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**Tree-Ring Analysis of Timbers from 54 Park Street, London
Borough of Southwark**

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Summary

Tree-ring analysis of timbers recovered from recent excavations at a site adjacent to the former Rose Theatre was commissioned by English Heritage in AD 2002. The material has relatively low numbers of annual rings and no tree-ring dating of the samples has been obtained.

Keywords

Dendrochronology
Excavation

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TREE-RING ANALYSIS OF TIMBERS FROM 54 PARK STREET, LONDON BOROUGH OF SOUTHWARK

Introduction

This document is a technical archive report on the tree-ring analysis of four oak timbers from recent excavations within the designated Scheduled Ancient Monument that includes the site of the former Rose Theatre. The excavation consisted of a small trial hole by a partnership of Gifford and Partners and Pre-Construct Archaeology, located at 54 Park Street between the Rose Theatre and Southwark Bridge in the London Borough of Southwark (NGR TQ 3230 8040; Fig 1). It is beyond the dendrochronological brief to describe the excavations in detail or to undertake the production of detailed drawings. Elements of this report may be combined with detailed descriptions, drawings, and other technical reports at some point in the future to form either a comprehensive publication or an archive deposition on the excavation.

The remains of the Rose Theatre were discovered in AD 1988 during redevelopment of an office block at 2-10 Southwark Bridge Road. The remains are preserved in the basement of the modern building built over it at that time. Excavations in AD 2001 by Gifford and Partners and Pre-Construct Archaeology immediately to the east of the site and within the designated Scheduled Ancient Monument (Blatherwick 2002) recovered nine timbers associated with a timber-lined drain/boundary ditch (Fig 2). Four of these were submitted for dendrochronological spot-dating. The results of the analysis of this material are reported here.

Methodology

The general methodology and working practises used at the Sheffield Dendrochronology Laboratory are described in English Heritage (1998). The methodology used for this material was as follows.

The four samples were assessed for their suitability for analysis. Reliable tree-ring analysis requires the presence of fifty or more annual rings. Two samples were found to contain too few rings for analysis, whilst the other two were of only borderline suitability (Table 1).

The ring sequences in the two suitable sections were revealed by freezing and preparing the surfaces with surforms and scalpels. The complete sequences of growth rings in the slices that were selected for dating purposes were measured to an accuracy of 0.01mm using a micro-computer based travelling stage (Tyers 1999). The ring sequences were plotted onto semi-log graph paper to enable visual comparisons to be made between sequences. In addition a cross-correlation algorithm (Baillie and Pilcher 1973) was employed to search for positions where the ring sequences were highly correlated.

Results

All the timbers are oak (*Quercus* spp.). The sampled material included two dendrochronologically useable timbers. This material is derived from a post-and-plank revetment forming a boundary ditch or drain (Fig 2; Table 1).

The tree-ring series from the two suitable timbers were measured and the resultant series were then compared with each other. These sequences were not found to match together. The sequences were then individually compared with dated reference chronologies from throughout the British Isles and northern Europe. No well correlated positions were identified for either sequence. Appendix 1 lists the individual sample series.

Conclusion

No dating was obtained from the tree-ring analysis of timbers from recent excavations at the site of Southwark Bridge Arches, 54 Park Street, Southwark.

Acknowledgements

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References

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Figure 2 Plan of the excavation showing the location of the timbers from Southwark Bridge Arches, 54 Park Street, based on a figure in the Gifford and Partners report (Blatherwick 2002)

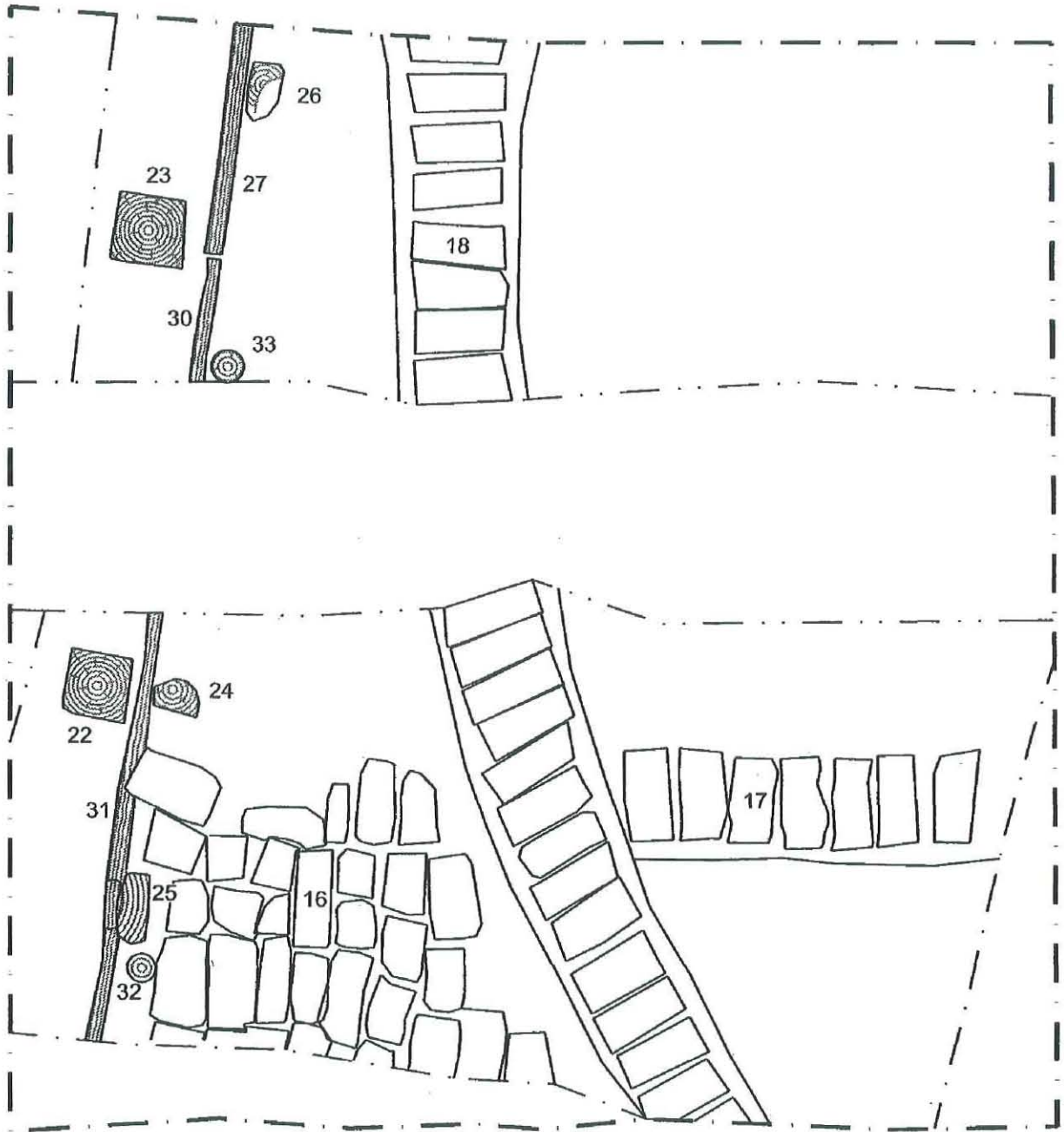


Table 1 Details of samples from the Southwark Bridge Arches, 54 Park Street (PKU01) excavation

Sample	Origin of section	Cross-section size (mm)	Total rings	Sapwood rings	ARW (mm/year)	Date of sequence	Felling period
22	Pile/post	175 x 165	55	-	2.72	undated	-
23	Pile/post	175 x 175	54	-	3.31	undated	-
24	Post	105 x 85	<i>c</i> 25	-	-	unmeasured	-
25	Post	170 x 80	<i>c</i> 30	-	-	unmeasured	-

KEY for Table 1 Total rings = all measured rings. ARW = average ring width of the measured rings

Appendix 1 Ring width data for the samples from the Southwark Bridge Arches, 54 Park Street (PKU01) excavation, 100 = 1mm

PKU22

370	447	490	365	500	505	449	497	461	444
207	167	248	240	291	530	380	281	421	263
415	344	279	212	255	235	237	433	243	298
254	239	230	225	234	209	159	171	244	136
141	160	125	139	158	168	141	166	172	113
165	185	131	183	197					

PKU23

492	441	365	354	433	358	369	395	493	437
441	298	258	283	303	464	675	774	604	560
416	363	496	390	502	377	393	408	403	314
279	282	263	245	260	223	225	205	195	222
120	152	170	216	179	195	200	216	194	139
267	184	193	188						