MONITORING OF GROUND INVESTIGATIONS AT ST ALKMUNDS WAY, DERBY

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Summary

Derby City Council carried out ground investigations at St Alkmunds Way, Derby in September 2005, in connection with proposed redevelopment of a footbridge over the road.

The site lies immediately within and south of the original site of the church of St Alkmund's. It produced extensive remains of the Anglo-Saxon and medieval churches which stood until their complete destruction in the roadworks. St. Alkmund's was an important pre-Conquest religious centre and produced the earliest substantial evidence yet found for Anglo-Saxon settlement in Derby.

The monitoring was carried out by R Sheppard of Trent & Peak Archaeological Unit. At the point of investigation, the road lies in a deep cutting. BH1 was located on a marked mound to the south of the road cutting. It found made ground over a brick wall at 1.65m depth. This may be the remains of buildings which stood until the construction of the road in the 1960s. BH2 and BH3 were located in the carriageway and showed road make-up over Mercia Mudstone.

At BH1, the finding of the brick wall suggests that archaeological remains in that area may also have survived the construction of St Alkmunds Way. Such remains would potentially be of great archaeological significance but further investigation would be required to fully establish the archaeological potential of the area.

Survival of any archaeological remains in the carriageway is highly unlikely.

Contents

1 Background

Derby City Council is investigating the site of a footbridge crossing St Alkmund's Way in Derby city centre. The site is located at NGR 435132, 336710. The underlying geology is Mercia Mudstone possibly overlain by the edge of First Terrace deposits.

The location of the boreholes lies in, and to the south of, the original site of the churchyard of St Alkmund's, which produced extensive remains of the Anglo-Saxon and medieval church and cemetery when excavated in advance of its complete destruction in the roadworks (Radford 1976). St. Alkmund's was an important pre-Conquest religious centre and the excavations produced the earliest substantial evidence yet found for Anglo-Saxon settlement in Derby.

OD and locational details of the boreholes was supplied by David Roome of Derby City Council Development and Cultural Services, from report 39580/NN/27193 by CMT (Testing) Limited).

2 Results

Holes BH2 and BH3 were drilled on 8/9/05, at the north and south edges of St Alkmund's Way, in the carriageway further to the east and at lower positions that shown on the supplied plan. The ground level at BH2 and BH3 was 47.30m and 47.96m OD respectively. These holes showed carriageway surfacing and bedding of 0.9-1.0m thickness respectively) over very stiff red clay with green-grey siltstone inclusions (truncated Mercia Mudstone).

The drilling of BH1 was monitored on the morning of 9/9/05. The position of BH1 was further south than originally intended, sited at 54.28m OD, at a point 4m south of the boundary fence and aligned with the footbridge over St Alkmund's Way. A small pit was initially hand-dug through built-up ground made up of dry, compacted sandy-clay soil with stone, pebbles and pieces of concrete to a depth of 760mm. At which point a 300mm-thick layer of hardcore, as used in road-building, was encountered and had to be broken-up by the drilling machine. From a depth of c.1.06m the drilling went through reddish-brown clay soil containing brick and ceramic pipe fragments. At a depth of c.1.65m (1.4m on borehole log) the drill started to go through a brick wall, the base of which was found at a depth of 3.1m. As the brickwork was comprehensively crushed in the drilling process it was impossible to date the bricks or to determine coursing details. From this depth the drilling passed into very stiff red clay with grey-green siltstone inclusions (Mercia Mudstone).

The position of the drilling was on the south slope of an embankment on which the fenceline stands. On the north side this bank drops steeply a height of just under a metre to the pedestrian approach to the footbridge. On its south side the ground slopes more gently to the carriageway of King Street and probably drops in height just over a metre. The drilling point was about 250mm below the full height of the bank.

3 Conclusions

The absence of made ground beneath the road makeup in BH2 and BH3 is consistent with the road's position in a cutting. There is no likelihood of archaeological deposits surviving beneath the carriageway in the vicinity of the ground investigations.

At BH1, the build-up of the bank here is part of the landscaping of the south approach to the footbridge. It also coincides with building remains in the form of a brick wall still standing nearly 1.5m in height. This suggests that the surviving walling may have been retained to contribute to the build-up of the bank. At least part of the walling could have been below-ground footings or cellarage, but where the contemporary former ground level was remains unknown. However, the highest surviving part of the wall lay at about 52.6-52.9m. This compares with an OS benchmark at the south-west corner of the churchyard of 53.86m (176.7ft) recorded on the OS 1914 25in map. The benchmark was on a boundary wall and would have been a short distance above ground.

The finding of the wall suggests that archaeological remains in that area may also have survived the construction of St Alkmunds Way. If extensive remains are present they might be expected to be of equal importance to those excavated at St Alkmund's Church, indicating an area of very high archaeological potential. However, it would be unwise to place too much significance on the results of a single point-sample, and more extensive investigation would be necessary in order to fully establish the archaeological potential of the area.

Other excavations have been marked at points TP1, TP2 and TP3 by an underpass below St Alkmund's Way. The latter crosses the River Derwent near to this point and maintains a relatively high level to the river as it descends from higher ground to the west. As a result, a drop in the level of the underpass beneath this road and nearby King Street, when compared to the general topography is not considerable. The ground level at the north end of the underpass is not significantly lower than the lower brick

coursing of the nearby historic bridge-chapel. Some archaeological levels may possibly survive where these holes are excavated.

4 Reference

Radford, C.A.R., 1976. 'The Church of St Alkmund, Derby', *Derbyshire Archaeological Journal* XCVI, 26-61.

5 Archive: Borehole logs

Copies follow this page.

CMT (Testing) Limited

Site: IRRIMS, Derby			Borehole Number: 1
Boring Method: Cable Percussion Continued with 412F Rotary Coring	Casing Diameter: 150mm cased to 5.80m	Ground Level (mOD): 54.28	Client: Whitehouse Construction Limited
	Location: 435134.8 E 336698.9 N	Dates: 09/09/2005	Engineer: Derby City Council
			Job Number: 27193
			Sheet: 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					54.18	0.10	MADE GROUND (turf overlying dark brown silt)		
0.20-1.40	B1					(1.00)	MADE GROUND (crushed brick and concrete with ash and slag)		
					53.18	1.10			
1.20-1.65	SPT N=19			2,2/2,3,4,10		(0.30)	MADE GROUND (red clay with crushed brick)		
1.40-3.00	B2				52.88	1.40			
						(1.70)	MADE GROUND (brick wall)		
3.10-3.55	SPT N=22			3,4/4,5,5,8	51.18	3.10	Very stiff red CLAY with grey green siltstone inclusions		
3.60-4.00	D3								
4.00-4.45	SPT N=29			6,8/7,8,7,7					
						(3.40)			
5.00-5.45	SPT N=45			5,8/9,8,14,14					
5.60-6.00	D4								
6.00-6.45	SPT N=98			10,15/17,21,29,31					
					47.78	6.50	Very weak completely weathered (weathering may decrease mechanical strength) thinly laminated red brown fine grained argillaceous MUDSTONE with predominantly cleavage fractures, occasional moderately weak fine grained thinly bedded (>15mm) argillaceous siltstone inclusions/lenses, predominately cleavage fractures.		

	TCR	SCR	RQD	FI	
7.00					
	0		0		
8.00					
	58		43		
9.50					Water strike(1) at 10.00m.

Remarks
Hole dry.
Chiselling from 1.40m to 3.10m for 1.50 hours. Excavating from 0.00m to 1.00m for 1.00 hour.

Scale (approx)	Logged By
1:50	JS

Figure No. 27193.15CP

CMT (Testing) Limited

Site: IRRIMS, Derby			Borehole Number: 1
Machine : Puntell PX 240 Flush : Air Core Dia: Method : Open Hole	Casing Diameter: 150mm cased to 5.80m	Ground Level (mOD): 54.28	Client: Whitehouse Construction Limited	Job Number: 27193
	Location: 435134.8 E 336898.9 N	Dates: 09/09/2005	Engineer: Derby City Council	Sheet: 2/3

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	0		0							▽1
10.50-10.95 10.50-10.95					D5 SPT N=114					
10.50										
11.00	0		0							
12.50-12.95 12.50-12.95					D6 SPT N=63					
12.50										
13.00-14.50 13.00	0		0		D7					
14.50 14.50-14.68					D8 SPT 125*/75					
14.50	41		55		0/100					
16.00-17.00 16.00-16.03					D9 SPT 125*/30					
16.00	0		0							
17.00	42		43							
18.50 18.50					D10					
	0		0							
19.50										

Remarks

Scale (approx)	Logged By
1:50	JS

Figure No. 27193.15CP

CMT (Testing) Limited

Site: IRRIMS, Derby				Borehole Number: 1
Machine : Puntell PX 240 Flush : Air Core Dia: Method : Open Hole	Casing Diameter: 150mm cased to 5.80m	Ground Level (mOD): 54.28	Client: Whitehouse Construction Limited	Job Number: 27193
	Location: 435134.8 E 336698.9 N	Dates: 09/09/2005	Engineer: Derby City Council	Sheet: 3/3

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	61		59				(18.50)			
21.00	0		0							
22.00	31		0							
23.50	29		0							
25.00						29.28	25.00	Complete at 25.00m		

Sample / Tests	Casing Depth (m)	Water Depth (m)
25.00 D11		

Remarks

Scale (approx)	Logged By
1:50	JS

Figure No. 27193.15CP

CMT (Testing) Limited

Site	Borehole Number
IRRIMS, Derby	2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion Continued with 412F Rotary Coring	150mm cased to 3.50m	47.30	Whitehouse Construction Limited	27193
	Location	**Dates**	**Engineer**	**Sheet**
	435117.4 E 336726.8 N	07/09/2005	Derby City Council	1/1

Depth (m)	Sample / Tests	TCR	SCR	RQD	Casing Depth (m)	Water Depth (m)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
									47.00	(0.30)	MADE GROUND (bituminous surfacing overlying concrete)		
0.30-0.70	B1									0.30 (0.40)	MADE GROUND (crushed limestone)		
0.70-0.90	D2								46.60	0.70 (0.20)	MADE GROUND (red clay with crushed aggregate)		
0.90-1.20	D3								46.40	0.90	Very stiff red CLAY with green grey siltstone inclusions		
1.20-1.65	SPT N=36							5,5/7,9,10,10					
2.00-2.45	SPT N=78							10,13/16,18,20,24					
2.50										(3.55)			
3.00-3.45		0		0				9,10/14,18,19,22 SPT N=73					
3.50													
4.00-4.45								10,12/14,15,21,24 SPT N=74					
4.00-4.45								Water strike(1) at 4.00m.					▽1
4.00		23		0				D4	42.85	4.45	Very weak completely weathered (weathering may decrease mechanical strength) thinly laminated red brown fine grained argillaceous MUDSTONE with predominently cleavage fractures, occasional moderately weak fine grained thinly bedded (>10mm) argillaceous siltstone inclusions/lenses, predominately cleavage fractures.		
5.50		53		34									
7.00-7.50								D5					
7.00										(5.55)			
7.50-8.00								D6					
7.50		0		0									
9.00		0		0									
10.00									37.30	10.00			

Remarks

Scale (approx)	Logged By
1:50	JS&PG

Figure No. 27193.2

CMT (Testing) Limited

Site	Borehole Number
IRRIMS, Derby	3

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion Continued with 412F Rotary Coring	150mm cased to 4.20m	47.96	Whitehouse Construction Limited	27193
	Location	**Dates**	**Engineer**	**Sheet**
	435127.9 E 336750.3 N	08/09/2005	Derby City Council	1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.50)	MADE GROUND (bituminous surfacing overlying concrete)		
0.50-1.00	B1				47.46	0.50	MADE GROUND (crushed limestone)		
1.20-1.65	SPT N=32			5,6/7,8,9,10		(0.50)			
1.00-1.10	D2				46.96	1.00	MADE GROUND (red clay with crushed aggregate)		
1.10-1.20	D3				46.86	1.10	Very stiff red CLAY with green grey siltstone inclusions		
	TCR / SCR / RQD		FI						
1.50	0		0						
2.00						(2.10)			
2.60-3.00	64		27	D4					
3.00-3.45				3,4/3,5,6,7 SPT N=21					
3.00				8,9/11,13,11,14					
3.20-3.80				Water strike(1) at 3.20m, rose to 3.10m in 20 mins, sealed at 4.00m.	44.76	3.20	Green grey SILTSTONE		▼1 ▽1
3.50				D5		(0.70)			
3.90-4.00				D6					
4.00-4.45	61		0	SPT N=49	44.06	3.90	Very stiff red CLAY with green grey siltstone inclusions		
4.50-5.00				D7		(1.10)			
4.50	0		0						
5.00-5.45				12,13/19,19,24,26 SPT N=88					
5.00	93		65		42.96	5.00	Very weak completely weathered (weathering may decrease mechanical strength) thinly laminated red brown fine grained argillaceous MUDSTONE with predominently cleavage fractures, occasional moderately weak fine grained thinly bedded (>10mm) argillaceous siltstone inclusions/lenses, predominately cleavage fractures.		
6.50-7.00				D8					
6.50	0		0						
7.00						(5.00)			
	96		58						
8.50-9.00				D9					
8.50									
9.00-10.00				D10					
	0		0						
10.00					37.96	10.00			

Remarks
Excavating from 0.00m to 1.00m for 1.00 hour.

Scale (approx)	Logged By
1:50	JS&PG

Figure No. 27193.2

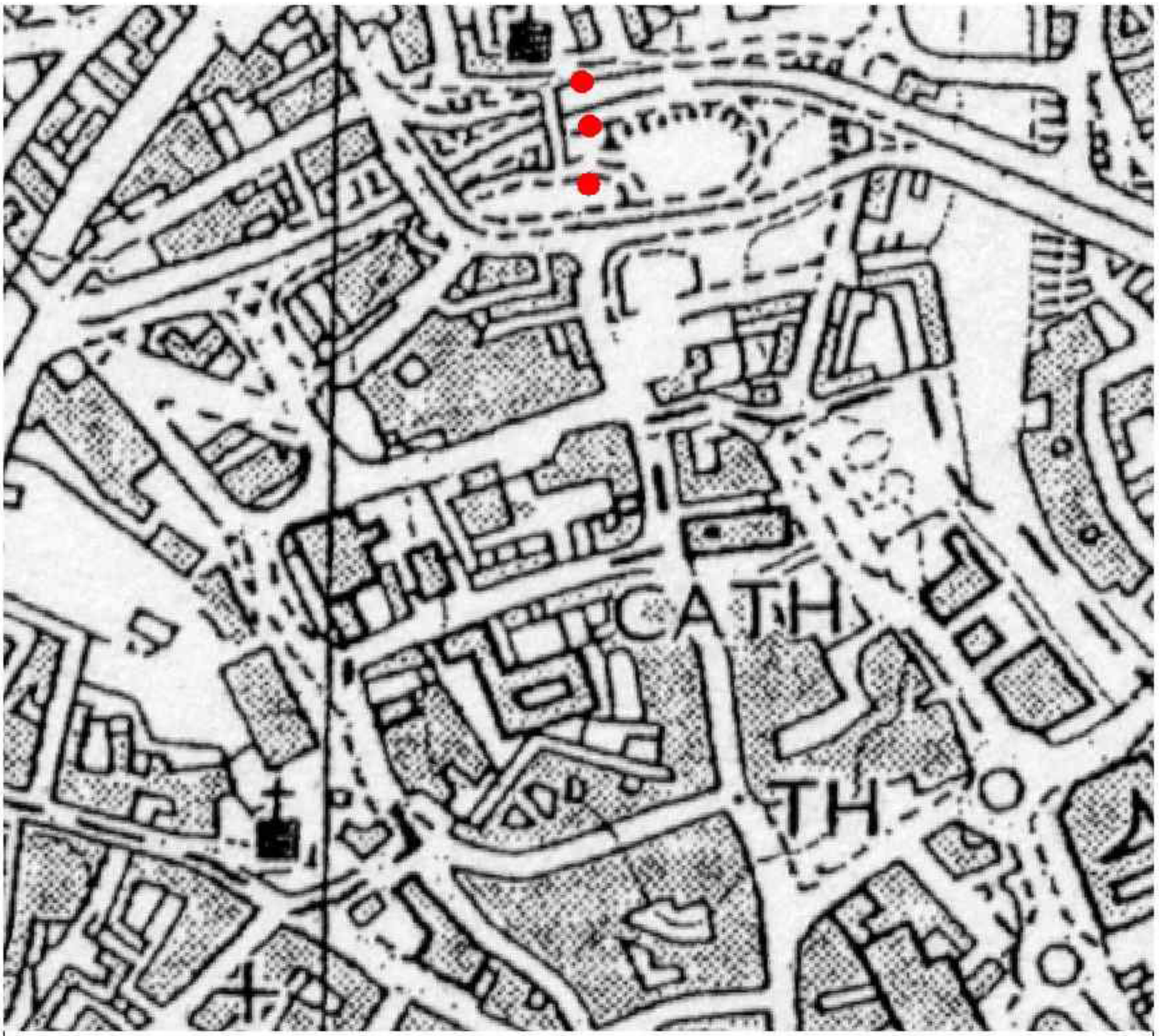

Fig 1: town centre showing location of boreholes (red) with detail showing location in relation to former site of St Alkmund's church as shown by 1880s map

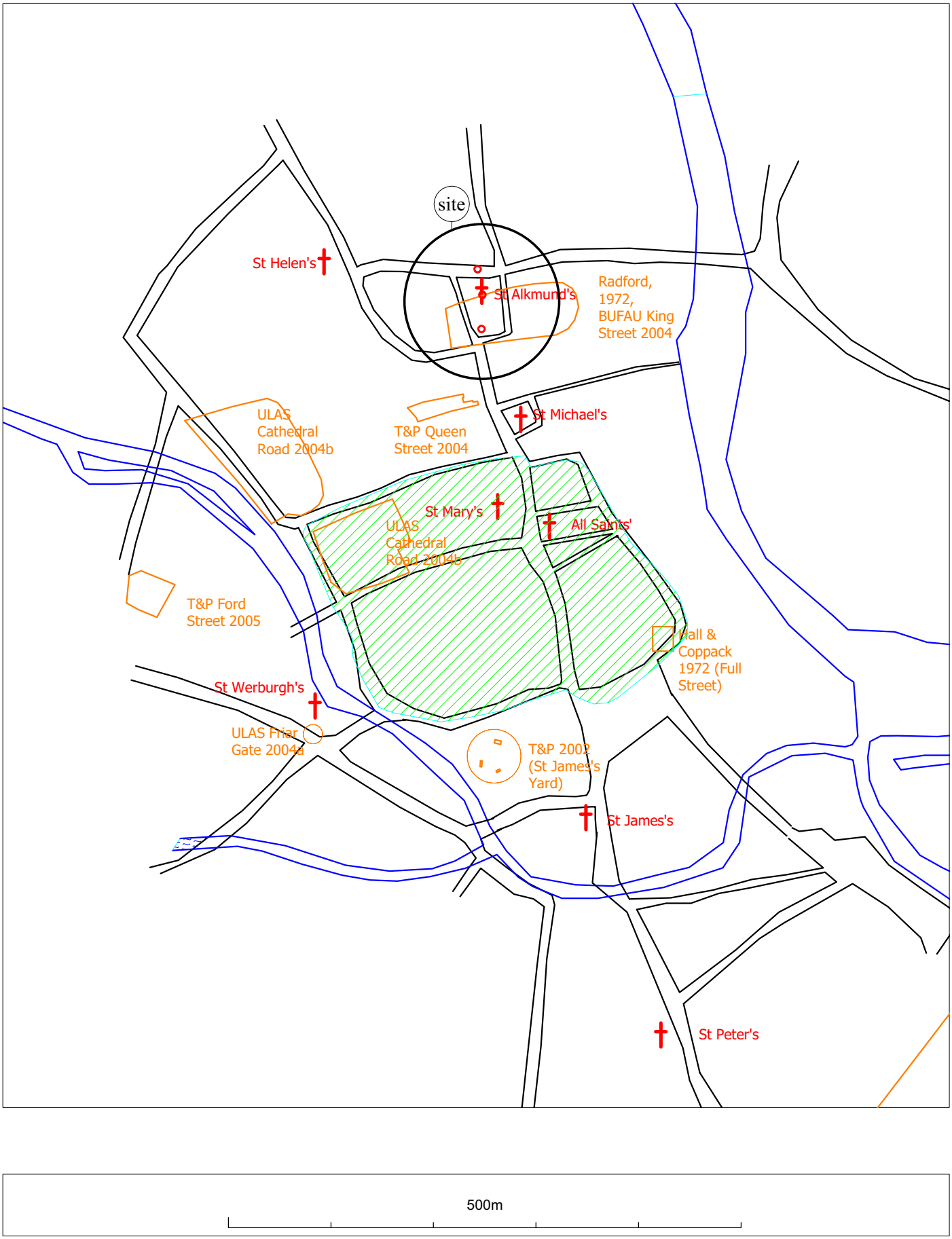

Fig 2: site location in relation to medieval town and previous excavations

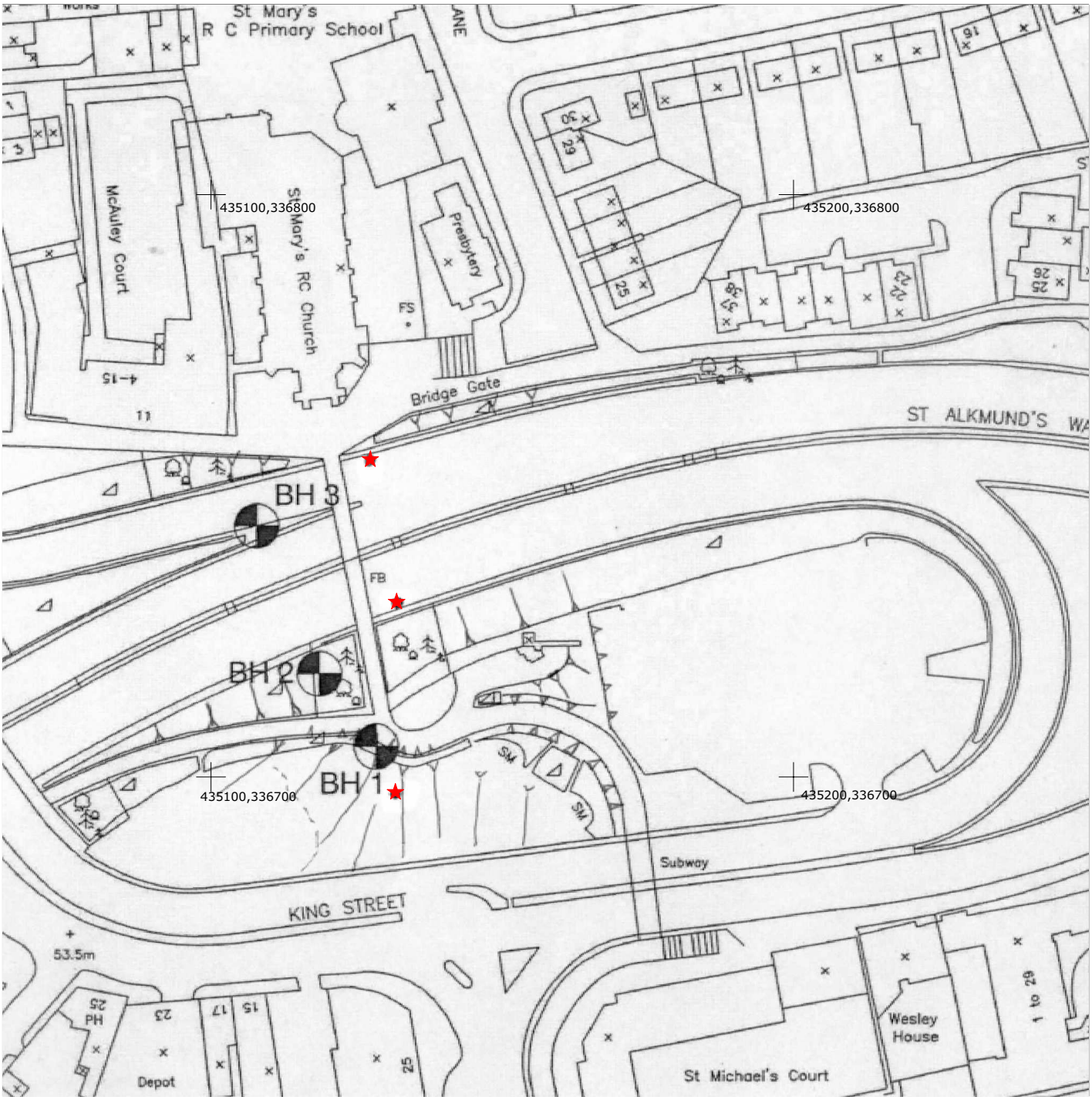

Fig. 3: Location of proposed (circles) and actual (stars) boreholes carried out