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MAIDSTONE BOROUGH LOCAL PLAN
Land at Langley Park Farm, Park Wood, Kent

Agricultural Land Classification
ALC Map and Report

March 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

MAIDSTONE BOROUGH LOCAL PLAN
LAND AT LANGLEY PARK FARM, PARK WOOD, KENT

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 32.7 hectares of land at Langley Park Farm adjacent to the Park Wood Trading Estate to the east of Maidstone in Kent. The survey was carried out during March 1998.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with MAFF's statutory input to the Maidstone Borough Local Plan. This survey supersedes any previous ALC information for this land. The site lies adjacent to two previous surveys to the north (FRCA Refs: 2007/030/96 & 2007/160/96). The information gathered during these surveys have been used to assist in compiling this report and the accompanying ALC map.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey agricultural land on the site comprised cereals to the north with a horticultural enterprise to the south and an orchard between. The area mapped as 'Other land' occurs to the east of the cereal crop and has been planted with trees.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	5.5	17.4	16.8
3a	18.3	57.7	56.0
3b	7.9	24.9	24.2
Other land	1.0	-	3.0
Total surveyed area	31.7	100	96.9
Total site area	32.7	-	100

[1] FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 31 borings and three soil pits were described.

8. The agricultural land on this site has been classified in the range Grade 2 (very good quality) to Subgrade 3b (moderate quality) with a substantial proportion in Subgrade 3a (good quality). Principal limitations to land quality include soil wetness and soil droughtiness.

9. The majority of the agricultural land is principally limited by soil wetness. This restriction occurs in association with all the grades mapped. The soils observed comprise fine loamy and silty topsoils overlying fine loamy, silty and clayey subsoils. The clayey horizons impede soil drainage and occur at moderate and shallow depths in the profile. The relative depth determines the severity of the soil wetness problem. In combination with the local climate and topsoil texture this determines the ALC grade. Where the clayey horizons occur at shallow depths, Subgrade 3b is shown. Where clay occurs deeper in the profile or is absent, respectively Subgrade 3a or Grade 2 is mapped.

10. The variably wet soil conditions that might be expected with these soils is likely to adversely affect seed germination and survival, partly by a reduction in soil temperature and partly because of anaerobism. It will also inhibit the development of a good root system and can affect crop growth. In addition, the wet conditions will restrict the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

11. Soil droughtiness is the principal limitation where there is a significant proportion of ragstone substrate in the lower subsoil. This causes a reduction in the water available to plants to the extent that Grade 2 and Subgrade 3a are appropriate given local climatic conditions. Soil droughtiness may cause the level and consistency of yields to be affected. Some land is equally limited by soil wetness and soil droughtiness

FACTORS INFLUENCING ALC GRADE

Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

13. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

14. 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.

15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	TQ 790 511	TQ 791 515
Altitude	m, AOD	86	105
Accumulated Temperature	day°C (Jan-June)	1410	1388
Average Annual Rainfall	mm	689	701
Field Capacity Days	days	142	144
Moisture Deficit, Wheat	mm	113	110
Moisture Deficit, Potatoes	mm	106	103
Overall climatic grade	N/A	Grade 1	Grade 1

16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. The site is not believed to be either frost-prone or to suffer from exposure. As such, the site may be considered as being climatically Grade 1. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness which are the dominant limitations here.

Site

17. The site lies at altitudes in the range of 86-105 m AOD. The land rises gently from the north towards the centre of the site and then falls off towards a stream at the southern border. Neither gradient or micro-relief adversely affect land quality. Flood risk is also not believed to affect the land classification.

Geology and soils

18. The most detailed published geological information for the site (BGS, 1976) shows it to be wholly underlain by Cretaceous Hythe Beds; a deposit of calcareous sandstones and sandy limestones.

19. The most recent published soils information covering the area (SSEW, 1983) shows the site to comprise soils of the Malling association. These are described as 'well drained non-calcareous fine loamy soils over limestone at various depths. Some deep well drained coarse loamy soils and similar fine loamy over clayey soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Occasional shallower calcareous soils over limestone. Landslips and associated irregular terrain locally.' (SSEW, 1983). The soils encountered during this survey were predominantly fine loamy or fine silty topsoils and upper subsoils overlying slowly permeable clayey subsoils.

AGRICULTURAL LAND CLASSIFICATION

20. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1 on page 1.

21. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Grade 2

22. Land of very good quality has been mapped in two parts of the site, to the north and extreme south. The soils observed in these areas were essentially similar and are principally restricted by a combination of slight soil wetness and soil droughtiness. The soils are of two main types. The most common is represented by soil pit 3 (3P in Appendix II). This comprises medium clay loams and medium silty clay loams to at least 120cm containing up to 10% hard and weathered ragstone fragments. These soils commonly show evidence of slightly impeded drainage in the subsoil by either being gleyed or slightly gleyed. This factor leads them to be placed in Wetness Class II given the local climatic conditions. In combination with the medium topsoil textures a Grade 2 classification is appropriate. Occasional observations were impenetrable to the soil auger at a moderate depth due to an increase in the volume of ragstone in the profile. Moisture balance calculations indicate that soil moisture reserves may be inadequate to fully meet demand such that the land is slightly restricted in terms of soil droughtiness. Crop yields may be adversely affected, especially in dry years. However this land is still versatile and most crop types could be successfully grown, except for the most demanding.

23. The second, less common soil type in these mapping units is principally limited by soil wetness alone. It occurs towards the north of the site where medium clay loam topsoils and upper subsoils overlie slowly permeable clay at depth (approximately 60-70cm), as evidenced by soil pit 1 (see 1P in Appendix II). These clay horizons impede drainage such that slight seasonal waterlogging occurs. These drainage characteristics equate to Wetness Class II which results in Grade 2 being applied when combined with the medium topsoil texture.

Subgrade 3a

24. Land of good quality has been mapped over the majority of this site. The principal limitation is soil wetness. The soils are of a single type overall. They comprise a medium clay loam or medium silty clay loam topsoil overlying a medium or heavy clay loam upper subsoil passing to clay between 40 and 65cm. Ochreous mottling was observed in the upper subsoil which indicates seasonal waterlogging. The clay lower subsoil was found, in the representative soil pit, 1P (see Appendix II), to be slowly permeable and thus to impede drainage. The depth to the slowly permeable layer when considered alongside the local climatic conditions means that Wetness Class III is appropriate. Subsequently Subgrade 3a is applied given the medium topsoil textures encountered. The soils as a whole are relatively water retentive and slightly stony with up to approximately 15% ragstone fragments being recorded. As such soil droughtiness is not a principal limitation. Therefore Subgrade 3a is appropriate on the basis of soil wetness. Occasional borings of both a slightly better and slightly worse quality have been included in this map unit as they are of too scattered a distribution to be mapped separately.

Subgrade 3b

25. Land of moderate quality has been mapped in a single unit towards the west of the site. Soil wetness is again the principal limitation. A single soil type was observed in this area. This is essentially similar to that described in paragraph 24 above, except that the upper subsoil was observed to be narrower and, as such, the slowly permeable clay was encountered at a shallower depth (a maximum of 38cm), as observed in the representative soil pit, 2P (see

Appendix II). This factor means that seasonal waterlogging will be more pronounced and given the local climatic conditions these soils are placed in Wetness Class IV. The combination of such drainage characteristics with medium topsoil textures causes land to be restricted to Subgrade 3b.

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SOURCES OF REFERENCE

British Geological Survey (1976) *Sheet No. 288, Maidstone, 1:50,000, Solid and Drift Ed.* BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.* MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.* Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South-East England, 1:250,000.* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England* SSEW: Harpenden

APPENDIX I

DESCRIPTIONS 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 (e.g. 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.

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil pit descriptions

Soil boring descriptions (boring and horizon levels)

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	**OTH**	Other
DCW:	Deciduous woodland	**BOG:**	Bog or marsh	**SAS:**	Set-Aside
HTH:	Heathland	**HRT:**	Horticultural crops	**PLO:**	Ploughed

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	**ST**:	Topsoil Stoniness
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
EX:	Exposure				

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

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	**MD**:	moderately developed
	ST:	strongly developed		
Ped size	**F**:	fine	**M**:	medium
	C:	coarse		
Ped shape	**S**:	single grain	**M**:	massive
	GR:	granular	**AB**:	angular blocky
	SAB:	sub-angular blocky	**PR**:	prismatic
	PL:	platy		

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

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

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 appropriate 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

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	TQ79305220	CER				40	3	3A		0		0					WE	3A	I90 SLGLEY30
2	TQ79305210	CER	S	2		30	3	3A		0		0					WE	3A	SL GLEY 30
3	TQ79405210	CER	S	1	60	30	3	3A		0		0					WE	3A	SL GLEY 30
4	TQ79505210	CER	S	1	72	62	2	2	132	19	110	4	2				WD	2	SL GLEY 62
5	TQ79205200	CER	N	1		40	3	3A		0		0					WE	3A	I65 SLGLEY28
6	TQ79305200	CER	N	1	105		1	1	157	44	124	18	1					1	SL GLEY 70
7	TQ79405200	CER	S	1	32		2	2	154	41	119	13	1				WE	2	
8	TQ79505200	CER	S	1	60	45	3	3A		0		0					WE	3A	I85 SLGL35 1P
9	TQ79205190	CER	NW	1	25	35	4	3B	120	7	103	-3	2				WE	3B	
10	TQ79305190	CER	NW	1	28	42	3	3A	121	8	104	-2	2				WE	3A	
11	TQ79405190	CER	NW	1	25	38	4	3B	126	13	108	2	2				WE	3B	
12	TQ79205180	CER	NW	1	25	32	4	3B		0		0					WE	3B	IMP 90
13	TQ79305180	CER	NW	1	25	40	3	3A	120	7	100	-6	2				WE	3A	
14	TQ79405180	CER	NW	1	25	35	4	3B	122	9	102	-4	2				WE	3B	
15	TQ79105170	CER			24	24	4	3B		0		0					WE	3B	IMP 70
16	TQ79205170	CER	NW	1	25	37	4	3B	118	5	96	-10	2				WE	3B	2P LOCATION
17	TQ79305170	CER			27	65	3	3A		0		0					WE	3A	IMP 100
18	TQ79105160	CER			26	38	4	3B	118	5	97	-9	2				WE	3B	
19	TQ79205160	CER			24	35	4	3B		0		0					WE	3B	IMP 90
20	TQ79305160	CER			24	50	3	3A	121	8	101	-5	2				WE	3A	
21	TQ79005150	ORC			35	35	4	3B	116	3	97	-9	3A				WE	3B	SL GLEY 24
22	TQ79105150	CER			24	75	2	2	124	11	102	-4	2				WD	2	
23	TQ79205150	CER			45	27	3	3A	118	5	99	-7	2				WE	3A	SL GLEY 27
24	TQ79005140	ORC					1	1	81	-32	86	-20	3B				DR	3B	IMP 60 3ADR?
25	TQ79105140	ORC	SE	1		37	3	3A		0		0					WE	3A	I85 SLGLEY25
26	TQ79205140	CER	SE	1		60	2	2	126	13	106	0	2				WD	2	SL GLEY 28
27	TQ79005130	HRT	S	5	40	40	3	3A		0		0					WE	3A	SL GLEY 30
28	TQ79105130	HRT	S	1	42	42	3	3A		0		0					WE	3A	SL GLEY 32
29	TQ79005120	HRT	S	6	30		2	2	155	42	120	14	1				WE	2	3P LOCATION
30	TQ79105120	HRT	S	6			1	1	149	36	113	7	2				DR	2	SL GLEY 90
31	TQ79005110	CER	S	3	29		2	2		0		0					DR	3A	IMP 68
1P	TQ79505200	CER	S	1	44	44	3	3A	126	13	103	-3	2				WE	3A	SLGL27 P80A120
2P	TQ79205170	CER	NW	1	28	36	4	3B	118	5	96	-10	2				WE	3B	PIT 75 AUG 120
3P	TQ79005120	HRT	S	5	29		2	2	155	42	119	13	1				WE	2	PIT 85 AUG 120

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
3P	0-29	MZCL	10YR43						6	3	HR	12							PSD
	29-61	MZCL	10YR53 64	10YR58	C	D	COM MN	Y	0	0		0	MVCSAB	FR	M	N			PSD
	61-120	MZCL	10YR53	75YR58	C	D	10YR54	Y	0	0		0	MVCSAB	FR	M	N			PSD/PIT85 AUG120

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	STR	SUBS POR	IMP	SPL	CALC	
22	0-24	MZCL	10YR42						5	2	HR	12							
	24-75	HCL	10YR53 54	10YR58	M	D	FEW MN	Y	0	0	MSST	15			M				+5%HR (RAGSTONE)
	75-120	C	10YR62 53	75YR58	M	D		Y	0	0	MSST	10			P		Y		+5%HR (RAGSTONE)
23	0-27	MCL	10YR42						6	2	HR	12							
	27-45	C	10YR54	75YR58	M	D	FEW MN	S	0	0	MSST	5			M		Y		+5%HR SL GLEY
	45-70	C	10YR53 54	75YR58	M	D		Y	0	0	MSST	5			P		Y		+5%HR/+05YR58MOTS
	70-120	C	10YR52 53	75YR58	M	D		Y	0	0	MSST	15			P		Y		+5%HR/+05YR58MOTS
24	0-25	MCL	10YR43						6	0	HR	15							
	25-60	HCL	10YR56	75YR58	M	D		S	0	0	MSST	20			M				SLGLEY IMPRAGST60
25	0-25	MCL	10YR43						4	0	HR	8							
	25-37	HCL	10YR46	75YR58	C	D	COM MN	S	0	0	MSST	10			M				SLIGHTLY GLEYED
	37-85	C	75YR56	05YR46	C	D		S	0	0	MSST	15			P		Y		IRAGST85 SLGLEYED
26	0-28	MCL	10YR43						4	0	HR	10							
	28-60	HCL	10YR46	75YR56	C	D	COM MN	S	0	0	HR	5			M				SLIGHTLY GLEYED
	60-120	C	75YR58	05YR46	C	D	COM MN	S	0	0	MSST	10			P		Y		SLGLEYED SLSANDY
27	0-30	MCL	10YR43						4	0	HR	8							
	30-40	HCL	10YR54	05YR58	C	D		S	0	0	MSST	10			M				SLIGHTLY GLEYED
	40-80	C	05Y 62	05YR58	M	D		Y	0	0		0			P		Y		
28	0-32	MCL	10YR43						6	0	HR	15							
	32-42	HCL	10YR54 56	75YR58	C	D		S	0	0	MSST	5			M				SLIGHTLY GLEYED
	42-85	C	10YR63	75YR58	C	D		Y	0	0	MSST	10			P		Y		+COM 05YR58 MOTS
29	0-30	MZCL	10YR43						4	0	HR	8							PSD=MZCL/MCL BDR
	30-68	MZCL	10YR53	75YR58	C	D	COM MN	Y	0	0	MSST	2			M				3P LOCATION
	68-120	MZCL	10YR54	75YR58	C	D	COM MN	S	0	0	MSST	2			M				SLIGHTLY GLEYED
30	0-29	MCL	10YR43						4	0	HR	8							SLIGHTLY SANDY
	29-90	MCL	10YR54	75YR58	F	F	FEW MN		0	0	MSST	2			M				
	90-120	MCL	10YR54	75YR58	C	D	COM MN	S	0	0	MSST	5			M				SLIGHTLY GLEYED
31	0-29	MCL	10YR43						2	0	HR	5							
	29-58	FSZL	10YR63	75YR58	M	D	COM MN	Y	0	0	HR	5			M				
	58-68	MCL	10YR73	75YR58	M	D	COM MN	Y	0	0	HR	15			M				IMP 68 GRAVELLY
1P	0-27	MCL	10YR43						3	0	HR	5							PSD/PIT @ BOR 8
	27-44	HCL	10YR54	05YR58	M	D		S	0	0	HR	10	MDCAB	FR	M	N			+5%MSST/SLGLEYED
	44-57	C	10YR53	25YR58	M	D	10YR54 53	Y	0	0	HR	2	MDCAB	FM	P	Y	Y		
	57-120	C	75YR53	05YR58	M	D	75YR54 53	Y	0	0	HR	2	STCAB	FM	P	Y	Y		PIT 80 AUG 120
2P	0-28	MCL	10YR42						6	4	HR	15							PIT @ BOR 16
	28-36	HCL	25Y 63	75YR68	M	D	10YR64	Y	0	0	HR	18	MDCSAB	FR	M	N			FEW MN
	36-57	C	10YR63	05YR58	M	D	10YR64	Y	0	0	HR	5	WKCAB	FM	P	Y	Y		COM MN
	57-120	C	10YR53	05YR58	M	D	10YR54 53	Y	0	0	MSST	5	MDCAB	FM	P	Y	Y		+75YR58/P75A120

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
12	0-25	MZCL	10YR42						6	2	HR	12						
	25-32	HCL	10YR63	10YR58	C	D	COM MN	Y	0	0	HR	15		M				
	32-55	C	10YR63 53	10YR58	M	D	FEW MN	Y	0	0	MSST	5		M		Y		+5%HR (RAGSTONE)
	55-85	C	10YR53	75YR58	M	D		Y	0	0	MSST	10		P		Y		+5%HR/+05YR58MOTS
	85-90	C	25Y 53 62	75YR58	M	D		Y	0	0	MSST	30		P				IMP RAGSTONE 90
13	0-25	MCL	10YR42						6	2	HR	15						
	25-40	HCL	10YR54 63	10YR58	C	D	FEW MN	Y	0	0	HR	15		M				
	40-60	C	25Y 53 63	75YR58	M	D	COM MN	Y	0	0	MSST	5		M		Y		
	60-120	C	10YR53	75YR58	M	D	FEW MN	Y	0	0	MSST	5		P		Y		+COM 05YR58 MOTS
14	0-25	MZCL	10YR42						6	1	HR	12						
	25-35	HCL	10YR63	10YR58	C	D	COM MN	Y	0	0	HR	15		M				
	35-50	C	25Y 53 63	10YR58	M	D	FEW MN	Y	0	0	MSST	5		M		Y		+5%HR (RAGSTONE)
	50-85	C	25Y 53	75YR58	M	D		Y	0	0	MSST	5		P		Y		+5%HR/+05YR58MOTS
	85-120	C	25Y 62	05YR58	M	D		Y	0	0	MSST	15		P		Y		
15	0-24	MCL	10YR42						7	3	HR	15						PSD
	24-70	C	10YR53 63	75YR58	M	D	COM MN	Y	0	0	MSST	5		M		Y		IMP RAGSTONE 70
16	0-25	MCL	10YR42						12	6	HR	18						2P LOCATION
	25-37	HCL	10YR54 63	10YR58	C	D	FEW MN	Y	0	0	HR	15		M				
	37-55	C	10YR53 63	75YR58	M	D		Y	0	0	MSST	15		M		Y		+5%HR (RAGSTONE)
	55-75	C	10YR53	75YR58	M	D		Y	0	0	MSST	5		P		Y		+5%HR/+05YR58MOTS
	75-120	C	25Y 52 62	05YR58	M	D		Y	0	0	MSST	5		P		Y		
17	0-27	MZCL	10YR42						3	1	HR	12						
	27-65	HCL	10YR72	10YR68	C	D	COM MN	Y	0	0	MSST	10		M				
	65-100	C	10YR72	75YR68	M	D	COM MN	Y	0	0	MSST	10		P		Y		IMP RAGSTONE 100
18	0-26	MZCL	10YR42						7	3	HR	15						
	26-38	HCL	10YR53 63	10YR58	C	D	FEW MN	Y	0	0	HR	15		M				
	38-65	C	25Y 53 63	75YR58	M	D		Y	0	0	HR	5		P		Y		+COM 05YR58 MOTS
	65-120	C	25Y 52	05YR58	M	D		Y	0	0	HR	5		P		Y		+COM 75YR58 MOTS
19	0-24	MZCL	10YR42						10	6	HR	18						
	24-35	HCL	10YR53 54	10YR58	M	D	FEW MN	Y	0	0	HR	15		M				
	35-45	C	25Y 53	75YR58	M	D		Y	0	0	MSST	5		M		Y		+5%HR/+05YR58MOTS
	45-85	C	10YR53	05YR58	M	D		Y	0	0	MSST	5		P		Y		+5%HR/+75YR58MOTS
	85-90	C	10YR53	05YR58	M	D		Y	0	0	MSST	25		P		Y		IMP RAGSTONE 90
20	0-24	MZCL	10YR42						6	3	HR	15						
	24-50	HCL	10YR63 53	10YR58	68 C	D	FEW MN	Y	0	0	HR	10		M				
	50-75	C	10YR52 53	75YR58	M	D		Y	0	0	MSST	5		P		Y		+5%HR/+05YR58MOTS
	75-120	C	25Y 62	05YR58	M	D		Y	0	0	MSST	10		P		Y		+COM 75YR58 MOTS
21	0-24	MCL	10YR42						3	1	HR	10						
	24-35	HCL	10YR54	10YR56	C	F		S	0	0	HR	10		M				SLIGHTLY GLEYED
	35-60	C	75YR53 54	75YR58	M	D		Y	0	0	MSST	5		P		Y		
	60-120	C	10YR53	05YR58	M	D		Y	0	0	MSST	15		P		Y		+5%HR (RAGSTONE)

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	0-30	MCL	10YR42						7	4	HR	15							
	30-40	HCL	10YR54 56	10YR58	C	D		S	0	0	MSST	10		M					SLIGHTLY GLEYED
	40-90	C	10YR54 64	10YR58	C	D		S	0	0	MSST	5		P		Y			IRAGST90 SLGLEY
2	0-30	MCL	10YR43						3	0	HR	5							
	30-90	C	10YR56	75YR56	M	D	COM MN	S	0	0	MSST	2		P		Y			IRAGST90 SLGLEY
3	0-30	MCL	10YR43						6	0	HR	10							
	30-60	C	10YR56	05YR58	M	D		S	0	0	MSST	5		P		Y			SLIGHTLY GLEYED
	60-90	C	10YR53	05YR58	M	D		Y	0	0	MSST	2		P		Y			
4	0-35	MCL	10YR43						6	0	HR	10							
	35-62	MCL	10YR54						0	0		0		M					
	62-72	C	10YR54	05YR58	M	D		S	0	0	MSST	5		P		Y			SLIGHTLY GLEYED
	72-120	C	10YR53	05YR58	M	D		Y	0	0	MSST	5		P		Y			
5	0-28	MZCL	10YR42						3	1	HR	5							
	28-40	HZCL	10YR54	05YR58	M	D		S	0	0	MSST	2		M					SLIGHTLY GLEYED
	40-65	C	10YR56	05YR58	M	D		S	0	0	MSST	2		P		Y			IRAGST65 SLGLEY
6	0-32	MZCL	10YR53						2	0	HR	3							
	32-70	MZCL	10YR54						0	0		0		M					
	70-105	MZCL	10YR54	75YR58	C	D	COM MN	S	0	0		0		M					SLIGHTLY GLEYED
	105-120	MCL	10YR53	75YR58	C	D	COM MN	Y	0	0	HR	20		M					
7	0-32	MZCL	10YR53						3	0	HR	4							
	32-60	MZCL	10YR63	75YR58	M	D	COM MN	Y	0	0	MSST	5		M					
	60-95	MCL	10YR53	75YR58	M	D	MANY MN	Y	0	0	MSST	5		M					
	95-120	HCL	10YR63	10YR68	M	D	MANY MN	Y	0	0	MSST	10		M					
8	0-35	MCL	10YR43						4	0	HR	10							1P LOCATION
	35-45	HCL	10YR54	75YR58	C	D	COM MN	S	0	0	HR	15		M					SLIGHTLY GLEYED
	45-60	C	10YR56	05YR58	M	D		S	0	0	MSST	2		P		Y			SLIGHTLY GLEYED
	60-85	C	10YR53	05YR58	M	D		Y	0	0	MSST	2		P		Y			IMP RAGSTONE 85
9	0-25	MCL	10YR42						8	2	HR	15							
	25-35	HCL	25Y 53	10YR58	C	D	COM MN	Y	0	0	HR	15		M					
	35-70	C	10YR53 54	10YR58	M	D		Y	0	0	MSST	5		M		Y			
	70-120	C	25Y 52 62	75YR58	M	D	FEW MN	Y	0	0	MSST	10		P		Y			+5%HR (RAGSTONE)
10	0-28	MCL	10YR42 43						3	0	HR	12							
	28-42	HCL	10YR63	10YR58	C	D	COM MN	Y	0	0	HR	15		M					
	42-60	C	10YR53 63	75YR56	M	D		Y	0	0	MSST	5		M		Y			+COM 05YR58 MOTS
	60-100	C	25Y 62	75YR58	M	D		Y	0	0	MSST	10		P		Y			+COM 05YR58 MOTS
	100-120	C	25Y 62 61	05YR58	M	D		Y	0	0	MSST	25		P		Y			
11	0-25	MCL	10YR42						3	0	HR	12							SL SANDY
	25-38	MCL	10YR53 62	10YR58	C	D	COM MN	Y	0	0	HR	10		M					
	38-60	C	10YR53 51	75YR58	M	D		Y	0	0	HR	5		M		Y			+COM 05YR58 MOTS
	60-100	C	10YR53	05YR58	M	D		Y	0	0	HR	5		P		Y			+COM 75YR58 MOTS
	100-120	C	10YR53	05YR58	M	D		Y	0	0	HR	25		P		Y			