Hillhead Quarry - Summary of Key Elements

Location:	Situated about 11 Km east of Tiverton, East Devon.
Operated by:	Bardon Aggregates, a subsidiary company of Aggregate Industries
O.S. Grid Ref:	ST 066 134 (quarry office)
O.S. Map Nos:	1:25 000 Explorer Sheet 128, Taunton, Wellington & Ilminster.
	1:50 000 Landranger Sheet 181, Minehead and the Brendon Hills.
BGS Map No:	1:50 000 Sheet 310, Tiverton.
General Geology:	Red-brown fluvial conglomerates and finer sediments of the Budleigh Salterton Pebble Bed Formation (BSPBF), basal member of the Sherwood Sandstone Group of Triassic age about 240 to 230 million years old. The beds dip gently to the east and rest on the Aylesbeare Mudstone Group. The BSPBF is overlain by the Otter Sandstone of aeolian and fluvial origin.
Geodiversity Highlights:	• Up to 34m of largely unconsolidated conglomerates with beds of sand and silty and clayey sand. • Well rounded pebbles, cobbles and occasional boulders, predominantly quartzite but also including other rock types likely to be locally derived such as sandstones and decalcified remains of limestones. • Abundant sedimentary structures characteristic of fluvial deposits including cross bedding and washout structures. • Occasional parches and small areas of iron-cemented gravel. • Numerous minor faults occur, recognizable where they cut distinct beds but difficult to recognize within the conglomerate. • Orange-yellow sand bed at upper contact with overlying Otter Sandstone. • Pale-green leached conglomerate at lower contact on Aylesbeare Mudstone. • Near-surface periglacial features. • Quarry faces stand at steep angles.
Geodiversity Context:	• Outcrop of the BSPBF extends south-north across Devon from coast to coast. • Extensive river deposit with clasts originating mainly from the south and, in this area, from a variety of local sources resulting from erosion and braided fluvial transport into a large piedmont flood plain in a semi-arid climate. • The top surface of the BSPBF represents a desert pavement which was exposed to wind blown sand erosion. This created faceted ventifacts on exposed pebbles prior to being covered by fluvial and aeolian sands of the Otter Sandstone Formation. • Periglacial structures within the overburden and upper parts of the BSPBF, comprising small-scale folding and cryoturbation structures (folded to the vertical), were formed during the Pleistocene as a result of frost and ice heaving.

Loc 11 Detail of Deposit and Variety of Clasts

Grid Ref ST 06114 13752 ***Photo HI 11c*** ***Facing SW***

The photo shows detail of the BSPBF that comprise dark purplish brown, very poorly sorted well-rounded pebbles of quartzite, vein quartz and white completely decalcified limestone (white in section) in a silty sand matrix. The deposit was laid down by a large braided river system flowing into a large piedmont flood plain in the Triassic Period.

Loc 13 Detail of Cross Bedding and Manganese Concretion

Grid Ref ST 06098 13595 ***Photo HI 13a*** ***Facing W***

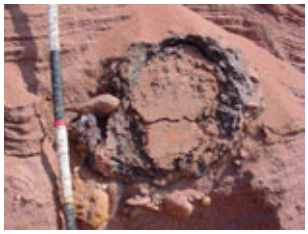

Photo shows washout structures and cross bedding in sandy facies of the BSPBF. Note the solitary spherical exfoliated concretion at the base of the washout structure (to the right of the marker pin and shown in the enlargement). Such concretions are common throughout the quarry and were formed due to the prevailing oxidizing conditions at the time of formation.

Loc 23 BSPBF / Aylesbeare Mudstone Group Contact

Grid Ref ST 06850 13922 Photos HI 23b Facing N

General view of the BSPBF and underlying Aylesbeare Mudstone Group contact. Note the pale leached zone (0.40 m thick) at the base of the Pebble Bed Formation. Minor groundwater seepages occur all along the basal contact margin.

Loc 16 Periglacial Feature

Grid Ref ST 06798 13715 Photos HI 16b Facing S

Photo showing sub-vertical cryoturbation structure. This occurred in the Pleistocene during the last ice age as a result of ice and frost heave. Note how some of the pebbles are aligned to the near vertical.