AGRICULTURAL LAND CLASSIFICATION
AND STATEMENT OF PHYSICAL CHARACTERISTICS

STUD FARM, LITTLETHORPE, RIPON
PROPOSED SAND AND
GRAVEL EXTRACTION SITE
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APPENDIX

1. AGRICULTURAL LAND CLASSIFICATION ON THE PROPOSED SAND AND *GRAVEL EXTRACTION SITE AT STUD FARM, LITTLETHORPE, RIPON*

Introduction and Site Characteristics

The proposed sand and gravel extraction site which covers approximately 12.9 hectares is located around National Grid Reference SE 238697 about 2 km south east of Ripon between the Race Course and the Ripon Canal.

Survey work was carried out in April 1991 when soils were examined by hand auger borings at 13 points predetermined by the National Grid. In addition two soil profile pits were dug to study soil morphology in greater detail.

All assessments of agricultural land quality were made using the methods described in "Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land" MAFF (1988).

Climate and Relief

Salient climatic parameters at the site are as follows:-

Average Annual Rainfall (mm)	637
Accumulated Temperature Above 0°C (Jan-June)	1380
Field Capacity Days	160
Moisture Deficit Wheat (mm)	106
Potatoes (mm)	98

The rainfall and temperature figures indicate that there is no overall climatic limitation on ALC grading.

The site is level at an altitude of 19 m a.o.d.

Geology, Soils and Drainage

Soils are all formed on medium and heavy textured alluvial deposits which overlie the sand and gravel deposits. Topsoils consist usually of medium clay loam over a clayey slowly permeable subsoil. These profiles are generally poorly drained and fall within soil Wetness Class IV except for a few slightly better drained areas which meet the criteria for Wetness Class III.

Agricultural Land Classification

Subgrade 3a (1.4 ha, 10.8% of total area)

This land contains soils with a medium clay loam topsoil and upper subsoil over a clayey, slowly permeable lower subsoil (soil Wetness Class III). Soil wetness and workability limitations prevent this land from being graded higher than subgrade 3a.

Subgrade 3b (11.0 ha, 85.3% of total area)

The area graded as 3b contains medium and heavy clay loam and silty clay loam topsoils directly overlying slowly permeable clayey subsoils (Wetness Class IV). Soil wetness and workability problems are likely to be greater than in the adjoining better drained 3a land and are the main limitation on ALC grade.

Grade 4 (0.5 ha, 3.9% of total area)

The grade 4 land occurs in a wet hollow subject to prolonged periods of waterlogging.

2. STATEMENT OF PHYSICAL CHARACTERISTICS

One soil type, which is derived from alluvial deposits, occurs on the site. Topsoil and subsoil resources along with soil depth and quantity information are shown on the accompanying maps.

Topsoil (T1 on the topsoil resource map)

The topsoil is medium textured, usually of medium clay loam or silty clay loam and is unmottled. It has a well developed medium subangular blocky structure and common fine pores and fissures.

Subsoil (S1 on the subsoil resource map)

The subsoil is heavy textured and prominently mottled. It has a well developed coarse prismatic structure and a few fine fibrous roots.

The following soil profile pit descriptions give further detail on soil morphology.

3. SOIL PROFILE DESCRIPTIONS

Profile Pit A

Land Use: Grass
Slope and Aspect: 0°
Recent Weather: Mild and Wet

Horizon depth
(cm)

0-27 Dark greyish brown (10YR 4/2) medium clay loam; unmottled; stoneless; moist; well developed medium subangular blocky, few fine pores and fissures; friable; many fine fibrous roots; non calcareous; clear smooth boundary.

27-38 Dark grey (10YR 4/1) heavy clay loam; common distinct brownish yellow (10YR 6/6) mottles; stoneless; moist; well developed coarse subangular blocky; few fine pores and fissures; moderately firm; common fine fibrous roots; non calcareous; clear wavy boundary.

38-100 Light grey (10YR 7/1) clay; many distinct brownish yellow (10YR 6/8) and greyish brown (10YR 5/2) mottles; stoneless; moist; well developed coarse prismatic; very few fine pores and fissures; moderately firm; few fine fibrous roots; non calcareous.

Profile Pit B

Land Use: Grass
Slope and Aspect: 0°
Recent Weather: Mild and Wet

Horizon depth (cm)	
0-29	Dark greyish brown (10YR 4/2) medium clay loam; stoneless; moist; well developed fine subangular blocky, friable; common fine pores and fissures; many fine fibrous roots; non calcareous; clear wavy boundary.
29-45	Brown (10YR 4/3) medium clay loam; stoneless; unmottled; moist; well developed medium subangular blocky structure; moderately weak; many fine pores and fissures; many fine fibrous roots; non calcareous; clear wavy boundary.
45-100	Greyish brown (10YR 5/2) clay; stoneless; many distinct brownish yellow (10YR 6/6) mottles; moist; weakly developed coarse angular blocky; moderately firm; very few fine pores and fissures; few fine fibrous roots; non calcareous.

SCHEDULE OF SOIL AUGER BORINGS

TEXTURE

CS	Coarse sand
FS	Fine sand
MS	Medium sand
LCS	Loamy coarse sand
LFS	Loamy fine sand
LMS	Loamy medium sand
CSL	Coarse sandy loam
FSL	Fine sandy loam
MSL	Medium sandy loam
FSZL	Fine sandy silt loam
CSZL	Coarse sandy silt loam
MSZL	Medium sandy silt loam
MZ	Marine light silts
MZCL	Medium silty clay loam
CZCL	Coarse silty clay loam
FZCL	Fine silty clay loam
SCL	Sandy clay loam
MCL	Medium clay loam
ZL	Silty loam
HCL	Heavy clay loam
HZCL	Heavy silty clay loam
C	Clay
SC	Sandy clay
ZC	Silty clay
O	Prefix 'O' for organic
FP	Fibrous peat
HP	Humose peat
LP	Loamy peat
PL	Peaty loam
PS	Peaty sand
SP	Sandy peat
X	Rock

MOTTLES

O	Ochreous
G	Grey

AUGER BORINGS LIST 23/04/91 STUD FARM LITTLETHORPE

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	>6	DEPTH	COLOUR	CaCO3	MOTTLES
1	4	mcl			0-30	10YR42 00		
		mcl			30-37	10YR43 00		
		c			37-90	10YR61 00		many 10YR52 00
		fsl			90-100	10YR52 00		
2	4	mcl			0-30	10YR42 00		
		hcl			30-40	10YR52 00		
		c			40-100	10YR62 00		many 10YR71 00
3	4	mzcl			0-27	10YR32 00		
		c			27-100	10YR62 00		many 75YR68 00
4	4	mzcl			0-25	10YR42 00		
		hzcl			25-40	10YR52 00		many 75YR66 00
		c			40-100	75YR68 00		many 75YR68 00
5	4	mzcl			0-30	10YR42 00		
		hzcl			30-43	10YR52 00		many 10YR66 00
		c			43-100	10YR71 00		many 75YR68 00
6	2	mcl			0-35	10YR42 00		
		mcl			35-75	75YR42 00		
		hcl			75-100	10YR52 00		few 10YR62 00
7	4	hzcl			0-25	25Y 42 00		
		c			25-100	25 Y71 00		many 75YR66 00
8	4	mcl			0-25	10YR42 00		
		c			25-100	10YR61 00		many 10YR66 00
9	4	mcl			0-30	10YR42 00		
		c			30-100	10YR52 00		many 10YR66 00
10	4	hcl			0-25	25 Y42 00		few 75YR66 00
		c			25-100	25Y 61 00		many 75YR68 00
11	3	mcl			0-30	10YR42 00		
		hcl			30-65	75YR42 00		few 10YR52 00
		c			65-100	10YR61 00		many 75YR66 00
12	4	mcl			0-25	10YR41 00		
		c			25-100	10YR62 00		many 75YR66 00
13	4	mcl			0-30	75YR42 00		75YR66 00
		hcl			30-40	75YR41 00		many 10YR52 00
		c			40-100	10YR62 00		many 75YR66 00