

The sand and gravel resources of the country around Shrewsbury, Shropshire

Description of 1:25 000 resource sheets SJ 41 and SJ 51

B. Cannell

The first twelve reports on the assessment of British sand and gravel resources appeared in the Report series of the Institute of Geological Sciences as a subseries. Report 13 and subsequent reports appear as Mineral Assessment Reports of the Institute.

Details of published reports appear at the end of this Report.

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PREFACE

National resources of many industrial minerals may seem so large that stocktaking appears unnecessary, but the demand for minerals and for land for all purposes is intensifying and it has become increasingly clear in recent years that regional assessments of the resources of these minerals should be undertaken. The publication of information about the quantity and quality of deposits over large areas is intended to provide a comprehensive factual background against which planning decisions can be made.

Sand and gravel, considered together as naturally occurring aggregate, was selected as the bulk mineral demanding the most urgent attention, initially in the south-east of England, where about half the national output is won and very few sources of alternative aggregates are available. Following a short feasibility project, initiated in 1966 by the Ministry of Land and Natural Resources, the Industrial Minerals Assessment Unit (formerly the Mineral Assessment Unit) of the Institute of Geological Sciences began systematic surveys in 1968. The work is now being financed by the Department of the Environment and is being undertaken with the co-operation of the Sand and Gravel Association of Great Britain.

This report describes the resources of sand and gravel of 200 km² around Shrewsbury, Shropshire as shown on the accompanying resource map. The survey was conducted in 1976–1978 by Dr. W. J. R. Harries, Miss M. B. Simmons, Mr. B. Cannell and Mr. C. I. Jay. The work is based on a geological survey at 1:10 560 in 1911–1922 and 1926–1928 by R. W. Pocock. Minor amendments were made by Dr. A. C. Wilson, Mr. Cannell and Mr. S. J. Mathers in 1980.

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The sand and gravel resources of sheets SJ 41 and SJ 51 (Shrewsbury, Shropshire). *In pocket*

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The sand and gravel resources of the country around Shrewsbury, Shropshire

Description of 1:25 000 sheets SJ 41 and SJ 51

B. CANNELL

SUMMARY

The assessment of the sand and gravel resources in the Shrewsbury area, Shropshire, is based on the geological maps and borehole records of the Institute of Geological Sciences, records made available by the sand and gravel industry, recent fieldwork and one hundred and seventy three boreholes drilled for the Industrial Minerals Assessment Unit.

All deposits in the area which might be potentially workable for sand and gravel have been investigated geologically and a simple statistical method has been used to estimate the volume. The reliability of the volume estimates is given at the symmetrical 95 per cent confidence level.

The district has been divided into six resource blocks containing between 10.0 and 22.1 km² of sand and gravel. For these blocks the geology of the deposits is described and the mineral-bearing area, the mean thickness of overburden and mineral, and the mean grading of the mineral are stated. Detailed borehole data are given. The geology, the position of the boreholes and the outlines of the resource blocks are shown on the accompanying map.

Bibliographical reference

CANNELL, B. 1982. The sand and gravel resources of the country around Shrewsbury, Shropshire. Description of 1:25 000 sheets SJ 41 and SJ 51. *Miner. Assess. Rep. Inst. Geol. Sci.*, No. 90.

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Note

National Grid references given in this publication lie within 100-kilometre square SJ.

INTRODUCTION

The survey is concerned with the estimation of resources, which include deposits that are not currently exploitable but have a foreseeable use, rather than reserves, which can only be assessed in the light of current, locally prevailing, economic considerations. Clearly, both the economic and the social factors used to decide whether a deposit may be workable in the future cannot be predicted; they are likely to change with time. Deposits not currently economically workable may be exploited as demand increases, as higher grade or alternative materials become scarce, or as improved processing techniques are applied to them. The improved knowledge of the main physical properties of the resource and their variability which this survey seeks to provide, will add significantly to the factual background against which planning policies can be decided (Archer, 1969; Thurrell, 1971; Harris and others, 1974).

The survey provided information at the 'indicated' level "for which tonnage and grade are computed partly from specific measurements, samples or production data and partly from projection for a reasonable distance on geological evidence. The sites available for inspection, measurement, and sampling are too widely or otherwise inappropriately spaced to permit the mineral bodies to be outlined completely or the grade established throughout" (Bureau of Mines and Geological Survey, 1948, p.15).

It follows that the whereabouts of reserves must still be established and their size and quality proved by the customary detailed exploration and evaluation undertaken by industry. However, the information provided by this survey should assist in the selection of the best targets for such further work. The following arbitrary physical criteria have been adopted:

- a The deposit should average at least 1 m in thickness.
- b The ratio of overburden to sand and gravel should be no more than 3:1.
- c The proportion of fines (particles passing the No. 240 mesh BS sieve, about $\frac{1}{16}$ mm) should not exceed 40 per cent.
- d The deposit must lie within 25 m of the surface, this being taken as the likely maximum working depth under most circumstances. It follows from the second criterion that boreholes are drilled no deeper than 18 m if no sand and gravel has been proved.

A deposit of sand and gravel which broadly meets these criteria is regarded as 'potentially workable' and is described and assessed as 'mineral' in this report. As the assessment is at the indicated level, parts of such a deposit may not satisfy all the criteria.

For the particular needs of assessing sand and gravel resources, a grain-size classification based on the geometric scale $\frac{1}{16}$ mm, $\frac{1}{4}$ mm, 1 mm, 4 mm, 16 mm has been

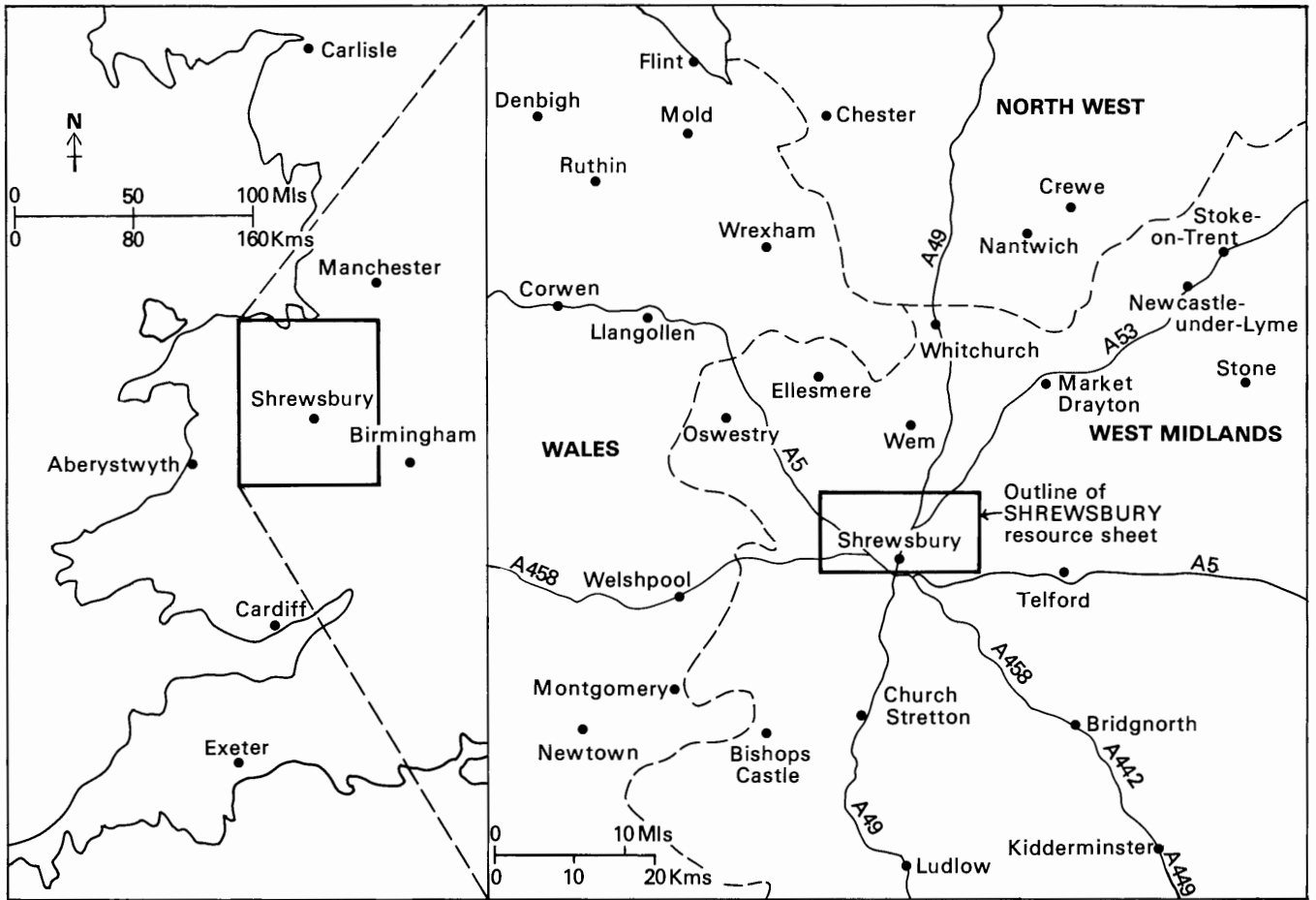


Figure 1 Location of the resource sheet area. The boundaries of the Economic Planning Regions are shown on the right-hand map.

adopted. The boundaries between fines (that is, the clay and silt fractions) and sand, and between sand and gravel grade material, are placed at $\frac{1}{16}$ mm and 4 mm respectively (see Appendix C).

The volume and other characteristics are assessed within resource blocks, each of which, ideally, contains approximately 10 km² of sand and gravel. No account is taken of any factors, for example, roads, villages and high agricultural or landscape value, which might stand in the way of sand and gravel being exploited, although towns are excluded. The estimated total volume therefore, bears no simple relationship to the amount that could be extracted in practice.

It must be emphasised that the assessment applies to the resource block as a whole. Valid conclusions cannot be drawn about the mineral in parts of a block, except in the immediate vicinity of the actual sample points.

Although they may be potentially workable in terms of the survey (stated above), the sands derived by weathering of the Permo-Triassic bedrock have not been assessed in this report. However, it is worth recording that in the south-east corner of the area the sandstones are weathered to depths of at least 1.5 m.

DESCRIPTION OF THE DISTRICT

The area assessed on this resource sheet (Figure 1) is 200 km² of which 95.2 km² is mineral-bearing. Shrewsbury, in the centre of the area is an historic market town which has grown up around two crossing-points of the

River Severn and is an important administrative and communications centre; there is some light industry also. Bomere Heath, Ford, Hadnall, High Ercall and Withington are the more important villages (Figure 2).

The district is given over almost entirely to agriculture with dairying dominant and some arable farming on the lighter sandy soils.

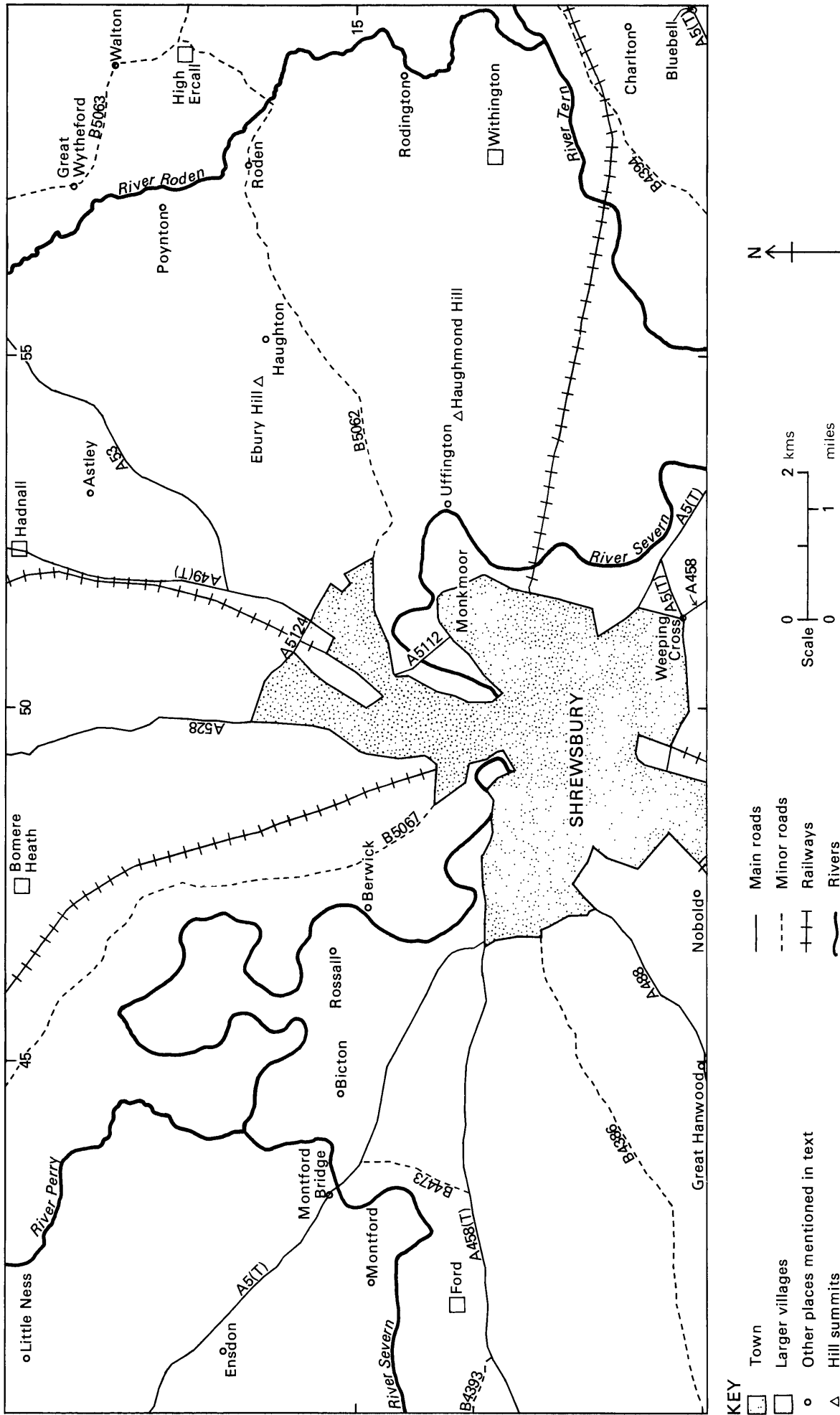
TOPOGRAPHY

The main physical feature is the River Severn, which meanders eastwards across the district. Its main tributaries are the River Perry and the River Tern. The highest part of the area is around Haughmond Hill [543 135] which reaches an elevation of 152 m. Elsewhere, the area is of low relief, gently rolling to the east of Shrewsbury but more dissected to the west, and lies between 50 and 110 m above Ordnance Datum.

GEOLOGY

The geology of the Shrewsbury district has been described by Pocock and others (1928 and 1938). The solid and drift deposits are classified as shown in Table 1. Schematic cross-sections (A-A', B-B' on the resource map) showing the generalised Drift geology are depicted at the foot of the map (in pocket).

The Solid rocks are exposed mainly in the eastern part of the area at Astley [531 187], Haughmond Hill, Walton [590 184] and Withington [577 130]. Elsewhere, they are concealed beneath varied thicknesses of Drift, comprising Glacial Sand and Gravel, Boulder Clay, Glacial Lake Deposits, Fluvio-glacial Deposits, River Terrace Deposits, Alluvium and Peat.



KEY

- ▣ Town
- ▣ Larger villages
- Other places mentioned in text
- △ Hill summits
- Main roads
- - - Minor roads
- + + + Railways
- ~ Rivers

Figure 2 Locality map.

Table 1 Classification of the solid and drift deposits.

DRIFT

Recent and Pleistocene

Peat
 Alluvium
 River Terrace Deposits
 Fluvio-glacial Deposits
 Glacial Sand and Gravel
 Boulder Clay
 Glacial Lake Deposits

SOLID

Triassic

Mercia Mudstone Group (formerly Keuper Marl and Waterstones)
 Sherwood Sandstone Group
 Bromsgrove Sandstone (formerly Ruyton and Grinshill Sandstones)
 Wildmoor Sandstone (formerly Upper Mottled Sandstone)
 Kidderminster Conglomerate (formerly Bunter Pebble Beds)

*Unconformity***Permo-Triassic**

Bridgnorth Sandstone (formerly Lower Mottled Sandstone)

*Unconformity***Permo-Carboniferous**

Enville Formation (formerly Enville Beds)

Carboniferous

Upper Coal Measures
 Erbistock Formation (formerly Keele Beds)
 Coed-yr-Allt Formation (formerly Coed-yr-Allt Group)

*Unconformity***Pre-Cambrian**

Longmyndian
 Bayston — Oakswood Formation
 Stretton Group, undivided

*Author's note

Subsequent to the preparation of the draft manuscript, the Geological Society of London published a Special Report recommending the adoption of the following stratigraphic terminology for the Triassic rocks of the British Isles. The table below is shown for reference only.

Names used in this Report

Triassic Mercia Mudstone Group
 Sherwood Sandstone Group
 Bromsgrove Sandstone
 Wildmoor Sandstone
 Kidderminster Conglomerate
Unconformity

Revised nomenclature

Mercia Mudstone Group
 Sherwood Sandstone Group
 Helsby Sandstone Formation
 Wilmslow Sandstone Formation
 Chester Pebble Bed Formation
Unconformity

Permo-

Triassic Bridgnorth Sandstone
Unconformity

Kinnerton Sandstone Formation
Unconformity

SOLID

Longmyndian

The Longmyndian beds form an inlier surrounded by the *Erbistock Formation* and *Bridgnorth Sandstone*. They comprise the *Bayston-Oakswood Formation* lying unconformably on the *Stretton Group*.

The *Stretton Group* crops out between Haughton [553 164] and Haughmond Hill, occupying an area of high relief rising to an escarpment in the south-west. The *Group* consists of green and purple siltstones, sandstones and shales.

The *Bayston-Oakswood Formation* comprising conglomerates and purple and greenish grey sandstones is exposed to the west and north-west of the *Stretton Group*, between Ebury Hill [546 165] and Haughmond Castle [537 138].

Upper Coal Measures

The *Upper Coal Measures* within the area are subdivided into the *Coed-yr-Allt Formation* and *Erbistock Formation*.

The *Coed-yr-Allt Formation* lies immediately to the south of Shrewsbury but is nowhere exposed. It consists of grey mudstones with quartzitic sandstones.

The *Erbistock Formation* covers an area extending from Great Hanwood [453 102] in the south-west to Great Wytheford [573 190] in the north-east. It is exposed mainly in the banks of the River Severn at Shrewsbury, along the eastern side of Haughmond Hill and to the west of Walton. It comprises purple and brown mudstones and mottled sandstones.

Enville Formation The *Enville Formation* is only exposed at Walton and consists of conglomerates with marls and sandstones.

Bridgnorth Sandstone Poorly exposed *Bridgnorth Sandstone* occupies most of the area to the west of Shrewsbury, around Astley and the south-east around Withington. It consists of friable, brownish red, mottled sandstone.

Sherwood Sandstone Group

The *Sherwood Sandstone Group* is subdivided into the *Kidderminster Conglomerate* (at the base), the *Wildmoor Sandstone* and the *Bromsgrove Sandstone*.

The *Kidderminster Conglomerate* is only exposed west of Ford [415 137] where it consists of reddish brown, coarse-grained, quartzitic sandstones and conglomerates.

The *Wildmoor Sandstone* crops out to the north of Shrewsbury but is only exposed at Bomere Heath [474 197] comprising soft, bright-red sandstone.

The *Bromsgrove Sandstone* is exposed at Little Ness [408 197] and consists of red and yellow sandstones.

Mercia Mudstone Group

Red marls, near the base of the *Group* are present in the extreme north-western corner of the area, around Little Ness, but are wholly obscured by extensive drift deposits.

DRIFT

The glacial deposits of the Shrewsbury area exhibit marked lateral variability, and consequently correlation is difficult: thus, any interpretation is necessarily simplified (see cross-sections A–A¹, B–B¹ at the foot of the resource map).

As described in the Wem memoir (Pocock and others, 1938), deposition of the drift appears to have been associated with two ice sheets, one of 'Irish Sea' type and the other of Welsh origin. The former, which was generated in Scotland and the Lake District, advanced southwards across the Irish Sea and into the Cheshire Basin and Shropshire. Valley glaciers originating on the Welsh massif coalesced to form a Welsh Ice Sheet which moved eastwards into the Vale of Clwyd and Shropshire. The advance of both of these ice sheets blocked the northward pre-Glacial drainage of the area, impounding the rivers as lakes against the high ground to the south. As the ice sheets retreated, they left behind extensive spreads of stony clay. Wherever the ice-front remained stationary, sands and gravels were deposited on outwash plains, kames or in glacial lake deltas. North-flowing streams deposited fluvio-glacial flood gravels to the south of Shrewsbury. The ice-ponded lakes were subsequently drained through an overflow channel at Ironbridge.

Pocock and others (1938) considered that a later Welsh readvance deposited its own sequence of stony clays and outwash gravels above those laid down by an earlier 'Irish Sea' ice-sheet. With the draining of ice-ponded water through the Ironbridge Gorge, effective through drainage of the area was restored and the River Severn then followed a meandering course eastwards. Post-Glacial rejuvenation of the River Severn and River Roden has resulted in the development of river terraces, bordering a broad alluvial tract. The Third Terrace has not been recognised upstream of Shrewsbury, perhaps suggesting that it was formed when the Severn was obstructed above Shrewsbury by a Welsh ice sheet (Pocock and Wray, 1925). Thus, the Third Terrace may be earlier than some of the fluvio-glacial deposits (*op cit.*).

Glacial Sand and Gravel Glacial Sand and Gravel deposits are extensive in the west, south and east of the area. The main deposits occur in three areas, around Montford, Shrewsbury, and Rodington.

The outwash sands and gravels of the *Montford* area were probably laid down by melt waters from an ice sheet situated to the west of the area. They cover an area of about 14 km² extending from Little Ness in the north to Montford in the south. The mean proven thickness of sand and gravel is 12 m.

The sands and gravels around *Shrewsbury* are probably also outwash deposits laid down in front of an ice sheet which lay to the north. The outcrop which has been dissected by the River Severn in Post-Glacial times, covers an area of approximately 12 km² divided into two deposits, one around Berwick [471 149] north-west of Shrewsbury and the other to the south-east around Weeping Cross [513 104]. The proven thickness of sand and gravel is commonly in excess of 20 m.

The sands and gravels of the *Rodington* area form a southward extension of those found around Shawbury (Cannell and Harries, 1981). Southward-flowing channels were cut across the Triassic escarpment north of Shrewsbury and the sands and gravels were deposited as these streams debouched onto the lower ground. The deposits cover an area of about 16 km², extending from Great Wytheford in the north to Withington in the south. The mean proven thickness of sand and gravel is only 2 m.

Throughout the Shrewsbury district the gravel clasts comprise quartzite, sandstone, argillaceous and igneous rock with some limestone, quartz and conglomerate debris in a matrix of fine- to coarse-grained sand. Granite pebbles also occur sporadically.

The sands have the same lithological constituents as the gravels but the more resistant types (e.g. quartz and quartzite) form the dominant fraction. The lithic component is only common in the coarser sands. Most of the medium and fine grains are coated with iron oxides which impart a reddish or yellowish brown colour to the deposits. The coarser grains are more rounded than the medium-sized particles.

Minor amounts of silts and clays are intercalated with the sands and gravels and probably reflect deposition in quiet water away from the main channel areas.

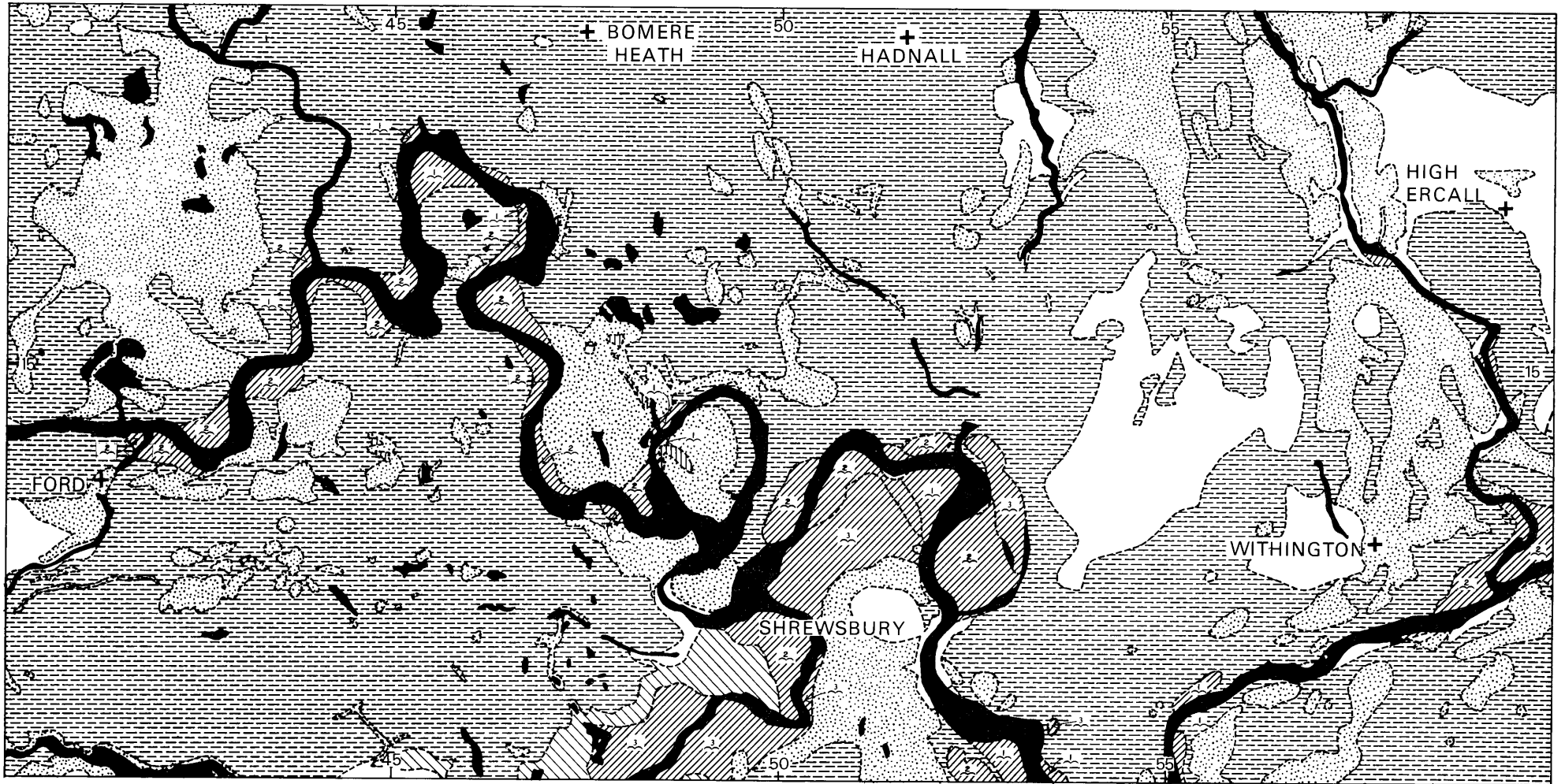
Boulder Clay Boulder Clay deposits cover extensive areas of the map (Figure 3) and are subdivided into two main types: pebbly clay and silt.

Pebbly clay forms extensive till sheets, particularly in the west of the area where it is over 18 m thick; elsewhere it is generally between 5 m and 15 m thick. The *pebbly clays* are sandy and can be divided into a hard, reddish brown type and a greyish brown type: both are believed to be lodgement tills. The sand fraction is generally fine- to medium-grained and the gravel fraction has a composition similar to that of the outwash gravels. The reddish brown till contains northerly-derived clasts whereas the greyish brown till contains clasts derived from mid-Wales.

Silt has been proved in a few boreholes associated with sand and gravel and pebbly clay. It is a soft, grey to reddish brown clay, commonly containing sandy beds and may be a flow till.

The clay matrices of both the pebbly clay and silt are commonly calcareous, a feature probably inherited from the erosion of Carboniferous Limestone bedrock to the north.

Glacial Lake Deposits Glacial Lake Deposits consist of soft, brown, pebble-free *laminated clays*. The clays of the Albrighton area [180 500] are thinner than in the Wem area to the north, being generally less than 10 m thick.



KEY

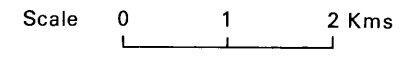
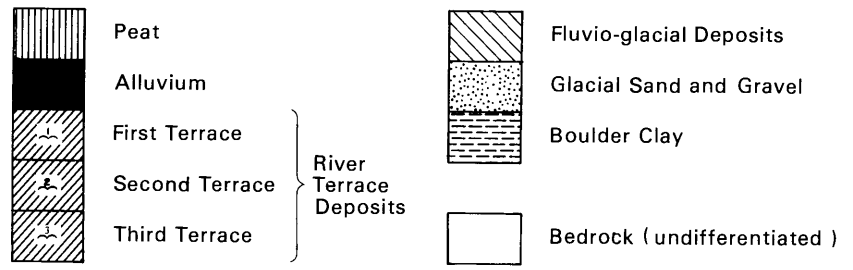


Figure 3 Drift geology map.

Pocock and Wray (1925) considered that during the Late Devensian, ice sheets to the north and west obstructed the northward drainage of the area so as to create a large lake (Lake Lapworth); however, the irregular distribution of laminated clays perhaps reflects deposition in smaller and unconnected basins. Pebbly clays overlie the laminated clay in some boreholes indicating the presence of a later till sheet but elsewhere the lacustrine deposits may be overlain by outwash deposits. In the south-east around Withington, localised ponding by ice has resulted in the deposition of thin (less than 5 m) sequences of laminated clay.

Fluvio-glacial Deposits Fluvio-glacial Deposits extend almost continuously from Great Hanwood north-eastwards to Shrewsbury. They consist of brown, sandy clay containing scattered quartzite, sandstone and argillaceous rock pebbles overlying a coarse-grained gravel of similar composition. It is thought that these deposits, which thin eastwards, were laid down by melt waters flowing east from the Welsh hills.

River Terrace Deposits The Third Terrace can only be traced upstream as far as Shrewsbury and consists predominantly of fine and coarse-grained gravel about 4.5 m thick.

The Second Terrace can be traced continuously through the area and ranges from 2 m to 5 m in proven thickness. It consists of brown, sandy, pebbly clay overlying a 'clayey' gravel.

The First Terrace can be traced downstream from Montford Bridge [433 154] and consists of brown, silty or sandy pebbly clay overlying coarse-grained gravel; the terrace deposit is 4 m thick.

The clast composition of all the terrace deposits reflects that of the underlying drift and bedrock from which the sediments have been derived.

Alluvium Alluvium consists of gravels, sands, humic silts and clays and occurs as a continuous deposit on the floor of the valleys. Its thickness along the River Severn ranges up to 8.0 m but is commonly about 5 m.

Peat Small areas of peat occur in the hollows of the mounded drift north-west of Shrewsbury around Berwick and Bicton [448 149]. The deposit represents the final infilling of shallow lakes and ponds.

COMPOSITION OF THE SAND AND GRAVEL

Six potentially workable sand and gravel deposits occur within the resource sheet area; Alluvium, First, Second and Third Terraces, Fluvio-glacial Deposits and Glacial Sand and Gravel. The mean grading and pebble composition for each of these deposits are shown in Table 2.

Alluvium: The flood-plain deposits of the River Severn comprise gravel with some clay, and those of the tributaries consist in the main of 'very clayey' sandy gravel. Typically, the deposits have a mean grading of fines 8 per cent, sand 37 per cent and gravel 55 per cent.

First Terrace: The mineral occurring within this deposit is classified as gravel. The mean grading for the deposit is fines 8 per cent, sand 43 per cent and gravel 49 per cent.

Second Terrace: The deposits range from gravel to 'clayey' sandy gravel and have a mean grading of fines 10 per cent, sand 36 per cent and gravel 54 per cent.

Third Terrace: The gravels of this deposit have a mean grading of fines 6 per cent, sand 39 per cent and gravel 55 per cent.

Table 2 Mean grading and pebble type analyses of the sand and gravel deposits (based on IMAU boreholes).

GRADING

Deposit type	Percentages by weight		
	Fines - $\frac{1}{16}$ mm	Sand + $\frac{1}{16}$ - 4 mm	Gravel + 4 mm
Alluvium	8	37	55
First Terrace	8	43	49
Second Terrace	10	36	54
Third Terrace	6	39	55
Fluvio-glacial Deposits	11	27	62
Glacial Sand and Gravel	11	74	15

COMPOSITION

Deposit type	Percentages by weight in the gravel (+ 4 mm) fraction						
	Quartz- ite	Argill- aceous	Igneous	Sand- stone	Lime- stone	Quartz	Conglomerate
Alluvium	36	19	9	33	—	3	—
First Terrace	43	8	13	29	1	6	trace
Second Terrace	45	9	14	25	trace	6	1
Third Terrace	37	18	9	30	trace	6	trace
Fluvio-glacial Deposits	32	20	7	37	1	3	—
Glacial Sand and Gravel	33	17	12	28	4	5	1

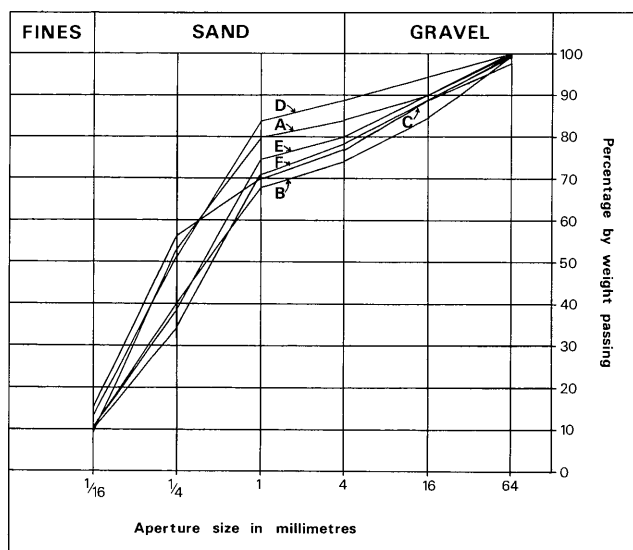


Figure 4 Particle size distribution for the assessed thickness of mineral in resource blocks A to F.

Fluvio-glacial Deposits: Ranging from gravel to 'clayey' gravel, the deposits have a mean grading of fines 11 per cent, sand 27 per cent and gravel 62 per cent.

Glacial Sand and Gravel: Although the mean grading of this deposit is fines 11 per cent, sand 74 per cent and gravel 15 per cent, there is considerable vertical and lateral variability from pebble-free sand to gravel.

THE MAP

The sand and gravel resource map is folded into the pocket at the end of this report. The map base is the Ordnance Survey 1:25 000 Outline Edition in grey, on which the topographic contours are shown in green, the geological data in black and the mineral resource information in shades of red.

Geological data

The geological boundary lines are taken from the Wem (Sheet 138) and Shrewsbury (Sheet 152) geological maps both of which were surveyed at the scale of 1:10 560. Borehole data, which include the stratigraphic relations and mean particle size distribution of the sand and gravel

samples collected during the assessment survey, are also shown.

The geological boundaries are based on the best available information at the time of the original survey but they have been altered in the light of borehole data from this investigation. However, it is inevitable, particularly with drift deposits which are very variable, that local discrepancies may remain.

Mineral resource information

The mineral-bearing ground is subdivided into resource blocks (see Appendix A). The mineral is identified as 'exposed' where the thickness of overburden, commonly consisting only of soil and subsoil, averages not more than 1.0 m.

Areas where bedrock crops out are uncoloured on the map. Areas of unassessed sand and gravel, for example, in built-up areas, are indicated by a red stipple.

The area of the exposed sand and gravel is measured from the mapped geological boundary lines. The whole of this area is considered as mineral, although it may include small areas where sand and gravel is not present or is not potentially workable.

Worked areas

The approximate extent of known sand and gravel workings to Summer 1980 are shown.

RESULTS

The statistical results are summarised in Table 3. More complete grading particulars are shown in Figure 4.

Accuracy of the Results

For the six resource blocks the accuracy of the results ranges between 24 and 46 per cent at the symmetrical 95 per cent probability level (that is, it is probable that 19 times out of 20 the true volume present lies within these limits). However, the true values are more likely to be nearer the figures estimated than the limits. Moreover, it is probable that in each block roughly the same percentage limits would apply for the estimate of volume of a very much smaller parcel of ground (say, 100 hectares) containing similar sand and gravel deposits if

Table 3 The sand and gravel resources of the Shrewsbury district: summary of statistical results.

Resource block	Area		Mean thickness		Volume of mineral			Mean grading percentage		
	Block	Mineral	Overburden	Mineral	Limits at the 95% confidence level	± 10 ⁶ m ³				
						km ²	km ²	m	m	10 ⁶ m ³
A	19.6	16.4	0.9	9.9	162.4	33	53.6	9	75	16
B (Upper)	15.3	15.1	0.6	1.3	19.6	34	6.7	9	38	53
(Lower)	15.3	15.1	—	6.4	96.6	46	44.4	13	78	9
(Combined)*	15.3	15.1	0.6	2.7	40.8	34	13.9	11	63	26
C	37.8	22.1	2.5	4.6	101.7	41	41.7	15	62	23
D	34.6	21.2	4.9	9.7	205.6	34	69.9	12	77	11
E	28.2	10.0	0.5	2.3	23.0	32	7.4	11	69	20
F	20.1	10.4	0.9	2.9	30.2	24	7.2	10	68	22
A to F	155.6	95.2	1.4	4.4	418.9	19	79.6	11	70	19
Urban	44.4	—	not assessed (see text)							

* The combined volume estimate is not given by simply totalling the figures for the Lower and Upper sub-divisions but by a separate calculation which uses a mean thickness derived from all the data points.

the results from the same number of sample points (as provided by, say, 10 boreholes) were used in the calculation. Thus, if closer limits are needed for the quotation of reserves of part of a block it can be expected that data from more than 10 sample points will be required, even if the area is quite small. This point can be illustrated by considering the whole of the potentially workable sand and gravel on this sheet. The volume (418.9 million m³) can be estimated to limits of ± 19 per cent at the 95 per cent probability level (Table 3), by a calculation based on the data from 173 sample points spread across the six resource blocks.

However, it must be emphasised that the quoted volume of sand and gravel has no simple relationship with the amount that could be extracted in practice, as no allowance has been made in the calculations for any restraints (such as existing buildings and roads) on the use of the land for mineral working.

NOTES ON THE RESOURCE BLOCKS

The area is divided into six resource blocks in which the area of mineral varies from 10.0 km² to 22.1 km² (Table 3). As far as possible, the block boundaries are determined by geological considerations. The blocks comprise in the main, the major areas of 'exposed' sand and gravel. Two mineral components are assessed in Block B: the lower subdivision consists of Glacial Sand and Gravel; the upper comprises Alluvium and River Terrace Deposits. The remaining blocks consist of Glacial Sand and Gravel except for Block C where three of the boreholes penetrated Alluvium and Fluvio-glacial Deposits.

Block A

Block A comprises 16.4 km² of mineral. Sand and gravel has been worked in this area but only on a small scale for local use.

Table 4 Data from IMAU boreholes: Block A.

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral	Overburden	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
	m	m	$-\frac{1}{16}$ mm	$+\frac{1}{16}-\frac{1}{4}$ mm	$+\frac{1}{4}-1$ mm	$+1-4$ mm	$+4-16$ mm	$+16-64$ mm	$+64$ mm
SJ41									
NW 21	4.8	2.2	26	30	12	7	13	12	0
NW 22	7.8 + †	0.3	9	47	34	3	4	3	0
NW 23	24.0 +	0.4	5	23	39	9	11	12	1
NW 24	excessive overburden								
NW 25	excessive overburden								
*NW 26	12.7	0.4	21	49	21	3	4	2	0
NW 27	9.8	1.2	11	15	9	9	17	35	4
NW 28	25.4 +	0.3	4	45	30	4	6	9	2
NW 29	13.4 +	0.3	2	45	48	2	2	1	0
NW 30	‡								
NW 31	5.9 +	0.3	10	8	15	11	25	31	0
NW 33	16.0	0.4	13	55	27	2	2	1	0
*NW 34	23.8 +	0.3	13	65	14	1	2	4	1
NW 35	9.2	0.3	13	58	23	2	2	2	0
*NW 36	13.7 +	0.5	10	55	28	3	2	2	0
*NW 37	22.2 +	0.5	10	61	28	0	0	1	0
NW 38	5.0	0.4	3	28	35	6	6	21	1
SW 10	5.2 +	4.6	8	7	17	10	23	31	4
SW 15	3.8	0.3	4	5	17	15	27	30	2
Overall mean grading			9	44	27	4	6	9	1

* Includes waste partings.

† The + sign indicates that the base of the deposit was not reached.

‡ 0.7 m of sand proved beneath 0.5 m of overburden.

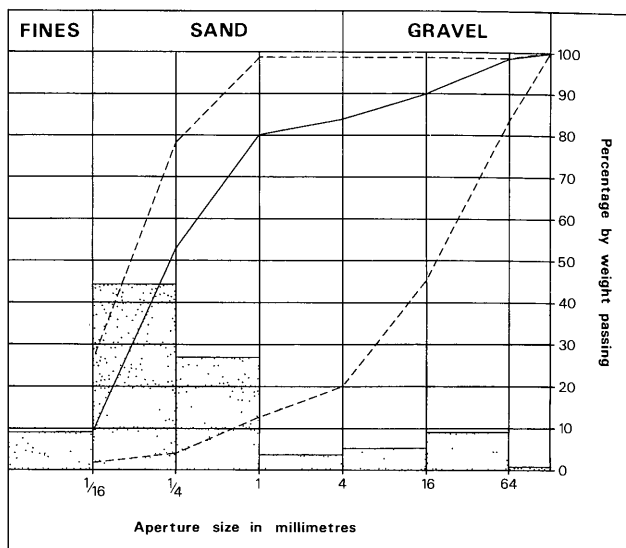


Figure 5 Grading characteristics of the mineral in Block A. The continuous line is the cumulative frequency curve of the mean grading of the block as a whole; the broken lines delimit the envelope within which the mean grading curves for individual boreholes fall. The mean grading of the block is also shown as a histogram.

The block lies north of the River Severn and west of the River Perry. A thick sequence (over 20 m) of variable outwash sands and gravels is exposed in the central part of the block. They are overlain by a thin till in the west and interdigitate with till in the east. The gravel component is most abundant in the ground lying west of a north-south line through Montford.

The assessment is based on 19 Industrial Minerals Assessment Unit (IMAU) boreholes (Table 4), and 5 other boreholes. The mean thickness is 9.9 m; the range of

recorded thicknesses is from 0.4 m to over 25.4 m. The estimated volume of mineral is 162.4 million m³ ± 33 per cent. The overburden, which usually consists of gravelly soil and sandy clay, ranges in thickness from 0.3 m to 9.6 m and has a mean of 0.9 m.

The grading results are shown in Figure 5 and Table 4. The fines content varies from 2 per cent to 26 per cent. The sand content varies between 34 and 95 per cent, but is as low as 18 per cent in borehole 41 NW 24. The sand is predominantly fine and medium-grained. The gravel content is very variable, ranging from 1 to 59 per cent although it is as high as 80 per cent in borehole 41 NW 24. The mean grading for the resource block is fines 9 per cent, sand 75 per cent and gravel 16 per cent.

Block B

Block B extends over an area of 15.3 km² of which 15.1 km² is mineral-bearing. There are no mineral workings in the area.

The assessed mineral in Block B comprises Alluvium, River Terrace Deposits and Glacial Sand and Gravel which occur in four irregular strips along the River Severn and its tributaries. Four very small (less than 0.1 km) patches of Till are present immediately to the east of Shrewsbury where they crop out in bluffs or cutbanks.

The assessment is based on 24 IMAU boreholes and 35 other boreholes. The mineral has been subdivided into an upper part consisting of Alluvium and River Terrace Deposits and a lower part comprising Glacial Sand and Gravel. The latter deposit occurs predominantly to the west of Shrewsbury.

The grading results are shown in Figures 6 and 7 and

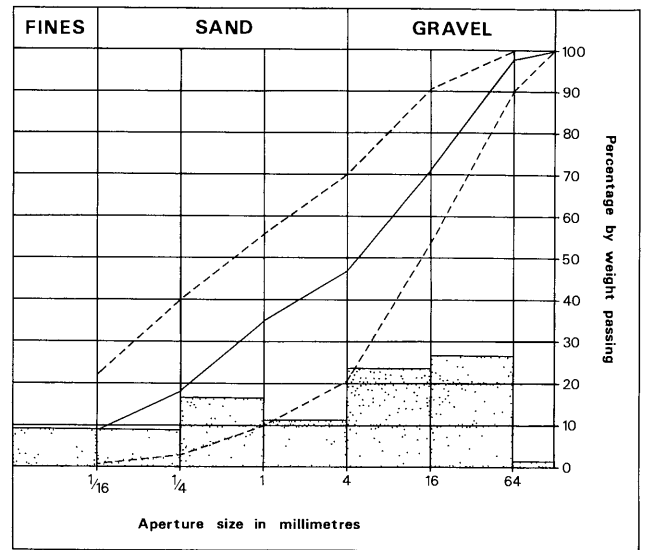


Figure 6 Grading characteristics of the mineral in Block B (upper sub-division). For explanation, see Figure 5.

Tables 5 and 6. The upper mineral subdivision has a mean thickness of 1.3 m; the range is from 0.1 m to 6.5 m. The fines content commonly varies from 5 to 13 per cent though the range is from 1 to 22 per cent. The sand content varies between 18 and 62 per cent and that of the gravel from 30 to 77 per cent. The mean grading is fines 9 per cent, sand 38 per cent and gravel 53 per cent.

The lower subdivision (Glacial Sand and Gravel) has a mean thickness of 6.4 m, ranging in the borehole records from 0.8 m to over 15.8 m. The fines content varies

Table 5 Data from IMAU boreholes: Block B (Upper sub-division)

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral m	Overburden m	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
			-1/16 mm	+1/16 - 1/4 mm	+1/4 - 1 mm	+1 - 4 mm	+4 - 16 mm	+16 - 64 mm	+64 mm
SJ41									
NW 32	2.4	0.3	22	18	17	9	11	23	0
NW 41	excessive overburden								
NW 44	excessive overburden								
NE 24	2.0	1.5	5	3	10	9	26	42	5
NE 26	2.1	1.8	13	1	6	11	25	38	6
NE 27	excessive overburden								
NE 29	4.0	2.0	12	4	18	21	25	19	1
NE 30	4.0	0.7	2	5	27	17	27	18	4
NE 31	1.3	0.4	16	7	15	11	19	22	10
SW 19	6.5	1.0	11	26	7	7	18	26	5
SE 83	1.0	2.0	10	5	8	8	22	42	5
SE 86	4.2	1.0	5	6	15	12	30	29	3
SE 87	absent								
SJ51									
SW 73	2.1	1.4	11	4	14	13	31	27	0
SW 75	3.0	0.1	6	2	15	13	36	28	0
SW 76	2.9	1.0	9	5	18	17	22	29	0
SW 77	4.4	0.6	7	4	30	8	21	30	0
SW 78	2.9	5.8	5	1	13	15	26	40	0
SW 80	3.1	0.3	12	8	16	15	26	23	0
SW 82	4.0	0.3	5	5	14	16	32	28	0
SW 84	3.7	0.5	12	19	14	10	23	22	0
SE 24	1.5	1.5	9	11	36	6	15	23	0
SE 41	2.1	0.5	9	10	22	6	18	34	1
SE 42	2.3	0.4	8	14	35	13	21	9	0
Overall mean grading			9	9	17	12	24	27	2

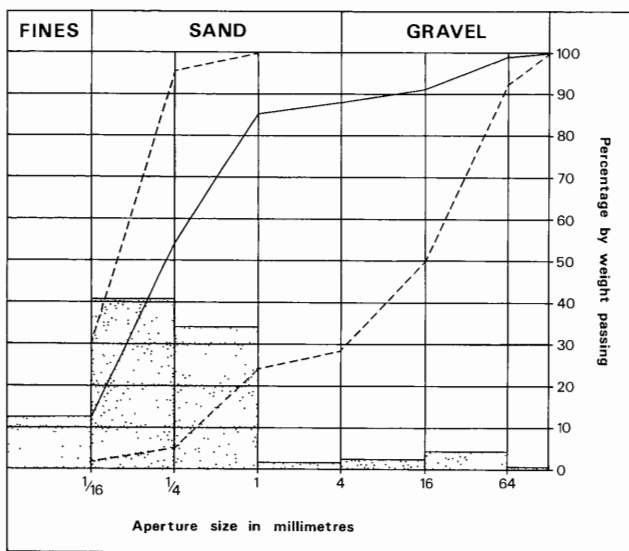


Figure 7 Grading characteristics of the mineral in Block B (lower sub-division). For explanation, see Figure 5.

between 2 to 30 per cent. The sand content commonly varies from 47 to 92 per cent but is as low as 21 per cent in borehole 41 SE 87. The sand is predominantly fine and medium-grained. The gravel content is commonly below 18 per cent but is substantially higher in boreholes 41 SE 87 and 51 SE 24. The mean grading for the subdivision is fines 13 per cent, sand 78 per cent and gravel 9 per cent.

Table 6 Data from IMAU boreholes: Block B (Lower sub-division)

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral m	Overburden m	Fines -1/16 mm	Fine sand +1/16 - 1/4 mm	Medium sand +1/4 - 1 mm	Coarse sand +1 - 4 mm	Fine gravel +4 - 16 mm	Coarse gravel +16 - 64 mm	Cobbles +64 mm
SJ41									
*NW 32	8.0+†	—	24	72	4	0	0	0	0
NW 41	‡	—							
*NW 44	13.9+	—	14	33	36	3	5	8	1
*NE 24	10.1+	—	15	37	26	4	6	11	1
NE 26	absent								
NE 27	8.2+	—	3	16	63	5	7	6	0
NE 29	‡	—	23	37	17	5	5	3	10
NE 30	6.3+	—	7	34	57	1	1	0	0
NE 31	12.0+	—	11	38	39	1	4	6	1
SW 19	absent								
SE 83	12.5+	—	8	65	25	1	0	1	0
SE 86	15.8+	—	10	37	52	1	0	0	0
SE 87	1.5	—	8	7	9	5	21	42	8
SJ51									
SW 73	absent								
SW 75	absent								
SW 76	absent								
SW 77	absent								
SW 78	absent								
*SW 80	6.4	—	30	53	8	1	2	4	2
SW 82	absent								
SW 84	absent								
SE 24	1.0	—	2	3	42	2	13	31	7
SE 41	1.8	—	29	42	19	2	3	2	3
SE 42	absent								
Overall mean grading			13	41	35	2	3	5	1

* Includes waste partings.

† The + sign indicates that the base of the deposit was not reached.

‡ 0.8 m of sand proved.

Overall, the mineral in the block has a mean thickness of 2.7 m and a total estimated volume of 40.8 million m³ ± 34 per cent. The mean grading of the total mineral is fines 11 per cent, sand 63 per cent and gravel 26 per cent. Overburden (mainly topsoil and sandy clay) reaches a maximum proved thickness of 5.8 m in borehole 51 SE 78 and has a mean thickness of 0.6 m.

Block C

Block C occupies the south-western part of the area, lying south of the River Severn and west of Shrewsbury. In the northern half of the block an extensive deposit of Glacial Sand and Gravel is overlain by a variable thickness of Till. This mineral deposit thickens eastwards to over 10 m. To the south a generally barren area with Till extends from Ford to Great Hanwood. In the extreme west, a coarse gravelly occurrence of Glacial Sand and Gravel is overlain throughout much of the area by Till and Alluvium. In the south-eastern corner of Block C there are two outcrops of Fluvio-glacial Deposits each of which comprise an upper clay unit resting on gravel. This block extends over an area of 37.8 km² of which 22.1 km² is mineral bearing.

The assessment is based on 23 IMAU boreholes and 3 other boreholes. The mean thickness of mineral is 4.6 m: the range of recorded thicknesses is from 0.8 m to 19.2 m. The estimated volume of mineral is 101.7 million m³ ± 41 per cent. The overburden, consisting of soil and sandy clay, ranges in recorded thickness from 0.3 m to 5.5 m and has a mean of 2.5 m.

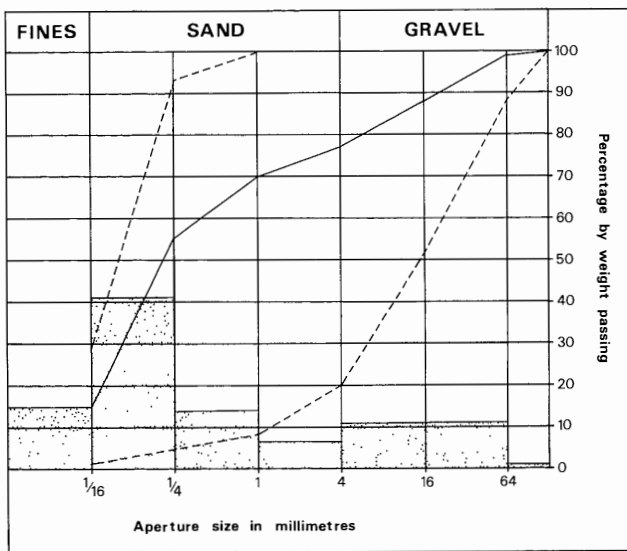


Figure 8 Grading characteristics of the mineral in Block C. For explanation, see Figure 5

The grading results are shown in Figure 8 and Table 7. The fines content varies from 2 per cent to 29 per cent. The sand content is very variable reaching a maximum of 86 per cent in borehole 41 SW 27. The sand is predominantly fine-grained. The gravel content in most boreholes commonly varies between 17 and 66 per cent although in several boreholes it was absent. The highest gravel content of 80 per cent occurs in borehole 41 SW 26. The mean grading for the block is fines 15 per cent, sand 62 per cent and gravel 23 per cent.

Table 7 Data from IMAU boreholes: Block C.

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral m	Overburden m	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
			-1/16 mm	+1/16-1/4 mm	+1/4-1 mm	+1-4 mm	+4-16 mm	+16-64 mm	+64 mm
SJ41									
NW 40	excessive overburden								
*NW 45	7.1	3.0	24	63	12	1	0	0	0
*NE 25	19.2	1.2	21	66	7	1	2	2	1
NE 28	absent								
*NE 32	7.4	5.5	17	69	14	0	0	0	0
SW 11	4.3	2.2	5	17	40	18	16	4	0
*SW 14	6.4+†	4.1	10	4	8	16	26	31	5
SW 16	excessive overburden								
SW 18	1.1	0.9	2	4	10	19	31	27	7
SW 20	2.0	4.0	29	64	7	0	0	0	0
SW 21	3.0	3.0	17	14	24	11	22	12	0
SW 23	1.0	0.4	27	21	16	6	12	18	0
SW 24	3.3+	2.6	6	4	7	17	32	30	4
SW 25	absent								
SW 26	2.2	3.4	4	1	3	12	32	36	12
*SW 27	8.7	0.8	10	58	27	1	2	2	0
SW 28	absent								
*SE 75	11.9+	0.3	17	44	13	9	10	7	0
SE 76	10.4	4.9	10	37	21	8	14	10	0
SE 77	2.3	4.7	10	7	8	9	24	42	0
SE 78	excessive overburden								
SE 79	absent								
SE 81	3.5	2.0	12	6	11	12	22	36	1
Overall mean grading			15	41	14	7	11	11	1

* Includes waste partings.

† The + sign indicates that the base of the deposit was not reached.

Block D

Block D extends over an area of 34.6 km² of which 21.2 km² is mineral bearing. There are no sand and gravel workings in the area.

Block D consists of an extensive area north of the River Severn together with a small area immediately north of Shrewsbury and another south-east of the town. These latter two occurrences and that around Berwick comprise the main Glacial Sand and Gravel deposit of the block. Further north, an extension of this mineral deposit lies below a thick (average 8 m) Till. Some minor patches of Glacial Sand and Gravel are present in this area but the remainder of the Block is generally barren, comprising Till and Glacial Lake Deposits.

The assessment is based on 19 IMAU boreholes and 6 other boreholes. The mean thickness of mineral is 9.7 m; the proved range is from 1.0 m to over 24.9 m. The estimated volume of mineral is 205.6 million m³ ± 34 per cent. The overburden ranges in thickness from 0.1 m to 11.8 m and has a mean of 4.9 m. It usually consists of soil and silty or sandy clay.

The grading results are shown in Figure 9 and Table 8. The fines content commonly ranges between 3 and 22 per cent but exceptionally reaches a maximum of 36 per cent in borehole 51 SW 79. The sand content is usually between 61 per cent and 89 per cent, although in boreholes 41SE 88 and 51 NW 35 it is as low as 30 per cent. The sand is predominantly fine and medium-grained. The gravel content commonly varies from 3 per cent to 29 per cent but was absent in borehole 41 NE 38. The highest gravel content of 65 per cent occurs in borehole 51 NW 35. The mean grading for the block is fines 12 per cent, sand 77 per cent and gravel 11 per cent.

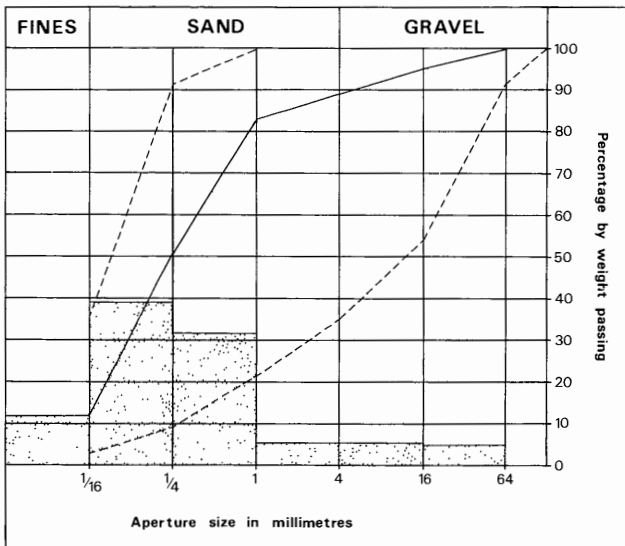


Figure 9 Grading characteristics of the mineral in Block D. For explanation, see Figure 5

Block E

Block E extends over an area of 28.2 km² of which 10.0 km² is mineral-bearing. There are no workings in the area.

Block E lies to the north of Haughmond Hill and east of Block D. In the eastern half a thin Glacial Sand and Gravel sequence overlies Till and bedrock. A largely buried Glacial Sand and Gravel deposit lies south of Astley. Much of the remainder of the block comprises unassessed narrow strips of Alluvium and Till on bedrock.

The assessment is based on 15 IMAU boreholes and 8 other boreholes. The mean thickness of mineral is 2.3 m;

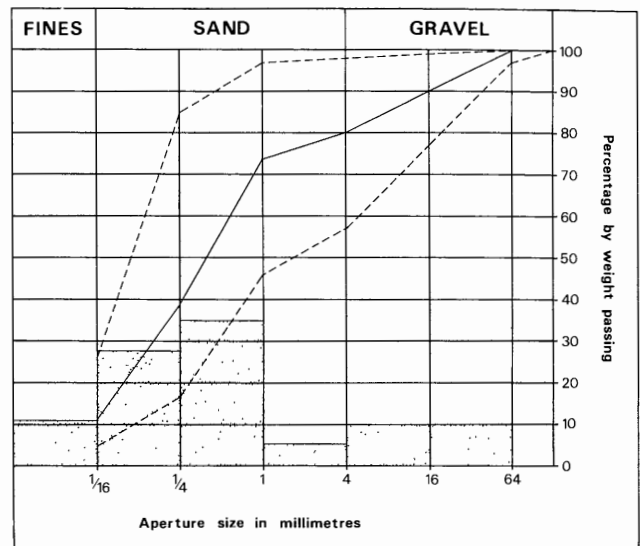


Figure 10 Grading characteristics of the mineral in Block E. For explanation, see Figure 5

the range is from 0.5 m to 6.3 m. The estimated volume of mineral is 23.0 million m³ ± 32 per cent. The overburden, which consists of soil and sandy clay, ranges in recorded thickness from 0.3 m to 1.7 m and has a mean thickness of 0.5 m.

The grading results are shown in Figure 10 and Table 8. The fines content varies between 5 and 26 per cent. The sand content varies from 52 per cent and 88 per cent, the fine and medium fractions predominating. The gravel content commonly varies between 2 and 31 per cent but is as high as 43 per cent in borehole 51 NE 34. The mean grading of the block is fines 11 per cent, sand 69 per cent and gravel 20 per cent.

Table 8 Data from IMAU boreholes: Block D.

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral	Overburden	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
			-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	
m	m	mm	mm	mm	mm	mm	mm	mm	
SJ41									
*NE 33	8.0+†	6.0	12	28	45	6	5	4	0
*NE 34	8.5+	11.8	11	28	33	6	11	11	0
NE 35	16.0	4.0	4	22	52	7	7	8	0
NE 36	10.0	4.0	17	44	21	6	8	4	0
*NE 37	21.5+	2.3	19	61	11	3	4	2	0
NE 38	8.0+	8.0	16	75	9	0	0	0	0
NE 39	9.4	10.6	7	22	51	8	8	4	0
*NE 40	15.9+	7.6	9	39	40	5	4	3	0
NE 41	2.7	1.3	10	43	27	5	10	5	0
NE 42	7.0	5.0	3	20	52	17	7	1	0
NE 43	6.4	0.6	8	22	36	9	14	11	0
SE 82	7.0	0.3	5	14	44	8	15	14	0
SE 85	24.9+	0.1	9	40	44	4	2	1	0
SE 88	1.5	1.5	11	7	13	10	26	33	0
SJ51									
NW 35	1.0	2.8	5	4	12	14	20	36	9
NW 36	absent								
NW 41	3.7	2.0	22	59	5	3	6	5	0
*SW 74	22.7+	0.3	18	46	21	4	7	4	0
SW 79	1.7	0.3	36	55	5	1	0	3	0
Overall mean grading			12	39	32	6	6	5	0

* Includes waste partings.

† The + sign indicates that the base of the deposit was not reached.

Table 9 Data from IMAU boreholes: Block E.

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral	Overburden	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
	m	m	$-\frac{1}{16}$ mm	$+\frac{1}{16}-\frac{1}{4}$ mm	$+\frac{1}{4}-1$ mm	$+1-4$ mm	$+4-16$ mm	$+16-64$ mm	$+64$ mm
SJ51									
NW 46	1.3	0.4	10	38	47	2	2	1	0
NW 47	1.6	1.3	17	17	33	12	14	7	0
NW 50	†								
NW 51	2.7	0.5	15	70	12	1	1	1	0
*NW 52	6.3	1.7	14	34	20	3	9	20	0
NW 53	1.4	0.7	9	21	40	9	14	7	0
NW 54	‡								
NE 23	2.1	0.4	10	21	62	1	1	2	3
NE 25	§								
NE 27	3.2	0.3	8	30	54	4	3	1	0
NE 28	–								
NE 29	1.0	0.7	26	29	28	4	6	7	0
*NE 33	4.4	0.3	6	11	42	10	18	13	0
NE 34	2.1	0.3	5	15	26	11	20	23	0
NE 35	2.0	0.3	15	15	39	9	13	9	0
Overall mean grading			11	28	35	6	10	10	0

* Includes waste partings.

† 0.5 m of sand proved beneath 0.3 m of overburden.

‡ 0.6 m of sand proved beneath 0.4 m of overburden.

§ 0.8 m of sand proved beneath 0.4 m of overburden.

– 0.5 m of sand proved beneath 0.3 m of overburden.

Table 10 Data from IMAU boreholes: Block F.

Borehole No.	Recorded thickness		Mean grading percentage						
	Mineral	Overburden	Fines	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles
	m	m	$-\frac{1}{16}$ mm	$+\frac{1}{16}-\frac{1}{4}$ mm	$+\frac{1}{4}-1$ mm	$+1-4$ mm	$+4-16$ mm	$+16-64$ mm	$+64$ mm
SJ51									
NE 36	†								
NE 37	2.4	0.3	7	30	32	18	7	6	0
NE 38	1.2	0.6	4	36	51	2	4	3	0
NE 42	1.0	0.3	No grading data available						
NE 43	2.3	0.5	16	31	42	2	4	5	0
*SW 86	6.7	0.9	18	39	29	4	7	3	0
SE 25	2.3	0.2	4	28	46	6	11	5	0
SE 26	‡								
SE 29	1.1	0.6	No grading data available						
*SE 31	4.2	0.2	12	38	35	2	5	8	0
*SE 32	3.0	1.4	11	21	48	7	9	4	0
SE 33	1.3	0.7	16	25	49	4	4	2	0
SE 35	1.6	0.2	11	12	59	5	8	5	0
SE 36	2.4	0.4	1	7	65	14	6	7	0
SE 37	5.2	6.3	6	21	22	6	17	21	7
SE 38	3.1	4.9	3	13	36	8	14	26	0
*SE 40	3.7	0.5	12	12	42	10	15	9	0
SE 43	3.3	0.3	9	16	15	11	19	22	8
Overall mean grading			10	24	37	7	10	10	2

* Includes waste partings.

† 0.8 m of sand proved beneath 1.1 m of overburden.

‡ 0.6 m of sand proved beneath 0.8 m of overburden.

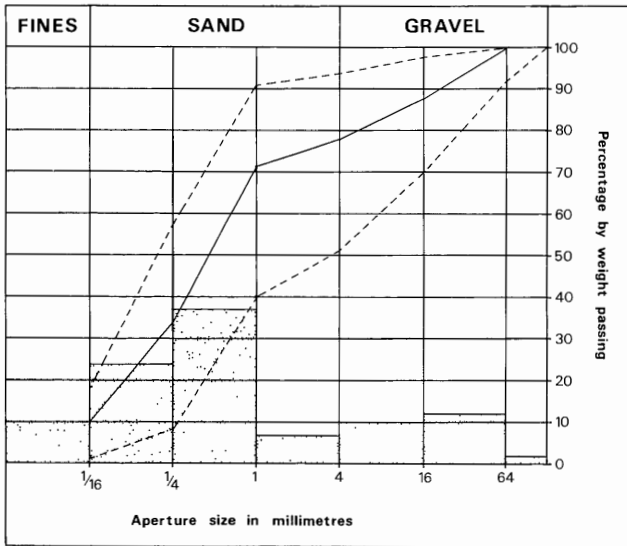


Figure 11 Grading characteristics of the mineral in Block F. For explanation, see Figure 5

Block F

Block F extends over an area of 20.1 km² of which 10.4 km² is mineral-bearing. There are no mineral workings in the area.

The assessment is based on 18 IMAU boreholes and 7 other boreholes. The mean thickness of mineral is 2.9 m; the range of recorded thicknesses is from 0.6 m to 6.7 m. The estimated volume of mineral is 30.2 million m³ ± 24 per cent. The overburden which consists of soil and sandy clay ranges in thickness from 0.2 m to 6.3 m and has a mean of 0.9 m.

The grading results are shown in Figure 11 and Table 10. The fines content varies between 1 and 18 per cent. The sand content (which is dominantly fine and medium-grained) usually exceeds 50 per cent and reaches a maximum of 89 per cent in borehole 51 NE 38, but can be as low as 42 per cent. The gravel content commonly varies between 6 and 24 per cent but reaches a maximum of 49 per cent in borehole 51 SE 43. The mean grading for the resource block is fines 10 per cent, sand 68 per cent and gravel 22 per cent.

The River Tern bisects the wedge-shaped area of Block F in the south-eastern part of the resource sheet. Thin Glacial Sand and Gravel deposits are intercalated with Till to the north and south of Withington. The gravel component is higher to the south of this village. A narrow strip of unassessed Alluvium and River Terrace Deposits lies north of Rodington.

APPENDIX A:

FIELD AND LABORATORY PROCEDURES

Trial and error during initial studies of the complex and variable glacial deposits of East Anglia and Essex showed that an absolute minimum of five sample points evenly distributed across the sand and gravel are needed to provide a worthwhile statistical assessment, but that, where possible, there should be not less than ten. Sample points are any points for which adequate information exists about the nature and thickness of the deposit and may include boreholes other than those drilled during the survey and exposures. In particular, the cooperation of sand and gravel operators ensures that boreholes are not drilled where reliable information is already available; although this may be used in the calculations, it is held confidentially by the Institute and cannot be disclosed.

The mineral shown on each 1:25 000 sheet is divided into resource blocks. The arbitrary size selected, 10 km², is a compromise to meet the aims of the survey by providing sufficient sample points in each block. As far as possible the block boundaries are determined by geological boundaries so that, for example, glacial and river terrace gravels are separated. Otherwise division is by arbitrary lines, which may bear no relationship to the geology. The blocks are drawn provisionally before drilling begins.

A reconnaissance of the ground is carried out to record any exposures and inquiries are made to ascertain what borehole information is available. Borehole sites are then selected to provide an even pattern of sample points at a density of approximately one per square kilometre. However, because broad trends are independently overlain by smaller scale characteristically random variations, it is unnecessary to adhere to a square grid pattern. Thus such factors as ease of access and the need to minimise disturbance to land and the public are taken into account in siting the holes; at the same time it is necessary to guard against the possibility that ease of access (that is, the positions of roads and farms) may reflect particular geological conditions, which may bias the drilling results.

The drilling machine employed should be capable of providing a continuous sample representative of all unconsolidated deposits, so that the in-situ grading can be determined, if necessary, to a depth of 30 m (100 ft) at a diameter of about 200 mm (8 in), beneath different types of overburden. It should be reliable, quiet, mobile and relatively small (so that it can be moved to sites of difficult access). Shell and auger rigs have proved to be almost ideal.

The rigs are modified to enable deposits above the water table to be drilled 'dry', instead of with water added to facilitate the drilling, to minimise the amount of material drawn in from outside the limits of the hole. The samples thus obtained are representative of the in-situ grading, and satisfy one of the most important aims of the survey. Below the water table the rigs are used conventionally, although this may result in the loss of some of the fines fraction and the pumping action of the bailer tends to draw unwanted material into the hole from the sides or the bottom.

A continuous series of bulk samples is taken throughout the sand and gravel. Ideally samples are composed exclusively of the whole of the material encountered in the borehole between stated depths. However, care is taken to discard, as far as possible, material which has caved or has been pumped from the bottom of the hole. A new sample is commenced whenever there is an appreciable lithological change within the deposit, or, ideally, at every 1 m (3.3 ft) depth. The samples, each weighing between 25 and 45 kg (55 and 100 lb), are despatched in heavy duty polythene bags to a laboratory for grading. The grading procedure is based on British Standard 1377 (1967). Random checks on the accuracy of the grading are made in the Institute's laboratories.

All data, including mean grading analysis figures calculated for the total thickness of the mineral, are entered on standard record sheets, abbreviated copies of which are reproduced in Appendix F.

Detailed records may be consulted at the appropriate office of the Institute: the address is shown on page i of this report, next to the preface.

APPENDIX B

STATISTICAL PROCEDURE

Statistical assessment

1 A statistical assessment is made of an area of mineral greater than 2 km², if there is a minimum of five evenly spaced boreholes in the resource block (for smaller areas see paragraph 12 below).

2 The simple methods used in the calculations are consistent with the amount of data provided by the survey. Conventional symmetrical confidence limits are calculated for the 95 per cent probability level, that is, there is a 5 per cent or one in twenty chance of a result falling outside the stated limits.

3 The volume estimate (V) for the mineral in a given block is the product of the two variables, the sampled areas (A) and the mean thickness (\bar{l}_m) calculated from the individual thicknesses at the sample points. The standard deviations for these variables are related such that

$$S_V = \sqrt{(S_A^2 + S_{\bar{l}_m}^2)} \quad [1]$$

4 The above relationship may be transposed such that

$$S_V = S_{\bar{l}_m} \sqrt{(1 + S_A^2/S_{\bar{l}_m}^2)} \quad [2]$$

From this it can be seen that as $S_A^2/S_{\bar{l}_m}^2$ tends to 0, S_V tends to $S_{\bar{l}_m}$.

If, therefore, the standard deviation for area is small with respect to that for mean thickness, the standard deviation for volume approximates to that for mean thickness.

5 Given that the number of approximately evenly spaced sample points in the sampled area is n , with mineral thickness measurements $l_{m1}, l_{m2}, \dots, l_{mn}$, then the best estimate of mean thickness, \bar{l}_m , is given by

$$\Sigma(l_{m1} + l_{m2} \dots l_{mn})/n$$

For groups of closely spaced boreholes a discretionary weighting factor may be applied to avoid bias (see note on weighting below). The standard deviation for mean thickness $S_{\bar{l}_m}$, expressed as a proportion of the mean thickness, is given by

$$S_{\bar{l}_m} = (1/\bar{l}_m) \sqrt{[\Sigma(l_m - \bar{l}_m)^2/(n - 1)]}$$

where l_m is any value in the series l_{m1} to l_{mn} .

6 The sampled area in each resource block is coloured pink on the map. Wherever possible, calculations relate to the mineral within mapped geological boundaries (which may not necessarily correspond to the limits of deposit). Where the area is not defined by a mapped boundary, that is, where the boundary is inferred, a distinctive symbol is used. Experience suggests that the errors in determining area are usually small relative to those in thickness. The relationship $S_A/S_{\bar{l}_m} \leq \frac{1}{3}$ is assumed in all cases. It follows from equation [2] that

$$S_{\bar{l}_m} \leq S_V \leq 1.05 S_{\bar{l}_m} \quad [3]$$

7 The limits on the estimate of mean thickness of mineral, $L_{\bar{l}_m}$, may be expressed in absolute units

$\pm (t/\sqrt{n}) \times S_{\bar{l}_m}$ or as a percentage $\pm (t/\sqrt{n}) \times S_{\bar{l}_m} \times (100/\bar{l}_m)$ per cent, where t is Student's t at the 95 per cent probability level for $(n - 1)$ degrees of freedom, evaluated by reference to statistical tables. (In applying Student's t it is assumed that the measurements are distributed normally).

8 Values of t at the 95 per cent probability level for values of n up to 20 are as follows:

n	t	n	t
1	infinity	11	2.228
2	12.706	12	2.201
3	4.303	13	2.179
4	3.182	14	2.160
5	2.776	15	2.145
6	2.571	16	2.131
7	2.447	17	2.120
8	2.365	18	2.110
9	2.306	19	2.101
10	2.262	20	2.093

(from Table 12, Biometrika Tables for Statisticians, Volume 1, Second Edition, Cambridge University Press, 1962). When n is greater than 20, 1.96 is used (the value of t when n is infinity).

9 In calculating confidence limits for volume, L_v , the following inequality corresponding to equation [3] is applied: $L_{\bar{l}_m} \leq L_v \leq 1.05 L_{\bar{l}_m}$.

10 In summary, for values of n between 5 and 20, L_v is calculated as

$$[(1.05 \times t) / \bar{l}_m] \times [\sqrt{\sum(l_m - \bar{l}_m)^2 / n(n-1)}] \times 100$$

per cent, and when n is greater than 20, as

$$[(1.05 \times 1.96) / \bar{l}_m] \times [\sqrt{\sum(l_m - \bar{l}_m)^2 / n(n-1)}] \times 100$$

per cent (weighting factors may be included: see paragraph 15).

11 The application of this procedure to a fictitious area is illustrated in Figures 12 and 13.

Inferred assessment

12 If the sampled area of mineral in a resource block is between 0.25 km² and 2 km² an assessment is inferred, based on geological and topographical information usually supported by the data from one or two boreholes. The volume of mineral is calculated as the product of the area, measured from field data, and the estimated thickness. Confidence limits are not calculated.

13 In some cases a resource block may include an area left uncoloured on the map, within which mineral (as defined) is interpreted to be generally absent. If there is reason to believe that some mineral may be present, an inferred assessment may be made.

14 No assessment is attempted for an isolated area of mineral less than 0.25 km².

15 *Note on weighting* The thickness of a deposit at any point may be governed solely by the position of the point in relation to a broad trend. However, most sand and gravel deposits also exhibit a random pattern of local, and sometimes considerable, variation in thickness. Thus the distribution of sample points need be only approximately regular and in estimating the mean thickness only simple weighting is necessary. In practice, equal weighting can often be applied to thicknesses at all sample points. If, however, there is a distinctly unequal distribution of points, bias is avoided by dividing the sampled area into broad zones, to each of which a value roughly proportional to its area is assigned. This value is then shared between the data points within the zone as the weighting factor.

Figure 12 Example of resource block assessment: calculation and results.

Block calculation

1:25 000 block: Fictitious

Area

Block: 11.08 km²
Mineral: 8.32 km²

Mean thickness

Overburden: 2.5 m
Mineral: 6.5 m

Volume

Overburden: 21 million m³
Mineral: 54 million m³

Confidence limits of the estimate of mineral volume at the 95 per cent probability level: ± 20 per cent
That is, the volume of mineral (with 95 per cent probability): 54 ± 11 million m³

Thickness estimate (measurements in metres)

l_o = overburden thickness l_m = mineral thickness

Sample point	Weighting w	Overburden		Mineral		Remarks
		l_o	wl_o	l_m	wl_m	
SE 14	1	1.5	1.5	9.4	9.4	IMAU boreholes
SE 18	1	3.3	3.3	5.8	5.8	
SE 20	1	nil	–	6.9	6.9	
SE 22	1	0.7	0.7	6.4	6.4	
SE 23	1	6.2	6.2	4.1	4.1	
SE 24	1	4.3	4.3	6.4	6.4	
SE 17	$\frac{1}{2}$	1.2	1.6	9.8	7.2	Hydrogeology Unit record
123/45	$\frac{1}{2}$	2.0		4.6		
1	$\frac{1}{4}$	2.7	2.6	7.3	5.8	Close group of four boreholes (commercial)
2	$\frac{1}{4}$	4.5		3.2		
3	$\frac{1}{4}$	0.4		6.8		
4	$\frac{1}{4}$	2.8		5.9		
Totals	$\Sigma w = 8$	$\Sigma wl_o = 20.2$		$\Sigma wl_m = 52.0$		
Means		$\overline{wl_o} = 2.5$		$\overline{wl_m} = 6.5$		

Calculation of confidence limits

wl_m	$ (wl_m - \overline{wl_m}) $	$(wl_m - \overline{wl_m})^2$
9.4	2.9	8.41
5.8	0.7	0.49
6.9	0.4	0.16
6.4	0.1	0.01
4.1	2.4	5.76
6.4	0.1	0.01
7.2	0.7	0.49
5.8	0.7	0.49

$$\Sigma(wl_m - \overline{wl_m})^2 = 15.82$$

$$n = 8$$

$$t = 2.365$$

L_v is calculated as

$$t/w\bar{l}_m :$$

$$1.05 (t/w\bar{l}_m) \sqrt{[\Sigma(wl_m - \overline{wl_m})^2 / n(n-1)]} \times 100$$

$$= 1.05 \times (2.365/6.5) \sqrt{[15.82/(8 \times 7)]} \times 100$$

$$= 20.3$$

$$\approx 20 \text{ per cent.}$$

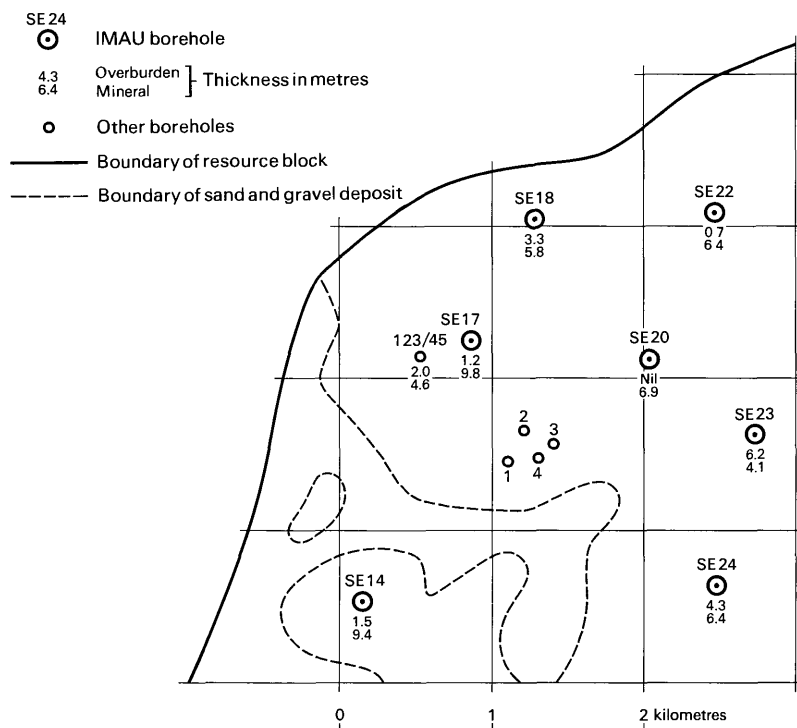


Figure 13 Example of resource block assessment: map of a fictitious block.

APPENDIX C

CLASSIFICATION AND DESCRIPTION OF SAND AND GRAVEL

For the purposes of assessing resources of sand and gravel a classification should take account of economically important characteristics of the deposit, in particular the absolute content of fines and the ratio of sand to gravel.

The terminology commonly used by geologists when describing sedimentary rocks (Wentworth, 1922) is not entirely satisfactory for this purpose. For example, Wentworth proposed that a deposit should be described as a 'gravelly sand' when it contains more sand than gravel and there is at least 10 per cent of gravel, provided that there is less than 10 per cent of material finer than sand (less than $\frac{1}{16}$ mm) and coarser than pebbles (more than 64 mm in diameter). Because deposits containing more than 10 per cent fines are not embraced by this system a modified binary classification based on Willman (1942) has been adopted.

When the fines content exceeds 40 per cent the material is not considered to be potentially workable and falls outside the definition of mineral. Deposits which contain 40 per cent fines or less are classified primarily on the ratio of sand to gravel but qualified in the light of the fines content, as follows: less than 10 per cent fines—no qualification; 10 per cent or more but less than 20 per cent fines—'clayey'; 20 to 40 per cent fines—'very clayey'.

The term 'clay' (as written, with single quote marks) is used to describe all material passing $\frac{1}{16}$ mm. Thus it has no mineralogical significance and includes particles falling within the size range of silt. The normal meaning applies to the term clay where it does not appear in single quotation marks.

The ratio of sand to gravel defines the boundaries between sand, pebbly sand, sandy gravel and gravel (at 19:1, 3:1 and 1:1).

Thus it is possible to classify the mineral into one of twelve descriptive categories (see Figure 14).

The procedure is as follows:

- 1 Classify according to ratio of sand to gravel.
- 2 Describe fines.

For example, a deposit grading 11 per cent gravel, 70 per cent sand and 19 per cent fines is classified as 'clayey' pebbly sand. This short description is included in the borehole log (see the Note 9, Appendix D).

Many differing proposals exist for the classification of the grain size of sediments (Atterberg, 1905; Udden, 1914; Wentworth, 1922; Wentworth, 1935; Allen, 1936; Twenhofel, 1937; Lane and others, 1947). As Archer (1970a, b) has emphasised, there is a pressing need for a simple metric scale acceptable to both scientific and engineering interests, for which the class limit sizes correspond closely with certain marked changes in the natural properties of mineral particles. For example, there is an important change in the degree of cohesion between particles at about the $\frac{1}{16}$ -mm size, which approximates to the generally accepted boundary between silt and sand. These and other requirements are met by a system based on Udden's geometric scale and a simplified form of Wentworth's terminology (Table 11), which is used in this Report.

The fairly wide intervals in the scale are consistent with the general level of accuracy of the qualitative assessments of the resource blocks. Three sizes of sand are recognised, fine ($+\frac{1}{16} - \frac{1}{4}$ mm), medium ($+\frac{1}{4} - 1$ mm) and coarse ($+1 - 4$ mm). The boundary at 16 mm distinguishes a range of finer gravel ($+4 - 16$ mm), often characterised by abundance of worn tough pebbles of vein quartz, from larger pebbles often of notably different materials. The boundary at 64 mm distinguishes pebbles from cobbles. The term 'gravel' is used loosely to denote both pebble-sized and cobble-sized material.

The size distribution of borehole samples is determined by sieve analysis, which is presented by the laboratory as logarithmic cumulative curves (see, for example, British Standard 1377: 1967). In this report the grading is tabulated on the borehole record sheets (Appendix F), the intercepts corresponding with the simple geometric scale $\frac{1}{16}$ mm, $\frac{1}{4}$ mm, 1 mm, 4 mm, 16 mm and so on as required. Original sample

grading curves are available for reference at the appropriate office of the Institute.

Each bulk sample is described, subjectively, by a geologist at the borehole site. Being based on visual examination, the description of the grading is inexact, the accuracy depending on the experience of the observer. The descriptions recorded are modified, as necessary, when the laboratory results become available.

The relative proportions of the rock types present in the gravel fraction are indicated by the use of the words 'and' or 'with'. For example, 'flint and quartz' indicates very approximate equal proportions with neither constituent accounting for less than about 25 per cent of the whole; 'flint with quartz' indicates that flint is dominant and quartz, the principal accessory rock type, comprises 5 to 25 per cent of the whole. Where the accessory material accounts for less than 5 per cent of the whole, but is still readily apparent, the phrase 'with some' has been used. Rare constituents are referred to as 'trace'.

The terms used in the field to describe the degree of rounding of particles, which is concerned with the sharpness of the edges and corners of a clastic fragment and not the shape (after Pettijohn, 1957), are as follows.

Angular: showing little or no evidence of wear; sharp edges and corners.

Subangular: showing definite effects of wear. Fragments still have their original form but edges and corners begin to be rounded off.

Subrounded: showing considerable wear. The edges and corners are rounded off to smooth curves. Original grain shape is still distinct.

Rounded: original faces almost completely destroyed, but some comparatively flat surfaces may still remain. All original edges and corners have been smoothed off to rather broad curves. Original shape is still apparent.

Well-rounded: no original faces, edges or corners left. The entire surface consists of broad curves; flat areas are absent. The original shape is suggested by the present form of the grain.

Table 11 Classification of gravel, sand and fines

Size limits	Grain size description	Qualification	Primary classification
64 mm -	Cobble		
16 mm -	Pebble	Coarse	Gravel
4 mm -		Fine	
1 mm -		Coarse	
1/4 mm -	Sand	Medium	Sand
1/16 mm -		Fine	
	Fines (silt and clay)		Fines

- I Gravel
- II 'Clayey' gravel
- III 'Very clayey' gravel
- IV Sandy gravel
- V 'Clayey' sandy gravel
- VI 'Very clayey' sandy gravel
- VII Pebbly sand
- VIII 'Clayey' pebbly sand
- IX 'Very clayey' pebbly sand
- X Sand
- XI 'Clayey' sand
- XII 'Very clayey' sand

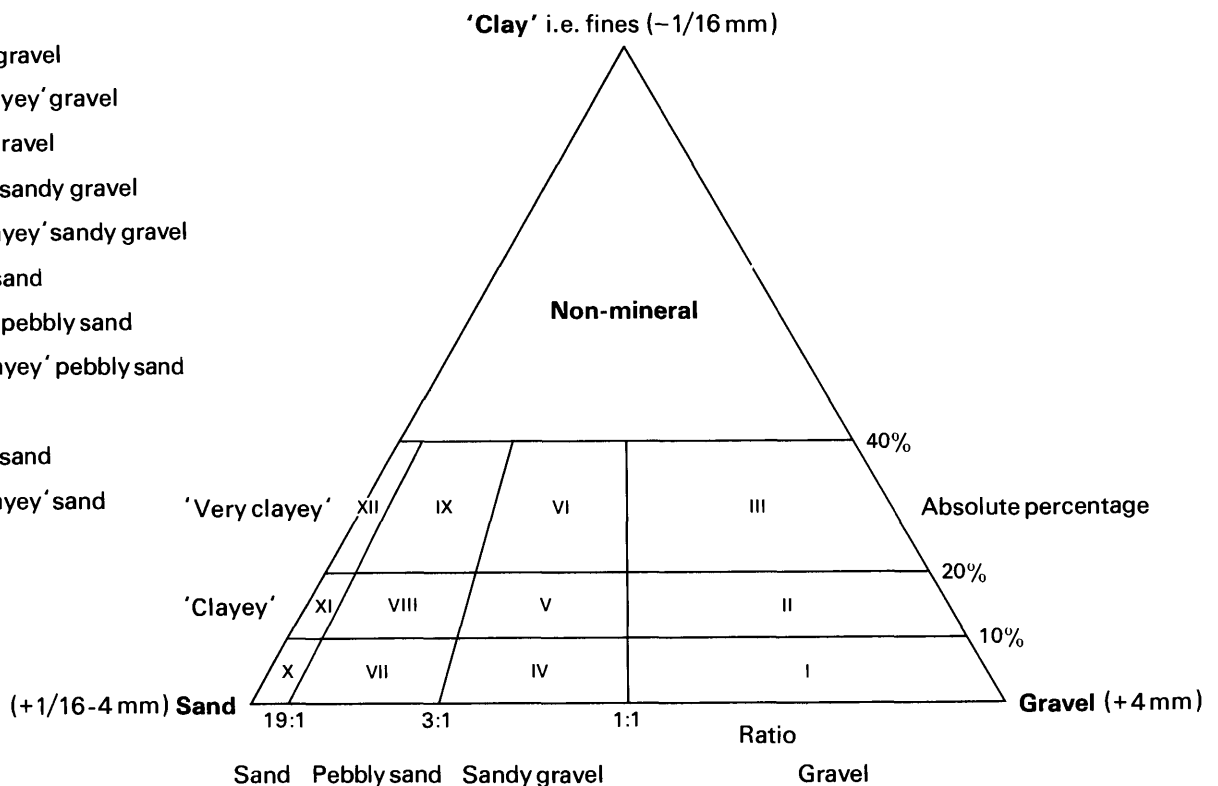


Figure 14 Diagram showing the descriptive categories used in the classification of sand and gravel.

**APPENDIX D
EXPLANATION OF THE BOREHOLE RECORDS**

Annotated Example

SJ 51 SE 31¹ 5781 1348² Manor House, Withington³

Block F

Surface level + 54.6 m⁴
Water struck at + 49.1 m⁵
203 mm shell and auger⁶
June 1978

⁷Overburden 0.2 m
Mineral 1.0 m
Waste 5.8 m
Mineral 3.2 m
Bedrock 2.1 m +⁸

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil,	0.2	0.2
Glacial Sand and Gravel ⁹	a Sand, fine and medium	1.0	1.2
Till	Clay, sandy, brown with blue-grey gleying; scattered subangular to subrounded pebbles	4.0	5.2
	Silt, sandy, brown	1.8	7.0
Glacial Sand and Gravel	b 'Clayey' pebbly sand, part 'very clayey', part gravel Gravel: fine and coarse, angular to rounded Sand: fine and medium	3.2	10.2
Bridgnorth Sandstone	Sandstone, friable, red	2.1 +	12.3

GRADING

	Mean for deposit ¹² <i>percentages</i>			Depth below surface (m) ¹⁰	<i>percentages</i> ¹¹						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	7	92	1	0.2-1.2	7	39	52	1	0	1	0
b	13	70	17	7.0-8.5	22	62	16	0	0	0	0
				8.5-9.5	5	25	64	2	1	3	0
				9.5-10.2	6	5	10	8	28	43	0
				Mean	13	38	30	2	7	10	0
a+b	12	75	13	Mean	12	38	35	2	5	8	0

COMPOSITION¹³

Depth below surface (m)	<i>Percentage by weight in + 4 mm fraction</i>						
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
b 9.5-10.2	20	1	36	20	10	12	1

The numbered paragraphs below correspond with the annotations given on the specimen record above.

1 Borehole registration number

Each Industrial Minerals Assessment Unit (IMAU) borehole is identified by a registration number. This consists of two statements.

1 The number of the 1:25 000 sheet on which the borehole lies, for example SJ 51

2 The quarter of the 1:25 000 sheet on which the borehole lies and its number in a series for that quarter, for example, SE 31.

Thus, the full registration number is SJ 51 SE 31. Usually this is abbreviated to 51 SE 31 in the text.

2 The National Grid reference

All National Grid references in this publication lie within the 100 km square SJ. Grid references are given to eight figures, accurate to within 10 m for borehole locations. (In the text, six-figure grid references are used for more approximate locations, for example, villages).

3 Location

The position of the borehole is generally referred to the nearest named locality on the 1:25 000 base map and the resource block in which it lies is stated.

4 Surface level

The surface level at the borehole site is given in metres above Ordnance Datum.

5 Groundwater conditions

Four kinds of entry are made: the record indicates the level at which groundwater stood on completion of drilling (in metres above or below Ordnance Datum); or that water was encountered but its level not recorded; or that water was not encountered; or that no note of groundwater conditions was made.

6 Type of drill and date of drilling

Modified shell and auger rigs were used in this survey. The type of machine, the external diameter of the casing used, and the month and year of the completion of the borehole are stated.

7 Overburden, mineral, waste and bedrock

Mineral is sand and gravel which, as part of a deposit, falls within the arbitrary definition of potentially workable material (see p.1).

Bedrock is the 'formation', 'country rock' or 'rock head' below which potentially workable sand and gravel will not be found.

Waste is any material other than bedrock or mineral. Where waste occurs between the surface and mineral, it is classified as overburden.

8 The plus sign (+) indicates that the base of the deposit was not reached during drilling.

9 Lithological description

Where sand and gravel is recorded a general description based on the grading characteristics (for details see Appendix C) is followed by more detailed particulars of the sand and/or gravel fraction. Where more than one mineral horizon is recognised each is designated by a letter, e.g. **a**, **b**, etc. The description of other rocks is based on visual examination, in the field.

10 Sampling

A continuous series of bulk samples is taken throughout the thickness of sand and gravel. A new sample is commenced wherever there is an appreciable lithological change within the sand and gravel or at every 1 m of depth.

11 Grading results

The limits are as follows: gravel, +4 mm; sand, + $\frac{1}{16}$ – 4 mm; fines, – $\frac{1}{16}$ mm.

12 Mean grading

The grading of the full thickness of the mineral horizon identified in the log is the mean of the individual sample gradings weighted by the thicknesses represented, if these vary. The classification used is shown in Table 11. Fully representative sampling of sand and gravel is difficult to achieve particularly where groundwater levels are high. Comparison between boreholes and adjacent exposures suggests that in borehole samples the proportion of sand may be higher and the proportions of fines and coarse gravel (+ 16 mm) may be lower.

13 Composition

A selection of gravel samples was analysed. The categories recognised were:

Quartzite (and sandstone) Durable, recrystallised or granular in texture, varying in colour from buff to dark grey. This category includes quartzose rocks derived from Lower Palaeozoic, Carboniferous and Bunter outcrops (recycled).

Sandstone Medium-grained, poorly cemented, mostly Triassic sandstone.

Argillaceous Rock Mudstones, siltstones and shales; all are mechanically weak and dark grey or green in colour. Most types are of Lower Palaeozoic aspect, probably derived from mid-Wales.

Igneous Rock Two main components:

a Volcanic—dark grey tuffs, miscellaneous lava types with some fine-grained basalts; probably mixed Lake District and North Wales material.

b Intrusive—dark grey intermediate to basic rocks, mainly dolerites, slightly porphyritic; and light coloured, coarse-grained, porphyritic granites. The granitic rocks are probably derived from Scotland and the Lake District but some of the others are possibly of Welsh origin.

Quartz A durable but subordinate component, usually found in the fine gravel fraction.

Limestone Mostly Carboniferous in age, varying from pure, pale coloured to dark muddy limestone, commonly fossiliferous.

Conglomerate Coarse-grained, poorly cemented, probably locally derived from Pre-Cambrian outcrops.

'Trace' amounts of coal, flint and chert were also identified. 'Trace' means less than 0.5 per cent (0.5 and above, rounds up to 1).

APPENDIX E

LIST OF BOREHOLES USED IN THE ASSESSMENT OF RESOURCES

Borehole*	Grid reference	Borehole*	Grid reference	Borehole*	Grid reference
1 INDUSTRIAL MINERALS ASSESSMENT					
UNIT BOREHOLES					
SJ 41 NW		SJ 41 SW		SJ 51 NE	
21	4048 1939	23	4404 1480	37	5742 1620
22	4034 1822	24	4352 1352	38	5731 1524
23	4076 1703	25	4345 1259	39	5872 1971
24	4042 1617	26	4258 1052	40	5909 1704
25	4007 1555	27	4497 1430	41	5870 1660
26	4168 1935	28	4448 1339	42	5799 1621
27	4165 1848	29	4488 1186	43	5817 1509
28	4192 1732	SJ 41 SE		44	5983 1936
29	4153 1669	75	4541 1364	45	5972 1657
30	4179 1548	76	4554 1256	46	5944 1568
31	4262 1973	77	4533 1022	SJ 51 SW	
32	4271 1936	78	4648 1475	69	5029 1056
33	4239 1863	79	4608 1278	70	5062 1454
34	4249 1759	80	4667 1070	71	5034 1121
35	4257 1665	81	4735 1009	72	5038 1026
36	4248 1553	82	4744 1474	73	5077 1389
37	4310 1983	83	4709 1407	74	5129 1046
38	4339 1840	84	4774 1132	75	5207 1432
39	4365 1744	85	4854 1498	76	5190 1376
40	4425 1568	86	4846 1364	77	5260 1433
41	4352 1528	87	4961 1009	78	5254 1370
42	4435 1956	88	4939 1491	79	5202 1086
43	4433 1710	SJ 51 NW		80	5255 1026
44	4474 1600	33	5066 1956	81	5317 1475
45	4452 1550	34	5040 1862	82	5298 1338
SJ 41 NE		35	5017 1750	83	5350 1320
22	4558 1938	36	5044 1615	84	5298 1016
23	4555 1853	37	5022 1519	85	5459 1273
24	4539 1776	38	5160 1946	86	5462 1160
25	4591 1695	39	5102 1901	SJ 51 SE	
26	4520 1631	40	5168 1837	20	5594 1405
27	4515 1591	41	5140 1746	21	5536 1311
28	4566 1535	42	5182 1658	22	5561 1238
29	4618 1785	43	5168 1568	23	5572 1176
30	4668 1686	44	5216 1914	24	5542 1106
31	4638 1602	SJ 51 NW		25	5563 1024
32	4674 1523	45	5248 1821	26	5717 1485
33	4734 1934	46	5248 1706	27	5640 1327
34	4758 1878	47	5249 1634	28	5650 1233
35	4734 1738	48	5280 1563	29	5649 1100
36	4719 1654	49	5347 1974	30	5657 1050
37	4756 1555	50	5378 1846	31	5781 1348
38	4882 1976	51	5308 1746	32	5716 1252
39	4821 1749	52	5346 1649	33	5753 1115
40	4878 1591	53	5447 1931	34	5734 1041
41	4966 1840	54	5460 1840	35	5840 1418
42	4972 1659	55	5438 1729	36	5860 1341
43	4968 1563	56	5454 1698	37	5835 1268
SJ 41 SW		SJ 51 NE		38	5838 1140
10	4033 1473	22	5548 1995	39	5860 1041
11	4048 1357	23	5542 1846	40	5946 1430
12	4046 1246	24	5592 1732	41	5977 1286
13	4050 1140	25	5518 1646	42	5901 1251
14	4023 1036	26	5540 1582	43	5946 1135
15	4110 1489	27	5625 1913	44	5981 1035
16	4154 1362	28	5636 1864	2 OTHER BOREHOLES	
17	4112 1240	29	5665 1783	Many records, which are held in	
18	4107 1022	30	5645 1734	confidence, were made available by the	
19	4266 1419	31	5644 1633	industry for the purposes of this	
20	4267 1393	32	5609 1538	assessment.	
21	4280 1246	33	5739 1952		
22	4249 1162	34	5728 1880		
		35	5796 1752		
		36	5770 1670		

* Borehole number by sheet quadrant.

APPENDIX F

INDUSTRIAL MINERALS ASSESSMENT UNIT BOREHOLE RECORDS

SJ 41 NW 21 4048 1939 Little Ness

Block A

Surface level +86 m
 Water not encountered
 203 mm shell and auger
 July 1978

Overburden 2.2 m
 Mineral 4.8 m
 Waste 3.4 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground and soil	1.0	1.0
Till	Clay, silty becoming sandy with depth, grey	1.2	2.2
Glacial Sand and Gravel	'Very clayey' sandy gravel Gravel: fine and coarse, subangular to subrounded Sand: mainly fine, subangular to subrounded Silt and clay lenses present	4.8	7.0
Till	Clay, sandy, brown	3.4	10.4
Sherwood Sandstone Group	Sandstone, red	0.1+	10.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand			Gravel	
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
26	49	25	2.2-3.2	37	25	11	5	8	14	0
			3.2-4.2	13	29	13	8	14	23	0
			4.2-5.2	29	42	13	5	7	4	0
			5.2-7.0	25	26	11	9	18	11	0
			Mean	26	30	12	7	13	12	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>				
	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
2.2-3.2	—	10	51	—	39
5.2-7.0	2	23	49	8	18

Surface level +83 m
 Water not encountered
 203 mm shell and auger
 August 1978

Overburden 0.3 m
 Mineral 7.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Pebbly sand; sandy gravel at top, 'clayey' at base Gravel: fine and coarse, angular to subrounded, mainly quartzite, sandstone and argillaceous rock Sand: fine and medium Silt lenses, yellowish brown Hole abandoned due to rising sand	7.8+	8.1

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
9	84	7	0.3-1.5	7	16	35	11	19	12	0
			1.5-2.5	9	42	36	4	5	4	0
			2.5-3.5	3	52	44	1	0	0	0
			3.5-4.5	2	64	33	1	0	0	0
			4.5-5.5	24	65	5	2	2	2	0
			5.5-7.1	11	61	25	1	2	0	0
			7.1-8.1	3	27	65	5	0	0	0
			Mean	9	47	34	3	4	3	0

Surface level +88 m
 Water level not recorded
 203 mm shell and auger
 September 1978

Overburden 0.4 m
 Mineral 24.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil,	0.4	0.4
Glacial Sand and Gravel	a Gravel, part 'clayey' and sandy Gravel: fine and coarse with cobbles, subangular to rounded Sand: mainly medium, angular to rounded	7.0	7.4
	b Sandy gravel, 'clayey' at top Gravel: fine and coarse with a few cobbles, subangular to subrounded Sand: fine and medium, subangular to rounded	17.0+	24.4

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines		Sand			Gravel	
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	6	40	54	0.4-1.4	10	8	21	15	23	23	0
				1.4-2.4	14	7	15	8	12	35	9
				2.4-3.4	6	8	23	13	32	18	0
				3.4-4.4	6	10	26	8	19	31	0
				4.4-5.4	3	9	14	10	29	35	0
				5.4-6.4	3	10	18	7	22	40	0
				6.4-7.4	2	12	28	10	25	23	0
				Mean	6	9	21	10	23	30	1
b	4	84	12	7.4-8.4	19	18	45	6	11	1	0
				8.4-9.4	2	13	46	10	15	14	0
				9.4-10.4	6	22	47	14	11	0	0
				10.4-11.4	2	25	51	12	7	3	0
				11.4-12.4	1	15	47	13	15	9	0
				12.4-13.4	3	37	52	6	2	0	0
				13.4-14.4	2	61	35	2	0	0	0
				14.4-15.4	4	35	57	3	1	0	0
				15.4-16.4	3	40	42	2	6	7	0
				16.4-17.4	2	64	31	1	2	0	0
				17.4-18.4	5	59	35	1	0	0	0
				18.4-19.4	9	44	44	3	0	0	0
				19.4-20.4	3	24	65	6	2	0	0
				20.4-21.4	2	15	60	8	8	7	0
				21.4-22.4	2	4	31	19	12	25	7
				22.4-24.4	2	9	48	19	13	9	0
				Mean	4	29	46	9	7	5	0
a+b	5	71	24	Mean	5	23	39	9	11	12	1

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate	Flint
a	0.4-1.4	—	—	25	36	39	—	—
	4.4-5.4	3	1	21	34	41	—	—
b	8.4-9.4	trace	trace	31	31	30	8	trace
	11.4-12.4	—	4	29	36	31	trace	—
	22.4-24.4	—	trace	31	43	26	—	—

Surface level +82 m
 Water struck at +78.8 m
 203 mm shell and auger
 September 1978

Waste 10.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Till	Clay, sandy, grey-brown; scattered rounded pebbles mainly quartzite	9.0	9.6
Glacial Sand and Gravel	Gravel Gravel: fine and coarse with cobbles, subangular to rounded Sand: medium and coarse, subangular to rounded Hole abandoned — no penetration through coarse gravel	1.0+	10.6

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
2	18	80	9.6-10.6	2	2	9	7	25	39	16

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>						
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
9.6-10.6	6	trace	31	26	1	36	trace

Surface level +86 m
 Water not encountered
 203 mm shell and auger
 September 1978

Waste 4.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, calcareous, grey-brown; scattered subrounded to rounded pebbles, mainly quartzite and argillaceous rock	3.5	3.8
Glacial Sand and Gravel	Sandy gravel Gravel: mainly coarse with cobbles, angular to rounded, mainly quartzite, argillaceous and igneous rock Sand: mainly fine, angular to rounded Hole abandoned — no penetration through coarse gravel	0.4 +	4.2

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
5	54	41	3.8-4.2	5	24	18	12	12	22	7

Surface level +83 m
 Water not encountered
 203 mm shell and auger
 July 1978

Overburden 0.4 m
 Mineral 10.1 m
 Waste 2.4 m
 Mineral 2.6 m
 Waste 2.5 m
 Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	a 'Very clayey' pebbly sand Gravel: fine and coarse, angular to rounded Sand: mainly fine, angular to rounded	4.1	4.5
	b 'Clayey' sand, reddish brown; mainly fine, scattered subrounded sandstone and quartzite	6.0	10.5
	Silt, calcareous, brown	2.4	12.9
	c 'Clayey' sand, silty, reddish brown; mainly fine	2.6	15.5
Till	Clay, sandy, grey-brown; scattered subangular quartz, limestone and argillaceous pebbles	2.5	18.0
Bridgnorth Sandstone	Sandstone, red	0.6 +	18.6

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
						$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	+1-4	+4-16	+16-64
a	34	51	15	0.4-1.4	31	30	17	6	8	8	0
				1.4-2.4	31	32	18	5	8	6	0
				2.4-3.4	35	26	16	6	11	6	0
				3.4-4.5	37	26	15	7	10	5	0
				Mean	34	28	17	6	9	6	0
b	15	85	0	4.5-5.5	16	73	10	0	1	0	0
				5.5-6.5	11	62	27	0	0	0	0
				6.5-7.5	21	55	23	1	0	0	0
				7.5-8.5	12	57	30	1	0	0	0
				8.5-9.5	8	62	27	2	1	0	0
				9.5-10.5	24	54	21	1	0	0	0
				Mean	15	61	23	1	0	0	0
a+b	23	71	6	Mean	23	48	20	3	4	2	0
c	15	83	2	12.9-13.9	12	49	29	5	4	1	0
				13.9-15.5	17	60	22	1	0	0	0
				Mean	15	56	25	2	2	0	0
a-c	21	73	6	Mean	21	49	21	3	4	2	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	2.4-3.4	5	trace	20	39	36

Surface level + 78 m
 Water struck at + 70.5 m
 203 mm shell and auger
 August 1978

Overburden 1.2 m
 Mineral 9.8 m
 Waste 10.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Glacial Sand and Gravel	Clay, sandy, reddish brown; scattered angular to rounded quartzite, sandstone and argillaceous pebbles	1.1	1.2
	Pebbly sand lens from 0.1 to 0.6 m		
	a Sandy gravel Gravel: fine and coarse with cobbles, angular to subrounded Sand: mainly medium, angular to rounded	9.8	11.0
	Silt, sandy, yellowish brown; sand lens from 15.9 to 16.5 m	7.1	18.1
Till	Clay, sandy, blue-grey; scattered subrounded pebbles, mainly argillaceous rock	1.9	20.0
Glacial Sand and Gravel	b 'Clayey' gravel Gravel: mainly coarse with cobbles, subrounded to rounded Sand: mainly fine, subangular to rounded	1.0+	21.0
	Hole abandoned due to rock obstruction		

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	3	65	32	1.2-2.2	6	20	51	6	6	8	3
				2.2-3.2	5	30	38	3	7	17	0
				3.2-4.2	4	21	45	4	10	16	0
				4.2-5.2	3	18	61	13	4	1	0
				5.2-6.2	3	28	54	7	6	2	0
				6.2-7.2	3	29	27	7	20	14	0
				7.2-8.2	1	5	18	12	33	23	8
				8.2-9.2	2	7	20	6	33	32	0
				9.2-11.0	0	11	40	6	23	20	0
				Mean	3	18	40	7	16	15	1
b	11	33	56	20.0-21.0	11	15	9	9	17	35	4

COMPOSITION

	Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	2.2-3.2	18	15	16	44	—	7
	8.2-9.2	3	5	18	44	—	30
b	20.0-21.0	30	6	35	18	2	9

Surface level +85 m
 Water struck at +75.2 m
 203 mm shell and auger
 August 1978

Overburden 0.3 m
 Mineral 25.4 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a Pebbly sand, part 'very clayey' gravel Gravel: fine and coarse, angular to rounded Sand: mainly fine and medium, subangular to rounded	7.9	8.2
	b Sand, reddish brown; mainly fine	14.0	22.2
	c Gravel, part sandy Gravel: fine and coarse with cobbles, subrounded to rounded Sand: fine and medium	3.5+	25.7

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages									
	Fines	Sand	Gravel		Fines			Sand				Gravel		
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64			
a	5	73	22	0.3-1.3	2	18	63	2	2	13	0			
				1.3-2.3	2	29	49	2	8	10	0			
				2.3-3.3	28	3	4	2	25	28	10			
				3.3-5.2	4	33	36	9	16	2	0			
				5.2-6.2	1	30	45	12	6	6	0			
				6.2-7.2	1	27	67	4	1	0	0			
				7.2-8.2	0	18	42	13	12	15	0			
				Mean	5	24	43	6	11	10	1			
b	4	94	2	8.2-9.2	3	58	32	6	1	0	0			
				9.2-10.2	3	66	25	5	1	0	0			
				10.2-11.2	3	67	29	1	0	0	0			
				11.2-12.2	8	79	13	0	0	0	0			
				12.2-13.2	10	79	11	0	0	0	0			
				13.2-14.2	4	69	27	0	0	0	0			
				14.2-15.2	3	69	27	1	0	0	0			
				15.2-16.2	4	68	27	1	0	0	0			
				16.2-18.0	2	64	34	0	0	0	0			
				18.0-19.2	6	51	38	3	2	0	0			
				19.2-20.2	1	63	35	0	0	0	0			
				20.2-22.2	5	54	30	4	3	4	0			
Mean	4	64	28	2	1	1	0							
c	1	33	66	22.2-23.2	2	29	19	5	19	26	0			
				23.2-24.2	1	21	23	12	22	21	0			
				24.2-25.7	1	3	1	1	11	63	20			
				Mean	1	16	12	5	17	40	9			
a-c	4	79	17	Mean	4	45	30	4	6	9	2			

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
a	2.3-3.3	1	4	45	34	4	12	—
	7.2-8.2	trace	4	49	35	trace	10	2
c	24.2-25.7	14	1	31	36	8	10	—

Surface level +74 m
 Water not encountered
 203 mm shell and auger
 August 1978

Overburden 0.3 m
 Mineral 13.4 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil,	0.3	0.3
Glacial Sand and Gravel	a Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: mainly medium, angular to subrounded	2.0	2.3
	b Sand, reddish brown; fine and medium, angular to subrounded	11.4+	13.7
Hole abandoned due to rising sand			

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	+1-4	+4-16	+16-64	+64
a	3	77	20	0.3-1.3	5	30	33	9	12	11	0
				1.3-2.3	1	22	54	6	8	9	0
				Mean	3	26	44	7	10	10	0
b	2	98	0	2.3-3.3	1	14	82	2	1	0	0
				3.3-5.3	1	14	83	1	1	0	0
				5.3-6.2	8	34	58	0	0	0	0
				6.2-7.2	1	56	42	1	0	0	0
				7.2-9.2	2	67	28	2	1	0	0
				9.2-10.2	2	71	25	2	0	0	0
				10.2-11.2	1	67	30	2	0	0	0
				11.2-13.0	0	62	37	1	0	0	0
				13.0-13.7	1	47	52	0	0	0	0
				Mean	2	48	49	1	0	0	0
a+b	2	95	3	Mean	2	45	48	2	2	1	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	0.3-1.3	2	trace	36	45	16	1

Surface level +66 m
 Water struck at +62.5 m
 203 mm shell and auger
 October 1978

Waste 23.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	a 'Clayey' sand with a few pebbles, yellowish brown; mainly fine. Silt and clay lenses present	0.7	1.2
Till	Clay, sandy, greyish brown; sand lens from 3.6 to 3.7 m depth	13.4	14.6
Glacial Sand and Gravel	b 'Very clayey' sand, red; mainly fine	2.6	17.2
	Silt, sandy, grey	5.8+	23.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a				0.5-1.2	No grading data available						
b	23	77	0	14.6-15.6	24	55	20	1	0	0	0
				15.6-17.2	22	59	18	1	0	0	0
				Mean	23	57	19	1	0	0	0

Surface level +76 m
 Water struck at +74.0 m
 203 mm shell and auger
 July 1978

Overburden 0.3 m
 Mineral 5.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	'Clayey' gravel, part gravel Gravel: fine and coarse, angular to rounded Sand: fine to coarse, angular to subrounded Hole abandoned due to rising sand and gravel	5.9 +	6.2

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines			Sand		Gravel	
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
10	34	56	0.3-1.3	17	10	21	14	15	23	0
			1.3-2.3	16	10	16	13	26	19	0
			2.3-3.3	11	10	16	10	19	34	0
			3.3-4.2	6	6	12	9	33	30	4
			4.2-5.2	9	7	15	9	23	37	0
			5.2-6.2	3	4	9	10	33	41	0
			Mean	10	8	15	11	25	31	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
3.3-4.2	4	4	22	49	21
5.2-6.2	20	2	22	41	15

Surface level +65 m
 Water struck at +61.6 m
 203 mm shell and auger
 July 1978

Overburden 0.3 m
 Mineral 2.4 m
 Waste 0.7 m
 Mineral 1.0 m
 Waste 4.6 m
 Mineral 5.0 m
 Waste 1.0 m
 Mineral 1.0 m
 Waste 1.0 m
 Mineral 1.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil,	0.3	0.3
Alluvium	a 'Very clayey' sandy gravel Gravel: mainly coarse, angular to subrounded Sand: fine	2.4	2.7
Till	Clay, sandy, mottled green-orange to red-brown; scattered subrounded to rounded pebbles, mainly quartzite, sandstone and argillaceous rock	0.7	3.4
	b Sand, silty clay lenses, reddish brown; fine	1.0	4.4
	Silt, sandy, reddish brown	1.4	5.8
	Clay, sandy becoming silty towards base, grey	3.2	9.0
Glacial Sand and Gravel	c 'Very clayey' sand, grey; fine	5.0	14.0
	Silt, sandy, grey	1.0	15.0
	d 'Very clayey' sand, grey; fine	1.0	16.0
	Silt, sandy, grey	1.0	17.0
	e 'Very clayey' sand, grey; fine	1.0+	18.0
	Hole abandoned due to rising sand		

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Sand		Gravel	
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	22	44	34	0.3-1.3	24	18	18	10	10	20	0
				1.3-2.7	21	18	16	8	12	25	0
				Mean	22	18	17	9	11	23	0
b	9	88	3	3.4-4.4	9	80	6	2	3	0	0
c	25	75	0	9.0-10.0	12	73	15	0	0	0	0
				10.0-11.0	24	74	2	0	0	0	0
				11.0-12.0	32	65	3	0	0	0	0
				12.0-13.0	27	71	2	0	0	0	0
				13.0-14.0	28	69	3	0	0	0	0
				Mean	25	70	5	0	0	0	0
d	34	66	0	15.0-16.0	34	65	1	0	0	0	0
e	21	79	0	17.0-18.0	21	76	3	0	0	0	0
c-e	25	75	0	Mean	25	71	4	0	0	0	0
b-e	24	76	0	Mean	24	72	4	0	0	0	0
Total	23	68	9	Mean	23	59	7	2	3	6	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	0.3-1.3	11	trace	31	39	19

SJ41 NW 33 4239 1863 Bank House, Pimhill

Block A

Surface level +85 m
Water not encountered
203 mm shell and auger
September 1978

Overburden 0.4 m
Mineral 16.0 m
Waste 5.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	a 'Very clayey' pebbly sand Gravel: fine and coarse, subangular to subrounded Sand: fine and medium, subangular to subrounded	3.0	3.4
	b 'Clayey' sand with a few pebbles, reddish brown; mainly fine Silt, sandy, greyish brown	13.0 5.6+	16.4 22.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
a	24	61	15	0.4-1.4	33	29	14	7	8	9	0
				1.4-2.4	30	33	15	7	12	3	0
				2.4-3.4	10	31	41	4	7	7	0
				Mean	24	31	24	6	9	6	0
b	10	90	0	3.4-4.4	5	57	35	1	1	1	0
				4.4-5.4	13	28	55	1	1	2	0
				5.4-6.4	6	52	39	1	1	1	0
				6.4-7.4	6	48	45	1	0	0	0
				7.4-8.4	2	42	51	3	1	1	0
				8.4-9.4	3	52	44	1	0	0	0
				9.4-10.4	3	57	39	1	0	0	0
				10.4-12.4	5	76	19	0	0	0	0
				12.4-14.4	18	75	7	0	0	0	0
				14.4-16.4	24	71	5	0	0	0	0
				Mean	10	60	29	1	0	0	0
a+b	13	84	3	Mean	13	55	27	2	2	1	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	0.4-1.4	trace	3	31	46	20
	2.4-3.4	—	9	8	25	58

Surface level +81 m
 Water not encountered
 203 mm shell and auger
 September 1978

Overburden 0.3 m
 Mineral 2.4 m
 Waste 1.0 m
 Mineral 21.4 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a Sandy gravel Gravel: fine and coarse with cobbles, subrounded to rounded Sand: fine and medium, angular to rounded	2.4	2.7
	Clay, sandy, yellowish brown; scattered subangular to subrounded quartzite and argillaceous pebbles	1.0	3.7
	b Sand, 'clayey' at top, reddish brown; mainly fine	5.0	8.7
	c 'Clayey' sand, part 'very clayey' sand, brown; fine	14.6	23.3
	d 'Clayey' gravel Gravel: coarse with cobbles, subrounded to rounded Sand: mainly fine, angular to rounded	1.8+	25.1

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel						Gravel		
					$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	4	63	33	0.3-1.3	5	16	27	8	23	18	3
				1.3-2.7	4	30	35	6	11	14	0
				Mean	4	24	32	7	16	16	1
b	5	95	0	3.7-4.7	11	77	11	1	0	0	0
				4.7-5.7	2	60	38	0	0	0	0
				5.7-6.7	5	72	23	0	0	0	0
				6.7-7.7	4	73	23	0	0	0	0
				7.7-8.7	2	72	26	0	0	0	0
				Mean	5	71	24	0	0	0	0
c	18	82	0	8.7-9.7	24	54	22	0	0	0	0
				9.7-11.1	21	73	6	0	0	0	0
				11.1-12.1	23	75	2	0	0	0	0
				12.1-13.1	24	75	1	0	0	0	0
				13.1-14.1	16	83	1	0	0	0	0
				14.1-15.1	22	59	19	0	0	0	0
				15.1-16.1	12	79	8	1	0	0	0
				16.1-17.1	11	87	2	0	0	0	0
				17.1-18.1	13	86	1	0	0	0	0
				18.1-19.1	10	88	2	0	0	0	0
				19.1-20.1	14	83	3	0	0	0	0
				20.1-21.1	22	75	3	0	0	0	0
				21.1-23.3	15	61	21	0	1	2	0
				Mean	18	74	8	0	0	0	0
d	19	39	42	23.3-24.3	23	27	11	6	10	11	12
				24.3-25.1	14	19	10	3	5	49	0
				Mean	19	23	11	5	8	28	6
b-d	15	81	4	Mean	15	69	12	0	1	2	1
Total	13	80	7	Mean	13	65	14	1	2	4	1

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
a	0.3-1.3	1	4	40	42	—	13	trace
d	23.3-25.1	10	1	40	28	9	11	1

SJ41 NW 35 4257 1665 Forton, Montford

Block A

Surface level +84 m
Water struck at +73 m
203 mm shell and auger
August 1978

Overburden 0.3 m
Mineral 9.2 m
Waste 9.0 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a 'Clayey' sand with a few pebbles Gravel: fine and coarse, subangular to subrounded Sand: mainly fine, subangular to subrounded	9.2	9.5
Till	Clay, sandy, grey-brown; scattered subrounded quartzite, limestone, argillaceous and igneous pebbles	4.3	13.8
	b 'Véry clayey' sand, reddish brown; fine	1.0	14.8
	Clay, sandy, grey-brown; scattered subangular to subrounded pebbles, mainly argillaceous rock	2.5	17.3
	c 'Very clayey' sand, reddish brown; fine	1.2+	18.5
	Hole abandoned due to rising sand		

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
a	13	83	4	0.3-1.5	14	43	26	2	8	7	0
				1.5-2.5	7	38	40	2	2	7	4
				2.5-3.5	5	33	59	3	0	0	0
				3.5-4.5	5	63	30	2	0	0	0
				4.5-5.5	13	54	26	2	1	4	0
				5.5-6.5	12	66	17	3	2	0	0
				6.5-7.5	9	86	4	1	0	0	0
				7.5-8.5	19	76	4	1	0	0	0
				8.5-9.5	31	67	2	0	0	0	0
				Mean	13	58	23	2	2	2	0
b	27	73	0	13.8-14.8	27	71	2	0	0	0	0
c	24	76	0	17.3-18.5	24	75	1	0	0	0	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	0.3-2.5	4	trace	65	20	8	3

Surface level +71 m
 Water struck at +61 m
 203 mm shell and auger
 October 1978

Overburden 0.5 m
 Mineral 3.8 m
 Waste 1.7 m
 Mineral 7.4 m
 Waste 1.6 m
 Mineral 2.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	a 'Clayey' pebbly sand Gravel: fine, angular to subangular, mainly quartzite, sandstone and argillaceous rock Sand: fine and medium, angular to rounded	3.8	4.3
	Silt, sandy, grey-brown	1.7	6.0
	b 'Clayey' sand, red; mainly fine	7.4	13.4
	Silt, 'clayey' towards base, grey-brown	1.6	15.0
	c Pebbly sand Gravel: mainly coarse, subrounded to rounded Sand: fine and medium, angular to rounded	2.5+	17.5
Hole abandoned due to rising sand and gravel			

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{-1}{16}$	$\frac{+1}{16}-\frac{1}{4}$	$\frac{+1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	13	80	7	0.5-1.5	13	15	49	14	9	0	0
				1.5-2.5	9	24	39	14	12	2	0
				2.5-4.3	16	61	17	4	1	1	0
				Mean	13	39	31	10	6	1	0
b	11	89	0	6.0-7.0	31	66	3	0	0	0	0
				7.0-8.0	10	86	4	0	0	0	0
				8.0-9.0	10	80	10	0	0	0	0
				9.0-10.0	10	62	26	2	0	0	0
				10.0-11.0	2	61	36	1	0	0	0
				11.0-12.0	6	60	33	1	0	0	0
				12.0-13.0	5	61	33	1	0	0	0
				13.0-13.4	17	56	26	1	0	0	0
				Mean	11	67	21	1	0	0	0
c	5	86	9	15.0-16.0	5	37	57	1	0	0	0
				16.0-17.0	2	44	39	2	2	11	0
				17.0-17.5	11	43	24	2	5	15	0
				Mean	5	41	43	2	2	7	0
Total	10	86	4	Mean	10	55	28	3	2	2	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
c	17.0-17.5	4	21	35	20	4	16

Surface level +73 m
 Water struck at +61 m
 203 mm shell and auger
 August 1978

Overburden 0.5 m
 Mineral 17.6 m
 Waste 2.3 m
 Mineral 4.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	a Sand with a few pebbles, 'very clayey' at top and base; mainly fine, angular to rounded	17.6	18.1
	Silt, sandy, yellowish brown	2.3	20.4
	b 'Clayey' sand, brown; fine and medium	4.6+	25.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
a	10	89	1	0.5-1.5	11	63	24	0	1	1	0
				1.5-3.0	4	43	53	0	0	0	0
				3.0-4.0	29	60	8	1	2	0	0
				4.0-6.0	22	71	4	1	0	2	0
				6.0-7.0	6	60	34	0	0	0	0
				7.0-8.0	3	45	52	0	0	0	0
				8.0-9.0	5	54	41	0	0	0	0
				9.0-10.0	3	48	49	0	0	0	0
				10.0-11.0	1	55	44	0	0	0	0
				11.0-12.0	2	90	8	0	0	0	0
				12.0-13.0	3	87	8	0	1	1	0
				13.0-14.0	3	93	4	0	0	0	0
				14.0-15.0	4	79	17	0	0	0	0
				15.0-16.0	3	76	21	0	0	0	0
16.0-17.0	8	79	10	0	1	2	0				
17.0-18.1	33	62	4	1	0	0	0				
			Mean	10	66	23	0	0	1	0	
b	12	88	0	20.4-21.4	11	36	53	0	0	0	0
				21.4-22.4	6	32	62	0	0	0	0
				22.4-23.4	9	49	41	1	0	0	0
				23.4-25.0	20	50	29	1	0	0	0
				Mean	12	43	44	1	0	0	0
a+b	10	89	1	Mean	10	61	28	0	0	1	0

SJ 41 NW 38 4339 1840 Grafton Lodge, Pimhill

Block A

Surface level +85 m
Water not encountered
203 mm shell and auger
September 1978

Overburden 0.4 m
Mineral 5.0 m
Waste 14.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Sandy gravel Gravel: coarse with some cobbles, subangular to subrounded Sand: fine and medium, subangular to subrounded	5.0	5.4
Till	Clay, sandy, brownish grey becoming bluish grey with depth; scattered subrounded pebbles	14.1 +	19.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
3	69	28	0.4-1.4	3	4	8	3	13	63	6
			1.4-2.4	1	30	30	4	8	27	0
			2.4-3.4	2	24	43	9	9	13	0
			3.4-4.4	5	39	47	7	2	0	0
			4.4-5.4	4	42	48	5	1	0	0
			Mean	3	28	35	6	6	21	1

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Argillaceous rock	Sandstone
0.4-1.4	5	1	36	10	48
2.4-3.4	—	10	27	36	27

SJ 41 NW 39 4365 1744 Forton Heath, Pimhill

Block A

Surface level +73 m
Water not encountered
203 mm shell and auger
September 1978

Waste 18.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, greyish brown; scattered subangular to subrounded pebbles, mainly sandstone and argillaceous rock	17.8 +	18.1

SJ41 NW 40 4425 1568 Bickley Coppice, Bicton

Block C

Surface level +83.4 m
 Water struck at +67.4 m
 203 mm shell and auger
 October 1978

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, grey-brown becoming purple-grey below 12.0 m; scattered angular to rounded pebbles, mainly quartzite, sandstone and argillaceous rock	15.5	15.7
Glacial Sand and Gravel	Sand with a few pebbles, reddish brown; angular to rounded pebbles, mainly quartzite and argillaceous rock	0.8	16.5
	Silt, sandy, yellowish brown	1.5+	18.0

SJ41 NW 41 4352 1528 Montford Bridge, Bicton

Block B

Surface level +56 m
 Water struck at +53.7 m
 203 mm shell and auger
 October 1978

Waste 17.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Terrace 2	Clay, sandy, brown; scattered angular to rounded argillaceous rock, sandstone and quartzite pebbles	3.0	3.5
	'Clayey' sandy gravel lens, mainly fine gravel, angular to subrounded, argillaceous rock, sandstone and quartzite	0.5	4.0
Till	Clay, sandy, grey-brown; scattered subangular to subrounded quartzite and argillaceous pebbles	1.2	5.2
	'Clayey' gravel Gravel: mainly fine, angular to subangular, mainly argillaceous rock, sandstone and quartzite Sand: fine to coarse, angular to subangular	0.8	6.0
	Clay, sandy, grey-brown becoming reddish brown below 16.0 m; scattered subrounded pebbles	11.5+	17.5

SJ41 NW 42 4435 1956 Walford Heath, Pimhill

Block D

Surface level +91 m
 Water struck at +81 m
 203 mm shell and auger
 October 1978

Waste 18.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, grey-brown; scattered angular to rounded pebbles, mainly quartzite, argillaceous and igneous rock	18.4+	18.7
	Sand lens between 10.5 m and 10.6 m		

SJ 41 NW 43 4433 1710 Mytton, Pimhill

Block D

Surface level + 71 m
Water not encountered
203 mm shell and auger
July 1979

Waste 18.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.4	0.4
Till	Clay, sandy, blue-brown to brown; scattered rounded pebbles, mainly quartzite, sandstone and igneous rock	18.1 +	18.5

Surface level +69.4 m
 Water struck at +53.4 m
 203 mm shell and auger
 October 1978

Overburden 4.0 m
 Mineral 2.8 m
 Waste 2.7 m
 Mineral 7.4 m
 Waste 1.1 m
 Mineral 4.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 2	Clay, sandy, mottled red-brown to grey; scattered angular to subrounded pebbles, mainly quartzite and argillaceous rock	3.8	4.0
	a Gravel Gravel: fine and coarse with cobbles, subrounded to rounded Sand: medium and coarse, angular to rounded	1.0	5.0
Glacial Sand and Gravel	b Sand, reddish brown; medium, angular to rounded	1.8	6.8
	Clay, silty, reddish brown	2.7	9.5
	c 'Clayey' sand, calcareous, red; fine and medium	7.4	16.9
	Clay, sandy, brown; scattered subrounded pebbles, mainly argillaceous rock	1.1	18.0
	d 'Clayey' sandy gravel, part 'very clayey' Gravel: mainly coarse with cobbles, subangular to subrounded Sand: mainly fine, angular to subangular	4.7+	22.7
	Hole abandoned — no penetration through coarse gravel		

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages								
	Fines	Sand	Gravel		Fines			Sand				Gravel	
					-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64		
a	1	22	77	4.0-5.0	1	2	8	12	30	41	6		
b	4	91	5	5.0-6.0	0	2	86	8	4	0	0		
				6.0-6.8	9	27	49	8	5	2	0		
				Mean	4	13	70	8	4	1	0		
c	15	85	0	9.5-11.0	8	51	37	2	1	1	0		
				11.0-12.0	23	65	11	1	0	0	0		
				12.0-13.0	7	34	58	1	0	0	0		
				13.0-14.0	16	34	50	0	0	0	0		
				14.0-16.9	17	37	45	1	0	0	0		
				Mean	15	43	41	1	0	0	0		
b	18	43	39	18.0-19.0	20	24	20	3	10	23	0		
				19.0-20.0	20	22	14	5	16	23	0		
				20.0-21.0	25	22	15	6	13	19	0		
				21.0-22.7	11	28	13	2	10	26	10		
				Mean	18	24	15	4	12	23	4		
b-d	14	72	14	Mean	14	33	36	3	5	8	1		
Total	13	69	18	Mean	13	31	34	4	6	10	2		

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	4.0-5.0	2	trace	38	33	4	23
d	18.0-19.0	1	5	61	28	trace	5
	21.0-22.7	5	5	77	10	trace	3

SJ 41 NW 45 4452 1550 Woodlands, Bicton

Block C

Surface level +85.4 m
 Water struck at +72.4 m
 203 mm shell and auger
 October 1978

Overburden 3.0 m
 Mineral 4.1 m
 Waste 5.9 m
 Mineral 3.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, mottled orange-yellow; scattered subrounded pebbles, mainly argillaceous rock	2.8	3.0
Glacial Sand and Gravel	a 'Very clayey' sand, part 'clayey', reddish brown; fine	4.1	7.1
Till	Clay, silty, grey	5.9	13.0
Glacial Sand and Gravel	b 'Clayey' sand, reddish brown; mainly fine Hole abandoned due to rising sand	3.0+	16.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	29	71	0	3.0-4.0	17	69	10	2	2	0	0
				4.0-5.0	26	64	9	1	0	0	0
				5.0-6.0	36	62	2	0	0	0	0
				6.0-7.1	35	61	3	1	0	0	0
				Mean	29	64	6	1	0	0	0
b	17	83	0	13.0-15.0	19	63	18	0	0	0	0
				15.0-16.0	14	61	24	1	0	0	0
				Mean	17	63	20	0	0	0	0
a+b	24	76	0	Mean	24	63	12	1	0	0	0

SJ 41 NE 22 4558 1938 Yagdon's Lane, Pimhill

Block D

Surface level +87.7 m
 Water not encountered
 203 mm shell and auger
 October 1978

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, brown; scattered subangular to rounded quartzite, sandstone, igneous and argillaceous pebbles	17.6+	18.0

SJ 41 NE 23 4555 1853 Punch's Drive, Pimhill

Block D

Surface level +80 m
Water not encountered
203 mm shell and auger
October 1978

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Till	Clay, sandy, silty below 5.5 m, mottled grey to yellowish brown; scattered subrounded quartzite, igneous and argillaceous pebbles	12.0	12.0
	Clay, sandy, reddish brown; scattered subangular to subrounded quartzite, sandstone, igneous and argillaceous pebbles	6.0+	18.0

SJ 41 NE 24 4539 1776 N. of Isle Pool, Bicton

Block B

Surface level +59 m
Water struck at +45.1 m
203 mm shell and auger
November 1978

Overburden 1.5 m
Mineral 8.7 m
Waste 0.5 m
Mineral 1.8 m
Waste 0.4 m
Mineral 1.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 1	Clay, sandy, red-brown; scattered subangular to subrounded pebbles, mainly argillaceous rock	1.3	1.5
	a Gravel Gravel: mainly coarse with cobbles, subangular to subrounded Sand: medium and coarse, angular to rounded	2.0	3.5
Glacial Sand and Gravel	b 'Clayey' sand, part 'very clayey' and pebbly, reddish brown; mainly fine, angular to rounded	6.7	10.2
	Clay, sandy, calcareous, brown; scattered subangular to subrounded quartzite and argillaceous pebbles	0.5	10.7
	c Gravel Gravel: mainly coarse with cobbles, angular to rounded Sand: fine to coarse, subrounded to rounded	1.8	12.5
	Clay, sandy, calcareous, grey-brown; scattered angular quartzite and argillaceous pebbles	0.4	12.9
	d Pebbly sand Gravel: mainly coarse, subrounded to rounded Sand: mainly medium, subangular to rounded	1.6+	14.5
Hole abandoned — no penetration through coarse gravel			

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
						$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$
a	5	22	73	1.5-2.5	7	3	12	11	23	37	7
				2.5-3.5	2	3	8	8	29	46	4
				Mean	5	3	10	9	26	42	5
b	19	78	3	3.5-4.5	20	34	32	3	2	9	0
				4.5-5.5	9	29	61	1	0	0	0
				5.5-6.9	24	51	20	3	1	1	0
				6.9-8.0	18	54	27	1	0	0	0
				8.0-9.0	20	60	17	2	1	0	0
				9.0-10.2	21	55	19	3	2	0	0
				Mean	19	48	28	2	1	2	0
c	5	24	71	10.7-11.7	7	9	7	10	26	33	8
				11.7-12.5	3	6	5	10	25	51	0
				Mean	5	8	6	10	26	41	4
d	9	69	22	12.9-13.9	6	26	57	1	4	6	0
				13.9-14.5	13	27	13	4	14	29	0
				Mean	9	26	41	2	8	14	0
b-d	15	67	18	Mean	15	37	26	4	6	11	1
Total	13	60	27	Mean	13	32	24	4	10	16	1

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction							
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
a	1.5-2.5	11	7	42	34	trace	6	—	—
c	10.7-11.7	19	8	34	32	3	3	trace	1
d	13.9-14.5	22	2	39	33	2	2	—	—

Surface level +64 m
 Water not encountered
 203 mm shell and auger
 November 1978

Overburden 1.2 m
 Mineral 15.2 m
 Waste 3.8 m
 Mineral 4.0 m
 Waste 0.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, brown; scattered rounded pebbles	1.0	1.2
Glacial Sand and Gravel	a Sandy gravel Gravel: fine and coarse with cobbles, angular to rounded Sand: mainly fine, angular to rounded	1.0	2.2
	b 'Clayey' sand, reddish brown; fine	7.2	9.4
	c 'Clayey' pebbly sand Gravel: mainly coarse, subangular to rounded Sand: mainly fine	2.0	11.4
	d 'Very clayey' sand, reddish brown; fine	5.0	16.4
Till	Clay, calcareous, brown	3.8	20.2
Glacial Sand and Gravel	e 'Very clayey' sand, reddish brown, fine Silt, sandy, reddish brown	4.0 0.8+	24.2 25.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$1-4$	$4-16$	$16-64$	64
a	7	51	42	1.2-2.2	7	35	7	9	18	16	8
b	17	83	0	2.2-3.2	19	73	6	2	0	0	0
				3.2-4.2	29	66	4	1	0	0	0
				4.2-5.2	24	69	7	0	0	0	0
				5.2-6.2	12	75	13	0	0	0	0
				6.2-7.4	10	76	14	0	0	0	0
				7.4-8.4	10	75	15	0	0	0	0
				8.4-9.4	16	69	15	0	0	0	0
			Mean	17	72	11	0	0	0	0	
c	12	69	19	9.4-10.4	12	66	11	1	3	7	0
				10.4-11.4	11	49	10	1	9	20	0
				Mean	12	58	10	1	6	13	0
d	25	75	0	11.4-12.4	16	75	8	1	0	0	0
				12.4-13.4	18	74	8	0	0	0	0
				13.4-14.4	30	66	4	0	0	0	0
				14.4-15.4	33	64	3	0	0	0	0
				15.4-16.4	27	70	3	0	0	0	0
			Mean	25	70	5	0	0	0	0	
a-d	18	77	5	Mean	18	67	9	1	2	3	0
e	34	65	1	20.2-21.2	30	69	1	0	0	0	0
				21.2-22.2	30	67	2	1	0	0	0
				22.2-23.2	37	58	4	1	0	0	0
				23.2-24.2	38	52	4	2	1	3	0
			Mean	34	61	3	1	0	1	0	
Total	21	74	5	Mean	21	66	7	1	2	2	1

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
a	1.2-2.2	1	1	21	55	—	22	trace
c	10.4-11.4	30	3	28	28	8	2	1

SJ 41 NE 26 4520 1631 S.E. of Mytton, Pimhill

Block B

Surface level +54 m
Water struck at +53 m
203 mm shell and auger
July 1979

Overburden 1.8 m
Mineral 2.1 m
Waste 18.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Terrace 2	Clay, sandy, grey-brown below 0.6 m; scattered rounded pebbles	1.7	1.8
	'Clayey' gravel Gravel: fine and coarse with cobbles, subrounded to rounded, mainly quartzite, sandstone, igneous and argillaceous rock Sand: mainly coarse, rounded	2.1	3.9
Till	Clay, pebbly, grey-brown; scattered rounded mainly igneous rock	18.1 +	22.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
13	18	69	1.8-2.8	5	1	3	7	22	50	12
			2.8-3.9	20	2	8	14	28	28	0
			Mean	13	1	6	11	25	38	6

SJ 41 NE 27 4515 1591 S.E. of Mytton, Pimhill

Block B

Surface level + 54 m
Water struck at + 48.8 m
203 mm shell and auger
July 1979

Overburden 6.0 m
Mineral 10.0m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Alluvium	Soil	0.4	0.4
	Clay, sandy, grey	5.6	6.0
	a Gravel Gravel: fine and coarse with cobbles, rounded, mainly quartzite, sandstone and igneous rock Sand: mainly medium, subrounded	1.8	7.8
Glacial Sand and Gravel	b Pebbly sand Gravel: fine and coarse, rounded, mainly quartzite, sandstone and igneous rock Sand: medium, subrounded Hole abandoned due to rising sand	8.2+	16.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	Depth below surface (m) percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	2	47	51	6.0-6.8	4	5	46	18	15	10	2
				6.8-7.8	0	3	16	10	33	38	0
				Mean	2	4	29	14	25	25	1
b	3	84	13	7.8-9.0	4	14	61	9	4	6	2
				9.0-10.0	3	23	67	1	3	3	0
				10.0-11.0	2	20	57	4	9	8	0
				11.0-12.0	3	15	73	5	2	2	0
				12.0-13.0	2	18	62	5	8	5	0
				13.0-14.0	1	15	60	8	9	7	0
				14.0-16.0	3	13	62	6	9	7	0
				Mean	3	16	63	5	7	6	0
a+b	3	78	19	Mean	3	14	57	7	10	9	0

SJ 41 NE 28 4566 1535 Isle Lodge, Bicton

Block C

Surface level +98 m
Water not encountered
203 mm shell and auger
November 1978

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Till	Soil	0.6	0.6
	Clay, sandy, calcareous below 6.6 m, yellow-brown becoming grey with depth; scattered angular and subangular quartzite and argillaceous pebbles	6.4	7.0
	Silt, sand lenses, calcareous, yellowish brown	9.2	16.2
	Clay, silty, calcareous, grey-brown	1.8+	18.0

Surface level +56.4 m
 Water struck at +51.6 m
 203 mm shell and auger
 July 1979

Overburden 2.0 m
 Mineral 4.8 m
 Waste 0.7 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Terrace 1	Clay, sandy, pebbly, grey-brown	2.0	2.0
	a 'Clayey' gravel Gravel: fine and coarse with cobbles, angular to subangular Sand: medium and coarse	4.0	6.0
Glacial Sand and Gravel	b 'Very clayey' pebbly sand Gravel: fine and coarse with cobbles, subangular Sand: mainly fine	0.8	6.8
Till	Clay, red-brown; scattered rounded pebbles	0.7	7.5
Bridgnorth Sandstone	Sandstone, red	0.5+	8.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	12	43	45	2.0-3.0	17	4	12	19	27	21	0
				3.0-4.5	11	5	17	15	24	26	2
				4.5-6.0	11	4	22	27	25	11	0
				Mean	12	4	18	21	25	19	1
b	23	59	18	6.0-6.8	23	37	17	5	5	3	10
a+b	14	46	40	Mean	14	10	18	18	22	16	2

Surface level + 51 m
 Water struck at + 47 m
 203 mm shell and auger
 November 1978

Overburden 0.7 m
 Mineral 10.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 1	Clay, sandy, mottled grey-green to brown	0.5	0.7
	a Gravel, part sandy Gravel: fine and coarse with cobbles, subangular to rounded Sand: mainly medium and coarse, angular to rounded	4.0	4.7
Glacial Sand and Gravel	b Sand, reddish brown; fine and medium, angular to rounded Hole abandoned due to rising sand	6.3 +	11.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines		Sand			Gravel	
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	2	49	49	0.7-1.7	3	4	11	14	36	25	7
				1.7-2.7	1	5	38	20	26	10	0
				2.7-3.7	2	1	20	20	32	20	5
				3.7-4.7	2	11	39	11	15	17	5
				Mean	2	5	27	17	27	18	4
b	7	92	1	4.7-5.7	7	37	49	4	2	1	0
				5.7-6.7	9	41	49	1	0	0	0
				6.7-7.7	7	22	68	1	2	0	0
				7.7-8.7	9	36	55	0	0	0	0
				8.7-9.7	7	36	54	1	0	2	0
				9.7-10.7	3	35	62	0	0	0	0
				10.7-11.0	4	28	67	1	0	0	0
			Mean	7	34	57	1	1	0	0	
a+b	5	75	20	Mean	5	23	45	7	11	7	2

COMPOSITION

	Depth below surface (m)	Percentage by weight in + 4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	1.7-2.7	1	4	40	43	—	12
	3.7-4.7	20	3	42	32	2	1

Surface level +57 m
 Water struck at +47.5 m
 203 mm shell and auger
 November 1978

Overburden 0.4 m
 Mineral 1.3 m
 Waste 0.8 m
 Mineral 12.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Terrace 2	a 'Clayey' gravel Gravel: fine and coarse with cobbles, angular to subrounded Sand: fine to coarse, angular to rounded	1.3	1.7
? Till	Clay, sandy, reddish brown; subangular to rounded quartzite and argillaceous pebbles	0.8	2.5
Glacial Sand and Gravel	b 'Clayey' sand, reddish brown; fine and medium, scattered subangular quartzite pebbles	10.0	12.5
	c Gravel Gravel: mainly coarse with cobbles, subangular to rounded Sand: fine and medium, angular to rounded	2.0+	14.5
	Hole abandoned due to rising gravel		

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	16	33	51	0.4-1.7	16	7	15	11	19	22	10
b				2.5-3.5	24	46	30	0	0	0	0
				3.5-4.5	18	27	52	1	2	0	0
				4.5-5.5	7	34	59	0	0	0	0
				5.5-6.5	6	31	60	0	0	3	0
				6.5-7.5	9	33	58	0	0	0	0
				7.5-8.5	18	49	33	0	0	0	0
				8.5-10.0	9	51	40	0	0	0	0
				10.0-11.5	10	53	37	0	0	0	0
			11.5-12.5	14	48	34	3	1	0	0	
			Mean	12	42	44	1	1	0	0	
c				12.5-13.5	8	18	14	4	14	34	8
				13.5-14.5	7	14	11	3	18	41	6
				Mean	8	16	12	4	16	37	7
b+c	11	78	11	Mean	11	38	39	1	4	6	1
Total	12	74	14	Mean	12	35	37	2	4	8	2

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
a	0.4-1.7	8	5	60	21	—	5	1
c	12.5-13.5	6	10	33	41	7	3	—

Surface level +60 m
 Water struck at +45 m
 203 mm shell and auger
 November 1978

Waste 23.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, calcareous, brown; scattered angular to subrounded quartzite and argillaceous pebbles	4.3	4.5
Glacial Sand and Gravel	Silt, sandy, reddish brown	1.0	5.5
	a 'Very clayey' sand, reddish brown; fine	1.0	6.5
	Silt, sandy, reddish brown	2.0	8.5
	b 'Very clayey' sand, reddish brown; fine	1.7	10.2
	Silt, sandy, calcareous, red-brown	4.8	15.0
	c 'Clayey' sand, red-brown; mainly fine	4.7	19.7
	Silt, sandy, calcareous, red-brown	4.2+	23.9

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines		Sand			Gravel	
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	35	65	0	5.5-6.5	35	62	3	0	0	0	0
b	27	73	0	8.5-10.2	27	70	3	0	0	0	0
c	10	90	0	15.0-16.0	10	63	27	0	0	0	0
				16.0-17.0	6	70	24	0	0	0	
				17.0-18.0	11	75	14	0	0	0	
				18.0-19.7	12	72	16	0	0	0	
				Mean	10	70	20	0	0	0	0
a-c	17	83	0	Mean	17	69	14	0	0	0	0

Surface level +93.6 m
 Water struck at +87.6 m
 203 mm shell and auger
 October 1978

Overburden 6.0 m
 Mineral 5.5 m
 Waste 1.0 m
 Mineral 1.0 m
 Waste 3.0 m
 Mineral 1.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, grey-brown becoming brown below 4.0 m; scattered subangular to rounded quartzite, sandstone and igneous pebbles	5.6	6.0
Glacial Sand and Gravel	a 'Clayey' sand, part 'very clayey' pebbly sand, brown; mainly medium	5.5	11.5
	Silt, sand lenses, calcareous, greyish brown	1.0	12.5
	b 'Clayey' sand, brown; fine and medium	1.0	13.5
	Silt, sand lenses, calcareous, greyish brown	2.5	16.0
	Clay, sandy, calcareous, reddish brown; scattered subangular to subrounded pebbles, mainly quartzite and sandstone	0.5	16.5
	c Sandy gravel, part gravel Gravel: fine and coarse, subangular to rounded Sand: mainly medium, angular to rounded	1.5+	18.0
Hole abandoned due to rising sand and gravel			

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	14	85	1	6.0-7.0	10	30	57	3	0	0	0
				7.0-8.0	14	28	55	3	0	0	0
				8.0-9.0	12	38	48	2	0	0	0
				9.0-10.0	26	27	34	4	7	2	0
				10.0-11.5	11	35	52	2	0	0	0
			Mean	14	32	50	3	1	0	0	
b	17	81	2	12.5-13.5	17	36	39	6	2	0	0
c	1	61	38	16.5-17.5	1	8	39	20	18	14	0
				17.5-18.0	2	7	28	13	20	30	0
				Mean	1	8	35	18	19	19	0
a+b+c	12	79	9	Mean	12	28	45	6	5	4	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
c	17.5-18.0	31	3	31	26	4	4	1

Surface level +88.9 m
 Water not encountered
 203 mm shell and auger
 November 1978

Overburden 11.8 m
 Mineral 7.2 m
 Waste 2.7 m
 Mineral 1.3 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown with blue-grey gleying; scattered angular to subrounded quartzite, sandstone, igneous and argillaceous pebbles	11.5	11.8
Glacial Sand and Gravel	a Pebbly sand, part 'clayey' sand Gravel: fine, subangular to rounded, mainly quartzite, sandstone and igneous rock Sand: mainly medium, angular to subrounded	4.2	16.0
	b Gravel, part 'clayey' sandy gravel Gravel: fine and coarse, angular to rounded Sand: mainly fine, angular to rounded	3.0	19.0
Till	Clay, sandy, reddish brown; scattered subangular to rounded quartzite, sandstone, igneous and argillaceous pebbles	2.7	21.7
Glacial Sand and Gravel	c 'Very clayey' pebbly sand Gravel: fine, subrounded to rounded, mainly quartzite and argillaceous rock Sand: fine and medium, angular to rounded Hole abandoned due to rising sand	1.3+	23.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
						$\frac{-}{16}$	$\frac{+}{16}$ - $\frac{1}{4}$	$\frac{+}{4}$ -1	+1-4	+4-16	+16-64
a	8	84	8	11.8-13.0	9	19	61	4	5	2	0
				13.0-14.0	7	27	60	3	3	0	0
				14.0-15.0	3	14	45	17	17	4	0
				15.0-16.0	11	58	29	2	0	0	0
				Mean	8	29	49	6	6	2	0
b	8	44	48	16.0-17.0	7	25	13	2	24	29	0
				17.0-18.0	6	15	8	5	29	37	0
				18.0-19.0	11	34	21	8	7	19	0
				Mean	8	25	14	5	20	28	0
a+b	8	67	25	Mean	8	27	34	6	12	13	0
c	31	63	6	21.7-23.0	31	36	22	5	5	1	0
a+b+c	11	67	22	Mean	11	28	33	6	11	11	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction							
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
b	17.0-18.0	22	4	37	22	4	10	trace	1

Surface level +82.2 m
 Water not encountered
 203 mm shell and auger
 October 1978

Overburden 4.0 m
 Mineral 16.0 m
 Waste 4.3 m
 Bedrock 0.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, reddish brown; scattered angular to rounded pebbles, mainly quartzite and sandstone	3.6	4.0
Glacial Sand and Gravel	a Sand, part pebbly, reddish brown; mainly medium, scattered subrounded pebbles	9.0	13.0
	b Sandy gravel, part gravel Gravel: fine and coarse with cobbles, subangular to subrounded Sand: mainly medium, angular to rounded	5.0	18.0
	c Sand, reddish brown; mainly medium, scattered angular to rounded pebbles, mainly quartzite	2.0	20.0
Till	Clay, sandy, silty between 20.8 and 21.8 m, reddish brown; scattered subangular to subrounded pebbles, mainly quartzite, sandstone and igneous rock	4.3	24.3
Sherwood Sandstone Group	Sandstone, red	0.7+	25.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	6	90	4	4.0-5.5	8	17	68	7	0	0	0
				5.5-7.0	4	50	45	1	0	0	0
				7.0-8.0	9	36	33	5	7	10	0
				8.0-9.5	3	22	70	3	2	0	0
				9.5-11.0	6	18	66	3	2	5	0
				11.0-12.0	4	18	75	3	0	0	0
				12.0-13.0	5	23	69	2	1	0	0
				Mean	6	26	61	3	2	2	0
b	2	56	42	13.0-14.0	1	34	36	1	10	18	0
				14.0-15.0	3	17	46	7	7	20	0
				15.0-16.0	1	6	25	14	23	28	3
				16.0-17.0	2	5	18	15	24	36	0
				17.0-18.0	2	5	29	23	28	13	0
				Mean	2	13	31	12	18	23	1
c	5	92	3	18.0-19.0	5	23	66	5	1	0	0
				19.0-20.0	5	21	65	5	3	1	0
				Mean	5	22	65	5	2	1	0
a+b+c	4	81	15	Mean	4	22	52	7	7	8	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction							
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
a	7.0-8.0	15	3	43	24	4	11	trace	—
b	13.0-14.0	21	8	42	28	1	trace	—	—
	17.0-18.0	11	8	42	31	4	2	—	2

Surface level +86.8 m
 Water not encountered
 203 mm shell and auger
 November 1978

Overburden 4.0 m
 Mineral 10.0 m
 Waste 5.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Till	Clay, sandy, brown; scattered subangular to subrounded quartzite, sandstone and argillaceous pebbles	3.5	4.0
Glacial Sand and Gravel	a Gravel Gravel: fine and coarse, angular to rounded Sand: fine to coarse, angular to rounded	2.0	6.0
	b 'Very clayey' sand, part 'clayey' and pebbly, brown; mainly fine, scattered subrounded pebbles, mainly quartzite, sandstone and argillaceous rock	8.0	14.0
Till	Clay, sandy, red-brown to brown; scattered subangular to rounded quartzite, sandstone, igneous and argillaceous pebbles	5.0+	19.0
	Hole abandoned — no progress through clay		

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	7	44	49	4.0-5.0	5	11	14	17	35	18	0
				5.0-6.0	8	21	17	8	24	21	1
				Mean	7	16	15	13	30	19	0
b	20	76	4	6.0-7.5	12	47	23	6	8	4	0
				7.5-8.5	22	40	28	8	2	0	0
				8.5-9.5	23	54	21	2	0	0	0
				9.5-11.0	20	56	21	3	0	0	0
				11.0-12.0	17	62	19	2	0	0	0
				12.0-13.0	30	47	18	3	2	0	0
				13.0-14.0	17	46	28	4	5	0	0
				Mean	20	50	22	4	3	1	0
a+b	17	71	12	Mean	17	44	21	6	8	4	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	4.0-5.0	2	1	30	29	38	trace

Surface level +84 m
 Water struck at +76.8 m
 203 mm shell and auger
 July 1979

Overburden 2.3 m
 Mineral 1.0 m
 Waste 1.2 m
 Mineral 20.5 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, brown; scattered subrounded pebbles	2.1	2.3
Glacial Sand and Gravel	a 'Very clayey' sandy gravel Gravel: fine and coarse, subrounded to rounded mainly argillaceous pebbles Sand: mainly fine	1.0	3.3
	Silt, sandy, pebbly, reddish brown	1.2	4.5
	b 'Clayey' sandy gravel, 'very clayey' at top Gravel: mainly fine, subrounded to rounded Sand: fine to coarse	3.3	7.8
	c Sand, 'clayey' at top, reddish brown; fine	6.0	13.8
	d 'Very clayey' sand, part sand, reddish brown; fine	11.2+	25.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	27	53	20	2.3-3.3	27	31	16	6	8	12	0
b	10	57	33	4.5-5.1	32	20	18	11	14	5	0
				5.1-6.1	8	11	23	13	25	20	0
				6.1-7.3	2	11	24	27	27	9	0
				7.3-7.8	9	44	16	16	11	4	0
				Mean	10	18	21	18	22	11	0
c	9	91	0	7.8-8.8	19	66	10	3	2	0	0
				8.8-9.8	6	79	14	1	0	0	0
				9.8-10.8	8	75	17	0	0	0	0
				10.8-11.8	8	72	20	0	0	0	0
				11.8-13.8	7	74	19	0	0	0	0
				Mean	9	73	17	1	0	0	0
d	25	75	0	13.8-15.8	23	72	5	0	0	0	0
				15.8-17.8	16	80	4	0	0	0	0
				17.8-19.8	8	80	12	0	0	0	0
				19.8-21.8	38	61	1	0	0	0	0
				21.8-23.8	39	61	0	0	0	0	0
				23.8-25.0	30	69	0	1	0	0	0
				Mean	25	71	4	0	0	0	0
b-d	18	76	6	Mean	18	63	10	3	4	2	0
Total	19	75	6	Mean	19	61	11	3	4	2	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
b	5.1-6.1	4	2	23	29	5	37

Surface level + 75.4 m
 Water struck at + 67.4 m
 203 mm shell and auger
 July 1979

Overburden 8.0 m
 Mineral 8.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, mottled yellowish brown to brown; scattered subrounded to rounded quartzite and igneous pebbles	2.6	2.8
Glacial Lake Deposits	Silt, sandy, brown; rare rounded quartzite pebbles	0.7	3.5
	Clay, sand lenses, laminated, brown	0.4	3.9
Till	Clay, sandy, reddish brown; scattered subangular to rounded quartzite, sandstone, igneous and argillaceous pebbles	4.1	8.0
Glacial Sand and Gravel	'Clayey' sand, brown; fine	8.0+	16.0
	Hole abandoned — no penetration below 16.0 m, bedrock?		

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
16	84	0	8.0-9.0	13	79	8	0	0	0	0
			9.0-10.0	6	89	5	0	0	0	0
			10.0-12.0	24	75	1	0	0	0	0
			12.0-14.0	18	76	5	1	0	0	0
			14.0-16.0	12	65	23	0	0	0	0
			Mean	16	75	9	0	0	0	0

Surface level +86 m
 Water struck at +75.0 m
 203 mm shell and auger
 November 1978

Overburden 10.6 m
 Mineral 9.4 m
 Waste 3.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown with blue-grey gleying to 4.0 m; scattered subangular to subrounded pebbles, mainly quartzite and sandstone	10.3	10.6
Glacial Sand and Gravel	Pebbly sand, part 'very clayey', part sandy gravel Gravel: mainly fine, subangular to rounded Sand: mainly medium, angular to rounded	9.4	20.0
Glacial Lake Deposits?	Silt, sand lenses, laminated, yellowish brown	1.5	21.5
	Clay, silty, sand lenses, laminated, bluish grey	2.0+	23.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
7	81	12	10.6-11.6	3	10	22	17	34	14	0
			11.6-13.0	0	4	77	9	6	3	1
			13.0-14.5	5	18	57	11	7	2	0
			14.5-16.0	5	14	72	5	4	0	0
			16.0-17.5	27	51	20	2	0	0	0
			17.5-19.0	3	20	54	8	8	7	0
			19.0-20.0	5	39	43	5	7	1	0
			Mean	7	22	51	8	8	4	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>					
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
10.6-11.6	16	6	45	13	17	3
17.5-20.0	24	1	46	24	2	3

Surface level +83 m
 Water not encountered
 203 mm shell and auger
 October 1978

Overburden 7.6 m
 Mineral 4.4 m
 Waste 1.5 m
 Mineral 11.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, calcareous, reddish brown becoming brown below 2.0 m; scattered subrounded to rounded pebbles, mainly quartzite	7.2	7.6
Glacial Sand and Gravel	a Sandy gravel, part gravel, part pebbly sand Gravel: fine and coarse, subangular to rounded Sand: mainly medium, subangular to rounded	4.4	12.0
	Silt, sandy, reddish brown	1.5	13.5
	b 'Clayey' sand, part sand, reddish brown; fine and medium	11.5 +	25.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	1	74	25	7.6-8.6	0	5	26	15	20	34	0
				8.6-9.6	0	16	51	15	9	9	0
				9.6-10.6	2	12	54	14	14	4	0
				10.6-12.0	2	16	46	22	12	2	0
				Mean	1	13	44	17	14	11	0
b	11	89	0	13.5-15.0	18	55	27	0	0	0	0
				15.0-16.5	14	72	14	0	0	0	0
				16.5-18.0	15	74	11	0	0	0	0
				18.0-19.5	12	81	7	0	0	0	0
				19.5-21.0	10	63	27	0	0	0	0
				21.0-23.0	8	4	88	0	0	0	0
				23.0-25.0	6	21	72	1	0	0	0
				Mean	11	50	39	0	0	0	0
a+b	9	84	7	Mean	9	39	40	5	4	3	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	9.6-10.6	11	7	63	11	4	4

Surface level +96.8 m
 Water struck at +93.6 m
 203 mm shell and auger
 October 1978

Overburden 1.3 m
 Mineral 2.7 m
 Waste 16.0 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, brown; scattered subrounded pebbles, mainly quartzite and sandstone	1.1	1.3
Glacial Sand and Gravel	Pebbly sand, part sand, part 'clayey' gravel Gravel: mainly fine, angular to rounded Sand: mainly fine, angular to rounded	2.7	4.0
Till	Clay, sandy, calcareous below 7.0 m, reddish brown to brown; scattered subangular to subrounded quartzite, sandstone, igneous and argillaceous pebbles	11.0	15.0
Glacial Lake Deposits	Clay, laminated, calcareous, brown with bluish grey gleying	5.0+	20.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
10	75	15	1.3-2.3	7	54	34	3	2	0	0
			2.3-3.2	8	54	31	3	4	0	0
			3.2-4.0	15	17	13	11	28	16	0
			Mean	10	43	27	5	10	5	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
3.2-4.0	3	6	11	42	38

Surface level +80.3 m
 Water struck at +67.3 m
 203 mm shell and auger
 October 1978

Overburden 5.0 m
 Mineral 7.0 m
 Waste 10.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, yellowish brown; scattered subangular to rounded pebbles, mainly quartzite Gravel lens 1.2 m — 2.0 m	4.6	5.0
Glacial Sand and Gravel	a Pebbly sand, part sand Gravel: fine, subangular to rounded Sand: mainly medium, angular to rounded	7.0	12.0
Till	Clay, sandy, calcareous, reddish brown; scattered subangular to subrounded quartzite, sandstone, limestone, igneous and argillaceous pebbles	8.0	20.0
Glacial Sand and Gravel	b Gravel Gravel: mainly coarse with cobbles, angular to subrounded Sand: fine to coarse, subangular to subrounded Hole abandoned — no penetration through coarse gravel	2.0+	22.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	3	89	8	5.0-6.0	4	41	35	13	7	0	0
				6.0-7.0	3	19	41	24	11	2	0
				7.0-8.0	3	27	43	17	9	1	0
				8.0-9.0	1	11	67	17	3	1	0
				9.0-10.0	4	17	58	16	5	0	0
				10.0-11.0	5	11	61	14	9	0	0
				11.0-12.0	3	14	55	20	6	2	0
				Mean	3	20	52	17	7	1	0
b	4	26	70	20.0-21.0	7	10	9	3	10	43	18
				21.0-22.0	2	11	6	12	16	37	16
				Mean	4	10	8	8	13	40	17

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	6.0-7.0	13	4	50	17	9	7
b	20.0-21.0	32	10	51	7	—	—

Surface level +77.7 m
 Water struck at +62.7 m
 203 mm shell and auger
 October 1979

Overburden 0.6 m
 Mineral 6.4 m
 Waste 13.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Glacial Sand and Gravel	Sandy gravel, part 'very clayey' Gravel: fine and coarse, subangular to rounded Sand: fine and medium, subrounded to rounded	6.4	7.0
Till	Clay, sandy, calcareous, reddish brown; scattered subrounded quartzite, argillaceous rock and igneous pebbles	13.0+	20.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines			Sand		Gravel	
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
8	67	25	0.6-1.5	23	45	21	6	5	0	0
			1.5-3.0	4	6	16	19	37	18	0
			3.0-4.0	10	11	31	13	20	15	0
			4.0-5.0	5	40	42	4	4	5	0
			5.0-6.0	4	17	58	2	4	15	0
			6.0-7.0	5	25	60	2	3	5	0
			Mean	8	22	36	9	14	11	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction						
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
1.5-3.0	1	1	28	30	1	39	trace
5.0-6.0	26	5	27	34	1	7	—

Surface level +73 m
 Water not encountered
 203 mm shell and auger
 December 1978

Overburden 6.5 m
 Mineral 4.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Till	Clay, sandy, brown, mottled grey-brown in upper 2.0 m	4.1	4.6
Glacial Sand and Gravel	a 'Clayey' gravel Gravel: mainly coarse with cobbles, subangular to rounded Sand: medium and coarse, angular to subangular	1.2	5.8
	Clay, silty, brown	0.7	6.5
	b Gravel, part sandy gravel Gravel: fine and coarse with cobbles, subangular to rounded Sand: mainly medium, angular to rounded	4.0+	10.5
Hole abandoned — no penetration through coarse gravel			

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages							
	Fines	Sand	Gravel		Fines			Sand			Gravel	
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$	
a	16	15	69	4.6-5.8	16	3	5	7	16	49	4	
b	5	40	55	6.5-7.5	2	1	11	16	31	32	7	
				7.5-8.5	6	8	16	6	27	37	0	
				8.5-10.5	7	11	28	11	21	17	5	
				Mean	5	8	21	11	25	26	4	
a+b	8	34	58	Mean	8	7	17	10	23	31	4	

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
a	4.6-5.8	2	—	42	32	1	21	2
b	7.5-8.5	1	1	23	43	9	23	—

SJ 41 SW 11 4048 1357 Longmore Cottage, Alberbury with Cardeston

Block C

Surface level +76 m
Water not encountered
203 mm shell and auger
January 1979

Overburden 2.2 m
Mineral 4.3 m
Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, grey-brown; scattered subrounded to rounded quartzite, sandstone and argillaceous pebbles	1.8	2.2
Glacial Sand and Gravel	Pebbly sand, part sandy gravel Gravel: mainly fine, subrounded to rounded Sand: mainly medium, subangular to subrounded	4.3	6.5
Sherwood Sandstone Group	Sandstone, friable, reddish brown	0.5+	7.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				-1%	+16-4	+4-1	+1-4	+4-16	+16-64	+64
5	75	20	2.2-3.2	9	29	42	8	9	3	0
			3.2-4.2	3	14	39	14	26	4	0
			4.2-5.2	9	4	39	26	20	2	0
			5.2-6.5	2	19	39	22	10	8	0
			Mean	5	17	40	18	16	4	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
3.2-4.2	trace	18	36	44	2
5.2-6.5	2	22	39	37	—

SJ 41 SW 12 4046 1246 Whiston Farm, Alberbury with Cardeston

Block C

Surface level +95 m
Water not encountered
203 mm shell and auger
January 1979

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, mottled red-brown to brown; scattered subrounded to rounded quartzite and argillaceous pebbles	17.6+	18.0

SJ41 SW 13 4050 1140 Near Broadway, Ford

Block C

Surface level +108 m
Water not encountered
203 mm shell and auger
June 1979

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Till	Clay, sandy, red-brown; scattered subangular to subrounded quartzite and argillaceous pebbles. 'Clayey' sandy gravel lens between 1.8 m and 2.3 m	2.5	3.0
	Clay, sandy, calcareous, grey; scattered subrounded quartzite and argillaceous pebbles	15.0+	18.0

SJ41 SW 14 4023 1036 Preston Montford, Bicton

Block C

Surface level +94 m
Water struck at +87.9 m
203 mm shell and auger
June 1979

Overburden 4.1 m
Mineral 2.0 m
Waste 4.5 m
Mineral 4.4 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, pebbly, brown; scattered subangular to subrounded, mainly quartzite pebbles	3.1	3.5
	Clay, silty, laminated, brown	0.6	4.1
Glacial Sand and Gravel	a 'Clayey gravel Gravel: mainly coarse with cobbles, subrounded, mainly quartzite	2.0	6.1
Glacial Lake Deposits	Silt, clay lenses, laminated, reddish brown becoming grey below 8.5 m	4.5	10.6
Glacial Sand and Gravel	b Gravel, 'clayey' at base Gravel: fine and coarse with cobbles, subrounded, mainly quartzite, igneous and argillaceous rock Sand: mainly coarse Clay lenses present	4.4+	15.0

Hole abandoned due to coarse gravel — no penetration

GRADING

	Mean for deposit percentages			Depth below surface (m)	Depth below surface (m) percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{-1}{16}$	$\frac{+1}{16}-\frac{1}{4}$	$\frac{+1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	18	28	54	4.1-5.1	14	7	8	13	14	35	9
				5.1-6.1	22	6	10	13	23	26	0
				Mean	18	6	9	13	19	30	5
b	6	28	66	10.6-11.7	3	1	5	15	40	28	8
				11.7-12.7	4	2	6	16	33	28	11
				12.7-13.7	5	2	9	18	24	39	3
				13.7-15.0	12	4	11	22	21	28	2
				Mean	6	2	8	18	29	31	6
a+b	10	28	62	Mean	10	4	8	16	26	31	5

Surface level +70.2 m
 Water not encountered
 203 mm shell and auger
 October 1978

Overburden 0.3 m
 Mineral 3.8 m
 Waste 15.7 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Gravel Gravel: fine and coarse with cobbles, subangular to rounded Sand: medium and coarse, subangular to rounded	3.8	4.1
Till	Clay, silty, grey-brown	15.7+	19.8

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
4	37	59	0.3-1.3	3	3	14	21	30	29	0
			1.3-2.3	1	3	15	22	26	26	7
			2.3-4.1	7	6	20	8	27	32	0
			Mean	4	5	17	15	27	30	2

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
2.3-4.1	1	25	43	31	trace

Surface level + 70 m
 Water struck at + 60 m
 203 mm shell and auger
 January 1979

Waste 15.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, calcareous, yellowish brown; scattered subrounded quartzite, limestone and argillaceous pebbles	5.1	5.5
	Clay, sandy, reddish brown; scattered subrounded pebbles, mainly quartzite	4.7	10.2
Glacial Sand and Gravel	'Very clayey' sandy gravel Gravel: mainly coarse with cobbles, subrounded Sand: fine	3.2	13.4
Till	Clay, sandy, grey; scattered subrounded quartzite and argillaceous pebbles Hole abandoned — no progress through clay	1.6 +	15.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+ 1-4	+4-16	+ 16-64	+ 64
28	38	34	10.2-11.2	24	19	7	4	10	24	12
			11.2-12.2	18	26	9	4	10	25	8
			12.2-13.4	39	28	11	4	7	11	0
			Mean	28	25	9	4	9	19	6

COMPOSITION

Depth below surface (m)	Percentage by weight in + 4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
11.2-12.2	1	2	47	41	9

SJ 41 SW 17 4112 1240 Moor House, Ford

Block C

Surface level + 104 m
 Water not encountered
 203 mm shell and auger
 June 1979

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.4	0.4
Till	Clay, sandy, reddish brown; rare subrounded quartzite pebbles	2.2	2.6
	Clay, sandy, calcareous, brownish grey; scattered subrounded quartzite and argillaceous pebbles	15.4 +	18.0

SJ 41 SW 18 4107 1022 Nox, Pontesbury

Block C

Surface level + 81 m
 Water struck at + 77 m
 203 mm shell and auger
 June 1979

Overburden 0.9 m
 Mineral 1.1 m
 Waste 9.2 m
 Bedrock 1.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Alluvium	Clay, silty, greyish brown	0.7	0.9
	Gravel Gravel: fine and coarse with cobbles, subrounded, mainly quartzite, igneous and argillaceous rock Sand: mainly coarse	1.1	2.0
Till	Clay, pebbly, grey; scattered subrounded quartzite and argillaceous pebbles Gravel lens between 6.9 and 7.5 m	9.2	11.2
Erbistock Formation	Sandstone, friable, red	1.8 +	13.0

GRADING

Mean for deposit percentages			Depth below surface (m)	Depth below surface (m) percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ - 1	+ 1 - 4	+ 4 - 16	+ 16 - 64	+ 64
2	33	65	0.9-2.0	2	4	10	19	31	27	7

Surface level +57 m
 Water struck at +52 m
 203 mm shell and auger
 December 1978

Overburden 1.0 m
 Mineral 6.5 m
 Bedrock 0.1 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 2	Clay, sandy, yellowish brown	0.8	1.0
	a 'Very clayey' sandy gravel Gravel: fine and coarse, angular to rounded, mainly quartzite and sandstone Sand: fine to coarse, angular to rounded	1.0	2.0
	b Gravel, part sandy Gravel: fine and coarse with cobbles, angular to rounded Sand: mainly fine, angular to rounded	5.5	7.5
Bridgnorth Sandstone	Sandstone, red	0.1+	7.6

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	34	34	32	1.0-2.0	34	12	12	10	15	17	0
b	6	41	53	2.0-3.0	4	4	7	10	23	30	22
				3.0-4.0	4	13	5	9	38	31	0
				4.0-5.0	7	19	3	4	16	45	6
				5.0-6.0	10	57	7	3	5	18	0
				6.0-7.5	7	41	6	7	15	20	4
			Mean	6	28	6	7	19	28	6	
a+b	11	40	49	Mean	11	26	7	7	18	26	5

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
b	3.0-4.0	2	1	48	45	3	1
	6.0-7.5	2	2	60	32	4	—

Surface level +70 m
 Water struck at +66.5 m
 203 mm shell and auger
 January 1979

Overburden 4.0 m
 Mineral 2.0 m
 Waste 15.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Till	Clay, sandy becoming silty with depth, reddish brown; scattered subrounded argillaceous pebbles	3.5	4.0
Glacial Sand and Gravel	'Very clayey' sand, reddish brown; fine	2.0	6.0
	Silt, sandy, reddish brown	1.5	7.5
Till	Clay, silty, calcareous, red-brown; scattered subrounded quartzite, limestone and argillaceous pebbles	13.5+	21.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
29	71	0	4.0-5.0	34	64	2	0	0	0	0
			5.0-6.0	23	64	13	0	0	0	0
			Mean	29	64	7	0	0	0	0

SJ41 SW 21 4280 1246 Dinthill Hall, Bicton

Block C

Surface level +97.7 m
 Water struck at +94.9 m
 203 mm shell and auger
 January 1979

Overburden 3.0 m
 Mineral 3.0 m
 Waste 14.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.7	0.7
Till	Clay, sandy, grey-brown; scattered quartzite, argillaceous rock and sandstone pebbles. Limestone cobble at 2.0 m	2.3	3.0
Glacial Sand and Gravel	'Clayey' sandy gravel Gravel: mainly fine, angular to rounded Sand: mainly medium, subangular to rounded	3.0	6.0
Till	Clay, silty, brown; scattered angular to rounded pebbles	14.5+	20.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
17	49	34	3.0-4.5	13	15	28	12	20	12	0
			4.5-6.0	21	13	20	9	25	12	0
			Mean	17	14	24	11	22	12	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction			
	Quartz	Quartzite	Sandstone	Argillaceous rock
4.5-6.0	1	25	27	47

SJ41 SW 22 4249 1162 Sascott, Pontesbury

Block C

Surface level +101 m
 Water struck at +92.5 m
 203 mm shell and auger
 June 1979

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, calcareous, brown becoming grey below 8.3 m; scattered subrounded quartzite and argillaceous pebbles	17.7+	18.0

SJ41 SW 23 4404 1480 Bicton Grange, Bicton

Block C

Surface level +95 m
 Water struck at +80 m
 203 mm shell and auger
 October 1978

Overburden 0.4 m
 Mineral 1.0 m
 Waste 17.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	'Very clayey' sandy gravel Gravel: fine and coarse, subrounded to rounded Sand: fine and medium, angular to subrounded	1.0	1.4
Till	Clay, silty, brown becoming grey below 10.0 m; rare subrounded pebbles, mainly quartzite Sand lens from 4.6 m to 5.0 m	17.6+	19.0

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines			Gravel			
				$\frac{-}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
27	43	30	0.4-1.4	27	21	16	6	12	18	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.4-1.4	trace	5	43	44	8

SJ 41 SW 24 4352 1352 Churncote, Bicton

Block C

Surface level +92 m
Water not encountered
203 mm shell and auger
December 1978

Overburden 2.6 m
Mineral 3.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Till	Clay, sandy, reddish brown; scattered subrounded to rounded quartzite and argillaceous pebbles	2.0	2.6
Glacial Sand and Gravel	Gravel, part 'clayey' Gravel: fine and coarse with cobbles, angular to subrounded Sand: mainly coarse, angular to rounded Hole abandoned — no penetration through coarse gravel	3.3+	5.9

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
6	28	66	2.6-3.6	10	5	7	15	29	34	0
			3.6-4.6	6	5	6	13	34	36	0
			4.6-5.9	4	1	7	22	33	22	11
			Mean	6	4	7	17	32	30	4

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
3.6-4.6	trace	7	18	11	62	2

SJ 41 SW 25 4345 1259 New Plantation, Bicton

Block C

Surface level +92 m
Water not encountered
203 mm shell and auger
January 1979

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.7	0.7
Till	Clay, sandy, calcareous, red-brown; scattered angular to subangular pebbles, mainly quartzite and argillaceous rock	2.4	3.1
	Clay, sandy, calcareous, grey-brown; scattered subrounded to rounded pebbles	14.9+	18.0

Surface level +88 m
 Water struck at +84.6 m
 203 mm shell and auger
 June 1979

Overburden 3.4 m
 Mineral 2.2 m
 Waste 15.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, pebbly, grey-brown; scattered subrounded, mainly quartzite pebbles	3.1	3.4
Glacial Sand and Gravel	Gravel Gravel: fine and coarse with cobbles, subangular to subrounded, mainly quartzite and argillaceous rock Sand: coarse, subangular to subrounded	2.2	5.6
Till	Clay, pebbly, grey; scattered subrounded mainly quartzite pebbles	15.5+	21.1

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
4	16	80	3.4-5.6	4	1	3	12	32	36	12

Surface level +79 m
 Water struck at +72.7 m
 203 mm shell and auger
 July 1979

Overburden 4.0 m
 Mineral 7.4 m
 Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Clay, sandy, pebbly, yellowish brown	0.4	0.8
	a Sand, brown; mainly fine, rounded	0.7	1.5
	Clay, silt and sand lenses, yellowish brown	0.7	2.2
	b 'Clayey' gravel	0.6	2.8
	Gravel: fine and coarse, subangular to rounded, mainly quartzite and argillaceous rock		
	Sand: medium and coarse		
	Clay, sandy, reddish brown; scattered subangular to rounded mainly quartzite pebbles	1.2	4.0
	c 'Clayey' sand, brown; mainly fine	7.4	11.4
Bridgnorth Sandstone	Sandstone, reddish brown	0.6+	12.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	9	91	0	0.8-1.5	9	69	22	0	0	0	0
b	14	27	59	2.2-2.8	14	5	10	12	33	26	0
c	10	90	0	4.0-5.0	16	44	40	0	0	0	0
				5.0-6.0	6	77	17	0	0	0	
				6.0-7.0	6	57	37	0	0	0	
				7.0-8.1	6	51	43	0	0	0	
				8.1-9.2	13	64	23	0	0	0	
				9.2-10.2	10	64	26	0	0	0	
				10.2-11.4	12	67	21	0	0	0	
Mean	10	61	29	0	0	0					
a+b+c	10	86	4	Mean	10	58	27	1	2	2	0

SJ 41 SW 28 4448 1339 Churncote, Bicton

Block C

Surface level +84 m
 Water struck at +71.1 m
 203 mm shell and auger
 December 1978

Waste 14.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Till	Clay, sandy, calcareous, red-brown; scattered subangular to subrounded quartzite and argillaceous pebbles	12.3	12.9
Glacial Lake Deposits	Silt, sand lenses, red-brown Hole abandoned due to rising silt	1.4+	14.3

SJ 41 SW 29 4488 1186 Woodcote, Bicton

Waste 20.0 m +

Surface level +83 m
 Water struck at +80.5 m
 203 mm shell and auger
 June 1979

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, calcareous, brownish grey; scattered subrounded quartzite, sandstone and argillaceous pebbles	10.7	11.0
Glacial Sand and Gravel	Gravel Gravel: fine and coarse, subangular to subrounded, mainly quartzite, sandstone and argillaceous rock Sand: fine to coarse, subangular to subrounded	1.9	12.9
Glacial Lake Deposits	Clay, silty, laminated, red-brown	7.1+	20.0

Surface level +82.3 m
 Water struck at +81.2 m
 203 mm shell and auger
 June 1979

Overburden 0.3 m
 Mineral 4.9 m
 Waste 12.8 m
 Mineral 7.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a 'Clayey' sandy gravel, part pebbly sand and gravel Gravel: mainly fine with cobbles, subangular to subrounded, mainly quartzite and argillaceous rock Sand: medium and coarse Clay lens from 2.0 to 2.2 m	4.9	5.2
Till	Clay, sandy, brown becoming reddish brown with depth; scattered subrounded quartzite pebbles	4.8	10.0
Glacial Lake Deposits	Clay, silty, laminated, reddish brown	8.0	18.0
Glacial Sand and Gravel	b 'Very clayey' sand, part 'clayey' and pebbly, reddish brown; fine	7.0+	25.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	10	52	38	0.3-1.1	11	20	58	6	3	2	0
				1.1-2.2	26	8	12	23	22	9	0
				2.2-3.2	4	0	6	16	37	33	4
				3.2-4.2	5	1	8	32	42	12	0
				4.2-5.2	4	6	44	27	13	6	0
				Mean	10	7	24	21	24	13	1
b	21	76	3	18.0-20.0	30	68	1	1	0	0	0
				20.0-22.0	19	67	4	1	0	9	0
				22.0-23.0	25	71	3	1	0	0	0
				23.0-24.0	15	77	7	1	0	0	0
				24.0-25.0	10	76	14	0	0	0	0
				Mean	21	70	5	1	0	3	0
a+b	17	66	17	Mean	17	44	13	9	10	7	0

Surface level +76.5 m
 Water struck at +71.5 m
 203 mm shell and auger
 July 1979

Overburden 4.9 m
 Mineral 10.4 m
 Waste 7.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Till	Clay, sandy, pebbly to 3.8 m, reddish brown; scattered subrounded quartzite and argillaceous rock	4.3	4.9
Glacial Sand and Gravel	a 'Clayey' sand with a few pebbles, reddish brown; mainly fine	5.1	10.0
	b Sandy gravel, part gravel Gravel: fine and medium, subangular to subrounded, mainly quartzite and argillaceous rock Sand: fine to coarse	5.3	15.3
Till	Clay, silty, brown; scattered subangular to subrounded quartzite and argillaceous rock Silt lens from 18.7 to 19.5 m	7.2+	22.5

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	15	83	2	4.9-6.0	17	65	18	0	0	0	0
				6.0-7.0	11	73	16	0	0	0	0
				7.0-8.0	21	65	14	0	0	0	0
				8.0-9.0	12	54	29	3	2	0	0
				9.0-10.0	15	37	32	5	9	2	0
				Mean	15	59	22	2	2	0	0
b	5	50	45	10.0-11.2	4	16	25	12	28	15	0
				11.2-12.5	6	21	11	7	23	32	0
				12.5-13.5	3	16	21	21	26	13	0
				13.5-14.5	4	13	16	14	32	21	0
				14.5-15.3	7	15	28	23	19	8	0
				Mean	5	16	20	14	26	19	0
a+b	10	66	24	Mean	10	37	21	8	14	10	0

Surface level +88.3 m
 Water struck at +83.6 m
 203 mm shell and auger
 December 1978

Overburden 4.7 m
 Mineral 2.3 m
 Waste 1.5 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Fluvio-glacial flood gravels	Clay, sandy, brown; scattered subangular to rounded quartzite, sandstone and argillaceous pebbles	4.1	4.7
	Gravel, part 'clayey' Gravel: mainly coarse, subangular to rounded Sand: fine to coarse, angular to rounded	2.3	7.0
Till	Clay, sandy, purple-red; scattered angular to rounded quartz, quartzite, sandstone, igneous and argillaceous pebbles	1.5	8.5
Erbistock Formation	Sandstone, marly, purple-red	0.5+	9.0

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
10	24	66	4.7-5.7	12	6	6	9	30	37	0
			5.7-7.0	8	8	9	9	19	47	0
			Mean	10	7	8	9	24	42	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
4.7-5.7	7	2	24	38	29

SJ 41 SE 78 4648 1475 Spring Coppice, Bicton

Block C

Surface level +66 m
Water struck at +46.8 m
203 mm shell and auger
December 1978

Waste 20.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, silty, calcareous, grey becoming brown below 8.0 m; scattered subrounded pebbles, mainly argillaceous rock	9.8	10.1
Glacial Sand and Gravel	Gravel Gravel: fine and coarse, angular to subrounded Sand: mainly coarse, subangular to rounded	2.5	12.6
Glacial Lake Deposits	Silt, sand lenses, laminated, calcareous, reddish brown; rare subangular to subrounded pebbles, mainly quartzite and limestone	7.7+	20.3

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
5	37	58	10.1-11.1	9	4	6	11	38	32	0
			11.1-12.6	2	4	12	32	32	18	0
			Mean	5	4	10	23	34	24	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
10.1-11.1	2	4	12	32	6	44

SJ 41 SE 79 4608 1278 Copthorne, Shrewsbury

Block C

Surface level +85.5 m
Water not encountered
203 mm shell and auger
June 1979

Waste 9.7 m
Bedrock 3.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.2	0.2
Till	Clay, silty at base, calcareous, reddish brown; rare subrounded pebbles, mainly quartzite	7.5	7.7
	Silt, calcareous, reddish brown to yellow-brown	2.0	9.7
Bridgnorth Sandstone	Sandstone, friable, red	3.3+	13.0

Surface level +85.2 m
 Water not encountered
 203 mm shell and auger
 December 1978

Waste 5.1 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, silty, calcareous, brown with bluish grey gleying; scattered angular to rounded quartzite, sandstone and argillaceous pebbles	4.4	4.7
Glacial Sand and Gravel	Gravel Gravel: mainly coarse, subangular to rounded, mainly quartzite, sandstone, igneous and argillaceous rock Sand: medium and coarse, angular to rounded Hole abandoned — no penetration through coarse gravel	0.4+	5.1

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
2	14	84	4.7-5.1	2	1	6	7	27	57	0

Surface level +80.2 m
 Water struck at +70.7 m
 203 mm shell and auger
 December 1978

Overburden 2.0 m
 Mineral 3.5 m
 Waste 7.5 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Fluvio-glacial flood gravels	Clay, sandy, brown; scattered angular to subrounded quartzite, sandstone, igneous and argillaceous pebbles. Carbonaceous fragments present	1.7	2.0
	'Clayey' gravel, part gravel Gravel: fine and coarse with cobbles, subangular to rounded Sand: medium and coarse, angular to rounded	3.5	5.5
Glacial Lake Deposits	Clay, laminated, brown	3.5	9.0
Till	Clay, sandy, reddish brown; scattered angular to rounded quartzite, sandstone, igneous and argillaceous pebbles	4.0	13.0
Erbistock Formation	Sandstone, purple	0.5+	13.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+ 1-4	+ 4-16	+ 16-64	+ 64
12	29	59	2.0-3.0	13	8	17	11	18	33	0
			3.0-4.0	16	5	9	10	18	42	0
			4.0-5.5	9	5	9	13	27	34	3
			Mean	12	6	11	12	22	36	1

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
3.0-4.0	7	4	41	35	3	10

SJ41 SE 82 4744 1474 Berwick House, Pimhill

Block D

Surface level +69.4 m
 Water struck at +62.4 m
 203 mm shell and auger
 November 1978

Overburden 0.3 m
 Mineral 7.0 m
 Waste 13.2 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Sandy gravel, part pebbly sand Gravel: fine and coarse, subangular to rounded Sand: mainly medium, angular to rounded	7.0	7.3
Till	Clay, sandy, calcareous, brown; scattered angular to rounded quartzite, sandstone and argillaceous pebbles Silt lenses present between 17.5 m and 19.5 m, yellowish brown	13.2 +	20.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
5	66	29	0.3-1.3	4	24	48	8	13	3	0
			1.3-2.3	3	24	52	8	9	4	0
			2.3-3.3	3	14	32	9	19	23	0
			3.3-4.3	5	10	38	9	20	18	0
			4.3-5.3	7	8	58	5	12	10	0
			5.3-6.3	6	7	42	8	18	19	0
			6.3-7.3	9	9	35	10	16	21	0
			Mean	5	14	44	8	15	14	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>						
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate	Fossil
2.3-3.3	2	10	16	48	22	2	trace
6.3-7.3	13	2	23	20	41	1	—

Surface level +52.3 m
 Water struck at +47.3 m
 203 mm shell and auger
 November 1978

Overburden 2.0 m
 Mineral 13.5m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 2	Clay, sandy, brown; scattered angular to rounded pebbles, mainly quartzite and sandstone	1.8	2.0
	a 'Clayey' gravel Gravel: mainly coarse with cobbles, angular to subrounded Sand: fine to coarse, angular to rounded	1.0	3.0
Glacial Sand and Gravel	b Sand, part 'clayey' pebbly sand, part 'clayey' sand, reddish brown; mainly fine, angular to rounded Hole abandoned due to rising sand	12.5+	15.5

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines		Sand			Gravel	
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	10	21	69	2.0-3.0	10	5	8	8	22	42	5
b	8	91	1	3.0-4.0	17	35	31	6	6	5	0
				4.0-5.0	4	55	37	0	1	3	0
				5.0-6.0	3	62	34	1	0	0	0
				6.0-7.0	6	48	45	1	0	0	0
				7.0-8.0	5	71	23	1	0	0	0
				8.0-9.0	5	67	28	0	0	0	0
				9.0-10.5	6	79	15	0	0	0	0
				10.5-12.0	2	73	25	0	0	0	0
				12.0-13.0	5	85	10	0	0	0	0
				13.0-14.0	14	68	18	0	0	0	0
				14.0-15.5	19	65	16	0	0	0	0
				Mean	8	65	25	1	0	1	0
a+b	8	86	6	Mean	8	61	24	1	2	4	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
2.0-3.0	1	14	34	31	20	trace

SJ41SE 84 4774 1132 Bank Farm, Shrewsbury

Block C

Surface level +72.2 m
 Water struck at +69.5 m
 203 mm shell and auger
 June 1979

Waste 18.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Alluvium	Clay, silty, brown	0.9	1.5
Glacial Lake Deposits	Clay, silty, laminated, grey-brown	5.5	7.0
Till	Clay, sandy, calcareous, greyish brown; scattered pebbles, mainly quartzite	11.2+	18.2

SJ41SE 85 4854 1498 Coton Grange, Shrewsbury

Block D

Surface level +68.7 m
 Water not encountered
 203 mm shell and auger
 July 1979

Overburden 0.1 m
 Mineral 24.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Glacial Sand and Gravel	a 'Clayey' pebbly sand Gravel: fine, subrounded to rounded, mainly quartzite, argillaceous and igneous rock Sand: mainly medium, subrounded to rounded	8.2	8.3
	b Sand, brown; fine and medium, subrounded to rounded	16.7+	25.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Sand		Gravel	
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	+1-4	+4-16	+16-64	+64
a	11	81	8	0.1-1.1	22	30	27	6	10	5	0
				1.1-2.1	25	36	19	3	9	8	0
				2.1-3.1	11	15	74	0	0	0	0
				3.1-4.3	9	21	63	5	2	0	0
				4.3-5.3	5	10	42	24	16	3	0
				5.3-6.3	7	11	47	23	11	1	0
				6.3-7.3	6	5	74	14	1	0	0
				7.3-8.3	4	5	74	16	1	0	0
				Mean	11	17	53	11	6	2	0
b	8	92	0	8.3-10.3	9	28	58	5	0	0	0
				10.3-12.3	6	40	52	2	0	0	0
				12.3-14.3	13	51	36	0	0	0	0
				14.3-16.3	12	66	22	0	0	0	0
				16.3-18.3	6	40	54	0	0	0	0
				18.3-20.3	9	73	18	0	0	0	0
				20.3-22.3	8	68	24	0	0	0	0
				22.3-25.0	5	43	50	2	0	0	0
				Mean	8	51	40	1	0	0	0
a+b	9	88	3	Mean	9	40	44	4	2	1	0

Surface level +50.7 m
 Water struck at +47.7 m
 203 mm shell and auger
 December 1978

Overburden 1.0 m
 Mineral 20.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Alluvium	Clay, sandy, pebbly, grey-brown. 'Clayey' gravel lens from 0.2 to 0.5 m	0.8	1.0
	a Gravel Gravel: fine and coarse with cobbles, subangular to rounded Sand: mainly medium, angular to rounded	4.2	5.2
Glacial Sand and Gravel	b Sand, part 'clayey', reddish brown; fine and medium, angular to rounded Hole abandoned due to rising sand	15.8+	21.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Sand			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	5	33	62	1.0-2.0	4	5	17	18	35	21	0
				2.0-3.0	4	7	18	13	38	20	0
				3.0-4.0	9	8	16	6	23	28	10
				4.0-5.2	4	4	10	10	27	43	2
				Mean	5	6	15	12	30	29	3
b	10	90	0	5.2-6.2	13	49	38	0	0	0	0
				6.2-7.2	14	53	33	0	0	0	0
				7.2-8.2	15	50	35	0	0	0	0
				8.2-9.2	13	38	49	0	0	0	0
				9.2-10.2	12	44	44	0	0	0	0
				10.2-11.2	17	33	50	0	0	0	0
				11.2-12.2	12	55	33	0	0	0	0
				12.2-13.2	9	38	52	1	0	0	0
				13.2-14.2	7	34	59	0	0	0	0
				14.2-15.2	14	30	56	0	0	0	0
				15.2-16.2	9	22	69	0	0	0	0
				16.2-17.2	8	25	66	1	0	0	0
				17.2-18.2	5	24	68	3	0	0	0
				18.2-19.2	3	26	69	2	0	0	0
				19.2-20.2	8	37	54	1	0	0	0
				20.2-21.0	8	29	63	0	0	0	0
				Mean	10	37	52	1	0	0	0
a+b	9	77	14	Mean	9	30	44	3	7	6	1

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	1.0-2.0	3	1	45	33	18	—
	4.0-5.2	14	5	32	25	24	trace

Surface level +68 m
 Water struck at +64 m
 203 mm shell and auger
 December 1978

Overburden 4.5 m
 Mineral 1.5 m
 Waste 3.5 m
 Bedrock 1.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 3	Clay, sandy, reddish brown with some blue-grey gleying; scattered subangular to subrounded quartzite pebbles, carbonaceous fragments present	2.3	2.5
Glacial Lake Deposits?	Clay, silty, laminated, reddish brown with blue-grey gleying	2.0	4.5
Glacial Sand and Gravel	Gravel, part 'clayey' Gravel: mainly coarse with cobbles, subangular to rounded Sand: fine to coarse, angular to rounded	1.5	6.0
Till	Clay, sandy, purplish red; scattered angular to subrounded quartzite, sandstone, igneous and argillaceous pebbles	3.5	9.5
Coed-yr-Allt Formation	Mudstone, white-grey	1.0+	10.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
8	21	71	4.5-5.0	14	14	20	6	18	24	4
			5.0-6.0	5	3	4	5	23	50	10
			Mean	8	7	9	5	21	42	8

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction						
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
5.0-6.0	10	trace	36	26	trace	23	5

Surface level + 54 m
 Water struck at + 50 m
 203 mm shell and auger
 December 1978

Overburden 1.5 m
 Mineral 1.5 m
 Waste 1.0 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown; scattered subangular to subrounded pebbles, mainly quartzite	1.2	1.5
Glacial Sand and Gravel	'Clayey' gravel Gravel: fine and coarse, angular to rounded Sand: medium and coarse, angular to rounded	1.5	3.0
Till	Clay, sandy, reddish brown; scattered subangular to rounded quartzite, sandstone, igneous and argillaceous pebbles	1.0	4.0
Bridgnorth Sandstone	Sandstone, purple-red	0.5+	4.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
11	30	59	1.5-3.0	11	7	13	10	26	33	0

COMPOSITION

Depth below surface (m)	Percentage by weight in + 4 mm fraction .				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
1.5-3.0	13	4	35	34	14

SJ 51 NW 33 5066 1956 Plex, Hadnall

Block D

Surface level +93.7 m
Water struck at +90.7 m
203 mm shell and auger
April 1976

Waste 9.8 m
Bedrock 3.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, reddish brown; scattered subangular to subrounded sandstone, quartzite and argillaceous pebbles	9.6	9.8
? Sherwood Sandstone Group	Mudstone, sandy bands, brown	3.2+	13.0

SJ 51 NW 34 5040 1862 Plex Farm, Albrighton

Block D

Surface level +106.2 m
Water not encountered
203 mm shell and auger
May 1976

Waste 22.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, brown; subangular to subrounded sandstone pebbles	21.1	21.3
Glacial Lake Deposits	Clay, laminated, brown	0.7 +	22.0

SJ51 NW 35 5017 1750 Albright Hussey, Albrighton

Block D

Surface level +83.3 m
 Water not encountered
 203 mm shell and auger
 June 1976

Overburden 2.8 m
 Mineral 1.0 m
 Waste 9.8 m
 Bedrock 3.4 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, silty, yellowish brown; few subrounded sandstone pebbles	2.0	2.3
Glacial Lake Deposits	Clay, laminated, yellowish brown	0.5	2.8
Glacial Sand and Gravel	a Gravel Gravel: fine and coarse with cobbles, mainly sandstone, quartzite and igneous rock Sand: medium and coarse	1.0	3.8
Till	Clay, sandy, reddish brown; scattered sandstone pebbles	2.0	5.8
Glacial Lake Deposits	Clay, laminated, brown becoming reddish brown below 10.4 m	5.8	11.6
Glacial Sand and Gravel	b Sandy gravel Gravel: fine and coarse, mainly subrounded sandstone and quartzite Sand: fine and medium	2.0	13.6
Sherwood Sandstone Group	Sandstone, friable, red	3.4+	17.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	5	30	65	2.8-3.8	5	4	12	14	20	36	9
b	9	64	27	11.6-12.6	8	39	33	4	9	7	0
				12.6-13.6	9	7	37	8	18	21	0
				Mean	9	23	35	6	13	14	0

SJ51 NW 36 5044 1615 Harlescott, Shrewsbury

Block D

Surface level +68 m
 Water not encountered
 203 mm shell and auger
 October 1978

Waste 4.5 m
 Bedrock 3.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Till	Clay, sandy, calcareous, brown; scattered subangular to subrounded quartzite, sandstone and igneous pebbles	4.5	4.5
Sherwood Sandstone Group	Sandstone, friable, reddish brown	3.5+	8.0

Surface level + 72 m
 Water level not recorded
 203 mm shell and auger
 July 1978

Overburden 0.2 m
 Mineral 4.3 m
 Waste 18.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Glacial Sand and Gravel	a Sand with a few pebbles, 'clayey' at top, yellowish brown; mainly medium, subrounded	4.3	4.5
? Glacial Lake Deposits	Clay, sandy, laminated, blue-grey	9.5	14.0
Till	Clay, sandy, brown; scattered subangular to subrounded pebbles	4.5	18.5
Glacial Sand and Gravel	b 'Very clayey' sandy gravel Gravel: fine and coarse with cobbles, angular to subrounded Sand: mainly fine, angular to subrounded	4.5+	23.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	+1-4	+4-16	+16-64	+64
a	8	89	3	0.2-1.2	11	33	45	7	2	2	0
				1.2-2.2	7	47	42	3	1	0	0
				2.2-3.2	8	35	49	5	3	0	0
				3.2-4.5	6	9	78	4	2	1	0
				Mean	8	29	55	5	2	1	0
b	21	43	36	18.5-20.0	20	22	11	4	16	20	7
				20.0-21.0	22	26	13	6	12	21	0
				21.0-22.0	21	25	13	4	16	21	0
				22.0-23.0	21	28	16	5	20	10	0
				Mean	21	25	13	5	16	18	2

COMPOSITION

	Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
b	18.5-20.0	42	2	22	25	6	3	—
	22.0-23.0	12	7	28	45	4	4	trace

SJ 51 NW 38 5160 1946 Hadnallwood, Hadnall

Block D

Surface level +96.2 m
Water not encountered
203 mm shell and auger
April 1976

Waste 12.0 m
Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.5	0.5
Till	Clay, sandy, pebbly, reddish brown	11.5	12.0
? Sherwood Sandstone Group	Mudstone, brownish grey	0.2+	12.2

SJ 51 NW 39 5102 1901 Hawksmoor Coppice, Hadnall

Block D

Surface level +105.2 m
Water not encountered
203 mm shell and auger
June 1976

Waste 18.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; subangular to subrounded quartzite, sandstone and argillaceous pebbles	17.1	17.4
Glacial Lake Deposits	Clay, silty, laminated, greyish brown	0.8+	18.2

SJ 51 NW 40 5168 1837 Chevy Chase, Albrighton

Block D

Surface level +93.9 m
Water not encountered
203 mm shell and auger
June 1976

Waste 19.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, reddish brown; mainly subrounded sandstone pebbles	5.6	5.8
	Gravel lens, sandy; angular to subrounded sandstone, quartzite and igneous rock	0.5	6.3
	Clay, sandy, greyish brown; mainly subangular to subrounded sandstone pebbles	3.6	9.9
? Glacial Lake Deposits	Clay, laminated, grey-brown; few subrounded sandstone pebbles	0.3	10.2
Till	Clay, sandy lenses, reddish brown; scattered pebbles	8.8+	19.0

SJ 51 NW 41 5140 1746 Battlefield, Albrighton

Block D

Surface level +86.7 m
 Water struck at +81.0 m
 203 mm shell and auger
 May 1976

Overburden 2.0 m
 Mineral 3.7 m
 Waste 11.3 m
 Bedrock 2.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; scattered subangular to subrounded pebbles	1.7	2.0
Glacial Sand and Gravel	'Very clayey' pebbly sand, part gravel Gravel: fine and coarse, subrounded Sand: fine	3.7	5.7
Till	Clay, silty, pebbly, reddish brown	5.3	11.0
Glacial Lake Deposits	Clay, sandy, laminated, brown; few subrounded quartzite and sandstone pebbles	6.0	17.0
Sherwood Sandstone Group	Sandstone, friable, red	2.0+	19.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
22	67	11	2.0-4.0	24	71	5	0	0	0	0
			4.0-5.0	27	69	3	1	0	0	0
			5.0-5.7	9	12	10	12	32	35	0
			Mean	22	59	5	3	6	5	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
5.0-5.7	26	2	38	24	10	trace

SJ 51 NW 42 5182 1658 Battlefield, Albrighton

Block E

Surface level +67.4 m
 Water not encountered
 203 mm shell and auger
 November 1976

Waste 1.0 m
 Bedrock 1.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown; scattered angular to subrounded sandstone, quartzite and igneous rock	0.7	1.0
Bridgnorth Sandstone	Sandstone, friable, red	1.2+	2.2

SJ51 NW 43 5168 1568 Sundorne Grove, Uffington

Block E

Surface level +60.8 m
Water struck at +59.8 m
203 mm shell and auger
November 1976

Waste 4.0 m
Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; scattered subangular to subrounded quartzite, sandstone and igneous pebbles	3.7	4.0
Bridgnorth Sandstone	Sandstone, friable, red	0.6+	4.6

SJ51 NW 44 5216 1914 Astley Lodge, Astley

Block E

Surface level +88.7 m
Water not encountered
203 mm shell and auger
July 1976

Waste 18.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, pebbly, brown	9.3	9.6
Glacial Lake Deposits	Clay, sandy, laminated, grey-brown	8.4	18.0
Till	Clay, silty, brown	0.7+	18.7

SJ51 NW 45 5248 1821 Astley Grange, Astley

Block E

Surface level +72.0 m
Water not encountered
203 mm shell and auger
May 1976

Waste 4.1 m
Bedrock 1.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Lake Deposits	Clay, laminated, brown	3.8	4.1
Bridgnorth Sandstone	Sandstone, friable, red	1.1+	5.2

SJ 51 NW 46 5248 1706 Albrightlee, Uffington

Block E

Surface level +71.0 m
 Water not encountered
 203 mm shell and auger
 May 1976

Overburden 0.4 m
 Mineral 1.3 m
 Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.4	0.4
Glacial Sand and Gravel	'Clayey' sand with a few pebbles, yellowish brown; fine and medium	1.3	1.7
Bridgnorth Sandstone	Sandstone, red	0.6+	2.3

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
10	87	3	0.4-1.7	10	38	47	2	2	1	0

SJ 51 NW 47 5249 1634 Albrightlee, Uffington

Block E

Surface level +66.3 m
 Water not encountered
 203 mm shell and auger
 May 1976

Overburden 1.3 m
 Mineral 1.6 m
 Bedrock 0.6m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Till	Clay, sandy, pebbly, reddish brown	1.2	1.3
Glacial Sand and Gravel	'Clayey' sandy gravel Gravel: mainly fine, subrounded Sand: mainly medium	1.6	2.9
Bridgnorth Sandstone	Sandstone, friable, red	0.6+	3.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
17	62	21	1.3-2.9	17	17	33	12	14	7	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
1.3-2.9	7	8	29	44	12	trace

SJ 51 NW 48 5280 1563 Sundorne Castle, Uffington

Block E

Surface level +61.9 m
 Water struck at +56.9 m
 203 mm shell and auger
 November 1976

Waste 6.4 m
 Bedrock 1.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown with blue-grey gleying in upper part; scattered angular to subrounded sandstone and igneous pebbles	6.1	6.4
Erbistock Formation	Sandstone, friable, red	1.0+	7.4

SJ 51 NW 49 5347 1974 The Hatch, Astley

Block E

Surface level +67.9 m
 Water not encountered
 203 mm shell and auger
 July 1976

Waste 18.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, yellowish brown	0.4	0.7
	Sand, 'clayey', yellowish grey; mainly medium	0.9	1.6
	Clay, sandy, pebbly, brown	0.5	2.1
Glacial Lake Deposits	Clay, sandy, laminated	3.1	5.2
Till	Clay, sandy, pebbly, reddish brown	13.3+	18.5

SJ 51 NW 50 5378 1846 Bings, Astley

Block E

Surface level +69.0 m
 Water not encountered
 203 mm shell and auger
 August 1976

Waste 0.8 m
 Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	'Clayey' pebbly sand	0.5	0.8
Bridgnorth Sandstone	Sandstone, red	0.2+	1.0

Surface level +67.3 m
 Water level not recorded
 203 mm shell and auger
 May 1976

Overburden 0.5m
 Mineral 2.7m
 Bedrock 0.2m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.5	0.5
Glacial Sand and Gravel	'Clayey' sand with a few pebbles, red; fine	2.7	3.2
Bridgnorth Sandstone	Sandstone, friable, red	0.2+	3.4

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
15	83	2	0.5-1.4	14	67	9	2	4	4	0
			1.4-3.2	15	71	13	1	0	0	0
			Mean	15	70	12	1	1	1	0

Surface level +64 m
 Water struck at +57 m
 203 mm shell and auger
 July 1978

Overburden 1.7 m
 Mineral 2.6 m
 Waste 4.7 m
 Mineral 3.7 m
 Waste 1.0 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, orange-brown; scattered quartzite and argillaceous pebbles	1.4	1.7
Glacial Sand and Gravel	a 'Very clayey' sand, yellowish brown; mainly fine, angular	2.6	4.3
	Silt, sandy, laminated, brown	4.7	9.0
	b Gravel, part 'clayey' and sandy Gravel: mainly coarse, angular to subrounded Sand: fine and medium, subrounded to rounded	3.7	12.7
Till	Clay, sandy, reddish brown; scattered angular to subrounded pebbles	1.0	13.7
Bayston-Oakwood Formation	Sandstone, friable, red	0.1 +	13.8

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
a	23	77	0	1.7-2.7	35	56	9	0	0	0	0
				2.7-4.3	16	60	23	1	0	0	0
				Mean	23	58	18	1	0	0	0
b	7	44	49	9.0-10.0	19	23	21	6	12	19	0
				10.0-11.7	2	12	9	4	25	48	0
				11.7-12.7	4	22	42	4	5	23	0
				Mean	7	18	21	5	16	33	0
a+b	14	57	29	Mean	14	34	20	3	9	20	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Flint	Conglomerate
b	9.0-10.0	8	15	44	26	trace	7

SJ 51 NW 53 5447 1931 Stone House, Shawbury

Block E

Surface level +69.3 m
 Water struck at +63.6 m
 203 mm shell and auger
 April 1976

Overburden 0.7 m
 Mineral 1.4 m
 Waste 6.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.7	0.7
Glacial Sand and Gravel	Pebbly sand Gravel: mainly fine, subrounded quartzite and sandstone Sand: mainly medium	1.4	2.1
Till	Clay, silty, pebbly, reddish brown Hole abandoned due to stiffness of clay	6.7+	8.8

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
9	70	21	0.7-2.1	9	21	40	9	14	7	0

SJ 51 NW 54 5460 1840 Bingsheath, Uffington

Block E

Surface level +70 m
 Water struck at +63.5 m
 203 mm shell and auger
 September 1978

Waste 9.0 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Sand, brown; few subrounded quartzite pebbles	0.6	1.0
Till	Clay, sandy, brown with bluish grey gleying to 1.8 m	5.5	6.5
Glacial Sand and Gravel	Gravel Gravel: Coarse with cobbles, angular to subrounded, sandstone and quartzite with igneous rock, limestone, argillaceous rock and some quartz and conglomerate Sand: mainly medium, subangular to rounded	1.5	8.0
Till	Clay, sandy, reddish brown; scattered subangular to rounded sandstone and quartzite pebbles	1.0	9.0
Bridgnorth Sandstone	Sandstone, friable, red	0.5+	9.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a			0.4-1.0	No grading data available						
b	6	21	6.5-8.0	6	5	11	5	9	46	18

SJ 51 NW 55 5438 1729 Ebreywood, Uffington

Block E

Surface level +77.6 m
 Water not encountered
 203 mm shell and auger
 July 1976

Waste 1.3 m
 Bedrock 1.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, pebbly, brown	1.1	1.3
Bayston-Oakwood Formation	Sandstone, friable, purple	1.5 +	2.8

SJ 51 NW 56 5454 1698 Ebreywood, Uffington

Block E

Surface level +79.3 m
 Water struck at +73.3 m
 203 mm shell and auger
 July 1976

Waste 19.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, pebbly, brown	18.7 +	19.0

SJ 51 NE 22 5548 1995 Little Wytheford, Shawbury

Block E

Surface level +67.7 m
 Water struck at +64.7 m
 203 mm shell and auger
 April 1976

Waste 6.7 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Sand, 'clayey', yellowish brown; rounded quartzite	0.5	0.8
	Clay, sandy becoming silty with depth, reddish brown; scattered subrounded to rounded quartzite and sandstone pebbles	5.9	6.7
Bridgnorth Sandstone	Sandstone, red	0.1 +	6.8

SJ 51 NE 23 5542 1846 Poynton Grange, Ercall Magna

Block E

Surface level +68.0 m
 Water struck at +64.5 m
 203 mm shell and auger
 May 1976

Overburden 0.4 m
 Mineral 2.1 m
 Waste 10.5 m
 Bedrock 1.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Pebbly sand Sand: mainly medium, scattered subangular to rounded pebbles	2.1	2.5
Glacial Lake Deposits	Clay, silty, laminated, grey-brown with blue-grey gleying along laminae	1.7	4.2
Till	Clay, sandy, pebbly, reddish brown Sand lens between 12.0 and 13.0m	8.8	13.0
Erbistock Formation	Mudstone, micaceous, red	1.0 +	14.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
10	84	6	0.4-1.4	6	26	63	1	3	1	0
			1.4-2.5	13	17	61	1	0	3	5
			Mean	10	21	62	1	1	2	3

SJ 51 NE 24 5592 1732 Haughton Cottages, Ercall Magna

Block E

Surface level +63.1 m
 Water struck at +60 m
 203 mm shell and auger
 April 1976

Waste 11.0 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.2	0.2
Till	Clay, sandy, pebbly, reddish brown becoming greyish brown below 8.5 m. Blue-grey gleying to 1.0 m	10.8	11.0
Erbistock Formation	Mudstone, green	0.1 +	11.1

SJ 51 NE 25 5518 1646 Haughton, Upton Magna

Block E

Surface level +71.9 m
Water struck at +65.1 m
203 mm shell and auger
May 1976

Waste 6.8 m
Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Sand, 'clayey'; scattered pebbles	0.8	1.2
Till	Clay, sandy, pebbly, reddish brown with blue-grey gleying to 2.3 m	5.6	6.8
Stretton Group	Sandstone, micaceous, purple	0.2+	7.0

SJ 51 NE 26 5540 1582 Haughton, Upton Magna

Block F

Surface level +81.1 m
Water not encountered
203 mm shell and auger
April 1976

Waste 2.4 m
Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; scattered pebbles	1.4	1.7
	Silt, sandy, mottled brown-grey	0.7	2.4
Stretton Group	Sandstone, greenish grey	0.1+	2.5

SJ 51 NE 27 5625 1913 Little Wytheford, Shawbury

Block E

Surface level +67.7 m
 Water struck at +65.1 m
 203 mm shell and auger
 April 1976

Overburden 0.3 m
 Mineral 3.2 m
 Waste 5.0 m
 Bedrock 2.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Sand; fine and medium, subangular to rounded	3.2	3.5
Till	Clay, sandy, pebbly, reddish brown	4.1	7.6
Glacial Lake Deposits	Clay, silty, laminated, grey	0.9	8.5
Erbistock Formation	Sandstone, red	2.3+	10.8

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
8	88	4	0.3-1.4	11	13	62	7	5	2	0
			1.4-2.4	8	33	56	2	1	0	0
			2.4-3.5	4	44	46	2	2	2	0
			Mean	8	30	54	4	3	1	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.3-3.5	17	8	53	21	1

SJ 51 NE 28 5636 1864 Poynton Grange, Ercall Magna

Block E

Surface level +67.1 m
 Water struck at +57.1 m
 203 mm shell and auger
 May 1976

Waste 11.2 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Sand, pebbly, yellowish grey	0.5	0.8
Till	Clay, sandy, pebbly, reddish brown; gravel lens at base	10.4	11.2
Erbistock Formation	Mudstone, micaceous, red	0.1+	11.3

SJ 51 NE 29 5665 1783 Poynton, Ercall Magna

Block E

Surface level + 63.1 m
 Water not encountered
 203 mm shell and auger
 May 1976

Overburden 0.7 m
 Mineral 1.0 m
 Waste 5.0 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.7	0.7
Glacial Sand and Gravel	'Very clayey' pebbly sand Sand: fine and medium with some gravel	1.0	1.7
Till	Clay, sandy, pebbly, reddish brown	5.0	6.7
Erbistock Formation	Limestone, grey	0.1+	6.8

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
26	61	13	0.7-1.7	26	29	28	4	6	7	0

SJ 51 NE 30 5645 1734 Poynton, Ercall Magna

Block E

Surface level + 61.3 m
 Water not encountered
 203 mm shell and auger
 May 1976

Waste 7.5 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, pebbly, greyish brown with blue-grey gleying	1.7	2.0
Glacial Lake Deposits	Clay, silty, laminated, blue-grey	3.0	5.0
Till	Clay, sandy, pebbly, reddish brown	2.5	7.5
Erbistock Formation	Mudstone, rubbly, grey	0.5+	8.0

SJ 51 NE 31 5644 1633 Roden Lane, Ercall Magna

Block F

Surface level +61.3 m
 Water struck at +55.3 m
 203 mm shell and auger
 April 1976

Waste 7.4 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, silty, pebbly, brown with blue gleying to 1.5 m	5.6	6.0
Glacial Sand and Gravel	Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: mainly medium	1.4	7.4
Erbistock Formation	Sandstone, red	0.1+	7.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
5	80	15	6.0-7.4	5	6	53	21	8	7	0

SJ 51 NE 32 5609 1538 Coppice Houses, Ercall Magna

Block F

Surface level +80.5 m
 Water struck at +75.9 m
 203 mm shell and auger
 April 1976

Waste 4.6 m
 Bedrock 0.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy, reddish brown; subangular to subrounded pebbles	4.4	4.6
Stretton Group	Shale, purple	0.3+	4.9

Surface level +66.4 m
 Water struck at +65.1 m
 203 mm shell and auger
 May 1976

Overburden 0.3 m
 Mineral 3.1 m
 Waste 3.2 m
 Mineral 1.3 m
 Bedrock 1.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a Sandy gravel, part 'clayey' Gravel: fine and coarse, subangular to rounded Sand: mainly medium	3.1	3.4
Till	Clay, sandy, pebbly, reddish brown	3.2	6.6
Glacial Sand and Gravel	b Sandy gravel Gravel: fine and coarse, subangular to rounded Sand: mainly medium	1.3	7.9
Erbistock Formation	Sandstone, red becoming greener with depth	1.6+	9.5

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	6	68	26	0.3-1.3	4	9	52	8	16	11	0
				1.3-2.3	10	12	35	11	18	14	0
				2.3-3.4	5	12	60	5	11	7	0
				Mean	6	11	49	8	15	11	0
b	6	52	42	6.6-7.9	6	12	26	14	24	18	0
a+b	6	63	31	Mean	6	11	42	10	18	13	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Flint
a	0.3-1.3	20	9	36	29	6	—
	2.3-3.4	30	8	38	23	1	—
b	6.6-7.9	17	13	58	10	1	1

Surface level +65.5 m
 Water not encountered
 203 mm shell and auger
 May 1976

Overburden 0.3 m
 Mineral 2.1 m
 Waste 2.9 m
 Bedrock 0.7 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Sandy gravel Gravel: fine and coarse, subangular to rounded Sand: mainly medium	2.1	2.4
Till	Clay, sandy, reddish brown; scattered subangular to rounded pebbles	2.3	4.7
Glacial Lake Deposits	Clay, sandy, laminated, greyish brown	0.6	5.3
Erbistock Formation	Mudstone, sandy, purple-red	0.7+	6.0

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
5	52	43	0.3-1.5	5	9	23	14	23	26	0
			1.5-2.4	6	22	31	7	15	19	0
			Mean	5	15	26	11	20	23	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.3-1.5	20	10	46	21	3

Surface level + 66.4 m
 Water not encountered
 203 mm shell and auger
 November 1976

Overburden 0.3 m
 Mineral 2.0 m
 Waste 2.9 m
 Bedrock 1.3m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	'Clayey' sandy gravel Gravel: fine and coarse, angular to rounded Sand: mainly medium, angular to rounded	2.0	2.3
Till	Clay, sandy, reddish brown; angular to subrounded quartzite, sandstone and igneous pebbles	2.9	5.2
Erbistock Formation	Mudstone, red-purple	1.3+	6.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
15	63	22	0.3-1.3	16	17	43	7	10	7	0
			1.3-2.3	13	14	34	11	16	12	0
			Mean	15	15	39	9	13	9	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.3-1.3	22	7	39	29	3

SJ 51 NE 36 5770 1670 Roden, Ercall Magna

Block F

Surface level +60.4 m
 Water not encountered
 203 mm shell and auger
 April 1976

Waste 2.5 m
 Bedrock 2.9m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Clay, sandy, reddish brown; scattered subrounded sandstone pebbles. Sand lens between 1.1 and 1.9 m	2.1	2.5
Erbistock Formation	Mudstone, laminated, grey with red-purple mottling	2.9+	5.4

SJ 51 NE 37 5742 1620 Roden, Ercall Magna

Block F

Surface level +63.7 m
 Water not encountered
 203 mm shell and auger
 April 1976

Overburden 0.3 m
 Mineral 2.4 m
 Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: fine and medium	2.4	2.7
Erbistock Formation	Sandstone, marly, red-purple	0.2+	2.9

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
7	80	13	0.3-1.5	7	51	9	27	5	1	0
			1.5-2.7	6	10	55	9	9	11	0
			Mean	7	30	32	18	7	6	0

SJ51 NE38 5731 1524 The Poplars, Rodington

Block F

Surface level +61.9 m
 Water struck at +60.1 m
 203 mm shell and auger
 April 1976

Overburden 0.6 m
 Mineral 1.2 m
 Waste 6.8 m
 Bedrock 0.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Glacial Sand and Gravel	Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: fine and medium	1.2	1.8
Till	Clay, silty, greyish brown	2.6	4.4
	Clay, sandy, reddish brown; scattered subangular to rounded pebbles	3.6	8.0
	Silt, clayey	0.6	8.6
Erbistock Formation	Mudstone, micaceous, red-brown	0.9 +	9.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines			Gravel			
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
4	89	7	0.6-1.8	4	36	51	2	4	3	0

SJ51 NE39 5872 1971 N. of Walton, Ercall Magna

Surface level +61.8 m
 Water not encountered
 203 mm shell and auger
 April 1976

Waste 3.0 m
 Bedrock 2.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	0.3	0.3
Glacial Lake Deposits	Clay, laminated, mottled grey to yellowish brown	1.0	1.3
Till	Clay, silty, reddish brown; angular sandstone pebbles	1.7	3.0
Erbistock Formation	Sandstone, friable, marly, red	2.8 +	5.8

SJ 51 NE 40 5909 1704 High Ercall, Ercall Magna

Surface level +70.3 m
 Water not encountered
 203 mm shell and auger
 November 1976

Waste 4.8 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; scattered angular to subrounded quartzite, sandstone and igneous rock	4.5	4.8
Bridgnorth Sandstone	Sandstone, red	0.5+	5.3

SJ 51 NE 41 5870 1660 Marl Cottage, Ercall Magna

Surface level +65.2 m
 Water not encountered
 203 mm shell and auger
 November 1976

Waste 6.0 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown with blue-grey gleying; scattered angular to subrounded sandstone and quartzite pebbles	5.7	6.0
Bridgnorth Sandstone	Sandstone, red	0.5+	6.5

Surface level +63.1 m
 Water struck at +61.5 m
 203 mm shell and auger
 April 1976

Overburden 0.3 m
 Mineral 1.0 m
 Waste 6.7 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a 'Very clayey' pebbly sand	1.0	1.3
Till	Clay, sandy, greyish brown becoming reddish brown below 4.5 m; scattered subangular to rounded pebbles	5.1	6.4
Glacial Sand and Gravel	b Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: mainly medium	1.6	8.0
Erbistock Formation	Mudstone, rubbly, red	0.5+	8.5

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a				0.3-1.3	No grading data available						
b	8	78	14	6.4-7.4	9	12	57	8	8	6	0
				7.4-8.0	7	11	57	10	8	7	0
				Mean	8	12	57	9	8	6	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
b	6.4-8.0	1	3	46	45	5

SJ 51 NE 43 5817 1509 Rodington Heath, Rodington

Block F

Surface level +59.4 m
 Water struck at +48.6 m
 203 mm shell and auger
 December 1976

Overburden 0.5 m
 Mineral 2.3 m
 Waste 9.0 m
 Bedrock 2.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	a 'Clayey' pebbly sand Gravel: fine and coarse, subangular to subrounded Sand: fine and medium	2.3	2.8
Glacial Lake Deposits	Clay, silty, laminated, brown	6.0	8.8
Till	Clay, sandy, brown; scattered angular to subangular quartzite and sandstone pebbles	2.0	10.8
Glacial Sand and Gravel	b 'Clayey' sandy gravel Gravel: mainly coarse, angular to rounded Sand: mainly fine, angular to subrounded	1.0	11.8
Bridgnorth Sandstone	Sandstone, red	2.2+	14.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	16	75	9	0.5-2.8	16	31	42	2	4	5	0
b	15	51	34	10.8-11.8	15	9	40	2	9	25	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	0.5-2.8	5	19	53	22	1

SJ 51 NE 44 5983 1936 Osbastone Lane, Ercall Magna

Surface level +62.5 m
 Water not encountered
 203 mm shell and auger
 April 1976

Waste 8.0 m
 Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Till	Clay, silty becoming sandier with depth, reddish brown; few subrounded pebbles	7.9	8.0
Bridgnorth Sandstone	Sandstone, micaceous, reddish brown	0.6+	8.6

Surface level +63.5 m
 Water level not recorded
 203 mm shell and auger
 November 1976

Overburden 1.2 m
 Mineral 7.5 m
 Waste 0.9 m
 Mineral 2.2 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, brown; angular to subrounded sandstone, quartzite and argillaceous pebbles	0.9	1.2
Glacial Sand and Gravel	a 'Very clayey' pebbly sand Gravel: mainly fine, subrounded to rounded Sand: fine and medium, subrounded	3.8	5.0
	b Sandy gravel, part 'clayey' Gravel: mainly fine, subangular to rounded Sand: mainly medium, subangular to rounded	3.7	8.7
	Clay, silty, brown; scattered subangular to subrounded sandstone pebbles	0.9	9.6
	c Sandy gravel, part 'clayey' Gravel: fine and coarse, angular to subrounded Sand: mainly medium, subangular to rounded	2.2	11.8
Bridgnorth Sandstone	Sandstone, friable, red	0.5+	12.3

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	22	66	12	1.2-2.5	25	33	33	2	3	4	0
				2.5-4.0	20	22	40	6	9	3	0
				4.0-5.0	20	13	43	6	15	3	0
				Mean	22	23	38	5	9	3	0
b	9	50	41	5.0-6.0	8	10	24	14	30	14	0
				6.0-7.2	11	3	36	12	23	15	0
				7.2-8.3	7	3	29	15	37	9	0
				8.3-8.7	11	6	44	8	23	8	0
				Mean	9	5	32	13	29	12	0
a+b	15	58	27	Mean	15	14	35	9	19	8	0
c	8	49	43	9.6-10.6	10	7	29	6	27	21	0
				10.6-11.8	6	8	40	7	24	15	0
				Mean	8	7	35	7	25	18	0
a-c	14	56	30	Mean	14	13	35	8	20	10	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	4.0-5.0	trace	4	53	33	10	—
b	7.2-8.3	5	2	28	42	22	1
c	9.6-10.6	11	2	17	48	21	1

SJ 51 NE 46 5944 1568 Lower Grounds, Ercall Magna

Surface level +64.9 m
 Water not encountered
 203 mm shell and auger
 April 1976

Waste 1.1 m
 Bedrock 2.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Glacial Lake Deposits	Clay, laminated, reddish brown	0.9	1.1
Brigdnorth Sandstone	Sandstone, friable, reddish brown	2.6 +	3.7

SJ 51 SW 69 5029 1056 Sutton, Shrewsbury

Surface level +72.4 m
 Water not encountered
 203 mm shell and auger
 December 1976

Overburden 1.4 m
 Mineral 2.1 m
 Waste 1.0 m
 Mineral 1.3 m
 Waste 6.0 m
 Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	1.2	1.2
Glacial Sand and Gravel	Clay, sandy, grey; scattered subrounded sandstone and quartzite pebbles	0.2	1.4
	a Gravel Gravel: fine and coarse, subrounded to rounded, mainly sandstone and quartzite Sand: medium and coarse, subangular to rounded	2.1	3.5
	Clay, silty, reddish brown; scattered subrounded sandstone and quartzite pebbles	1.0	4.5
	b Sand with a few pebbles, reddish brown; fine and medium	1.3	5.8
Till	Clay, sandy, brown	1.8	7.6
	Clay, sandy, brown; scattered angular to rounded quartzite, sandstone and igneous pebbles Blue-grey gleying present below 10.5 m	4.2	11.8
Coed-yr-Allt Formation	Sandstone, blue-grey	0.2 +	12.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines			Sand		Gravel	
					$\frac{-}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	8	34	58	1.4-2.4	9	6	8	14	33	30	0
				2.4-3.5	8	7	14	18	21	32	0
				Mean	8	7	11	16	27	31	0
b	7	91	2	4.5-5.8	7	44	45	2	1	1	0
a+b	8	56	36	Mean	8	21	24	11	17	19	0

SJ 51 SW 70 5062 1454 Ditherington, Shrewsbury**Block E**

Surface level +62.4 m
 Water not encountered
 203 mm shell and auger
 November 1976

Waste 11.3 m
 Bedrock 0.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, red-brown; rare angular pebbles	1.4	1.7
Glacial Lake Deposits	Clay, sandy towards base, laminated, red-brown	4.6	6.3
Till	Clay, sandy, red-brown; scattered subangular to rounded quartzite, sandstone and limestone pebbles	5.0	11.3
Bridgnorth Sandstone	Sandstone, friable, red	0.2+	11.5

SJ 51 SW 71 5034 1121 Rea Brook, Shrewsbury

Surface level +54.6 m
 Water not encountered
 203 mm shell and auger
 December 1976

Waste 20.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	1.3	1.3
Terrace 2 ?	Clay, sandy, brown-black; scattered subrounded sandstone and igneous pebbles	0.5	1.8
Till	Clay, sandy, reddish brown; scattered angular to rounded quartzite, sandstone and igneous pebbles	2.2	4.0
Glacial Lake Deposits	Clay, laminated, brown; rare subrounded sandstone pebble	16.0+	20.0

SJ 51 SW 72 5038 1026 Sutton, Shrewsbury**Block D**

Surface level +74.6 m
 Water not encountered
 203 mm shell and auger
 December 1976

Waste 4.2 m
 Bedrock 0.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Till	Clay, sandy becoming silty towards base, reddish brown; scattered subrounded to rounded quartzite, sandstone and igneous pebbles	4.0	4.2
Bayston-Oakwood Formation	Sandstone, greyish black	0.3+	4.5

Surface level + 51.6 m
 Water not encountered
 203 mm shell and auger
 December 1976

Overburden 1.4 m
 Mineral 2.1 m
 Waste 1.0 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 2	Clay, silty, reddish brown; rare subangular to rounded quartzite, sandstone and igneous pebbles	1.2	1.4
	'Clayey' gravel, part gravel Gravel: fine and coarse, subangular to subrounded Sand: medium and coarse, subangular to rounded	2.1	3.5
Till	Clay, sandy, brown; scattered subangular to subrounded quartzite, sandstone and igneous pebbles	1.0	4.5
Erbistock Formation	Sandstone, white	0.5+	5.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-16	+16-4	+4-1	+1-4	+4-16	+16-64	+64
11	31	58	1.4-2.5	17	5	14	11	27	26	0
			2.5-3.5	5	3	13	16	36	27	0
			Mean	11	4	14	13	31	27	0

COMPOSITION

Depth below surface (m)	Percentage by weight in + 4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
1.4-2.5	10	4	50	26	10

Surface level +68.5 m
 Water not encountered
 203 mm shell and auger
 July 1978

Overburden 0.3 m
 Mineral 4.7 m
 Waste 2.0 m
 Mineral 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	a 'Clayey' gravel, 'very clayey' at top Gravel: fine and coarse with cobbles, subangular to subrounded Sand: fine to coarse	4.7	5.0
	Silt, sandy, reddish brown; scattered subangular to rounded pebbles	2.0	7.0
	b 'Very clayey' sand, part 'clayey', reddish brown; fine, rare subangular to rounded pebbles	11.0	18.0
	c 'Clayey' sand, part sand, reddish brown; fine and medium	7.0+	25.0

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
						$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$
a	17	32	51	0.3-1.3	29	8	11	10	22	20	0
				1.3-2.3	13	9	10	11	29	25	3
				2.3-3.5	13	7	13	19	37	11	0
				3.5-5.0	14	8	11	13	29	25	0
				Mean	17	8	11	13	30	20	1
b	24	75	1	7.0-8.0	33	53	5	3	3	3	0
				8.0-9.0	27	68	2	1	2	0	0
				9.0-10.0	19	77	3	1	0	0	0
				10.0-11.0	19	57	24	0	0	0	0
				11.0-12.0	19	61	18	0	0	2	0
				12.0-13.0	25	71	3	0	1	0	0
				13.0-14.0	22	72	6	0	0	0	0
				14.0-15.0	25	71	4	0	0	0	0
				15.0-16.0	25	74	1	0	0	0	0
				16.0-17.0	25	75	0	0	0	0	0
				17.0-18.0	24	71	5	0	0	0	0
				Mean	24	68	7	0	1	0	0
c	10	90	0	18.0-19.0	14	29	57	0	0	0	0
				19.0-20.0	13	51	36	0	0	0	0
				20.0-21.0	12	60	28	0	0	0	0
				21.0-22.0	6	57	35	1	1	0	0
				22.0-23.0	7	17	70	5	1	0	0
				23.0-24.0	12	27	56	5	0	0	0
				24.0-25.0	9	24	66	1	0	0	0
				Mean	10	38	50	2	0	0	0
b+c	19	80	1	Mean	19	56	23	1	1	0	0
Total	18	71	11	Mean	18	46	21	4	7	4	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	1.3-2.3	18	1	35	23	23

Surface level +57.2 m
 Water not encountered
 203 mm shell and auger
 December 1976

Overburden 0.1 m
 Mineral 3.0 m
 Waste 8.4 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.1	0.1
Terrace 2	Gravel Gravel: fine and coarse, subangular to rounded, mainly quartzite, sandstone and igneous rock Sand: medium and coarse, angular to subrounded	3.0	3.1
Till	Clay, sandy, reddish brown; scattered angular to subrounded quartzite, sandstone and igneous pebbles	8.4	11.5
Erbistock Formation	Sandstone, red	0.5+	12.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
6	30	64	0.1-1.1	8	3	9	7	44	29	0
			1.1-2.1	3	2	12	17	40	26	0
			2.1-3.1	6	2	22	16	24	30	0
			Mean	6	2	15	13	36	28	0

Surface level +51.1 m
 Water struck at +48.3 m
 203 mm shell and auger
 November 1976

Overburden 1.0 m
 Mineral 2.9 m
 Waste 2.4 m
 Bedrock 3.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Terrace 1	Clay, silty, brown; scattered subangular to subrounded quartzite and sandstone pebbles	0.8	1.0
	Gravel, part 'clayey' Gravel: fine and coarse, subangular to rounded Sand: medium and coarse, angular to subrounded	2.9	3.9
Till	Clay, sandy, brown becoming purple-red towards base; scattered subangular to rounded quartzite and sandstone pebbles	2.4	6.3
Erbistock Formation	Mudstone, friable, red	3.2+	9.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
9	40	51	1.0-2.0	11	5	17	17	18	32	0
			2.0-2.9	10	7	22	10	21	30	0
			2.9-3.9	6	2	15	23	28	26	0
			Mean	9	5	18	17	22	29	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
1.0-2.0	6	1	53	32	—	8
2.9-3.9	7	4	44	26	4	15

Surface level + 56.8 m
 Water not encountered
 203 mm shell and auger
 November 1976

Overburden 0.6 m
 Mineral 4.4 m
 Waste 9.2 m
 Bedrock 0.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Terrace 3	Gravel, part 'clayey' sandy gravel Gravel: fine and coarse, subrounded to rounded Sand: medium, subangular to rounded	4.4	5.0
Till	Clay, sandy, reddish brown; scattered subangular to rounded quartzite, sandstone and igneous pebbles	9.2	14.2
Erbistock Formation	Sandstone, red	0.3+	14.5

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
7	42	51	0.6-1.6	14	8	52	3	9	14	0
			1.6-3.2	5	3	25	9	26	32	0
			3.2-3.7	10	2	40	7	24	17	0
			3.7-5.0	3	2	15	12	23	45	0
			Mean	7	4	30	8	21	30	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
0.6-1.6	5	5	43	26	21	—
3.7-5.0	12	3	40	31	13	1

Surface level + 50.3 m
 Water struck at + 45.8 m
 203 mm shell and auger
 November 1976

Overburden 5.8 m
 Mineral 2.9 m
 Bedrock 0.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	4.0	4.0
Alluvium	Clay, sandy towards base, grey-green	1.8	5.8
	Gravel Gravel: mainly coarse, subrounded to rounded Sand: medium and coarse	2.9	8.7
Erbistock Formation	Sandstone, silty, friable, red	0.8+	9.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
5	29	66	5.8-6.8	6	2	12	22	26	32	0
			6.8-7.8	4	1	16	14	24	41	0
			7.8-8.7	4	1	9	9	28	49	0
			Mean	5	1	13	15	26	40	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in + 4 mm fraction</i>				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
6.8-7.8	7	3	37	39	14

Surface level +62.5 m
 Water level not recorded
 203 mm shell and auger
 July 1978

Overburden 0.3 m
 Mineral 1.7 m
 Waste 8.4 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	'Very clayey' sand with a few pebbles, brown; fine, rare angular to subrounded pebbles, mainly quartzite and argillaceous rock	1.7	2.0
	Silt, sandy, brown	3.7	5.7
Till	Clay, silty, greyish brown	4.7	10.4
Bridgnorth Sandstone	Sandstone, reddish brown	0.1+	10.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
36	61	3	0.3-2.0	36	55	5	1	0	3	0

Surface level +50.7 m
 Water struck at +41.6 m
 203 mm shell and auger
 July 1978

Overburden 0.3 m
 Mineral 3.1 m
 Waste 2.1 m
 Mineral 2.0 m
 Waste 1.5 m
 Mineral 1.7 m
 Waste 2.0 m
 Mineral 2.7 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Terrace 2	a 'Clayey' gravel Gravel: fine and coarse, angular to rounded Sand: mainly medium and coarse	3.1	3.4
Till	Clay, sandy, orange-brown; scattered pebbles of quartzite, sandstone and igneous rock	2.1	5.5
Glacial Sand and Gravel	b 'Clayey' to 'Very clayey' sand, reddish brown; fine, scattered rounded pebbles	2.0	7.5
	Silt, sandy, reddish brown; few subrounded quartz pebbles	1.5	9.0
	c 'Very clayey' sand, reddish brown; fine	1.7	10.7
	Silt, sandy, red-brown; scattered subrounded quartz pebbles	2.0	12.7
	d 'Very clayey' sandy gravel Gravel: fine and coarse with cobbles, subangular to subrounded Sand: mainly fine	2.7	15.4
Bridgnorth Sandstone	Sandstone, red	0.1 +	15.5

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
						$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$
a	12	39	49	0.3-1.3	18	8	13	10	22	29	0
				1.3-2.3	6	11	16	15	23	29	0
				2.3-3.4	13	6	19	18	31	13	0
				Mean	12	8	16	15	26	23	0
b	24	74	2	5.5-6.5	13	84	2	0	1	0	0
				6.5-7.5	35	59	4	0	0	2	0
				Mean	24	71	3	0	1	1	0
c	35	65	0	9.0-10.7	35	64	1	0	0	0	0
d	31	51	18	12.7-13.7	36	32	12	4	5	11	0
				13.7-14.7	27	28	14	4	6	10	11
				14.7-15.4	28	39	24	2	1	3	3
				Mean	31	32	16	3	4	9	5
b-d	30	62	8	Mean	30	53	8	1	2	4	2
Total	24	55	21	Mean	24	38	11	6	10	10	1

COMPOSITION

	Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>					
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
a	1.3–2.3	14	trace	47	28	—	11
d	12.7–15.4	4	2	21	40	31	2

SJ51 SW81 5317 1475 Sundorne Castle, Uffington

Surface level +62 m
 Water not encountered
 203 mm shell and auger
 September 1978

Waste 12.7 m
 Bedrock 0.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
Till	Soil	0.4	0.4
	Clay, sandy, reddish brown with blue-grey gleying; rare rounded quartzite pebbles	3.9	4.3
	Clay, sandy, calcareous, brown; scattered subangular to rounded quartzite, igneous and argillaceous pebbles	8.4	12.7
Erbistock Formation	Sandstone, reddish brown	0.3+	13.0

Surface level +58.7 m
 Water level not recorded
 203 mm shell and auger
 July 1976

Overburden 0.3 m
 Mineral 4.0 m
 Waste 11.0 m
 Bedrock 1.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Terrace 3	Gravel, 'clayey' and sandy at top Gravel: fine and coarse, subangular to rounded Sand: mainly medium and coarse	4.0	4.3
Till	Clay, silty, sandy at base, brown; scattered pebbles	11.0	15.3
Erbistock Formation	Mudstone, micaceous, reddish brown	1.9+	17.2

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
5	35	60	0.3-1.5	11	12	19	15	24	19	0
			1.5-2.5	4	3	15	13	29	36	0
			2.5-3.5	2	2	12	21	36	27	0
			3.5-4.3	1	2	6	17	41	33	0
			Mean	5	5	14	16	32	28	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock
1.5-2.5	8	4	33	32	1	22
3.5-4.3	8	12	34	25	—	21

SJ51 SW 83 5350 1320 Downton, Upton Magna

Surface level +64.1 m
 Water not encountered
 203 mm shell and auger
 September 1978

Waste 13.0 m
 Bedrock 0.5 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
Till	Clay, sandy, brown; scattered subangular to rounded quartzite, sandstone, igneous rock and limestone pebbles	2.0	2.0
Glacial Lake Deposits	Clay, silty, laminated, calcareous, reddish brown	1.0	3.0
Till	Clay, sandy, calcareous, reddish brown; scattered subangular to rounded quartzite, sandstone, limestone, igneous and argillaceous pebbles	10.0	13.0
Erbistock Formation	Mudstone, red-purple	0.5+	13.5

SJ51 SW 84 5298 1016 Emstrey Cottages, Atcham

Surface level +47.7 m
 Water struck at +43.5 m
 203 mm shell and auger
 July 1978

Block B

Overburden 0.5 m
 Mineral 3.7 m
 Bedrock 0.1 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Terrace 1	'Clayey' gravel, part sandy gravel Gravel: fine and coarse, angular to subrounded Sand: fine to coarse, angular to subrounded	3.7	4.2
Bridgnorth Sandstone	Sandstone, red	0.1+	4.3

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
12	43	45	0.5-1.5	17	15	16	10	22	20	0
			1.5-2.5	13	8	16	13	26	24	0
			2.5-4.2	9	27	12	9	22	21	0
			Mean	12	19	14	10	23	22	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
0.5-1.5	10	2	48	29	9	2
2.5-4.2	8	5	47	30	10	—

SJ 51 SW 85 5459 1273 Downton, Upton Magna

Surface level +67.8 m
Water not encountered
203 mm shell and auger
December 1976

Waste 6.5 m
Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, silty becoming sandy below 1.1 m, reddish brown; scattered angular to rounded quartzite, sandstone and igneous pebbles	6.2	6.5
	'Very clayey' sandy gravel lens between 4.0 m and 4.7 m		
Erbistock Formation	Mudstone, red	0.5+	7.0

Surface level +55.3 m
 Water struck at +52.3 m
 203 mm shell and auger
 September 1978

Overburden 0.9 m
 Mineral 3.5 m
 Waste 2.1 m
 Mineral 2.5 m
 Waste 0.8 m
 Mineral 0.7 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.9	0.9
Glacial Sand and Gravel	a Pebbly sand, part gravel Gravel: mainly fine, subangular to rounded Sand: fine and medium	3.5	4.4
Till	Clay, sandy, reddish brown; scattered subrounded quartzite pebbles	2.1	6.5
Glacial Sand and Gravel	b 'Very clayey' sand, reddish brown; fine Clay, sandy, reddish brown; scattered quartzite, sandstone and argillaceous pebbles	2.5 0.8	9.0 9.8
	c Pebbly sand Gravel: fine, subangular to rounded Sand: mainly fine	0.7	10.5
Bridgnorth Sandstone	Sandstone, reddish brown	0.1 +	10.6

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	6	78	16	0.9-2.0	7	8	30	12	26	17	0
				2.0-3.0	5	38	51	3	2	1	0
				3.0-4.4	7	39	48	2	3	1	0
				Mean	6	29	43	6	10	6	0
b	36	64	0	6.5-9.0	36	55	8	1	0	0	0
c	9	73	18	9.8-10.5	9	34	28	11	17	1	0
b+c	30	66	4	Mean	30	51	12	3	4	0	0
a-c	18	72	10	Mean	18	39	29	4	7	3	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction					
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
a	0.9-2.0	7	1	43	30	19	—
c	9.8-10.5	10	2	23	32	31	2

SJ51 SE 20 5594 1405 Somerwood Farm, Upton Magna

Surface level +78.6 m
 Water not encountered
 203 mm shell and auger
 June 1976

Overburden 1.5 m
 Mineral 2.7 m
 Waste 2.6 m
 Bedrock 0.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	1.5	1.5
Glacial Sand and Gravel	'Clayey' pebbly sand Gravel: mainly coarse, subrounded Sand: fine and medium	2.7	4.2
Till	Clay, silty, reddish brown; scattered subrounded sandstone pebbles	2.6	6.8
Erbistock Formation	Mudstone, red	0.6+	7.4

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
12	68	20	1.5-2.5	11	11	34	6	9	29	0
			2.5-4.2	13	39	33	6	6	3	0
			Mean	12	29	33	6	7	13	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>					
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock	Conglomerate
1.5-4.2	29	2	30	15	6	18

SJ51 SE 21 5536 1311 Upton Hollow, Upton Magna

Surface level +76.3 m
 Water not encountered
 203 mm shell and auger
 June 1976

Waste 4.9 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; subangular to subrounded sandstone, quartzite and igneous pebbles, cobbles at base	4.6+	4.9
Hole abandoned due to rock obstruction			

SJ 51 SE 22 5561 1238 Corbet Arms, Upton Magna

Surface level +68.6 m
 Water not encountered
 203 mm shell and auger
 June 1976

Waste 10.7 m
 Bedrock 0.3 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, sandy, reddish brown; scattered subangular to subrounded sandstone and igneous pebbles	9.2	9.5
Glacial Lake Deposits	Clay, silty, laminated, greyish brown; few subrounded quartzite and sandstone pebbles	1.2	10.7
Bridgnorth Sandstone	Sandstone, red	0.3 +	11.0

SJ 51 SE 23 5572 1176 Upton Forge, Upton Magna

Surface level +53.7 m
 Water not encountered
 203 mm shell and auger
 June 1976

Block F

Waste 8.5 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Till	Clay, silty, pebbly, reddish brown	4.2	4.5
Glacial Lake Deposits	Clay, silty becoming sandy towards base, laminated, reddish brown	2.1	6.6
Till	Clay, sandy, pebbly, reddish brown	0.6	7.2
	'Clayey' pebbly sand, reddish brown; fine and medium	1.3	8.5
Bridgnorth Sandstone	Sandstone, friable, red	0.5 +	9.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$\frac{-1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
14	78	8	7.2-8.5	14	34	41	3	4	4	0

Surface level +49.9 m
 Water struck at +45.9 m
 203 mm shell and auger
 September 1978

Overburden 1.5 m
 Mineral 1.5 m
 Waste 1.0 m
 Mineral 1.0 m
 Bedrock 3.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Terrace 1	Clay, sandy, brown; scattered subangular to rounded quartzite, sandstone and igneous pebbles	1.0	1.5
	a Sandy gravel Gravel: fine and coarse, subangular to rounded Sand: mainly medium	1.5	3.0
? Till	Clay, silty, bluish grey	1.0	4.0
? Glacial Sand and Gravel	b Gravel Gravel: mainly coarse with cobbles, angular to rounded Sand: medium	1.0	5.0
Bridgnorth Sandstone	Sandstone, friable, reddish brown	3.2+	8.2

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{-}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	9	53	38	1.5-3.0	9	11	36	6	15	23	0
b	2	47	51	4.0-5.0	2	3	42	2	13	31	7
a+b	6	51	43	Mean	6	8	39	4	14	26	3

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction				
		Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
a	1.5-3.0	35	20	29	14	2
b	4.0-5.0	28	1	23	39	9
a+b	Mean	32	11	26	26	5

SJ 51 SE 25 5563 1024 Deer Park, Wroxeter

Block F

Surface level +50 m
Water not encountered
203 mm shell and auger
July 1978

Overburden 0.2 m
Mineral 2.3 m
Waste 6.0 m
Bedrock 2.2 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Glacial Sand and Gravel	a Pebbly sand Gravel: fine, rounded, mainly quartzite with igneous rock, sandstone and quartz Sand: fine and medium	2.3	2.5
Till	Clay, sandy, brown; scattered subangular to subrounded quartzite, igneous and argillaceous pebbles	5.0	7.5
Glacial Sand and Gravel	b 'Clayey' sandy gravel Gravel: fine and coarse, subangular to subrounded, mainly quartzite with sandstone and igneous rock Sand: fine and medium	1.0	8.5
Bridgnorth Sandstone	Sandstone, friable, red	2.2+	10.7

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines		Sand		Gravel		
					-1/16	+1/16-1/4	+1/4-1	+1-4	+4-16	+16-64	+64
a	4	80	16	0.2-1.2	3	34	63	0	0	0	0
				1.2-2.5	4	23	24	11	19	9	0
				Mean	4	28	46	6	11	5	0
b	19	52	29	7.5-8.5	19	23	22	7	13	16	0

SJ 51 SE 26 5717 1485 Drury Lane, Rodington

Block F

Surface level +62.5 m
Water not encountered
203 mm shell and auger
December 1976

Waste 4.0 m
Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Clay, sandy, reddish brown; few subrounded quartzite and sandstone pebbles	0.5	0.8
	Sand, 'clayey', reddish brown; few subrounded to rounded quartzite, sandstone and igneous rock	0.6	1.4
Till	Clay, sandy, reddish brown; scattered angular to subrounded quartzite, sandstone and igneous pebbles	2.6	4.0
Erbistock Formation	Sandstone, red	0.5+	4.5

SJ 51 SE 27 5640 1327 Hunkington, Upton Magna

Surface level +72.4 m
 Water not encountered
 203 mm shell and auger
 November 1976

Overburden 0.5 m
 Mineral 1.0 m
 Waste 1.4 m
 Bedrock 1.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	'Very clayey' pebbly sand Gravel: mainly fine, subangular to subrounded, mainly quartzite and sandstone Sand: mainly medium	1.0	1.5
Till	Clay, sandy, reddish brown; scattered angular to subrounded quartzite, sandstone and igneous pebbles	1.4	2.9
Bridgnorth Sandstone	Sandstone, friable, red	1.1 +	4.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$1-4$	$4-16$	$16-64$	64
25	65	10	0.5-1.5	25	17	43	5	7	3	0

SJ 51 SE 28 5650 1233 Rea Farm, Upton Magna

Surface level +55.8 m
 Water not encountered
 203 mm shell and auger
 June 1976

Waste 7.2 m
 Bedrock 0.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, silty, reddish brown, mottled yellowish brown in upper 1.4 m; few rounded sandstone, quartzite and igneous pebbles	5.5	5.9
	'Very clayey' sandy gravel lens, scattered subrounded sandstone	0.5	6.4
	Clay, sandy, pebbly, reddish brown	0.8	7.2
Bridgnorth Sandstone	Sandstone, friable, red	0.8 +	8.0

SJ 51 SE 29 5649 1100 Smethcott, Wroxeter

Block F

Surface level +56.6 m
Water not encountered
203 mm shell and auger
June 1978

Overburden 0.6 m
Mineral 1.1 m
Waste 6.3 m
Bedrock 7.1 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Glacial Sand and Gravel	Sand with a few pebbles, yellowish brown; mainly medium and coarse	1.1	1.7
Till	Clay, sandy, brown	6.3	8.0
Bridgnorth Sandstone	Sandstone, friable, reddish brown	7.1+	15.1

SJ 51 SE 30 5657 1050 Uckington Heath, Wroxeter

Block F

Surface level +53 m
Water not encountered
203 mm shell and auger
June 1978

Waste 8.3 m
Bedrock 4.0 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	1.4	1.4
Till	Clay, sandy, pebbly, reddish brown	6.9	8.3
Bridgnorth Sandstone	Sandstone, friable, reddish brown	4.0+	12.3

Surface level + 54.6 m
 Water struck at +49.1 m
 203 mm shell and auger
 June 1978

Overburden 0.2 m
 Mineral 1.0 m
 Waste 5.8 m
 Mineral 3.2 m
 Bedrock 2.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Glacial Sand and Gravel	a Sand fine and medium	1.0	1.2
Till	Clay, sandy, brown with blue-grey gleying; scattered subangular to subrounded pebbles	4.0	5.2
	Silt, sandy, brown	1.8	7.0
Glacial Sand and Gravel	b 'Clayey' pebbly sand, part 'very clayey', part gravel Gravel: fine and coarse, angular to rounded Sand: fine and medium	3.2	10.2
Bridgnorth Sandstone	Sandstone, friable, red	2.1+	12.3

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines		Sand		Gravel		
					- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
a	7	92	1	0.2-1.2	7	39	52	1	0	1	0
b	13	70	17	7.0-8.5	22	62	16	0	0	0	0
				8.5-9.5	5	25	64	2	1	3	0
				9.5-10.2	6	5	10	8	28	43	0
				Mean	13	38	30	2	7	10	0
a+b	12	75	13	Mean	12	38	35	2	5	8	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction						
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Conglomerate
b	9.5-10.2	20	1	36	20	10	12	1

Surface level +54.9 m
 Water not encountered
 203 mm shell and auger
 June 1976

Overburden 1.4 m
 Mineral 1.6 m
 Waste 4.1 m
 Mineral 1.4 m
 Bedrock 1.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Silt, sandy, brown; few subrounded sandstone and quartzite pebbles	1.0	1.4
	a Pebbly sand Gravel: mainly fine, subrounded Sand: medium	1.6	3.0
Till	Clay, sandy, pebbly, brown	1.7	4.7
Glacial Lake Deposits	Clay, laminated, brown	2.4	7.1
Glacial Sand and Gravel	b 'Clayey' pebbly sand Gravel: mainly fine, subrounded Sand: fine and medium	1.4	8.5
Bridgnorth Sandstone	Sandstone, friable, reddish brown	1.0+	9.5

GRADING

	Mean for deposit percentages			Depth below surface (m)	percentages						
	Fines	Sand	Gravel		Fines	Sand			Gravel		
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	6	84	10	1.4-2.4 2.4-3.0 Mean	6 6 6	7 9 8	67 76 70	7 5 6	9 3 7	4 1 3	0 0 0
b	15	67	18	7.1-8.1 8.1-8.5 Mean	17 12 15	38 35 37	16 39 23	9 2 7	15 3 12	5 9 6	0 0 0
a+b	11	76	13	Mean	11	21	48	7	9	4	0

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction							
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
a	1.4-3.0	27	4	54	10	3	2	trace	—
b	7.1-8.5	6	2	63	14	12	2	trace	1
a+b	Mean	14	3	60	12	8	2	—	1

SJ 51 SE 33 5753 1115 Duncot, Wroxeter

Block F

Surface level +59.0 m
 Water not encountered
 203 mm shell and auger
 June 1978

Overburden 0.7 m
 Mineral 1.3 m
 Bedrock 2.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.7	0.7
Glacial Sand and Gravel	'Clayey' pebbly sand, yellowish brown; mainly medium, subangular to subrounded pebbles	1.3	2.0
Bridgnorth Sandstone	Sandstone, friable, reddish brown	2.5+	4.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
16	78	6	0.7-2.0	16	25	49	4	4	2	0

SJ 51 SE 34 5734 1041 Slate Cottages, Wroxeter

Block F

Surface level +55.4 m
 Water not encountered
 203 mm shell and auger
 June 1978

Waste 5.5 m
 Bedrock 3.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Made ground	1.2	1.2
Till	Clay, sandy, pebbly, brown with grey-green mottling at top	3.8	5.0
Glacial Lake Deposits	Clay, silty, laminated, brown	0.5	5.5
Bridgnorth Sandstone	Sandstone, friable, red-brown	3.5+	9.0

Surface level +58.5 m
 Water not encountered
 203 mm shell and auger
 June 1976

Overburden 0.2 m
 Mineral 1.6 m
 Waste 7.6 m
 Bedrock 1.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
Glacial Sand and Gravel	'Clayey' pebbly sand Gravel: mainly fine, subrounded Sand: medium	1.6	1.8
Glacial Lake Deposits	Clay, silty, laminated, greyish brown	6.9	8.7
Till	Clay, sandy, pebbly, reddish brown	0.7	9.4
Bridgnorth Sandstone	Sandstone, friable, red	1.6+	11.0

GRADING

Mean for deposit percentages			Depth below surface (m)	percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
11	76	13	0.2-1.0	10	17	54	5	8	6	0
			1.0-1.8	11	7	63	6	9	4	0
			Mean	11	12	59	5	8	5	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.2-1.8	21	7	50	20	2

Surface level +55.9 m
 Water struck at +45.9 m
 203 mm shell and auger
 September 1978

Overburden 0.4 m
 Mineral 2.4 m
 Waste 7.2 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Glacial Sand and Gravel	Pebbly sand Gravel: fine and coarse, subangular to rounded Sand: medium, angular to rounded	2.4	2.8
Till	Clay, sandy, brown; scattered subrounded quartzite, sandstone and igneous pebbles	7.2	10.0
Bridgnorth Sandstone	Sandstone, reddish brown	0.5+	10.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
1	86	13	0.4-2.8	1	7	65	14	6	7	0

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.4-2.8	14	4	57	23	2

SJ51 SE37 5835 1268 S.E. of Withington

Block F

Surface level +52.5 m
 Water struck at +46.2 m
 203 mm shell and auger
 June 1978

Overburden 6.3 m
 Mineral 5.2 m
 Bedrock 2.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Till	Clay, sandy, calcareous, brown; scattered subrounded pebbles	5.8	6.3
Glacial Sand and Gravel	Sandy gravel, part gravel Gravel: fine and coarse with cobbles, subangular to subrounded Sand: fine and medium	5.2	11.5
Bridgnorth Sandstone	Sandstone, friable, red	2.1+	13.6

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
6	49	45	6.3-7.3	3	16	22	8	23	28	0
			7.3-8.6	8	27	24	6	17	18	0
			8.6-10.5	6	21	19	5	14	20	15
			10.5-11.5	5	21	25	6	15	22	6
			Mean	6	21	22	6	17	21	7

COMPOSITION

Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>							
	Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
6.3-7.3	19	4	40	10	6	20	trace	1
10.5-11.5	40	4	19	8	15	8	—	6

SJ51 SE 38 5838 1140 Walcot Waste, Wrockwardine

Block F

Surface level +58 m
 Water struck at +53.1 m
 203 mm shell and auger
 September 1978

Overburden 4.9 m
 Mineral 3.1 m
 Bedrock 1.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.6	0.6
Till	Clay, sandy, brown with blue-grey gleying; scattered subangular to rounded quartzite and igneous pebbles	2.4	3.0
Glacial Lake Deposits	Clay, laminated, reddish brown; few rounded quartzite pebbles	1.9	4.9
Glacial Sand and Gravel	Sandy gravel, part gravel Gravel: mainly coarse, subangular to rounded Sand: mainly medium, angular to rounded	3.1	8.0
Bridgnorth Sandstone	Sandstone, friable, red	1.5+	9.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand		Gravel			
				$\frac{1}{16}$	$\frac{1}{16}-\frac{1}{4}$	$\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
3	57	40	4.9-5.9	4	18	53	15	8	2	0
			5.9-6.9	5	20	48	6	7	14	0
			6.9-8.0	1	3	10	2	27	57	0
			Mean	3	13	36	8	14	26	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction			
	Igneous rock	Quartz	Quartzite	Sandstone
6.9-8.0	23	13	64	trace

SJ51 SE 39 5860 1041 Wheathill Farm, Wroxeter

Block F

Surface level +84.6 m
 Water not encountered
 203 mm shell and auger
 June 1978

Waste 18.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.8	0.8
Till	Clay, sandy, orange-brown becoming brown below 4.9 m; few subangular to subrounded pebbles	15.2	16.0
Glacial Lake Deposits	Clay, sandy, laminated, brown	2.0+	18.0

Surface level + 56.0 m
 Water struck at + 53.2 m
 203 mm shell and auger
 December 1976

Overburden 0.5 m
 Mineral 2.5 m
 Waste 1.3 m
 Mineral 1.2 m
 Bedrock 0.5 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Glacial Sand and Gravel	a Sandy gravel Gravel: mainly fine, angular to subrounded Sand: medium, angular to rounded	2.5	3.0
Till	Clay, sandy, brown; scattered subangular to subrounded quartzite, sandstone and igneous pebbles	1.3	4.3
Glacial Sand and Gravel	b 'Very clayey' pebbly sand Gravel: fine and coarse, subangular to subrounded Sand: fine and medium, subangular to subrounded	1.2	5.5
Bridgnorth Sandstone	Sandstone, red	0.5+	6.0

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	7	64	29	0.5-1.5	5	10	56	6	15	8	0
				1.5-3.0	8	4	38	17	22	11	0
				Mean	7	6	45	13	19	10	0
b	24	62	14	4.3-5.5	24	24	33	5	6	8	0
a + b	12	64	24	Mean	12	12	42	10	15	9	0

COMPOSITION

	Depth below surface (m)	<i>Percentage by weight in +4 mm fraction</i>								
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate	Calcite
a	0.5-3.0	36	8	33	21	—	—	1	1	—
b	4.3-5.5	28	3	36	16	4	10	—	1	2
a + b	Mean	34	7	34	20	1	2	1	1	trace

Surface level +48.5 m
 Water struck at +46.5 m
 203 mm shell and auger
 June 1978

Overburden 0.5 m
 Mineral 2.1 m
 Waste 4.4 m
 Mineral 1.8 m
 Bedrock 0.1 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.5	0.5
Terrace 2	a Gravel, part 'clayey' Gravel: mainly coarse with a few cobbles, subrounded to rounded Sand: mainly medium	2.1	2.6
Till	Clay, sandy, calcareous, brown; few angular to subangular pebbles	4.4	7.0
Glacial Sand and Gravel	b 'Very clayey' pebbly sand Gravel: fine and coarse with cobbles, angular to rounded Sand: fine	1.8	8.8
Bridgnorth Sandstone	Sandstone, reddish brown	0.1 +	8.9

GRADING

	Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
	Fines	Sand	Gravel		Fines			Gravel			
					$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
a	9	38	53	0.5-1.5 1.5-2.6 Mean	6 11 9	12 8 10	24 21 22	7 5 6	21 15 18	30 37 34	0 3 1
b	29	63	8	7.0-8.8	29	42	19	2	3	2	3
a+b	18	50	32	Mean	18	25	21	4	11	19	2

COMPOSITION

	Depth below surface (m)	Percentage by weight in +4 mm fraction							
		Igneous rock	Quartz	Quartzite	Sandstone	Limestone	Argillaceous rock	Flint	Conglomerate
a	0.5-1.5	34	5	40	10	—	8	trace	3
	1.5-2.6	41	14	36	6	1	trace	1	1
	Mean	38	10	38	8	trace	4	trace	2

Surface level +49.7 m
 Water not encountered
 203 mm shell and auger
 June 1976

Overburden 0.4 m
 Mineral 2.3 m
 Bedrock 1.8 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Terrace 2	Sandy gravel, part 'clayey' Gravel: fine, subrounded Sand: mainly medium	2.3	2.7
Bridgnorth Sandstone	Sandstone, friable, red	1.8+	4.5

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines		Sand		Gravel		
				$-\frac{1}{16}$	$+\frac{1}{16}-\frac{1}{4}$	$+\frac{1}{4}-1$	$+1-4$	$+4-16$	$+16-64$	$+64$
8	62	30	0.4-1.4	12	26	31	7	20	4	0
			1.4-2.7	5	4	39	18	21	13	0
			Mean	8	14	35	13	21	9	0

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
0.4-2.7	31	12	45	10	2

SJ51 SE43 5946 1135 Charlton, Wrockwardine

Block F

Surface level +71.3 m
 Water not encountered
 203 mm shell and auger
 July 1976

Overburden 0.3 m
 Mineral 3.3 m
 Waste 12.6 m
 Bedrock 1.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Glacial Sand and Gravel	Gravel, part 'clayey' and sandy Gravel: fine and coarse with cobbles, subrounded Sand: fine to coarse	3.3	3.6
Till	Clay, sandy becoming silty below 7.5 m, reddish brown; scattered subangular to subrounded pebbles	5.2	8.8
	Clay, sandy, grey-brown; scattered subangular to subrounded pebbles	5.5	14.3
Glacial Lake Deposits	Clay, laminated, brown	1.9	16.2
Bridgnorth Sandstone	Sandstone, friable, red	1.6+	17.8

GRADING

Mean for deposit <i>percentages</i>			Depth below surface (m)	<i>percentages</i>						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{16}$	+ $\frac{1}{16}$ - $\frac{1}{4}$	+ $\frac{1}{4}$ -1	+1-4	+4-16	+16-64	+64
9	42	49	0.3-1.4	15	26	21	8	10	15	5
			1.4-2.7	4	8	8	10	26	31	13
			2.7-3.6	9	14	16	18	19	17	7
			Mean	9	16	15	11	19	22	8

COMPOSITION

Depth below surface (m)	Percentage by weight in +4 mm fraction				
	Igneous rock	Quartz	Quartzite	Sandstone	Argillaceous rock
1.4-2.7	36	1	34	27	2

SJ51 SE44 5981 1035 Bluebell, Wrockwardine

Block F

Surface level +89.6 m
 Water struck at +79.6 m
 203 mm shell and auger
 September 1978

Waste 10.0 m
 Bedrock 4.6 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.4	0.4
Till	Clay, sandy, reddish brown; scattered subangular to subrounded quartzite, igneous rock and sandstone pebbles	9.6	10.0
Erbistock Formation	Sandstone, friable, reddish brown	4.6+	14.6

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