A1
TUNBRIDGE WELLS BOROUGH LOCAL PLAN
LAND SOUTH OF LUCK S LANE PADDOCK WOOD
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
OCTOBER 1993

TUNBRIDGE WELLS BOROUGH LOCAL PLAN
LAND SOUTH OF LUCK S LANE PADDOCK WOOD
AGRICULTURAL LAND CLASSIFICATION REPORT

1 0 Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality on six sites around Tunbridge Wells The work forms part of MAFF s statutory input to the preparation of the Tunbridge Wells Borough Local Plan

1 2 Approximately 7 hectares of land south of Luck s Lane between Little Rhoden Farm and the Paddock Wood Distribution Centre in Kent was surveyed during October 1993 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 9 soil auger borings and 1 soil inspection pit were assessed in accordance with 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 3 Work was conducted by members of the Resource Planning Team in the Guildford Statutory Group At the time of the survey the top north east field was an apple orchard and the remainder of the site was under permanent grass

1 4 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below The map has been drawn at a scale of 1 5 000 It is accurate at this scale but any enlargement would be misleading This map supercedes any previous information for this site

Table 1 _ Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Area
3b	6 3	90 0	100 0 (6 3 ha)
Urban	0 2	20 9	
Farm Buildings	0 1	1 4	
Non Agric	0 4	5 7	
Total	7 0	100 0	

1 5 Appendix 1 gives a general description of the grades subgrades and land use categories identified in the survey 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

1 6 All of the agricultural land surveyed has been assessed as Subgrade 3b moderate quality because of a significant wetness limitation Profiles comprise medium clay loam topsoils overlying heavier textured subsoils Profiles show clear evidence of seasonal waterlogging as drainage is impeded by the presence of a poorly structured slowly permeable subsoils at shallow depths

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 (Met Office 1989) 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	TQ 677 456
Altitude (m)	14
Accumulated Temperature (days)	1497
Average Annual Rainfall (mm)	679
Field Capacity (days)	140
Moisture Deficit Wheat (mm)	123
Moisture Deficit Potatoes (mm)	121
Overall Climatic Grade	1

3 0 Relief

3 1 The site is flat and lies at approximately 14m

4 0 Geology and Soil

4 1 BGS Sheet 287 Sevenoaks (1971) shows the entire site to be underlain by Brickearth geology (loess reworked by river action)

4 2 There are two soil types on this site as shown on the Soil Survey map of South East England (SSEW 1983 1 250 000) In the north west corner of the site the soil type comprises the Fladbury Association These soils are described as grey clayey pelo alluvial gley soils which are slowly permeable at shallow depths (SSEW 1983) In the rest of the site the soil type comprises the Parkgate Association These soils are typically deep stoneless soils with argillic gleys being dominant They are affected by seasonally high groundwater and have grey and ochreous mottled subsoil colours (SSEW 1983)

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 are shown on the attached sample point map

Subgrade 3b

5 3 All of the agricultural land surveyed has been assessed as Subgrade 3b moderate quality land due to a significant wetness limitation Medium clay loam topsoils are underlain by heavy clay loam and clay subsoils As shown by Pit 1 profiles are gleyed and a slowly permeable layer (with a weakly developed coarse sub angular blocky structure) is present within 40cm This horizon significantly impairs drainage The interaction between these soil conditions and local climatic regime means these soils are placed into Wetness Class IV and consequently are assessed as Subgrade 3b Excessive soil wetness adversely affects seed germination and survival plus inhibits the development of a good root system Restrictions on cultivations or grazing by livestock may also result

Non Agricultural

5 4 The Non Agricultural land shown on the map is occupied by wooden storage huts and a footpath

Urban

5 5 The Urban land marked on the map is a tarmac driveway

Farm Buildings

5 6 The Farm Buildings depicted on the map are horse stables

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

* British Geological Survey (1971) Sheet No 287 Sevenoaks 1 50 000

* 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 Sets for Agricultural Land Classification

* Soil Survey of England and Wales (1983) Sheet 6 Soils of South East England 1 250 000 and accompanying legend

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 PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil p t and auger borng mformatıon collected durng ALC fieldwork ıs held on a database Thıs h s commonly used notatıons and abbre ıatıo s as set out below

Borıng Header Informatıon

1 **GRID REF** natıonal grıd square and 8 f gure grıd reference

2 **USE** Land use at the tıme of survey The followıng bbreviatıons are used

ARA Arable **WHT** Wheat **BAR** Barley **CER** Cereals **OAT** Oats **MZE** M ıze **OSR** Oılseed rape
BEN Fıeld Beans **BRA** Brass cae **POT** Potatoes **SBT** Sugar Beet **FCD** Fodder Crops **LIN** Lınseed
FRT Soft and Top Fru t **HRT** Horticultural Crops **PGR** Perma ent Pasture **LEY** Ley Gra s **RGR** Rough Gra ıng
SCR Scrub **CFW** Conıferous Woodland **DCW** Decıduous Woodland **HTH** Heathland **BOG** Bog or Marsh
FLW Fallow **PLO** Ploughed **SAS** Set sıde **OTH** Other

3 **GRDNT** Gradıent as measured by hand held optıcal clınometer

4 **GLEY/SPL** Depth ın cm to gleyıng o slowly permeabl layers

5 **AP (WHEAT/POTS)** Crop- dj sted v lable w ter capacıty

6 **MB (WHEAT/POTS)** Mo sture Bala ce

7 **DRT** Best grade accordıng to so l droughtıness

8 If any of the followıng factors are consıdered sıgnıficant an entry of Y wıll be entered ın th relevant column

MREL Mıcrorelıef lımıtatıo **FLOOD** Flood rısk **EROSN** Soıl erosıo rısk **EXP** Exposure lımıtatıon **FROST** Frost
DIST Dısturbed land **CHEM** Chemıcal lımıtatıon

9 **LIMIT** Th maın lım tat o to la d qu l ty Th f ll wıng bbre ıatıo s are sed

OC O erall Clımate **AE** Aspect **EX** Expo re **FR** Frost R sk **GR** Grad ent **MR** M crorel f
FL Flood Rısk **TX** Topso l Texture **DP** Soıl Depth **CH** Chemıcal **WE** Wetness **WK** Work b lıty
DR Drought **ER** Soıl Eros o Rısk **WD** Combıned Soıl Wetness/Droughtıness **ST** Topsoıl St ın ss

Soıl Pıts and Auger Borıngs

1 **TEXTURE** soıl texture classes are denoted by the followıng abbre ıatıons

S Sand **LS** Loamy Sand **SL** Sa dy Loam **SZL** Sa dy S lt Loam **CL** Clay Loam **ZCL** S lty Clay Loam
SCL Sa dy Cl y Loam **C** Clay **SC** Sandy Clay **ZC** S lty Clay **OL** Org c Loam **P** Peat **SP** Sa dy P t
LP Loamy Peat **PL** P aty Loam **PS** Peaty Sand **MZ** Marın L ght S lts

For the sand loamy sa d sa dy loam d sandy sılt loam classes the predomınant sıze of sa d fractıon wıll be ındıcated by the use of prefix s

F Fıne (more than 66% of the sa d less than 0 2mm)
M Medıum (less than 66% fine sa d and less than 33% coarse sa d)
C Coarse (more than 33% of the sand larger than 0 6mm)

The clay loam a d sılty clay loam classes w ll be sub-d v ded accordıng to the clay content

M Medıum (<27% clay) **H** Heavy (27 35% clay)

2 **MOTTLE COL** Mottle colour

3 **MOTTLE ABUN** Mottle abundance e pressed as a percentage of the matrix or surface described

F few <2% **C** commo 2 20% **M** many 20-40 **VM** very many 40%+

4 **MOTTLE CONT** Mottle co trast

F faint ndistinct mottles ev dent only on close nspection **D** distinct mottles are readily seen
P promment mottlng s consp cuous and o e of the outstandng features of the horizon

5 **PED COL** Ped face colour

6 **STONE LITH** One of the followng s used

HR ll hard rocks and sto es **MSST** soft medium or coarse grained sandstone
SI soft weathered gneous or metamorph c **SLST** soft oolitic or dolmitic lmestone
FSST soft fine grained sandsto e **ZR** soft argillaceous or silty rocks **CH** chalk
GH gra el with o porous (hard) stones **GS** gravel with porous (soft) sto es

Stone contents (>2cm >6cm and total) are g en in percentages (by v lume)

7 **STRUCT** the degree of de elopment size and shape of soil peds are described usng the followng notation

degree of de l pment **WK** weakly de eloped **MD** moderately de eloped **ST** strongly d eloped

ped size **F** fine **M** medium **C** coarse **VC** very coarse

ped shape **S** smgle gram **M** mass v **GR** granular **AB** a gular blocky **SAB** s b-angular blocky **PR** prismatic **PL** platy

8 **CONSIST** Soil consistence s described usng the followng otation

L loose **VF** very friable **FR** friable **FM** firm **VM** ery firm **EM** extremely firm **EH** e tremely hard

9 **SUBS STR** Subsoil structural cond tio recorded fo the purpose of calculatng profile droughtiness

G good **M** moderate **P** poo

10 **POR** Soil poros ty If a soil horizo has l than 0 5% biopores >0 5 mm a Y will appear n th s col mn

11 **IMP** If the profile s mpenetrabl a Y will ppea n th s column at the appropiate horizo

12 **SPL** Slowly permeable layer If the soil horizon s slowly permeable a Y will appear n this column

13 **CALC** If th soil horizon s calcareo Y will ppear n this column

14 Other otat ons

APW a ailable water capac ty (n mm) dj ted f wh t
APP a ailable water capac ty (n mm) adjusted for potatoes
MBW moisture balance wheat
MBP moisture balance potatoes

SOIL PIT DESCRIPTION

Site Name T BRIDGE WELLS LP P WOOD P t N mber 1P

Grid Reference TQ67904556 Average Ann al Ra nfall 679 mm
Accumul ted Tempe t re 1497 degree d ys
Field Capac ty Level 140 days
Land Use Perma ent G ass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0 23	MCL	10YR42 00	0	0		
23 36	HCL	10YR56 00	0	0		MDCSAB
36 90	C	25Y 62 00	0	0	M	WDCSAB

Wetness G ade 3B Wet s Cl ss IV
Gleyi g 036 cm
SPL 036 cm

Drought Grade 3A APW 117mm MBW 6 mm
APP 117mm MBP 4 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	USE	ASPECT GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	AP	MB	POTS AP	MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1	TQ67904570	ORC	020	035	4	3B	94	29	106	15	3B					WE	3B	SPL AT 35
1P	TQ67904556	PGR	036	036	4	3B	117	6	117	4	3A					WE	3B	PIT DUG TO 60
2	TQ67804560	PGR	035	035	4	3B	118	5	106	15	3A					WE	3B	SPL AT 35
3	TQ67904560	ORC	030	030	4	3B	87	36	93	28	3B					WE	3B	SPL AT 30
4	TQ67804552	PGR	000	048	3	3A	105	18	110	11	3A					WE	3A	SPL AT 48
5	TQ67904549	PGR	020	020	4	3B	86	37	95	26	3B					WE	3B	SPL AT 20
6	TQ67804540	PGR	020	020	4	3B	94	29	100	21	3B					WE	3B	SPL AT 20
7	TQ67904540	PGR	020	020	4	3B	86	37	96	25	3B					WE	3B	H3 MANG CONCS
8	TQ67824577	PGR	005	065	3	3B	114	9	95	26	3A					WE	3B	SPL AT 65
9	TQ67904556	PGR	038	038	4	3B	98	25	107	14	3B					WE	3B	BORDER WC 3 4

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	PED GLEY	STONES 2	STONES 6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1	0 20	mcl	10YR42 00						0	0		0						
	20 35	hcl	25Y 53 62	10YR46 56	C			Y	0	0		0		M				
	35 70	c	25Y 62 72	10YR56 00	M			Y	0	0		0		P			Y	
1P	0 23	mcl	10YR42 00						0	0		0						
	23 36	hcl	10YR56 00						0	0		0	MDCSAB FR	M	Y			
	36 90	c	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0		0	WDCSAB FR	M	Y		Y	
2	0 20	mcl	10YR42 00						0	0		0						
	20 35	hcl	10YR53 00	10YR56 00	F		00MN00 00		0	0		0		M				
	35 75	c	25Y 72 00	10YR66 00	M		00MN00 00	Y	0	0		0		P			Y	
	75 95	hcl	75YR56 00	25Y 62 00	M		00MN00 00	Y	0	0		0		M			Y	
	95 96	hcl	00ZZ00 00					Y	0	0		0		M			Y	
3	0 30	hcl	10YR43 00	10YR56 00	F				0	0		0						
	30 60	c	10YR53 00	10YR58 51	M		00MN00 00	Y	0	0		0		P	Y		Y	
4	0 25	mcl	10YR42 00	10YR56 00	C			Y	0	0		0						
	25 48	hcl	10YR53 00	10YR56 51	C			Y	0	0		0		M				
	48 80	c	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
5	0 20	mcl	10YR42 00	10YR56 00	F				0	0		0						
	20 65	c	10YR53 00	10YR56 51	M		00MN00 00	Y	0	0		0		P	Y		Y	
6	0 20	mcl	10YR42 00						0	0		0						
	20 60	hcl	10YR53 00	10YR56 52	C			Y	0	0		0		M	Y		Y	
7	0 20	mcl	10YR42 00	10YR56 00	F				0	0		0						
	20 40	hcl	10YR52 00	75YR46 56	M			Y	0	0		0		P	Y		Y	
	40 70	hcl	10YR53 00	10YR58 56	M		00MN00 00	Y	0	0		0		P	Y		Y	
8	0 5	mcl	10YR32 42						0	0		0						
	5 45	c	75YR56 66	25Y 62 00	M		00MN00 00	Y	0	0	HR	10		P				
	45-65	c	25Y 42 41	75YR46 56	C			Y	0	0		0		M				
	65 120	c	25Y 51 00	10YR46 00	M		00MN00 00	Y	0	0	HR	2		P			Y	
9	0 22	mcl	10YR42 00						0	0		0						
	22 38	hcl	10YR56 00						0	0		0		M				
	38 75	c	10YR62 00	10YR58 51	M		00MN00 00	Y	0	0		0		P	Y		Y	