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Fareham Borough Local Plan
Land east of Newgate Lane, Woodcot, Gosport, Hampshire.

Agricultural Land Classification
ALC Map and Report

September 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

FAREHAM BOROUGH LOCAL PLAN
LAND EAST OF NEWGATE LANE, WOODCOT, GOSPORT, HAMPSHIRE.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 52.5 ha of land located to the east of Newgate Lane, Woodcot, near Gosport in Hampshire. The survey was carried out during September 1997.

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 the Fareham Borough Local Plan. The majority of this site was previously surveyed by the Resource Planning Team in September 1985 as job number 1504/034/85. This survey supersedes this and any other previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of the 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 land use on the site comprised permanent grassland being used to graze horses and set-aside. The areas mapped as 'Other land' include playing fields, dwellings, farm buildings and a church.

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
3a	18.4	49.1	35.0
3b	19.1	50.9	36.4
Other land	15.0	N/A	28.6
Total surveyed area	37.5	100	71.4
Total site area	52.5	-	100

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

7. The fieldwork was conducted at an average density of slightly more than 1 boring per hectare of agricultural land. A total of 43 borings and 5 soil pits were described.

8. The agricultural land on this site has been classified as Subgrade 3a (good quality) and Subgrade 3b (moderate quality). The principal limitations to land quality include soil wetness and soil droughtiness.

9. Across the majority of the site the land is principally limited by soil wetness. The soils comprise silty topsoils and upper subsoils overlying heavier silty lower subsoils. These heavier subsoil 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 and, therefore, the ALC grade. Soil wetness reduces the versatility of the land in terms of access by machinery (e.g. for cultivations or harvesting) and for grazing if damage to the soil is to be avoided. It also has the effect of reducing the level and consistency of yields.

10. Towards the south and west of the site, the land is principally limited by soil droughtiness. Soils comprise silty topsoils overlying clayey upper subsoils which become progressively more stony to a moderate depth, beyond which gravel was encountered. The stones in the profile inhibit the amount of water that is available for extraction to the extent that this area is appropriately mapped as Subgrade 3b on the basis of soil droughtiness. Because of the potential lack of available water, soil droughtiness can affect plant growth, especially in drier years.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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).

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SU 574 035	SU 573 040
Altitude	m, AOD	10	11
Accumulated Temperature	day°C (Jan-June)	1546	1544
Average Annual Rainfall	mm	779	782
Field Capacity Days	days	158	158
Moisture Deficit, Wheat	mm	117	116
Moisture Deficit, Potatoes	mm	114	113
Overall climatic grade	N/A	Grade 1	Grade 1

13. 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.

14. 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.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. However, the site is in an area shown as being 'rather exposed' by the Met. Office (unpublished data, 1968). During the survey, there was no evidence of significant exposure across the site, in terms of the impact of windiness on perennial vegetation, such as trees and hedgerows. No detailed assessment of exposure was carried out as soil factors are more significant overall at this site. Other local climatic factors such as frost risk are not believed to affect the site.

Site

16. The site is flat overall, lying at approximately 10m AOD overall. Any gradients within the site are very slight and are not sufficient to adversely affect land quality. Other site factors such as microrelief and flooding are also not significant. At worst, the site is climatically on the border between Grades 1 and 2.

Geology and soils

17. The published geological information for the site (BGS, 1970 and 1971) shows the majority to be underlain by brickearth drift deposits. Towards the north of the site, London Clay solid deposits are mapped and Bracklesham Beds are shown towards the south, although it is likely that a thin drift layer of brickearth exists in these areas. In addition, plateau gravel drift deposits are mapped to the extreme south of the site

18. The most detailed published soils information for the site (SSEW, 1983 and 1984) shows it to comprise soils of the Park Gate association. These are described as 'deep stoneless silty soils variably affected by groundwater' (SSEW, 1983). Deep stoneless silty soils were found across the majority of the site, although they were considered to be affected by surface water, possibly in addition to groundwater. To the south and west of the site, variably stony and clayey soils were encountered.

AGRICULTURAL LAND CLASSIFICATION

19. 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, page 1.

20. 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.

Subgrade 3a

21. Land of good quality has been mapped in three separate units across the site. Principal limitations to land quality in these areas are soil wetness and topsoil workability. Soils are characterised by the soil pits, 2P and 3P (see Appendix II).

22. In these areas, soils are of a single overall type. They comprise a medium silty clay loam topsoil and upper subsoil overlying a heavy silty clay loam lower subsoil to depth (120cm). The soils were found to be relatively stone free although, occasionally, the lower subsoil was observed to be slightly stony (up to 15% flints by volume). The subsoils were observed to be gleyed and moderately structured throughout. However, the heavier lower subsoil, which occurred from between approximately 45cm and 60cm, was found to be slowly permeable (see Pit 3). Given the local climatic parameters, the depth to the slowly permeable horizon causes these soils to be appropriately placed in Wetness Class III. Consequently, this land has been mapped as Subgrade 3a given the workability status of the medium textured topsoils.

23. Towards the south east of the site, a small unit of slightly different soils were observed. These are characterised by the pit observation, 2P. The soils in this area comprise a heavy silty clay loam topsoil overlying gleyed, moderately structured silty clay and clay subsoils. Given the local climate, these soils are placed in a better Wetness Class (II), but are still classified as Subgrade 3a as the heavy textured topsoil places an additional workability limitation in this area.

24. Soil wetness restricts the versatility of the land by limiting the opportunities for cultivation or grazing without damaging the soil, as well as restricting plant growth and the level and consistency of yields.

Subgrade 3b

25. Land of moderate quality has been mapped in a single unit covering the majority of the site. Principal limitations include soil wetness across the majority of this area and soil droughtiness towards the south and west of the unit. Soils in this grade are characterised by the soil pit observations 1P, 4P and 5P.

26. Across the majority of this unit, the soils are of a single overall type. This is essentially similar to those described in para 22, except that the slowly permeable heavy silty clay loam subsoil occurs at a shallower depth (from 28cm). Given the local climate, Wetness Class IV is appropriate for these soils and subsequently Subgrade 3b has been mapped when the workability status of the topsoil is taken into account. The effects of the soil wetness that the slowly permeable horizon causes are described in para 24. However, Subgrade 3b land is less versatile than that classified as Subgrade 3a because the limitations are more severe.

27. Towards the south and west of the site, soil wetness gives way to soil droughtiness as the principal limitation. In this area the soils are characterised by the soil pit, 1P, and comprise a heavy silty clay loam topsoil overlying silty clay upper subsoils which become progressively more stony, overlying gravel at a moderate depth. In the topsoil approximately 5% (by volume) of flints was recorded. The upper subsoil contained approximately 15% flints by volume followed by a silty clay horizon containing 62% flints. These overlie the gravel

horizon assessed as containing 74% flints by volume in a loamy medium sand matrix. Stones in the profile restrict the water holding capacity and, as a consequence, the moisture available to plants is reduced. This affects yields, especially in drier years. Given the local climatic parameters, Subgrade 3b is appropriate for these profiles.

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SOURCES OF REFERENCE

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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:

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	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
1P	SU57150277	PGR		18		2	3A	61	-56	63	-51	4				DR	3B	PIT 70
2P	SU57300310	SAS		28		2	2	110	-7	116	2	3A				DR	3A	PIT 80 AUG 120
3P	SU57300341	SAS		35	50	3	3A	160	43	125	11	1				WE	3A	PIT 80 AUG 120
4P	SU57220358	SAS		34	44	3	3A	160	43	125	11	1				WE	3A	PIT 80 AUG 120
5P	SU57400340	SAS		32	32	4	3B	160	43	124	10	1				WE	3B	PIT 90 AUG 120

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
1P	0-18	HZCL	25Y 41	75YR58	C	F		Y	0	0	HR	5							AT BORING 52
	18-33	ZC	25Y 51	75YR68	C	D	25Y 61	Y	0	0	HR	15	WKCSAB	FM	P				
	33-48	ZC	25Y 61	10YR58	M	D	25Y 71	Y	0	0	HR	62	WKCSAB	FM	P	Y			WET SIEVED
	48-70	GH	25Y 61	75YR58	M	F		Y	0	0		0			P				SIEVED 74% FLINTS
2P	0-28	MZCL	10YR42						0	0	HR	2							AT BORING 47
	28-60	ZC	25Y 62 63	75YR58	C			Y	0	0	HR	1	MVCSAB	FR	M				
	60-82	C	25Y 61 62	75YR56	M		MN	Y	0	0	HR	1	MVCSAB	FR	M				PIT 80 AUG 120
3P	0-35	MZCL	10YR42						0	0	HR	1							AT BORING 32
	35-50	MZCL	25Y 63 73	10YR66	C			Y	0	0	HR	1	MCSAB	FR	M				
	50-120	HZCL	10YR62 72	75YR58	M		MN	Y	0	0	HR	1	MDCPR	FR	M	Y		Y	PIT 80 AUG 120
4P	0-34	MZCL	10YR42						0	0	HR	1							NEAR BORING 22
	34-44	MZCL	10YR53 54	10YR56	C	D		Y	0	0	HR	1	MDCSAB	FR	M	N			
	44-62	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	1	MDCPR	FR	M	Y		Y	
	62-120	HZCL	25Y 61 62	10YR58	M	D	MN	Y	0	0	HR	1	MDCPR	FR	M	Y		Y	PIT 80 AUG 120
5P	0-32	MZCL	10YR43						0	0	HR	1							AT BORING 33
	32-65	HZCL	25Y 72	75YR68	M	D	10YR63	Y	0	0	HR	1	MDCPR	FR	M	Y		Y	
	65-120	HZCL	25Y 63	75YR58	M	D	10YR63	Y	0	0	HR	1	MDVCAB	FR	M	Y		Y	PIT 90 AUG 120

SAMPLE NO.	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
6	SU57600400	PGR		28	60	3	3A	172	55	136	22	1				WE	3A	
7	SU57680393	PGR		28	28	4	3B	172	55	136	22	1				WE	3B	
11	SU57500390	PGR		25	60	3	3A	155	38	121	7	2				WD	3A	
12	SU57600390	PGR		28	55	3	3A	167	50	133	19	1				WE	3A	
16	SU57500380	PGR		28	28	4	3B	138	21	124	10	2				WE	3B	IMP 100
17	SU57600380	PGR		28	28	4	3B	124	7	123	9	2				WE	3B	IMP 85
18	SU57200370	SAS		28	28	4	3B		0		0					WE	3B	IMP 90
19	SU57300368	SAS		35	35	4	3B		0		0					WE	3B	IMP 100
20	SU57400370	SAS		36	52	3	3A	161	44	125	11	1				WE	3B	
21	SU57500370	SAS		35		2	2	140	23	126	12	2				WE	2	IMP 100
22	SU57200360	SAS		33	33	4	3B		0		0					WE	3B	SEE 4P IMP 100
23	SU57300360	SAS		35	35	4	3B		0		0					WE	3B	
24	SU57400360	SAS		30	50	3	3A	156	39	121	7	2				WE	3A	
25	SU57500360	SAS		30	55	3	3A	130	13	125	11	2				WE	3A	IMP 90
26	SU57200350	SAS		35	35	4	3B	161	44	125	10	1				WE	3B	
27	SU57300350	SAS		30	48	3	3A	159	42	124	10	1				WE	3A	
28	SU57400350	SAS		38	38	4	3B	157	40	125	11	1				WE	3B	
29	SU57500350	SAS		33	33	4	3B	160	43	126	12	1				WE	3B	
30	SU57100340	SAS		0		2	2	81	-36	81	-34	3B				DR	3B	IMP 45 SEE 1P
31	SU57200340	SAS		35	43	3	3A		0		0					WE	3A	
32	SU57300341	SAS		35	50	3	3A	158	41	124	10	1				WE	3A	SEE 3P
33	SU57400340	SAS		28	28	4	3B	157	40	123	9	2				WD	3B	SEE 5P
34	SU57500340	SAS		30	60	3	3A	161	44	125	11	1				WE	3A	
35	SU57100330	SAS		35	48	3	3A		0		0					WE	3A	IMP 100
36	SU57200330	SAS		35	35	4	3B	161	44	125	10	1				WE	3B	
37	SU57300330	SAS		30	30	4	3B	154	37	125	11	1				WE	3B	
38	SU57400330	SAS		28	60	3	3A	172	55	136	22	1				WE	3A	
39	SU57500330	SAS		30	55	3	3A	161	44	125	11	1				WE	3A	
40	SU57000320	PGR		28	28	4	3B	92	-25	96	-18	3B				WE	3B	IMP 80
41	SU57120317	SAS		33	65	3	3A	135	18	124	10	2				WE	3A	IMP 95
42	SU57200320	SAS		38	38	4	3B	131	14	122	7	2				WD	3B	IMP 100
43	SU57300320	SAS		33	33	4	3B	162	45	126	12	1				WE	3B	
44	SU57400320	SAS		30	55	3	3A	161	44	125	11	1				WE	3A	
45	SU57100310	SAS				1	1	51	-66	51	-64	4				DR	3B	IMP 30 SEE 1P
46	SU57200310	SAS		25	25	4	3B	128	11	123	8	2				WE	3B	IMP 90
47	SU57300310	SAS		32		2	3A	134	17	108	-6	2				WK	3A	SEE 2P
48	SU57400310	SAS		30	78	2	2	129	12	124	10	2				WD	2	IMP 90
49	SU57060303	PGR				2	3A	51	-66	51	-63	4				DR	3B	IMP 30 SEE 1P
51	SU57210293	PGR		30		2	2	127	10	106	-8	2				WE	2	SEE 2P
52	SU57150277	PGR		0		2	3A	66	-51	66	-48	4				DR	3B	IMP 42 SEE 1P
53	SU57230345	SAS		33	55	3	3A	162	45	126	12	1				WE	3A	
54	SU57260355	SAS		33	33	4	3B	162	45	126	12	1				WE	3B	

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	
6	0-28	ZL	10YR42	10YR66	F			N	0	0		0							
	28-60	MZCL	25Y 71	10YR58 68	M			Y	0	0		0		M					
	60-120	HZCL	25Y 61	10YR58	M	D	MN	Y	0	0		0		M		Y			
7	0-28	ZL	25Y 42	10YR66	C	D		Y	0	0		0							
	28-60	HZCL	25Y 61	10YR58	M	D	MN	Y	0	0		0		M		Y			
	60-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M		Y			
11	0-25	MZCL	25Y 42	10YR46	C	D		Y	0	0	HR	5							
	25-60	MZCL	25Y 61 71	10YR58	M	D		Y	0	0		0		M					
	60-120	HZCL	25Y 61	10YR58	M	D	MN	Y	0	0	HR	5		M		Y			
12	0-28	ZL	25Y 42	10YR46	C	D		Y	0	0	HR	2							
	28-55	MZCL	25Y 71	10YR58 68	M	D		Y	0	0		0		M					
	55-120	HZCL	25Y 61	10YR58	M	D	MN	Y	0	0	HR	5		M		Y			
16	0-28	MZCL	25Y 42	10YR58	C	D		Y	0	0		0							
	28-60	HZCL	25Y 61	10YR58	C	D	MN	Y	0	0		0		M		Y			
	60-90	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	5		M		Y			
	90-100	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	15		M		Y			IMP FLINTS 100
17	0-28	MZCL	25Y 42						0	0		0							
	28-55	HZCL	25Y 51 61	10YR58	M	D	MN	Y	0	0		0		M		Y			
	55-80	HZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0	HR	5		M		Y			
	80-85	HZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0	HR	10		M		Y			IMP FLINTS 85
18	0-28	MZCL	10YR32						0	0	HR	2							
	28-75	HZCL	10YR62	10YR46	M	D		Y	0	0		0		M		Y			
	75-90	HZCL	10YR62	10YR46	M	D	MN	Y	0	0	HR	5		M		Y			IMP FLINTS 90
19	0-35	MZCL	25Y 53						0	0	HR	1							
	35-55	HZCL	25Y 64	10YR58	C	D	MN	Y	0	0		0		M		Y			
	55-120	HZCL	25Y 62 72	75YR58	M	D	MN	Y	0	0		0		M		Y			IMP FLINTS 100
20	0-36	MZCL	10YR42						0	0	HR	1							
	36-52	MZCL	25Y 53	10YR58	C			Y	0	0	HR	1		M					
	52-120	HZCL	25Y 72	75YR58	M		MN	Y	0	0	HR	1		M		Y			
21	0-35	MZCL	10YR42						0	0		0							
	35-75	MZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0		0		M					
	75-100	MZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0	HR	10		M					IMP FLINTS 100
22	0-33	MZCL	10YR33						0	0		0							SEE 4P
	33-90	HZCL	10YR62	10YR58	M	D		Y	0	0		0		M		Y			
	90-100	HZCL	10YR62 61	10YR58	M	D		Y	0	0	HR	5		M		Y			IMP FLINTS 100
23	0-35	MZCL	10YR33						0	0		0							
	35-120	HZCL	10YR62	10YR58	M	D		Y	0	0		0		M		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	
24	0-30	MZCL	10YR42						0	0	HR	2							
	30-50	MZCL	25Y 53	10YR58	C			Y	0	0	HR	2		M					
	50-120	HZCL	25Y 72	10YR58	M		MN	Y	0	0	HR	2		M			Y		
25	0-30	MZCL	25Y 42						0	0		0							
	30-55	MZCL	25Y 52	10YR58	M	D		Y	0	0		0		M					
	55-80	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
	80-90	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	10		M			Y		IMP FLINTS 90
26	0-35	MZCL	10YR33						0	0	HR	2							
	35-95	HZCL	10YR62	10YR58	M	D	MN	Y	0	0		0		M			Y		
	95-120	HZCL	10YR61	10YR58	M	D	MN	Y	0	0		0		M			Y		
27	0-30	MZCL	10YR42						0	0	HR	1							
	30-48	MZCL	25Y 53	10YR58	C			Y	0	0	HR	1		M					
	48-120	HZCL	25Y 63 72	75YR58	M			Y	0	0	HR	1		M			Y		
28	0-28	MZCL	10YR42						0	0		0							
	28-38	MZCL	10YR44						0	0		0		M					
	38-70	HZCL	25Y 52 62	10YR58	C	D		Y	0	0		0		M			Y		
	70-85	HZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
	85-120	HZCL	25Y 52 62	10YR58	M	D	MN	Y	0	0	HR	10		M			Y		
29	0-33	MZCL	10YR42						0	0		0							
	33-55	HZCL	25Y 62 52	10YR58	M	D		Y	0	0		0		M			Y		
	55-100	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
	100-120	MZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	10		M			Y		
30	0-45	HZCL	10YR62 61	10YR46	C	D		Y	0	0	HR	5							IMP FLINTS 45 SEE
31	0-35	MZCL	10YR33						0	0		0							
	35-43	MZCL	10YR63	10YR58	C	D		Y	0	0		0		M					
	43-75	HZCL	10YR62	10YR46	M	D		Y	0	0		0		M			Y		
	75-120	ZC	10YR61	10YR58	M	D	MN	Y	0	0		0		M			Y		
32	0-35	MZCL	10YR42						0	0	HR	1							SEE 3P
	35-50	MZCL	25Y 53 63	10YR58	C			Y	0	0	HR	1		M					
	50-120	HZCL	25Y 63 72	75YR58	M			Y	0	0	HR	5		M			Y		
33	0-28	MZCL	25Y 42						0	0		0							SEE 5P
	28-50	HZCL	25Y 62 63	10YR58	M	D		Y	0	0		0		M					
	50-120	HZCL	25Y 62 72	10YR58	M	D	MN	Y	0	0	HR	5		M			Y		
34	0-30	MZCL	25Y 42						0	0		0							
	30-60	MZCL	25Y 53	10YR58	C	D		Y	0	0		0		M					
	60-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
35	0-35	MZCL	10YR33						0	0		0							
	35-48	MZCL	10YR53	10YR46	C	D		Y	0	0		0		M					
	48-80	HZCL	10YR63	10YR58	M	D		Y	0	0		0		M			Y		
	80-100	HZCL	10YR72	10YR58	M	D		Y	0	0	HR	5		M			Y		IMP FLINTS 100

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
36	0-35	MZCL	10YR33						0	0	HR	2							
	35-40	HZCL	10YR53	10YR53	C	D		Y	0	0		0		M			Y		
	40-50	HZCL	10YR62	10YR58	M	D		Y	0	0		0		M			Y		
	50-120	HZCL	10YR61	10YR58	M	D	MN	Y	0	0		0		M			Y		
37	0-30	MZCL	25Y 42						0	0		0							
	30-100	HZCL	25Y 62 63	10YR58	M	D	MN	Y	0	0		0		M			Y		
	100-120	ZC	25Y 62 63	10YR58	M	D	MN	Y	0	0	HR	10		M			Y		
38	0-28	ZL	10YR41						0	0		0							
	28-60	MZCL	25Y 63 73	10YR58	M	D	MN	Y	0	0		0		M					
	60-120	HZCL	25Y 62 72	10YR58	M	D	MN	Y	0	0		0		M			Y		
39	0-30	MZCL	10YR42						0	0		0							
	30-55	MZCL	10YR64	10YR58	C	D	MN	Y	0	0		0		M					
	55-75	HZCL	25Y 61	10YR58	M	D	MN	Y	0	0		0		M			Y		
	75-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
40	0-28	HZCL	25Y 62	10YR58	C			Y	0	0	HR	5							
	28-55	C	05Y 63	75YR58	M		MN	Y	0	0	HR	15		P			Y		
	55-80	C	05Y 72	75YR58	M		MN	Y	0	0	HR	25		P			Y		IMP FLINTS 80
41	0-33	MZCL	10YR42						0	0	HR	2							
	33-65	MZCL	25Y 53 63	10YR58	C	D		Y	0	0		0		M					
	65-90	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
	90-95	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0	HR	10		M			Y		IMP FLINTS 95
42	0-28	MZCL	10YR33						0	0	HR	2							
	28-38	MZCL	10YR44						0	0	HR	5		M					
	38-55	HZCL	10YR46	10YR46	C	D		Y	0	0	HR	2		M			Y		
	55-75	HZCL	10YR63	10YR56	M	D		Y	0	0		0		M			Y		
	75-100	ZC	10YR62	75YR58	M	D	MN	Y	0	0		0		M			Y		IMP FLINTS 100
43	0-33	MZCL	10YR42 52						0	0		0							
	33-55	HZCL	25Y 62	10YR58 68	M	D		Y	0	0		0		M			Y		
	55-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M			Y		
44	0-30	MZCL	10YR42						0	0		0							
	30-55	MZCL	25Y 62	10YR58	M	D		Y	0	0		0		M					
	55-120	HZCL	25Y 62 61	10YR58	M	D	MN	Y	0	0		0		M			Y		
45	0-30	MZCL	10YR32						8	2	HR	12							IMP FLINTS 30 SEE
46	0-25	MZCL	10YR33						0	0	HR	2							
	25-75	HZCL	10YR53	10YR58	C	D	MN	Y	0	0		0		M			Y		
	75-90	HZCL	10YR53	10YR58	M	D	MN	Y	0	0	HR	5		M			Y		IMP FLINTS 90
47	0-32	MCL	25Y 42						0	0	HR	1							SEE 2P
	32-60	C	25Y 62	75YR58	M		MN	Y	0	0	HR	2		M					
	60-90	HCL	25Y 63	75YR58	M		MN	Y	0	0	HR	5		M					
	90-120	C	25Y 62	75YR58	M		MN	Y	0	0	HR	15		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	
48	0-30	MZCL	10YR42 53						0	0	HR	1							
	30-40	MZCL	25Y 64	10YR66	C			Y	0	0	HR	1		M					
	40-78	MZCL	25Y 72	10YR66	C			Y	0	0	HR	1		M					
	78-90	HZCL	25Y 72	10YR56	M		MN	Y	0	0	HR	10		M		Y			IMP FLINTS 90
49	0-30	HCL	25Y 62	75YR58	M			Y	0	0	HR	5							IMP FLINTS 30 SEE
51	0-30	MCL	25Y 41	10YR58	C			Y	0	0	HR	5							SEE 2P
	30-40	HCL	25Y 52 62	75YR58	C			Y	0	0	HR	5		M					
	40-70	C	05Y 71	10YR68	M			Y	0	0		0		M					
	70-90	C	05Y 71	10YR68	C			Y	0	0	SLST	5		M					
	90-120	C	05Y 62	10YR68	C			Y	0	0	SLST	10		M				Y	
52	0-30	HZCL	25YR61	75YR58	M			Y	0	0	HR	5							SEE 1P
	30-40	ZC	25Y 61	75YR58	C			Y	0	0	HR	20		M					
	40-42	HZCL	25Y 61	75YR58	C			Y	0	0	HR	45		M					IMP FLINTS 42
53	0-33	MZCL	10YR42						0	0		0							
	33-55	MZCL	25Y 53 63	10YR56	C	D		Y	0	0		0		M					
	55-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M		Y			
54	0-33	MZCL	10YR42						0	0		0							
	33-60	HZCL	25Y 53 62	10YR58	C	D		Y	0	0		0		M		Y			
	60-120	HZCL	25Y 62	10YR58	M	D	MN	Y	0	0		0		M		Y			