SUMMARY OF GEODIVERSITY AUDIT

Quarry name	**Halecombe Quarry**
County	Somerset
Location:	At Leigh upon Mendip, Frome, East Mendips,
Output:	About 1.0M tonnes per year for general purpose construction aggregates
O.S. Grid Ref:	ST 702 475 (quarry office)
O.S. Map No:	1:50 000 Landranger Sheet 183
BGS Map No:	1:50 000 Sheet 281
Operated by:	Tarmac Southern Ltd, part of Anglo American plc
Quarry workings:	The quarry has developed as a single large pit.
Scientific Status:	
Main Rock Type	Carboniferous Limestone
Geological Age	Lower Carboniferous, about 350-320 million years old
Geological Formations	Pale coloured Clifton Down & Vallis Limestones grading down (southwards) into very dark grey Black Rock Limestone and Lower Limestone Shale.
Geological Structure	Strata dip generally to the north. Occasional near-vertical faults and joints.
Sedimentology	Well-bedded Lower Carboniferous limestones with thin shale partings, especially in the Black Rock Limestone Formation and Lower Limestone Shale.
Palaeontology	Abundant shelly fossils and corals.
Mineralogy	Vein deposits with abundant calcite and traces of metalliferous minerals
Other Rock Types	None
Hydrogeology	Limestone has low primary permeability and high secondary permeability in joints and fissures. Valuable water supply aquifer in the vicinity. Water table generally at about 120 metres AOD.
Geotechnical	Black Rock Limestone is known for occasional wedge failures along dipping shale partings and bounded by intersecting near-vertical joints.
Geomorphology	Present Mendip landforms closely resemble ancient Mesozoic hills, valleys and islands.
Weathering, Erosion	Limestone solution widening of joints and fissures. Small cavity formation near rockhead.
Geodiversity Highlights	• Pale to dark grey well-bedded Carboniferous Limestone dipping steeply and consistently northwards. • Numerous “fist-sized” calcite inclusions within the limestones both solid and hollow with internal calcite crystal growth. • Abundant near-vertical fissures and joints in the limestone with varying amounts of calcite mineralization. • Tufa growth around groundwater seepages
Geodiversity Context	• Late Devonian desert conditions ended about 350 million years ago with advance of the shallow clear-water tropical sea in which the thick Carboniferous limestones accumulated. Land was to the north, deep water to the south. The Mendip area was probably near the equator. • The limestones were deeply buried, folded, faulted and lifted above the sea by pressure of continental collision from the south in the Variscan mountain building when the main structure of Mendip was formed. • Desert conditions returned in the Permian and Triassic when Mendip was a mountain area with deep and narrow valleys around its flanks. • The sea encroached again about 180 million years ago in the Jurassic. Mendip was an island and oolitic carbonate sediments were formed in shallow clear-water seas along its southern shoreline (not visible at Halecombe Quarry).