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Canterbury District Local Plan
RUR 7:Land at Den Grove Wood,
Agricultural Land Classification
ALC Map and Report
June 1995

AGRICULTURAL LAND CLASSIFICATION REPORT

CANTERBURY DISTRICT LOCAL PLAN
RUR 7: LAND AT DEN GROVE WOOD

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the Canterbury district of Kent. The work forms part of MAFF's statutory input to the Canterbury District Local Plan.

1.2 RUR 7 comprises approximately 17 hectares of land to the west of Sturry Hill in the village of Sturry, which is situated to the north-east of Canterbury in Kent. An additional area of land, totalling approximately 13 hectares, was surveyed to the north and south of the local plan site in order to provide further information on land quality in the vicinity of the local plan site. An additional area, previously surveyed in 1991 (ADAS Ref: 2000/024/90) to the north of the railway line and south-west of the local plan site is also shown on the map. The most recent Agricultural Land Classification (ALC) survey was carried out during June 1995. The survey was undertaken at a detailed level of approximately one boring per hectare of agricultural land surveyed. A total of 21 borings and three soil inspection pits were described in accordance with MAFF's 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 a long term limitation on its use for agriculture.

1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1.4 At the time of survey the agricultural land on the site comprised a mature standing crop of field beans, permanent grassland, orchards and horticultural crops. Areas marked as urban on the map include buildings associated with a farm shop and a shooting school, and a hardcore track in the south. The shooting school firing range has been marked as non-agricultural, and areas of woodland have also been mapped on the site.

1.5 The distribution of grades and subgrades for the total area is shown on the attached ALC map and the areas and extent are given in Table 2 below. Table 1 gives the areas and extent for the land included in the local plan site. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

Table 1 : Distribution of Grades and Subgrades for Local Plan site

Grade	Area (ha)	% of Site	% of Agricultural Land
3a	1.0	5.8	19.6
3b	4.1	23.7	80.4
Urban	1.3	7.6	100% (5.1 ha.)
Non-agricultural	3.1	17.9	
Woodland	7.8	45.0	
Total area of site	17.3	100%	

Table 2 : Distribution of Grades and Subgrades for total area mapped

Grade	Area (ha)	% of Site	% of Agricultural Land
2	16.9	38.1	56.3
3a	1.3	2.9	4.3
3b	11.8	26.6	39.4
Urban	1.9	4.3	100% (30 ha.)
Non-agricultural	3.1	6.9	
Woodland	9.4	21.2	
Total area	44.4	100%	

1.6 Appendix I 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.

1.7 Very good quality Grade 2 land has been mapped in the north and south of the site, outside the local plan site On the southern edge soils tend to be deep and stoneless, being developed over Brickearth. On the northern edge an area of deep soils with slightly sandier textures were observed. Both of these areas of land show a slight restriction upon profile available water for plant growth. This can affect the level and consistency of crop yields such that classification of Grade 2 is appropriate.

1.8 Moderate quality Subgrade 3b land has been mapped on the site, soils within this mapping unit proved impenetrable to the auger on a number of occasions. A soil inspection pit dug on the higher ground in the north found a stony heavy clay loam topsoil resting upon a stony clay subsoil which became less stony and more sandy with depth. The profile was gleyed from below the topsoil and the clay is slowly permeable causing a drainage impedance. Such drainage characteristics equate these soils to Wetness Class III, with a resultant classification of Subgrade 3b. Poorly drained wet soils can inhibit plant growth and rooting, and may be more susceptible to poaching by grazing livestock or trafficking by agricultural machinery. A soil inspection pit in the south of this mapping unit showed the soils to be very dry and stony, proving impenetrable to digging at a relatively shallow depth of 48 cm. The prevalence of stony subsoils means that there is a significant restriction upon the amount of profile available water for plant growth. This has an adverse affect upon the level and consistency of crop yields, such that a classification of Subgrade 3b is appropriate. Soils within the small Subgrade 3a mapping unit in the south tend to become excessively stony at deeper depths than those classified as Subgrade 3b. Consequently, any droughtiness limitation is lessened and these may be suitably placed into Subgrade 3a.

2. Climate

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

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual 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 However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. At this location , the field capacity days are relatively low in a regional context and therefore the likelihood of any soil wetness problems may be decreased.

2.5 No local climatic factors such as exposure or frost risk are believed to affect the site.

Table 2 : Climatic Interpolations

Grid Reference	TR 173 609	TR 173 605
Altitude (m)	45	15
Accumulated Temperature (Day °C, Jan-June)	1444	1478
Average Annual Rainfall (mm)	631	618
Field Capacity (days)	130	128
Moisture Deficit, Wheat (mm)	120	124
Moisture Deficit, Potatoes (mm)	117	122
Overall Climatic Grade	1	1

3. Relief

3.1 The site slopes downwards from north to south, lying at an altitude of approximately 10-45m AOD. Nowhere on the site do altitude or relief pose any limitation to agricultural use. Steep slopes on the site are covered by woodland.

4. Geology and Soils

4.1 The published geological map (BGS, 1974) shows the underlying geology of the site to be relatively complex. On the lower land towards the south, head brickearth is mapped. On the higher ground in the north, London Clay is mapped, overlain by head gravel in places. An area of 3rd terrace river gravels and Woolwich Beds are mapped on the mid slopes in the central part of the site. Woolwich Beds are also mapped on the sides of the valley feature towards the western boundary.

4.2 The published Soil Survey map (SSEW, 1983) shows the soils in the south of the site to comprise those of the Hamble 1 association. These are described as 'deep well drained often stoneless fine silty soils. Some similar soils affected by groundwater and some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some shallower soils over chalk' (SSEW 1983). Over the London Clay in the north of the site, soils of the Wickham 4 association are mapped. These are described as 'slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils' (SSEW, 1983).

4.3 Detailed field examination broadly confirms the published map, with poorly drained soils predominating in the north of the site, and deep well drained silty soils in the south. However, an area of sandier soils was encountered in the north of the site, and profiles with stony subsoils occur in the central part.

5. Agricultural Land Classification

5.1 The location of the soil observation points are shown on the attached sample point map.

Grade 2

5.2 Two units of very good quality land are mapped in the north and south of the site. Profiles in the northern mapping unit tend to be sandier than elsewhere, with one soil observation proving impenetrable to the auger below the topsoil. A soil inspection pit (pit no. 2) was dug to assess these soils. At the location of the pit, a slightly stony (5% total flints) medium sandy silt loam topsoil was found to overlie a similarly textured upper subsoil containing 7% total flints and extending to a depth of 39cm. Below this depth medium clay loam textures prevail, becoming gleyed at a depth of 100cm. However, the profile can be described as well drained and is accordingly assigned to Wetness Class I. A subsequent droughtiness calculation found there to be a slight restriction upon the amount of profile available water for plant growth, with an appropriate classification of Grade 2.

5.3 Soil droughtiness affects the level and consistency of crop yields such that a classification of Grade 2 is appropriate. Towards the southern edge of the site deep well drained loamy soils were observed, reflecting the presence of soils formed over head brickearth. Information from the previous ALC survey on adjacent land has been used in the grading of the this area of the site. Soil profiles typically comprise medium clay loam topsoils overlying similar textured subsoils which rest upon heavy clay loam lower subsoils. These soils tend to be variably stony, evidence from the survey suggesting that the soils become less stony with depth. However, as with the Grade 2 land in the north, a combination of soil textures, structures and the local climatic regime there is a restriction upon the amount of profile available water for plant growth. Similarly, a classification of grade 2 due to droughtiness is appropriate.

Subgrade 3a

5.4 A small area of good quality land has been mapped on the mid-slopes towards the south of the site. Soils within this mapping unit typically comprise moderately stony (12-15% total flints) medium silty clay loam textures which become impenetrable over stonier subsoils at a depth of approximately 60cm. In the absence of any soils information below this depth it has been assumed that stone contents are sufficiently high to cause a moderate restriction to the amount of water available in the profile for crop growth. This in turn can affect the level and consistency of crop yields such that a classification of Subgrade 3a is appropriate.

Subgrade 3b

5.5 A large proportion of the land in the north of the site has been classified as Subgrade 3b, moderate quality land. On the higher ground in the north of the site, soil wetness tends to be the main limitation with heavy clay loam topsoils resting upon clay subsoils. A number of soil observations in the is mapping unit proved impenetrable to the auger at depths of between 30-65cm. This may be attributed to a thin band of stones which occur at shallow depths in the profile, and also to the relatively dry soil conditions at the time of survey. The impenetrable nature of the soils meant that a soil inspection pit (pit no.1) was dug. A the location of the pit, a moderately stony (15% total flints) heavy clay loam

topsoil was found to rest upon a clay upper subsoil containing 25% total flints and extending to a depth of 46cm. Below this depth stone contents were found to decrease, with a moderately stony (10% total flints) clay extending to a depth of 63cm. This was found to rest upon a stoneless sandy clay loam. The clay and sandy clay loam lower subsoils were found to be slowly permeable, causing a drainage imperfection. Furthermore, profiles show evidence of a wetness imperfection in the form of gleying from below the topsoil. Such drainage characteristics equate these soils to Wetness Class III, with a resultant classification of Subgrade 3b. Poorly drained wet soils can inhibit plant growth and rooting, and may be more susceptible to structural damage through trafficking by agricultural machinery or poaching by grazing livestock.

5.6 Towards the south of the site, soil droughtiness becomes the limiting factor when assigning land to Subgrade 3b. The presence of stony subsoils in this area of the site, and the dry soil conditions, meant that soil augerings proved impenetrable below the topsoil. A soil inspection pit (pit no. 3) was dug in an attempt to investigate the nature of the subsoils, yet this proved impenetrable to digging at a depth of 48cm. Above this depth, a moderately stony (12% total flints) medium clay loam topsoil was found to rest upon a similar textured upper subsoil containing 30% total flints. The impenetrability of these soils has meant that assumptions have had to be made regarding stone contents below this depth. It has been assumed that soils become increasingly stony with depth, thereby causing a significant restriction on the amount of water available in the profile for plant growth. This can affect the level and consistency of crop yields, such that a classification of Subgrade 3b due to droughtiness is appropriate.

SOURCES OF REFERENCE

British Geological Survey (1974), Sheet No. 273, Canterbury, 1:50,000 Series (solid and drift edition).

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.

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

APPENDIX I

DESCRIPTION OF THE 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 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 of this 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 land.

Grade 3 : Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the 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.

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 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 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 including: housing, industry, commerce, education, transport, religous buildings, cemetries. 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 parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm 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

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
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 only wet within 40 cm depth for 30 days in most years.
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 present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

[1]The number of days specified is not necessarily a continuous period.
[2]'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

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 computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF** : national 100 km 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	**FLW** : Fallow
PGR : Permanent Pasture	**LEY** : Ley Grass	**RGR** : Rough Grazing
SCR : Scrub	**CFW** : Coniferous Woodland	**DCW** : Deciduous Wood
HTH : Heathland	**BOG** : Bog or Marsh	**FLW** : Fallow
PLO : Ploughed	**SAS** : Set aside	**OTH** : Other
HRT : Horticultural Crops		

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

4. **GLEY/SPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.

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

6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)

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

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

MREL : Microrelief limitation	**FLOOD** : Flood risk	**EROSN** : Soil erosion risk
EXP : Exposure limitation	**FROST** : Frost prone	**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** : Erosion Risk	**WD** : 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
ZL :	Silt 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 the following 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 using Munsell notation.

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 using Munsell notation.

6. **GLEY :** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH** : Stone Lithology - One of the following is used.

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

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

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

degree of development	**WK** : weakly developed **ST** : strongly developed	**MD** : moderately developed
ped size	**F** : fine **C** : coarse	**M** : medium **VC** : very coarse
ped shape	**S** : single grain **GR** : granular **SAB** : sub-angular blocky **PL** : platy	**M** : massive **AB** : angular blocky **PR** : prismatic

9. **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

10. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness : **G** : good **M** : moderate **P** : poor

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

12. **IMP** : If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropiate horizon.

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

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

15. 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 : CANTERBURY LP RUR 7 Pit Number : 1P

Grid Reference: TR17306100
Average Annual Rainfall : 618 mm
Accumulated Temperature : 1478 degree days
Field Capacity Level : 128 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	HCL	10YR42 00	6	15	HR	F				
30- 46	C	25Y 63 00	0	25	HR	M			M	
46- 63	C	10YR53 00	0	10	HR	C	WKCSAB	FR	M	
63- 90	SCL	10YR53 54	0	0		C	WKCSAB	FR	M	

Wetness Grade : 3B
Wetness Class : III
Gleying :030 cm
SPL :046 cm

Drought Grade : 3A
APW : 108mm MBW : -16 mm
APP : 101mm MBP : -21 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : CANTERBURY LP RUR 7 Pit Number : 2P

Grid Reference: TR17206120 Average Annual Rainfall : 618 mm
Accumulated Temperature : 1478 degree days
Field Capacity Level : 128 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSZL	10YR42 43	1	5	HR					
30- 39	MSZL	10YR43 00	0	7	HR		MDCSAB	FR	M	
39-100	MCL	10YR44 54	0	3	HR		MDCSAB	FR	M	
100-120	MCL	10YR53 00	0	2	HR	C		FR	M	

Wetness Grade : 1 Wetness Class : I
Gleying :100 cm
SPL : No SPL

Drought Grade : 2 APW : 154mm MBW : 33 mm
APP : 117mm MBP : -1 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : CANTERBURY LP RUR 7 Pit Number : 3P

Grid Reference: TR17436050
Average Annual Rainfall : 618 mm
Accumulated Temperature : 1478 degree days
Field Capacity Level : 128 days
Land Use : Field Beans
Slope and Aspect : 04 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	MCL	10YR42 00	5	12	HR					
29- 48	MCL	10YR53 00	0	30	HR	C		FR	M	

Wetness Grade : 2
Wetness Class : II
Gleying :029 cm
SPL : No SPL

Drought Grade : 4
APW : 068mm MBW : -53 mm
APP : 068mm MBP : -50 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TR17376128	OAT					1	1	083	-41	083	-39	3B				DR	3B	I50
1P	TR17306100	ORC			030	046	3	3B	108	-16	101	-21	3A				WE	3B	PIT 90
2	TR17206120	ORC					1	1	157	33	121	-1	2				DR	2	
2P	TR17206120	ORC			100		1	1	154	33	117	-1	2				DR	2	P85 A120
3	TR17306120	OAT					1	1	141	17	117	-5	2				DR	2	
3P	TR17436050	BEN	S	04	029		2	2	068	-53	068	-50	4				DR	3B	IFLNTS48
4	TR17206110	ORC					1	1	049	-75	049	-73	4				DR	4	I30HR
5	TR17306110	BEN			S28		1	1	123	2	110	-8	3A				DR	2	IFLNT 90
7	TR17126104	ORC			000	020	3	3B	077	-47	085	-37	3B				WE	3B	DRI65HR
8	TR17216101	BEN			025		2	2	044	-77	044	-74	4				DR	3B	IFLNTS30
9	TR17306100	ORC			030	030	3	3B	055	-66	055	-63	4				WE	3B	I40QSP25
10	TR17406100	PLO			000	025	3	3B	055	-66	055	-63	4				WE	3B	IFLNTS40
11	TR17226092	PGR	W	04	010	010	3	3B	000	0	000	0					WE	3B	SEE 1P
12	TR17326088	PGR	W	02	010	010	3	3B	000	0	000	0					WE	3B	QTSSTRIP
13	TR17406090	PGR	W		025	025	3	3B	000	0	000	0					WE	3B	SEE 1P
16	TR17406080	PGR	W		025	025	3	3B	000	0	000	0					WE	3B	
21	TR17256065	SAS	W		026	050	3	3B	105	-16	103	-15	3A				WE	3B	QSPL 26
25	TR17266049	SAS	E	02	025		2	2	056	-65	056	-62	4				DR	3A	IFLNTSX5
26	TR17436050	BEN	S	04			1	1	040	-81	040	-78	4				DR	3B	IFLNTS25
27	TR17506050	BEN	S	04			1	1	042	-79	042	-76	4				DR	3B	IFLNTS27
31	TR17406040	BEN					1	1	083	-41	088	-34	3B				DR	3B	I60HR
32	TR17526039	BEN					1	1	104	-20	116	-6	3A				DR	3A	I70 DRY
33	TR17606040	BEN					1	1	153	29	115	-7	2				DR	2	
39	TR17406030	BEN			060		1	1	147	23	109	-13	3A				DR	3A	JUST3A

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	0-30	mcl	10YR43 00						0	0	HR	2						
	30-50	mcl	10YR44 54						0	0	HR	5		M				
1P	0-30	hcl	10YR42 00	10YR46 00	F				6	0	HR	15						
	30-46	c	25Y 63 00	10YR58 00	M		00MN00 00	Y	0	0	HR	25		M				
	46-63	c	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	10	WKCSAB	FR M	Y		Y	
	63-90	scl	10YR53 54	10YR58 00	C		00MN00 00	Y	0	0		0	WKCSAB	FR M	Y		Y	
2	0-30	mszl	10YR43 00						0	0	HR	2						
	30-42	mszl	10YR43 00						0	0	HR	3		M				
	42-90	mcl	10YR54 00						0	0		0		M				
	90-120	mcl	10YR56 00						0	0	HR	5		M				
2P	0-30	mszl	10YR42 43						1	0	HR	5						
	30-39	mszl	10YR43 00						0	0	HR	7	MDCSAB	FR M				
	39-100	mcl	10YR44 54						0	0	HR	3	MDCSAB	FR M				
	100-120	mcl	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	2		FR M				
3	0-30	mcl	10YR44 00						0	0	HR	2						
	30-40	mcl	10YR42 00						0	0		0		M				
	40-120	c	10YR53 00						0	0		0		M				
3P	0-29	mcl	10YR42 00						5	0	HR	12						
	29-48	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	30		FR M				
4	0-30	mszl	10YR43 44						10	0	HR	15						
5	0-28	mcl	10YR42 00	10YR46 00	F				2	0	HR	5						
	28-45	mcl	10YR54 00	10YR56 00	C			S	0	0	HR	5		M				
	45-90	msl	10YR53 63	10YR58 68	M		00MN00 00	Y	0	0	HR	5		M				
7	0-20	hcl	10YR53 00	10YR56 00	C			Y	8	0	HR	12						
	20-65	c	10YR54 00	10YR58 00	C			S	0	0	HR	10		P			Y	
8	0-25	mcl	10YR42 00						6	0	HR	15						
	25-30	c	25Y 53 54	10YR46 00	C			Y	0	0	HR	40		M				
9	0-30	hcl	25Y 42 00	10YR46 00	F				6	0	HR	15						
	30-40	c	25Y 52 00	10YR58 00	C			Y	0	0	HR	40		P			Y	
10	0-25	hcl	10YR42 00	10YR46 00	C			Y	8	0	HR	15						
	25-40	c	25Y 42 52	75YR46 00	M			Y	0	0	HR	25		P			Y	
	40-41	c	00ZZ00 00					Y	0	0		0		P			Y	
			t															
11	0-10	hcl	10YR42 00						5	0	HR	12						
	10-65	c	25Y 51 61	10YR58 00	M			Y	0	0	HR	10		P			Y	
12	0-10	hcl	10YR42 00						0	0	HR	10						
	10-70	c	25Y 51 61	10YR58 00	M			Y	0	0	HR	3		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
13	0-25	hcl	10YR42 00						5	0	HR	10						
	25-40	c	25Y 51 00	10YR58 00	M			Y	0	0	HR	10		M			Y	
16	0-25	hcl	10YR42 00						0	0	HR	5						
	25-40	c	25Y 51 00	10YR58 00	M			Y	0	0	HR	10		P			Y	
	40-70	c	25Y 51 00	10YR58 00	M			Y	0	0		0		P			Y	
21	0-26	hcl	10YR42 00	10YR46 56	F				0	0	HR	5						
	26-50	hcl	10YR53 00	10YR56 00	C			Y	0	0	HR	15		M				
	50-90	c	25Y 53 63	10YR56 00	M		00MN00 00	Y	0	0	HR	3		P			Y	
25	0-25	mzcl	10YR42 00						0	0	HR	10						
	25-35	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	25		M				
26	0-25	mcl	10YR42 00						6	0	HR	12						
27	0-27	mcl	10YR42 00						5	0	HR	15						
31	0-25	mcl	10YR43 00						8	0	HR	12						
	25-60	mcl	10YR54 44						0	0	HR	15		M				
32	0-26	mcl	10YR53 00						0	0	HR	2						
	26-70	mcl	10YR54 00						0	0		0		M				
33	0-30	mcl	10YR53 00						2	0	HR	3						
	30-60	mcl	10YR54 00						0	0	HR	3		M				
	60-120	hcl	10YR54 56						0	0		0		M				
39	0-25	mcl	10YR43 00						6	0	HR	10						
	25-40	mcl	10YR44 00						0	0	HR	15		M				
	40-60	mcl	10YR44 54						0	0	HR	2		M				
	60-90	mcl	10YR72 74	10YR56 00	C			Y	0	0		0		M				
	90-120	hcl	10YR72 00	10YR56 00	C			Y	0	0		0		M				