8FCS 2582

9/89

STALBRIDGE LOCAL PLAN

AGRICULTURAL LAND CLASSIFICATION OF ALTERNATIVE SITES

REPORT OF SURVEY

1. Introduction

Agricultural Land Classification surveys were carried out at 5 sites around Stalbridge, Dorset, in response to a statutory planning consultation. Field work was carried out during May 1989 by the Resource Planning Group, Bristol. Auger observations were taken on each site on a 100 m grid, and 4 pits were described altogether. Classification was carried out using the revised criteria for grading (MAFF 1988). The results of the surveys are summarised below, and illustrated in the accompanying maps.

Site Number	Grade	Area (ha)	% Survey Area	% of Agric Land
B (Residential)	3b	15.0	97	100
	Fm Buildings	0.5	3	-
E (Residential)	3b	5.9	91	100
	Non Agric	0.6	9	-
F (Residential)	3b	2.8	93	100
	Fm Buildings	0.2	7	-
BI1 (Industrial)	4	2.5	100	100
BI2 (Industrial)	3b	2.5	71	71
	4	1.0	29	29

2. Climate

Climatic variables for the 5 sites were interpolated from a 5 km grid database as follows:-

	Site B	Site E	Site F	Sites BI1 & BI2
Altitude (m)	90	70	65	60
Accumulated Temperature (° days)	1468	1490	1496	1501
Annual Average Rainfall (mm)	872	861	856	844
Moisture Deficit, Wheat (mm)	101	104	104	104
Moisture Deficit, potatoes (mm)	92	96	96	96
Field capacity Days (days)	185	183	182	180

Accumulated Temperature is a measure of the relative warmth of a locality, and average annual rainfall is a measure of the overall wetness. In combination, these two parameters determine climatic limitations. Climate was not found to be limiting at any of these sites. Local climate factors are not significant. The other climatic variables are used for soil wetness and droughtines assessments.

Geology and Soils

Site B and the western half of site E have soils of the Sherborne association. These are shallow, calcareous, yellowish brown, clayey soils developed over limestone. The rest of site E, site F, and the southern half of site BI2 have soils of the Denchworth association. These are deep, seasonally waterlogged, olive brown, clayey soils developed over Oxford clay. The rest of site BI2 and site BI1 have soils of the Fladbury 1 association. These are developed over alluvium, and are similar to the Denchworth soils, but are more seriously affected by ground water. A clear relationship was found between the geology, the soil type, and the most limiting ALC factor.

3. Agricultural Land Classification

Site B

Sub-Grade 3B Soil depth is variable over the site with an average depth to limestone of 40 cm. Pit 1 is representative of the deeper areas. Although stones larger than 2 cm were found throughout the profile, they did not exceed 1% of the soil volume. Droughtiness was not limiting. A slowly permeable layer was identified starting at 40 cm deep and clear gleying occurred between 40 cm and 70 cm. These characteristics, together with the climatic criterion of 185 field capacity days, led to a wetness Class III. This, taken in conjunction with the topsoil texture of heavy clay loam, and 185 Fcd, led to a classification of sub-grade 3B. Wetness is the most limiting factor on this type of soil.

Pit 2 is representative of the shallower areas. Here, wetness was not a limitation. The total subsoil stone content was measured by sieving as 35%. From 40 cm the limestone rock was fractured with soil-filled cracks allowing the penetration of roots. The land was graded as sub-grade 3b.

The entire site was therefore mapped as sub-grade 3B.

Site E

Sub-Grade 3b The Western half of this site has the same soil type as site B, and has an average soil depth of 30 cm. Pit 2 is representative, and the area is classified as subgrade 3b, with droughtiness as the most limiting factor.

The Eastern half of the site has deep clayey soils with a wetness limitation. Pit 4 on site F is representative, and the area is classified as sub-grade 3b, with wetness as the most limiting factor.

There is a clear soil boundary across the site, corresponding to the change in underlying geology. This boundary represents the change from a most limiting factor of droughtiness in the west, to a most limiting factor of wetness in the east.

Site F

Sub-Grade 3b The soils here consist of a medium to heavy clay loam topsoil over clay, with gleying occurring within 40 cm and a slowly permeable layer from starting within 50 cm. Combined with 182 field capacity days this leads to a wetness class of III, which in conjunction with the heavy clay loam topsoil gives a classification of sub-grade 3B with wetness as the most limiting factor. Pit 4 is representative of this unit.

Site BI1

Sub-Grade 3b The southern half of this site is similar to site F. Pit 4 is representative and the classification is sub-grade 3b with wetness as the most limiting factor.

Sub-Grade 4 The northern half of the site has soils with a heavy clay loam topsoil overlying clay. Gleying is found within 40 cm, and a slowly permeable layer from 35 cm. Combined with 180 field capacity days this gives a wetness class of IV. Pit 3 on site BI2 is representative of this area. In conjunction with the heavy clay loam topsoil this area has a classification of grade 4, with wetness as the mosting limiting factor.

Site BI2

Sub-Grade 4 This area is represented by pit 3. The classification is grade 4, with wetness as the most limiting factor.

[MAY-13]SJ

APPENDIX 1

Soil Profile Descriptions

Soil Profile Descriptions: Explanatory Note

Soil texture classes are denoted by the following abbreviations:

Sand **S**; Loamy Sand **LS** Sandy Loam **SL**; Sand Silt Loam **SZL**; Silt Loam **ZL**;

Medium Silty Clay Loam **MZCL**; Medium Clay Loam **MCL**; Sandy Clay Loam **SCL**;

Heavy Silty Clay Loam **HZCL**; Heavy Clay Loam **HCL**; Sandy Clay **SC**;

Silty Clay **ZC**; Clay **C**

For the sand, loamy sand, sandy loam and sandy silt loam classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

F fine (more than $\frac{2}{3}$ of sand less than 0.2 mm)
C coarse (more than $\frac{1}{3}$ of sand greater than 0.6 mm)
M medium (less than $\frac{2}{3}$ fine sand and less than $\frac{1}{3}$ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows:-

M medium (less than 27% clay); **H** heavy (27-35% clay)

Other possible texture classes include:

Peat **P**; Sandy Peat **SP**; Loamy Peat **LP**; Peaty Loam **PL**;
Peaty Sand **PS**; Marine Light Silts **MZ**

The prefix "**Calc**" is used to identify naturally calcareous soils containing more than 1% Calcium Carbonate.

For organic mineral soils, the texture of the mineral fraction is prefixed by "**org**".

Other notation:

st	stones (6 cm)
sst	small stones (2 cm - 6 cm)
vsst	very small stones (2 mm - 2 cm)
Mn	manganese
cdom/cfom	common distinct/feint ochreous mottles
mpom	many prominent ochreous mottles (**VMPOM** = very many ..)

Few = 1-5%; **common** = 6-15%; **many** = 16-35%; **very many** = +35%

APPENDIX 2

Soil Pit Descriptions

STALBRIDGE LOCAL PLAN, DORSET

SOIL PIT DESCRIPTION

Pit 1 MR 734173

Topsoil	0-23cm	Heavy Clay Loam 10YR 4/3 brown Few distinct ochreous mottles Few manganese concretions <1% stones 2-6 cm
Subsoil 1	23-36cm	Clay 10YR 5/4 yellowish brown Few Faint ochreous mottles Few manganese concretions <1% stones 2-6 cm Moderate Coarse subangular blocky structure Friable <0.5% biopores of >0.5 mm
Subsoil 2	36-85cm	Clay 2.5Y5/4 light olive brown; pale faces below 50 cm Common distinct ochreous mottles Few manganese concretions <1% stones 2-6 cm Weak corase subangular blocky structure Firm <0.5% biopores of >0.5 mm SPL from 40 cm; Gleyed from 50 cm

Wetness Class III; 3b

STALBRIDGE LOCAL PLAN, DORSET

SOIL PIT DESCRIPTION

Pit 2 MR 735173

Topsoil	0-27cm	Heavy Clay Loam 10YR4/3 brown <1% stones 2-6 cm
Subsoil 1	27-40cm	Clay 10YR4/6 dark yellowish brown 30% stones 2-6cm; 5% stones <2 cm Moderate Coarse Subangular Blocky Structure Friable <0.5% biopores of >0.5 mm
Subsoil 2	40 cm +	Limestone with cracks <10% soil

Moisture balance calculations:-

Topsoil	0-27 cm	HCL	TAV 17, no stones	17 x 27 = 459
Subsoil 1	27-40 cm	C	TAV 16, stone AVR 1 : (0.65 x 16) + (0.35 x 1) x 13 =	139.75
Subsoil 2	40-50 cm	C	TAV 16, 90% stone AVR:1 (0.1 x 16) + (0.9 x 1) x 10 =	25
				623.75
Subsoil 3w	50-120 cm	C	EAV 8, 90% stones AVR 0.5: (0.1 x 8)+(0.9x0.5)x 70 =	87.5
Subsoil 3p	50-70 cm	C	TAV 16, 90% stone AVR 1: (0.1x16) + (0.9 x 1) x 20 =	50

AP wheat = (623.75 + 87.5)/10 = 71.25

AP potatoes = (623.75 + 50)/10 = 67.38

MB wheat = 71 - 101 = -30 (3b)

MB potatoes = 67 - 92 = -25 (3a)

STALBRIDGE LOCAL PLAN, DORSET

SOIL PIT DESCRIPTION

Pit 3 MR 740182

Topsoil	0-20 cm	Heavy Clay Loam 2.5Y3/2 Very dark greyish brown Common rusty root channels
Subsoil 1	20-40	Clay 2.5Y5/4 Light olive brown Common distinct ochreous mottles Moderate medium prismatic structure Firm <0.5% biopores of > 0.5 mm Slowly permeable layer
Subsoil 2	40-100 cm	Clay 2.5Y5/4 Light olive brown Many distinct ochreous mottles Moderate coarse angular blocky structure Firm <0.5% biopores of >0.5 mm Slowly permeable layer

Wetness class IV; 4b

STALBRIDGE LOCAL PLAN, DORSET

SOIL PIT DESCRIPTION

Pit 4 MR 176741

Topsoil	0-15 cm	Heavy Clay Loam 10YR3/3 dark brown
Subsoil 1	15-38 cm	Clay 2.5Y5/4 light olive brown Few distinct ochreous mottles
Subsoil 2	38-48cm	Clay 10YR5/6 yellowish brown Common distinct ochreous mottles Weak corase subangular blocky structure Friable <0.5% biopores of >0.5 mm Pale ped faces
Subsoil 3	48-100cm	Sandy Clay 10YR5/6 Yellowish brown Common distinct ochreous mottles Weak coarse prismatic structure Very Friable <0.5% biopores of >0.5 mm Slowly Permeable layer

Wetness Class III; 3b