North Pennines AONB Building Design Guide

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NORTH PENNINES
One of the
AONB family

North Pennines Area of Outstanding Natural Beauty and European Geopark

Aim and Objectives

This document is intended to provide flexible guidance on building design in the North Pennines Area of Outstanding Natural Beauty (AONB). It is intended to help all of those who affect the built environment of the AONB: planners, developers, builders and householders. It is designed to help implement the planning, design and conservation policies relating to the AONB that are contained within the Local Development Frameworks (LDF) of local authorities. It seeks to help generate increased consistency of approach towards matters of building design and building conservation across the AONB, so that planning policies and development control decisions continue to conserve its natural beauty while delivering essential development, including helping homeowners carryout important work to their individual properties.

The main objectives of the Guidelines are:

- to help those undertaking building developments or maintenance works, of any scale, to conserve and enhance the natural beauty of the North Pennines; and
- to stimulate the highest standards of design,conservation and development.

Scope and Purpose

The issues for the conservation of the character of the area come less from major development than from the piecemeal erosion of distinctiveness that can accompany small-scale change. One of the principal ways in which the natural beauty and special character of the North Pennines can be conserved is through the application of consistent and appropriate design and conservation guidelines that are flexible enough to be workable, but that complement the area's designation as a landscape of national importance. This does not mean placing restrictions on development, innovative design or new ideas, but actively promoting essential development that complements the character of the landscape and helps stimulate economic activity whilst increasing the sustainability of communities.

The Guidelines do not deal with the principle of major development proposals or land-use planning matters beyond design and conservation of buildings, as these are subject to the policies of local authorities and of other guidance.

This document has been prepared using information from a range of background documents, including national and regional guidance and external technical documents. Some of the evidence base is taken from the North Pennines AONB Management Plan and also from the AONB Partnership's existing building design guidance documents which it replaces. This document is undergoing a comprehensive process of consultation with Local Planning Authorities, statutory consultatees, a range of relevant agencies, Parish Councils and the wider public.

How to use this document

This document should be considered in conjunction with the relevant policies and Supplementary Planning Documents of Local Development Frameworks. It supersedes and replaces the Agricultural Buildings Design Guide and the AONB design guide on Good Practice in the Design, Adaptation and Maintenance of Buildings.

Much of the guidance in this document relates to works which require planning permission. Some guidance also relates to works that will require building regulations consent or consents under the Planning (Listed Buildings and Conservation Areas) Act [as amended] 1990 etc. Before considering any work concerning or affecting buildings in the AONB you should contact your local planning authority (LPA) to confirm whether planning permission or other consents are required. Contact details are given in Appendix 1. Information on Listed Buildings and Conservation Areas can be found in Appendix 3.

Designers, developers and landowners should give regard to the guidance when preparing their plans, proposals and strategies. Local authority planning officers should have regard to the extent to which development proposals reflect the guidance (where possible) when assessing planning applications.

Adopting this guidance as a Supplementary Planning Document (SPD)

As an SPD this document will relate to a policy within the LPA's Core strategy DPD or saved policy from a Local Plan dealing with landscape protection within the AONB, its quality and character. It is an expression in more detail of what this core policy really means and how it is implemented in practice. Also, prior to adoption, each authority has to demonstrate that they complied with the relevant procedures for the preparation of LDDs. Any consultation carried out needs to be in conformity with their Statement of Community Involvement (SCI).

Adopting this guidance as a Supplementary Planning Guidance (SPG)

As an alternative to adoption as an SPD, local authorities may wish to endorse this document as supplementary guidance produced by another body under the provisions of PPS 12 (6.3)

Supplementary guidance to assist the delivery of development may be prepared by a government agency, Regional Planning Body or a County Council or other body (e.g. AONB committee) where this would provide economies in production and the avoidance of duplication e.g. where the information in it would apply to areas greater than single districts. Such guidance would not be a supplementary planning document. However, if the same disciplines of consultation and sustainability appraisal (where necessary) are applied, such information might, subject to the circumstances of a particular case, be afforded a weight commensurate with that of SPDs in decision making. This may be more likely if the district/borough/city councils to which it is intended to apply endorse the guidance, or if the document is an amplification of RSS policy and it has been prepared by an RPB.

8 AONBs and their Statutory Framework

The North Pennines AONB is one of a family of AONBs established in England and Wales under the National Parks and Access to the Countryside Act 1949. Along with National Parks, AONBs are 'protected landscapes' formally recognised in statute as representing the finest countryside in England and Wales, where special policies should apply to safeguard, conserve and manage the countryside for the benefit of this and future generations.

There are 40 AONBs covering 18% of England and Wales (35 wholly in England, 4 wholly in Wales and 1 which straddles the border). The North Pennines AONB is in both the North East and the North West Government Office Regions. Other AONBs in the regions are Northumberland Coast, Solway Coast, Forest of Bowland and Arnside and Silverdale. The purposes of designation were restated by the then Countryside Agency in 2001 as follows:

- *The primary purpose of designation is to conserve and enhance natural beauty;*
- *In pursuing the primary purpose of designation, account should be taken of the needs of agriculture, forestry, other rural industries and of the economic and social needs of local communities. Particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment; and*
- *Recreation is not an objective of designation, but the demand for recreation should be met so far as this is consistent with the conservation of natural beauty and the needs of agriculture, forestry and other uses.*

These purposes have since been endorsed by Natural England.

The statutory definition of natural beauty includes "flora, fauna, geological and physiographic features." This has been interpreted by the Countryside Agency and successor body as follows. "'Natural Beauty' is not just an aesthetic concept, and 'Landscape' means more than just scenery. The natural beauty of AONBs is partly due to nature, and is partly the product of many centuries of human modification of 'natural' features. Landscape encompasses everything – 'natural' and human – that makes an area distinctive: geology, climate, soils, plants, animals, communities, archaeology, buildings, the people who live in it, past and present, and the perceptions of those who visit it."

AONBs are therefore lived in, working

> **Category V Protected Landscape/ Seascape:** a protected area managed mainly for landscape/ seascape conservation and recreation.
>
> An area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity.
>
> Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
>
> **IUCN, 1994**

Principles for the management of Category V Protected Landscapes

As part of the family of Category V protected areas, the principles that should guide the management of AONBs include:

- Conserving landscape, biodiversity and cultural values as the central focus of the Category V protected area approach;
- Focussing management at the point of interaction between people and nature;
- Seeing people as stewards of the landscape;
- Undertaking management with and through local people;
- Management based on co-operative approaches;
- A political and economic environment that supports effective management;
- Management of the highest professional standard that is flexible and adaptive;and
- Measurement of the success of management in environmental and social terms.

Management Guidelines for IUCN Category V Protected Landscapes/Seascapes, IUCN, 2002

landscapes whose character has been created and maintained by human activity over the generations and where sustaining their quality will continue to depend on careful stewardship of the land and buildings.

The approach of 'protected landscapes' has been adopted internationally. AONBs in England and Wales are defined within Category V protected landscapes by the World Conservation Union (IUCN).

Part IV of the Countryside and Rights of Way (CRoW) Act 2000 confirmed the significance of AONBs, and made it a statutory responsibility for local authorities (or Conservation Boards) to act jointly to produce a Management Plan for any AONB in their area and to review it at intervals not exceeding five years (Section 89 of the Act). This duty has been carried out in all AONBs through the AONB Partnerships, which oversee the designation. The Act also placed a duty on all public bodies and statutory undertakers to have regard for the purpose of designation when carrying out their own functions (Section 85).

The importance of management plans and partnerships to guide action in protected landscapes has been recognised by IUCN in a set of principles recommended in 2002 by the IUCN Commission on National Parks and Protected Areas (CNPPA)

10 Policy Context

Legislation and National Policies

National planning policy states that AONBs, along with National Parks, have the highest standard of protection in relation to landscape and natural beauty. The conservation of the natural beauty of the landscape and countryside, therefore, should be given great weight in planning policies and development control decisions. National planning policy also makes it clear that major developments should not take place in these designated areas, except in exceptional circumstances which are in the national public interest.

No distinction should be made between AONBs and National Parks on grounds of landscape quality and they receive the same level of protection. This was confirmed in June 2000 by Nicholas Raynsford MP, the then Minister for Housing, Planning and Construction who announced that:

> *'In relation to major projects, it is the Government's view that, henceforth, the assessment required in paragraph 4.5 of PPG7 in National Parks should also apply to proposals for major development in AONBs'.*

Raynsford's position, subsequently incorporated in PPS7 (which replaced PPG7), was reiterated in a policy statement by DEFRA released in 2005:

> *'National Parks, the Broads and Areas of Outstanding Natural Beauty(AONBs) have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection'.*

Planning Policy Statements (PPS) and Minerals Policy Statements (MPS) set out the Government's national policies on different aspects of spatial planning. Policies in PPS must be taken into account in the formulation of planning policies and are a material consideration in development management decisions where relevant. They also explain the relationship between planning policies and other policies, which have an important bearing on issues of development and land use. The most relevant to development in the North Pennines AONB at the time of publication are:

- PPS1: Delivering Sustainable Development (2005);
- Planning Policy Statement: Planning and Climate Change – Supplement to PPS1;
- PPS4: Planning for sustainable economic growth (2009);
- PPS5: Planning for the Historic Environment (2010);
- PPS7: Sustainable Development in Rural Areas (2004);
- PPG8: Telecommunications (2001);
- PPS9: Biodiversity and Geological Conservation (2005);
- PPS10: Planning for Sustainable Waste Management (2005);
- PPS22: Renewable Energy (2004);
- PPS25: Development and Flood Risk (2010); and
- MPS1: Planning and Minerals (2006).

New PPS are published from time to time which may replace existing PPG and PPS in whole or in part. Up-to-date information is available from the Government website or from local authority planning services. At the time of publication the Government were consulting on two new PPS:

Planning for a low carbon future in a changing climate supplements PPS1 by setting out how planning should contribute to mitigating climate change and adapting to its impacts. The PPS will replace the earlier supplement to PPS1 'Planning and Climate Change' and PPS22 'Renewable Energy'; and

Planning for a natural and healthy environment will replace *Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9); Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation (PPG17); Planning Policy Statement 7: Sustainable Development in Rural Areas (PPS7)* – in so far as it relates to landscape protection (paragraphs 21 to 23), soil and agricultural land quality (paragraphs 28 and 29) and forestry (paragraph 33).

This guidance may be updated to reflect any changes to Government policy arising from these documents.

Local Development Frameworks

The Planning and Compulsory Purchase Act 2004 introduced a new system of development plans that abolished Structure Plans and replaced District Local Plans with Local Development Frameworks (LDF). Local planning authorities are currently engaged in the process of replacing their local plans with LDFs. These can be either Development Plan Documents (DPD), such as core strategies, site allocations and generic development control policies, or Supplementary Planning Documents (SPD) that elaborate upon policies in these documents (or 'saved' policies in existing local plans). The documents being prepared (other than SPDs) are identified in each council's Local Development Scheme.

During the period in which LDFs are being prepared, policies saved from Local Plans constitute the development plan. There are effectively six District Local Plans covering the AONB together with three Minerals and Waste Development Frameworks. As LDFs progressively emerge, the situation with regard to saved policies will change. The definitive source of information on the planning policy environment for any individual development will be the Local Planning Authority. Details of saved, emerging and adopted policies are published on their websites. Local Planning Officers can give advice as to which policies will be relevant to a proposal at the time of application.

Supplementary Planning Documents

As SPDs form part of an LDF they are a material consideration in the determination of planning applications and are subject to a statutory process including community involvement. They amplify existing policy and should be in conformity with, and clearly cross-referenced to, the relevant DPD (or 'saved' local plan) policies they support.

There are a number of existing and emerging SPDs in LDFs covering the AONB and dealing in some degree with issues covered in this document. Local planning officers and local authority websites are the best source of up-to date information on the publication and scope of SPDs. The AONB Partnership is also preparing a Planning Guidelines document which will be adopted by authorities as an SPD or endorsed as Supplementary Guidance (see How To Use This Document above) which should be read in conjunction with this document.

The landscape of the North Pennines AONB is very diverse, but it has a strong underlying unity of character as a remote and rural upland where settlements and buildings have a close relationship with both the underlying geology and topography and the wider agricultural and moorland landscapes.

Sensitive building development can reinforce this character by respecting local settlement patterns and building forms, and incorporating local materials and design detailing. Insensitive development can erode local distinctiveness, and the sense of 'unity' in the wider landscape, by introducing discordant elements.

While some buildings styles and construction materials are found across the North Pennines, others are restricted to, or highly characteristic of, particular localities. The way buildings relate to their landscape setting is also heavily influenced by the particularities of 'place'; the nature of the local topography, drainage and microclimate, the pattern of local transport networks, and the unique development history of the area.

The character of the North Pennines landscape has been described in detail in a number of published landscape character assessments. More information on these and where they can be obtained is found at the end of this chapter.

Most built development in the North Pennines is found within the more fertile and sheltered dale and valley landscapes which are described below.

Buildings and settlement in the landscape

The Allen Valleys

The Allen Valleys are an area of great diversity and complexity. The lower Allen valley contains wooded gorges. South of the confluence of East and West Allen both valleys widen out significantly to provide settings for Allendale Town and many smaller hamlets. Extensive riparian woodland extends for much of the length of the valley and connects via many subsidiary streams and burns to provide visual links to the more open landscape of the upper valley sides.

Scattered farmsteads are located at regular intervals particularly in the middle dale area, and are emphasised by shelterbelts and adjacent clumps of sycamore and ash. Settlements in the upper dale become less conspicuous with Allenheads village tucked away in a sheltered woodland setting at the narrow valley head.

Both East and West Allendale possess a characteristic profile which is typical of North-South oriented North Pennine valleys. The effects of glaciation have produced an asymmetric cross-section with extensive glacial till on the western slopes creating softer topography and a characteristic drainage pattern; eastern slopes possess thinner soils and convex profiles. The local microclimate also has a significant influence on landscape character with shelter woodland more common on these exposed eastern slopes (where the spread of burn woodland is often more confined by the more sharply incised valleys).

In the late medieval and early post-medieval period the Allen valleys formed part of the unruly 'reiver' country of the borders. The legacy of continuous raiding and unrest can be found in the numerous defensible farmsteads or 'bastle houses' found throughout the valleys – a characteristic shared with the neighbouring Devil's Water valley.

East and West Allendale both supported substantial lead mining industries and this was responsible for many existing landscape features including coniferous plantations (for shoring), reservoirs (for hydraulic power) and above all for the dispersed pattern of smallholdings which were of a sufficient size and density to provide supplementary work and incomes for the miner-farmer population.

In common with some other parts of the AONB there is evidence of planning by the estate or landowner with recurring detail in field boundaries and woodland features (as well as the use of commonly occurring building patterns). The area around Whitfield is a typical example of estate planning and design.

West Allen Valley, Near Ninebanks

Weardale

Weardale comprises a long valley containing a typical range of dales landscapes, rich in geological variety and industrial heritage. The underlying geology of the dale, with its alternating hard and soft rocks, gives a stepped profile to many of the valley sides which are crossed by regular networks of dry stone walls. Narrow riparian and river terrace woodlands follow the course of the river Wear, and line its deeper tributary valleys. Mining and quarrying have had a major impact on the landscape, and quarries, spoil heaps and lead mining hushes are common features.

The oldest villages, of medieval origins, lie outside the AONB on the floor of the lower dale, occupying sites on the north bank of the river to farm the warmer south-facing slopes. In the medieval period the middle dale contained an extensive deer park belonging to the Bishop of Durham which contains several early farm complexes. The upper dale contains numerous defensible farmsteads or 'bastle houses' – a legacy of raiding by border reivers out of Allendale and the South Tyne valley.

The majority of buildings in the dale date from the industrial period when the growth of lead mining and quarrying saw initially the subdivision of existing farmsteads and the clustering of buildings into hamlets and then the expansion of some hamlets into villages, usually in short terrace rows. In the middle and upper dale, villages occur at frequent intervals, appearing at times to form a ribbon of development winding along the valley floor. The farms and fields of miner-smallholders are scattered across the higher dale-sides and dale-head, sometimes as part of larger tracts of planned enclosure, in other places appearing more haphazard and opportunistic. The overall character of settlement is irregular and idiosyncratic rather than planned, and most buildings have a vernacular or utilitarian character. In passing through the dale John Wesley commented on the 'innumerable little houses' he observed there.

The Rookhope valley is, in many ways, Weardale in miniature, with the village itself set deep within a narrow valley at the junction between the richly wooded gorge of the lower valley and the open moorland landscape of the upper valley which is scarred by mining. The Waskerley valley is more heavily wooded and sparsely settled, and contains some fine stone estate buildings associated with Tunstall reservoir.

Weardale

Teesdale

Teesdale contains some of the most varied, interesting and attractive countryside in the AONB. The middle dale is a long, broad, asymmetrical valley with enclosure and settlement concentrated on the valley floor and warmer northern slopes, and with open fell on steeper ground and prominent whinstone crags to the south. The southern flanks of the lower dale are divided by the major tributary valleys of Lunedale and Baldersdale. The upper dale is a broad and open valley head of rolling glacial topography.

Pastures and meadows are enclosed by a network of dry stone walls. Older boundaries, often of rounded river cobbles and with mature boundary trees, are found on the valley floor. Extensive networks of planned enclosures with straight walls of quarried stone cover the higher dale-sides and dale-head. Narrow riparian and gill woods follow the watercourses in places and there are scattered softwood plantations on the valley sides.

The oldest villages, of medieval origins, lie outside the AONB on the floor of the lower dale. Old farmsteads and hamlets are scattered across the dale floor and lower dale-sides elsewhere. Most farms are contemporary with the field systems around them and date from periods of planned enclosure in the 18th and 19th centuries.

White farms in Upper Teesdale

Much of the land has long been in the ownership of large estates and this has had a profound impact on the landscape. North of the Tees the land falls within Raby estate, and its white painted farmsteads are distinctive features of the Teesdale landscape. While the dale was heavily affected by lead mining and whinstone quarrying, this, like much else in Teesdale, was more noticeably planned than elsewhere. In some cases workers were accommodated in planned extensions to settlements like the New Town area of Middleton-in-Teesdale. Elsewhere, the smallholdings occupied by lead miners are difficult to distinguish from other farms laid out in the planned enclosures of the period.

While the middle dale is rich in field and boundary trees (more so than most other dales) the upper dale is very open and the absence of trees – even small shelter groups of sycamore – is very marked. Large reservoirs dominate the tributary dales to the south, associated in places with fine stone estate buildings.

The Derwent Valley

The Derwent Valley is low-lying and surrounded by low moorland ridges. The middle dale is heavily wooded with ancient woodlands and plantations along the incised gorge and floodplain bluffs of the Derwent, large softwood plantations in the moorland fringe, and wooded estate landscapes around Blanchland, Hunstanworth and Ruffside Hall. The large Derwent reservoir dominates the lower reaches of the middle dale, the gentle northern slopes of which merge gradually with the surrounding upland fringes. In the lower dale the winding wooded river gorge is flanked by a mosaic of old pastures bounded by overgrown hedges with locally abundant hedgerow trees. The upper dale is narrow and branching with little access by road.

Parts of the dale, and particularly the Boltshope valley, have been heavily influenced by lead mining. Many industrial relics remain including the chimneys of the Jeffrey's smelt mill and Sikehead mine which form prominent landmarks on the moorland skyline.

The valley has a long history of settlement and estate management and much of it has a planned and ordered character. In the village of Blanchland, which developed from a 12th century monastery, some monastic buildings have been reused and many buildings incorporate medieval masonry. The village of Edmundbyers, lying close to the moorland edge, dates from the same period. The gatehouse in Blanchland and scattered bastle houses or peel towers are a legacy of raiding by border reivers.

Later settlements include a mixture of planned development, such as the 19th century estate village of Hunstanworth and the smallholder allotments of Boltshope Park, and the more irregular scattered farmsteads and building clusters typical of the lead mining industry elsewhere.

Hunstansworth

South Tyne Valley

The South Tyne Valley is long, possessing the asymmetric cross-section associated with a north–south orientation and the effects of glacial action. The steep eastern slopes, particularly in the middle dale, are very distinctive with heather and bracken flowing down into the valley itself. Larger-scale fields dominate the flatter western slopes. Extensive tree and woodland cover occupies much of the riparian zone, with narrower woodland links flowing up into subsidiary valleys. As one approaches the upper dale the density of farmsteads and smallholdings decreases and rushy allotment land becomes an increasingly common transition at the edge of the moorland.

Lead mining relics such as spoil heaps, adits and mine buildings are a common feature in the upper valley. In the Nent Valley (a major tributary) lead mining features dominate both Nenthead and its immediate environs. Regularly spaced smallholder's cottages are a key feature – many have been extended far beyond their original modest footprint. Restored riverside spoil heaps are a key feature of the Nent valley and in time the recent woodland planting there will create a richly wooded entrance to Nenthead and the upper valley.

Near Slaggyford, South Tynedale

The Eden Valley

The Eden Valley is an area of the AONB landscape which is very different to the other parts of the North Pennines. This is a transitional landscape lying at the foot of the western scarp slopes which possesses a unique climate and distinctive geology. Much of the Eden Valley was not included in the AONB because it lies outside the North Pennines. The valley fringe which is included within the AONB has strong visual and economic links to the scarp slope above. The scarp provides a dominant background for the string of farms and villages which lie along its base, and is particularly striking when the sun is in the west.

A western climate and rich soils derived from the underlying red sandstone has encouraged the development of rich vegetation and a patchwork of fields of varying size. A network of hedgerows, scattered trees and narrow lanes plus wooded stream valleys form a setting for the string of fell foot farms and villages. The red sandstone is a key component of drystone walls and traditional buildings which echo the colour of the local soil. The diversity and richness of this landscape offers a total contrast to those who have travelled over the Hartside pass from Alston.
This idyllic image can be deceptive, for the area is famous for its Helm Wind, a severe weather phenomenon, which blows in a north easterly direction down from the fells; this local challenge is reflected in both the sturdiness and orientation of local buildings and the blocks of coniferous shelterbelts which are dotted around the lower slopes of the scarp.

Near Croglin, Eden Valley

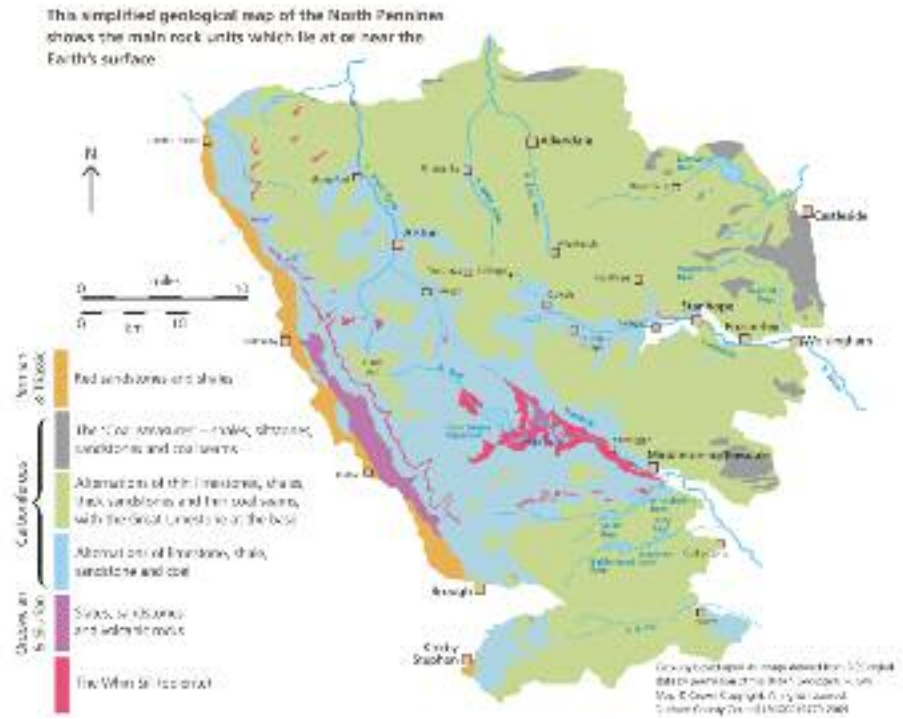
Geology

The special character of the North Pennine landscape has its foundation in the underlying rocks and the geological processes which have shaped it over hundreds of millions of years of Earth history. Tropical seas, deltas, rainforests, molten rock, deserts and ice sheets have all played a part in creating the bare bones of the landscape.

The range of rock types used for building reflects this varied geological foundation. The most common building stones are the Carboniferous sandstones, from which are made most of the dry stone walls and settlements of the North Pennines. Many of the older roofs of the area are made from flaggy Carboniferous sandstone, especially those buildings which date from before the easy transport of slate from Wales and the Lake District.

Limestone is not a common building material over much of the AONB, even in areas where there are major limestone outcrops, such as around Kirkby Stephen and Stainmore, and in parts of Teesdale and Weardale. However, stone walls do reflect underlying geology, be it limestone, sandstone or clearance stones from glacial deposits.

The younger red sandstones of Permian and Triassic age on the western edge of the AONB give a distinctive character to the villages which nestle along the escarpment foot. The Whin Sill, which is particularly dramatically exposed in Upper Teesdale, is made of hard, dark dolerite (locally known as whinstone) which is very durable but is difficult to work. It has therefore only been used in buildings close to its outcrop or as blocks in stone walls.



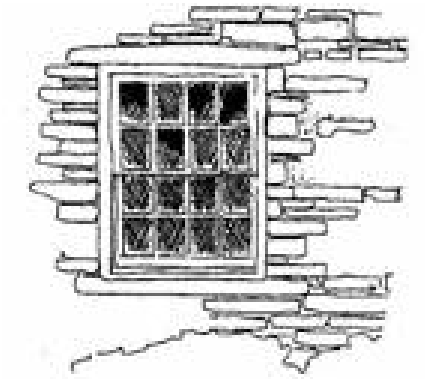
Building materials

Stone

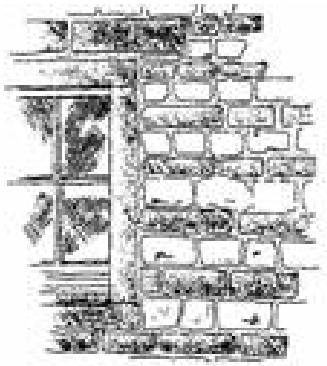
The visitor to the North Pennines can hardly miss the connection between the locally distinctive character of traditional buildings and the underlying geology of the AONB from which building material was won. The AONB is essentially stone building country; there is very little brick in use until the 20th century and that all brought in from outside the dales. In the past the trouble and cost of transporting stone any great distance was high so local stone was always favoured.

By the mid 19th century there were a great number of quarry enterprises at all levels: estates, individual farms or independent enterprising builders. Often the opening up of a quarry would yield an over-burden of less good quality stone suitable for dry stone walling before the better building beds were reached. Stone would usually be prepared to order and some quarries would only be active when an order required a supply. Today the vast majority of these historic quarries are closed; the smaller ones perhaps even re-colonised by vegetation and long greened over, the larger ones silent and rather forbidding voids in the landscape recording where a vital industry once flourished.

The organisation of stone quarrying has changed dramatically. First the demand for building stone declined rapidly in the 20th century and at the same time transport and delivery costs became relatively insignificant. Labour and cutting costs however rose and the capital investment in sophisticated cutting and finishing machinery led to the concentration in a few sites of all the processing and sales as larger Quarry companies came to own a portfolio of scattered quarries offering a range of different stones.



Strongly bedded sandstone typical of Allendale and Tynedale



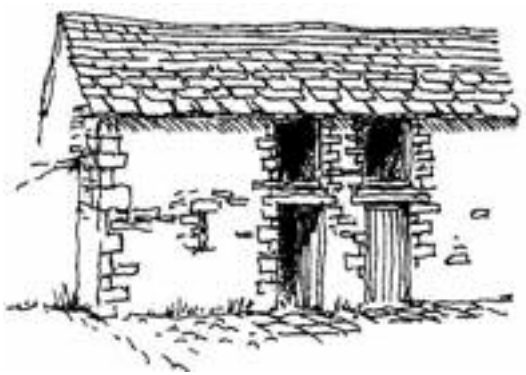
Red sandstone and limestone in the Eden Valley

Lime and sand

Accompanying the need for local stone, builders would also need sand and lime for mortars, plastering and renders. Wherever limestone could be quarried there too limekilns were constructed for burning the stone to produce quick lime slaked to lime putty or bagged for agricultural use. Relatively few kilns were run on commercial lines though the bigger estates may have satisfied the need of a number of tenant farmers from a larger kiln. Sand would have been local pit winning from the dale bed where the material would reflect the geological deposits from upstream.

Roofing materials

Little evidence of its use remains today but heather thatch would have been a predominant cheap and renewable material for roofing the humble cottage before 1800 and probably well into the 19th century. However the availability of splitable strong sandstone over much of the North Pennines allowed a much more durable covering for the better quality buildings from the 17th century onwards and for quite modest and functional structures right through to the late 19th century. Green Westmorland slate was restricted initially to the western fringe where it was quarried and to superior houses in the late 18th century, through to today where it is used further afield. With the advent of the railways the thinner cheaper Welsh slate became everywhere the roof covering of choice and is still dominant on cottage, shop and chapel in the dales villages.



Splitable sandstone roof slates widely used throughout the AONB

Other materials: timber and metals

We probably cannot now identify many strictly 'local' materials other than stone and sands in use in the AONB. As a natural material, timber is widely used in vernacular buildings across the area; occasionally, though rarely, as an external cladding material but generally for internal structures. Much of the timber used would have been local until the arrival of the railways. Historically the larger estates established sawmills to convert home-grown broad-leaf and coniferous trees to joinery quality and structural timbers. Though some sawmills are converting and seasoning estate-grown timber, most woodland felling is done by contractor and the trees transported in the round to sawmills elsewhere to find their way into the general market for wider distribution

Local craftsmen, the blacksmith and joiner, created the metal and timber components of buildings of their day. In the industrial North Pennines where the lead industry required the work of many blacksmiths and other skilled metal workers, their work often survives to this day in the architectural ironmongery of

older buildings. This often bears the unmistakeable and often idiosyncratic character of hand-wrought rather than mass-produced work.

In the modern world it has become necessary to consider a wider range and more distant sourcing of building materials and components. The market trend has led to a general dilution of local skills and local distinctiveness across Britain. It is this trend that has spurred a widespread reaction, and a desire to identify criteria for contemporary design in cherished landscapes which will sustain an appropriate response to future needs for development.

Buildings of the AONB

The location of buildings and the form of settlements in the AONB is a legacy of the way the land was used and settled in the past. The earliest form of settlement in the area was in the form of isolated, often defensible, farmsteads. The middle ages saw an expansion in the number of farms as land was enclosed and improved, and the development of 'nuclear' villages, often with linear burgage plots ('tofts' or 'garths') developed around a central green. In the dales these tend to be found in the lower dale. In the Eden Valley they lie close to the foot of the scarp.

As land was enclosed in successive waves of agricultural improvement from the 17th century to the 20th century more isolated farms were developed to work this newly-won land. Often the farmsteads and walls in the locality will date from the same period and share common materials and construction methods.

The growth of lead mining and stone quarrying on an industrial scale brought new forms of development. Initially this took the form of existing farmlands being subdivided to support larger numbers of 'miner-smallholders' creating localised clusters of farmsteads. The need for land led to increased pressure for enclosure and the creation of new farms on high ground – often strung out along the old moor-wall or new enclosure roads.

Older villages increased in size with the building of new housing, often in short terrace rows built by mining companies or local entrepreneurs. Linear or 'street' villages grew up, usually along valley bottom transport routes, with houses fronting directly onto the street with only a small cobbled or paved area between the front door and the highway. Most of these new or enlarged villages have an un-planned and idiosyncratic character, having developed in a piecemeal fashion from the merging of smaller isolated groups of houses.

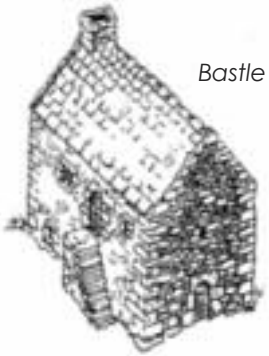
Building types

Houses

Few houses survive from before 1600 in anything like their original form. The few mediaeval buildings of the AONB are either churches or associated with the church or defence, many structures now ruinous or greatly altered. The oldest house type to survive in any numbers is the Bastle dating from the late 16th century. These are found mainly in the Allendales and South Tynedale though some are located round the north-western fringe and the type extends up into Northumberland and the Borders throughout 'Reiver' country. The Bastle is a defensible thick walled farm building with living accommodation at first floor level over a byre. The idea of upstairs living over livestock was carried on into the 18th and 19th centuries and is reflected still in cottages in Alston and Nenthead where 'downstairs' may have been a workshop or store.

Another house type commonly found in the Eden Valley and in Teesdale and Weardale is the Long House, with house (one room deep) and byre to one side under a single roof. This type is even older going back to the 9th century in archaeological evidence. The house door was often in the near end of the byre, though usually moved later to be direct into the house. This type persisted into the 18th century.

The lead miners' houses of the 18th and early 19th centuries are another significant type, integral to the history and character of the AONB. They were built on scattered smallholdings of hay and grazing fields (the allotment) for the most part as tenantry to the large estates amassed by the mine owners. Separated farm buildings were rarely affordable and few remain. Instead animals were housed alongside or behind the house



Bastle House

Longhouse from the 18th century; Dufton. The original entrance to the house through the byre has been blocked up and a later door and porch added to the house itself

A tiny cottage at Nenthead retains 'upstairs living'

Another longhouse with its door still in the original position

under a continuous roof that sometimes almost reached the ground.

The character of these houses is particularly vulnerable to change through conversion, though many on the higher more exposed slopes of the Allen Valleys and the South Tyne Valley are now too ruined and isolated to revive.

In the villages terraces of mining cottages, sometimes single storey on the Scottish pattern, but more commonly two-storey, provided the later 19th century accommodation for the peak period of the lead mining industry's labour needs. The seemly repetition of the two or three bay unit with simple sash windows and a frontage straight onto the street may have been varied to a stepped response if the street was steep.

Another very common type of larger house emerging everywhere in the AONB in the late 18th century was the rectangular plan of two or three bays width but two rooms deep. A central door led to a passage between the front rooms and a stairs between the back two rooms. Fireplaces and chimneys were on the gable walls. More pre-1780s houses of this type survive in Weardale and the Allen Valleys than in Teesdale because of the great re-building of the Raby Estate in the 1750s and 1760s. The Raby buildings are now characterised by that estate's tradition of lime washing external walls.

In the 20th century the widespread adoption of design types from sources outside the region gradually diluted the sense of locally distinctive character. However social housing of the 1920s and 1930s, under the influence of architects and planners such as Thomas Sharp, retained the ingredients of type conformity in villages of terraced cottages around greens with gardens behind.

Far Cornriggs, Allenheads. A typical remote leadminer's smallholding

Another miner's smallholding near Killhope

Blencarn, Eden Valley. A two storey three bay farmhouse, two rooms deep: early 19th century

Farm buildings

The typical traditional farm group is small and compact. The ambitious agricultural improvements of the 18th and 19th century along the arable East coast had little impact on this difficult farming terrain where climate and topography prevented an adequate return on investment. Because farming was small scale and predominantly pastoral certain types of buildings, gin gangs and machine sheds were rarely needed. Only in the more prosperous lower dales would more extensive groups of buildings around fold yards appear.

There are local characteristics such as the Cumbrian bank barn with the barn accessible from higher ground at the back and the byre and stables below giving onto the farm yard. There are similar dual purpose buildings in Teesdale with granaries and hay lofts with steps and pitching doors over cart shed and stables. Free-standing field barns are found in Teesdale, the Eden Valley and even in Weardale where the steep dale sides prompt a variant of the bank barn.

In the 20th century the widespread mass production of farm sheds in standardised materials (with all the advantages of economies of scale) has, as with housing, significantly diluted the traditional farm building type, and the modern shed being much larger tends to dominate the farm group.

Teesdale field barn

A whitewashed roadside barn on the Raby Estate

Compact farm group

Industrial buildings

The remains of the lead and quarrying industries are not of direct concern here except for such building types as institutes, reading rooms, offices and workshops which sprang up from them. Development by the more successful mining companies, such as the Nenthead complex, included well constructed vernacular buildings with good quality structural carpentry, masonry, roofing and joinery all worthy of recognition: the fine two storey Barracks at Nenthead housed weekly boarding miners who walked home to their scattered allotments for Sundays.

Churches and chapels

The Church of England generally confined itself to town and established village centres and was perhaps rather complacent about communities that grew up rapidly round industrial sites. It was the non-conformists, especially the Methodists, who went out into the dales of the North Pennines and built chapels for every small community, sited often on isolated road-sides for ease of access for congregations drawn from widely scattered allotments and terraces. The style of these chapels is unusually plain, nearer the local vernacular with allusions to Gothic or Classical. Many are now redundant and have been converted to houses or offices or hotels.

Converted chapel at Catton

Schools

Privately funded schools are recorded in Weardale in the late 17th century and this was the main source of education for nearly two hundred years. Many new schools were built following the Education Act 1870 and by 1880 there were about 30 schools in Weardale alone, most of which became redundant in the 20th century and have been converted to other uses.

Water mills

As a renewable source of energy water might be staging a come-back today, but historically the water mill was chiefly built for grinding grain for flour and fodder. Many survive in whole or part with traceable water courses and more rarely with machinery. The style was generally vernacular but could be quite large in scale as, for instance, that at Stanhope Hall in Weardale (below).

The large water wheels of lead-mining sites, Nenthead and Killhope were used for crushing the lead-rich ore for smelting and as part of an industrial scene.

Further information

Landscape character

Countryside Character: Volume 1: North East. www.naturalengland.org.uk

Countryside Character: Volume 2: North West. www.naturalengland.org.uk

The North Pennines Landscape (Countryside Commission 1991. CCP 318)

County Durham Landscape Character Assessment. www.durham.org.uk

Cumbria Landscape Classification. www.cumbria.org.uk

The Northumberland Landscape Character Assessment. www.northumberland.gov.uk

Historic landscape character

Northumberland, Cumbria and County Durham councils have prepared, or are preparing, Historic Landscape Character Assessments. For further information contact the relevant county archaeologist.

For anyone contemplating development, the first steps should be to:

1. **Look at the guidelines in this document, which include pointers to good practice and sources of further information, such as other planning documents within the area covered by the AONB;**
2. **Survey your site or building and its setting to assess what features are worth keeping or protecting, and to identify any opportunities for enhancement measures, and take advice from others with knowledge of design, building conservation, the historic environment, landscape and biodiversity as it relates to your proposals; and**
3. **Discuss your proposals with a planning officer at your local planning authority at an early stage in the process: they will give you useful information on issues affecting location and design as well as planning policies and other guidance that may inform your work.**

Design principles

Achieving harmony with neighbouring buildings and the landscape by appropriate siting, massing, scale, proportion, rhythm, materials and landscaping calls for some sensitivity. Each project will need to integrate with its setting by considering these qualities:

- **Siting** – How a building fits into the grain of the landscape in terms of placing and orientation: how in a small settlement a new building should be placed to avoid intruding on a neighbour's privacy or disrupting existing spatial qualities. There will be many practical factors to take into account as well, such as access, orientation, drainage and external spatial function;
- **Massing** – The way the different parts of the development are brought together to achieve a balanced composition with a visual hierarchy. In more complex buildings this will reflect the ordering of spaces into primary and subsidiary functions;
- **Scale** – The human dimension is the constant factor in buildings and is used as the reference point for determining the size of the different elements or spaces of the structure;
- **Proportion** – Closely allied to scale in defining the relationship of parts to whole and to each other, solid to void and the arrangement of components to achieve balance and harmony;
- **Rhythm** – The arrangement of constituent parts as a sub-text for the whole, like the satisfactory repetition of a good detail such as the hemmel arch with smaller windows above found in farms across the AONB, the buildings gain their character largely from the interplay of openings and wall;
- **Materials and colour** – Our choice of materials and colour is vastly wider than it was for previous generations. Mindful of their achievements and seeking to integrate our buildings today we may voluntarily restrict our palette to materials which will weather well, marry comfortably with existing materials and not strike harsh contrasts. This does not preclude the choice of modern man-made materials nor deny the possibility of deliberate punctuation

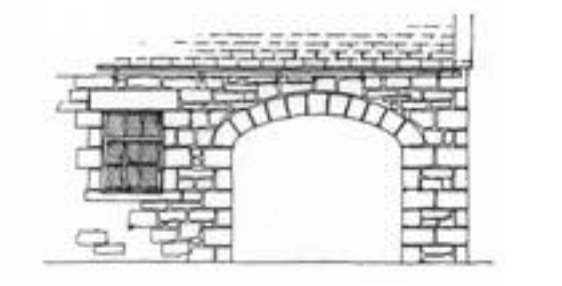
Massing – a visual hierarchy
A house with a history of past extensions, both in line and at the ends and as lean-to at the back including a timber clad log store. All the extensions with the exception of the store are in stone with slate roofs but all remain subsidiary to the original house

with bright complementary colour, particularly in smaller focal areas like doors or outhouse sheds;

- **Landscaping and external features** – Integrating a building into its landscape setting does not necessarily mean elaborate planting or landscaping more suited to the urban park. The composition of the building in relation to its surroundings is often of primary importance. Even in the tighter confines of the settlements in the AONB the hierarchy of buildings, garden outhouses and boundary walls or fences, the open green and the street have a major part to play in the way development fits in with its surroundings. Careful thought needs to be given to boundary features and the front gate to the road or green. The retention of mature landscape features – hedges, walls and trees – and the creation of new ones can help anchor a new building in the landscape.

Note how this farmstead is tied into the landscape by the enclosing field walls, a clump of mature Ash trees and a modulated hierarchy of outbuildings

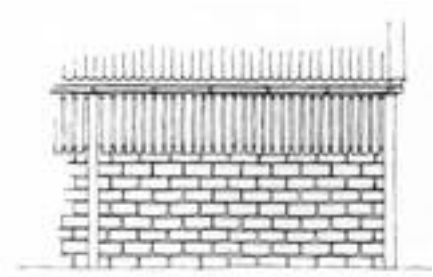
As well as being fit for its purpose a well-designed building should express something coherent about its structure and form. In traditional buildings the structural elements consisted of heavy stone walls punctured by openings for windows and doors, with the walls capable of supporting the loads of internal floors and the roof structure.This system was limited by the structural possibilities of timber as grown and the simple rules of carpentry passed down through slow acquired familiarity with joints and fastenings. The size of openings was governed by the simple span of a stone slab for a lintel or could be increased by a more elaborate arch.



The size of window and door openings is governed by the strength of the simple stone lintel – or can be increased by the use of an arch

Modern technologies and materials create new possibilities. The structural capability of steel and reinforced concrete handled frankly to show what they are extends the vocabulary: so too in certain context will the appropriate use of other architectural metals, plastics and glass.

However, there are occasions when the use of a modern material in disguise as another can compromise the design integrity of the building, as for instance, the use of reinforced artificial stone lintels to wide openings which natural stone would never have been strong enough to span.



The structural possibilities of the high tensile strengths of timber and steel allow a quite different but equally valid alternative aesthetic

Here a small garage has a simple timber lintel over the door, clearly appropriate use of the inherent properties of timber

Repair and maintenance works play an essential role in looking after both the fabric and the character of traditional buildings. Although these works can seem very minor or routine, they can have a substantial effect on a building's character over time. Taking care over the detail of relatively minor works – the re-pointing of stonework, the replacement of windows and doors or rainwater goods – will help conserve the character of the building for future generations.

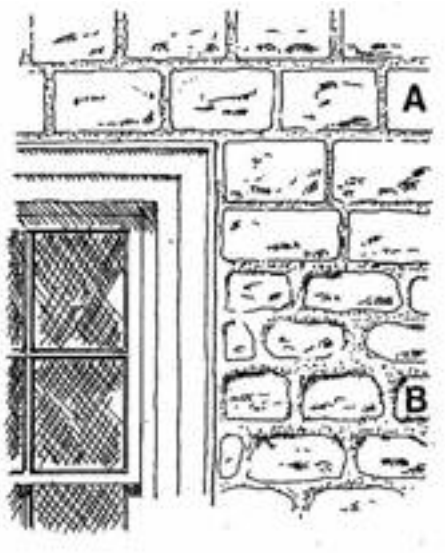
Repair and maintenance works do not require planning permission and are entirely for the decision of the property owner. However in the case of listed buildings or of buildings generally in Conservation Areas it will be necessary to obtain Listed Building Consent even for what may seem straight-forward repair or relatively minor alterations. These may include changes of materials, provision for disabled access, replacement of doors or windows, the alteration of the setting of the building or the introduction of external lighting. Although some of this control may seem burdensome it is better at an early stage to consult with planning staff than to find later that work is not lawful. Further information is contained in Appendix 3: Listed Buildings and Conservation Areas.

Re-pointing

Since so much of the stock of traditional buildings in the AONB is natural stone it is worth understanding how best to repair and re-point walls that have become weakened by weathering and loss of mortar. Re-pointing is only necessary when mortar joints have perished and the mortar is breaking down, losing its structural integrity.

Mortar is not glue: its function is to cushion and fill, not to stick. Some very strong cement-based mortars can be used as adhesive but for most purposes these strong mixes are both unnecessary and can seriously damage the long term condition of the stone, particularly with the softer sandstones of the Cumbrian Fellside and Northumbrian Coal measures. When walls get wet the moisture they absorb moves if it can to the mortar joints from where it evaporates. Traditional lime mortars allow maximum breathability and they don't crack as a result of building movement or temperature change. Hard cement-rich mortars tend to trap moisture which, through the action of frost and the concentration of salts, accelerates the decay of the stone.

Mortar will normally have a cream or brown colour though in parts of Cumbria the local sand may impart a red/pink colour to the mortar which is entirely appropriate to use with the Red Triassic Sandstones. With the darker impure limestones available in much of the area a pale mortar may set up too much contrast and the careful selection of darker sand mixed with concreting sand may delivery a more muted effect. The preparation of a couple of sample areas using mortar mixes of different sands should help to ensure a good colour and texture to match older work.



A Good pointing finished just behind stone face
B Bad pointing smeared over the face of stones

Mortar slightly recessed allows the stones to 'read'

RM 1 It is always better to ensure, by the deliberate choice of a mortar weaker than the stone, that in the long process of weathering it is the pointing that is sacrificed, not the stone.

RM 2 Choose a mortar mix to suit the walling material and the degree of exposure. Take advice from a specialist or your local authority Conservation Officer.

RM 3 Advice from an architect or building specialist will be helpful in selecting an appropriate mortar mix. For most traditional buildings non-hydraulic or hydraulic lime mortars are preferred. Mixes of 1 part of 'moderately hydraulic' lime (NHL3.5) to 3 parts of sand are often recommended for general pointing work and stronger mixes (2:5) or 'eminently hydraulic' lime (NHL5) for exposed areas.

RM 4 Finishing the joints just behind the stone face allows the stones to 'read' and generally produces the best appearance: it is also the least likely to cause long-term damage to the stone. The hard lines of raised 'ribbon' pointing serve no purpose of benefit to the stone and have a rather aggressive appearance.

RM 5 If a wall is being completely rendered, or all of the render is being replaced, the best option is usually an un-gauged non-hydraulic lime mortar using well-matured lime putty and sharp and well-graded aggregate. The actual mix and ratio should be discussed with the Local Authority Conservation Officer.

RM 6 In very poor random rubble masonry it is difficult to avoid buttering mortar over some areas of face and in some areas this is a traditional preparation for limewashing to make the wall surface reasonably smooth. For better quality coursed rubble the most pleasing results can be got by pointing the joints flush and then, after the initial set, stippling the surface so that it is slightly recessed and shows some of the coarse aggregate. In very skilled hands a light spray of water after the initial set is used to expose the clear colour of the sand and course grit.

RM 7 Whatever the work it is important to ensure that the repair is done in a stone of the same geological origin and is finished in a way to match adjacent work.

RM 8 Loose surface flakes should be brushed or picked off, since they will fall off in due course anyway, and the wall left in sound (if weathered) condition.

RM 9 Sometimes a coarser sand or light grit aggregate helps to create a texture to match existing mortar. Generally a simple rule is to seek a local source of sand and aggregates for mortars.

RM10 Individual stones may need to be cut out and a new matching stone built in or a section of stone neatly cut out and a new piece indented. This is work better done by a skilled mason and needs precision.

RM11 It may not be necessary to use new quarry cut stone for the replacement of heavily weathered pieces. Sound stone salvaged from other sources is almost preferable as it will blend in quickly with surrounding surfaces and most local builders will have a stock of stone in their yard.

RM12 Bats and nesting birds often use crevices in buildings and there may be a need to retain some crevices to comply with the relevant protected species legislation. Re-pointing should be avoided between November and March to prevent entombing bats when they are most vulnerable, and crevices where the bottom cannot be seen should not be re-pointed.

Stone repairs

In some older buildings the face of stonework may have been weathered back in a way that leaves flakes of stone only loosely attached to the wall or individual stones so worn away as to threaten the structural integrity of the wall. Some guidelines are set out in the box on page 35.

Render

A fair proportion of traditional domestic buildings in the AONB have a render coat over the structural walling material usually finished with a renewable lime-based paint. Practical experience of combating damp and decay is the common link behind decisions to render a building. Often render is applied to a particularly exposed gable wall leaving other dressed stone walls untouched. Throughout the AONB there was a commonly used detail of rendering random rubble stonework in the main wall surface but forming dressed stone window and door surrounds; these surrounds are brought slightly forward so that render runs neatly into their outer edge. It is an attractive detail still widely used today.

Early practice in the application of a shelter coat relied upon a lime and sand mix with a capacity to breathe. This would absorb rainwater to saturation point (any surplus tending to run off outside) and then release it by evaporation outward in an even way. A decorative finish of lime wash (slaked lime stirred to a slurry and applied in quite thick coats) would be refreshed quite frequently: this too was part of the breathing shelter. Occasionally these protective coats have been removed in the interests of showing the stone only to find that dampness becomes a problem again.

Typical rendered walls and painted window surrounds on this terrace at Castle Carrock, Cumbria

RM13 There is a strong case for retaining shelter coats and render and avoiding scraping back to the underlying stonework.

RM14 Where renders are to be replaced a slightly stronger mix may be appropriate but, as with pointing, should not be stronger than the stone.

RM15 Some textured renders are referred to as wet dash or rough cast. This involves the finishing coat mix which contains small pebbles being thrown against the undercoat from a casting or dashing trowel with a flicking action and being padded in for adhesion.

RM16 There are many proprietary renders on the market with a wide range of 'through' colour and texture. Great care is needed in their selection and use as many are inappropriately strong for the softer stones or lightweight blockwork now specified to achieve high levels of thermal insulation.

RM17 The design of the blockwork and render to include movement joints against early shrinkage cracking has to be taken seriously.

RM18 The other problem (which may be a matter of taste) is that the aim of modern practice in rendering is to achieve a perfectly flat even surface with sharp mechanical details at corners and openings with little colour variation. This alone marks modern practice out as different in result from the softer modelling of traditional lime render and the local authority may press the owner of a traditional building to pursue the traditional finish.

Roofs

With the large geographical extent of the AONB and a long historical period covered by surviving buildings it is not surprising to find a wide range of roofing materials used on traditional buildings.

Thick natural stone slabs have survived on many very old buildings throughout the AONB. Sadly production of new slabs is now very limited so the market in salvaged slabs in quite competitively priced.

Westmorland or Cumbrian slate, an attractive grey/green very durable material, is expensive and has always been at the top end of the roofing market. Used for churches, public buildings and grander private houses it is still in production and most roofers will have a stock of sound salvaged slates for repair work.

With the advent of the railways in the mid 19th century the distribution of Welsh slate came to dominate the market. It remains much the most widespread roofing material in the AONB.

With the growing prosperity of the larger settlements such as Allendale Town and Alston in the AONB in the 19th and early 20th century many buildings show much great elaboration, with projecting gables with ornate barge boards, bay windows with lead covered roofs, turrets with steep slate roofs crowned with decorative iron finials or moulded terracotta hip terminals. Chimney stacks in stone or brick, sometimes with bold moulded cornices, were finished with a wide range of decorated clay chimneypots, reflecting much wider range of manufactured articles which could be brought in from outside the area.

Farm buildings and smaller community halls and chapels have often been roofed with asbestos cement or metal sheet. This can be visually very pleasing and is part of the character of this inexpensive type of building.

North Pennines sandstone roofing

Westmorland slate roof often graded in diminishing courses

Welsh slate on this attractive group of Edwardian buildings at Garden Station, Langley

RM19 Whatever the case may be for repair and maintenance the best course is to replace like for like to achieve a matching invisible mend.

RM20 Pressed concrete or fibre-cement slates are not really suitable for repair work. They probably will not match the older natural slates even to start with, but there is no doubt, even if they do, that the weathering process will affect them in a different way which will become more marked over time.

RM21 Many traditional buildings have stone ridge pieces which, if they are sound, should certainly be retained and rebedded. If these are not available use blue/black clay ridges for slate roofs and half round clay ridges with pantiles.

RM22 Modern fibre-cement profiled sheeting has superseded asbestos and plastic coated metal of an appropriate colour provides an acceptable alternative for farm buildings.

RM23 Chimney stacks and pots are important features and should always be retained or replicated. Their repair and maintenance may require specialist skills and particular materials suitable to the work.

RM24 Repair works to roofs can disturb bats or nesting birds and you will need to comply with the relevant legislation (see Appendix 5).

Profiled and coloured sheet material on farm buildings, Upper Teesdale

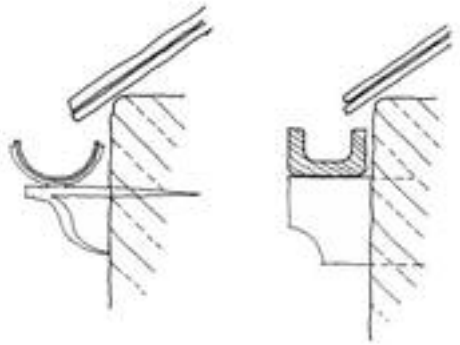
Rainwater goods

Gutters and downpipes on traditional buildings are usually cast iron, half round or ogee shape, though timber gutters were also popular. Plastic rainwater goods may seem like a cheap alternative but are not robust and frequently buckle following a snow slide from a roof or can be damaged by ladders.

RM25 Gutters are usually fixed by simple rafter straps or decorative spiked brackets made by local blacksmiths.

RM26 Some Victorian and Edwardian buildings have gutters supported by elaborate timber fascias. These traditional features should be retained.

RM27 Modern fascia boards to support gutters are unnecessary, present a continuing maintenance problem and detract from the appearance of a building.



Cast iron gutters traditionally fixed on drive-in brackets direct to the masonry. Wooden gutters were often supported on projecting stone brackets. Neither detail necessitated timber boards at the eaves.

Modern adjustable brackets can be used to provide minimum falls in gutters to outlet.

Windows and doors

Careful maintenance and regular attention to the paintwork of the timber in windows and doors are essential to ensure long life. While it is true that these components are the most vulnerable part of the external envelope of any building, many original windows and doors can still be found dating back to the 17th and 18th centuries, the result of good detailing and regular maintenance.

For owners considering more radical replacement to windows and doors we recommend reference to the following section of this guidance: Alterations and Extensions.

RM28 The failure of paint not only exposes the wood to wetting but also risks the loss of bond between the putty and the glazing. Care therefore may have to be taken to replace loose putty before repainting.

RM29 Bare wood should be allowed to dry before new putty is applied, the surface primed and brought forward with an undercoat and finish coat.

RM30 More seriously damaged sections and casements may need joinery repair by a skilled tradesman. It is also now possible to have draught-seals fitted to traditional sash and casement windows without affecting their appearance or inhibiting their action.

Oddly proportioned replacement windows give this house a squashed appearance

Painting

Paint, traditionally lime wash as a finish to rendered masonry, is now more usually an exterior masonry paint with improved bond and colourfast characteristics. These have a wide range of soft colours which weather nicely and do not reveal patchy salt stains too obviously. Strong colours such as Ultramarine and Crimson Lake have more pigment and less body and offer less effective cover.

RM31 It is not advisable to paint an old building direct to the stone as a high level of residual salts left by years of evaporation will tend to discolour the paint or contribute to a breakdown in the bond between the paint system and the stone.

RM32 For joinery a distinction seems to be well established between the colours chosen for painting joinery in windows and doors to housing (whites with perhaps bright clean colours for the front door) and the doors and frames of outbuildings, warehouses and farm buildings – usually darker reds, blues and greens, perhaps less likely to show dirt. This distinction should not lightly be ignored.

RM33 Brilliant White can be very harsh and alternative soft whites, creams and soft greys do work well with the honey coloured or red stone of the AONB.

RM34 The use of wood stains for new work is acceptable but will not protect traditional glazing putties. It is usual in this context to use timber glazing beads pinned over an appropriate glazing compound.

Many buildings will be altered, extended or even converted to a new use at some point during their life. If carried out sensitively this can allow old buildings to be adapted to meet changing needs while retaining their character and meaning. If done badly it can damage both the character of the building and its wider setting. When dealing with planning applications in the AONB, local planning authorities will aim to ensure that alterations and extensions reflect the quality of the original structure, surrounding buildings and setting.

Respecting character

Part of the attraction of the traditional buildings of the North Pennines is their use of local materials and the development of local styles; indeed this is essentially what is meant by the word 'vernacular'. Even moving from one dale to the next the differences that contribute to a sense of place are apparent.

Until the development of the railway system there was little choice but to use materials available nearby. Vernacular buildings reflect the skills of local tradesmen working habitually on local materials, developing details that worked in response to environmental conditions of the area.

Today of course there is a far wider choice of materials available to the designer and builder and local materials are no longer necessarily the cheapest option or even available any more. As a result the second half of the 20th century has seen a significant erosion of local identity. It is part of the objective of the AONB designation to encourage respect for the locally distinct character of the landscape, including the built environment of the AONB.

Alterations and extensions can have impacts on archaeology, protected species, and established vegetation. Refer to the guidance and standards on pages 62, 76 and 87 etc and consult your local authority archaeologist, ecologist, tree officer or landscape architect at an early stage.

Building extensions

Acceptable forms of extension are many and varied recurring over a wide area and long time-span. The key characteristic of almost all successful extensions lies in the respect shown to the original building so that the existing volume or massing of the house remains the dominant form. The examples that follow show that extensions can be built at different periods and yet show the same respect for the character of the original.

The massing of these extensions (above and left) remain subsidiary to the original structure

This two storey extension, partly because of its position and manner, has come to dominate the original house behind

The two examples shown above are of two storey houses retaining a clear distinction between dominant and subsidiary parts of the structure and show the importance of the roof form in retaining that hierarchy. Greater difficulties occur when the desired extension is closer in volume to the original building. If space is available it is generally more satisfactory to extend outward to the side or rear rather than attempt an invasion of the front.

AE 1 The juxtaposition of a contemporary extension to the main body of an existing building can best be handled by contrasting an extremely lightweight and transparent structure using high quality materials and detailing either for the extension or as a link to a heavyweight masonry component. The transition from old to new allows the form of the original building to be clearly identified and conserved.

Roofs

Although Welsh slates form the dominant roof material throughout the AONB, there are many older buildings roofed with heavy stone slabs or Westmorland slate and some Village Halls and Chapels as well as many farm buildings are roofed with corrugated asbestos cement or profiled metal sheets. The juxtaposition of one against another often makes for interesting interpretation of social and economic status and whether deliberately or by chance adds visual variety within a familiar range of materials.

AE 2 Many of the recommendations made in the previous section 'Repair and Maintenance' (Roofs) are relevant for alterations and extensions. To achieve a sympathetic relationship between the original building and an alteration or extension often the best course is to use similar material for the roof finish.

A visually light glazed link between two older buildings

Rainwater Goods

Gutters and downpipes on extensions to traditional buildings should usually follow the well-established use of cast-iron products, half round or ogee gutters, and round or square section downpipes with swan-neck and offset connections.

AE 3 Gutters are usually fixed by simple rafter straps or decorative spiked brackets made by local blacksmiths.

AE 4 Modern fascia boards to support gutters are unnecessary, present a continuing maintenance problem and detract from the appearance of a building.

AE 5 Plastic rainwater goods may seem like a cheap alternative but are not robust and frequently buckle following a snow slide from a roof or can be damaged by ladders.

AE 6 Aluminium cast or extruded is an alternative material but it is not quite as robust as cast iron.

Dormer Windows

The importance of retaining the original roof form has been mentioned previously. Loft conversions are recognised as a way of creating more space in the home whether in single storey or two storey dwellings. This should be achieved without major external change to the roof form. The insertion of large fat roof box dormers will not be acceptable, but a number of smaller types of dormer could be considered in certain positions. These should be small scale, closely related to the size and position of existing windows. They will tend to be associated with fairly steep pitched main roof slopes providing sufficient space in the roof void to make conversion worthwhile.

Dormers on the Allendale Inn do not break the main roofline

AE 7 The most satisfactory type of dormer window forms a continuation of the wall face rising in stone to a coped gable with a slate pitched roof. These form a coherent elevation with windows matching those below and are usually built with the original development rather than as a later addition.

AE 8 Other forms of dormer are placed on the roof slope and are therefore of lighter construction with slate or timber clad side cheeks and gabled or hipped roofs to match the main roof material.

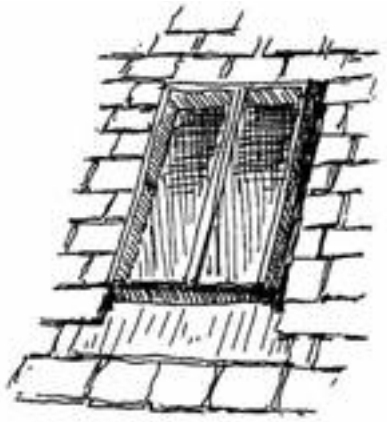
AE 9 Flat felted roofs to small dormers are not an acceptable form.

AE10 Alterations to loft spaces can affect bats and you will need to comply with the relevant legislation (see Appendix 5).

Roof Windows

Roof windows may be a less intrusive way of bringing light into new roof rooms but can still affect the appearance of a dwelling if they are too many or too large.

AE11 The position and size of roof windows should be considered carefully to reflect the existing window patterns and to avoid breaking up the main roof plane.



Conservation rooflight – this is well suited to older buildings due to its low profile within the roof plane

Porches

In the exposed windy climate of the North Pennines it would be natural to expect porches to be a regular element of protection. In fact there is little evidence of this historically outside Weardale and the porch is perhaps more a product of the 20th century added onto existing houses than it is a contemporary of the original house. In fact it seems that previous generations took a good deal of care to seek shelter from wind and weather by siting houses away from the most exposed quarters. It can sometimes therefore present a problem to design a new porch satisfactorily. One of the difficulties is getting the scale right.

A simple transitional shelter covering the front door can look insignificant and if open fronted can hardly be claimed to achieve any useful purpose. At the other extreme many porches move towards being sun rooms or lobby extensions and become too prominent on the front of the house. Another common problem affects the proportions of the porch where a front door has a first floor window directly above it. This restricts the height of the porch roof and may influence the design response.

There are nevertheless a wide variety of attractive porches to be found across the AONB. The best examples often have a stone base with timber-framed windows and door. Robust versions may be built entirely of stone. More decorative porches – often dating from the late 19th century – may feature elaborate timber barge boards and finials.

A robust stone porch with a slate roof matching the main roof material and pitch

Even with all this variety there seems to be one common feature of porches that marry well with the main building which is that the roofing material should follow the lead of the main house: slate with slate, tiles with tiles.

AE12 The design of a porch should mirror that of the building.

AE13 The porch must be in proportion to the house.

AE14 The roof pitch and materials must match the main building.

A neat canopy over the door avoids obstruction to the pavement

Conservatories and sun rooms

Free standing conservatories and greenhouses as structures within the garden will require careful consideration of siting and orientation in the garden plan to avoid being intrusively conspicuous to neighbours or the public, but the conservatory attached directly to the house presents much greater difficulties of design.

Though it might be entirely appropriate for the Victorian and Edwardian villa of Tynedale or for the more substantial farmhouse in the AONB, the larger conservatory will often be too elaborate for the simpler house or cottage even if garden space is available. However there is now a wide range of small to middling size conservatories on the market which have become popular. Most of these are based on a kit of components which can be developed into various forms of lean-to or ridge construction, and are manufactured in a range of materials from which a choice can be made to relate to the location.

In some cases a garden room extension may offer better all year round use if it has an insulated slate or pantiled roof rather than glass. As the roof would then be a non reflective surface perhaps of the same material as the house roof, the extension would become easier to integrate with the existing building and the glazing of the walls could reflect the domestic fenestration more clearly.

Dwarf walls for a conservatory should be built in the same material as the main house

AE15 The recommendations already set out in relation to extensions apply generally also to conservatory extensions.

AE16 Special consideration must be given to the position of a glass building to avoid damage from heavy falls of snow off higher roofs.

AE17 Upper floor windows should always remain accessible for cleaning and maintenance without having to reach across conservatory glass to do so.

AE18 There will therefore be a practical preference for siting a conservatory at a gable end of a house either as a projecting type or as a lean-to.

Windows and doors

The design of windows and doors can have a strong impact on the character of a building. Planning Authorities understand many home-owners desire to reduce draughts, improve insulation and save fuel costs. This can be achieved with features that are in keeping with the character of traditional buildings.

Although the Building Regulations (Part L Conservation of Fuel and Power) imply that double glazing will become the norm for windows the Regulations specifically recognise the sensitive issue of working on "buildings of architectural and historical interest within National Parks, Areas of Outstanding Natural Beauty and World Heritage Sites". Building Inspectors will take into account the advice of the local planning authority's Conservation Officer particularly where work relates to "restoring the historic character of a building that has been subject to previous inappropriate alterations, e.g. replacement windows, doors and rooflights".

AE19 Avoid using uPVC windows and doors in traditional buildings.

AE20 The balance of argument between timber and uPVC, taken in the round, favours the use of the naturally renewable timber with lower embodied energy and more sustainable sourcing.

AE21 uPVC is claimed to be maintenance free, but over a comparable life span of many existing 18th and 19th century timber windows (i.e. 150 – 200 years) uPVC would be expected to discolour and lose its nature.

AE22 Physical damage to uPVC (break-in or distortion) is not possible to repair; replacement becomes the only option.

AE23 uPVC and metal windows require significantly more energy to produce than timber windows and involve costs of pollution and the disposal of hazardous chemicals.

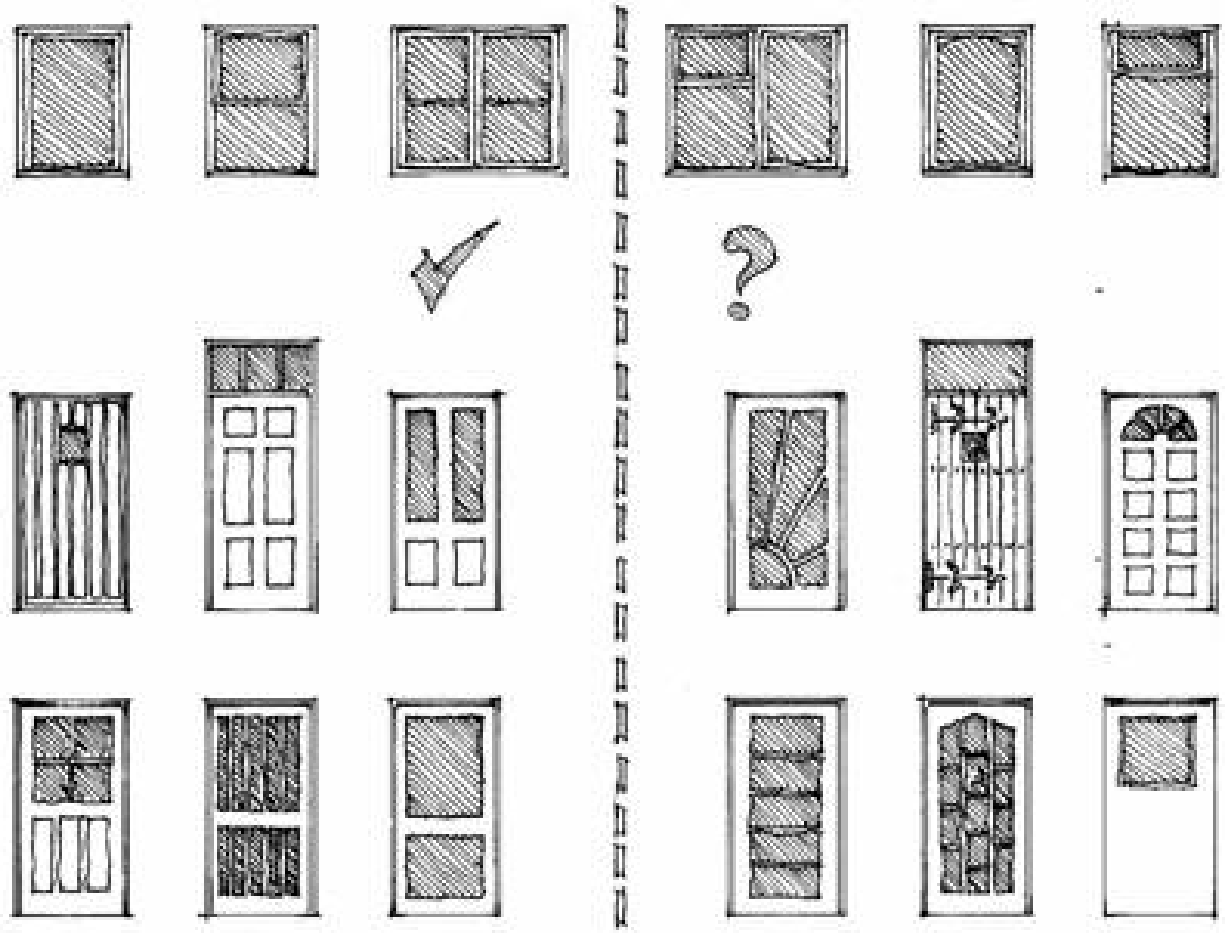
This uPVC door tries to emulate traditional detailing and style but fails miserably. Two different styles of window have been used, the lower one far two wide and with inappropriate 'stick-on' glazing beads

These uPVC windows are not traditional in style with their top-hung opening lights and their stuck-on glazing beads
They are also set too far forward in the window reveal

AE24 The aim should be to improve energy efficiency where, and to the extent, that it is practically possible, always provided that the work does not prejudice the character of the historic building.

AE25 It may be less intrusive to introduce secondary glazing in a removable frame inside the window to protect the external appearance, though any subdivision of the secondary glazing will be visible from the outside.

AE26 The biology of an old building is different from a modern structure. The Building Regulations encourage making provisions to enable the fabric of historic buildings to 'breathe' to control moisture and potential long term decay problems.



The design of today's doors and windows should draw from the good examples of the past

Vehicular access and garaging

The position of vehicular and pedestrian access to a house will depend on the site frontage and be subject to advice provided by the County Highway Engineer. Within the site itself the layout of drive and hard-standing will depend on the relationship between garage and house.

AE27 There will generally be a preference for attaching a garage to the dwelling rather than it being a free-standing structure. This will allow direct connection under cover. The same materials and form of construction as the house should be used.

AE28 Where permission is granted for a free-standing garage local planning authorities will require the construction to be in keeping with the surrounding buildings and will normally resist the use of 'off the peg' kit structures or flat roofed boxes.

Render

Guidance on the use and care of render and shelter coats is given in the preceding section, Repair and Maintenance.

Painting

Guidance on painting is given in the preceding section, Repair and Maintenance.

National and local planning policies are broadly supportive of new rural enterprise and applications for change of use and development will be judged against these policies. The following guidance aims to encourage respect for the locally distinct character of the landscape and built environment of the AONB. Planning authorities have a requirement to ensure any alterations brought about by change of use do not detract from the established character of the building or its setting.

Planning authorities may expect an appraisal and record of the form and use of the redundant building before conversion to ensure that significant features and character of the building are understood. Where it is necessary to more fully understand the significance and character of a building, an historic building assessment will be required which needs to be undertaken by a suitably qualified specialist. This work will need to be completed at a pre-application stage in line with PPS5 policies HE6 and 8.

Where there is sufficient understanding of the significance and character of the building, a record of the building may be required prior to its conversion. The recording work can be carried out as part of a planning condition as per PPS5 policy HE12 and should be undertaken by a suitably qualified specialist.

- **C 1** Consult your County Archaeologist and LPA Conservation Officer at an early stage.
- **C 2** Appearance and character are best safeguarded by retaining the original use or a closely related function, but where that is no longer possible the proposed conversion should at least retain the original 'feel' of the building.
- **C 3** It is unlikely to be acceptable to make alterations, or to extend a traditional barn or byre, if in the process its external character is lost in a welter of dormer windows or rooflights, a fussy porch and conservatory or picture windows. These things are not part of the plain functional character of the traditional farm building and if substantial extension or the construction of new outbuildings appear necessary in the first place, the view may be taken that the proposed conversion is unsuitably ambitious.
- **C 4** In addition, the proposed use must be compatible with its surrounding uses and must not generate further development, for instance replacement farm buildings, which would detract from the character of the converted building and its setting. In the case of old farm buildings on an active farm, consideration must also be given to the impact of the continuing farm operation on the amenities of the new conversion.
- **C 5** Conversions can have impacts on protected species. Refer to the guidance on page 62 and consult your local authority ecologist at an early stage.

A simple reticent conversion of a Cumbrian barn using existing openings with little loss of character. The retention of boundary walls and gates helps

The conversion of the barn on the right of this group has destroyed its character with fussy porch and intrusive windows

Consolidating the fabric

It is quite usual to find the condition of the stonework in redundant buildings somewhat neglected. Repointing and masonry repairs may be necessary to consolidate the structure and make it sound for its new life. Very often the failure of a roof covering will mean that water has entered the wall head and the cycle of wetting and frost can weaken the top courses of stone. At the base of a wall damp can affect mortar and ground levels may need to be adjusted to cover footings. It is unlikely that old farm buildings will have had deep trenches excavated for foundations but many buildings of this type have quite shallow footings of large stones which may need sectional underpinning with concrete. The local planning authority will ask for a Structural Engineer's Condition Survey and Appraisal to confirm the viability of the proposed conversion. This survey will describe the existing structure type, its walls, roof structure and covering, the extent of decay and signs of deformation in floor and roof timbers the movement and cracking of walls and partitions. The Structural Engineer will indicate the extent and nature of remedial work necessary to bring the building into a safe state for its proposed use.

For guidance on the following aspects of consolidation and repair:

- Repointing;
- Stone repairs;
- Render; and
- Roofs and Rainwater goods.

see **Repair and Maintenance**

Stained timber windows and door in original openings support the reticent character of this conversion

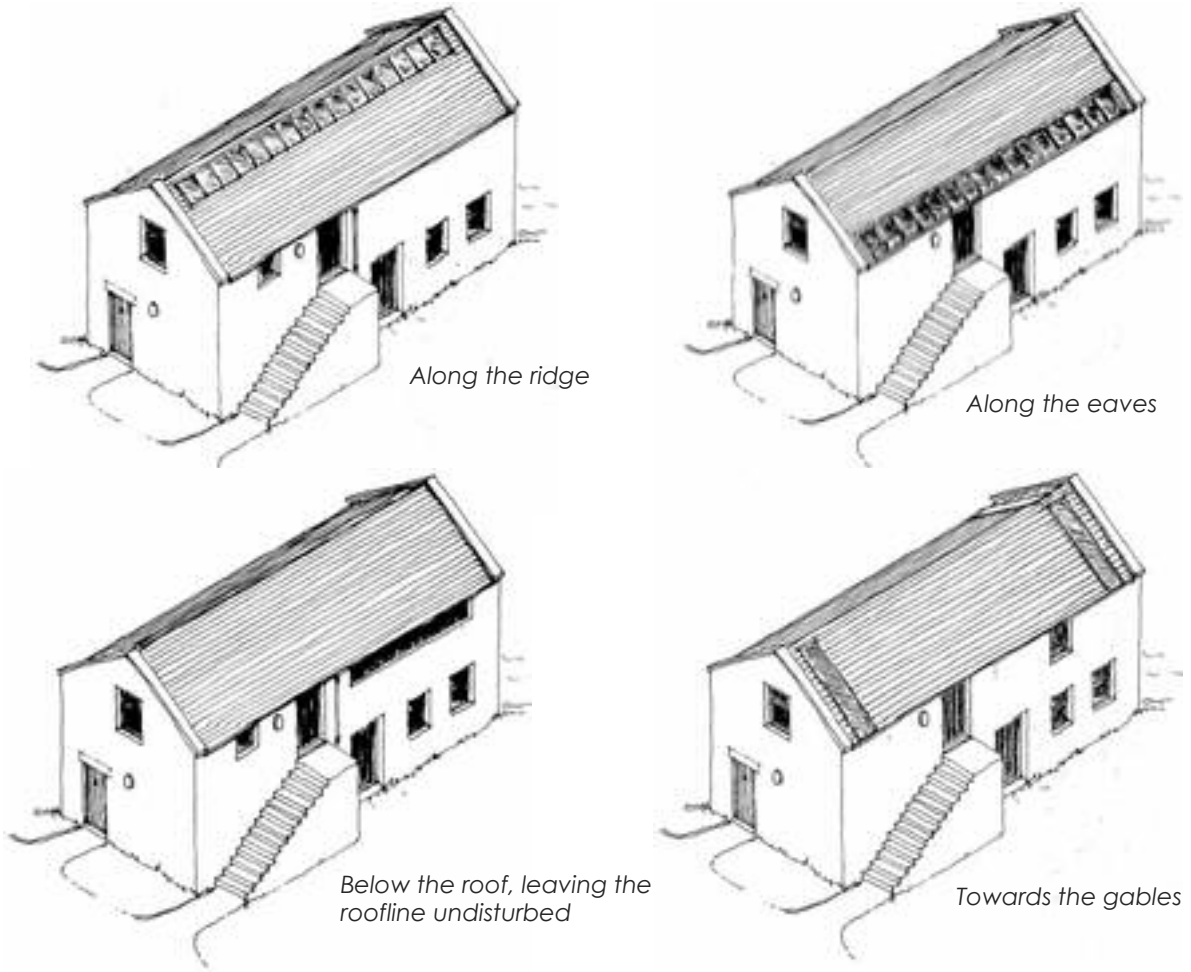
Introducing daylight

Barns and other agricultural buildings and old warehouses are usually robust and strong in character, with stone walls, slate or stone slab roofs, simple door and window openings, the windows often associated as much with ventilation as with light.

Fitting an internal upper floor in the traditional barn is often attempted and presents common problems. The roof structure may need to be adapted to avoid obstruction to movement along the upper floor. In such cases it is advisable to have a structural engineer's professional advice to avoid weakening the structure.

The principal difficulty of introducing an upper floor in this way is how to handle the windows that will be required for natural lighting and ventilation.

Alterations to roof spaces can affect bats and you will need to comply with the relevant legislation (see Appendix 5).



Alternative ways of handling more extensive rooflighting

C 6 Typically the doors and window frames are painted a dark green, blue or red or are stained black. The developer should try to retain this essential reticence of character in the conversion.

C 7 The existing openings should be used where possible (there are often former openings blocked up which can also be re-opened usefully) and external structural alterations should be kept to a minimum.

C 8 Dormer windows will not be an acceptable introduction to converted farm buildings and if the character of the existing building is not to be seriously affected it will probably be necessary to accept a lower standard of daylighting to the inside.

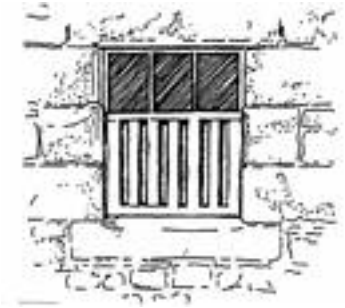
C 9 Often a small central window in a gable end might be successful and the alteration of the low level ventilator openings to become windows close to the upper floor level will provide a spread of subdued light across the floor.

C 10 The Planning Authorities will however consider seriously bold attempts to bring redundant farm buildings into use for certain types of function which require high levels of natural daylight, by incorporating long strips of glass along ridge or eaves, a glazed slot just behind a gable or a sympathetic insertion of conservation type rooflights.

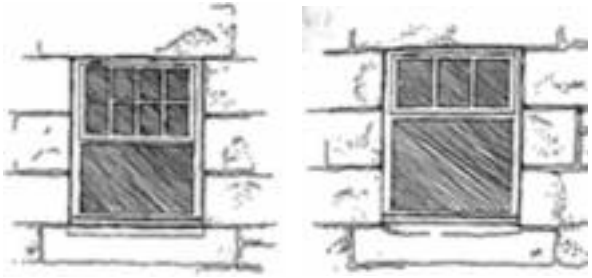
Windows

Windows should reflect the character of the redundant building and certain types of window which suit modern housing might be unsuitable in this context. Many farm buildings have glazed lights associated with hit and miss ventilators or inward opening hopper lights above fixed glass. These might serve as models for new timber windows adapting the scale of the sub-division, as the examples that follow. In most of these models the detailing would be finer with single glazing but as we move towards a situation where double glazing becomes the norm for new windows, some thickening of the glazing bars becomes necessary and certainly more acceptable than the fussy (and essentially false) strips of timber or worse still of diamond leaded lights. In historic buildings multi pane windows may need to be single glazed to retain traditional slim glazing bars.

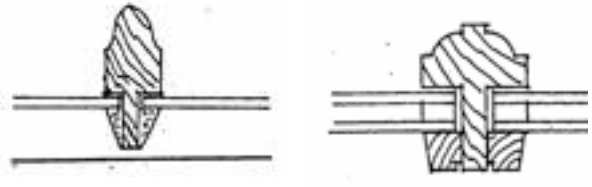
Retain existing openings with simple new components



Traditional single glazing detail



An acceptable solution for double glazing



Left, traditional single glazing detail and right, acceptable solution for double glazing

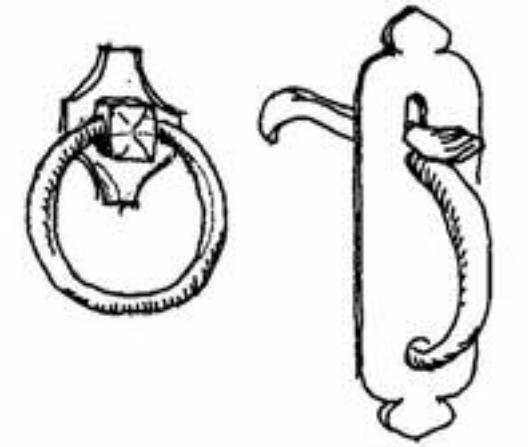
C 11 It is expensive and unnecessary to hack away at existing openings to make them the right size for standard off the peg windows when the new windows can be purpose made at less expense to suit existing opening sizes.

C 12 In some cases plain uninterrupted glazing is appropriate, particularly where the frame is painted or stained dark because this gives an unfussy reading of the original opening.

C 13 Windows frames in barn and warehouse conversions should be decorated in darker colours to reflect the original of the building. In this respect it is essential to record the existing colours of the barn and adjacent buildings.

Doors

Existing doors are unlikely to be sufficiently weather tight to be retained unchanged. Often the door leaf is hung direct with strap hinge and hook to the stone rebated surround, with a ring handle or robust thumb latch and bolts.

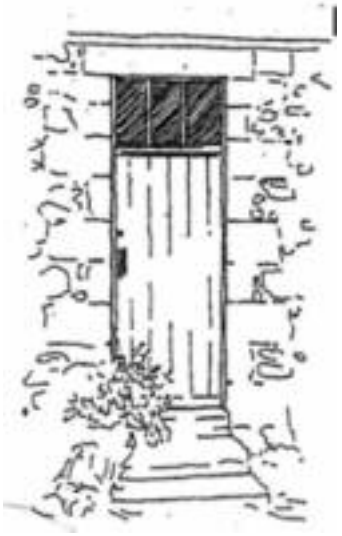


C 14 Don't throw away old ironmongery. Details like this are clues to the past and part of a building's character.

C 15 In most conversions the door will follow the typical boarded pattern of the original doors.

C 16 Though glazing is not common in traditional farm doors a simple glazed opening occupying about a third of the width of the leaf or a glazed overpanel will provide some light to the interior while retaining the character of the building.

C 17 In positions where regular wheelchair use is anticipated it is better to have a long thin glazed panel close the leading edge of the door so that the user can see anyone approaching from the other side.



Screens

Large openings such as hemmel arches and barn doors offer an opportunity for bold division in glazed screens with dark painted or stained timber so that from middle distance the opening reads as more important than the frame.

Deeply recessed screens and windows create shadow modelling of this fine three storey warehouse conversion

C 18 Sub-division of the frame looks better if in thirds or fifths rather than half or quartered, so that an entrance door might be central. This feature is derived from the most ancient classical precepts placing a void at the centre not a post or column.

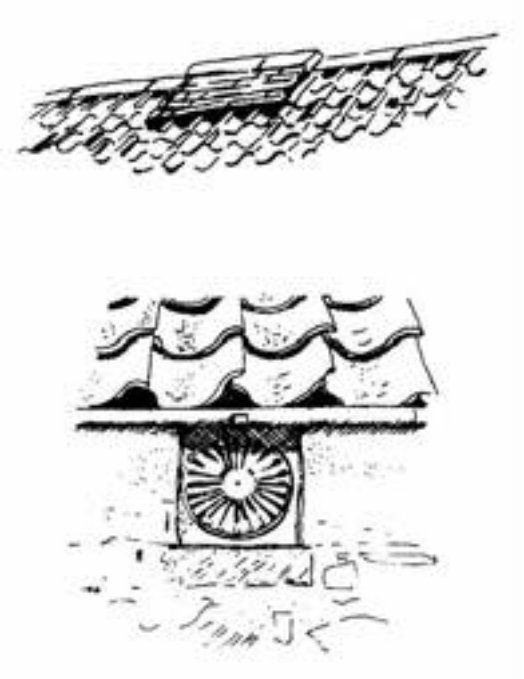
C 19 There is always a problem of safety in large sheets or glass filling openings from floor to lintel – a risk particularly of children running into the unprotected glass. For this reason it is usual to introduce a rail at about 800mm from the floor with toughened glass below the rail.

C 20 The screen should be set back in the inner plane of the wall to show as much depth externally with full modelling with shadow in the arch.

C 21 The simple robust character of existing farm buildings and warehouses proposed for conversion should not be diminished by the addition of elements that would have no place in the original. Porches and conservatories do not come into the vocabulary of such buildings but it may be possible to achieve the benefit of a porch/draught lobby by internal sub-division rather than as an extension.

Chimneys, flues and ventilators

The position of chimneys, flues and ventilators will be affected by internal planning in the conversion.



C 22 It may not always be possible to construct a masonry chimney and stack without intruding on the character of the building. In the conversion of barn or warehouse an equal case can be made for an insulated metal flue carried through the roof: this should be black stove enamelled rather than shiny stainless steel.

C 23 In the case of craft or light industry use there may be rather conspicuous ventilation extract cowls or heat exchange plant required for the operation. Where possible the bulky plant should be housed internally or sited on the least visible elevation of the building.

C 24 It is a common feature of barns and cattle byres to have provision for adequate ventilation at eaves and ridge. In many instances it was achieved with attractive cast iron ventilator grilles and special ridge tiles. Because these original features contribute to the character of a building and because ventilation will still be required even if the building is converted to another use, it is worth trying to retain them.

Rainwater disposal and waste pipes

The simple character of farm and warehouse buildings is maintained in the details of guttering, typically cast iron half round gutter supported on drive-in brackets direct to the masonry without timber gutter boards.

C 25 Adjustable drive-in brackets are still available and this form and material of guttering is preferred.

C 26 The introduction of timber gutter board and PVC rainwater goods may make the plumber's job initially easier and cheaper, but it is not as robust, is vulnerable to distortion and snow slip and will not last as long.

C 27 PVC gutters in the end become brittle with exposure to UV light.

C 28 If the conversion necessitates the introduction of foul water drainage then all new soil and vent pipes should be incorporated within the building (except where a vent pipe may have to appear at roof level). Only rainwater down-pipes should appear on the outside.

External areas

In relation to the setting of the newly converted building, local planning authorities will seek to ensure that a new dwelling has a satisfactory provision of curtilage, the opportunity for a private garden and adequate car parking. If the proposed use is commercial then the traffic generated by that enterprise and the need for hard-standing and external work areas must be fully identified. In all cases proposals for lighting, paths, boundary walls, fences and planting should be shown in the planning application. Where two or more units are to be created from the converted building common treatment of external spaces is preferable; external sub-division can easily destroy the unity of a building and should be avoided.

The original yard wall defines the curtilage of this barn conversion. Shrubs and creeper have 'domesticated' the building

Lighting

For most external rural/village purposes a simple drum or brick shape bulkhead light fitting not exceeding 150w output is more appropriate than an elaborate coach light or ‘gas lamp’ fitting. Many have louvres or cowls which prevent misdirected light. Bracket fittings holding a shielded lamp are also satisfactory.

As increasing emphasis is placed on energy saving the installation of Passive Infra Red (PIR) sensors to control external lighting should be considered to avoid waste.

New building in the AONB should relate to the established character of the area in which it is to be located. However, developments in the building industry of technologies and materials not available to previous generations suggest new opportunities for expression of form. Even the use of well established traditional materials is affected by changes in the processing. Timber, for instance, can be used in a far wider context since it can be engineered to extend its structural use and protected and finished in ways to allow its natural colour or grain to be shown. The palette of new materials might be selectively extended to include large units of glass with structural and thermal properties, metals such as stainless steel and bronze which perform much better in damp conditions than mild steel.

NB 1 Good design concerns itself with the fundamental management of spaces, structure and materials.

NB 2 It must respond to aspects of setting, orientation, topography and exposure.

NB 3 The choice of materials must be appropriate for the purpose of the building as well as having some reference to the distinctive character of the neighbourhood.

NB 4 Good design must also consider how to ensure durability, low maintenance and long-term sustainability.

New building can have impacts on archaeology, protected species, and established vegetation. Refer to the guidance and standards on pages 62, 76 and 87 etc and consult your local authority archaeologist, ecologist, tree officer or landscape architect at an early stage.

Timber framed home with barn-like roof in profiled sheet and timber cladding

Structural steel, reinforced concrete and engineered timber allow much greater spans for openings in walls or for clear spans over uninterrupted space. If these are used to create larger volumes and openings there will be an effect on the scale and proportion of buildings, for example, the impact of longer shallower roofs of farm sheds. This in turn requires new consideration of lighter weight sheet roofing materials to cover the shallow slopes without leaking.

The structural possibilities of steel and engineered timber are given expression in new forms of building

How is the development to be integrated?

Whatever the type of development, the key to successful integration lies in the careful consideration of the characteristic of the surrounding landscape, the setting of the proposed building, the scale and massing of adjacent buildings and the general range of materials used in them.

It is often helpful to prepare this information in a form of a site analysis plan, which can feed into a Design and Access Statement, which is required to be submitted with most planning applications.

It is now a requirement that applications for planning permission should be supported with a Design and Access Statement.

NB 5 All developers and designers will be expected to demonstrate that they have fully considered:

- aspects of topography, orientation, drainage, shelter and views into and from the site;
- how the surrounding buildings and public space will affect (and be affected by) the development;
- how access to the site is to be managed both for pedestrians and for vehicles; and
- how the development will minimise waste in the preparation of the site for construction.

New housing

There is scope for housing development in many villages, and particularly those that have local services and facilities. Planning authorities will wish to ensure that this takes the form of good quality housing which meets local need and helps conserve and enhance the AONB's environment.

Sites available for housing will need to relate to historic land holding patterns. They will often provide the opportunity to complete or extend a traditional arrangement of houses in terraces developed over time along main streets or back lanes confirming the compact layout of settlements in a way that larger developments on village-edge sites have failed to do.

These two developments show no thought to local character

What is new housing to look like?

The mantra 'form follows function' is a useful starting point in building design. However, life for the household does not stand still and over the decades even the functional aspects of a family's need for space will change and the house and its outdoor space will be adapted to suit. Traditional houses, as we have already seen, have a good record of adaptability for successive generations of occupants. New housing should incorporate a similar scope for change.

This approach to house design starts from inside, seeing the design process as a response to the occupants' needs and imagination.

The compact terrace of cottages offers a long-established model with many variations

NB 6 New construction should allow scope for future adaptation so that a relatively simple and robust envelope should not preclude the possibility of future extension or internal alteration to accommodate changing needs.

The most consistent characteristic of housing design in the AONB is its simplicity of external form. Whether as free-standing farmhouse, a terrace of cottages, or contemporary social housing, the basic geometry of walls, windows and roofs is not elaborate. Variations on internal floor planning and the addition in the 20th century of more sheltered outdoor space in the form of the atrium or courtyard house have extended the vocabulary of house design.

An intimate courtyard scene retains shelter and the density of the village

Contemporary interior: a freely adaptable space within a simple envelope

NB 7 Contemporary housing should generally adopt a simplicity of form even where a range of new requirements occurs and different materials are used.

Social housing in Blanchland

Award-winning high-density housing near Perth

Roofs

The distant view of a settlement or of an isolated clutch of cottages will almost certainly first take account of the roofs of the building. The slope, orientation and choice of materials will create variations in reflection of light and visual impact. There is a predominance in the North Pennines of Welsh slate which is recessive in tone and colour. Modern profiled sheet in fibrous cement or colour-coated metal are more generally used on the shallower pitch of farm buildings but are certainly suitable in subsidiary components of domestic development.

Many roofs now carry plant for renewable energy installations; solar panels and photovoltaics, and there must be careful integration to maintain optimum performance while avoiding a 'stuck-on' appearance.

In certain contexts, though not familiar to us yet in Britain, the Green Roof may be entirely appropriate and well suited to the climate and natural vegetation of the North Pennines. However the design and detailing of green roofs is not widely experienced and the developer may have to research technical information from European countries with greater experience – one of Europe's earliest social housing schemes to have a green roof was in Malmo, Sweden in 1949. Further information can be found on the Living Roofs website www.livingroofs.org.

Timber houses can have a natural quality even in areas where they have not been traditionally used

A 'green roof' house on a sloping site with good views

Windows and walls

Traditional windows were limited in size by the structural possibilities of the masonry wall and had painted timber frames with small panes of sheet glass restricted in size by the glass production process of the past. The essential character lay in the sense of the window as a hole in the wall, the frame set back into the thickness of the masonry to protect it from the weather emphasising the shadow of the hole. The walls of older houses were thick enough for a deep embrasure inside too, often providing a window seat with splayed side reveals to admit more daylight.

Today walls are not normally as thick so it may not be possible to achieve both these benefits. This Design Guide aims to encourage emphasis on the sculptural quality of the exterior of the contemporary building with windows cut into the solid form emphasised by shadow. Timber frames can be stained and simple large sheets of double glazing accommodated within this deeper recess. Often the orientation of the main windows of the house will seek to take advantage of the low sun in winter months to the South elevation and the long evening light of summer in the West. Windows in the North by contrast might reflect the idea of shelter from wind, wet and cold.

Where windows are developed to form a transparent link between indoor and outdoor space, the glass becomes the wall and, provided the resultant building envelope complies with standards of thermal efficiency in energy conservation, the concept can add greatly to the introduction of natural light, sunlight and warmth to the interior of the house and the sense of external living space.

In harsh climates, especially with wind-driven rain and snow, the quality of weather-excluding detailing can be critical. Recent publications on the use of timber cladding have demonstrated how it can be successfully used even in exposed upland situations. Detailing of doors, roof edges, windows and dormers all benefit from careful attention to weathering.

Deeply recessed windows are well protected from wind and rain

Archaeology and historic features

Not all archaeological sites and features are obvious or recorded. Advice on the potential for archaeology to be present on site can be obtained from the archaeology or conservation officers of local planning authorities. Where the archaeologist indicates that there are reasonable grounds for assuming that a site has archaeological potential, local planning authorities will require a developer to arrange for an archaeological field evaluation to be carried out before determining the application. If assessment or evaluation is required, it will need to be carried out by suitably qualified professionals at a pre-application stage to comply with PPS5 policies HE 6 and 8. Early pre-application consultation with the local authority archaeologist is therefore recommended. Mitigation work such as excavation and/or watching brief can usually be dealt with by a planning condition as per PPS5 policy HE12.

When siting a new building, consideration should be given to the visual impact the building could have on designated heritage assets such as Scheduled Ancient Monuments and Listed buildings (as per PPS5 policies HE1, 6, 8 and 10). Pre-application consultation with the local authority archaeologist and conservation officer is recommended.

New farm buildings

Over the last few decades there have been significant changes in farming practices. This has been reflected in the requirements of new farm buildings. Generally, there is now a need for large single span buildings for in-wintering livestock, to enable machinery access and storage and accommodate the bulk storage of feed, silage and waste. A major benefit of such buildings is that they offer greater flexibility of use. At the same time many new standards have been introduced concerning issues such as animal welfare, control of pollution and food hygiene and safety. Many traditional buildings are no longer able to meet these requirements and it is recognised that many farmers are faced with the need to erect new buildings or storage facilities. Whilst the traditional building may no longer be suited to modern agriculture they may, nonetheless, be suited to alternative employment generating uses.

The main purpose of this Guide is to try and balance the functional requirements of modern farm development with their

appearance, and to try and address many of the practical problems faced and suggest ideas that will achieve a good deign sympathetic to its surroundings.

Issues to consider include siting, materials (both traditional and modern), construction, ventilation, lighting and landscaping. When considering new agricultural building, what is important is not that they should directly imitate earlier styles but that their siting, design and colour, together with landscaping, minimise their impact on the landscape.

Building form

Modern farm buildings generally have large single spans with shallow pitched roofs based around a portal frame construction. This is relatively easy to erect and cost effective. It also enables large numbers of livestock, machinery, crops, forage or feed to be housed under one roof. In many of the more open and prominent or sensitive locations in the AONB, such buildings can have a very significant impact on the landscape and their surroundings.

NB 8 Integration within or close to an existing farmstead can be very difficult even with smaller buildings. Infilling of areas between existing buildings can damage the appearance of the existing farm as well as reducing the full benefit of the new building.

Siting and location

When developing a new farm building the siting will be influenced most by the requirements the building is to fulfil and the operational need of the farm. The following points should be considered when planning new agricultural buildings.

A large shed in open country can have a significant impact

Interior of a typical modern farm building showing shallow roof pitch and portal frame construction

NB 9 A new building should be sited so as to enable adequate access for machinery and livestock, ideally based on a circular flow of traffic. If tractors and trailers are required to pass between buildings a 4.5m gap is recommended plus provision for turning at the ends. Care should be taken though to avoid creating a wind tunnel. Access for service vehicles, such as milk tankers and feed lorries, must also be allowed for. If a new access is required, careful consideration should be given to its visual impact.

NB10 The siting of the new building in relation to other buildings on the farm is important. In the case of a livestock building it would be recommended to site it close to feed and straw storage areas which in turn should ideally be sited on the edge of the farmstead to minimise potential fire damage.

NB11 Will the new building require new or additional waste storage facilities? If so, these should be considered together. Thought should be given to how the waste is to be removed from the building to the storage area. In the case of a dairy farm it is recommended that waste facilities are located at the opposite end of the main housing to the parlour and dairy. This will ensure that 'dirty' areas are kept well away from 'clean' areas.

NB12 Security is of growing concern to farmers and the Police. When considering a site for a new building it should ideally be within sight and sound of a dwelling and away from a public access point.

NB13 Is the site serviced by existing water and electricity supplies or will new services be required? A new over-ground electrical supply using poles can be very intrusive in the landscape as well as expensive to provide. If new supplies are required consideration must be given to the location of existing supply points and the method of relaying to the new building.

Integration with existing buildings

Most new farm developments will be sited in or around existing buildings which, from an appearance point of view, is usually desirable. On many farms the main farmhouse will be the dominant feature.

It may not always be acceptable to site a new building in or around an existing farmstead. This maybe for visual impact reasons or for practical farming reasons. For example on hill farms there will be a need to provide remote fodder storage or shelter for grazing livestock in severe weather. Consideration should be given first to the repair or modification and re-use of existing buildings for which grants may be available for modification. However, it is recognised that existing buildings will not always meet the functional requirements discussed earlier.

NB14 In order to help integration with existing buildings, it is preferable to orientate the new building with the main alignment of building on the farm. In most cases these will have been built to reflect the topography and existing landscape setting. In addition to reducing the visual impact by relating roof lines in particular, there are practical benefits as well.

NB15 Groups of buildings arranged in parallel rather than end-on or at right angles should assist with access and the flow of machinery and livestock.

NB16 Care should also be taken so that the siting of new building will not prohibit future expansion.

NB17 It is therefore important that new buildings are well related to the farmhouse. If the farmhouse or any of the adjoining buildings are listed then this requirement is paramount. The new building should not swamp the farmhouse or alter the character or appearance of its immediate setting.

NB18 If possible the new building should be sited on the far side of the farmhouse, as seen from public view points and take advantage of any natural slopes to reduce the apparent scale and visual impact.

NB19 When a large new building is needed on a farm that largely comprises ‘traditional’ buildings, it is sometimes better to site the new building away from the main group. The impact of the building can be softened by using natural contours in the land by utilising natural screening such as woodlands, trees or mature hedgerows.

A group of buildings, all of which have parallel roof lines which helps to reduce the visual effect

A stepped construction on a sloping site helps break up an otherwise unbroken roof line

A new agricultural building well bedded-down in the landscape

NB20 Isolated buildings should, where possible, take advantage of natural dips in the land or be set against a hillside to reduce the visual impact.

NB21 Skyline sites or sites prominent from public viewpoints should be avoided.

NB22 Careful siting in relation to existing mature trees will help merge a new building into the landscape.

NB23 Good design should mean that not all new farm buildings need additional landscaping. In no instance though, should trees be used to 'screen' poor design. The emphasis of good design should be on integration with the landscape, not on screening the building totally from view.

Coping with the topography

In an area like the North Pennines, the siting of a new building on sloping ground is often unavoidable.

NB24 If used to best advantage, sloping ground can help reduce the scale and impact of large, modern buildings.

NB25 Areas with complex natural landforms like minor valleys or steep bluffs should be avoided.

NB26 Aligning buildings parallel to the contours helps reduce the scale of the development platform.

NB27 'Cut and fill' techniques should generally be employed to reduce the overall scale of disturbance and the amount of material imported or taken off site.

NB28 Sufficient space should be allowed for access and for blending the earthworks into their surroundings using gradients typical of natural topography in the locality. Steeper slopes can be retained by dry-stone walls or disguised by boundary features.

NB29 If the span of the building is very wide or the slope particularly steep, to avoid excessive excavation and filling, it will be worth considering a multi-span development. Again the stepped appearance and resultant shadow lines created by the eaves, will help break up large expanses of roof cladding.

NB30 For building aligned at right angles to the slope 'cut and fill' techniques can also be used. This option is more expensive than buildings aligned parallel to the slope but might be unavoidable if the site is restricted. When two or more buildings join lengthways and are aligned at right angles to the slope, a 'stepped' construction should be used. This will avoid excessively high gables at one end and break up otherwise continuous lengths of roofline. It should also help ensure more uniform portal frame sizes and therefore be more cost-effective.

NB31 The use of slopes and natural features in the siting of a building can reduce exposure to the weather.

NB32 Earthworks such as cuttings, embankments and mounds should be mown or grazed to prevent an unkempt appearance or planted with locally native trees and shrubs.

Watercourses

Watercourses are of great importance for water resources, water quality, nature conservation, fisheries and recreation, and often make a significant contribution to the character of the landscape. Adverse impacts on watercourses, including both direct physical impacts and impacts through pollution or changes to their hydrology, should be avoided.

It is good practice to leave an 8 metre easement between a new building and any watercourse. This reduces the chances of potential pollution from spillages and seepage entering the watercourse either directly or through existing drainage systems and can reduce flood risk. Any works within 8 metres of a watercourse may be subject to byelaws and may require the prior written consent of the Environment Agency (EA).

Culverting of watercourses should be avoided. The consent of the Environment Agency is required for the culverting and/or diversion of any watercourse. There is, however, a presumption against culverting, and the EA would be likely to object in most circumstances. Opportunities should be taken to remove existing culverts where possible as this reduces potential flood risk and increases biodiversity.

National Planning Policy recommends avoiding any development in areas at risk of flooding. Table D2 of Planning PPS 25: Development and Flood Risk states that land and buildings used for agricultural use are classed as 'less vulnerable' development.

NB33 When constructing new facilities or enlarging existing ones it is a prior requirement to notify the Environment Agency and also to seek their approval following construction. If a new surface water outfall is to be constructed to a watercourse the full details must be sent to the Environment Agency for comment. Formal consent may be required. Further guidance can be found on the *Code of Good Agricultural Practice for the Protection of Water* published by DEFRA.

NB34 Any new buildings should be sited carefully to avoid accidental spillage or seepage from entering a watercourse, either directly or through existing drainage systems. Actual distances of buildings away from watercourses will vary according to the type of building, the bedding system used and method of waste disposal. However, the Environment Agency will object to applications for buildings on known areas of flooding.

NB35 Waste by-products such as slurry, dirty yard water, dairy washings, silage liquor, as well as oil and diesel, should be stored carefully in accordance with the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991.

Less vulnerable development is not permitted in Flood Zone 3b (the functional floodplain) but is permitted in Flood Zones 3a (high probability) Flood Zone 2 (medium probability) and Flood Zone 1 (low probability). All development proposals in these zones should be accompanied by a Flood Risk Assessment (FRA), the minimum requirement for the FRA can be found in Annex E of PPS25.

Pollution of watercourses by agricultural waste, even where accidental, is a serious offence and can cause enormous damage to the water environment. When constructing new facilities or enlarging existing ones it is a requirement to notify the Environment Agency and also to seek their approval following construction. If a new surface water outfall is to be constructed to a watercourse the full details must be sent to the Environment Agency for comment. Formal consent may be required. Further guidance can be found in the *Code of Good Agricultural Practice for the Protection of Water* published by DEFRA.

Any new buildings should be sited carefully to avoid accidental spillage or seepage from entering a watercourse, either directly or through existing drainage systems. Any farm in England and Wales that makes or stores silage or stores slurry or stores more than 1,500 litres of fuel used for agricultural purposes and has storage facilities that were constructed or subsequently altered after 1991 will need to conform to the 'Control of Pollution (Silage, slurry and Agricultural Fuel Oil) Regulations 1991. A summary of requirements can be found on the Environment Agency's website: wwwenvironmentagency.gov.uk

Parts of some watercourses (the River Eden, for example) may be designated under national or European environmental legislation as SSSI or SAC and any operations affecting them – either directly or through watercourses that feed into them – may need consent from Natural England.

Further guidance can be found in *A Code of Good Agricultural Practice for farmers, growers and land managers – Protecting our Water, Soil and Air* produced by DEFRA, or by contacting the Environment Agency directly.

Materials and construction

Functional considerations

All new agricultural buildings must comply with British Standard BS 5502. This lays down minimum standard of design and construction and covers issues listed opposite.

BS 5502 relates these issues to buildings for Livestock, Crop Storage and Service Buildings (e.g. Workshops, Dairies and Stores).

NB36 A general principle to try and adopt is visually breaking up the building between the lower and upper wall areas and the roof in order to reduce the impact. In a typical livestock building this can be achieved using a suitably coloured concrete block or stone wall, with stained timber space boarding above and a coloured sheeted profile roof.

NB37 Timber products can be treated and stained, vastly improving the overall appearance of the building.

NB38 Given the choice of modern materials and colours now available the use of 'natural grey' fibre cement roof cladding or poor quality concrete blocks is unlikely to be acceptable.

NB39 In some locations, painting or rendering masonry walls would be an acceptable treatment.

NB40 In deciding on the type and colour of materials it will be worth looking at the older buildings in the general area of the new building,

NB41 To ensure that the new building integrates well, the colour and texture of materials should complement existing materials as far as possible.

ISSUES

Siting

Dimensional co-ordination

Colours

Environmental considerations

Materials

Loading

Fire protection

Security

Energy services

Pollution control

Farmers and land agents are urged to check that buildings and materials used comply with the relevant standards. In the AONB due to the relative exposure of sites, standards may need to be even higher to meet increased wind and snow load.

Visual considerations

All new agricultural buildings should be designed to fit in with their surroundings. This requirement is even more important in the AONB where the local planning authorities have a statutory duty to protect and enhance the landscape.

When assessing a planning application or prior notification for a new farm building the planning authority will be looking very carefully at the type, colour and texture of materials as well as their relationship to the surrounding built and natural environment. These items are looked at in more detail in the following sections.

Modern materials

Although the use of traditional local building materials, associated with older buildings in the AONB, would be preferable on visual grounds, cost and functional considerations

will, in many cases, restrict their use. There is today, however, an extremely wide range of modern materials with large choices of colours, profiles and textures.

Sensitive locations

Within the AONB there will be certain 'sensitive' locations where the siting, design and appearance of a new farm building will have to be given considerable attention to avoid an unacceptable impact on its surroundings. Examples of 'sensitive' locations would be sites highly visible from public viewpoints or close to listed buildings, ancient monuments or conservation areas. It is recognised, however, that there may be occasion when, for functional reasons, new buildings will have to be sited in such locations.

Utilise existing walls wherever possible

NB42 In such situations the LPA will encourage the use of 'traditional' materials (e.g. stone, slate, timber). In the case of smaller buildings the use of such materials will be expected. For larger buildings, the roof in particular, will be difficult to clad in traditional materials, if it is to comply with the relevant standards of design and construction. Similar considerations may also apply to retaining walls. BS 5502 sets out detailed calculations for determining the size of structural members.

NB43 Given the weight of most traditional roofing materials, compared to modern materials, the extra loading resulting from wind and snow and the wide span of most modern farm buildings, the portal frames would need to be extremely large and probably economically prohibitive. In such cases particular regard should be had to the colour and texture of alternative materials.

NB44 In sensitive locations it will be necessary to clad some or all external masonry walls in natural stone. However removal of stone from existing walls or buildings to clad a new building is not desirable. If a smooth internal finish or a load bearing wall is required then an inner leaf can be constructed using concrete blocks.

NB45 The existing walls of redundant or under-utilised buildings can sometimes be used to screen the construction of new building fulfilling the need of modern farming practice. With some repair to the old walls this will enable the new building to blend with the setting and possibly reduce the need for new materials.

Roof construction in the North Pennines

The roof will always have to be capable of withstanding the extreme additional load placed upon it by wind and snow. To a certain extent, depending on the choice of roof material this will dictate the minimum roof pitch required.

Effective use of shadow and changes of material minimise the impact of his large barn

NB46 In most modern farm buildings the roof pitch will be 15˚. Roof pitch should where practicable be designed to complement the local surroundings, although as a general rule a lower pitch will reduce the impact of the building in the landscape.

NB47 A simple and cost effective way to reduce visual impact and enable a new building to merge with its surrounds is using 'shadow lines'. This is best achieved by an eaves overhang – extending the roof cladding beyond the eaves. This has the effect of apparently reducing the scale of the building and is particularly suited to buildings with high side walls. In exposed locations this form of roof construction may not be appropriate due to the risk of wind damage.

Colour of Materials

Choosing the right colour for cladding materials will be important within the AONB and particularly so where a building will be prominent in the landscape or adjacent to older traditional buildings. Careful thought should therefore be given to choosing the right colour. If traditional materials are to be used then they should complement the character and appearance of existing buildings. With modern materials, the most suitable colours will depend on a particular location.

Within the AONB, traditional colours of buildings often directly complement the surrounding landscape and include greys, browns, yellow-brown and olive green/grey. All of these colours are quite subdued and are dull and matt. Many farm buildings constructed in the 1960s, 70s and 80s frequently used 'natural grey' asbestos cement roof cladding. Immediately following construction this looks particularly conspicuous, but then gradually darkens and in shaded areas, lichen growth is promoted which gradually gives a more natural

appearance when viewed from a distance. The more modern successor to asbestos cement, fibre cement, does not seem to weather in quite the same way. Therefore, when modern roofing materials are used, coloured sheeting will be expected.

The dark roof and upper walls of the large shed to the left achieve better integration with the setting than the bright green of the right hand shed even though it is smaller

NB48 In general, materials used should have a low reflectivity and roof colours darker than the walls. Because of the roof angle, more light is reflected and therefore gives a lighter appearance than the actual colour would suggest. A darker roof will also help a new building integrate into its surroundings. Within the AONB the following colours from the British Standard range are suggested:

Roofs	BS 04.C.39	Russet
	BS 08.B.29	Dark Brown
	BS 10.B.27	Mid Brown
	BS 12.B.25	Moss
	BS 12.B.29	Laurel Green
	BS 18.B.29	Slate Blue
Walls	BS 08.B.25	Grey/Brown
	BS 08.D.45	Nutmeg
	BS 10.B.21	Stone
	BS 18.B.21	Grey
	BS 18.B.25	Dark Grey

Note: names vary by manufacturer but B.S. numbers are constant.

NB49 Most manufacturers of fibre cement and co-polymer coated steel cladding offer a wide range of colours applied at the factory. Painting on site is not recommended.

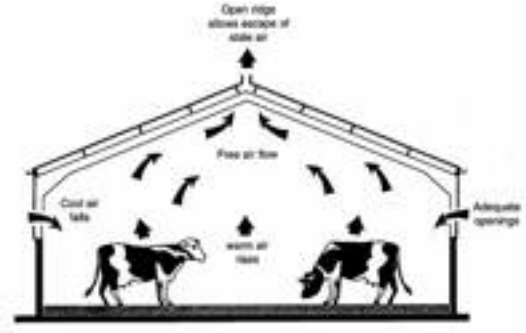
NB50 If steel cladding is to be used on livestock buildings this should be coated with co-polymer on both sides to reduce the risk of corrosion caused by high humidity and condensation.

NB51 The use of standard corrugated steel ('tin') roof sheet is unlikely to be accepted in the AONB because of their high reflectivity.

Natural ventilation

Where livestock are to be housed it is essential that buildings are adequately ventilated. Natural ventilation relies on the wind and the body heat generated by the livestock. Air enters the building below eaves level normally through timber space boarding which then descends as cool air. Depth of timber space boarding will vary depending on livestock requirements, the width of the board used and the width of the gaps between board. Heat generated by the livestock causes the air to warm and also become more humid. The warm humid air then rises and is drawn through a ridge vent. This 'stack' effect effectively draws in fresh air and discharges stale air. The total air inlet and width of ridge outlet must be calculated carefully to ensure the stack effect works but normally the total inlet area should be twice the outlet area. Inadequate ventilation could result in pneumonia or encourage the spread of airborne diseases amongst livestock. Where multi-span buildings are erected the width of the building will normally be too great for the above method of ventilation to work. To overcome this problem additional ventilation methods should be employed.

When considering the ventilation requirements account must also be given to the influence of external features. These will include the natural topography, surrounding buildings and trees. If the building is too exposed or is in a geographical 'wind tunnel' excessive draughts could result in an unacceptable lowering of internal temperature. Similarly if there is too much shelter (e.g. if sited too close to adjoining buildings) natural ventilation will not work and stale air will build up, increasing the risk of poor animal welfare and disease.



Cross section of byre to show air movement

Possible ventilation solutions could include one of the following:

NB52 If the spans have different roof levels due to sloping ground, sufficient inlet can be built below the eaves for each span.

NB53 Battens can be placed between individual roof sheets so as to raise the roof sheets slightly and enable air to pass up through the corrugations or profile (raised roof ventilation).

NB54 Leave longitudinal gaps between each roof sheet (slotted roof ventilation). Alternatively stained timber boarding can be used on the roof with gaps between each board.

Lighting

It is recognised that for most agricultural buildings adequate natural lighting should be provided. The main exceptions being crop storage or bulk feed storage where exclusion of natural light is normally a requirement.

For buildings where natural lighting is required this is most economically provided using translucent sheets (roof lights). However if, in particularly 'sensitive' locations, this will be unacceptable for visual reasons, then consideration should be given to wholly or partially unobstructed side openings.

For external lighting see Landscape, Planting and External Details.

Planting

As stated previously the emphasis of good building design should be on integrating the building with the landscape not on screening the building totally from view. There will, however, be occasions when tree or shrub planting may be useful in either screening the building in whole or in part, integrating it into the local landscape, or providing shelter on an exposed site. Guidance on planting can be found in the Landscape, Planting and External Detail section.

Other agricultural development

Silage clamps, effluent and waste handing

The design, construction and use of silage stores, and facilities for slurry and dirty water, is heavily constrained by the need to avoid pollution from effluent.

Anyone proposing to construct a new, reconstructed, or enlarged agricultural structure (silage effluent tank, slurry store, reception pit) must notify the Environment Agency under Section 11 of the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991.

Manure stores are outside of the scope of the Regulations but liquid seepage is considered to be dirty water and therefore should be channelled to suitable storage.

Livestock slurry, silage effluent or manure must not enter rivers, streams or other watercourses. A pollution offence will have been committed if polluting effluent enters surface waters or groundwater (see also Watercourses above).

The siting of the silage and other stores must be considered carefully in respect of the surrounding landscape. The construction of clamps, tanks and pits can affect important habitats or species, landscape or archaeological features. Care should be taken to avoid sensitive sites.

Outdoor feed and grain bins

Outdoor feed and grain bins are normally constructed from galvanised steel. Due to the high reflectively of this material they can be very conspicuous in their surroundings.

Other structures

In recent years horticultural polytunnels have increasingly been used as lambing shelters, offering low cost, temporary accommodation. However, such structures in the AONB are totally alien to the landscape. Local planning authorities will therefore generally expect alternative, more appropriate low cost buildings such as suitably clad timber pole barns.

NB55 Take advice from the Environment Agency at an early stage in planning your proposals.

NB56 Avoid sensitive locations: consult your local authority archaeologist, ecologist, tree officer or landscape architect.

NB57 Where possible select sites that are screened from sensitive view points (roads, footpaths, other properties) by topography, vegetation or existing farm buildings.

NB58 Where possible clamps should be built into sloping ground so that excavated spoil can be used to form screening banks outside the perimeter drainage channels.

NB59 Clamps constructed entirely from earth bank, or simply excavated into the hillside with no properly constructed walls or drainage channels, are not permitted by the above mentioned Regulations.

NB60 Most slurry and liquid waste storage is in enamelled steel circular stores. If sited poorly they can be very intrusive in the landscape. Clearly drainage to the store will be a major factor in determining the exact site. However, using natural topography and buildings to best advantage, the visual impact can be significantly reduced. Consideration should also be given to additional landscaping such a forming earth banks for screening and, if appropriate in that location, tree planting.

NB61 Most store manufacturers now offer a choice of colours at little extra cost. Farmers and designers are therefore urged to discuss siting and colour choices with the Local Planning Authority and the store supplier early on in the planning process.

NB62 Earth banked lagoons are often used in lowland areas for waste storage. However, in high rainfall areas, such as the North Pennines, they are unlikely to be a practical proposition. The large surface areas and rainfall falling on the lagoon, will significantly increase the waste to be stored and subsequently disposed of.

NB63 Above ground muck middens are a popular way of storing manure on hill farms. They are traditionally constructed of reinforced concrete block walls and may have a sloping floor or a ramp for access. By their very nature they are built for purely functional reasons with limited scope for improving the appearance. However suitable landscaping measures may include stone cladding, painting, rendering or grassed earth banks against the walls.

NB64 As with silage liquor, it is essential that liquid run-off is detained and subsequently disposed of without the run-off entering a watercourse or rainwater drainage system.

NB65 The base of any store should be sloped so that any liquid runs off into a collection channel. Such liquids should be collected in a suitably sized tank and be directed to a slurry store.

NB66 A clean and dirty water separation system will minimise the volume of polluting liquids.

NB67 Wherever possible these should be integrated with other buildings rather than in prominent positions as seen from public viewpoints.

The way a building sits within the landscape is often as important as the design of the building itself. In the vernacular landscapes of the AONB, buildings are often located to take advantage of variations in slope, sunlight and shelter, to respond to the need for access and water, to allow for the supervision of a tract of land or to enjoy a beautiful view. The relationship of any new building to its surroundings needs to be handled with care, and the detailing of any associated landscaping – from the planting of trees to the selection of paving materials - should be informed by what is present in the locality.

Landform

It is easy to bring in heavy machinery to a sloping site and level the ground to suit a building designed for a flat site, but do we need to disturb the natural land form with such heavy earthworks? Our predecessors with less powerful equipment paid more respect to the natural contours of the land and adjusted the building design to take account of them.

The siting of a building may well be constrained by factors other than land form but it is as well to consider how to use the contours to obtain the best position for the building with the minimum disturbance to the natural topography of the site. A respect for the topography may also lead to innovative design solutions, creating unique buildings with a very direct relationship with their setting. A detailed survey of the topography of the site and its immediate surroundings is an essential first step in this process.

The careful siting and design of buildings in relation to the landform is a particularly significant issue for sites on valley sides.

Ignoring the constraints of topography or trying to impose standard floor plans can result in extensive and costly ground modelling which is difficult to blend into its surroundings.

Sensitive earth modelling can also be used to screen otherwise visually intrusive features. Low earth mounding or more naturalistic 'land-raising' can help screen elements like car parking, service areas, oil tanks or sewerage treatment plant. Small changes in level can often be highly effective. Slopes

Old buildings show respect for the land form as in this example near Garrigill

LP 1 Aligning buildings parallel with the contours helps reduce the scale of the development platform.

LP 2 When aligning buildings across the contours, a 'stepped' form will reduce the building's footprint.

LP 3 Building in to the ground, rather than clearing a platform to build on, will reduce the scale of disturbance.

LP 4 External spaces like gardens should be used to accommodate changes in level - rather than trying to develop them at the same level as the building.

LP 5 Sufficient space should be allowed to blend banks and cuttings into their surroundings at naturalistic slopes, or retaining walls should be used to achieve changes in level quickly. The intermediate solution – steep engineered slopes – is usually the most visually intrusive.

LP 6 Battered dry-stone retaining walls can be very effective and are characteristic of the area.

LP 7 In some cases a large change in level can be disguised more discretely by using more than one solution – a slightly steepened slope in combination with a low retaining wall for example.

LP 8 Engineered slopes that can't be improved should be disguised. Planting with native trees and shrubs can help assimilate these in time.

facing towards sensitive viewpoints should be created at shallow gradients (>1:3). Inward facing slopes can be steeper or retained by walls.

Soils

Soils are a finite resource and should be conserved carefully and re-used appropriately. Detailed guidance on the conservation of soils can be found in the North Pennines AONB Planning Guidelines.

Existing vegetation

Trees and shrubs

Trees and shrubs form an essential element of most of the village landscapes of the AONB and are a major factor in the local distinctiveness of its varied landscapes.

Mature trees and shrubs are always an environmental asset, but particularly so in the North Pennines where growth rates are low and shelter from the elements is at a premium. Rather than being ignored or treated as obstacles on a development site they should be conserved where possible and integrated into the design.

Trees are protected by law in many circumstances. They may be covered by a Tree Preservation Order, a planning condition or a restrictive covenant. In Conservation Areas most works to trees, including felling, require notification to the local planning authority. Damage to trees is an offence. Before planning any work that involves a tree you should consult your local planning officer. Further information on trees and the law is given in Appendix 4.

Trees and shrubs may also support protected species, particularly bats and nesting birds, and you will need to comply with relevant legislation (see Appendix 5).

Protecting trees on a development site takes careful surveying, planning and management. The procedures for doing this are set out in the British Standard BS5837:2005 Trees in Relation to Construction. This sets out the need for detailed survey, the development of a Tree Constraints Plan (TCP) and a Tree Protection Plan (TPP). You may need to engage a landscape architect or qualified arborist to assist in this process. Local Authority Planning teams can also offer advice. A detailed survey, TCP and TPP are normally required to accompany a Planning Application.

A village green enhanced by trees and attractive front gardens

The local planning authority may request an Arboricultural Implication Assessment (AIA) where they need to satisfy themselves that all factors have been duly considered in the design process and that the development will not prove detrimental to the retained trees and hedges. The AIA will also address issues such as the long term effects of changes to surface levels or the future need to prune or remove trees and hedges because they cast shade or encroach upon property. The AIA must be carried out by a suitably qualified arborist with experience of trees on development sites.

New buildings should not be sited so close to existing trees that their construction causes physical damage or restricts the potential for future safe growth of the tree. A rule of thumb suggests that dwellings should be sited no nearer than a distance equal to two thirds of the predicted mature height of the tree on the assumption that most structural damage in the case of a falling tree is caused by lower major limbs and trunk. New buildings

should also not be sited so close to existing trees that future occupiers are likely to come into conflict with the tree – either because of shading, leaf drop or concerns over safety.

The design of the building including its foundations and drainage should take the presence of the tree – and its future growth potential - fully into account. The design of ancillary features such as paving and paths, garden walls, changes in level or drainage should have regard to the rooting area of the tree which should be avoided entirely unless there are no practical alternatives, and then only if the works can be carried out without any adverse affect on tree roots.

Mature trees and shrubs that are to be retained as part of the development will need be fully protected in the development phase from such factors as physical damage or soil compaction by vehicles or storage of materials. This usually entails protective fencing around a root protection area. Advice on where to go for further information on protecting mature trees and shrubs on the development site is given at the end of this section.

New planting

Trees and shrubs can make an enormous contribution to both the quality of new development and the extent to which it is assimilated into it setting. The need or potential for new planting will vary between developments.

Where there is a need to screen large buildings or unsightly operational areas perimeter screening belts may be required. It is important that these are designed appropriately so as not to become alien features in their own right. There is little point trying to hide an ugly building with an ugly or conspicuous shelterbelt. Try to design these as 'small woodlands' that fit into their surroundings. Avoid creating narrow linear features that run against the grain of the topography or geometric blocks that stand out from their surroundings. Pick up any nuances of the landform in drawing the woodland boundary and, where space allows, scallop the woodland edge to break up its outline and create areas of complimentary habitat like rough grassland. Always take advice on the existing biodiversity or archaeological value of potential planting sites and avoid planting on sensitive areas. Consult your local authority ecologist and archaeologist at an early stage.

New trees should be planted with careful thought to their mature height and spread including a respect for the vigour of the root systems which can cause disturbance to the foundations of boundary walls, to path surfaces and drains if adequate space is not allowed. Well-constructed modern foundations and drains should not be affected but older features may be more vulnerable. Taking specialist advice from a

Robust shelter planting in Weardale

landscape architect or qualified arborist will help you avoid these pitfalls and deliver a well designed and cost-effective scheme.

In exposed upland landscapes like the North Pennines trees grow slower than in the lowlands. Robust planting areas give more shelter to the young trees in the short term and to the building in the longer term. Narrow shelter belts that grow into rows of wind-sculpted 'lollipop' trees have little value as screening or shelter.

Whether planting for shelter or screening it is important to plant species native to, or characteristic of, the locality. Native species already have a strong presence in the landscape – from ancient woodlands to abandoned quarries – and are well adapted to the conditions found here. In addition to simply 'looking right' in the landscape they have a much higher biodiversity value than most imported species.

Woodland types particularly characteristic of the North Pennines include oak and oak-birch woodlands on acidic soils and ash and alder-ash woodlands on limestones. Many woodlands contain a mixture of these different types due to the rapidly alternating

Native woodland types suitable for larger planting schemes

Upland oak and oak-birch woodlands

Suitable for planting on acidic soils.

Planting mixtures should be dominated by downy birch and sessile oak with smaller numbers of rowan, holly and hazel. On poorer soils and exposed sites the proportions of hazel and holly should be reduced and birch increased.

Upland ash and alder-ash woodlands

Suitable for planting on base-rich soils over limestone or flushed fertile slopes in the valley bottom.

Planting mixtures should be dominated by ash and hazel with smaller numbers of downy birch, sessile oak, rowan, holly, bird cherry, hawthorn, elder, goat willow and grey willow. On wetter sites common alder should be the dominant species.

Smaller native trees and larger shrubs suitable for planting in urban situations.

Downy birch	**Hazel**	**Blackthorn**
Silver birch	**Holly**	**Hawthorn**
Rowan	**Crab apple**	**Juniper**
Bird cherry	**Guelder rose**	

rock strata typical of the North Pennines. Species should be chosen to reflect the composition of native woodland types best suited to the underlying geology, soils and drainage of the site.

On exposed sites a high proportion of hardy 'nurse' species like downy birch or common alder (on wet ground) can be used and thinned out in later years. On more sheltered or fertile sites planting mixtures should have a high proportion of under-storey shrubs to make them both more visually dense and increase their shelter value. The woodland edge can be particularly rich in smaller native trees and shrubs which can be chosen for the decorative (and wildlife) value of their flowers and berries.

In addition to native species there are a number of imported species with a long association with the area and a strong presence in the landscape. These include:

- non-UK natives (sycamore, larch);
- UK natives not native of the North Pennines (beech);
- former natives that have long disappeared from the area and have since been re-introduced (scots pine); and

An edge mix including fast growing Rowan complements larger, longer lived species in the woodland core

- ornamental species often planted in parks and village greens (common lime, horse chestnut).

All of these species have their place in the landscape but some should be used with caution in shelter planting. Beech and sycamore are very wind-hardy but both cast a dense shade which suppresses the shrub layer and ground flora leading in later years to tree belts with little low-level shelter and little biodiversity. A group of wind-swept sycamores beside an isolated farm may be an iconic image of the North Pennines, but they could also represent a mistake our grandfathers made that they never got a chance to learn from and which we are doomed to repeat. Scots pine and larch can also behave in the same way in narrow belts although both can be a useful nurse crop in a mixed plantation on a poor site.

When planting belts or blocks of trees it is always advisable to use small plants – 2 year old transplants, 'undercuts' or whips – rather than larger standard trees which will often be slow to establish, particularly in exposed situations. Small plants are much cheaper

Use of larger trees such as staked standards is expensive but can give instant effect in sheltered locations. Planting smaller stock is more cost effective for larger areas

and will usually overtake larger stock in a very few years. Shelter from the elements and protection from livestock and rabbits are often critical to success in the North Pennines as is weed control in the early years. Information on sources of detailed advice on tree planting techniques can be found at the end of this section.

When planting individual trees close to buildings or in gardens and public spaces there are many smaller native trees and shrubs that are suitable for the task. Planting local natives can help link the development visually with the wider landscape and express the distinctive upland character of the area.

Selecting the correct site for planting is critical and the following considerations should be taken into account:

- The ultimate size of the tree;
- The proximity of buildings, other structures and any underground or over ground services such as telephone and electricity supply cables;
- The potential to obscure any road sightlines or road signs. This can prove hazardous to road users and pedestrians;
- Some species, such as horse chestnuts, can produce heavy leaf fall. This should be a consideration when planting close to roads and paths or drainage gullies; and
- Trees such as limes and sycamores are affected by sugar secreting aphids which can cause mildew below them. This should be a consideration when planting close to car parks or seating areas.

Trees grow and obstruct daylight. Choose species carefully and do not plant in close proximity to windows. Trees can cause structural damage to buildings if they are blown over, most structural damage being caused by the heavier lower limbs and trunks. As a rule of thumb, larger species should be planted no nearer to a dwelling than two thirds of their expected mature height. This will depend on soil and situation: on many sites in the North Pennines trees will never attain the potential heights quoted for them in national data. Take advice from your local Tree Officer who will have local knowledge.

Most tree roots grow in the top 60 cm (2 ft) of the ground. The pattern of root development varies greatly between species. As a general rule, roots will spread considerably further than the canopy will extend. Tree root growth is only capable of exerting a comparably small force, however this may cause small structures with no foundations – drives, paths, patios and garden walls – to be moved or distorted. This is unavoidable in some situations and usually best dealt with through minor repairs to the structures. For many people this is a small price to pay for the pleasure of living with a tree and shouldn't lead to overly conservative planting practices.

Roots are opportunistic and will grow to exploit moisture and nutrients. Fine roots can penetrate minute cracks and joints in drains. This is not an issue for new buildings where well-designed and properly constructed modern drains and foundations should be impervious to the effects of tree roots, but may be a consideration when planting close to older buildings and structures.

Selecting the right species for planting takes some care and will depend on the physical conditions of the site (soil type, drainage,

exposure) and the space available for the trees' eventual height, crown size and root spread. Some species are intrinsically unsuitable for planting close to typical domestic buildings because of the invasive, shallow, or long-reaching characteristics of their root systems. Larger varieties of willow, poplar and coniferous species should be used with caution. As a simple rule, they should be planted no nearer than one and a half times their potential height from drains or walls. Information on sources of detailed advice on tree planting techniques can be found at the end of this section.

Guidance on ornamental planting in gardens and public open space is beyond the scope of this document. It should be noted, however, that the design of ornamental planting can help reinforce the 'natural' and 'upland' character of the North Pennines if it takes its inspiration from the natural vegetation of the area. Schemes using native heathers, junipers and hardy ferns for example rarely look out of place.

Grassland, heathland and wetland

Development can affect species and habitats other than trees and shrubs and these are often overlooked. The open habitats of the North Pennines – heathland, grassland, wetland– are often rich in species. Conserving, restoring or creating these can add to both the character and biodiversity of a development.

Open habitats can be damaged directly through physical disturbance or indirectly through changes in hydrology or changes in management. Sensitive sites should be generally avoided. On some sites a Phase 1 habitat survey carried out by a suitably qualified and experienced ecologist may be required to identify areas or features of value. These should be afforded similar protection to mature trees and shrubs by the use of protective fencing to prevent physical disturbance, and integrated into the final design.

Where preservation in situ isn't feasible it is often possible to trans-locate individual plants or turves to retain their botanical interest, to harvest seed or seed-rich hay, or to strip and re-lay areas of topsoil to retain their seed burden. With open habitats future management is an important consideration as their species composition can rapidly change in response to changes. Re-instating grazing may be an option in some circumstances; in others it may be possible to develop appropriate cutting regimes as part of the landscape design and management scheme for the site.

Habitat creation

The creation of open habitats such as species-rich grassland, heathland and wetland is a specialist exercise and you should consult your local planning authority ecologists for advice. On larger sites, talk to your local Wildlife Trust about developing a Biodiversity Action Plan.

The creation of features such as ponds, green roofs, nesting and hibernation structures for a wide range of species and the planting of climbing, flowering and fruiting plants can all contribute to the biodiversity of the site.

Ponds and wetlands of different shapes and sizes can provide valuable habitat.

Traditional garden ponds, marshy or boggy areas, and temporary swales that flood seasonally or after rain, can provide a range of complimentary habitats and particularly where planted with native species. Avoid stocking ponds with fish as this will reduce their value for invertebrates and amphibians.

Green roofs can be developed on a range of buildings and structures. Planted with, or colonised by, native species which thrive in the extreme conditions found there, green roofs also reduce water run-off and add thermal insulation. An alternative is the 'brown' or rubble roof covered in locally sourced aggregate. These are cheap to build and maintain, and provide opportunities for mosses and lichens, flowering plants, invertebrates and birds associated with naturally occurring rocky habitats and screes.

Modern or renovated buildings often have few potential nesting or roosting sites for birds or bats. There are a number of ways in which artificial sites can be provided including built-in nesting boxes and ledges, special roof tiles or bricks that allow access by bats or swifts, and nesting boxes for a variety of species. They should generally be located on north or east-facing elevations with some protection from the elements.

Climbing plants create habitats for birds, insects and small mammals as well as enhancing the visual appearance of the building and providing cooling and insulation. Flowering plants provide nectar for invertebrates and seeds or fruit for birds and small mammals in the autumn and winter. Many ornamental species will provide these functions, but native species can be particularly valuable for some specialist species. Planting locally native species can also bring a distinctive 'sense of place' to a private garden or public space and help bring the wildlife of the wider landscape into the urban realm.

Avoid introducing invasive species either intentionally as ornamental plants or unintentionally through poor quality control on imported soils or plants (see Appendix 6).

Only locally native species and disease free plants should be planted near watercourses to avoid the spread of invasive species (see Appendix 6) or water-borne pathogens. Care should be taken in buying plants to select stock which is free from diseases such as phytopthera: using local growers can reduce the risk of introducing such diseases into the area.

Boundaries

Walls

Stone walls stretching out from the buildings and settlements of the AONB are, as much as any other feature, the element that binds building and setting together. The walls of gardens and in-bye fields form a unifying network anchoring the settlement into the local landscape. Often the stone used in their construction comes from the same quarries as the finer dressed stone of the buildings, sometimes coming from the thinner or more weathered strata.

The craft of stonewalling is still very much in evidence in the North Pennines and though it is a slow and relatively expensive form of construction, the stone wall proves a durable investment. Many of our gardens today shelter within walls built in the 18th and early

Road side walls conduct the traveller into the village and bind settlement and surrounding fields together

This crenelated garden wall runs out smoothly to embrace a paddock

19th centuries which have required or received almost no subsequent repair.

Conserving and repairing existing dry-stone walls in and around the development site, and building new walls of an appropriate character, can help assimilate new buildings into their surroundings and make a positive contribution to the character of the area. In doing so it is important to use local walling styles and materials where possible.

There is considerable variety in the character of walls in the North Pennines, which may reflect their age, local walling styles, or the different types of stone available for their construction. Older walls, or those built near rivers or in areas of boulder clay, may be built with irregular rounded stone from the river bed or stone clearance in the adjacent fields. Later walls, or those built in areas with thinly bedded and readily worked stone, may be constructed of more regular material.

Coarse Carboniferous sandstone is widely used in the North Pennines, as is Carboniferous limestone and red Triassic sandstone where it outcrops along the western scarp. Walls may include other material such as whinstone found in river cobbles or boulders in the glacial clays. In some areas different materials may be combined. For example in the Eden valley earthenware coping stones may be found complimenting red sandstone walls. Closer to Penrith, red sandstone through stones or 'thruffs' can be found reinforcing walls of smaller limestone rubble.

The dimensions of walls vary with the locality as do coping styles which include rough, angular or rounded cope stones stacked vertically, or flat flagstones laid horizontally. Variations of 'buck and doe' coping with alternating larger and smaller or vertical and horizontal stones are common. Coping with

LP 9 Boundary walls made in pre-cast concrete blocks are not appropriate in the AONB. Artificial stone is rarely successful and is usually out of character with local stonework. These and many other obviously engineered or artificial products should be excluded from the designer's palette.

Earthenware copings to garden wall. Gamblesby, Eden Valley

Neat roughly rounded capping stone to this dry stone field wall

turves or sods is found occasionally.

Although it can be difficult today to obtain newly quarried stone from very local sources, there are a number of quarries in the AONB supplying material of an appropriate general type. There is also often a ready supply of salvaged material available through builders or stone-wallers in the area. Stone already present on site should be preserved and set aside for re-use. Stone gateposts in particular are expensive to replace and should always be salvaged.

Walls and biodiversity

Stone walls, particularly dry-stone walls, can be valuable refuges for wildlife and present opportunities for enhancing the biodiversity of a site. The dry conditions provide an ideal habitat for invertebrates, birds, reptiles and small mammals, and also for a wide variety of plants.

If local stone (and lime mortar) is used, the plants, lichens and mosses that grow on the wall will reflect local geology and flora and reinforce the sense of local distinctiveness. Walls can also provide shelter for hedges and more fragile planting and assist in initial establishment.

LP10 Close to the house or in the building of higher walls for the garden it is best to build a mortared wall so that it can remain fairly slender and of constant thickness. This should incorporate a damp proof course at its foot and have a top capping also bedded on a damp proof course.

LP11 Garden walls should match either the building or the local drystone walling style.

LP12 At the settlement's edges where land has been taken out of agricultural use the boundary wall should be akin to the dry-stone field walls with slightly 'battered' i.e. sloping faces to give strength and the copings set tightly on top or bedded on an inconspicuous layer of mortar or turf.

LP13 Generally the coursing of stone walls should follow the contours of the ground.

Hedges

Hedges are characteristic boundary features in the more sheltered parts of the North Pennines and particularly the upland fringes and lower dales. Well-maintained hedges can provide screening, shelter and privacy to buildings and gardens as well as valuable wildlife habitat.

It is an offence under the Hedgerow Regulations (1997) to remove most types of rural hedgerow without first notifying the relevant local authority (see Appendix 4). The regulations do not apply to works covered by a planning consent. When in doubt, seek the advice of your local planning officer.

Polypody fern and lichen in Allendale

Hedges in the North Pennines date from many periods of enclosure including parliamentary enclosures of the 18th century and earlier, piecemeal enclosures, of village fields and wastes from the medieval period onwards. Some of these hedges, and particularly on ancient parish and township boundaries, may be the oldest continuously used man-made artefacts in the landscape. Protecting hedges on a development site requires the same amount of care as with other forms of vegetation (see above).

Conserving and renovating existing hedges in and around the development site, and planting new hedges of an appropriate character, can help assimilate new buildings into their surroundings and make a positive contribution to the character of the area. In some circumstances hedges can provide a more effective screen than narrow belts of tree planting. It may be much easier to screen a development in views from a road or footpath by planting a hedge alongside the road or track, or allowing an existing hedge to grow taller, than by planting closer to the building itself.

Hedges are living features that need to be managed. In the absence of management they will grow out into a line of leggy bushes and ultimately disappear. Established hedges may need remedial works to bring them back into good condition. This may involve laying, coppicing, or gapping up. This is generally a specialist exercise and advice should be sought from a suitably qualified contractor. Further information on where to get advice on hedgerow management can be found at the end of this section.

In most rural situations, including larger gardens and development plots, new hedgerows should be made up of species which are native to the area and characteristic of its hedgerows. The way hedges are planted can vary according to the locality. Sometimes they are planted directly into the ground, at other times they are planted on raised hedge ‘cams’ or larger ‘hedge-banks’. In some cases hedge banks may be faced with dry-stone walling on one or two sides. Further information on where to get advice on hedgerow planting can be found at the end of this section.

Typical species mix suitable for a new hedge in the North Pennines

Major species

Hawthorn	60%
Blackthorn	20-25%
Hazel	5-10%
Holly	5-10%

Minor species (around 5% in total)

Bird cherry

Dog rose

Rowan

Hedgerow trees (around 20m apart)

Sessile oak

Common ash

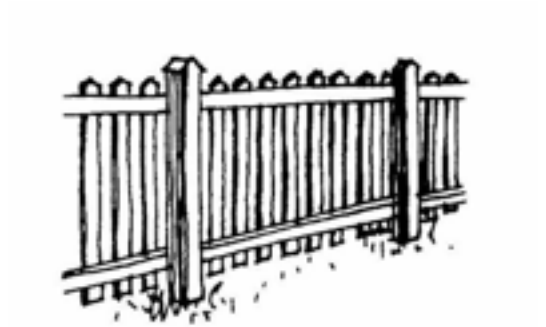
Fences, gates and barriers

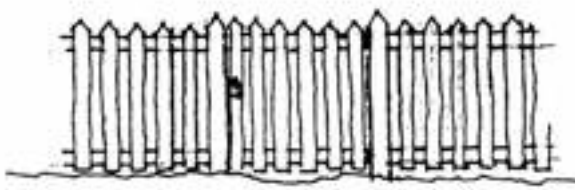
Fences are much cheaper to erect than stone walls or hedges. They do not achieve the same visual effect, and are not as durable, but may be particularly appropriate in some situations. Visually light fencing like high tensile wire may be preferred in situations where it is undesirable to draw attention to the line of a new boundary. The use of fencing on new boundaries may allow older boundaries to continue to read as the dominant pattern - for example when subdividing an existing walled field into smaller paddocks.

Various types of fence are common in and around the settlements of the AONB ranging from timber post and rail with vertical palings, to timber posts with wire and netting. Fencing associated with gardens tends to be 'restrained' in character rather than being highly ornamental, and decorative detailing tends to be subtle and low-key.

Materials normally associated with urban areas such as metal paling, chain link and close-boarded timber fencing should generally be avoided and particularly in prominent 'frontage' locations.

Elaborate, ornate or high railings and gateways have a suburban quality and should be avoided. Openings and driveways should be in scale with their surroundings. Gates in fences should reflect the style of fence. For gates in stone walls there is more freedom, but timber gates are rarely out of place.

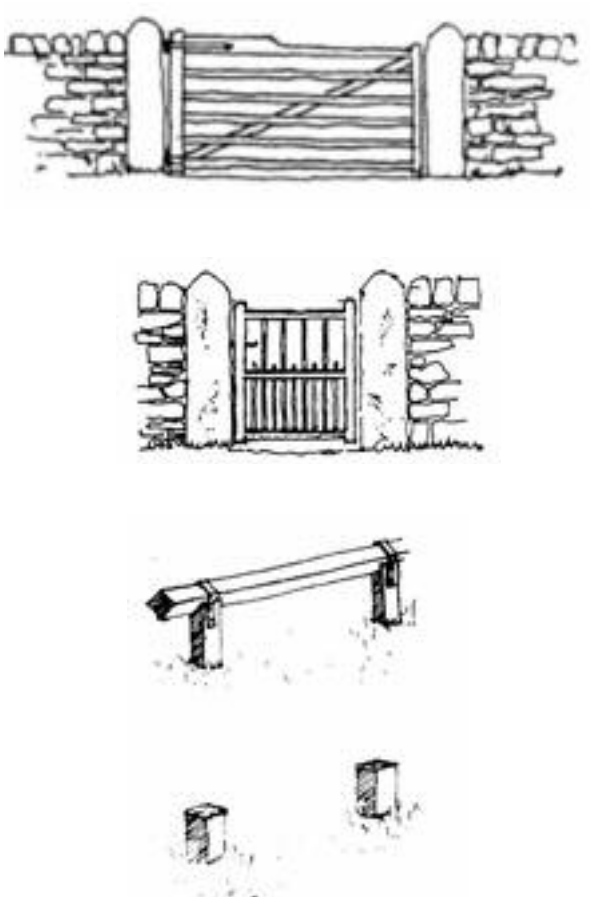




For pedestrian gates, there are some well-tried local types – for example timber gates over a close fitting stone thresh, and with a solid or dense lower panel, which are good for excluding rabbits.

The design and treatment of timber fencing is often an afterthought, but poorly considered timber fences can have a considerable impact and particularly when treated with conspicuous finishes. Highly pigmented, and particularly the more orange dominated, wood stains are a contrast to the dark and subdued finishes used in the past. They should generally be avoided, and particularly for larger scale elements such as fencing.

Sometimes when the need is only to prevent vehicles being driven onto grass a single rail with intermediate posts is sufficient deterrent, or a simple row of stubby posts. Fencing in rural situations fits better with its surroundings if it is functional rather than ornamental. Post and rail fences with horizontal rails are more suitably 'agricultural' in appearance than diamond 'ranch-style' patterns. Plain galvanised netting is preferred over coloured netting which rarely blends with its surroundings even in greens and browns.



Plot edges – trims and borders

One traditional feature of many of the historic settlements in the AONB is the maximum use of space in densely built up village centres, a pattern most clearly illustrated by the use of low plant borders and or cobble trims at the junction of walls and the highway or footpath. This kind of satisfying detail provides a valuable demarcation strip, allows for changes in level, and provides an opportunity for a positive contribution to the public realm.

River cobbles used as trim at Croglin

Paving and wearing surfaces

One of the most satisfying aspects of the fabric of long established rural settlements is that so few external features appear superfluous or over-elaborate. This characteristic functional simplicity applies to footpath and paved areas, to the forecourts of shops and community buildings, to the edges and trim of roadways and to street furniture.

The quality of our village surroundings must often justify the investment in good quality paving of natural stone flags and setts. If these are expensive it is often possible to economise by laying a single line of paving following 'desire' lines established to customary use, bordered with cobbles.

There are numerous alternative manufactured paving products for all applications. Small setts can be used to line run-off channels between road and grass. Road verges can be defined with stone or specialised concrete blocks, though our country lanes are spoiled with heavy standardised concrete kerbs and gutter blocks. The natural look of grass lying over the edge of the road surface is preferred.

Driveways and hard-standing – unbound surfaces and minimalist approaches

Car parking can be very intrusive and it is important to reduce the prominence of parking areas.

A key consideration in selecting surfaces for drives and hard-standings is to provide a surface appropriate to the volume of traffic carried. The surface of the car parking area should be capable of withstanding the effect of wheel-turning: rolled asphalt can be softened by hot sun and can easily be churned up in this way. A long tarmac drive for occasional use is wasteful in materials and can be intrusive in a natural setting where unbound gravel would be more appropriate. A thin layer of fine carboniferous limestone chippings on a typical sub-base will create a well drained hard wearing surface on level ground. Other fine gravels can be equally attractive but do not possess the chemical setting properties of carboniferous limestone. On steeper slopes chemical binders or resins may be necessary in order to avoid erosion but these may still incorporate locally occurring gravel.

Porous or permeable surfaces should be used where possible to avoid surface run-off to drains. Where run-off is unavoidable, consider directing this to natural soak-aways or swales rather than to surface drains.

In rarely used locations surfacing can be kept to a minimum with grass access or wheel track width surfaced access routes.

For a 'greener' finish, one could consider the use of grass reinforcement products. These can range from mesh incorporated into the

Appleby: high quality paving complements this fine listed building

turf, to relatively rigid blocks with holes for the grass to grow through. Where the level of use is low or seasonal, reinforced grass surfaces can provide a useful intermediate form of surfacing; however their use in over-used or poorly drained locations (for example the heavy clay soils of the North Pennines) can create an unsightly combination of bare compacted soil and concrete. Perforated block solutions can also create trip hazards which compromise DDA access compliance.

Porous surfaces – edge details and drainage

Both grass and gravel described above reduce the unnecessary use of materials, but also have considerable drainage advantages. Their porous structure reduces the need for run-off collection, minimises the need for piped storm water drainage and reduces peak flows in nearby watercourses in times of high rainfall, intrusive edging detail, such as kerbs are also less necessary in most situations.

The very simplest provision for vehicular access is appropriate here

LP14 Parking areas and driveways are better located at the side or rear of buildings where cars will be less prominent.

LP15 It helps if garages can also be tucked round the back of a building not directly visible from the public road.

LP16 A slightly raised front wall or hedge can help to screen vehicles from the road.

Drainage – ditches and channels

Irrespective of whether porous surfaces are used, drainage to ditches in rural parts of the AONB should be considered wherever possible. Where possible consider directing surface water run-off into shallow ditches; these can be cleaned out easily and also provide a micro habitat for local wildlife. In a more urban context channels formed using small setts create pleasing edge details. Run-off from hard surface can be directed to storage cisterns for re-use in plant irrigation.

Lighting

Light pollution (light shining where it is not needed) is everybody's problem. It is a waste of both energy and money for the property owner, a potential nuisance to their neighbours, and contributes generally to the urbanisation of the rural landscape and the loss of darkness in our night skies.

Bright light shining into other people's homes can reduce their quality of life. Environmental Health Officers receive complaints about loss of sleep and loss of privacy with badly diverted or unnecessarily powerful lighting. Sources of light pollution are varied but can include street lighting, domestic and commercial security lighting and illumination to advertise commercial premises. The negative influence of the excess of light affects organisms which are active at night e.g. insects, mammals and invertebrates. Birds also suffer from excess light. There are a number of basic steps that can be taken to reduce artificial light pollution to help maintain night time tranquillity and dark skies and reduce harmful effects on ecology whilst reducing energy consumption.

LP17 Consider whether lighting is necessary at all and if it is, where it is needed and why.

LP18 Direct light only where it is needed, downward rather than upward, or focused on the particular task.

LP19 Avoid the direct illumination of trees.

LP20 Use low intensity lights to reduce glare and dark spots. Softer and more uniform light is often better for security and safety.

LP21 Adopt limits for the level of illumination appropriate to the wider setting of the development.

LP22 Think about views from the wider countryside and making best use of the screening benefits of topography, planting and buildings.

LP23 Look for opportunities to reduce the need for lighting, for example by using CCTV instead of security lighting. Use motion sensors for security with minimum setting for the lighting period.

LP24 Lighting should avoid bat-roost access points and flyways.

The North East is rated as having the lowest level of light pollution of the English regions and many visitors remember seeing bright stars and the Milky Way in our dark night skies.

CPRE 'Night Blight' 2003

Further information

County Durham Landscape Guidelines. www.durham.gov.uk

- County Durham Landscape Guidelines: Trees 2009
- County Durham Landscape Guidelines: Hedges 2009
- County Durham Landscape Guidelines: Woodlands and Forestry 2009
- County Durham Landscape Guidelines: Broad Landscape Types 2009

Carlisle City Council www.carlisle.gov.uk

- Trees and Development: Supplementary Planning Document

County Durham Hedgerow Partnership Technical Guidance Documents. www.durham.gov.uk

- Hedge Planting
- Hedge Laying and Coppicing

Cumbria Landscape Classification. www.cumbria.org.uk

The Northumberland Landscape Character Assessment. www.northumberland.gov.uk

County Durham Landscape Guidelines: Grassland 2009

Cumbrian Biodiversity Data Network -www.lakelandwildlife.co.uk

Biodiversity By Design: A Guide for Sustainable Communities. Town and Country Planning Association www.tcpa.org.uk

Durham Biodiversity Action plan www.durhambiodiversity.org.uk

Northumberland Biodiversity Action plan www.northumberlandbiodiversity.org.uk

Cumbria Biodiversity Action plan www.cumbriawildlifetrust.org.uk

Sustainability and flexibility for future use

A former president of the Royal Institute of British Architects, Alex Gordon, commissioned a report in the 1970s, before the word 'sustainability' reached its current political vogue, entitled *Long Life, Loose Fit, Low Energy*. This three-part title might well serve to describe the nature of much of the traditional building stock we have inherited in the AONB and to guide us in considering contemporary design towards a sustainable built environment.

Reuse of buildings and land

Property in the past was constantly being modified to suit changing family size, economic status or developing functional purpose. Much of the building industry's business today is a continuation of this process and much of the architectural history of the AONB would be dull without it. Traditional building construction has proved remarkably adaptable and robust and reflects the value of sustainability.

The way we maintain, alter, extend or convert existing buildings is fundamentally a sustainable process in which the land, building structure and existing materials are likely to be reused, thus reducing the volume of new resources to be consumed and the volume of waste material for disposal. The use of reclaimed materials will result in a significant reduction in the embodied energy of the project.

New building work will involve site development either on land released from previous use – (referred to in shorthand as brownfield land) – or land that has had no previous development on it – greenfield land. For reasons of land economy and protection of the finite resource of Britain's undeveloped countryside, the use of brownfield sites is the preferred option for development. Problems may be encountered such as residual pollution from previous use, and brownfield land often has significant biodiversity interests which may preclude or restrict development. In cases of brownfield development of former industrial land-use sites, or the conversion of industrial or agricultural buildings the Local Planning Authority may require an investigation and report on the possible ground contamination, toxic waste and geo-technical properties of the development area.

Minimising waste

Consideration of construction waste should be given at the early stages of a project. With conservation and alteration work there is unlikely to be any significant volume of excavation material but for new build and extension sites, where it is necessary to demolish a redundant structure, then more material is generated.

Sending waste to landfill sites is undesirable for a number of environmental and economic reasons. A far more sustainable response is to design for the use of recycled materials, and to put in place provisions for construction waste to be incorporated in the new development. A number of options can be considered shown on the right.

Arrangements with suppliers can result in a reduced environmental impact through improved efficiency and a reduction in waste to landfill. The criteria below should be considered.

The use of reclaimed materials will result in a significant reduction in the embodied energy of the project. This involves minimal processing between demolition of the original building and construction of the new building, as opposed to recycling.

If a building has been detailed in such a way that it can be dismantled and the materials and components reclaimed and recycled or re-used at the end of its lifespan, then this will have a positive effect on the embodied energy of both the original and future buildings. This will also reduce the volume of construction and demolition waste sent to landfill.

- **SC 1** Minimise volume of excavation through consideration of building footprint and appropriate foundations.
- **SC 2** Consider use of crushed demolition material in the hardcore for the building.
- **SC 3** Consider separation, storage and re-use of:
  - turf rolled;
  - topsoil reused;
  - seeds kept from existing plants; and
  - compost from existing plant matter.
- **SC 4** Separation of waste streams that could be sold or used again elsewhere.
- **SC 5** Reuse of spare materials on site – off-cuts for shops, etc.
- **SC 6** Delivering programmes to reduce length of storage time on site with risk of damage and subsequent disposal as waste.

SC 7 The delivery of building materials should be planned to:
- allow for inspection of materials;
- reject/return defective materials;
- return protective packaging;
- agreement with plasterboard manufacturer that waste will be collected and re-used; and
- consider timing of delivery to avoid storing materials on site, and reducing the risk of damage and waste.

SC 8 Use of multi-use palettes, preferably in recycled plastic, for protection and storage of materials, to reduce damage and waste.

SC 9 Use of existing markets for refurbishment waste to reuse unwanted materials, including windows, timber, bathroom suites and kitchens.

Handling waste responsibly

The Duty of Care regulations for dealing with waste materials are applicable for any off-site movement of wastes. The developer as producer therefore has a duty of care to ensure all materials removed go to an appropriate licensed disposal site and all relevant documentation is completed and kept in line with regulations.

If any controlled waste is to be removed off site, then the site operator must ensure a registered waste carrier is used to convey the waste material off site to a suitably authorised facility. If any controlled waste is to be used on site, the applicant will be required to obtain the appropriate exemption or authorisation from the Environment Agency.

In England it is a legal requirement to have a Site Waste Management Plan (SWMP) for all new construction projects worth more than £300,000. Further information on the SWMP can be found at www.netregs-swmp.co.uk

More advice on waste movement can be found on the Environment Agency's website: www.environment-agency.gov.uk

SC 8 Where new materials are being specified, consider the possibility for inclusion of recycled elements, for example, recycled cellulose insulation.

SC 9 Sustainably managed sources should also be used wherever possible. In terms of timber, for example, the FSC or PEFC logo will ensure that the forests are managed responsibly.

SC10 Systems which have been developed to use a reduced volume of materials, such as timber I-beams rather than solid beams, should be considered.

SC11 Design for durability, to reduce the amount of maintenance required and minimise future consumption of resources.

Minimise energy consumption in construction and use

With new buildings the three dimensional form of the structure can reduce energy consumption through reduction in exposed perimeter compared with the enclosed volume. Environmental sustainability can be achieved through the incorporation of passive energy features in the form of the building. The use of day lighting, natural ventilation and passive heating and cooling will produce a low energy building with reduced environmental impacts, whilst still achieving comfortable internal conditions for occupants. The microclimate surrounding the building can influence the operational energy consumption, and there are design considerations in orientation and siting of new buildings which can help reduce energy demands in use.

SC12 Seek shelter from the natural topography of the site to reduce heat loss from the building.

SC13 Consider the influence of the building on localised wind patterns.

SC14 Take advantage of managed solar gain in the arrangement of sheltered south and west facing surfaces and windows.

SC15 Aim to achieve a balance between the benefit of natural lighting and potential heat loss in the design of windows.

If possible, the building would be ideally positioned to take advantage of solar energy, avoid the wind and driving rain, whilst preserving the potential for views.

SC16 The selection of materials will influence the embodied energy of the project, which consists of the energy used for the following processes:
- extraction of raw materials;
- manufacture of building materials;
- transport energy between stages of manufacture, and to construction site; and
- construction/demolition/ destruction.

The component of the embodied energy will be less than that used in the operational life of the building, but will still be significant and should therefore be addressed during the design process.

Responsible sourcing of building components, specification of natural materials and limitation of transport distances are key considerations in the reduction of embodied energy.

The traditional building materials used in the past have low levels of embodied energy, being natural with minimal processing, and locally sourced to minimize transport energy. The use of these materials in a development will therefore have benefits in terms of a low embodied energy approach.

To minimise environmental impacts, the following criteria should be considered:

SC17 Reduce volume of goods ordered by, for example, organisation of site procedures, re-use or repair of existing materials wherever possible.

SC18 Specify products from sustainably managed sources, which use minimal volumes of raw materials, and promote fair trade.

SC19 Consider the whole life cost of products, for example a higher initial capital outlay on a high specification building fabric may save money in the long term through reduced heating bills.

SC20 Source materials locally where possible to invest in the local economy and reduce transport energy.

SC21 Select products free from ozone depleting substances, solvents, volatile organic compounds, etc, to reduce pollution and provide a healthy indoor environment.

SC22 Consider products with the potential for re-use or recycling to avoid landfill.

SC23 Consider use of reclaimed or recycled materials.

Pollution

Indoor air quality

There are no concerns over the release of toxins, volatile organic compounds, etc to the interior if traditional building materials and finishes are used in a development

The use of modern construction materials are not so environmentally benign, however, and can result in chemicals being released to the interior of a building, to the detriment of the occupant's health.

To avoid problems such as Sick Building Syndrome, or increased asthma cases, the building materials and finishes should be considered carefully. Natural materials with minimal manufacturing or processing will have least potential for negative impacts on the indoor environment, and components such as carpets, paints and wood preservatives should be carefully considered.

SC24 The most effective way in which to eliminate pollution is to reduce the energy demand from the building. This can be achieved in a number of ways:

- increasing the insulation levels in the building fabric;
- upgrading the specification of the glazing;
- maintaining and enhancing the traditional natural light and ventilation strategies;
- efficient energy systems, for example heat recovery, use of condensing boilers, etc; and
- siting development near public transport routes to reduce dependency on car travel.

Atmospheric pollution

The widespread availability and use of electricity is a relatively recent phenomenon, and would not have been relied on in the original buildings in the AONB. The modernisation of these buildings is likely to introduce a new rate of energy consumption, and with it an increase in atmospheric pollution.

The degree to which the building will cause pollution will depend on a number of factors, including:

- the chosen fuel source;
- the efficiency of the building fabric and systems;
- the use of passive energy; and
- The activities and behaviour of occupants.

Renewable energy

The focus of public policy on reducing carbon emissions from fossil fuels and encouraging the development of alternative sources of renewable energy has a major impact on the way we think about incorporating this technology in building. New building forms which maximise the efficiency of renewable energy plant can be explored in which the designed impact of these components can be thoroughly integrated with the structure.

Suitability of a particular technology would have to be assessed for each individual installation. There is a range of issues to consider, including the available natural resources on site, the likely visual impact, and the requirements for delivery of fuel, maintenance, etc.

Renewable energy installations can have physical or visual impacts on other environmental resources including heritage assets such as Scheduled Ancient Monuments and listed buildings, or on protected species or established vegetation. Refer to the guidance and standards on pages 62, 76 and 87 etc and consult your local authority archaeologist, conservation officer, ecologist, tree officer or landscape architect at an early stage. Further guidance on these technologies can be found in the North Pennines AONB Planning Guidelines.

Further advice on free-standing small-scale renewable energy installations can be found in the North Pennines AONB Planning Guidelines.

Solar panels

Solar panels receive energy from the sun which heats a fluid carried in pipes to an indirect hot water cylinder for use at the normal draw-off points in a building. In most cases a secondary heat source will be required to ensure the desired water temperature in the absence of sunlight. Solar panels can detract from the appearance of traditional roofs and will not be appropriate in all circumstances, particularly on buildings of historic or architectural importance. Where possible, select elevations that are not prominent in views from public vantage points, or consider free-standing panels at ground level away from the building or fixed to ancillary buildings where visual impacts are lower (see Planning Guidelines).

SC25 Solar panels should be:

- Mounted at an angle between 15° and 50° facing between south east and south west;
- Sited to avoid being overshadowed by adjacent buildings or chimney stacks;
- Designed to maintain the simplicity of the roof form and have minimal aesthetic impact;
- Designed to stretch from ridge to eaves or gable to gable rather than 'planted' on the roof slope as an object; and
- Generally the surface of the panels should blend with darker roof materials.

Photovoltaics

Photovoltaics generate electricity from solar energy, which can be linked to a particular function within the building, the general electricity supply for the building, or can be linked to the National Grid.

In a new building, it should be possible to incorporate photovoltaics into the roof or façade as a component of the overall concept and the design considerations are very similar to those for solar panels (see previous box).

Wind turbines

Small-scale turbines of various configurations are available that make use of this natural resource to generate clean, renewable electricity.

As a rough guide, a 2m diameter turbine will produce 4,500kWh per annum, which would be enough to heat the domestic hot water in a typical house.

The appropriate siting of a wind turbine is critical in terms of the operating efficiency, power output and economics. Detailed information on the appropriate siting of a turbine, in relation to its efficiency, is available from the British Wind Energy Association.

It may be possible to use the geometry of the building to enhance the performance of a turbine, for example through channelling the wind through a tapering gap to increase speed, and power output as a result.

Advice on siting can be provided by the AONB Partnership Staff Unit even for small-scale turbines for which no planning permission may be required unless they are to be in a Conservation Area.

SC26 Micro wind generation projects require great care in the siting of turbines:

- Avoid skyline locations;
- Avoid siting within 5m of a public right of way;
- Try to ensure that the turbines are viewed against a backdrop of woodland or hillside wherever possible;
- Turbine colour should be chosen with softening landscape impact as the goal; and
- Locate turbines with the rotor tip at least 50m away from habitat features such as woodland or hedgerows used for foraging/commuting and bat roosts.

Biomass

Mains gas is unavailable in large parts of the AONB and in these circumstances the typical approach is to provide space heating and/or domestic hot water through an oil fired, LPG or Calor gas system. An environmentally viable and economic alternative could be to use biomass, which involves the burning of wood fuel to heat water for space heating and/or domestic hot water.

Burning of wood fuel releases no more CO_2 during combustion than that which has been absorbed during the growing phase, so the system is considered to be carbon neutral. The transport of fuel can add emissions and should be considered, but the overall effects are likely to be negligible.

Boiler housing will be required, and this is likely to be larger than a conventional system. A water-tight store will also be required to take bulk deliveries of wood fuel, which are typically in tonnes at a time. It should be noted that this system will require a greater amount of input in terms of operation and maintenance as compared to a conventional alternative, and many timbers leave deposits of wood tar in the appliance flue which can be difficult to remove, except by burning at high temperatures.

Geothermal

Geothermal technology can be used to supply low level energy heating and/or cooling, requires an adjacent area of free land in which to bury pipework coils. If there is an area of open land associated with the building, then a ground source geothermal system could be considered.

Low grade heat from the ground is converted to temperatures suitable for space heating, to provide a viable alternative to the use of fossil fuels. Temperatures in this system tend to be slightly lower than for a conventional heating system, and would, therefore, not be considered suitable for domestic hot water. This is, however, ideal for use with underfloor heating. A system such as this would have minimal visual impact once in operation. Housing for the heat pumps would be required, but tends to be unobtrusive as these are relatively small, stackable elements. The most significant impacts arise during installation, when an area of land would be disrupted. Sites of nature conservation or archaeological sensitivity should be avoided; contact your local planning authority specialists for advice. After installation, the topsoil, turf, etc. can be replaced and the landscape reinstated in a short timeframe.

Micro-hydro

Small-scale turbines can be placed in existing rivers or streams to generate electricity from a renewable source. It is recognised that these sites will be rare (although the North Pennines offers some potential with reliable fast flowing burns and rivers). The available power is related to the flow rate and the difference in level (head). Lower head systems, i.e. with a shallow gradient are possible, but may require additional infrastructure, while systems with a sufficient fall can be more efficient, even with a lower volume of water.

Each potential site would have to be assessed to determine feasibility and the available power, based on flow rates, available head, seasonal flow characteristics, etc. The Environment Agency would also have to be approached for relevant permissions.

Water and drainage

Supply

In order to economise on the use of water and the cost of water bills, upgrade bathroom and/or kitchen fixtures and fittings to modern equivalent with low water consumption including:

- Spray taps;
- Low flow rate showers (<9 litres/min);
- Low volume cistern WCs; and
- Economic dishwashers/washing machines

Grey water

- Consider rainwater harvesting for applications including flushing of WCs and irrigation
- Grey water collection from sinks, basins, baths, etc, and re-use is the less favoured option, and is likely to be appropriate for only a small minority of projects

Drainage

The proposed means of foul drainage should be in accordance with Circular 03/99 *Planning requirements in respect of the use of non-mains sewerage incorporating septic tanks in new development.*

The presumption must always be to provide a system of foul drainage discharging into a public sewer. If this is not possible taking into account all the factors in Circular 03/99, a package treatment plant may be considered (there are circumstances where package treatment plants are unsuitable owing to sporadic occupation) and only when it is proved that the above two options are not feasible should a septic tank be considered.

Some non-mains drainage systems may require an environmental permit from the EA, although certain activities are exempt from the requirements. In order to qualify for an exemption, your discharge or activity must meet certain criteria. If you cannot meet these criteria you will need to apply for a permit. More information on small discharges of domestic sewage effluent, permits and exemptions can be found on the Environment Agency's website: www.environment-agency.gov.uk

To help you choose the correct sewage disposal option, you can consult, *Pollution Prevention Guidelines – Treatment and disposal of sewage where no foul sewer is available: PPG4*, which includes information about the treatment and disposal methods available, maintenance and legal requirements. A copy of this guidance can be found on the Environment Agency's website.

Solutions such as composting toilets and reed beds are ideal in environmental terms, however they would require maintenance and upkeep by the users. This is generally an unpleasant and undesirable task, and should only be considered in situations where conventional sewage solutions are unavailable, and where the client has requested it and has a full understanding of what will be involved.

In accordance with Approved Document Part H of the Building Regulations 2000, the first option for surface water disposal should be the use of sustainable drainage methods (SUDS) which limit flows through infiltration – soakaways, swales, ponds, porous paving, etc.

You can reduce the volume of external surface water drainage through sensitive arrangement of landscaping, consideration of green roofs, etc.

Economic sustainability and skills

The distinctiveness of the built environment of the AONB derives more than anything from the character of local stone and sands carried over short distances because transport was difficult. Transport is today a less significant part of costs but local sources of building materials are still available. Their appropriate use to sustain local character will also contribute to a vibrant local economy.

The Planning Authorities wish to encourage the continued use of material produced within the region, recognising their authenticity and functional appropriateness. They also wish to support the continuing transmission of local skills to match the increasing demand for quality development within the AONB. The Building Industry and training colleges throughout the region have picked up the serious implications of skill shortage and there is an information campaign launched by the VAR Initiative Ltd. in 2005 to provide a database of locally accessible skills and sourced materials.

Standards

The **Code for Sustainable Homes** was introduced by Government in 2008. The Code measures the sustainability of a new home against nine categories of sustainable design, rating the 'whole home' as a complete package. The Code uses a one to six star rating system to communicate the overall sustainability performance of a new home. The Code sets minimum standards for energy and water use at each level and, within England, replaces the EcoHomes scheme, developed by the Building Research Establishment (BRE).

New homes may be required to meet a particular rating against the code as part of the government's intention of meeting a target of all new homes being built to zero carbon standards by 2016. All new social housing must be built to a minimum of Code level 3. The code is voluntary for privately built housing, but all new homes must be assessed against the code and include the Code certificate within their Home Information Pack. Local authorities may additionally use the Code to require

Date	2010	2013	2016
Energy efficiency improvement of the dwelling compared to 2006 (Part L Building Regulations)	25%	44%	Zero carbon
Equivalent standard within the Code	Code level 3 	Code level 4 	Code level 6 

minimum standards of sustainability for new housing provided for in their LDF policies. You should check this with your local planning officer.

BREEAM

The Building Research Establishment's Environmental Assessment Method (BREEAM) is a widely used method for assessing the environmental performance of building projects. Like the Code, it uses a scoring system across a range of environmental and sustainability parameters. While the Code relates to residential buildings BREEAM can be applied to a wider range of development types. As with the CODE, local authorities may use BREEAM to require minimum standards of sustainability for new development provided for in their LDF policies. You should check this with your local planning officer.

Further information

Standards

Code for Sustainable Homes
www.communities.gov.uk

BREEAM - www.breeam.org

Guidance and grants

Building-In Sustainability
www.ignite-ne.com

Sustainability in the North East of England
www.sustaine.com

Clear Skies
www.clear-skies.org

Energy Savings Trust
www/energysavingtrust.org.uk

Carbon Trust www.carbontrust.co.uk

Enhanced Capital Allowance
www.eca.gov.uk

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Tel: 0845 600 6400
Fax: 01670 511413
Email: ask@northumberland.gov.uk
Website www.northumberland.gov.uk

Durham County Council. County Hall, Durham, DH1 5UL
Tel: 0300 1237070
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Cumbria County Council. The Courts, Carlisle, Cumbria, CA3 8NA
Tel: 01288 606 060
Email: information@cumbriacc.gov.uk
Website: www.cumbria.gov.uk

Carlisle City Council. Civic Centre, Carlisle, CA3 8QG
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Website www.carlisle.gov.uk

Eden District Council. Town Hall, Penrith, Cumbria, CA11 7QF
Tel: 01768 817817
Fax: 01768 890470
Email: customerservices@eden.gov.uk
Website: www.eden.gov.uk

Appendix 2: Supplementary Planning Documents

The list below details Supplementary Planning Documents (SPD) relevant to building design that are adopted, under preparation, or proposed by local planning authorities in the AONB area. Those that are dated are adopted at the time of this publication. Those without dates are proposed. For up-to-date information check the relevant local authority website.

Cumbria County Council

Cumbria Landscape Character SPD

Durham County Council

Sustainable Design SPD, Green Infrastructure SPD

Carlisle City Council

Trees and Development SPD 2009. Countryside Design SPD 2010. Designing Out Crime SPD 2009. Energy Efficiency SPD (Draft)

Eden District Council

Shopfront and Advertisement Design SPD (2006), An Accessible and Inclusive Environment SPD (2007)

Listed Buildings

Listed Buildings are buildings recommended by English Heritage for inclusion on statutory lists of buildings 'of special architectural or historic interest' compiled by the Secretary of State for Culture, Media and Sport.

Buildings can be listed because of age, rarity, architectural merit, and method of construction. Occasionally English Heritage selects a building because the building has played a part in the life of a famous person, or as the scene for an important event. An interesting group of buildings - such as a model village or a square - may also be listed.

The older a building is, the more likely it is to be listed. All buildings built before 1700 which survive in anything like their original condition are listed, as are most built between 1700 and 1840. After that date, the criteria become tighter with time, so that post-1945 buildings have to be exceptionally important to be listed. Listed buildings vary considerably and not all are habitable. The category also includes a wide range of monuments and structures from milestones to lamp posts.

The buildings are graded to show their relative architectural or historic interest:

- Grade I buildings are of exceptional interest;
- Grade II* are particularly important buildings of more than special interest; and
- Grade II are of special interest, warranting every effort to preserve them.

Grade I and II* buildings may be eligible for English Heritage grants for urgent major repairs.

The demolition of a listed building or any alterations affecting its character requires a listed building consent application to be submitted to the Local Planning Authority (LPA). Listed building consent is required for many works that do not require planning permission. If the works do require planning permission listed building consent is still required. Repairs on a 'like for like' basis do not normally require consent.

In considering whether to grant consent for development which affects a listed building or its setting, the local authority will have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

Works carried out without consent can result in prosecution.

To find out whether a building is listed you should contact your LPA. For more information on listed buildings generally visit the English Heritage website at www.english-heritage.org.uk

Conservation Areas

Local authorities have the power to designate as Conservation Areas any area of 'special architectural or historic interest' whose character or appearance is worth protecting or enhancing. This is judged against local and regional criteria, rather than national importance as is the case with listing. Many of the historic towns and villages of the AONB are designated in whole or in part as Conservation Areas.

In a Conservation Area, permission from the local LPA is required before undertaking some works that would not normally require permission elsewhere. As a general guide, the following works require permission and you are advised to contact your LPA for specific guidance relating to your proposals:

- Works to extend buildings, clad external walls, alter a roof, insert dormer windows or put up satellite dishes;
- The demolition of almost any building;
- Work to trees including felling, topping and lopping; and
- The display of advertisements which may have a significant visual impact.

In some conservation areas, there are further limits as to the type of development that can be carried out without the need to apply for permission. In these areas, Article 4 Directions apply. This means extra provisions are in place to protect special features such as windows and doors. If your property is in a conservation area you should contact the LPA to find out if it is affected by an Article 4 Direction.

Grants for carrying out improvements in conservation areas are available through a number of schemes run in association with English Heritage. These usually focus on specific towns and villages and run for a fixed period. Contact the LPA for more information.

Appendix 4: Tree and Hedgerow Protection

Many trees and hedges are protected by law. Before doing any works that would affect trees or hedges on or around your development site you should consult your local authority tree officer.

Tree Preservation Orders

In order to protect individual trees or groups of trees that are of value to the community, the local planning authority (LPA) may create a Tree Preservation Order (TPO).

A TPO makes it a criminal offence to fell, lop, top, uproot or otherwise wilfully damage a protected tree without the permission of the LPA. There is a fine of up to £20,000 per tree if convicted in a Magistrates Court. For other offences there is a fine of up to £2500. If convicted, a replacement tree will also normally need to be planted on or near the place where the tree was destroyed. You are advised when considering carrying out work on any trees to check with the Council as to whether the trees are protected.

If a tree is protected by a TPO, consent will normally be required for pruning or felling. An application must be made by completing the standard application form, stating the reasons for the application and giving details of the proposed work. Supporting technical information may also be required if the reason for the application relates to the condition of the tree - for example due to the presence of pests, diseases, fungi or structural defects affecting the safety of the tree. Written evidence from an appropriate arboricultural professional may be required in support of the application.

If the reason for the application relates to suspected structural damage caused by the tree, a report from a structural engineer/surveyor together with technical advice should normally be submitted in support of the application.

Trees in Conservation Areas

Trees in Conservation areas are also protected by planning legislation. You will need to notify the LPA in writing six weeks in advance of any works if you wish to fell or prune any tree in a Conservation Area. This gives the Council an opportunity to consider protecting the tree by imposing a Tree Preservation Order.

Trees covered by planning conditions

Trees on Development Sites may be protected by a planning condition that is usually in force both during the construction phase and afterwards. The planning condition may bind future occupiers not to remove or damage trees and give the local authority the power to enforce replanting should any loss or damage occur.

Felling licences

The felling of over a certain volume of timber requires a Felling Licence which can be obtained from the Forestry Commission.

Hedgerows

Under the Hedgerow Regulations 1997, it is against the law to remove most countryside hedgerows without the permission of the LPA. These Regulations do not apply to garden hedges. To get permission to remove a countryside hedgerow, you must write to your LPA.

The way in which the Regulations apply to individual hedges can be quite complex. It is therefore advisable to speak to your LPA before you formally seek permission to remove a hedge. On receipt of a notice to remove a hedge the local authority will assess it against criteria set out in the Regulations to discover whether it qualifies as an 'important' hedge. To qualify as 'important', the hedgerow must be at least 30 years old and at least 20m long (although shorter hedges can be included if linked to other hedgerows) and meet at least one of eight criteria relating to the hedgerow's archaeological, historical, wildlife or landscape value.

If the authority decides to prohibit the removal of an 'important' hedgerow, it must let you know within 6 weeks. If you remove a hedgerow without permission, irrespective of whether it would be considered to be an important hedge, you may face an unlimited fine. You may also have to replace the hedgerow. More detailed guidance can be found in *The Hedgerows Regulations 1997: a Guide to the Law and Good Practice* and *Hedgerow Regulations - Your Questions Answered* available from DEFRA.

A wide range of species are protected under international, European and national legislation because of their rarity or vulnerability. In the North Pennines the protected species most commonly encountered are bats, otter, white clawed crayfish, badgers, great crested newts, water vole and nesting and migratory birds.

The planning authority has a duty to consider the conservation of biodiversity when determining a planning application and can refuse an application if there is likely to be unmitigated loss of biodiversity. This includes having regard to the safeguarding of species protected under the Wildlife and Countryside Act 1981 (amended), The Conservation (Natural Habitats, etc) Regulations 2010 or the Badgers Act 1992. The local planning authority cannot grant permission for development without being satisfied that protected species are being protected and that mitigating measures are in place.

Your local planning authority *Planning Applications Validation Checklist* (available from their website) will set out the circumstances in which protected species surveys, assessments and mitigation reports will need to be carried out. Surveys should be undertaken and prepared by competent persons with suitable qualifications and experience and must be carried out at an appropriate time and month of year, in suitable weather conditions and using nationally recognised survey guidelines/methods where available.

More information about protected species can be found on Natural England's website (www.naturalengland.org.uk) and on the websites of the following organisations:

- Bat Conservation Trust – www.bats.org.uk
- The Badger Trust – www.badger.org.uk
- The Herpetological Conservation Trust – www.herpconstrust.org.uk
- Froglife – www.froglife.org
- Joint Nature Conservation Committee – jncc.gov.uk
- Royal Society for the Protection of Birds – www.rspb.org.uk

Additional information can be gained from local Wildlife Trusts, Regional/Local Record Centres and local and national specialist groups such as bat or badger groups, bird clubs and butterfly conservation groups. These groups may charge for information.

Further information on appropriate survey methods and standards can be found in *Guidance on Survey Methodology* published by the Institute of Ecology and Environmental Management (IEEM) available from their website: www.ieeem.org.uk.

Licences from Natural England are required for works affecting species such as bats, great crested newts and badgers. Guidance and application forms can be found on the Natural England website under 'Wildlife Management and Licensing Service'.

Bats

In building works and particularly repair, extension and conversion, the most commonly encountered protected species are bats. All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 which makes all bats European protected species. Details of the legislation can be found on the Office of

Public Sector Information (OPSI) website www.opsi.gov.uk.

The potential for impacts on bats should be considered for all building works. While some activities set out in an LPA's *Planning Applications Validation Checklist* will always require survey, bats can be affected by even quite minor works such as re-pointing and the repair of roofs and repair or painting of barge boards and soffits. Even such minor disturbance to bats can be an offence under the legislation. Bats use a variety of habitats at different times of the year and the type of feature used is often species-specific. The roofs and walls of buildings are frequently used in both traditional and modern properties. In addition, mines, caves, disused tunnels and trees also provide important roost sites. Further guidance on the features of buildings which increase the probability of bats using it can be found in *Bats in buildings: A guide for building professionals* available on the Natural England website.

Bat surveys must be undertaken by suitably experienced and licensed surveyors. Good practice guidance published by the Bat Conservation Trust (*Bat Surveys Good Practice Guidelines*) provides comprehensive advice on how and when to undertake bat surveys. The surveyor will also include in their report recommendations as to how impacts should be avoided or mitigated. Detailed advice can be found in the *Bat Mitigation Guidelines* published by Natural England, which is available on their website.

If bats are found during building works where their presence had not been anticipated, work must be suspended immediately and Natural England notified so that appropriate measures can be put in place to prevent bats being harmed and the law being breached.

Wild birds

Building and associated works such as ground preparation, tree felling, hedge trimming or scrub clearance can disturb nesting birds. Nesting birds are protected by the Wildlife and Countryside Act 1981 as amended and in the Countryside and Rights of Way Act 2000 (CROW). Under Section 1 of the Act it is an offence to intentionally or recklessly kill, injure, disturb or take any wild birds, take, damage or destroy its nest while in use or being built, and/or take or destroy its eggs. The CROW act created a new offence of 'reckless disturbance'. Ignorance of the presence of nesting birds is no defence if it can be shown that you acted without due care and attention.

The nesting season – broadly from the period 1 March to 31 August – coincides with the period in which much building work is carried out. It is important to note that birds can nest outside of this period. Impacts can usually be avoided by surveying the building carefully to establish the presence of nesting birds, and by avoiding works that would disturb them while they are nesting. This may involve delaying and re-scheduling some works. Such delays are usually relatively short. Delays can be avoided by carrying out works likely to cause problems, such as works to trees and shrubs, outside of the nesting season.

If nesting birds are found during building works where their presence had not been anticipated, work must be suspended and re-scheduled.

Invasive species are non-native species which can pose a threat to our native species and habitats because of their competitive nature. Most of these were introduced into the wild from gardens and horticultural collections.

It is illegal to plant or cause to grow in the wild species which are listed under Schedule 9 of the Wildlife and Countryside Act 1981. The species currently causing most concern amongst conservation organisations include:

- Spanish Bluebell (*Hyacanthoides hispanica*);
- Parrot's feather (*Myriophyllum aquaticum*);
- New Zealand Pigmyweed (*Crassula helmsii*);
- Himalayan (Indian) Balsam (*Impatiens glandulifera*);
- Floating Pennywort (*Hydrocotyle ranunculoides*);
- *Cotoneaster spp;*
- *Rhododendron ponticum;*
- Japanese Knotweed (*Fallopia japonica*); and
- Giant Hogweed (*Heracleum mantegazzianum*).

More information on can be found on the Natural England and Environment Agency websites. The charity Plantlife campaigns on this issue and has useful guidance on its website: www.plantlife.org

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NORTH PENNINES

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