3.0 Site Context

3.1 Landscape Character

The Caldon Canal runs from Stoke on Trent via Endon and Cheddleton to Froghall in the heart of the Churnet Valley. The canal lies within the Stoke on Trent City Council and Staffordshire Moorlands District Council areas. The attractive and diverse landscape within the Staffordshire Moorlands District Council area is typified by enclosed broadleaf woodlands and rolling pasture land interspersed with small villages. The short 3.25 mile Leek Arm of the Caldon Canal runs from Hazelhurst Junction just west of Denford and terminates to the south of Leek.

The study area covers land to the southern edge of Leek and runs between Ladderedge to the west and a disused section of railway line to the east. Barnfields Industrial Estate forms the north boundary of the Country Park. The study area is bounded to the south by grazing land. The length of the Leek Arm discussed within the study is approximately 290 metres in length and runs from Barnfields Aqueduct to Wall Grange Farm Bridge.

A Landscape Evaluation Survey of the Caldon Canal between Longbutts Drawbridge to Leek and Froghall was undertaken by British Waterways in 1987 and provides an appraisal of the canal resource. It provides an assessment of the landscape character of the canal and highlights a range of priority landscape improvements which should be undertaken to retain and enhance the character of the waterway as well as more general improvements including maintenance to structures and towpath improvements.

Figure 3 (page 10) highlights the varying landscape character within the study area.

3.1.1 General Impressions

- Slightly elevated, sinuous length of canal offers attractive views across the Churnet Valley to the south and south east.
- Mature broadleaf trees line the banks of the River Churnet running west to east across the area.
- Attractive open aspect to the west of the site across riverside meadows.
- Short views extend north as far as the southern fringe of Barnfields Industrial Estate.
- Views rise south across undulating grazing land to the canal feeder in middle distance and to Wall Grange Farm on the brow.
- The canal feeder runs parallel to the River Churnet, winding its way across grazing land to meet the canal at the Barnfields Canal Aqueduct.
- The canal feeder sits in elevated position, overlooking the River Churnet towards Barnfields industrial estate in the middle distance and towards Leek town centre in the far distance with its historic buildings punctuating the skyline.
- Towards the west of the study area, the canal feeder meets a surfaced access road leading towards Wall Grange Farm and to Ladderedge. Factory and road noise from units on Barnfields industrial estate is audible.

3.1.2 Key Elements in the Study Area and Surrounding Landscape

- Caldon Canal – Leek Arm
- Canal feeder
- Historic aqueduct
- River Churnet
- Barnfields Industrial Estate – Hughes Concrete and neighbouring units

- Ladderedge Country Park
- Bestwick Private Waste Disposal Site (Scrap Yard)
- Wall Grange Farm and surrounding grazing land
- Disused railway embankment
- A53

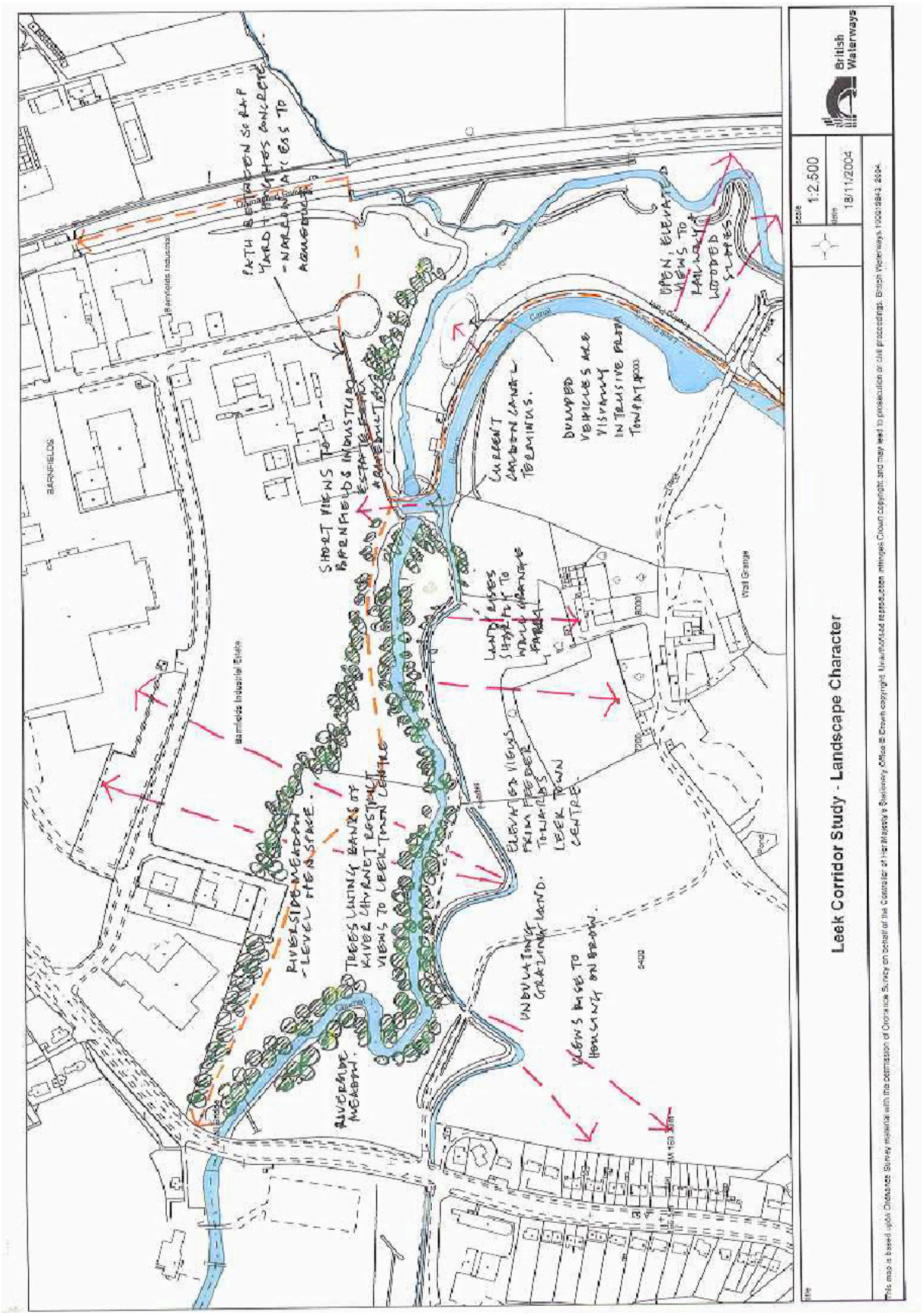


Figure 3 – Landscape Character

3.2 Current Known Land Ownership and Land Uses

A land registry search was undertaken in May 2004 to determine land ownership across the study area. The land registry search identified ownership details for only one parcel of land to the south east of the study area and this is marked in Figure 4 (page 13). Land ownership and land use are also shown but based on local knowledge and exact boundaries will require further research. The Land Registry search is included in Appendix 2.

Ownerships are as follows:

- Wall Grange Farm and farmland south of River Churnet – Mr Clewes, Wall Grange Farm, Leek
- Canal and canal feeder – British Waterways
- Scrap Yard – Bestwick
- Barnfields Industrial Estate – It is Leek's largest industrial estate and is in mixed ownership. Companies operating within the estate range from light to heavy industrial land uses. Activities include agricultural and machinery manufacturing, food processing and concrete tube manufacture. The estate is of post-war construction and is built across the former line of the Caldon Canal.
- Ladderedge Country Park – Staffordshire Moorlands District Council. Local Nature Reserve.
- Land at southern end of Barnfield Road, adjacent to Bestwick Scrap Yard – Mr Cantrell, Rocks Bar Farm, Upper Hulme, Leek.

The table below highlights land owners that may be affected at each of the route options:

Route Options	Businesses/ landowners affected by route option
Route 1	• Hughes Concrete • Staffordshire Moorlands District Council • British Waterways • Mr Clewes, Wall Grange Farm, Leek
Route 2	• Hughes Concrete • Staffordshire Moorlands District Council • British Waterways • Mr Cantrell, Rocks Bar Farm, Leek • Bestwick Scrap Yard • Mr Clewes, Wall Grange Farm
Route 2a	• Hughes Concrete • Staffordshire Moorlands District Council • British Waterways • Mr Cantrell, Rocks Bar Farm, Leek • Mr Clewes, Wall Grange Farm, Leek • Bestwick Scrap Yard
Route 3	• Staffordshire Moorlands District Council • British Waterways • Mr Clewes, Wall Grange Farm, Leek

Route 4	• Hughes Concrete • Kerrygold • Goodwins • Paragon Renault dealer • Travis Perkins Builders Merchants • IAE • Focus • Churnet Valley Pub site • Staffordshire Moorlands District Council • British Waterways • Mr Clewes Wall Grange Farm
Route 5	• British Waterways • Mr Clewes, Wall Grange Farm, Leek • Staffordshire Moorlands District Council

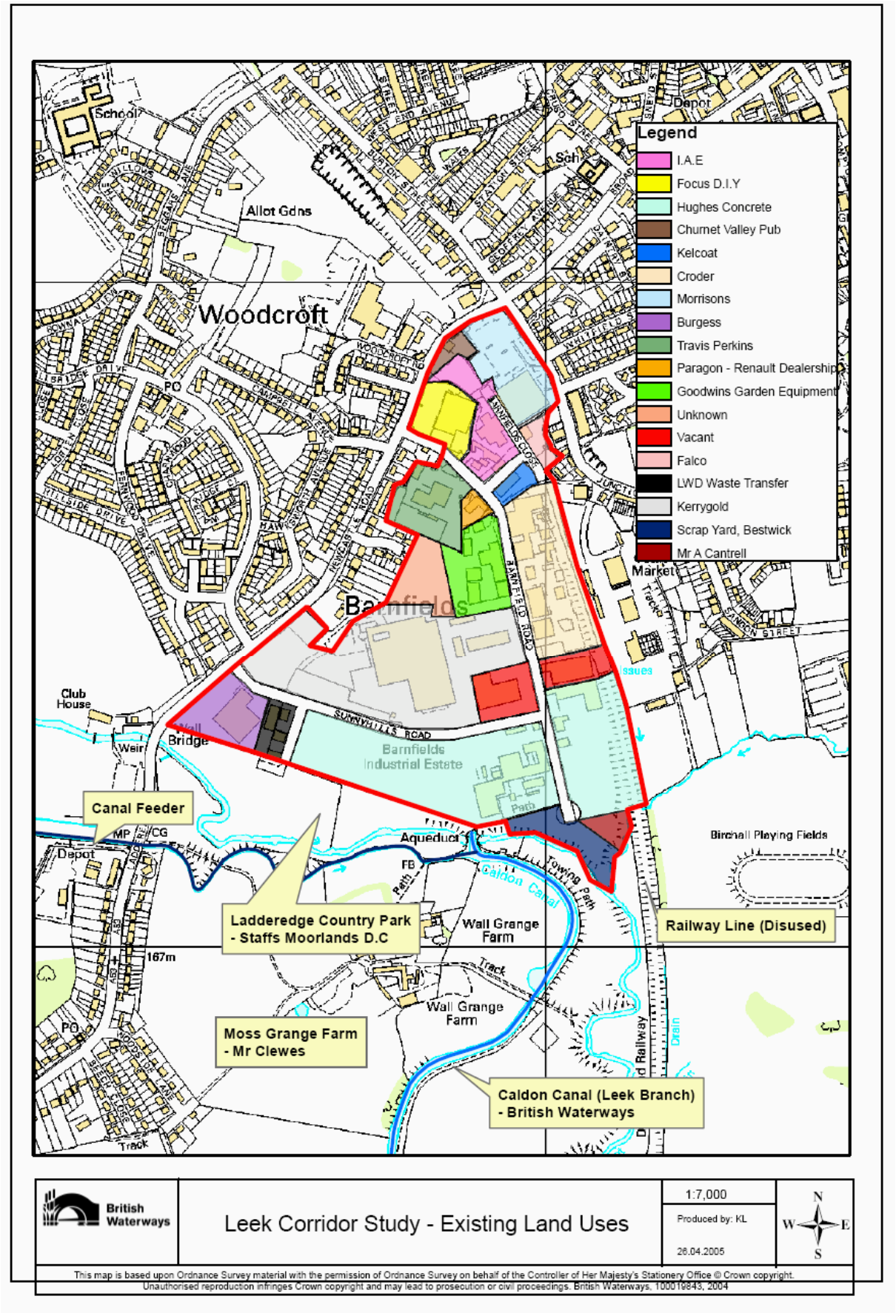

Legend
I.A.E
Focus D.I.Y
Hughes Concrete
Churnet Valley Pub
Kelcoat
Croder
Morrisons
Burgess
Travis Perkins
Paragon - Renault Dealership
Goodwins Garden Equipment
Unknown
Vacant
Falco
LWD Waste Transfer
Kerrygold
Scrap Yard, Bestwick
Mr A Cantrell
Woodcroft
Barnfields
Barnfields Industrial Estate
Allot Gdns
School
Depot
Market
Club House
Weir
Bridge
Canal Feeder
Aqueduct
Ladderedge Country Park - Staffs Moorlands D.C
Wall Grange Farm
Railway Line (Disused)
Moss Grange Farm - Mr Clewes
Caldon Canal (Leek Branch) - British Waterways
Birchall Playing Fields
167m
British Waterways
Leek Corridor Study - Existing Land Uses
1:7,000
Produced by: KL
26.04.2005
This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. British Waterways, 100019843, 2004

Figure 4

3.3 Planning Context

3.3.1 Staffordshire Moorlands Local Plan

The development framework for the study area is set primarily by the current Staffordshire Moorlands Local Plan (SMLP), adopted in September 1998. Figure 5 (page 20) shows the land use designations in the Plan for the study area.

The general objective of the Plan is to balance the needs for development with conservation of the existing value of the area. It contains proposals for development of specific sites and policies on a range of relevant issues to guide development across the district.

3.3.2 Leek General

The SMLP gives specific attention to a number of localities and centres as well as general issues. One such centre is Leek and below extracts from the plan:

QUOTE:

11.26 **Leek**

i) Leek is an historic town which stands on a promontory just below the open moorland of the Peak District National Park. A large proportion of the town's buildings date from the 19th Century when the industrial revolution resulted in a major expansion of the town. The historic core of the town contains a number of significant listed buildings and is designated as a Conservation Area. The town has grown so that it now occupies all of the flat land on the promontory and the more easily developed parts of the valley which surrounds it. This has resulted in a compact town set in attractive surrounding countryside with only a small number of formal open spaces preserved within it. This means that any future expansion of the town will probably result in an intrusive extension of the built up area into the surrounding countryside.

ii) The town's population has remained largely static at almost twenty thousand since the 1960's and the town has retained an independent economic identity with the majority of the town's residents finding work in the town. Leek has a broad spread of employment opportunities and serves as a service centre for a large rural hinterland. Therefore it has a significant retailing sector and a good range of public services.

iii) There is a high number of housing commitments in the town therefore only two new sites have been allocated for housing.

iv) There is already a significant level of committed employment land in the town so only one site is allocated as follows:

a) Cornhill**,** 3.7 ha., located to the rear of the Britannia Building Society offices below the Cattle Market and above Birchall Playing Fields. The site comprises gently sloping land partially screened by the new office development and will be an extension of one of the town's existing industrial areas. Access will probably be gained from the new road which serves the new office development, although alternatives including access from the existing Barnfields industrial area will be evaluated. A traffic impact assessment will be required in connection with any detailed application to develop the site. The site can be economically provided with all services through limited upgrading. There should be no building within 6m of the watercourse on the southern boundary. Power lines will need to be relocated at the developer's expense.

v) The Town Centre is in need of revitalisation including environmental improvement, new shopping provision and improved car parking. See also Section 7 'Town Centres & Shopping - Policy S6).

vi) An area of land adjacent to All Saints Church is designated as Visual Open Space to protect an important view of the church (see also Section 8 'Recreation & Tourism' - Policy R5).

vii) Leek lies on the outer edge of the North Staffordshire Green Belt and the boundary has been drawn around the western side of the town. No new development is proposed in the Green Belt. A Town Development Boundary has been drawn to coincide with the Green Belt boundary and also forming the edge of the Special Landscape Area on the west side of the town and continues around the remainder of the town to the east. This will allow for suitable small-scale development within the town, in keeping with its character, whilst preventing further expansion into open countryside. The industrial estates at Leekbrook have also been excluded from the Special Landscape Area.

UNQUOTE

The Plan also focuses on employment provision, which is especially relevant to the Study as the Barnfields Industrial Estate is zoned for employment use, with the only proposed new employment area being Cornhill just east of the disused railway.

The Plan indicates that:

QUOTE

Leek has a high level of 'self-sufficiency' with about 65% of local people finding jobs in the town. Nevertheless over 2000 people still travel out of the town to work. The town is also a significant source of employment for people living elsewhere in the District as befits its role as the District town and main service centre for a large rural hinterland. It is important that the town should continue to perform this important role.

The existing Plan shows that Leek has about 13.4ha. of land for industrial development at White's Bridge (10ha.), Cornhill (1ha.) and Basford Lane, Leekbrook (2.4ha.). There is a small area of redevelopment land at the Station Yard. The site at White's Bridge has been allocated on the Leek Local Plan since 1981. It is well located alongside the A523 and is not intrusive. A number of problems afflicted the site, particularly site access and site assembly, but these appear to have been overcome and planning permission has been granted. An extension to the Cornhill site is proposed which will help to increase the range of sites available for employment development in Leek.

UNQUOTE

The Plan also indicates that the loss of suitably located industrial land is not desirable as replacement may not be possible and so includes the following policy:

QUOTE

Policy E7 Existing Employment Sites
Development involving the loss of existing employment sites will not be permitted except where it can be shown that the location is undesirable in environmental or traffic terms and where an alternative site is available.

UNQUOTE

3.3.3 Policies Specifically Relating to the Caldon Canal and its Associated Area

Specifically Staffordshire Moorlands District Council identifies the Caldon Canal as an important recreational facility as identified below:

QUOTE

The Caldon Canal
8.22 The Caldon Canal runs from Stoke-on-Trent, via Endon and Cheddleton to Froghall in the heart of the Churnet Valley. A short branch runs from Hazelhurst Locks, just west of Denford, via a length of tunnel, to Leek. The canal was improved during the 1980 to 'Touring' standard.

8.23 Boating as a recreational past-time has become increasingly popular on the Caldon Canal. However, this trend is constrained due to a lack of moorings and associated facilities such as sanitation blocks, water supply points and accessible shops.

8.24 Securing the provision of extra facilities along the canal may result in problems. The canal lies within the North Staffordshire Green Belt; limiting the scale and use of any recreational development (a permitted Green Belt use). The conflict between increasing visitor facilities and nature conservation will need to be given due consideration, especially as the natural environment is one of the most appealing aspects of the canal. Access to the canal is limited with suitable access points generally only being available where the canal passes through villages. Endon and Froghall have some form of facility provision and Cheddleton seems the logical place for the location of suitable facilities.

8.25 The Leek arm of the canal suffers similar problems and the search for a suitable site should be concentrated on the Leek end, giving a destination to the branch and a place to moor and visit Leek.

Policy R12 Caldon Canal
Along the Caldon Canal the development of visitor moorings and associated facilities including parking provision, sanitation blocks, interpretation facilities and provision of food and fuel will be given sympathetic consideration provided that they are located within village development boundaries or within existing groups of buildings and are in keeping with their surroundings in design and scale.

UNQUOTE

Within the study area, The Staffordshire Moorlands Local Plan recognises a number of general issues that will directly affect the canal and its surrounding area as identified below:

The site is located within a Special Landscape Area.

QUOTE

Policy N8 Special Landscape Area
In the special landscape area permission will not be given for development which would materially detract from the high quality of the landscape because of its siting, scale, design and materials, and associated traffic generation. In areas where the special landscape overlaps the green belt there will be a presumption against most development in accordance with policy N2.

Policy N9 Special Landscape Area
Within the special landscape area the local planning authority will promote and require especially high standards of design for development

UNQUOTE

The study area includes a natural watercourse (the River Churnet) and the artificial canal:

QUOTE

Policy F4 Drainage
Planning permission will not be granted for development proposals which would inhibit or damage the drainage function of the natural watercourse system, or cause or aggravate flooding problems at the site or further downstream unless adequate mitigating measures are carried out prior to the development coming into use. This will include development:
A. in areas which form part of the floodplain and areas at risk from flooding.
B. Preventing access to watercourses for maintenance.
C. Giving rise to substantial changes in the characteristics of surface water run-off.
D. Causing adverse effects upon the integrity of fluvial defences.

UNQUOTE

The canal is covered by a Conservation Area designation:

QUOTE

Policy B10 Conservation Areas
Conservation area consent will not be granted for the demolition of unlisted buildings and important walls where they make a positive contribution to the character or appearance of the conservation area and where planning permission for new development has not been granted unless the local planning authority is satisfied that adequate efforts have been made to retain the building in use, or the building is wholly beyond repair, or is incapable of reasonably beneficial use or where its replacement by alternative proposals or its removal would produce substantial planning benefits for the community which would outweigh the loss of the building.

Policy B11 Conservation Areas
In a conservation area the local planning authority will seek to ensure that development preserves or enhances the appearance or character of the area and is in sympathy with it in terms of scale, siting, alignment, mass, design, colour and materials.

Policy B12 Conservation Areas
Where there are proposals to remove or cut back trees of amenity value in or around conservation areas, the council will create tree preservation orders or will implement conditions of planning permission for their protection or replacement, except where the proposed operations are in the interests of safety or tree management or an enhancement scheme.

UNQUOTE

Part of the Study area is within the North Staffordshire Green Belt:

QUOTE
Policy N2 Green Belt

Except in very special circumstances, there will be a presumption against inappropriate development in the green belt, including the construction of new buildings for purposes other than:-
A) agriculture and forestry.
B) essential facilities for outdoor sport and outdoor recreation provided that the associated built development is of a scale appropriate to the green belt; cemeteries and other uses of land which preserve the openness of the green belt and which do not conflict with the purposes of including land in it.
C) the conversion of rural buildings of permanent and substantial construction to suitable alternative uses in accordance with policy B21.
D) limited extension, alteration or replacement of existing dwellings in accordance with policies H11, H12 & H13.
E) limited infilling in villages listed in policy N3.
F) limited infilling or redevelopment of the major existing developed site listed in policy N5 and in accordance with policy N4.
G) limited affordable housing in accordance with policy H15.

Policy N7 Green Belt
Development which would injure the visual amenity of the green belt by virtue of its siting, materials or design will not be permitted in locations which are within or visually conspicuous from the green belt.

UNQUOTE

3.3.4 Other Initiatives

The main current initiative underway in Leek which could have a potential link with a new canal terminus for Leek is discussed as follows:

a) Cornhill, Leek – Area Action Plan

An Area Action Plan was prepared by Staffordshire Moorlands District Council to guide the future development of the Cornhill area of Leek in Spring/ Summer 2005. The area is located to the south side of Leek, adjacent to the area covered by the canal study. It covers an area of around 20.4 hectares. The Action Plan explored future development opportunities and constraints within the Cornhill area.

During the course of this study, this Action Plan was withdrawn by Staffordshire Moorlands District Council in December 2005 pending further work on options for south Leek to be investigated via the Council's Core Strategy. During the course of the Action Plan public consultation process, there was considerable local support for the integration of a enhanced canal terminus as part of future plans for the south side of Leek. (Refer to Appendix 3).

Key elements discussed within the Cornhill area action plan included Leek Cattle Market, Churnet Valley Railway, housing, employment and access. A plan showing the Cornhill Action Plan area is attached in Appendix 3 together with a copy of the Action Plan.

Leek Cattle Market
Long established key land use within the Cornhill area. The market is owned by the Council and managed by Leek Auctions. It is considered preferable to retain the market at its current location.

Churnet Valley Railway
Churnet Valley Railway run trips from Cheddleton to Leekbrook Junction, Consall and Froghall and would now like to extend to Leek and create a new terminus. The action plan highlights advantages of a new rail terminus both for the Churnet Valley Railway and for

Leek including increased tourism in Leek and the Churnet Valley and the creation of a sustainable alternative access to the town centre with a possible park and ride facility. This has the potential to have a close link to the canal with the opportunity for a joint terminus at this location. Options 2 and 2a within this study provide more detail of a possible basin location and link with the railway.

Employment
Part of the site is allocated for employment uses within the current local plan on land to the south of the cattle market although this has yet to be developed. The action plan indicates that if local access issues can be resolved as part of comprehensive redevelopment of the Cornhill area, then this area may come forward for development.

Housing
A recent housing needs survey undertaken by the council has highlighted that more affordable housing is needed in Leek and indicates that the Cornhill area may be a suitable location.

Access
The action plan advises that the Highways Authority have provided comments on the potential for redevelopment within the Cornhill area and welcome the idea of a rail link into Leek. The County Council would wish to see traffic movements reduced where possible. The County Council's suggestion in the plan, of a possible vehicular link to Newcastle Road via Barnfields/ Sunnyhills Road to relieve pressure on Junction Road but several third party constraints, would need to be overcome. The County Council suggests that any development brief prepared for the site should incorporate public transport, walking and cycling initiatives.

Possible impact on a canal terminus at Leek
The common objectives of providing a new terminus for visitors to Leek and a sustainable new access to the town centre are reflected in the proposals for a new canal destination at Leek and the possible reopening of the Churnet Valley Railway. Consideration should be given to incorporating the canal into ideas for this area in any masterplan or development brief prepared for Cornhill by Staffordshire Moorlands District Council.

Non-specific initiatives are:

b) Moorlands Town Partnership
Moorlands Town Partnership currently comprises the Staffordshire Moorlands District Council, English Heritage and Leek Town Council. The Partnership is currently concerned with Leek and its remit is to tackle its environmental and economic problems concentrating on those in the town centre. The Partnership will work towards the implementation of the Leek Action Plan prepared by the Civic Trust Regeneration Unit. Grant aid, administered by the Town Partnership, is available for a variety of environmental schemes that aim to be a catalyst for economic regeneration in the historic town core.

c) Leek Town Centre
Environmental improvement in and around the town centre is being achieved by the Moorlands Town Partnership. The District Council is also keen to see the economic and social regeneration of the town centre that will be achieved by a combination of refurbishment and improvement.

The District Council in conjunction with other bodies is preparing a Transport Strategy for Leek. The objectives of the Strategy are to utilise existing highway space in imaginative ways to continue to meet the needs of the community for movement and mobility in ways that respect environmental constraints.

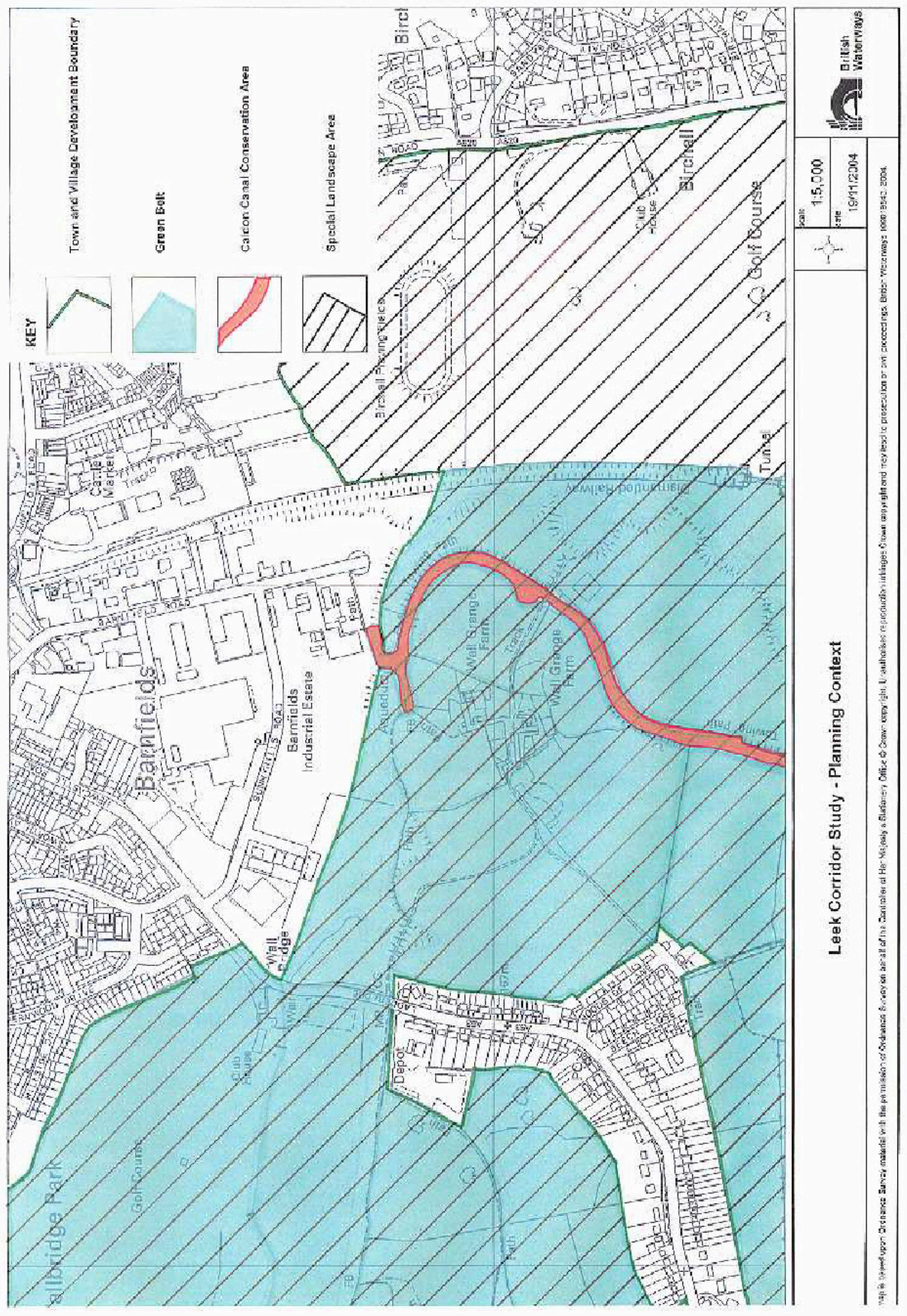


Figure 5 – Planning Context

3.4 Natural Heritage

3.4.1 Strategic Context

The following documents are key to providing the strategic context from which to review the ecology of the study area:

a) Staffordshire County Biodiversity Action Plan (BAP)

The Staffordshire BAP includes a wildlife audit that places this section of the Caldon Canal within the Churnet Valley and Potteries Natural Area.

The BAP includes a number of habitat and species action plans that will be of relevance to the site. These include:

Species Action Plans (SAPs) for:

- Otter
- Water vole
- Barn owl
- Grass snake
- Great creasted newt
- White-clawed crayfish

Habitat Action Plans (HAPs) for:

- Ponds, lakes and canals
- Rivers and streams.

Actions referring directly to canals are included in the water vole plan. Other plans contain actions that will be relevant to the site.

When detailed surveys have been undertaken of the site and adjacent areas it may become apparent that other habitats and species referred to within the BAP are present.

b) Relevant Nature Conservation Policies extracted from Staffordshire Moorlands District Council Local Plan

QUOTE
Nature Conservation
2.24 In recent years awareness has grown of how much pressure wildlife and habitats are under from development. There is a need to safeguard nature conservation interest throughout the countryside and not just on specific sites. Apart from identifiable sites of nature conservation interest, PPG 9 'Nature Conservation' requires that the value of areas which provide links or corridors for wildlife between one habitat and another need to be given proper consideration. Such links and corridors may include woods, ponds, rivers, canals and hedgerows.
2.25 In its capacity as Local Planning Authority the District Council has an obligation to consider how development will affect both the wildlife and the habitats upon which wildlife depends, and the varied geology of the District. The protection and conservation of a species rich countryside is a prime consideration of this Local Plan. Very little of the English landscape we see today has not hedgerows, flower-rich meadows, heathlands and wetlands and an increase in river and air pollution.
UNQUOTE

c) Designated Nature Conservation Sites

There are currently no internationally protected sites or National Nature Reserves within the study area. However Ladderedge Country Park is identified as a Local Nature Reserve.

QUOTE
Local Nature Reserves
2.27 The National Parks and Access to the Countryside Act, 1949, gives Local Authorities the power to acquire, declare and manage Local Nature Reserves. Such reserves are important not only for conserving wildlife and natural features but can also be outdoor classrooms for schools and places where the public can experience and enjoy nature. To qualify as a Local Nature Reserve the Local Authority must be satisfied that the site is of special interest and is capable of being managed as a reserve. Once a site is identified English Nature has to be consulted over the proposal. Where appropriate the District Council will consider the designation of Local Nature Reserves to protect wildlife and natural features which are of special value. Other sites of significant local nature conservation value will be safeguarded wherever possible.

Unimproved Grasslands
2.28 Grasslands in this country arose because of livestock husbandry and the traditional management of meadows and pastures produced habitats which supported a rich variety of plants and animals. Intensification of agricultural practises, such as increased use of fertilisers pesticides and land drainage, along with other agricultural operations outside planning control, have resulted in the disappearance of the majority of species rich, unimproved grasslands. There is a continuing threat to unimproved grasslands in the District and they require specific protection. Policy N17

Wetlands
2.31 Water areas are important both as wildlife habitats and as amenity and recreation features. River corridors may form important wildlife links between one habitat and another, and often form important habitat areas themselves. Access to watercourses, canals and areas of standing water may be encouraged to allow for appropriate forms of recreation. Areas of open water may be flowing (rivers, streams and canals) or standing (reservoirs, lakes, ponds). Wetlands occur wherever the water table is sufficiently high to support specialised plant communities such as reeds, sedges or mosses. There are many such water areas in the Staffordshire Moorlands ranging from the large reservoirs at Tittesworth and Rudyard to a large number of small ponds and areas of wetland throughout the District. The demand placed on these water areas from the needs for water supply, nature conservation, amenity/recreation and development (including drainage of land for agricultural improvement) can lead to conflicts. In particular they may lead to damage or loss of significant habitats. Policy N19
UNQUOTE.

Other policies relating to the protection of water courses are contained in Section 9 'Facilities and Utilities' - Policies F4 & F5. In appropriate cases the Council will seek contributions from developers towards the provision of environmental schemes in accordance with Policy A1 in Section 10 'Achieving the Plan'.

d) British Waterways and Biodiversity – A framework for Waterway Wildlife Strategies, published by British Waterways, (2000)

British Waterways corporate guidance for the the production of Biodiversity Action Plans for individual waterways includes generic HAPs for canal and river channels, waterway banks, towpath verges, hedgerows, cuttings and embankments, built structures, reservoirs, lakes and ponds, tips, feeders and streams, reedbeds, adjoining land, field margins and woodland and scrub. A number of these habitats occur on or adjoining the Caldon Canal within the study length. British Waterways' BAP framework also includes generic SAP's for water vole, otter, amphibians, reptiles, fish, freshwater sponges, molluscs, butterflies and moths, bats, white clawed crayfish, water plants, birds, dragonflies and damselflies and trees and a number of these are known to be important features of the Caldon Canal and its feeder.

3.4.2 Site Inspection

The area was visited on 18 March 2004 by British Waterways staff for a scoping survey to highlight any potential ecological issues for the restoration, extension and development of the canal in Leek. Five sites were surveyed for the potential for a mooring basin, as outlined in the Consultant's Brief. The ecological implications of each of these options are discussed in chapter 4 of the study.

The canal runs alongside the River Churnet, on the higher ground of the river valley. The study area covers the extent of the navigable section of canal and includes the canal supply feeder that comes from Rudyard Reservoir located to the north west of the area. The immediate adjacent land use is predominantly sheep and cattle grazed pasture. Within Ladderedge Country Park, the River Churnet is lined with a mix of mature broad-leaved trees with occasional scrub. There is an area of rough grassland to the north of the river of county wildlife site standards and is used by dog walkers.

The canal has soft bank with an emergent fringe dominated by reed sweet-grass, on both towpath and offside. The offside also has occasional mature alder and in places, has been poached by sheep gaining access to the canal water. The towpath embankment is a typical mix of rough grassland and ruderals such as thistles, dock and nettles, sloping towards the river flood-plain.

The feeder section to the canal is also soft bank. There is in places a hawthorn/alder fringe. Part of the section runs through a buried pipe due to the surrounding topography.

As part of the design process, the following activities will need to be carried out:

- Further surveys for protected species (water vole, white-clawed crayfish, amphibians and aquatic macrophytes)
- Further vegetation surveys
- All survey results to be fed back for national biological recording scheme and Caldon Canal Biodiversity Action Plan.
- Determine mitigation measures.
- Determine measures for habitat enhancement.

3.5 Built Heritage and Archaeology

3.5.1 Historical Development of the Leek Canal

The following text is taken from a note prepared by the Caldon Canal Society;

QUOTE

The Act for the Leek Canal, 37 Geo III Cap 36 received Royal Assent on 24 March 1797. It was described as "An Act to enable the Company of Proprietors of the Navigation from the Trent to the Mersey, to make a Navigable Canal from and out of a certain Branch of their said Navigation, called The Caldon Canal, at or near Endon, to or near the Town of Leek, in the County of Stafford; and also a Reservoir for the supplying the several Canals of the said Company in water."

The Trent & Mersey Company originally planned simply for a canal feeder from the proposed Reservoir in Rudyard Vale to the Caldon Canal, but the landowners in the Leek area objected to this until the Company agreed to make the feeder navigable as far as their Town.

Since the water was needed to feed the summit pound of the Canal (and from thence to the Trent & Mersey Main Line), it had to connect at the nearest point which was Park Lane, Endon. The original summit pound ended at Park Lane Lock where the canal descended through two further locks and pounds to Denford. The Town of Leek and the proposed reservoir at Rudyard were to the north of the valley of the Endon Brook and the summit pound of the Caldon was on the south side, so an embankment was required to cross the valley. The narrowest part of the valley was in the vicinity of Hazlehurst Wood and this is where the embankment was to be built. But first, the summit of the Caldon Canal was extended along the south bank to Hazlehurst Wood, and a triple staircase lock was built near the end of the proposed embankment down to the original level of the Caldon Canal at Denford. When the staircase was completed and opened, the canal from Park Lane Lock to Denford was closed and an embankment constructed with an aqueduct for Endon Brook to pass through. The land where the original line from Park Lane to Denford used to go was sold back to the adjacent landowners.

The work took over four years and the boats were able to use first the original canal and later the new canal to Hazlehurst Wood in order to transport the materials for canal building and later for the construction of the embankment. Work would have progressed on the dam and reservoir at Rudyard, and on the feeder to the Leek Canal, at the same time.

Stone was quarried as close as possible to where it was needed. There was a quarry in Hazlehurst Wood which supplied the stone for the triple staircase and the Endon Brook Aqueduct.

When the embankment was completed boats could transport stone to the end of the feeder where an aqueduct was constructed over the River Churnet and another embankment made to enable the canal to reach the canal basin in Leek. John Rennie, the Canal's engineer, made his final inspection in March 1801 and the Canal would have opened shortly afterwards. When another Act was put before Parliament, 42 Geo.III Cap.25, regarding the alteration of the course of the Froghall Railway, the Leek canal was open. In the preamble to this Act , which quotes all the previous Acts, and gives a progress report on them, it says of the 1797 Act:

"And whereas, by another Act, passed in the Thirty-seventh Year of the Reign of His present Majesty, the said Company have made and completed a navigable Cut from the last mentioned Canal, which is now called The Caldon Canal, to Leek, and also a reservoir for supplying the said Canals with Water". This 42 Geo III Act received Royal Assent on 15 April 1802 but it had been written and printed months beforehand in order to be read and reread before Parliament finally passed it.

The Leek Canal continued in use, without any alteration for forty years, until it became necessary to address the problem of the bottleneck caused by the triple staircase locks at Hazlehurst. At the suggestion of John Rennie the younger, the embankment was pierced and a grand aqueduct built to re-open part of the old canal route. Three separate locks and pounds, with water saving side pounds, were built to by-pass the triple staircase. At what was called Hazlehurst New Junction, about half a mile west of the original junction, a new connection was made. A lock keepers house was built at this new junction and a cast iron towpath bridge erected for the horses. The iron bridge and the Hazlehurst Aqueduct both carry the dates of their construction, 1841 and 1842. The water wasting triple-staircase locks eventually became disused.

A third aqueduct was constructed in the Denford embankment when the North Staffordshire Railway Company, the then owners of the canal, built a railway line from Milton Junction to Leekbrook Junction to join Stoke to the Churnet Valley Railway. This cast iron trough, similar to the one used at Pontsycyllte Aqueduct on the Llangollen Canal, was built shortly after 1863, the N.S.R. Leek Branch being officially opened on 1 November 1867.

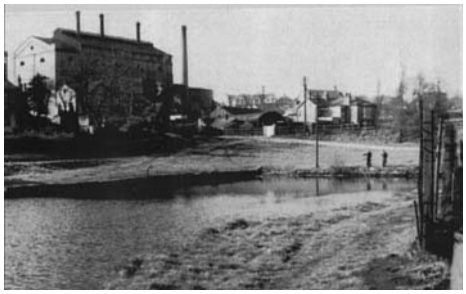
The Leek Canal continued to be used though with less and less traffic, due to railway competition. Coal traffic stopped in 1934 but tar was carried until 1939 when all commercial use of the canal ceased. In 1944, by Act of Parliament, London Midland Scottish Railways who took over the NSR Company, officially abandoned the Leek Canal. The canal gradually became silted up and could only be used by shallow draught pleasure cruisers.

In 1957, Leek Urban District Council bought the embankment section from the Churnet Aqueduct to Leek Basin and filled in the canal with rubble. The land was later used to form part of Barnfields Industrial Estate.

The Caldon Canal Committee, the fore runner of the Caldon Canal Society, was formed in 1963 following a National Rally of Boats organised by Stoke-on-Trent Boat Club and the Inland Waterways Association on the Trent and Mersey Canal at Stoke. They campaigned for the restoration of both the Caldon and Leek canals. The combined efforts and financing of the Staffordshire County Council, Stoke-on-Trent City Council, the British Waterways Board and the Caldon Canal Society volunteers, made this possible.

Although the Leek Canal remained a 'Remainder Waterway', the Caldon Canal was restored and reopened on 28 September 1974. The Leek Canal was restored shortly afterwards and they were both granted 'Cruiseway' status in 1983.

UNQUOTE



Leek Basin c. 1940. (Photo supplied by Caldon & Uttoxeter Canals Trust).

3.5.2 Caldon Canal Conservation Area

The entire length of the Caldon Canal including the Leek Arm is located within a Conservation Area. The boundary closely follows the line of the canal and widens at various points to include buildings and spaces that contribute to the canal's character and appearance. Within the study area the Conservation Area extends to the point where the Leek Arm meets the canal feeder to the north of Wall Grange Farm and incorporates Barnfields Canal Aqueduct and a short stretch of the River Churnet. The location of the Conservation Area is shown in Figure 5 (page 20).

The canal has been designated a Conservation Area as an example of the technical innovation in engineering and as a major linear transport route which influenced the industrial history in the surrounding area.

Staffordshire Moorlands District Council publication "Caldon Canal Conservation Area (1998)" explains the reasons for and the effects of the designation of the Caldon Canal as a Conservation Area. Its acts as a supporting document in determining planning applications. Its content includes:

- A character appraisal of the Canal, identifying the special character of the Conservation Area.

- Enhancement, highlighting key areas for improvement within the Conservation Area. Land at Barnfields Industrial Estate, Leek has been identified as requiring improvement 'through appropriate planting and hard landscaping'.

- Design and Development Strategy providing design guidance for those considering submitting a planning application within the Conservation Area. Generally it advises that development within the Conservation Area should 'preserve or enhance the appearance or character of the area and be in sympathy with it in terms of scale, siting, alignment, mass, design, colour and materials.'

Relevant Extracts from 'Caldon Canal Conservation Area', Staffordshire Moorlands District Council are included in Appendix 6.

3.5.3 Listed Structures

Within the study area there is one listed structure:

- Statutory Name: Barnfields Canal Aqueduct at NGR SJ 979 551
- Statutory Description: Aqueduct. 1801. John Rennie, engineer. Coursed and squared stone. Retaining walls and arch structure curved in both planes, with stepped parapet, plain string course and rusticated voussoirs to arch. The aqueduct formerly carried the Caldon Canal over the River Churnet into the Leek canal basin.

The aqueduct is generally in good condition and is not at risk. Its condition is monitored on a regular basis by Staffordshire Moorlands District Council. A copy of the most recently available inspection report undertaken by Staffordshire County Council for Staffordshire Moorlands District Council is included in Appendix 4.

A further listed structure is located on the canal just to the south of the study area:

- Statutory Name: Bridge over canal known as West Bridge (no.9) near Wall Grange Farm at NGR SJ 980 549)

- Statutory Description: Bridge over canal. 1801. John Rennie, engineer. Coursed and squared red sandstone. Elliptical arch with string course below plain parapet with terminal piers.

It is important that the historic character of the canal and aqueduct are retained as part of any proposals in this area. Planning permission, listed building consent and conservation area consent will be required for the majority of the route options and this is discussed further in chapter 4.

3.6 Recreation & Access

The demand for recreation and leisure facilities has expanded greatly following a general increase in leisure time, mobility and incomes. Within Staffordshire's urban areas, there is demand for more formal and outdoor facilities for a wide range of activities. There is also a need to provide green spaces between built up areas to create variety and interest and allow people to undertake informal recreation. The varied and attractive countryside of the Staffordshire Moorlands is very popular for many traditional countryside leisure activities such as rambling, climbing, cycling and bird watching. Part of the study area encompasses Ladderedge Country Park to the south of Leek.

3.6.1 Ladderedge Country Park

Ladderedge Country Park comprises of 30 hectares (70 acres) of fields and woodland, with ponds, marshland and streams, lying in two contrasting sections. The Barnfields section of the park lies alongside the River Churnet. The main section of the park lies to the west where there are commanding views over Leek and towards the Peak District. The park is well used by local people for short circular walks. Recent footpath improvements within the park have allowed part of Barnfields section to be accessible to disabled visitors via the park's car park off Sunnyhills Road. An access to the park has also been created at Wall Bridge on Ladderedge (A53). The country park provides a gateway to the wider countryside via a network of local routes and trails.

3.6.2 Local Routes and Trails

Both Staffordshire Moorlands District Council and Staffordshire County Council play an active part in encouraging countryside access across the area and have produced a series of leaflets to promote a number of local routes and trails. A number of sign-posted routes extend from the Country Park following either the canal or its feeder channel from Rudyard. Local walks include:

- **Staffordshire Moorlands Walk, 'Leek Landscapes'.** The moderately long Staffordshire Moorlands Walk, 'Leek Landscapes' – 16 kilometres / 3 to 5 hours, allows a circlular route through the countryside surrounding Leek. The walk starts and finishes at the Country Park car park off Sunnyhills Road.

- **Deep Hayes Walk.** Three circular walks follow routes through the countryside around Deep Hayes Country Park, 3 kilometres from Leek. One of the walks follows the canal feeder and part of the Leek Arm of the Caldon Canal through Ladderedge Country Park. Within the study area, the route is accessed from a surfaced access road leading to Wall Grange Farm. The local walk leads to Deep Hayes Country Park, managed by Staffordshire County Council.

- **Staffordshire Way.** The Staffordshire Way is a long distance walking route, spanning the length of the County for 148 kilometres from Mow Cop in the north to Kinver Edge

in the south. Part of the route passes through the southern section of Ladderedge Country Park following the canal feeder close to the study area. The Staffordshire Way forms part of Britain's length of a 3030 mile long distance European Footpath Route running from Galway to Nice.

The various routes and trails passing through the study area are shown in Figure 6(page 29).

3.6.3 Boating

Boating as a recreational pastime has become increasingly popular on the Caldon Canal. However, no boating facilities currently exist on the Leek Arm of the Caldon Canal. The nearest existing boating facilities are located at Park Lane Wharf, adjacent to Park Lane Bridge (no.31), Endon, within an hour's boat trip of the northern end of the Leek Arm. Facilities include water, pump out, laundrette, showers and wc. Linear moorings at Park Lane Wharf are currently full and there is a waiting list. Linear moorings near the junction of Leek Arm and the Caldon Canal are in a rural location with no facilities. Currently many boaters make the trip south to the Caldon's terminus at Froghall, where new facilities are being developed. Few venture along the Leek Arm due to no facilities or winding hole being available; boats turn before Leek at West Bridge (no.9).

Staffordshire Moorlands Local Plan states:
QUOTE
'the need to search for a suitable site… concentrated on the Leek end giving a destination to the branch and a place to moor and visit Leek'.
UNQUOTE.

Policy R12 specifically states :
QUOTE
'Along the Caldon Canal the development of visitor moorings and associated facilities including parking provision, sanitation blocks, interpretation facilities and provision of food and fuel will be given sympathetic consideration provided that they are located within village development boundaries or within existing groups of buildings and are in keeping with their surroundings in design and scale'.
UNQUOTE.

3.6.4 Trip and Hire Boats

Canal boat trips afford great potential in attracting visitors to the canal. They can provide an appealing way of experiencing the canal and provide a valuable means of access for the disabled and elderly. Canal trips can also provide a stimulating experience for educational purposes and for interpretation of both rural and urban landscapes.

A trip boat 'Birdswood' operates on the Caldon Canal and is based at Froghall Wharf. The only trip boat that currently comes close to Leek is The Beatrice Charity. This trip boat is specially adapted for wheelchair users and operates from Cheddleton. The boat uses the Leek Arm but turns before it reaches Leek as it is not currently possible for passengers to reach the canal or board the boat at Leek. The approximately hour long trip from the northern end of the Leek Arm to its junction with the main line of the Caldon Canal at Hazlehurst aqueduct would form a suitable length for a trip boat passing through attractive scenery providing a suitable mooring area and operational base could be established. A new terminus at Leek could provide an opportunity to link to the town centre and its services.

There is currently one small hire boat company (single boat) operating from 'Fine Feathers' near Post Lane, Endon on the Caldon Canal. Black Prince Holidays in Stoke-on-Trent on the Trent & Mersey Canal is the nearest major hire boat base to the Caldon Canal.

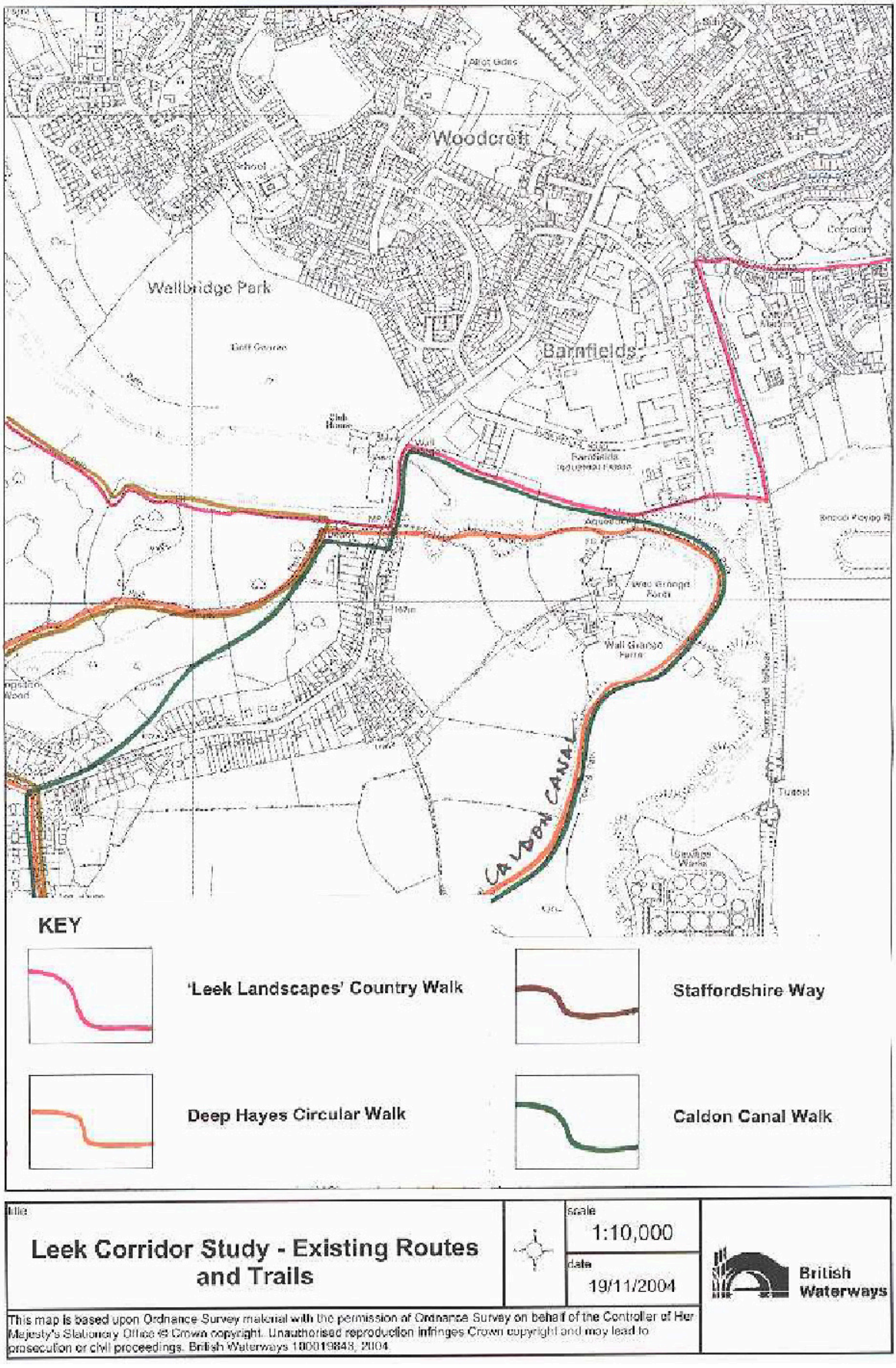


Figure 6 – Existing Routes & Trails

3.7 Water: Flooding, Quality and Resources

3.7.1 Overview

The study area includes two major watercourses: the River Churnet and the Caldon Canal Leek Arm / Rudyard canal feeder.

The River Churnet's flows are maintained by compensation outflows from Tittesworth Reservoir (north of Leek) owned and operated by Severn Trent Water plc.

The river does flood, and the study area includes areas of designated washland, where works raising ground levels require Environment Agency (EA) consent and are unlikely to be permitted without appropriate compensation works. A copy of the indicative flood plan obtained from the Agency is included in Appendix 5. Any option involving works in the washland, affecting the river banks or in / over the river itself, will require EA consent. The EA will consider implications for the river flow regime as well as environmental issues

The canal feeder from Rudyard Reservoir, owned and operated by British Waterways, joins the Leek Arm at the current terminus in the vicinity of the infilled Barnfields Canal Aqueduct. This feeder provides a supply under gravity to the Leek Arm and via the Arm to the summit pound of the Caldon Canal at Hazlehurst. From this summit pound, water feeds eastwards down Hazlehurst Locks towards Froghall and westwards down Stockton Brook flight of locks to the Trent & Mersey Canal (T&M) at Stoke-on-Trent. This western feed contributes to the commercial water supply down the T&M to industrial abstractors in Middlewich and Northwich.

Any option affecting the feeder or the canal will need to consider implications for the canal water supply.

3.7.2 Water Quality

The Environment Agency monitor water quality in the River.Churnet below Tittesworth and report the water quality to be GQA "A" (Very Good) compliant with its River Quality Objective.

There are no reported pollution issues on this section of the River.

The Environment Agency do not monitor Rudyard Reservoir, the feeder or the Leek Arm, so no direct water quality data is available. However they monitor the water quality in the main line of the Caldon Canal, which of course is fed from the Leek Arm. This is given as currently GQA B ("Good"), compliant with its River Quality Objective of RE3 (water of fair quality, suitable for high class coarse fish populations).

Rudyard Reservoir has suffered from Blue Green Algae blooms in the past and there are records of these problems extending to the Caldon Canal at Cheddleton.

3.7.3 Groundwater

The site is underlain by an aquifer subject to a series of small-scale groundwater abstractions as shown in an Environment Agency plan included in Appendix 5. The study area does not include any protected Inner/Outer catchment zones.

3.7.4 Canal Water Supply

Water supply for the Caldon Canal is from two sources; Reservoirs and groundwater bore holes. Two of the three Reservoirs and one of the two bore holes feed the summit pound, whilst one reservoir and bore hole enter the canal at a lower level due west of Stockton Brook lock flight. Water from this system is not just used for the Caldon navigation, but also cascades down to the Trent & Mersey Canal where it is utilised for navigation and commercial abstractors.

On any canal network, the summit is the most vulnerable length. Being at the top of the system it is entirely dependent on its feeds to maintain water levels as every boat movement, up or down, passes a lock full of water down the canal.

At the present rate of lockage (2002 to 2004) – approximately 2,800 lockages on average per year through Hazlehurst locks, and 3,200 lockages per year through the Stockton Brook flight (based on readings at Engine Lock) – a total of 6,000 lockages of water from the summit pound each year – there is sufficient water resource availability for the present level of service.

To ensure that the present level of service is maintained and does not deteriorate in years of low rainfall, it is necessary to consider what impact a new basin may have on lockage demand – and hence on the 'fixed' level of supply from the reservoirs and groundwater bore holes. It is unlikely, for example, that any option requiring diversion of flows off the summit (ie. down through a new lock) would be acceptable without the provision of additional new water supply. This could also be achieved by the re-circulating of existing water via a back pumping arrangement from a lower pound level so as to return water to the summit.

In addition, given the importance of this summit feed to the rest of the Caldon Canal and other users downstream, any new development on the Leek Arm must protect the feeder supply to the rest of the canal. This can be ensured by designing new basins etc such that they can be 'closed off' such that in the event of a failure of any new basin, the feed can continue to the canal network.

3.7.5 Potential Impact of Increased Boat Movements

As stated above, the current rate of lockage from the summit pound is around 6000 every year.

So what impact would developments at Leek, drawing more boats onto the summit, have?

1) Boats currently crossing the summit to Froghall would divert to Leek possibly instead or as well as going to Froghall.
2) Permanent moorings would create additional lockage as boats moored at Leek move on and off the summit during the year.
3) Hire boat operation at Leek would generate additional trips.
4) Additional boats could be attracted to the Caldon to visit Leek.

What would be the impact on water usage?

1) Boats diverting to Leek instead of or as well as Froghall will NOT generate additional water use because the Arm is part of the summit pound – there are no extra locks to pass through.

2) & 3) British Waterways' Boat Movement Model can predict how many boat movements would be generated by permanent moored boats and hire boats (bearing in mind that the Arm is a "dead-end").

Predicted calculations for this are 12 movements/year per permanently moored boat and 60 movements / year per hire boat based at Leek.

Assuming 15 moored boats and 3 hire craft gives a total of 360 extra boat movements/ year

4) Extra visitors to the Caldon Canal are difficult to estimate, but assuming 500 extra lockages (700 additional boats) is considered reasonable.

This gives a total of 860 additional boat movements per year – an increase of approximately 14.3%.

This level of increased demand is acceptable in 'wet' years, but in prolonged periods of dry weather the additional resource may be such that the present level of service cannot be maintained. To prevent this situation from occurring it would be beneficial for an alternative water supply to be found, or a back-pumping arrangement be implemented at Hazlehurst Lock flight.

3.7.6 Impact of Boats on Water Quality

Boats can impact on water quality through two main routes –

- direct disturbance of sediments which creates turbidity (suspended solids in the water) and can release historic contaminants from the silt and
- "greywater" or other discharges to the watercourse.

Turbidity – the waterway is already navigated. Expected increases in boat movements (up to 860 movements from above) may increase turbidity levels.

Greywater – British Waterways principal water quality scientist can confirm that research to date does not show significant water quality problems arising from moored boats (research carried out on large marinas / mooring sites).

There is an increased risk of oil or other accidental pollution from the increased use / permanently moored boats but this cannot be quantified and so is not considered significant. There may be advantage to route options that allow for closing off the new channel / basin from the rest of the system to allow containment of pollution.