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SITE 347  
TEST VALLEY LOCAL PLAN  
LAND NORTH OF PENTON CORNER,  
ANDOVER, HAMPSHIRE  
AGRICULTURAL LAND CLASSIFICATION  
ALC MAP & REPORT  
AUGUST, 1993.

**SITE 347 : TEST VALLEY LOCAL PLAN  
LAND NORTH OF PENTON CORNER, ANDOVER, HAMPSHIRE  
AGRICULTURAL LAND CLASSIFICATION REPORT**

**1.0 Summary**

1.1 In August, 1993, a detailed Agricultural Land Classification (ALC) was made on approximately 18 hectares of land north of Penton Corner on the north-western edge of Andover in Hampshire.

1.2 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS in response to a commission by MAFF's Land Use Planning Unit to provide information on the quality of agricultural land affected by the non-inclusion of this area in the Test Valley Local Plan.

1.3 The classification has been made using MAFF's revised guidelines and criteria for grading the quality of agricultural land. 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 use for agriculture.

1.4 The fieldwork was carried out with an observation density of approximately one per hectare. A total of 14 borings and 1 soil pit was examined.

1.5 The table below provides the details of the grades found across the site. The majority of the land is classified as Sub-grade 3a with a minor area of Sub-grade 3b. The key limitation is soil droughtiness related to the depth of soil over Chalk and the slightly restricted amount of water available for extraction by crops. The area of Sub-grade 3b relates to a localised microrelief limitation.

**Table 1 : Distribution of Grades and Sub-grades**

Grade	Area (ha)	%of Site	% of Agricultural Area
3A	14.5	85.8	94.2
3B	0.9	5.3	<u>5.8</u>
Non-agric.	<u>1.5</u>	<u>8.9</u>	100% (15.4 ha)
TOTAL	16.9ha	100%	

1.6 The distribution of the ALC grades is shown on the attached map. The information is presented at a scale of 1:5,000; it is accurate at this level but any enlargement would be misleading. This map supercedes any previous ALC information for this site.

1.7 At the time of survey the land use on the site was permanent grass. The area of Non-agricultural relates to some open water and its fringes.

1.8 A general description of the grades and sub-grades is provided as an appendix. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

## 2.0 Climate

2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

2.2 The main parameters used in the assessment of the overall climatic limitation are annual average rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset. The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4 No local climatic factors such as exposure or frost risk affect the site.

**Table 2 : Climatic Interpolations**

Grid Reference :	SU336465
Altitude (m) :	90
Accumulated Temperature (days) :	1441
Average Annual Rainfall (mm) :	786
Field Capacity (days) :	170
Moisture Deficit, Wheat (mm) :	100
Moisture Deficit, Potatoes (mm) :	90
Overall Climatic Grade :	1

## 3.0 Relief

3.1 The site occupies gentle north-east facing slopes between 70-90 metres.

## 4.0 Geology and Soil

4.1 The relevant geological sheet for the site shows the underlying geology to be predominantly Upper Chalk (soft white chalk with many flint nodules) with a strip of River and Valley Gravel along the northern fringe.

4.2 The presence of flint in the light silty profiles made augering difficult and many are impenetrable before the Chalk is encountered.

## 5.0 Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points is shown on the attached sample point map.

5.3 **Sub-Grade 3A** : Pit 1 is typical of the soils mapped as this grade with soil droughtiness as the main limitation. Medium Clay Loam or Medium Silty Clay Loam topsoils overlie upper and lower subsoils of similar texture. Chalk is encountered within 45 cm. Above this, the profile is free-draining with an increasing stone content as the Chalk is approached. Approximately 15% stone is present in the upper subsoil, rising to as much as 50% in the transition zone of the lower subsoil. Common roots are observable to the top of the parent material but very few pene-

trate the Chalk. A total rooting depth of 68 cm has been described, with the roots only exploiting the moisture reserves of the top 25 cm of the Chalk. This depth of rooting restricts the amount of available water for use by crops and therefore restricts the range of crops that can tolerate such conditions.

**5.4 Sub-Grade 3B** : a minor area of this lower grade has been mapped in the extreme north of the site where a microrelief limitation is the main downgrading factor. There is a minor but sharp break of slope on the southern edge of this map unit, presumably reflecting a geological change. The land to the east is open water. The dry land shows minor but complex changes of slope, sufficient to restrict the use of precision machinery.

**5.5** The area marked as Non-agricultural relates to an area of open water and its vegetated fringe.

ADAS REFERENCE : 1512/124/93  
MAFF REFERENCE : EL 6015

Resource Planning Team  
Guildford Statutory Group

## APPENDIX I

### DESCRIPTION OF THE GRADES AND SUB-GRADES

#### **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 includes 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 or horticultural crops can usually be grown but on some land on 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. When more demanding crops are grown yields are generally lower or more variable than on land in grades 1 and 2.

#### **Sub-grade 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.

#### **Sub-grade 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 the 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 moist 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.

## **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture : 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 re-claimed using derelict land grants.

## **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including : private parkland, 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.

## **Woodland**

Includes commercial and non-commercial woodland.

## **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, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

## APPENDIX II

### REFERENCES

- \* MAFF (1988), Agricultural Land Classification of England And Wales : revised guidelines and criteria for grading the quality of agricultural land.
- \* Meteorological Office (1989), Climatological Data for Agricultural Land Classification.
- \* British Geological Survey (1975), Sheet No.238, Andover, 1:50,000

## APPENDIX III

### DEFINITION OF SOIL WETNESS CLASSES

#### **Wetness Class I**

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

#### **Wetness Class II**

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

#### **Wetness Class III**

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

#### **Wetness Class IV**

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

#### **Wetness Class V**

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

#### **Wetness Class VI**

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

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

## APPENDIX IV

### SOIL PIT AND SOIL BORING DESCRIPTIONS

- Contents :
- \* Soil Abbreviations : Explanatory Note
  - \* Soil Pit Descriptions
  - \* Database Printout : Boring Level Information
  - \* Database Printout : Horizon Level Information

## SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a database. This has commonly used notations and abbreviations as set out below.

### Boring Header Information

1. **GRID REF** : national grid square and 8 figure grid reference.

2. **USE** : Land use at the time of survey. The following abbreviations are used.

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

3. **GRDNT** : Gradient as measured by a hand-held optical clinometer.

4. **GLEYSPL** : Depth in cm to gleying or slowly permeable layers.

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

6. **MB (WHEAT/POTS)** : Moisture Balance.

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, an entry of 'Y' will be entered in the relevant column.

**MREL** : Microrelief limitation    **FLOOD** : Flood risk    **EROSN** : Soil erosion risk    **EXP** : Exposure limitation    **FROST** : Frost  
**DIST** : Disturbed land    **CHEM** : Chemical limitation

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

**OC** : Overall Climate    **AE** : Aspect    **EX** : Exposure    **FR** : Frost Risk    **GR** : Gradient    **MR** : Microrelief  
**FL** : Flood Risk    **TX** : Topsoil Texture    **DP** : Soil Depth    **CH** : Chemical    **WE** : Wetness    **WK** : Workability  
**DR** : Drought    **ER** : Soil Erosion Risk    **WD** : Combined Soil Wetness/Droughtiness    **ST** : Topsoil Stoniness

### Soil Pits and Auger Borings

1. **TEXTURE** : soil texture classes are denoted by the following abbreviations.

**S** : Sand    **LS** : Loamy Sand    **SL** : Sandy Loam    **SZL** : Sandy Silt Loam    **CL** : Clay Loam    **ZCL** : Silty Clay Loam  
**SCL** : Sandy Clay Loam    **C** : Clay    **SC** : Sandy Clay    **ZC** : Silty Clay    **OL** : Organic Loam    **P** : Peat    **SP** : Sandy Peat  
**LP** : Loamy Peat    **PL** : Peaty Loam    **PS** : Peaty Sand    **MZ** : Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of prefixes.

**F** : Fine (more than 66% of the sand less than 0.2mm)

**M** : Medium (less than 66% fine sand and less than 33% coarse sand)

**C** : Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content.

**M** : Medium (<27% clay)    **H** : Heavy (27-35% clay)

2. **MOTTLE COL** : Mottle colour

3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

F : few <2%    C : common 2-20%    M : many 20-40    VM : very many 40%+

4. **MOTTLE CONT** : Mottle contrast

F : faint - indistinct mottles, evident only on close inspection    D : distinct - mottles are readily seen  
P : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour

6. **STONE LITH** : One of the following is used.

HR : all hard rocks and stones    MSST : soft, medium or coarse grained sandstone  
SI : soft weathered igneous or metamorphic    SLST : soft oolitic or dolimitic limestone  
FSST : soft, fine grained sandstone    ZR : soft, argillaceous, or silty rocks    CH : chalk  
GH : gravel with non-porous (hard) stones    GS : gravel with porous (soft) stones

Stone contents (> 2cm, > 6cm and total) are given in percentages (by volume).

7. **STRUCT** : the degree of development, size and shape of soil pedes are described using the following notation:

- degree of development    WK : weakly developed    MD : moderately developed    ST : strongly developed

- ped size    F : fine    M : medium    C : coarse    VC : very coarse

- ped shape    S : single grain    M : massive    GR : granular    AB : angular blocky    SAB : sub-angular blocky    PR : prismatic  
PL : platy

8. **CONSIST** : Soil consistence is described using the following notation:

L : loose    VF : very friable    FR : friable    FM : firm    VM : very firm    EM : extremely firm    EH : extremely hard

9. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G : good    M : moderate    P : poor

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

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

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

13. **CALC** : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. Other notations

APW : available water capacity (in mm) adjusted for wheat

APP : available water capacity (in mm) adjusted for potatoes

MBW : moisture balance, wheat

MBP : moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : TEST V LP - SITE 347 Pit Number : 1P

Grid Reference: SU Average Annual Rainfall : 779 mm  
 Accumulated Temperature : 1464 degree days  
 Field Capacity Level : 170 days  
 Land Use : Permanent Grass  
 Slope and Aspect : 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT. STONE	MOTTLES	STRUCTURE
0- 22	MCL	10YR43 00	0	2		
22- 33	MZCL	10YR54 00	0	15		
33- 43	MZCL	10YR54 00	0	50		
43- 68	CH	10YR82 00	0	0		

Wetness Grade : 1 Wetness Class : I  
 Gleying : 000 cm  
 SPL : No SPL

Drought Grade : 3A APW : 088mm MBW : -14 mm  
 APP : 093mm MBP : 0 mm

FINAL ALC GRADE : 3A  
 MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT		GRDNT	GLEYS	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
		USE				CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1P	SU	PGR	E	01	000	1	1	088	-14	093	0	3A					DR 3A	ROOTS 68
5	SU	PGR	NE	02	000	1	1	083	-19	086	-7	3A					DR 3A	
6	SU	PGR	NE	02	000	1	1	075	-27	075	-18	3B					DR 3A	IMPQDR
7	SU	PGR	NE	02	000	1	1	072	-30	072	-21	3B					DR 3A	IMPQDR
8	SU	PGR	NE	02	000	1	1	063	-39	063	-30	3B					DR 3A	IMPX2QDR
9	SU	PGR	E	02	000	1	1	100	-2	099	6	3A					DR 3A	IMPEN 55
10	SU	PGR	E	02	000	1	1	101	-1	097	4	3A					DR 3A	IMPEN 55
11	SU	SAS	E	02	000	1	1	099	-3	101	8	3A					DR 3A	IMPEN 45
13	SU	PGR			000	1	1	075	-27	078	-15	3B					DR 3B	IMPEN 30
14	SU	PGR	E	01	000	1	1	086	-16	091	-2	3A					DR 3A	IMPEN 38
15	SU	PGR			000	1	1	109	7	101	8	2					DR 2	IMPEN 60
16	SU	PGR			000	1	1	084	-18	090	-3	3A					DR 3A	IMPEN 40
17	SU	PGR			000	1	1	089	-13	092	-1	3A					DR 3A	IMPEN 45
18	SU	PGR			000	1	1	093	-9	092	-1	3A					DR 3A	IMPEN 50

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----		PED COL.	----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN		CONT	GLE	>2		>6	LITH	TOT	STR	POR	IMP	SPL
1P	0-22	mc1	10YR43 00				0	0	HR	2							
	22-33	mzc1	10YR54 00				0	0	HR	15			M				
	33-43	mzc1	10YR54 00				0	0	CH	50			M				
	43-68	ch	10YR82 00				0	0		0			M				
5	0-30	mzc1	10YR43 00				0	0	CH	2							
	30-60	ch	00ZZ00 00				0	0		0			M				
6	0-25	mzc1	10YR43 00				0	0	HR	2							
	25-42	mzc1	10YR54 00				0	0	HR	2			M				
7	0-25	mzc1	10YR43 00				0	0	HR	2							
	25-40	mzc1	10YR54 00				0	0	CH	2			M				
8	0-25	mzc1	10YR43 00				0	0	HR	2							
	25-35	mzc1	10YR54 00				0	0	CH	2			M				
9	0-20	mzc1	10YR43 00				0	0	CH	2							
	20-30	mzc1	10YR44 00				0	0	CH	5			M				
	30-50	mzc1	10YR43 00				0	0	CH	65			M				
	50-80	ch	10YR71 00				0	0		0			M				
10	0-28	mzc1	10YR43 00				0	0	CH	5							
	28-40	mzc1	10YR43 00				0	0	CH	65			M				
	40-85	ch	10YR71 00				0	0		0			M				
11	0-25	mzc1	10YR42 00				0	0	HR	2							
	25-45	mzc1	10YR43 00				0	0	CH	30			M				
	45-75	ch	00ZZ00 00				0	0		0			M				
13	0-20	mzc1	10YR54 00				0	0		0							
	20-60	ch	00ZZ00 00				0	0		0			M				
14	0-25	mzc1	10YR43 00				0	0	CH	2							
	25-35	mzc1	10YR43 00				0	0	CH	50			M				
	35-65	ch	10YR71 00				0	0		0			M				
15	0-30	mzc1	10YR64 00				0	0		0							
	30-40	mzc1	10YR64 00				0	0	CH	40			M				
	40-90	ch	00ZZ00 00				0	0		0			M				
16	0-20	mzc1	10YR54 00				0	0		0							
	20-25	mzc1	10YR54 00				0	0	CH	45			M				
	25-70	ch	00ZZ00 00				0	0		0			M				
17	0-20	mzc1	10YR54 00				0	0		0							
	20-30	mzc1	10YR54 00				0	0	CH	45			M				
	30-75	ch	00ZZ00 00				0	0		0			M				

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SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----			STRUCT/	SUBS						
				COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
18	0-20	mzc1	10YR53 00					0	0		0							
	20-30	mzc1	10YR53 00					0	0	CH	50							M
	30-80	ch	00ZZ00 00					0	0		0							M