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CANTERBURY LOCAL PLAN
LAND AT HERNE BAY, KENT
AGRICULTURAL LAND CLASSIFICATION
ALC MAP AND REPORT
JULY 1993

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1. INTRODUCTION

1.1. In March 1993 an Agricultural Land Classification (ALC) survey was carried out on land at Herne Bay, Kent. ADAS was commissioned by MAFF to determine the quality of land identified in the Canterbury District Draft Local Plan.

1.2. The survey work was undertaken at a detailed level of approximately one boring per hectare. A total of 40 borings and 3 soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines and criteria 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.

1.3. Part of the site had been surveyed by ADAS in November 1989 using MAFF's revised guidelines and criteria. The findings of this survey were assimilated with the more recent survey.

1.4. At the time of survey the majority of agricultural land was in a ploughed state with some cereals.

1.5. The distribution of grades and sub-grades is shown on the attached ALC map and areas and extent given in the table below. 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 sub-grades

	Area (ha)	% total agricultural area
Grade 2	25.4	46.9
3A	7.4	13.7
3B	21.3	39.4
Total agricultural area	54.1	100%
Agricultural Buildings	0.4	
Woodland	0.1	
Not surveyed	1.0	
Urban	2.7	
Non-agricultural	1.9	
Total area of site	60.2 ha	

1.6. A description of the grades and sub-grades and land use categories identified in this survey is attached as an appendix.

1.7. Agricultural land quality over the site ranges from very good to moderate. Land classified as grade 2 comprises silty clay loam soils with a combined slight wetness and droughtiness limitation. Land classified as sub-grade 3A consists of clay loams over slowly permeable clay. These soils suffer from a moderate wetness limitation and occasionally droughtiness. The remainder of the site is classified as sub-grade 3B where soils with heavy topsoils over slowly permeable clay experience serious wetness limitations significantly restricting agricultural use of the land.

2. 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 5 km 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 :	TR 186 672	TR 202 673	TR 209 672
Altitude (m) :	30	35	30
Accumulated Temperature (°days) :	1458	1451	1457
Average Annual Rainfall (mm) :	583	586	586
Field Capacity (days) :	120	120	120
Moisture Deficit, Wheat (mm) :	127	127	127
Moisture Deficit, Potatoes (mm) :	125	125	125
Overall Climatic Grade :	1	1	1

3. RELIEF

3.1. The majority of the site lies at an altitude of 30-35 m AOD and is flat or gently undulating. To the southwest boundary land falls steadily to an altitude of 15 m AOD. Nowhere on the site do altitude or relief affect agricultural land quality.

4. GEOLOGY AND SOIL

4.1. The published geological map sheet 273 (BGS, 1974) for the site shows the underlying geology to be Eocene London Clay. This is overlain by Recent and

Pleistocene Head Gravel and Head Brickearth particularly in central and northwest sections.

4.2. The published soils map sheet 6 (SSEW, 1983) for the site shows the presence of two soil types. Covering the majority of the site is mapped Park Gate Association - "Deep stoneless soils variably affected by groundwater". Reflecting some of the deposits of London Clay is mapped Wickham Association - "Slowly permeable, seasonally waterlogged fine loamy over clayey and fine silty over clayey associated with similar clayey soils, often with brown subsoils" (SSEW, 1983).

4.3. A detailed examination of soils on the site broadly confirmed the presence of two soil types similar to those described above displaying slowly permeable layers and/or gleying as a result of wetness imperfections.

5. AGRICULTURAL LAND CLASSIFICATION

5.1. The table in paragraph 1.5 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.

Grade 2

5.3. Land of this quality is mapped in the central area of the site. Profiles typically comprise topsoils of medium silty clay loam containing 0-2% flints by volume over upper subsoils of heavy silty clay loam containing 0-1% flints. Lower subsoils comprise clay or silty clay containing 0-3% flints. This often gives way to heavy, occasionally medium silty clay loam at depth. Profiles suffer from slight wetness imperfections as evidenced by gleying from 26-40 cm depth. Consequently soils are assigned to wetness class II and classified as grade 2. In combination with this wetness limitation, the dry nature of the climate for the locality limits the soils to grade 2 due to droughtiness. Pits 2 and 3 are typical of this map unit. Similar soils were found in the 1989 survey and classified as grade 2 also.

Subgrade 3A

5.4. Land of this quality was found in the previous survey in 1989. Profiles typically comprise topsoils of medium silty clay loam over upper subsoils of heavy silty clay loam. Lower subsoils comprise silty clay or clay. Profiles have negligible stone content throughout and suffer from moderate wetness imperfections as evidenced by gleying from 10-40 cm depth and slowly permeable layers from 40-60 cm depth. A wetness class of III is assigned and land classified as subgrade 3A due to wetness.

Subgrade 3B

5.5. Moderate quality agricultural land typically comprises profiles of clay, occasionally heavy clay loam topsils containing 0-3% flints by volume. Upper and lower subsoils comprise slowly permeable clay containing 0-15% flints, though typically 0-1%. Profiles suffer from significant wetness imperfections as evidenced by gleying present

from the surface to 38 cm depth and slowly permeable layers from 25-38 cm depth. Soils are assigned to wetness class III. This in combination with heavy topsoil texture and field capacity day range limits land to subgrade 3B due to wetness. Within the map unit better drained profiles were found but not mapped separately due to their limited number and extent. Similar soils were also found in the 1989 survey and assigned to this grade.

5.6. The area next to Talmead House and south of Margate Road was not surveyed at the request of the landowner.

5.7. Areas mapped as non agricultural include embankments to roads and land overgrown with weeds and bushes.

5.8. Areas mapped as urban include metalled roads, a factory and houses and gardens with predominantly built-up or `hard' uses.

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Resource Planning Team
Guildford Statutory Group
ADAS Reading

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, 1974. Geology Map Sheet 273 Faversham. Solid and Drift edition. 1:50,000 scale.

* MAFF, 1988. Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land (Alnwick)

* Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

* SOIL SURVEY OF ENGLAND AND WALES, 1983. Soils Map Sheet 6 "Soils of South East England". 1:250,000 scale 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 profile and pit information obtained during ALC surveys is held on a database. This has commonly used notations and abbreviations as set out below.

BORING HEADERS

1. GRID REF : National grid square followed by 8 figure grid reference.

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

ARA - arable	PAS/PGR - permanent pasture
WHT - wheat	RGR - rough grazing
BAR - barley	LEY - ley grassland
CER - cereals	CFW - coniferous woodland
OAT - oats	DCW - deciduous woodland
MZE - maize	SCR - scrub
OSR - oilseed rape	HTH - heathland
BEN - field beans	BOG - bog or marsh
BRA - brassicae	FLW - fallow
POT - potatoes	PLO - ploughed
SBT - sugarbeet	SAS - set-aside
FDC - fodder crops	OTH - other
FRT - soft and top fruit	LIN - linseed
HOR/HRT - horticultural crops	

3. GRDNT : Gradient as measured by optical reading clinometer.

4. GLEY/SPL : Depth in centimetres (cm) to gleyed and/or slowly permeable horizons.

5. AP (WHEAT/POTS) : Crop-adjusted available water capacity. The amount of soil water (in millimetres) held in the soil profile that is available to a growing crop (wheat and potatoes are used as reference crops).

6. MB (WHEAT/POTS) : The moisture balance for wheat and potatoes obtained by subtracting the soil moisture deficit from the crop-adjusted available water capacity.

7. DRT: Grade according to soil droughtiness assessed against soil moisture balances.

8. M REL : Micro-relief)
   FLOOD : Flood risk)
   EROSN : Soil erosion)
   EXP : Exposure)
   FROST : Frost prone)
   DIST : Disturbed land)
   CHEM : Chemical limitation)

   If any of these factors are considered significant in terms of the assessment of agricultural land quality a `y' will be entered in the relevant column.

9. LIMIT : Principal limitation to agricultural land quality.
The following abbreviations are used:

OC - overall climate
AE - aspect
EX - exposure
FR - frost
GR - gradient
MR- micro-relief
FL - flooding
TX - soil texture
DP - soil depth
CH - chemical limitations
WE - wetness
WK - workability
DR - drought
ER - erosion
WD - combined soil wetness/soil droughtiness
ST - topsoil stoniness

PROFILES & PITS

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

S - sand
LS - loamy sand
SL - sandy loam
SZL - sandy silt loam
ZL - silt loam
MZCL - medium silty clay loam
MCL - medium clay loam
SCL - sandy clay loam
HZCL - heavy silty clay loam
HCL - heavy clay loam
SC - sandy clay
ZC - silty clay
C - clay

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.

F - fine (more than ⅔ of the sand less than 0.2 mm)
C - coarse (more than ⅓ of sand greater than 0.6 mm)
M - medium (less than ⅔ fine sand and less than ⅓ 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:

OL - organic loam
P - peat
SP - sandy peat
LP - loamy peat
PL - peaty loam
PS - peaty sand
MZ - marine light silts

2. MOTTLE COL : Mottle colour

3. MOTTLE ABUN : Mottle abundance

F - few - less than 2% of matrix or surface described
C - common - 2-20% of the matrix
M - many - 20-40% of the matrix
VM - very many - 40% + of the matrix

4. MOTTLE CONT : Mottle continuity

F - faint - indistinct mottles, evident only on close examination
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 : Stone lithology. One of the following is used.

HR - all hard rocks or stones
MSST - soft, medium or coarse grained sandstone
SI - soft weathered igneous or metamorphic
SLST - soft oolitic or dolomitic 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 peds are described using the following notation.

- <u>degree of development</u>
  WK - weakly developed
  MD - moderately developed
  ST - strongly well developed

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

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

8. CONSIST : Soil consistence is decribed 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

AMPLE O.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT		ALC	COMMENTS
1	TR18406730	PLO	W	02	027	035	3	3B	128	1	105	-20	3A				WE	3B		
1P	TR18406730	PLO	W	02	028	037	3	3B		0		0					WE	3B		
2	TR18506730	PLO	W	02	030	030	3	3B	124	-3	102	-23	3A				WE	3B		
2P	TR20406730	PLO	E	01	030		2	2		0		0					WE	2		PIT TO 85
3	TR18606730	PLO	W	04	025	025	3	3B	126	-1	103	-22	3A				WE	3B		
3P	TR20206730	PLO	E		038		2	2	163	36	127	2	2				WE	2		WEDR
4	TR18706730	PLO	W	04	030	030	3	3B	124	-3	102	-23	3A				WE	3B		
5	TR18806730	PLO	W		032	032	3	3B	126	-1	103	-22	3A				WE	3B		
6	TR18906730	PGR	W		000	030	3	3B	134	7	105	-20	3A				WE	3B		
7	TR18306720	PLO	W	01	035	065	2	3A		0		0					WE	3A		
8	TR18406720	PLO	W	02	055	055	2	3B		0		0					WE	3B		
9	TR18506720	PLO	W	03	036	036	3	3B		0		0					WE	3B		
10	TR18606720	PLO	W	03	035	035	3	3B		0		0					WE	3B		
11	TR18706720	PLO	W	02	037	037	3	3B		0		0					WE	3B		
12	TR18806720	PLO			032	032	3	3B		0		0					WE	3B		
14	TR19906740	PLO			035		2	2	145	18	119	-6	2				WE	2		WEDR
15	TR20006740	PLO			040		2	2	147	20	121	-4	2				WE	2		WEDR
16	TR20106740	PLO			039		2	2	153	26	126	1	2				WE	2		WEDR
17	TR20206740	PLO	E	01	025		2	2	155	28	121	-4	2				WE	2		WEDR
18	TR20306740	PLO			035		2	2	160	33	125	0	2				WE	2		WEDR
19	TR20406740	PLO			030		2	2	129	2	121	-4	3A				DR	3A		IMP100 Q2DR
20	TR20506740	PLO			000	035	3	3B	127	0	104	-21	3A				WE	3B		
21	TR20606740	FLW			035	035	3	3B	114	-13	105	-20	3A				WE	3B		IMP 100
22	TR19906730	PLO			039		2	2	152	25	122	-3	2				WE	2		WEDR
23	TR20006730	PLO			026		2	2	143	16	119	-6	2				WE	2		WEDR
24	TR20106730	PLO			037		2	2	150	23	124	-1	2				WE	2		WEDR
25	TR20206730	PLO	E	01	037		2	2	136	9	120	-5	2				WE	2		WEDR IMP 100
26	TR20306730	PLO			035		2	2	154	27	120	-5	2				WE	2		WEDR
27	TR20406730	PLO			032		2	2	153	26	121	-4	2				WE	2		WEDR
28	TR20506730	PLO			038	038	3	3B	142	15	110	-15	3A				WE	3B		
29	TR20606730	FLW			028	028	3	3B	111	-16	102	-23	3A				WE	3B		IMP 100
30	TR20706730	CER			032	032	3	3B		0		0					WE	3B		
31	TR20806730	CER			028	028	3	3B		0		0					WE	3B		
32	TR19906720	PLO			037		2	2	152	25	119	-6	2				WE	2		WEDR
33	TR20006720	PLO			026		2	2	144	17	118	-7	2				WE	2		WEDR
34	TR20106720	PLO			035		2	3A	111	-16	117	-8	3A				WE	3A		IMP 80
35	TR20206720	PLO			050		1	1	146	19	120	-5	2				DR	2		
36	TR20306720	PLO			038		2	2	151	24	125	0	2				WE	2		WEDR
37	TR20406720	PLO			032		2	2	155	28	121	-4	2				WE	2		WEDR
38	TR20506720	CER			035		2	3A	161	34	125	0	2				WE	3A		
39	TR50606720	CER			035	035	3	3B	126	-1	104	-21	3A				WE	3B		
40	TR20706720	CER			038	038	3	3B		0		0					WE	3B		

AMPLE O.	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
42	TR20906720	PGR	000	028		3	3B	85	-42	91	-34	3B				WE	3B	IMP 60

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
1	0-27	hcl	10YR42 00						0	0	HR	3						
	27-35	c	10YR53 00	75YR56 00	M			Y	0	0	HR	1		M				
	35-120	c	10YR53 00	75YR56 00	M		00MN00 00	Y	0	0	HR	1		P			Y	
1P	0-28	c	10YR42 00						0	0	HR	3						
	28-37	c	10YR53 00	75YR56 00	M			Y	0	0	HR	1	MDCSAB FR	M	Y			
	37-65	c	10YR52 53	75YR56 00	M		25Y 53 00	Y	0	0	HR	1	MDCAB FM	P	Y		Y	
2	0-30	c	10YR42 00						0	0	HR	2						
	30-120	c	10YR53 00	75YR56 58	C		25Y 62 00	Y	0	0	HR	1		P			Y	
2P	0-30	mzcl	25Y 42 00						0	0	HR	2						
	30-55	hzcl	25Y 52 53	10YR56 66	C			Y	0	0		0	MDCSAB FR	M				
	55-85	c	25Y 52 53	10YR56 66	C			Y	0	0		0	MDCSAB FR	M				
3	0-25	hcl	10YR42 00						0	0	HR	2						
	25-120	c	10YR53 00	75YR56 58	M		00MN00 00	Y	0	0		0		P			Y	
3P	0-38	mzcl	25Y 42 00						0	0		0						
	38-60	hzcl	25Y 53 52	10YR56 00	C		00MN00 00	Y	0	0		0	MDCSAB FR	M	Y			
	60-120	mzcl	25Y 53 52	10YR56 00	C		00MN00 00	Y	0	0		0	MDCSAB FR	M	Y			
4	0-30	c	10YR42 00						0	0	HR	2						
	30-120	c	10YR53 00	10YR56 00	M			Y	0	0	HR	1		P			Y	
5	0-32	c	10YR42 00						0	0	HR	1						
	32-120	c	10YR53 00	10YR56 00	C			Y	0	0		0		P			Y	
6	0-30	hcl	10YR42 00	75YR56 00	M			Y	0	0	HR	1						
	30-55	c	10YR53 00	10YR56 00	M			Y	0	0	HR	1		P			Y	
	55-120	scl	10YR53 00	10YR56 00	M			Y	0	0	HR	1		P				
7	0-35	hzcl	10YR42 00						0	0	HR	3						
	35-65	hzcl	10YR52 53	10YR56 00	C			Y	0	0		0		M				
	65-75	zc	10YR52 53	75YR56 00	C			Y	0	0		0		P			Y	
	75-90	c	10YR52 00	75YR56 00	C			Y	0	0		0		P			Y	
8	0-35	c	10YR42 00						0	0	HR	3						
	35-55	c	10YR53 00	10YR56 00	F				0	0		0		M				
	55-80	c	10YR53 62	75YR56 00	C			Y	0	0		0		P			Y	
9	0-36	c	10YR42 00						0	0	HR	3						
	36-55	c	10YR52 62	75YR56 00	C			Y	0	0		0		P			Y	
	55-70	c	10YR62 52	75YR56 00	M			Y	0	0		0		P			Y	
10	0-35	c	10YR42 00						0	0	HR	3						
	35-60	c	10YR52 00	10YR56 66	C			Y	0	0		0		P			Y	
	60-80	c	10YR52 00	75YR46 00	C			Y	0	0		0		P			Y	

AMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
11	0-37	c	10YR53 00						0	0	HR	2						
	37-80	c	10YR53 52	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y	
12	0-32	c	10YR42 00						0	0	HR	1						
	32-60	c	10YR53 00	10YR56 00	M			Y	0	0		0		P			Y	
14	0-35	mzcl	25Y 42 00						0	0	HR	1						
	35-45	hcl	25Y 64 00	75YR56 00	C			Y	0	0	HR	1		M				
	45-80	zc	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0		0		M				
	80-120	c	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0		0		M				
15	0-40	mzcl	10YR42 00						0	0		0						
	40-100	zc	25Y 52 53	10YR66 56	C		00MN00 00	Y	0	0		0		M				
	100-120	c	10YR64 00	10YR66 00	C			Y	0	0		0		M				
16	0-39	mzcl	25Y 42 00						0	0	HR	1						
	39-45	hzcl	25Y 63 64	75YR58 00	C			Y	0	0	HR	1		M				
	45-75	hzcl	25Y 63 64	75YR56 58	C		00MN00 00	Y	0	0		0		M				
	75-120	zc	25Y 63 64	75YR56 58	M			Y	0	0	HR	1		M				
17	0-25	mzcl	10YR42 00						0	0	HR	2						
	25-45	hzcl	25Y 52 53	10YR66 00	C			Y	0	0		0		M				
	45-70	c	25Y 52 00	10YR56 00	C		00MN00 00	Y	0	0		0		M				
	70-120	hzcl	10YR54 00	10YR66 00	F				0	0		0		M				
18	0-35	mzcl	25Y 42 00						0	0	HR	1						
	35-60	hzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	1		M				
	60-90	hzcl	25Y 63 00	75YR56 00	M			Y	0	0	HR	1		M				
	90-120	hzcl	25Y 63 00	75YR56 00	C			Y	0	0	HR	1		M				
19	0-30	mzcl	25Y 42 00						0	0		0						
	30-100	c	05Y 51 00	75YR46 00	M		00MN00 00	Y	0	0		0		M				
20	0-35	c	25Y 42 00	75YR56 00	C			Y	0	0	HR	1						
	35-120	c	25Y 63 00	75YR56 58	M			Y	0	0	HR	1		P			Y	
21	0-35	c	25Y 32 42						0	0		0						
	35-100	c	25Y 52 53	10YR56 00	M		00MN00 00	Y	0	0		0		P			Y	
22	0-35	mzcl	25Y 42 00						0	0	HR	2						
	35-39	mzcl	25Y 64 00						0	0		0		M				
	39-55	mzcl	25Y 64 63	10YR56 00	C			Y	0	0		0		M				
	55-95	zc	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0	HR	1		M				
	95-120	hzcl	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0		0		M				
23	0-26	mzcl	25Y 42 00						0	0	HR	2						
	26-70	c	25Y 63 00	10YR56 00	C		00MN00 00	Y	0	0		0		M				
	70-120	c	10YR64 00	10YR66 00	F			Y	0	0		0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
24	0-37	mzcl	25Y 42 00						0	0	HR	1						
	37-64	hzcl	25Y 63 64 75YR56 58 C				00MN00	00 Y	0	0	HR	1		M				
	64-120	zc	25Y 63 64 75YR56 58 M				00MN00	00 Y	0	0	HR	1		M				
25	0-37	mzcl	25Y 42 00						0	0		0						
	37-70	zc	25Y 53 64 10YR56 66 C				00MN00	00 Y	0	0		0		M				
	70-100	hzcl	10YR54 00 10YR66 00 F				00MN00	00 Y	0	0		0		M				
26	0-35	mzcl	25Y 42 00						0	0	HR	1						
	35-46	hzcl	25Y 63 64 75YR56 58 C					Y	0	0	HR	1		M				
	46-80	zc	25Y 63 00 75YR58 56 M				10YR66	00 Y	0	0		0		M				
	80-120	hzcl	25Y 63 00 75YR56 58 M				10YR66	00 Y	0	0		0		M				
27	0-32	mzcl	25Y 42 00						0	0		0						
	32-50	hzcl	25Y 52 53 10YR56 66 F					Y	0	0		0		M				
	50-90	zc	25Y 52 00 10YR56 00 M				00MN00	00 Y	0	0		0		M				
	90-120	hzcl	10YR54 00 10YR56 00 F					Y	0	0		0		M				
28	0-38	hzcl	25Y 42 00						0	0	HR	1						
	38-95	zc	25Y 63 00 75YR56 58 M					Y	0	0		0		P		Y		
	95-120	hzcl	25Y 63 64 75YR56 58 C					Y	0	0		0		M		Y		
29	0-28	c	25Y 42 00						0	0		0						
	28-50	c	25Y 53 00 10YR56 00 C					Y	0	0		0		P		Y		
	50-100	c	10YR53 00 10YR56 00 M					Y	0	0		0		P		Y		
30	0-32	zc	10YR42 00						0	0		0						
	32-52	c	25Y 52 53 10YR56 00 C					Y	0	0		0		P		Y		
	52-90	c	10YR52 00 75YR46 56 M					Y	0	0		0		P		Y		
31	0-28	c	10YR42 00						0	0		0						
	28-50	c	10YR52 53 10YR56 66 C					Y	0	0		0		P		Y		
	50-90	c	10YR52 00 75YR46 00 M					Y	0	0		0		P		Y		
32	0-37	mzcl	10YR53 00						0	0	HR	2						
	37-45	hcl	25Y 64 00 75YR58 00 C					Y	0	0	HR	1		M				
	45-80	zc	25Y 64 00 75YR56 58 M				00MN00	00 Y	0	0	HR	1		M				
	80-120	hzcl	10YR66 72 75YR58 00 C				00MN00	00 Y	0	0	HR	1		M				
33	0-26	mzcl	10YR42 00						0	0	HR	2						
	26-45	hzcl	10YR53 00 10YR56 00 F				00MN00	00 Y	0	0		0		M				
	45-100	zc	10YR53 52 10YR56 00 C				00MN00	00 Y	0	0		0		M				
	100-120	c	10YR53 52 10YR56 00 C					Y	0	0		0		M			Y	
34	0-35	hcl	25Y 42 00						0	0	HR	2						
	35-70	c	25Y 63 64 75YR56 58 M				00MN00	00 Y	0	0	HR	1		M				
	70-80	sc	25Y 63 64 75YR56 58 M				00MN00	00 Y	0	0	HR	3		M				

AMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
35	0-33	mzcl	25Y 42 00						0	0	HR	2						
	33-50	hzcl	25Y 53 52	10YR56 66	F				0	0		0		M				
	50-120	zc	25Y 52 00	10YR56 00	M		00MN00 00	Y	0	0		0		M				
36	0-35	mzcl	25Y 42 00						0	0	HR	1						
	35-38	mzcl	25Y 64 63						0	0	HR	1		M				
	38-70	hzcl	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0	HR	1		M				
	70-120	zc	25Y 63 00	75YR56 58	M		00MN00 00	Y	0	0		0		M				
37	0-32	mzcl	25Y 42 00						0	0		0						
	32-50	hzcl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	50-80	zc	10YR53 00	10YR56 00	C		00MN00 00	Y	0	0		0		M				
	80-120	mzcl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
38	0-35	hzcl	10YR42 00						0	0	HR	1						
	35-45	hzcl	10YR54 00	75YR56 00	C			Y	0	0		0		M				
	45-80	hzcl	10YR53 54	75YR56 58	M		00MN00 00	Y	0	0	HR	1		M				
	80-120	mzcl	10YR54 66	75YR56 00	C				0	0	HR	1		M				
39	0-35	c	25Y 42 00						0	0	HR	1						
	35-120	c	25Y 63 64	75YR56 58	M		00MN00 00	Y	0	0	HR	2		P		Y		
40	0-38	c	10YR42 00						0	0	HR	1						
	38-60	c	25Y 64 63	75YR56 58	M		00MN00 00	Y	0	0		0		P		Y		
	60-80	c	25Y 63 64	75YR56 00	M		00MN00 00	Y	0	0	HR	15		P		Y		
42	0-28	hcl	10YR53 00	75YR56 00	C			Y	0	0	HR	1						
	28-60	c	25Y 63 64	75YR58 00	M		00MN00 00	Y	0	0	HR	1		P		Y		

SOIL PIT DESCRIPTION

Site Name : HERNE BAY CANTERBURY LP Pit Number : 1P

Grid Reference: TR18406730 Average Annual Rainfall : 583 mm
Accumulated Temperature : 1458 degree days
Field Capacity Level : 120 days
Land Use : Bare Soil
Slope and Aspect : 02 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 28	C	10YR42 00	0	3		
28- 37	C	10YR53 00	0	1	M	MDCSAB
37- 65	C	10YR52 53	0	1	M	MDCAB

Wetness Grade : 3B Wetness Class : III
Gleying :028 cm
SPL :037 cm

Drought Grade : APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : HERNE BAY CANTERBURY LP Pit Number : 2P

Grid Reference: TR20406730
Average Annual Rainfall : 583 mm
Accumulated Temperature : 1458 degree days
Field Capacity Level : 120 days
Land Use : Bare Soil
Slope and Aspect : 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	MZCL	25Y 42 00	0	2		
30- 55	HZCL	25Y 52 53	0	0	C	MDCSAB
55- 85	C	25Y 52 53	0	0	C	MDCSAB

Wetness Grade : 2
Wetness Class : II
Gleying :030 cm
SPL : No SPL

Drought Grade :
APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : HERNE BAY CANTERBURY LP Pit Number : 3P

Grid Reference: TR20206730 Average Annual Rainfall : 583 mm
Accumulated Temperature : 1458 degree days
Field Capacity Level : 120 days
Land Use : Bare Soil
Slope and Aspect : degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 38	MZCL	25Y 42 00	0	0		
38- 60	HZCL	25Y 53 52	0	0	C	MDCSAB
60-120	MZCL	25Y 53 52	0	0	C	MDCSAB

Wetness Grade : 2 Wetness Class : II
Gleying :038 cm
SPL : No SPL

Drought Grade : 2 APW : 163mm MBW : 36 mm
APP : 127mm MBP : 2 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness