

Site Name

Bromham Bridge, Bromham

**BEDFORDSHIRE LOCAL GEOLOGICAL SITE DESIGNATION FORM**

**SITE LOCATION, ACCESS, OWNERSHIP, STATUS & SUITABILITY**

(1) **Name of site:** Bromham Bridge, Bromham, Bedfordshire

(2) **National grid reference:** TL 011 506 (central location)

(3) **Unitary authority:** Bedford Borough

**(4) Site access and local amenities**

Open access as bridge is used for road traffic and pedestrians over the River Great Ouse. No amenities except within the adjacent mill which is a museum with limited opening hours and an entry fee. Pubs and shops in Bromham village nearby. Bromham is accessed from the A428, A422 or A5134 and it is well signposted from each of these main roads. The mill is signed from the village centre, and the bridge is adjacent to the mill. Sufficient access can be gained from the carriageway over the bridge, although this is narrow and great caution is required with passing traffic.

**(5) Site ownership**

The parapet of the bridge can be inspected from the road, but the arches are on private land on both sides of the bridge. The bridge is a Scheduled Monument.

(6) **Mineral rights ownership:** N/A

(7) **Is permission needed to access the site?**

a. No ✓

b. Yes

(8) **Site status:** Active

Disused

Historical ✓

Managed

Restored ✓

New

Other

(9) **Suitable for visits by:** a. General public ✓

b. Small parties ✓

c. Large parties

d. Primary school

e. National Curriculum

f. AS/A-Level

g. Adult ✓

h. Undergraduate teaching

i. Research ✓

(10) **Site suitable for frequent visits by parties?**

a. No

b. Yes ✓

(11) **Should collecting and hammering be encouraged at the site?**

a. No ✓

b. Yes

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SITE DESCRIPTION		
(12) <b>Exposure type:</b>	a. Inland natural outcrop	b. Road cutting
c. Railway cutting	d. Active quarry/pit	e. Disused quarry/pit
f. Old mine workings	g. Mine dump	h. Active mine
i. Other: Built structure – bridge ✓		
(13) <b>Dimensions of exposure of interest:</b> Whole length of bridge is approximately 230 metres.		
(14) <b>Main interest(s):</b>	a. Structural	b. Geomorphological
	d. Palaeontological	e. Petrological ✓
		c. Mineralogical
		f. Stratigraphical
<p>(15) <b>Summary description and reason for designation</b>            There are no natural exposures of Middle Jurassic limestone in Bedfordshire at present. This bridge presents a good opportunity to view the local limestones, although some stone has been imported from beyond the county to effect repairs. The wide variety of limestones here are useful for teaching purposes as they illustrate different petrology, fabric, fossil content and sedimentary structures. As an open access site it provides a better option for examining local building stones than is offered by private dwellings. It can also be used as a link to the River Great Ouse in terms of its origin, age and fluvial processes.</p>		
<p>(16) <b>What threats exist for the site?</b>            Non-sympathetic repairs with inappropriate building materials.</p>		
<p>(17) <b>What additional work is required to enhance the site?</b>            Information in the form of a leaflet, website, or a board placed in the adjacent mill, that explains some of the local geology, would enhance public perception and understanding of this mostly hidden part of Bedfordshire's past. Little has been written about these limestones in Bedfordshire because they are so poorly exposed. A small research project could be undertaken; collecting a selection of the limestones, characterizing them, interpreting them in terms of their depositional environment, researching the history of quarrying and linking the stone to buildings around Bedfordshire today. This would allow several key questions to be answered (see below), whilst contributing to local records for the benefit of geologists, historians and civil engineers.</p> <ul style="list-style-type: none"> <li>• When did quarrying start in this area?</li> <li>• Where were the quarries located?</li> <li>• What was the scale and importance of the industry?</li> <li>• Can a viable local source for stone be found to effect sympathetic repairs?</li> </ul>		
<p>(18) <b>Published/unpublished references to the site and wider area</b>            Taylor, W. E. G. 1986. The Middle Jurassic and Quaternary strata of north Bedfordshire. <i>Bedfordshire Magazine</i>, <b>20</b>, 182-186.            England and Wales Sheet 186 Bedford 1:50,000 scale. British Geological Survey.            English Heritage website (full details of bridge) <a href="http://www.heritagegateway.org.uk">www.heritagegateway.org.uk</a> (HER No. 998).  <i>Jurassic Limestones</i>. B&amp;LGG information leaflet. <a href="http://www.bedsrigs.org.uk">www.bedsrigs.org.uk</a></p>		

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SCIENTIFIC SIGNIFICANCE		
(19) Does the site exhibit features of local/regional importance?	a. No	b. Yes ✓
(20) Is the site already a designated SSSI?	a. No ✓	b. Yes
(21) Collector interest:	a. Rare species	b. Common species
	d. Regional significance	c. Local significance
	e. National significance	
(22) List of confirmed fossils, minerals, etc: N/A		

HISTORICAL/AESTHETIC VALUE		
(23) Does the site have important historical associations?	a. No	b. Yes ✓
(24) Does the site form a key part of an attractive or evocative landscape?	a. No	b. Yes ✓
<p>(25) Full description of site and its significance</p> <p>It is important to be able to show the rock types of the county and also to see what they have been used for in the past. The lithologies of these limestones can clearly be seen – they are bioclastic, commonly oolitic, often cross-bedded and variously micritic or muddy. Where the surfaces are weathered and clean, spectacular examples of shell beds and strongly cemented sandy limestones can be seen. The environmental interpretations that can be made are:</p> <ul style="list-style-type: none"> <li>• <i>Ooliths</i> – warm, shallow water where particles such as shell fragments or sand grains are rolled to and fro by gentle wave action. The carbonate content of warm waters is high and hence the particles become evenly coated, producing round balls of calcite (calcium carbonate).</li> <li>• <i>Shells</i> – bivalves, sea urchins and ammonites all indicate a warm marine environment.</li> <li>• <i>Clay/mud</i> – indicates that mud washed from the land into river systems is transported out to sea and ‘dilutes’ the carbonate, making it less well-cemented and softer.</li> <li>• <i>Cross-bedding</i> – shows that the particles are moved along as small dunes on the seabed; the downdip angle of the cross-bedding indicates the direction of movement of the water.</li> </ul> <p>The site could be linked to a visit to the water meadows alongside the adjacent mill. The Great River Ouse could be looked at with a view of today’s river processes, whilst speculating on past (Ice Age) processes.</p>		

RECORDER’S DETAILS	
(26) Name: Dr Jill Evers	(27) Organisation: Consultant geologist working on behalf of B&LGG
(28) Date of designation: April 2006	

CURRENT SITE CONDITION
(29) Site condition at February 2009 is GOOD; assessed by Martin Whiteley.

NOTES
(30) Form revised and updated by Dr Martin Whiteley, B&LGG Local Geological Site Manager, November 2009. For further details contact Anne Williams: <a href="mailto:annew36@hotmail.com">annew36@hotmail.com</a>