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EFFORD LANDFILL SITE, LOWER PENNINGTON, HAMPSHIRE

Agricultural Land Classification and
Statement of Physical Characteristics

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Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF PHYSICAL CHARACTERISTICS

EFFORD LANDFILL SITE LOWER PENNINGTON, HAMPSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey and assessment of site physical characteristics on 11 6 ha of land adjacent to the current mineral workings and landfill site at Efford to the south of Lower Pennington near Lymington in Hampshire The survey was carried out in February 1999

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 an ad hoc planning application to extend the mineral workings This survey supersedes any previous ALC information for this land The site lies adjacent to previous survey work carried out by this department in 1994 (FRCA reference number 1508/014/99)

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 the agricultural land across the area surveyed was under permanent grass The areas mapped as Other Land include drainage channels and ponds a haul road and an area of disturbed land currently used for plant and fuel storage

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

7 The fieldwork was conducted at an average density of approximately 1 boring per hectare of agricultural land In total 10 borings and two soil pits were described

8 The agricultural land at this site has been classified as either Subgrade 3b (moderate quality) or Grade 4 (poor quality) The principal limitation throughout the site is soil wetness

9 Land of moderate quality has been mapped over the majority of the site Soils in this area generally comprise medium clay loam topsoils passing to similar subsoils or sandy clay loam or clay subsoils The structure of the subsoils is poor at shallow depths causing a significant impedance to the drainage and a significant soil wetness limitation Such a limitation will affect the versatility of this land by restricting access for grazing and cultivations during wet

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

periods if soil damage is to be avoided Plant germination and growth will also be affected by the wet conditions

Table 1 Area of grades and Other Land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	6 9	74 2	59 5
4	2 4	25 8	20 7
Other Land	2 3		19 8
Total surveyed area	9 3	100	80 2
Total site area	11 6		100

10 The area mapped as poor quality in the south east of the site has similar though more severe limitations to that classified as Subgrade 3b In this area topsoils are generally heavy clay loams or heavy silty clay loams overlying upper subsoils of clay and stony lower subsoils of medium sandy loam The clay horizon impede drainage and cause a significant soil wetness limitation In addition the presence of rushes indicates waterlogging in the profile for long periods of the year suggesting that the land cannot be classified better than Grade 4

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	SZ 516 927
Altitude	m AOD	1
Accumulated Temperature	day°C (Jan June)	1566
Average Annual Rainfall	mm	781
Field Capacity Days	days	162
Moisture Deficit Wheat	mm	118
Moisture Deficit Potatoes	mm	114
Overall climatic grade	N/A	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 Local climatic factors such as exposure and frost risk do not affect land quality The site is climatically Grade 1 However climatic factors do interact with soil properties to influence soil wetness and soil droughtiness

Site

16 The site lies close to the sea at approximately 1m AOD It is virtually flat and therefore gradient has no effect on land quality The south and east of the site do however contain areas which are adversely affected by microrelief as a result of the presence of naturally formed seasonally running creeks These present a significant impediment to cultivation and restrict the area to Subgrade 3b at best Although the site is located close to the sea it is considered unlikely to flood as a sea wall separates potentially cultivable land from the salt marshes in the tidal zone

Geology and soils

17 The most detailed published geological information for the site (BGS 1975) shows the north of the site to be underlain by Oligocene aged Osborne and Headon Beds To the south the majority of the site is mapped as being underlain by alluvial drift deposits

18 According to the most detailed published information available for this area (SSEW 1983) this site is underlain by soils from the Efford 1 and Wallasea 1 associations Efford soils are located towards the north of the site approximately where the Osborne and Headon Beds are mapped They are described as Well drained fine loamy soils often over gravel associated with similar permeable soils variably affected by groundwater (SSEW 1983) Wallasea soils are located in areas underlain by marine alluvium and are described as Deep stoneless non calcareous and calcareous clayey soils Soils locally have humose or peaty surface horizons Groundwater controlled by ditches and pumps Flat land Slight risk of flooding (SSEW 1983) The soils encountered at this site were predominantly of the Efford type although some areas contained at least in part the clayey characteristics of the Wallasea soils

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 on 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 3b

21 The land classified as Subgrade 3b moderate quality has a significant soil wetness limitation The majority of the profiles in this area are represented by the soil pit 1P (see Appendix II) They comprise a medium or heavy clay loam heavy silty clay loam or clay topsoil passing to similar and sandy clay loam upper subsoils Lower subsoils mostly comprise sandy clay loam

medium to fine sandy loam loamy medium sand or medium sand textures which were sometimes impenetrable to the soil auger within the range 65–100cm due to the presence of stones in the profile Stone content in the topsoils and upper subsoils were generally slight (10% flints) In the sandier lower subsoils 20–60% flints by volume was recorded These contribute towards the slight to moderate droughtiness limitation present in this area Although this is significant soil wetness in this area is the overriding limitation Virtually all the profiles studied were gleyed from the surface with the clay heavy clay loam and sandy clay loam upper subsoils also being poorly structured and slowly permeable The depths to gleying and the slowly permeable horizons in combination with the prevailing field capacity level (162 days) leads to a range of wetness classes (Wetness Class II–IV) This in combination with the topsoil textures and the FC day level leads to a classification of Subgrade 3b Occasional observations within this unit were of slightly better quality but because of their scattered nature they have not been mapped separately

22 Excessive soil wetness will adversely affect crop growth and development It can also limit the flexibility of the land by reducing the number of days when the soil is in a suitable condition for cultivation trafficking by machinery or grazing by livestock These factors may be exacerbated by fluctuating groundwater levels as may be encountered in the permeable sandy lower horizons

Grade 4

23 Poor quality (Grade 4) land is mapped in the south east of the site The limitation is again soil wetness The soils in this area are characterised by the soil pit 2P (see Appendix II) They typically comprise a stoneless heavy silty clay loam topsoil passing to clay which overlies a moderately stony (20% flints) medium sandy loam lower subsoil below approximately 80cm The structural characteristics of the clay upper subsoil significantly restrict vertical water movement creating slowly permeable conditions This part of the site is also characterised by the presence of rushes and naturally formed drainage channels through which water was flowing at the time of survey The soil characteristics lead to Wetness Class IV and Subgrade 3b being applied However the additional evidence of long term waterlogging point towards Wetness Class V and Grade 4 being more appropriate as this area is very restricted in terms of agricultural land use In addition the site s location close to the sea offers little prospect of being able to effectively drain this land A soil wetness limitation of this severity means that the land is unlikely to be able to support uses other than seasonal grazing lending further weight to the poor classification

SOIL RESOURCES

24 *This section describes the soil resources identified on the site It should be emphasised that* this is not intended as a prescription for soil stripping but merely as an illustration of the soil resources available on the site Due to the natural variability of soils the depths of topsoil and subsoil given should be treated with caution Soils were sampled to a maximum depth of 120cm during survey work In some cases soil resources will extend below this depth

Soil Units considerations for restoration

25 Three distinct soil types have been identified across the site mapped in three separate units The first is located in the north of the site the second and most extensive is mapped in the west and the third is located in the east and south east of the area surveyed The exact

extent and distribution of these soil units is illustrated on the accompanying soil resources map

Soil Unit I

26 Located in the north of the site it is delineated by the field boundary which passes east west across the site The unit covers 1 9 ha and is characterised by clay loam topsoils and upper subsoils passing to stony sandy lower subsoils at moderate depths The principal characteristics are described in Table 3 below

Table 3 Representative Profile for Soil Unit I

Horizon	Average Depth[2] (cm)	Description
Topsoil	0–30	• Non calcareous medium clay loam • very dark grey (10YR 3/1) • few or common distinct dark yellowish brown (10YR4/6) ochreous mottles • friable strongly developed coarse angular blocky structure • very slightly stony (1–5% flints)
Subsoil 1	30 70	Non-calcareous medium clay loam heavy clay loam and sandy clay loam • very dark brown (10YR2/2) greyish brown (10YR5/2) light brownish grey (10YR6/2) greyish brown (2 5Y 5/2) light brownish grey (2 5Y 6/2) • common to many distinct yellowish brown (10YR5/6 5/8) or brownish yellow (10YR6/8) ochreous mottles very slightly to slightly stony 1 10% flints by volume • moderately developed coarse angular blocky structure with low (<0 5%) porosity firm consistence
Subsoil 2	70 120	Non-calcareous • medium sandy loam or loamy medium sand • greyish brown (2 5Y 5/2) light brownish grey (2 5Y 6/2) many distinct yellowish brown (10YR5/8) or brownish yellow (10YR6/8) ochreous mottles • very stony 40-60% flints by volume • moderate structure • friable consistence

[2] To the nearest 5cm

Soil Unit II

The most extensive single unit on the site covers 5 0 Hectares and is located to the west of the survey area The soils comprise a clayey topsoil which overlies a shallow similar upper subsoil passing to stony and sandy lower horizons A typical profile is shown below in Table 4

Table 4 Representative Profile for Soil Unit II

Horizon	Average Depth[3] (cm)	Description
Topsoil	0–30	• Non-calcareous • clay or heavy silty clay loam • very dark grey (10YR 3/1) dark grey (10YR4/1 / 2 5Y4/1) • common distinct dark yellowish brown (10YR4/6) ochreous mottles • stoneless to very slightly stony (0–2% flints)
Subsoil 1	30 50	• Non-calcareous • heavy clay loam or clay • black (10YR2/1) dark grey (10YR4/1) brown (10YR5/3) grey (2 5Y 5/1) light brownish grey (2 5Y 6/2) • common distinct strong brown (7 5YR4/6) dark yellowish brown (10YR4/6) yellowish brown (10YR5/8) or brownish yellow (10YR6/8) ochreous mottles stoneless to slightly stony 0 5% flints by volume moderately developed coarse angular blocky structure with low (<0 5%) porosity • firm consistence
Subsoil 2	50 120	• Non-calcareous medium sandy loam or loamy medium sand greyish brown (2 5Y 5/2) grey (2 5Y 6/1 10YR6/1) light grey (2 5Y 7/1) common to many distinct strong brown (7 5YR5/8) yellowish brown (10YR5/8) brownish yellow (10YR6/8) ochreous mottles • moderately to very stony 10 60% flints by volume • moderate structure • friable consistence

[3] To the nearest 5cm

Soil Unit III

29 Table 5 below outlines the soil characteristics present in the east and south east of the site *The unit generally comprises clayey upper horizon textures overlying moderately to very stony* sandy lower horizons This unit covers 2 4 hectares

Table 5 Representative Profile for Soil Unit III

Horizon	Average Depth[4] (cm)	Description
Topsoil	0–30	• Non-calcareous heavy clay loam or heavy silty clay loam • very dark grey (10YR3/1) dark grey (10YR4/1) or dark greenish grey (10Y 3/1) • common distinct dark yellowish brown (10YR4/6) ochreous mottles • moderately developed medium prismatic structure • stoneless to very slightly stony (0–1% flints)
Subsoil 1	30 80	• *Non-calcareous* • clay • dark grey (10YR4/1 N 4/1) brown (10YR5/3) grey (2 5Y 5/1) light brownish grey (2 5Y 6/2) or dark greenish grey (10Y 4/1) • common to many distinct strong brown (7 5YR5/8) dark yellowish brown (10YR4/6) or yellowish brown (10YR5/8) • stoneless to moderately stony 0 20% flints by volume 5% typical • weakly developed coarse prismatic or weakly developed coarse angular blocky structure with low (<0 5%) porosity firm consistence
Subsoil 2	80 120	• Non-calcareous • medium sandy loam or loamy medium sand • grey (2 5Y 6/1 10YR6/1) or light grey (2 5Y 7/1) • common to many distinct yellowish brown (10YR5/8) or brownish yellow (10YR6/8) *ochreous mottles* • moderately to very stony 20 60% flints by volume moderately developed coarse angular blocky structure • friable consistence

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[4] To the nearest 5cm

SOURCES OF REFERENCE

British Geological Survey (1975) *Sheet No 330 Tymington Drift Edition 1 50 000 Scale* 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* 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

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	Brassica
POT	Potatoes	SBT	Sugar beet	FCD	Fodder crops
LIN	Linseed	HRT	Soft and top fruit	FAL	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	Hort cultural 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 it 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 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** Mottl abundan expressed as a per ntag of the matrix or surf c de ribed

F few <2/ C common 2 20/ M many 20-40 V M 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 th outstanding features of th 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 lightly gleyed an S ill appear

7 **STONE LITH** Stone Lithology one of the following is used

HR	all hard rocks and stones	**FSST**	soft fine grained sandston
ZR	soft, argillaceous or silty rocks	**CH**	h lk
MSST	soft, medium grained sandstone	**GS**	gra l ith porous (soft) to ies
SI	soft w athered gneous/m tamorphi rock	**GH**	gra el ith non porous (hard) stones

Stone contents (>2 m >6cm and total) ar given in percentages (by volume)

8 **STRUCT** the degree of development, size and shape of soil peds are des ribed i ing th follo ing not it on

Degree of development	**WK**	weakly d veloped	**MD**	moderat ly d eloped
	ST	strongly developed		
Ped size	**F**	fine	**M**	m dium
	C	coarse		
Ped shape	**S**	single grain	**M**	ma i e
	GR	granular	**AB**	angular blocky
	SAB	sub angular blocky	**PR**	pri mati
	PL	platy		

9 **CONSIST** Soil consistenc is described using the follo ing notation

L loose	**FM** firm	**EH** xtre ly h d
VF very friable	**VM** very firm	
FR friable	**EM** extremely firm	

10 **SUBS STR** Subsoil structural ondition re orded for the purpose of calculating prof l droughtin s. G good M moderat P poor

11 **POR** Soil porosity If a soil horizon has less than 0 5 biopores >0 5 mm, a Y will ppear in this olumn

12 **IMP** If the profile is impen trable to rooting a Y ill appear in this column at th ppropr at horizo n

13 **SPL** Slowly permeable layer If the soil horizon is slo ly permeable a Y will appear n this olu mn

14 **CALC** If the soil horizon is cal areous a Y will appear in this column

15 Other notations

APW	available water capacity (in mm) adjusted for wheat
APP	available water apacity (in mm) adjusted for potatoes
MBW	moistu re balance heat
MBP	moisture balan potatoes

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SZ31599275	RGR		25	35	4	3B		88	-30	93	-21	3B				WE	3B	IMP 65 FLINTS
2	SZ31709270	PGR		0	55	3	3A		118	0	110	-4	3A				WE	3A	
3	SZ31809270	PGR		0	35	4	3B		102	-16	103	-11	3A				WE	3B	1P LOC IMP 82
4	SZ31559260	PGR		0		2	3A		106	-12	106	-8	3A				WE	3A	IMP 80 FLINTS
5_	SZ31629260	PGR	—	0	35	4	3B		123	5	100	-14	3A				WE	3B	BORDER 2 DR
6	SZ31709260	PGR		10		2	3B		136	18	108	-6	2				WE	3B	
7	SZ31609250	PGR		0	35	5	4		98	-20	105	-9	3A	Y			WE	4	IMP 80&JUNCUS
8	SZ31709250	PGR		0	20	5	4		121	3	99	-15	3A	Y			WE	4	CREEKS&JUNCUS
9	SZ31709240	PGR		0	25	5	4		133	15	106	-8	2	Y			WE	4	2P LOC CREEKS
10	SZ31519236	PGR		0		2	3A		94	-24	97	-17	3B				WE	3A	IMP 80 HOGGIN
11	SZ31749261	PGR		0	25	4	3B		119	1	99	-15	3A				WE	3B	
1P	SZ31809270	PGR		0	27	4	3B		111	-7	101	-13	3A				WE	3B	PIT100 AUG120
2P	SZ31709240	PGR		26	26	5	4		119	1	107	-7	3A	Y			WE	4	IMP 100 @ASP9

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	STONES GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-25	MCL	10YR31	10YR46	F	D			0	0	HR	3							SEE 1P
	25-35	MCL	10YR52	10YR56	C	D		Y	0	0	HR	3		M					
	35-60	SCL	25Y 52	10YR68	M	D		Y	0	0	HR	10		P			Y		
	60-65	MSL	25Y 52	10YR68	M	D		Y	0	0	HR	40		M					IMP FLINTS 65
2	0-30	MCL	10YR31	10YR46	C	D		Y	0	0	HR	3							SEE 1P
	30-55	MCL	10YR22	10YR56	C	D		Y	0	0	HR	3		M					
	55-85	SCL	25Y 52	10YR56	M	D		Y	0	0	HR	5		P			Y		
	85-95	MSL	25Y 52	10YR58	M	D		Y	0	0	HR	40		M					IMP FLINTS 95
3	0-35	MCL	10YR41	10YR46	C	D		Y	0	0	HR	2							1P LOCATION
	35-65	HCL	25Y 62	10YR58	68 M	D		Y	0	0	HR	3		P			Y		
	65-80	SCL	25Y 61	10YR68	58 M	D		Y	0	0	HR	5		P			Y		
	80-82	MSL	25Y 61	10YR68	58 M	D		Y	0	0	HR	40		M					IMP FLINTS 82
4	0-15	HZCL	10YR31	10YR46	C	D		Y	0	0		0							SURFACE WATER NR
	15-40	C	10YR41	10YR46	M	D		Y	0	0		0		P					
	40-60	FSL	25Y 71	10YR68	C	D		Y	0	0		0		M					
	60-80	MSL	25Y 71	10YR68	M	D		Y	0	0	HR	40		M					IMP FLINTS 80
5	0-35	C	10YR41	10YR46	C	D		Y	0	0	HR	1							
	35-40	HCL	10YR21	10YR46	C	D		Y	0	0	HR	5		P			Y		SPL - SEE 1P
	40-60	HCL	25Y 62	10YR68	M	D		Y	0	0		0		P			Y		
	60-75	SCL	25Y 61	10YR58	M	D		Y	0	0	HR	15		P			Y		
	75-120	SCL	25Y 71	10YR58	M	D		Y	0	0	HR	20		P			Y		
6	0-10	MZCL	10YR41						0	0		0							
	10-30	C	10YR41	10YR46	C	D		Y	0	0		0		P					
	30-40	C	25Y 51	75YR46	C	D		Y	0	0		0		P					
	40-60	FSZL	25Y 61	10YR58	M	D		Y	0	0	HR	10		M					
	60-85	MSL	25Y 61	10YR68	M	D		Y	0	0	HR	20		M					
	85-120	SCL	25Y 61	10YR58	M	D		Y	0	0	HR	20		P			Y		
7	0-35	HCL	10YR31	10YR46	C	D		Y	0	0		0							SURFACE WATER
	35-60	C	10YR53	75YR58	M	D		Y	0	0	HR	5		P			Y		
	60 75	C	10YR53	75YR58	M	D		Y	0	0	HR	20		P			Y		
	75-80	MS	10YR61	10YR68	M	D		Y	0	0	HR	60		M					IMP FLINTS 80
8	0-20	MCL	10YR41	10YR46	C	D		Y	0	0	HR	1							SURFACE WATER
	20-45	C	25Y 51	10YR58	M	D		Y	0	0		0		P			Y		
	45-55	C	10YR41	10YR58	C	D		Y	0	0	HR	5		P			Y		
	55-90	C	25Y 62	10YR58	C	D		Y	0	0	HR	5		P			Y		
	90-120	SCL	25Y 71	10YR58	C	D		Y	0	0	HR	20		P			Y		
9	0-25	HZCL	10YR21	10YR46	C	D		Y	0	0		0							2P LOCATION
	25-75	C	25Y 31	75YR46	M	D		Y	0	0		0		P			Y		SURFACE WATER
	75-100	MSL	25Y 62	10YR68	M	D		Y	0	0	HR	20		M					
	100-120	MSL	25Y 72	10YR68	M	D		Y	0	0	HR	40		M					

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	
10	0-30	HZCL	10YR31	10YR46	C	D		Y	0	0	HR	2							
	30-45	HCL	10YR53	10YR58	M	D		Y	0	0	HR	3		P					
	45-70	MSL	25Y 52	10YR68	M	D		Y	0	0	HR	40		M					
	70-80	LMS	10YR61	10YR58	C	D		Y	0	0	HR	60		M					IMP FLINTS 80
11	0-25	C	25Y 41	10YR46	C	D		Y	0	0		0							
	25-35	HZCL	10YR21	10YR46	C	D		Y	0	0	HR	5		M					
	35-50	SCL	10YR61	10YR58	C	D		Y	0	0	HR	10		P			Y		SPL - SEE 1P
	50-70	HCL	25Y 61	10YR68	M	D		Y	0	0	HR	5		P			Y		
	70-90	MSL	10YR61	10YR58	M	D		Y	0	0	HR	10		M					
	90-120	LMS	25Y 61	75YR58	M	D		Y	0	0	HR	40		M					
1P	0-27	MCL	10YR31	10YR46	C	D		Y	0	0	HR	1	STCAB	FR					PIT @ ASP 3
	27-50	HCL	10YR62	10YR58	C	D		Y	0	0	HR	1	MDCAB	FM	P		Y		
	50-70	SCL	25Y 62	10YR58	M	D		Y	0	0	HR	1	MDCAB	FM	P		Y		
	70-90	MSL	25Y 62	10YR58	M	D		Y	0	0	HR	40		FR	M				SIEVED
	90-120	LMS	25Y 62	10YR58	M	D		Y	0	0	HR	60		FR	M				P100A120 SIEVED
2P	0-26	HZCL	10Y 31	10YR46	C	D		Y	0	0		0	MDMPR	FM					PIT @ ASP 9
	26-56	C	10Y 41	10YR46	M	D		Y	0	0		0	WKCPR	FM	P	Y		Y	SURFACE WATER
	56-83	C	N 41	10YR58	C	D	MANY MN	Y	0	0		0	WKCAB	FM	P	Y		Y	
	83-100	MSL	25Y 61	10YR68	M	D		Y	0	0	HR	20	MDCAB	FR	M				IMP 100 SIEVED