



**British Geological Survey
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Keyworth
Nottingham
Nottinghamshire
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Borehole Data Pack:

This package provides additional data relating to your selected borehole record ordered via GeoRecordsPlus. It provides index listings of other information held in some key BGS databases for your site and a geological map extract for the surrounding area, taken from the 1:50,000 scale BGS digital geological map of Great Britain (DiGMapGB-50).

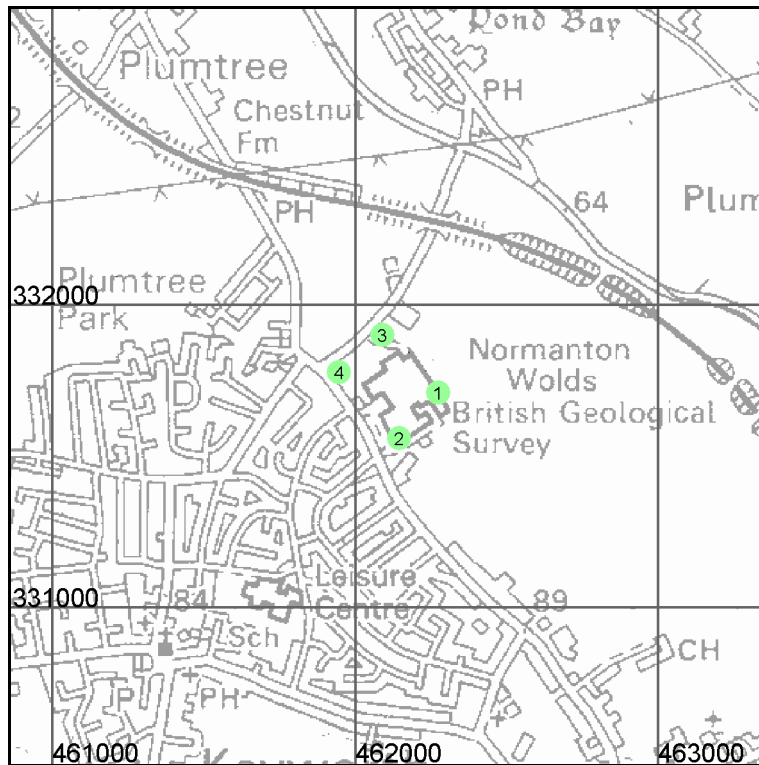
It should be noted that this package is not a comprehensive listing of all BGS data holdings and other data may be available. Note that index data is also accessible through the BGS Internet Geoscience Data Index on the BGS website at www.bgs.ac.uk If you wish to place an order for any of the index data please e-mail enquiries@bgs.ac.uk

Report Id: *BH_TESTKW_1*

Client reference: Example Report

Borehole location map

This map shows the locations of the boreholes you have ordered.



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Scale: 1:25 000 (1cm = 250 m)

Key

Number on Map	Borehole Number
1	SK63SW33
2	SK63SW34
3	SK63SW35
4	SK63SW38

Geological Map Extracts

This part of the pack contains extracts of geological maps taken from the 1:50 000 scale BGS Digital Geological Map of Great Britain (DiGMapGB-50). The geological information in DiGMapGB is separated into four themes: artificial ground, landslide deposits, superficial deposits and bedrock, shown here in separate maps. The fifth 'combined geology' map superimposes all four of these themes, to show the geological formations that occur at the surface, just beneath the soil.

More information about DiGMapGB-50 and how the various geological units are classified can be found on the BGS website (www.bgs.ac.uk). The maps are labelled with two-part computer codes that indicate the name of the geological unit and its composition. Descriptions of the units listed in the map keys may be available in the BGS Lexicon of Named Rock Units, which is also on the BGS website (<http://www.bgs.ac.uk/lexicon/>). If available, these descriptions can be found by searching against the first part of the computer code used on the maps. Please treat this labelling with caution in areas of complex geology, where some of the labels may overlap occurrences of several geological formations. If in doubt, please contact BGS Enquiries for clarification.

In the map keys the geological units are listed in order of their age, as defined in the BGS Lexicon, with the youngest first. However, where units are of the same defined age they are listed alphabetically and this may differ from the actual geological sequence.

Artificial ground: This is ground at or near the surface that has been modified by man. It includes ground that has been deposited (Made Ground), landscaped, disturbed, excavated (Worked Ground) or some combination of these.

Landslide deposits: These are deposits formed by localised mass-movement of soils and rocks on slopes under the action of gravity. Landslides may occur within the bedrock, superficial deposits or artificial ground; and the landslide deposits may themselves be artificially modified.

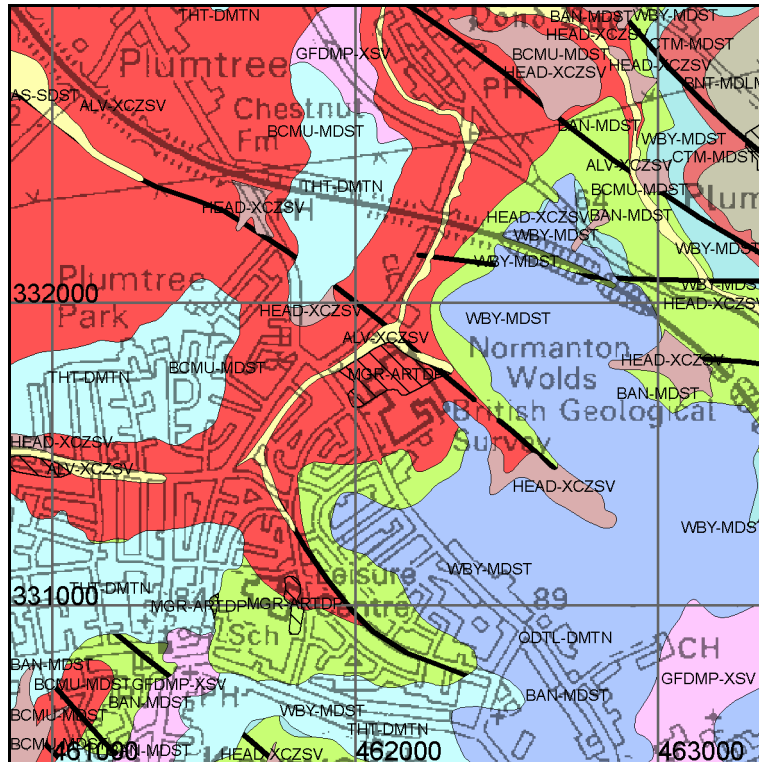
Superficial deposits: These are relatively young geological deposits, formerly known as 'Drift', which lie on the bedrock in many areas. They include deposits such as unconsolidated sands and gravels formed by rivers, and clayey tills formed by glacial action. They may be overlain by landslide deposits or by artificial deposits, or both.

Bedrock: Bedrock forms the ground underlying the whole of an area, commonly overlain by superficial deposits, landslide deposits or artificial deposits, in any combination. The bedrock formations were formerly known as the 'Solid Geology'.

Combined 'Surface Geology' Map: This map shows all the geological themes from the previous four maps overlaid in order of age.



Combined 'Surface Geology' Map

This map shows the surface elements of all four geological layers. Please see keys to the Artificial, Landslide, Superficial and Bedrock geology maps



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Scale: 1:25 000 (1cm = 250 m)

-  Fault
-  Coal, ironstone or other mineral vein

Note: Faults and Coals, ironstone & mineral veins are shown for illustration and to aid interpretation of the map. Not all such features are shown and their absence on the map face does not necessarily mean that none are present



Key to Artificial ground:

Map colour	Computer Code	Name of geological unit	Composition
	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

Key to Landslide deposits:

No deposits found in the search area

Key to Superficial deposits:

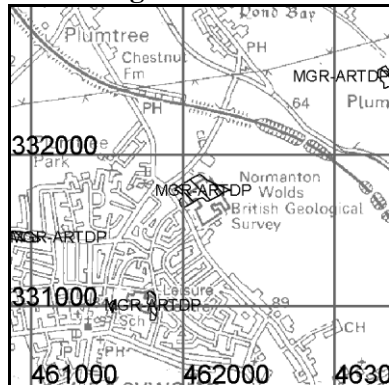
Map colour	Computer Code	Name of geological unit	Composition
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
	ODTL-DMTN	OADBY MEMBER (LIAS-RICH)	DIAMICTON
	THT-DMTN	THRUSSINGTON TILL	DIAMICTON
	GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

Key to Bedrock geology:

Map colour	Computer Code	Name of geological unit	Rock type
	BNT-MDLM	BARNSTONE MEMBER	MUDSTONE AND LIMESTONE, INTERBEDDED
	CTM-MDST	COTHAM MEMBER	MUDSTONE
	WBY-MDST	WESTBURY FORMATION	MUDSTONE
	BAN-MDST	BLUE ANCHOR FORMATION	MUDSTONE
	BCMU-MDST	BRANSCOMBE MUDSTONE FORMATION	MUDSTONE
	AS-SDST	ARDEN SANDSTONE FORMATION	SANDSTONE



Artificial ground



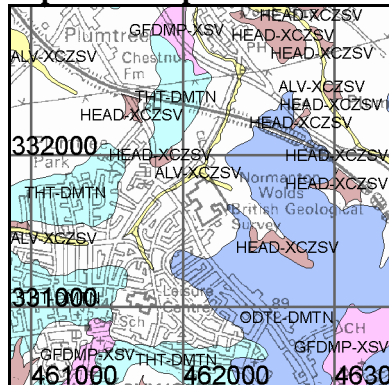
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Landslide deposits



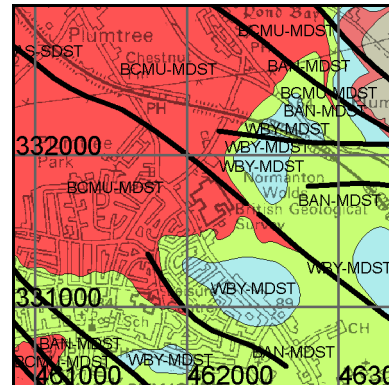
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Superficial deposits



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Bedrock



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Please see key on previous page.

Geoscience Data List

List of available geological data

This section lists the data sets, in addition to boreholes and well records, that are held in the National Geoscience Records Centre that are relevant to your enquiry. Users with access to computing facilities can make their own index searches using the BGS Internet; go to 'Online shops' at www.bgs.ac.uk This will give access to the BGS Bookshop, Publications catalogue, GeoRecords (borehole browser) and GeoReports.

If you want to order any of the data please contact enquiries on enquiries@bgs.ac.uk. For current pricing see internet pages above or do not hesitate to contact us using the list found at the back of this pack.

Note that this list contains selective datasets and is not a definitive listing of all data held in BGS

Site investigation reports

Number of records in search area: 5

Additional laboratory and test data may be available in these reports, subject to any copyright and confidentiality conditions. The grid references used are based on an un-refined rectangle and therefore may not be applicable to a specific site. Borehole records in these reports will be individually referenced within the borehole records collection.

Number	Site investigation title
508	GAMSTON TO LINGS BAR
3838	RESEARCH PROGRAMME TO ASSESS THE POTENTIALLY WORKABLE SAND AND GRAVEL RESOURCES IN THE SOAR VALLEY LEICESTERSHIRE
12934	OWTHORPE LANE COTGRAVE
23324	KEYWORTH
51709	LAND OFF SELBY LANE KEYWORTH

National Grid geological maps (1:10 000 and 1:10 560 scale)

Number of records in search area: 1

Map	Type	Survey
SK63SW	C	1988

County Series geological maps (1:10 560 scale)

Number of records in search area: 4

Map	Type	Published
Nottinghamshire46NE		1906
Nottinghamshire46NE	C	0
Nottinghamshire46SE	C	0
Nottinghamshire46SE		1906

New Series medium scale geological maps (1:50 000 and 1:63 360 scale)

Number of records in search area: 4

Sheet number	Sheet name	Type	Published
142	Melton Mowbray	C	2002
142	Melton Mowbray	D	1909
142	Melton Mowbray	D	1959
142	Melton Mowbray	D	1969

Old Series one inch geological maps (1:63 360 scale)

Number of records in search area: 1

Sheet number	Sheet name	Type	Published
71SE	Loughborough	S	1879

Hydrogeological maps (various scales)

Number of records in search area: 0

BGS holds no hydrogeological maps for the selected area

Geological Memoirs

Number of records in search area: 2

Geological memoir	Date
Melton Mowbray	2002
Melton Mowbray & SE Notts	1909

Technical reports

Technical reports may be available for this area. Please see <http://geolib.bgs.ac.uk>

Waste sites

Number of records in search area: 0

Listing of some 3500 waste sites for England and Wales identified by BGS as part of a survey carried out on behalf of the Department of the Environment in 1973. Later information may be available from the Local authority.

BGS holds no records of waste sites for the selected area

Mining plans

Number of records in search area: 139

This listing includes plans of various types, principally relating to mining activity including abandonment plans. The coverage is not comprehensive; however that for Scotland is most complete.

Record Type	Plan No.	Title
KP	10515	COTGRAVE COLLIERY DEEP HARD SEAM SOUTH SIDE
KP	10516	COTGRAVE COLLIERY DEEP HARD PIPER TUPTON &BLACKSHALE SEAMS
KP	10524	COTGRAVE COLLIERY DEEP HARD SEAM SOUTH SIDE
KP	10525	COTGRAVE COLLIERY DEEP HARD SEAM SOUTH SIDE
KP	10526	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10527	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10528	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10529	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10530	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10531	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10538	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10544	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10545	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10546	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10547	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10548	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10549	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10550	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10551	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10552	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10553	COTGRAVE COLLIERY DEEP SOFT SEAM
KP	10554	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10555	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10556	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10557	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10558	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10559	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10560	COTGRAVE COLLIERY DEEP SOFT SEAM
KP	10561	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10562	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10563	COTGRAVE COLLIERY PARKGATE SEAM
KP	10564	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10565	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10566	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10567	COTGRAVE COLLIERY DEEP HARD SEAM
KP	10568	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10569	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	10570	COTGRAVE COLLIERY PARKGATE SEAM
KP	10571	COTGRAVE COLLIERY DEEP HARD SEAM



Record Type	Plan No.	Title
KP	10572	COTGRAVE COLLIERY BLACKSHALE SEAM
KP	12002	INTERPRETATION OF FAULTING AT DEEP HARD LEVEL
KP	12003	NOTTINGHAMSHIRE COAL MEASURES
KP	12004	INTERPRETATION OF FAULTING AT DEEP HARD LEVEL
KP	12006	SEAM PLAN
KP	12025	COTGRAVE COLLIERY
KP	12026	COTGRAVE COLLIERY
KP	12027	INTERPRETATION OF FAULTING AT DEEP HARD LEVEL
KP	12028	INTERPRETATION OF FAULTING AT DEEP HARD LEVEL
KP	12030	COTGRAVE COLLIERY
KP	12058	NORTH EAST LEICESTERSHIRE PROSPECT ASFORDBY MINE
KP	12059	NORTH EAST LEICESTERSHIRE PROSPECT ASFORDBY MINE
KP	12061	ASFORDBY MINE VALE OF BELVOIR PROSPECT
KP	12064	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT
KP	12083	ASFORDBY MINE PROSPECT NORTH EAST LIECESTERSHIRE PROSPECT
KP	12141	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT BELVOIR PROSPECT
KP	12143	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12144	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12145	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12146	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12147	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12154	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12155	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12158	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12160	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12161	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12162	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12163	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12164	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12165	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT



Record Type	Plan No.	Title
KP	12166	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12167	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12168	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12169	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12170	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12171	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12172	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12173	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12174	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12175	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12176	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12177	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12178	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12179	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12180	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12181	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12182	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12183	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12184	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12199	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12200	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12210	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12211	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT



Record Type	Plan No.	Title
KP	12212	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12218	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12225	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12226	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12228	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12245	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12246	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12247	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12254	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12257	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12258	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12259	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12260	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12261	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12262	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12281	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12294	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12295	ASFORDBY MINE NORTH EAST LEICESTERSHIRE PROSPECT VALE OF BELVOIR PROSPECT
KP	12415	COTGRAVE PROSPECT H74 AREA 1983 PRELIM INTERP BASE MAP
KP	12416	COTGRAVE PROSPECT H74 AREA 1983 PRELIM INTERP FAULT STRUCTURE
KP	12421	COTGRAVE PROSPECT HOE HILL 1984 PRELIM SIESMIC INTERP SP BASE MAP
KP	12422	COTGRAVE PROSPECT HOE HILL 1984 PRELIM DEEP HARD HORIZON
KP	12428	COTGRAVE PROSPECT 1985 SURVEY SP MAP
KP	12430	COTGRAVE PROSPECT GEOPHONE LOCATION MAP
KP	14029	MINING AREAS UNDERGROUND DEEP MINING AND GYPSUM
KP	18138	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT



Record Type	Plan No.	Title
KP	18139	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18152	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18159	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18165	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18173	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18188	BELVOIR PROSPECT NORTH EAST LEICESTERSHIRE PROSPECT
KP	18191	WESTPHALIAN A & B OF THE COALFIELDS OF ENGLAND & WALES (INCLUDING CANONBIE)
KP	18352	MINING LOCATIONS DEEP HARD SEAM SEE ALSO MICROFICH EM1406
KP	2490	DEEP HARD SEAM
KP	2510	PIPER SEAM
KP	2511	PIPER SEAM
KP	4637	WEST YORKSHIRE GRAVEL SURVEY
KP	4696	EXAMINATION PLAN DEEP HARD SEAM
KP	8278	CONCEALED YORKS-NOTTS COALFIELD 3RD EDIT (MEM GEOL SURVEY) PLATE 1.
KP	8350	LOCATIONS OF COLLIERIES AND BOREHOLES. NORTH MIDLANDS AND LINCOLNSHIRE PITS.
KP	8353	NOTTINGHAMSHIRE AND NORTH DERBYSHIRE SEAM PLANS. LOCATIONS OF MAIN COLLIERIES.
KP	9826	NOTTINGHAMSHIRE COALFIELD COTGRAVE COLLIERY
KP	9839	NOTTINGHAMSHIRE COALFIELD COTGRAVE COLLIERY
KP	9858	NOTTINGHAMSHIRE COALFIELD COTGRAVE COLLIERY
KP	9864	NOTTINGHAMSHIRE COALFIELD COTGRAVE COLLIERY
KP	987	DEEP HARD SEAM WORKINGS

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Customers should be aware of the following factors and limitations that may affect the quality or accuracy of records information supplied:

1. Geological observations are made according to the prevailing understanding of the subject at the time. The quality of such observations may be affected by subsequent advances in knowledge or improved methods of interpretation and better access to sampling locations.
2. Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
3. Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
4. The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
5. Data supplied by external organisations to the BGS, and which the BGS makes available to others, is provided 'as is' without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of fitness for a purpose.
6. Data, information and related records that have been donated to BGS have been produced for a specific purpose, and that may affect the type and completeness of the data recorded and any interpretation. The nature and purpose of data collection, and the age of the resultant material may render it unsuitable for certain applications/uses. Customers/recipients of such material are advised that it is their responsibility to verify the suitability of the material for their intended usage.
7. The data, information and related records supplied by the BGS should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. Professional advice should be sought before making technical interpretations on the basis of the materials provided.
8. Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.



9. Data may be compiled from the disparate sources of information at BGS's disposal, including material donated to BGS by third parties, and may not originally have been subject to any verification or other quality control process.
10. If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.
11. The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
12. Note that for some sites, the latest available records may be quite historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

Availability of goods

The maps provided on this website show where the various records are available. However, if for some reason, after you have paid for a record, the BGS is unable to provide it (for example, due to data or computing problems), we will inform you and offer an alternative record or a full refund.

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When acknowledging receipt of your complaint, we will give an indication of how long it will take to send you a detailed response. In most cases, we would aim to provide a detailed response within ten working days. However, this may not always prove possible, especially if we need to obtain further information. In these cases, we will keep you fully informed on the progress of your complaint, and endeavour to provide you with as full a response as possible as soon as we can.

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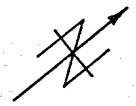
SK63SW/27-35

Wolds Drive

Nicker Hill

Mount Pleasant

- Key.**
-  Existing Buildings.
 -  Proposed Extensions.
 -  Boreholes.



Geological Investigations Ltd.
 GEOTECHNICAL ENGINEERS,
 48, BOLD STREET, ALTRINCHAM,
 CHESHIRE, WA14 2ER. TEL. 061.941.1535

TITLE
KEYWORTH, Notts.
Institute of Geological Sciences
Sketch Site Plan.

SCALE c. 1:1250
 DATE
 DRAWING NO. **NT/54/2**

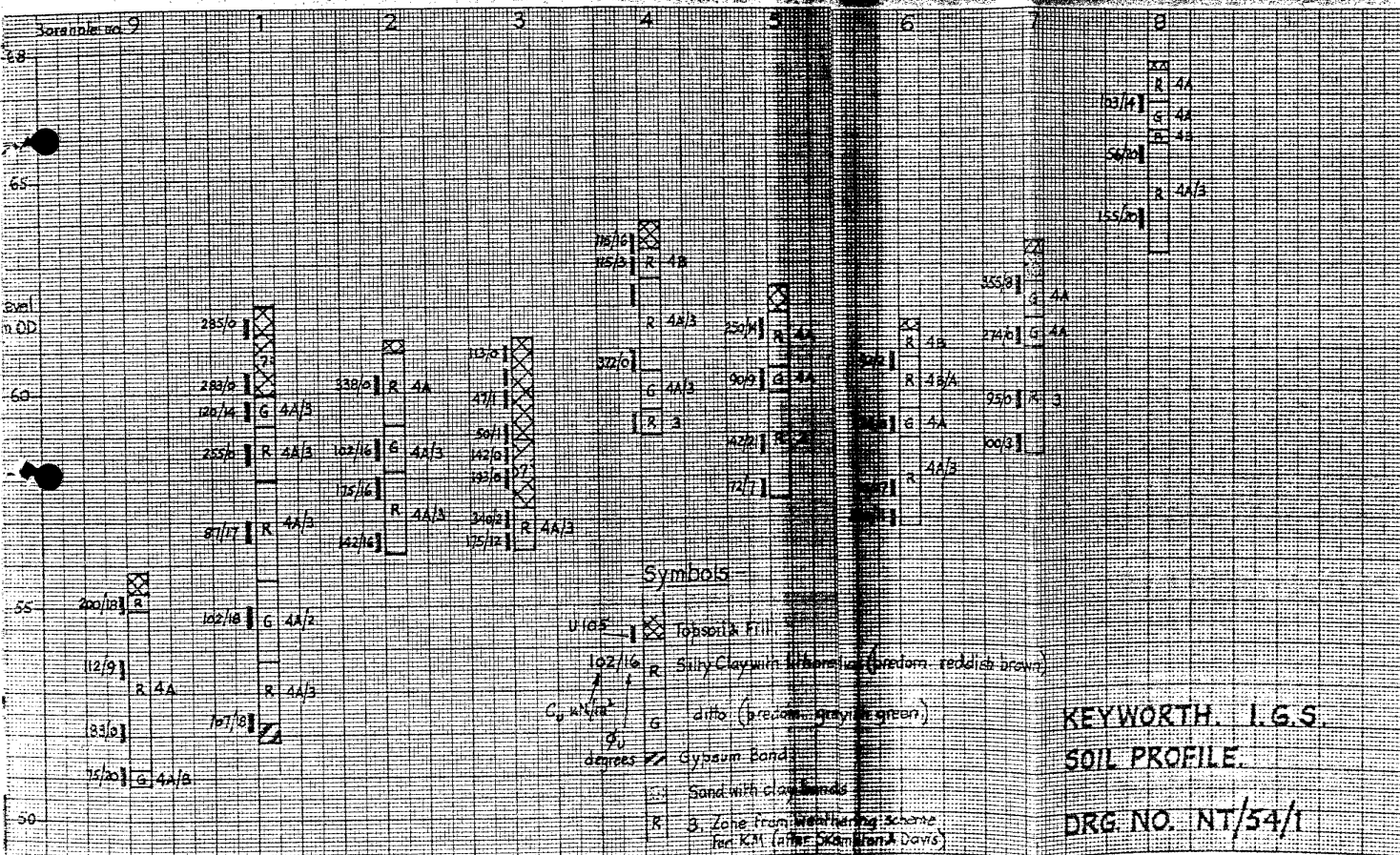


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[SK63SW BJ 33.]

SK63SW/27-35



Symbols

- V105 Topsoil & Filling
- 102/16 R Silty Clay with carbonates (predom. reddish brown)
- C₀ 115/12 G ditto (predom. gray & green)
- 90 degrees Gypsum Bands
- Sand with clay bands
- R B. Zone from weathering: schone Per. KM (after Okam from A. Davis)

**KEYWORTH. I.G.S.
SOIL PROFILE.
DRG. NO. NT/54/1**

RECORD OF BOREHOLE/TRIAL HOLE NO. 8...

Hole discontinued at 4.5m
Standpipe inserted.

**COMMERCIAL
IN CONFIDENCE**

Scale 1:50 metric

JOB REF. NO. NE/54
GROUND LEVEL 67.78m
METHOD/SIZE S&CC 152mm
DATE 12.10.77

QR 62145 31560

DESCRIPTION OF STRATA	Depth #	SAMPLES				SYMBOL	INTER- FACE LEVEL m	N
		U41K	SPT	DIST.	BULK			
0 to 0.20m Topsoil.							67.58	
0.20 to 0.95m Very stiff crumbly reddish brown with grey/white streaks, SILTY CLAY with lithorelics of marl. Zone 4A. Appears dessicated.							66.83	
0.95 to 1.60m Stiff friable greysih green SILTY CLAY with lithorelics of marl. Zone 4A.	1						66.18	
1.60 to 1.90m Firm reddish brown SILTY CLAY. Zone 4B.							65.88	
1.90 to 4.50m Very stiff reddish brown with traces of greyish green SILTY CLAY with lithorelics of marl. Zones 4A/3.	2							
U105 at 4.5m stripped threads as being tapped out of the hole.	3							
	4						63.28	
	5							
	6							
	7							
	8							
	9							
	10							

WATER STRUCK AT DEPTHS	DEPTH OF CASING WHEN SEALED N.S.—NOT SEALED	ESTIMATED FLOW	WATER ADDED AT DEPTHS TO ASSIST BORING	WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION		
				DATE	WATER LEVEL	DEPTH OF CASING
1. nil	-	-	almost	13.10.77	nil	nil
2.			continuously	20.10.77	nil	nil
3.				2.11.77	nil	nil






SK63SW/27-35

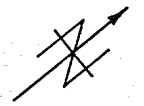
Wolds Drive

Nicker Hill

Mount Pleasant

Key

-  Existing Buildings.
-  Proposed Extensions.
-  Boreholes.



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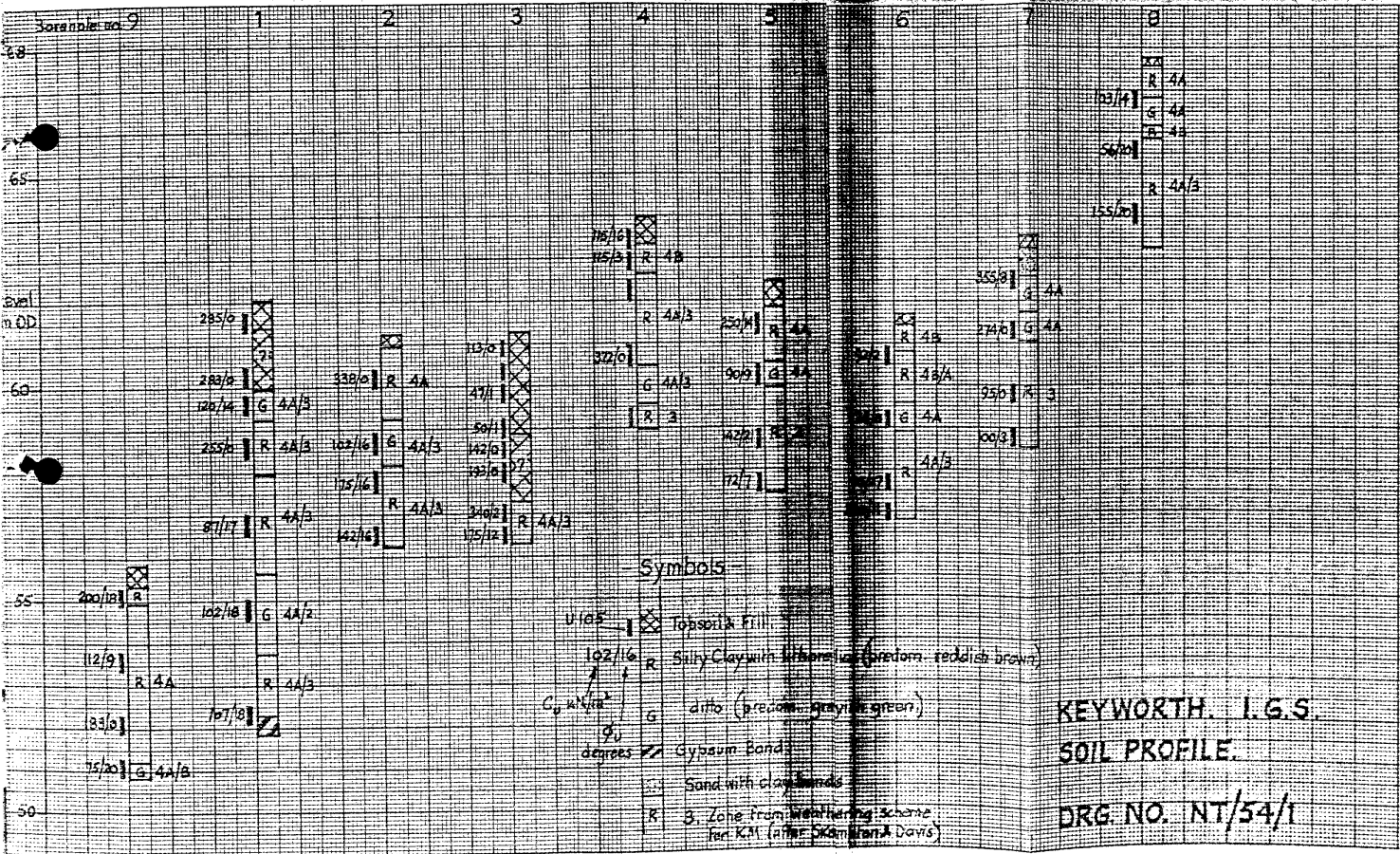


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[SK63SW BJ 34.]

SK63SW/27-35



KEYWORTH. I.G.S.
SOIL PROFILE.
DRG. NO. NT/54/1

RECORD OF BOREHOLE/TRIAL HOLE NO. 2

JOB REF. NO. NY/54

Hole discontinued at 5.0m
Standpipe inserted.

**COMMERCIAL
IN CONFIDENCE**

GROUND LEVEL 55.86m

METHOD/SIZE S&C 152mm

DATE 12.10.77

Scale 1:50 metric

GR. 62090 31900

DESCRIPTION OF STRATA	Depth m	SAMPLES					SYMBOL	INTER-FACE LEVEL m	N
		U4/1X	SPT	DIST.	BULK	Water			
0 to 0.5m Dark brown Organic loam, with small fragments of brick and coal.								55.36	
0.50 to 0.90m Very stiff dessicated reddish brown SILTY CLAY with extensive root systems in fissures.	1	X					X	54.96	
0.90 to 4.65m Stiff to very stiff reddish brown with traces of greyish green SILTY CLAY with lithorelics of marl. Zone 4A.	2	X					X		
	3						X		
	4	X					X		
4.65 to 5.00m Very stiff friable greyish green with brown staining, SILTY CLAY with lithorelics of marl. Zone 4A/4B.	5	X					X	51.21	
	5						X	50.86	
	6								
	7								
	8								
	9								
	10								

WATER STRUCK AT DEPTHS	DEPTH OF CASING WHEN SEALED N.S. - NOT SEALED	ESTIMATED FLOW	WATER ADDED AT DEPTHS TO ASSIST BORING	WATER LEVEL IN CASSED/UNCASSED BOREHOLE ON COMPLETION		
				DATE	WATER LEVEL	DEPTH OF CASING
1. nil	-	-	almost	13.10.77	nil	nil
2.			continuously.	20.10.77	nil	nil
3.				2.11.77	nil	nil




SK63SW/27-35

Wolds Drive

Nicker Hill

Mount Pleasant

Key

-  Existing Buildings.
-  Proposed Extensions.
-  Boreholes.



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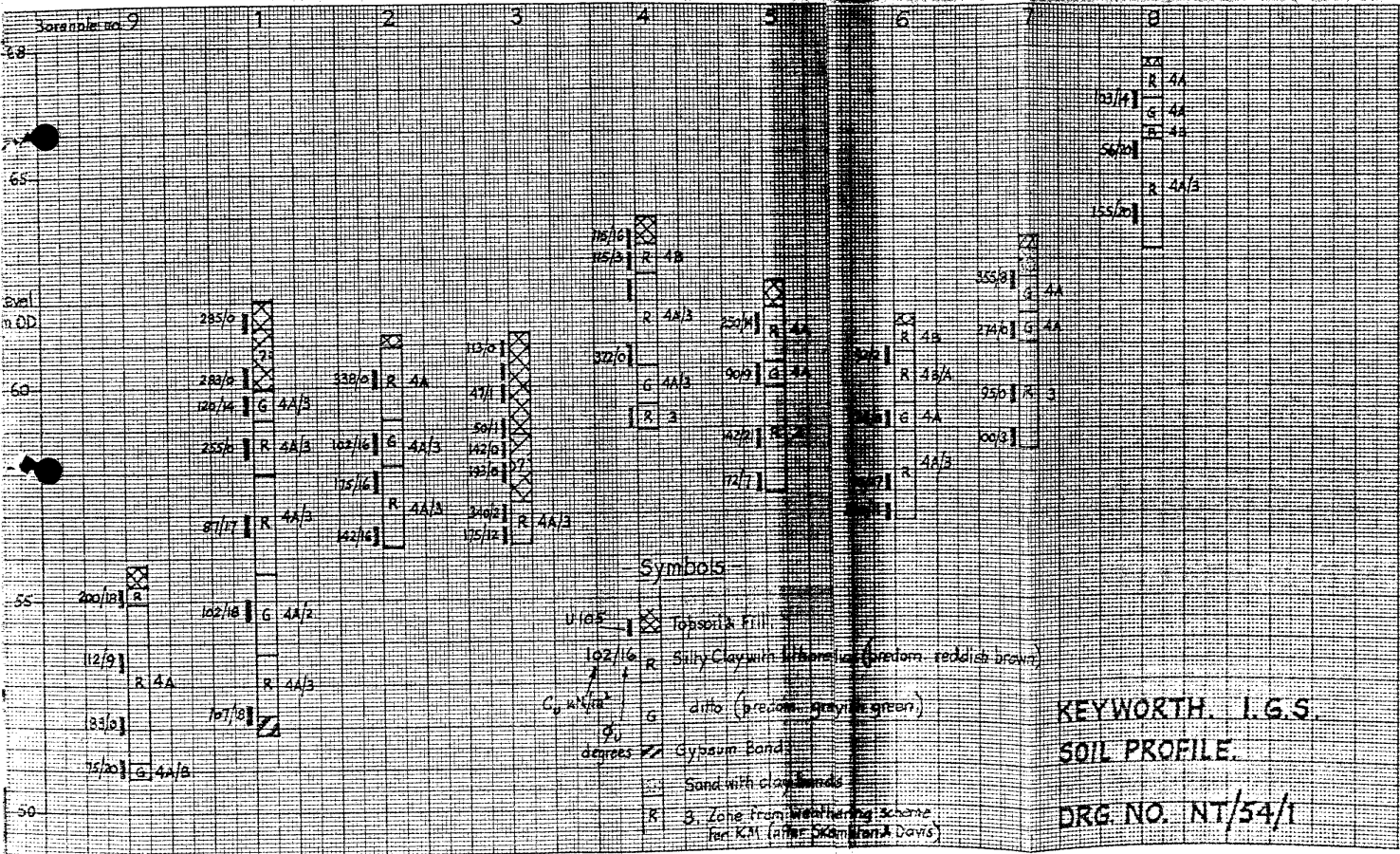


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[SK63SW BJ 35.]

SK63SW/27-35



RECORD OF WELL

142/165

N.....

C

At Institute of Geological Sciences
Niche Hill, Keyworth
Parish of Netheranton on the Wolds
County Notts

142/165(c) SK 63 SW 38

EXACT SITE OF WELL

Six-inch County Sheet 46 NE/E

Six-inch National Grid sheet and reference SK 61945 31777

For IGS

State whether owner, tenant, builder, contractor, consultant, etc.:— Owner

Address (if different from above)

Level of ground surface above sea level (O.D.) ft (+59.91 m)

*DELETE AS NECESSARY

If well top is not at ground level, state how far above* below: 4.4 cm

SHAFT.....ft (.....m); diameter.....ft (.....m);

HEADINGS (please attach details—dimensions and directions)

BORE.....ft (62.00 m); diameter: at top 5 1/4 in (13.1 cm); at bottom 5 1/4 in (13.1 cm) (UX)

Full details of permanent lining tubes (position, length, diameter, plain, slotted, etc.)

A short length of 6 3/4" guide tubes (172 mm) at surface? since removed.
2 1/2" (63 mm) plastic casing from 44 cm a.g.l. (+60.35 m O.D.) to bottom of hole. Perforated from 1.21 m below top of tube with 3/8" (9 mm) holes at about 40 per metre.

Water struck at depths of.....ft (.....m) below well top

TEST CONDITIONS

Rest level of water.....ft (.....m) above* below well top. Suction at.....ft (.....m)

Yield on.....hours* days* test pumping at.....galls (.....m³) per.....with

depression to.....ft (.....m) below well top. Recovery to rest level in.....mins* hours

Capacity of pump.....g.p.h. (.....m³/h)

Date of measurements.....

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type..... Motive power.....

Capacity.....galls (.....m³) per hour. Suction at.....ft (.....m)

below well top. Amount pumped.....galls (.....m³) per day. Estimated

consumption.....galls (.....m³) per week

Well made by IGS rig (Boyles) Mr. Thorley Date of sinking 20 Jan 1978

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

The annulus outside the 2 1/2" tubes is filled with gravel (1/2" screened) from the Hovemingham Gunthorpe pit - 1 ton in borehole.

Visited. Temperature/conductivity, gamma gamma-gamma logs, heat pulse flow meter and depth samples taken (21, 30 and 44 m)

31.1.78 - 2.2.78 ALR

LOG OF STRATA OVERLEAF

INSTITUTE OF GEOLOGICAL SCIENCES, WATER DEPARTMENT, SOUTH KENSINGTON, LONDON, S.W.7.

P.T.O.

Received from Keyworth office

Date 30.1.78

Observation well

Recorder

E.R. log

Site marked on

1" map

6" map

(use symbol)

Copy to

Date

(For Institute use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

142/165^c

THICKNESS

DEPTH

If measurements start below
ground surface, state how far.

THICKNESS			DEPTH		
Feet	Inches	Metres	Feet	Inches	Metre

KEAPER MARL

Trent
Formation
(gypsiferous)

Trent A Red-brown mudstones with
one basal green bed

8.38 8.38

Trent B Mudstone with macrogypsum
Windmill Species (3)

21.62 30.00
3.18 33.18

Trent C Chocolate-brown mudstones
with macrogypsum

9.87 43.05

Edwaltham
Formation

Hollygate Series (7)
Edwaltham - Mudstones with
subordinate gypsum

7.16 50.21
11.69 62.00
(61.90)

The core recovery was very good and the cores at present (Feb '78)
are stored at Keyworth.

Plumbed depth of bore on 1.2.78 was 56 m

R.W.L. on 1.2.78 (1325 h) 17.63 m below top l.c.
(Rain all morning)

Muddy water could be seen entering bore at a depth of
2.50 m below top of casing. It was entering very fast through
a single perforating hole.

R.W.L. on 2.2.78 (1530 h) 17.93 m b. top of l.c.

" " " (1705 h) 17.93 m " " "

142/165

142/165

SK 63 SW 6228 3172

IGS Keyworth site

In addition to the three deep holes (a) - (c) there are a number of auger holes on site. Only one of these was inspected by me.

(d) Sited on Notts 46 NE/E about 15 m W of (b)

2½" PVC casing (perforated) to full depth - originally about 5 m. Casing from 20 cm a.g.l.

Plumbed depth on 2.2.78 was 4.40 m.

R.W.L. below casing top 1.2.78 (0930L) 0.275 m

" " " " 2.2.78 (0956L) 0.240 m

O.D. of top of hole about + 68 m

c.f. Inflow from surface into (b) - Perched water table.

Strata here said to be Boulder clay over a layer of glacial sand.

c.f. log of N°2 (b) where no Glacial Drift is mentioned.

Depth sample taken by W. Burgess.

Oct 2.2.78

NATURAL ENVIRONMENT RESEARCH COUNCILINSTITUTE OF GEOLOGICAL SCIENCES

VISIT OF EAST MIDLANDS GEOLOGICAL SOCIETY TO IGS KEYWORTH
16 APRIL 1978

DEMONSTRATION OF
FEATURES OF THE MERCIA MUDSTONES SUCCESSION BENEATH
IGS HEADQUARTERS, KEYWORTH, NOTTS.

P. I. MANNING

1. Introduction

The site of IGS Headquarters at Keyworth was expected to be underlain at relatively shallow depth by gypsiferous mudstones which have long been exploited locally for gypsum.

To plan future building operations nine shallow holes were drilled with a Pilcon Wayfarer Shell and Auger rig by contractors to the architect in October 1977. The drilling was supervised by IGS and some U4 samples taken for our own studies. IGS Geophysical Department carried out a geophysical survey designed to delineate the area and thickness of fall while the Hydrogeological Department is continuing ground water studies on all the exploratory boreholes (which have been lined with slotted casing, gravel packed and capped).

2. Drilling Operations

The core drilling programme was begun on October 20 1977 and completed on January 19 1978 by the IGS drilling team. The total length drilled was 175.8 m at 131 mm diameter throughout using a double core-barrel except for the initial insertion of casing. The Craileus D750 Rig was used to drill boreholes A and B and borehole C was drilled with the Boyles BBS37 Rig. A 4.25 m shallow trial was drilled with

the Engineering Geology Unit continuous flight auger rig (a mobile B30).
The details of the drilling operations are described separately.
Geophysical down-hole logging was carried out.

3. Geological Succession at the Site

The thicknesses of the formations identified in the readily correlatable borehole sections are summarized in the table attached. The formation names are those proposed by Elliott 1961. The full thickness of Mercia Mudstones ^{ceeds} exactly 183 m.

(a) Parva Formation

The Tea Green Marls, similar in lithology to the Mercia Mudstones, but light grey-green in colour form part of the Parva Formation. The base of this formation is difficult to locate away from the area studied by Elliott but may lie at the base of green mudstone 2. On the surface the Tea Green Marls form a significant (and mappable) component of the composite Tea Green Marl - Rhaetic escarpment.

(b) Trent Formation

The fullest sequence of this formation was encountered in borehole A - a thickness of 46.06 m of mudstones including a skerry sequence 2.62 m thick and all the macro gypsum of the Mercia Mudstones which can reach commercially viable thicknesses. The base of the formation is the top of the Hollygate Skerries a major marker-horizon if great lateral continuity.

Summary of subdivisions of the Trent Formation

Trent A Member	Reddish-brown mudstones with four green mudstone beds. Gypsum nodules occur as high as between beds 2 and 3. (Banded Marls of Taylor in Marshall 1968 p 161).
----------------	---

Trent B Member Reddish-brown mudstones with nodules and nodule mosaics together with two distinct vein systems. Numerous small gypsum nodules may give the rock a speckled appearance.

Windmill Skerries Member Two or three greenish-white fine grained sandstones, the central one with pools of gypsum being the most prominent, interleaved with reddish-brown silty mudstones.

Trent C Member Chocolate-brown mudstones with some gypsum.

Near the top of the succession the green mudstones, one of which contained the branchiopod crustacean Euestheria sp alternate with normal reddish-brown mudstones and appear to adumbrate the euxenic conditions of the Tea Green Marl. Such alternation suggests that the colouration may be original. Some secondary reduction is seen in the spherical "fish eyes" seen at lower levels. The uppermost occurrence of gypsum in borehole A, some 7.5 m below the base of the Tea Green Marl. In boreholes B and C gypsum is absent from 14.5 m and 18.5 m respectively of strata below the occurrence in borehole A. There has been some compaction by strata adjustment with the loss of gypsum (14.7 - 17% loss).

These "washouts" of gypsum appear as steep sided, but flat bottomed features and may be observed in exposures at Cropwell Bishop and at Bunny and are not related to faults such as those examples described by Elliott. The uppermost level of gypsum is thus shown to be an unreliable stratigraphical marker, in this area at least. There are two sets of

replacive veins, one near horizontal (fibrous) and one high angle and some post vein movement can be observed.

The Windmill Skerries are fine grained sandstones and, together with other thicker sandstones, show a cyclical pattern or megacyclothem, inherited from an earlier predominantly sandstone facies. The chief skerries have been used to demarkate major formations within the Mercia Mudstones.

(c) Edwalton Formation

This formation was penetrated in boreholes B and C which proved the Hollygate Skerries, the uppermost member of the formation, and a mudstone sequence.

The Hollygate Skerries consist of pale greenish-white fine grained sandstones interbedded with mudstones. This interdigitation is common elsewhere in the area. (Elliott 1969 p 220).

The Hollygate Skerries are very widespread and are the equivalent of the Arden Sandstone, of the Coolmaghra Skerry of Ulster (Manning and Wilson 1975 p 9) and may be conjectured to be the equivalent of the Schilfsandstein of the North Sea and the Continent.

Below the skerries in borehole B the Edwalton mudstones are dark brown or chocolate brown in colour and their monotony is broken by these thin greyish-green beds, the lowest of which shows an incomplete but clearly recognisable sabka sequence with some enterolithic folds in the gypsum. In another bed of silty laminated greyish-green mudstone slump folding may be observed.

SK63SW 63
36-39

In borehole C where the brown mudstones are seen to a maximum of 11.69 m, some gypsum nodules exhibit central relict masses of anhydrite. Though present, gypsum in both disseminated nodular and vein form is much less in amount than in the overlying Trent Formation.

NATURE OF STRATA

142/165^c THICKNESS

SK 63 SW
142
6194 317

(For Institute use only)

GEOLOGICAL CLASSIFICATION

If measurements start below ground surface, state how far.

Feet	Inches	Metres	Feet	Inches
		8.38		8.38
		21.62		30.00
		3.18		33.18
		9.87		43.05
		7.16		50.21
		11.67		62.00 (51.90)

KEUPER MARL

Trent
Formation
(gypsiferous)

Edsalton
Formation

Trent A Red-brown mudstones with
one basal green bed
Trent B Mudstone with macrogypsum
Windmill Skeries (3)
Trent C Chocolate-brown mudstones
with macrogypsum
Hollygate Skeries (7)
Edsalton - Mudstones with
subordinate gypsum

The core recovery was very good and the cores at present (Feb '78)
are stored at Keyworth.

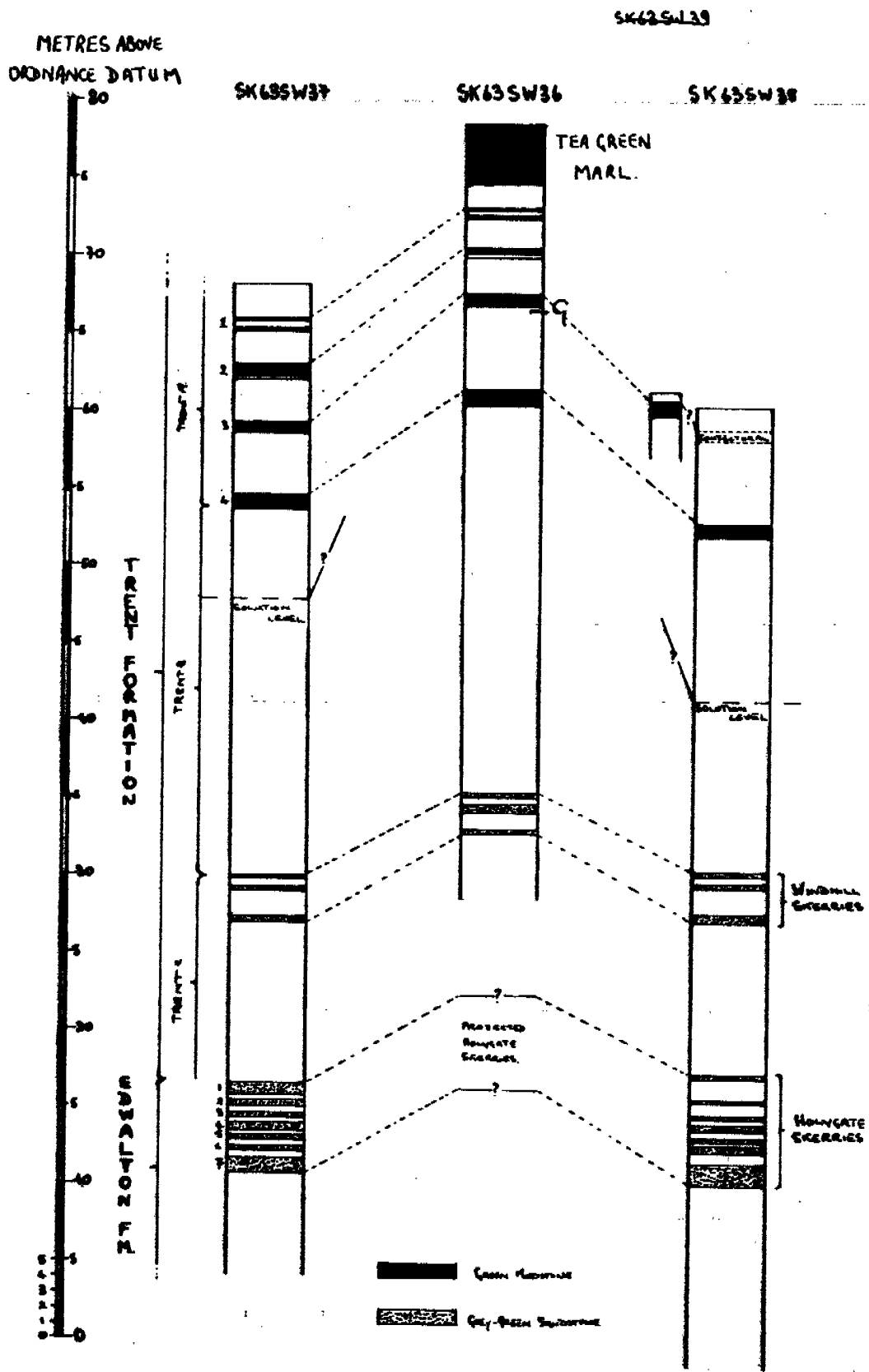
Plumbed depth of bore on 1.2.78 was 56 m
R.W.L. on 1.2.78 (1325 h) 17.63 m below top of R.T.
(Rain all morning)

Muddy water could be seen entering bore at a depth of
2.50 m below top of casing. It was entering very fast through
a single perforating hole.

R.W.L. on 2.2.78 (1530 h) 17.93 m b. top of R.T.
" " " (1705 h) 17.93 m " " "

SK63SW/36-38

Fig. 2: SKETCH GRAPHIC LOGS OF BOREHOLES SK63SW36 TO 38 INCLUSIVE



SK63SW/36-38

Borehole B	(37)	m	Borehole A	(36)	m	Borehole C	(38)	m
-			Tea Green Marl (Parva Formation)		3.94+	-		
<u>Trent Formation</u> [Gypsiferous]			<u>Trent Formation</u> [Gypsiferous]			<u>Trent Formation</u> [Gypsiferous]		
<u>Trent A</u> Red-brown mudstones: [upper part may be Parva Fm] some greenbeds.		14.37+	<u>Trent A</u> Red-brown mudstones with macro gypsum [upper part may be Parva Fm] some greenbeds	(1)	14.14	<u>Trent A</u> Red-brown mudstones with one basal green bed.		8.38+
<u>Trent B</u> Red-brown mudstones with macro gypsum		23.70	<u>Trent B</u> Red-brown mudstones with macro gypsum		25.01	<u>Trent B</u> Mudstone with macro gypsum		21.62
<u>Windmill Skerries</u> (2)		2.97	<u>Windmill Skerries</u> (3)	(2)	2.62	<u>Windmill Skerries</u> (3)		3.18
Member			Member			Member		
<u>Trent C</u> Chocolate brown mudstones with macro gypsum		10.75	<u>Trent C</u> Chocolate-brown mudstones with macro gypsum		4.29+	<u>Trent C</u> Chocolate-brown mud- stones with macro gypsum		9.87
<u>Edwalton Formation</u> <u>Hollygate Skerries</u> (7)		5.45				<u>Edwalton Formation</u> <u>Hollygate Skerries</u> (7)		7.16
Member						Member		
<u>Edwalton</u> Mudstones with subordinate gypsum		6.56+				<u>Edwalton</u> Mudstones with subordinate gypsum		11.79
Total depths:		63.8			50			62
1. Newark Gypsum should lie in this member.			2. Tutbury Gypsum should lie in this member.					

fercia Mudstones