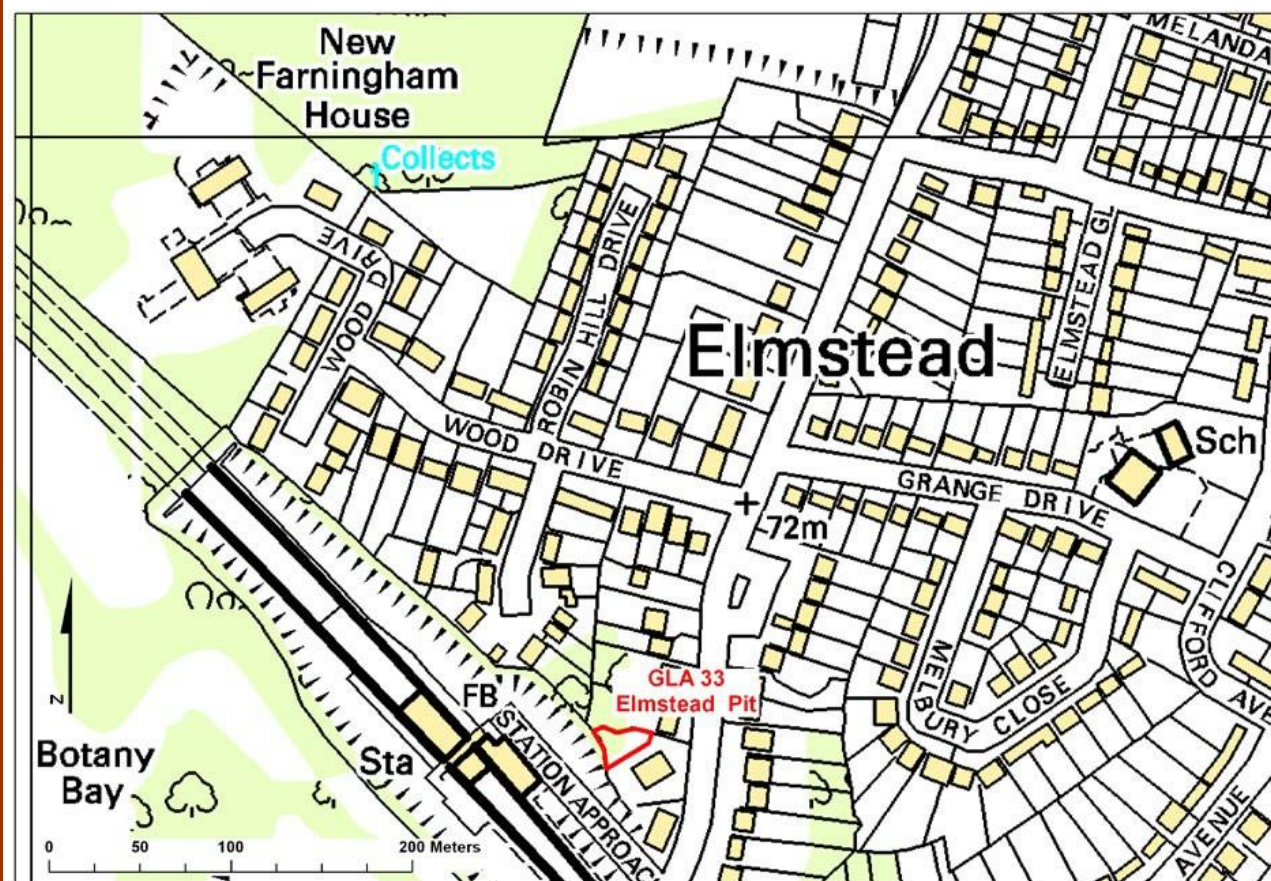


GLA 33 Elmstead Pit

Grid Reference: TQ 4232 7066	Site Type: Former quarry works
Site Area (hectares): 0.05	Current use: Private garden behind 41 Elmstead Lane
Site ownership: Private resident	Borough: London Borough of Bromley
Field surveyor: Natural England website Latest visit: Diana Clements	Date: November 2002 Date: 2005
Current geological designation: SSSI Citation: 1003603 (naturalengland.org.uk)	Other designation: Borough Grade I SINC (Sundridge Park Golf Course, Elmstead Wood and Lower Marvels Wood)

Site Map

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Stratigraphy and Rock Types


Time Unit: Eocene	Rock Unit: Blackheath Member, Harwich Formation, (Thames group); Blackheath Formation of Hooker, 2010.
Rock Type: Sand and gravel	Details: a rare occurrence of calcite cemented Blackheath Beds, including oysters, other shells and rounded black pebbles

Site Description

Elmstead Pit provides a nationally important exposure of the Blackheath Beds through a section containing an unusually rich fossil fauna. A wide range of geological features are present providing information on the changing disposition of land and sea in the Greater London area during Eocene times.

The current exposure covers a c.2 m high remnant of pit face cut into a series of Blackheath Beds consisting of fine quartz sands and an abundance of flint pebbles. These beds accumulated as sub-tidal bars in an estuarine environment during Eocene times approximately 50 million years ago. They are particularly noted for very large-scale 'cross-bedding' with angles of dip of up to 25 degrees.

The sediments are bound by a heavy calcite cement which has preserved an unusually abundant and diverse fossil fauna. Pits at Elmstead have yielded a substantial part of the known molluscan fauna from the Blackheath Beds and a number of sharks teeth and fish scales have also been recovered. The site is now the only exposure in this locality of these highly fossiliferous beds.

Assessment of Site Value		
Geodiversity topic: Palaeontology, sedimentology and lithostratigraphy.		
Access and Safety		
Aspect	Description	
Safety of access	Access to site over level ground.	
Safety of exposure	Site has consolidated vertical face and level area at bottom of face.	
Permission to visit	Permission needed from house owner, normally requested through Natural England: ProtectedSites@naturalengland.org.uk .	
Current condition	Some encroaching ivy and shrubs that may in the long-term cause obstruction. In the long-term there may also be issues of instability of the rock face.	
Current conflicting activities	Site in a private garden.	
Restricting conditions	None.	
Nature of exposure	Vertical section of face of former pit	
Culture, Heritage & Economic		
Aspect	Description	Rating
Historic, archaeological & literary associations	The area had a number of chalk and sand pits, all of which are now filled in for housing. This and Chislehurst caves are the only examples left. Other old pits of Blackheath Beds are known from other sites in Elmstead Lane and in Sundridge Park, to the west of the railway.	8
Aesthetic landscape	Private garden	2
History of Earth Sciences	The area has strong association with Whitaker. Described and sketched in his 1889 edition of The Geology of London	8
Economic geology	Former building stone pit, probably worked in Victorian times	5
GeoScientific Merit		
Geomorphology	None.	0
Sedimentology	Large scale cross bedding. Imbricated flint pebbles occur in bands.	6
Palaeontology	Abundant fossil molluscs, plus sharks' teeth.	6
Igneous / mineral / metamorphic geology	None.	0
Structural Geology	None.	0
Lithostratigraphy	Blackheath Formation.	8
Potential use	Research and education.	
Fragility	Natural overgrowth and weathering of face.	
Current Site Value		
Community	None, Access is difficult.	2
Education	High value. Included in GA Guide 68, 2012, Itinerary 7 (see refs).	5
Geodiversity value		
SSSI: Importance for its history and potential for research.		6
GLA 33 Elmstead Pit		
		<p>Face detail of sand with flint pebbles. Photo: Diana Clements, June 2005</p>