PLANNING DESIGN ENVIRONMENT



25. Barnsley Canal at Wilthorpe

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(Edited December 2011)

Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

T: 01925 844004
F: 01925 844002
E: tep@tep.uk.com
W: www.tep.uk.com

TEP

Site Name:	Barnsley Canal at Wilthorpe
Site Area:	33.36ha
Survey Date:	September 2010
Nearest Settlement:	Wilthorpe
Grid Reference at Centre:	SE33651, 08340
Surveyor(s)	VG, LAC, PG

Site Description:

The Barnsley Canal at Wilthorpe LWS Site includes a stretch of the disused Barnsley Canal and adjacent pastoral farmland. The River Dearne is to the north of the site and an active railway line lies to the south, with a mix of arable and pastoral farmland comprising the majority of the wider area. An old section of the river, which was cut off following channel straightening upstream, forms part of the northern site boundary.

The majority of the disused canal is now swamp with reed sweet-grass (*Glyceria maxima)* dominant. At the eastern end of the canal, Himalayan balsam (*Impatiens glandulifera)* and greater reedmace (*Typha latifolia)* are abundant. Greater reedmace and reed sweet-grass are abundant throughout the site in areas of standing water and swamp. Three areas of standing water remain in the section of the canal. An area of standing water at the eastern end of the canal section is dominated by least duckweed (*Lemna minuta)*. Rigid hornwort (*Ceratophyllum demersum)* is abundant and Himalayan balsam (*Impatiens glandulifera)* is rare. In an area of standing water in the centre, there is a patch of floating pennywort (*Hydrocotyle ranunculoides)*. Great willowherb (*Epilobium hirsutum)* is abundant in the most westerly area of standing water.

The majority of the land surrounding the canal consists of semi-improved neutral grassland, with a variety of habitats found within the grassland. The largest parcel of land is in the west of the site, south of the canal. At the western end of this area lies unimproved neutral grassland, where red fescue (*Festuca rubra)* is abundant. To the east of this a willow carr dominated by grey willow (*Salix cinerea)* and a pond. Branched burr-reed (*Sparganium erectum)* and a pond weed species (*Potamogeton sp.)* are frequent within the pond. An area of swamp surrounded by semi-natural broadleaved woodland lies in the centre of the parcel of land, where sessile oak (*Quercus petraea)* and silver birch (*Betula pendula)* are dominant. To the west of the woodland lies an area of semi-improved acid grassland dominated by mat-grass (*Nardus stricta)*. Within the parcel of land there are areas of dense scrub where hawthorn (*Crataegus monogyna)*, blackthorn (*Prunus spinosa)* and goat willow (*Salix caprea)* are dominant. There are also areas of tall ruderal that are dominated by creeping thistle (*Cirsium arvense)*. A species-poor defunct hedge is present in the south east of the area. The hedge contains English (*Quercus robur)* and sessile oaks, field maple (*Acer campestre*), European ash (*Fraxinus excelsior)* and European beech (*Fagus sylvatica)*. South of the hedge lies an area of marshy grassland.

To the north of the canal lies a second parcel of land where there are two areas of swamp with some standing water. Reed sweet-grass and greater reedmace are dominant. There is also marshy grassland present within this parcel of land, where hard rush (*Juncus inflexus)* is abundant.

Along the eastern section of the canal runs a species-poor intact hedge along the northern bank, where there are occasional crab apple (*Malus sylvestris).* Adjacent to the canal and the former towpath there is a strip of modified neutral grassland dominated by false-oat grass (*Arrhenatherum elatius).*

To the north of the hedge lies a third parcel of land where there are areas of dense scrub. Within the scrub there is a scattering of broadleaved trees which include wych elm (*Ulmus glabra),* crack willow (*Salix fragilis)* and white willow (*Salix alba*). Bluebell (*Hyacinthoides non-scripta)* and Japanese knotweed are occasional in this area, and Himalayan balsam is frequent. To the west of the dense scrub lies a small area of unimproved acid grassland and marshy grassland, dominated by tufted hair-grass (*Deschampsia cespitosa).* To the north lies the old course of the River Dearne, which consists of standing water and swamp. In the standing water Nuttall's pondweed (*Elodea nutallii)* is frequent and water starwort species (*Callitriche sp.*) occurs occasionally. Buttonweed (*Cotula coronopifolia*) is abundant on the banks. Greater reedmace is the dominant species in the swamp areas and lesser water-parsnip (*Berula erecta*) occurs occasionally.

In the southeast corner of the site there is an area of tall ruderal, where Himalayan balsam is present along the river channel. At Smithy's Bridge there is a species-poor hedge and trees, which contains Japanese knotweed (*Fallopia japonica*). The hedge connects the river corridor to a large area of swamp to the north.

Important Species:

Ancient woodland indicator species remote sedge (*Carex remota*) (TN 11), bluebell (*Hyacinthoides non-scripta*), wood speedwell (*Veronica montana*) (TN 3) and sessile oak (*Quercus petraea*)(TN 11) were found on site.

UKBAP species: reed bunting *(Emberiza schoeniclus),* grasshopper warbler *(Locustella naevia),* willow tit *(Poecile montanus),* dunnock *(Prunella modularis),* bullfinch *(Pyrrhula pyrrhula)* and song thrush *(Turdus philomelos)* all breed on the site and water rail (*Rallus aquaticus*), a Bird of Conservation Concern (Amber List species) also breeds and winters on site.

The section of canal with standing water and the cut off section of the River Dearne offer potential habitat for great crested newts (*Triturus cristatus*) and water vole (*Arvicola aquaticus*). It is likely that UKBAP priority species common toad (*Bufo bufo*) is present in these areas.

Target Note:	TN 1	
Habitat:	Species-poor hedge	
Species List:		
Scientific Name	**Common Name**	**Frequency**
Crataegus monogyna	Hawthorn	D
Rubus fruticosus agg.	Bramble	A
Hedera helix	Ivy	O
Lonicera periclymenum	Honeysuckle	O
Malus sylvestris	Crab-apple	O
Rosa canina agg.	Dog Rose	O
Sambucus nigra	Elder	O
Silene vulgaris	Bladder Campion	O
Torilis japonica	Upright Hedge-parsley	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

There is a public footpath along the old towpath of the canal and a network of public footpaths along some of the field boundaries of the land to the south of the site which is used frequently by various people. There are also desire lines within the site, through much of the pastoral farmland north of the canal, where there are no public footpaths.

Invasive non-native species Japanese knotweed, Himalayan balsam, Nuttall's pondweed and floating pennywort are present on site. Floating pennywort is in the central section of the canal where it is the locally dominant aquatic species. Nuttall's pondweed is present in a section of the old route of the River Dearne. There are small stands of Japanese knotweed along the canal towpath in the eastern end of the site; there is another stand in the far east of the site adjacent to the fishing lake which borders the site. Himalayan balsam is abundant amongst the swamp in the eastern stretch of the canal; there are also some small stands on the River Dearne in the east of the site.

Scrub removal in the fields south of the canal would protect the grassland habitats present.

Diversity:

This site has a broad diversity of habitats for its size, and rich species diversity. There are some well established wetland/swamp areas with a good mix of aquatic and marginal species. The area to the north of the River Dearne and the old course of the River Dearne are of the most ecological interest. These areas also offer habitat for a range of invertebrate, amphibian and bird species.

The pastoral fields and grasslands to both the north and south of the canal have high species diversity. Between 20 and 35 species were noted per field, with a mix of both acid and neutral species present.

The scrub and broadleaved woodland habitats present provide habitat for nesting birds.

Naturalness:

The meandering old course of the River Dearne, although no longer forming an active part of the river since its channelization upstream, still displays many natural processes and the fairly large area of swamp and standing water that remains has a very natural appearance. The large area of swamp north of the river offers a natural habitat that has not been drained for farming like much of the surrounding land. There are smaller areas of ponds and swamp/marshy areas found throughout the site which display this naturalness but to a slightly lesser degree.

Another area displaying natural processes and appearance is a small area of established broadleaved woodland south of the canal in the western end of the site. Running through this woodland is a small gently meandering stream that has formed some swamp areas either side.

Rare or Exceptional Features:

A section of the disused Barnsley Canal runs the length of the site.

Fragility:

The two main areas of standing water/swamp on site, the old course of the River Dearne and the disused canal are both vulnerable to drying out as there is little supply of fresh water into these habitats. Natural build up of organic matter will occur and the swamp habitat will encroach into the standing water and over time succession of these areas into scrub will follow. Management of these habitats will be required to retain there current mix of swamp and standing water.

Typicalness:

Horse grazed pastoral fields are a fairly typical use of land in the Barnsley area. However the mix of more-acid areas and wet areas within the fields on site and the diversity of the species present is less typical of the area.

There is an area of grey willow (*Salix cinerea*) carr in the west of the site, just to the south of the canal. This is a relatively uncommon habitat in the borough.

The swamp habitat that occurs in the disused canal and the within the old course of the river is not a scarce habitat within the Borough and there are a number of wetland/swamp sites that have a similar mix of species to those that are on this site. However the way in which these have habitats have come about at this site is fairly unusual.

Recorded History & Cultural Associations:

Barnsley Canal was closed in 1953 following many problems with mining subsidence. The section of the canal within the site has since been left largely unmanaged. Only a few sections of open water remain and a build up of silt and organic matter has occurred so that much of the canal has now been populated by aquatic and marginal plants.

The surrounding pastoral fields appear established and are likely to have been grazed (low intensity grazing) for many years.

Connectivity within the Landscape:

The neighbouring land is largely agricultural and pastoral farmland. The River Dearne and the disused Barnsley Canal provide good connectivity to the wider environment, linking the site to other natural areas along the Dearne Valley.

Value for appreciation of Nature and Learning:

There is a public footpath along the old towing path of the canal. There is also a network of public footpaths in the south of the site. The east of the site is adjacent to the residential area of Honeywell.

A small car park off Smithies Lane, near the east of the site, makes the site accessible to people who do not live locally and is big enough for a mini-bus. There is a height restriction though, which will restrict vehicular access.

Recommendations:

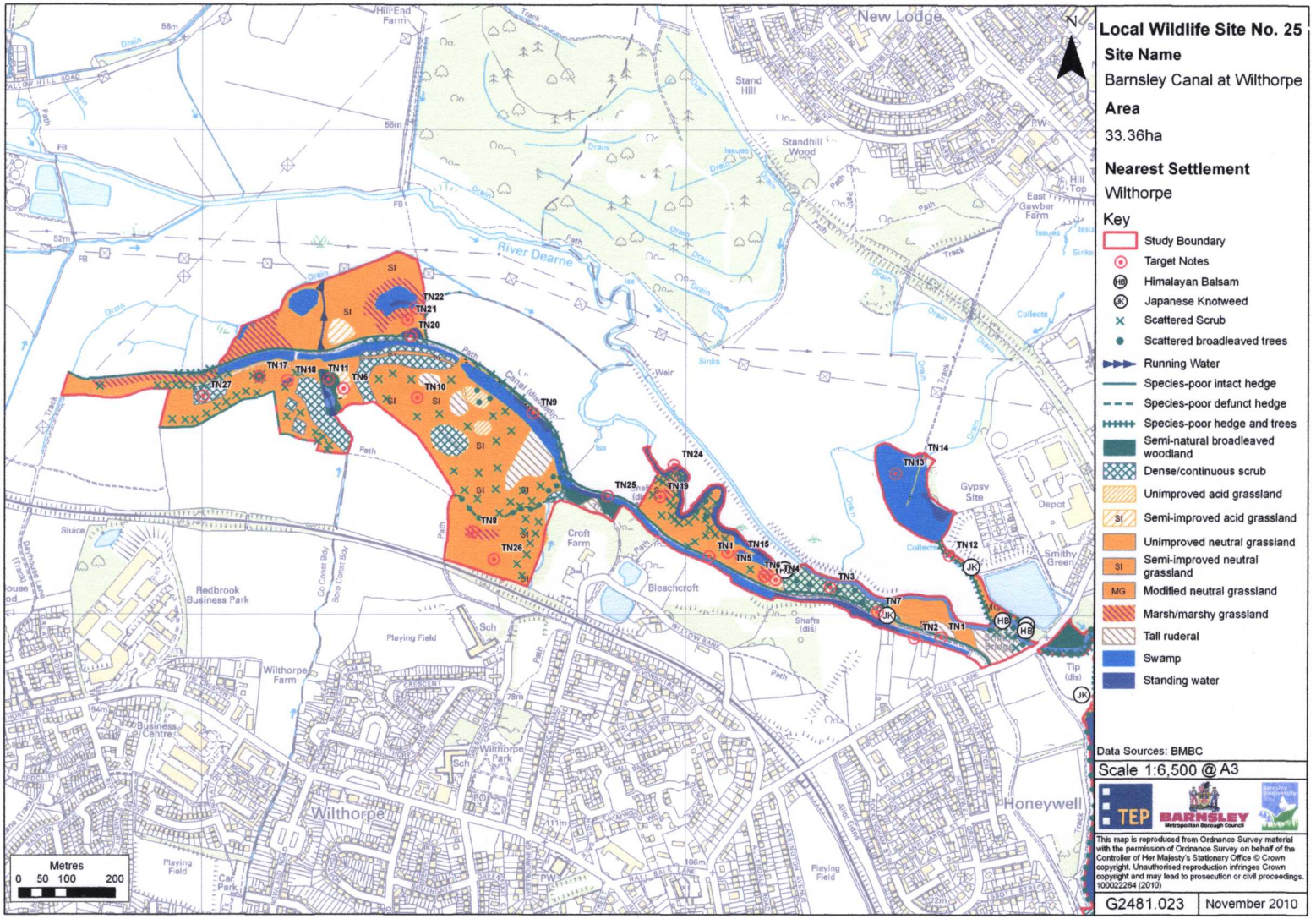
This site has a number of different habitats, both terrestrial and aquatic which are valuable and have a recreational value for the local communities.

The scrub in the southern section should be managed to prevent encroachment and the hedge-line on the southern boundary should be re-laid and the gaps filled in.

The waterbodies will most likely require some amount of management to maintain their function and to avoid siltation and succession. The site has the potential to be significant part of Barnsley's amphibian interest and, following survey, would most likely satisfy the site selection criteria on this basis alone. The presence of UKBAP bird species is also significant.

The site is also an important natural corridor through the landscape, for wildlife and people.

Action:
Retain as a Local Wildlife Site
Conduct an amphibian survey
Work with landowners/managers to manage the site for enhanced biodiversity


Local Wildlife Site No. 25
Site Name
Barnsley Canal at Wilthorpe
Area
33.36ha
Nearest Settlement
Wilthorpe
Key
Study Boundary
Target Notes
Himalayan Balsam
Japanese Knotweed
Scattered Scrub
Scattered broadleaved trees
Running Water
Species-poor intact hedge
Species-poor defunct hedge
Species-poor hedge and trees
Semi-natural broadleaved woodland
Dense/continuous scrub
Unimproved acid grassland
Semi-improved acid grassland
Unimproved neutral grassland
Semi-improved neutral grassland
Modified neutral grassland
Marsh/marshy grassland
Tall ruderal
Swamp
Standing water
Data Sources: BMBC
Scale 1:6,500 @ A3
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BARNSLEY Metropolitan Borough Council
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November 2010
Metres
0 50 100 200
N
River Dearne
Canal (dis)
Redbrook Business Park
Wilthorpe
Wilthorpe Park
Honeywell
Croft Farm
Bleachcroft
Gypsy Site
Depot
Smithy Green
New Lodge
Standhill Wood
Hill End Farm
Wilthorpe Farm
Playing Field
Car Park
Sluice
Weir
Tip (dis)
Shafts (dis)
TN1
TN2
TN3
TN4
TN5
TN6
TN7
TN8
TN9
TN10
TN11
TN12
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TN17
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TN21
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PLANNING DESIGN ENVIRONMENT



54. Old Mill Lane Culvert Bat Roost

LWS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011
(Edited December 2011)

Genesis Centre
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Warrington
WA3 7BH

T 01925 844004
F 01925 844002
E tep@tep.uk.com
W www.tep.uk.com

TEP

Site Name:	Old Mill Lane Culvert Bat Roost
Site Area:	10.27ha
Survey Date:	September 2010
Nearest Settlement:	Honeywell, Smithies
Grid Reference at Centre:	SE34979, 07486
Surveyor(s)	LAC, VG, RH (2010) Eric Bennett, Bat Consultancy (Mar 2004) Pete Middleton, Environmental Consultancy (2011)

Site Description:

This site is located on the River Dearne, where it flows in a south-easterly direction just to the north-east of Barnsley Town Centre. The valley is crossed by the A61, heading from the town centre. The river contains a series of culverts associated with the road, the river and former mill races. The main culvert is approximately 2m wide by 1.5m and is estimated to be 90m long. It runs parallel to Old Mill Road to the former mill site and contains five side tunnels along its length which pass beneath Old Mill Road. Since 1990 this culvert has been known to support an important maternity roost for Daubenton's bat (*Myotis daubentonii*). The colony emerges from the grilled culvert entrance to feed along the river course and over the large waterbody at The Fleets (TN4), lying within the site boundary to the north-west of the A61.

The course of the Dearne is tree-lined, both upstream and downstream of the A61 bridge, with broader woodlands and plantations outside the site boundaries downstream. Downstream, the site is confined to a narrow strip along the river course where the banks have a lot of sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*) in the stretch as far east as the gasworks. Beyond that, to the south-east, the banks are lower with silver birch (*Betula pendula*) and goat willow (*Salix caprea*) dominated scrub/woodland with taller alders (*Alnus glutinosa*) along the river edge.

Upstream of the A61 the landscape of the floodplain opens out into recreation grounds and bodies of standing water. There is still a fringe of mixed deciduous tree growth along the heavily modified river banks to the north-west of the A61 bridge. Giant hogweed *(Heracleum mantegazzianum)* was noted both upstream and downstream of Old Mill Lane.

South of The Fleets there is a large area of plantation within the site (TN7), north-east of the superstore. There is also broadleaved woodland preset on the opposite bank of the Dearne (TN8). Former lagoons (TN6) that survive as tree-lined bodies of standing water are also present south of The Fleets. The Fleets is a large open waterbody with generally sparsely vegetated banks and little marginal vegetation present. The margins which are vegetated contain mainly reed sweet-grass (*Glyceria maxima*) and great willowherb (*Epilobium hirsutum*). As well as being used as a foraging resource for local bats, these waters are also fished by local anglers. There is a neutral grassland dominated bank with scattered trees and scrub (TN3, TN5) located between the large waterbody and the river. To the north scattered growth continues along the river course and there is some goat willow scrub (TN1, TN2). North-west of Smithies Lane the valley opens out into a much more rural landscape, beyond the site boundaries.

Salix caprea	Goat Willow	O
Sambucus nigra	Elder	O
Carex sp.	Sedge species	R
Cornus sanguinea	Dogwood	R
Plantago major	Greater Plantain	R
Pteridium aquilinum	Bracken	R
Scrophularia auriculata	Water Betony	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN7
Habitat:	Broadleaved plantation

Species List:

Scientific Name	Common Name	Frequency
Acer campestre	Field Maple	F
Betula pendula	Silver Birch	F
Cornus sanguinea	Dogwood	F
Corylus avellana	Hazel	F

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN8
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	D
Crataegus monogyna	Hawthorn	F
Rubus fruticosus agg.	Bramble	F
Epilobium hirsutum	Great Willowherb	O
Fagus sylvatica	Beech	O
Salix fragilis	Crack Willow	O
Sambucus nigra	Elder	O
Heracleum mantegazzianum	Giant Hogweed	R
Solidago virgaurea	Goldenrod	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

Perhaps the greatest priority is to ensure that any management of the road surface, riverbanks and traffic flows does not deleteriously affect the important bat roost areas below the ground surface. It is essential to the integrity of the bat roost that suitable flyways are maintained and protected to preserve foraging and dispersal routes for the bats from the roost to the main feeding areas along the River Dearne and over The Fleets and other local waterbodies.

Invasive species occur throughout the site. Of primary concern is the presence of giant hogweed, where it occurs in locations that could be accessed by members of the public, as this species presents a risk to public health and safety.

Diversity:

This site does not hold any significant botanical diversity and the aquatic habitats are generally man-made or heavily modified. However the bat roost is of national ecological value and is the primary reason for the recommended designation of this site.

Naturalness:

The banks of the River Dearne are highly modified throughout the length of this narrow linear site. Beyond the edges of the river course there are a series of embankments and artificially created waterbodies. However, the bat roost occupies totally artificial habitat, showing how some species adapt well to unnatural structures within their habitats. Most of the plant species present here are locally native and no doubt help to support a range of native invertebrates, birds and mammals.

Rare or Exceptional Features:

An important feature is the old culvert complex and access points supporting the Daubenton's bat roost. This maternity colony is considered to be the most important for this species in the Borough and is thought to be of national importance due to its size. Previous counts have regularly recorded over 250 breeding females. The peak count was recorded in 1990 identified 412 bats and included juveniles.

Counts in 2010 may appear to be considerably lower than these earlier records, but it must be appreciated that the 2010 count was made late in the maternity season, when the colony is likely to be dispersing. The 2010 count, though likely to under record the colony size, is still above the average colony size for this species, normally counted at around 20-50 individuals.

The course of the River Dearne throughout the length of the site is also a feature of value.

Fragility:

The maternity roost is highly vulnerable to disturbance at inappropriate times of year during the course of any road management activity, redevelopment at the former mill or any changes to the river corridor. Even minor works to the road or other surfaces over the culvert could lead to significant disturbance. Any modification to the road surface above the roost chamber, which is situated very close below the surface, could potentially kill or injure a large number of bats in a very short space of time.

Development activities, including road improvements, can however be appropriately mitigated under licence. Of significant concern though is the loss of riverside trees and scrub on the other side of Old Mill Lane. Any fragmentation of the tree lined corridors that connect the maternity roost with the important feeding areas upstream could be disastrous, potentially resulting in roost failure. The stretch of river connecting the roost site to the closest primary foraging habitat at The Fleets contains a large weir. The majority of bats have been recorded leaving the channel of the river just on the other side of Old Mill Road to fly and forage in the tree/scrub area along river bank in order to bypass the weir. These riverside habitats are therefore crucial to the maintenance of the roost.

The maternity colony is vulnerable to disturbance at the roost entrance at inappropriate times. The entrance is grilled, but the grill was unlocked at the time of the 2010 roost count.

Another threat to the integrity of the roost is fluctuating water levels. Flooding of the culvert could result in complete loss of the colony.

The river itself is vulnerable to contamination incidents along its length upstream

that could spread downstream and affect this site with possibly damaging pollutants.

Typicalness:

The modified water course is fairly typical for the Barnsley area, reflecting the need to protect the nearby town centre from flooding incidents.

The use of the culvert by Daubenton's bats is not unusual for this species, but the large colony size is very uncommon. Only two or three Daubenton's roosts approaching the size supported at this site have been recorded in Britain. The roost is of high ecological value.

The range of plant species present is generally typical for urban riparian habitats.

Recorded History & Cultural Associations:

There is a long history of exploitation of the river and its banks along this stretch of the Dearne. The name Old Mill Lane relates to former milling activities here. The mill and mill race are shown on the 1779 Enclosure Map, but presumably date from long before that time.

The high slope of Burton Bank, just to the east, is the site for a Quaker burial ground established in the 1650s, indicating the length of time this section of the valley has been locally important.

The disused Barnsley Canal formerly ran parallel to the River Dearne, just to the south and west of the site. There is much social and industrial history locally that could be usefully researched to add value to the interpretation of this site.

Connectivity within the Landscape:

The River Dearne forms an integral part of this site, with strong links along the valley to other sites of wildlife value, both upstream and downstream. Beyond the flat valley bottom here the surrounds are mainly urban/industrial and built-up, being so close to the centre of Barnsley.

The bankside trees and scrub along the river are vital for the future viability of the Daubenton's bat roost.

Value for appreciation of Nature and Learning:

The Dearne Way runs along the valley, just to the west and south of the site, between the river and the course or the disused canal. There are also public footpaths along the northern bank of the river downstream of Old Mill Lane. The site is well connected by roads and pavements with Barnsley centre, just to the south-west.

The proximity of this site to Barnsley makes it very accessible for a number of local schools however bat roosts do not lend themselves to large scale visits/disturbance.

Recommendations:

The historic records of the Daubenton's maternity colony could potential quality the site for notification as a Site of Special Scientific Interest (it having been, in the height of the maternity season, an exceptionally large roost with a long history of use at this site). Further monitoring over the maternity season (potentially over more than one season) is essential in order to verify the current size of the roost.

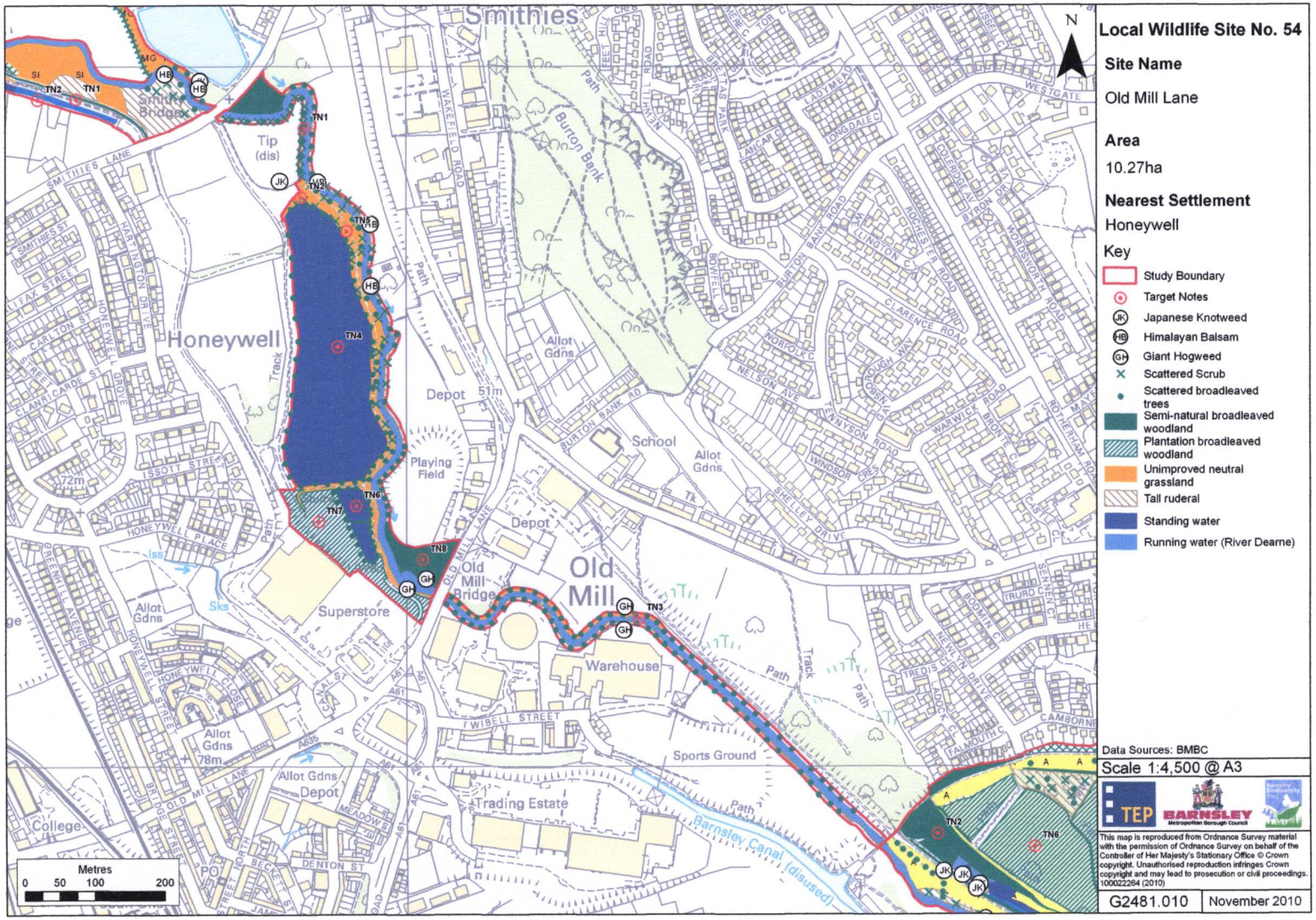
The size of the Daubenton's maternity colony is certainly sufficient to warrant designation of this site as a Local Wildlife Site under the species selection criteria. The site boundaries should include all bankside habitats leading up to Smithies Lane and down to the adjacent Cliff Wood LWS downstream.

The future of the maternity colony is dependant upon the avoidance of disturbing or damaging activities that could affect the integrity of the culvert and of the roost chamber. Protection protocols should be established and advertised to ensure that awareness of the roost and roost chamber is raised prior to and during any road works or development activities. The potential requirement for a licence should be identified for any such works.

A management plan should ideally be formulated to encapsulate monitoring and maintenance objectives, such as inspecting the condition of the roost entrance and completing any necessary remedial works and undertaking river corridor habitat improvements that will strengthen corridors (particularly where structural habitats are missing) and alleviate flood risk.

Adjacent sites should also be monitored to establish their importance for foraging and identify other roost sites. The culvert should also be monitored seasonally to establish accurate patterns of use, particularly whether any hibernation occurs in Daubenton's bats or any other bat species.

Action:
Adopt as Local Wildlife Site
Monitor maternity colony through the maternity season to determine whether the site qualifies for notification as a SSSI
Establish whether the site is use for hibernation roosting by Daubenton's bats or any other species of bat
Establish protection and management protocols for the long-term security of the roost


Smithies
Honeywell
Old Mill
Old Mill Bridge
Burton Bank
Tip (dis)
Playing Field
Depot
Allot Gdns
School
Superstore
Warehouse
Sports Ground
Trading Estate
Barnsley Canal (disused)
College
Old Mill Culvert
Metres
0 50 100 200
N
Local Wildlife Site No. 54
Site Name
Old Mill Lane
Area
10.27ha
Nearest Settlement
Honeywell
Key
Study Boundary
Target Notes
Japanese Knotweed
Himalayan Balsam
Giant Hogweed
Scattered Scrub
Scattered broadleaved trees
Semi-natural broadleaved woodland
Plantation broadleaved woodland
Unimproved neutral grassland
Tall ruderal
Standing water
Running water (River Dearne)
Data Sources: BMBC
Scale 1:4,500 @ A3
TEP
BARNSLEY Metropolitan Borough Council
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