Heathfield and the other to the north of Rocketts Cottages These profiles have medium clay loam topsoils over heavy clay loam and clay subsoils but they are well drained and are assessed as Wetness Class I They experience the droughtiness due to the stone contents which are higher than those in the Grade 2 land particularly in the subsoil where there are 47-60% by volume To the north of Northend Farm and next to the canal the profiles are assessed as Wetness Class III due to the presence of slowly permeable layers below 45cm and 65cm and gleying below and above 40 cm respectively With the medium clay loam and medium silty clay loam topsoils this gives the land an overall wetness limitation restricting the land to Subgrade 3a

Subgrade 3b

The small area of land mapped as Subgrade 3b to the south of Northend Farm has been assessed as Wetness Class IV due to the presence of gleying in the topsoil and upper horizons and slowly permeable layers below 30-40 cm With the medium clay loam topsoils and the local Field Capacity Days value of 161 this causes a moderate overall wetness limitation

Other Land

Residential buildings at Rocketts Cottages and Northend Farm together with agricultural buildings near Creechwood Terrace were mapped during the survey

4 MAIDENBROOK FARM, TAUNTON

4 1 The site consisted of 10 ha to the east of Taunton at Maidenbrook Farm and was surveyed in June 1994 Sheet 177 (MAFF 1974) of the national 1 to the mile provisional ALC map series covers the area and shows the majority of the site to be Grade 2 while the lower lying land on the southern and western sides of the site are Grade 3

The area to the west of Nerrols Farm to the north west of the site was surveyed in 1989 but there is no previous data for the current site apart from the present survey which was carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) A total of 10 auger borings and one soil inspection pit were examined

4 2 Relief and Landcover

The site is on the end of a broad spur of land and rises gently from 15m AOD in the south west to 20m AOD in the north east At the time of survey the whole site was under permanent pasture

4 3 Geology and Soils

The published 1 50 000 solid and drift edition geological map of the area sheet 295 (British Geological Survey 1984) shows that the whole site is underlain by Mercia Mudstone (Keuper Marl)

The Soil Survey of England and Wales mapped the area in 1983 at the reconnaissance scale of 1 250 000 This shows that the site consists of soils from the Whimple 3 Association and the Compton Association The Whimple 3 soils are described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging Some similar clayey soils occur on brows and slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils are found on lower slopes The Compton soils are described as being stoneless mostly reddish clayey soils affected by groundwater The Whimple 3 soils are mapped to the north of Maidenbrook Farm with the Compton site to the south

The soils found during the recent survey tended to resemble the Compton Association They were deep fairly well drained profiles with medium clay loam topsoils and heavy clay loam and clay subsoils A small percentage of stones were found throughout the profiles

4 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 3 and illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement would be misleading

Table 3 Distribution of ALC grades Maidenbrook Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	8 9	89	89
3a	1 1	11	4
TOTAL	10 0	100	100

Grade 2

Almost 90% of the survey area was mapped as Grade 2 having a minor droughtiness limitation to its agricultural use The profiles were deep well drained medium clay loam topsoils over heavy clay loam and clay subsoils and were assessed as Wetness Class I Down the profiles a stone content of 5% hard rocks by volume was found in each horizon which causes a deficit in the soil moisture content during the drier months

Subgrade 3a

A small area of land was found to have a moderate wetness limitation This was due to the presence of a gleyed horizon below 25 cm and a slowly permeable layer below 65 cm The soil was assessed as Wetness Class III and with a medium clay loam topsoil and a local Field Capacity Days value of 161 this area was mapped as Subgrade 3a

5 RUISHTON

5 1 A total of 163 ha were surveyed in two blocks at Ruishton to the east of Taunton during June and July 1994 The area is covered by sheet 177 (MAFF 1974) of the national 1 to the mile provisional ALC map series which shows the whole site to be Grade 3

The area had previously not been surveyed in any detail so this survey carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) forms the only data A total of 156 auger borings and nine soil inspection pits were examined

5 2 Relief and Landcover

The site occupies the flat valley floor between Haydon and Ruishton with an average altitude of 15m AOD It then rises up the gentle valley side towards Ruishton and to the north of Henlade There is a high point of 27m AOD near Ruishton House Two small blocks of land to the east of Ruishton and to the east of Henlade Nurseries were also surveyed At the time of survey most of the land was under permanent pasture and ley grassland although there were some areas of cereal cultivation

5 3 Geology and Soils

The site is covered by the published 1 50 000 solid and drift edition geological map sheet 295 (British Geological Survey 1984) and the 1 50 000 drift edition geological map sheet 311 (Institute of Geological Sciences 1976) These show that the land to the north of the valley floor is all underlain by Keuper Marl except for a small area of alluvium near Cheat Corner The valley floor itself is underlain by alluvium in the west and valley gravel in the east before Keuper Marl is found again to the north of Haydon

The area was mapped by the Soil Survey of England and Wales in 1983 at the reconnaissance scale of 1 250 000 This shows the site consists of soils from the Worcester and the Compton Associations The Worcester soils are found on the areas to the north of the valley floor and on the raised land around Haydon They are described as being slowly permeable calcareous and non calcareous reddish clayey soils over mudstone and are shallower on steeper slopes They can be associated with similar non calcareous fine loamy over clayey soils The valley floor consists of soils from the Compton Association which are described as being stoneless mostly reddish clayey soils affected by groundwater with a risk of flooding

The soils found during the recent survey were similar to those described above All of the soils were reddish with a mixture of medium clay loam heavy clay loam and clay topsoils over heavy clay loam and clay subsoils The soils tended to suffer from wetness problems with slowly permeable layers being present below 35 70 cm Some well drained profiles were found and in the northern part of the site the soils had sandy loam subsoils with stone contents of 5 10% hard rocks by volume in the topsoil and 50% hard rocks by volume in the lower subsoil

5 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 4 and is illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement could be misleading

Table 4 Distribution of ALC grades Ruishton

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
1	1 2	0 7	0 8
2	25 0	15 3	16 0
3a	43 2	26 5	27 8
3b	86 6	53 1	55 4
Urban	2 9	1 8	0
Non Agricultural Land	0 7	0 4	0
Agricultural Buildings	3 4	2 2	0
TOTAL	163 0	100	100

Grade 1

The small area of land mapped as Grade 1 has deep well drained profiles which have a few mottles below 30 cm but were still assessed as Wetness Class I They have medium clay loam topsoils over heavy clay loam subsoils and do not suffer from any droughtiness limitation

Grade 2

The land mapped as Grade 2 is found at the higher land either side of the A358 near Haydon and to the east of Ruishton These areas have a moderate limitation to their agricultural use due to wetness workability and in a few areas droughtiness The overall droughty profiles were mainly just to the north of Haydon Farm where there were medium clay loam and medium sandy loam topsoils over heavy clay loam and sandy clay loam subsoils The subsoils also had 5-30% hard rocks by volume in them

The areas which had a wetness limitation had medium clay loam topsoils over heavy clay loam and clay subsoils Gleyed horizons were found below 40 cm and slowly permeable layers were found below 65 cm which meant they were assessed as Wetness Class I These profiles were on either side of the A358 and below Bushy Cross Within this mapping unit some profiles were assessed as Wetness Class I as they only showed some evidence of wetness below 40 cm without the presence of a slowly permeable layer However these soils had heavy clay loam topsoils which combine with the local Field Capacity Days value of 162 to cause a minor workability limitation The Grade 2 profiles near Henlade Crossway and Lipe Lane were similar to this latter group and also had an overall workability limitation

Subgrade 3a

The area of land mapped as Subgrade 3a to the north of Woodlands House has a moderate drought limitation These profiles have medium clay loam topsoils with sandy clay loam and medium sandy loam subsoils In the topsoil the stone content is 5% hard rocks by volume which increases to 35 50% hard rocks by volume in the subsoils There are three areas where the profiles have an overall moderate wetness limitation to the north of Haydon to the west of Henlade and to the south of the A358 between the M5 and Ruishton House They have medium clay loam and heavy clay loam topsoils over red clay subsoils and are gleyed below 40 cm Slowly permeable layers are also present and depending on the depth to the slowly permeable layer they were assessed as Wetness Class II and III

Where the red clay subsoil was too porous to be a slowly permeable layer the profiles were assessed as Wetness Class I although there was some gleying below 40 cm in places These profiles were found to have an overall moderate workability limitation from the combination of clay topsoils and a Field Capacity Days value of 162 These areas are to the east of Stoke Road and to the south of Rose Farm

Subgrade 3b

Over half the site was mapped as Subgrade 3b due to moderate wetness limitations These profiles had a combination of heavy clay loam and clay loam topsoils over red clay subsoils They were gleyed in places below 30 50 cm and were all found to have a slowly permeable layer in the subsoil Depending on what depth the slowly permeable layer started at they were assessed as being Wetness

Class II III or IV With the heavy topsoils and the local Field Capacity Days value of 162 they were therefore mapped as Subgrade 3b There were small areas of better quality land which are mapped in this unit at this scale

Other Land

Included in the survey were some residential areas at Woodlands House Ruishton House and Henlade which are mapped as urban Musgrove Farm Rose Farm and Cambia Farm including the new poultry sheds are shown as agricultural buildings Some areas of trees rough wasteland and road embankments are shown as non agricultural land

6 SHERFORD

6 1 The site consisted of 121 ha on the southern edge of Taunton and was surveyed in July 1994 Sheet 177 (MAFF 1974) of the national 1 to the mile provisional ALC map series shows that most of the site is Grade 2 with a band of Grade 3 land running along the eastern and southern sides of the site

Part of the site around Pool Farm was surveyed in 1987 and verified in 1989 The grades from this survey are incorporated into the ALC map from the current survey For the rest of the site the current survey forms the only data and was carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) A total of 105 auger borings and six soil inspection pits were examined

6 2 Relief and Landcover

The site occupies part of the valley floor of Sherford Stream at an altitude of about 25 m AOD are rises to a high point of 73 m AOD at Cotlake Hill in the south western corner At the time of survey the landcover included soft and hard fruits potatoes cereal cultivation and permanent pasture

6 3 Geology and Soils

The published 1 50 000 drift edition geological map of the area sheet 311 (Institute of Geological Sciences 1976) shows that all of the site is underlain by Keuper Marl except for the flat areas adjacent to Sherford Stream and the stream running along the eastern edge of the site These areas are underlain by valley gravel deposits

The Soil Survey of England and Wales mapped the area as 1983 at the reconnaissance scale of 1 250 000 This shows that most of the site consists of soils from the Worcester Association while there is a small area of soils from the Compton Association which covers the northern part of the site above Pool Farm The Worcester soils are described as being slowly permeable non calcareous and calcareous reddish clayey soils over mudstone which can be shallow on steeper slopes They are associated

with similar non calcareous fine loamy over clayey soils The Compton soils are described as being stoneless mostly reddish clayey soils which are affected by groundwater

The soils found during the recent survey had similar profiles with medium clay loam heavy clay loam and clay topsoils over reddish clay subsoils Most of the subsoils were slowly permeable except for an area near Sherford Bridge and an area on the higher ground above Killam s Lane which were found to be too porous Although suffering from impaired drainage very few of the profiles were actually gleyed because of the dominant reddish colours

6 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 5 and illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement could be misleading

Table 5 Distribution of ALC grades Sherford

Distribution of ALC grades Sherford

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	38 7	32 0	33 2
3a	23 0	19 1	19 8
3b	46 0	38 1	39 6
4	8 6	7 1	7 4
Urban	0 9	0 7	0
Non Agricultural Land	1 2	1 0	0
Agricultural Buildings	1 9	1 6	0
Open Water	0 5	0 4	0
TOTAL	120 8	100	100

Grade 2

This mapping unit falls into two groups of profiles The first are deep well drained heavy clay loam topsoils over heavy clay loam and clay subsoils These do not have any gleying or slowly permeable layers and are assessed as Wetness Class I The heavy clay loam topsoils and a Field Capacity Days value of less than 175 combine to cause an overall minor workability limitation These profiles can be found next to Killam s Lane and to the east of Cutliff Farm The second group of profiles have medium clay loam topsoils over heavy clay loam and clay subsoils They are not all gleyed but the grey and reddish clayey lower subsoils have slowly

permeable layers below 70 cm so they were assessed as Wetness Class II This combined with the medium topsoils and a Field Capacity days value below 175 cause a minor wetness limitation It is these profiles that are found around Pool Farm Sherford Bridge Farm and below Cutliff Farm

Subgrade 3a

The land in this mapping grade has been assessed as having moderate wetness and workability limitations The areas of Subgrade 3a to the north of Cotlake Hill and Cornish Farm are deep and well drained but have heavy clay loam and clay topsoils They were assessed as Wetness Class I but have a moderate workability limitation due to the combination of their heavy topsoils and their Field Capacity Days value which is just over 175 The other areas in this subgrade were assessed as Wetness Class II and III depending on the depth to the red clay slowly permeable layer The topsoil textures were medium and heavy clay loams and the Field Capacity Days value was less than 175

Subgrade 3b

The profiles in these mapping units had moderate wetness limitations due to the presence of slowly permeable layers in the red clay subsoils Depending on the depth to the slowly permeable layer they were assessed as Wetness Class III and IV which combined with the medium and heavy clay loam and clay topsoils and Field Capacity days values of above and below 175 cause a moderate overall limitation

Grade 4

The small area of Grade 4 land has been assessed as having a severe wetness limitation This is because although the profiles have a slowly permeable layer starting between 30 60 cm and are assessed as Wetness Class III they have clay topsoils These heavier topsoils and the high Field Capacity Days value of over 175 combine to give the overall severe limitation

7 STAPLEGROVE

7 1 An area of just less than three hectares to the north of Staplegrove was surveyed in June 1994 The area is covered by sheet 177 (MAFF 1974) of the national 1 to the mile provisional ALC map series which maps the whole site as Grade 3

The area was previously included in the 1 50 000 1978 survey for the North Devon Link Road and was mapped as Subgrade 3a This current survey carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) forms the only detailed survey of the site A total of three auger borings were examined

7 2 Relief and Landcover

The site occupies a gently sloping south facing hillside above Staplegrove at an altitude of 40m AOD and at the time of the survey it was all under cereal cultivation

7 3 Geology and Soils

The published 1 50 000 solid and drift edition geological map of the area sheet 295 (British Geological Survey 1984) shows that the whole site is underlain by Keuper Marl

The Soil Survey of England and Wales mapped the area in 1983 at the reconnaissance scale of 1 250 000 which showed that the southern two-thirds consists of soils from the Newnham Association while the rest of the site consists of soils from the Whimple Association The Newnham soils are described as well drained reddish coarse and fine loamy soils over gravel which can be locally deep Some similar soils may be affected by groundwater The Whimple 3 soils are described as being reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging There are also slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes

The recent survey found soil profiles that are very similar to these soil types Well drained medium clay loam over heavy clay loam profiles with 25% hard rock by volume were found on most of the site While in the north west corner heavier soils with heavy clay loam topsoils and clay subsoils were found with some mottling in the lower subsoil but no slowly permeable layers

7 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 6 and illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement could be misleading

Distribution of ALC grades Staplegrove

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	2 9	100	100
TOTAL	2 9	100	100

Grade 2

The whole of the site is mapped as Grade but there are two overall limitations Along the northern edge of the site the profiles have heavy clay loam topsoils over clay subsoils The profiles are assessed as Wetness Class I although some mottling is present in the subsoil The topsoil texture combined with the local Field Capacity days value of 169 cause a minor workability limitation The rest of the site consists of deep well drained profiles with medium clay loam topsoils over heavy clay loam subsoils These are also assessed as Wetness Class I Stone contents of 5% hard rocks by volume in the topsoil and 25% hard rock by volume in the subsoil lead to a minor droughtiness limitation These stony profiles are comparable to and have similar stone contents to nearby surveys at Okehills in 1989 and Pyrland in 1994

8 WEST BUCKLAND

8 1 The survey site covered just less than one hectare of land to the south of West Buckland village The area is covered by sheet 164 (MAFF 1971) of the national 1 to the mile ALC map series which shows the whole site as Grade 3

The site has not previously been surveyed so the current survey carried out under the Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (MAFF 1988) forms the only data A total of three auger borings and one soil inspection pit were examined

8 2 Relief and Landcover

The site occupies a gently sloping east facing hillside at an altitude of about 65m AOD At the time of survey the whole site was under permanent pasture

8 3 Geology and Soils

The published 1 50 000 drift edition geological map sheet 311 (Institute of Geological Sciences 1976) shows that the whole site is underlain by Keuper Marl

The Soil Survey of England and Wales mapped the area in 1983 at the reconnaissance scale of 1 250 000 which showed the whole site to consist of soils from the Whimple 3 Association These are described as being reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging Some similar clayey soils can be found on brows and slowly permeable seasonally waterlogged fine loamy and fine silty soils over clayey soils on lower slopes

The soils found during the survey were similar to these with clay topsoils over clay subsoils which are mottled although no slowly permeable layers were found

8 4 Agricultural Land Classification

The distribution of ALC grades identified in the survey area is detailed in Table 7 and illustrated on the accompanying ALC map The information is correct at the scale shown but any enlargement may be misleading

Distribution of ALC grades West Buckland

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	0 9	100	100
TOTAL	0 9	100	100

Subgrade 3b

The whole site was found to have a moderate limitation to its agricultural use This was due to wetness over most of the site where the profiles had clay topsoils over clay subsoils which were gleyed below 30 cm These profiles were assessed as Wetness Class II which combined with the topsoil texture and the local Field Capacity days value of 184 cause the profiles to be mapped as Subgrade 3b There is a small area of slightly better drained profiles which are not mottled enough to be gleyed These have a moderate workability limitation as they are assessed as Wetness Class I but have clay topsoils

Resource Planning Team
Taunton Statutory Unit
August 1994

APPENDIX 1

REFERENCES

BRITISH GEOLOGICAL SURVEY (1984) Solid and Drift edition sheet 295 Taunton 1 50 000 scale

INSTITUTE OF GEOLOGICAL SCIENCES (1976) Drift edition sheet 311 Wellington 1 50 000 scale

MAFF (1971) Agricultural Land Classification Map sheet 164 Provisional 1 63 360 scale

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 Land) Alnwick

METEOROLOGICAL OFFICE (1989) published climatic data extracted from the agroclimatic dataset compiled by the Meteorological Office

SOIL SURVEY OF ENGLAND AND WALES (1983) sheet 5 Soils of South west England 1 250 000 scale

APPENDIX 2

DESCRIPTION OF ALC GRADES AND SUBGRADES

Grade 1 excellent quality agricultural land

Land with no or very minor limitations to agricultural use A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit soft fruit salad crops and winter harvested vegetables Yields are high and less variable than on land of lower quality

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield cultivations or harvesting A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops The level of yield is generally high but may be lower or more variable than Grade 1

Grade 3 good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops timing and type of cultivation harvesting or the level of yield Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2

Subgrade 3a good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops especially cereals or moderate yields of a wide range of crops including cereals grass oilseed rape potatoes sugar beet and the less demanding horticultural crops

Subgrade 3b moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year

Grade 4 poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable In most climates yields of grass may be moderate to high but there may be difficulties in utilisation The grade also includes very droughty arable land

Grade 5 very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

Descriptions of other land categories used on ALC maps

Urban

Built-up or hard uses with relatively little potential for a return to agriculture including housing industry commerce education transport religious buildings cemeteries Also hard-surfaced sports facilities permanent caravan sites and vacant land all types of derelict land including mineral workings which are only likely to be reclaimed using derelict land grants

Non agricultural

Soft uses where most of the land could be returned relatively easily to agriculture including private park land public open spaces sports fields allotments and soft-surfaced areas on airports/airfields Also active mineral workings and refuse tips where restoration conditions to soft after uses may apply

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses Temporary structures (eg polythene tunnels erected for lambing) may be ignored

Open water

Includes lakes ponds and rivers as map scale permits

Land not surveyed

Agricultural land which has not been surveyed

Where the land use includes more than one of the above landcover types eg buildings in large grounds and where may be shown separately Otherwise the most extensive cover type will usually be shown

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

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

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

Wetness Class II

The soil profile is wet within 70 cm depth for 31 90 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 90 days but not wet within 40 cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70 cm depth for 91 180 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31 and 90 days in most years

Wetness Class IV

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

Wetness Class V

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

Wetness Class VI

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

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

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

[gNL622]

SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Creech St Michael	Pit 1	0°	PGR	Av Rainfall 742 mm ATO 1554 day °C FC Days 161 Climatic Grade 1 Exposure Grade	Keuper Marl
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
77/94	3/6/94	ST 281 270 (ASP 2)	PB/HLJ		RPT/PB/139

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	14	MSZL	10YR44	0% (S+D)	N	N				G	MF + VF	N	Abrupt smooth
2	45	SCL	05YR46	2% HR >2cm 35% HR >2mm 37% HR Total (S+D)	N	N	MDCAB	Fr	M	G	CF+VF	N	Abrupt smooth
3	75	MSL	05YR54	2% HR >2cm 45% HR >2mm 47% HR Total (SD)	CDMOM (7 5YR68)	F	WDCSAB	Fr	G	G	FF+VF	N	Abrupt smooth
4	115+	LCS	2 5YR46	2% HR >2cm 45% HR >2mm 47% HR Total (S+D)	CFFOM (05YR58)	C	Single Grain	VF	M	G	FVF	N	

Profile Gleyed From	N/A	Available Water	Wheat	92 mm	Final ALC Grade 3A
Depth to Slowly Permeable Horizon	N/A		Potatoes	81 mm	Main Limiting Factor(s) Droughtiness
Wetness Class	1	Moisture Deficit	Wheat	111 mm	
Wetness Grade	1		Potatoes	105 mm	
		Moisture Balance	Wheat	19 mm	Remarks
			Potatoes	24 mm	
		Droughtiness Grade		3A (Calculated to 120 cm)	

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SITE NAME	PROFILE NO	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Creech St Michael	Pit 2	0°	PGR	Av Rainfall 742 mm ATO 1554 day °C FC Days 161 Climatic Grade 1 Exposure Grade	Valley Gravel and Head
JOB NO	DATE	GRID REFERENCE	DESCRIBED BY		SOIL SAMPLE REFERENCES
77/94	3/6/94	ST 270 260 (ASP 21)	GMS HLJ		RPT/PB/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	26	MZCL	7.5YR4/2	<1% HR >2cm 4% HR >2mm 5% HR Total (S+D)	N	N				G	CVF	N	Clear smooth
2	50	MZCL	7.5YR5/4	1% HR >2cm 9% HR >2mm 10% HR Total (S+D)	N	N	MDCSAB	FR	M	G	CVF	N	Clear smooth
3	70	C	7.5YR5/4	5% HR >2cm 13% HR >2mm 18% HR Total (S+D)	MDMOM	C (Patchy)	WDCSAB	FR	M	G	CVF	N	Clear smooth
4	85+	C	7.5YR5/4	60% HR Total (Vis)	N	C			M (Assumed)	G	FVF	N	

Profile Gleyed From 50cm n/a

Depth to Slowly Permeable Horizon N/A

Wetness Class I

Wetness Grade 1

Available Water Wheat 97 mm

Potatoes 93 mm

Moisture Deficit Wheat 111 mm

Potatoes 105 mm

Moisture Balance Wheat 1 mm

Potatoes 3 mm

Droughtiness Grade 3A (Calculated to 120 cm)

Final ALC Grade 3A

Main Limiting Factor(s) Droughtiness

Remarks

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