
A10 D15 Melton Park

Site information

Site name: Melton Park

Site key: D15

Grid reference: [SE 509 014] (centred on)

Site type: disused quarries, pits and cuttings

Local authority: Doncaster Metropolitan Borough Council, South Yorkshire

Site dimensions: 35 m x 3 m and 160 m x 3 m

Site owner: Doncaster College

Conservation status: Regionally Important Geological Site **Date:** 14/9/97

Field surveyor: Scott Engering **Date:** 16/2/07

Stratigraphy and rock types

Time unit: Permian **Rock unit:** Yellow Sands Formation, Rotliegendes Group

Rock type: Sandstone **Details:** Yellow to blue-grey cross bedded medium grained sandstones

Time unit: Permian **Rock unit:** Wetherby Member, Cadeby Formation, Zechstein Group

Rock type: Dolostone **Details:** Massive cross bedded ooid-limestones with dense shelly beds varying from buff to yellow in colour. Compact fine grained flaggy beds, breccias and pisolite lenses.

Site map

(Figure 50) — D15 Melton Park

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Site description

Two separate exposures of limestone are recorded at this site in former quarry workings, a section (east) of the lowest beds of the Wetherby Member of the Cadeby Formation with transitional beds and underlying Yellow Sands Formation and a section (west) of shelly ooid-limestones in the Wetherby Member.

The east section [SE 50967 01400] to [SE 50967 01432] forms an exposure comprising approximately 1 metre of horizontally bedded yellow sandy limestone with very fine grained flaggy beds up to 40 mm thick. Vughs are common. This unconformably overlies 700 mm and more of yellow and blue/grey friable cross bedded sandstone, with the individual beds up to 400 mm thick. The junction between the limestone and sandstone is a horizontal erosional surface with no undulations. In places the sandstone has eroded considerably compared to the limestone and at one location

there is an overhang of 700 mm.

Beneath the level of the exposure and up to 5 m away from the rock face, the ground forms a depression along the length of the escarpment, approximately 100 m, and loose shapeless mounds rise up to the exposure. The limestone is well weathered and does not appear to have been a working quarry face and it is therefore likely that the escarpment was exploited for building sand. To the south of the exposure, the escarpment is wooded and there is only the occasional exposure of limestone but beneath this cap, the presence of the Yellow Sands is confirmed by very sandy soil, rabbit warrens and molehills.

The west section comprises two quarry faces. The east of the two extends from [SE 50885 01735] to [SE 50856 01778] and exposes sections up to 2.5 m. The upper part comprises massive, cross bedded buff coloured ooid-limestone with shells in beds up to 800 mm, with undulating surfaces. The individual ooids are still clearly visible. The surface occasionally reveals crusts of red-brown iron mineralisation that has taken place along the joints and at one location [SE 50668 01762] there is a breccia, with angular fragments up to 50 mm. Vughs and cavities are frequent and water seepage from these is commonplace. The lower 900 mm comprises a yellowish ooid-limestone densely packed with shells. In places where beds are exposed beneath the shelly beds, there are lenses of pisolite within fine grained compact limestones containing occasional pebbles [SE 50858 01776].

The east section (centred on [SE 50861 01839]) comprises an old quarry with at least two working benches that has been planted and landscaped. The limestone is ooidal with beds of variable thickness and undulating surfaces.

The limestone quarries, along with those at Melton Warren, are probably associated with the building of the church, local historic stone buildings and the retaining walls that line the approach road up the escarpment into the village. High Melton Hall (1750) is built out of Ackworth Rock sandstone. The escarpment provides commanding views of the south and west, including escarpments at Conisbrough and Clifton, Sheffield Manor Top, Tinsley Viaduct, Hooper Stand and across the Dearne Valley to Barnsley and beyond to the Pennines.

RIGS assessment of site value

Ratings: 1–2 very poor; 3–4 poor; 5–6 acceptable/useful; 7–8 quite good; 9–10 very good/excellent; N/A not applicable; D/K don't know

Access and safety

Aspect/Description/Rating

Road access & parking Large car park in college grounds but very limited in village. Rating: 8

Safety of access Located in the middle of a golf course. Rating: 6

Safety of exposure Exposure to limestone very safe. Access to Yellow Sands has a muddy slope. Good footwear required. Rock overhangs. Rating: 7

Permission to visit Through Doncaster College N/A

Current condition The limestone is in excellent condition. The Yellow Sands would benefit considerably from vegetation clearance. Rating: 7

Current conflicting activities Golf

Restricting conditions No collecting

Nature of exposure Quarried escarpment

Multiple exposures/ prospect for trail Limited due to isolation from other clusters of safe and freely accessible sites

Notes

Culture, heritage & economic

Aspect/Description/Rating

Historic, archaeological & literary associations Probable historic associations with building of the church and the vernacular architecture in the village. Rating: 8

Aesthetic landscape Set in landscaped grounds on limestone escarpment. Good views and location in attractive stone village.. Rating: 9

History of earth sciences This site possesses local rarity value for its exposure of the Yellow Sands Formation. Rating: 9

Economic geology Not believed to have possessed any economic value except for local use as building material. Rating: 6

Notes

Education and science

Surface processes Differential weathering of sandy limestone. Rating: 6

Geomorphology Limestone escarpment and extensive views of Carboniferous topography to the west. Rating: 8

Sedimentary Wide range of lithologies, erosional surfaces, reworked aeolian deposits and transitional beds. Rating: 7

Fossils Specialist interests in Permian fossils. Bivalves and brachiopods. Rating: 6

Igneous Not applicable. Rating: 0

Metamorphic Not applicable. Rating: 0

Tectonic: structural Not applicable. Rating: 0

Minerals Not applicable. Rating: 0

Stratigraphy One of very few sites to study and research the Yellow Sands Formation. Rating: 8

Notes A very good research location for study at advanced and graduate level

Geodiversity value

A good range of geological processes can be demonstrated. Very high aesthetic/landscape value. Rating: 8

Site photographs D15 Melton Park

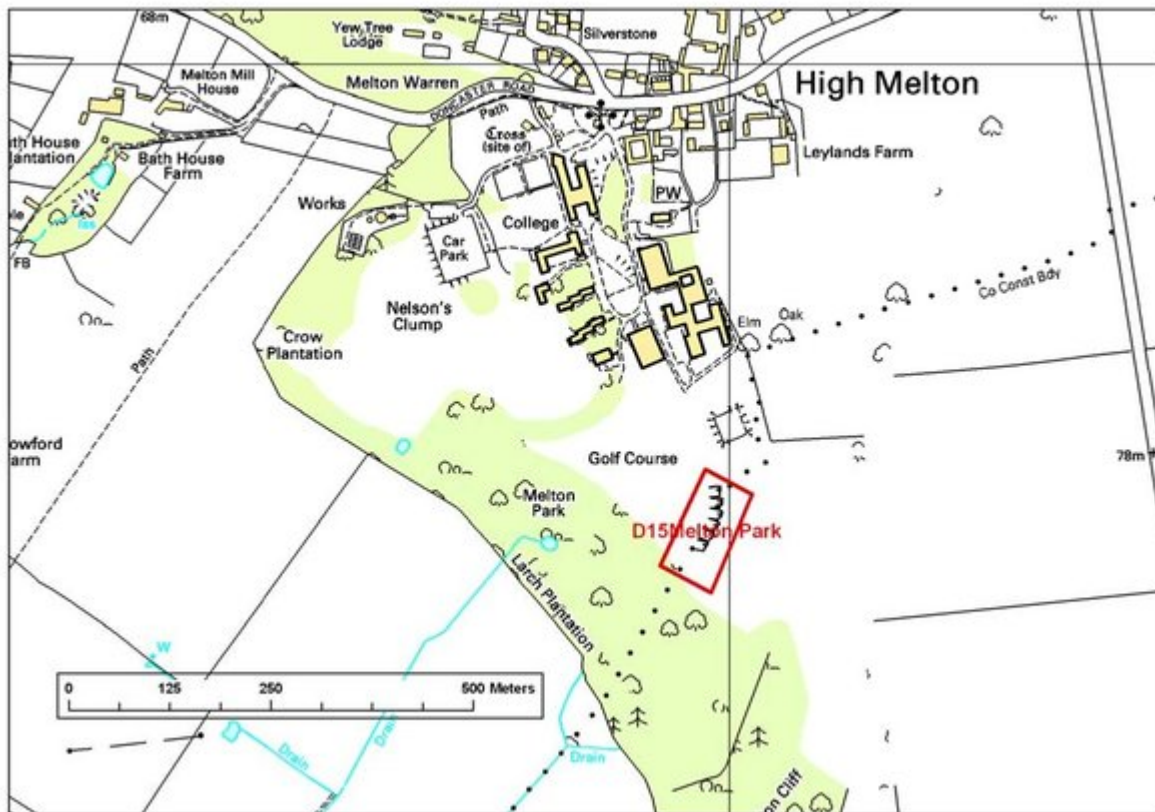
(Figure 51) Old dolostone quarry face in the Wetherby Member, Cadeby Formation. [SE 50885 01735].

(Figure 52) View to the along the escarpment in Pennine Upper Coal Measures. [SE 50940 01370].

(Figure 53) General view of main exposure of the Yellow Sands Formation. [SE 50882 01404].

(Figure 54) Boundary between the Yellow Sands Formation and the overlying Wetherby Member of the Cadeby Formation. [SE 50882 01404].

(Figure 55) Detail of limestone breccia along a joint running parallel to the quarry face. [SE 50868 01762].



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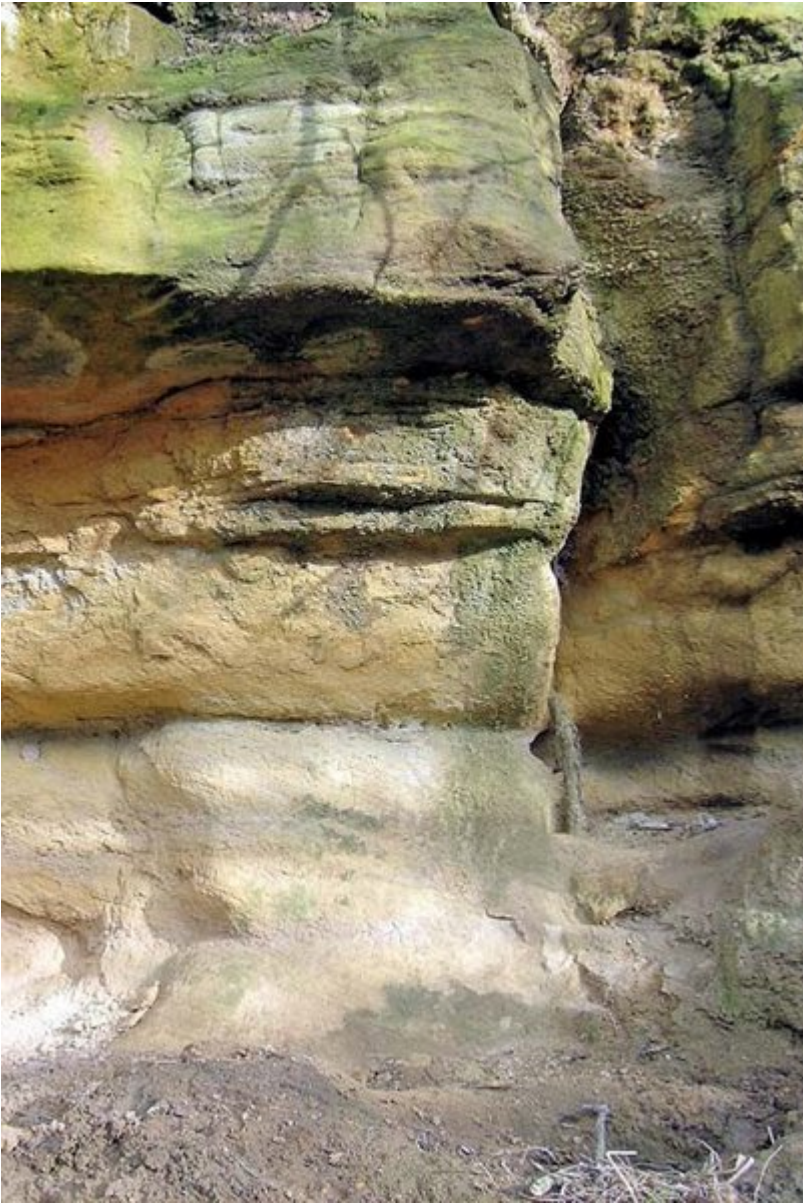
(Figure 51) Old dolostone quarry face in the Wetherby Member, Cadeby Formation. [SE 50885 01735].



(Figure 52) View to the along the escarpment in Pennine Upper Coal Measures. [SE 50940 01370].



(Figure 53) General view of main exposure of the Yellow Sands Formation. [SE 50882 01404].



(Figure 54) Boundary between the Yellow Sands Formation and the overlying Wetherby Member of the Cadeby Formation. [SE 50882 01404].



(Figure 55) Detail of limestone breccia along a joint running parallel to the quarry face. [SE 50868 01762].