PD2
Fulwell & Carley Hill Quarries

SSSI
Roker Formation
Study geology in disused quarry faces: spectacular calcite concretionary developments (including ‘Cannonball Rock’), in lower part of
Concretionary Limestone Member, Roker Formation, Zechstein Group

‘Cannonball Rock’ Fulwell Quarry
Types of concretion at Fulwell Quarry
Roker Formation
Carbonate turbidite deposition in a deeper shelf marine environment, and post-depositional concretionary development: Concretionary Limestone Member, Roker Formation, Zechstein Group.
BGS Description of Roker Formation
Cream, oolitic dolostone - subordinate thin beds of fine-grained dolomite. Breccias also present.
Lower Boundary:

Drawn at diachronous base of dolostone of the Roker (Dolomite) Formation where it rests conformably on and interdigitates with the Concretionary Limestone Formation. Gradational contact with the underlying Hartlepool Anhydrite Formation offshore and with the equivalent dissolution residue that overlies the Ford Formation onshore.
Upper Boundary:

Above and to the west of the Ford Formation reef; by incoming of reddish brown mudstone and siltstone at the base of the overlying Edlington Formation. East of the Ford Formation reef-edge it is overlain by the Seaham Residue, (dissolution residue of Fordon Evaporite Formation) overlain offshore by the Fordon Evaporite Formation.
1. Fulwell Quarry Local Nature Reserve (details of rock faces and wildflower areas can be seen on pages 10 and 11).

2. A low rock face 2m high, containing the best display of Calcrete Spherulitic Conglomerate rocks within the quarry.

3. A high face, about 40m long, that was cleared as part of the Limestone Landscapes Project. You can see a variety of Cannonball and other Conglomerate Limestones. The quarry face shows both the rolling character of the strata and the great variability in the thicknesses of the grey limestones. These have softer, cream-coloured dolomite rocks between them.

4. The WW1 Fulwell Acoustic Mirror, was restored by Sunderland Council and the Limestone Landscapes Project in 2015, along with a new interpretation panel.

5. The Fulwell Windmill is in the process of being restored as this leaflet is going to print in 2015.

6. The Fulwell lime kilns can be seen at the south end of a car showroom's forecourt.

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**Fulwell Quarry detail**

1. This area had soil stripped and seeds from other Magnesian Limestone grassland areas spread in 2007 to try to establish new grasslands.

2. These areas were cut and the grass removed to encourage Magnesian Limestone grasslands in 2013 and 2014. Look here during June and July to see a variety of Magnesian Limestone grassland wildflowers.

3. These rocks at the top of the quarry show grey and brown limestone interbedded with cream and buff dolomite that has a sugary appearance (known as 'saccharoid').

4. The rocks on the top face have a variety of Conglomerate Limestones including good examples of the Coralline type.

5. The quarry face here surrounds what was the deepest excavation in the quarry floor. The 'flexible limestone' and Fulwell Fish Bed used to be exposed here. The 'flexible limestone' was so-called because it can be split into flexible paper-thin sheets.

6. Several thick hard Conglomerate Limestone beds can be seen here, separated by continuous, but thinner, beds of softer cream dolomite.

7. The Conglomerate beds can be seen more closely including those with Cannonball rocks at the northern end of this face.