

## **Appendix V**

### **Clast-lithological analysis**

Data from the various samples processed during the project are presented in this appendix in full detail, listed in the order that the sites appear in the monograph. The data are tabulated so as to show the raw count number from each lithological category, plus any grouping of categories that has been carried out so as to present a summary of the data in Table 2.2 of the monograph. Only categories represented in the counts from each site appear in the listings.

## Marfield Quarry

### Sample 1

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	156	156
Carboniferous chert	54	55
Weathered chert / siltstone with fossils	1	
Partial chert (silicified limestone)	16	16
Orthoquartzite / quartzitic sandstone	47	47
Bedded sandstone	2	2
Arkosic sandstone	34	34
Calcareous sand(stone)	22	22
Sandstone (ganister) with coal	1	1
Yoredale (flaggy) Limestone	1	1
Weathered limestone (brash)	1	1
<i>Others:</i>		
Yoredale shale	1	1
Cherty sandstone	1	1
Ironstone	0	2
Clayey ironstone (nodule)	2	
Various other sandstone	0	2
Weathered sandstone	2	
TOTAL	341	341

## Marfield Quarry

### Sample 2

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	211	215
Crinoidal limestone	1	
Carboniferous fossil (from limestone)	1	
Sandy Carboniferous limestone	1	
Fossiliferous marl	1	
Carboniferous chert	5	5
Partial chert (silicified limestone)	4	4
Orthoquartzite / quartzitic sandstone	38	38
Bedded sandstone	5	5
Arkosic sandstone	24	24
Calcareous sand(stone)	24	24
Weathered limestone (brash)	5	5
<i>Others:</i>		
Red (ferruginous) calcareous silt	1	1
Shale	5	5
Crystalline calcite	1	1
Clayey ironstone	2	2
Various other sandstone	0	2
Soft sandstone with ferruginous ?ooliths	1	
Poorly-sorted gritstone	1	
TOTAL	331	331

## Nosterfield Quarry

### Sample 1

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	96	96
Carboniferous chert	28	28
Partial chert (silicified limestone)	4	4
Orthoquartzite / quartzitic sandstone	62	62
Bedded / flaggy sandstone	10	10
Arkosic sandstone	23	23
Calcareous sand(stone)	12	12
Sandstone with plant fossils	1	3
Siltstone / mudstone with coal	2	
Yoredale (flaggy) Limestone	1	1
<i>Permian:</i>		
Magnesian Limestone	52	56
? Magnesian Limestone with organic flecks	4	
<i>Igneous / metamorphic:</i>		
Weathered granitic	1	1
<i>Others:</i>		
Shale / slate	1	1
Greywacke sandstone	2	2
Various other sandstone	0	2
Soft sandstone	2	
TOTAL	301	301

## Nosterfield Quarry

### Sample 2

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	115	115
Carboniferous chert	24	24
Partial chert (silicified limestone)	4	4
Orthoquartzite / quartzitic sandstone	42	42
Bedded sandstone	9	9
Arkosic sandstone	18	18
Calcareous sand(stone)	15	15
Quartzitic sandstone with plant fossils	2	2
Yoredale (flaggy) Limestone	2	2
Weathered limestone (crinoidal 'brash')	3	3
<i>Permian:</i>		
Magnesian Limestone	1	4
Soft dolomite	2	
Sandy dolomite	1	
<i>Igneous / metamorphic:</i>		
Weathered granitic	1	1
Weathered fine-grained (? lava / ? intrusive)	1	1
<i>Others:</i>		
Calcareous silt(stone)	3	3
TOTAL	243	243

## Ripon North (Hanson's) Quarry

### Lower (glacial) gravel:

#### Sample 2.1

Category	Individual count
<i>Carboniferous:</i>	
Carboniferous limestone	188
Carboniferous chert	15
Partial chert (silicified limestone)	16
Orthoquartzite / quartzitic sandstone	46
Bedded / flaggy sandstone	12
Arkosic sandstone	32
Calcareous sand(stone)	25
Sandstone with coal flecks	1
Yoredale (flaggy) Limestone	3
<i>Permian:</i>	
Magnesian Limestone	4
<i>Others:</i>	
Calcareous silt(stone)	3
Cherty shale	2
Coralline limestone	1
Cherty sandstone	1
Sandy ironstone	1
TOTAL	350

## Ripon North (Hanson's) Quarry

### Lower (glacial) gravel:

#### Sample 3

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	129	129
Carboniferous chert	32	32
Partial chert (silicified limestone)	11	13
Siliceous sandy limestone	2	
Orthoquartzite / quartzitic sandstone	73	73
Bedded sandstone	11	11
Arkosic sandstone	33	33
Calcareous sand(stone)	19	19
Yoredale (shaley) Limestone	1	1
<i>Permian:</i>		
Magnesian Limestone	63	64
Pale limestone	1	
<i>Others:</i>		
Shale	1	1
Vein calcite	1	1
Cherty sandstone with black clasts	1	1
Ironstone	0	3
Arenaceous ironstone	2	
Semi-durable ironstone	1	
TOTAL	381	381
Mud balls, sand-armoured, not totalled	2	2

One or two of the sandstone clasts have organic layers.  
Much of the Magnesian Limestone is soft.

**N.B. – This is an additional sample from the lower (glacial) gravel at this site, obtained from a digger bucket rather than from a described section. It has not been incorporated into Table 2.2**

## Ripon North (Hanson's) Quarry

### Upper (fluvial terrace) gravel:

#### Sample 1.1

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	126	126
Carboniferous chert	18	18
Partial chert (silicified limestone)	8	8
Orthoquartzite / quartzitic sandstone	51	51
Bedded / flaggy sandstone	3	3
Arkosic sandstone	10	10
Calcareous sand(stone)	10	10
<i>Permian:</i>		
Magnesian Limestone	11	11
<i>Others:</i>		
Calcareous silt(stone)	1	1
Shale / slate	3	3
Crystalline calcite	1	1
Bedded siltstone	1	1
Various other sandstone	0	1
Fossiliferous sandstone	1	
TOTAL	244	244
Rip-up clasts (diamicton), not totalled	4	4



## Ripon North (Hanson's) Quarry

### Upper (fluvial terrace) gravel:

#### Sample 1.3

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	133	134
Clast of ~50% : 50% limestone : quartzite	1	
Carboniferous chert	37	37
Partial chert (silicified limestone)	11	11
Orthoquartzite / quartzitic sandstone	95	95
Bedded / flaggy sandstone	6	6
Arkosic sandstone	22	22
Calcareous sand(stone)	10	10
Yoredale (flaggy) Limestone	8	8
<i>Permian:</i>		
Magnesian Limestone	22	23
Soft / weathered dolomite	1	
<i>Others:</i>		
Calcareous bedded siltstone	1	1
Cherty shale / slate	3	3
Vein (crystalline) calcite	1	1
Bedded (? Yoredale) mudstone	1	2
Cherty sandstone	1	1
Ironstone	0	2
Clayey ironstone	1	
Arenaceous ironstone	1	
TOTAL	355	355

## Ripon North (Hanson's) Quarry

### Upper (fluvial terrace) gravel:

#### Sample 2.2

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	114	114
Carboniferous chert	28	28
Partial chert (silicified limestone)	25	25
Orthoquartzite / quartzitic sandstone	82	82
Bedded / flaggy sandstone	3	3
Arkosic sandstone	51	51
Calcareous sand(stone)	26	26
Yoredale (flaggy) Limestone	8	8
Weathered limestone (brash)	1	1
<i>Permian:</i>		
Magnesian Limestone	11	14
Pale calcareous silt	2	
Calcite, probably from Magnesian Limestone	1	
<i>Others:</i>		
Yoredale shale	3	3
Ironstone	0	2
Ferruginous sandstone	1	
Soft calcareous / ferruginous grit	1	
TOTAL	357	357

## Ripon South (Brown & Potter's) Quarry

### Sample 1A

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	200	200
Carboniferous chert	38	38
Partial chert (silicified limestone)	28	29
Limestone / chert interbedded	1	
Orthoquartzite / quartzitic sandstone	117	117
Bedded / flaggy sandstone	20	20
Arkosic sandstone	48	48
Calcareous sand(stone)	54	54
Sandstone (ganister) with plant fossils	4	4
Yoredale (flaggy) Limestone	0	3
Shaly limestone	3	
Weathered limestone (brash)	0	1
Calcareous sand / brash	1	
<i>Permian:</i>		
Magnesian Limestone	58	58
<i>Igneous / metamorphic:</i>		
Trachyte	1	1
<i>Others:</i>		
Calcareous silt(stone)	10	10
Shale / slate	2	3
Calcareous sandy shale	1	
Calcite	1	1
Greywacke	2	2
Various other sandstone	0	4
Bizoned sandstone	1	
Unknown floating fabric sandstone	1	
Friable sandstone	1	
Grey sandstone	1	
TOTAL	593	593

## Ripon South (Brown & Potter's) Quarry

### Sample 1B

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	44	44
Carboniferous chert	34	34
Partial chert (silicified limestone)	3	3
Orthoquartzite / quartzitic sandstone	78	78
Bedded / flaggy sandstone	9	9
Arkosic sandstone	4	4
Calcareous sand(stone)	8	8
Yoredale (flaggy) Limestone	1	1
<i>Permian:</i>		
Magnesian Limestone	5	6
Pale limestone	1	
<i>Others:</i>		
Calcareous silt(stone)	1	1
Shale / slate	1	1
Ironstone	1	2
Ferruginous sandstone	1	
Greywacke sandstone	1	1
TOTAL	192	192

## Ripon South (Brown & Potter's) Quarry

### Sample 2A

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	66	66
Carboniferous chert	40	40
Partial chert (silicified limestone)	4	6
Chert / limestone	2	
Orthoquartzite / quartzitic sandstone	67	67
Bedded / flaggy sandstone	16	16
Arkosic sandstone	19	19
Calcareous sand(stone)	15	15
Yoredale (flaggy) Limestone	2	2
<i>Permian:</i>		
Magnesian Limestone	3	3
<i>Igneous / metamorphic:</i>		
Dolerite	2	2
<i>Others:</i>		
Calcareous silt(stone)	2	3
Calcareous mud	1	
Shale / slate	1	1
Micaceous quartz sandstone	1	1
Vein (crystalline) calcite	1	1
Exotic quartzite	0	1
Orthoquartzite	1	
TOTAL	243	243

## Ripon South (Brown & Potter's) Quarry

### Sample 2B

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	101	101
Carboniferous chert	63	63
Partial chert (silicified limestone)	16	16
Orthoquartzite / quartzitic sandstone	111	111
Bedded / flaggy sandstone	18	18
Arkosic sandstone	21	21
Calcareous sand(stone)	16	16
Sandstone (ganister) with plant fossils	1	1
Yoredale (flaggy) Limestone	3	3
<i>Permian:</i>		
Magnesian Limestone	5	5
<i>Igneous / metamorphic:</i>		
Dolerite / trachyte	1	1
<i>Others:</i>		
Shale / slate	2	2
Ironstone	0	3
Ferruginous sandstone	3	
Greywacke sandstone	1	1
TOTAL	362	362

## Catterick Quarry

### Sample 1A

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	136	139
Pale limestone	1	
Sugar limestone	1	
Decalcified crinoidal limestone	1	
Carboniferous chert	13	14
Yoredale chert	1	
Partial chert (silicified limestone)	8	8
Orthoquartzite / quartzitic sandstone	45	45
Bedded / flaggy sandstone	7	7
Arkosic sandstone	24	24
Calcareous sand(stone)	25	25
Sandstone with coal flecks	4	4
Yoredale (flaggy) Limestone	6	6
Weathered limestone (brash)	4	4
<i>Permian:</i>		
Magnesian Limestone	7	7
<i>Igneous / metamorphic:</i>		
Dolerite	2	2
Granitic	0	2
Coarse-grained granitic, possibly Shap	1	
Weathered, medium-grained granitic	1	
Weathered fine-grained (? igneous)	1	1
Porphyry	1	3
Hard porphyry with weathered groundmass	1	
Weathered porphyry	1	
Metaquartzite	1	1
<i>Others:</i>		
Shale (? Yoredale mudstone)	1	1
Crystalline calcite	4	4
Hard clay ironstone	3	3
Greywacke sandstone	4	4
Various other sandstone	0	3
Weathered sandstone	2	
Porous red sandstone	1	
Vein quartz	1	1
Exotic quartzite	0	2
Grey orthoquartzite (non-Carboniferous)	1	
Veined metaquartzite (non-Carboniferous)	1	
TOTAL	310	310

## Catterick Quarry

### Sample 1B

Category	Individual count
<i>Carboniferous:</i>	
Carboniferous limestone	96
Carboniferous chert	66
Partial chert (silicified limestone)	37
Orthoquartzite / quartzitic sandstone	111
Bedded / flaggy sandstone	12
Arkosic sandstone	65
Calcareous sand(stone)	19
Sandstone with plant fossils	1
Yoredale (flaggy) Limestone	10
<i>Igneous / metamorphic:</i>	
Dolerite / trachyte	2
Metaquartzite / schist	1
<i>Others:</i>	
Shale / slate / mudstone	11
Micaceous quartz sandstone	1
Vein (crystalline) calcite	1
Ironstone	2
Greywacke sandstone	3
Exotic quartzite	1
TOTAL	439



## Scorton Quarry

### Sample 1A

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	142	154
Pale limestone	12	
Carboniferous chert	25	26
Shaly chert	1	
Partial chert (silicified limestone)	25	25
Orthoquartzite / quartzitic sandstone	60	60
Bedded sandstone	14	14
Arkosic sandstone	43	43
Calcareous sand(stone)	13	13
Yoredale (flaggy) Limestone	12	12
Weathered limestone (brash)	3	3
<i>Permian:</i>		
Magnesian Limestone	16	16
<i>Igneous / metamorphic:</i>		
Dolerite / trachyte	0	4
Quartz dolerite	2	
Weathered ? quartz dolerite	1	
? trachyte	1	
Granitic	1	1
Porphyry	1	2
Rhomb porphyry	1	
Schist / gneiss	0	2
Quartz / mica schist	1	
Gneissic psammite	1	
<i>Others:</i>		
Calcareous siltstone	2	2
Shale / slate / mudstone	0	16
Hard black shale	9	
Sandy shale	1	
Fine-grained grey ? mudstone	5	
? oolitic mudstone	1	
Exotic limestone	0	1
? Jurassic shelly limestone	1	
Ironstone concretions	2	2
Greywacke sandstone	9	9
Vein quartz	2	2
TOTAL	407	407

## Scorton Quarry

### Sample 1B

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	170	187
Pale limestone	16	
Carboniferous limestone with calcite vein	1	
Carboniferous chert	11	11
Partial chert (silicified limestone)	12	12
Orthoquartzite / quartzitic sandstone	42	42
Bedded / flaggy sandstone	8	8
Arkosic sandstone	36	36
Calcareous sand(stone)	30	30
Quartzitic sandstone with coal (rootlets?)	1	1
Yoredale Limestone (including calcareous shale)	12	12
Weathered limestone (brash)	11	12
Oolitic limestone brash	1	
<i>Permian:</i>		
Magnesian Limestone	18	18
<i>Igneous / metamorphic:</i>		
Dolerite / trachyte	0	14
Fine-grained dolerite - ? trachyte	7	
Quartz dolerite	3	
Dolerite	1	
Weathered dolerite	1	
? Porphyritic ? dolerite	1	
Greenish igneous	1	
Microgranite	1	1
Porphyry	1	2
Feldspar porphyry	1	
Metaquartzite	2	2
<i>Others:</i>		
Shale	1	1
Vein calcite	1	1
Cherty sandstone	1	1
Breccia (? fault breccia)	1	1
Ironstone	0	4
Ferruginous limestone / calcareous ironstone	2	
Arenaceous ironstone	1	
Iron	1	
Greywacke sandstone	10	10
Vein quartz	1	1
TOTAL	407	407

## Norton Mills river-bank section

### Sample 1

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	139	139
Carboniferous chert	36	36
Partial chert (silicified limestone)	9	9
Orthoquartzite / quartzitic sandstone	63	63
Bedded sandstone	5	5
Arkosic sandstone	26	26
Calcareous sand(stone)	23	23
Yoredale (flaggy) Limestone	3	3
Weathered limestone (brash)	1	1
<i>Permian:</i>		
Magnesian Limestone	1	1
<i>Others:</i>		
Calcareous silt(stone)	0	8
Calcareous silt / mud	6	
(?Permian) calcareous fine sand	2	
TOTAL	314	314

## Snape Mires, Mill House 4

### Sample 1

Category	Individual count	Grouped count
<i>Carboniferous:</i>		
Carboniferous limestone	75	75
Carboniferous chert	9	9
Partial chert (silicified limestone)	16	16
Orthoquartzite / quartzitic sandstone	34	34
Bedded sandstone	3	3
Arkosic sandstone	9	9
Calcareous sand(stone)	10	
Sandstone with plant fossils	0	2
Sandstone with thin coal seams	1	
Sandstone with organic material	1	
Yoredale (flaggy) Limestone	2	2
Weathered limestone (brash)	2	2
<i>Permian:</i>		
Magnesian Limestone	30	30
TOTAL	192	192

The sample included many oversized clasts, which were screened out by the 32 mm sieve. The Magnesian Limestone is frequently angular. Most of the partial chert is bedded.