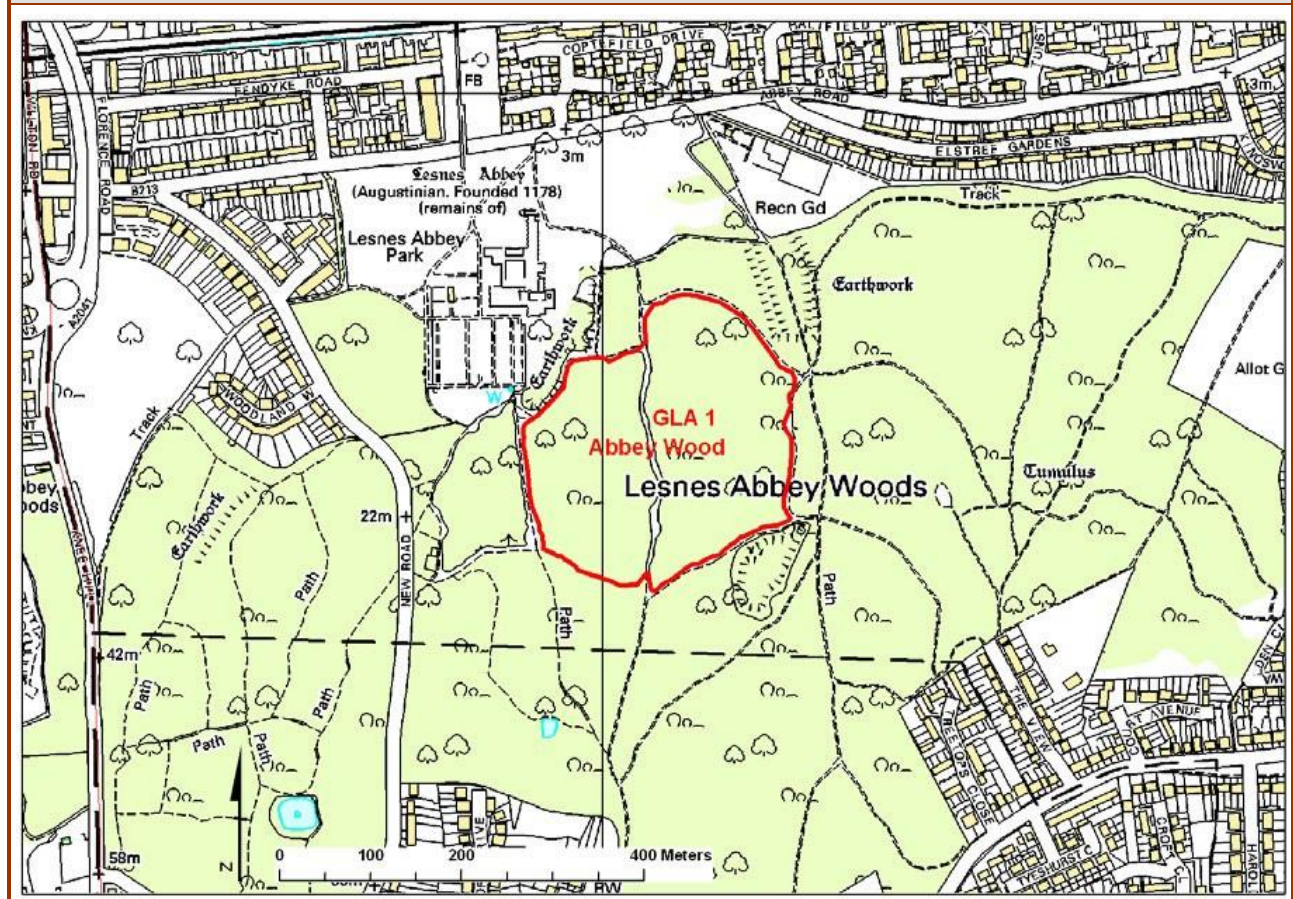


GLA 1 Abbey Wood	
Grid Reference: TQ 480 786 [SE2 0AX]	Site Type: Natural exposure
Site Area (hectares): 6.89	Current use: Recreational land
Site ownership: London Borough of Bexley	Borough: London Borough of Bexley
Field surveyor: Joanna Brayson	Date: December 2007
Last visited: Diana Clements/Laurie Baker	Date: March 2020
Current geological designation: SSSI Citation: <a href="#">1003513.PDF (naturalengland.org.uk)</a>	Other designations: LNR; Metropolitan SINC (Lesnes Abbey Woods and Bostall Woods)


**Site Map** OS Topography © Crown Copyright



**Stratigraphy and Rock Types**

Time Unit: Eocene	Rock Unit: Lessness Shell Bed (Blackheath Beds, termed Blackheath Formation by Hooker, 2010; Blackheath Member of the Harwich Formation by the BGS); base of the Thames Group
Rock Type: Sand and Gravel	Details: Medium-fine-grained sand containing numerous black rounded pebbles with a mainly brackish fauna but including marine species and occasional bones of rare land mammals.
Time Unit: Paleocene-Eocene	Rock Unit: Lambeth Group
Rock Type: Sand, silt and clay	Details: There is no evidence that the Lambeth Group underlies the SSSI, in fact for much of Lesnes Abbey Wood it seems that the Lambeth Group is absent. The Blackheath Beds have channelled down through these strata and much of the Thanet Formation as well. The marine sand of the Upnor Formation has been located at Knee Hill.
Time Unit: Paleocene	Rock Unit: Thanet Formation (formerly Thanet Sand)
Rock Type: Sand	Details: Glauconitic coated nodular flint at base, overlain by pale yellow-brown, fine-grained sand that can be clayey and glauconitic. Can be seen at Chalky Dell (GLA 38) within Lesnes Abbey Woods

Site Description		
<p>Abbey Wood contains some of the most fossiliferous deposits in the Greater London area providing remains of a rare but diverse mammal assemblage of early Tertiary age. The deposits are also important for studies in the evolution of bird faunas. It also contains a large number of marine molluscs and sharks' teeth.</p> <p>The site covers deposits of early Eocene age (Lesnes Shell Bed within the Blackheath (Beds) Formation). Excavations of these Beds have yielded an important mammalian fauna of 46 species of which 15 have been named for specimens from the site, described by Jerry Hooker (2010). Additional species are still being added during most excavations. This is comparable to sites in the Paris Basin, and contains elements resembling those of the Wasatchian faunas of North America. Upnor Formation (base of the Lambeth Group, latest Paleocene) and Thanet Formation are present but the Woolwich Formation (early Eocene) is cut out by the unconformity at the base of the Blackheath beds which represents incised channel fill. Over much of Lesnes Abbey Woods, the Upnor Formation is also cut out.</p> <p>This site also yields remains of one of only two birds described from the Paleocene of Great Britain. A lower mandible has been reconstructed as the holotype of <i>Marinavis longirostris</i>, which is the only bird of this type known from this period. It appears to have been a large Procellariiform sea bird and would seem to indicate a coastal fauna. The site has great potential in that it might help solve the problem of Procellariiform - Pelecaniform ancestry.</p> <p>Hooker, J.J. 2010. The mammal fauna of the Early Eocene Blackheath Formation of Abbey Wood, London. <i>Monograph of the Palaeontographical Society</i>. London. (Publ. No. 634, part of Vol. 154, 1-162).</p> <p>Information can be found on <a href="http://www.lesnesabbeywoods.org">www.lesnesabbeywoods.org</a></p>		
Assessment of Site Value		
<p><b>Geodiversity topic:</b> Palaeontology, sedimentology lithostratigraphy, evolution and palaeobiogeography.</p>		
Access and Safety		
Aspect	Description	
Safety of access	Paths run through the park and woods from the roadside. Fossil collecting site is situated a short distance from a path in the woods and surface collecting is permitted. Fairly level and obstruction free.	
Safety of exposure	Fossil collecting area consists of a flat fenced off area with an open entrance way. Safety procedures must be followed when excavating.	
Permission to visit	The fossil beds can be visited at any time but if fossil collecting, you may remove no more than 2kgs of material from the site and do not dig more than two feet deep. Please refill any large or deep holes. Finds of vertebrate material should be taken to the Natural History Museum. All groups, schools and professional digs should contact the Council at least one month in advance to book their visit, please note there is a charge for this, email: <a href="mailto:lesnesabbey@bexley.gov.uk">lesnesabbey@bexley.gov.uk</a>	
Current condition	As an SSSI, the site is very well maintained by the park rangers.	
Current conflicting activities	None.	
Restricting conditions	Excavation and group visits only by prior permission. Feature only visible with excavation.	
Nature of exposure	Flat fenced off area within woods within which Palaeontology of the Lessness Shell Bed can be excavated from the sediment.	
Culture, Heritage & Economic		
Aspect	Description	Rating
Historic, archaeological & literary associations	The park in which the SSSI is situated also contains the remains of Lesnes Abbey which was established in 1178. Much research has been carried out on the site.	10
Aesthetic landscape	The park provides an important green space within the local area and spectacular views towards Canary Wharf and beyond. A new Centre, Lesnes Lodge, was opened in September 2017 with café and toilet facilities as well as a hall used for events. The Green Chain Walk runs through the park.	8

History of Earth Sciences	Evolution of early mammal and rare bird faunas; Procellariiform – Pelecaniform ancestry. Details in Hooker, 2010.	8
Economic geology	Within the park there was an old chalk quarry, Chalky Dell (GLA 38), which was of local economic importance. At the top of the quarry, the contact with the overlying Thanet Sand has been exposed. No Lambeth Group is evident.	4
<b>GeoScientific Merit</b>		
Geomorphology	None within the SSSI but it is evident that the Blackheath Beds have channelled down, cutting out the Lambeth Group	4
Sedimentology	Sedimentary processes leading to preservation of fauna.	6
Palaeontology	Diverse mammalian assemblage; rare bird fauna within a marine shell bed	7
Igneous / mineral / metamorphic geology	None.	0
Structural Geology	None.	0
Lithostratigraphy	Junctions between three stratigraphic units lie within the larger area of Lesnes Abbey Wood	6
Potential use	Research, Higher/further education, School education, On-site interpretation.	
Fragility	Finite resource; natural overgrowing. The extent of the Lessness Shell Bed has already extended beyond the fenced off area. It is opened up each year by the Tertiary Research Group to excavate, in the search for the rare mammal fauna. It is dependent on the co-operation of the TRG for this access.	
<b>Current Site Value</b>		
Community	Area is used daily by the local community. In the 2017 upgrade of Lesnes Abbey Woods a wooden model of the large extinct early mammal <i>Coryphodon</i> was erected on the path to the fossil site.	10
Education	This site is available for group and school use by a wide range of users. See “Permission to visit” above. Included in GA Guide 68, Itinerary 6 (see references) and it is In the Green Chain Walk Geotrail: <a href="http://www.londongeopartnership.org.uk/geotrails/">www.londongeopartnership.org.uk/geotrails/</a> .	8
<b>Geodiversity value</b>		
SSSI: An excellently maintained site, with much research potential and educational value.		10
<b>GLA 1 Abbey Wood</b>		
		
The extinct mammal <i>Coryphodon</i> on the path leading to fossil enclosure. Photo: Laurie Baker, May 2016		



Collecting within the fenced fossil bed area. Photo: Diana Clements, May 2017


## THE FOSSIL PIT

The Lesnes Fossil Pit contains the sandy Blackheath formation, which was laid down under a very shallow coastal sea early in the Eocene Epoch (c.55.5million years ago) and overlies the Paleocene Thanet Sands. Dry land probably existed only a couple of kilometres away.


The commonest fossils you can find here are mollusc shells, shark and ray teeth and remains of bony fish, turtles and crocodiles. These animals were living in the Blackheath Sea.

The bones of mammals and birds, which were living on the nearby land, were washed into the sea and preserved alongside the marine animals. The mammals include some of the oldest primates, bats, horses and the large herbivorous *Coryphodon eocaenus*.

The mammals and birds make this site internationally important. They were living at a time when ice free land bridges linked Europe with North America via Greenland, and the local climate was tropical.



Crocodile



Shearwater




Soft Shell Turtle



Illustration: Adam  
An artist impression of what the *Coryphodon* may have looked like.

**Did You Know?...** You can still find sharks teeth and shells in the Lesnes Fossil Pit

THE FOSSIL PIT IS A DESIGNATED SITE OF SPECIAL SCIENTIFIC INTEREST. HELP PROTECT THIS SPECIAL AREA: Digging within the fenced fossil pit is permitted in strict adherence to the rules and regulations displayed on the park's website. [www.visitlesnes.co.uk](http://www.visitlesnes.co.uk)





[www.visitlesnes.co.uk](http://www.visitlesnes.co.uk)