SUMMARY OF GEODIVERSITY AUDIT

Quarry name	**Dulcote Quarry**
County	Somerset
Location:	At Dulcote nr Wells, East Mendips,
Output:	About 0.25M tonnes per year for general purpose construction aggregates
O.S. Grid Ref:	ST 56621 44158 (quarry entrance)
O.S. Map No:	1:50 000 Landranger Sheet 183 1:25 000 Explorer sheet 141
BGS Map No:	1:50 000 Sheet 280 Wells
Operated by:	Foster Yeoman Ltd.
Quarry workings:	The quarry has developed as one large pit that measures around 600 m from W to E and around 350 m from N to S.
Scientific Status:	
Main Rock Type	Carboniferous Limestone.
Geological Age	Lower Carboniferous. About 330 million years old.
Geological Formations	An outlier of Clifton Down Limestone in faulted contact with Burrington Oolite.
Geological Structure	Strata folded and overturned with general variable dip to the south. Several near-vertical faults, major thrust zones, minor thrusts and joints.
Sedimentology	Well-bedded Lower Carboniferous limestones with minor shale partings.
Palaeontology	Occasional shelly fossils, crinoids and corals.
Mineralogy	Vein deposits with abundant calcite crystals and minor traces of metalliferous mineralisation. Replacement silica mineralisation associated with overlying Triassic sediments.
Other Rock Types	Triassic Mercia Mudstone facies about 240 million years old comprising breccias, sandstones, siltstones and mudstones in top of north-eastern end of quarry forming angular unconformity with underlying Carboniferous Limestone.
Hydrogeology	Limestone has low primary permeability and high secondary permeability in joints and fissures. Quarry pond at natural groundwater level (60 m AOD).
Geotechnical	Occasional bedding plane failures along dipping beds bounded by intersecting joints and thrusts particularly in top northern faces.
Geomorphology	Present Mendip landforms closely resemble ancient Mesozoic hills, valleys and Islands with shoreline deposits along southern margin
Weathering, Erosion	Limestone solution widening along joints and fissures. Surface karst with minor weathered gullies and minor cave/cavity formation.
Geodiversity Highlights	• Pale to dark grey moderately well bedded folded Carboniferous Limestone dipping mainly to the south with small area of overlying red and purple-coloured Triassic breccias forming an angular unconformity. • Large recumbent fold in north and west faces with vertical and overturned bedding in west face. • Abundant vertical and curved sediment infilled fissures and joints (Neptunian Dykes) • Varying amounts of calcite mineralization. • Siliceous mineral replacement in Triassic sediments forming geodes.
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 & Triassic when the Mendips were a mountain range with breccias, wadi filled debris flows and scree material deposited around its flanks