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TECHNICAL REPORT WA/91/62

Geological notes and local details
for 1:10 000 sheet S098NW
Brierley Hill
2nd Edition

Part of 1:50 000 Sheet 167 (Dudley)

D Wilson and C N Waters

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PREFACE TO THE FIRST EDITION

The following report summarises the structure and mining of 1:10 000 Sheet SO 98 NW which lies within the southern part of the South Staffs Coalfield. The map forms part of the 1:50 000 Geological Sheet 167 (Dudley), covering an area between Dudley and its environs in the north, and Stourbridge to Cradley Heath in the south.

The geology of the coalfield was the subject of a memoir by J Beete-Jukes (1859). The original 1:10 560 geological survey was undertaken by T H Whitehead (1919-1922) and an accompanying memoir was published in 1927. The exposed coalfield was largely resurveyed by R J O Hamblin, M R Henson and D Wilson between 1976 and 1978 under the direction of G W Green, District Geologist, utilising new mining, borehole and site investigation data provided by the NCB, local authorities and consultancies.

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PREFACE TO THE SECOND EDITION

The second edition of this report is published with an appendix which provides additional descriptions of the geology of the district resulting from minor revisions to the 1:10 000-scale map by C N Waters in 1991. The text of the first edition is published largely unaltered, save for minor typographical corrections.

Geological notes and local details for
1:10 000 sheet SO 98 NW Brierley Hill
D Wilson

INTRODUCTION

The area covered by SO 98 NW forms part of the "Black Country" which, since the beginning of the Industrial Revolution has been a centre of population, based to a large extent on the abundance of local raw materials for its heavy industries. Undoubtedly it is mining which has had the greatest impact on the present day landscape and character of the area. Coal has been extensively worked over most of the area since the 18th Century, although mining of fireclays for refractories was locally more important around Cradley Heath and between Stourbridge and Brierley Hill. Ironstones were sporadically worked throughout the area, often in association with coal and fireclay seams. A thriving brick industry in the 19th Century utilised the extensive deposits of Old Hill Marl, and quarrying of dolerite, for roadstone, took place at Barrow Hill [9160 8962] in the early 20th Century. A list of worked seams is given in section 3.

Mining probably reached its peak in the latter part of the 19th Century and suffered a slow decline in the 20th Century. The most recent workings for coal and fireclay were at large opencast sites near Netherton (Lower Hurst 1944; Netherton 1972) and immediately south of Brierley Hill (Amblecote 1965-72; Turners Lane 1968; Grosvenor 1971-72).

One of the results of mining and heavy industry has been to generate large amounts of waste material. Spoil covers most of the area; it is invariably encountered in trial excavations and may attain thicknesses of up to 10m. It has been levelled, spread and added to with continuing urbanization, and even re-excavated for hard-core, as with the furnace slag near Round Oak Steelworks [927 878]. Haphazard dumping of spoil from early mining operations and increased instability due to waterlogging has resulted in subsequent mass movement of the spoil down the steep northern slope of the Stour valley at Caledonia [9206 8512].

There are obvious difficulties in representing made ground on the map; discrete, mappable features such as pit mounds and embankments have been

shown, but it should be emphasized that spoil of varying thickness covers most of the area of the sheet.

Details of the stratigraphic sequence, with average thicknesses are given in the vertical section accompanying the 1:10 000 Geological Sheet. Superficial (drift) deposits are generally absent apart from a small outcrop of Fluvio-glacial Sand and Gravel in the extreme southwest and narrow alluvial tracts along the Stour valley. Carboniferous rocks outcrop over most of the area, except in the southwest, where the Western Boundary Faults have thrown Permian and Triassic rocks against Carboniferous and Silurian strata.

STRUCTURE

The depth and type of mining of coals and fireclays within the Carboniferous rocks has been influenced by the presence of several major fold and fault structures (Fig 1 and 1:10 000 map).

FOLD STRUCTURES

The dominant fold structure is the NNE-SSW trending Netherton Anticline, exposing productive Westphalian A and B measures on its limits, along which much of the shallow mining as occurred. The anticline runs from Lye to Netherton, where Westphalian strata surround a core of Silurian rocks. The limbs of the fold are steeply inclined eastwards and westwards, but flatten out rapidly in either direction, (Fig. 1). The steepest dips (of up to 68°) are recorded in Quarry Bank; the fold is tightest hereabouts, but becomes more open northwards and dies out between Netherton and Dudley.

A complementary shallow syncline and anticline, to the west of the Netherton Anticline, expose productive Westphalian measures around Amblecote and the Delph [9185 to 9285], but probably die out northeastwards. In the extreme northeast of the area, southward-dipping Westphalian A and B are exposed around the southern closures of the Dudley and Wrens Nest anticlines [S0 99 SW] and outcrop in a belt between Dudley Dock [935 897] and Barrow Hill [917 896].

FAULT STRUCTURES

NW-SE Faults

Two major NW-SE fault structures occur in the area. The Western Boundary Fault Zone in the extreme southwest, with a total western downthrow of about 300m, limited past mining in the area. The Russells Hall Fault, in the northeast, with a downthrow of 55m, marks the limits of shallow workings from the Dudley Dock-Kates Hill area of Dudley. Between the Russells Halls and Western Boundary Faults there are two other dominant fault trends.

NNE-SSW Faults

NNE-SSW orientated faults are common in the west, and include structures such as the Shut End, Corbyns Hall, Brockmoor and Delph Faults, all with westerly downthrows. The Brockmoor Fault, with a displacement of up to 98m is the largest of these structures and marks the eastern limit of deep mining from collieries such as Barrow Hill, Corbyns Hall, Bromley, Chapmans Field, etc. On the east side of this structure the coals and fireclays were generally mined at shallow to intermediate depths, and at Brockmoor, an inlier of Westphalian B adjacent to the fault, includes the Brooch Coal which has been worked from outcrop by adits.

The Hayes Fault which runs from Lye [9346 8500] to Dudley Wood [9435 8674] is also orientated NNE-SSW, but the throw is reversed, i.e. the fault is inclined westwards, but the downthrow is to the east. Measures are inclined eastwards, at high angles, on the western side of the Hayes Fault; here they lie on the eastern limit of the Netherton Anticline, where surface and shallow workings are restricted as a result of the steep dips. To the east of the fault, seams are gently inclined and have been worked at depth from collieries such as Saltwells, Homer Hill, Cradley, Stour and Corngreaves. The outcrop of the Hayes Fault is subparallel to the outcrop of measures on the eastern limb of the Netherton Anticline, and old mining reports indicate that at several points along its length, the Fault passes laterally into a tight Z-shaped fold.

WSW-ENE Faults

These faults occur throughout the area, usually branching from the major NNW-SSW structures. They include the paired Tansey Green and Brierley Hill Trough Faults, and the Caledonia Fault in the south, together with several unnamed faults and numerous small offshoots or "leaders". Downthrows on these faults result in the deep, narrow Tansey Green and Brierley Hill Troughs. The former occurs in the extreme northwest between faults which branch from the Shut End and Corbyns Hall structures; the latter runs from Brierley Hill towards Netherton, and is formed by faults which branch from the Brockmoor Fault.

The throw of many WSW-ENE faults apparently decreases eastwards and few can be traced with certainty across the Netherton Anticline. This is partly due to the lack of mining information, but also results from difficulties involved in mapping faults with vertical displacement across highly inclined strata.

MINING

INTRODUCTION

The extent of mining operations may be gathered from the large collections of mineplans held by the NCB, public libraries and consultancies, although these are by no means comprehensive. Early editions of Ordnance Survey maps and contemporary mining reports, together with recent site investigation records are another useful source of information, but in many areas evidence of early workings is lacking. As a general rule, most of the coal seams were worked in the north and northeast, but to the south and southwest the seams commonly divide and thin, becoming laterally impersistent and, with the exception of the Thick Coal, were little worked. Fireclays, by comparison, were extensively worked in the south of the area, where they were thicker and of high quality.

SUMMARY OF WORKINGS

The following notes are a general summary of the workable seams and the extent to which they have been exploited.

TWO FOOT COAL: Present in north and east but generally thin or absent in southwest. Locally worked in conjunction with overlying fireclay or with

underlying BROOCH CLAYS and BROOCH COAL.

BROOCH CLAYS: Good quality fireclays worked mainly in Brierley Hill area.

BROOCH COAL: "Longwall" workings over most of area, although in southwest, where the seam thins and divides, coal normally mined with associated fireclays. Probably unworked on steeply inclined limbs of Netherton Anticline.

BROOCH IRONSTONE: Sporadically present and probably worked with BROOCH COAL.

HERRING COAL: Generally unworked, though may have been extracted with BROOCH COAL or underlying ironstones.

PINS AND PENNYEARTH IRONSTONES: Immediately underlie HERRING COAL. Locally worked, commonly with BROOCH COAL.

TEN FOOT MEASURES: Ironstones, in measures above THICK COAL, but little evidence of workings.

THICK COAL: Extensively and repeatedly worked (as many as five lifts in places) throughout area, including steeply inclined limbs of the Netherton Anticline. Early workings by surface scrapings or shallow "bell-pits" but majority by "pillar and stall" technique. Galleried workings in Quarry Bank [935 859] on steeply inclined eastern limb of Netherton Anticline. Top leaf or FLYING REED COAL splits from THICK COAL west of Brockmoor Fault, but little evidence of its exploitation.

THICK COAL splits into three leaves (UPPER, MIDDLE and LOWER THICK COAL) along northwest-southeast axis, in southwest, with each leaf worked "longwall"; UPPER NEW MINE FIRECLAY mined between MIDDLE and LOWER THICK COAL at Brettell Lane and Amblecote Collieries. Most recent working of THICK COAL at large opencast sites along outcrop. Susceptibility of THICK COAL at outcrop to spontaneous ignition together with overlying TEN FOOT MEASURES.

GRAINS/GRUBBIN MEASURES: Ironstones, immediately beneath the THICK COAL, and normally worked with it.

HEATHEN COAL: Longwall workings throughout area, but seam splits in southwest where upper leaf is usually worked with LOWER THICK COAL or, alternatively, with immediately underlying FOUR FOOT EARTH FIRECLAY.

BOTTOM ROCK: Workable silica clay in southwest, mainly at Amblecote, where it underlies LOWER HEATHEN COAL (usually worked).

WHITE IRONSTONE/PENNYSTONE MEASURES: Sporadically worked throughout the area.

STINKING COAL: Thin impersistent seams usually unworked, but interbedded in southwest, with BROAD EARTH FIRECLAY, and probably excavated with it.

OLD MINE CLAY: Extensively worked fireclay immediately below STINKING COAL. Usually extracted by "longwall" techniques.

NEW MINE COAL: Coal thin or absent, and little evidence of workings. Possibly extracted with thick, extensive NEW MINE FIRECLAY at this level.

FIRECLAY COAL: Thin and impersistent with no evidence of workings. Thick NEW MINE FIRECLAY immediately beneath coal usually worked in south, and possibility of scattered workings of impersistent FIRECLAY BALLS IRONSTONE in underlying measures.

NEW MINE FIRECLAYS: Fireclays, thick extensive, and often of high quality, worked "longwall" in south, in Westphalian A measures below OLD MINE CLAY. Workings localised due to lateral impersistence and sporadic development of ironstones within seams. Numbering of seams usually in descending order (No 1, No 2, etc. NEW MINE CLAY) below OLD MINE CLAY but numbering varies from colliery to colliery, thus making correlation difficult. Extensive, thick seams usually occur beneath NEW MINE COAL and FIRECLAY COAL, with others scattered throughout sequence.

REFERENCES

BEETE-JUKES, J, 1859. The South Staffordshire Coalfield. *Mem. Geol. Survey of Great Britain.*

WHITEHEAD, T.H. and EASTWOOD, T. 1927. The Geology of the southern part of the South Staffordshire Coalfield. *Mem. Geol. Survey of Great Britain.*

APPENDIX

Selected borehole, well and shaft sections.

The number refers to the IGS 1:10 000 Record System. The full reference is prefixed by the 1:10 000 quarter sheet e.g. SO 98 NW 9.

In the sections, depths to the base of coals are given and thicknesses where known. Where an approximate (c.) surface level is given this refers to the present day ground level, whereas the depths are taken from mining records and hence are related to the original surface level which may have been higher, or lower, than present depending upon subsequent subsidence or landfill, respectively. The surface levels (SL) are given in metres above Ordnance Datum (OD). Only a single grid reference has been given for each selected shaft section although in many cases more than one shaft is represented.

		Depth			Depth
		m			m
1	Himley No 8 [9191 8875] SL c. +135 Brooch Coal	1.1m at 28.9	6	Old Level No 17 [9227 8715] SL c. +136 Thick Coal	at 68.6
2	Himley No 1 [9187 8831] SL +147.5 Brooch Coal Thick Coal Heathen Coal	at 59.1 top at 91.7 at 108.8	7	Woodside No 4 [9242 8853] SL c. +161 Thick Coal Heathen Coal	at 107.3 at 114.6
3	Himley No 10 [9179 8811] SL +140 Brooch Coal	0.9m at 66.9	9	Old Level No 12 [9270 8750] SL c. +136 Thick Coal	at 48.2
4	Wallows No 30 [9210 8755] SL +145.7 Thick Coal	at 107.9	10	Old Level No 14 [9261 8730] SL c. +123 Thick Coal	at 43.3
5	Bank Street [9176 8733] SL c. +144 Brooch Coal Herring Coal Thick Coal	at 54.0 at 56.2 at 96.9	11	Old Level No 2 [9274 8735] SL c. +116 Thick Coal	at 37.2

12	Wallows No 28 [9251 8674] SL +121.3 Made Ground to 3.7 Old Hill Marl at 34.8 Two Foot Coal at 48.4 Brooch Coal 1.6m at 60.2 Herring Coal 0.5m at 62.5 Thick Coal 9.0m at 94.4 Upper Heathen Coal 1.0m at 97.5 Lower Heathen Coal 0.7m at 101.1 Stinking Coal 0.3m at 108.5	
13	Merry Hill [9263 8633] SL c. +130 Thick Coal 7.3m at 55.8	
14	Thorns No 2 [9265 8588] SL +131.4 Thick Coal at 25.6 Old Mine Clay at 41.6 New Mine Coal Horizon at 54.5	
15	Blowers Green [9324 8895] SL c. +147 Thick Coal at 79.6	
16	Peartree Lane No 1 [9345 8877] SL +142 Thick Coal at 70.4	
17	Simms Lane No 2 (Water Shaft) [9377 8839] SL c. +151 Heathen Coal at 25.6 Stinking Coal at 37.5 New Mine Coal at 44.1 Fireclay Coal at 49.0 Bottom Coal at 60.2	
18	Woodside No 14 [9332 8822] SL c. +139 Thick Coal at 47.6 Heathen Coal at 53.0	
19	Old Level No 8A [9289 8796] SL c. +137 Thick Coal at 50.3	
20	Hurst No 8 [9288 8789] SL +131.4 Thick Coal top at 48.8 Heathen Coal at 57.9	
21	Old Level No 9 [9293 8780] SL c. +126 Thick Coal at 47.6	
22	Old Level No 10 [9312 8780] SL c. +123 Thick Coal at 29.6	
23	Old Level No 13 [9311 8872] SL c. +125 Thick Coal at 33.8	
24	Old Level No 6 [9294 8758] SL c. +127 Thick Coal at 38.4	
25	Old Level No 11 [9284 8727] SL c. +119 Thick Coal at 28.0	
26	Saltwells No 16 [9397 8710] SL c. +121 Two Foot Coal 0.9m at 33.5 Brooch Coal 0.6m at 34.9 Herring Coal 0.6m at 37.5 Thick Coal 9.1m at 88.7 Upper Heathen Coal 0.9m at 91.7 Lower Heathen Coal 1.2m at 97.8	
27	Saltwells No 1 [9401 8692] SL c. +107 Two Foot Coal at 46.9 Brooch Coal at 49.7 Thick Coal at 103.0 Upper Heathen Coal at 105.6 Lower Heathen Coal at 111.3	
28	Saltwells No 25 [9384 8648] SL c. +104 Two Foot Coal 0.7m at 71.9 Herring Coal 1.1m at 74.8 Thick Coal 9.1m at 121.1 Upper Heathen Coal 0.9m at 124.8	
29	Saltwells No 33 (West Shaft) [9328 8613] SL c. +111 Thick Coal at 56.6 Upper Heathen Coal at 60.4 Lower Heathen Coal at 70.7 Old Mine Clay at 85.7 New Mine Coal at 90.4	

30	Saltwells No 24 [9406 8620] SL c. +100 Two Foot Coal at 49.7 Brooch Coal at 52.7 Thick Coal at 106.5 Upper Heathen Coal at 109.5 Stinking Coal at 126.6 New Mine Coal at 136.9 Fireclay Coal at 146.8 Bottom Coal at 161.5		40	Buffery No 1 Pumping Plant, South Shaft [9486 8863] SL +154.8 Heathen Coal at 137.2 ?Stinking Coal at 151.8
31	Saltwells No 30 [9376 8585] SL c. +95 Old Hill Marl to 89.0 Two Foot Coal 0.4m at 100.3 Brooch Coal 0.6m at 106.5 Thick Coal 10.1m at 154.0 Upper Heathen Coal 0.8m at 156.6 Lower Heathen Coal 0.6m at 162.7 Stinking Coal at 169.1 New Mine Coal Horizon at 179.6		41	Netherton Bell Pits [9489 8832] SL c. +144 Two Foot Coal 0.4m at 34.6 Brooch Coal 0.8m at 36.6 Thick Coal at 100.6 Heathen Coal 2.3m at 111.7
32	Cradley [9390 8592] SL c. +98 Old Hill Marl to 55.5 Two Foot Coal 0.9m at 68.4 Brooch Coal 0.5m at 70.9 Thick Coal 8.1m at 120.8 Upper Heathen Coal 0.8m at 123.9 Lower Heathen Coal 0.7m at 130.2 ?Stinking Coal 136.8 ?New Mine Coal 145.0		42	Plants Steam Brewery Borehole (1919) [9439 8812] SL c. +157 Made Ground to 1.8 Brooch Coal at 10.7 Thick Coal 7.3m at 71.9 Heathen Coal 0.9m at 75.3
33	Old Level No 16 [9245 8723] SL c. +130 Thick Coal at 64.0 Upper Heathen Coal at 68.3 Lower Heathen Coal at 70.0		43	Netherton No 3 [9446 8759] SL c. +144 Thick Coal 9.1m at 54.9 Upper Heathen Coal 0.9m at 58.9 Lower Heathen Coal 0.9m at 60.4
35	Old Buffery No 2 [9419 8889] SL c. +161 Brooch Coal top at 39.3		45	Dudleywood [9476 8775] SL c. +140 Brooch Coal ? at 54.9 Thick Coal at 82.3 Heathen Coal at 87.3
36	Cinder Bank [9420 8877] SL c. +157 Brooch Coal at 47.6 Thick Coal at 88.7 Heathen Coal at 94.5		47	Khartoum [9416 8761] SL c. +162 Thick Coal at 36.6 Upper Heathen Coal at 40.6 Lower Heathen Coal at 42.1
37	Baptist End No 2 [9477 8880] SL +158.2 Thick Coal at 135.6 Heathen Coal at 145.1 Stinking Coal at 154.5 New Mine Coal at 167.4		48	Klondyke [9421 8732] SL c. +139 Thick Coal top at 38.4
			49	Saltwells No 6 [9439 8727] SL c. +137 Two Foot Coal at 38.3 Brooch Coal at 45.9 Thick Coal at 96.6 Upper Heathen Coal at 103.0
			50	Saltwells No 23 [9478 8722] SL c. +129 Two Foot Coal at 54.0 Brooch Coal at 55.1

contd.

	Thick Coal	at 115.2		56	Fox Oak	
	Upper Heathen Coal	at 120.8			[9445 8617]	
	Lower Heathen Coal	at 122.0			SL c. +103.6	
					Thick Coal	at 120.1
51	Saltwells No 20			58	Corbyns Hall No 5 & 6	
	[9445 8695]				[9038 8895]	
	SL c. +116				SL c. +110	
	Two Foot Coal	0.5m at 65.7			Old Hill Marl	to 58.2
	Brooch Coal	0.6m at 67.8			Two Foot Coal	0.3m at 67.0
	Herring Coal	0.5m at 70.1			Brooch Coal	1.5m at 78.1
	Thick Coal	10.1m at 123.8			Thick Coal	7.8m at 117.6
	Upper Heathen Coal	0.9m at 128.6			Upper Heathen Coal	0.9m at 120.6
	Lower Heathen Coal	at 131.4			Lower Heathen Coal	0.5m at 121.7
52	Baptist End No 1				Stinking Coal	0.1m at 128.6
	[9468 8846]				New Mine Coal	0.5m at 143.4
	SL c. +147				Fireclay Coal	0.3m at 146.6
	Brooch Coal	at 44.8			Bottom Coal	0.4m at 156.7
	Thick Coal	at 110.1		59	Corbyns Hall No 7 & 8	
	Heathen Coal	at 116.6			[9073 8840]	
	Stinking Coal	at 126.2			SL +127	
	New Mine Coal	at 129.8			Old Hill Marl	to 86.0
53	Netherton Ironworks Borehole (1945)				Two Foot Coal	0.8m at 92.2
	[9472 8752]				Brooch Coal	1.4m at 103.5
	SL c. +143				Flying Reed Coal	0.8m at 139.5
	Made Ground	to 2.4			Thick Coal	7.8m at 147.9
	Old Hill Marl	to 11.3			Heathen Coal	2.1m at 153.7
	?Brooch Coal	0.6m at 42.1			Stinking Coal	0.1m at 158.3
	Thick Coal	c.6.9m at 93.0			New Mine Coal	0.3m at 171.9
	Heathen Coal	1.1m at 101.4		60	New Bromley Hall	
	Vanderbeckei Marine				[9046 8837]	
	Band	2.0m at 107.4			SL c. +115	
	Stinking Coal	1.2m at 110.2			Brooch Coal	1.2m at 116.7
	?New Mine Coal	c.0.3m at 112.2			Thick Coal	8.2m at 159.4
	?Fireclay Coal	0.6m at 121.5			Heathen Coal	1.8m at 163.7
	?Bottom Coal	at 135.6		61	Tiled House No 21 & 22	
	Westphalian A				[9021 8822]	
	Measures	to 173.0			SL +112.2	
	Red Downton Beds	to 193.9			Thick Coal	9.8m at 152.4
	Temeside Shales	to 200.1			Heathen Coal	0.6m at 155.8
	Downton Castle			62	Bromley,	
	Sandstone	to 202.7			[9092 8850]	
	Dolerite	to 206.4			SL c. +122	
54	Saltwells No 19				Thick Coal	at 150.9
	[9440 8655]				Heathen Coal	at 153.9
	SL c. +107			63	Old Park No 41	
	Two Foot Coal	0.6m at 41.8			[9118 8881]	
	Brooch Coal	0.6m at 45.8			SL c. +130	
	Thick Coal	9.1m at 96.7			Made Ground	to 3.7
	Upper Heathen Coal	0.9m at 99.7			Old Hill Marl	to 82.6
	Lower Heathen Coal	0.9m at 105.2			Two Foot Coal	0.4m at 91.6
55	Saltwells No 26				Brooch Coal	1.2m at 99.1
	[9497 8670]				Herring Coal	0.5m at 101.6
	SL +114.3				Thick Coal	9.1m at 140.1
	Two Foot Coal	at 50.0				
	Thick Coal	at 105.2				

64	Old Park No 46 [9139 8871] SL c. +131 Made Ground Old Hill Marl Two Foot Coal Brooch Coal Thick Coal Upper Heathen Coal Lower Heathen Coal Stinking Coal	 to 3.7 to c.87.9 0.6m at 104.1 1.1m at 116.0 6.4m at 155.9 1.0m at 159.6 0.5m at 160.9 0.2m at 173.6	
65	Old Park No 49 [9172 8885] SL c. +140 Made Ground Old Hill Marl Two Foot Coal Brooch Coal Herring Coal Thick Coal Upper Heathen Coal Lower Heathen Coal Stinking Coal Horizon New Mine Coal	 to 2.7 to 26.5 0.6m at 54.4 1.2m at 65.7 0.5m at 67.5 7.3m at 120.2 1.0m at 126.9 0.6m at 128.2 at 137.2 top at 145.5	
66	Bridge End, [9082 8827] SL +114.9 Brooch Coal Thick Coal Heathen Coal	 at 109.6 at 142.6 at 147.7	
67	Himley No 6 [9150 8829] SL c. +125 Brooch Coal	 at 26.9	
68	Himley No 4 [9164 8832] SL c. +139 Brooch Coal	 1.1m at 38.6	
69	Wallows No 25 [9174 8847] SL c. +137 Brooch Coal Thick Coal	 1.1m at 38.6 top at 91.4	
70	Himley (Fish Pits) [9113 8826] SL c. +113 Brooch Coal Thick Coal	 1.2m at 106.4 9.1m at 149.4	
71	Crab Lane [9040 8793] SL +115.5 Brooch Coal Flying Reed Coal Thick Coal	 at 126.5 at 131.4 at 155.5	
72	Slaters' Hall [9027 8793] SL +112.2 Old Hill Marl Two Foot Coal Brooch Coal Herring Coal Thick Coal Upper Heathen Coal Lower Heathen Coal	 to 99.1 at 108.9 at 118.9 at 121.8 at 155.0 at 158.5 at 159.6	
73	Pechells Pit [9084 8799] SL +112.8 Brooch Coal Thick Coal Heathen Coal	 at 104.2 at 149.3 at 154.5	
74	Bromley (Forge Pits) [9095 8790] SL +107.9 Brooch Coal Thick Coal Heathen Coal	 at 118.3 at 162.5 at 166.7	
75	Wallows No 6 [9159 8785] SL c. +130 Brooch Coal Herring Coal Thick Coal	 at 58.4 at 60.7 at 104.6	
76	Wallows No 23 [9136 8777] SL +123.4 Thick Coal	 top at 92.7	
77	Chapmans Field [9066 8720] SL +109.2 Made Ground Old Hill Marl Two Foot Coal Brooch Coal Thick Coal	 to 2.7 to 101.5 at 127.5 at 136.6 at 164.0	
78	Cricketfield No 2 [9097 8723] SL +116.2 Made Ground Old Hill Marl Two Foot Coal Herring Coal Thick Coal Upper Heathen Coal Lower Heathen Coal Stinking Coal New Mine Coal Horizon Fireclay Coal Bottom Coal Bottom Holers Coal Horizon	 to 7.4 to 10.4 0.2m at 14.9 0.6m at 28.3 7.2m at 66.9 0.9m at 70.8 0.7m at 75.3 0.2m at 81.4 at 90.8 0.4m at 100.6 at 111.3 at 116.9	

79	Belle Isle [9128 8726] SL +124.9 Thick Coal		at	74.1	86	Hardingsfield [9080 8609] SL +110.6 Thick Coal		at	55.4
80	Moor Lane [9139 8703] SL c. +134.4 Made Ground		to	6.4		Upper Heathen Coal	0.9m	at	57.2
	Old Hill Marl		to	11.7		Lower Heathen Coal	0.4m	at	62.4
	Two Foot Coal	0.4m	at	15.0		Old Mine Clay	1.5m	at	71.3
	Brooch Coal	0.3m	at	26.4		New Mine Coal	0.6m	at	86.2
	Thick Coal	6.9m	at	63.7		Fireclay Coal Horizon		at	101.3
	Upper Heathen Coal	0.8m	at	65.9		Bottom Coal	0.2m	at	111.9
	Lower Heathen Coal	0.7m	at	70.5	87	Clattershall [9095 8615] SL +116.5			
	Stinking Coal	0.2m	at	75.6		Upper Thick Coal	2.4m	at	47.9
	New Mine Coal	0.3m	at	89.8		Middle Thick Coal	2.6m	at	51.9
	Fireclay Coal	0.3m	at	96.7		Lower Thick Coal	4.1m	at	56.8
	Bottom Coal		at	104.4	92	Turners Lane [9170 8596] SL +123.3			
	Bottom Holers Coal		at	107.4		Thick Coal		at	33.8
81	Malthouse [9142 8646] SL c. +122					Upper Heathen Coal		at	35.8
	Thick Coal		at	81.4		Lower Heathen Coal		at	43.3
	Upper Heathen Coal		at	85.0		Old Mine Clay		at	49.1
82	Glasshouse Pit [9051 8629] SL +107.9				94	Amblecote No 12 West Shaft [9129 8545] SL +131.8			
	Brooch Coal		at	18.9		Made Ground		to	2.4
	Upper Thick Coal		at	51.7		Thick Coal (Worked)	14.0m	at	16.5
	Middle Thick Coal		at	55.8		Upper Heathen Coal	0.5m	at	18.3
	Lower Thick Coal		at	58.8		Lower Heathen Coal	0.6m	at	24.0
83	Bretwell Hall [9070 8622] SL +113.7					Old Mine Clay		at	27.7
	Upper Thick Coal		at	55.1		New Mine Coal Horizon		at	41.1
	Middle Thick Coal		at	59.7		Fireclay Coal Horizon		at	53.7
	Lower Thick Coal		at	64.9	98	Homer Hill [9382 8528] SL c. +117			
84	Brettell Lane New Colliery [9092 8626] SL c. +121					Old Hill Marl		to	90.4
	Brooch Coal	0.9m	at	30.2		Two Foot Coal	0.3m	at	99.2
	Thick Coal	9.1m	at	70.4		Brooch Coal	0.7m	at	104.5
	Upper Heathen Coal	0.8m	at	72.9		Herring Coal	0.4m	at	106.5
	Lower Heathen Coal	0.6m	at	78.7		Thick Coal	10.7m	at	148.4
	Stinking Coal	0.1m	at	82.5		Upper Heathen Coal	0.7m	at	150.7
	Old Mine Clay	1.5m	at	85.7		Lower Heathen Coal	0.7m	at	156.2
	New Mine Coal	0.1m	at	100.1		Old Mine Clay	1.1m	at	165.8
	Fireclay Coal Horizon		at	115.7		New Mine Coal Horizon		at	181.5
	Bottom Coal Horizon		at	128.3		Fireclay Coal Horizon		at	188.2
85	Iron Jack [9136 8623] SL +112.2				99	Corngreaves [9458 8533] SL c. +100			
	Thick Coal	13.6m	at	53.2		Old Hill Marl		to	106.8
	Upper Heathen Coal	0.7m	at	55.2		Two Foot Coal	0.4m	at	120.4
	Lower Heathen Coal	0.6m	at	60.6		Brooch Coal	0.5m	at	123.0
						Herring Coal	0.5m	at	124.7

contd.

Thick Coal	8.8m at 173.3	111 Old Park No 21	
Upper Heathen Coal	0.6m at 175.6	[9222 8941]	
Lower Heathen Coal	0.6m at 180.8	SL +164	
		Brooch Coal	1.2m at 29.9
102 Shut End No 5		Thick Coal	9.1m at 86.6
[9038 8951]		Heathen Coal	1.8m at 93.0
SL c. +110			
Old Hill Marl	to 70.4	112 Old Park No 33	
Two Foot Coal	0.5m at 77.4	[9202 8912]	
Brooch Coal	1.1m at 87.7	SL c. +147	
Flying Reed Coal	1.2m at 118.1	Brooch Coal	at 36.4
Thick Coal	7.3m at 128.5	Thick Coal	at 89.9
Heathen Coal	1.7m at 133.7		
Stinking Coal	0.9m at 143.3	113 Old Park No 28	
New Mine Coal	0.5m at 153.4	[9225 8920]	
Fireclay Coal	0.8m at 157.3	SL c. +150	
		Brooch Coal	at 50.0
104 Tansey Green No 2		Thick Coal	at 103.6
[9090 8965]			
SL c. +117		114 Old Park No 37	
Old Hill Marl	to 48.5	[9218 8902]	
Two Foot Coal	0.6m at 71.7	SL c. +145	
Brooch Coal	1.2m at 83.9	Brooch Coal	at 30.2
Flying Reed Coal	1.2m at 121.5	Thick Coal	at 81.7
Thick Coal	7.6m at 131.2		
105 Barrow Hill No 4 & 5		115 Old Park No 24	
[9112 8982]		[9249 8941]	
SL c. +107		SL +161.2	
Two Foot Coal	at 44.2	Thick Coal	at 89.3
Brooch Coal	at 62.3	Heathen Coal	at 97.8
Herring Coal	at 68.6		
Thick Coal	at 107.0	117 Old Park No 25	
		[9280 8977]	
106 Shut End (New) No 4		SL +159.3	
[9080 8939]		Two Foot Coal	at 9.9
SL c. +126		Thick Coal	at 66.6
Brooch Coal	at 49.4		
Thick Coal	at 95.1	118 Old Park (Barn Pits)	
		[9275 8933]	
107 Corbyns Hall No 1		SL c. +168	
[9067 8921]		Brooch Coal	at 51.4
SL c. +123			
Thick Coal	at 117.0	119 Park Head No 3	
		[9303 8935]	
108 Old Park No 19		SL +171.1	
SL +149.7		Brooch Coal	1.1m at 45.7
Thick Coal	at 27.1	Thick Coal	9.1m at 104.2
		Heathen Coal	2.1m at 111.9
109 Old Park No 36A			
[9184 8932]		120 Thornleigh No 2	
SL c. +160		[9376 8928]	
Brooch Coal	at 35.0	SL +170.7	
Thick Coal	at 82.3	Made Ground	to 9.7
		Old Hill Marl	to 22.0
110 Old Park No 36		Two Foot Coal	1.8m at 26.3
[9196 8936]		Brooch Coal	1.1m at 35.7
SL c. +161		Thick Coal	5.3m at 97.3
Brooch Coal	at 26.8	Heathen Coal	2.5m at 103.7
Thick Coal	at 80.5	Stinking Coal	2.4m at 115.0

contd.

New Mine Coal	0.6m at 121.3	No 1 New Mine Clay	at 84.0
Fireclay Coal	0.5m at 125.6	No 4 New Mine Clay	at 101.7
Bottom Coal	at 136.6		
Bottom Holers Coal	0.6m at 138.0		
121 Yorkspark		139 Gayfields No 1	
[9407 8952]		[9161 8571]	
SL c. +170		SL +132.8	
Made Ground	to 5.5	Thick Coal	at 24.7
Two Foot Coal	0.5m at 25.4	Heathen Coal	at 30.7
Brooch Coal	1.2m at 29.9	Old Mine Clay	at 43.6
123 Martins Pits		142 Grosvenor No 4	
[9440 8906]		[9197 8534]	
SL c. +160		SL +97.1	
Brooch Coal	1.2m at 54.9	Made Ground and	
Thick Coal	9.1m at 114.6	Thick Coal	to 2.4
Heathen Coal	2.4m at 120.7	Upper Heathen Coal	0.4m at 4.0
Stinking Coal	0.6m at 129.2	Lower Heather Coal	0.5m at 10.2
New Mine Coal	0.6m at 131.0	Stinking Coal	0.1m at 13.9
		New Mine Coal	0.3m at 28.3
124 Netherton Station		143 Tintam Abbey No 1 Shaft	
[9445 8951]		[9231 8518]	
SL c. +175		SL c. +92	
Thick Coal	at 18.3	Thick Coal	at 21.6
		Old Mine Clay	at 35.1
125 Paradise No 3		148 Delph	
[9476 8957]		[9248 8509]	
SL +187.9		SL +93.6	
Thick Coal	top at 32.0	Thick Coal	inset at 20.9
126 Russell Pits		149 Tiled House (Bridge Pits)	
[9491 8920]		[9013 8843]	
SL c. +175		SL +106.7	
Brooch Coal	at 51.2	Thick Coal	at 144.8
Thick Coal	at 106.1		
127 Delph No 7 (No 1 Shaft)		150 Coal Leasowes	
[9183 8628]		[9024 8755]	
SL +117		SL +105.7	
Thick Coal	8.7m at 47.4	Brooch Coal	at 108.8
Old Mine Clay	1.7m at 62.0	Flying Reed Coal	at 128.0
New Mine Coal Horizon	c.74.7	Thick Coal	at 138.7
Fireclay Coal	at 87.7	Upper Heathen Coal	at 141.9
		Lower Heathen Coal	at 143.6
		Stinking Coal	at 150.7
		New Mine Coal	at 166.0
133 Ashtree		151 Shut End No 12	
[9156 8618]		[9016 8974]	
SL +123.3		SL c. +106	
Thick Coal	at 47.6	Two Foot Coal	at 85.0
Old Mine Clay	at 67.7	Brooch Coal	at 92.4
		Herring Coal	at 94.2
135 Honeybourne		Flying Reed Coal	at 109.7
[9127 8686]		Thick Coal	at 139.0
SL +142.3			
Brooch Coal	at 80.5		
Thick Coal	at 121.9		
136 Delph No 7 (No 2 Shaft)		152 Shut End No 9	
[9177 8629]		[9043 8985]	
SL c. +115		SL c. +113	
		Old Hill Marl	to 43.4

contd.

Two Foot Coal	0.9m at	50.3	Brooch Coal	inset at	24.7
Brooch Coal	1.8m at	62.8	Thick Coal	at	82.3
Herring Coal	0.5m at	65.4			
Thick Coal	8.9m at	105.1			
153 Corbyns Hall No 13 & 14			164 Woodside No 16		
[9037 8919]			[9313 8805]		
SL c. +115			SL c. +126		
Old Hill Marl	to	62.7	Thick Coal	8.5m at	32.9
Two Foot Coal	0.4m at	89.9	Heathen Coal	1.2m at	38.4
?Fault	at	98.6			
Westphalian A			166 Saltwells No 29		
Measures	to	156.8	[9195 8689]		
Red Downton Beds	to	182.4	SL c. +150		
			Brooch Coal	at	127.3
			Thick Coal	at	170.1
155 Paradise No 2					
[9470 8968]			169 Dudley Dock No 5 Borehole (1962)		
SL c. +198			[9374 8989]		
Thick Coal	?top at	15.5	SL +187.4		
			Made Ground	to	1.8
159 Dudley Dock No 2 Borehole (1961)			Vanderbeckei Marine		
[9357 8999]			Band	1.5m at	11.3
SL +189.3			Stinking Coal	1.5m at	12.8
Made Ground and			Westphalian A		
Thick Coal (Worked)	to	3.7	Measures	to	15.2
Heathen Coal	1.4m at	5.0			
Vanderbeckei Marine			172 Amblecote No 1 Borehole (1955)		
Band	2.6m at	15.3	[9125 8507]		
Stinking Coal	2.1m at	17.4	SL +125		
			Old Mine Clay	at	5.5
			Westphalian A		
			Measures	to	58.4
160 Dudley Dock No 5 Borehole (1961)					
[9378 8985]			173 Brettell Lane No 2		
SL +184.6			[9072 8608]		
Made Ground	to	1.4	SL +108.5		
Ten Foot Measures	to	3.2	Brooch Coal	at	13.0
Thick Coal (Worked)	at	9.5	Top Heathen Coal	at	60.4
Heathen Coal	0.7m at	13.2	Bottom Heathen Coal	at	65.4
Vanderbeckei Marine			New Mine Clay	at	99.7
Band	3.1m at	24.3			
Stinking Coal	0.7m at	25.0			
161 Baths Pumping Shaft			204 Corbyns Bank		
[9398 8980]			[9094 8898]		
SL c. +191			SL c. +138		
New Mine Coal	at	51.4	Old Hill Marl	to	84.4
Fireclay Coal	at	56.9	Two Foot Coal	0.8m at	91.3
Bottom Coal	at	72.1	Brooch Coal	1.6m at	102.2
			Herring Coal	0.5m at	104.5
			Thick Coal	9.0m at	144.9
162 Woodside No 3					
[9295 8843]			208 Marsh & Baxter Borehole (1928)		
SL c. +149			[9172 8685]		
Thick Coal	at	94.2	SL c. +154		
			Old Hill Marl	to	117.0
163 Woodside No 5					
[9306 8830]					
SL + 146.3					

210 Doultons No 1 Trial Borehole [9227 8682] SL +110 Made Ground to 1.7 Old Hill Marl at 2.4 Two Foot Coal 0.6m at 7.3 Brooch Coal 0.9m at 18.9	252 Tintam Abbey No 2 & 3 Shafts [9228 8510] SL c. +86 Thick Coal 8.8m at 20.7 Upper Heathen Coal 0.6m at 23.5 Lower Heathen Coal 0.6m at 30.2 Old Mine Clay 1.1m at 37.3
211 Doultons No 2 Trial Borehole [9272 8662] SL +116.5 Brooch Coal at 10.6	254 Delph No 3 & 4 [9227 8577] SL +122.1 Thick Coal (Worked) 9.1m at 24.5
212 Doultons No 3 Trial Borehole [9270 8647] SL +128.9 Old Hill Marl to 1.8 Two Foot Coal 0.6m at 5.8 Brooch Coal 0.9m at 18.4	255 Delph No 5 Airshaft [9231 8560] SL +108.5 Thick Coal (Worked) 9.0m at 18.1
240 Birch Tree [9132 8546] SL +129.5 Topsoil to 1.5 Upper Thick Coal 1.8m at 3.4 Middle Thick Coal 2.4m at 8.6 Lower Thick Coal 3.1m at 12.7	256 Tintam Abbey No 4 Shaft [9224 8502] SL +85.1 Thick Coal inset at 24.4
241 Delph [9152 8541] SL c. +123 Lower Thick Coal 2.6m to 5.2	257 Grosvenor [9215 8524] SL +95 Old Mine Clay at 32.1
244 Freehold [9169 8532] SL c. +110 Lower Heathen Coal 0.3m at 3.7 Old Mine Clay 1.2m at 7.6	258 Elwells No 1 Shaft [9267 8509] SL +105.9 Stinking Coal at 10.1
248 Woods Lane [9173 8851] SL c. +178 Made Ground to 1.1 Thick Coal 2.1m at 3.2 Upper Heathen Coal 0.9m at 5.0 Lower Heathen Coal 0.8m at 10.0 Stinking Coal 0.4m at 13.7 New Mine Coal Horizon at 25.1	259 Elwells No 3 Shaft [9259 8503] SL c. +106 Lower Heathen Coal at 2.1
249 Ravensitch No 1 Shaft [9183 8527] SL +99.4 Old Mine Clay at 11.3	261 Stour No 1 [9455 8556] SL +100 Thick Coal at 153.2
250 Delph [9193 8482] SL c. +134 Made Ground to 2.3 Brooch Coal at 5.9 Thick Coal at 38.4	262 Stour No 2 [9435 8546] SL c. +91 Thick Coal at 157.3
	264 Nagersfield No 2 [9012 8653] SL c. +82 Old Mine Clay top at 132.6
	265 Cricketfield No 2 Trial [9084 8697] SL +102.9 Old Hill Marl to 6.1 Brooch Coal 1.8m at 11.1 Herring Coal 0.2m at 11.4

266 Cricketfield No 3 Trial [9054 8699] SL c. +103 Herring Coal	at 16.5	277 Delph No 2 [9186 8608] SL +125.1 Thick Coal	at 38.3
267 Brettel Lane No 5 [9054 8617] SL +111.7 Brooch Coal Upper Thick Coal Middle Thick Coal	1.2m at 13.0 3.1m at 48.2 2.1m at 53.5	278 Turk Street [9201 8617] SL +117 Thick Coal Old Mine Clay	at 47.2 at 61.9
269 Furnace Field [9158 8695] SL c. +145 Thick Coal Upper Heathen Coal Lower Heathen Coal Stinking Coal New Mine Coal Fireclay Coal Bottom Coal	8.2m at 67.7 0.9m at 70.4 0.3m at 73.5 0.2m at 77.9 0.3m at 98.8 0.3m at 103.6 0.2m at 110.9	279 Level Trough Pits [9219 8697] SL c. +145 Old Hill Marl Two Foot Coal Brooch Coal Herring Coal Thick Coal Upper Heathen Coal Lower Heathen Coal Stinking Coal Westphalian A Measures	to 101.2 0.3m at 108.2 1.1m at 115.8 0.5m at 118.3 9.1m at 159.7 0.9m at 162.8 0.6m at 165.8 0.3m at 172.5 to 178.0
271 Springfield [9105 8680] SL +113.3 Brooch Coal Thick Coal Heathen Coal	at 60.1 at 101.5 at 104.4	280 Saltwells No 35 (No 2 Shaft) [9236 8652] SL +136.6 Brooch Coal Thick Coal Upper Heathen Coal Lower Heathen Coal	at 42.5 at 77.7 at 82.8 at 87.3
272 Brettel Lane No 3 (Big Pulley Pits) [9122 8621] SL +112.8 Thick Coal Upper Heathen Coal Lower Heathen Coal Old Mine Clay New Mine Clay	at 53.2 at 55.2 at 60.9 at 68.4 at 80.7	281 Mount Pleasant No 1 [9249 8632] SL +133.5 Thick Coal Heathen Coal	inset at 49.4 at 54.9
273 High Ercal [9122 8675] SL +128.5 Brooch Coal Thick Coal Upper Heathen Coal Lower Heathen Coal	at 74.1 at 118.0 at 121.0 at 127.8	282 Old Merry Hill [9279 8646] SL +133.7 Thick Coal Upper Heathen Coal	at 39.0 at 43.6
274 Louse Park [9129 8647] SL c. +128 Thick Coal	top at 43.0	284 Saltwells No 7 [9369 8698] SL +121.9 Thick Coal Upper Heathen Coal Lower Heathen Coal	9.1m at 36.6 0.9m at 39.3 0.9m at 45.7
275 Moor Lane [9154 8697] SL c. +137 Brooch Clay	at 21.0	285 Saltwells No 2 [9377 8687] SL c. +107 Thick Coal Upper Heathen Coal Lower Heathen Coal New Mine Coal	at 71.3 at 75.0 at 81.4 at 91.4
276 Delph (Brooch Coal Pits) [9179 8634] SL c. +110 Brooch Coal	at 15.2		

287 Saltwells No 4 [9442 8689] SL c. +115 Heathen Coal	at 101.5	299 Wallows No 24 [9147 8787] SL +126.5 Thick Coal	top at 92.7
288 Bank [9020 8719] SL +99.4 Old Hill Marl	to 55.2	300 Wallows No 22 [9176 8767] SL c. +142.3 Heathen Coal	at 111.3
Two Foot Coal	0.3m at 79.9	301 Old Level No 5 [9255 8731] SL c. +128 Brooch Coal	top? at 18.3
Brooch Coal	1.1m at 90.6	302 Old Level No 1 [9262 8766] SL c. +124 Brooch Coal	at 11.3
Flying Reed Coal	1.2m at 124.8	303 Hurst No 2 [9289 8748] SL + 125.2 Thick Coal	at 36.0
Thick Coal	7.6m at 134.2	304 Old Level No 15 [9305 8745] SL c. +131 Thick Coal	at 25.3
289 Leys Pumping Pits [9059 8752] SL +111.0 Thick Coal	at 150.2	309 Yewtree Hill No 2 [9402 8730] SL c. +139 Heathen Coal	at 11.0
Upper Heathen Coal	0.9m at 152.9	310 Yewtree Hill [9413 8750] SL c. +153 Made Ground & Burnt Thick Coal	to 14.6
Lower Heathen Coal	0.4m at 155.8	Upper Heathen Coal	2.1m at 23.9
Stinking Coal	0.4m at 162.9	Lower Heathen Coal	1.1m at 28.0
Westphalian A Measures	to 186.4	Stinking Coal	0.6m at 37.0
290 Cricketfield No 1 Trial [9085 8702] SL +108.6 Old Hill Marl	to 6.1	311 Saltwells No 5 [9419 8720] SL c. +131 Two Foot Coal	at 43.9
Brooch Coal	1.8m at 11.1	Brooch Coal	at 45.7
Herring Coal	0.6m at 16.5	312 Saltwells No 18 [9440 8708] SL c. +122 Heathen Coal	at 118.9
293 Brockmoor [9131 8761] SL +124.4 Brooch Coal	at 46.6	313 Saltwells No 10 [9466 8702] SL c. +117 Two Foot Coal	at 61.0
Thick Coal	top at 92.7	Brooch Coal	at 65.1
294 Cricketfield Engine Shaft [9112 8734] SL +119.5 Brooch Clay	at 27.4	Herring Coal	at 65.1
296 Cricketfield Air Shaft [9105 8709] SL +117.7 Two Foot Coal	at 18.3	Thick Coal	at 123.3
Brooch Coal	inset at 22.9		
297 Cricketfield [9110 8737] SL +118.9 Brooch Clay	at 27.7		
298 Wallows No 31 [9198 8750] SL +143.8 Thick Coal	top at 96.6		
Heathen Coal	top at 112.5		

314 Corbyns Hall No 15 [9014 8871] SL c. +105 Old Hill Marl to 40.5 Two Foot Coal 0.5m at 61.3 Brooch Coal 1.5m at 72.2 Flying Reed Coal 1.0m at 103.2 Thick Coal 6.9m at 112.3 Upper Heathen Coal 1.0m at 116.5 Lower Heathen Coal 0.5m at 117.3 Westphalian B Measures to 123.6	Thick Coal 9.7m at 81.0 Upper Heathen Coal 1.2m at 85.9 Lower Heathen Coal 0.8m at 87.1
315 Corbyns Hall [9019 8888] SL c. +105 Old Hill Marl to 56.7 Two Foot Coal 0.9m at 75.4 Brooch Coal 1.8m at 89.9 Herring Coal 0.5m at 93.1	323 Woodside No 17 [9291 8810] SL c. +137 Thick Coal at 60.4
316 Corbyns Hall No 9 & 10 [9042 8878] SL c. +116 Old Hill Marl to 79.1 Two Foot Coal 0.3m at 86.4 Brooch Coal 1.5m at 96.2 Herring Coal 0.5m at 98.8 Flying Reed Coal 0.9m at 130.1 Thick Coal 8.1m at 138.9 Heathen Coal 1.0m at 143.1 Stinking Coal 0.1m at 149.8	324 Woodside No 6 [9281 8872] SL c. +159 Thick Coal at 86.9
317 Wallows No 2 [9144 8804] SL c. +130 Thick Coal 9.1m at 86.9 Upper Heathen Coal 0.9m at 91.1 Lower Heathen Coal 0.5m at 92.5 Stinking Coal at 101.2	325 Woodside No 12 [9261 8868] SL c. +165 Brooch Coal at 60.4 Thick Coal at 110.6
319 Himley No 13 [9227 8810] SL c. +148 Brooch Coal 0.9m at 58.7	326 Woodside No 1 [9273 8849] SL c. +154 Brooch Coal 0.8m at 45.7 Thick Coal 8.5m at 96.9 Heathen Coal 1.2m at 103.9 Stinking Coal 1.1m at 112.8
320 Himley No 12 [9215 8849] SL c. +137 Brooch Coal at 51.1 Thick Coal at 96.9	327 Woodside No 11 [9144 8804] SL c. +147 Thick Coal top? at 86.9
321 Holly Hall [9261 8894] SL c. +170 Thick Coal at 111.3	328 Peartree Lane (North Shaft) [9306 8840] SL +148.7 Brooch Coal at 28.4
322 Woodside [9269 8819] SL c. +143	329 Woodside No 9 [9314 8819] SL c. +135 Thick Coal at 67.4
	330 Peartree Lane No 5 [9315 8833] SL +148.7 Made Ground to 4.0 Two Foot Coal 0.8m at 24.5 Brooch Coal 0.8m at 26.9
	331 Peartree Lane (Netherton Hall) [9326 8857] SL +141.7 Upper Heathen Coal 1.2m at 86.3 Lower Heathen Coal 0.7m at 88.2
	332 Woodside No 8 [9316 8862] SL c. +146 Thick Coal at 76.8

333 Peartree Lane [9332 8865] SL +118.6 Brooch Coal	at 12.8	345 Buffery No 5 [9460 8895] SL +163.1 Brooch Coal Thick Coal Stinking Coal	at c.64.0 at 128.3 at 156.4
334 Peartree Lane No 4 [9336 8876] SL +135.9 Made Ground Brooch Coal	to 6.7 at 11.2	346 Netherton (Skidmore's) [9464 8834] SL c. +146 Thick Coal Heathen Coal	at 89.6 at 105.2
336 Netherton (Old) [9368 8881] SL c. +147 Two Foot Coal Brooch Coal	0.6m at 14.8 0.9m at 16.6	347 Bumble Hole No 1 [9475 8869] SL c. +145 Thick Coal Heathen Coal	at 117.4 at 132.1
337 Blackbrook [9371 8845] SL c. +145 Made Ground Thick Coal Upper Heathen Coal Lower Heathen Coal Westphalian B Measures	to 7.3 9.4m at 51.5 1.1m at 57.5 0.7m at 59.0 to 64.1	348 Buffery No 3 [9476 8898] SL +166.4 Thick Coal Stinking Coal	at 129.9 at 151.8
338 Hopewell [9374 8841] SL c. +150 Thick Coal	at 32.3	349 Netherton (Griffith's) [9478 8814] SL c. +152 Thick Coal Heathen Coal	at 91.4 at 107.0
339 Inclined Pits [9389 8894] SL c. +154 Thick Coal Heathen Coal	9.1m at 93.4 1.8m at 99.1	350 Bumble Hole No 2 [9484 8850] SL c. +144 Thick Coal Heathen Coal	at 103.6 at 119.1
340 Peartree Lane No 3 [9394 8877] SL +152.4 Thick Coal	top at 65.2	351 Netherton (Fletcher's) [9495 8814] SL c. +145 Brooch Coal Heathen Coal	at 42.1 at 117.0
341 Simm's Lane [9398 8831] SL +179.2 Thick Coal Heathen Coal	9.1m at 39.3 2.4m at 44.8	352 Corbyns Hall No 4A [9042 8910] SL c. +113 Thick Coal Stinking Coal New Mine Coal Fireclay Coal Bottom Coal Westphalian A Measures	at 103.3 at 116.7 0.6m at 130.8 0.3m at 134.9 0.2m at 138.5 to 155.9
342 Barn Pits No 1, East Shaft [9407 8865] SL Thick Coal	at 60.5	353 Corbyns Hall No 3 [9052 8917] SL c. +118 Old Hill Marl Two Foot Coal	to 27.0 0.6m at 48.8
344 Netherton No 3 [9452 8819] SL c. +160 Thick Coal Heathen Coal	at 104.2 at 113.4		

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Brooch Coal	1.4m at 59.9	362 Old Park No 30	
Herring Coal	0.3m at 62.3	[9199 8958]	
Thick Coal	9.8m at 101.5	SL +155.5	
Heathen Coal	0.9m at 107.9	Thick Coal	at 37.8
		Upper Heathen Coal	at 43.3
354 Corbyns Hall No 11 & 12		Lower Heathen Coal	at 44.5
[9061 8901]			
SL c. +118		364 Old Park No 26	
Old Hill Marl	to 78.6	[9251 8925]	
Two Foot Coal	0.8m at 92.7	SL c. +168	
Brooch Coal	1.7m at 104.2	Brooch Coal	1.2m at 53.6
		Thick Coal	9.1m at 110.6
355 Shut End (New) No 1		Heathen Coal	1.5m at 118.6
[9067 8952]			
SL c. +114		365 Old Park No 2	
Brooch Coal	1.5m at 108.8	[9305 8974]	
Thick Coal	8.2m at 153.9	SL c. +165	
Heathen Coal	1.5m at 159.4	Two Foot Coal	at 23.2
		Brooch Coal	at 33.2
356 Shutend (New) No 2		Herring Coal	at 35.4
[9068 8951]		Thick Coal	at 92.4
SL c. +114			
Brooch Coal	at 110.5	366 Park Head No 1	
Thick Coal	at 156.0	[9316 8920]	
Heathen Coal	at 160.8	SL +155.6	
Stinking Coal	at 173.7	Brooch Coal	at 29.3
		Thick Coal	at 101.5
358 Birds Leason No 2			
[9069 8995]		368 Blowers Green (Parkhead)	
SL c. +115		[9335 8937]	
Brooch Coal	at 59.4	SL c. +165	
Thick Coal	at 86.9	Brooch Coal	0.9m at 43.0
		Thick Coal	9.1m at 97.8
359 Oldfields		Heathen Coal	1.0m at 105.2
[9088 8997]		Westphalian B	
SL +116.8		Measures	to 115.0
Thick Coal	7.0m at 56.9		
Heathen Coal	at 100.6	369 Thornleigh No 1	
Stinking Coal	0.3m at 107.3	[9350 8920]	
New Mine Coal	0.2m at 110.9	SL +161	
Fireclay Coal	0.4m at 117.6	Old Hill Marl	to 13.4
Westphalian A		Two Foot Coal	0.6m at 18.8
Measures	to 127.9	Brooch Coal	1.2m at 29.0
		Thick Coal	9.1m at 91.4
360 Barrow Hill		Heathen Coal	1.1m at 97.1
[9116 8931]		Stinking Coal:	
SL c. +143		1.37m Coal	
Old Hill Marl	to 33.7	0.76m parting	
Two Foot Coal	0.4m at 59.1	0.30m Coal	at 109.9
Brooch Coal	1.4m at 67.5		
Thick Coal	8.6m at 105.9	New Mine Coal	0.5m at 115.7
Heathen Coal	1.0m at 129.4	Fireclay Coal	0.5m at 120.4
Stinking Coal	0.7m at 138.6	Bottom Coal (Split)	at 131.9
		Bottom Holers Coal	0.2m at 133.5
361 Old Park No 17			
[9162 8907]		371 Thornleigh (Samson Pits)	
SL +154.8		[9405 8921]	
Thick Coal	at 116.1	SL +164.6	
Heathen Coal	at 120.7	Thick Coal	at 107.9

contd.

Heathen Coal	at 112.8
Stinking Coal	inset at 124.1
Bottom Coal	at 140.8

372 Cabbage Hall
 [9421 8925]
 SL +163.4
 Brooch Coal 1.4m at 62.9
 Thick Coal 9.1m at 120.7
 Heathen Coal 2.7m at 129.3
 Stinking Coal 1.7m at 142.5
 New Mine Coal 0.8m at 144.3
 Fireclay Coal 0.8m at 146.5

373 Paradise No 1
 [9472 8966]
 SL c. +196
 Thick Coal at 20.1
 Heathen Coal at 24.7

374 Doghouse
 [9474 8932]
 SL c. +175
 Brooch Coal 0.9m at 8.3
 Thick Coal at 60.4

375 Paradise No 4
 [9478 8958]
 SL +187.9
 Thick Coal 7.2m at 37.4

376 Blackacre No 1
 [9479 8971]
 SL c. +200
 Made Ground to 0.9
 Thick Coal 9.9m at 17.7
 Heathen Coal 1.9m at 22.8

377 Blackacre
 [9487 8965]
 SL c. +194
 Thick Coal at 24.5
 Heathen Coal at 29.3

APPENDIX

This section provides additional descriptions of the geology of the Brierley Hill district, resulting from the minor revisions made by C N Waters to the 1:10 000 scale geological map S098NW; the revised edition of which was published in 1991, under the direction of J I Chisholm, Regional Geologist. The revisions to the geological map were made using new (post-1978) borehole and site investigation data and limited field mapping, mainly to ascertain the extent of Made Ground deposits. This work constitutes part of the Birmingham-West Geological Mapping Project, and was jointly funded by the BGS and the Department of the Environment.

Corresponding reports covering contiguous 1:10 000 Sheets are:

S099SW	Hamblin (1982)
S088NE	Waters (1991)
S098NE	Waters (1991)
S098SW	Powell (in prep.)

1. SILURIAN

Silurian rocks crop out in the core of the Netherton Anticline at Lodge Farm and to the east of the Western Boundary Fault at Amblecote. Four formations are recognised within the district: the Whitcliffe Formation (formerly the Upper Ludlow Shales) ; the Downton Castle Sandstone; the Temeside Shales and the Ledbury Formation (formerly the Downton Passage Beds) (Figure 2).

The stratigraphic terminology employed in this report for Silurian strata approximates to that of Bassett (1989) and Lawson and White (1989). However, there is an important difference. The Lower and Upper Whitcliffe Formations are not distinguished in this district. The equivalent strata of the Brierley Hill district remain undivided. The term Whitcliffe Formation is used here to describe this undivided sequence. The criteria of subtle lithological as well as faunal characteristics used to distinguish Lower and Upper Whitcliffe Formations in the type area (Lawson and White 1989) are not suitable for the erection of three formations (these are not thought to be mappable units). Furthermore, the use of 'Lower and Upper' adjectives deems the status of these formations as informal (North American Stratigraphic Code, 1983). Consequently, the term Whitcliffe Formation is also informal until the stratigraphy for the type area has been properly formalised.

The Whitcliffe Formation, of Ludlow age, is the oldest formation to crop out within the district. It is exposed in a former mineral railway cutting at Lodge Farm, Netherton [9356 8735], where it comprises up to 6m of greyish or yellowish brown, flaggy, calcareous, sandy siltstone with abundant shell fragments, described in detail by Whitehead and Pocock (1947, p17-18).

The Whitcliffe Formation is overlain, conformably, by the Downton Castle Sandstone, of Pridoli age. The base of the formation, exposed in the section at Lodge Farm [9356 8735], is marked by the Ludlow Bone Bed, which comprises 0.4 to 0.6m of calcareous sandstone and grit with brachiopod and fish remains (Whitehead and Pocock, 1947). The Ludlow Bone Bed is overlain by 15 to 20m of olive-green and yellowish, fine-grained, micaceous, cross-bedded to massive sandstone, exposed in a canal section at Brewin's Bridge [9366 8767] (King and Lewis, 1912; Whitehead and Pocock, 1947).

The Temeside Shales and most of the overlying Ledbury Formation, are of Pridoli age. The Silurian-Devonian boundary probably lies in the upper part of the Ledbury Formation (White and Lawson, 1989) but there is no evidence, in this district, for this chronostratigraphic boundary. These formations are not differentiated on the 1:10 000-scale geological map. The Temeside Shales comprise about 13m of purple and olive-green mudstone with thin sandstones and impersistent bone beds, well exposed in the Brewin's Bridge section [9366 8767] (Whitehead and Pocock, 1947). The overlying Ledbury Formation, also exposed at Brewin's Bridge, comprises at least 3.5m thickness of green and red mottled, micaceous siltstone, interbedded with purple-red, micaceous, fissile mudstone and thin micaceous sandstones (Section B, Appendix 10.2).

2. CARBONIFEROUS

Carboniferous rocks crop out over most of the district, with the exception of part of the core of the Netherton Anticline and to the west of the Western Boundary Fault. The Carboniferous strata include the Coal Measures (Westphalian-A to -B), the Etruria Formation (Westphalian-C), and the Halesowen, Keele and Enville formations (Westphalian-D).

2.1 COAL MEASURES

The Coal Measures rest unconformably upon Silurian strata within the district.

The base of the Coal Measures comprises a conglomerate or coarse-grained, pebbly sandstone, which crops out in the core of the Netherton Anticline. Conglomerates are exposed on the eastern part of the Brewin's Bridge section [9370 8765] (Section B, Appendix 10.2), resting disconformably upon the Ledbury Formation, with both the Carboniferous and Silurian strata dipping about 30 degrees to the east.

The Coal Measures present within the district are subdivided into Lower Coal Measures and Middle Coal Measures. The boundary between the two is taken as the Vanderbekei Marine Band, which is found in the northern and central parts of the district, but is absent in the south of the district. The marine band is exposed in the disused Yew Tree Hill Quarry, Netherton [9400 8780], and comprises a 5cm thick band of lingula-bearing ironstone nodules, located about 3m above the Stinking Coal (Section C, Appendix 10.2). In the south of the district, where the Vanderbekei Marine Band is absent, the boundary between the Lower and Middle Coal Measures is taken, conjecturally, to occur at the level of the Stinking Coal.

Details of Middle Coal Measures strata present below the Thick Coal and the Herring Coal are provided in Appendix 10.2, Sections D and E, respectively.

2.2 ETRURIA FORMATION

The Etruria Formation, formerly referred to as the Old Hill Marl, crops out on the limbs of the Netherton Anticline and in the north-west of the district. The formation comprises mottled red, purple and grey-green clay and mudstone, with subordinate buff and green sandstone and conglomerate beds (espleys) and some thin, sulphurous coals and carbonaceous mudstones. The base of the formation is marked by a gradual increase in thickness of red beds within the typically grey Coal Measures sequence. Hence, the boundary between the two formations is often difficult to define. In the east of the district, a thick, pebbly espley sandstone occurs at, or near, to the base of the Etruria Formation.

The best exposures of the formation occur at Tansey Green Clay Pit [911 897]. Glover *et al.* (in prep.) have subdivided the Etruria Formation at this locality into five lithofacies:

- 1) Medium- to coarse-grained, erosive based, ribbon sandstones, up to 1m

thick;

- 2) Sharp-based, tabular sandstone;
- 3) Graded, muddy sandstone-mudstone couplets;
- 4) Pebbly sandstone and muddy pebble-conglomerate, tabular, up to 0.7m thick, with rounded haematite coated clasts in a muddy matrix;
- 5) Massive red and purple mudstone.

In addition there are volcanoclastic deposits which are unique to the clay pit. The bedded volcanoclastic sequence comprises, in upward sequence, grey-green, parallel-laminated, scoriaceous lapilli tuff (0.6m thick), tuffaceous mudstone and siltstone (0.4m thick) and a poorly sorted volcanoclastic breccia (30m thick). The basal lapilli tuff contains delicate conifer stems, many in growth position (Galtier *et al.*, in prep.). The volcanoclastic breccia comprises clasts of Coal Measures and Etruria Formation mudstones and sandstones and rounded igneous 'bombs' in a tuffaceous matrix. The bedded volcanoclastic deposits are associated with discordant volcanosedimentary dykes and pipes, mainly composed of fragments derived from the underlying sedimentary rocks, and a thin NW-trending dolerite dyke.

Details of the strata present at Tansey Green Clay Pit are provided in Section A, Appendix 10.2.

2.3 HALESOWEN FORMATION

The Halesowen Formation crops out in the district in three small areas, to the west of the Shut End Fault (NW of district), between the north and south Brierley Trough faults and bounded to the west by the Western Boundary Fault (west of district) and at Homer Hill (south of district). The formation comprises up to 15m of olive-green and yellowish brown, medium- to coarse-grained sandstone and conglomerate, resting unconformably upon the Etruria Formation.

2.4 KEELE FORMATION

The Keele Formation crops out in the south-west of the district, in a fault-bounded sliver along the Western Boundary Fault. The formation is not exposed within the district, but regionally comprises red or purple, calcareous mudstone with subordinate calcareous, cross-bedded sandstones, pellet breccias, cornstones and *Spirorbis* limestones. The absence of boreholes and

shafts which penetrate the formation and the uncertain dip of the strata makes estimation of the total thickness of the formation very uncertain; the thickness of up to 200m is the estimate from the previous survey.

2.5 ENVILLE FORMATION

The Enville Formation, formerly referred to as the Bowhills Formation, crops out in the south-west of the district, in a fault-bounded sliver along the Western Boundary Fault. The formation is estimated to be about 0 to 30m thick, within the district, and comprises reddish brown, calcareous mudstones, interbedded with sandstones and conglomerates. A 0.5m thick, purplish red conglomerate, rich in limestone clasts, was formerly exposed at Buck Pool [9007 8676].

3. PERMIAN AND TRIASSIC

Rocks of Permian age, the Clent Formation, and Triassic age, the Kidderminster and Wildmoor Sandstone formations, crop out in the south-west of the district.

3.1 CLENT FORMATION

The Clent Formation, of presumed Permian age, crops out within the fault-bounded sliver present along the Western Boundary Fault, resting unconformably upon the Enville Formation. The formation comprises about 20 to 30m of pebble breccias, set in a muddy matrix, locally interbedded with coarse-grained pebbly sandstones. The dominant pebble type is Uriconian Volcanics.

3.2 KIDDERMINSTER FORMATION

The Kidderminster Formation crops out to the west of the Western Boundary Fault and to the north of a W-trending fault. The formation comprises a sequence of conglomerates and brownish red to yellow, coarse-grained, pebbly sandstones. The base of the formation is not proved within the district, but is regionally an unconformity. The total thickness of the formation is estimated to be about 40m.

3.3. WILDMOOR SANDSTONE

The formation crops out to the west of the Western Boundary Fault and to the south of a W-trending fault which throws the Wildmoor Sandstone down to the south, against the Kidderminster Formation. The formation, which is estimated to be about 40m thick in the district, comprises reddish brown and orange, medium- to fine-grained, often clayey and micaceous, sandstone with low-angle cross-bedding and a distinctive absence of pebbles.

4. INTRUSIVE IGNEOUS ROCKS

Three intrusive igneous bodies, all assumed to be of Westphalian-C age, are found at crop within the district. They include a dolerite dyke, present within the core of the Netherton Anticline and exposed in the western part of the Brewin's Bridge section [9364 8770]. This body largely intrudes Silurian strata and is bounded to the east by a NE-trending fault which throws Silurian strata down to the north-west. A further small intrusive dolerite body is proved in a site investigation to occur in the north-east of the district, at Dudley [946 898]. However, the largest and most extensively studied intrusive body crops out at Barrow Hill [915 896].

The Barrow Hill Complex comprises a dolerite pipe intruded within vent agglomerates. The extent of the igneous complex is taken from the work of Marshall (1945) and a resurvey during the present revision of the 1:10 000-scale geological map. The complex is considered to have intruded the Etruria Formation strata during the Westphalian-C, near to the then surface level (Kirton, 1984). The vent agglomerate comprises fault-bonded blocks of volcanic breccia, with large blocks of Etruria Formation and Coal Measures

mudstones, coal clasts and rounded quartzite pebbles in a tuffaceous matrix. The dolerite forms fault-bounded, pipe-like intrusions within the vent agglomerate and country-rock. The dolerite, which has been extensively worked for road aggregate, contains numerous Coal Measures and Etruria Formation xenoliths up to 4.5m in diameter. In the upper part of the main quarry [9149 8958], a 1 to 2m thick dolerite sill extends from the dolerite pipe and intrudes the adjacent vent agglomerate. The Barrow Hill complex is interpreted as representing a high-level phreatomagmatic intrusion.

5. QUATERNARY

Quaternary superficial (drift) deposits cover only a small part of the district. The deposits include areas of Alluvium of the River Stour and Black Brook, and Interglacial Fluvial Terrace deposits at Amblecote, in the south-west of the district. The latter, described in more detail by Waters (1991) and Powell (in prep.), comprises a thin sheet of gravel and pebbly sand at a topographic level of 80 to 85m AOD.

It is probable that a thin veneer of solifluction deposits (Head) occur over much of the district, but are too thin (less than 1.5m) to show on the map.

6. MADE GROUND AND WORKED GROUND

Three categories of Made Ground have been distinguished in the district during the revision of the geological map. These are:

- 1) Worked Ground, where the ground is known to have been cut away by man, such as non-filled clay pits and dolerite quarries, e.g. Doulton's Clay Pit [936 871], Yew Tree Hill Clay Pit [939 878] and Barrow Hill Quarry [915 896];
- 2) Made Ground, where ground is known to have been deposited by man, such as embankments, landscaped ground and spoil heaps from clay pits and dolerite quarries. Made Ground is shown on the map only where it is more than 2m thick;
- 3) Worked and Made Ground, where the ground has been cut away and then and artificial ground deposited, such as partly or wholly back-filled quarries and pits. This category includes the principal opencast sites

and most of the brick-clay pits.

7. STRUCTURE

7.1 NW-SE FAULTS

The Western Boundary Fault forms an anastomosing series of normal faults, throwing down to the west, juxtaposing Triassic strata in the hanging wall against Carboniferous strata in the footwall. The eastern branch of the fault was proved to have a hade of c.45 degrees in the now backfilled Amblecote Opencast.

The Russell's Hall Fault is proved in the Rowley Regis district to be a reverse fault, dipping steeply toward the east, but with a throw down to the west (Waters, 1991b). The fault is considered to maintain a reverse geometry within the Brierley Hill district, though probably becomes near vertical toward the northern margin of the district.

7.2 NNE-SSW FAULTS

In addition to the faults already described in this category, e.g. Shut End, Corbyn's Hall, Brockmoor and Hayes faults, there are three NNE-trending faults located to the east of, and truncating against, the Russell's Hall Fault. These faults, which include the western fault of the Dudley Port Trough, all throw down to the south-east. A further NNE-trending fault occurs in the core of the northern part of the Netherton Anticline. The fault throws Silurian strata down to the west, but Carboniferous strata down to the east, suggesting that the fault was reactivated with an opposite throw direction during Variscan deformation. The Hayes Fault, described earlier as a reverse fault, with a throw down to the east, changes to a throw down to the west in the vicinity of Dudley Wood.

7.3 WSW-ENE FAULTS

The Brierley Hill Trough faults are interpreted during the revision mapping to extend from the Netherton Anticline in the east to the Western Boundary Fault in the west.

8. ECONOMIC GEOLOGY

In addition to the mining and opencast excavation of coals, fireclays and ironstones, the Etruria Formation was extensively worked for brick and tile clay and is still, at the time of the survey, worked at Tansey Green Clay Pit. Dolerite was formerly worked for road aggregate at Barrow Hill Quarry.

9. ADDITIONAL REFERENCES

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10. ADDITION TO APPENDICES

10.1 SELECTED BOREHOLES AND SHAFTS

Numbers are those of BGS records for this sheet; the full reference is prefixed by the quarter sheet number (eg. SO 98 NW 5). National Grid references are given in square brackets; only a single grid reference has been given for each selected shaft section although in many cases more than one shaft is represented. Depths refer to the bases of units; seam or bed thicknesses are given where known. Surface levels are given in metres above Ordnance Datum (OD); where an approximate surface level is given, this has been interpreted from present day contours.

491. Old Park Hospital BH. F [9214 8933]	Brooch Coal	1.2 at 16.7
Surface level	Middle Coal Measures	to 30.5
No core		
Etruria Formation		
Middle Coal Measures		
Two Foot Coal (worked)		
Brooch Coal (worked)		
Herring Coal (worked)		
Thick Coal Rock		
Middle Coal Measures		
1065. Pedmore Rd Dudley BH.1 [9295 8727]	Surface level	c. 122.1
Surface level	Made Ground	to 2.5
No core	Middle Coal Measures	to 15.2
Etruria Formation	Brooch Coal	3.1 at 18.3
Middle Coal Measures	Thick Coal	7.1 at 33.1
Two Foot Coal (worked)	Middle Coal Measures	to 40.1
Brooch Coal (worked)		
Herring Coal (worked)		
Thick Coal Rock		
Middle Coal Measures		
493. Old Park Hospital BH. H [9215 8933]	1323. Black Brook Colliery [9375 8833]	
Surface level	Surface level	c. 157
No core	Middle Coal Measures	to 40.7
Middle Coal Measures	Ten Foot Ironstone	0.9 at 41.6
Sub-Brooch Marine Band	Thick Coal	9.4 at 51.5
Herring Coal	Gubbin Ironstone	1.6 at 54.4
Middle Coal Measures	Heathen Coal (Upper)	1.1 at 57.5
	Heathen Coal (Lower)	0.7 at 58.9
	Middle Coal Measures	to 64.1
513. Peartree Lane BH. 13a [9342 8878]	1324. Doulton's Clay Pit [936 871]	
Surface level	Surface level	at 121.9
Made Ground	Middle Coal Measures	to 28.9
Drift	Thick Coal (3 leaves)	8.7 at 38.4
Brooch Coal	Gubbin Ironstone	1.8 at 40.3
Thick Coal Rock	Heathen Coal (Upper)	0.9 at 41.2
	Heathen Coal (Lower)	0.5 at 59.5
	Stinking Coal	0.3 at 65.4
	New Mine Coal	0.4 at 80.0
	New Mine Clay	0.3 at 81.2
	Fireclay Coal	0.2 at 81.8
	New Mine Clay	0.3 at 82.1
	Fault at Base	at 83.0
732. Delph Rd, Brierley Hill BH. 1 [9227 8628]		
Surface level		
Made ground		
Middle Coal Measures		
Two Foot Coal		
Brooch Coal		
Herring Coal		
Middle Coal Measures		
1014. Peartree Lane BH.2 [9382 8884]	1325. Netherton Ironworks [948 875]	
Surface level	Surface level	at 143.2
Made Ground	Made Ground	to 2.4
Middle Coal Measures	Drift	to 7.0
Two Foot Coal	Etruria Formation	to 22.3

Middle Coal Measures	to 41.5
Coal	0.6 at 42.1
Thick Coal	6.9 at 93.0
Heathen Coal	1.1 at 101.3
Stinking Coal	1.4 at 110.4
Lower Coal Measures	at 173.0
Silurian	at 206.3

1326. Simms Lane No 2 Pit
[9477 8840]

Surface level	c. 140
Old Shaft	to 24.7
Heathen Coal	0.9 at 25.6
Pennystone Ironstone	3.5 at 34.0
Stinking Coal (3 leaves)	at 37.5
Lower Coal Measures	to 63.4

10.2 SURFACE SECTIONS

A. Tansey Green Clay Pit [9110 8960]

Etruria Formation

Volcanic Breccia	3.0
Mudstone and Siltstone, tuffaceous	0.4
Lapilli tuff and tuffaceous mudstone, with in situ conifers	0.4
Lapilli tuff	0.2
Clay, red mottled with occasional pisoliths	0.4
Conglomerate	from 0.1 to 0.4
Clay, red-brown	from 0.3 to 0.6
Clay, red	0.4
Sandstone, coarse-grained, cross- bedded, pebbly at base	from 0.2 to 0.6
Clay, brown, roots at top	from 1.4 to 1.8
Clay, red-purple	1.0
Fault	
Clay, red	1.2
Sandstone, green, medium-grained, cross-bedded	from 2.6 to 3.6
Clay, red	from 2.3 to 3.2
Sandstone, green, medium-grained, cross-bedded, pebbly at base	from 0.8 to 1.2
Siltstone, red	from 5.7 to 6.0
Sandstone, red, medium-grained	0.3
Sandstone, green, fine-grained, cross-bedded	0.5
Sandstone, green, medium-grained, cross-bedded	0.5
Sandstone, red and green, fining upward	0.2
Conglomerate, green, fining upward, rippled at top	1.4
Siltstone, orange-red, roots	0.7
Siltstone, brown-yellow	0.8
Sandstone, red, fine-grained, fining upward	from 2.2 to 2.6
Clay, brown, roots	from 1.2 to 1.6
Clay, green-purple	0.4
Clay, red-green	3.0

Siltstone, red	3.0
Sandstone, green, cross-bedded, fining upward	from 0.0 to 1.6
Clay, brown and red, roots at top	from 1.2 to 2.7
Fault	

B. Brewin's Bridge [9363 8770] to [9371 8765]

Lower Coal Measures

Conglomerate	0.6
Sandstone, fine-to medium-grained, dark green, chloritic and feldspathic, trough cross-bedded	0.8
Mudstone, dark grey	0.05
Conglomerate and pebbly, granular sandstone, pebbles up to 10cm diameter, dominantly quartzite	2.8

Ledbury Formation

Siltstone, pale orange-green, micaceous	0.7
Siltstone, green, very micaceous, some red mottling, small brachiopod valves Dip 30 toward 110	1.6
Mudstone, purple-red, fissile, very micaceous	0.25
Siltstone and very fine sandstone, green and red mottled, very micaceous	0.6

C. Yew Tree Hill, disused quarry [9400 8780]

Middle Coal Measures

Coal	0.3
No Exposure	0.5
Mudstone, black, fissile	0.1
Mudstone, dark grey, hard, fissile, orange-weathered with ironstone nodules	0.4
No Exposure (probably mudstone)	
Ironstone, modules with moulds of lingula (Vanderbeckeii MB)	0.05

Lower Coal Measures

Mudstone, dark grey, fissile	-
Ironstone	0.05
Mudstone, grey, fissile with ironstone nodules	2.2
Mudstone, dark grey	c. 1.0
Stinking Coal, sulphurous, laminated Dip 33 toward 131	1.0
Mudstone, dark grey	0.4
Stinking Coal, fissile, ironstained	0.28
Mudstone, pale grey-brown with orange weathering, becoming dark grey and less ironstained towards top. Ironstone nodules present	1.4
Ironstone	0.7
No Exposure (probably Mudstone)	2.0
Mudstone, dark grey to black, fissile	0.1
Coal, shaley towards top	0.23
Mudstone, grey-brown with carbonaceous	

fragments	c. 1.0
Sandstone, pale grey, fine-grained	2.0

D. Temporary Section [9291 8656] to [9296 8656]
(recorded by Wilson 1977)

Middle Coal Measures

Base of Thick Coal

Siltstone/Ironstone, brownish grey with bands of sphaerosiderite, ochreous, very silty with plant fragments	3.05
Mudstone, pale grey, finely laminated with carbonaceous partings	0.91
Mudstone, dark grey-brown, finely laminated with carbonaceous partings	0.3
Upper Heathen Coal, banded, dull and bright	0.76
Mudstone, grey, finely laminated with carbonaceous partings	4.57
Lower Heathen Coal, fissile	from 0.61 to 0.76
Mudstone, dark grey, silty, seatearth	0.76
Carbonaceous Shale, interbedded with siltstone towards base	0.61
Sandstone, coarse-grained at top, finer toward base, ironstone nodules and bands	3.05
Mudstone, red mottled, seatearth	-
Fireclay, dark grey	0.61
Fireclay, light grey	0.91

E. Temporary Section [93215 85740]
(recorded by Wilson 1976)

Made Ground, pale grey clay, weathered orange-brown with ironstone nodules	1.0
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Middle Coal Measures

Mudstone, grey, plant fragments, small ironstone nodules	0.7
Ironstone, dark brown, nodules in grey mudstone	from 0.1 to 0.2
Mudstone, grey, laminated	from 0.1 to 0.2
Coal Parting	0.05
Nodular Ironstone	0.05
Mudstone, light and dark with plant debris, small ironstone nodules, roots	0.25
Mudstone, dark grey, fissile, with coaly wisps and partings	0.5
Ironstone, brown sideritic nodules in dark grey mudstone	from 0.05 to 0.5
Mudstone, dark grey, fissile, occasional ironstone nodules	2.5
Ironstone band, dark brown, nodular sideritic	from 0.05 to 0.1
Mudstone, dark grey and black	at least 0.5

Dip 37 toward 110

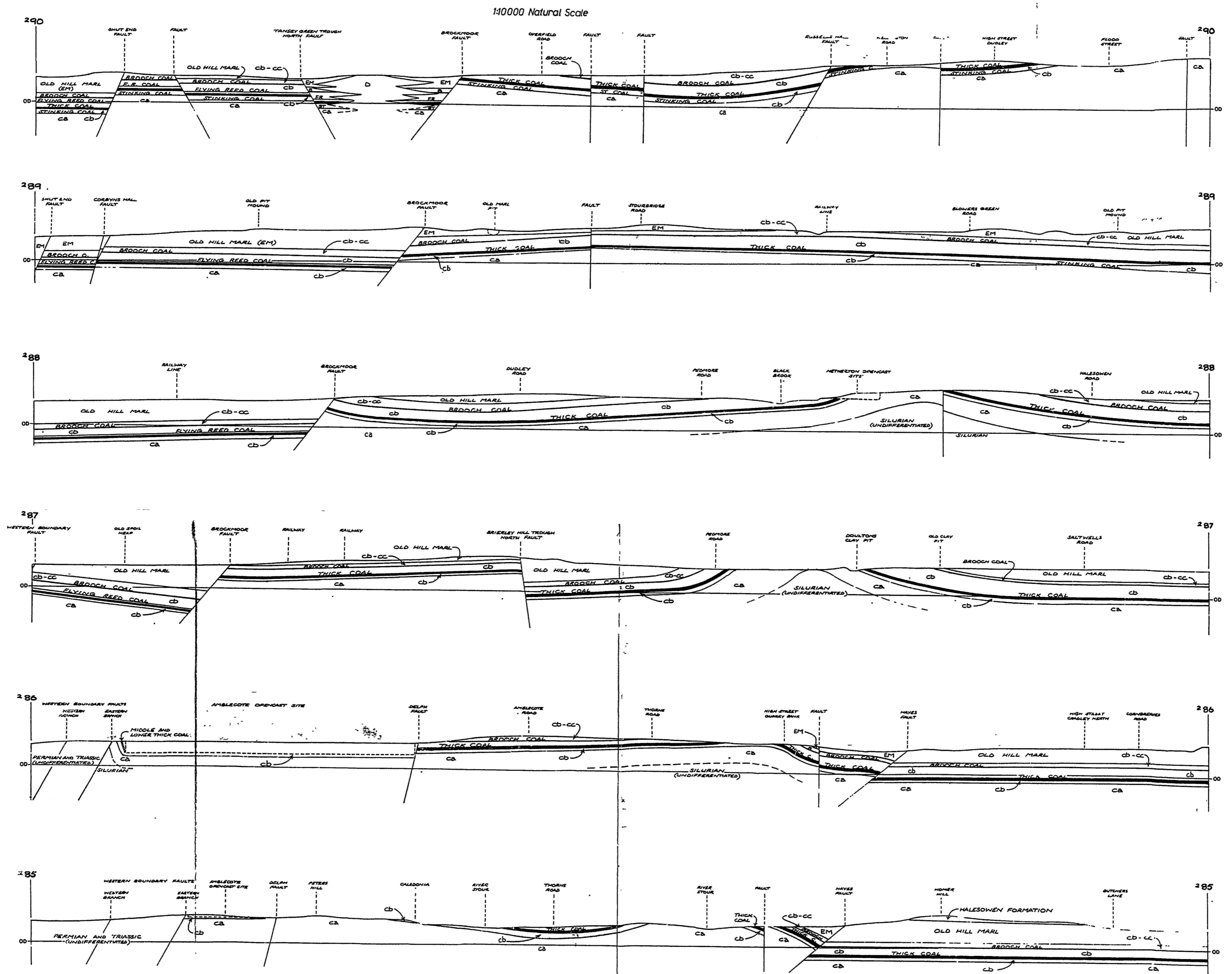


Fig 1: Series of Geological Cross-sections along Northing Grid Lines for 1:10000 Geological Sheet SO 98NW
 ca(cb,cc) Coal Measures of Westphalian A (B,C) age EM Old Hill Marl (Etruvia Marl)

WA/91/62