

Site Name

Landpark Quarry, Whipsnade

BEDFORDSHIRE LOCAL GEOLOGICAL SITE DESIGNATION FORM

SITE LOCATION, ACCESS, OWNERSHIP, STATUS & SUITABILITY

(1) **Name of site:** Landpark Quarry, Whipsnade, Bedfordshire

(2) **National grid reference:** TL 016185

(3) **Unitary authority:** Central Bedfordshire

(4) Site access and local amenities

The site is located within Landpark Wood, a Nature Reserve owned and managed by the Wildlife Trust. Parking for 2-3 cars is available in a small lay-by on the B4541, 450m north of the roundabout at Whipsnade Heath. An indistinct path leads northwards through the wood towards the quarry and access to the entire Nature Reserve is free.

There is a full range of amenities at the National Trust Chilterns Gateway Centre on Dunstable Downs, just 1.3km north on the B4541.

(5) **Site ownership:** The Wildlife Trust

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

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

a. No ✓

b. Yes

If yes, from whom?

(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) Exposure type:	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
(13) Dimensions of exposure of interest: A single face c.35 x 2.5m.		
(14) Main interest(s): a. Structural	b. Geomorphological	c. Mineralogical
d. Palaeontological ✓	e. Petrological	f. Stratigraphical ✓
<p>(15) Summary description and reason for designation A former quarry with an overgrown crescent-shaped face some 35m long, but the west-facing portion has been cleared and can be inspected closely by climbing up the talus bank along the foot of the 2.5m face. The succession consists of soft, deeply weathered white chalk with three prominent flint horizons but no obvious distinguishing marl seams or hardgrounds. Geological mapping (Hopson, <i>et al.</i> 1996) suggests that the succession forms part of the Lewes Nodular Chalk Formation (White Chalk Sub-Group). Echinoids and bivalves found here indicate a likely Upper Turonian – Lower Coniacian age.</p> <p>The site is important because it provides safe access to an interesting chalk succession that contains flints and fossils. It complements the nearby LGS at Kensworth Nature Reserve and forms part of a network of chalk exposures around Dunstable that illustrate different facets of Upper Cretaceous geology.</p>		
<p>(16) What threats exist for the site? Natural weathering of the soft chalk gradually obscures the subtle features within the succession, whilst the vegetation and talus slope encroach on the exposed face and make access difficult.</p>		
<p>(17) What additional work is required to enhance this site? A representative part of the rock face has recently been cleared, but ongoing voluntary effort on an annual basis will be needed to keep it in good condition. An information board at the site would be a useful adjunct to material available on the BGG website.</p> <p>This site would benefit from accurate biostratigraphic dating using coccoliths, ostracods and foraminifera, particularly as the macrofauna is sparse and relatively poorly constrained.</p>		
<p>(18) Published/unpublished references to the site and wider area Bromley, R.G. & Gale, A.S. 1982. The lithostratigraphy of the English Chalk Rock. <i>Cretaceous Research</i>, 3, 273-306. Catt, J. (Editor). 2010. <i>Hertfordshire Geology and Landscape</i>. Hertfordshire Natural History Society. Hopson, P.M. <i>et al.</i> 1996. <i>Geology of the country around Hitchin</i>. Memoir for 1:50,000 Geological Sheet 221 (England and Wales). London HMSO. Smith, A.B. & Batten, D.J. (Editors). 2002. <i>Fossils of the Chalk</i>. The Palaeontological Association. Stokes, R.B. 1977. The echinoids <i>Micraster</i> and <i>Epiaster</i> from the Turonian and Senonian chalk of England. <i>Palaeontology</i>, 20, 805-21. Wray, D.S. & Gale, A.S. 2006. The palaeoenvironments and stratigraphy of Late Cretaceous Chalks. <i>Proceedings of the Geologists' Association</i>, 117, 145-162. Wright, C.W. 1979. The ammonites of the English Chalk Rock (Upper Turonian). <i>Bulletin of the British Museum (Natural History), Geology Series</i>, 31, 281-332. <i>Cretaceous Chalk: Dunstable and Whipsnade Downs</i>. www.bedfordshiregeologygroup.org.uk</p>		

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SCIENTIFIC SIGNIFICANCE		
(19) Does the site exhibit features of local 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 ✓	c. Local significance ✓
d. Regional significance ✓	e. National significance	
<p>(22) List of confirmed fossils, minerals, etc:</p> <p>Fossils are quite hard to find here but specimens of <i>Micraster cortestudinarium</i> have been recovered historically and during the course of recent excavations (see below). Fragments of the large, strongly ribbed bivalve <i>Inoceramus</i> are more abundant, along with sponges and trace fossils.</p>		

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>Part of the west-facing disused quarry face has been cleared to reveal 2.5m of deeply weathered white chalk beneath a thin, brown vegetated rendzina. A similar thickness of rock is concealed by the talus slope that affords access to the face (Figure 1). The section is weakly bedded and dips shallowly towards the south, although the true dip is probably modified by post-Anglian mass-movement processes.</p> <p>The measured section (Figure 2) reveals blocky white chalk with three conspicuous flint bands, one partially obscured by talus and two others at 0.8m and 1.8m (Figure 2). The flint band at 1.8 - 2.0m contains large nodular flints (Figure 3) and occasional finger flints (Figure 4). Elsewhere along the face there are examples of steep, cross-cutting flint seams (Figure 5) that represent the linings of fractures resulting from compaction or shearing.</p> <p>There are no obvious marl seams or hardgrounds but specimens of <i>Micraster cortestudinarium</i> and <i>Inoceramus</i> occur between the two upper flint bands. Three specimens of <i>M. cortestudinarium</i> lodged in Bedford Museum (BDFM 1991.37-39) are from this site although they cannot be located any more precisely. The best of these specimens is illustrated in Figure 6 whilst comparable specimens (LP7 and LP12) have been found <i>in situ</i>, along with a smaller, flattened specimen and probable juvenile forms found loose in the talus (Figures 7 & 8). Fragments of <i>Inoceramus</i> also occur throughout the lower half of the exposed section (Figure 9).</p> <p>Geological mapping (Hopson, <i>et al.</i> 1996) suggests that Landpark Quarry is developed in the Lewes Nodular Chalk Formation of the White Chalk Sub-Group, at a level some 10-15m above the Chalk Rock marker horizon. This would make the section slightly younger than that at the Kensworth Nature Reserve LGS and comparable with part of the same formation identified at Anstey Quarry (TL 395329) in north Hertfordshire. Interestingly, the graphic log for that locality (Catt, 2010, p.44) shows several flint bands over the 13-15m interval interspersed with <i>Inoceramus</i> and <i>M. cortestudinarium</i>. The latter taxon is typically associated with chalks of Upper Turonian to Lower Coniacian age.</p> <p>This site is important because it exposes some of the youngest chalk in Bedfordshire and may provide correlations with comparable sequences in Hertfordshire. It is also a useful educational site because it is safe, accessible and illustrates many of the characteristic features of the White Chalk Sub-Group.</p>		

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RECORDER'S DETAILS

(26) **Name:** Martin Whiteley, Geologist, Bedfordshire Geology Group

(27) **Date of recording:** October 2011

(28) **Date of designation by Bedfordshire Local Geological Sites Panel:**

CURRENT SITE CONDITION

(29) Site condition at October 2011 is GOOD; assessed by Martin Whiteley

NOTES

(30) For further details contact mjwhiteley@yahoo.co.uk



Figure 1. Face following clearance in September 2010. The location of the measured section is indicated by the red arrow (see Figure 2)

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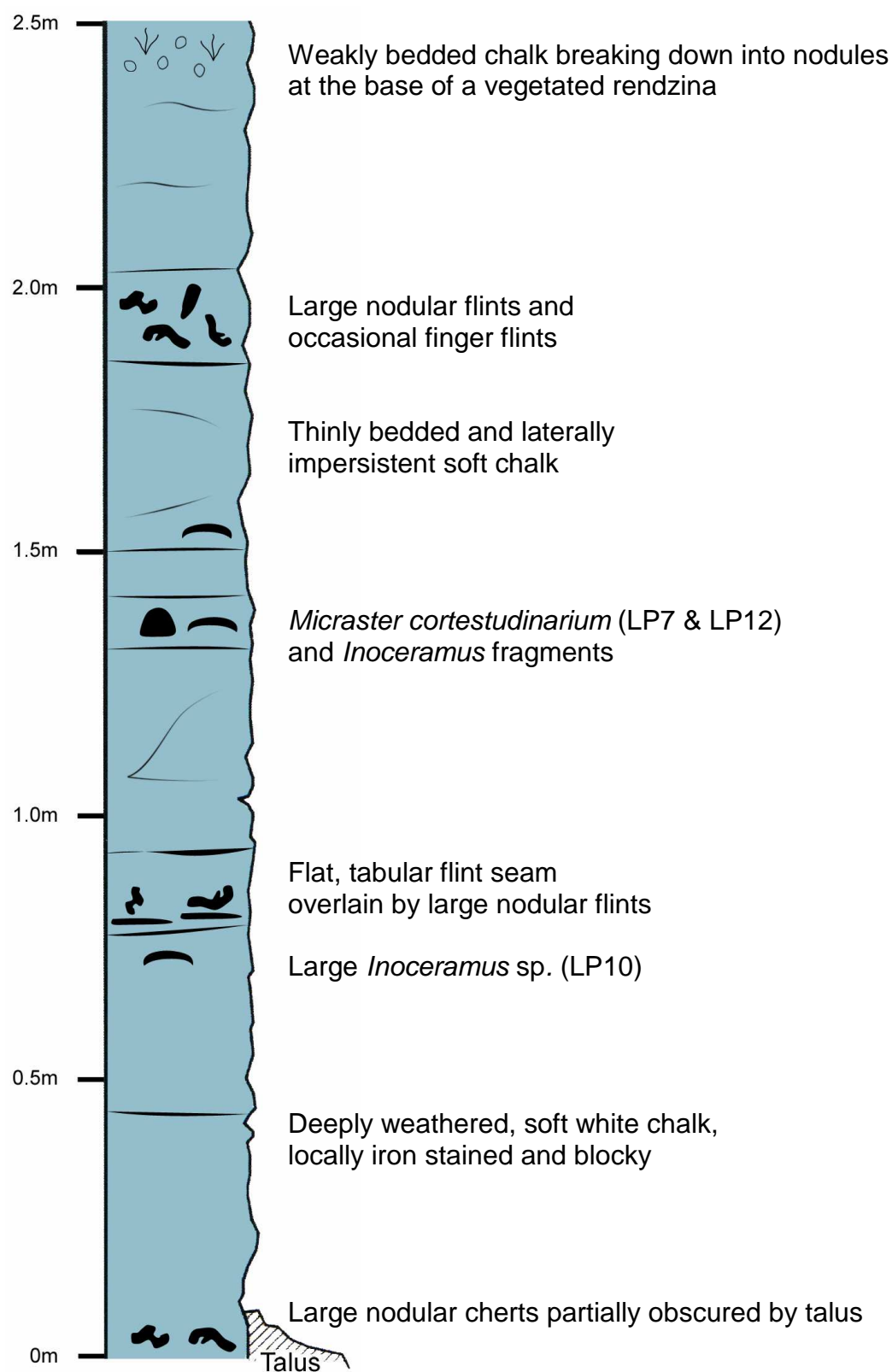


Figure 2. Measured section

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Figure.3. Large nodular flints at 1.80 – 2.00m



Figure 4. Finger flint at 1.80 – 2.00m



Figure 5. Cross-cutting flint seam 15m south of the measured section

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Figure 6. *Micraster cortestudinarium* (Goldfuss)

Bedford Museum specimen BDFM 1991.37, width is 36mm

Left: Photo DSC04435, apical view

Right: Photo DSC04436, oral view



Figure 7. *Micraster cortestudinarium* (Goldfuss)

Landpark Quarry specimen LP7, width is 44mm

Clockwise from top left:

Photo DSC02045 apical view

Photo DSC02046 oral view

Photo DSC02047 lateral view



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Figure 8. Specimens of *Micraster* from Landpark Quarry
Clockwise from top left: LP6, LP12, LP7, LP5 and LP11



Figure 9. *Inoceramus* sp. from Landpark Quarry, specimen LP10
Photo DSC04867, preserved shell is 11cm across