A Conservation Plan for the Historic Mining and Quarrying Landscape of the Clee Hills, South Shropshire

Volume 1

Chronological summary, significance of the site and management recommendations

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Clee Hills Conservation Plan

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March, 2007

Chapter 1: Introduction and background to the project

1. Introduction

1.1 The archaeological remains of the Clee Hills, particularly those of their extractive industries, have been widely acknowledged to be among the best preserved in the region and the distinctive geological formations are internationally known and frequently studied, yet detailed survey of the archaeological surface remains and a comprehensive management plan for their care and presentation have been lacking.

2. The ALSF context

2.1 When it became clear that the funding criteria of the Aggregates Levy Sustainability Fund (ALSF) were compatible with objectives to broaden the scope of survey work begun in the 1980s, a project design was submitted to English Heritage and in 2004, Birmingham University was commissioned by English Heritage to produce an archaeological survey and Conservation Plan for the extractive industry remains on Clee Hill, South Shropshire. The project duration was from 2004-2007 (project no.3844).

2.2 The overall objectives of the ALSF have remained the same since the start of the scheme, although the emphasis has differed from year to year. During the course of the Clee Hills project, objectives set by DEFRA were:

1. to minimise the demand for primary aggregates
2. to promote environmentally-friendly extraction and transport
3. to reduce the local effects of aggregates extraction (which became, In April, 2005 'addressing the environmental impacts of past aggregates extraction')

2.3 English Heritage has supported projects that deliver against objectives 2 and 3 above, the goal of the English Heritage scheme being to reduce the impact of aggregate extraction on the historic environment, both terrestrial and marine. Within the time-frame of the Clee Hills project, emphasis was laid on:

<u>Objective 2:</u>

- research to enhance understanding of the scale and character of the historic environment
- methodological and technical development in recording methods
- training and professional development, awareness-raising and improving the quality of work being done in response to aggregate extraction

<u>Objective 3:</u>

- repair/conservation of sites, monuments, buildings and landscapes physically damaged by aggregates extraction
- conservation of industrial remains associated with aggregates extraction
- education, interpretation, outreach and community involvement

2.4 DEFRA has asked English Heritage to announce a one-year extension to the English Heritage ALSF scheme, although at the present time the funds available have

not yet been confirmed, so no financial commitments for the next financial year can be made. However, English Heritage is now inviting and acting on new proposals. The ALSF criteria for 2007-2008 are detailed in Appendix 1.

3. The aims and objectives of the Clee Hills project

3.1 Although the main aim of this document is to present the results of the archaeological survey and management recommendations based on them, it does have a wider remit, which is to provide a source of information for local people and those with a general interest in the archaeology and history of the area. The defined area is still a living and evolving environment and this Conservation Plan is a timely response to the need to provide a strategy to actively engage with this landscape, to record its strategic elements and, where necessary, to preserve it by record before its destruction by further mineral extraction or by neglect.

3.2 The survey and management recommendations provide an opportunity in the longer term to explore and understand the complex relationship between the geology, archaeology and biodiversity of the Clee Hills.

3.3 The 2005-2006 ALSF-funded project overview was:

Aims

- to provide a mangement framework for the Clee Hills that will incorporate data in respect of the archaeological resource mapped in relation to the natural resource, including SSSIs and RIGS.
- to undertake an archaeological survey of the existing and past quarry landscape on the Clee Hills in order to understand this part of the archaeological resource within its social, economic and historical framework
- to develop an interpretative framework for the Clee Hills that will inform the local community and the wider community in general of the nature and importance of the archaeological resource on the hills
- to develop an understanding of the public perception of the hills and their resources and use this as a basis to form relevant management policies

Methods

- the construction of a fine-grained landscape characterisation, building on the existing landscape characterisation through detailed map and aerial photographic regression and walkover digital survey
- widespread consultation with relevant groups including representatives at county and district levels and of stakeholder organisations and individuals
- consultation with the local community and provision of visitor statistics

Objectives:

- production of a Conservation Plan for the Clee Hills that will realise their potential as a visitor attraction without compromising the archaeological and natural resource
- presentation of the data in a format that is importable directly into the Shropshire Historic Environment Record (HER)
- facilitate a sustainable increase in visitors to the Clee Hills

- understand and popularise the archaeological resource

3.4 The overall objectives and aspirations for this resource reach beyond what has so far been possible to achieve within the remit of the current ALSF grant. Ultimately, it is hoped that it will be possible to explore new ways of presenting the survey and other information to a local, national and international audience. This is an ambitious aim which will require more than one year's work to fully complete and will only be achievable through further funding streams.

4. Objectives of the Conservation Plan

4.1 The boundary of the defined area encompasses *c.* 24 sq kms, but this entire area is not covered in detail by this Conservation Plan; which focuses on the main topics for which the site is significant - the physical remains of the prehistoric and industrial landscapes of the Clee Hills. Aspects of the wider landscape are discussed only in order to provide contextual background. The Plan provides recommendations for the conservation and future management of this resource and this should provide guidance for any future interventions. The Plan presents a coherent strategy for the long-term sustainability of the resource within the contemporary environment.

4.2 There are already in existence a number of Management Plans or their equivalents covering specific concerns within the defined area – chief among these are the Shropshire Hills AONB Management Plan (2004-2009), the Shropshire Geological Society's Geodiversity Management Plan (2004-2009) and Shropshire County Council's Biodiversity Action Plan. The themes covered by some of these policy documents cross-link and overlap. This Conservation Plan incorporates recommendations for management action from all these documents as relevant. It also makes reference to other strategic documents, *e.g.* the Shropshire Tourism Strategy which are relevant to specific management issues within the defined area. A summary of existing policies and their implications for management objectives within the defined area can be found in Appendix 4.

4.3 Due to the diverse range of issues covered, a number of experts have contributed to this Conservation Plan – Roger White (statement of significance and input into overall plan compilation), Glynn Barratt (survey and interpretation of physical remains), Malcolm Reid (overview of industrial history and summary of archive sources), Bob Johnson (structural engineering survey of standing quarry buildings), Ian Dormor and Clare Fildes of Shropshire Hills AONB (data on AONB initiatives within the defined area)), Colin Richards (extant remains of mining landscape, especially open shafts), Alf Jenkins (recent history and ethnography) Andrew Jenkinson (significance of the geology and management recommendations). Officers of Shropshire County Council and Shropshire District Council have also provided information and advice. Excluding the contributions mentioned above, Jenny Marriott has written and compiled this Conservation Plan.

4.4 A consultation network was established at the outset of the project and includes representatives of various bodies, including Natural England, English Heritage, DEFRA, Shropshire County Council, South Shropshire District Council, Hanson Plc.and other stakeholders.

4.5 The longer term goal in management terms is to achieve an integrated and holistic approach to management which will include both cultural and natural elements. A shorter term requirement is given urgency by:

- the possibility that a case will be made for future mineral extraction and the need to fully record and document in this Conservation Plan, the nature and extent of the surviving archaeology as a basis for demonstrating the adverse impact that mineral extraction could have on this significant landscape
- the management problems of the Clee Hills that are encountered by owners. Tipping and excessive use by wheeled vehicles have led some people to consider development of the hills as a formalised recreation area

5. Conservation Plan layout

5.1 Due to the large volume of material, this report is sub-divided into two volumes as follows:

- **Volume 1:** topography, geology, chronological summary of the main archaeological and historical features, statements of significance, management recommendations and proposals for further archaeological work The appendices contain summaries of documentary sources, ecological data, summary information on designation and policy, structural surveys of selected quarry buildings, the visitor centre proposals and a list of consultees to this Conservation Plan.
- **Volume 2:** gazetteer of sites. The gazetteer contains specific recommendations for the conservation and management of individual features and these have been retained although they are summarised in Volume 1.

6. The defined area – boundary and location

6.1 The defined area comprises a *c.*24 sq. km square block defined by grid co-ordinates SO 58 79 and SO 64 79, centred on the current Hanson Plc quarry. This includes all the known areas of industrial activity on the hill. Brown Clee, which lies some miles to the north, across the Ludlow anticline, is excluded from the defined area.
The defined area is conspicuous for its lack of major settlements and associated settlement features. Only one main road passes through it - the A 4117, which runs west-east between Ludlow and a few kilometres west of Bewdley. Cleehill village is the largest settlement within the defined area which contains no major towns – Ludlow lies *c.* 4 kms to the west, while the smaller town of Cleobury Mortimer lies *c.* 3 kms east.

6.2 The boundary of the defined area has been drawn to incorporate the prehistoric and mining and industrial features which form the focus of this Conservation Plan and is contiguous in many respects with the area lying outside it; it is part of the Clee Hill massif, centred at SO 59 77 which dominates the South Shropshire landscape within the Shropshire Hills Landscape Character Area.
The defined area lies almost wholly within South Shropshire District; a very small part of it between SO 625 790 and SO 630 790 lies in Bridgnorth District.

7. The physical environment – topography and soils

7.1 The Clee Hills comprise both plateaux and peaks. The defined area includes two of the three peaks that dominate this landscape - Titterstone Clee (533 m.) to the north-west and Clee Hill to the south-east. Both peaks are separated by a shallow plateau or dip that represents the underlying Coal Measures. The third peak, Brown Clee, with its twin knolls of Clee Burf and Abdon Burf (545 m.), is excluded from the study area though is relevant to this study in wider consideration of the tenurial history of the Clee Hills.

7.2 The rolling Clee plateau contrasts markedly with the distinctive high peaks described above and there is a marked transition from these peaks to the gentler slopes characterised by scattered settlements; many of which represent the squatter settlements of past mining and quarrying communities. The plateau supports a large area of leached brown soils; there are few drift deposits on the plateau and the sandstone around the peaks decomposes and weathers easily into marl, producing silty loam over silty clay loam. The porosity of the underlying rock provides some natural drainage.

7.3 Cultivation is (and was) possible on the plateau, with more emphasis on grass and cereals than orchards or root crops. The predominant soil types on the outcrop of Coal Measures to the east are acid-brown and gley soils; these occur also on the slopes of Titterstone Clee. Poor vegetation and rough moorland grass, much still unenclosed, are the result of shallow soils, altitude and slope.

7.4 There are no major rivers within the defined area though there are some small brooks – the main ones are Cornbrook to the south, Benson Brook to the west and Ditton Brook and Mill Brook to the east (the latter were the focus of paper-making from the 17th century). Water supply was a major problem for industries on the hill. Apart from these and a few more minor brooks, natural drainage seems to have been through springs, mainly on the south side of the area along the 1,000 ft contour from Doddington to Cleeton Common. From earliest times, coal mining however, disturbed the natural drainage that was through the Carboniferous Limestone, and this presented serious technical problems throughout the mining history of the Clee Hills.

7.5 Four of Shropshire's twenty-seven Landscape Character Areas are represented within the defined area:

i. High Open Moorland – a landscape type found only within the Shropshire Hills – mainly on the tops of the Clee Hills, across much of the Long Mynd and the Stiperstones ridge. These are largely unenclosed landscapes with characteristic extensive moorland tracts. These landscapes have a large-scale and open character; from ridge crests and undulating plateaux there are panoramic views. On the lower slopes, *e.g.* around Silvington and east of Doddington, the landscape comprises smaller enclosed fields and is less panoramic in nature.

ii. Upland Smallholdings – a landscape type that occurs around the fringes of high moorland in the Shropshire Hills such as Catherton Common. The upland smallholdings are generally characterised by poorer soils that favour moorland and rough pasture habitats which are widespread in unenclosed areas.

iii. ***Pasture Hills*** – prominent sloping landscapes on the fringes of higher ground.

iv. Principal Wooded Hills – a landscape type occurring on the Clee plateau; prominent, wooded landscapes comprising scarp and folding features in sedimentary rocks. Steepness is not conducive to agriculture, though where slopes are less steep. Limited areas of pasture occur associated with irregular field patterns.

8. Geology

8.1 The root of the Clee Hills outcrops at their northern end and the rock is Devonian in age. It comprises a sequence of siltstones and sandstones over 325 meters thick, that geologists refer to as the 'Clee formation'. The Devonian Clee formation is overlain by a sequence of Carboniferous sandstones, known as the Cornbrook sandstone formation. This sandstone is part of a larger sequence of rocks known as the "Millstone Grit", named so because of its abrasive qualities.

8.2 Above these deposits are the mudstones and sandstones of Carboniferous (Westphalian) age which underwrite much of the human history of the Clee hill area, for it is in this sequence that the bands of coal can be found. Thin bands of ironstone and limestone also found within the Westphalian rocks, were the first resources to be locally mined creating a local iron industry as early as the 12th century. However it is the later coal extraction that has created much of character of the hills as they appear today. The largest of these seams is known as the "Gutter Coal", and it was this seam which proved to be the main source of economically extractable coal.

8.3 The ironstone is another key resource in that, uniquely for the area, it has low phosphoritic qualities making it ideal for cast iron. This sequence of rocks is finally capped by a sill of dolerite. This sill too is of Carboniferous (Westphalian) age, being only slightly younger than the underlying coal seams through which it has been intruded. The Sill is of a basic composition; that is to say it has a very low percentage of silicon dioxide, as is confirmed by the presence of olivine within the dolerite.

8.4 Titterstone Clee dolerite has many useful physical properties. The rock is physically very hard, and is much denser than most rocks. This, coupled with the fact that it is polymineralic (improves grip) and contains a useful jointing pattern, has meant that it has been heavily quarried. The first uses were for railway ballast, building material and as manufactured setts for cobbled road surfaces. Recently however, this stone has been used mainly as a road surfacing material.

9. Vegetation/ecology

9.1 There is considerable variety in the vegetation and ecology of the defined area and this is due to the underlying geology, the effects of altitude and weathering and to past (and present) exploitation by mining, quarrying, clearance, grazing and cultivation. In particular, mining and quarrying have exposed underlying geology which has resulted in the establishment of habitats of great ecological value which have grown up since abandonment of quarries at different stages from the latter half of the nineteenth-century to the early decades of the twentieth-century. In some areas, grazing for long periods under commoners' rights has had negative effects on the ecological balance.

9.2 The resulting habitats include rough acidic grassland or bracken, lowland heathland, dwarf shrub upland heath, species-rich grassland, semi-improved rough grassland, areas of woodland, field margins, fen, marsh and swamp (Catherton

Common) supporting a mosaic of both wet and dry communities and disused quarries. Flush and block scree plant communities are of particular interest and support moss flora including some species rare in Shropshire and rare ferns. Flushes dominated by mosses have formed around springs and alongside streams and a number of rare plants including bog pimpernel and ivy-leaved bellflower thrive. Moonwort is locally abundant on quarry spoil heaps. Breeding birds include wheatear and whinchat. Many of these communities have protected status by being designated SSSIs and are managed by the Shropshire Wildlife Trust, Shropshire Geological Society, Natural England and Shropshire County Council.

9.3 There is no detailed vegetation survey for the entire study area though much of the detail is included in databases held by Natural England and Shropshire County Council. A recent survey of Shropshire quarries by Shropshire County Council's Biodiversity Unit (*Shropshire Quarries – positive action for the future*) is shortly to be published and the preliminary results for Titterstone Clee Quarry, Dhustone Quarry, Clee Hill Quarry, Treen Pits, The Novers (limekiln complex) and Clee Burf have been made available to this project (see Appendix 5). The Novers lies just outside the defined area but is considered an integral part of the industrial landscape; Clee Burf lies to the north of the defined area but is included in the biodiversity statistics for comparasion with data from quarries in the defined area.

10. Previous archaeological knowledge of field monuments within the defined area

10.1 Although the industrial landscapes of the Clee Hills are acknowledged to be amongst the best surviving in the country, until the current ALSF-funded work was undertaken, detailed archaeological field survey was limited to that carried out by the Royal Commission on the Historical Monuments of England (RCHME) in 1983. The 1983 survey recorded the earthworks of spoilheaps and drainage channels as archaeological features and individual industrial complexes as well as the prehistoric monuments. Some of these features are shown on the O.S. First Edition Series, *e.g.,* the main mines in operation and also contemporary trackways, tramways, leats and ancillary buildings. These maps also show some of the prehistoric monuments, *e.g.* the fort and a number of cairns and barrows.

10.2 The 1983 survey of Titterstone Clee Hill

10.2.1 In 1983 the RCHM(E) undertook a survey of the Titterstone Clee Hill area; this survey was primarily focused on the industrial remains of the mining industry of the hill, largely dating to around the time of the industrial revolution.

This survey comprised several elements:

- 1:2,500 survey of the hill, also based upon the OS maps.
- Detailed surveys at 1:1,000 & 1:500, in the form of divorced surveys.

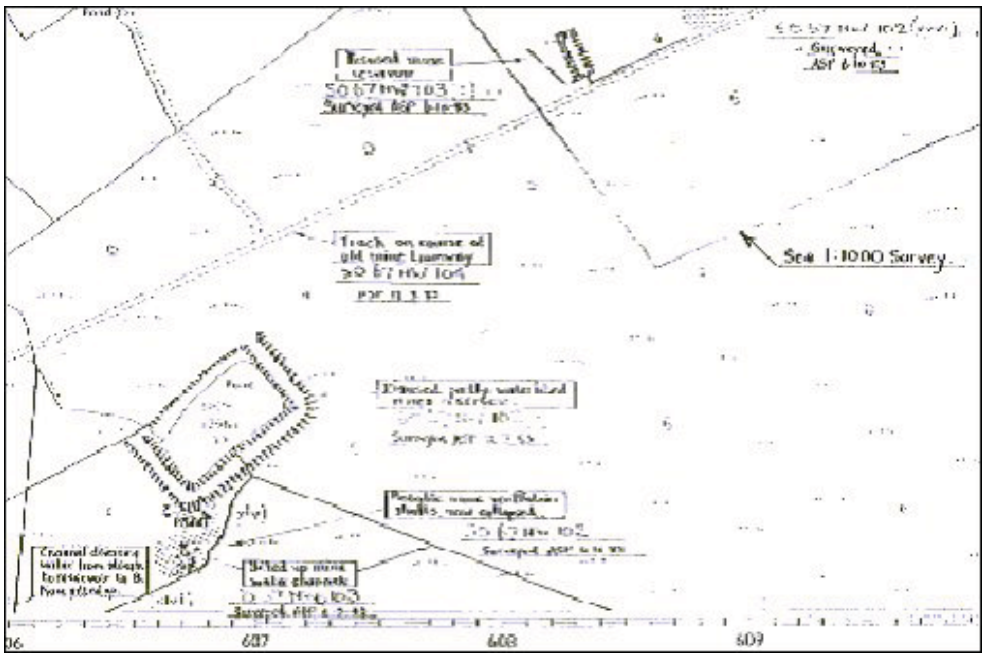


Fig. 1: Extract from RCHM 1983 survey showing 1:2500 survey

10.2.2 A windowed approach was adopted with the 1:2,500 surveys being undertaken to show the detailed pattern of earthworks in the area and to illustrate the nature of the features. This map also included spoil heaps and drainage channels as archaeological features, and describes the state of exposure at the time of survey. Larger scale windows at 1: 1000 and 1: 500 were used to record individual industrial complexes. More recent developments in digital technologies offer the potential to more fully explore and document such landscapes. Accordingly, the 1983 RCHM work has been used within the Landscape Archaeology and Geomatics course at Birmingham to provide data for student projects. In this way a start has been made on transferring the 1983 work into the digital medium of GIS. Digitization of this data into a GIS format allows a wide range of spatial data to be interrogated, and provides the convenience of being able to map the results of any selection. By obtaining the results of spatial and temporal distributions by using a GIS it is possible to spot relationships which may not be apparent on the maps, such as the detail of the location of surface mining remains and underlying geology. This is very much the case with this project where the combination of old and new techniques produces a new and interesting view of the whole area and its archaeology.

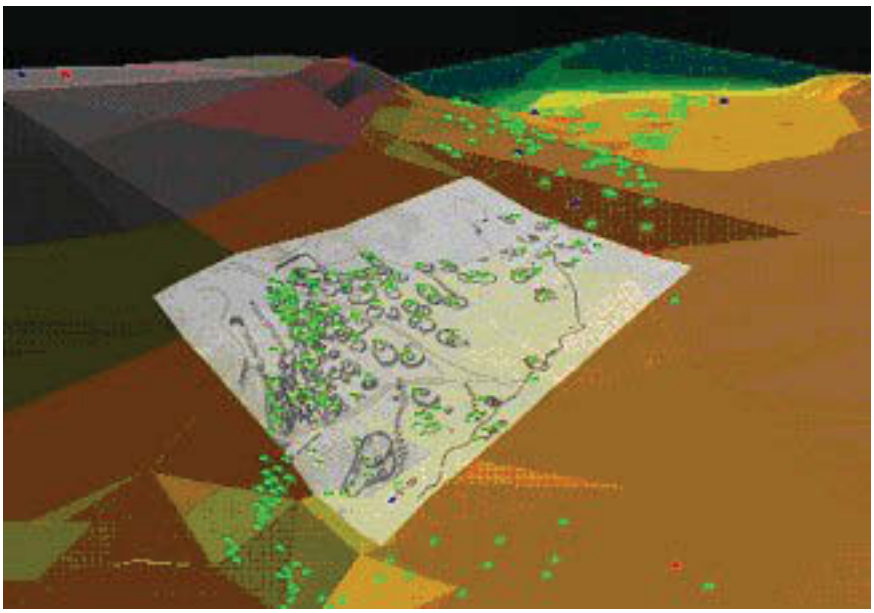


Fig. 2: 1: 1000 RCHM survey window geo-positioned over DEM

10.2.3 While the 1983 project was an important contribution to recording industrial archaeological remains as noted above, the former quarry buildings and the quarries themselves have never been planned or surveyed, although a structural appraisal of the quarry buildings has been undertaken as part of the current work.

10.2.4 Aerial reconnaissance since the 1980s has augmented the archaeological record (see further Appendix 2).

10.2.5 In addition to the above sources, local knowledge has played a key role in the identification of some surface remains, especially those of the industrial and recent periods.

10.2.6 In summary, the ALSF-funded survey augments earlier information and provides a more explicit context for what was known before.

Chapter 2: Chronological summary

1. Introduction

This chapter summarises the context and surviving archaeological features of the defined area, but for detail, reference should be made also to the individual entries in the gazetteer (Vol.2).

2. Prehistoric and Roman

2.1 The surviving prehistoric remains of the Clee Hills are scanty when compared with those of the industrial landscape; industrial activity has either obliterated evidence of earlier occupation or, as is the case with the hillfort on Titterstone Clee, removed substantial parts of it. Similar patterns of landscape use are well-known in other upland areas of Britain, notably, the Derbyshire and Staffordshire Peak and on Bodmin Moor and Dartmoor. The mutilation of earlier landscapes by later human activity makes the unequivocal identification of some earlier features, especially cairns in mining landscapes, to a degree subjective.

2.2 Despite the impact of industrial activity, there is substantial evidence for human activity in later prehistoric periods, to some extent in the Bronze Age but more markedly in the Iron Age. For earlier prehistoric periods, evidence, especially that of settlement, is however, scanty but this is the current state of knowledge in Shropshire generally for sites of Mesolithic and early-middle Neolithic date. By the Bronze Age, numerous barrows and field systems on the uplands of south and west Shropshire indicate the extent to which higher land was being exploited around 2,000 B.C. This was evidently for subsistence as well as for ritual purposes and probably included specialised practices such as transhumance from lower land to summer rough grazing pastures. The Late Bronze Age occupation of the hillfort on Titterstone Clee suggests such exploitation.

2.3 Other evidence for Bronze Age activity, though of typically dubious provenance in that it is represented by a number of stray finds, is recorded in the Shropshire HER (see further Vol.2). This evidence includes a bronze hoard found in 1889 in Dhustone Quarry, an axe-hammer on Magpie Hill (found 1908) and, a little farther afield from the study area, a socketed axe, found 'sometime before 1953' at Silvington, a burial urn near Knowlegate, a battle axe and axe-hammer at Bitterley (found 1885) and an axe-hammer at a site 4 miles west of Cleobury Mortimer (found 1908).

2.4 The dense concentration of hillforts in Shropshire's uplands – one of the highest concentrations in the country – reflects the wider changes in society at the onset of the Iron Age *c.* 800 B.C. The hillforts of these uplands vary enormously in size and may have served different functions – as foci of increased pastoral activity at a time of climatic deterioration, especially on higher marginal land, as defensive sites, as tribal centres for trade, commerce or ritual or some combination of these. By around the 4th century B.C., many hilltop sites were abandoned and others were re-fortified.

2.5 The hillfort that encircles the summit of Titterstone Clee Hill, enclosing *c.* 28 ha., had four construction phases between the Late Bronze and pre-Roman Iron Age and there is evidence for internal occupation features. Apart from the advantages afforded by its commanding hilltop position, it is difficult to interpret the fort as being solely defensive. The basis of the economy of the population occupying the fort during the

Iron Age is uncertain but it is likely that they farmed the fort's hinterlands and possibly drew allegiance from a wider territory. Stock rearing and some cereal growing are likely to have formed the basis of their subsistence economy.

2.6 The dearth of Roman material within the defined area by no means signifies the lack of a Roman presence – a network of Roman towns – *Branogenium* (Leintwardine), *Viroconium* (Wroxeter), *Salinae* (Droitwich) lay within 30 kms of the Clee Hills and a grid of NE-SW and SE-NW main roads at a similar distance. The degree of allegiance to Rome and changes in the local power structure are uncertain (some hillforts such as The Wrekin, were rased at this time and never re-occupied) but the lack of sites such as villas suggests that changes in the organisation of farming may have been less dramatic in this part of South Shropshire which lay at the western edge of a peripheral Roman-occupied zone than it was in more central areas of Roman occupation. In these circumstances, the area may have witnessed what was essentially continuity of rural settlement and farming from the mid-1st millennium B.C. to some time after the mid-1st millennium A.D.

3. The early medieval period

3.1 There is a paucity of both physical and documentary evidence for the early medieval landscape in the defined area although a wider view of the region at this time allows some speculation. As Hooke points out (2006, 41) at the beginning of the period (late 5th-early 6th-century A.D.), West Midlands region was 'still a meeting place of boundaries rather than a recognisable entity'. The region was probably dominated by a pattern of dispersed farmsteads at this time.

3.2 At the start of the period, the defined area lay within the Anglo-Saxon kingdom of the Magonsaete which, together with the kingdom of the Hwicce to the south-east, was eventually subsumed into Mercia. This was a frontier zone - Shropshire lay close to the sensitive Welsh border, not so far removed from South Herefordshire where Welsh kings held power in the 6th and early 7th centuries. The population in the Clee Hill area, and indeed in the western part of the West Midlands generally, probably remained largely British (as evidenced by tribal names in -*saete*). British place-names survive in 'Wrekin' and 'Wroxeter' and a substantial number of Shropshire's rivers also have pre-English names, *e.g.* Clun Perry, Severn, Teme and Tern (Hooke, 2006, 44). Place-names in walh- are also found in the rich riverine areas of Shropshire (Hooke, *ibid*).

3.3 By the late 8th-early 9th century, settlement became concentrated around the new estate nuclei in the more densely populated areas of intensive arable farming (though the largest of these lay outside the region to the east and south). It is unclear what forms of land ownership were in existence or how the estates were organised (the lack of Saxon charters in Shropshire does not help in this respect), but some settlements appear to have been 'grouped'. Nucleation seems to have occurred gradually and hand-in-hand with the introduction of open-field farming. But throughout Shropshire as a whole, arable farming was generally subordinate to animal husbandry and much agricultural land was enclosed directly from woodland and never organised into open fields.

3.4 The emergence of manors from the former estates was a gradual process and manors in much of the West Midlands were small and numerous. Large areas of woodland and waste, as on the Clees, were managed for timber and pasture was

exploited for grazing livestock. The urban centres (*burhs*) and minster foundations of the region were established largely in the 10th-century, the closest *burh* to the Clee area being Shrewsbury (established 907) at which time, the northern half of the kingdom of the Magonsaete became part of Shropshire.

3.4.1 ***Origins of the place-name 'Clee'***

3.4.2 The name 'Clee' which persists in Clee St Margaret, Cleestanton, Cleobury Mortimer, Cleobury North and Cleetin (in Bitterley) was in origin the collective name of the hills, but as Gelling points out (1990, 82) these settlements are referred to in records earlier than those referring to the hills and it therefore seems likely that the hill name is derived from the settlement names.

3.4.3 The earliest reference to the hills occurs in of St Mildburg's Testament which recites a charter of A.D. 674-704 detailing land given to St Mildburg *'circa montem qui dicitur Clie'*. The testament is regarded as an authentic copy of a charter of 674-704 A.D. but the place-name spellings, including *Clie* have been modernised by later (11th or 13th century) copyists. The two other early references to the hills occur in 1230 in a reference to the lands of Wenlock priory lying *'circa Clivas'* and in 1292 with reference to John Giffard's free chase in the manors of *Corfham* and *Cleya*. There are also several 16th and seventeenth century references to the hills (Gelling, 1990, 86).

3.4.4 Other explanations for the name Clee suggest that it is a Welsh loan-word from the Latin *clivus* 'slope, hill' though this is discounted by Gelling (1990, 87) who considers it most likely that the root of the name Clee lies in the Old English name *Cleo* which means 'ball-shaped massif'. The term may have been chosen to distinguish the Clee Hills from the long chains or escarpments in the vicinity such as The Long Mynd, Wenlock Edge and the Stiperstones.

4. Norman Conquest to post-medieval

4.1 The manorial reorganisation that took place following the Conquest saw the gradual disappearance of the old estate system. The landscape recorded in Domesday Book is one which is rapidly changing in the face of intensified land-use and the demands on resources. The Clee Hills lay close to the Welsh border, a vulnerable zone of unrest and conflict for several centuries following the Conquest. The concentration of castles in this area bears witness to Norman expansion into Welsh territory. But internal political intrigue was also rife - the castle at Cleobury Mortimer, *c.* 4 miles east of Clee Hill was destroyed following Hugh de Mortimer's uprising against Henry II in 1154-5. Thus, though on the periphery of such developments, the Clee Hills were a focal part of the landscape at this time and this is nowhere more in evidence than in their representation on the *Mappa Mundi* (now in Hereford Cathedral).

4.2 During the 13th-century, more assarting and enclosure took place and symbols of seigneurial power such as fortified manor houses and castles and symbols of ecclesiastical power such as abbeys, appeared in the landscape. By the early 13th-century, increased grazing, enclosure and the reclamation of woods and wastes brought neighbouring lords into conflict. For example, in 1232, the prior of Wenlock Priory, in return for accepting Walter of Clifford's right to enforce the conservation laws on Clee Chase within Stoke manor, was allowed to inclose any part of the

manor's woods as pasture and both he and his manorial tenants were allowed to graze freely on the unenclosed parts of Brown Clee. These common rights survived their eventual disafforestation (the loss of their legal status as a forest) in the 14th century.

4.3 The Clee Hill area where the characteristic agriculture was pastoral and settlements dispersed, lay outside the foci of intensive urban expansion. By the early 14th-century though, even such marginal areas – *i.e.* those more distant from extensive ploughed open-field land – with upland grazing, woodland and pastures, were being more closely managed and regulated. Given its varied topography and being a border zone, Shropshire was subject to a complex organisation with respect to the management of arable farming.

4.4 In Shropshire, the Clee Hills plateau, together with the Severn lowlands had the highest density of Domesday plough teams; the lowest densities were in the northern part of the county and the south-central uplands around Clun. However, marginal landscapes such as those of Catherton Common and the Clee Hills remained as moorland and unimproved grassland used for common rough grazing. The mineral resources of the Clees were also exploited from at least the medieval period onwards.

4.5 Parish boundaries were probably defined mostly in the 13th-century across wastes previously intercommoned with neighbouring townships. The defined area falls with the ancient parishes of Bitterley, Cainham, Catherton, Cleeton, Coreley, Doddington (part of Cleobury Mortimer), Farlow, Hope Bagot, Hopton Wafers and Silvington. Brown Clee's upper slopes however, were not split up until the 17th century and the township divisions across Titterstone Clee were probably also late.

4.6 The physical evidence for the medieval period within the defined area comprises a miscellany of sites - three moated sites, a deserted settlement and water-management features, areas of ridge and furrow, a nunnery, a chapel and hollow-ways. Again, it is likely that medieval and later industrial activity has removed some of the settlement evidence and further programmes of aerial reconnaissance and field survey are required to augment the current record.

4.7 The three moated sites are nationally important scheduled monuments. Woodhouse moated friary, north-east of Hopton Wafers was one of the two earliest English foundations of the friars hermits of St Augustine and certainly existed by 1250. The surviving house was re-built in the 19th-Century and the moat is now much landscaped within a formal garden.

4.8 Further earthwork remains comprising a deserted settlement, fishponds, a dam and ridge and furrow are recorded in the vicinity of the friary. The double-moated site of Silvington Manor, to the north of the study area, may have been occupied from the 12th Century and survives well despite later interference. Lower Cleeton moat was occupied by at least the 13th century and survives particularly well as an earthwork. A deserted settlement at Lower Cleeton is recorded on the Shropshire HER at SO 608 792.

4.9 The site of a nunnery north of Hope Bagot at SO 587 745 (just south of the defined area) is recorded on the Shropshire HER but needs confirmation on the ground and the same source records the site of a chapel at SO 629 754 (Earl's Ditton - within the defined area) which may have had medieval origins.

4.10 Remains of ridge and furrow and hollow-ways (not detailed in this Plan) were identified by G. Barratt and M. Roberts in 1991 during aerial reconnaissance east of Hopton Wafers and a hollow-way runs north of Hope Bagot to the southern edge of the study area (SO 587 741 to SO 588 749).

4.11 These recorded remains represent a diverse range – sites of high status intermingled with fragmentary remains of access routes, cultivation and water management but there is enough here to show that the landscape was settled and farmed by at least the 12th century.

5. Post-medieval (non-industrial)

5.1 By far the greater part of post-medieval remains on the Clee Hills are industrial and the landscape, including Cleehill village and other settlement remains in the vicinity, bears such a strong and distinctive imprint of mining and quarrying activity that it is soemtimes difficult to isolate other features that are unassociated with the industrial period.

5.2 The main non-industrial use of the hills would have been as rough grazing pasture but apart from probable sheep tracks, this activity has left few visible remains. It is only where encroachments were made onto common land that features appeared in the later 18th-century as privatised parcels of pasture previously in communal use. For example, in 1777, Bockleton Court was summering more than 300 sheep on Brown Clee. In 1813 parts of Brown Clee were inclosed but over 2,000 acres on Titterstone Clee remained common (VCH, Vol. IV, 387).

5.3 The main encroachments now visible are those of permanent intake enclosures associated with new small-holdings set up in late 19th and early 20th centuries, but again, these result mainly from mining and quarrying activities. Some tracks laid out in 19th - century to serve mines, quarries and small holdings are still used as vehicle ways to key sites on the hills. Car parks cater for car drivers; there is a public car park with access to a toposcope and view point on the east side of Cleehill village, a large car park just off the Shropshire Way is accessed via Dhustone Lane; various unofficial laybyes along the A 4117 allow sight of the Incline Quarry and other features such as Cornbrook Dingle. A public viewing platform was created by Hanson Plc off Dhustone Lane; this provides excellent views of the working quarry. Bridleways, footpaths and tracks, mostly unfenced across open commonland, take people round the hills. Any number of spectacular views can be gained from the top of Titterstone Clee across this open commonland which runs in a broad swathe from south of the A4117 across Clee Hill, Magpie Hill and up to Catherton Common. Less welcome modern features are fly tipping of domestic and building rubbish in the quarries and on the commonland; burnt-out car wrecks are a not infrequent sight, especially in Titterstone Clee Quarry.

5.4 Another prominent feature is the radar station on the top of Titterstone Clee. There has been a weather radar here since the early 1970s; initially this was used for research purposes but since 1983, it has formed part of the UK operational network. The present weather radar was installed *c.* 1993 on a slightly different site to the original one. Radar coverage from the Clee Hill station is at 1 km. and this station is among seven in the UK using Doppler radar which is still at the experimental stage. The radar station is jointly owned by the Metreological Office and the Environment Agency.

5.5 Other non-industrial features are either modern or relate to transport and communications.

6. The Industrial Landscape

6.1 Introduction

6.1.1 Industrial activities, particularly coal and ironstone mining and stone quarrying, have had a profound impact on Clee Hill and its immediate surroundings. This complex industrial landscape has been formed over many centuries and consists of extensive areas of earthwork features and structures, many of which now survive as relics from the past. The availability of, and changes in the demand for, raw materials, often linked to technological innovation and superseded modes of production, have contributed to the composition of this landscape. These changes have had a direct effect on the local population and on those communities living further afield whose livelihoods depended on the resources.

6.1.2 Detailed information about the industrial remains within the study area, including the developmental sequence of particular areas and changes in the methods of production, is presented in the Gazetteer of Sites in Volume 2.

6.2 Coal and ironstone: industrial activity prior to the 17th century

6.2.1 Mining for coal and ironstone started in the medieval period. Documents dating to the 13th century indicate that the coal industry on Clee Hill was well established by this time, albeit operating on a small-scale. In 1260-3 Walter de Clifford, Lord of Corfham, granted to Sir John de Halston licence to dig coals in the forest of La Clie (Clee Hills) to sell or give away (Randall 1908). Receipts kept by the Abbot of Wigmore from his manor of Caynham and Snitton (the south western part of Clee Hill) indicate that the profit from a coal mine in 1291 was 5 shillings (a small amount in comparison with £1 10 shillings received from a mill, and the sum of £16 from rents of other properties in the manor) (Eyton 1857, 362; Goodman 1978, 89). Coal throughout much of the medieval period was used as a fuel for various industrial processes, including lime burning, brewing, cloth dyeing, iron smelting and smithing. It was not generally favoured as a domestic fuel, except in castles and monasteries where stone chimneys were often constructed.

6.2.2 There are no known documentary references from the early Middle Ages concerning ironstone extraction or processing in this area. It is likely that much, if not all, the iron production took place locally, and by the early 16th century it was certainly a well developed and profitable industry. An indication of this is a charter granted to the ironworkers of Ludlow by the Bailiffs and Council of the Town in 1511, under the powers given to them by Edward IV (Jones 1888, 293-4; Goodman 1978, 88).

6.2.3 The first coal and ironstone deposits to be exploited were near to the surface, often in close proximity with ironstone sandwiched between coal seams. These deposits exist around the southern face of Clee Hill and extend north eastwards to Catherton Common. The earliest and easiest method of extracting coal and ironstone was by open-cast trench mining. Such workings often commenced in a stream valley where deposits could be seen, exposed by the erosion of the stream. The seam was

then chased back into the hillside as a series of linear hollows with the surface overburden removed to expose the mineral deposits. Few examples of this type of mining remain visible, as they tend to be over worked by later deeper pits. Some evidence of this type of working exists at Horseditch, in close proximity to Benson's Brook and possibly parts of Catherton Common.

6.2.4 During the later medieval period there was a significant increase in the exploitation of these coal and ironstone reserves, fuelled by increasing demands. This led to the use of more efficient methods of extraction. Shallow shafts started to be dug through overburden to remove the coal and ironstone. These shafts, or 'bell pits', averaged 1-1.5m in diameter at the surface. Coal and ironstone was worked out around the shaft creating a bell-shaped profile until the roof of the pit became unsafe. Spoil and coal were hauled from the pit with a rope and bucket, probably often aided by a winch. As a pit was being worked others would be dug next to it, usually at a distance of between 5 and 10m. The spoil would be deposited close to the mouths of shafts and would be used to infill the disused adjacent pits. These were small gang operations, where skill was required to know how far the bell could be extended before a collapse would occur. Remains of this sort of mining exist around the southern face of Hoar Edge extending to Catherton Common and on the southern flank of Titterstone Clee.

6.2.5 Documentary sources provide valuable insights into the development of the iron industry in the late medieval period. The earliest types of iron furnaces appear to be bloomeries, known as 'wind furnaces'. These were probably located on the more exposed parts of the hill in order to funnel the strong south westerly winds into the furnace so that the ore could be smelted effectively (Goodman 1978, 88).

6.2.6 Increasing demand for iron in the 16th century went hand-in-hand with technological change in its production. The new furnaces established at this time were located on the lower slopes of the hill to the south and east, adjacent to streams. The power of the water was used to work the bellows to provide the 'blow', or blast, to the furnace. When John Leland, antiquary to Henry VIII, was conducting his tour of the area for his 'Itinerary' (*c.*1535-43) he observed one of these new ironworks, which he called a 'Blo Shopp', at Catherton (Toulmin Smith 1964, 190; Goodman 1978, 92 & 95). Leland also notes the plentiful supplies of coal on the hill and the limestone used for making lime (Toulmin Smith 1964, 189-90; Goodman 1978, 89).

6.3. The rising importance of iron working: industrial developments during the 17th and early 18th centuries

6.3.1 During this period bell pit mining continued, but appears to have become increasingly unprofitable as reserves of ironstone and coal became depleted. This is apparent from a dispute between Lord Craven and Sir Francis Lacon in 1628 over parts of Farlow (to the north east of Clee Hill). Here, the easily mined parts of the Gutter coal seam (which extends across Catherton Common) were nearing exhaustion, which meant that coal and ironstone would have to be sought elsewhere in seams that were not so near the surface or that outcropped further up the hillside (Goodman 1978, 229).

6.3.2 In response to the changing situation new methods of extraction began to be developed, requiring greater financial investment. In places, efforts were made to link

several pits that were close to each other. This is known locally as the 'bassett pit' method and seems to have been an adaptation of the bell pit technique (Hewitt 1991, 28). It involved digging short vertical shafts into the seam and driving out roads from the base of the shafts along the seam as working faces. Ventilation would have been a problem in these mines and it was necessary to support the roofs of these roadways with wooden pit props. These pits produced considerably more spoil than the bell pits and were spaced at wider intervals. Some of the pits on the southern flank of Titterstone Clee Hill and on Catherton Common appear from their spacing and size to belong to this class of mine.

6.3.3 Another method of mining that probably started to be employed at this time was the drift mine. These mines were a natural progression from trench working, where roads were driven into the hillside following the ironstone and coal seams. Ventilation and drainage were often problems in these mines, but where conditions were favourable and the seams could be easily followed, mining often continued for a considerable period.

6.3.4 Records show that by the mid 17th century the importance and value of mining had increased greatly. A lease of 1664 indicates that the major mining activities of Titterstone Clee were carried out in the Cornbrook and Doddington areas where, on the steeper slopes, there were seams of better quality coal and ironstone (Goodman 1978, 229). Other obvious signs that mining activities had reached a significant stage in the area, were the large increase in rents payable to Lord Craven and the replacement of several small leases with one large lease to Richard Walker, a successful iron master (*ibid* 232). After the leases of the coal workings had been acquired, Walker and his successors financed the groups of large mines, which later became known as collieries, and made them centres of their activities. One of these was called 'the Sough' early in the 18th century, and another, deeper mine, which was obviously the first to have sophisticated winding gear was referred to as 'the Gin pitt' in 1721 (*ibid* 232-3). The right to mine other areas was subleased to small groups of men who worked the upper seams of coal and ironstone deposits, using traditional methods for many years. Documents indicate that bell pits were still in use on Titterstone Clee in the second half of the 18th century (*ibid* 233). The dangers posed by numerous unfilled abandoned coal and ironstone mines, or those in use but left uncovered after working hours, is evident from manorial court records dating to the late 17th and early 18th centuries (*ibid*).

6.3.5 The development of the coal industry of the Clee Hill area was closely linked to the transportation of the coal and its use both locally and further afield. It is apparent from documentary sources that packhorses were commonly used by the late 17th century (*ibid* 234). The costs of carrying such a bulky material remained high, even after the improvements to the road network in the late 18th and early 19th centuries. As a consequence, sales were largely restricted to local markets, for domestic and industrial use. Records show that large amounts of coal were being used during this period for brewing and malting, for the preparation and finishing processes involving the cloth, leather, metal and wood-working trades, and in the making of candles and soap (*ibid* 236). But the largest consumer of coal, as it probably was in Leland's time, is likely to have been the lime industry. The production of lime (for its use as a fertiliser and for making mortar) was centred around the largest and most accessible outcrops of limestone on the north eastern and south western slopes of the hill (*ibid* 237).

6.3.6 During this period other industries became attracted to the area. Glass making had been established in the parish of Cleobury Mortimer before the middle of the 17th century. A map of Shropshire by Robert Morden, with additions by Edmund Gibson, published in 1722, shows 'Glasshouse' as a place name in the same situation as the present Glass House at Hoptonbank (Goodman 1978, 246 and 321; Trinder 1996, 94). Tobacco pipes were also made in Cleobury Mortimer from the 1650s and it is probable that the source of white clay came from Hoptonbank and the upper areas of the Catherton waste (Goodman 1978, 242). Bricks were being made at Hints in the 1660s and in the 1690s, pottery, known as 'Clee Hill Ware', was for sale in Ludlow (Trinder 1996, 94). Paper makers were attracted to the area by the plentiful supplies of clear, hard, swift-running water needed for making the pulp. A paper mill, at Langley on the Mill Brook, was established before 1650 (Goodman 1978, 246). Langley Mill probably supplied some paper to the neighbourhood and sold the remainder to the large population centres in Worcestershire, which in return supplied much of the raw materials such as linen rags that were required for making paper (ibid 246-7).

6.3.7 Up until the early 18th century there is a general paucity of documentary information relating to iron working in south east Shropshire. However, it is apparent that by the second half of the 17th century iron was transported from the hills of Titterstone Clee and Brown Clee to the iron works of Worcestershire, and was considered to be of similar quality to that from the Forest of Dean (*ibid* 201). At this time the industry was still operating on a fairly small-scale basis. The Walkers, Blounts, Hills and other forge masters of the district regarded themselves primarily as landowners, who were engaged in, but not dedicated to, the production of iron (*ibid* 200). Documents show that by the 1690s, following a thirty to forty year period of general economic growth, the iron industry went into recession. The independent status of these forge masters, and the implied local organisation, management and financing, became a serious disadvantage and restricted the development of the industry. The Hills of Tilsop and the Walkers of Bringewood and Clee Hill appear to have been in serious financial difficulties by the 1690s (*ibid* 202). Little now survives of any of the forges in the area dating to this period. At the forge site at Tilsop on the Corn Brook, for example, which was established by the Hill family in the mid 17th century and ceased production in the early 18th century (*ibid)*, dams and water channels, and associated dumps of slag and charcoal, are all that remain visible.

6.3.8 At the end of the 17th century the organisation of the local iron industry began to change radically, when in 1698 Richard Knight of Downton Hall acquired the lease of the mineral rights from Lord Craven for the manor of Earls Ditton on Titterstone Clee (*ibid* 278). His control, and the successive family partnerships, both in the extraction of ironstone and coal, and the production of iron, had major implications for the economy of the area during the 18th century.

6.4. From ironstone to coal: industrial intensification from the early 18th to the mid 19th century

6.4.1 Up until the mid 18th century much of the mining was directed at extracting ironstone, with coal as a secondary consideration. Following the period of national decline in the iron industry at the end of the 17th and beginning of the 18th century there was a boom created by the government prohibition of trade with Sweden between 1717 and 1719, which reduced imports of foreign iron by about one third. Consequently, there was a sharp rise in the price of pig, or cast iron, and the refined bar iron, from which furnace owners benefited greatly (ibid 271). With the growing

success of the local iron industry, the supply of timber from coppiced woodlands dwindled and the cost of charcoal rose. As a consequence, many furnaces started to rely on coal rather than charcoal as a source of fuel (Hewitt 1991, 32-3). Records indicate that woodland in the area had been declining since the 16th century, with significant increases in the demand for coal between 1646 and 1727 (Goodman 1978, 316).

6.4.2 For much of the 18th century ironstone and coal mining and iron production in this area was regulated by a few wealthy individuals, most especially members of the Knight family. Under the control of Richard Knight the ironworks at Bringewood (3 miles west of Ludlow) prospered and acquired a reputation for producing iron equal in quality to the best produced in Sweden (*ibid* 278). He was also responsible for the development of the furnace at Charlcott (6 miles south west of Bridgnorth), which still survives largely intact.

6.4.3 The mining areas of Titterstone Clee benefited from the revival of the iron industry in the early 18th century and were closely linked to the growing demands of the Bringewood and Charlcott furnaces for ironstone (*ibid* 275). By 1733-4 the mines of Titterstone Clee provided the Bringewood Furnace with all of its ironstone and an increasing amount was smelted at Charlcott, as deposits on Brown Clee declined or failed (*ibid* 318). This included ironstone from the mines in the wastes of Caynham and Snitton leased to George Pardoe of Bitterley by Lord Powis (*ibid* 326). In 1742 Richard Knight purchased other mineral rights in these areas, which he then leased to his sons for the operation of the Bringewood and Charlcott Furnaces. From this time only a small part of the Titterstone Clee coal measures, situated between the peak of Titterstone Clee and Hoar Edge, lay outside the control of the Knight family. They were rarely worked at this date because of their inaccessibility (*ibid* 317). It is apparent that despite improving mining technology enabling deeper seams to be reached, archaic forms of extraction persisted in the Clee Hill region, which restricted exploitation to the shallow reserves. Many of these mines were sufficient to support small enterprises. Traditional mining methods were employed by the Knights who worked the Gutter Coal at Cornbrook and included a drift mine, known as the Footrail Pit, and two bassett pits (Hewitt 1991, 31). These mines were sub-contracted to Richard and John Hatton and Thomas Glazebrook, who were responsible for the underground operations, akin to the later Charter Masters (sub-contractors who worked the pits for the owners) (*ibid*).

6.4.4 In order to maintain and increase output to the ironworks, the Knights were forced to invest more heavily in their mining operations. In 1733 reserves at the Gin Pit were nearly exhausted and the Sough Pit was suffering drainage problems. To alleviate the situation the Gin Pit was extended by driving new roads and installing new drainage. In addition, the drainage at the Sough Pit was improved and a new pit at Cuttley was sunk nearby (Goodman 1978, 321-3; Hewitt 1991, 31-2). In 1752 the Footrail Pit was the first in the area to use the 'Shropshire', or 'long wall', method of extraction. This involved driving roads to the face and then cutting the face continuously for about 100 yards. As the face advanced, the worked out spaces behind were infilled with waste and drystone walls to support the roof (Goodman 1978, 348; Hewitt 1991, 34). There were also other signs of expansion at this time. At the Footrail Pit a new shaft was dug to reach new coal and to improve ventilation, with an additional road driven to the face. To facilitate the removal of coal from the depths of Cornbrook Dale new tracks were levelled along its sides to enable a railway to be constructed (Goodman 1978, 348). In 1754 Bluestone Pit was sunk to the north east of

Clee Hill. By 1757-8 it had developed into a colliery (a large mine) replacing Heath Colliery, otherwise known as Catherton Colliery, which had been abandoned (Goodman 1978, 350 and 352; Hewitt 1991, 34-5). During 1759-60 coal output from the Footrail group of collieries was substantially reduced because of drainage problems. To help resolve the problem a new shaft was sunk further up the hill. Its position shows that, in order to maintain coal production, it had become necessary to dig shafts of considerable depths through the overlying basalt. Documents show that, despite the considerable expense involved in digging, such shafts provided significant returns for the investment (Goodman 1978, 352-3). Records also indicate that bassett pits operating throughout the area continued to make an important contribution to coal production, especially when demand was particularly high or when there were technical problems in the larger mines. They also had the advantage of being comparatively cheap to dig (*ibid* 353).

6.4.5 The increase in the demand for coal from the middle of the 18th century also affected the other major coal mining area in the Caynham and Snitton wastes. During 1758-9 George Pardoe had a new tunnel driven under the Treen Pits to open up more seams. Although this was an expensive operation, output increased as did the profits for himself and his family. An indication of the wealth of his son, George, is demonstrated by the construction in 1752 of a large fashionable brick-built house at Burford, known as Nash Court (*ibid* 355). After the death of his father in 1768 George took over the running of the business (*ibid* 361). In 1772, after the death of Lord Powis, the mineral rights for the areas mined by the Pardoe family passed to Lord Clive (*ibid* 364). Financial problems, and a disagreement between George Pardoe and Lord Clive, meant that the lease to Pardoe was not renewed in 1779 (*ibid* 365-7).

6.4.6 The influence of the Knight family over the extraction of coal and ironstone in the Clee Hill area also ended in 1779. Their hold on iron production waned with the development of coke burning furnaces. The owners of these new furnaces were able to undercut the price of pig iron smelted with charcoal (Hewitt 1991, 56-7). In 1753, Thomas Botfield, a member of the family of Dawley ironmasters, acquired leases from the Knights to mine coal and ironstone in the Cornbrook area (*ibid*). Later, the Botfield family constructed two substantial ironworks in the area, the Cornbook Furnace and the Knowbury Furnace, both of which are sometimes referred to as the 'Clee Hill Furnace' (Trinder 1996, 95). The Cornbrook Furnace was constructed by Thomas Botfield in 1783-4 and ceased production by 1810. It was fired with coke, rather than charcoal, and its bellows were powered by the waters of the Corn Brook. The pig iron it produced was sent to the Cleobury Dale Ironworks, near Cleobury Mortimer, to be refined into wrought iron (Goodman 1978, 377; Trinder 1996, 95). Little now survives of this furnace. Only a leat and a dump of slag remain visible (Trinder 1996, 95). The ironworks at Knowbury lasted rather longer. The blast furnace was built about 1805. Sometime later a forge, rolling mill and puddling furnace were added, with steam engines powering the works. The ironworks were offered for sale in 1853, together with associated coal workings and brick works. Ironmaking ceased, but the manufacture of bricks went on until the early 20th century. A house, probably adapted from an engine house, occupies the site, with a slag heap nearby (*ibid* 96).

6.4.7 During this period the extraction of limestone continued. In most cases it was quarried. Mining sometimes occurred when the overburden or 'dead rock' became too thick and uneconomic to remove by quarrying. Limestone mining probably began in the late 18th or early 19th century. Adits were dug from the quarry floor into the bed of

limestone and then worked using the 'pillar and stall' method (leaving pillars of rock in place to support the roof of the mine) (Hewitt 1999, 295). Technological developments in iron working during the 18th century meant that limestone became commonly used as a flux to draw off impurities from the iron during the smelting process. Lime continued to be produced in limekilns situated close to the quarries.

6.4.8 In the early 19th century there were three principal coal mining enterprises on Clee Hill: the Cleehill Colliery in Hopton Wafers worked by the Botfields; Treen Pits north of Cleehill village operated by the Edwards family; and the Cornbrook Colliery, worked by J&W Pearson, to the north east of Cleehill village (Hewitt 1991, 60; Trinder 1996, 96). The two inch to the mile survey drawing produced by the Ordnance Survey (1817-18) shows the extent of the collieries on the top of Clee Hill (noted as 'Cornbrook Coal Works'), which were linked by a network of tracks (tramways). The Catherton inclined plane, running down the north eastern face of the hill, was constructed to move the coal from these mines to trackways/tramways at the base of the hill. Small companies, operating single pits as isolated production units, mined the remainder of the coalfield at this time, but no records have survived to identify these companies (Hewitt 1991, 60). The coal mines of the Clee Hill area were by this time the major source of coal in the south west of Shropshire. Only a very small amount came from Brown Clee, which was of poor quality. Coal from Clee Hill was non-sulphurous and therefore good for domestic use. Until the coming of the Shrewsbury - Hereford Railway in 1852-3 coal owners had no outside competition and were selling to Ludlow, Tenbury Wells and Leominster (*ibid*). The roads along which the coal was transported were poorly maintained and barely passable in winter, despite a series of Turnpike Acts, which administered the roads in the area from 1715 (*ibid* 40).

6.4.9 The records of the Cleehill Colliery provide a significant insight into the way the larger companies operated the mines at this time (*ibid* 63-71). Much of the land and mineral rights was leased to the Botfields by Lord Craven, except for the pits on Whatsill, which were on land owned by the Hopton Wafers Estate. Lord Craven got royalties from the coal produced and a wayleave for the right to move coal across his land to the Ludlow - Brewdley turnpike road (now the A 4117). The passage of Mr Botfield's cumbersome coal wagons down this road at Angel Bank was regarded as one of the characteristics of the region in the early 19th century (Trinder 1996, 94). The Botfields, as mine owners, were responsible for financing the enterprises, and managing the collieries directly or appointing managers to run them. By the early 19th century agents were being employed to compile monthly financial reports, known as 'Reckonings', based on the records produced by the Checkweighman. The Checkweighman kept the day-to-day accounts of how much coal was raised, its selling price and all expenses concerning operational matters. From the Reckonings it is apparent that the Charter System operated on Clee Hill. The Botfields were responsible, through their agents, for surface operations and maintenance development work, while all the underground work was sub-contracted to the Charter Masters (otherwise known as 'Charter Men' or 'Butties'). In addition, Charter Companies, often long-lived family concerns which passed on from father to son, were given contracts to carry out repair and maintenance work.

6.4.10 The success or failure of mining ventures was greatly dependent on the quantity and quality of the coal, as well as non-productive investments needed for maintenance and repair. In the 19th century large grade coal was in great demand and hence achieved the highest market price. Seams of large (high grade) coal had existed

close to the surface. After 1854 this easily worked coal had largely been exhausted and the Cleehill Colliery was forced to sink deep shafts, for example at New Pit, Deep (Trout) Pit and Water (Rain) Pit, further up the hill. The Reckonings indicate that this initially resulted in higher production, but problems with faulting seams meant that output declined significantly after 1860 (ibid 75-8). In addition to sinking shafts to extract coal it was vitally important to keep the drainage system in good order. The pits worked by the Cleehill Colliery were drained by gravity rather than pumps, and required constant inspection, repair and maintenance in order to avoid problems that could arise from falls, blockages and silting. It was not until the end of the 19th century that mechanical pumps were used to back up the gravity system (*ibid* 80).

6.4.11 The Reckonings also provide evidence of the technological changes at the pit head of the Clee Hill mines. A lack of any mention of steam engines in the Reckonings before 1846 suggests that prior to that date all the winding gear at pit heads was either driven by horses (horse gins, or whims) or hand-powered winches at the smallest pits (ibid 82). Ventilation of underground workings continued to be a serious problem and in the shallow mines had relied on the passage of air down a single shaft, which also acted as the winding shaft. With the development of the deeper pits this was impractical and led to the sinking of separate ventilation shafts (*ibid* 84). The digging of deeper shafts led inevitably to the rise of bigger spoil heaps close to the pit heads. The spoil was transported by tub or barrow, and created mounds which are typically flat-topped with radiating 'fingers' of spoil.

6.5. Other industries

6.5.1 While this period is dominated by coal mining, and before that the iron industry, other industries are known in the Clee Hill area, principally from documentary sources.

6.5.2 The manufacture of paper, first noted in the 17th century, continued in the area until about 1840. In 1803 Thomas Botfield purchased the manor and estate of the Hopton Wafers and used the three water mills on Mill Brook to make paper, under the business name of TW & B Botfield. Production continued at these mills until about 1840. They were subsequently demolished, but the degraded remains of the mill ponds and leats survive (Lloyd 1938, 160-4; Hewitt 1991, 118-9). Another mill, known as Sturt's Paper Mills or Sturt and Bradley's Paper Mills, situated at the confluence of the Mill Brook and the River Rea, was manufacturing paper from 1816 (when it was erected) until 1830, after which time it became a corn mill (Lloyd 1938, 172-3; Shorter 1950, 149; Hewitt 1991, 119-20). Paper making at Langley Mill (also on the Mill Brook), which had started before 1650 continued until 1832 (Lloyd 1938, 169-70; Shorter 1950, 148; Hewitt 1991, 120).

6.5.3 Pottery manufacture had been carried out in the area since the 17th century, and operated as family concerns and cottage industries. Pottery kilns are known to have existed at the following sites: the Candlehouse (the turnpike tollhouse on Angel Bank), which provided an additional source of income for the turnpike keeper; close to the Royal Oak public house on Angel Bank; near Hope Bagot; on a farm at Bitterley; and behind a cottage at Hopton Bank called 'Pothouse' (*ibid* 121). All were located close to easily worked deposits of clay. Census records suggest this industry had ceased by the 1860s, with manufacturers probably unable to compete with those in the Staffordshire Potteries (*ibid* 123).

6.5.4 Brick making in this area was not widely practiced until the middle of the 19th century. Up until then most houses were built from the local sandstone conglomerate or of dhustone (basalt), which gives this region a distinctive style of vernacular architecture. During the 19th century bricks and tiles were either manufactured for the collieries, used for buildings and lining shafts (hence these manufactures were considered as an integral part of the colliery business), or for the non-colliery building trade (*ibid* 127). In the late 1840s there were three brickworks in the area: the Angel Bank Brick and Tile Company adjacent to the Candlehouse tollhouse; the Knowbury Brick and Tile Company, south west of Cleehill village; and at Treen Pits Colliery (ibid).

6.6. The 1860s to the 1940s: the change from coal to stone

6.6.1 From the 1860s the industrial landscape of the Clee Hill area again saw significant changes, with the establishment and rapid expansion of the basalt, or dhustone ('dhu' means black in Welsh), quarries accompanied by the deterioration of the coal industry leading to its eventual demise in the 1940s.

6.6.2 By the 1850s it had become apparent that the continued economic prosperity of the area depended on establishing railway connections with the newly constructed lines: the Shrewsbury to Hereford Railway completed in 1853, which linked with the Shrewsbury to Chester Railway constructed in 1848 and the Shrewsbury to Birmingham Railway built in 1849 (Hewitt 1999, 281). In 1859 a meeting was held to discuss putting forward an application to Parliament for a railway from Ludlow to Clee Hill. In 1861 an Act was passed permitting the Ludlow & Clee Hill Railway Company (L&CHR) to construct this line (*ibid* 281-2). Thomas Brassey and Colonel William Field were appointed to construct the railway and by 1863 its course had been established, terminating at Bitterley Wharf. It was a standard-gauge single track railway, operated using tokens which were exchanged at passing points and signal boxes (ibid 282 & 285; Peaty 2006, 174). Sidings and goods sheds were constructed at Bitterley Wharf and the demand for the railway to carry passengers led to the building of platforms there by 1866 (Hewitt 1999, 282 & 285).

6.6.3 Although the construction of the railway was conceived to support the ailing coal industry, engineers involved in its construction realised the immense market potential of the extensive reserves of dhustone The value of this stone was recognised locally as a durable building stone, but its dark appearance has meant that it has been largely restricted to building squatters' and miners' cottages, and hence was traditionally quarried on a small-scale. One of the first major contracts for its use was at Cardiff Docks in the 1850s (Scard 1989, 183). At this time there was a growing demand nationally for roadstone and dhustone was soon recognised as a source of setts, kerb and channel stones, or for its use as broken stone, chippings and screenings. Setts made ideal road surfaces in areas with heavy traffic, especially where there were tramways, or a lot of heavily laden horse-drawn wagons. In the 1890s large quantities of dhustone was turned into aggregate and used in the construction of the Birmingham Waterworks in Radnorshire (*ibid*).

6.6.4 In 1863 Thomas Roberts founded a new company, The Cornbrook and Knowbury Stone and Coal Company to lease four of the properties, Gibbetts Pit, Cutley Pit, Baylas Pit and Keys Quarry, that formerly belonged to the Botfield family (Hewitt 1999, 282). In the same year Thomas Roberts, William Clarke and Colonel J

Patchett established the Clee Hill Dhustone Company to work the Dhustone Quarry to the north of Treen Pits Colliery (Hewitt 1999, 282; Stanier 2000, 143). To facilitate the movement of stone from the quarry, the company obtained permission to construct a mile long incline to Bitterley Wharf. Wagons on the incline were raised and lowered by means of a winding mechanism. The L&CHR joined the venture and built a short spur at the head of the incline, where additional sidings and a locomotive shed were built (Hewitt 1999, 282). In 1877 the L&CHR was purchased by the Great Western & London & North Western Joint Railway. Prior to this, the L&CHR had extended the sidings at Bittterley and installed a weighbridge at the head of the incline at Cleehill (*ibid* 285).

6.6.5 Thomas Roberts was also responsible for setting up the Clee Hill Granite Company in 1867 to quarry stone at Cleehill (the Granite Quarry). 'Granite' was used as a marketing device to imply hard stone (Stanier 2000, 143). In 1870 J&W Pearson, owners of the Cornbrook Colliery, abandoned the mine and the lease was granted to The Cornbrook and Knowbury Stone and Coal Company. They promptly closed the colliery and opened a roadstone quarry on the site of Chimney and Dhustone Pits, which has effectively removed all surface traces of the mine (Hewitt 1999, 295). By the end of the 19th century all these ventures formed part of the Granite Company and in the early 1900s the Company consisted of quarries, coal mines, lime and clay works, and employed over 400 men and boys (Stanier 2000, 144). Dhustone quarrying was concentrated at the Cleehill Works (the Granite Quarry), with the smaller Belfry Quarry to the north east (Ordnance Survey County Series maps 1903 & 1904).

6.6.6 The second principal area of quarrying was on Titterstone Clee Hill. Small-scale quarrying took place here in the 1860s, probably under the control of a local farmer (Peaty 2006, 177). In 1881 Colonel William Field (who had constructed the Ludlow to Clee Hill Railway with Thomas Brassey) and John Mackay obtained a lease from the Rouse Boughton estate to open a quarry and to construct a narrow gauge (3 feet wide) inclined plane, one and a half miles long to Bitterley Wharf. The inclined plane was gravity operated, with a brake house to control the trains of wagons at the head of the incline. Forty to sixty trains of six wagons were capable of carrying a total of 600 tons of stone a day to the crushing plant at Bitterley, which was powered by a turbine taking water from Benson's Brook in the valley above (Hewitt 1999, 285; Stanier 2000, 144). In 1889 Field and Mackay invested heavily in the quarry, installing new machinery, including a second crusher in the quarry, and overhauling the incline (Stanier 2000, 144). A 3 foot-gauge tramway was laid within the quarry and sidings were constantly changed to keep pace with the changing quarry faces (Peaty 2006, 178). A reservoir fed by Benson's Brook was constructed near the incline and was used to drive the turbines producing electricity for the stone-crushing and sieving plant (*ibid*).

6.6.7 The amounts of stone produced from the quarry rose steeply: from 12,224 tons in 1881, to 90,000 tons by 1891 and over 300,000 tons by the turn of the century (Hewitt 1999, 290; Stanier 2000, 144). In 1901 more sidings were built at Bitterley and a new east quarry was opened the year after, which was worked by men brought in from North Wales. Field and Mackay became a limited company in 1911 and in that year plant for the production of tar macadam started. The tar macadam process involved spraying hot tar onto stone chippings to produce smoother and safer road surfaces for motor vehicles fitted with pneumatic tyres. Most of the concrete structures within the quarry date to that period (Hewitt 1999, 292; Stanier 2000, 144). Prior to the First World War a new crushing and screening plant was installed at

Bitterley, with the construction of an additional four plants after 1913, which were powered by steam or suction-gas (Peaty 2006, 178). In 1930 Field & Mackay Limited was bought by the British Quarrying Company, who also purchased the Cleehill Granite Company (Stanier 2000, 144).

6.6.8 A third, smaller group of quarries exist at Magpie Hill and Whatsill, where the Cleehill Granite Company obtained a lease to quarry in the early 1900s. Although these quarries are situated on the north eastern edge of Clee Hill, and some distance from the head of the inclined plane at Cleehill, the enterprise was encouraged by the opening of the Cleobury Mortimer & Ditton Priors Light Railway. This was a branch line of the Great Western Railway, which started at Cleobury Mortimer and terminated at Ditton Priors, near to quarries at Abdon Clee. The construction of an incline from Magpie Hill down to the railway was considered impractical and so a 3.5 mile long aerial ropeway terminating at Detton (east north east of Magpie Hill) was built in 1909 (Trinder 1996, 96-7; Stanier 2000, 144-5; Peaty 2006, 177). A wire rope, 3.5in in diameter, supported by pylons, transported 256 buckets, each with a capacity of half to three quarters of a ton, to six large storage bins at Detton. The ropeway was powered by a 30hp engine at Whatsill. A secondary ropeway, situated about 230 yards from the driving station, allowed empty buckets to be sent into the quarry, put onto rails and filled (Hewitt 1999, 296; Stanier 2000, 144-5). Later a works was opened at Detton by the Cleehill Granite Company for the manufacture of pre-cast concrete sheds and agricultural buildings (Hewitt 1999, 296). By 1928 the Magpie Quarries (also known as the Catherton Common Quarries) were worked out (Peaty 2006, 177).

6.6.9 The development of the quarrying industry in this area was sustained by a dramatic influx of workers and their families (Hewitt 1999, 297-8). Census records of the late 19th century show that they came from as far afield as Leicestershire, Wales and Ireland (Hewitt 1999, 287; Stanier 2000, 145). The work was labour intensive, with many men needed to quarry the stone, operate the machinery and to split the stone to create setts (Hewitt 1999, 287-8; Scard 1989, 183-4). In 1904 the quarries were employing about 1500 men. The tremendous demand for setts and kerbstones at this time meant that men had to be recruited from Devon and north Wales (Hewitt 1991, 192). In response to this influx, rows of terraced houses (a new architectural form in the Clee Hills landscape) such as those at Bedlam and Horseditch were constructed to accommodate the families of the men working in the quarries and the mines (Hewitt 1991, 47; Trinder 1996, 97; Stanier 2000, 144; Peaty 2006, 177).

6.6.10 The census records also show that there was a significant decrease in the number of miners resident in the area during the late 19th century as the quarry industry expanded (Hewitt 1999, 297-8). The quarry industry was very dependent in the early phases of its development for coal to power the machinery (*ibid* 289).

6.6.11 The beginning of the end of the coal industry on Clee Hill started about 1870. By this time there were significant and increasing demands for coal for industrial consumption and for domestic use as towns and cities grew rapidly. The economics of situation dictated whether a mine survived or closed. Survival depended on a number of factors, namely: there had to be sizeable coal reserves; there had to be large numbers of men who could work in shifts; and where there was continued investment in the mine, including the installation of modern machinery. In this economic climate the Clee Hill coalfield could not compete with the larger coalfields in the west midlands (Hewitt 1991, 110 & 209). Catherton Colliery operated until 1889 and its site destroyed by quarrying. Whatsill Colliery closed in 1912 and was re-opened and

worked until about 1917. The last workings in Knowbury were abandoned in 1908, while Cutley Colliery closed in 1922. The Clee Hill Mining & Development Company Ltd were operating Barn Pit (the re-named Cornbrook Colliery), using Trout Pit for ventilation, until it closed in 1927. A mine with a wooden headstock above a 73m shaft began operating in Coreley in 1935 for local use, but all work had ceased by 1945 (Trinder 1996, 96; Pearce 1995, 65). Local demand for coal also led to the establishment of the Knowbury Slack Company by 1921, which quarried coal from spoil heaps (photographs housed in the Ludlow Museum Resource Centre provide an insight into the methods employed by this company). Between 1945 and 1948 large quantities of coal and slack were removed from spoil heaps by Mr Warrington of Whatsill and transported to Stourport power station (Goodman 1978, 340). Limited digging for coal is also known to have taken place during the miners strike in 1974 (*ibid*).

6.6.12 The early 20th century saw the demise of two other industries in the Clee Hill area: brick and tile making; and limestone extraction and burning. During the period that coal mining had been the dominant industry, a small but successful, brick and tile industry had developed which had supplied the collieries with bricks, while coal had provided fuel for the kilns. By 1890 only one firm, the Knowbury Brick and Tile Works, under the management of Wesley Askey, appears to have remained a successful business. It not only supplied bricks and tiles for local use, but also further afield, extending as far as Manchester. However, diminishing supplies of local clay and cheap coal, together with the competition from the large firms of brick makers of eastern England, eventually forced the closure of this firm (Hewitt 1991, 204-5).

6.6.13 In the late 19th century there were two sets of limekilns operating in the district: at Knovers Quarry and Heath Quarry. These quarries were in operation from 1846 when John Reynolds took out the lease. The Reynolds family worked both quarries to supply stone for building and for its conversion to lime for agricultural use. Knovers Quarry was worked up until 1910 when a serious fault brought quarrying to a halt. The family continued to work Heath Quarry and its kilns until the late 1920s, when the loss of cheap coal ended the enterprise (Hewitt 1999, 295).

6.7 Quarrying the dhustone: 1940s to the present day

6.7.1 Since the mid-late 1940s the only heavy industry to have survived on Clee Hill is the quarrying of the dhustone.

6.7.2 Sett-making had been in decline since the 1920s and continued until 1958 (Jenkins 1983; Stanier 2000, 146), but the production of stone chippings for road surfaces and aggregate continued at several locations. In the early 1960s there was a substantial reduction in the quarrying when work stopped at the Titterstone and the Granite Quarries, which led to the closure of the railway to the Granite Quarry and the incline to Dhustone Quarry. The branch line from Ludlow to Bitterley also closed at this time. The narrow gauge incline from Bitterley to Titterstone Quarry had ceased to operate in 1951 (Trinder 1996, 97; Peaty 2006, 182). Since the closure of the railway network all stone has had to be transported by road.

6.7.3 Hanson plc continues to quarry stone at the Dhustone and Belfrey Quarries. This stone is mainly used in construction, with a proportion going to make tarmac. These quarries produce 325,000 tonnes of stone a year and employ eighteen men (David Stockwell, Managing Director of Clee Hill Quarry in Denison 2005).

Chapter 3: The significance of the defined area

1. Summary of key aspects of significance

1.1 The significance of the site has long been recognised but this has been reinforced by work undertaken through the ALSF-funded project. Detailed field survey, survey of the standing quarry buildings in Titterstone Clee Quarry, further geological and ecological survey and some documentary work have allowed the development and interrelationships of individual elements to be better understood.

1.2 The importance and significance of this landscape from the aesthetic, ecological, geological and archaeological perspective is reflected in the range of designations, both statutory and non-statutory (see further Appendix 3). There is further scope for extending and increasing the number of designated sites (*e.g.* the standing quarry buildings and associated features in Titterstone Quarry, various earthwork features associated with the mining and quarrying industries and a number of newly-discovered barrows). Immediately to the south of the defined area, a complex of well-preserved limekilns at The Novers (see Appendix 8) and associated features has been evaluated recently and is likely to be scheduled by English Heritage. This complex gives added importance and context to the industrial remains within the defined area.

1.3 The remains of the coal mining industry are of particular importance given the fact that in many of England's former coalfield areas, there has been wholesale eradication of industrial buildings and landscapes associated with this industry.

1.4 The scheduled coal mining remains are among *c.*300 coal industry sites, representing *c.* 3% of the archaeological resource of national importance for the industry. This selection represents the industry's chronological depth, technological breadth and regional diversity.

1.5 The state of preservation of the surviving structural remains of the quarrying industry and the extent and diversity of earthwork remains of both the mining and quarrying industries are of national importance.

1.6 The scheduled remains of coal mining at Cornbrook survive in good condition and represent an uncommon survival of complex mining earthworks and associated features such as drainage channels, reservoirs and trackways. These remains preserve valuable information about the developing technology of the coal mining industry from its early low-mechanisation stage through to later 19th-century steam-powered workings. The shaft-mound features are considered to be some of the best preserved in the country and span a wide chronological range. Buried features, especially the remains of winding gear, will survive in the vicinity of the shafts, providing technological information.

1.7 The scheduled coal mining remains at Horseditch represent an unusual survival of early mining; this concentration of coal workings is very well defined. Waterlogged deposits may yield significant organic remains. Earthwork remains and buried deposits associated with individual shafts may provide valuable information about their operation and technology.

1.8 The ecological remains are of regional as well as local significance, with some species rare in Shropshire.

1.9 The geological remains are of both regional, national and international significance and a valuable resource for teaching purposes.

The working Hanson mine provides a link between past and present mining of the area and allows study of geological deposits as they are revealed through mining operations. This is significant in that in its present state, it offers fine examples of the structure of the olivine-dolerite sill on many of the quarry faces. Further, alongside the trackway to the quarry, exposed faces reveal the contact between the sill and overlying Coal Measures.

1.10 The significance of these landscapes for visitors, whether students, the local community or visitors from farther afield, has been confirmed from the results of outreach and community events that have taken place recently. The very positive response from the local community in particular shows the value people attach to their heritage and the importance they see in having a sense of place and belonging.

2. Landscape significance

2.1 The significance of the geological, ecological, mining and industrial remains of the Clee Hills in landscape terms is that they are both legible and intelligible as a landscape rather than as discrete entities within it. Geological, ecological, historical and archaeological significance must be read 'together' in order to fully understand this landscape. The holistic approach adopted in the archaeological survey to recording this landscape and subsequent attempts to explain it in academic as well as layman's terms, is given added value by current policy and 'visions' of how landscape should be interpreted; these include a philosophy that 'landscape is everywhere and that it is natural and cultural heritage intertwined' (Fairclough, 2007, 8). The concept of landscape enshrined in the European Landscape Convention (which came into force on March 1st, 2007) is set to become central to the way the historic and natural environments are conceived and managed.

2.2 The development of an interpretative framework for the Clee Hills, embracing the physical remains of the historic and natural environments and their interaction with past and present communities is highly relevant to this philosophy. The Landscape Convention

'*…underwrites national policy as set out in Power of Place and A Force for our Future. It allows us to engage people's interest in heritage on a much larger scale than hitherto, and in terms of future development, it enables us to build a bridge from past to future. It is an effective way to integrate our cultural interests with those of other agencies such as Natural England and the Environment Agency'* (Fairclough, 2007, 8).

3. Geological significance

3.1 There are few places in Shropshire that more clearly reflect their geological foundations than Clee Hills. The distinctive profile of the hills follows the gently dipping line of the volcanic sills which cap the two parts of the plateau top. The history of settlement on the hill is intimately linked to its geological resources - first through exploitation of the Carboniferous limestone, clays, ironstone and coal and then from the nineteenth century onwards, the more intensive quarrying of the dolerite; first as road setts and now as aggregate. And the industrial archaeology interest and significance similarly reflects this varied geology which presents a microcosm of the Carboniferous sequence in Britain from the Carboniferous Limestone through to the Upper Coal Measures.

3.2 The key to both the shape and the industry lies right at the summit – a resistant capping of dolerite, known locally as dhustone (from Welsh ddu = black). This has protected the hill, which would otherwise have eroded over the millennia to the same altitude as the Old Red Sandstone (Devonian) hills of north Herefordshire to the south. And that protection includes the rocks immediately beneath the dolerite – the Coal Measures, Cornbrook Sandstone and Carboniferous Limestone. The significance of the coal is clear enough. The Cornbrook Sandstone is the equivalent to the Millstone Grit of the north of England; whilst the Carboniferous Limestone relates to that of the Avon Gorge and the Mendips in Somerset.

3.3 Much of the rather meagre geological literature of the Clee Hills concentrates on matters of purely academic geological interest. In particular researchers have looked closely at the Cornbrook Sandstone and the Coal Measures to try and determine their precise stratigraphic age and relationships to other areas. For the purposes of this report that is neither relevant nor the most interesting feature. What matters is that a full complement of the economically important minerals of the Carboniferous rocks – limestone, clay, ironstone, sandstone and coal – is preserved in a uniquely small area by the intruded dolerite sill. But it is of some interest to look at what this tells us of conditions that gave rise to these rocks in the first place.

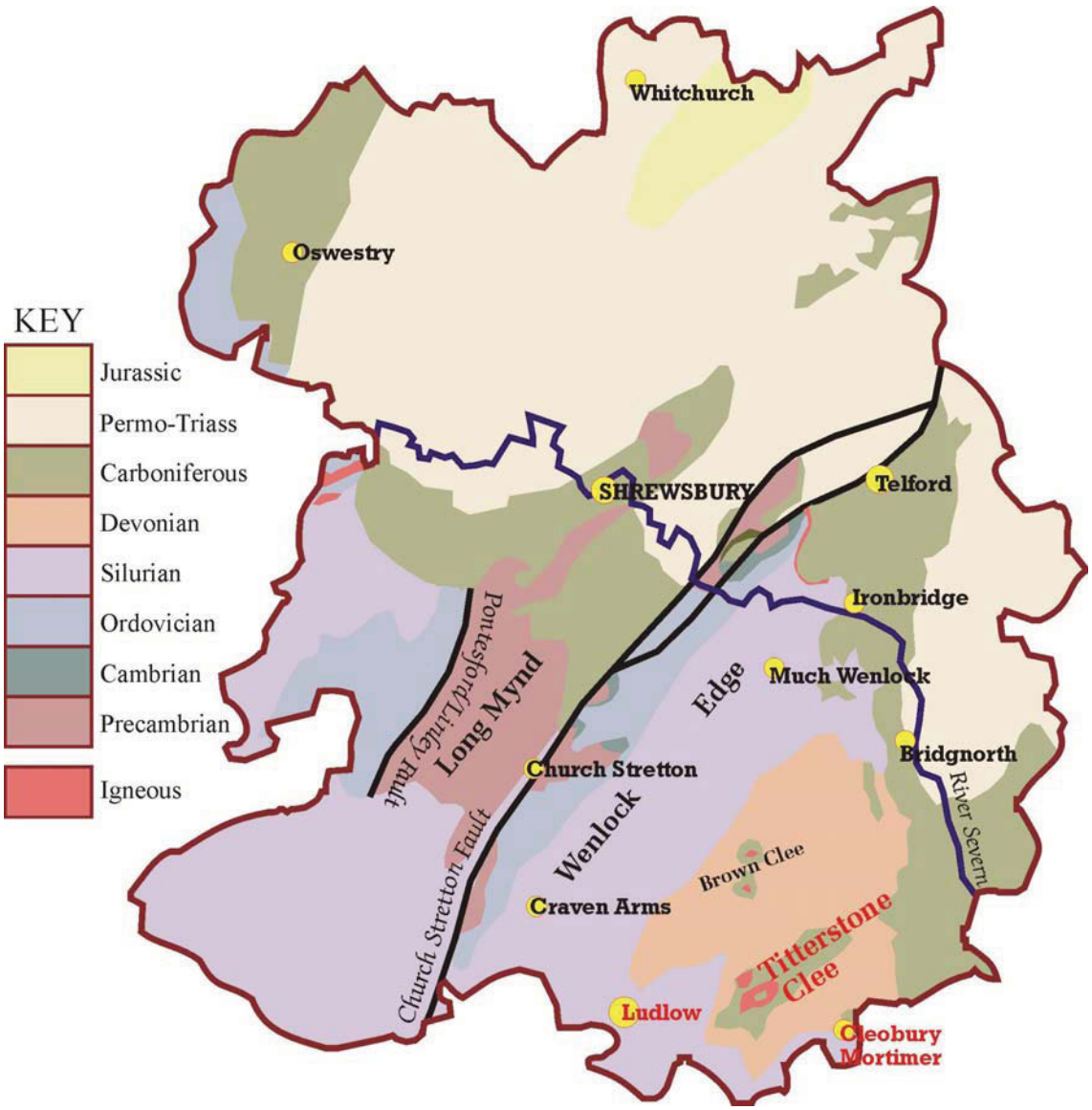


Fig. 3: The Geology of Shropshire by Geological Periods, indicating the isolation of Clee Hill

4. The Regional geological context

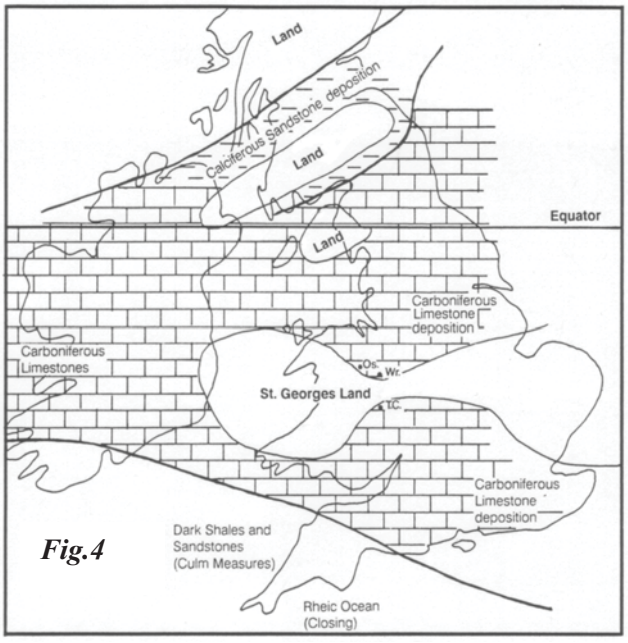


Fig.4

4.1 As with so much of Shropshire's geology, the interest and significance attaches not to spectacular examples of the rocks involved, or completeness of the geological succession, but to the small scale and close juxtaposition of the strata involved. This is because, as throughout the entire period of Palaeozoic time (540-290 million years ago), "Shropshire" was on the margin of the prevailing geographical conditions.
Throughout the Carboniferous Period (360-290) this was manifest in its relation to a low altitude isthmus or island between "central Wales" and "Belgium" – St George's Land or the Wales-Brabant barrier.

This ran precisely across central Shropshire, such that in the early Carboniferous (360-340ma) Clee Hill lay to the south of St George's Land and the other outcrops Carboniferous Limestone in the county – east of the Wrekin and in the north west of the county at Llanymynech – lay to the north of it, as illustrated in Fig.4 above. Note also that at this time Britain lay astride the Equator.

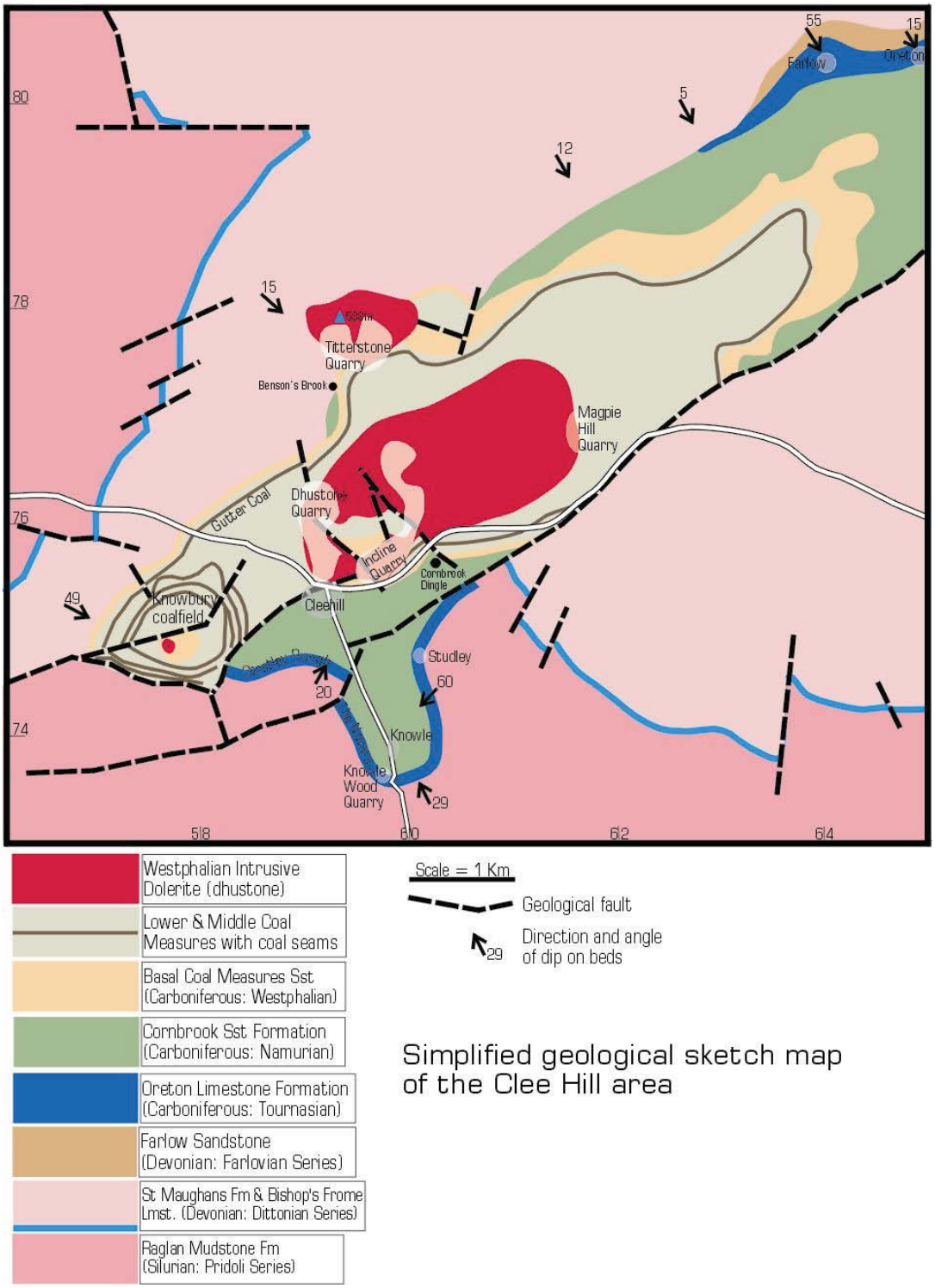
4.2 A feature of the global climate during the Carboniferous was the waxing and waning of ice ages. This produced corresponding oscillations of sea level, in response to freezing or thawing of an ice cap over a much larger Antarctic continent than today. Such sea level changes are felt most acutely close to a shore-line, where the result is a rhythmic pattern of sedimentation depending on the depth of the sea. Each repeating pattern is known as a cyclothem. These are best seen in the Coal Masures, as discussed more fully later, but also affect the Carboniferous Limestone and Millstone Grit.

4.3 During the Carboniferous Period there was a general shift from marine deposition, as seen in the limestone, towards fully continental deposition, seen in the succeeding Permian and Triassic Periods (New Red Sandstone). Again globally this represented a drifting together of the Earth's continental plates to form one large continental area known as Pangea. The plate collisions caused renewed mountain building and in South Shropshire reactivated the Caledonian folds, which had given rise to the predominantly NE-SW fold axes seen in the alignment of the South Shropshire Hills. In particular it was this folding which created the plunging anticline (arched fold) now referred to as the Ludlow Anticline that effectively separates Brown Clee from Titterstone Clee, leaving the summits of each as synclinal (down-folded) basins.

4.4 The tectonic movements also initiated localised volcanic activity. This was destined to have a major impact on the Clee Hill area as it created the capping sill of dolerite. This in turn protected the hill from greater erosion

4.5 The geological map below (Fig.5) shows these Carboniferous strata to have a relatively simple structural relationship that is reflected both in the topography of the hill and in the industry which developed here.

Fig.5: The Rocks of the Clee Hills



Simplified geological sketch map of the Clee Hill area

5. Carboniferous Limestone

5.1 A geologist's inclination is to consider the rock sequence from the bottom up, even though the visual story on the Clee Hill is most obvious from the top down. Indeed the limestone exploitation has had least visual impact on most of the hill. By the alkaline and rather soft nature of the spoil produced from workings, much of the evidence is rapidly clothed in vegetation. Its outcrop at a low altitude on the hill means it is less conspicuous to the untrained eye. Contrast this with typical Carboniferous Limestone quarrying of the Mendips and Peak District.

5.2 The Carboniferous starts in this area with the Oreton Limestone Formation. The nature of the limestone, suggests an origin in a marginal location close to the shore of St George's Land. It is of somewhat variable lithology including calcareous sandstones and shales as well as fairly pure limestone bands with fossil brachiopods and crinoids. The purer limestone is often of oolitic nature (similar in structure to the more familiar oolites of the Jurassic Cotswold stone) in which calcium carbonate has been deposited concentrically around a nucleus such as a shell fragment or sand grain and then been rolled around on a shallow sea floor. The process can be seen in the Bahamas today. However there are none of the massively thick beds of pure limestone characteristic of the more off-shore deposits of the Mendips or the Pennines.

5.3 Though forming no spectacular scenery – no gorges, cave systems or limestone pavement – the limestone deposits are easily traced. They outcrop in two separate patches at either end of Titterstone Clee. The southern outcrop of the limestone follows a broadly U- shaped scarp slope extending from Furnace Cottages, through Studley, *(see Plate 1 right)* round the southern tip at Knowle Gate and back northwards through the Novers before curving west through Gorstley Rough. There are few obviously clear outcrops at the surface but the evidence is seen in a number of ways. Most intriguing is the line of open-cast pits through the edge of the common land from south of Furnace cottage to Studley.

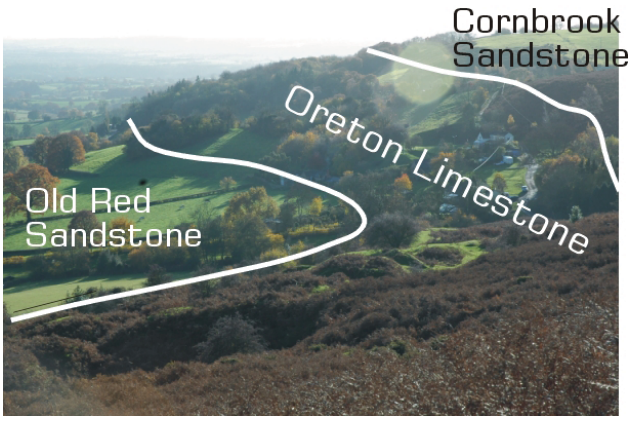


Plate 2: Oreton Llimestone outcrop from Studley pit in foreground, southwards through Knowle Bank; extensively worked beneath the trees.

Plate 3: Opencast pit in Oreton Limestone near Studley; little limestone is exposed

5.4 In Knowle Wood and the Novers more conventional quarries can be seen though the clothing of trees makes any clear view of the workings difficult. At the Novers there is a particularly intriguing adit into the hill following the limestone deeper into the hill. At the tunnel entrance much of the ground has been excavated, whilst nearby are the substantial remains of lime-kilns.

Plate 4: Tunnel into the Oreton Limestone Formation at The Novers

Plate 5: detail of tunnel shown in Plate 4

5.5 The other Carboniferous Limestone area is at the north-east end of the Clee Hill syncline. As at Knowle, the motorist is plainly aware of the escarpment formed by the limestone, for the road descends at Farlow and Oreton by hills of 1 in 5. Between these two points is a well quarried ridge of limestone that can be reached by a number of footpaths. At Oreton the larger quarries give a more complete succession, which is why this is chosen as the type section and name for the Oreton Limestone Formation. More of the limestone here is of an oolitic texture.

5.6 At Oreton the lime was burnt in the kilns of Oreton Lime Works and also used for local buildings. Some of the most attractive oolitic stone was used for ornamental purposes under the name of "Clee Hill Marble".

6. Cornbrook Sandstone

6.1 Much of the geological consideration of Clee Hill has revolved around the exact stratigraphical position of the Cornbrook Sandstone – the formation that succeeds the Oreton Limestone and is overlain by the Coal Measures. In essence this is equivalent to the Millstone Grit of northern England and South Wales.

6.2 The Cornbrook Sandstone, as its name suggests, is best exposed in the Cornbrook Dingle (Plate 6, below), though bare rock faces are now few and far between and access is difficult. Despite a total stratigraphic thickness of perhaps as much as 175m, the only other significant exposures are in Hopton Bank to the east and Bensons Brook to the north-west.

It comprises a series of grits and conglomerates interspersed with finer clays and thin coals or carbonaceous smuts. These coals have no economic value. The formation was thought to rest conformably on the underlying Oreton Limestone, and was given an upper Carboniferous Limestone age by Vaughan. Later workers found this unjustified, as it seems to overstep the limestone onto older rocks, but to have greater affinity with the overlying Coal Measures. However, such uncertainty about the age is a clear indication that it has revealed no totally diagnostic fossils, while its poor exposure and absence of noticeable quarries suggest that it was of little economic significance. It was certainly used close to its outcrop as a building stone; for example in some of the Furnace Cottage buildings in Cornbrook Dingle. But the wealth of other suitable sandstones in the vicinity, either from the Old Red Sandstone below the hill, the Farlow Sandstone to the north east or the various sandstone beds of the Coal Measures mean that it had no "export value" and was certainly not likely to have been used for millstones as was the eponymous Millstone Grit elsewhere.

Plate 6: Cornbrook Dingle

6.3 Whatever the exact stratigraphic horizon of the Cornbrook Sandstone, in environmental and geographic terms it represents a move towards continental conditions of sedimentation. Its coarse, but often laterally impersistent, beds of grits and conglomerates reflect rapid erosion of newly uplifted land, with the sediment being deposited across broad deltas in the estuaries of rivers. The overlying Coal Measures reinforce this trend towards terrestrial deposits.

7. Coal Measures

7.1 Continued erosion of St George's Land, coupled with shallowing of the surrounding seas had resulted by 320 million years ago in a Midland's landscape dominated by vast coastal swamps. In these grew giant "horsetails", like the Calamites stem (*Plate 7, right*) from Dhu Stone Quarry, and "clubmosses" – tree-size specimens of our ferns and their allies, along with the earliest true seed bearing trees. Upon death these fell into the waterlogged swamp, partially decayed to peat in the anaerobic conditions and subsequently were further reduced to coal.

Plate 7

7.2 Again, the Clee Hills were marginal to the main areas of Coal Measures deposition. We see none of the very thick coal seams that were to make the Black Country 'black', only a few miles to the east. But the coal seams were here, and adequate for the needs of the locality. And at a time when transport of raw materials

was economically almost impossible it was the coal that led the major industrialisation of Clee Hill.

7.3 These Productive Coal Measures had a major impact on the hill from Medieval times until the 19th century. The Coal Measures outcrop as an extensive oval area on a NE-SW axis embracing both Titterstone Clee and Clee Hill and running out onto Catherton Common. As is usually the case, the name Coal Measures is a little misleading since coal seams make up only a small minority of the total thickness of the sequence. But many of the other rock types – ironstone, clay and sandstones – have been of economic importance. These result from the rhythmic sedimentation and 'cyclothems' mentioned above, which are best seen in the Coal Measures, though again, the Clee Hill situation is a little atypical. The four main coal seams are concentrated into a relatively small thickness towards the base of the series. (See *Fig. 6, right*)

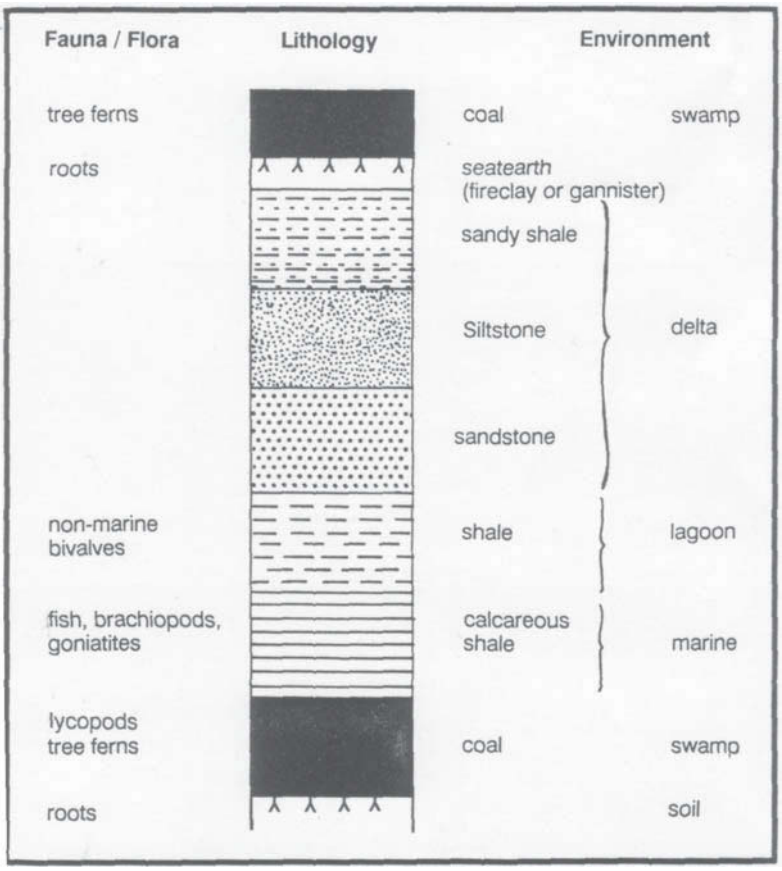


Fig.6: Section through Coal Measures

7.4 This is illustrated in the shaft section of "New Pit" on the Cornbrook Coalfield as transcribed from the manuscript copy held in Ludlow Museum.

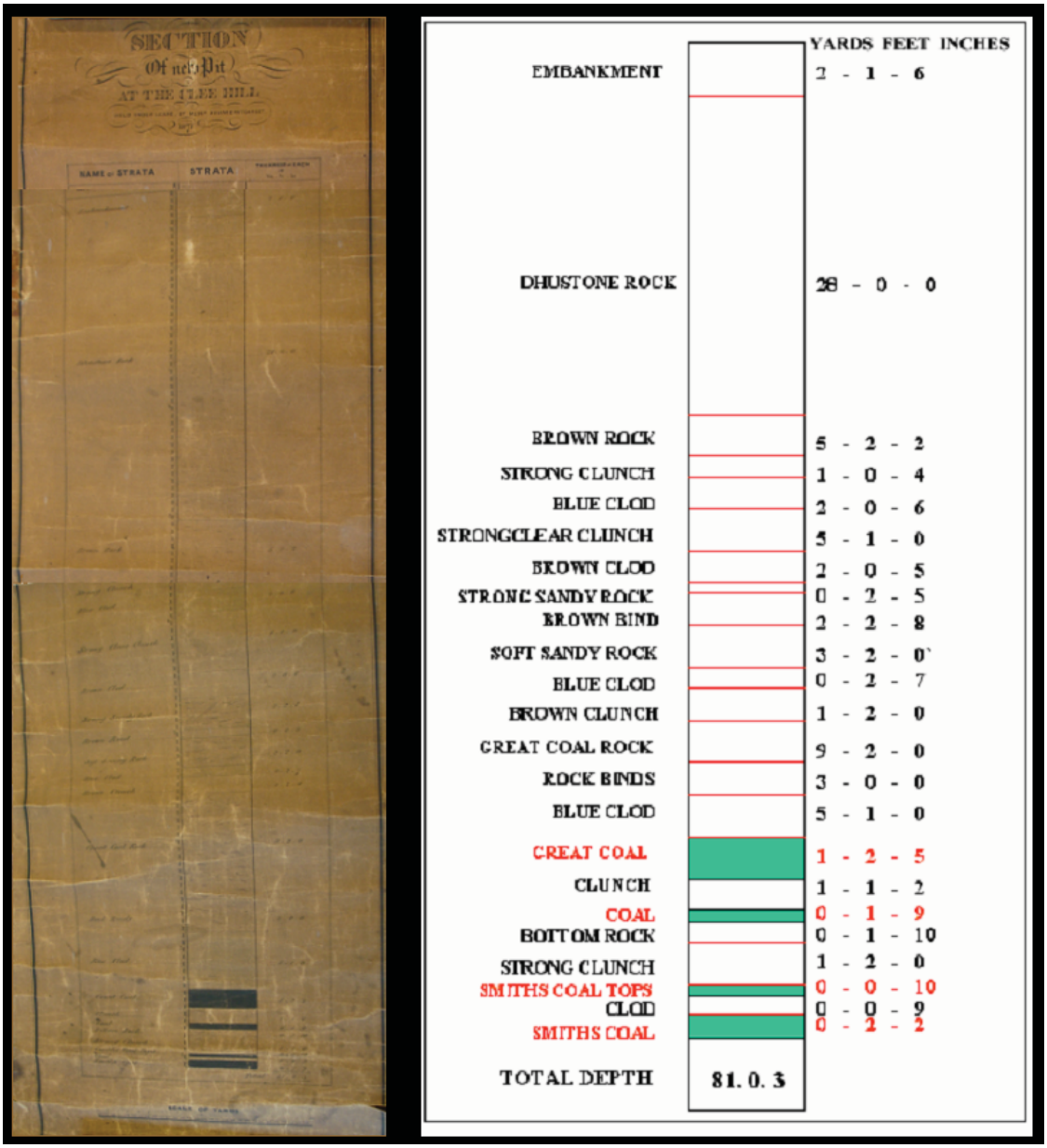


Fig.7: Section of "New Pit" on the Cornbrook Coalfield as transcribed from the manuscript copy held in Ludlow Museum.

This section does use some rather different descriptions for the seams, which otherwise are as shown in the section at the bottom of Chimney Pit on the Cornbrook Coalfield, as shown on the diagram below: Great Coal, Three Quarter Coal, Smith Coal and Four Foot Coal.

7.5 The works were visited by Murchison in the early 1830s and his description of the distribution of the coal cannot be bettered:
"That portion of the field known by the name of Cornbrook forms an elevated trough capped by a plateau of basalt. To the south west of it and at a considerably lower level is the small basin of elliptical form, called the Knowlbury [*sic*] field, which is distinctly broken off from the great field of Cornbrook; and hangs as it were from the skirts of the more elevated tract.

This basin is completely exempt from basalt … The Gutter, Horse-ditch and Bluestone works are merely the thin or lower coal seams which crop out at various points beneath the escarpment of the larger and overlying basin of Cornbrook". We learn also from this account by Murchison in his *Silurian System* (1839) that there were four principle beds of coal. The highest was the Great Coal, about six feet thick, then the three quarter coal, the Smith Coal so called because of its particular value in the manufacture of iron, and the Four Foot Coal. These seams are all indicated in the sections of some of the Cornbrook pits which are in Ludlow Museum. However, Murchison suggested that "….The coal worked at the Gutter, Horse-ditch and Blue-Stone pits is a fifth or still lower band which thins out to the eastern and southern portion of this field….".

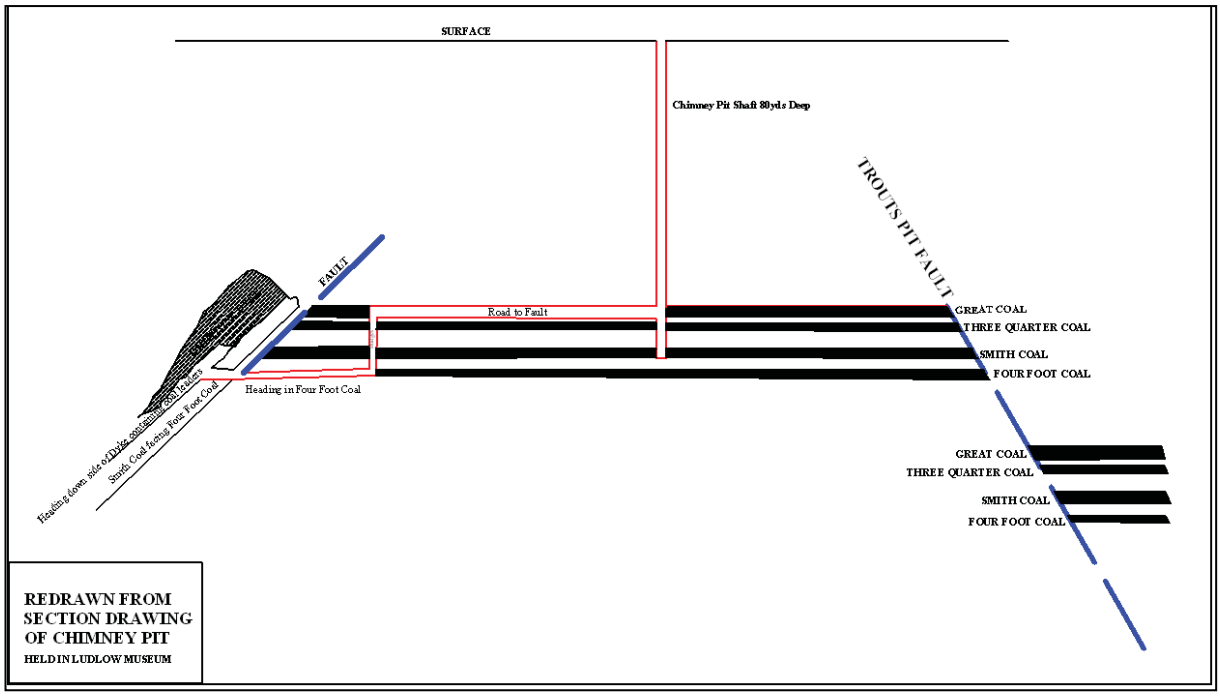


Fig.8: Section of Chimney Pit based on drawing held by Ludlow Museum

There is no mention in Murchison's work of the north-easterly extension of the coalfield along Catherton Common, because by the 19th century all mining activity was concentrated on the Cornbrook and Knowbury field. Yet it is this area, and in particular the part known as Lubberland, which is pock-marked with the distinctive craters of old bell-pit workings that show up most dramatically in aerial photographs and possibly date back to medieval times.

7.6 The coal outcrop is marked on the Church Stretton geological map as the Gutter Coal, and hence presumably the fifth and lowest of the seams as named above. Its outcrop, which can be traced in part as an open-cast trench, is in the form of an ellipse close to the margin of Catherton Common. It is then overlain as one moves in towards the centre of the basin by a thickness of ill-drained shales and clays. In the 1980s there was an application to exploit this clay over Catherton Common by open-cast mining, but nothing came of it.

7.7 On the north-east 'rim' of the dolerite at Watshill and Magpie Hill there is some evidence of mining as well as quarrying, but I have no evidence to hand of the shaft section of the Magpie Hill mine. Again it would appear that the shaft went right through the dolerite to the main coal seams below, but here it seems even more strange that the underlying coal was apparently not worked by drift mines from the slope beyond (NE of) the margin of the dolerite cover.

7.8 Had this been pursued it might have solved one of the mysteries of the distribution of the coal seams, and hence mining activity on the hill – namely, why are the four thicker seams not found beyond the margin of the dolerite? Or, is the so-called Gutter Coal of Catherton Common in fact the equivalent of the Great Coal as some accounts suggest, but the miners never went deeper than that using the primitive bell-pit method?

Plate 8: Looking west from the dge of Magpie Hill over possible bell pit mines to the waste of a deep shaft

Plate 9: North-east from Magpie Hill towards Lubberland. Were the coal seams ever mined by adit and subsequently covered by slumping?

8. Ironstone

8.1 Within the Coal Measures sequence there are important ironstone bands which were the basis of a significant iron industry on Clee Hill from as early as the 16th century when Leland records 'blow shops' (direct reduction bloomery furnaces). However, during the 17th and 18th centuries it appears that ironstone sourced on Clee Hill went mostly down to Bringewood in the Downton Gorge west of Ludlow on land owned, as was the Bitterley side of Clee Hill, by the Knight family. Here it was smelted in charcoal furnaces. The introduction of coke smelting meant that all the ingredients were together on Clee Hill, and expansion was possible at local sites.

8.2 ***The Cornbrook Furnace*** had in fact begun in 1783. It was situated part way down Cornbrook Dingle at Furnace Cottages (SO 604 754), where it made use of the waterpower generated by the substantial fall on this part of the stream. The remains of the slag heap show signs of some particularly glassy slag which some have attributed to a glass works on the site. Although some of the sandstones of the Coal Measures are highly siliceous it seems an unlikely location for such a venture, and may be

simply that the slag was very vitreous here. The Cornbrook Furnace seems to have finished in the 1820s.

8.3 ***The Knowbury Furnace*** on the detached area of the coalfield to the south of the main hill, as mentioned above, seems to have started in about 1805 and survived to the 1850s. Again Murchison's account is a useful indication of contemporary practice in the 1830s:

"The iron ores and the limestone with which they are associated in these hills, are very superior to those of the great Staffordshire field, and at first sight it appears surprising that these valuable products should not be turned to better account. They are, however, excluded from fair competition by the want of means of transport, and it is painful to record that with all the spirit and enterprise which can be bestowed on such works, the manufacture of iron in the Clee Hills is attended with little profit. Vast heaps of the finest ore have lain unheeded for many years on the high grounds of Brown Clee, and it is only by the actual juxtaposition of the coal, iron ore and lime at Knowbury, in a lower and more favourable position, that Mr Lewis is enabled to sell, though at a very small profit, a manufactured article of the very finest quality".

8.4 This account highlights the isolation of the Clee Hills Carboniferous outcrop which in a sense was both a virtue and a vice - virtue, because it allowed for a degree of self-sufficiency without the need to import the raw materials for industrial development and a vice because it was difficult to export to a wide enough market.

9. Clay industries

9.1 The Coal Measures also provided the raw materials for both brick making and pottery production. At Knowbury the enterprise in the 1850s was described in a sale notice as "Knowbury Coal, Iron, Brick and Tile Works" – clearly capitalising on all the raw materials, for apart from the iron working plant it embraced a colliery and clay grinding equipment.

9.2 At Shetfield just north of Hints a "brick field" is marked on old maps. This would appear to have dug clay locally from the now rather ill-drained ground at the lower edge of the common. The vegetation of rushes suggests this is over a spread of Coal Measures clays.

9.3 A pottery is marked on old maps by the Ludlow road just west of Treen Pits, again presumably drawing on local clay for its manufacturing.

10. Dhustone

Plate 10

10.1 Youngest of the Clee Hill rocks is the dolerite (known locally as Dhustone from dhu = black) intruded into the higher surviving sequence of the Coal Measures soon after their deposition about 320 million years ago.

10.2 Early accounts refer to this formation as basalt – a generalised term for dark, fine grained, dark coloured igneous rock. With it came connotations of it being a lava flow similar in form to that of the Giant's Causeway. However, it is very clear from exposures in the present working Dhu Stone Quarry, where the upper contact between the dolerite and Coal Measures can be seen, that it was injected as a sill, forcing apart the rock above and below. The magma has clearly penetrated as fingers into the overlying rock *(Plate 10, above).* It is suggested that this was possibly an unconsolidated clay, subsequently baked into natural brick by contact with the hot magma. The top few centimetres of the sill also shows vesicles where gas bubbles have started to escape before the mass has turned solid, suggesting that the intrusion was relatively close to the surface.

10.3 On cooling, the sheet of dolerite, of effectively infinitely large area, would contract within itself, resulting in a series of vertical joints separating the rock into roughly hexagonal columns. These are now seen in the pillar like structure of the north wall of Incline Quarry, and to a variable degree in the exposed faces of the Dhu Stone quarry. In Incline Quarry the columns appear to lean slightly backwards at the top (towards the north). Conversely in Dhu Stone quarry on the north face they lean slightly inwards towards the top – a matter of some concern in regard to the stability of the quarry face. This would indicate, since originally the jointing would have been vertical (*i.e.* at right angles to the top and bottom surfaces), that the whole dolerite sill follows (or indeed creates) the synclinal basin at the top of the hill.

Plate 11 (Above): in the Incline Quarry, Coal Measures can clearly be seen above the dolerite.

Plate 12(Right): at Magpie Hill there are signs, though less definite, of a baked contact with Coal Measures on top of the sill.

10.4 The question then arises as to whether the dolerite actually forms the capping on the hill, or whether above it, protected within a saucer shaped synclinal rim, there is preserved a further group of higher Coal Measures strata that lay above the intrusion. At Incline Quarry the case for the latter would seem to be proven by the obvious contact between the top of the sill and overlying strata including hardened clay layers, sandstones and the odd dark looking coal layer. Equally this must surely be the case in the Dhu Stone quarry as noted above, where the top surface dips noticeably southwards with Coal Measures above. Old aerial photographs in the vicinity of the present quarry offices and the most recent extension to the Dhu Stone quarry indicate bell-pit workings that would only have penetrated the higher beds. A similar situation was revealed in Belfry Quarry in the 1980s when a substantial quantity of over-burden was open-cast mined Yet interestingly the available shaft sections from the Cornbrook workings its coal content before dolerite was extracted from beneath it.

10.5 Yet interestingly, the available shaft sections from the Cornbrook workings make no reference to the coal above the dolerite, referring to the top few feet as “rubble” or similar, before descending through 50 yards or more of the dolerite to the aforementioned four seams at some depth beneath the sill. This also begs the questions of (i) how did they know the coal would be found? and (ii) why did they not reach it from horizontal adits below the sill?

10.6 The quarrying revealed other aspects of the structure of the sills, but again without conclusive evidence of their origin. The geological debate hinges on whether each summit is fed by its own vent or whether what we see today are the remnants of a more extensive sheet linking two or more out crops. The problem is compounded by the contradictory picture conjured up by both the simplified cross-section supplied in the Field and Mackay catalogue and, more surprisingly, the 1:50000 Ludlow Geological Map (sheet 181) published in 2000.
The former, as illustrated below in Fig. 9, suggests a feeder vent beneath each outcrop on Clee Hill, but does indicate a geological fault running through the gap between Titterstone Clee summit and the Hoar Edge ridge. The BGS map sheet does not show a fault. Yet when standing in the Radar Quarry it seems clear that Hoar Edge (southern) outcrop is faulted upwards relative to the north side.

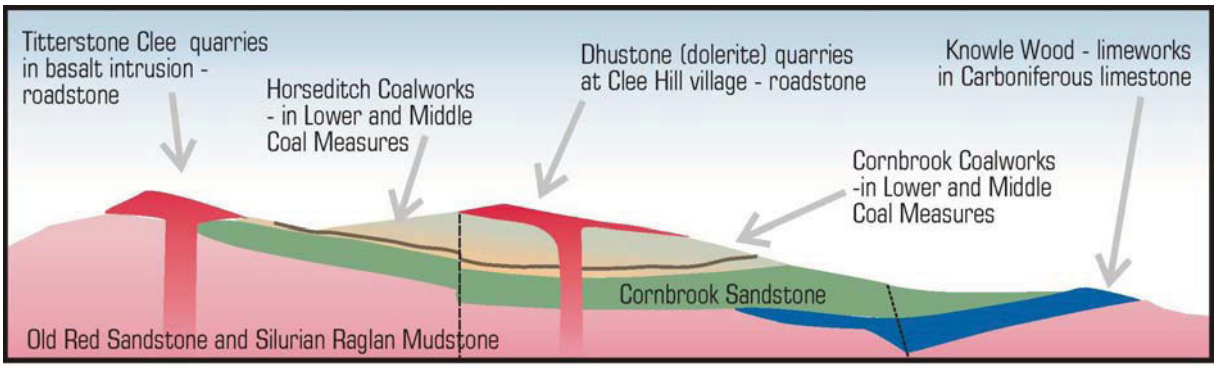


Fig.9: Simplified generalised section through Titterstone Clee Hill and Clee Hill

The only point of real interest in this, regarding the visible quarry remains is whether the north west corner of the Titterstone Quarry, as shown in a photograph in the Field & Mackay catalogue *(Plate 13, below)*, is in fact the so-called "funnel of eruption" (*i.e.* feeder vent). It certainly seems to be the highest single quarried face, but without measurement may or may not be thicker than the total thickness elsewhere.

11. Roadstone

11.1 The vertical jointing mentioned above, coupled with an ability to split the dolerite horizontally as well, accounts for the main product of the quarries which is roadstone. Initially this was mostly in the form of setts that could be hand-trimmed into the necessary cuboid shape. From the early 20th century increasingly the stone was crushed but its natural lines of weakness resulted in a product which Field and Mackay describe in their 1920s catalogue as cubical chippings".

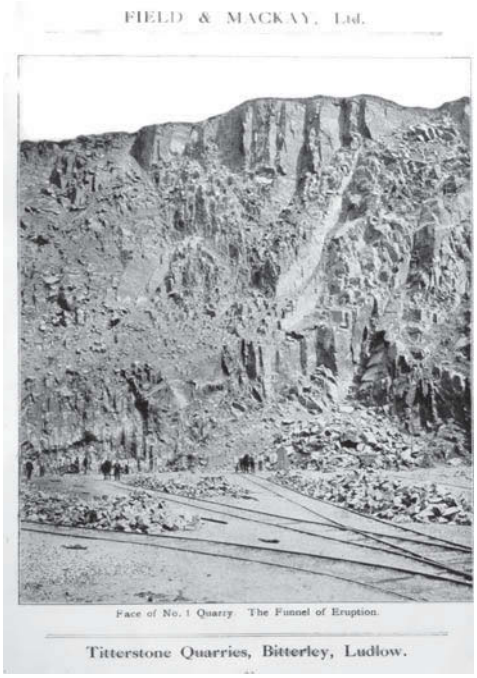


Plate 13: Titterstone Quarry from Field & Mackay catalogue

4. The significance of the pre-industrial landscape

4.1 The first identifiable human activity on the Clee Hill relates to human settlement and burial in the prehistoric period. There is little solid evidence to date this activity but, comparing the remains with sites both in Shropshire and further afield both regionally and nationally, it can be surmised the main episodes of activity represented on the hills belong in two distinct periods within the second millennium BC, but perhaps extending both forwards and back in time.

4.2 Settlement is represented by the Titterstone Clee Hillfort, a very large, univallate contour hillfort covering 28.5 ha. (71 acres) and roughly oval in shape. Much of the southern half of the hillfort has been removed by quarrying for stone but one isolated stretch remains on the narrow neck of land between the west and east quarries. The surviving elements of the hillfort are otherwise well preserved with little sign of disturbance other than the sites of trenches excavated by B. St John O'Neil in 1932 (O'Neil, 1934a & b). These were not backfilled and are still visible. The interior of the fort is open and there is no obvious sign of hut platforms or terracing internally. A cairn survives at the western end, close to the modern trig point.

4.3 Titterstone Clee forms of a group of very large, weakly defended hillforts known in Shropshire and in the Marches in general. Other examples include Llanymynech Hill and the Breidden (Musson, 1991; Musson and Northover, 1989). The narrow trenches dug by O'Neil precluded full understanding of the date and development of

the hillfort but comparison with the Breidden, which was excavated to modern standards, indicates that these large, univallate hillforts were founded in the late Bronze Age (*c.* 1000-800 BC). They differ from the much more numerous Iron Age hillforts of the region through their size, the weak defensive positions adopted by the line of the ramparts, and the lack of a ditch in front of the rampart.

4.4 Recent research on hillforts, especially in the Bronze Age, has emphasised that these structures cannot be explained purely through interpretation as defensive structures. Instead, the ramparts / defences of these hillforts are interpreted as the 'required barrier' between sacred and profane, or between communal and land with assigned ownership (Bowden and McOmish, 1987). In other words, the enclosed space within such large enclosures offer a neutral area within social, economic, religious or other activities can take place between different social groups. To this end, the positioning of the hillfort on the crest of the hill where the large rampart would have been visible for many miles around can be deemed to be socially significant.

Plate 14: Titterstone Clee hillfort, partly destroyed by quarrying (Photograph, copyright of Clwyd-Powys Archaeological Trust, Ref. 92-C-0843)

4.5 It is telling that this class of hillfort has been often been the focus for quarrying activity that has damaged the circuit and interior of these structures. Llanymynech. Breidden and Titterstone Clee have all been extensively damaged, with the first also being extensively modified by the creation of a modern golf course covering the extensive area enclosed within the ramparts. Titterstone, although in a damaged state, offers huge potential for evaluating the role and significance of these structures and regionally is one of the best preserved and most accessible of these forts. Nationally, it fits in with other examples of large-scale Bronze Age hillforts from other areas, notably Wessex and Yorkshire (Cunliffe 1991, 346-8). Titterstone Clee hillfort thus fits in with a national established pattern of large-scale hillforts that represent the mobilization of social resources on a considerable scale and indicate the level of sophistication of the society that created them.

4.6 As a class of monument, however, these sites are mostly difficult to access by the public, both physically and, at some levels, intellectually too. To deal with this latter point first, it is often difficult to move people away from the notion that all settlements defined by a substantial bank must be defensive in function and use. However, it is possible to present alternative interpretations that can at least indicate that the function and role of these settlements is under review. The question of physical access is more intractable given that these hillforts are located on the summits of hills that can be quite difficult to access unless one is in good health or physically capable of often quite steep climbs. Titterstone Clee differs from this group in that, due to the later quarrying on the site, it is relatively simple to access the hill top and the provision of a surfaced road up to the Civil Aviation Authority radar installation allows relatively simple access into the interior. Titterstone Clee thus offers great potential for a broad range of ambient visitors, as was demonstrated on the public tours in the summer of 2006 when at least one of the people on the tour of the hillfort was in his 80s. The good accessibility on the hill thus offers great potential for presenting and interpreting this class of monument to the general public.

4.7 The remaining prehistoric monuments on the Clee Hills fall into the category of funerary monuments and thus belong perhaps in a slightly earlier era that the hillfort, perhaps from the early to mid Bronze Age (*c.*2000 – 1500BC). O'Neil investigated one of these monuments but without the benefit of scientific dating and no artefacts, its date is problematic (O'Neil 1934b, 106-10). However, the apparent exposure of a cist next to one barrow on Hoar Edge appears to confirm the interpretation that these are mostly funerary monuments. Some, however, are equally likely to have been agricultural clearance cairns and it is possible that these functions of clearance and burial might have been united within the same monument.

4.8 Given the dating sequence, it is possible to advance an archaeological interpretation that sees the hill gaining its significance as a landscape feature in the early – mid Bronze Age as a place of burial and perhaps communal exchange, this then being given shape in the later Bronze Age as a hillfort created by communal effort.

4.9 As yet, there is no real sign of the earthwork boundary cross-dykes that one often finds in other Bronze Age landscapes in Shropshire and elsewhere in British uplands. Good local examples on Long Mynd have recently been the focus on work to establish their date (Dinn *et al.* 2006). The conclusions of this study suggest that the cross dykes were slightly earlier or contemporary with the large scale hillforts, paralleling the sequence in Wessex. It is possible that such monuments have been disturbed by local mining and quarrying activities.

4.10 Both barrows and cross-dykes form an important element in our understanding of the evolution, and early human use, of the landscape on the Clee Hills. However, they only have a local or perhaps regional significance at the moment and are not readily interpretable to the general public.

5. The significance of the industrial landscape

5.1 The remains of coal mining form the next activity of note in the landscape of the Clee Hills. The assessment reported on here focuses on varying evidence of activity: localised clusters of bell pits, adits and mine shafts. It is likely that the bell pits are the earliest form of coal-working followed by adits and that the mine shafts are definitely the latest activity since the ability to sink shafts through the dolerite was only feasible from the nineteenth century onwards. Whilst this general pattern may be true, it is likely that these various types of mining overlapped chronologically since the approach was ultimately dictated by depth and dip of the seam as well as the overlying strata.

5.2 The clusters of Bell pits on Catherton Common and at other locations on Clee Hill have long been recognised as being of national significance through their density and excellent preservation. This continues to be the case and accordingly these monuments ought to receive the highest priority in terms of presentation and interpretation to the general public. The monuments are also readily accessible from the road and for those of all abilities and ages, although climbing up onto the mounds does pose some problems for those who have impaired mobility. There are also questions of vulnerability of the monuments to erosion and to fire through the highly combustible gorse that covers many.

5.3 The remains of the adits and scours are less well preserved or visible. They are most readily accessible to the public on the streams running between Clee Hill (Hoar Edge) and Titterstone (*e.g.* Benson's Brook; TCR (C203)). Their significance might be deemed to be local and regional rather but if considered as part of the entire resource relating to coal mining on the Clee Hills then they deserve to be considered as a national resource.

5.4 The remains of shaft workings are fewer in number than the Bell pits and adits, no doubt due to the extra capital required to sink the shaft through unproductive ground first. There are some very well preserved earthwork remains of the pits (*e.g.* Whatsill Mine; TCR C 217) although these present difficulties of interpretation for the lay visitor and are much better appreciated from the air (*e.g.* CPAT 95-MB-0615, below). They are less vulnerable to damage than the bell pits, however. As with the adits and scours their significance might be deemed to be local and regional rather but if considered as part of the entire resource relating to coal mining on the Clee Hills then they deserve to be considered as a national resource.

5.5 In conclusion, the coal mining resource on Clee Hills is a resource of national importance for understanding the developing technology of coal extraction in the post-medieval period. Within a relatively tightly constrained landscape, a wide variety of site types are available for presentation and interpretation, the most useful delivery mechanism perhaps being the trail available either as a printed leaflet or in a downloadable MP3 format, as are currently being experimented with by English Heritage at sites with open access.

5.6 The most extensive archaeological resource on the Clee Hills is the most recent, and continuing activity, of stone quarrying. Despite the evidence of the modern quarrying process, it is worth noting that the properties of the Dhustone were recognised very early on since the natural fracture of the rock is angular and thus the rampart of the Bronze Age hillfort is of drystone construction (O'Neil 1934b, fig.6).

Plate 15: The phases of mining and quarrying revealed in a single aerial photograph (Photograph, copyright of Clwyd-Powys Archaeological Trust (Ref. 95-MB-00615)

5.7 Houses and quarry buildings constructed in the locality from the 19th century on also have evidence for roughly dressed Dhustone ashlar used for the walls, often with brick quoining and brick or tile low arches over doorways and window openings. These differ from the prehistoric use of the stone in that they demonstrate evidence for dressing. Walls of this style in the vernacular architecture of the Clee Hills need to be considered for best conservation practice as they are relatively rare and offer a distinctive local character for the buildings.

5.8 The quarry buildings occur in four locations on the hill: the Dhustone quarry, Titterstone quarry, Magpie quarry and the Clee Hill village quarry, which is still in operation. The Dhustone quarry is the earliest, commencing in the 1860s and the construction here is of Dhustone ashlar and concrete. The Titterstone Quarry dates from the 1880s but the principal surviving buildings date to 1912-13 and are of concrete. There is an extensive photographic record of these buildings and their machinery dating from the time of construction by Field and Mackay and these add considerably to the value of the existing resource in terms of interpretation of process and presentation to the public. The Magpie quarry is roughly contemporary with the rebuild of Titterstone Clee and presents a similar architectural style. Finally, the Clee Hill village quarry buildings are largely steel frames with corrugated sheet cladding of modern date. However, it is clear that the mechanised stone crushing process seen in the early 20th century photographs is essentially identical to the modern-day process.

5.9 In addition to the buildings there are significant remains of the transport infrastructure surviving on the site. These include inclines at three of the quarries (Clee Hill village is the exception). Film footage of the Titterstone incline is available

for presentational purposes. The aerial ropeway from the Magpie Quarry to Ditton Priors railway survives only as the ropeway-head and bases of the ropeway pylons. Light railway tracks survive on the floors of the Titterstone quarries along with railway sidings and piers for raised sections. Railway sidings are particularly prominent at Dhustone village.

Plate 16: Titterstone Quarry floor showing detail of infrastructure (Photograph, copyright of Shropshire Archives)

5.10 Evidence for housing of all periods and associated with the post-medieval use of the hill are commonly found on the hill. Two phases deserve particular mention as being regionally or nationally important examples of their type. First are the squatter settlements prominent on Catherton Common and at other locations. Squatter settlements still in occupation have now been much improved but abandoned examples demonstrate their original character (TCR (C212)). Second are the terraces of brick-built housing provided for sett-makers brought in by quarrying companies from Montsorrel in Leicestershire, notably the Dhustone village terrace. This still retains its corner shop and presents an excellent example of late 19th century social housing.

5.11 Within the quarries themselves, the best evidence for stone-working is seen in the Titterstone quarries. The Dhustone quarry is now backfilled and inaccessible while the eastern quarry is less well developed. The Titterstone quarries provide evidence of bench levels (west quarry) and natural or induced rock-face collapse (east quarry). Their sheer scale also helps to demonstrate the speed at which the quarry workings developed.

5.12 Of these resources, the Titterstone Clee quarry provides the most complete physically and intellectually accessible example of the quarrying industry. The site holds enormous potential for interpreting this industry, and the application of new technologies to the production of roadstone and aggregates. As such, it permits the linking of the interpretation of the past to the industry of the present and thus allows the significance of the modern quarrying industry to emerge. The remains at

Titterstone have already been recognised as having national significance in a recent assessment of the extant remains of the quarrying industry (Stanier 2000, 143-9).

5.13 Other remains include the brick-making and lime-burning industries on the hill or in the hinterland. The brick making industry was a natural development from the coal-mining industry both in respect of the fact that bricks were required for the construction of mine buildings and because miners had to dig through seams of clay to get to the coal. A similar linkage can be seen on a much larger and impressive scale in the East Shropshire Coalfield (*i.e.* Telford) but it is nonetheless a recognisable and interpretable element of industry on the Clee Hills. Limestone burning and extraction relates primarily to agricultural improvements within the 19th century and the provision for raw materials for the smelting of iron ores also found on the Clee Hill coal measures. The remains are not yet readily accessible to the public but include limestone galleries and kilns at The Novers site (Johnson 2006; see Appendix 10). These resources ought to be considered of local or regional significance.

6. Ecological significance

6.1 The ecological significance of the Clees is due to species and habitats that have formed as a result of subtle variations in slope, drainage, soil structure, geology and aspect. Climatic conditions also greatly influence the development of different plant and animal communities. Ecological significance is intimately interlinked with geological and archaeological significance. Ecological significance is reflected in the range of statutory and non-statutory sites designated for nature conservation - four Sites of Scientific Interest (SSSIs) which together occupy a large part of the defined area, the Shropshire Hills AONB and a number of wildlife sites. The significant features of the SSSIs are:

Site name	National Grid Ref.	Area	Significant flora and fauna
Titterstone Clee SSSI	SO 595 780	426.4 ha.	**Flora** - notable habitats include lowland acid grassland, standing open water, fens (flushes and mires) and semi-improved upland rough grassland. The Flush and block scree communities are of particular interest, supporting moss flora including some species rare in Shropshire *e.g. Rhacomitrium fasciculare, R. lanuginosum, Andrea rupestric. This habitat also supports rare ferns, e.g.* parsley fern, *Cryptogramma crispa,* Mountain male fern, *Dryopteris oreades,* oak fern, *Gymnocarpium dryopteris* and the fir clubmoss, *Huperzia selago.* Flushes around springs support bog pimpernel, *Anagallis tenella,* marsh lousewort, *Pedicularis palustris,* bog asphodel, *Narthecium ossifragum,* lesser skullcap, *Scutellaria minor* and at one of very few Shropshire localities, ivy-leaved bellflower, *Wahlenbergia hederacea.* **Fauna** - the site offers a diversity of habitats for a number of species such as great crested newts (*Triturus cristatus)* recorded near small pools, green hairstreak *(Callophyrus rubi)* and green tiger beetles (*Cicindela campestris).* Further survey priorities: reptiles and amphibians and invertebrates. Breeding birds include wheatear, *Oenanthe oenanthe* and whinchat, *Saxicola rubetra.*
Clee Hill Quarries SSSI	SO 594 761	63.45 ha.	As with the other Dolerite quarries in the area such as Titterstone Clee, the acid grassland varies considerably between the short species-rich swards that have developed primarily on the parched soils of the steeper scree slopes and disturbed ground and the more established grassland, which is characteristic of the land surrounding the quarry. Many variations between these communities occur throughout the site - the composition varying largely according to slope, aspect and disturbance. The more species-rich swards, which characteristically occur on the tightly cropped south-east facing slopes often retain some elements of the upland acid grassland community such as mat grass *(Nardus stricta)* but are distinguished by the diversity of plants, particularly ephemerals and annuals that grow on the disturbed, parched soils.
Cornbrook Dingle & Hillhouses SSSI	SO 602 757	1.7 ha.	A range of diverse habitats for flora and fauna
Catherton Common SSSI	SO 635 785	135.32 ha.	Extensive areas of wet and dry heathland, part modified by past coal mining activity. Streams and wet flushes increase diversity. Apart from spread of more common heather, *Calluna vulgaris*, in eastern part, there are areas of interesting mixed heathland with bell heather, *Erica cineria,*and western gorse, *Ulex gallii.* At Cramer Gutter (outside defined area), there is a very interesting flora and an area of grassland containing the only known Shropshire locality of the marsh gentian, *Gentiana pneumonanthe.* Other uncommon plants at Cramer Gutter end include butterwort, *Pinguicula vulgaris*, dioecious sedge, *Carex dioica*, lesser skull-cap, *Scutellaria minor*, floating clubrush, *Eleogiton fluitans*, and early marsh orchid, *Dactylorhiza incarnate ssp pulchella.* The stream and flushes here are of interest for dragonflies, including the rare species, *Orthetrum caerulescens.* Crump's Brook, which flows through the site, is a habitat for a number of important mosses and liverworts such as *Rhacomitrium aciculare* and *Scapania undulate.*

Fig.10: SSSIs – main features of flora and fauna

6.2 The overall picture of the ecology of the SSSIs is augmented by the results of a recent quarry survey; the provisional results of this survey have been made available to this study by Shropshire County Council's Sustainability Group of an ALSF-funded project, 'Shropshire Quarries – Positive Action for the Future' which has targeted recording of biodiversity in 20 of Shropshire's disused quarries. This project followed a successful pilot study 'Biodiversity Action for Shropshire', also funded by the ALSF. The results of 5 of these studies are relevant to the defined area (relevance includes the Novers site which is only just south of the defined area); the Clee Burf quarry is north of the defined area but is included for its 'typicalness', *i.e.* it is very similar to the quarries in the defined area). The quarry survey has added further significant detail to our understanding of these disused quarries and by documenting their biodiversity significance has provided:

- a means of integrating biodiversity, geodiversity, historic environment, landscape character assessment and community interests to maximise environmental mitigation from quarries in the post-restoration phase
- guidance on where significant BAP targets can be achieved
- a gateway opportunity to enable owners of disused aggregate sites to gain access to agri-environment funding
- a means of prioritising action in quarries by local biodiversity and geodiversity interest groups
- baseline data for the development of quarry BAPs
- baseline data for minerals planners to inform new applications and revisions of the Minerals Development Plan document.

For further detail see Appendix 5.

6.3 Outside the SSSIs, the definition of the landscape character of the defined area by means of Landscape Character Areas adds weight to ecological distinctiveness which, west of a line from Crumpsbrook to Doddington and Hints, is reflected in inclusion with the Shropshire Hills AONB and by inclusion of almost all of the defined area within the ESA. Important ecology within these areas includes the distinctive mosaics of heathland and rough grassland plant communities including typical species of common bell heather, bilberry and grasses such as red fescue and common bent. Further ecological diversity is added by the occurrence of localised bogs and wet flushes which often form stream sources. In the pasture hills, relict ancient woodland, hedgerow networks defining ancient, irregular field systems and unimproved hay meadows supporting common knapweed, betony and devil's-bit scabious are important ecological features. Areas of unenclosed moorland and rough pasture support good populations of ground-nesting birds.

7. Educational significance

7.1 Geology

7.1.1 Parts of the defined area are already in use as an educational resource. As such, the defined area provides a wide range of subject areas for study - geology, geography, archaeology, history, ecology. The geological deposits exposed in the Dhustone and Incline Quarries attract a range of visitors with different objectives – local schools, university students, geologists or the interested layman.

7.1.2 Within a very compact area, the landscape contains a wealth of geological and geomorphological features as well as aspects of economic geography and history associated with the geologically-related mineral exploitation.

7.1.3 The exposure of the sill and contact at Incline Quarry is one of the most spectacular and accessible inland sites in England for demonstrating the columnar structure and intrusive relationship of a sill and it therefore provides a rare opportunity to study this in the field

7.1.4 The Benson's Brook section provides an equally rare opportunity to study a Coal Measure section exposed at the surface. Preservation of an *in situ* section within the Dhustone Quarry workings would be a welcome addition to amenity value as it would provide an opportunity for children who have no experience of the use of coal to view exposed coal deposits.

7.1.5 Hanson Plc has a close working relationship with local schools, many of whom visit the quarry on an annual or two-yearly cycle. School use of geological sites is disappointingly low as there is relatively little earth science in the National Curriculum and there is scope to improve on this situation, within the constraints of the National Curriculum, by producing tailor-made teaching materials. The success of the 'Museum in a Box' project on Clee Hill using the resources of Ludlow Museum Resource Centre and the Secret Hills Discovery Centre shows the healthy market for such initiatives.

7.1.6 There is also educational potential at the research level. The significance of a number of features in the area offers scope for further academic research; in particular, the structural relationship of the different parts and origin of, the dolerite sill and continuing problems of precise dating of the Cornbrook Sandstone.

7.2 Archaeology/history

7.2.1 The educational potential of the archaeological remains has not yet been fully realised. Few visitors realise the significance and extent of the remains and the fact that what they see is an archaeological and cultural landscape dominated by the nature of its mineral resources. For example, the distinctive pattern of random 'craters' in the Crumpsbrook area is the result of working the gutter coal by the bell-pit method, the visible remains of the mining of coal via deep shafts are large and extensive colliery tips and the remains of the infrastructure of the quarrying industry include standing buildings, early quarry exposures and inclines and railway sidings – all extensive and highly visible. There is much potential to provide a range of educational materials targeted at different levels, to enable people to 'read' the landscape in this way. The Geodiversity Management Plan and the videofilm 'Up the Hill and Back Again' have made a good start in this respect but there is further scope for themed leaflets and a popular booklet, possibly even a videofilm based on the recent ALSF-funded project.

7.2.3 The defined area provides a significant resource for many of the subjects covered in the National Curriculum. History is a compulsory part of the National Curriculum from Key Stages 1-3 and becomes optional in Key Stage 4. The multi-period landscape of the Clees – from prehistory through the medieval and industrial periods to present day use – provides a backdrop for such study.

7.2.4 The history curriculum requires that children master five key themes:

- historical interpretation
- historical enquiry
- chronological understanding
- knowledge and understanding of events, people and changes in the past
- organisation and communication

At Key Stages 2 and 3, the requirement is to use different sources of information, both in depth and in overview, using dates and historical vocabulary, to describe events, people and developments. At this stage, children also learn that the past can be represented and interpreted in different ways. Almost all the required themes – but particularly the local history study and the study of British history in the Victorian period – could find ample appropriate source material in archives documenting the quarrying and mining industries which could be used to study the nature of quarrying and mining and associated jobs and changing levels of employment. The physical survival of these industries supplies the visible evidence in the field and adds a further dimension to study. Teachers in the area have already realised the potential of these source materials and applied them in the classroom (see Appendix 6).

7.2.5 Marjorie Hammond, head of Cleehill Primary School, reports that all classes visit the quarry on a regular basis where they learn some of the history of mining and quarrying on Clee Hill as well as the safety aspects of being near the quarry. Years 5/6 take a walk every summer across the old railway line to look at the quarrymen's cottages, the incline from Titterstone to Bitterley, the remains of the old concrete stays *etc.* as part of their study of the Victorians. Ms Hammond states that '…we are very fortunate in having so many valuable resources in the close proximity of the school…'

7.2.6 Pits and quarries in particular provide a range of sources for science, geography and physical education. The educational value of the old pits and quarries of the Clees is not restricted to geology – evidence of ancient working, especially for locally used stone, provides a cross-link with local history. This has been realised elsewhere in the region, for example at Wren's Nest in Dudley, West Midlands.

Plates 17 and 18: Local historian, Alf Jenkins, talking to children from Cleehill Primary School about the Novers limekiln complex (Photographs, copyright Cleehill Primary School)

7.2.7 The presence of four SSSIs within the defined area makes them ideal for the study of flora and ecology. The use of such designated sites links into the 'study of life processes and living things' part of the National Curriculum science module. In addition to studying rock types and environments in the quarries, students can calculate the volumes of quarries, the size of trucks used to transport the quarried rock, the number of trips per day, the manpower required and so on.

7.2.8 The broadening scope of the National Curriculum and the inclusion of 'Citizenship' and 'Education for Sustainable Development' as statutory modules at Key Stages 3 and 4, also offer opportunities for teachers to capitalise on the resources of the Clees for outdoor field trips linked to history and geography courses, thus fulfilling the QCA's and LEA's 'life-long learning' strategy that these courses should provide experiences for young people which go beyond the classroom. The resources offered by the Clees provide an opportunity to approach environmental education at the 'landscape level' rather than concentrating on a single element such as a river valley or village.

7.2.9 Elsewhere, *e.g.* at sites in Devon, Landscape Character assessment has formed an important educational item, using GIS to help students develop understanding of landscape developments. The GIS constructed as part of this Conservation Plan should provide a valuable resource in this respect.

7.2.10 Wider application of the 'Museum in a Box' scheme which is currently targeted at the teaching of geography in Key Stage 2, could include history, with the inclusion of materials such as replica artefacts/clothing, copies of census records, old newspapers, photographs of local landmarks, maps of various dates and scales.

7.2.11 The involvement of children in the Clees oral history project fulfils two objectives – it allows children to learn about local history from older people and it allows the children to teach older people the IT skills required to help record the information. Similar work has been done successfully by the South Shropshire Youth project.

7.2.12 The defined area is already used by the Ironbridge Institute for teaching purposes in its programmes relating to heritage management and industrial archaeology. The standing quarry buildings in Titterstone Clee Quarry are included in these programmes but they have the potential to provide a valuable hands-on educational resource for historic environment conservation students, subject to considerations of safety and access, nature conservation and archaeological issues. Similarly, The Novers limekilns (adjacent to the defined area) might offer similar possibilities in the event that the site is developed as an educational facility for schools and other students. The site would serve as an educational site for school and college field trips. Such opportunities are comparatively rare in the region.

8 Social and community significance

8.1 The defined area forms part of a landscape of significant communal value that retains the collective memories of local people, some of whom were involved with mining and quarrying. Other people, both local and visitors, value the area for its aesthetic and leisure attractions. As expressed by Graham Fairclough (2007, 8):

'Landscape is very squarely about people: people who over very long periods of time have created the physical patterns of the land, who today 'create' landscape through their perceptions, and for whom landscape is an economic or social resource, people who are part of landscape,not merely external impacts on it'

8.2 It is evident that, from the description of the quarry and mines on Titterstone Clee, that the community that worked and lived on the hill had a hard and bitter life. As is often the case, the conditions created a strong (and exclusive/excluding) community

that had a distinctive appearance to outsiders. The miners came from local villages, walking to the mines on a daily basis. Way-markers were provided, such as the still-extant cross-post, better known locally as the 'three-forked pole' to help with navigation, especially after snowfall. Some individuals did build squatter settlements on the hill, especially on the (relatively) sheltered east side. These form a distinctive element in the landscape with its own unique flora and character.

8.3 Cleehill and Dhustone villages were established to house the mining community. Dhustone village, more remote than Cleehill, with virtually no public services close at hand except electricity, drains, water, a telephone kiosk and post box, lies as at the very heart of an industrial landscape. The three rows of terraced houses, now accommodating *c.* 60 people, were built at the turn of the century by the Clee Hill Colliery Company for its expanding workforce. Rouse-Boughton Terrace dating from *c.* 1889, was built to house the men and their families recruited from outside the area due to the expansion of quarrying activity.

8.4 Dhustone is a Conservation Area, thus designated because the network of disused rail-lines, mine and quarry buildings and the three rows of terraced housing, form a unique turn-of-the-century industrial settlement. The elevation above sea level meant that, apart from the hard labour needed in both mining and quarrying, the elements played a major role in the lives of those living and working in the area.

8.5 Rouse-Boughton Terrace, a row of terraced cottages in two blocks, was built for skilled surface workers and chartermen. The houses are built of good-quality red brick with clay tile roofs. The internal layout of most of the houses is well-preserved, comprising a standard two up two down arrangement with a central staircase and, outside, a privy, pigsty and small garden. South Shropshire District Council recommends that this terrace be Listed before any further alterations occur – no.12 has already been rendered against the weather.
The remaining two terraces, 'Railway Terrace' and 'New Building' are less individual, with various alterations and additions but they form a significant group with Rouse-Boughton Terrace.

8.6 No accurate figures are available for leisure use of the area, but it is clear from local observation, that there are always people on the Clees, walking dogs, getting fit or admiring the scenery. Though in the minority, there are also some unwelcome visitor, including 4 x 4 drivers and people setting light to vehicles and dumping them in the quarries or by the roadside.

8.7 Local interest in the geological, natural and archaeological landscapes and in the area's local history was well-demonstrated at an event held at Cleehill Primary School on 28th March, 2006. The event, 'Celebrating the Clee Hills' was launched as part of the ALSF-funded Blue Remembered Hills initiative to promote community landscapes and ran between 3.30 p.m. and 8.30 p.m. to allow children, parents and working people to attend. The event featured:

- a series of displays looking at everything from wildlife, farming, local history, how the Clee Hills were formed and information about other linked projects in Shropshire. The displays included those supplied by the Shropshire Hills AONB (including the Blue Remembered Hills team), the Shropshire Geological Society, the Shropshire Wildlife Trust, the British Trust for Ornithology, Shropshire County Council (re biodiversity, local grazing

scheme, community landscapes and river management, adult and community learning), South Shropshire District Conservation Dept. and the Shropshire Photographic Society
- the video 'Up the Hill and Back Again' which illustrates the evolution of the area from prehistory to the present, focusing on local traditions and memories
- a 3-D map of the Shropshire Hills
- a rolling 'Powerpoint' presentation of past and present photographs of the Clees
- satellite and 3-D representation of the archaeological landscape, including the results of recent ALSF-funded survey work
- information about how local people can get more involved with their landscape
- workshops on fossils for children
- brick and lime-making demonstrations
- reminiscence recording
- working models of the quarry railway and of a limekiln

8.8. Promotion for the event took the form of posters and flyers in local shops, public buildings and businesses in Cleehill village, a poster in Nash village hall, mailing to parents from the school and flyers in Lacon Childe secondary school. There was no local newspaper coverage prior to the event to ensure that local people were not outnumbered by those from farther afield. Following the event, however, the *South Shropshire Journal* published a three-quarter page feature with five photographs. Attendance figures were extremely encouraging and comprised 50 children at Key Stage 1 level, 40 children at Key Stage 2 level, 50 parents and children and a further c.70 adults of all ages – over 200 people in all.

Feedback from the event was also encouraging with all scored themes highly rated:

- displays – were they interesting and of high quality? Comments included: *"I've lived here all my life and never realised there was anything Bronze Age on Titterstone"* (local resident). And another: *"I thought the day went very well. ....it helped to have the number and range of displays (particularly the interactive ones)"* (local resident)
- talks – were they well-presented and interesting and did they make you want to do more? Comments included: *"I thought that the speakers all triumphed; they all had quite complex things to say…and gave a coherent message"*. And another: *"Just to say I thought the evening went very well in terms of numbers and interest….All age groups came to chat about the meadows and flowers, not just the oldies"* (Shropshire Wildlife Trust officer)
- buffet – did it look and taste good? All comments were extremely favourable.
- overall event – how did you rate it? Comments included: *"Although this was a community event, it should not be overlooked that it also served as a chance for those giving presentations to meet each other and discuss the Clees. I certainly found out a lot more about the BRH (Blue Remembered Hills project)….was very interested in the digital mapping, made a potential grazing contact with the BTO (British Trust for Ornithology) and am now aware of the existence of Cleehill Primary and the Market Hall in Cleobury as potential venues for community projects"* (Shropshire County Council officer)

8.9 Following the event, a number of local people 'signed up' to get actively involved in enhancing and celebrating the Clees. Interest was shown in particular in the Novers limekilns and reminiscence project. Follow-up meetings will be arranged to encourage new community-led projects. The overall success of the event certainly justified the small outlay to set it up – a £50 donation to Cleehill Primary School, £148 for flyers and £300 for the buffet.

8.10 Useful experience was gained in staging the event – using the school worked very well; by involving the school children, parent collecting them from the workshops were encouraged to look round the displays and parents and grandparents returned later. Advertising locally and talking to local people produced better attendance than would have been likely from general advertising.

8.11 Other events initiated by the Blue Remembered Hills project include a series of guided walks which took place last summer, 2006. The following walks took place:

Date	Time	Theme	Walk leader
1. Sun. 4th June	11 a.m.-3 p.m.	Bus tour looking for clue in the landscape from prehistory to the present day	Alf Jenkins, local historian
2. Sun. 11th June	2-4 p.m.	'A hard life – the quarry landscape and buildings of Titterstone Clee'	Dr Roger White, Birmingham University
3. Wed. 14th June	2-4 p.m.	'Magical meadows – a closer look at the wonderful wildflowers in a meadow at Stoke St Milborough'	Fiona Gomersall, Shropshire Wildlife Trust
4. Sat. 24th June	9.30 a.m. – 5.30 p.m.	Clee to the Severn – starting at Cleehill village hall car park at 9.30 a.m. Lunch in Cleobury Mortimer and finishing at Highley at 5.30 p.m. Transport available at a number of points along the way	Cleobury Country Solstice Walk
5. Sat. 1st July	2-4 p.m.	'Bronze Age landscapes' – a tour of the impressive remains of the Titterstone Clee hillfort and cairns	Dr Roger White, Birmingham University
6. Sun. 9th July	2-4 p.m.	'Farming in the Clee Hills – why is farming so important to the local landscape?'	Wayne Davies, Rural Development Service
7. Sun. 16th July	2-4 p.m.	'A hill through time – from prehistory to the present day'	Glynn Barratt, Archaeologist
8. Sat. 22nd July	2-4 p.m.	'Rock makes the landscape – why does the landscape look as it does?'	Andrew Jenkinson – Shropshire Geological Society
9. Sat. 5th Aug.	2-4 p.m.	'Fantastic Fossil Forests – how did the Clee Hills look in the past?'	Liz Etheridge, Shropshire Wildlife Trust
10. Sat. 12th Aug.	2-4 p.m.	Wildlfower walk at Cramer Gutter (just outside the defined area)	Fiona Gomersall, Shropshire Wildlife Trust
11. Sat. 19th Aug.	2-4 p.m.	Family walk	Liz Etheridge, Shropshire Wildlife Trust
12. Mon. 21st Aug.	2-4 p.m.	Walk for adults with learning difficulties	Liz Etheridge, Shropshire Wildlife Trust

8.12 Available attendance figures show an encouraging response to these events:

Event	Attendees	No. of feedback forms	Response rate	Result of evaluation using Quality of Life (QOL)* indicators			
				Learning	Community	Physical well-being	Mental well-being
1	30	25	83%	97%	80%	96%	92%
3	14	10	71%	100%	50%	90%	80%
Meadow-owners evening (additional event)	12	12	100%	97%	75%	100%	92%
5	16	14	88%	98%	56%	100%	79%
6	5	5	100%	65%	60%	100%	100%
7	22	17	77%	96%	77%	85%	92%
Invertebrates on farmland (additional event)	19	15	79%	100%	100%	100%	63%
10	8	6	75%	100%	50%	100%	50%

** a set of voluntary performance indicators emanating from the Audit Commission to allow local Authorities to support the 'best value' indicators on which they are judged*

8.13 The Blue Remembered Hills project produced an attractive leaflet (see below, Fig.11) advertising the walks and put background information on the internet about landmarks and other features of interest that might be seen on the walks.

Discover more about **Titterstone Clee**

Join us on a variety of guided walks exploring the rich heritage of the area . . .

Shropshire Hills

Heritage Lottery Fund

Date	Time	Subject	Walk Leader
Sun 4th June	11-3.30 pm	*Bus tour- looking for clues in the landscape from prehistory to the modern day. Lunch included.*	**Alf Jenkins**, local historian
Sun 11th June	2-4pm	*A hard life- the quarry landscape and buildings of Titterstone Clee*	**Roger White**, Birmingham University
Wed 14 June	2-4pm	*Magical Meadows- A closer look at the wonderful wildflowers in a meadow at Stoke St Milborough*	**Fiona Gomersall**, Shropshire Wildlife Trust
Sat 24 June	9.30- 5.30pm	*Clee to the Severn-starting at Clee Hill village hall car park at 9.30 am. Lunch in Cleobury Mortimer and finishing in Highley at 5.30 pm. Transport is available at all points along the way.*	Cleobury Country Solstice Walk
Sat 1 July	2-4pm	*Bronze Age Landscapes-A tour of the impressive remains of the Titterstone Clee Hillfort and cairns*	**Roger White**, Birmingham University
Sun 9 July	2-4pm	*Farming in the Clee Hills- Why is farming so important to the local landscape?*	**Wayne Davies**, Rural Development Service
Sun 16 July	2-4pm	*A hill through time- from prehistory to the present day*	**Glynn Barratt**, Archaeologist
Sat 22 July	2-4pm	*Rock makes the Landscape- Why does the landscape look as it does?*	**Andrew Jenkinson**, Shropshire Geological Society
Sat 5 Aug	2-4pm	*Fantastic Fossil Forests- How did the Clee Hills look in the past? Ideal for youngsters.*	**Liz Etheridge**, Shropshire Wildlife Trust
Sat 12 Aug	2-4pm	*Wildflower Walk at Cramer Gutter*	**Fiona Gomersall**, Shropshire Wildlife Trust

Booking is essential for all these walks. For more information and to book your place, please contact the Shropshire Hills AONB office 01588 674080

Fig 11: Leaflet advertising walks on the Clee Hills

8.14 Following the open day described above, the 'Clee Hill Remembered' oral history project was launched through a pilot scheme with the Adult and Community learning unit in Shropshire County Council. Two introductory sessions were held in

the Three Crosses Sheltered Housing centre to generate interest. Six weekly sessions began at the end of October, 2006 and following these, Cleehill Primary School became involved in the project. Lacon Childe Secondary School will also be involved at some point, possibly in recording or filming people being interviewed.

8.15 The oral history project is of particular interest and significance in that a local dialect is still spoken in Cleehill village and it is important that this be recorded before it disappears altogether. The significance of this dialect is that it arose as a direct result of the quarrying industry, with its hey-day between 1890 and 1939. Until that time, accent and dialect was a mixture of North Herefordshire and South Shropshire strains but the influx of workmen to this comparatively isolated region to satisfy industrial needs resulted in a dialect which was a mixture of dialects from the Black Country, Gloucestershire, Herefordshire, Wales, Worcestershire, Nottinghamshire, Yorkshire and Scotland. The social ramifications are also of interest, as Alf Jenkins points out:

'Clee Hill folk had always been a race apart and the dialect was a contributory factor to this. They discovered it was not socially acceptable away from Clee Hill and children who travelled to Ludlow and Cleobury to school were ridiculed. I know this because of my own personal experience. Everyone therefore cultivated two standards of speech, a dialect for home use and Queen's English for the outside world. Unfortunately all these influences have accelerated the decline of the Clee Hill dialect'
*(*Jenkins*, 1983, 113-14)*

8.16 An 'Awards for All' grant application was submitted in February, 2007 to pay for up-to-date recording equipment and volunteer expenses and this should enable the oral history project to continue, possibly for another two years. A CD will be produced for circulation following completion of the interviews.

8.17 A further indication of community interest has been the setting up of the Tittertsone Clee Heritage Trust (see Appendix 7). The 'Blue Remembered Hills' project and South Shropshire District Council have contributed funding towards setting up the Trust. A steering group of seven oversees the work of the Trust. A membership organisation, the 'Friends of Titterstone Clee' has been set up and has 44 members to date.

8.18 The 'friends' group organised an evening meeting at Knowbury in December which was attended by 45 people, mostly from the local community. This was a social event, marked by the serving of seasonal mince pies and mulled wine, but it provided an opportunity to review progress since the open day and a platform for engaging further involvement. Twenty people signed up as 'friends' of the Trust.

8.19 Although outside the defined area, the Novers like kiln site is an integral part of the Clee industrial landscape, with the remains of an extensive mine, tramway, inclined plane, at least four lime kilns and associated lime workings. The community has shown great interest in and vision for this complex and favours the establishment of a self-sufficient resource centre that could be built using materials derived from the site by local people with professional guidance; this is readily to hand from South Shropshire District Council. The centre would demonstrate a variety of innovative environmental benefits for the community at large – from energy efficiency to waste

management and would thus link living in the past environment to living in and caring for that of the future.

Plate 19: Alf Jenkins showing The Novers site to a group of visitors (Photograph, copyright Glynn Barratt)

8.20 The creation of a rather more ambitious visitor centre at the heart of the industrial landscape (see further Appendix 8) would provide an even more valuable visitor experience on lines similar to visitor experience at the National Stone Centre near Matlock, Derbyshire. This centre occupies a 50-acre site comprising limestone quarries and purpose-built buildings; it is an educational charity, supported by over 80 public, industrial and academic organisations. The centre attracts school groups and other visitors and markets itself as a geotourism provider, a place for both serious learning and fun. The acquisition of geotourism status (likely to expand when an area gains a European or global designation) is not beyond the bounds of possibility for the intimately linked industrial and geological landscapes of the Clees, although a strong link between the exceptional geology and implementation of sustainable development policies would need to be demonstrated.

8.21 A continuing major source of inspiration in awareness-raising is local historian, Alf Jenkins who was born at the Dhustone Inn in the 1930s. Alf grew up among this remote hive of industry and saw its gradual demise – the gradual dilution of the Cleehill dialect, the closure of stone quarries and the Dhustone incline railway. This prompted Alf to write *Titterstone Clee, Everyday Life, Industrial History and Dialect*; the book has had at least five reprints. Alf continues to promote the heritage of the Clees through lectures to Women's Institutes and historical societies and conducted tours around the Clees. He has appeared on *Country File, Midlands Today, Inside Out, Breakfast TV, Five Live* with Simon Mayo*, Open Country* and local radio stations. His was one of the thousand voices recorded throughout Britain for the

BBC's *Nation's Voices Project* and he was one of the first people chosen to see the end result at London's TV studios.

8.22 The recent travelling photographic exhibition by Simon Dennison – 'Quarry land: impermanent landscapes of the Clee Hills' – has also raised the profile of the Clees, focusing not on the archaeological landscape but on the local community who live there, a dimension that is often ignored. Many of the photographs in the exhibition result from the author's interviews with local people who live and work in the Clees - local residents, hill farmers, quarrymen, foresters, pub landlords. A book, *Quarry Land*, accompanied the exhibition.

8.23 There is no doubt that the local community cares about its associations – with the industrial and earlier landscape and with the more recent past but it also cares about what might happen to the community in the future and is concerned that the past should not only be remembered and celebrated but that it should also be part of a sustainable vision for the future – raising the profile of the Clees to visitors and as an educational resource may help to secure that vision..
The public open day and subsequent events have helped to provide a context for people's collective memory and identity which, combined with the character and survival of the industrial landscape in particular, has brought a sense of belonging and pride to the local community.

9. Compliance/non-compliance with existing policies

9.1 There are a number of existing policies and possible future site developments which support and/or impact on the conservation and management proposals set down in this Plan. The general scope and objectives of most of these are supportive of the retention of significance. Appendix 4 summarises the main relevant documents and their implications. Since such a small part of the defined area lies within Bridgnorth District, the Bridgnorth Local Plan is not considered here, though its policies relevant to this Plan are broadly in line with those emanating from South Shropshire District.

9.2 It is important to note that at the time of producing this Conservation Plan, major changes are afoot at national, regional and local level with regard to designation and planning policy. The forthcoming Heritage Protection Review *White Paper* is likely to result in major change in the manner in which nationally important archaeological sites and landscapes are designated and managed.

9.3 At the regional and local level, new Local Development Frameworks have been and are being established and they will contain Regional Spatial Strategies (replacing Structure Plans) and new Development Plan Documents (replacing Local Plans).

9.4 With the introduction of the new system in 2004, Local Authorities were allowed to 'save' existing plans for a period of three years if these plans had been recently adopted or were near adoption in order to allow time for them to prepare their new-style Local Development Frameworks. In theory, this 'saved' period is coming to an end but authorities can request that it be extended if they are falling behind with their new frameworks; such a request would generally focus on specific policies rather than the whole plan, due to Government deadlines.

9.5 Minerals and Waste planning stays at county level and Shropshire is well advanced in preparing its Minerals Development Framework. The Joint Structure Plan for Shropshire will continue to remain in place until 2007. The main policy framework for Shropshire will now be the Regional Spatial Strategy, the Minerals and Waste Development Framework and the Districts' various Local Development Frameworks.

9.6 Government and national policy

9.6.1 The Government's planning policies for the historic environment are set out in PPG15, *Planning and the Historic Environment* and PPG16 *Archaeology and Planning*. Government guidance specifically relating to mineral extraction is set out in minerals policy guidance notes (PPGs and MPGs) and their replacement planning and minerals policy statements (PPS s and MPSs). *Mineral Policy Statement 1; Planning and Minerals* (DCLG, 2006) emphasises that the provision of minerals must be undertaken in accordance with the principles of sustainable development in terms of minerals supply, together with an integrated policy approach in favour of social, environmental and economic aspects.

9.6.2 The single most important current policy document is English Heritage's ***Mineral Extraction and the Historic Environment Consultation Draft*** **(Humble, J., 2006)**

This paper is English Heritage's draft policy statement on minerals issues and the historic environment and it covers three main areas:

- mining and quarrying g sites and landscapes as significant historic features
- the impacts and mitigation of mineral extraction
- the need for and supply of natural building stone and other materials for the conservation of the historic environment and for maintaining local distinctiveness

The key points relevant to the historic industrial landscape of the Clees are:

- past mining and quarrying activity have created a fundamental social, economic and environmental legacy whose physical remains form a significant part of today's historic environment
- the remains of such landscapes are increasingly becoming highly valued for their archaeological, ecological, geological, social and educational value
- there has been a huge increase in interest in industrial landscapes and that the contribution of the voluntary sector has played a major role in this development
- there remains a lack of appropriate designation for historic indutrial remains that are very extensive and not well suited to the detailed controls resulting from the designation process
- alongside many nationally important remains, whether designated or undesignated, there are many locally or regionally significant historic sites and landscapes relating to extractive industries that do not meet the current criteria for national importance but which, nevertheless, are worthy of conservation
- that there is a general lack of awareness about the extent, significance and cultural value of former mining and quarrying remains and that further work is

needed to raise awareness if the legacy of extractive industries is to be safeguarded
- that although Government policy requires the active remediation of modern, often large-scale mineral workings, where historic remains are also a significant aspect of landscape character, they should be conserved
- that the historic remains are also often significant in terms of geological and nature conservation
- that there is a need for a national research framework for the extractive industries, including recommendations for promoting their public appreciation and considerable potential as an archaeological resource

English Heritage support the Government's broad objectives to secure a more sustainable use of minerals without slowing economic growth and supports Government policy to minimise and mitigate the impacts of large scale mineral extraction on the environment through fiscal measures such as the Aggregates Levy and Landfill Tax.

9.7 South Shropshire District Local Plan 2004-2011

9.7.1 The plan was prepared by South Shropshire District Council to guide future development within the district. It was prepared within the strategic framework of the Shropshire and Telford & Wrekin Joint Structure Plan – the latter is not discussed separately here as it endorses all the Local Plan policies. The plan was adopted in 1994 and revised in 1998 following public consultation. The plan's objectives are to:

- conserve the natural beauty, amenity and heritage of the countryside, especially the Area of Outstanding Natural Beauty
- to conserve the natural environment and its natural resources
- protect and enhance the built environment, especially buildings of special architectural or historic interest, conservation areas and archaeological sites
- encourage tourism development that is in keeping with the character of the area
- influence and achieve adequate access to facilities and services, especially public transport, open space and play space
- take account of the requirements of the disadvantaged sections of the community
- achieve 20 village design statements/parish/town plans
- diversify and strengthen the rural economy
- retain and strengthen services and facilities to meet the needs of the community
- provide affordable housing for local people
- ensure that housing development is properly phased
- provide sufficient new housing to meet the requirements of the Joint Structure Plan
- give priority to the development of previously developed land and buildings
- ensure a high standard of design and development
- ensure adequate job opportunities and increase the range of jobs available

Beneficial impacts:

- the Plan sends out a positive message with respect to conservation of the rural environment, stressing the need to protect and enhance it for future generations.

- development is steered towards those larger settlements, away from the defined area which are capable of accommodating growth.

- proposals for landscape and nature conservation reflect positively on retention of significant features of the historic and natural environments and favour the preservation of sites of archaeological, biological and geological interest and importance.

- proposals for conservation areas and listed buildings favour the preservation and enhancement of local character

- the preservation of archaeological remains *in situ* or by record, is ensured through the planning system.

- the Plan respects the diversity and distinctiveness of local landscape character – includes topography and established public views and landmarks.

- the Plan supports the development of sustained tourism notwithstanding constraints on accordance of developments with scenic quality (especially within the AONB) and traffic generation issues.

- the Plan supports improved accessibility to promote healthy rural communities and retention of public open spaces for community benefit. It is minded to prevent development on public open space land on Clee Hill unless the development retains the open character and/or is associated with its primary use. Any proposals for themed walks and other visitor facilities would need to be carefully considered to meet these requirements.

Potentially negative impacts:

- there are some outstanding planning permissions for Cleehill and affordable housing is proposed for Doddington, Knowbury and Hopton Wafers. The latter may impact adversely on landscape character and archaeological survival and integrity but this would depend on the scale and location of the proposed developments.

9.8 Shropshire and Telford & Wrekin Minerals Local Plan 1996-2006

9.8.1 *N.B*. This Minerals Local Plan is in the process of being superseded by a Mineral Resources Development Plan; the core strategy for this is in the process of preparation, however, the policies are unlikely to change dramatically from those in the existing Minerals Local Plan.

9.8.2 There is only one active quarry on the Clee Hills; this is Clee Hill Quarry (SO 596 760) operated by Hanson Aggregates Ltd. The quarry produces dolerite for use principally as roadstone and there are overlying deposits of coal and clay. The

original consent covering a large area of the summit of Titterstone Clee and extending up to 2 kms north of the current quarry, was revoked in 1987 in order to allow opencast coal and clay mining. It is understood that the quarry currently pays an aggregates levy.

9.8.3 Titterstone Clee Quarry (SO 594 778) was quarried for stone until the 1960s; quarrying was granted planning permission in 1947 and this was revoked in 1987.

9.8.4 Dhustone Quarries (SO 590 763) were worked until the 1960s and are situated within and to the immediate west of the permitted boundary of Clee Hill Quarry. The Dustone Quarries are now restored and landscaped with overburden.
In Clee Hill Quarry (total site *c.* 115 ha.), the removal, from 1988, of workable coal reserves which overlaid dolerite deposits, was followed by a restoration programme of substantial areas of land including previously disturbed areas and this restoration has left its mark on the landscape. These restored areas are now part of the upland landscape, utilised for hill grazing and compatible with the area's ecological setting.

9.8.5 The Minerals Local Plan is reviewed every five years to take account of updated survey information, forecasts and any revised national policy guidance. In addition, in April 1995, a Strategic Monitoring Report for the Shropshire Structure Plan 1989-2006 was published and this included an environmental appraisal of the Structure Plan minerals policies.

9.8.6 The environmental appraisal indicates that out of 330 identified impacts, 182 are potentially beneficial, 37 could have adverse impacts on the environment, while 111 have unpredictable impacts because the effects will only be known if proposals are submitted. Looking at the results under 'local environment quality' (including geology, t historic environment, landscape, open space, effects on people) the following conclusions can be drawn:

Potentially beneficial impacts:

- a more sustainable approach to minerals development
- regard for Listed Buildings, Conservation Areas, Scheduled Monuments and other sensitive locations
- protection of people and the environment from the unacceptably adverse effects of mineral extraction
- protection of sensitive sites and species including wildlife, landscape, historical and archaeological sites and sites of architectural or geological interest, protected species and important habitats
- protection of nationally important sites and species (includes the AONB, SSSIs, Listed Buildings, Scheduled Monuments)
- benefits to the countryside and local economy (including reclamation and after-use of minerals sites)
- reclamation and after-use if linked to an agreed after-use or to a state capable of beneficial after-use (includes provision for a 5-year period of after-care and a reclamation and management plan). More likely to benefit geological remains.

Potentially adverse impacts:

- need to establish landbanks (10 (formerly 20) year reserve of crushed rock for the forecast period (2006-2016). This period is considered adequate to allow the industry to bring a new crushed rock quarry or extension or deepening of an existing quarry, into production while enabling environmental impact to be controlled through the planning process.
- future development of primary aggregate resources
- bringing non-operational sites into production but greater scope for further allocations where these are linked to giving up rights to work sites of environmental concern
- under powers of the Environment Act, 1995, the up-dating of any old permissions granted before February, 1982
- Clee Hills area is within a 'Minerals Consultation Area' (ensures minerals are not sterilised by development) for both coal and crushed rock. Existing reserves of coal could be mined in future

Unpredictable impacts:

- possibility of extending existing quarries that can supply specialised materials which cannot be supplied from existing permitted reserves, though these would be regarded as 'exceptional circumstances'

9.8.7 The over-arching message in both the Plan and the Environmental Appraisal is the desire to adopt a more sustainable approach to the development of mineral resources. The fact is however, acknowledged that such an approach does not rule out further mineral development and it is conceivable that the need for minerals could override environmental interests.

9.9 Shropshire Hills AONB Management Plan 2004-2009

9.9.1 This is the first statutory Management Plan for the Shropshire Hills AONB, approved in March, 2004 and published in July, 2004. The Plan is reviewed and updated annually. There is a statutory duty to prepare a Management Plan which rests with the five Local Authorities within which the AONB lies. This duty is fulfilled jointly via the Shropshire Hills AONB Partnership that includes the Local Authorities, statutory agencies, the private and voluntary sector, the local community and individual members. The AONB Team supports the Partnership and Shropshire County Council acts as the host authority, employing the team.

9.9.2 An Action Plan update was published in 2006 and a further update is in preparation. Almost all the Management Plan policies are supportive of the retention of significant geological and archaeological features, though some individual initiatives may conflict - *e.g.* improves access and biodiversity and nature conservation projects and further archaeological survey and conservation (see further below).

9.9.3 In summary, the three main aims of the Plan are generally supportive of the retention of geological and archaeological significance:

A: maintain distinctive character and value of the Shropshire Hills through positive
management of change

B: maintain and/or enhance the special qualities and features of the Shropshire Hills
C: maintain restore and enhance as appropriate special qualities and features and prevent their loss or degradation through sustained management

9.9.4 Within each of these aims, the following objectives and achievements are supportive in principle of retention of significant geological and archaeological features and the management initiatives proposed for them.

Aim A:

- integration of Landscape Character Assessment and Historic Landscape Characterisation into AONB database and roll-out to key partners and development of applications of this model in support of AONB aims
- develop policies for protection of the AONB in Local Plans and Local Development Frameworks

Aim B:

- refinement of AONB's special qualities and identification at detailed level of specific features of value
- encourage volunteer involvement in survey and recording of features of interest, including historic features
- reduce risk to special features by raising awareness of their importance with landowners

Aim C:

- promote sources of existing guidance on management of landscape features
- establish headline indicators for monitoring AONB's special qualities, based on national best practice
- provide data relating to headline indicators
- monitor landscape change through a programme of fixed-point photography

9.9.5 The following policies have the potential to conflict with archaeological objectives though all are likely to be resolvable without major detriment to the natural and historic environments:

- comply with national target of achieving 95% of SSSIs in favourable condition – necessary measures might prevent access for further archaeological and geological survey and/or conservation and creation of new access routes
- work with AONB Partnership to develop strategies for agriculture, forestry, transport. tourism *etc.* Development proposals might impact negatively on the geological, natural and archaeological landscape
- input to Environmental Stewardship and other schemes such as England Woodland Grant Schemes. Any proposals would be likely to take into consideration the need to promote positive management, but there is potential for conflict.

- develop understanding of development threats and produce guidelines on positive management. Some development might impact negatively on the archaeological and geological resource

9.10 Shropshire Cultural Strategy, 2003-2007

9.10.1 The Shropshire Cultural Strategy is the culmination of a two-year public consultation period; during this period, people were asked about what they feel is special about Shropshire and its cultural life. Most people said that they felt all aspects were 'special' – the landscape, the heritage, people and the pace and quality of life. The published strategy is a framework which will help the County Council to:

- be clear about people's needs and priorities
- work together on the things that matter most
- raise awareness of the importance of Shropshire's culture and heritage
- ensure that culture's place in major policies and developments isn't overlooked.

9.10.2 With respect to the historic environment, people attached special importance to Shropshire's history, emphasising the county's long history as a border county and its role as a cradle of the Industrial Revolution. The geology of the county was also highly valued.

9.10.3 The cultural strategy attaches great importance to the role of culture as central to our sense of community. Cultural activity brings people together and stimulates participation in a diverse range of activities.

9.10.4 Ninety-four percent of people felt a personal attachment to the rural environment and valued landscape and the historic environment. Promoting access to the countryside and improvement and maintenance of rights of way were felt to be important and importance was attached to increasing awareness and understanding of the county's history, geology, natural history and the archaeology of the built and natural environment. Many people favoured appropriate development to safeguard these valued resources.

9.10.5 Increasing opportunities for lifelong learning emerged as a priority area; the remit for this could be much wider and include the use of alternative learning environments and resources such as is envisaged in this Plan for the Novers limekiln complex, the themed walks that have already taken place on the Clees, the use of the Clees by school groups *etc.* Easier access to historical and environmental data would facilitate creative approaches to learning amongst all age groups and would help to encourage groups who currently feel excluded – the old, the young, the disabled, people on low incomes *etc.* Seventy-five percent of young people wanted to be involved in decision-making and 27% wanted to be more involved in the community.

9.10.6 Many people felt that Shropshire's heritage was not being exploited to the full and that the county is 'hiding its treasures'. Encouraging tourism through culture was considered a priority area, though the need to carefully manage the impact of increased tourism on culture, community life and the environment was also recognised.

9.10.7 The promotion of current tourism provision was seen to be disjointed and duplicated; a need to co-ordinate disparate 'pockets of activity' was stressed. A partnership consortium could achieve a sharing of resources, skills and opportunities and help make effective links with other initiatives (*e.g.* Shropshire Tourism Strategy, Shropshire Community Strategy), networks and agencies whose remit is quality of life issues.

9.10.8 Priorities for improving the environment are to:

- provide more information about and celebrate the importance of Shropshire's heritage and environment
- encourage young people to care for the environment
- improve access to the countryside
- manage the tensions between development and conservation

The strategy highlights existing activity via:

- the CROW Act and other legislation (*e.g.* Rights of Way Improvement Plans) which are leading to better access to the countryside
- the AONB Management Plan
- the Biodiversity Action Plan (2002)
- a strong network of voluntary and community groups addressing environmental issues
- the strengths in existing environmental education provision via the LEA, schools, charitable trusts and environmental agencies
- visitor centres promoting awareness, *e.g.* Secret Hills, SWT centre
- externally-funded projects, *e.g.* Back to Purple, Blue Remembered Hills, ALSF (Shropshire quarries survey, archaeological survey on Clee Hill)
- transport issues currently being dealt with via the Local Plan

Further action identified includes:

- a sustained programme to meet the County Council's obligations under the CROW Act, including the upgrading of rights of way and nature reserves
- identify areas for action that could involve voluntary groups
- develop a county-wide interpretation plan to include access and education in order to widen and encourage public interest
- develop the visitor centres, TICs and TIPs in the light of the existing tourism strategy

Priority areas for lifelong learning included:

- promotion of cultural and creative opportunities
- encouraging learning through creativity
- overcoming barriers to learning
- making the best use of educational and cultural resources
- improving the links between higher and further education and the cultural life of Shropshire

9.10.9 It is already recognised that schools and colleges are proven cultural centres with a capacity for wider cultural development. The LEA, the Learning

and Skills Council and higher/further education institutions provide a framework for cultural and creative action. The heritage sector is developing a co-ordinated approach to educational visits and supportive resources (*e.g.* Museum in a Box scheme).

9.10.10 Improvements in lifelong learning opportunities could include:

- closer mainstream links between the cultural sector and the LEA, FE colleges and schools to encourage high-quality culture-based courses
- development of cultural learning resources such as Museum in a Box, Museum on the Move, outreach events and media-based learning
- provision of a clear statement of cultural sector educational aims to education providers via, for example, the County Arts Plan
- encouraging and assisting research into Shropshire's landscape and heritage
- linking to the Community Strategy to fully explore options for further education

9.10.11 The value of culture and heritage in attracting additional funding in economic regeneration schemes is identified in the strategy. Culture and heritage are identified as key elements in the promotion of Shropshire's tourism strategy, with development of holistic 'package' to include leisure visits. Existing activity is making some headway – links with regional funding agencies are being developed, a tourism strategy is being implemented, there are already a number of visitor attractions in the county.

9.10.12 The Cultural Strategy is identified as a vehicle for promoting culture as part of regeneration. Venues and attractions should be promoted, development plans for key local attractions (*e.g.* Acton Scot Historic Working Farm, Secret Hills, Shrewsbury and Ludlow Museums) need to be finalised, festivals and events should be promoted and the development and application of traditional skills and crafts should be encouraged.

9.10.13 It is not surprising that a number of recurrent themes crop up within the Cultural Strategy and in many respects these themes are mirrored in other strategies (*e.g.* Shropshire Tourism Strategy and Shropshire Community strategy). The recurrent themes relevant to management proposals in this Plan include:

- a sustained and co-ordinated approach to consultation, including the meaningful involvement of young people in what services are provided and how
- mapping Shropshire's key cultural assets and facilities and identifying significant gaps in provision and priorities for development
- improved and more co-ordinated approach to community information and marketing of events
- using government and private sector initiatives to make the most of ICT as a communications and information tool
- a co-ordinated approach to education and outreach planning in the cultural sector, to produce cost-effective packages and learning resources and content relevant to educational institutions
- stronger and better-co-ordinated links between the educational and cultural sectors

- links to the mainstream by demonstrating the importance of culture to mainstream networks for learning, young people, equalities, community regeneration and economic development
- proactive measures incorporating policies in the Shropshire Tourism Strategy to implement an Interpretation Plan for Shropshire which will include a clear vision for key assets and venues, a coherent approach to festivals and events workshops and support to enhance interpretation across Shropshire
- better communications and exchange of information
- provision of specialist advice, technical expertise and practical guidance
- funding support both directly and by supporting fundraising

9.10.14 Better transport to enable people to get to various venues should be provided, with better integration of existing provision and people felt that more attention should be given to parking and transport issues when developing visitor attractions.

9.10.15 The Clee Hill landscape is a cultural one – it encompasses topography, habitats, semi-natural features and palaeoenvironmental deposits as well as archaeological sites, sacred sites, historic buildings, and the modern built environment. Cultural landscape is about recognising the ways in which the present landscape reflects how people have exploited, changed and adapted to their physical environment through time, with respect to different social, economic, technological and cultural aspects of life. It allows recognition of the fact that landscape is the product of dynamics and change and that fundamentally it is valued and owned by the communities that live within it with a '*pride of place'*. It accepts that further change is inevitable but suggests that by promoting understanding and a local value of place such landscapes can be sympathetically and successfully managed to ensure their continuing survival.

9.10.16 *A Force for Our Future*, the Government's statement on the historic environment, published in December 2001, describes the historic environment as a 'sleeping giant' whose energy is ready to be released. Education, social inclusion, planning, conservation, regeneration and tourism are all set to gain from this new understanding and commitment. The historic environment holds the key to:

- an inspiring education resource
- more attractive towns and cities
- a prosperous and sustainable countryside
- world class tourist attractions and
- new jobs.

9.10.17 All of the above apply to the microcosm of The Clee Hills that include upon their slopes small agricultural and industrial villages, three primary schools, one secondary school and more importantly the generations of people who in their lifetimes have witnessed the more recent changes impacting upon the hill. In particular this includes the recent history of the extractive industry which has for several hundred years been a part of the community and which has in recent years has seen extensive open-cast coal extraction and an increasingly mechanised and automated quarry industry.

9.11 Shropshire Biodiversity Action Plan

9.11.1 This is operating at the local level within the Government's response to the Convention on Biological Diversity, signed in 1992. The Shropshire Plan is one of the eleven West Midlands local Biodiversity Action Plans with targeted actions and was produced by the Shropshire Biodiversity Partnership, a partnership of local and regional organisations including the Shropshire Wildlife Trust, RSPB, Natural England as well as Shropshire County Council.

9.11.2 The main objective of the Plan is to identify and target action plans for threatened species and habitats in Shropshire and to determine the contribution this work can make to the delivery of the national Species and Habitat Action Plan targets. As such, the objectives and vision of the Plan are more closely attuned to issues relating to the natural environment, although specific management objectives may be both compatible and incompatible with archaeological objectives.

9.12 Community Strategy for South Shropshire, 2006-2009

9.12.1 Priority areas within this strategy, produced by the South Shropshire Partnership, are:

- stimulating a thriving economy
- promoting lifelong learning
- improving the environment
- reducing crime and promoting community safety
- community well-being

The strategy acknowledges the need to research local community values and needs and to co-ordinate organisations and individuals who can together fulfil needs and aspirations. Key priorities which support the retention, understanding and use of significant geological, historical and archaeological landscapes of the Clees are those which aim to:

- conserve and enhance the valued characteristics of the local landscape
- raise environmental awareness and communications
- monitor and contribute to the quality of land use and development
- contribute to the control of physical factors that lead to degradation of environment or quality of life
- encourage farming and land management that support a sustainable economy, environment and a healthy community
- sustainable leisure and recreation

9.12.2 Potential future actions of the strategy are to develop and support community-led projects to conserve, enhance and interpret the local landscape, the promotion of the Parish paths partnership across the District and the roll-out of best-practice projects and activities from the AONB. Much has already been achieved in these areas by the Blue Remembered Hills Project. Proposals to secure further funding to maintain and develop the 'Walking for Health' initiative (a nationwide initiative launched by the British Heart Foundation and the Countryside Agency in 2000) are being put forward. The South Shropshire scheme has already been a great success and there is much scope to apply it to new walks on the Clees.

9.12.3 The last workers in the original Titterstone Quarry must now be reaching the end of their lives and it will be an important priority of this project to record the lives and experiences of these people while they are still available to us.

9.12.4 There are also good local precedents in this context in the community oral history project at Snailbeach. As in that case, it is proposed that this work will be done by the local community for the local community.

9.13 A Tourism Strategy for South Shropshire, 2004

9.13.1 This strategy was produced by South Shropshire District Council and is the first tourism strategy for the district. The intent and purpose of much of the strategy is supportive of this Plan's recommendations to enhance the visitor amenity of the Clees in the widest sense so that people can enjoy the historic and natural environments on offer – whether as students of geology, archaeology and local history or walkers and holidaymakers.

9.13.2 The strategy acknowledges the importance of retaining local distinctiveness, believing it should form the bedrock for future tourism developments. The corollary is that the tourism strategy is based around the six market towns of the district, which include two close to the Clees – Ludlow and Cleobury Mortimer – the rest being Bishop's Castle, Craven Arms, Clun and Church Stretton. Given that the landscape and rural experience are a key attraction for many visitors who come to Shropshire, the leisure and educational resources offered by the Clees can easily be advertised as part of the wider market towns initiative.

9.13.3 Some of the themes already identified could be incorporated into improved visitor amenities on the Clees – for example, improved public transport, improved signage (including reducing clutter harming landscape character) and a brown sign survey which, it is acknowledged, should be commissioned at county level. Another theme identified is that the Secret Hills Discovery Centre in Craven Arms should direct more effort into achieving a greater geographical and seasonal spread of tourism which, if implemented, could raise the profile of the Clees.

9.13.4 The strategy acknowledges the value of Tourist Information Centres (TIC) and Tourist Information Points (TIP); provision of both is currently being evaluated at county level. The role of TIPs is important in rural areas such as the Clees and could be improved, with wider outlets such as village shops and amenities such as carparks. There is certainly room for improvement in visitor information in Cleehill village and the immediate surroundings.

9.13.5 The strategy acknowledges the importance of landscape and heritage protection linked to tourism management and sustainable tourism development, particularly within the AONB. The strategy links in particular to three of the aims of the AONB Management Plan:

- sustaining the viability of the rural economy
- supporting public enjoyment of, and access to, the AONB
- promoting public awareness of the AONB and its special qualities

9.13.6 The strategy also acknowledges the importance of local heritage and conservation and is supportive of promoting opportunities for conservation and

traditional skill training and retention, both of which have vocational and vocational potential which could prove attractive to visitors.

9.13.7 Of the three geographical or spatial themes identified as part of the strategy, the 'landscape of industry and invention' theme is already promoting the Clees and Snailbeach as visitor attractions.

9.13.8 Some of the management proposals in this Plan may be eligible for funding available through the sustainable tourism development strategy; for example, specifically identified is funding for villages/parishes that wish to improve visitor potential.

9.13.9 Financial support to improve country pubs and inns is potentially also available and could be applicable in Cleehill and surrounding villages as currently, visitor facilities are minimal and almost unwelcoming

10. Other initiatives

10.1 Blue Remembered Hills project

10.1.1 This project has operated within the policies and objectives of the AONB as a whole and has a number of cross-linked themes with other projects such as the Biodiversity Action Plan (BAP), management objectives (especially upland grazing) of Natural England and the South Shropshire Local Plan; it was a 5-year Landscape Partnership project funded by the Heritage Lottery Fund and delivered through the AONB Partnership. It covered a larger area than the AONB, delivering a number of cross-cutting themes to include education and interpretation, sustainable access, new product development, grazing management (specifically targeted to Clee Hills), wildlife sites, riverside alders, orchards, upland management, wildflower meadows, veteran trees, local provenance trees and black poplars.
Within the Blue Remembered Hills project, an additional source of funding from the ALSF was secured for 2006-2007 and the project is due to finish in December, 2007. The ALSF grant specifically targeted work in the Clees and other areas (*e.g.* the 'Down to Earth' projects) and extended outside the defined area with the following objectives:

- to raise local community awareness and engender active participation in sustainable management of the landscape's heritage assets and their connection with local communities and the industrial past
- to conserve these heritage assets through positive management
- to improve physical and intellectual access to the Clees and the impact of historic mineral extraction on the landscape in the area
- to develop an ecologically and economically stable area for future generations

10.1.2 To date, the project has achieved a number of its targets, including community engagement with an open day at Cleehill Primary School to 'sound out' local interest, a number of themed walks on the hill, an oral history project has been started and management schemes have been instigated on a number of wildlife sites, wildflower meadows and orchards. In addition, the Titterstone Clee Heritage Trust has been established as a direct result of the impetus resulting from the ALSF-funded project. Other achievements within the overall BRH project have included walking events, promotion of some of the most spectacular views in Shropshire (included Tittertsone

Clee), development of sustainable access projects, improving the quality of wildlife sites (working within BAP goals), upland management, including a managed grazing project

11. Scheduled Monuments at Risk (SM@R)

11.1 It is important that this project be mentioned in this Plan because of the manner in which management objectives and, more importantly, funding, are increasingly being driven by risk. This project, a national survey instigated by English Heritage, was completed for all Scheduled Monuments in the West Midlands Region in 2006 with the following objectives:

- to assess the condition, vulnerability, amenity value and setting of scheduled monuments
- to ascribe levels of risk to each monument
- to recommend appropriate management and establish priorities for action for each monument

11.2 Twenty-nine percent of the region's scheduled monuments (1444, 7% of the national total) were found to be at high risk. Most archaeological monuments are at risk from one or another agency, but within the terms of the SM@R exercise none of the Clee Hills monuments is believed to be at high risk, however, scrub encroachment, animal burrowing and vehicle and visitor erosion put some monuments at medium risk, *i.e.* they are in generally satisfactory condition with minor localised problems, typically affecting up to 25% of the monument. This situation could change if Titterstone Quarry were to be re-worked – this could potentially have a very detrimental effect on the scheduled prehistoric hillfort and coal mining remains.

Chapter 4: Management recommendations

1 Introduction

1.1 The management and other proposals put forward in this Conservation Plan for the industrial and pre-industrial heritage can be divided into the following categories:

- proposals for sustainable management of individual monuments or groups of monuments involving scrub and vegetation control, erosion repair, controlled grazing *etc.*
- proposals for repair/conservation of standing structures
- proposals for enhanced visitor access and presentation such as themed walks, improved signage, use of IT-based information devices
- proposals for community involvement
- proposals for development of a visitor centre at The Novers
- proposals for a visitor centre on Clee Hill
- proposals for further designation of selected features

1.2 A major consideration in the achievement of any of the above objectives is the impact any of them could have on other remains, notably the high status and extremely important natural and geological environments. There are four SSSIs and significant non-designated flora, fauna and geological remains within the defined area and it is important that any interventions are the subject of collaboration between the relevant organisations. In this respect, there is already a network of contacts and protocols in place to ensure that consultation takes place. There are a number of initiatives, principally those of the Shropshire Hills AONB Unit and Shropshire County Council's Sustainability Group, that have sought to cater for a wide range of issues and provide management solutions for them.

1.3 The defined area is currently owned by:

- Downton Hall Estate
- Hopton Court Estate
- Hanson Plc
- Minor landowners yet to be identified

1.4 The defined area is currently managed by:

- Shropshire County Council
- South Shropshire District Council
- Natural England
- Shropshire Wildlife Trust

2. Natural environment/ecological recommendations

2.1 Potentially, all the objectives for the historic environment defined above could impact in some aspects on the natural environment but in particular, it is important that the following be noted with regard to fauna:

- recorded protected species include badgers, peregrine falcons , great crested newts and common lizards
- there are likely to be other protected species habitats including those of great crested newts, adders, slow-worms, peregrine falcons, slow-worms, dormice,

bats and badgers, green hairstreaks, skylark, grayling, nightjar, brown hares, yellowhammers

- some species are specifically targeted by the Biodiversity Action Plan

Quarry	Significant habitats (BAP list/section 74)	Species				Further survey priorities
			BAP	Protected	Notable	
Titterstone Quarry	Lowland acid grassland Standing open water Fens (flushes and mires) Semi-improved upland rough grassland	Recorded		Common lizard Great crested newt		Reptiles and amphibians Invertebrates (aquatic also)
		Potential	Ring ouzel Green hairstreak Snipe Curlew Nightjar Skylark Yellowhammer Brown hare Pearl-bordered fritillary Small pearl-bordered fritillary	Adder Peregrine falcon bats	Smooth and palmate newt	
Dhustone Quarry	Acid grassland Open water Semi-improved upland rough grassland	Recorded			Mountain pansy	
		Potential	Ring ouzel	Great crested newt Slow-worm	Palmate or smooth newt	
			Grayling Green hairstreak Skylark	Peregrine falcon Common lizard		
Treen Pits	Lowland acid grassland Fen (mire)	Recorded	Grizzled skipper (?)	Badger (1 small active sett)		Invertebrates
		Potential	Ring ouzel Green hairstreak Snipe Curlew	Adder	Smooth and palmate newt	
Clee Hill Quarry	Acid grassland Fen (acid flushes) Open water Semi-improved upland rough grassland	Recorded	Green hairstreak Skylark	Peregrine falcon Common lizard	Palmate or smooth newt	Amphibians and reptiles Landowner reported nightjar in vicinity Invertebrates (aquatic also)
		Potential	Snipe Curlew Ring ouzel Grayling	Great crested newt Slow-worm		
			Small pearl-bordered fritillary Nightjar	Adder		
Novers Limeworks Lies immediately S. of defined area)	Semi-natural broadleaved woodland Species-rich grassland (neutral and calcareous)	Potential	Song thrush Wood white Polecat Dingy skipper Grizzled skipper	Doormouse Bats Badgers (a number of active badger setts)		Dedicated bat surveys throughout the year Spring flora survey Small mammal survey
Clee Burf Quarry N. of defined area but included here for comparison	Lowland acid grassland Semi-improved upland rough grassland	Potential	Snipe Green hairstreak Ring ouzel Grayling Small pearl-bordered fritillary Skylark	Great crested newt Common lizard Slow-worm	Palmate and smooth newt	Invertebrates Breeding birds

Fig 12: Summary of 'Shropshire Quarries' survey

2.2 The table above (Fig.12) summarises the provisional results of the ALSF-funded Shropshire quarries survey that are currently available and relevant to the defined area (includes The Novers and Clee Burf which lie outside defined area)

2.3 The above results are provisional but protected species are recorded and there is potential for the discovery of more. Any management proposals, *e.g.* building conservation in Titterstone Clee Quarry, conservation/management work in The Novers and elsewhere needs to take account of protected species and avoid disturbing them altogether at certain times of year (*e.g.* late spring/mid-summer for breeding bats roosts, winter for bat hibernation roosts; spring/summer for breeding birds and badgers). Natural England should be consulted in the first instance before any interventions take place as the precise management requirements will vary both between and within sites according to the needs of different interests and site conditions.

2.4 There are specific concerns for breeding wheatear and stonechat populations. Stonechat and wheatear are important inland colonies on the Clee Hills; they are very specific to certain habitats and that is why the Clee Hill suits them so well. Both species have approximately 50 to 60 breeding pairs. This does not fluctuate much, and they are very faithful to the same or close nesting sites. Work being undertaken by the Chelmarsh wildlife site (pers.comm. Dave Fulton) confirms the following:

Threats: Stonechat. As these are more spread out, they are a little less vulnerable to habitat change and disturbance. They nest 95% in gorse in this particular area (Clee Hill), and the gorse management is key to their survival. They benefit from the occasional gorse burning, as long as it is done in small area rotation, to still allow them areas in which to nest. If the gorse is just left to grow, it becomes straggly and unsuitable for nesting. They prefer dense compact bushes. The birds start nesting from March onwards, so any burning of gorse after early March can destroy nests. The best areas for Stonechat are gorse patches with short grass surrounding where they can feed. They feed on the ground on insects in this short grass. Hence, sheep grazing is also important for them to keep feeding areas suitable.

Threats: Wheatear: This is the species particularly under threat. They nest in holes under rocks, hence prefer areas close to the quarry, or in the quarry itself. They nest alongside roads in areas strewn with boulders, and on scree slopes. The main threat comes from the agreements the quarry have to return any quarry areas, once finished, back to pasture land. The areas they have already returned to pasture are totally unsuitable for Wheatear nesting, being large grassy fields. The type of grass they are using also does not seem suitable for feeding areas. In 10 years time, if all the existing quarry areas are returned to this type of habitat, I believe we could lose the entire colony. Perhaps you could change the rules on returning the land to pasture, and leave areas round the margins of the fields with rough boulder strew areas. If they want it tidier, dry stone walls are also good for nesting habitat. I don't know much about grasses, but I know Wheatear will feed on closely grazed 'older' grass patches. They do not seem to feed on the coarser grasses that are replanted on the reclaimed land.

Because the Wheatears nest along roadways, in the margins of car-parks, they are nearer to areas the public frequent. They will put up with a reasonable amount of disturbance, such as people walking past. What upsets them is major disturbance in

the nesting period. This is in May/early June. Large organised gatherings have created havoc with them in the past. *i.e*. Orienteering group, who stage a massive day out, with up to 500 people all who park all day on top of nest sites. I have talked with these people in the past, and they seem reasonably concerned. However, they seem blatantly opposed to moving the event a few weeks earlier or later in their calendar.

The increased pressure from motorbikes and 4 x 4 vehicles using the area at the top of Titterstone, is also causing excessive disturbance and nests to fail.

Even the general public will quite innocently disturb nests by pic-nicking for hours on end close to active nests. This again is only over about a six week period. Perhaps a campaign to educate them could be put in place. At the moment, when they see a bird near them calling, they think it is nice, but little do they know that the bird is alarm calling as they are parked over its nest. Or perhaps some restrictions on access could be put in place during the short nesting period".

2.5 The same general constraints on management apply to flora, *i.e.* any proposed interventions should be the subject of prior discussion with Natural England. Notable habitats include:

- acid grassland
- semi-improved upland rough grassland
- lowland acid grassland
- species-rich grassland (non-calcareous)
- fen (acid flushes)
- fen (mire)
- semi-natural broadleaved woodland
- open water
- standing open water

All support a diverse range of important flora (see further Appendix xx) for which management recommendations include:

- low-intensity grazing, preferably with cattle and sheep; rabbits also keep down grass (Treen Pits quarry, Clee Burf quarry, Titterstone Quarry, Clee Hill Quarry, Dhustone Quarry). Suitable means of managing areas of dry heath. Generally, areas of wet heath require limited management but light grazing may be useful for maintaining the variation in vegetation composition and structure and for controlling invasive grasses. By feeding selectively, free-roaming livestock help to maintain variation in vegetation composition and structure.
- ongoing scrub control, especially of gorse and bracken, although in some areas, a percentage should be retained (Treen Pits quarry, Clee Hill Quarry, Dhustone Quarry)
- control of invasive weeds (Treen Pits quarry)
- preventing disturbance and compaction near parking areas in Clee Hill Quarry and caused by motorcycling – especially on the lower spoil heaps in Titterstone Quarry
- monitoring of disturbance caused by visitor pressure, cycling, orienteering *etc.*

- monitoring of issues associated with vandalism, *e.g.* burning of gorse which may not always result from prioritised management and burning of cars (Titterstone Clee Quarry)
- conservation woodland management on The Novers site; also important to enhance and increase the existing area of calcareous grassland, neutral grassland and heathland by means of scrub, tree and bracken clearance. Bracken clearance should ensue with caution as it may provide habitat for specific fauna such as adder.

2.6 Some aspects of existing access are already of concern because some kinds of flora and fauna are extremely susceptible to compaction by *e.g.* walkers, horse riders and motorcyclists and would also be harmed by the use of herbicides and pesticides if these were used to improve access (including adjacent areas to access routes) so any proposed new access routes should be the subject of consultation with Natural England in the first instance so that mitigation can be put in place if appropriate.

2.7 It is noteworthy that access issues are already recorded by Natural England and Shropshire County Council as having high environmental impacts in Dhustone, and Clee Hill quarries, with unofficial access to Clee Hill Quarry and restricted access to Dhustone Quarry. Three sites – Treen Pits, Clee Burf and The Novers are recorded as having minimal environmental impact with regard to access. Although access is restricted in some cases, the actual use is unknown but, in the case of Dhustone Quarry, for example, the steep slopes running almost the length of the site probably preclude access by people other than occasional walkers.

2.8 No statistics are available for use of the defined area for horse-riding but this would be a sensitive issue in habitats susceptible to compaction, especially along stream margins, bogs and heathland vegetation. Any upgrading of or increase in the number of bridleways would be of potential concern in some areas.

2.9 The general management constraints discussed above apply also to areas outside the quarries, particularly those designated as SSSIs. For example, on the Catherton Common SSSI, it is important that management programmes maintain the open nature of heath and include stands of native heathers in order to support the greatest diversity of plants and animals. Without this, reversion to bracken, gorse, scrub and trees will result.

3. Geological recommendations

3.1 Geoconservation, Interpretation and Access

3.1.1 From the foregoing account in Chapter 3, it will be realised that considerable local interest attaches to the geology of the Clee Hill area, both as something of a curiosity in its isolation and high altitude preservation and as an area in which representative examples of all the Carboniferous formations can be seen within a very small radius.

3.1.2 At present, the geological interest enjoys some protection by virtue of being embraced within the four SSSIs on the hill, of which only Cornbrook Dingle is primarily for geological interest; though clearly the geology is instrumental in determining the nature of the other sites.

3.1.3 Additionally Cornbrook Dingle and Titterstone Quarries have been designated as RIGS (Regionally Important Geological and Geomorphological Sites). During the current renewed round of surveying by Shropshire Geological Society it is anticipated that a further six or more specific locations will be added to that list.

3.1.4 There is no inherent conflict between protection of specifically geological sites and other conservation interests such as archaeology or wildlife. Only on the pit-mounds of the Cornbrook coalfield is there likely to be collection of any rock specimens – and those only the occasional picking over of loose pebbles of coal, shale and ironstone at the exposures naturally created as sheep scrapes.

3.1.5 All the current interpretation for the area specifically relates the geology to other aspects of the natural and historic landscape. This includes the information panels erected by Hansons overlooking the Incline Quarry *(Plate 20, right)* and the working Dhu Stone Quarry, as well as the notice-board on Clee Hill village car park. *Scenesetters* are discussing a new edition of their leaflet, *Clee Hill: the all round view*, with substantial expansion into a 16-page booklet for the general visitor souvenir market.

3.1.6 The Shropshire Geological Society has produced a 'GeoTrail' for Clee Hill, as one of a series of eight for the county, which is targeted at an interested but lay audience. The Society has close links with the Shropshire Hills AONB and, through their Blue Remembered Hills Project, with the on-going provision of guided walks on Clee Hill. The Society is likely to welcome direct representation on any local community forum that might evolve for protection of the hill, such as the Titterstone Clee Heritage Trust

3.1.7 Since the 2000 CROW Act, the open common land of the hill has been registered as "Open Access Land", which gives legal free access to most of the sites of geological interest on the main area of Titterstone Clee. Most other sites can be accessed from Public Rights of Way. Clearly permission is required to enter the working Dhu Stone Quarry, but Hansons have a commendable record of willing assistance on this, consistent with adhering to necessary Health and Safety constraints, and for most purposes the features can be seen from their second view point on the top of Hoar Edge (*Plate 17, below*)

3.1.8 Clee Hill demonstrates so much inter-dependence between its geological skeleton, the natural vegetation and the cultural landscape, that it is an area that will benefit enormously from a totally integrated view of its interpretation. The map below (Fig. 13) indicates the existing designations which affect it; the aim should be to coordinate all these interests for greatest public benefit, and not least to underline the importance of rock to the landscape.

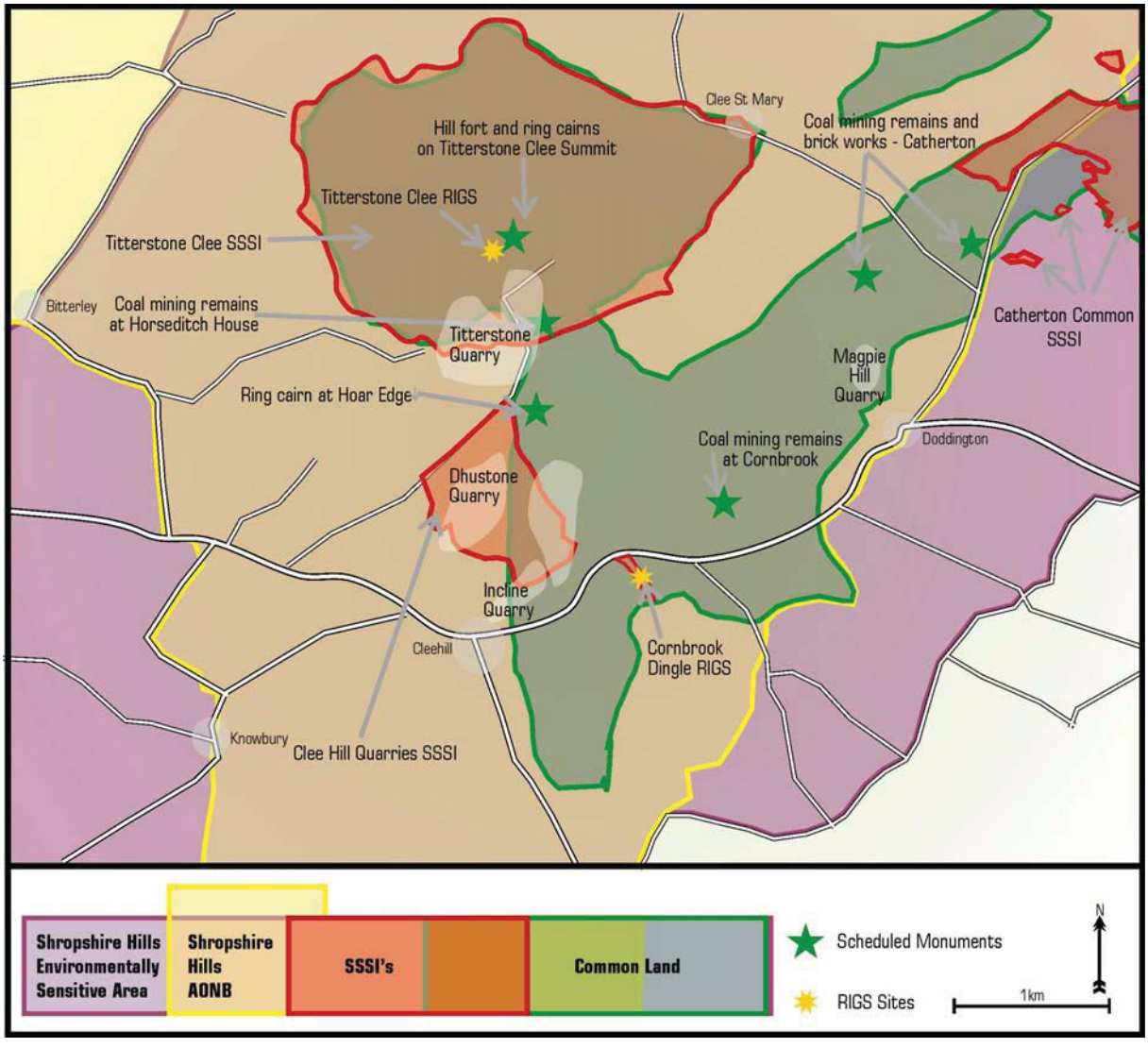


Fig. 13: Existing designations

4. Historic environment recommendations

4.1 Introduction

4.1.1 The most fundamentally important recommendation for the archaeological landscape of the Clee Hills is that it should be protected from further mineral extraction in view of its physical survival, chronological depth, diversity, local distinctiveness and spatial relationship with significant ecological and geological remains. Although existing planning policy (PPG15, PPG16 and other national, regional and local policies) urges sustainable development and makes provision for mitigation and the protection of areas of designated landscape and conservation value, the caveat exists that economic demand could prevail over historic environment considerations. In these circumstances, the impact on the industrial landscape of the Clees would be damaging and irreversible. In particular, further opencast coal mining accompanied by open area restoration would disfigure the historic character of the landscape, reduce its legibility and compromise the setting of its archaeological, geological and ecological features.

4.1.2 Apart from the possibility of establishing a visitor centre at The Novers, a larger and more 'ambitious' visitor centre on Clee Hill and some improved access and interpretation, most of the remaining recommendations in this Plan are relatively low-key and involve little more than promoting sustained management of earthwork sites by scrub control, erosion repair and controlled grazing or further survey of archaeological features and detailed survey and localised repair of some standing structures.

4.2. Structural appraisal of quarry buildings (see Appendix 9,)

A structural survey of the quarry buildings was undertaken in November, 2006 as a preliminary to further recording and conservation work. In summary, the following was identified:

4.2.1 Titterstone (West) Quarry

The condition of the standing buildings in Titterstone Quarry was found to be generally good. With the exception of a small number of brickwork walls, most of these structures are made of reinforced concrete and construction is taken to be between 1910 and 1913. The report stresses the remarkably resilient nature of all concrete structures across the site and states that, with the exception of the following, they are in good condition with no risk to public safety. The high risk structures are:

- a silo under a croft (S1 in report, Appendix 9) – due to defects in the supports, structural status is currently questionable. Full repair will reduce the risk although the supports are still vulnerable to impact damage from vehicles. This is a serious threat as it is known that people drive vehicles into this quarry.
- Generally, exposed and protruding steel reinforcements/holding-down bolts are a physical hazard
- Silo S2 is supported on longer but quite slim fins; the underside of the base slab has experienced random but nor extensive surface blowing
- Access to the interior of the silo was not possible during the survey but it is assumed that some degree of degradation is present

- The collapsed remains of a container with protruding reinforcements could be a safety hazard

The report identifies the need for essential repairs and ongoing routine repairs. The main concern relates to the condition of the silo support columns and it is important that the precise nature of corrosion of the reinforcements be identified before agreeing remedial action. Stabilisation will require the use of specialist contractors.

It will be necessary to target localised repairs and implement them as necessary.

4.2.2 Titterstone (East) Quarry

Two structures (B1, B2) and a small number of foundation blocks were evaluated on either side of the approach road. The approximate date of construction is taken to be 1910-1913.

Building B1

Principal defects and problems are:

- charred timber lintels which are inappropriately sized to support the masonry roof
- degradation of the concrete and associated reinforcement rails of the roof.
- there is a safety issue and the building is currently too dangerous to enter. The feasibility of repair to the structure needs assessment. Minor masonry reconstruction and consolidation is also required.

Building B2

This building is considered to be beyond repair and probably in a dangerous condition; a decision needs to be made on whether resources should be spent stabilising it or whether it should be demolished.

4.2.3 Structural appraisal of The Novers limekiln complex (referred to as 'Lime Kilns – Knowlegate Clee Hill in report in Appendix 10)

The kilns are located on the south-facing hillside above a minor road (A 4214) and are possibly late-18th-early-19th-century.

Only two kilns were examined and both are considered to be currently stable. However, further detailed evaluation of the entire site is required and this cannot be effectively carried out until a programme of scrub clearance has been undertaken.

The survey identified the instability of the feeder pots; care will need to be taken in installing any temporary supports to allow repairs to proceed.

There is potential for particularly bryophytes to colonise building remains and any work proposed would need to be aware of the importance of particular plant and animal species.

4.3. Recommendations for archaeological features

4.3.1 Introduction

(Please refer to the gazetteer in Volume 2 for location of individual features discussed below; figures in paranthesis are unique numbers for sites discussed in Vol. 2).

4.3.2 The following recommendations for archaeological features are based on ground inspection of sites in the defined area (and The Novers outside the defined area) and include:

- sites of national importance, usually Scheduled Monuments
- sites of regional importance
- sites of local importance
- sites of limited importance, including those sites so badly disturbed or poorly documented, that too little now remains to justify their inclusion at a higher grade

The Secretary of State for the Environment's published non-statutory criteria for the Scheduling of Ancient Monuments (PPG16: Annex 4 1990) and the English Heritage guidance on the 'New Approach to Appraisal' (1998) have been used to determine these levels of significance. These criteria are: rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity, potential and amenity value.

4.3.3 Full details of the current management regime and preferred future management are included for each site or group of sites (a group might constitute a group of bell-pits) in the relevant gazetteer entries in Volume 2, as well as recommendations for further archaeological fieldwork if considered to be appropriate, particularly where further strategic focused work may address specific questions within the project and/or wider knowledge base. The following section is therefore a condensed version of the gazetteer entries with recommendations for specific sites. Management issues relating to access are discussed separately. These recommendations should form the basis of further work emanating from this Conservation Plan.

4.3.4 There are already a number of management initiatives in operation within the defined area; these include Environmentally Sensitive Area (ESA) Agreements, some Entry Level Stewardship (ELS) schemes and schemes initiated by Natural England, *e.g* grazing trials. There appear to be no Higher Level Stewardship (HLS) schemes currently in operation and this is a gap that needs to be filled because there are a number of nature conservation and historic environment issues that they could address. (Any such schemes should be inter-linked to satisfy both archaeological and natural environment objectives (*e.g.* grazing schemes and scrub control for earthwork management).

4.3.5 The detailed archaeological survey now available should allow targeted HLS to be achieved and this should be pursued in collaboration with the AONB Unit, English Heritage (for Scheduled Monuments), Natural England and Shropshire County Council in the first instance. In this respect, the involvement of the AONB Landscape Officer and English Heritage's Field Monument Warden would be beneficial. Failing the implementation of HLS schmes (and long-term funding is currently questionable for HLS schemes) English Heritage Management Agreements (Section 17 and Section

24) could be instigated and these should be dove-tailed into any work currently being undertaken by other organisations.

Fig.14 : ESA Agreements within and adjacent to the defined area (Source:AONB)

4.4 Management recommendations for pre-industrial remains

4.4.1 Titterstone Clee hillfort TCR 101

In view of the unusual nature of the hillfort, its high amenity value and uncertain function, there is further potential to undertake a full 'level four' instrumental survey of the hillfort enclosure and its immediate surroundings, possibly including a systematic geophysical survey of the interior. With regard to research potential, there is further scope for exploring the hillfort's chronological status at a crucial point in the change from a landscape of monuments' to a more enclosed agricultural landscape of 'managed' space.

4.5 Management recommendations for early coal mining remains (to 1840)

4.5.1 Much of the archaeology lies within marginal enclosed and unenclosed hill pasture managed under sheep grazing, with some areas grazed by horses and ponies. Vegetation cover is generally a mixture of grass, sedge and some gorse and bracken. Management problems generally relate to scrub encroachment and there are particular problems with gorse and bracken encroachment on some sites.

- **C201** (West of Dhustone Lane, below Hoare Edge) – in marginal but enclosed hill pasture and the site would benefit from gorse control.
- **C202** (West of Dhustone Lane, below Hoare Edge) - in marginal but enclosed hill pasture and the site would benefit from gorse control.
- **C203** (Benson's Brook) – would benefit from gorse control.
- **C204** (North-east-facing slopes of Magpie Hill) - would benefit from gorse control.
- **C205** (Cornbrook Dingle) - this site in particular would benefit from a long-term bracken management regime and more varied grazing, including bovines and specialised upland-grazing sheep species. This would both improve the sward and expose the more northerly mine workings.
- **C206** (adjacent to Cornbrook Valley) – would benefit from gorse control.
- **C207** (between Magpie Hill and Whatsill) – remains comprise a drift mine, enclosure and terraced trackway; gorse is a major problem on this site.
- **C208** (between Magpie Hill to the west and Catherton Common to the east) – some gorse control would be beneficial but where remains lie in enclosed farmland or under improved sheep pasture, present management needs no change.
- **C209** (bell-pits on the flanks of Titterstone Clee Hill) – would benefit from gorse control
- **C210** (between Tiiterstone Clee Hill summit to west and Clee Hill plateau to east) – gorse and bracken are in need of control.
- **C211** (between Titterstone Clee Hill summit and Hoare Edge) – gorse control is required
- **C213** (Catherton Common) – although these remains of coal and ironstone extraction benefit from lying within managed sheep pasture, there are problems with gorse and increasingly encroaching bracken and a long-term management programme of gorse and bracken control should be instigated.

4.6 Management recommendation for coal mining remains (1840-1927)

4.6.1 This group is also subject to vegetation encroachment and there are some safety hazards.

- **C215** (The Catherton or Magpie Colliery) – present management under sheep pasture requires no change but some gorse control would be beneficial. The claypit ponds are a valuable wildlife habitat with a diverse flora and fauna and there are management issues regarding them.
- **C216** (possibly the Cutley Colliery) - present management under sheep pasture requires no change but some gorse control would be beneficial.
- **C217** (the Whatsill Collieries) – the easternmost site lies in close proximity and partly intermingled with, domestic dwellings. Present management under low intensity sheep pasture requires no change.
- **C218** (Trout Pit/Lower Trout Pit) – present management under shepp pasture requires no change but some gorse control would be beneficial.
- **C220** (Top Trout Pit) – present management under sheep pasture requires no change; lies in close proximity to reclaimed land following opencast caol mining in 1988.
- **C221** (Belfrey Pit) – present management under sheep pasture requires no change; lies in close proximity to reclaimed land following opencast coal mining in 1988.
- **C222** (Williams Pit – partly destroyed by opencast coal mining in 1988; under sheep pasture which requires no change.
- **C223** (Meysham Pit) – there is some stock poaching resulting from proximity of the site to Random Farm and use of land immediately east of the mine as a feeding station. This problem should be monitored and addressed as relevant, either by temporarily fencing off the area to allow grass to recover, by moving feeding troughs away from the mine remains, by keeping stock off the area in extreme (wet) weather conditions or a combination of these.
- **C224** (un-named site at SO 601 766, east of Belfry Quarry) – present management as sheep pasture requires no change; lies close to area reclaimed following opencast coal mining in 1988.
- **C225** (?Old Smith Coal Pit, SO 605 768) – in open moorland with no current management problems.
- **C226** (?Old Smith Coal Pit, SO 604 766) – in open moorland with no current management problems.
- **C227** (Barn Pit) – current management under sheep pasture requires no change but the site would benefit from gorse control
- **C228** (Rain/Rhin Pit) – current management under sheep pasture requires no change but the site would benefit from gorse control.
- **C229** (Kilkenny Pit) - current management under sheep pasture requires no change but the site would benefit from gorse control.
- **C230** (Kilkenny 2 pit) - current management under sheep pasture requires no change but the site would benefit from gorse control.
- **C231** (un-named site centred SO 608 765, east side of Clee Hill) - current management under sheep pasture requires no change but the site would benefit from gorse control.
- **C232** (Jew Stone/Dhustone Pit) - current management under sheep pasture requires no change but the site would benefit from gorse control.

- **C233** (Baylas Pit) - current management under sheep pasture requires no change.
- **C237** (Clee Hill plateau deep pit surface drainage remains) – the monument survives in wetland vegetation and as such is a valuable wildlife resource. The Catherton Pit ponds support a healthy population of dragonflies and the west conditions around the central reservoir support a population of snipe.

4.6.2 Vegetation control which, on the above sites will involve mainly bracken and gorse management, should be undertaken within available guidelines (see especially Rees.and Mills, 1999) and management plans should be drawn up for each site to cover:

- the character of the infestation (encroaching, discontinuous stands *etc.*) so that feasible control techniques can be established
- the nature of the archaeology (whether earthwork, rubble, nature of terrain *etc*.)
- the appropriate control techniques and aftercare regime
- the notifications required before start of the clearance
- the strategy and funding for sustaining the clearance
- the possible adverse effects on the archaeology (*e.g.* erosion, tree or scrub regeneration) and how they would be mitigated
- the possible adverse effects on the natural environment (*e.g.* biophtyes require shade to develop, gorse provides good habitats for birds)

4.6.3 Bracken, which is more difficult to control than gorse, can be removed by physical control – cutting, crushing, pulling, ploughing, use of stock, burning, establishing tree cover or by the use of approved herbicides. Of these methods, pulling, ploughing, burning and establishing tree cover would be likely to damage archaeological remains and are therefore unsuitable, although some light tree cover would be acceptable in some areas. In general, pigs and cattle have been shown to be more effective than sheep in suppressing bracken, though pigs are unsuitable on archaeological sites due to their rooting habit and the use of cattle on these sites may be difficult to achieve due to the unenclosed nature of much of the land, the need to keep much of it un-enclosed in compliance with the CROW Act and the nature of some of the archaeological remains.

4.6.4 The clearance of large areas of bracken – *c.* 50 ha. or more – is likely to be unsustainable in future with regard to climate change policy in particular. Bracken has the capacity to store large amounts of carbon which is released when the the plant is eradicated. The use of Asulox for spraying bracken may also be prohbited in future and it may be necessary to deal differently with bracken encroachment and its impact on archaeology, grazing and biodiversity. Bracken clearance envisaged on the sites in question is likely to be smaller in scale but the issue is a topical one.

4.6.5 Gorse can be restricted or removed relatively easily using a number of techniques depending on ground conditions. On this and indeed on archaeological sites generally, cutting to ground level and treating the cut stumps with an approved herbicide is likely to have least impact on archaeological features. It may be effective to allow livestock and rabbits browse the regeneration, especially where surrounding vegetation is of low palatability, although this could compromise sensitive vegetation and vegetation structure. Any clearance should also take account of the fact that common and western gorse provide valuable nest sites for a range of heathland birds

(*e.g.* wheatear and stonechat; see further above) as well as for invertebrates and their conservation is important in this respect.

4.6.6 It is important that, in addition to liaision with the relevant historic environment organisations, landowners and commoners with grazing rights, any management proposals for vegetation control are discussed in full with Natural England in the first instance because they already have a number of initiatives in operation and ideas about how the Clee Hills should be managed. For example:

- the restored opencast quarry was re-grassed following the cessation of coal opencast mining in 1988, but the quality of the grass is poor; a resilient acid grassland mix was specifically chosen as being most suited to impoverished soil, climatic conditions and landscape and ecological objectives, whilst also providing the grazing needs of upland stock. A fast establishing but less persistent grass was included to increase erosion resistance during the establishment stage (HMSO, 2000, 160).
- Natural England is concerned to look to better land-use than wholesale grass cover. Thin acid woodland including birch and rowan would be ideal, but available grants require 80% cover and this would be inappropriate for both natural environment and archaeological concerns.
- there is potential for more clover-rich hay meadows; most soils have not been deeply ploughed; they result from industrial works and are not 'real soil'. A community project involved with the provision of suitable seed sources could be initiated. This has already been successfully achieved on Catherton Common.
- Natural England is keen to introduce more order into how the open common is managed and this might be achieved through the statutory Commoners' Committee. Currently, some parts are over-grazed – on Titterstone Clee, dwarf bilberry is overgrazed as sheep are forced off the area by bracken and bracken is also a particular problem on the west side of Catherton Common
- Natural England is keen to put older breeds of sheep on the common and also cattle but this might meet some opposition from some of the commoners. A grazing animals project is currently underway and is being monitored by Natural England. There is a strong rare breeds group in Shropshire and there are local markets, especially Ludlow, for the meat. A Countryside Agency project 'Eat the View' to connect traditional breeds with a marketing scheme has been successful on the Stipertsones and could be successful on the Clees
- A scheme for composting bracken could be introduced via the Local Authority
- Natural England is concerned about the extent of horse grazing in the area; typically, 20-acre parcels are being sold off and used for this purpose with detriment to the natural and historic environments. Many of these changes of use are un-registered which is illegal

4.6.7 Provided that the appropriate strategies for vegetation control are put in place to safeguard the archaeological remains, there is likely to be little potential conflict between the perceived desire to improve/change grazing regimes for the benefit of the natural environment and the archaeological objectives.

4.6.8 HLS Agreements would now be required to achieve many of these management objectives and any Management Plans would need the endorsement of the commoners and landowners as well as the statutory agencies. This, rather than the actual

proposed management, may be the largest obstacle to overcome and the Titterstone Clee Heritage Trust could act as a conduit in this respect.

4.7 Other industrial-period remains

4.7.1 Site **C214**, the Cornbrook Mine, has been removed by later quarrying activity relating to the Dhustone Mine. The site falls within the area designated as the Dhustone/Incline Quarries SSSI and is designated as such principally for its geological exposures. Any management issues are more likely to relate to the geological rather than the archaeological aspects of the site.

4.7.2 Site **C212** is the post-medieval deserted farmstead of Newfound Well (SO 602 782). The enclosure and material within it are an important survival and will reflect domestic conditions during the operation of the coalfield in the 18th century. As such, this site could offer a wealth of information if subject to detailed instrument survey, building recording and further documentary research, possible even open area excavation. The site is under no immediate threat but given its condition, survival and context, consideration should be given to protecting it by scheduling. Survey and excavation programmes could usefully involve the local community and schools.

Fig. 15A: Coal mining remains - summary of 'statements of importance'

SITE	CRITERIA	HIGH	MEDIUM	LOW
	Rarity		*	
	Documentation		*	
Group of 32 bellpits W. of Dhustone Lane below Hoare Edge TCR (C201)	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity		*	
	Potential		*	
	Amenity value			*
Group of 75 bellpits W. of Dhustone Lane below Hoare Edge TCR (C202)	Rarity	*		
	Documentation			
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability	*	*	
	Diversity		*	
	Potential		*	
	Amenity value			*
Early coal mining remains N. of Benson's Brook TCR (C203)	Rarity	*		
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Coal mining remains on NE-facing slope of Magpie Hill TCR (C204)	Rarity		*	
	Documentation	*		
	Group Value	*		
	Survival/condition		*	
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Cornbrook Dingle – probable remains of Footrail Colliery TCR (C205)	Rarity	*		
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential		*	
	Amenity value	*		

Fig. 15B: Coal mining remains - summary of 'statements of importance'

SITE	CRITERIA	HIGH	MEDIUM	LOW
	Rarity		*	
	Documentation		*	
Bell-pits adjacent to Cornbrook Valley TCR (C206)	Group value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential		*	
	Amenity value	*		
Drift mine, N. of C206 TCR (C207)				
	Rarity	*		
	Documentation		*	
	Group value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential		*	
	Amenity value		*	
Enclosure N. of C 206 (part of C 207)				
	Rarity		*	
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity		*	
	Potential		*	
	Amenity value		*	
Trackway N. of C 206 (part of C 207)				
	Rarity			*
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability			*
	Diversity		*	
	Potential		*	
	Amenity value		*	

Fig. 15C: Coal mining remains - summary of 'statements of importance'

SITE	CRITERIA	HIGH	MEDIUM	LOW
	Rarity	*		
	Documentation		*	
Bell pits between Magpie Hill and Catherton Common TCR (C208)	Group value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Bell pits on N.E. flank of Titterstone Clee TCR (C209)	Rarity		*	
	Documentation		*	
	Group value	*		
	Survival/condition		*	
	Fragility/vulnerability		*	
	Diversity		*	
	Potential		*	
	Amenity value		*	
Bell pits between Titterstone Clee summit to W. and Hoare edge to E. TCR (C211)	Rarity		*	
	Documentation		*	
	Group value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Deserted farmstead of Newfound Well TCR (C212)				
	Rarity	*		
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability	*		
	Diversity	*		
	Potential	*		
	Amenity value	*		
Bell pits – Crumpsbrook and Catherton Common TCR (C213)				
	Rarity	*		
	Documentation		*	
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability	*	*	
	Diversity	*		
	Potential	*		
	Amenity value	*		

4.8 Management recommendations for the stone quarries

(see Appendix 9 for structural survey of selected quarry buildings)

4.8.1 Titterstone West Quarry TCR (Q 310)

- The monument survives as an extensive quarry floor, exposed quarry faces and associated quarry buildings and structures currently little used though open to sheep grazing.
- There is some limited fly-tipping. Public access to the site is discouraged due to the danger presented by the steep quarry face exposures and to the dangers presented by the surviving quarry buildings.

Recommendations

- The quarry is a very prominent landscape feature, which survives largely intact. The dangers presented by the vertical faces of the quarry and buildings are problematic but the site has enormous potential for presentation and interpretation.
- As a precursor to any such scheme of presentation there is clear potential for recovering the detailed morphology of the quarry by a detailed survey of the surface remains.
- The concrete buildings require some remedial conservation to arrest the deterioration caused by oxidation of the steel reinforcing bars (see further Appendix 9)

4.8.2 Titterstone East Quarry TCR (Q 311)

- The monument survives as an extensive quarry floor and exposed quarry faces currently little used though open to sheep grazing.
- Vegetation is generally course grass and wetland species.
- There is some limited fly-tipping. Public access to the site is discouraged due to the danger presented by the steep quarry face exposures and to the proximity of the CAA radar station buildings, though access is possible on foot.

Recommendations

The quarry is a very prominent landscape feature, which survives largely intact. The dangers presented by the vertical faces of the quarry make it problematic for an enhanced presentation. However there is clear potential for recovering the communication network associated with the quarry by detailed survey of the surface remains.

4.8.3 Dhustone Quarry TCR (Q 313)

Management Statement

Only the southern part of the site survives as an area of quarry waste mounds with associated trackways and buildings on the south-west slopes below the main focus of the quarry. The quarries themselves have been removed by recent quarrying and the land reinstated as sheep pasture. One compact and very complete quarry survives however at the south extent of the Dhustone area. If any enhancement of the scheduled protection of sites upon the hill were to be undertaken, then consideration should be given to this site as a complete example of a small quarry working. The spoil slopes are vegetated in mixed grass, gorse and regenerating scrub woodland, a valuable wildlife habitat area Vegetation is generally coarse grass and wetland species. The linear area of the rail spur is now an open area through which a track runs between the Clee Hill village and the quarry cottage complex at the north-west extent of the area. The site can be accessed by foot from Clee Hill village, from the vicinity of the quarry cottages or, the upper levels from a gated trackway off Dhustone Lane.

Recommendations

The quarry is a quite extensive but discrete landscape which does however contain a series of elements relating to early and later quarry activity. The top of the site can be accessed on foot from a gated track-way off Dhustone Lane to the north of the site. This track leads to the signed quarry viewing platform. This is not however signed from the lane itself. There is potential to devise and introduce a footpath system here from Clee Hill Village in the south to the Dhustone Lane in the north which could incorporate many of the surviving features. However, consideration would need to be given to the dwellings which exist to the south and north of the quarry.

4.8.4 The Clee Hill Granite Company Quarries TCR (Q 315)

- The western Granite Quarry is a complex of several separate quarries under a variety of management regimes.
- The Treen Pits site lies under sheep pasture in close proximity to several cottages.
- A small haulage company operates from the farm to the immediate south-west of the site. It can be approached along a lane from the village which commences west of the Golden Cross Inn.
- A signed footpath exits the site by a stile onto the old rail spur line to the north and crossing enters fields to the north of the rail line. Though it is unclear in which direction the path then goes. If further signs and stiles were installed this path could run on into the early quarry north of the rail spur. This quarry to the north of the rail spur is unchanged since 1884; it lies largely again under sheep pasture with some exposed scree slopes. Its proximity to the centre of the village has led to the site being used for some, though quite limited fly-tipping.
- The quarry spoil mounds close to the quarry entrance from the rail spur have been used as for off road motorcycle and quad riding with some resultant erosion, though again this is quite limited in extent.

- The main quarry further east lies between the village and the present quarry. Much of it is contained within the current quarry grounds and is open to the hillside. Spoil mounds and grassed areas are grazed as open sheep pasture.
- The main quarry is flooded with steep sides making it in places hazardous. There is a viewing platform at its western end. Access to this is by gated track and path from the vicinity of the Kremlin public house.
- There is little if any signage to guide visitors to the platform.
- The south side of the site lies under landscaped spoil mounds and there is a public access car park at its north-east extent alongside the Hanson Quarry access road. The southern tip of the site now lies beneath the yard and buildings of the Clee Hill Plant, heavy plant hire company.

Recommendations

- The quarry is an extensive landscape which contains a series of elements relating to the early and later quarry activity.
- There is easy access to much of the site with some signed footpaths, a viewing area, one of the few public houses to survive upon the hill, The Kremlin, reportedly the highest public house in Shropshire. The Craven café and tea-rooms lie at the south of the main quarry site.
- The proximity of the main A4117 and extensive brown-field waste spoil areas in this vicinity make this a potential site for a visitor centre. The considerable range of features surviving in the area could form the focus of interest for visitors to the site with little impact upon the village itself. The old rail spur which runs from this area to the Rouse-Boughton quarry terraces to the north-west provides a potential access way through the early quarry complex

4.8.5 The Clee Hill Granite Co. Catherton Quarry TCR (Q 316)

- The quarry lies in open common land on the western flank of the hill with easy access by foot from the south from the Whatsill area and from the east along a track-way from the Doddington to Clee St Mary road.
- The old quarry rail tracks provide a ready made footpath system around the site.
- The management regime is open common sheep pasture which up until very recently has worked to the advantage of the site. However, the concentrations of sheep created by the winter use of feeding stations located within the quarry have caused some stock poaching.
- The damage caused by the sheep themselves is small in comparison to the deep rutting that has been created, particularly in the north incline by the use of tractors to replenish the feed. If this is to continue, it will create problems for the survival of areas of the quarry track-ways and floor.

Recommendations

- The quarry is a quite extensive but discrete landscape that has good access and contains a series of elements relating to this episode of quarry activity.

- The area is of particular interest in the relationship of the quarrying to the preceding coal industry which survives as a very complete series of monuments from the early bell-pits, drift mines through to the later deep mines. This is particularly so in the case of the northern quarry that is closely integrated with the Magpie Hill bell-pit, drift mine, incline complex below Catherton Pit. This eastern side of the hill is less well known than that to the east and offers considerable potential for enhanced presentation.

4.8.6 The Titterstone to Bitterley Incline TCR (Q 312)

- The monument is a 2km long linear that passes through variety of land management regimes. The upper 500m runs across the open common land and survives in an excellent state of preservation. Below this the site runs through largely pastoral farmland in places in close proximity to dwellings.

- The site is a significant landscape feature and an important part of the industrial remains upon the hill. Its long term conservation would benefit from a more complete survey of the Bitterley complex and a more pro-active management regime.

Recommendations

- The top 500m is a very prominent landscape feature, which survives largely intact and which could be promoted as part of the overall complexity of archaeological remains on the hill. It is a natural approach to the Titterstone quarry complex from the Shropshire Way footpath that passes beneath the viaduct at SO 5882, 7743.
- Steps constructed from the footpath to the top of the incline in this area would allow walkers to make a detour up the incline to the quarry platform. The excellent state of survival of this portion of the incline, high amenity value and close relationship to the western quarry make this site worthy of consideration for scheduled status.
- The more southern portion of the incline to Bitterley is more problematic. It is unfortunate that areas have become destroyed or incorporated into the gardens of dwellings. If this were not the case, it could have been incorporated into a walkway from a potential car parking area within the Bitterley Junction complex. However the fragmented nature of the linear would now make this difficult but not impossible.
- The Bitterley sidings complex itself is an area with considerable potential for further recording and for presentation.

Fig.16: The stone quarries: summary of 'statements of importance'

SITE	CRITERIA	HIGH	MEDIUM	LOW
Titterstone West Quarry TCR (Q 310)	Rarity		*	
	Documentation	*		
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability	*		
	Diversity	*		
	Potential	*		
	Amenity value	*		
Titterstone East Quarry TCR (Q 311)				
	Rarity		*	
	Documentation	*		
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability		*	
	Diversity	*		
	Potential		*	
	Amenity value	*		
Dhustone Quarry TCR (Q 313)				
	Rarity		*	
	Documentation		*	
	Group Value	*		
	Survival/condition		*	
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
The Clee Hill Granite Co.Quarries TCR (Q 315)				
	Rarity		*	
	Documentation	*		
	Group Value	*		
	Survival/condition		*	
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Clee Hill Granite Co. Catherton Quarry TCR (Q 316)				
	Rarity		*	
	Documentation		*	
	Group Value	*		
	Survival/condition	*	*	
	Fragility/vulnerability		*	
	Diversity	*		
	Potential	*		
	Amenity value	*		
Titterstone to Bitterly Incline TCR (Q 312)				
	Rarity	*		
	Documentation	*		
	Group Value	*		
	Survival/condition	*		
	Fragility/vulnerability	*		
	Diversity	*		
	Potential	*		
	Amenity value	*		

5. Recommendations for community interests

5.1 As discussed above, there is enormous potential for fostering active community and visitor engagement with the historic and natural environment of the Clee Hills through displays and appropriate venues elsewhere that will enable wider appreciation of the diversity and uniqueness of this landscape. Community events held so far have shown a healthy response and there is potential to achieve much more. Some professional training programmes using the results of the current survey work have already been initiated, for example, MA programmes in practical and industrial archaeology offered by the University of Birmingham. These have provided opportunities for professional development and could be extended to the wider community as relevant.

Plate 21: Visitors to the Oreton Brick kiln

5.2 The oral-based survey that has already begun, recording local knowledge about quarrying activity, is a step in this direction and it is important that this be continued before the dialect dies out altogether, for example, Alf Jenkins comments:

'Sadly I predict that in another decade it will no longer be possible to hear the Clee Hill Talk'....the decline has been so rapid....that even the old natives of seventy and eighty years of age [have] been influenced to such an extent that their mode of speech [is]a very much diluted dialect' (Jenkins, 1983, 114)

5.3 The quarry buildings themselves carry a huge potential for exploring the community heritage, as well as giving that community the opportunity to become more involved in the archaeological and local history process and every effort should be made to involve the local community in future proposals for these buildings whether they are simply recorded in detail or whether some sort of secondary use can

be found for them.

5.4 A recording project on the hill that is able to involve the local community more will change public perceptions and attitude to archaeological remains, as has been proven many times before:

'The industrial heritage is of social value as part of the record of the lives of ordinary men and women, and as such it provides an important sense of identity' (Nizhny Tagil Charter for the Industrial Heritage, 2)

5.5 The local community should also be involved in the installation or improvement of any new themed walks and the creation of new information boards.

5.6 The Titterstone Clee Heritage Trust can play a fundamental role in representing the local community's interests in these respects. The Shropshire Geological Society and indeed other key players such as the Shropshire Hills AONB, Shropshire Wildlife Trust and district and local councils, are likely to welcome direct representation on any local community forum such as the Titterstone Clee Heritage Trust that might evolve for protection of the hill and the on-going provision of guided walks and other community-based activities.

6. Recommendations for educational use

6.1 The Clee Hills are already recognised as an educationally valuable resource, used by schoolchildren, higher education students and in outreach projects. This use, at least by schools, is likely to continue as the resources form a basis for National Curriculum studies.

6.2 Further consideration should be given to the production of materials targeted at schools, for example, a popular short booklet or information sheets. In producing any such materials, there should be close co-operation with other organisations producing similar materials within defined strategies.

6.3 It is apparent that many teachers are unable 'to find any real information' about the history of the Clee Hills on which to base their teaching. The project is aware of one local primary school teacher carrying out a history project on the development of mining in the area and using examples from the north of England on which to base his teaching. The same teacher was more than enthusiastic at the prospect of his school using resources closer to hand.

6.4 The project should seek to link the present with the past through the medium of local community schools. The material gathered in the first year of the project should be used to take the project into the schools, the visualisation provided by this material being harnessed to provide a visually stimulating introduction.

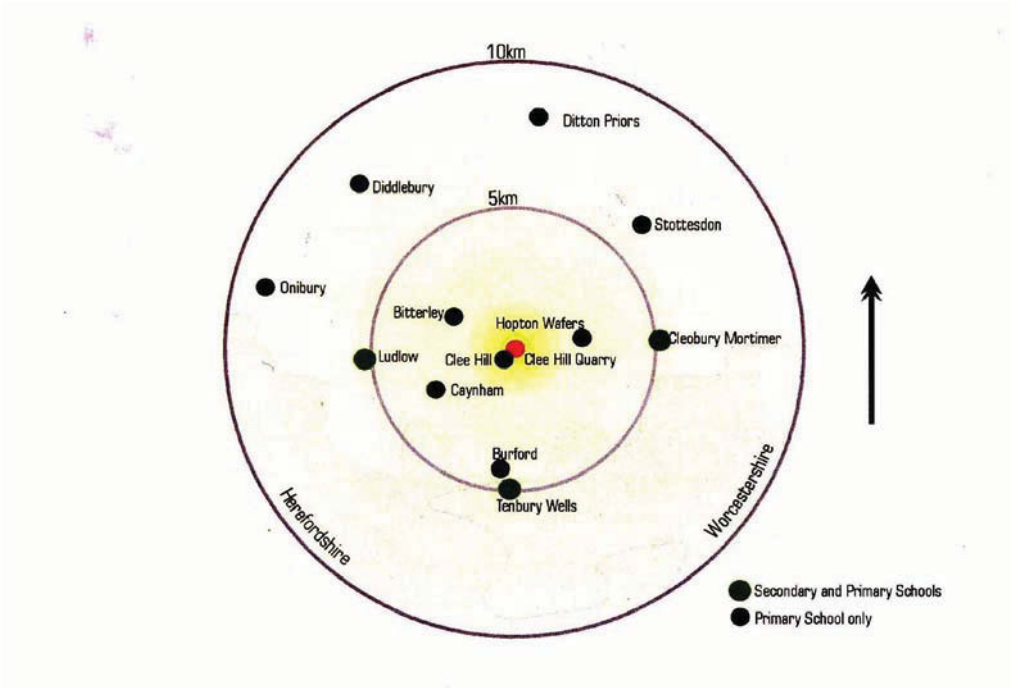


Fig.17: Primary and Secondary Schools within a 10 km. radius of Clee Hill Quarry (Source: Shropshire Geological Society, 2003, 21)

6.5 The mechanism for the schools involvement should be designed in collaboration with the schools themselves so is not discussed here but should involve:

- recording of past working practice and lives on the hill through oral history. The pupils of the local schools are seen as a key resource in this phase of the project. It is envisaged that they will provide, through family ties, access to a wealth of local knowledge concerning the folk history of the area
- incorporation of this information into the project GIS
- working with the local schools to create a range of teaching material and products which relate to the geology, geography and history of the hill and which are suitable for use within a contemporary teaching environment. Initial discussions in this respect suggest that the brick making industry once extant on the hill may provide possible projects and could link in to work already been done at the Acton Scott Historic Working Farm

7. Tourism potential

7.1 The Clee Hills are a regular focus for visitors from both the local area and nationally. Most visitors express an interest in the quarry remains visible on the hillside and feel that some on- site explanation of the works would have enhanced their visit. Although the quarry buildings are highly visible, many of the archaeological remains are not easily understood. Many visitors also express a feeling of spirit of place for the hill.

7.2 While many visitors appreciate the aesthetic beauty of the Clee Hills, they are unaware of their industrial heritage. In a recent conversation involving prominent members of the Cleobury Mortimer Chamber of Trade the opinion was expressed that as a commercially viable town Cleobury Mortimer (3 miles away) could not be sustained for too much longer, 'what it needs is a tourist attraction which would bring visitors to the area; but unfortunately, there is nothing of interest here, only a few sheep'. The 'Market Towns Initiative' is helping to address such problems but there remains a lack of knowledge and appreciation of 'what's up there'.

7.3 Apart from lack of awareness of the resources of the Clees – to some extent locally but even more beyond the local community – current visitor facilities are inadequate. Signposting from the main road is inadequate, parking is limited, public transport is restricted and there is a lack of meaningful visitor information. An exception in this respect is the excellent interpretation specifically relating the geology to other aspects of the natural and historic landscape which includes the Hanson panels overlooking the Incline Quarry and the Dhustone Quarry as well as the notice board in Clee Hill

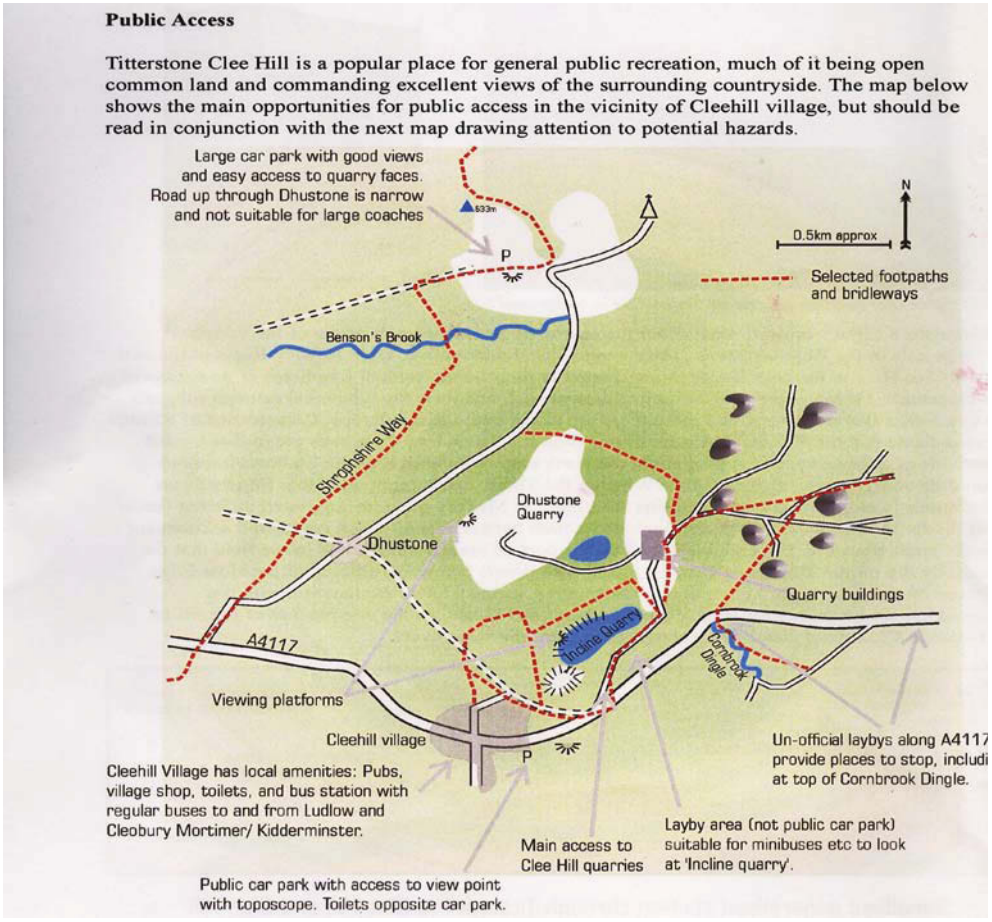


Fig. 18: Clee Hills – current access and hazards (Source: Shropshire Geological Society RIGS Group, 2003, 18)

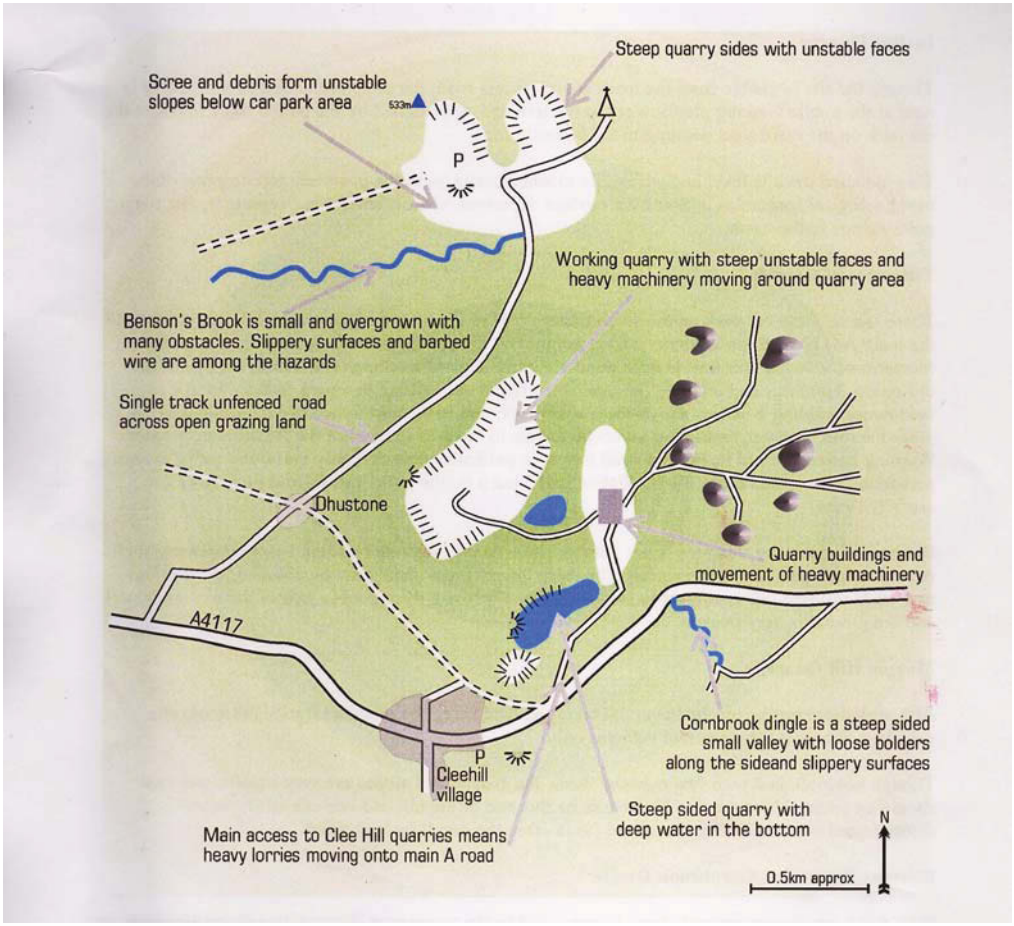


Fig. 19: Clee Hills – current access and hazards (Source: Shropshire Geological Society RIGS Group, 2003, 19)

village car park. These should serve as models for any further interpretation schemes.

The Shropshire Geological Society's 'geotrail', one of a series of eight for the county, is targeted at the interested but lay audience and again should serve as a model for any proposed archaeological themed walks.

7.4 On-site interpretation will have to contend with difficulties in promoting access to the hill due to the unstable nature of the rock faces, the potential danger of injury when exploring the buildings, and the problems created by the exposed nature of the site allied with the extremely changeable weather on the hill. However, even with these caveats, there are good grounds for believing that it should be possible to create a safe and attractive presentation of the history of man's involvement on the Clee Hills. Of particular relevance to this on site presentation is the potential offered by new emergent technologies linking mobile phone, GPS and PDA technologies. This is an innovative area of research and there is potential to incorporate it into future work on the Clee Hills project. Initial approaches with regard to this use of technology, to BT, Sony and HP have been favourably received.

7.5 The results of the Clee Hills project could and should form the focus of new displays in local museums, notably Ludlow and/or the Secret Hills Discovery Centre. This will have the dual effect of drawing the local community to new attractions provided by the county, and will entice visitors from elsewhere to explore the South Shropshire Hills. The development of new interpretative material for presentation of the results of the project to the general public both visiting the sites and at South Shropshire's 'Secret Hills Discovery Centre' would offer a new and exciting contact

point between the general public and the cultural resources hidden within the landscape of Shropshire.

7.6 Further effort should also be focused on exploring new ways of visualizing information since complex landscapes are difficult to present adequately to the public and the project could explore the ways in which new and emergent communication technologies may be harnessed for public dissemination and interaction. The HP Visualisation Centre at Birmingham is seen as having a key role here, exploring 3-D visualization in this landscape presentation context. The possibility of such virtual interactive models based on accurate recording is seen as being of particular relevance here in view of the potential safety aspects of public access to the sites themselves. While it is unlikely that there could ever be public access to a bell pit itself access to a virtual mine is a possibility

7.7 It is envisaged that interactive 'visual reality' (VR)-type worlds could be effectively used to facilitate the presentation of the industrial past of the hill.

Using the data collected in the first year VR models of several facets of the hill are possible:

- the aerial ropeway could be constructed as a virtual ride passing over the landscape. This should be relatively easy to achieve
- the quarry building could be similarly virtually restored as an interactive model.
- the current Hanson Quarry infrastructure operational on the hill could be used in tandem with the earlier works to provide a dynamic explanation of workings

7.8 A possible longer term goal is the reconstruction of a virtual bellpit mine based on the scanning of an excavated bellpit. External funding would be sought for this part of the longer-term research.

7.9 It is also proposed to explore new ways in which PDA and mobile phone technology may be used to provide access to information for visitors to the hill and its monuments. In this way, information could be provided directly to visitors in the field.
Initial discussions with BT and HP suggest that emergent communication technology has the potential to deliver such on site information and considerable interest has been shown for the project from this sector of the communications industry.

8. Proposals for enhanced access

8.1 It is encouraging that of the 34 sites of coal mining remains, 22 (41%) are considered to be amenable to enhanced interpretation and presentation. The majority of the quarries are also amenable to enhanced presentation, however, there are inherent dangers resulting from collapsed and open shafts. South Shropshire District Council holds mapped information on these and this can be made available as relevant. Unstable standing structures present another hazard. Nevertheless, the best way in which to appreciate the remains would be along a heritage trail or trails with interpretation points along the way.

8.2 Before any such route is implemented however, there needs to be a full access audit to inform the planning and siting of any interventions and this should be undertaken in collaboration with the relevant organisations (the BT 'Countryside for

All' standards and guidelines and the recommendations of the Joint Mobility Unit/RNIB should be applied with respect to intellectual and physical access to the sites).

8.3 In the laying out of any heritage trail, it will be a legal duty under the Disability and Discrimination Act, 1995, to take into account the needs of the disabled. Much of the terrain is treacherous and emphasis on virtual and intellectual access may need to be applied. A report published by the Disability Rights Commission, 'The web: Access and Inclusion for Disabled People', concludes that a high percentage of web sites are inaccessible to disabled people, especially the blind and partially sighted, while on-site sound and video interpretation can prove difficult for the latter groups and sometimes impossible for the deaf and hard of hearing. The entire spectrum of disability needs to be investigated before a heritage trail is set up.

8.4 Current impediments to use include:

- limited car parking
- unsuitable tracks with rough uneven surfaces, including un-made sheep tracks; some tracks peter out
- dangerous terrain – areas of steep outcropping and waterfall plunges
- uncapped shafts and other open workings
- vegetation cover, *e.g.* gorse and bracken that obscures ground features
- wet, marshy areas
- areas fenced off for grazing
- areas where refuse is dumped and cars are burnt
- a feeling of isolation which makes some people nervous of entry
- lack of signage from the main road (A 4117)
- lack of any facilities such as toilets and shelter
- other poor facilities, *e.g.* cafes, in Clee Hill village
- proximity to inhabited areas (but affects only a few sites)
- dangerous standing structures
- the weather (the sites are very exposed in places)

8.5 Visitor survey

8.5.1 It is important in any further development of the Clee Hills as a visitor attraction that the target audience is identified based on reliable data collection. Apart from any visitor centre/s established, the main attraction of the Clee Hills is their use for leisure, recreation and education. It would be inappropriate to exceed expectations in this respect.

8.5.2 Key to any interpretative approach to the Clee Hills will be an understanding of the current use of the hills. In addition to, and preferably prior to, undertaking an access audit, a visitor survey should be undertaken at a number of different times in the year to assess the visitor's perception of the resource. This should be complemented by visitor surveys in Ludlow, Cleobury Mortimer, the Secret Hills Visitor Centre in Craven Arms and any other relevant venues, to determine the profile

of the Clee Hills as a tourist/leisure resource. The survey should determine:

- how the hills are currently used as a leisure/recreational resource
- what socio-economic groups use the hills and in what proportion
- where visitors are travelling from in order to use the resource
- how successful is current interpretation
- how well is the site known in relation to other attractions nearby
- what people value about the resource

8.5.3 Although there are no available statistics for visitors' use of the Clee Hills, there is some information on what people want from a recent 'perception survey' carried out by the Shropshire Hills AONB in March, 2006. The survey, comprising telephone interviews with 308 people (106 of whom were farmers; a higher proportion of farmwers was questioned on purpose), showed that farmers are more aware of the AONB than the general population. Respondents showed a distinct tendency to be against change – 'keep it as it was' was a frequently mentioned priority for conservation, along with landscape and wildlife. The most favoured changes were access improvements.

8.5.4 Elsewhere, for example in Cornwall, pits and quarries have been used for rather more unusual leisure activities – the Carn Marth granite quarry near Redruth is used as a theatre and farther afield, in Menorca, jazz concerts and other events are held in some disused quarries (Macadam, 76). The relatively extensive designations of the Clee quarries largely preclude such use but the idea is an interesting one and may be applicable, subject to available resources and the resolution of health and safety issues.

Chapter 5: Summary of recommendations and conclusion

1. The survey results presented in this Conservation Plan provide a basis on which to make further recommendations for the retention of significant features of the prehistoric and industrial landscape of the Clee Hills. This can be achieved by:

- maintenance and conservation
- legal protection
- continuing identification, recording and research
- education and training
- presentation and interpretation
- liaison with the appropriate organisations and individuals

2. Maintenance and conservation

2.1 This Plan sets out a number of recommendations for management initiatives; many of these comprise measures for ongoing maintenance such as scrub control, erosion and building repair and it is recommended that these be pursued through the normal channels of Environmental Stewardship or English Heritage Management Agreements (Section 17s and Section 24s), subject to liaison with landowners, the Commoners Association and Natural England to ensure that other interests such as geology, ecology and grazing rights are considered. In the allocation of resources to undertake these measures, priority should be given to monuments that are most at risk. It is suggested that the newly-formed Shropshire Hills AONB Historic Environment Working Group could play a key role in implementing management schemes, in liaison with the releveant organisations and individuals.

2.2 The structural survey of the quarry buildings is regarded as a preliminary step in identifying future conservation policy. Thought should be given to incorporating them into a heritage walk and at this level of presentation, making the buildings safe is all that will be necessary. The structural report indicates that this should be relatively easy to achieve, given the robustness of many of the structures, though some are collapsing and dangerous and may need demolition.
Another scenario is that the buildings form part of a more ambitious visitor centre in accordance with the following principle:

Adaptation to new use is acceptable but needs to respect significant material and maintain the original pattern of activity…an area that interprets the former use is recommended (Nizhny Charter, 2003, 5).

Such a scheme could not be achieved without the input of substantial funding.

2.3 The embryonic proposals put forward in this Plan (Appendix 8) for The Novers site may be more realistic to achieve and it is recommended that they be pursued as relevant.

3. Legal protection

3.1 Current designations protect a number of sites within the defined area; these include ecological, geological and archaeological sites. The prehistoric remains and scheduled industrial sites are under less serious or immediate threats than the quarry buildings (see below), except through visitor erosion or quarry collapse where they lie

close to quarry faces. There is, however, further scope to increase the protection afforded by scheduling on some monuments, in particular:

- **Dhustone Quarry (TCR Q313)** - one compact and very complete quarry survives at the south extent of the Dhustone area. If any enhancement of the scheduled protection of sites upon the hill were to be undertaken, then consideration should be given to this site as a complete example of a small quarry working. . The site can be accessed by foot from Clee Hill village, from the vicinity of the quarry cottages or, the upper levels from a gated trackway off Dhustone Lane. The spoil slopes are vegetated in mixed grass, gorse and regenerating scrub woodland, a valuable wildlife habitat area. The top of the site can be accessed on foot from a gated track-way off Dhustone Lane to the north of the site. This track leads to the signed quarry viewing platform. This is not however signed from the Lane itself. There is potential to devise and introduce a footpath system here from Clee Hill Village in the south to the Dhustone Lane in the north which could incorporate many of the surviving features. However, consideration would need to be given to the dwellings which exist to the south and north of the quarry.

The Titterstone to Bitterley Incline TCR (Q 312)

- This site, a 2 km-long linear earthwork, is a significant landscape feature and an important part of the industrial remains on the Clee Hills. The incline passes through a variety of land management regimes. The upper 500m runs across the open common land, is a very prominent feature and survives in an excellent state of preservation. This section is highly representative of the overall complexity of archaeological remains on the hill. It is a natural approach to the Titterstone quarry complex from the Shropshire Way footpath which passes beneath the viaduct at SO 5882 7743. The excellent state of survival of this portion of the incline, high amenity value and close relationship to the western quarry make this site worthy of consideration for scheduled status.

The quarry buildings in Titterstone (West) Quarry and on Clee Hill

- Consideration should be given to appropriate protection for these structures. The quarry buildings on both sites are largely early ferro-concrete structures, thin-walled buildings of often poor design and construction, but important due to their early date and as representatives of a wider industry in Shropshire, the provision for pre-fabricated buildings. Though the structural survey has shown that many of these buildings are quire robust, they are vulnerable in the medium to long term to collapse and their existence is also jeopardised by the possibility that current unrestrained public access to them could lead to risk of injusry and therefore, ultimately, demolition. Such buildings would normally be excluded from the provisions of PPG16 as they are not scheduled or listed.
- Site **C212** is the post-medieval deserted farmstead of Newfound Well (SO 602 782). The enclosure and material within it are an important survival and will reflect domestic conditions during the operation of the coalfield in the 18th century. As such, this site could offer a wealth of information if subject to detailed instrument survey, building recording and further documentary research, possible even open area excavation. The site is under no immediate threat but given its condition, survival and context, consideration should be

given to protecting it by scheduling. Survey and excavation programmes could usefully involve the local community and schools.

This Conservation Plan fully endorses the fact that it is important that remains protected by scheduling and listing

'....should be fully protected and no interventions allowed that comporomise their historical integrity or the authenticity of their fabric…' (Nizhny Charter, 2003, 4)

3.2 Titterstone Quarry is now a RIGS and there are proposals to increase the number of RIGS within the defined area and any further legal protection of archaeological sites should take account of these proposals. Similarly, any proposals for further designation resulting from the Shropshire Quarries survey and other ecological surveys should be integrated into archaeological objectives as relevant.

3.3 Tittertsone and Clee Hill quarries both have current permissions for mineral extraction, though it is not planned to re-open Titterstone Quarry in the near future. It is anticipated that demand for crushed rock will not require new sources that cannot be met from existing reserves and the Minerals Local Plan makes it clear that planning permission for new extraction will only be given in exceptional circumstances, however, the need to protect the quarry buildings is given greater urgency by the fact that demand for minerals could come to outweigh the historic environment considerations.

3.4 It is further recommended that provision for protecting the significance of the defined area should continue to be integrated into existing and future policies for economic development and into regional and national planning policy documents. In this respect, it is important that the strong links between the agri., historic, natural, cultural and tourism environments be recognised and developed through existing organisations. For example, the Shropshire Hills AONB has the remit to sustain economic as well as cultural landscape objectives and its role should be encouraged in this respect. The fact that, for economic reasons, the defined area lies within an EC-designated 'Less Favoured Area' would support this role for linking the two together.

3.5 It is recommended that a sensitively managed visitor centre based at The Novers site would have clear potential to become a significant part of the local economy providing locally based jobs in the tourist sector.

3.6 A self-sufficient resource and visitor centre could be built from local materials. The centre would be a focus for the hill and would disseminate information relating to it. It would also demonstrate, by using current sustainable building techniques and sustainable energy technologies, a variety of innovative environmental benefits from energy efficiency to waste management. The influence of such a showcase centre, promoting energy efficiency and sustainability in a rural environment has the potential to make a long-term contribution to alleviate some of the problems that rural communities are likely to face in the future.

4. Continuing interpretation, recording and research

4.1 The recommendations in this Plan should not cease with the end of the ALSF project. The Plan has identified the need for further interpretation, recording and

research and these should be pursued subject to available funding. In particular, the following is recommended:

Prehistoric remains

- In view of the unusual nature of the hillfort, its high amenity value and uncertain function, there is further potential to undertake a full 'level four' instrumental survey of the hillfort enclosure and its immediate surroundings, possibly including a systematic geophysical survey of the interior. With regard to research potential, there is further scope for exploring the hillfort's chronological status at a crucial point in the change from a landscape of monuments' to a more enclosed agricultural landscape of 'managed' space.

Industrial remains

- As a precursor to any scheme of presentation involving Titterstone (West) Quarry, there is clear potential for recovering the detailed morphology of the quarry by a detailed survey of the surface remains.
- the Bitterley sidings complex itself is an area with considerable potential for further recording.

5. Education and training

5.1 Work already undertaken as part of the ALSF project has demonstrated the enormous potential of the resource for education and outreach in schools, higher education and the community. Within the life of the project, survey work has been carried out under existing professional training programmes such as the MA programmes in Practical Archaeology and Industrial Archaeology offered by the University of Birmingham. These programmes have provided opportunities for professional development and have been successfully extended to the wider community, particularly in local schools. It is recommended that this work is continued and that further funding such as HLF partnerships with local community groups is investigated. The opportunities for education and training should, where relevant, encompass geological and ecological as well as historical and archaeological interests. In particular, it is recommended that:

- the opportunities for professional development should continue to be pursued using the current resource, with possible increased use provided by a visitor centre at The Novers and/or the proposed larger-scale visitor centre (see Appendix 8)
- that, in liaison with the Local Authority, relevant materials be extracted from the survey results and incorporated into existing facilities such as the 'Museum in a Box' scheme (already being used on the Clee Hills), teachers' packs, museum displays, displays at the Secret Hills Discovery Centre in Craven Arms *etc.*
- For the first time, the documentary sources relating to the defined area have been collected together in one place (Appendix 2) and these sources could provide an extremely valuable resource for developing materials for use in schools and higher education establishments.
- Similarly, the wealth of detail in Volume 2 (Gazetteer) which includes informative photographic records, could provide educational material

6. Presentation and interpretation

6.1 Considerable success has already been achieved in fostering active community and visitor engagement with the natural and historic environments of the Clee Hills through the Blue Remembered Hills project and other initiatives. Displays and guided walks have been well attended and have enabled wider appreciation by the local community of the diversity and uniqueness of this landscape. It is recommended that further presentation and interpretation work should be undertaken with special emphasis on:

- completion of the oral history project in the local community and dissemination of the results by the appropriate medium (*e.g.* video, popular booklet, leaflet)
- continued walks around the remains and involvement of the local community in their development
- community-based recording programmes (the post-medieval farmstead at Newfound Well is a good candidate)
- the development of new themed heritage, geological and ecological walks, involving an access audit and specialist heritage input. The local community and other relevant organisations and individuals should be involved in this process at the consultation stage
- further assessment of the proposals for the visitor centres presented in Appendix 8

Awareness-raising in this manner should ensure that continued interest in and support for, the landscape of the defined area is sustained:

'Public interest and affection for the industrial heritage and appreciation of its values are the surest ways to conserve it. Public authorities should actively explain the meaning and value of industrial sites through publications, exhibitions, television, the internet and other media, by providing sustainable access to important sites and by promting tourism in industrial areas' (Nizhny Charter, 2003, 6)

7. Implementation of the Plan – liaison with organisations and individuals

7.1 An informally-constituted steering group, with representatives from several organisations and individuals, has overseen the production of this Conservation Plan. It is recommended that this process should continue in order to ensure that all the interests in the defined area are represented and that the area is managed in a coherent and structured manner. It is recommended that a more formalised steering committee be created, under the aegis of the Titterstone Clee Heritage Trust, to oversee implementation of the Plan. The committee should include representatives from the Local Authority and the local community (including the Commoners' Association) as relevant.

7.2 This Conservation Plan has taken heed of existing national, regional and local policies and the results of public consultation and the Plan should continue to be implemented within these and any new and emerging frameworks.

8. Conclusion

There are few places in Shropshire, or for that matter in the West Midlands region, where one can see so clearly the complex and intimate relationship between people and their environment. It is still a living and evolving landscape. The Clee Hills ALSF project has provided the opportunity to actively engage with this landscape, to record it and, where necessary, to make recommendations for its preservation by further designation or by record, before its destruction in the longer term by quarrying. It has also provided a valuable opportunity to explore and understand the complex relationships between the geology, archaeology and ecology of the Clee Hills.

This Conservation Plan provides a strategy for continuing this process of engagement recording and protection, involving both specialists and the local community. Whatever may be the outcome, we should not lose sight of the fact that:

'....Landscape is our most complex human artefact, but it is not finished. It will continue to change and evolve whatever actions we take or do not take. We can, however, plan for its future evolution...and manage landscape in active ways that include change and creation so that it continues to live. The challenge posed....is not simply to protect our inherited landscapes but to create 'good' future landscapes for everyone...' (Fairclough, 2007, 9)

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Appendix 1: ALSF Priorities for 2007-08

1. The core objective of the English Heritage scheme is to reduce the impact on the historic environment of aggregate extraction, both terrestrial and marine. It will focus on the following main areas:

- developing the capacity to manage aggregate extraction landscapes in the future
- delivering to public and professional audiences the full benefits of knowledge gained through past work in advance of aggregates extraction
- reducing the physical impacts of current extraction where these lie beyond current planning controls and the normal obligations placed on minerals operators
- addressing the effects of old mineral planning permissions
- promoting understanding of the conservation issues arising from the impacts of aggregates extraction on the historic environment

2. English Heritage will support projects which will deliver against the headline objectives for the ALSF as follows:

Objective 2: promoting environmentally friendly extraction and transport

- threat definition: strategic research on the character, scale and geographical distribution of the potential impacts of aggregate extraction (including secondary aggregate resources but excluding construction waste) on the historic environment, in particular the collection, mapping and analysis of data on aggregates permissions and processes
- research to enhance the understanding of the scale and character of the historic environment in current or likely future aggregate producing areas in order to provide the baseline information necessary for effective future management
- enhance baseline evidence in areas of, and potentially subject to, marine aggregate extraction: baseline information and characterisation of the resource; techniques of prediction and evaluation; mitigation strategies; training, awareness and information exchange
- support for the development of management and conservation strategies for the historic environment in current or likely future areas of aggregate production
- methodological and technical research to improve predictive, evaluation and mitigation tools in order to promote and advance maximum information gain and cost effectiveness which will benefit both the extraction industry and the historic environment
- training and professional development: programmes to raise awareness of and promote best practise to industry, historic environment professionals and other stakeholders

- supporting the operation of the planning system through assistance with excavation, analysis and dissemination of unexpected discoveries subject to English Heritage's normal conditions (including support for evaluation and survey work on sites with outstanding planning permissions granted before the implementation of PPG16)
- the analysis and dissemination of important data from past work undertaken in response to aggregate extraction
- local education, interpretation, outreach and community involvement, and capacity building which raise awareness of conservation issues, communicates the knowledge gained through the extraction process, and raises the profile of the positive benefits of extraction to communities living in current extraction areas where this work is demonstrably beyond that required by the planning system (partnership projects with industry where this goes beyond the legal obligations on industry would be particularly welcome)
- addressing the impacts of current aggregate extraction which go demonstrably beyond the requirements of the planning system; specifically conservation and repair of sites, monuments, buildings and landscapes within communities affected by aggregates extraction and transport
- dissemination and assimilation of ALSF funded and other related work to stakeholder groups

Objective 3: Addressing the environmental impacts associated with past aggregates extraction

- land acquisition, the buying- out of old mineral planning permissions with inadequate environmental conditions and support for the development of management and conservation, and restitution strategies for the historic environment in areas of past aggregate extraction
- addressing the impacts of past aggregate extraction; specifically conservation and repair of sites, monuments, buildings and landscapes within communities affected by aggregates extraction and transport
- conservation of industrial remains of historical significance associated with aggregates extraction sites
- local education, interpretation, outreach and community involvement, and capacity building associated with past extraction which raise awareness of conservation issues and communicate the knowledge gained through the extraction process

3. Archaeological projects must in addition meet English Heritage's strategic priorities for archaeology which are currently set out in the Implementation Plan for Exploring our Past (EoP98), the Corporate Strategy, *Making the Past Part of Our Future* and the Research Strategy, *Discovering the Past and Shaping the Future*. Marine projects must meet English Heritage's strategic priorities for the

marine historic enviroment which are set out in Taking to the Water. Please note that EoP98 will be updated by May 2007, and subsequent applications must thereafter fit within the revised Framework. Further details and appropriate links will be found here.

4. As far as possible projects should also address the broader aganda set out for English Heritage and the Historic Environement sector as a whole in *Power of Place: the Future of the Historic Environment* (English Heritage 2000) and *The Historic Environment: a Force for out Future* (DCMS 2001).

5. English Heritage is committed to widening access to, and understanding and enjoyment of, the historic environment. All projects funded through English Heritage's ALSF Programme should, wherever possible, deliver these aims through programmes of outreach, education, interpretation and community involvement.

Appendix 2: Documentary Evidence

1. Introduction

1.1 A provisional catalogue of documents for the Clee Hill area is presented here, which deals with prehistoric remains, the industrial history from the 17th century onwards and military activity in World War II. For convenience, maps and aerial photographs are all listed under the Industrial heading.

1. 2. In addition to the documentary repositories noted below, information on the historic environment is underpinned by two complementary databases: the Shropshire Historic Environment Record (formerly the county Sites and Monuments Record) maintained by the Economy and Environment section of Shropshire County Council; and the National Monuments Record maintained by English Heritage. Both of these heritage databases are publicly accessible. No search has been undertaken of documents relating to the Clee Hill area that may exist in the National Archives (formerly the Public Records Office) at Kew.

2. Prehistory

2.1 Lily Chitty Collection

The documents listed here were collected by Lily Chitty, an eminent local archaeologist, working in Shropshire mainly during the 1920s and 1930s. These records are invaluable for understanding the prehistoric occupation of the area and now form part of the Lily Chitty Collection in Shropshire Archives.
This list has been compiled from the *Lily F. Collection. Catalogue of her archaeological records relating to Shropshire*, published by Shropshire Records and Research (now Shropshire Archives) in 1992. Included in this list are documents concerning the finding of a spear head of possible post-Roman date - see 281/9 and 364/1-13.

File 10	Barrows and prehistoric burials in Shropshire
10/2	Correspondence about various barrows and cairns, including those on Titterstone Clee.
File 31	
31/81-4	Notes, drawings and correspondence about flints found on Titterstone Clee, Bitterley.
File 33	Flint dagger, Catherton
33/16-57	Notes, drawings, photographs, correspondence and report on this flint dagger.
File 44	
44/20-4	Correspondence about a flint arrowhead from Catherton.
File 55	Flint axes found in Shropshire
55/46	Note on a possible piece of a flint axe from Titterstone Clee.

File 143

Photographs of perforated stone implements from various locations, including Titterstone Clee and Catherton Clee.

File 144

144/1-22 Article by LilyChitty about axe hammers found in Shropshire, together With information concerning the ones found on Catherton Clee and Titterstone Clee.

File147 Perforated Stone Implements: Shropshire

147/6-8 Notes, drawings and photographs of an axe hammer from Bitterley.

147/22-5 Notes, drawings and photographs of an axe hammer from Titterstone Clee Hill.

147/26-8 Notes, drawings and map of find spot of an axe hammer from Catherton Clee.

File 149 Grooved stone hammers, Shropshire

149/11-13 Notes and sketches of grooved stones from Clee Hill near Caynham.

File 158 Clee Hills axe-hammer: Doddington (?) or Ditton Priors (?)

158/1-17 Notes, drawings, correspondence and report on an axe hammer from Clee Hill near Ditton Priors.

158/7 Chitty, L.F. Amber beads found in Shropshire: from Titterstone Clee.

File 172 Bronze Age Pottery: Shropshire

172/68 Notes about a cinerary urn from Coreley.

File 187

187/8-13 Notes and correspondence about a flint dagger from Catherton.

File 191 Supplement to the Clee District paper 1926

191/1-3 Notes about flint implements from the Clee region, etc.

191/4 Chitty, L.F. Note on the Clee-Clun region Ridgeway.

191/5 Chitty, L.F. Amber beads found in Shropshire.

191/6 Chitty, L.F. Socketed bronze axe found at Silvington.

191/7 Further note about the Silvington bronze axe.

191/8-10 Notes and sketch of flint implements from Titterstone Clee, Bitterley.

191/23-26 Note about a flint dagger from Catherton.

File 281

281/9 References to ?Anglo-Saxon spearhead.

Files 357 Titterstone Clee Group Find 1889-

357/1-40 Notes, drawings and correspondence about a flat bronze axe, a bronze palstave and a perforated stone axe-hammer found on Titterstone Clee Hill.

File 358

358/5-19 Notes and correspondence about Titterstone Clee and the implements

found there.

File 359 Silvington socketed axe

359/1-18 Notes, drawings and correspondence.

359/19 Notes on a manuscript map of Clee Hill Common 1571.

Files 360 Kerry-Clunbury-Clee-Severn. Part II

360 Notes and correspondence about Clee to Severn trackway. References include: Bitterley, Titterstone Clee hillfort, Coreley, Doddington, Clee Hill Common Map 1671, and Silvington bronze axe and Ridgeway (photograph).

File 361

361/1-22 Chitty, L.F. *Notes on prehistoric implements. I. Stone and bronze implements from Clee Hills, Shropshire* (1926), together with notes and correspondence regarding this article.

361/ 23-36 Notes on matters in the Titterstone Clee region.

361/37 Chitty, L.F. *Clun-Clee ridgeway* (1963).

361/39 News cutting about the Clee region.

Files 362 and 363

362/1-13 Information about the excavations carried out by B.H. St J. O'Neil at Titterstone Clee hillfort, including notes, photographs and news cuttings.

363/1-55 Information about the excavations carried out by B.H. St J. O'Neil at Titterstone Clee hillfort, including correspondence and photographs of the excavations.

File 364

364/1-13 Notes, photographs, sketches and correspondence about a Saxon iron spearhead from Titterstone Clee.

File 377

Notes and news cutting about amber beads from Doddington on Titterstone Clee Hil.

File 457

Notes and sketches of various sites including Titterstone Clee.

File 759 Ludlow Museum

759/33-8 Notes, drawings and correspondence about an ethnographic axe said to be from Clee.

File 795 Lantern slides

795/14 Titterstone Clee from Bitterley.

795/31 Titterstone Clee earth circle.

File 808

Watercolour drawings of Neolithic and Bronze Age implements, including bronze flat axe from Titterstone Clee.

2.2 Titterstone Clee Hillfort excavation, 1932

The whereabouts of the original records from this excavation, if they survive, are not known. However, two detailed reports by B.H. St J. O'Neil, which include plan and section drawings, and photographs, were published (see bibliography).
Additional material relating to this excavation can be found in the Lily Chitty Archive - see above, Files 362 and 363.

2.3 Titterstone Clee Hillfort excavation, 1991

The archive of this small-scale excavation, undertaken by the Birmingham Field Archaeology Unit (now Birmingham Archaeology), has been retained by Birmingham Archaeology, at the University of Birmingham. The report of this excavation by A.E. Jones (see bibliography) has been deposited with the county Historic Environment Record and the National Monuments Record.

3. Industrial: 17th century to the present day

3.1 The catalogue of documents relating to the industrial heritage has mainly been compiled by examining sources in Shropshire repositories (principally Shropshire Archives, but also the Ludlow Museum Resource Centre and the county Historic Environment Record). Some of these sources are referred to in the two principal theses concerning the subject (namely, Goodman 1978 and Hewitt 1991). It has not been possible in every case to check the catalogue references given in these theses. It is known that various documentary collections have been renumbered. In addition, a search has been undertaken of the Access to Archives website (www.a2a.org.uk).

3.2 Aerial photographs

<u>Vertical</u>

Shropshire Archives holds a collection of large photographs at approximately 1:2500 scale, which were produced in the 1960s by the Ordnance Survey for mapping purposes. Photographs cover the whole of the study area and provide important information on land use at that time. The run numbers for these photographs are: 66-074, 67-194, 67-195, 67-327, 68-278 (as indicated on the map overlay showing the runs).

County of Shropshire by Cartographic Services (Southampton) Ltd.
Photographs of Clee Hill area were taken August 1983. Scale 1:10,000. Housed in Shropshire Archives (SCC AP) with an additional set in the county Historic Environment Record.
These are high quality photographs and provide a clear indication of the extent of quarrying and mining in the area. The study area is covered by the following

photographs: 7781-5, 7802-6, 7942-6, 7963-7, 8130-5, 8150-5, 8292-5 (reference should be made to the map and the overlay showing the runs).

The Air Photographs Library at the National Monuments Record (NMR), Swindon, contains a large collection of vertical photographs taken of the study area (396 prints) between 1946 and 1990. The scale of these photographs varies between 1:7500 and 1:20000. The list produced below has been produced from information supplied by NMR staff.

Sortie No.	*Taken*	*NMR Library No.*
RAF/CPE/UK2095	May1947	667
RAF/541/40	May 1948	886
RAF/541/177	Sept 1948	943
RAF/541/188	Oct 1948	947
RAF/541/524	May 1950	1086
RAF/58/710	June 1951	1185
RAF/58/751	July 1951	1197
RAF/540/651	Jan 1952	1236
RAF/58/4116	Feb 1961	2009
RAF/543/1507	Nov 1961	2048
RAF/106G/UK/1641	July 1946	4988
MAL/72015	March 1972	6137
OS/66075	May 1966	9408
OS/67194	June 1967	9424
OS/67195	June 1967	9425
OS/76023	April 1976	9868
OS/71442	Aug 1971	10121
OS/71443	Aug 1971	10128
OS/71446	Aug 1971	10638
OS/66074	May 1966	11230
OS/67327	Aug 1967	11232
OS/68278	Aug 1968	11233
OS/89111	May 1989	13458
OS/90054	April 1990	13678

Oblique

High quality photographs have been taken of archaeological and historic landscape features within the study area by Chris Musson in 1988, 1992 and 1995. These photographs can be seen at the Clwyd Powys Archaeological Trust (CPAT) offices in Welshpool. CPAT retain the copyright for these photographs. Copies of these photographs are also housed in the county Historic Environment Record and are ordered according to kilometre grid square.

Additional oblique photographs of the study area may exist in the National Monuments Record and in the photographic library of the Cambridge University Committee for Aerial Photography.

3.3 Early historic county maps

When the information depicted on these maps is considered together it gives a good general impression of the location and nature of the industrial activities undertaken in the Clee Hills area during the late 18th and early 19th centuries (eg coal mining, lime production, iron working, pottery manufacture and paper making). The most detailed and accurate of these maps are the Ordnance Survey two inch to the mile survey drawings for the Old Series maps (one inch to the mile). They provide a standard against which the information depicted on the other early county maps can be compared. These early Ordnance Survey maps show a clear distinction between the small-scale coal workings on Catherton Common, Watts Hill (Whatsill) and Horseditch, and the larger mines (the collieries) on Clee Hill, recorded as the 'Cornbrook Coal Works'. The majority of the industrial sites depicted on these maps can easily be located with reference to the Ordnance Survey maps produced in the 1880s.
Copies of the following maps are held by Shropshire Archives.

John Roque 1752 *Carte Topographique de la Comté de Salop ou Shropshire*. 1 inch: 1 mile

Robert Baugh 1808 *Map of Shropshire*. 1 inch: 1 mile

Ordnance Survey 1817-18 Survey drawings (area Sh 206)(for the production of the Old Series, first edition). 2 inches: 1 mile

Ordnance Survey 1833 Old Series, first edition (later revised with levels and railways added in 1884). Sheet 55. 1 inch: 1 mile

C. & J. Greenwood 1827 *Map of the County of Salop from an actual survey made in the years 1826 & 1827*. 1 inch: 1 mile

3.4 Tithe maps and apportionments

Tithe maps and apportionments of this area, produced between 1839 and 1848, provide useful information about ownership and leaseholders. However, they are of limited use for identifying areas of industrial activity. The original documents are complemented by tithe maps and apportionments produced by H.D.G. Foxall between 1980 and 1985. The following tithe maps and apportionments, together with the Field Name Maps, are held by Shropshire Archives.

<u>Tithe maps and apportionments</u>
Bitterley Parish (1842)
Cainham Parish (1848)
Cleobury Mortimer Parish, Doddington Township (1841)
Coreley Parish (1841)
Hopton Wafers Parish (1839)
Silvington Parish (1847)
Stoddesdon Parish, Farlow Chapelry (1845)

Field Name Maps
Bitterley Parish 1842. Based on tithe apportionment and map. 6inches: 1 mile
Cainham Parish 1848. Based on tithe apportionment and map. 6inches: 1 mile
Cleobury Mortimer Parish, Doddington Township 1841. Based on tithe apportionment and map. 6inches: 1 mile
Coreley Parish 1841. Based on tithe apportionment and map. 6inches: 1 mile
Hopton Wafers Parish 1839. Based on tithe apportionment and map. 6inches: 1 mile
Silvington Parish 1847. Based on tithe apportionment and map. 6inches: 1 mile
Stoddesdon Parish, Farlow Chapelry 1845. Based on tithe apportionment and map. 6inches: 1 mile

3.5 Early geological mapping and reporting

The first detailed geological mapping of the area was carried out by the Geological Survey of Great Britain around 1850, using the Ordnance Survey map base. Copies of the following maps for the Clee Hill area are held by Shropshire Archives.

Geological Survey of Great Britain 1855 Solid geology. Sheet No. LV NW. First edition. Ordnance Survey map base published 1832, with geological information published 1850 and 1855 (levels and railways added 1884). 1 inch: 1 mile
Geological Survey of Great Britain 1855 Solid geology. Sheet No. LV NE. First edition. Ordnance Survey map base published 1832, with geological information published 1850 and 1855 (levels and railways added 1884). 1 inch: 1 mile

A section through geological strata of Corve Dale, Brown Clee and Titterstone Clee Hill produced by the Geological Survey of Great Britain in 1854, at 6inches: 1 mile, is held by Shropshire Archives (2922/14/9/21) and is within a collection of deeds and papers relating to the Dudmaston Estate of the Wolryche family. Another copy of this map is housed in the Ludlow Museum Resource Centre.

Shropshire Archives. Salt Collection D3651/B/36/2/2/2 (ref in Hewitt's thesis 1011/419): A document by Samuel Dobson (mining engineer) within a bundle of papers relating to Clee Hill Colliery (see Botfield Family Papers below), dated 1850 or 1851, and providing a geological report on the strata, including the names of the coal seams.

For additional information concerning the geological strata of the area reference should be made to the mine coal mine abandonment plans, including those housed in the Ludlow Museum Resource Centre.

Information on the limestone strata of Clee Hill was given in *Siluria* by Murchison in 1839. Information from this publication has been reproduced in *A History of Limestone Mining in Shropshire* by IJ Brown, 2nd edition (1967) (pages 25-6), a Shropshire Caving and Mining Club publication. A copy of the work by Brown is in Shropshire Archives (q C 24.3).

3.6 Ordnance Survey mapping from the 1880s to the 1950s

The mapping undertaken by the Ordnance Survey from1883/4 onwards provides a very clear and detailed picture of the changing nature of the industrial landscape in this area, with the shift in emphasis from coal mining to dhustone quarrying. As the Third Edition County Series maps were not completed for the area, the Provisional Edition National Grid Series (published in 1954) becomes significant because the map base was revised before 1930, and thus depicts industrial workings in use or abandoned prior to that date. Copies of the following maps are held by Shropshire Archives.

Ordnance Survey 1891 County Series. Shropshire Sheet LXXII SE. Surveyed 1883. 6 inches: 1 mile
Ordnance Survey 1891 County Series. Shropshire Sheet LXXIII SW. Surveyed 1882-3. 6 inches: 1 mile
Ordnance Survey 1888 County Series. Shropshire Sheet LXXIX NW. Surveyed 1883. 6 inches: 1 mile
Ordnance Survey 1888 County Series. Shropshire Sheet LXXIX NE. Surveyed 1883. 6 inches: 1 mile
Ordnance Survey 1888 County Series. Shropshire Sheet LXXIX SE. Surveyed 1883. 6 inches: 1 mile

Ordnance Survey 1884 County Series. Shropshire Sheet LXXII.15. Surveyed 1884. 1:2500
Ordnance Survey 1885 County Series. Shropshire Sheet LXXII.16. Surveyed 1883. 1:2500
Ordnance Survey 1885 County Series. Shropshire Sheet LXXIX.2. Surveyed 1884. 1:2500
Ordnance Survey 1884 County Series. Shropshire Sheet LXXIX.3. Surveyed 1884. 1:2500
Ordnance Survey 1884 County Series. Shropshire Sheet LXXIX.4. Surveyed 1884. 1:2500
Ordnance Survey 1885 County Series. Shropshire Sheet LXXIX.6. Surveyed 1884. 1:2500
Ordnance Survey 1884 County Series. Shropshire Sheet LXXIX.7. Surveyed 1884. 1:2500
Ordnance Survey 1885 County Series. Shropshire Sheet LXXIX.8. Surveyed 1884. 1:2500
Ordnance Survey 1884 County Series. Shropshire Sheet LXXIX.11. Surveyed 1884. 1:2500

Ordnance Survey 1903 County Series. Shropshire Sheet LXXII SE. Second Edition Surveyed 1883, revised 1902. 6 inches: 1 mile
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIII SW. Second Edition. Surveyed 1882-3, revised 1901-2. 6 inches: 1 mile
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX NW. Second Edition. Surveyed 1883, revised 1902. 6 inches: 1 mile
Ordnance Survey 1904 County Series. Shropshire Sheet LXXIX NE. Second Edition. Surveyed 1883, revised 1902. 6 inches: 1 mile

Ordnance Survey 1904 County Series. Shropshire Sheet LXXIX SE. Second Edition. Surveyed 1883, revised 1901-2. 6 inches: 1 mile

Ordnance Survey 1903 County Series. Shropshire Sheet LXXII.15. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXII.16. Second Edition. Revised 1902.1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.2. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.3. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.4. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.6. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.7. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.8. Second Edition. Revised 1902. 1:2500
Ordnance Survey 1903 County Series. Shropshire Sheet LXXIX.11. Second Edition. Revised 1902. 1:2500

Ordnance Survey 1954 National Grid Provisional Edition SO 57 NE. Revised before 1930. 6 inches: 1 mile
Ordnance Survey 1954 National Grid Provisional Edition SO 57 SE. Revised before 1930. 6 inches: 1 mile
Ordnance Survey 1954 National Grid Provisional Edition SO 67 NW. Revised before 1930. 6 inches: 1 mile
Ordnance Survey 1954 National Grid Provisional Edition SO 67 SW. Revised before 1930. 6 inches: 1 mile

3.7 Estate maps

A small number of estate maps for the area are held by Shropshire Archives. The only one to be examined, which provides detailed information about industrial workings, forms part of a document entitled *A Survey of the Several Farms and Lands in the Parish of Coreley in the Parish of Salop Belonging to The Right Honourable William, Lord Craven. Taken in the Year 1769 by Matthias Baker*. This and other surveys are bound together in a volume entitled *Salop Survey. Craven Estate. Volume 2* (Shropshire Archives Ref. No. 6001/2481). The map forming part the Coreley survey (map 7 within the volume and headed ‘Coreley Ditton 1769’), provides information about Cornbrook, Cuttley, Blue Stone and Heath Collieries, including the depth of certain shafts.

3.8 Documentation about roads including turnpikes - in Shropshire Archives

Ludford Park Collection
11/996 1st District Ludlow Turnpike Trust, dated 1820-5.
11/995 2nd District Ludlow Turnpike Trust, dated 1820-5.

q C 41.2 Shropshire Acts VI, 1859, pages 1257-68: Ludlow First and Second Turnpike Acts for repairing and maintaining certain roads with reference to the Cainham Trust.
356/ Box 306 Cainham Trust - treasurers' accounts 1787-95 and 1809-57.
481/24 Document concerning the turnpike road from Ludlow to Clee Hill at Rocks Green, dated 1861.
1141 Cainham Trust - general statement of expenditure.
1141 Document concerning Rock Lane road from Ludlow to Cleobury Mortimer.
1141 Tracing of map of roads from Ludlow to Bitterley, and Ludlow from Cleobury Mortimer.
1150/353 Document concerning a way from Milson to Hints, dated 1660.
1150/354 Document concerning Crawfords Lane and Dunsbatch Lane (Clee Hill).
1497/275 Cainham Trust - document concerning the meeting of Trustees in 1852.

Wills Collection
2589/U/1-6 Papers regarding the abolition of the Ludlow Turnpike Trust, dated 1872-81.

3.9 Sale details of businesses reported in local papers - in Shropshire Archives

Clee Hill Ironworks
Eddowes Salopian Journal, 11th June 1845.
Shrewsbury Chronicle, 18th April 1851.
Knowbury Coal, Iron and Brick Works
Berrows Journal, 5th May 1853.

3.10 Personal papers and documents concerning the sale, ownership, tenancy and use of land relating to industrial activities, with exception of the Botfield family concerns, other principal colliery enterprises and quarrying companies

A variety of documents can be grouped under this general heading, which provide an insight into the industrial economy of the Clee Hills area from the mid 17th century to the early 20th century.

Deeds and charters
Deeds and charters from the mid 17th century to the end of the 18th century, formerly in Shrewsbury Borough Library and now in Shropshire Archives, were analysed by Goodman. A series of bound volumes of hand-written entries provide a detailed catalogue to these documents. The numbers listed below are noted in Goodman's (1978) thesis:
822, 823, 824, 825, 827, 828, 831, 832, 6100, 6110, 6111, 7450, 8085, 8086, 8088A, 8089, 8091, 8094, 8100, 8106, 8367, 8514, 9586, 9608, 9759, 9760, 9761, 9816, 10577, 10843,

10904, 10978, 13079.
All are now preceded by 6000/. This prefix was given when the documents were transferred to Shropshire Archives.
It should be noted that some numbers refer to more than one document, most notably 6110 and 6111.

3.11 Other documents concerning small-scale industrial activity - in Shropshire Archives

Bright Collection

807/235	Totterton Estate Records. Memorandum of agreement specifying the movement of coal and other resources, dated 1787.

British Records Association

372/22	Deed referring to the acquisition of mineral rights on Titterstone Clee by Richard Knight from Lord Craven.
407/12	Rental to Lord Craven, including payment by Richard Knight for coal working.
5612/2/G/1	Covenant to erect furnaces in the parishes of Coreley and Cleobury Mortimer, dated 1867.

Ludford Park Collection

11/487	Covenants mentioning the buying of coal by tenants as a domestic fuel, dated 1719-20.

Morgan Collection

783/111B	Lease noting royalties on extracted commodities, dated 1864.
	Lease concerning the Knowbury Brick & Tile Company and the mineral rights for clay and coal, dated 1879.
783/181	Lease and correspondence regarding the setting up of a brick and tile works, dated 1911.
783/223	
Box A	Notice of the auction of the Knowbury Brick & Tile Company, dated 1909.

Norris & Miles Collection

1670/28-9	Lease which makes reference to lime pits and kilns, dated 1712.
1670/40	Lease which makes reference to lime slack, dated 1693.

Oakly Park Collection

20/5/36	Two covenants to carry coal from Clee Hill to Oakley Park, dated 1671.
20/5/46	Lease which mentions the transport of coal from Clee Hill to Oakley Park, dated 1751.
20/5/40	To transport firewood and coal from Clee Hill for domestic use, dated 1721.
20/20/8	Lease to extract limestone, dated 1706-07.
	Lease to work lime quarries and lime kilns, dated 1709-10.

Salt Collection

1150/907 Article of agreement concerning coal and ironstone mining, and the digging of clay for making bricks and tiles, dated 1777.
1150/909 Article of agreement concerning coal mining on Clee Hill, dated 1781.

Thynne Collection
1150/354 and 1150/355 Marriage settlement, which makes reference to limestone quarrying limestone kilns, dated 1662.

Wills Collection
2589/R/7 Covenants, including one regarding the transport of lime from pits on Clee Hill, dated 1788.

Shropshire Archives also holds the Brooke Papers, relating to the Brooke family of Haughton Hall, Shifnal.
From the Administrative History (Shropshire Archives 5735) it notes that the Brigges family (an ancestral line of the Brooke family) derived much of their income from land, including the coal and iron mines on Clee Hills. It is also noted that the collection of papers contains little mention of mining activity in the area, as the land belonging to the Brigges family was partitioned in 1800 and passed to Earl Fitzwilliam.

Information about the Knovers and Gorstley Rough Limestone Mines, including the numbers of men employed in the early 20th century, can be found in Brown, IJ (1967) *A History of Limestone Mining in Shropshire*. 2nd edition, pages 20-3. A copy of this publication has been deposited with Shropshire Archives (q C 24.3).

3.12 Other relevant documents

Staffordshire Record Office
D660/18/8 and D660/19/9 Documents concerning the sale of land at Oreton and the right to dig limestone to make lime in the 17th century (noted in Goodman's thesis (1978)).

Herefordshire Record Office
Catalogue of the Downton Collection 163, 219, 233, 302, 324, 326, 327, 348, 387, 391 395, 405, 407, 547, 610 and 678
Leases for coal mining in the 17th century (noted in Goodman's thesis (1978)).

Kidderminster Library
The Knight Manuscripts, including accounts for ironworks.
Referred to in the thesis by Goodman (1978) as Knight Mss 244 (General Accounts for 1733-4), Mss 245 (General Accounts 1743-4 and 1753-4), Mss 274 (General Accounts 1770-1) and General Accounts 1777-8, plus Mss 7191, 7534, 7536 and 7537.
In Hewitt (1991) the Manuscripts are referred to as KPL 7201.

3.13 Colliery enterprises and related family concerns

Botfield Family Records - in John Rylands University Library at Manchester University

A list of all the Botfield family papers held at the John Rylands University Library, including those listed below, has been lodged with Shropshire Archives (q C 63).
BOT2/1/1-3: Annual accounts for all collieries, mills and furnaces, 1837-70.
BOT2/4/1-8: Clee Hill Colliery reckoning accounts, 1843-70.
BOT2/16/1 and 2: Clee Hill Colliery ledgers, 1801 -71.
BOT2/33/1 and 2: Clee Hill Colliery cash account books, 1801-21 and 1836-58.
BOT4/5/1-4: Property inventories of Clee Hill, 1847, 1858, 1859, and 1860.

Records regarding Botfield enterprises - in Shropshire Archives

Morgan Collection

783/223 Box B	Information regarding ventilation in the Clee Hill Colliery, 1900-02.
783/11B	Information regarding coal extraction.

Salt Collection

D3651/B/36/2/2/1	Report on Clee Hill Colliery and associated correspondence
D3651/B/36/2/2/2	Bundle of papers regarding Clee Hill Colliery 1850-1 (see Geological Mapping and Reporting section above).

Salt Collection

786/ Box 14	Botfield Trustees Accounts, inventory of property in 1863.
1011/425	Correspondence, and a Memorandum of Agreement.

Thynne Collection

1150/908-12 Bundle 79	Agreements for a colliery on Clee Hill, 1777-83. They are with Botfield papers hence probably a Botfield enterprise.

Edwards Family Records - in Shropshire Archives

Morgan Collection

783/223	Lease to mine coal at Whatsill Colliery, dated 1895.
783/223 Boxes A & B	Papers and correspondence of Messrs. Edwards coal operators.

Miscellaneous Records - in Shropshire Archives

British Records Association

5216/2/G/2	Meeting as to lease of Catherton Colliery. Discussion about the course of tramway from Clee Hill terminus to Catherton Colliery and coal of adjoining properties, dated 1871.
5216/2/G/3	Document concerning the railway near Magpie Pit to its terminus at

the	Ludlow and Clee Hill Railway (see Railway documents, below), dated 1872.
5216/2/G/5	A deed concerning Clee Hill minerals on the Craven Catherton Estate, dated 1900.

3.14 Coal mine abandonment plans

The Coal Authority curates coal mine abandonment plans at their headquarters, in the Mining Records Office, in Mansfield, Nottinghamshire. There has been a legal requirement to deposit plans of abandoned mines (of all mineral types) with the appropriate government department since 1872. Coal mine abandonment plans are now held by The Coal Authority under an agreement with the Health & Safety Executive. All plans have been microfilmed and are available for public inspection and can be copied.

A copy of a *Catalogue of Plans of Abandoned Mines. Volume 4. Shropshire* was produced by the Mines Department and published by HMSO in 1930. A photocopy of this publication is housed in Shropshire Archives (C24vf 8933/1). The list below has been copied from the Catalogue. It should be noted that the numbers shown underlined are the official reference numbers given to those plans deposited with the Mines Department. Some plans were not lodged with the Mines Department and if an alternative store is recorded this is noted. In this list the principal colliery name is given first, followed by the names of individually named shafts. A date is given for the abandonment of the colliery, if recorded. The coal seam names, where known, are presented in italics. Where a mine was known by two or more names cross references have been made where appropriate. In the Catalogue the location of these mines is given in relation to the appropriate Ordnance Survey County Series, 6 inch map sheet. The relevant 6 inch map sheets are noted here (with the date of publication in brackets), but reference should be made to the Catalogue and the map sheets to pinpoint these workings.
It is assumed that the plans noted in the Mines Department catalogue are now housed at Mansfield.

Named Collieries in the Catalogue
Bailey's - see Cornbrook
Barn - see Cornbrook
Barn and Trout, No. 1: Dhustone; Fault; Merry; Rein; Sand; Water (9818) *Great*. Abandoned 17th July 1927. 79 NE (1904) - several locations
Boxers - see Cornbrook
Catherton - see Watsall
Catherton: Magpie (2445) *Great*. Abandoned December 1889. 72 SE (1903), 79 NE (1904)
Chimney - see Cornbrook
Cornbrook, including the following shafts: Bailey's; Barn; Boxers; Chimney; Craven, No. 4; Dhustone, No. 11; Dip; Mawley; Merry, No. 8; Pole, No.5; Pool, No. 1; Rean (Rein); Robin's; Sand; Smith; Trout, Nos. 1, 2, 3 (3475) *Great*, *Smith*, *Four Feet*. Abandoned May 1895. 79 NE (1904) - many locations
Cutley - information on location of plans, coal seam(s) and date of abandonment are not noted. 79 NE (1904)

Dhustone - see Barn and Trout
Dhustone, No. 11 - see Cornbrook
Dip - see Cornbrook
Fault - see Barn and Trout
Gibbett - information on location of plans, coal seam(s) and date of abandonment are not noted. 79 NE (1904)
Knowbury (5306) *Gutter*. Abandoned January 1907. 79 NW (1903) - several locations
Knowbury: Penney's (4120) *Yard*. Abandoned 15th January 1901. 79 NW (1903)
Magpie - see Catherton
Mawley - see Cornbrook
Merry - see Barn and Trout
Penney's - see Knowbury
Pole, No. 5 - see Cornbrook
Pool, No. 1 - see Cornbrook
Rean (Rein) - see Cornbrook
Rein (Rean) - see Barn and Trout
Robin's - see Cornbrook
Sand - see Barn and Trout; Cornbrook
Smith - see Cornbrook
Trout - see Barn
Trout, Nos. 1, 2, 3 - see Cornbrook
Watsall, Nos. 2, 3, 4; Catherton (3788) *Great*, *Smith*. Abandoned February 1898. 72 SE (1903) - several locations, 79 NE (1904) - several locations
Windsor (3312) *Four feet*. Abandoned 27th May 1893. 79 NE (1904) - several locations

Unnamed shafts and levels noted in Addendum 1 of the Catalogue of Abandoned Mines

Unnamed shafts and levels are also recorded in the catalogue, according to the parish in which they were located. This information has been copied from the catalogue. As with the named collieries in the catalogue, the location of these mines is given in relation to the appropriate Ordnance Survey County Series, 6 inch map sheet. The relevant 6 inch map sheets are noted here (with the date of publication in brackets), but reference should be made to the catalogue and the map sheets to pinpoint these workings.
Bitterley: 79 NW (1903); 79 NE (1904) - several locations
Caynham: 79 NW (1903); 79 NE (1904)
Cleobury Mortimer: 72 SE (1903) - several locations
Farlow: 72 SE (1903)
Hopton Wafers: 79 NE (1904)
Nash: 79 SE (1904)

NB According to Hewitt (1991) plans of abandoned mines and related documents concerning Knowbury 1 and 2, and possibly other mines owned by the Edwards family, were housed in the Records Office of British Coal in Stoke-on-Trent (now The Coal Authority). The following Parcel Nos. F36, F38, F39, F40, F41, R36 and R37 relating to mining documents are noted in his thesis.
It is assumed that these records are now housed with other mine plans at The Coal Authority's headquarters in Mansfield.

3.15 Other coal mine abandonment plans - in Ludlow Museum Resource Centre

Drawing (not dated) showing two sections: Section 1 depicting Chimney Pit and Trout Pit and position of geological fault; Section 2 depicted road driven to fault.

Section showing coal seams: Great Coal, Three Quarters Coal, Smith Coal, Four Foot Coal with the Trout Pit Fault; and Chimney Pit Shaft with road to the fault. Not dated, but would appear to be a similar date to the section drawing of Chimney Pit, etc.

'Cornbrook & Knowbury Coal & Stone Company. Plots on the Cornbrook Estate' Thomas Roberts, dated 1879. A plan that shows the positions of Trout Pit, Williams Pit, Merry Pit, Gibbet Pit, Church Pit and Keys Quarry.

'Plan of Cornbrook Collieries Nos. 2 & 4' John Peason 1869. Shows the position of Craven Pit No. 4, Dhustone Pit No.2, plus Old Pits and Deep Pit.

'Section of New Pit at the Clee Hill held under lease by Messers. Summers & Garbet 1871'. This section records the name of the strata and the thickness of each layer.

3.16 Coroner's Inquisitions into deaths of workers in mines - in Shropshire Archives

Quarter Sessions Rolls and Coroner's Inquisitions - records of mining fatalities in the Clee Hill area 1758-1827.

3.17 Photographic archive for the mining industry

There is a very small photographic archive relating to the mining industry.

There are two photographs of Watsall Mine, *c*. 1900, in the book compiled by IJ Brown *The East Shropshire Coalfields*. In the Images of England series (see Bibliography). One shows an engine house and headgear, while the other shows the managers and miners in front of the headgear.

In *Titterstone Clee Hills. Everyday life, industrial history and dialect*, by AE Jenkins (see Bibliography) several photographs have been reproduced.
Miners and managers at Watsall - the same photograph as in the book by IJ Brown.
Miners at Barn Pit, 1912 and in the 1920s.
Removal of slack from near Barn Pit by the Knowbury Slack Company.

Original photographs, including postcards, concerning the Knowbury Slack Company are housed in the Ludlow Museum Resource Centre (1B 6), two of which are reproduced in the book by AE Jenkins.

3.18 Dhustone quarrying archives

There is a large body of archives (eg written accounts, plans and photographs), which show how the quarries and the associated railway system (see Railway documents) operated. These sources, together with the standing remains, allow the development of quarrying in the Clee Hill area, and its transport system, to be studied in detail.

3.19 Correspondence in local papers concerning the use of dhustone - in Shropshire Archives

665/3/1194 Cuttings from the Shrewsbury Chronicle and Eddowes Shrewsbury Journal regarding the quality of dhustone as a roadstone, both dated 1865.
665/3/1195 Cuttings from Shrewsbury Chronicle regarding the Shrewsbury Improvement Committee and the use of dhustone, dated 1865.

3.20 Cleehill Granite Company archives - in Shropshire Archives

MI632/1 Printed booklet of testimonials *c*.1886.
MI632/2 Leaflet with extracts from testimonials *c*.1886.
MI632/3 Leaflet with extracts from testimonials *c*.1886.
MI632/4 Advertisement leaflet listing places using Clee Hill stone.

3.21 Rouse Boughton of Downton Hall Estate Collection - in Shropshire Archives

6683/1/22 Papers relating to quarrying and mineral rights on Clee Hill and Titterstone Clee, dated 1879 to 1918.
6683/1/23 Letters and papers concerning workers' cottages for the dhustone quarry on Clee Hill, dated 1894.
6683/2/62 Lease for quarrying (with plan), dated 1866.
6683/3/64 Letter from Clee Hill Dhustone Company regarding encroachment on the property by Mr Edwards, dated 1882.
6683/3/231 Clee Hill railway cottages: rent accounts, dated 1883-1927.
6683/3/232 Correspondence relating to Clee Hill quarries, mainly in connection with the railway, 1927-29.
6683/3/233 Record of output of the Clee Hill and Titterstone quarries on which royalties have been paid, dated 1927-32.
6683/3/234 Statement of accounts, etc in respect of rent and royalties accruing from Clee Hill and Titterstone Hill quarries, dated 1927-64 and 1964-89.
6683/3/236 Correspondence regarding the Clee Hill, and Field & Mackay quarries, dated 1947-55.

3.22 Other documents concerning dhustone quarrying - in Shropshire Archives

BM 15 v.f. Notes on the family and business history of Field & Mackay.
Q 15 v.f. An article from The Civil Engineer (1904) entitled 'Notes on Clee Hill Basalt', by W Clarke.

DA22/710/194 Proposals for quarrying on Clee Hill by the British Quarrying Company, dated 1947.
5747/46 Publication called *Good Roads. Roads and Transport Exhibition: special number* Vol. 1, No. 5, Nov. 1925. It includes an article entitled 'Where Good Road Materials Come From. The Titterstone Quarries, Clee Hill' (pages 193-6), plus information on Field & Mackay Ltd and their products (page 207).

3.23 Field & Mackay Ltd: promotional brochure - in the Ludlow Museum Resource Centre

514/90/2b A brochure entitled *The Titterstone Quarries of the Clee Hill, Basalt* by Messers. Field & Mackay, Ltd, 1911
This brochure contains photographs of the quarries and quarrying operations, together with information on the products, including the sizes of the stone produced, and the uses of these products. It also contains sales information for the period 1881-1910 and the distribution of products from the Titterstone Quarries by rail.

3.24 Dhustone quarrying photographic archive

Large and significant collections of photographs, including several postcards, concerning the quarries are housed in Shropshire Archives (PH/C/21 and PC/C/17) and in the Ludlow Museum Resource Centre (1B7 and 1C). These photographs date from the 1860s to the 1950s/1960s. They show the developing nature of the quarries, conditions and methods of working, including the types of machinery and tools employed, together with photographs showing groups of workers, sometimes with managers. Photographs of Titterstone Quarry and the Clee Hill quarries (Dhustone Quarry and Granite Quarry) allow the chronological changes of the processing plant and associated internal infrastructure to be clearly understood. This applies to the associated rail network - see Photographic archives of railways. It is also worth noting that the Shropshire Archives photographic collection contains several photographs of bungalows, including a plan, built for the managers at one of the quarries (probably Titterstone).

Some of the photographs from these collections, together with other original images, have been reproduced in *Titterstone Clee Hills. Everyday life, industrial history and dialect*, by AE Jenkins (see Bibliography).

The photographic and postcard collections in Shropshire Archives contains several photographs of the aerial ropeway at/from the Magpie Quarry. Plan and elevation drawings of the ropeway, together with drawings of a ropeway bucket, are reproduced in the book by AE Jenkins.

3.25 Documents concerning the supply of dhustone - in the Hampshire Record Office

12M75/DDC128 Contract between Alton Urban District Council in Hampshire and the Clee Hill Granite Company Ltd for 600 tons of basalt, dated 1908.

12M75/DDC140 Contract (3 copies) with Alton Urban District Council and correspondence with British Macadams Ltd, Gravesend (agents for the Clee Hill Granite Company Ltd), for 490 tons of Clee Hill basalt, dated 1911.

3.26 Railway documents - in Shropshire Archives

Ludlow and Clee Hill Railway Company
333/1 Minute Book, Maps, Application and Act 1860s.
3233/1-2 Agreements between the Ludlow and Clee Hill Railway, and the GWR & LNWR, dated 1868 and 1877.

Railway Plans
4279/36 London & North Western Railway: Clee Hill Junction, dated 1889.
6000/19181 Great Western & London & North Western Railway: Clee Hill sidings, not dated.
6008/18 Clee Hill Railway: section from Ludlow to Clee Hill, not dated.
6008/19 Clee Hill Railway: section of incline, not dated.
6008/20 Clee Hill Railway, dated 1893.
6008/33 Great Western & London & North Western Railway: two plans, dated 1893.

3.27 Railway documents - in the Wiltshire and Swindon Record Office

2515 250/486 Ludlow and Clee Hill Railway, not dated.
2515/403/0128 Clee Hill: incline - winding gear and brake drum details, dated 1905.
2515/403/0129 Clee Hill: incline - end attachment for wire rope, dated 1925.
2515/403/1130 Clee Hill: motive power depot, dated 1948.
2515/406/2048 ms Clee Hill: incline - winding and brake drum details, dated 1905.
2515/406/2194 ms Clee Hill: incline - winding gear and brake drum details, dated 1923.
2515/406/2565 ms Clee Hill: incline - top rope wheel shaft and bearings, dated 1911.
2515/406/3132 ms Clee Hill: incline - Snatch Head, dated 1906.
2515/406/3156 ms Clee Hill: incline - end attachment for wire rope, dated 1925.

3.28 Photographic archives of the railways

Large and significant collections of photographs concerning the railways associated with the dhustone quarries are housed in Shropshire Archives (PH/C/21) and in the Ludlow Museum Resource Centre (1B7, 1B8 and 1C). Certain photographs have been reproduced in *Titterstone Clee Hills. Everyday life, industrial history and dialect*, by AE Jenkins (see Bibliography).

There is also film footage of the Titterstone Incline in use, in a DVD/Video entitled *Up the Line and Back Again*, produced by AE Jenkins.

Additional photographs of the railway associated with the Clee Hill Granite Company, dated to have been deposited in the Hereford Record Office and are part of the Ballard Papers (K13/26-49).

3.29 Censuses 1841-1901

Censuses can be used to provide detailed information about the changes to the population of the area. They are available on microfiche at Shropshire Archives or online at www.ancestry.co.uk.

3.30 Shropshire Post Office and Trade Directories - 1822-1941 - in Shropshire Archives

These directories provide valuable information about the trades and business operating in the area. They are available on microfiche at Shropshire Archives.

4. World War II military activity

4.1 Rouse Boughton of Downton Hall Estate Collection - in Shropshire Archives

6683/3/401 War Department requisition of land: papers and correspondence.
The most relevant papers (6683/3/401/116, 6683/3/401/118, 6683/3/401/124, 6683/3/401/125) concern the requisitioning and use of land on Clee Hills, as part of the Cleobury Mortimer Training Area, for American troops in 1944.

Appendix 3: Summary of designations relevant to the defined area

Name	Acronym	Theme		Statistics/comments	Responsible authority
Shropshire Hills Area of Outstanding National Beauty	AONB	Designated 1959 by the Countryside Agency under terms of Section 87 of the *National Parks and Access to the Countryside Act* to protect and manage areas of exceptional natural beauty which include protection of flora, fauna, geology, historic environment and the landscape for visitors and local residents	yes	Area of 80,400 ha. of which 67,200 ha. lie in S. Shropshire. Defined area is wholly encompassed with the AONB but extends beyond it on the east side.	Natural England working with other bodies – a reconstituted Joint Advisory Committee (in conjunction with the councils of adjoining Districts, the County Council and other interested organisations) was set up in 2003 under the name Shropshire Hills AONB Partnership which prepared the Management Plan (*Shropshire Hills AONB Management Plan 2004-2009*) for the AONB
Shropshire Hills Environmentally Sensitive Area	ESA	One of a range of agri-environment schemes operating under the England Rural Development Programme. Incentives offered to farmers to adopt agricultural practices which will safeguard and enhance areas of particularly high landscape, wildlife or historic value. In process of being phased out and replaced with new Environmental Stewardship option (ELS and HLS) but some ESA schemes still current.	yes	Comprises 2 discrete areas (total of 38,500 ha.) in S. Shropshire, each containing a core of upland habitat. S. area relevant to this CP. Overlaps with other designations, notably AONB (covers 52.2 ha. of the AONB), SSSIs and range of local designations. Most of defined area encompassed within ESA except for small area to south-east.	Natural England
Sites of Special Scientific Interest	SSSI	Land notified as an SSSI under Section 28 of the Wildlife and Countryside Act (1981) as amended. SSSIs represent the finest sites for wildlife and natural features, supporting many characteristic and endangered species, habitats and natural features.	yes	4 in the defined area: i. Titterstone Clee (426.4 ha) ii. Cornbrook Dingle (1.48 ha.) iii. Catherton Common & Hill Houses (135.32 ha.). E. part lies outside defined area iv. Clee Hill Quarries (63.45 ha.)	Natural England
Scheduled Monument	SM	Scheduled Monuments are legally protected under the *Ancient Monuments and Archaeological Areas Act, 1979.* Nationally important archaeological sites in the UK. Consent required from the Secretary of State via DCMS for most works affecting SMs.	yes	Include prehistoric remains (hillfort and barrows/cairns) and some coal-mining and quarry remains.	English Heritage – advises DCMS on individual cases for consent and offers advice on management
Conservation Area	CA	Designated under Section 69 of the *Listed Buildings and Conservation Areas Act 1990* as areas of special architectural or historic interest the charcter of which it is desirable to preserve or enhance. Designated by Local Planning Authority	yes	One in defined area – Dhustone (designated 1994)	S.Shropshire County Council
Moorland Line	None recognised	Encloses land within England defined as predominantly semi-natural upland vegetation, or predominantly of rock outcrops and semi-natural vegetation, used primarily for rough grazing. Encloses c. 42% of 'so-called 'Less Favourable Areas ' (see below)	yes	Most of defined area falls within the Moorland Line	DEFRA
Less Favoured Areas	LFA	EC designation which provides special measures to	yes	Most of defined area is classed	DEFRA

(comprise Disadvantaged and Severely Disadvantaged Areas)		assist farming in the areas designated. LFA s comprise Severely Disadvantaged and Disadvantaged Areas. They are mainly upland areas where the natural features (geology, altitude, climate *etc.*) make it difficult for farmers to compete.		as Severely Disadvantaged	
Registered Common Land	None recognised	Parcels of land which may contain agricultural, environmental or natural resources; designated as Registered Common under the CROW Act, 2000	yes	Large tracts of Common Land on Titterstone Clee Hill and in a SW-NE band from Knowle (S. of A 4117) through Whatsill to Catherton Common)	Natural England
Objective 2 Area (previously Objective 5(b)	None recognised	Designated by DTI, defined by 1991 wards, as eligible for Objective 2 status under the European Regional Development Fund. Significance is that this status qualifies much of S. Shropshire for assistance with eligibility for transitional funding. (Objective 1 Areas also exist – none in defined area).	no	Covers entire defined area	DTI (Dept. for Communities and Local Government)
Regionally Important Geological Site	RIG		yes		Natural England
Listed Buildings	LB		yes		English Heritage (for Grade I and II*, Local Authority Grade II)
Landscape Character Assessment - Refinement of Regional Character Areas originated by Countryside Agency in mid 1990s. HLC subsequently integrated into LCA. 27 for Shropshire	LCA	Provides analysis of landscape character at a broad scale	no		DEFRA General tenet supports retention of significance
Historic Landscape Characterisation - Undertaken by Shropshire County Council, 2001-2004, funded by English Heritage	HLC	Provides information about the historical development of the landscape based on assessment of a range of sources, including maps, historical documents, field records *etc.*	no		Shropshire County Council General tenet supports retention of significance

Appendix 4: Summary of policy documents

Document	Duration	Policy relevant to this Conservation Plan	Policy objective/s	Implications for the retention of significance in defined area
South Shropshire Local Plan Produced under 1999 Regulations but in future under Planning and Compulsory Purchase Act 2004, will be replaced by Local Development Framework (LDF) which will comprise, rather than one Local Plan covering several years, a portfolio of different documents or Local Development Documents (LDD) each with different objectives and policies	2004-2011	SD1 (= SP P2) (***N.B.*** – this column includes references to the equivalent policy in the *Shropshire and Telford & Wrekin Joint Structure Plan 1996-2011 Written Statement). The latter provides a statement of the overall strategy for development proposals and a framework for more detailed policies in the Local Plan.*	Sustainable development: • promote high-quality environment by conservation and design • increasing access to homes, jobs etc. while reducing need to travel • broadening economic base of the District • developing more vibrant, safer and healthier communities • Ensuring sufficient allocation of land to accommodate 5 times planned annual housing provision	Favours shift towards future development in market towns and main villages Restricts conversion and adaptation of rural buildings to those settlements covered by the development strategy
		SDS1 (= SP P8)	Housing and employment land supply: • To provide sufficient housing land for 2900 dwellings between 1996-2011 and ensure min. 15 ha. employment land available •	48 new houses built in Cleehill between 1996-2004. 48 outstanding planning permissions
		SDS3	Settlement strategy: • Craven Arms to be principal centre of growth • Bishops's Castle, Burford, Church Stretton, Cleobury Mortimer and Ludlow will see more limited growth	Centres identified are all within easy reach of the defined area – may bring increased tourism
		SDS4 (excludes Listed Buildings for which special provisions apply)	Conversion and adaptation of rural buildings: • Allow conversion/adaptation if buildings are already permanent and substantial and can be used without major extension/reconstruction	Possible implications for conservation and re-use of Titterstone Quarry standing buildings and any proposed associated infrastructure

			• Access to public highway exists or can be created without detriment to overall character of area • Use would not have adverse effect on appearance/character of buildings and envirions • Proposals for economic use (incl holiday accommodation) or mixed use allowed if appropriate to scale and nature of location	
		SDS5 (= policy P9 of SP)	Location of industrial and business development: • New industrial and business development permitted on existing industrial sites without loss of ancillary car-parking, storage and landscaping • Will be allowed on allocated land on suitable sites incl. Craven Arms, Cleobury Mortimer, Church Stretton, Ludlow • Re-use and adaptation of existing rural buildings	
		SDS7 (= policy P13 of SP)	Affordable housing: • Outside towns and main villages, may be permitted on small sites not identified for development in the Local Plan, provided development meets identified local need and is compatible with local character.	Settlements identified for this treatment within defined area include Doddington, and Hopton Wafers; also for Knowbury (just outside defined area). Possible detriment to landscape character and integrity of historic landscape.
		SDS9	Gypsy caravan sites: • Site needs to be reasonably accessible to settlements with schools, shops, community facilities • Site not to be on best	Potential for such a site within defined area but less likely due to AONB

			agricultural land • Site to be screened/landscaped • No nuisance to be caused to nearby residential areas • No impact on landscape quality within or visible from AONB	
		E1	Landscape conservation: Proposals for development will not be permitted which would adversely affect: • Character/natural beauty of Shropshire Hills AONB • Scenic quality of landscape outside the AONB	Positive for retaining intrinsic value of historic environment and for countering threats to certain categories of natural habitat such as flower-rich grassland and heathland, to increased pressure for tourism and recreation, to continuing pressure for development in open countryside, to impact of new agricultural buildings and need to reclaim derelict land. Could conflict with any proposals for visitor and other access improvements and proposed visitor centre
		E2	Nature conservation. Development will not be permitted if likely to impact on: • National Nature Reserve or SSSI unless subject to conditions that will prevent damaging impacts on wildlife habitats or important physical features or if other material considerations override those of nature conservation • A Local Nature Reserve or Wildlife Site designated by Shropshire Wildlife Trust, or any site adjoining habitat of protected or endangered species unless importance of development outweighs local value of site Where a development is approved: • Site's biological or geological interest must be preserved • Replacement habitats/features	Safeguards SSSIs within defined area as damaging large-scale development unlikely to occur No Special Protection Areas (SPAs), Special Areas of Conservation (SACs) or Ramsar Sites within defined area No NNRs or LNRs within defined area. Local sites: there are 2 wildlife sites designated by the Shropshire Wildlife Trust, just outside the defined area – one at Cramer Gutter (SO 647 795) and another at Knowle Wood (SO 597 736) but any development on these would be subject to policy E2 In addition, national policy advocates management of landscape features outside designated sites as these can be of major importance for wild flora and fauna. Such areas may include ancient woodlands, unimproved grassland and heathland which are all present within the defined area

			required • Ensure wildlife species protected during construction • Facilitate management of features of landscape important for flora and fauna	
		E3	Conservation of Listed Buildings. Proposals will not be permitted for: • Development involving demolition of a Listed Building unless it cannot be avoided due to irremediable structural defects • Development that would adversely affect building character (incl. interior)	Conforms with PPG15. May conflict with any sustainable housing proposals in defined area or with one-off development proposals
		E4	Development in Conservation Areas Development will be required to: • Preserve or enhance local character • Undertake demolition only in conjunction with replacement buildings or remedial works	One CA in defined area – at Dhustone
		E5	Development affecting archaeological remains Archaeology to be preserved by: • Evaluation via planning system on sites of archaeological significance • Preservation of important archaeological remains *in situ* • Proper recording of archaeological remains for which removal is authorised • No development having adverse effects on Scheduled Monuments or their settings	Conforms with PPG16 Supports retention of archaeological significance within defined area.
		E6	Design Development in South Shropshire	Supports retention of topographical character of Clee Hills, also established public views such as those from

			should: • Respect diversity and distinctiveness of local landscape character re buildings, streets, plot patterns, buildings frontages, topography, established public views, landmark buildings, other townscape elements	the panoramas, viewing platforms and the tope of Titterstone Clee Hill.
		E7	New development general requirements Includes requirements re respect to site character, safe access, not exceeding maximum car-parking provision, amenity provision, adverse effects on historic buildings, conservation areas, historic landscapes, protection of wildlife habitats and geological features, effects on existing public access, promotion of crime prevention through appropriate landscaping and public access, access for the disables.	Many of these could be relevant to proposals to improve visitor access to the archaeological and biodiversity sites within the defined area but they are to be seen in a positive light and it is envisaged that any proposals would be likely to comply with the requirements listed as relevant
		E8	Telecommunications Need to meet the following criteria: • Achieve highest possible standards of siting and design and respect landscape character • No reasonable possibility of sharing existing facilities without detracting from landscape • Re radio masts, no reasonable feasibility of erecting antennae on an existing building or structure • Need to submit evidence that all possible measures pursued to reduce environmental impacts	Relevant to preserving integrity of the archaeological and biodiversity landscape within the defined area. Supports policy E1 re preservation of features within AONB
		ED1 All 'ED' policies relate to	Rural development In rural areas, outside those listed under policy SDS5, new business uses	Relevant generally to the defined are, but more especially to its fringes

		the Council's Economic Development Strategy (Whole of S. Shropshire is within a Rural Regeneration Zone)	will be permitted which are in keeping with rural character – includes new agricultural markets and organic farm developments	
		ED2	Dwellings for agricultural and forestry workers Allows new dwellings outside existing settlements if financially viable, sited adjacent to farm complex, used for agricultural purposes, respects landscape character	Could impact on setting of archaeological and biodiversity landscapes. More likely to be restricted to lower-lying land away from core area of such landscapes
		ED3	Tourism developments Proposals for sustainable tourism allowed if: • Proposals accords with scenic quality and distinctive character of S. Shropshire landscape, especially within or adjoining AONB • Any development is consistent with conservation of rural environment and would not impact on it due to its location, size, design or traffic generation	Implications for any improved access to the defined area and particularly for a larger-scale visitor centre as proposed in Appendix xxx
		ED4	New golf course development and associated buildings Only permitted where: • There is adequate highway access • Course unobtrusively sited • Adequate landscaping undertaken	No-one seems to have considered a golf-course in or close to the defined area – it would seriously impact on the archaeological and natural landscapes even if policy ED4 were adhered to
		ED5	Noisy and other intrusive sports and leisure activities Only permitted if: • No adverse impact on local communities • No adverse impact on character, tranquillity, amenity, appearance or wildlife interest of the surrounding area	Shooting, 4x4 driving do take place in the defined area…expand

		AC6	Accessibility: Policy AC6 'Community and Recreational Facilities' is particularly relevant in that is promotes retention of public open spaces for the benefit of the community	Philosophy behind general aims of accessibility policy – *i.e.* promoting healthy rural communities where people can live and work and concentrating development in the larger market towns, could ultimately result in increased visitor numbers and more development in smaller settlements such as Doddington and Clee Hill (see further above)
		S11 (conforms with Policies E7 and AC6)	Retention of Open Space: Development will not be permitted on land shown as open space on Clee Hill unless the proposed development retains the open character of the area and/or is associated with its primary use.	Implications for proposed visitor centre, though the 'association' would be very much linked to primary use (*i.e.* as an area of recreation)
Shropshire and Telford & Wrekin Minerals Local Plan (to be replaced by a Development Plan Document for minerals to include a core strategy, site-specific allocations, area action plans, an adopted proposals map and generic development control policies)	1996-2006	M1	A more sustainable approach to mineral development: • To ensure that environmental impacts of mineral extraction are kept to absolute minimum • To encourage sensitive working, restoration and aftercare practices • To protect areas of designed landscapes or nature conservation value	Positive implications for retention of archaeological and biodiversity significance
		M3	Development Control Considerations: Adverse effects of impacts of mineral extraction. Regard will be paid to effects of any proposals on: • Listed Buildings, Conservation Areas, Scheduled Ancient Monuments and other 'sensitive' locations • Sensitive sites and species (expanded in Policy M5) • The general area as a result of the cumulative impact of past, present and permitted future workings • Rights of way and public	Positive implications for retention of archaeological and biodiversity significance

			access land, including informal open space	
		M4	Operational considerations: In determining future planning applications for mineral extraction, regard will be paid to: • Protection of people and the environment from unacceptably adverse effects, including visual, noise, dust and traffic impacts • Site access and traffic movements • The method, phasing and management of the reclamation and after-use proposals	Positive implications for the retention of archaeological and biodiversity significance
		M5	Protecting Sensitive Sites and Species Impacts of future mineral extraction will pay regard to: • Impacts on sensitive sites of wildlife, landscape, historical, archaeological, architectural or geological interest, protected species and important habitats The protection afforded to sites and species will reflect their importance in international, national or regional/local terms	Implications of more negative nature for preservation *in situ* (preservation by record is covered under policy M6) of currently undesignated areas, *e.g.* archaeological features not designated as nationally important Scheduled Monuments, though within the defined area, many of these fall within the Shropshire Hills AONB and other designations such as SSSIs for which this policy has positive implications Protection may be overridden by demonstrated need for mineral extraction
		M5 (B)	Protecting Nationally Important Sites and Species. Regard will be paid to any unacceptably adverse direct or indirect effects of mineral extraction on: • National Nature Reserves • SSSIs • The Shropshire Hills AONB • Listed Buildings • Scheduled or nationally important unscheduled archaeological sites • Registered Parks and Gardens	No National Nature Reserves Registered Parks and Gardens or Registered Battlefields in defined area. The Plan does not include the defined area in 'Areas of Special Landscape Character' Protection may be overridden by demonstrated need for mineral extraction

			• Registered Battlefields • Species found in Annexe (iv) to the Habitats Directive and • Any nationally important habitats	
		M5 (C)	Protecting Regionally or Locally Important Sites and Species Regard will be paid to any unacceptably adverse direct or indirect effects of mineral extraction on: • Areas of Special Landscape Character • Conservation Areas • Country parks • Unlisted Historic Parks and Gardens • Historic Landscapes • Unlisted Historic Buildings • Unscheduled Archaeological sites • Local Nature Reserves • Wildlife Sites • Regionally Important Geological and Geomorphological Sites • Ancient Woodlands • Tree Preservation Orders • Hedgerows • Wetlands, watercourses other water bodies and • Habitats and species identified in the Shropshire response to the Biodiversity Challenge	Almost all present within the defined area, so this policy supports the retention of significant features defined in this Conservation Plan
		M6	Protecting archaeological remains Impact of future mineral extraction on sites of archaeological interest must be fully taken into account via the planning process.	Positive in that provision made via planning process and PPG16 for adequate recording prior to development. May not necessarily favour preservation of 'less important' features whose importance may be more significant if part of a wider archaeological landscape – *e.g.* Minor features associated with mining and quarrying landscape.

		M7	Benefits to the Countryside and the Local Economy In determining minerals planning applications, including the reclamation and after-use of mineral sites, consideration will be given to any benefits of the proposal upon the countryside and the local economy	Both positive and negative impacts. Negative re visual 'attractiveness' of countryside, public access and destruction of features of archaeological, geological or biodiversity significance and depletion of their contexts. Positive in that has already made a beneficial contribution by creating new opportunities to conserve and improve the landscape, helping to conserve the diversity of wildlife by protecting and re-establishing habitats and improving recreational facilities (*e.g.* Hanson toposcopes and viewing platforms, visitor access to current quarry for observation of geological features). Re the archaeological landscape, current quarrying adds a further dimension to past quarrying activity and so could be viewed in a positive light in this respect
		M9	Mineral Exploration Mineral exploration which is not permitted by part 22 of the *Town and Country Planning (General Permitted Development)* Order 1995 will only be permitted where it does not have an unacceptably adverse effect on the environment, local amenities or communities Full reinstatement of occupied land and removal of all temporary and permanent works associated with the exploration will be required	Spirit of the policy is positive and favours retention of significant features
		Policies for individual minerals	**Crushed rock** – Clee Hill is one of the 3 principal crushed rock resources worked in the Minerals Plan area. Two-thirds of sales go for roadstone, remainder used for fill and other construction purposes. Shropshire and telford and Wrekin produce *c.* one-third of region's total of criushed rock. Policies for future aggregate working Need to ensure sufficient stock of aggregates to meet demand by maintaining an overall 'landbank' of permitted reserves for both sand and gravel and crushed rock. Originally, 20-year landbank required, but 10-year	As reserves are used up, there should be an incentive to bring the non-operational quarries into use (currently, no non-operational sites identified within defined area)

			landbank now adopted and the forecast period is to 2016 (2006 + 10). A 10-year time-frame should allow the industry to bring a new crushed rock quarry or extension or deepening of an existing quarry, into production while enabling environmental impact to be controlled through the planning process	
		M16	Future working of crushed rock Supply of crushed rock during the Plan period should be provided from existing permitted reserves. Proposals for further working will only be granted planning permission if one or more of following exceptional circumstances applies: • Where need for the mineral outweighs the material planning objections • Working would prevent sterilisation of the resource • Significant environmental benefits would be obtained as a result of the exchange or surrender of existing permissions	Crushed rock extraction tends to take place in areas offering some of the most attractive scenery in the Plan area. Acknowledges problems in undertaking effective reclamation – because of nature of materials, the height and steep angle of the quarry faces and the lack of soil or soil-making materials. But, sparse soils may help to promote regeneration of former mineral workings, creating new habitats and increasing biodiversity Plant and ancillary developments generally of greater prominence than is the case with sand and gravel workings – disturbing effects of blasting, plant noise, dust and traffic generation Taking assessment of landbank information into account, the Minerals Plan states that no additional areas need to be allocated during the Plan period for crushed rock extraction There will also be scope for consideration of further allocations (*i.e.* new quarries) where these are linked to giving up rights to work certain sites of environmental concern). Further consideration is whether a site contains high specification aggregate resources Such resources are recognised by Government as being of national importance and should be protected from sterilisation
			Coal A number of small coalfields in Shropshire and Telford & Wrekin. Most unlikely that any new deep mine activity will occur in the Plan period (see Government guidance	Clee Hill identified in Minerals Plan as an area 'of potential interest to the industry'. Potential for negative impact on significant features within the defined area. Government advice on targets (i.e. that demand for coal

			in MPG3). Significant resurgence of opencast working in mid-1980s, including Clee Hill.	should be left to market forces) conflicts with national planning framework for aggregates
		M21	Proposals for further coal working should take into account: • Effects on people and environment • Effects on sites of wildlife, landscape, historical, archaeological, architectural or geological importance • Effects of cumulative impact of proposals and permitted future working, on the general area	Positive for retention of features of significance but may be outweighed by Government policy 9see above)
		M27	Reclamation and after-use Plan stipulates need for a satisfactory scheme including: • Provision for a 5-year period of after-care • A Reclamation Plan • A Management Plan addressing management requirements for each development phase and, where appropriate, a planning obligation to secure the after-use, long-term management and maintenance of the site • Proposals which take account of the site, its surroundings and any development plan policies relevant to the area and • Evidence to show that the scheme incorporates best practice advice and is achievable	
		M28	Monitoring and review of environmental performance Makes provision for Minerals Planning Authorities to review existing permissions and their conditions on a	

			regular basis	
		M29	Safeguarding Mineral Resources Purpose is to prevent mineral-bearing land from being sterilised by conflicting forms of development	Recognises any environmental constraints Current Clee Hill Quarry is within a Minerals Consultation Area for both crushed rock and coal
Shropshire Partnership Community Strategy 2006-2010 (group of local and public bodies developing strategies through new Local Area Agreements – will replace unified Local Plan eventually)	2006-2010	Environment	• Protect and enhance Shropshire's biodiversity • Protect and enhance what makes Shropshire's natural and historic landscape special • Improve understanding and access to the countryside and services	Supports retention of significance – *e.g.* the *Interpreting Shropshire* project was established to bring to life Shropshire's special heritage and landscape including Shropshire Hills AONB with over 100 people trained and £85,000 of grants for community interpretation projects. Support provided for 50 Parish Paths Partnership groups and volunteer rangers. Flexible access to culture developed through 'Museum in a Box', 'Museum on the Move' in local schools, including Cleehill Primary School Proposed development of a 'Countryside Access Plan' by 2007 encourages active involvement of local communities, volunteers and visitors in the care and interpretation of countryside and heritage assets Culture, leisure and adult learning – three new websites developed within the strategy to improve access to special collections and local history including 'Secret Shropshire', Routes to Roots'.
Shropshire Hills AONB Management Plan (updated annually; statutory duty to prepare; this duty is fulfilled jointly by the Shropshire Hills AONB Partnership which includes Local Authorities, statutory agencies, private and voluntary sector, local community and individual members)	2004-2009	All	Three main aims: • to maintain distinctive character and value of the Shropshire Hills through positive management and change • to maintain and/or enhance the special qualities and features of the Shropshire Hills • to maintain restore and enhance as appropriate special qualities and features and prevent their loss or degradation through sustained management	Key archaeological landscape lies within the AONB and so benefits from proactive management policies to develop strategies for protection of the AONB in Local Plans and Local Development Frameworks, policies to identify specific features of value at detailed level, encouragement of volunteers in survey and recording of features of interest, including historic features, reducing risk to special features by raising awareness among landowners, promotion of guidance on management of landscape features. The Management Plan's holistic view of recording and management of the historic environment provides a realistic framework within which achieve the retention of significant features The wide-ranging remit of the Management Plan (*i.e.* includes development proposals for agriculture, forestry, transport, tourism, education) could result in some conflict with archaeological objectives but it is unlikely that these would be unresolvable.

Blue Remembered Hills project (BRH) (operates within AONB policies and objectives; a 5-year Landscape partnership project funded by the HLF and delivered through the AONB Partnership. An additional grant from the ALSF for 2006-2007, allowed targeted projects, including one focused on raising community awareness about the landscape heritage assets of Clee Hill	2006-2007	All	Four main objectives: • to raise local community awareness and engender active participation in sustainable management of the landscape's heritage assets and their connection with local communities and the industrial past • to conserve these heritage assets through positive management • to improve physical and intellectual access to the Clees and the impact of historic mineral extraction on the landscape in the area • to develop an ecologically and economically stable area for future generations	Policies of BRH as a whole are supportive of the retention of significance; policies of the ALSF-funded project are wholly and inextricably linked to retaining significance and capitalising on it for the widest possible community benefits
Shropshire Biodiversity Action Plan (one of 11 West Midlands local BAPs; works on basis of partnership to identify local priorities and determine contribution they can make to delivery of national Species and Habitat Action Plan targets)	2002 -? (reviewed annually		Targeted to protection of important/rare habitats and species	Positive contribution to retention of significance is that the BAP works in partnership, so the impact of any management proposals on both the historic and natural environments can be judged
Community Strategy for South Shropshire (produced by South Shropshire Partnership)	2006-2009		Priority areas within this strategy are: • stimulating a thriving economy • promoting lifelong learning • improving the environment • reducing crime and promoting community safety	Most of the policies listed will make a positive contribution to the retention of significance – for example, promotion of lifelong learning links in to programmes for community education already begun via the BRH initiatives; the latter have led to a sense of community well-being. The strategy supports the conservation and enhancement of valued features of the local landscape and mindful of the need to regulate development. There is cope within the strategy for

			• community well-being Key priorities within the above which are relevant to retention of significance are: • conservation and enhancement of valued characteristics of the local landscape • the raising of environmental awareness and communications • monitoring and contributing to the quality of land-use and development • contributing to controlling physical factors that lead to degradation of the environment or quality of life • encouragement of farming and land management that support a sustainable economy • sustainable leisure and recreation	reducing vandalism/refuse tipping within some of the quarries. The strategy is supportive of sustainable farming and could contribute to the lobby for more controlled moorland grazing. The strategy is likely to be supportive of the objectives of this Plan to promote improved visitor access to the Clees
Shropshire Tourism Strategy (the first tourism strategy for S. Shropshire District)	2004-?	Most	Links in to three of the main aims of the AONB Management Plan, *viz*.: • to sustain the viability of the rural economy • to support public enjoyment of and access to, the AONB • to promote public awareness of the AONB and its special qualities	Generally very supportive. Acknowledges the importance of retaining local distinctiveness, advocating that it should form the bedrock for future tourism. Resources of Clees in widest sense – the aesthetic qualities of the landscape, the archaeology, the geology, the wildlife – can contribute enormously to achieving these goals. Strategies to improve quality of tourist facilities and information – 'brown sign survey', improvement of TICs/TIPs, to promote conservation and traditional skill training are all positive for the retention of significance.

Appendix 5: extracts from preliminary reports on the ALSF-funded survey of Shropshire quarries. The reports represent results available to date

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** **Titterstone Quarry**	**Grid reference(s):** SO594776	**Date(s) of survey:** 6/6/2006
Site area: 25.4ha	**Site status:** Entirely within the Titterstone Clee SSSI	**Site Owner / Occupier:**	
Geology / soils: Igneous Dolerite		**Topography and landscape:** This is a large hard rock quarry located on hilly ground above Dhustone and Clee Hill quarries.	

Site description

As with the other nearby Dolerite quarries, acid grassland is the most extensive and widespread community – the more diverse grassland typically associated with the steeper south-facing spoil heaps and slopes. A number of diverse mires occur along former tracks and other inundated areas, the most interesting occurring within the large quarry basin at the northern end of the site. There are a number of small pools on site associated with mires and tracks and a larger pond located near to the access road.

The acid grassland varies between species rich swards that occur primarily on the extensive south and east-facing scree slopes and the less diverse established grassland that essentially occurs on the land surrounding the quarry. The species-rich swards retain some plants distinctive of the upland acid grassland community such as mat grass *(Nardus stricta)* but are characterised by a greater diversity of plants, particularly ephemeral and annual plants that grow on the disturbed and parched soils. This community is characterised by frequent sheep's fescue *(Festuca ovina),* common bent *(Agrostis capillaris)* and the mosses *Hypnum cupressiforme, H. lacunosum, Brachythecium albicans, Polytrichum juniperinum, P. piliferum, Pleurozium schreberi* and *Dicranum scoparium.* Common plants that are found throughout include sheep's sorrel *(Rumex acetosella),* mouse-ear-hawkweed *(Pilosella officinarum),* lesser trefoil *(Trifolium dubium),* early hair-grass *(Aira praecox),* field woodrush *(Luzula campestris)* and procumbent pearlwort *(Sagina procumbens).* A diversity of notable acid grassland species occupy the many niches provided on this short bare ground and turf such as wild thyme *(Thymus polytrichus),* whitlowgrass *(Erophila verna)*, early forget-me-not *(Myosotis ramosissima)*, wall speedwell *(Veronica arvensis),* small cudweed *(Filago minima),* parsley piert *(Aphanes arvensis),* upright chickweed *(Moenchia erecta)* and moonwort *(Botrichum lunularia)* – the latter occurring rarely on both exposed bare ground and within lusher grassland at the foot of the slopes. Lichens including *Cladonia* spp and *Peltigera canina* are also

important associates of this community.

Although this community largely occurs on the steeper south-facing slopes, variations of this community also occupy other areas where disturbance is maintained on north and west-facing slopes and where the ground is kept open by sheep, rabbit grazing, and visitor disturbance. Less disturbed ground and north and west facing slopes typically move towards and upland community composition. Although there are various transitions between these grassland types the upland community (NVC U4e & U4a) loses the ephemeral and annual plants, instead supporting frequent mat grass, bilberry *(Vaccinium myrtillus),* heath bedstraw *(Vaccinium myrtillus)* in amongst sheep's fescue, *Dicranum scoparium* and the moss *Hypnum cupressiforme.* Other characteristic plants are heath milkwort *(Polygala serpyllifolia),* tormentil *(Potentilla erecta),* silver hair-grass *(Aira caryophyllea)* and common dog-violet *(Viola riviniana).* This community changes to the (NVC) U5 community especially where mat grass occurs as the overwhelming dominant.

Mire is also an important and widespread community at this site, a variety of which occur within the abandoned quarry floor at the north-east end of the site and along flushes on lower slopes. These mires, which are interspersed with small and shallow pools, tend to follow old tracks but also occur within numerous inundated areas between acid grassland. Large areas support abundant soft and conglomerate rush *(Juncus effusus & J. conglomeratus)* (NVC M23b) often with frequent mat grass, Yorkshire fog *(Holcus lanatus)*, red fescue *(Festuca rubra),* sweet vernal grass *(Anthoxanthum odoratum)* velvet bent *(Agrostis canina)* and scattered plants of marsh thistle *(Cirsium palustre),* cuckoo flower *(Cardamine pratensis),* marsh willowherb *(Epilobium palustre),* creeping forget-me-not *(Myosotis secunda),* marsh bedstraw *(Galium palustre)* bog stitchwort *(Stellaria uliginosa)* and greater bird's-foot-trefoil *(Lotus corniculatus).* There are many variations here that were not assigned to any specific NVC community but were mapped as mire. Small pools along tracks support locally abundant broad-leaved pondweed *(Potamogeton polygonifolius)* with lesser spearwort *(Ranunculus flammula),* bulbous rush *(Juncus bulbosus),* jointed rush *(J. articulatus),* water purslane *(Lythrum portula),* ivy-leaved buttercup *(Ranunculus hederaceus)* and the naturalised New Zealand willowherb *(Epilobium brunnescens).* These shallow pools and damper ground also support lesser marshwort *(Apium inundatum),* lady's mantle *(Alchemilla filicaulis subsp.vestita),* common spike-rush *(Eleocharis palustris)* and marsh arrowgrass *(Triglochin palustre).* In drier grassland in the same general area are several records for ivy-leaved bellflower *(Wahlenbergia hederacea).*

Marsh horsetail *(Equisetum palustre)* is also locally abundant along with many of the species noted above but in other areas supports much *Sphagna* including *Sphagnum squarrosum, S. fimbriatum, S. cuspidatum, S. palustre* and *S. capillifolium.* Other common mosses include *Polytrichum commune, Aulacomnium palustre, Philonotis fontana, Palustriella falcata, Brachythecium rivulare, Warnstorfia exannulata, Bryum pseudotriquetrum, Pellia* spp and *Calliergon cuspidatum.* Sedges form an important part of these mire communities with occasional-frequent flea sedge *(Carex pulicaris)*, glaucous sedge *(C. flacca),* common sedge *(C. nigra),* carnation sedge *(C. panicea)* and common yellow sedge *(Carex viridula subsp.oedocarpa)*.

A deep pond with steep banks located next to the access road is inundated with Curly

waterweed *(Lagarosiphon major)* with soft rush and some locally-frequent common spike-rush occurring along the narrow margins. A number of coarse fish have been introduced to this pond, probably to the detriment of aquatic invertebrates and amphibians.

Some of the boulders surrounding this area support a covering of the upland moss *Racomitrium lanuginosum.*

In regard to fauna, this site offers a diversity of habitats for a number of species. Great crested newts *(Triturus cristatus)* were recorded near small pools and common lizards *(Lacerta vivipara)* occupy ground close to mire systems. Green hairstreak *(Callophrys rubi)* was noted in a number of places taking advantage of the gorse and numerous green tiger beetles *(Cicindela campestris)* were noted in barer areas of acid grassland.

Photos

(Left) Moonwort growing on a spoil heap. Motorcycle tracks intersecting acid grassland

(Left) Green hairstreak. View across the extensive quarry floor at the northern end of the site.

Lesser marshwort. Locally abundant along some of the tracks.

Existing site management:

- **Extensively sheep grazed**

Recommended site management:

- **Ongoing low intensity grazing preferably with and sheep.**
- **Prevent disturbance and compaction caused by motorcycling.**

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** **Dhustone**	**Grid reference(s):** SO591760	**Date(s) of survey:** 8/6/2006.
Site area: 14.5ha	**Site status:** Only the higher north-easterly section lies within the Clee Hill Quarries SSSI	**Site Owner / Occupier:**	
Geology / soils: Igneous Dolerite.		**Topography and landscape:** This is the steep south-west side of Clee Hill. The quarry has steep slopes almost running the length of the site with undulating and even ground occurring above and below the slopes.	

Site description

This is a large quarry stretching along the steep south-west facing slopes of Clee hill. Historic mining operations ceased pre 1930's.

Unimproved acid grassland is the most widespread community with transitions to less diverse semi-improved grassland on the deeper soils towards the bottom of the slopes and on recently restored ground at the north-western end of the site. Gorse is particularly widespread on the steeper slopes. A recently constructed sickle-shaped pond can be found at the western end of the site.

Acid grassland tends to differ primarily according to slope and aspect with the more species rich swards developing on the steeper slopes and spoil heaps whilst the established and typically less diverse grassland develops on the deeper soils on moderate slopes. The dense cover that gorse gives the underlying grassland also leads to less species-rich swards.

The more diverse community (NVC U1b-c) for the most part supports abundant sheep's fescue *(Festuca ovina),* common bent *(Agrostis capillaris)* and the moss *Brachythecium albicans, Hypnum lacunosum, Polytrichum juniperinum* and *P. piliferum* are also encountered, particularly on the thinner, exposed substrates and parched soils. Other common associates that are found throughout include sheep's sorrel *(Rumex acetosella),* mouse-ear-hawkweed *(Pilosella officinarum),* lesser trefoil *(Trifolium dubium)* and early hair-grass *(Aira praecox).* Some other notable species within this community include carline thistle *(Carlina vulgaris),* little mouse-ear *(Cerastium semidecandrum)*, harebell *(Campanula rotundifolia)* and upright chickweed *(Moenchia erecta).* Of particular interest are records for mountain pansy

(Viola lutea) which can be found in a few locations on higher ground.

A more shaded grassland community, which occurs on the northerly and westerly aspects around a few quarry pits, supports more of an upland acid grassland composition. Although there are transitions between this and the above community, the upland community (NVC U4) in general loses the ephemeral and annual species, and instead supports frequent bilberry *(Vaccinium myrtillus),* heath bedstraw *(Galium saxatile)* in amongst frequent sheep's fescue, common bent and the occasional wavy hair-grass *(Deschampsia flexuosa)* and mat grass *(Nardus stricta).* The mosses *Dicranum scoparium, Pleurozium schreberi* and *Hypnum cupressiforme* are also frequent here. Other characteristic plants of this community are heath milkwort *(Polygala serpyllifolia)* and common dog-violet *(Viola riviniana).*

An area of what appears to be recently restored grassland can be found on higher ground at the north end of the site. The ground here, in comparison to other areas, is level and smooth throughout and apart from the damper patches the vegetation composition is relatively consistent throughout. In essence, this somewhat pioneer community still falls within the NVC U1 description, however, the composition is generally less diverse and has affinities with the more semi-improved (NVC MG6b) community. Mosses including *Brachythecium albicans, B.rutabulum* and *Rhytidiadelphus squarrosus* are particularly abundant with locally frequent records for the lichen *Peltigera* spp*,* particularly on barer ground. Grasses including annual meadow-grass *(Poa annua),* crested dog's-tail, sweet vernal grass *(Anthoxanthum odoratum)* are also more frequent as well as herbs such as white clover *(Trifolium repens),* procumbent pearlwort *(Sagina procumbens)* and blinks *(Montia fontana).* Sand spurrey *(Spergularia rubra)* was found at one location here. Damper patches between the slopes are covered with the moss *Calliergon cuspidatum* and include frequent records for creeping buttercup *(Ranunculus repens),* tufted hair-grass *(Deschampsia cespitosa)* and more rarely, marsh foxtail *(Alopecurus geniculatus).*

The grassland composition on level ground towards the bottom of the slope and on other areas where the ground is level is similar in composition to that noted above but tends to be more improved with a greater abundance of grasses such as crested dog's-tail and perennial rye-grass *(Lolium perenne).* This community occasionally includes some locally abundant common nettle *(Urtica dioica)* and creeping thistle *(Cirsium arvense)* on locally enriched soils. Less improved areas are more diverse supporting species such as the occasional bird's-foot-trefoil *(Lotus corniculatus)* or lady's bedstraw *(Galium verum)* or on hummocks retain characteristic acid grassland plants. Deeper grassland in and around gorse, which is largely restricted to the steeper slopes, tends to be rather species-poor including grasses such as Yorkshire fog *(Holcus lanatus)* and more shade tolerant species such as foxglove *(Digitalis purpurea),* wood sage *(Teucrium scorodonia)* and broad buckler-fern *(Dryopteris dilatata).*

A shallow, crescent shaped man made pool that runs alongside the access track at the western end of the site has a well established mire flora consisting of abundant bog pondweed *(Potamogeton polygonifolius)* and water purslane *(Lythrum portula)* amongst a patchier and sometimes locally frequent distribution of small sweet-grass *(Glyceria declinata),* soft rush *(Juncus effusus),* jointed rush *(Juncus articulatus),* common spike rush *(Eleocharis palustris),* water horsetail *(Equisetum fluviatile)* and lesser spearwort *(Ranunculus flammula)* (mapped as Phase 1 mire & fen). This

shallow pool also supports the occasional-frequent marsh speedwell *(Veronica scutellata),* bulbous rush *(Juncus bulbosus)* and cuckoo flower *(Cardamine pratensis)*. A variety of mosses also occur abundantly here including *Sphagnum squarrosum* and *Warnstorfia exannulata*. Although partly dry during the survey period, the pool is a locus for invertebrates, providing optimum habitat for a number of dragonflies and damselflies.

Photos

Sickle shaped pond

Wild pansy

The steeper slopes

Modified grassland on the lower slopes

Existing site management:

The site is grazed by sheep.

Recommended site management:

- On-going grazing and gorse control.

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** Treen Pits	**Grid reference(s):** SO590756	**Date(s) of survey:** 8/7/2006
Site area: 4.6ha	**Site status:**	**Site Owner / Occupier:**	
Geology / soils: Igneous Dolerite		**Topography and landscape:** A small south-west facing pasture with moderate, undulating slopes located on the south side of Clee Hill. Quarrying activities ceased in the 1940's.	

Site description

Semi-improved and unimproved acid grassland occurs over most of the site, with interspersed areas of gorse scrub and rush pasture.

The grassland varies between species rich swards, which typically occurs on thinner parched soils of the steeper slopes and semi-improved and improved grassland on level ground.

The unimproved acid grassland community (NVC U1b), on the steeper banks typically supports common bent *(Agrostis capillaris)* and sheep's fescue *(Festuca ovina)* with frequent mouse-eared hawkweed *(Pilosella officinarum),* sheep's sorrel *(Rumex acetosella)* and plants of open ground including early-hair grass *(Aira praecox),* common whitlowgrass *(Erophila verna),* upright chickweed *(Moenchia erecta),* parsley-piert *(Aphanes arvensis)* and little mouse-ear *(Cerastium semidecandrum).* Other characteristic plants within this community are cat's-ear *(Hypochaeris radicata),* birds-foot trefoil *(Lotus corniculatus)*, field woodrush *(Luzula campestris),* procumbent pearlwort *(Sagina procumbens),* wild thyme *(Thymus polytrichus)* and heath speedwell *(Veronica officinalis).* Juniper haircap, bristly haircap *(Polytrichum juniperinum* & *P. Piliferum)* and lichens *(Cladonia* spp) are occasionally frequent within. One of the best examples of this grassland can be found on the undisturbed embankment at the northern end of the site.

Often forming transitions with the above community but typically developing on deeper soils on more level ground is a less diverse and semi-improved grassland (NVC MG6b), which is characterised by common bent, perennial rye-grass *(Lolium perenne),* crested dog's tail, sweet vernal-grass *(Anthoxanthum odoratum)* and white clover *(Trifolium repens).* Where a greater degree of intensification or modification has taken place the sward is poorer and as well as abundant perennial rye-grass there is locally frequent common nettle *(Urtica dioica)* and creeping thistle *(Cirsium arvense)* (NVC MG7).

Scattered clumps of western gorse *(Ulex gallii)* occur throughout the site – sometimes

accompanied by European gorse *(Ulex europaeus),* broom *(Cytisus scoparius)* and hawthorn *(Crataegus monogyna).*
Where water-logging occurs in the depressions between the grassland, are small areas of rush pasture (NVC MG10a). Soft rush *(Juncus effusus)* and more rarely compact rush *(Juncus conglomeratus)* and hard rush *(Juncus inflexus)* with the occasional tufted hair-grass *(Deschampsia cespitosa)* typify this community, although in wetter depressions sharp-flowered-rush *(Juncus acutiflorus)*(M23b) is more conspicuous. Yorkshire fog *(Holcus lanatus),* creeping bent *(Agrostis stolonifera)*, rough meadow-grass *(Poa trivialis)* and sweet-vernal grass occur frequently as does hairy sedge *(Carex hirta),* oval sedge *(Carex ovalis),* cuckoo flower *(Cardamine pratensis),* greater bird's-foot-trefoil *(Lotus pedunculatus)* and common marsh bedstraw *(Galium palustre).* Other common associates include lesser spearwort *(Ranunculus flammula),* marsh horsetail *(Equisetum palustre)* ragged robin *(Lychnis flos-cuculi)* and short-fruited willowherb *(Epilobium obscurum).* One or two damper depressions support watercress *(Rorippa nasturtium-aquaticum)* with common spike-rush *(Eleocharis palustris)* and brooklime *(Veronica beccabunga).*

Photos

(Left) Rush pasture. (Right) Acid grassland on a steep bank at the northern end of the site

Locally abundant water cress within the rush-pasture

Existing site management: sheep-grazed

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** Clee Hill	**Grid reference(s):** SO597758	**Date(s) of survey:** 1st & 2nd/6/2006.
Site area: 27.5ha	**Site status:** The northerly section lies within the Clee Hill Quarries SSSI	**Site Owner / Occupier:**	
Geology / soils: Igneous Dolerite.		**Topography and landscape:** Steep undulating ground with deep excavations and spoil heaps. Located on the south-west side of Clee Hill.	

Site description

This is a large quarry, which for the most part supports various forms of acid grassland interspersed with gorse scrub. Situated centrally is a large redundant quarry, which is now filled with water. Other habitats include a number of ponds and complex mire communities.

As with the other Dolerite quarries in the area such as Titterstone Clee, the acid grassland varies considerably between the short species-rich swards that have developed primarily on the parched soils of the steeper scree slopes and disturbed ground and the more established grassland, which is characteristic of the land surrounding the quarry. Many variations between these communities occur throughout the site - the composition varying largely according to slope, aspect and disturbance. The more species-rich swards, which characteristically occur on the tightly cropped south-east facing slopes often retain some elements of the upland acid grassland community such as mat grass *(Nardus stricta)* but are distinguished by the diversity of plants, particularly ephemerals and annuals that grow on the disturbed, parched soils.

This community (NVC U1b/c) typically supports abundant sheep's fescue *(Festuca ovina),* common bent *(Agrostis capillaris)* and the mosses *Hypnum cupressiforme, Brachythecium albicans, Polytrichum juniperinum* and *P. piliferum.* Other common associates that are found throughout include sheep's sorrel *(Rumex acetosella),* mouse-ear-hawkweed *(Pilosella officinarum),* lesser trefoil *(Trifolium dubium),* early hair-grass *(Aira praecox),* wild thyme *(Thymus praecox),* field wood-rush *(Luzula campestris)* and procumbent pearlwort *(Sagina procumbens).* Some of the less obvious species include buckshorn plantain *(Plantago coronopus),* squirrel-tail fescue *(Vulpia bromoides),* early forget-me-not *(Myosotis ramosissima)*, wall speedwell *(Veronica arvensis),* small cudweed *(Filago minima),* parsley piert *(Aphanes arvensis)* and upright chickweed *(Moenchia erecta).* Lichens including *Cladonia* spp and *Peltigera* spp are also important components of this community and in a few places, occur abundantly. The moss *Racomitrium lanuginosum* can also be found in this community.

A recently levelled area that runs adjacent to the access road supports a less diverse

grassland community often consisting of abundant mosses including *Rhytidiadelphus squarrosus* and in damper inundations, *Calliergon cuspidatum.* The composition appears to be slightly more mesotrophic with crested dog's-tail *(Cynosurus cristatus)* and white clover *(Trifolium repens)* and some plants here may have occurred through restoration. This somewhat pioneer community, nevertheless, still retains many of the pioneer species found in the U1 grassland. Blinks *(Montia fontana)* is particularly frequent here.

Acid grassland on the north and west facing slopes, in hollows and often beneath the gorse *(Ulex gallii)* scrub that has spread over the steeper slopes is typically less diverse (NVC U4). This community tends to lose the ephemeral and annual species and in among the lusher vegetation are heath milkwort *(Polygala serpyllifolia),* tormentil *(Potentilla erecta),* common dog-violet *(Viola riviniana),* foxglove *(Digitalis purpurea),* heath bedstraw *(Galium saxatile)* as well as greater abundance of the mosses *Rhytidiadelphus squarrosus* and *Hypnum cupressiforme.* Yet poorer swards, which in places may have undergone some agricultural improvement through local enrichment, support a greater occurrence of white clover, yarrow *(Achillea millefolium),* common mouse-ear *(Cerastium fontanum)* and crested dog's-tail. Nutrient build-up appears to be responsible for some locally dominant stands of common nettle *(Urtica dioica)* also found in these areas.

The U4 community is similar to the U5a community, which is characterised by a greater abundance of mat grass and which primarily occurs on the undisturbed ground outside the boundary of the worked quarry. As well as abundant mat grass *(Nardus stricta),* the U5 grassland supports frequent heath rush *(Juncus squarrosus)* and on damper ground, soft rush *(Juncus effusus).* Transitions to more diverse mires on wetter ground occasionally occur here.

The seepage mires within the grassland support abundant soft rush and conglomerate rush *(Juncus conglomeratus)* with locally frequent sharp-flowered rush *(Juncus acutiflorus)* and jointed rush *(Juncus articulatus)* accompanied by sweet vernal grass *(Anthoxanthum odoratum),* tufted hair-grass *(Deschampsia cespitosa),* velvet bent *(Agrostis canina)* and cushions of the moss *Polytrichum commune* (M23B) or *Sphagna* including *Sphagnum fimbriatum* and *S. flexuosum.* Marsh thistle *(Cirsium palustre),* marsh willowherb *(Epilobium palustre),* marsh bedstraw *(Galium palustre)* bog stitchwort *(Stellaria uliginosa),* heath grass *(Danthonia decumbens),* female fern *(Athyrium filix-femina)* and greater bird's-foot-trefoil *(Lotus corniculatus)* are also common associates here. Some of the more uncommon notable species include quaking grass *(Briza media)* and lesser skullcap *(Scutellaria minor).* Sedges also form an important part of these mire communities with records for flea sedge *(Carex pulicaris)*, glaucous sedge *(C. flacca),* common sedge *(C. nigra),* carnation sedge *(C. panicea),* oval sedge *(Carex ovalis)* and common yellow sedge *(Carex viridula subsp.oedocarpa)*.

A number of vegetated pools occur on the undisturbed higher ground along the north-western boundary. One of the pools supports a number of mire communities within a relatively small area. Much of the pool supports abundant water horsetail *(Equisetum fluviatile)* with frequent broad-leaved pondweed *(Potamogeton polygonifolius)* in amongst a dense carpet of mosses including *Calliergon cuspidatum, Sphagnum inundatum, Sphagnum denticulatum* and *Sphagnum cuspidatum.* Velvet bent, marsh

foxtail *(Alopecurus geniculatus)* and creeping bent are also frequent along at the margins along with floating sweet-grass *(Glyceria fluitans).* Other species within this community include lesser spearwort *(Ranunculus flammula),* bulbous rush *(Juncus bulbosus),* creeping forget-me-not *(Myosotis secunda),* marsh speedwell *(Veronica scutellata),* cuckoo flower *(Cardamine pratensis),* upright bur-reed *(Sparganium erectum)* and reedmace *(Typha latifolia).* The marginal vegetation is largely dominated with soft rush and a number of grey willow *(Salix cinerea)* trees are scattered within. This community extends along a narrow drain towards the old quarry and occasionally along narrow seepage lines within the soft rush communities. (affinities with the NVC M6 & M29 communities but mapped as mire) . Another pond located along the north-west boundary has a similar composition with broad-leaved pondweed and common duckweed *(Lemna minor)* dominating the central part of the pond, whilst the margins support locally abundant stands of grey willow, soft rush, great willowherb *(Epilobium hirsutum)* and floating sweet grass. Another recently created pond in the same area has limited flora except for a small amount of marsh horsetail *(Equisetum palustre)*, soft rush and creeping bent. A number of smooth or palmate newts *(Triturus vulgaris* or *T. helveticus)* were noted within.

The large quarry, which is still being filled with water from the operational part of the quarry, is almost devoid of vegetation, however, the steep banks support acid grassland, some of which is particularly species-rich. Moonwort *(Botrichum lunularia)* was found in a shaded area in this location. Peregrine falcons annually nest on the steep cliffs on the north-west side of the quarry.

Photos

Small cudweed in the acid grassland

Cropped grassland, showing disturbance

The quarry lake

Pool filled with water horsetail and moss

Existing site management:
The site is a part of a common and is grazed extensively by sheep. Rabbits are also present and along with sheep, maintain the acid grassland. Dense gorse is occasionally burnt. As management or by vandals?

Recommended site management:

- On-going grazing and gorse control.
- Monitor disturbance, caused by visitor pressure and cycling etc.

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** Novers Limeworks	**Grid reference(s):** SO596737	**Date(s) of survey:** 6/7/2006
Site area: 10.73ha	**Site status:** Within the Novers Wildlife Site	**Site Owner / Occupier:**	
Geology / soils: Carboniferous Limestone		**Topography and landscape:** The site is located on the west side of a hill or ridge running south from Clee Hill. Historic mining activities have resulted in excavations on the higher ground along the eastern side of the site. Associated with these former workings are a series of lime kilns located at the south western end of the wood.	

Site description

For the most part, the site supports semi-natural, broadleaved woodland, however, at either end of the wood are small areas of species-rich calcareous and neutral grassland, dense bracken *(Pteridium aquilinum)* and a small area of heath.

The semi-natural broadleaved woodland (which is not recognised on the Ancient Woodland Inventory) falls within the NVC W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* community. The woodland canopy is characterised by abundant ash *(Fraxinus excelsior),* with the occasional field maple *(Acer campestre),* yew *(Taxus baccata)* and an understorey of unmanaged hazel *(Corylus avellana)* coppice and scattered hawthorn *(Crataegus monogyna).* Wych elm *(Ulmus glabra),* elder *(Sambucus nigra),* holly *(Ilex aquifolium)* and bramble *(Rubus fruticosus)* occur less frequently as do pedunculate oak *(Quercus robur), w*ild cherry *(Prunus avium)* and beech *(Fagus sylvatica)* in the canopy. A number of planted conifer trees including Scots pine *(Pinus sylvestris)* and European larch *(Larix decidua)* can be found close to the north-eastern boundary in and around the quarried section.

The ground flora is patchy and varies according to the undulating nature of the site. The most common species are ivy *(Hedera helix)*, and dog's mercury with damper patches supporting locally dominant ramsons *(Allium ursinum).* Other frequent species occurring throughout include wood anemone *(Anemone nemorosa),* enchanter's nightshade *(Circaea lutetiana)*, false brome *(Brachypodium sylvaticum),* herb robert *(Geranium robertanium),* sanicle *(Sanicula europaea),* wood sorrel *(Rumex sanguineus)* and wood avens *(Geum urbanum).* Conspicuous ferns including male fern *(Dryopteris filix-mas)* and broad buckler-fern *(Dryopteris dilatata)* are also scattered within. Other woodland species of note include bluebell *(Hyacinthoides non-scripta),* yellow archangel *(Lamiastrum galeobdolon),* common twayblade *(Listera*

ovata), primrose *(Primula vulgaris)* and wood speedwell *(Veronica montana).* The moss *Thamnobryum alopecurum* is particularly abundant.

The vegetation in the former quarries is rather poor with small amounts of dog's mercury, enchanter's nightshade and sanicle but generally much locally dominant nettle in amongst abundant mosses *Brachythecium rutabulum* and *Eurhynchium praelongum.*

Located along the north-west perimeter of the wood is a small area of species-rich unimproved neutral grassland, which is surrounded by rank grassland and dense bracken (NVC U20). This rabbit grazed area of grassland with ant hills is recognised as the more calcifugous (NVC) MG5c sub-community. In amongst the frequent crested dog's tail *(Cynosurus cristatus),* common bent *(Agrostis capillaris),* red fescue *(Festuca rubra),* sweet vernal grass *(Anthoxanthum odoratum)* and Yorkshire fog *(Holcus lanatus)* are heath grass *(Danthonia decumbens)* devil's-bit scabious *(Succisa pratensis),* betony *(Stachys officinalis)* and tormentil *(Potentilla erecta).* Other species of note in this small but diverse grassland are bird's-foot-trefoil *(Lotus corniculatus),* field wood-rush *(Luzula sylvatica),* smaller cat's-tail *(Phleum bertolonii),* spring sedge *(Carex caryophyllea),* glaucous sedge *(Carex flacca)* common dog violet *(Viola riviniana),* common knapweed *(Centaurea nigra),* common milkwort *(Polygala vulgaris),* common spotted orchid *(Dactylorhiza fuchsii)* and rough hawkbit *(Leontodon hispidus).* Grazed ant hills characteristically support wild thyme *(Thymus praecox),* germander speedwell *(Veronica chamaedrys),* common mouse-ear *(Cerastium fontanum),* lady's bedstraw *(Galium verum),* mouse-eared hawkweed *(Pilosella officinarum)* and juniper haircap *(Polytrichum juniperinum).* Spring turf-moss *(Rhytidiadelphus squarrosus)* also occurs frequently throughout.

The ungrazed rank grassland that occurs immediately to the east of the above community is dominated with false oat grass and recognised as the NVC MG1 *Arhenatherum elatius* grassland. The composition is rather variable and in places is relatively diverse, including some of the above species such as lady's bedstraw, tormentil, common knapweed with the addition of crosswort *(Cruciata laevipes),* zigzag clover *(Trifolium medium),* pepper saxifrage *(Silaum silaus),* lesser stitchwort *(Stellaria graminea)* and meadow vetchling *(Lathyrus pratensis).* Ranker areas typically support more frequent hogweed *(Heracleum sphondylium)* and occasionally, bramble - the latter encroaching from the adjacent scrub.

Close to here and secluded within the dense bracken are a few isolated islands of common heather *(Calluna vulgaris)* intermixed with species-rich (NVC MG5c) grassland similar to that above.

On an area of steep, west-facing ground at the opposite end of the site the community changes entirely to a diverse calcareous grassland recognised as the (NVC) CG3 grassland, although this community clearly has a transition to mesotrophic grassland on level ground. Commoner grasses within this community include upright brome *(Bromus erectum*, false brome *(Brachypodium sylvaticum),* red fescue*,* crested dog's-tail, smooth meadow-grass *(Poa pratensis)* and less frequently quaking grass *(Briza media),* heath grass and yellow oat-grass *(Trisetum flavescens)*. The mosses *Brachythecium albicans* and *Pseudoscleropodium purum* are also frequent. A diversity of species occur here including cowslip *(Primula veris),* woolly thistle

(Cirsium eriophorum), hoary plantain *(Plantago media),* yellow-wort *(Blackstonia perfoliata),* spring sedge *(Carex caryophyllea)*, mouse-eared hawkweed, fairy flax *(Linum catharticum),* carline thistle *(Carlina vulgaris),* restharrow *(Ononis repens),* small scabious *(Scabiosa columbaria),* dyer's greenweed *(Genista tinctoria),* wild thyme and common spotted orchid. This small area of grassland is under threat from the invasive hawthorn (NVC W21 *Crataegus monogyna-hedera helix* scrub), which presently occurs all over the steeper slopes. Ranker grassland with false oat-grass also occurs in transition with this scrub habitat. Less species-rich calcareous grassland occasionally occurs on the open banks of the track that passes through the wood.

A small patch of grassland located on level ground further west shares affinities with the calcareous grassland but is more mesotrophic falling within the NVC MG5 community. In amongst the Yorkshire fog, crested dog's tail, red fescue, meadow buttercup *(Ranunculus acris)* and red clover *(Trifolium pratense)* are common knapweed, bird's-foot-trefoil, lady's bedstraw and burnet saxifrage *(Pimpinella saxifraga).* A larger glade located on the eastern side of the track in the same area has undergone some form of improvement and although a few species of unimproved grasslands remain towards the perimeter, the grassland is for the most species-poor.

Photos

(Left) Unimproved neutral grassland at the northern end of the wood. (Right) Small area of heather in amongst dense bracken

(Left). Species-poor quarry with locally abundant nettle amongst moss. (Right) One of the lime kilns

Recommended site management:

- As well as conservation woodland management it will be important to enhance and increase the area of calcareous grassland, neutral grassland and heathland by means of scrub, tree and bracken clearance. Bracken clearance should ensue with caution as it may provide habitat for specific fauna such as adder *(Vipera berus)*.

Shropshire Quarries – Positive action for the future. ALSF Survey of quarry sites, 2006 – Ref: TAL0096			
Survey by: N Button	**Site name:** Clee Burf Quarry	**Grid reference(s):** SO592843	**Date(s) of survey:** 2006
Site area: 2.8ha	**Site status:** Within Clee Liberty Wildlife Site	**Site Owner / Occupier:**	
Geology / soils: Igneous Dolerite		**Topography and landscape:** Located within an extensive area of open moorland on the summit of Brown Clee	

Site description

For the most part this historical quarry supports upland acid grassland similar to that found on the surrounding hillside, however, the composition tends to be more diverse on the steeper slopes of the quarry itself. Rush pasture and diverse mire communities have developed on the quarry floor and along a seepage line that draws down to a small pond at the south-western corner of the quarry.

The grassland varies between the species rich swards on the rockier substrate of the south-facing slopes and the more established grassland on level ground. The unimproved acid grassland on the steeper banks is essentially a disturbed upland grassland community (NVC U4), which includes species more common on the surrounding hillside such as heath rush *(Juncus squarrosus),* mat grass *(Nardus stricta)* and bilberry *(Vaccinium myrtillus),* but also supports plants that are often associated with parched and partly eroded soils of lowland acid grassland (NVC U1). Here, within the common bent *(Agrostis capillaris)* and sheep's fescue *(Festuca ovina)* are occasional-frequent early hair-grass *(Aira praecox),* sheep's sorrel *(Rumex acetosella),* wild thyme *(Thymus polytrichus)* and mouse-eared hawkweed *(Pilosella officianarum)*. Mosses such as *Polytrichum piliferum, Grimmia pulvinata, Brachythecium albicans, Ptilidium ciliare* and *Dicranum scoparium* commonly occur as do the lichens including *Cladonia* spp and *Peltigera* spp. The rare in Shropshire moss *Barbilophozia hatcheri* was also found in this community.

The more shaded northern and more westerly facing slopes tend to support a lusher vegetation with a greater abundance of mat-grass and bilberry with heath bedstraw *(Galium saxatile),* foxglove *(Digitalis purpurea),* common dog violet *(Viola riviniana),* wavy hair-grass *(Deschampsia flexuosa)* and field wood-rush *(Luzula campestris)* (NVC U4e). Mosses remain a frequent component with the addition of *Rhytiadelphus squarrosus* and *Hypnum cuppressiforme.* A similar composition to this occurs on more level ground although minor undulations occasionally result in a more varied and sometimes more-species-rich sward. Additional species within this more established grassland include white clover *(Trifolium repens),* tufted hair-grass *(Deschampsia cespitosa),* heath milkwort *(Polygala serpyllifolia),* tormentil *(Potentilla erecta)* and heath rush *(Juncus squarrosus).* The NVC U4 community clearly forms transitions with the NVC U5 *Nardus stricta* community in areas where mat-grass occurs as the overwhelming dominant.

The mire communities that have developed on the quarry floor differ somewhat as a result of the minor variations in hydrology. Soft rush *(Juncus effusus)* community (NVC M23B) is the most common and widespread species with abundant velvet bent *(Agrostis canina)* and frequent marsh bedstraw *(Galium palustre),* Yorkshire fog *(Holcus lanatus),* sharp-flowered rush *(Juncus acutiflorus),* jointed rush *(Juncus articulatus),* tormentil and greater bird's-foot-trefoil *(Lotus pedunculatus).* Cushions of *Polytrichum commune* are also frequent components as are some sphagna including *Sphagnum squarrosum* & *S. fallax*. Other frequent mosses include *Aulacomnium palustre, Brachythecium rivulare, Philonotis fontana,* and *Calliergon cuspidatum.* Sedges, in particular star sedge *(Carex echinata)* is particularly frequent towards the edges of the mire with occasional-locally frequent records for common sedge *(Carex nigra),* oval sedge *(Carex ovalis),* carnation sedge *(Carex panicea)* and common yellow sedge *(Carex viridula* subsp*. oedocarpa).* Cuckoo flower *(Cardamine pratensis),* marsh thistle *(Cirsium palustre)* and sweet vernal-grass *(Anthoxanthum odoratum)* are also common associates here.

Transitions into a more diverse community occur along seepage lines within the this community (NVC M35). These damper conditions support locally frequent lesser spearwort *(Ranunculus flammula)* above the floating leaves of bog pondweed *(Potamogeton polygonifolius).* As well as the sedges noted above, other occasional-frequent plants include jointed rush, bulbous rush *(Juncus bulbosus),* marsh horsetail *(Equisetum palustre),* small sweet-grass *(Glyceria declinata),* bog stitchwort *(Stellaria uliginosa),* creeping forget-me-not *(Myosotis secunda),* water purslane *(Lythrum portula),* marsh speedwell *(Veronica scutellata)* and common spike-rush *(Eleocharis palustris).* The invasive New Zealand willowherb *(Epilobium brunnescens)* also occurs in these mires.

Photos

Steep slopes and the mire in the quarry floor

Existing site management:

Extensively grazed by sheep and ponies

Recommended site management: ongoing grazing

For further information, please contact: Dan Wrench at Shropshire County Council Sustainability Group (tel. 01743 251000)

FOCUS ON CLEE HILL

Copies included in Pack

Rocque's County Map, 1752
Baugh's County Map, 1808
Greenwood's County Map, 1827

Field Name Map (based on Tithe Map), Cainham Parish, 1848, 4 sheets
Field Name Map (based on Tithe Map), Coreley Parish, 1841, 2 sheets

OS Maps:

LXXIX.3 (25" to 1 mile) 1884, (copy not to scale), 2 sheets
LXXIX.7 (25" to 1 mile) 1884, (copy not to scale), 2 sheets

LXXIX.3 (25" to 1 mile) 1903, (copy not to scale), 2 sheets
LXXIX.7 (25" to 1 mile) 1903, (copy not to scale), 2 sheets

LXXIX. NE (6" to 1 mile) 1891, (copy to scale), 2 sheets
LXXIX. NE (6" to 1 mile) 1904, (copy to scale), 2 sheets

SO 57.NE (1: 10,560/6" to 1 mile) 1954, (copy to scale), 2 sheets
SO 57.SE (1: 10,560/6" to 1 mile) 1954, (copy to scale)
SO 67.NW (1: 10,560/6" to 1 mile) 1954, (copy to scale), 4 sheets
SO 67.SW (1: 10,560/6" to 1 mile) 1954, (copy to scale)

SO 57.NE (1: 10,000) 1976, (copy to scale), 2 sheets
SO 57.SE (1: 10,000) 1976, (copy to scale), 2 sheets
SO 67.NW (1: 10,000) 1975, (copy to scale), 2 sheets
SO 67.SW (1: 10,000) 1975, (copy to scale), 2 sheets

SO 5874-5974 (1:2,500), 1970, (copy to scale), 3 sheets
SO 5875-5975 (1:2,500), 1970, (copy to scale), 3 sheets
SO 6074-6174 (1:2,500), 1970, (copy to scale), 3 sheets
SO 6075-6175 (1:2,500), 1969, (copy to scale), 3 sheets

Bagshaw's Gazetteer, Cainham and Coreley, 1851, 2 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1870, 3 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1885, 4 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1891, 3 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1900, 4 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1913, 5 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1929, 3 sheets
Kelly's Directory of Shropshire, Caynham, Coreley and Knowbury, 1941, 5 sheets

Census 1851, Coreley Parish, Clee Hill area, (HO107/1985/folios 84-95), 25 sheets
Census 1881, Coreley Parish, Clee Hill area, (transcript-pp. 00695-00707), 7 sheets
Census 1901, Coreley Parish, Clee Hill area, (RG12/2091/folios 37-49), 25 sheets
Census 1851, Caynham Parish, Bennetts End, (HO107/1982/folios 399-414), 30 sheets
Census 1881, Caynham Parish, Clee Hill area, (transcript-pp. 00229-00243), 8 sheets
Census 1901, Caynham Parish, Clee Hill area, (RG12/2082/folios 28-39), 26 sheets

Census 1991: small area statistics, Clee and Coreley, 2 sheets
Population Table, Victoria County History of Shropshire, vol. 2, Caynham and Coreley, 2 sheets

Shropshire Parish Registers: Clee Hill Wesleyan Chapel, extracts 1796-1829, 13 sheets

Parish Records: Caynham, General Register; 1670-72, 1678-81, 2 sheets
Parish Records: Caynham, Baptism Register; 1834, 1835/36, 1836/37, 1843/44, 1844/45, 1850-52, 1852, 7 sheets
Parish Records: Caynham, Marriage Register; 1833/34, 1835/36, 2 sheets
Parish Records: Caynham, Burial Register; 1819/20, 1829/30, 1830/31, 1834, 1837, 1844/45, 1855/56, 1862, 1865/66, 1874/75, 10 sheets
Parish Records: Coreley, Baptism Register; 1839/40, 1840/41, 1845, 1858, 1858/59, 5 sheets
Parish Records: Coreley, Burial Register; 1840(x2), 1841(x2), 1844, 1854/55, 1872/73, 1874/75, 1879/80, 1881/82, 10 sheets

Cleobury Mortimer Parish Records: Parish Poor Relief; settlement examination, John Wyre and wife, possible settlement in Lenthall Starkes, co. Hereford, Richard's Castle, just married in Coreley, 13th July 1759, (P71/L/15/97)

Cleobury Mortimer Parish Records: Parish Poor Relief; settlement examination, Thomas Edwards and wife Elizabeth, possible settlement in Coreley, 1st August 1763, (P71/L/15/118)

Cleobury Mortimer Parish Records: Parish Poor Relief; settlement examination, Mary Weaver, widow, settlement examination - possible settlement in Knighton, co. Worcs. and Coreley, 11th March 1773, (P71/L/15/179)

Lance Smith, 'Matthew Stead and the Ludlow Workhouse', Telford Historical and Archaeological Society Journal, no 5, 2001, 12 sheets
Ludlow Poor Law Union Records: dietary sheet ordered by the medical officer for the sick paupers in the workhouse, 1837, (PL9/21/22/1), 2 sheets
Ludlow Poor Law Union Records: dietary table for able-bodied inmates, c.1840, (PL9/21/22/2)

Cleobury Mortimer Poor Law Union Records: Coreley parish; pauper list as delivered by the 1836 overseers at the formation of the Union, 1836, (PL5/83), 2 sheets
Cleobury Mortimer Poor Law Union Records: Coreley parish; poster giving list of paupers relieved during the quarters ending 20th December 1845 and 20th March 1846, (PL5/104), 2 sheets
Cleobury Mortimer Poor Law Union Records: Cleobury Mortimer parish; poster giving list of paupers relieved during the quarters ending 20th December 1845 and 20th March 1846, (PL5/104), 4 sheets

Cleobury Mortimer Poor Law Union Records: order to the Guardians of the Cleobury Mortimer Union to pay £162.18.6 county and police rate assessed on the parishes of Aston Botterell, Cleobury Mortimer, Coreley, the township of Farlow, the parishes of Highley, Hopton Wafers and Kinlet, the Chapelry of Loughton, the parishes of Milson, Neen Savage, Neen Sollers, Silvington, Stottesden and Wheathill, to the Treasurer of the County of Salop, 19th January 1847, (PL5/92/17), 2 sheets

Cleobury Mortimer Poor Law Union Records: order to the Guardians of the Cleobury Mortimer Union for payment of £122.3.10 county and police rate assessed on certain parishes, township and chapelry, (as before), to the Treasurer for the County of Salop, 5th November 1850, (PL5/92/27), 2 sheets

Cleobury Mortimer Poor Law Union Records: Thomas Everest, Clerk to the Salop and Montgomery Lunatic Asylum to the Guardians. Letter explaining the inability of the Asylum to receive any further female patients at present, 14th December 1847, (PL5/92/70)

Cleobury Mortimer Poor Law Union Records: the Board of Guardians for the Cleobury Mortimer Union to James Jacob, Shropshire Lunatic Asylum, Shrewsbury. Account for board and maintenance of Edward Fletcher, John Morris, Allen Wall, Sarah Mullett, pauper lunatic patients, 19th March 1843, (PL5/92/51)

Cleobury Mortimer Poor Law Union Records: the Board of Guardians for the Cleobury Mortimer Union to James Jacob, Shropshire Lunatic Asylum, Shrewsbury. Account for board and maintenance of Edward Fletcher, John Morris, Allen Wall, Sarah Mullett, pauper lunatic patients, 22nd December 1844, (PL5/92/53)

Cleobury Mortimer Poor Law Union Records: the Guardians of the Cleobury MortimerUnion to the Salop and Montgomery Counties, and Wenlock Borough Lunatic Asylum. Account for maintenance of Allen Wall, Anne Crowe, Margaret Potter, Mary Palmer, Benjamin Evans, Henry Preston, Mary Williams, Mary Lloyd, Mary Owens, Elizabeth Preen, Thomas Miller, Mary Hill, Charles Perkins, Moses Charles, John Farmer, Ann Walton, Rebecca Fenn, John Glazebrook, Sarah Weaver, Jemima Prince, and for funeral expenses of Charles and Fenn. Superintendent's half-yearly statement of their condition, 1st Jul 1868, (PL5/92/81)

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Shropshire Quarter Sessions: inquisition; Charles Richard Potts (infant), 27th February 1907, (QR 650/22), 2 sheets

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D H S Cranage, An Architectural Account of the Churches of Shropshire, part 4, Caynham and Coreley, (pub. 1897), 3 sheets
Shropshire Quarter Sessions, Return of Licensed Houses in the Petty Sessional Division of Burford, extracts re Clee Hill, 1896, 2 sheets
Shropshire Quarter Sessions, Return of Licensed Houses in the Petty Sessional Division of Lower Munslow, extracts re Clee Hill, 1896, 5 sheets
Shropshire Quarter Sessions, Return of Licensed Houses in the Petty Sessional Division of Burford, extracts re Clee Hill, 1901, 2 sheets
Shropshire Quarter Sessions, Return of Licensed Houses in the Petty Sessional Division of Lower Munslow, extracts re Clee Hill, 1901, 5 sheets

Sales Catalogue: 'Attractive freehold country properties, Clee Hill', 11th September 1944, (SC/23/57)
Sales Catalogue: 'The Knapp, Tenbury Road', 16th July 1945, (SC/23/52)
Sales Catalogue: 'The Golden Cross, Clee Hill', 1965, (SC/10/73)

Preliminary Statements: Clee Hill School, 5th July 1913, (ED7/102/40A), 3 sheets
1902 School Returns: Clee Hill Wesleyan School, (ED2699/38/13), 14 sheets

Roy Palmer, The Folklore of Shropshire, section re 'Miners and Quarrymen', (C 39), 8 sheets
Adrian Pearce, Mining in Shropshire, (C 24), 2 sheets

M Wight, 'Fortunes were made from Clee Hill iron', Shropshire Magazine, December 1961, 2 sheets
Arthur Wright, 'Clee Hills be holy in Shropshire', Shropshire Magazine, May 1969
Elsie Jacobs, 'Old time outings around the Clees and in Wyre Forest', Shropshire Magazine, January 1959
Trevor N Reid, 'Is this Shropshire's bleakest village?', Shropshire Magazine, February 1965, 2 sheets
Richard Butler, 'Clee Hill mummers', Shropshire Magazine, December 1992, 2 sheets

Postcards, (PC/C/17/1-7), 2 sheets

Photographs: (PH/C/21)

- Clee Hills event, no date, 4 sheets
- Quarry, Clee Hills, August 1902, 2 sheets
- Clee Hills, January 1911, 2 sheets
- Clee Hills area, no date
- Golden Cross Inn, Clee Hill, no date, (courtesy of Shropshire Newspapers)
- Victoria Inn, Clee Hill, no date, (courtesy of Shropshire Newspapers)
- Bitterley Wharf, 1904
- Clee Hill Granite Company, Coreley parish, no date
- Lorries going to Clee Hill quarries, no date
- Clee Hill quarry workers, no date, 2 sheets
- Clee Hill quarry staff, no date
- Incline, Brown Clee, no date
- Screening plant, Titterstone Quarry, no date, 2 sheets
- Concrete cottages at Clee Hill, no date
- Plan of pair of semi-detached bungalows at Titterstone Quarries, no date
- Quarry workers, Titterstone Clee Quarry, c.1920
- Spion Kop Quarry, Titterstone Clee, October 1904
- Dhu Stone Company, Titterstone Clee, c.1900
- Dhu Stone Company Quarry, Titterstone Clee, no date
- Sett makers, Titterstone Clee, no date
- M M Loubser (?), Violet Loubser, Lily, Jack and Reese, Hatterall, 1910

For more images of the Clee Hills, their quarries, wildlife and environment, see the Secret Shropshire website at
www.secretshropshire.org.uk

Appendix 7

DATED 2006

TITTERSTONE CLEE HERITAGE TRUST

TRUST DEED

Gabbs Solicitors
26A Broad Street
Leominster
Herefordshire HR6 8BS

THIS TRUST DEED is made the 2006 by **ALFRED EDWARD JENKINS** of The Damsons Millbrook Way Orleton Near Ludlow Shropshire SY8 4HW **GLYNN BARRATT** of Bridge Cottage Hopton Wafers Cleobury Mortimer Shropshire DY14 OHH **JOHN HUGHES** of Springfield Worcester Road Burford Worcestershire WR15 8AP and **MARJORIE HAMMOND** of 8 Hints Meadow Coreley Near Ludlow Shropshire SY8 3QS ("the First Trustees")

The First Trustees hold the sum of eleven pounds (£11.00) on the trusts declared in this Deed and they expect more money and assets will be acquired by them on the same trusts.

NOW THIS DEED WITNESSES AS FOLLOWS:

1 Administration

The charitable trust created by this deed ("the Charity") shall be administered by the Trustees. (In this deed, the expression "the Trustees" refers to the individuals who are the trustees of the charity at any given time. It includes the First Trustees and their successors. The word "Trustee" is used to refer to any one of the Trustees.)

2 Name

The Charity shall be called **Titterstone Clee Heritage Trust** but the Trustees may by resolution change the Charity's name from time to time. Before doing so they must obtain the written approval of the Charity Commissioners for England and Wales ("the Commission") for the new name.

3 Application of Income

The Trustees must apply the income of the Charity in furthering the following objects ("the Objects")

(i) to conserve and enhance Titterstone Clee Hill and its surrounding environs, its heritage, history, flora and fauna, geology and substantial cultural remains

(ii) to make known to the people of Shropshire visitors to Shropshire and the nation at large the unique nature of Titterstone Clee and its features of special archaeological, geological, historical and natural historical interest

(iii) to establish and run a resource/study/visitor centre in furtherance of objects (i) and (ii) above built using sustainable building techniques and sustainable energy

techniques and thus promoting energy efficiency and sustainability in a rural environment

4 Application of Capital

At their discretion the Trustees may spend all or part of the capital of the Charity in furthering the Objects

5 Powers

In addition to any other powers they have, the Trustees may exercise any of the following powers in order to further the Objects (but not for any other purpose):

(i) to raise funds. In exercising this power, the Trustees must not undertake any substantial permanent trading activity and must comply with the relevant statutory regulations;

(ii) to buy, take on lease or in exchange, hire or otherwise acquire property and to maintain and equip it for use also manage, alter or develop it as required (for the avoidance of doubt this power and the power in sub clause 5(iii) below includes interests in land);

(iii) to sell, lease or otherwise dispose of all or any part of the property belonging to the Charity. In exercising this power, the Trustees must comply as appropriate with sections 36 and 37 of the Charities Act 1993 ;

(iv) to buy or otherwise acquire any plant and machinery (including but not limited to computer hardware and software) furniture and other equipment and to sell lease or otherwise dispose of such plant machinery furniture and other equipment;

(v) to borrow money and to charge the whole or any part of the property belonging to the Charity as security for repayment of the money borrowed. The Trustees must comply as appropriate with sections 38 and 39 of the Charities Act 1993 if they wish to mortgage land owned by the Charity;

(vi) to co-operate with other charities, voluntary bodies, and statutory authorities and to exchange information and advice with them;

(vii) to establish or support any charitable trusts, associations or institutions formed for any of the charitable purposes included in the objects;

(viii) to acquire, merge with or enter into any partnership or joint venture arrangement with any other charity formed for any of the objects;

(ix) to create such advisory committees as the Trustees think fit;

(x) to employ and remunerate such staff as are necessary for carrying out the work of the Charity

(xi) to do any other lawful thing that is necessary or desirable for the achievement of the objects.

6 Statutory Powers

Nothing in this deed restricts or excludes the exercise by the Trustees of the powers given by the Trustee Act 2000 as regards investment, the acquisition or disposal of land and the employment of agents nominees and custodians.

7 Delegation

(i) In addition to their statutory powers, the Trustees may delegate any of their powers or functions to a committee of two or more Trustees. A committee must act in accordance with any directions given by the Trustees. It must report its decisions and activities fully and promptly to the Trustees. It must not incur expenditure on behalf of the Charity except in accordance with a budget previously agreed by the Trustees.

(ii) The Trustees must exercise their powers jointly at a properly convened meeting except where they have:

(a) Delegated the exercise of the powers (either under this provision or under any statutory provision), or

(b) Made some other arrangements, by regulations under Clause 21,

(iii) The Trustees must consider from time to time whether the powers or functions which they have delegated should continue to be delegated.

8 Duty of Care and Extent of Liability

When exercising any power (whether given to them by this Deed, or by statute, or by any rule of law) in administering or managing the Charity, each of the Trustees must use

the level of care and skill that is reasonable in the circumstances, taking into account any special knowledge or experience that he or she has or claims to have ("the duty of care") No Trustee, and no one exercising powers or responsibilities that have been delegated by the Trustees, shall be liable for any act or failure to act unless, in acting or failing to act, he or she has failed to discharge the duty of care.

9 Appointment of Trustees

(i) There must be at least four Trustees. Apart from the First Trustees every Trustee must be appointed for a term of three years by a resolution of the Trustees passed at a special meeting called under Clause 15 of this Deed

(ii) In selecting individuals for appointment as trustees, the Trustees must have regard to the skills, knowledge and experience needed for the effective administration of the Charity.

(iii) The Trustees must keep a record of the name and address and the dates of appointment, re-appointment and retirement of each Trustee.

(iv) The Trustees shall make available to each new Trustee, on his or her first appointment:

(a) a copy of this Deed and any amendments to it;

(b) a copy of the Charity's latest report and statement of accounts.

(v) The First Trustees shall hold office for the following periods respectively:

ALFRED EDWARD JENKINS: five years

GLYNN BARRATT: five years

JOHN HUGHES: four years

MARJORIE HAMMOND: three years

10 Eligibility for Trusteeship.

(i) No one shall be appointed as a Trustee:

(a) if he or she is under the age of eighteen years: or

(b) he or she would at once be disqualified from office under the provisions of Clause 11 of this Deed.

(ii) No one shall be entitled to act as a Trustee whether on appointment or on any re-appointment as Trustee until he or she has expressly acknowledged in whatever way the Trustees decide, his or her acceptance of the office of Trustee of the Charity.

11 Termination of Trusteeship

A Trustee shall cease to hold office if he or she:

(i) is disqualified from acting as Trustee by virtue of Section 72 of the Charities Act 1993 or any statutory re-enactment or modification of that provision;

(ii) becomes incapable by reason of mental disorder, illness or injury of managing his or her own affairs;

(iii) is absent without the permission of the Trustees from all their meetings held within a period of six months and the Trustees resolve that his or her office be vacated; or

(iv) notifies to the Trustees a wish to resign (but only if enough Trustees will remain in office when the notice of resignation takes effect to form a quorum for meetings).

12 Vacancies

If a vacancy occurs the Trustees must note the fact in the minutes of their next meeting . Any eligible Trustee may be re-appointed. So long as there are fewer than four Trustees, none of the powers and discretions conferred by this Deed or by law on the Trustees shall be exercisable by the remaining Trustees except the power to appoint new Trustees.

13 Ordinary Meetings

The Trustees must hold at least two ordinary meetings each year. One such meeting in each year must involve the physical presence of those Trustees who attend the meeting. Other meetings may take such form, including video-conferencing, as the Trustees decide provided that the form chosen enables the Trustees both to see and to hear each other.

14 Calling Meetings

The Trustees must arrange at each of their meetings, the date, time and place of their next meeting, unless such arrangements have already been made. Ordinary meetings may also be called at any time by the person elected to chair meetings of the Trustees or by any two Trustees. In that case not less than ten days' clear notice must be given to the other Trustees.

The first meeting of the Trustees must be called by **ALFRED EDWARD JENKINS** and **GLYNN BARRATT** or, if no meeting has been called within three months after the date of this Deed, by any two of the Trustees.

15 Special Meetings

A special meeting may be called at any time by the person elected to chair meetings of the Trustees or by any two Trustees. Not less than four days' clear notice must be given to the Trustees of the matters to be discussed at the meeting. However, if those matters include the appointment of a Trustee or a proposal to amend any of the trusts of this Deed, not less than twenty one days' notice must be given. A special meeting may be called to take place immediately after or before an ordinary meeting.

16 Chairing of Meetings

(i) The Trustees at their first ordinary meeting must elect one of their number to chair their meetings. The person elected shall always be eligible for re-election. If that person is not present within ten minutes after the time appointed for holding a meeting, or if no one has been elected, or if the person elected has ceased to be a Trustee, the Trustees present must choose one of their number to chair the meeting.

The person elected to chair meetings of the Trustees shall have no other additional functions or powers except those conferred by this deed or delegated to him or her by the Trustees.

17 Quorum

(i) Subject to the following provision of this Clause, no business shall be conducted at a meeting of the Trustees unless at least one third of the total number of

Trustees at the time, or two Trustees (whichever is the greater) are present throughout the meeting.

(ii) The Trustees may make regulations specifying different quorums for meetings dealing with different types of business.

18 Voting

At meetings, decisions must be made by the majority of the Trustees present and voting on the question. The person chairing the meeting shall have a casting vote whether or not he or she has voted previously on the same question but no Trustee in any other circumstances shall have more than one vote.

19 Conflict of Interest

A Trustee must absent himself or herself from any discussions of the Trustees in which it is possible that a conflict will arise between his or her duty to act solely in the interests of the Charity and any personal interest (including but not limited to any personal financial interest).

20 Minutes

The Trustees must keep minutes, in books kept for the purpose or by such other means as the Trustees decide, of their proceedings at their meetings. In the minutes the Trustees must record their decisions and, where appropriate, the reasons for those decisions. The Trustees must approve the minutes in accordance with the procedures, laid down in regulations made under Clause 21 of this Deed.

21 General Power to Make Regulations

The Trustees may from time to time make regulations for the management of the Charity and for the conduct of their business, including:

(i) the calling of meetings;

(ii) methods of making decisions in order to deal with cases of urgency when a meeting is impractical;

(iii) depositing money at a bank;

(iv) the custody of documents;

(v) the keeping and authenticating of records. (If regulations made under this Clause permit records of the Charity to be kept in electronic form and requires a Trustee to sign the record, the regulations must specify a method of recording the signature that enables it to be properly authenticated.)

The Trustees must not make regulations which are inconsistent with anything in this Deed.

22 Accounts, Annual Report and Annual Return

The Trustees must comply with their obligations under the Charities Act 1993 with regard to:

(i) the keeping of accounting records for the Charity;

(ii) the preparation of annual statements of account for the Charity;

(iii) the auditing or independent examination of the statements of account of the Charity;

(iv) the transmission of the statements of account of the Charity to the Commission;

(v) the preparation of an Annual Report and its transmission to the Commission;

(vi) the preparation of an annual return and its transmission to the Commission

23 Registered Particulars

The Trustees must notify the Commission promptly of any changes to the Charity's entry on the General Register of Charities.

24 Bank Account

Any bank or building society account in which any funds of the Charity are deposited must be operated by the Trustees and held in the name of the Charity. Unless the regulations of the Trustees make other provision, all cheques and orders for the payment of money from such an account shall be signed by at least two Trustees.

25 Trustees not to Benefit Financially from their Trusteeship

(i) (a) No Trustee may buy goods or services from the Charity, or sell goods or services to the Charity, or receive remuneration, or receive any other financial benefit from the Charity or from any trading company owned by the Charity, except in accordance with this Deed or with the prior written approval of the Commission and any conditions it prescribes.

(b) The Trustees may employ, or enter into a contract for the supply of goods or services, with one of their number. Before doing so, the Trustees must be satisfied that it is in the best interests of the Charity to employ, or contract with, that Trustee rather than someone who has no connection with the Charity. In reaching that decision, they must balance the advantage of employing a Trustee against the disadvantages of doing so (especially the loss of the Trustee's services as a result of dealing with the Trustee's conflict of interest as required by the next sub-clause). The remuneration or other sums paid to the Trustee must not exceed an amount that is reasonable in all the circumstances. The Trustees must record the reason for their decision in their minute book.

(c) A Trustee must be absent from any part of any meeting at which his or her employment or remuneration , or any matter concerning the contract, are discussed. He or she must also be absent from the part of any meeting at which his or her performance in that employment, or his or her performance of the contract, is considered. He or she must not vote on any matter relating to his employment or the contract and must not be counted when calculating whether a quorum of Trustees is present at the meeting.

(ii) This Clause applies to a firm or company of which a Trustee is:

(a) a partner;

(b) an employee;

(c) a consultant;

(d) a director; or

(e) a shareholder, unless the shares of the company are listed on a recognised stock exchange and the Trustee holds less than one percent of the issued capital,

as it applies to a Trustee personally.

(iii) In this Clause:

(a) "Charity" shall include any company in which the Charity:

- holds more than fifty percent of the shares; or
- controls more than fifty percent of the voting rights attached to the shares; or
- has the right to appoint one or more directors to the Board of the company

(c) "Trustee" shall include any child, parent, grandchild, grandparent, brother, sister, or spouse of the Trustee or any person living with the Trustee as his or her partner.

26 Repair and Insurance

The Trustees must keep in repair and insure to their full value against fire and other usual risks all the buildings of the Charity (except those buildings that are required to be kept in repair and insured by a tenant). They must also insure suitably in respect of public liability and employer's liability.

27 Expenses

The Trustees may use the Charity's funds to meet any necessary and reasonable expenses which they incur in the course of carrying out their responsibilities as Trustees of the Charity.

28 Amendment of Trust Deed

(i) The Trustees may amend the provisions of this Deed, provided that:

(a) no amendment may be made to Clause 3 (Application of Income), Clause 8 (Duty of Care), Clause 25 (Trustees not to benefit financially from their Trusteeship), Clause 29 (Dissolution) or this Clause without the prior consent in writing of the Commission; and

(b) no amendment may be made whose effect is that the Charity ceases to be a charity at law.

(ii) Any amendment of this Deed must be made by Deed following a decision of the Trustees made at a special meeting.

(iii) The Trustees must send to the Commission a certified copy of the deed effecting any amendment made under this Clause within three months of it being made.

29 Dissolution

The Trustees may dissolve the Charity if they decide that it is necessary or desirable to do so. To be effective, a proposal to dissolve the Charity must be passed at a special meeting by the Trustees unanimously. Any assets of the Charity that are left after the Charity's debts have been paid ("the net assets") must be given:

(i) to another charity (or other charities) with objects that are no wider than the Charity's own, for the general purposes of the recipient charity (or charities); or

(ii) to any charity for use for particular purposes that fall within the charity's objects.

The Commission must be notified promptly that the Charity has been dissolved and if the Trustees were obliged to send the Charity's accounts to the Commission for the accounting period which ended before its dissolution, they must send the Commission the Charity's final accounts.

30 Interpretation

In this Deed, all references to particular legislation are to be understood as references to legislation in force at the date of this Deed and also to any subsequent legislation that adds to, modifies, or replaces that legislation.

IN WITNESS of this deed the parties to it have signed below

Signed as a deed by **ALFRED**

EDWARD JENKINS in the
presence of:

Witness's name:
……
Witness's address:

Signed as a deed by **GLYNN BARRATT**
in the presence of:

Witness's name:
……
Witness's address:

Signed as a deed by **JOHN HUGHES**
in the presence of:

Witness's name:
……
Witness's address:
Signed as a deed by **MAJORIE HAMMOND**
in the presence of:

Witness's name:

……

Witness's address:

Appendix 8: Proposed Visitor Centres

1. Introduction

1.1 The Clee Hills have been fittingly described as a landscape of 'social geology', defined as 'an archaeological and cultural landscape dominated by the nature of its mineral resources'. There are few places in Shropshire, or for that matter the country, where one can so clearly see the complex and intimate relationship between people and their environment. It is still a living and evolving environment since the landscape includes an active quarry producing the Clee Hill's most famous product: the Dhustone (black stone) used principally as a graded crushed stone whose doleritic qualities make it valuable to the road construction industry. It is the aim of this document to outline a proposal for the creation of a visitor and study centre upon the hill. To carry out such an ambitious remit will require the active and full participation of a range of expertise, but in the longer term will demand the interest and support of the local community.

1.2 The creation of the ***Titterstone Clee Heritage Trust (TCHT)*** is the first step towards forging a community project, the aims of which are to enhance public awareness of the Hill, provide protection by community involvement to ensure the long term sustainability of the Hill and to plan and build a 'pride of place' centre for visitors to the hill.

1.3 Visible and substantial cultural remains are extensive and well preserved upon the hill spanning, prehistory, the Middle Ages, and the Industrial period. All have left their mark in varying degrees, but perhaps not surprisingly, the Industrial period has had the greatest visual impact on the hill as it survives today. There is also a rich and diverse natural history component to the hill and a complex and visible geological content. There is no doubt that Titterstone Clee is a valuable landscape which is largely unknown to the general public and that it offers enormous potential for presentation. Indeed, it has the latent potential to become a major visitor attraction strategically positioned on the main arterial route from the densely populated industrial West Midland to the Welsh holiday destinations lying to the west.

1.4 There is also clear potential for such a resource, sensitively managed, to become a significant part of the local economy providing locally based jobs in the tourist sector.

2. The Vision

- A self-sufficient resource and visitor centre could be built from local materials. The centre would be a focus for the hill and would disseminate information relating to the hill. It would also demonstrate by using current sustainable building techniques and sustainable energy technologies a variety of innovative environmental benefits from energy efficiency to waste management. The influence of such a showcase centre, promoting energy efficiency and sustainability in a rural environment has the potential to make a long term contribution to alleviate some of the problems that rural communities are likely to face in the future.

- The centre would include innovative ways of presenting information on the many diverse information streams relating to the hill, geology, natural history, prehistory, history, quarrying, mining history of the hill.

- A facility to provide resources for local schools is also seen as a key element, facilitating access to the resources of the hill possibly with a residential study centre element. Ties could be made with children elsewhere, including urban centres in the UK and an exchange with children from overseas where communities face similar environmental concerns.

3. Possible locations for the visitor centres:

Two possible locations for such a centre present themselves.

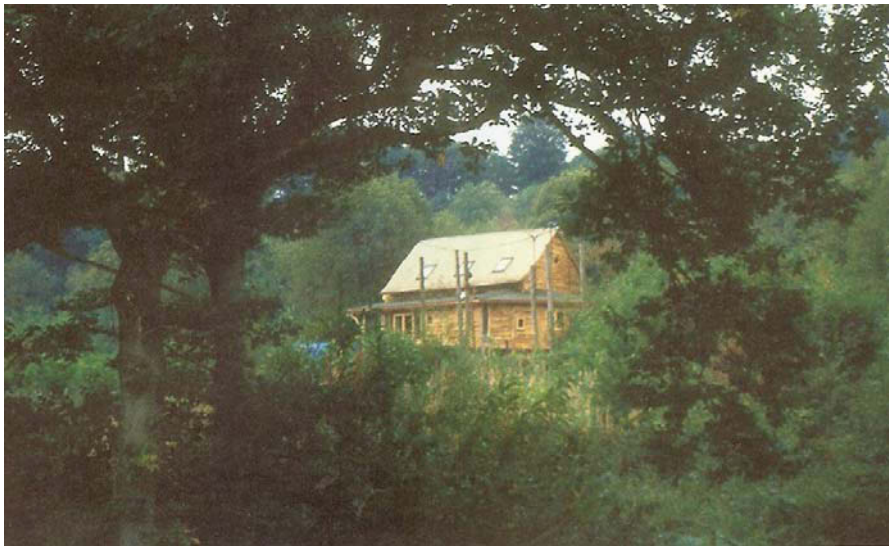
3.1 Location 1: The Novers

The site offers industrial remains of an extensive lime mine; with a tramway, an inclined plane, four lime kilns and lime workings. The site was first recorded in 1905 and closed in 1912. The kilns are enormous, they burned for 3 months rather than the usual 3 days! Whilst it is recorded in the County Council records, the site is not currently listed or scheduled (although scheduling is likely to be imminent).

Woodland has grown up around the site and has been largely untouched since the kilns closed. Shropshire County Council will be conducting a biodiversity survey of the site in May 2006 to help understand the natural history there. The site is up for sale with an asking price of *c.* £500,000. There was an original option to purchase the woodland separate to the house and surrounding paddocks though this offer no longer applies.

3.2 The original concept was to purchase the woodland and to look to build a self-sufficient resource centre possibly built from materials from the wood by local people, with professional guidance. The 'Ben Law' Woodland House being a model for such a project. However the current bungalow, converted would make an alternative study centre hub which could be added to as the opportunity and demand grew.

- **The problem with this site however is the need to purchase it quickly and therefore the need to raise a considerable sum of money very quickly.**



The 'Ben Law' Woodland House

3.3 Location 2: Titterstone, West Quarry

This disused quarry is today the main destination for any visitors to the hill. Access is from Dhustone Lane sign-posted to the summit from the main A1147 on Angel Bank, below Clee Village. Visitors drive to a rough car park in the old quarry, which affords spectacular views to the west. In recent years, this location has suffered from car dumping and fly tipping. It does, however, offer a potentially spectacular location for a centre

3.4 The site is owned by the Downton Estate and is not currently available, however interest has been shown in the past by the owners in the possibility of some form of development which would serve to provide a presence on the hill.

3.5 In contrast to the Novers, a Visitor Centre located here could not help but be high profile in every sense.

3.6 The Vision

To create an 'Earthship' built visitor and study centre Earthships are solar independent buildings that heat and cool themselves, are self powered, harvest their own water and deal with their own waste. With free energy from the sun and free materials from waste, the Earthship is based on earth-rammed tyre walls giving thermal mass to store heat. They are 'heavyweight' high quality buildings, designed

with a comfortable low cost future in mind. They run free and yet can be realised at similar costs to the conventional buildings. External walls could be built from the local dhustone making it very much ‘a building of ‘place’.

3.7 The costs of creating such a centre would be considerable and the impact upon the area would also be considerable. It has the potential to put Titterstone Clee both on the national and international map as centre for both the Past and the Future. However, the scale of such a venture is such that the local communities around the hill would need to be fully supportive of the project.

Illustration showing possible location of centre

Examples of Earthship buildings in quarry contexts

Appendix 9

STRUCTURAL APPRAISAL REPORT
Quarry Buildings Clee Hills
.
Author: B.Johnson I.Eng.A.M.I.Struct.E.
Report date: 13.11.2006
Survey Date: 10.11.2006
Project Reference: 26134

Bob Johnson, Old Bank Buildings Shrewsbury Tel. 01743 350893 www.bjse.co.uk
Consulting Structural Engineers: Bellstone SY1 1HU F 01743 233619 E info@bjse.co.uk

INTRODUCTION
The following report lists and presents the findings of a Structural Appraisal. The appraisal of the remaining installations present on the two former quarries referred to as west and east quarry located beneath the summit of Titterstone Clee. This document forms part of the current proposal to devise a management plan for the Clee Hills industrial heritage site.

AIMS and OBJECTIVES
• Assess the structural stability of the buildings and structures including condition of materials and elements and standard of construction.
• Provide guidance on aspects of visitor safety in order to increase safe physical access to the site.
• Provide recommendations on the extent and type of essential repairs to ensure future integrity and stability.
• Provide costing guidelines for conservative repairs where necessary.

SITE DESCRIPTION

West and East Quarry.

West Quarry: The majority of the structures are located in this quarry. Much of the hillside has been disturbed by quarrying activities leaving an undulating surface stepped with horizontal levels. The remains of structural installations used to process the stone stand on and in line to the slope between the higher and lower levels. A number of smaller installations are also scattered across the site.
The site is exposed and faces the prevailing weather and being elevated close to 450 metres above sea level is subjected to extreme conditions.
East Quarry: A small number of structures are located either side of the access road on the approach to this quarry – no structures are present within the inner quarry.

WEST QUARRY

STRUCTURES

The significant structures dominating the site are two large storage silos S1 & S2 and a retaining structure A1. The silos are of particular interest as they are large containers which are suspended above the ground (2.20m) by a grid of columns. The remaining structures mainly comprise of foundation blocks or supports for machinery that have been subsequently removed following the closure of the site.
With the exception of a small number of brickwork walls these structures are all formed in reinforced concrete. These concrete elements are either shuttered and cast in large sections (S1 & S2) or constructed with hollow concrete blocks which were reinforced with steel and filled with concrete.

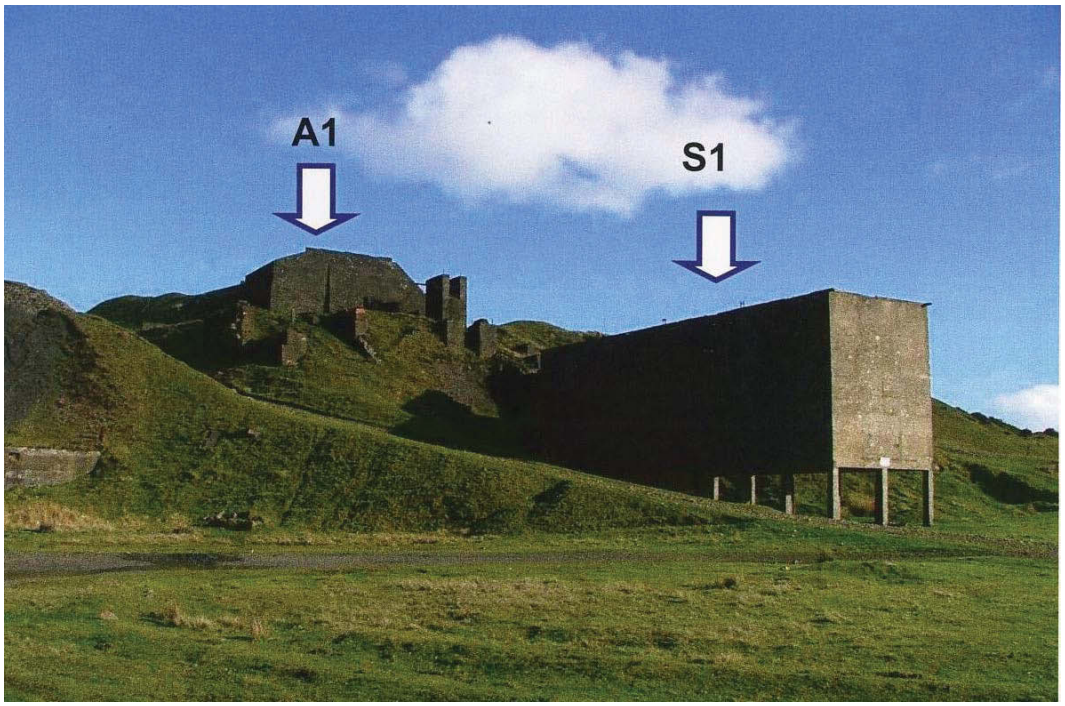
MATERIALS

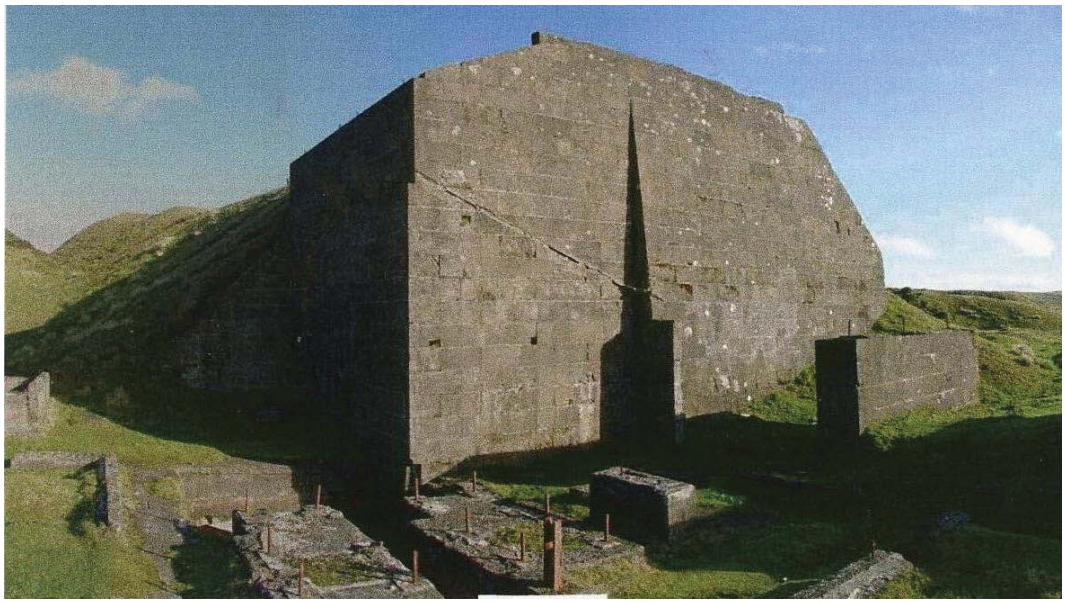
Approximate date of construction is taken be 1910 – 1913. At this time reinforced concrete construction was in its infancy and many of the potential deficiencies now recognised with reinforced concrete construction were not fully appreciated. These deficiencies are triggered by chemical reactions and affect the physical properties of the material.
Reinforced Concrete:
A full laboratory analysis of the concrete would provide a break down of the concrete constituents however it was clear from visual examination that quarried dolerite stone has been utilised as the aggregate with cement (assumed to ordinary Portland) and possibly sand. Examination of the concrete across the entire site has shown this mix to be very resilient to the aggressive environmental conditions.
Mild steel bars provide the tensile strength of the concrete and are cast within the body of the concrete.

CONSTRUCTION

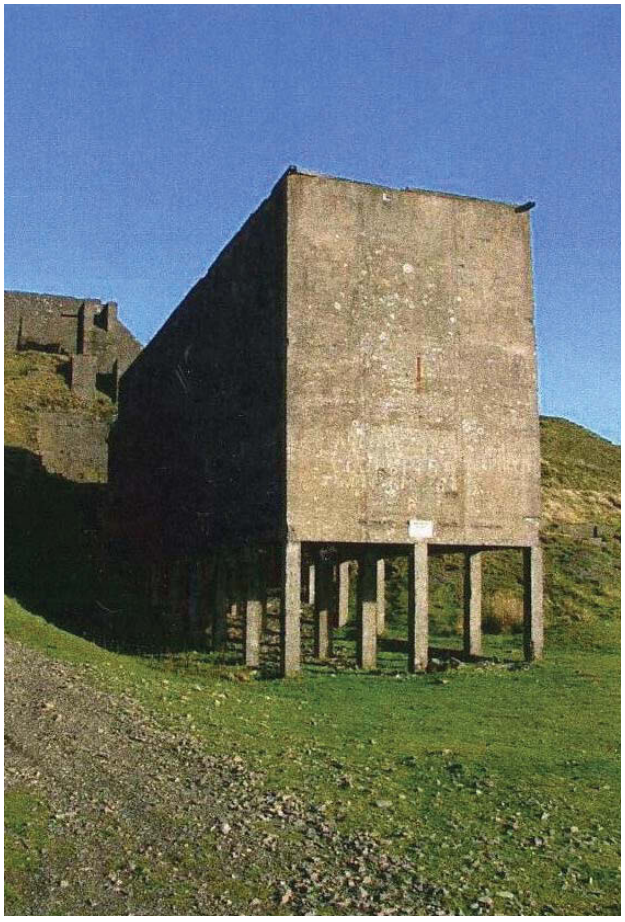
Examination of silos S1 & S2 showed that the designers understood the basic principles of reinforced concrete design and construction.
Section sizes for the slab, walls and columns all appeared to be appropriate for the:
• Span of the particular element
• General scale of structure
• Potential loads applied.
Locations where the concrete face had been blown revealed the reinforcement bars, their size (diameter), and relative position within the element. All of which appeared to be consistent with modern day design practice.
The standard of construction appears to be relatively high with the structures being set out accurately and formed in a regular alignment, and finished in an orderly manner,

OBSERVATIONS
A1 S1





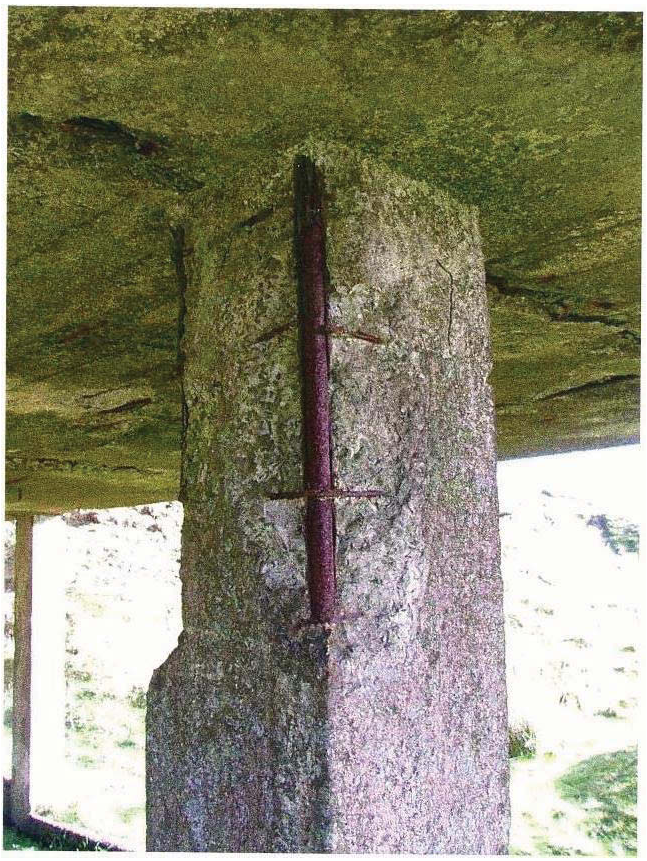
Abutment A1



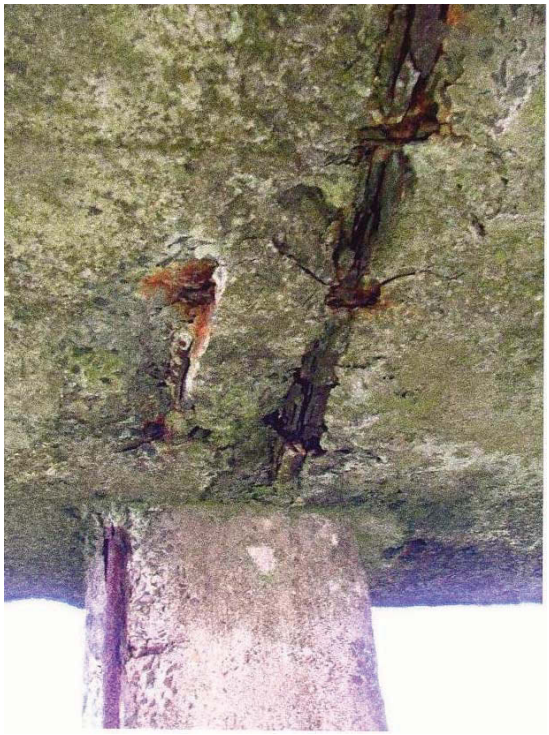
Abutment A1 – constructed to retain the material at the head of the raised embankment. Formed with hollow blocks filled with concrete and (assumed) reinforcing bars.
No evidence of structural movement or significant material deterioration was noted.
Localised and randomly positioned surface degradation of the blocks – the damage was limited and superficial.

The photograph below shows the internal areas of the silo S1 – both silos are compartmentalised, helping to provide rigidity to the outer shell.

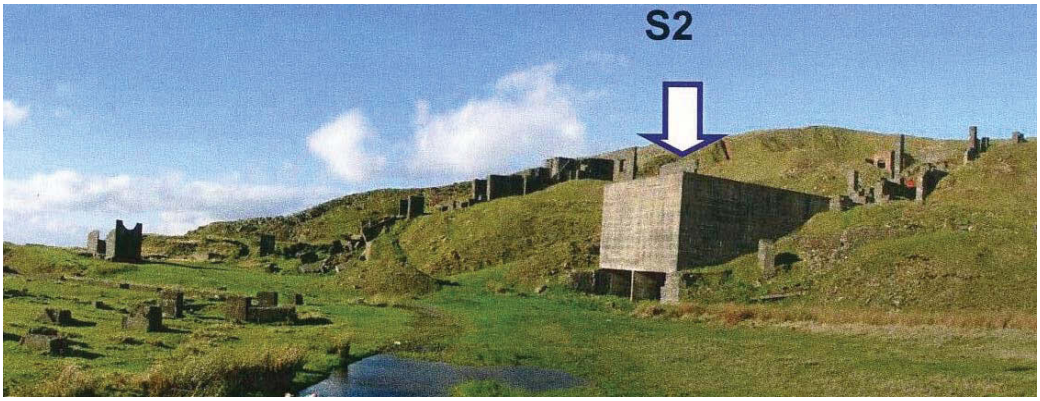
Silo S1

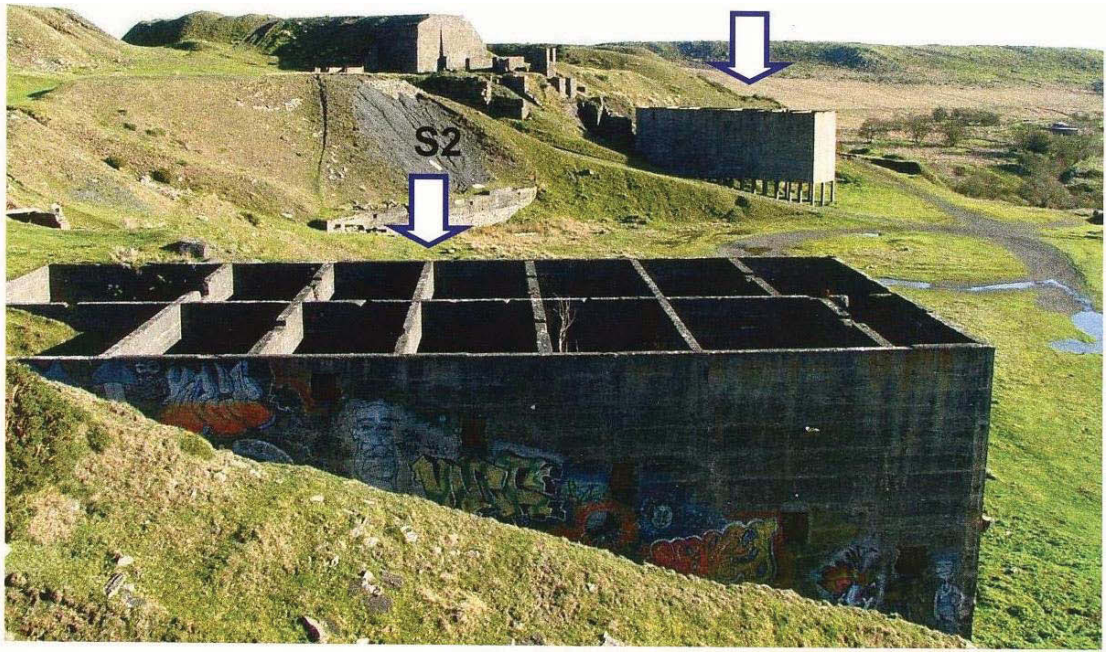


Silo A1 is constructed with steel reinforced concrete. The silo structure is supported on a grid of rectangular columns. The adjacent photograph illustrates damage to the head of the column – loss of surface concrete exposing the reinforcement. The underside of the base slab has also numerous areas where the surface of the concrete has exposed reinforcement.
The cause of this damage is linked to the corrosion of the steel. Moisture penetrates to the steel triggering achemical reaction – the steel reacts by expanding forcing the concrete surface off.
No evidence of visible distress or deformation was noted.



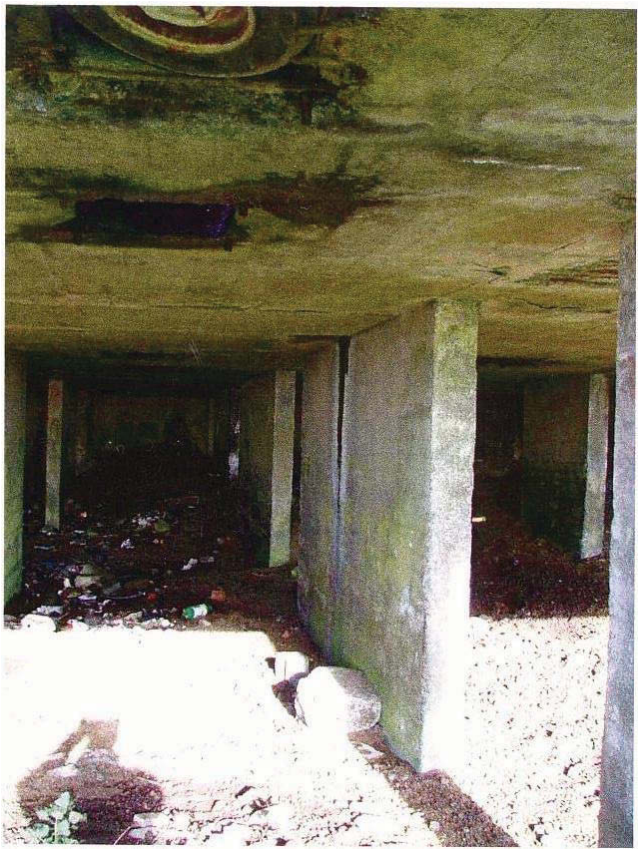
This defect is progressive and although it has taken many years to reach this level it is gradually reducing the load bearing capacity of the members.
As referred to previously, the size, location and arrangement of the reinforcing steel appears consistent with modern day practice *i.e.* primary main steel supplemented by smaller transverse steel.





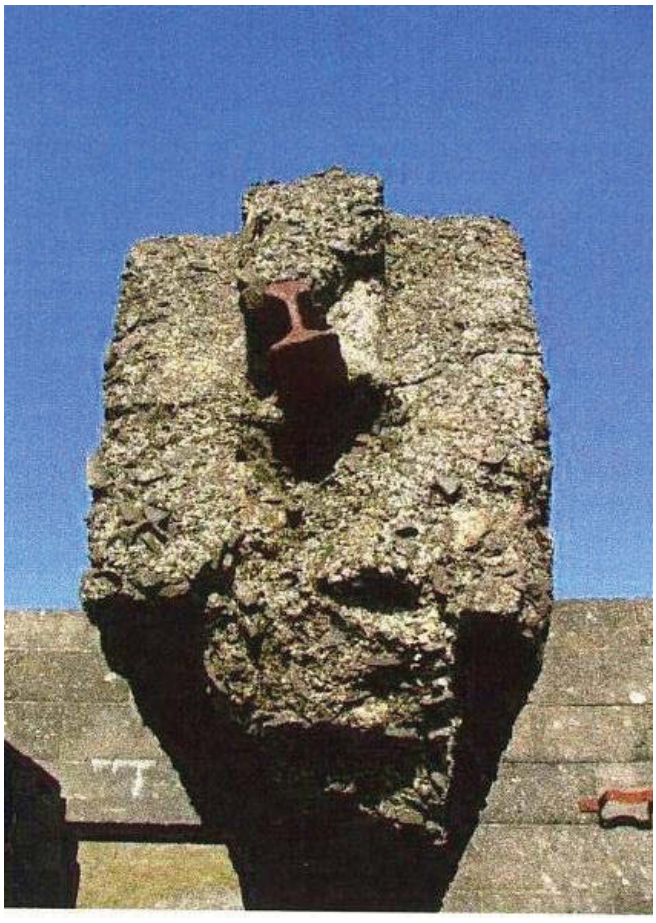
SAFE ACCESS

This section refers to the stability of the structures and assesses whether their current physical condition represents a risk to public safety.
Other than the following observations the majority of the structures are stable and do not represent a risk to public:
• High Risk: Silo under croft - due to the defects in the supports their structural status is currently questionable. Full repair will reduce the risk although they are still vulnerable to impact damage from vehicles.
• Generally: Exposed and protruding steel reinforcement / holding down bolts is a physical hazard.



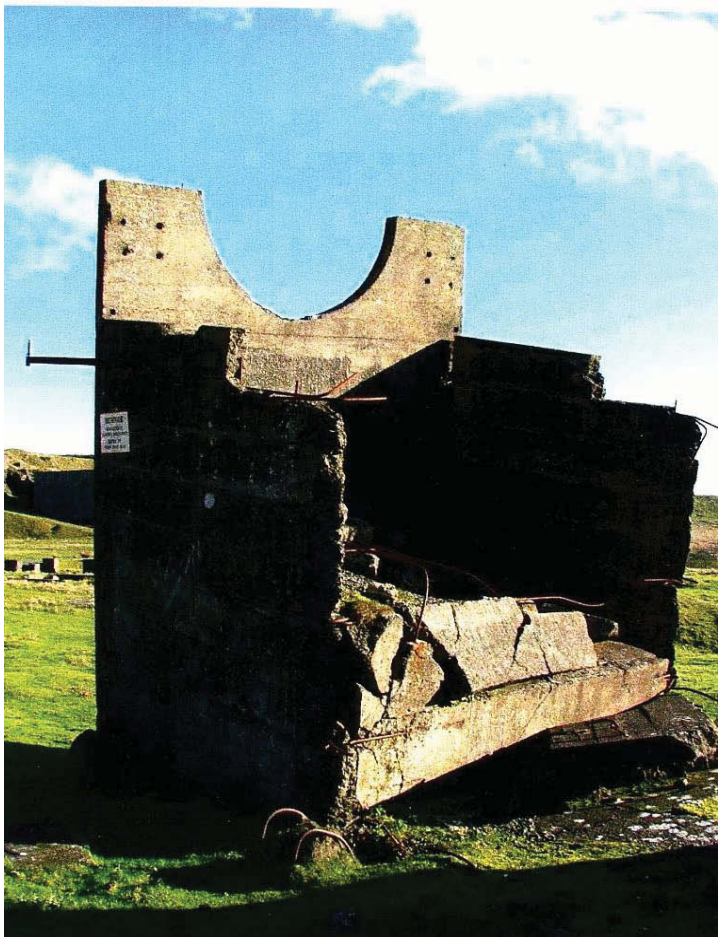
Silo S2 is supported on longer but quite slender fins. The underside of the base slab has experienced similar surface blowing.
The damage is not extensive and randomly located. No visible distress or deformation were visible.
The external side walls all appeared to be without defect. Whilst access to the interior of the silo was not possible it would seem reasonable to assume some degree of degradation is present.

These foundation and support blocks are formed with the reinforced block work – they were found to be in a good material condition and were all constructed robustly with no apparent risk of collapse.



This section of concrete projects horizontally beyond its support. The small gauge railway line has been used to reinforce the concrete.

It was noted that where concrete had been broken away, the exposed face has not continued to fracture and break up



The remains of a container in this instance the supporting columns have failed, the reason for this is not clear and may have been caused during the demolition operations rather than by structural defects. It does provide insight into the potential vulnerability of the supports especially in relation to the silos which may not possess the ability to accommodate the loss of one or more of the supports due to either structural deterioration or accidental impact.

FURTHER INVESTIGATION & ESSENTIAL REPAIRS

The main concern relates to the condition of the silo support columns. The importance of arresting the corrosion of the reinforcement and providing an adequate level of protection is critical to their long term stability.
The precise nature of the corrosion should be identified; potential causes include 'Carbonation of the concrete' and 'Chloride contamination'. The presence of these will dictate the type and extent of remediation required. The methods most commonly utilised are undertaken by specialist contractors a list is provided below.
The remainder of the structures will inevitably deteriorate however this is anticipated to be gradual and should display signs of distress providing the opportunity for action. Localised concrete repairs will be necessary where small sections of the block work are deteriorating, these will require targeting.

COSTINGS

This is difficult to estimate but it would be prudent to allow for £25K for essential repairs and possibly another £5K for routine repairs.

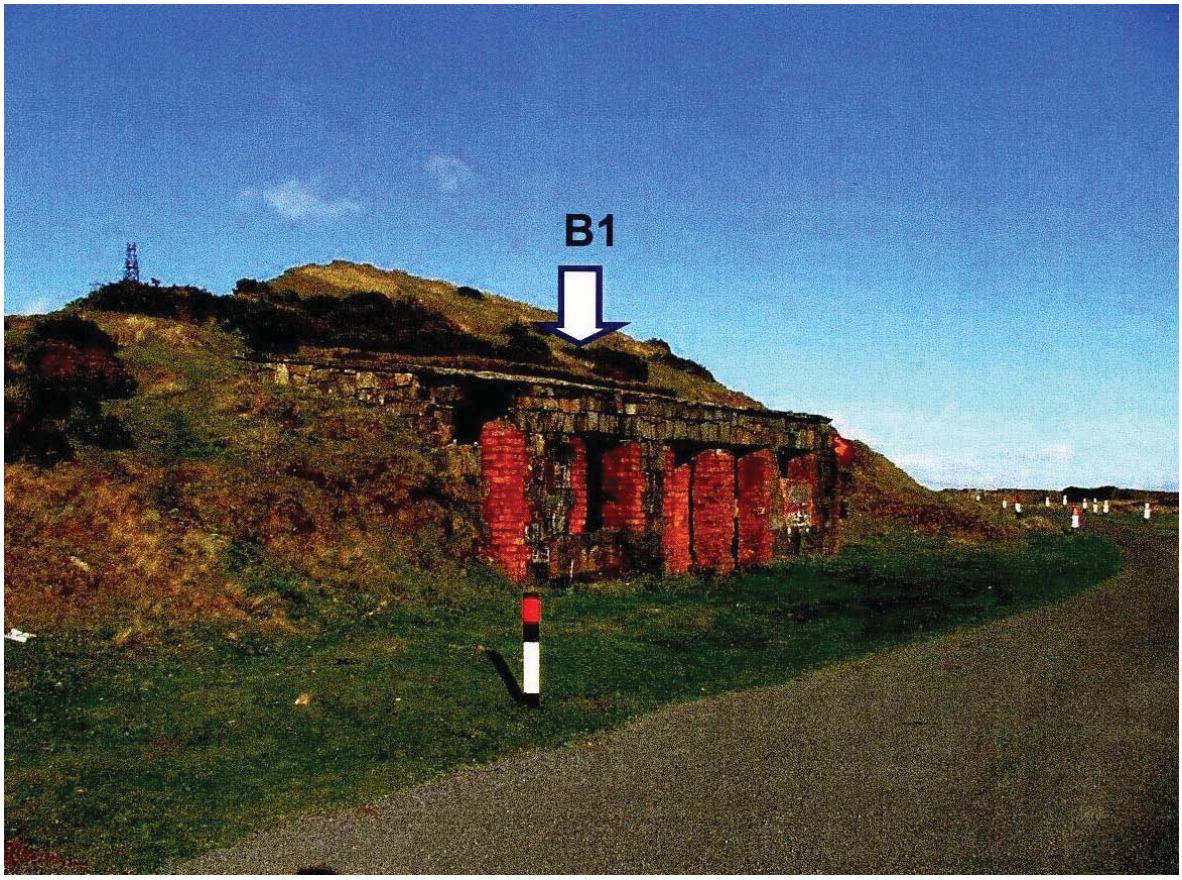
EAST QUARRY

STRUCTURES

Two structures are located either side of the approach road together with a small number of foundation block. A small hut B1 is largely intact - the second B2 is similar hut but has partially collapsed .

MATERIALS & CONSTRUCTION

Approximate date of construction is taken be 1910 – 1913, assumed to be contemporary with the West Quarry structures.
Building B1 has an external shell constructed with semi dressed random laid stone with coursed brickwork used around openings and corners – the joints are bonded with cement mortar. The width of the wall is approximately 400mm and supports a relatively thin concrete roof reinforced with iron rails at 1.20 metre centres. External openings in the road elevation use timber lintels to support the narrow band of masonry over.

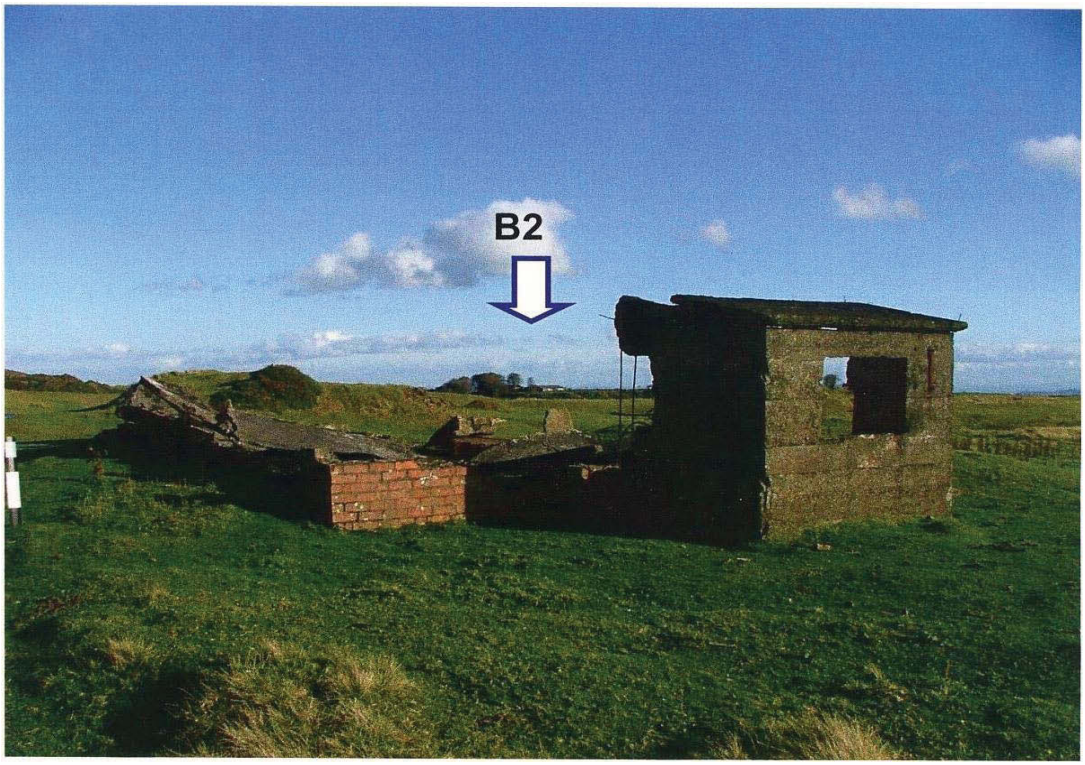


OBSERVATIONS

The principal structural defects are:
• Charred timber lintels – size inadequate and unsuitable for supporting the masonry above.
• Roof – Degradation of the concrete and associated corrosion of the reinforcement rails – some visible distress.

SAFE ACCESS
To enable safe access to this building and to ensure future integrity the two elements mentioned above would need to be repaired / replaced. It may be that the roof is beyond repair since the depth of construction is shallow and the decay may have been too extensive. In addition to this general minor reconstruction and consolidation works to the masonry is necessary.
COSTS
Minimum costs for this work could be in the region of £15K.

Building B2 is obviously beyond repair and is probably in a dangerous condition – depending on its value it may be possible to stabilise the remains but other wise consideration should be given to removing it.



Building B1
internal view showing the relationship between the mono pitch concrete roof, external wall and supporting lintel.

Structural Repair Specialists
Falcon Structural Repairs 01275 844889
Thoro Midlands 01782 713063
ASRS 01903 248923

Appendix 10

STRUCTURAL APPRAISAL REPORT

Lime Kilns – Knowlegate Clee Hill
For Clee Hills ALSF Project.
Author: B.Johnson I.Eng.A.M.I.Struct.E.
Date: 30.11.2006
Survey Date: 10.11.2006
Project Reference: 26134

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INTRODUCTION

The following report lists and presents the findings of a Structural Appraisal. The appraisal is concerned with two former lime burning kilns. The purpose of the appraisal was to:

- Inspect and assess the current condition of the physical construction.
- Interpret the findings highlighting any significant defects and deficiencies.
- Advise on further investigation.
- Recommend the type and extent of essential repairs.

The scope of the appraisal is limited due to the constraints of the site i.e. safe access.

DESCRIPTION

The kilns are located in the south facing hillside above a minor road and are possibly late C18 early C19. There are two distinct kiln structures separated by approximately 15 metres. The kilns appear to be embedded in the slope but are probably encapsulated by fill material to provide stability to the body of the kiln and facilitate access.

Single Kiln

The circular ‘pot’ can be clearly viewed from above – photograph (i). The construction is visible and consists of both random stone laid to irregular courses and intermittent bands of brickwork. The pot diameter is approximately 3.0m and appears to be a consistent width for its height of approximately 4.0m.
The base of the pot is obscured by accumulated debris and vegetation which has built up and spread into the draw tunnel.
Viewed from the front the draw arch is approximately 2.5m wide and is flanked by abutment walls all formed in large rubble stone – photograph (ii).

Double Kiln

Approach from above to the feeder pots was prevented by vegetation. The draw arch and vaulted tunnels are fully accessible and constructed in a similar manner to the single kiln in irregular coursed rubble stone forming the face of the kiln. I have assumed that there are two feeder pots however it could be that there may be only one. Two arches and vaults are located closely together – photograph (iii).

CONDITION

Single Kiln

Construction:

Appearance suggests the masonry construction is typically a single layer forming the surface of each element – the width of these elements may well increase in certain areas but this cannot be confirmed.

The stone units as previously described are random in size and bonded together with lime mortar. The vaulting and draw tunnel opening adopt traditional arch construction which has proved to be adequate with little evidence of displacement or deficiency.

Materials:

The stone used appears to be sandstone and has proved to be durable. Localised collapses of the masonry have occurred within the pot lining however this has not yet affected the stability of the pot.

Assuming the structures were flush pointed, the mortar has generally perished away from the surface leaving open joints.

Double Kiln

Construction:

The body of the kiln is more easily defined and is similar to the single kiln in appearance. The standard of construction is good with only a small number of defects including the absence of the arch stones in the left hand tunnel entrance arch and deterioration of the flanking walls.

These are localised with the main body of the tunnels and external kiln wall appearing to be stable.

Materials:

The same stone is used and appears to be in good condition only superficial material defects.

DISCUSSION OF FINDINGS

The quantity of vegetation prevented full examination of the structures however sufficient information was gathered to determine that the kilns do not appear to be in danger of imminent collapse.

The defects noted are not serious and if addressed in the near future will mostly consist of masonry consolidation work which will take place in the feeder pots with superficial masonry repairs elsewhere.

It should be noted that attempting to access the feeder pots is dangerous since the lining masonry units are loose at the head and careful consideration will need to taken when introducing temporary support to enable repair works.

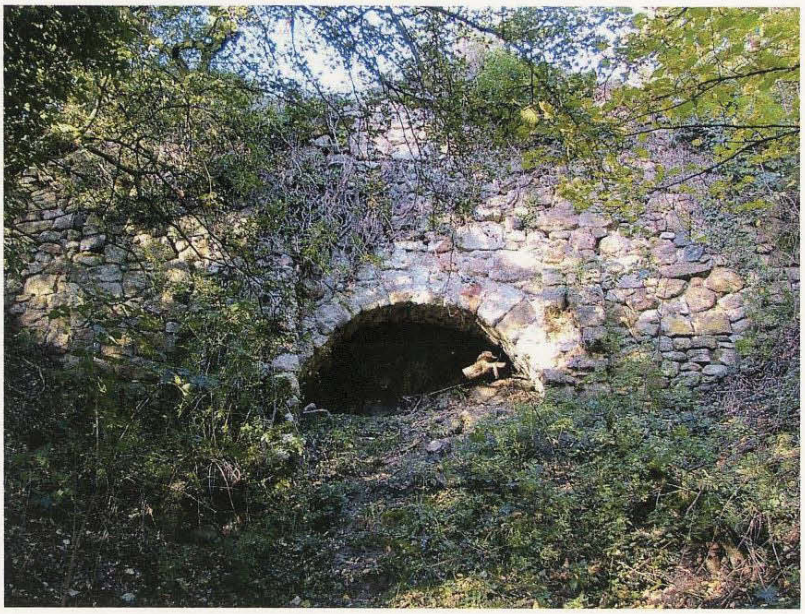
The situation requires closer examination and it would be beneficial to undertake some form of preliminary works to clear and secure the site. This will enable a full assessment to take place prior to the main works.

Photograph (i)

Photograph (ii)

Photograph (iii)

Photograph (i)



Photograph (ii)

Photograph (iii)

Appendix 11: List of Consultees to the Conservation Plan

Birmingham University Institute of Archaeology and Antiquities

Clee Hill Commoners Association

Cleobury Country Partnership

Clwyd Powys Archaeological Trust

Downton Estate

English Heritage

Hanson Plc

Hopton Court Estate

Ludlow Museum Resource Centre and Art Gallery

Natural England

Shropshire Archives

Shropshire County Council

Shropshire Geological Society

Shropshire Hills AONB Unit

Shropshire Hills Discovery Centre

South Shropshire District Council

Shropshire Wildlife Trust

Titterstone Clee Heritage Trust