ARCHAEOLOGICAL WATCHING BRIEF ON THE SEVERN TRENT WATER CENTRAL SEWER REHABILITATION SCHEME, WORCESTER

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Archaeological watching brief on the Severn Trent Water Central Sewer Rehabilitation Scheme

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Part 1 Project summary

An archaeological watching brief was conducted on the Central Sewer Rehabilitation Scheme in Worcester. This project covered a variety of sites across the city centre: Park Street, Edgar Street, The Cross, The Shambles, Mealcheapen Street/St. Swithin's Street, Cornmarket, Charles St. and Pump St. and Lowesmoor. It was undertaken on behalf of Severn Trent Water, who intended refurbishing the existing sewers in these locations. The project aimed to determine if any significant archaeological deposits were exposed by the groundworks and if so to indicate what their location, date and nature were.

The trenching largely revealed modern road surfaces, backfills within the 19th century sewer trenches and plenty of modern services. However, the trenches at The Cross/Angel Street and The Shambles revealed archaeological strata in one or more of their sections. At The Cross the artefactual material removed from the visible layers were dated to the Roman period.

Part 2 Detailed report

1. Background

1.1 Reasons for the project

An archaeological watching brief was undertaken on the Worcester Central Sewer Rehabilitation Scheme (see Table 1 for list of NGR references), on behalf of Severn Trent Water. Severn Trent Water intended to refurbish the 19th century sewers in the locations listed in Table 1. Worcester City Museums Archaeology Section considered that sites of archaeological interest were affected.

1.2 **Project parameters**

The project conforms to the Standard and guidance for an archaeological watching brief (IFA 1999)

The project also conforms to a brief prepared by Worcester City Museum Archaeology Section (WCMAS 2003) and for which a project proposal (including detailed specification) was produced (HEAS 2003).

1.3 **Aims**

The aims of the watching brief were to assess the character and survival of Roman and Anglo-Saxon deposits; to assess the character and survival of medieval remains, including structures, in areas subject to post-medieval or modern street widening; to locate medieval street features, such as crosses, and to examine the character and survival of medieval and post-medieval street surfaces (WCMAS 2003).

2. **Methods**

2.1 **Documentary search**

Prior to fieldwork commencing a search was made of the Sites and Monuments Record (SMR). In addition the following sources were also consulted:

Cartographic sources

- Worcester. Speed 1610. BL King's Maps C7 C550: WCRO 4885/VI 899x426
- An exact ground plan plot of the City of Worcester as it stood fortified 3rd September 1651. Anon 1660. BL Kings Maps XLII
- Plan of Worcester City. Doharty 1742
- Plan of the City and Suburbs of Worcester from Actual Survey 1779. George Young 1779
- Plan of the City and Suburbs of Worcester. Valentine Green 1795
- Plan of the City and Suburbs of Worcester. Nash 1781/1799
- Map of Worcester. Eaton 1810

- A Plan of The City and Environs of Worcester. T. Eaton 1829. From "A History of Worcester"
- A Map of the City and Suburbs of Worcester. Crisp 1832
- A Map of the City and Suburbs of Worcester. Clements 1835
- Plan of Worcester. Bentley 1840
- 1:2500 Ordnance Survey First Edition Map. Reproduced at 1:1000. Landmark ref no. 39so8554
- 1:2500 Ordnance Survey revised edition 1904. Reproduced at 1:1000. Landmark ref no. 39so8554
- 1:2500 Ordnance Survey revised edition 1928. Reproduced at 1:1000. Landmark ref no. 39so8554
- 1:2500 Ordnance Survey revised edition 1940. Reproduced at 1:1000. Landmark ref no. 39so8554

Documentary sources

- Atkin 1995
- Barker 1969
- Brown 1989
- Dalwood et al 1988-92
- Griffin and Jackson 2003
- Mundy 1985
- Patrick 2003
- Topping 1999
- VCH II

2.2 Fieldwork

2.2.1 Fieldwork strategy

A detailed specification has been prepared by the Service (HEAS 2003).

Observation of the bore-holing was undertaken between the 25^{th} and 27^{th} March 2003. Observation covered the bore-holes at The Cross and Cornmarket but missed the hole in Pump Street due to late notification.

Fieldwork for the sewer rehabilitation phase was undertaken between 9th June and 9th September 2003.

A total of nine trenches were opened to establish new manholes along the course of the sewer. Generally the larger trenches (trenches 1,3,4,6 and 7) measured 2.50m x 2.50m. The

groundworks surrounding the other trenches involved minimal breaking of tarmac surrounding existing manholes. The location of these trenches are illustrated in Figures 1-17. The coordinates of the nine trenches and two boreholes are listed in Table 1.

Fieldwork took the form of inspection of the sides and base of the trenches opened by the contractors. Wherever possible the sections were inspected and cleaned but due to health and safety considerations access in to the trenches was sometimes not possible. Clean surfaces were recorded and finds retrieved from the section. Deposits were recorded according to standard Service practice (CAS 1995). To assist the recording process, deposit descriptions were annotated on to the scale section drawings.

Table 1: Location of trenches

Name of trench	WCM number	Location (National Grid Reference)	Figure number	Plate number
Park Street/Wyld's Lane	101139	SO 385442 254506	2 and 3	1
Edgar Street	101141	SO 385095 254440	4 and 5	2
Cornmarket	101140	SO 385178 254972	6 and 7	3 and 4
		SO 385180 254966		
Cornmarket borehole	101090	SO 385180 254970	6	
Mealcheapen Street	101144	SO 385071 254949	8 and 9	
The Cross/Angel Street	101142	SO 384979 254993	14 and 15	5
The Cross borehole	101091	SO 384984 255003	14	
The Shambles	101143	SO 385095 254853	6 and 7	6
Charles Street/Pump Street	101163	SO 385139 254754	12 and 13	7
Charles Street borehole	101089	SO 385151 254761	12	
DOIGHOIG		(not observed)		
Lowesmoor	101164	SO 385216 255163	16 and 17	8

2.2.2 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural and artefactual evidence, allied to the information derived from other sources.

2.3 **Artefacts**

2.3.1 Artefact recovery policy

The artefact recovery policy conformed to standard Service practice (CAS 1995; appendix 2).

2.3.2 **Method of analysis**

All hand retrieved finds were examined. They were identified, quantified and dated to period. A *terminus post quem* date was produced for each stratified context. The date was used for determining the broad date of phases defined for the site. All information was recorded on *pro forma* sheets.

Pottery fabrics are referenced to the fabric reference series maintained by the Service (Hurst and Rees 1992).

2.4 **Environment**

2.4.1 Sampling policy

Due to the nature of this project, with some restricted access to the trenches on health and safety grounds, no environmental samples were taken.

2.5 The methods in retrospect

The methods adopted allow a high degree of confidence that the aims of the project have been achieved

3. Topographical and archaeological context

Worcester lies in the valley of the River Severn with the historic core situated on the east bank of the river on a terrace composed of sand and gravel which rises to a height of around 26m OD (Worcester Terrace 1982) overlying Mercian Mudstone (Keuper Marl). Settlements date back to the Iron Age through to the present day (Barker 1969, 9-42).

The watching brief incorporated groundworks in nine different locations. All of the trenches apart from the sites in Wyld's Lane and Lowesmoor, lie within the area of the medieval walled city.

The site in Park Street was located at the junction with Wyld's Lane and Fort Royal Hill. The trench here was close to significant Civil War features (WCMAS 2003). The Civil War Fort Royal was located on top of the present Fort Royal Park, with Fort Royal Hill being the line of the original eastern defensive ditch protecting the London Road suburb. The site is also near the Royalist headquarters at the Commandery (Atkin 1995).

There has been very little work at Cornmarket aside from a watching brief at nos.4-5 (Topping 1999). Nothing of archaeological significance was found but the site does lie adjacent to two sites scheduled under the Ancient Monuments and Archaeological Areas Act 1979. These are the City Wall (County Monument no 285a) and King Charles House, 29, New Street (County Monument no 316).

Some locations on nearby New Street have been investigated and produced a variety of archaeological remains. Prehistoric evidence for the occupation of the area was found at 21-24 New Street where a post-hole containing neolithic flint was found beneath the floor of a cellar (WCM 100007). Roman remains have been recorded from a number of sites in the immediate

area, including a road surface at 21-24 New Street running parallel with the existing street, and pits containing early Roman pottery from 11-12 New Street (WCM 100008). Archaeological recording during the construction of City Walls road showed that this area was also within the Roman town (Patrick 2003).

An evaluation at the rear of no 9 New Street (WCM 101040) revealed re-deposited Roman artefacts and medieval deposits at a depth of approximately 1.1m below the present ground surface of the garden. These included the earth bank butting against the rear of the City Wall, probably dating to the time of the construction of the defences *circa* 1200. Remains of a medieval cellar or undercroft were identified under the present house. A number of small 17th and 18th century structures were recorded, together with possible evidence for quarrying in the area (Patrick 2003).

An investigation took place of the Reindeer Coaching Inn on Mealcheapen Street on the west side of Cornmarket (WCM 6953) which revealed several post-medieval features along with finds of Roman, medieval and post-medieval date, suggesting the existence of archaeological deposits of those earlier dates at this site, though the state of these are unknown due to cellaring (Brown 1989).

Although some distance from the area of this watching brief, the presence of such archaeological deposits in the area mean that there was a moderate potential for finding archaeology in Cornmarket and Mealcheapen Street.

A series of large ditches were recorded by Philip Barker at Pump Street and are believed to be Roman or very late Iron Age in date (Barker 1969). At one location in the street 3.05m of made ground is present (Richardson 1961).

Archaeological investigation on The Shambles included a notable excavation at City Arcades, approximately 50m south of the trenching for this project. The excavation discovered evidence of Roman activity dating from the 1st to the 3rd centuries AD, including pitting and industrial activity. A substantial ditch of a later date ran north to south across the site and might have been part of the Saxon burgh perimeter. From the 13th century a range of structures were built across the site and the site has remained developed in various forms to the present day (Griffin and Jackson 2003).

The line of the High Street is known to have some of the deeper archaeological deposits in the city. Just to the south of the trenching in The Cross, a metalled Roman road capped by iron slag was detected in Broad Street running north-south through the present northern entrance of the Crowngate shopping centre (Barker 1967). The area west of The Cross has been associated with Roman iron smelting activity, which seems to have taken place in areas to the side of this road. The iron slag waste was used by the Romans to metal roads, like the capping found at the road on Broad Street (Carver 1980). The site of the trench is also just outside the outer edge of the Saxon burh defences, which followed the present line of Broad Street. Investigations at the site of Lloyd's Bank on The Cross in the late 1950's and early 1960's showed a depth of 3.96m of made ground down on to the natural sand (Richardson 1961). The Ordnance Survey 2nd epoch map of 1904 shows the existence of tram lines up the length of Broad Street and turning in to The Cross. The potential for hitting the site of these lines was thought to be moderately high.

Lowesmoor was part of a medieval suburb on the north-eastern side of Worcester and and was home to one or more tile-houses. These produced brick and tile for the locale (VCH II, 275). It was also the location of a Cross (WCMAS 2003).

4. **Description**

The locations of the trenches are listed by co-ordinates in Table 1. The results of the contexts recorded are presented in Tables 3-8, with Table 2 summarising the artefacts recovered. The trenches and features recorded are shown in Figures 2-18.

4.1 Artefact analysis

The assemblage contained material dating from the Roman and modern period, and some undated material. The small amount of ceramic material present was not highly abraded. The assemblage is recorded in Table 2, below.

Table 2: the artefact assemblage

Context	Material	Fabric Name	Fabric Number	Total	Weight (g)	Notes	Date range	Period
504	Pot	Modern stone china	85	1	1		19th C +	Modern
506	Bone			7	901			
506	Tile	Tegula		1	87	Possible Roman?		Roman?
506	Pot	Amphora / Severn Valley ware	42? / 12?	1		Handle. 4 grooves running the length of the handle's back. Amphora or Severn Valley ware jar?		Roman
509	Slag			1	1158	Very heavy ?iron rich slag		
509	Fired clay			4	66	Wattle impressions.		Roman?

Roman

Contexts 506 and 509 have a *terminus post quem* date in the Roman period, however, as both contexts contain material which may or may not be Roman, the date cannot be definite. The large pottery handle from 506 is relatively unabraded suggesting it has not been repeatedly disturbed, however the piece of tile from the same context was fairly abraded. This may reflect pre-deposition factors. As Roman slag often has a high iron content the slag from 509 may be Roman (Hurst and Rees 1992, 200–209).

Animal bone from context 506 was well preserved and little fragmented. It included a cattle lower mandible and metatarsal which had been cut, presumably to remove the hoof. A possible cattle pelvis inominate, scapula, large ungulate (horse / cattle / red deer) size long bone and rib had also been butchered. All bones appear to have been at least partially waterlogged at some time and considering their condition are likely to have been rapidly buried (L Pearson pers comm).

Modern

The only material dated to the modern period was a single abraded sherd of modern stone china (fabric 85) from context 504.

4.1.1 **Artefact summary**

Although the assemblage is quite small there is clearly evidence for Roman activity in the area. The nature of that activity may be industrial and / or domestic. Given the location the absence of medieval material is surprising.

4.2 **Discussion**

4.2.1 Phase 1 Natural deposits

At no stage during the groundworks in all of the locations were natural deposits identified.

4.2.2 Roman deposits

Layers dated to the Roman period were located in the east section of the trench at The Cross/Angel Street. Contexts 506 (23.55-21.90m OD) and 509 (21.90m- OD) both produced artefactual and industrial material dateable to the Roman period. The lower context 509 produced industrial waste, which has been located in various areas of Worcester including a short distance away in Broad Street and during the excavations on Deansway, around the present Crowngate shopping centre (Barker 1969, 63-98; Mundy 1985). These indicate that iron smelting was a major industry in Roman Worcester. The piece of waste found was in isolation, so perhaps was discarded material, rather than serving a function such as capping of the road leading north out of the city (*cf* Dalwood *et al* 1994). The bone found within context 506 showed evidence of butchery, indicating domestic activity nearby.

The trench in The Shambles showed very similar strata. Unfortunately no artefacts were recovered from the section. It's possible that the lower layers exposed, being sufficiently similar in colour and depth to the deposits in The Cross, are Roman in date.

4.2.3 Medieval to post-medieval

No archaeological deposits or artefacts from these periods were present. Although the vast majority of the trenching was within the medieval walled town, the trenches were usually so riddled with services and re-deposited material or were within the extent of the original sewer trench cut that no surrounding archaeological deposits were impacted upon.

There were no indications of any features dateable to the Civil War at the Park Street/Wyld's Lane site.

4.2.4 Modern

The level of activity from this period was high. From a series of road surfaces to utility services present in all the trenches. The utilities seemed to be various. Trench 1 had a modern gas pipe obvious in two sections as well as several other steel pipes of an earlier date. The remainder of the trenches had similar steel pipes in varying positions within them, with the most common densities of services occurring in the top metre or so. The trenching failed to detect any sign of the Victorian tramlines, which ran up Broad Street and through the Cross and down the High Street. It's possible that Trench 5 just missed the route of the tramlines, or that the various modern (last 40 years or so) services running through the top of the trench had necessitated their removal when they were laid.

5. **Publication summary**

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the

basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

A watching brief was undertaken on behalf of Severn Trent Water on the Central Sewer Rehabilitation Scheme (NGR refs see Table 1; WCM 101092).

The groundworks succeeded in revealing significant archaeological strata in two locations, The Shambles and The Cross. Although no artefacts were recovered from the site in the Shambles, The Cross site produced a number of finds dateable to the Roman period. These finds, although probably redeposited, reflected both an industrial and domestic background to the activities occurring in the area. All the other areas of groundworks relating to this scheme around the city showed a high level of truncation from modern services and no significant archaeological deposits.

6. The archive

The archive consists of:

9	Fieldwork progress records AS2
6	Photographic records AS3
46	Digital colour images
8	Drawings on permatrace
1	Box of finds
1	Computer disk

The project archive is intended to be placed at:

Worcester City Museum and Art Gallery

Foregate St

Worcester

WR1 1DT

7. **Acknowledgements**

The Service would like to thank the following for their kind assistance in the successful conclusion of this project, Severn Trent Water, Melvin Merry and James Dinn.

8. **Personnel**

The fieldwork for the main rehabilitation scheme phase and report preparation was led by James Goad. The borehole supervision was undertaken by Anna Deeks and Marc Steinmetzer. The project manager responsible for the quality of the project was Simon Woodiwiss. Fieldwork for the main phase of works was undertaken by James Goad, finds analysis by Erica Darch and illustration by Carolyn Hunt.

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10. **Abbreviations**

WCM Numbers prefixed with 'WCM' are the primary reference numbers used by the Worcester City Archaeology Section Sites and Monuments Record.

SMR Sites and Monuments Record.

Appendix 1 Trench descriptions

Trench 1

Site area: Junction of Park Street and Wyld's Lane

Maximum dimensions: Length: 3.50m Width: 2.80m Depth: 1.60m

Orientation: East-west

Main deposit description

Context	Classification	Description	Ordnance Datum height (in metres)
100	Brick paving for road surface	Modern red brick	22.74-22.60
101	Layer	Concrete layer	22.60-22.36
102	Fill, cut of service trench 104.	Red sandy backfill	22.36-21.64
103	Fill of original Victorian sewer trench	Mid brownish grey silty clay. Occasional brick fragments. Occasional charcoal.	21.54-
104	Cut of modern gas service	Filled by 102	22.60-21.36

Table 4

Trench 2

Site area: Edgar Street

Maximum dimensions: Length: 1.75m Width: 1.46m Depth: approximately 0.20m

Orientation: North-south

Main deposit description

Context	Classification	Description	Ordnance Datum values (in metres)
200	Trench	Trench had been cut around existing manhole	
201	Fill	Light, sandy backfill over existing large concrete access chamber	

Trench 3

Site area: Cornmarket

Maximum dimensions: Length: 2.50m Width: 2.50m Depth: 1.50m

Orientation: N/A

Main deposit description

Context	Classification	Description	Ordnance Datum heights (in metres)
300	Cut for trench		
301	Road surface	Tarmac	22.23-22.08
302	Make-up layer for road surface	Clinker – angular white stone	22.08-21.99
303	Make-up/levelling layer	Mid grey clinker	21.99-21.59
304	Backfill of sewer trench, disturbed by later services	Brown silty sand. Moderate brick rubble with occasional patches of tarmac	21.59
305	Services, within service cut 306	Iron service pipes – probably water	21.99-
306	Cut for services, cutting through earlier backfill		22.00-

Trench 4

Site area: Cornmarket

Maximum dimensions: 2.50m x 2.50m

Orientation: N/A

Main deposit descriptions

Context	Classification	Description	Ordnance Datum values (in metres)
400	Cut of trench		
401	Road surface	Tarmac	22.23-22.14
402	Backfill, for modern service	Brown gravellly material	22.14-21.93
403	Layer/backfill	Mid grey sandy material	22.13-21.85
404	Layer/backfill	Soft brown sand	21.85-

Table 7

Borehole: Cornmarket

Main deposit descriptions:

Context	Classification	Description	Ordnance Datum value (in metres)
450	Road surface	Tarmac over aggregate make-up	22.23-22.08
451	Made ground	Dark brown silty sand with occasional cobbles sub-angular and rounded stones.	22.08-21.43
452	Made ground	Firm dark grey gravely sandy clay with occasional cobbles. Gravel and cobbles sub-angular and rounded	21.43-20.23
453	Natural	Loose red brown sandy gravels.	20.33-
			(bore holed down to 4m from road surface)

Trench 5

Site area: The Cross

Maximum dimensions: 2.50m x 2.50m

Orientation: N/A

Main deposit descriptions

Context	Classification	Description	Ordnance Datum heights (metres)
500	Cut number for trench		
501	Road surface	Tarmac	23.50-23.33
502	Pavement	Concrete paving stones	23.50-23.33
503	Concrete layer	Concrete	23.33-23.17
504	Layer	Loose gingery brown sand. Moderate small rounded stones	23.17-22.86
505	Layer	Loose brown sand	22.86-22.52
506	Layer	Sticky dark grey sandy silt. Moderate medium to large smooth rounded stones. Occasional burnt bone. Occasional animal bone. Roman finds – e.g. amphora handle	22.52-21.87
507	Fill of 508 - modern truncation	Mid grey silty sand	23.17-22.20
508	Modern/post-med truncation. Possible cut of Victorian sewer	Straight sided cut	23.17-
509	Layer	Loose gingery brown sand. Occasional small pieces of fired clay. Occasional large lumps of industrial waste	21.87-

Borehole: The Cross

Main deposit descriptions:

Context number	Classification	Description	Ordnance Datum height (in metres)
520	Present road surface	Tarmac over aggregate make-up layer	23.71-23.56
521	Concrete make-up layer	Concrete	23.56-23.31
522	Made ground/levelling layer	Friable mid brown gravely clay sand with occasional rounded and sub-rounded stones with occasional wood fragments	23.31-23.01
523	Made ground/accumulated occupation material	Firm dark grey slightly sandy and gravely clay with occasional cobbles. Gravel and cobbles sub-angular to rounded. Occasional small brick fragments, industrial waste, sandstone fragments and clinker	23.01-21.71
524	Natural river terrace deposits	Firm mid brown sandy, gravely clay. Gravel sub-rounded and rounded	21.71-21.21
525	Natural river terrace deposits	Loose red brown sandy gravels. Gravel sub-rounded and rounded	21.21- (borehole stopped 4m down from top of road surface)

Trench 6

Site area: The Shambles

Maximum dimensions: 2.50m x 2.50m

Orientation: N/A

Main deposit descriptions

Context	Classification	Description	Ordnance datum heights (metres)
600	Trench cut		
601	Street surfacing	Brick paving	22.30-22.25
602	Concrete surface – make-up/levelling	Concrete	22.25-22.12
603	Layer	Mid brown silty sand with moderate medium-sized rounded stones	22.12-21.07
604	Layer	Dark grey sandy silt	21.07-20.45
605	Layer	Mid brown sand	20.45-

Table 11

Trench 7

Site area: Junction of Charles Street and Pump Street

Maximum dimensions: 3.50 x 2.20m

Orientation: North-south

Main deposit descriptions

Context	Classification	Description	Depth below ground surface (b.g.s.) – top and bottom of deposits
700	Trench cut number		
701	Services		

702	Backfill material around services	Mixed sands and sandy gravels	22.08-20.78

Trench 8

Site area: Lowesmoor

Maximum dimensions: 2m x 2m

Orientation: N/A

Main deposit descriptions

Context	Classification	Description	Depth below ground surface (b.g.s.) – top and bottom of deposits
800	Trench cut		
801	Rubble and backfill	Deposits visible in trench were reinstated when modern manhole was dug	

Table 13

Trench 9

Site area: Mealcheapen Street

Maximum dimensions: Approximately 1.50m x 1.50m

Orientation: N/A

Main deposit descriptions

Context	Classification	Description	Depth below ground surface (b.g.s.) – top and bottom of deposits
900	Trench cut		

backfill within the existing manhole cut	901	Tarmac, rubbl backfill	e and	Small expansion of existing manhole well within the existing manhole cut	
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