

# Midland Metro

## 6.8 Conservation

## Ecology and Nature

### 6.8.1 Introduction

This section describes the ecological baseline of the proposed alignment and assesses the permanent and long term impacts of the scheme. Short term and construction impacts are considered in *Section 7.8*. The majority of the alignment follows a mothballed heavy rail corridor with short stretches on the existing highway. A substantial amount of vegetation has established itself within the corridor since the railway was last used, some 10 years ago.

### 6.8.2 Assessment Methodology

An assessment of the ecological impacts that could arise from the proposals, has been undertaken using the following information:

- Consultations with statutory and non-statutory bodies to identify statutory and non-statutory sites of nature conservation interest in proximity to the proposals and any other known habitats or species of note including:
  - British Waterways Board;
  - Dudley MBC;
  - EcoRecord (ecological database for the Black Country/Birmingham);
  - English Nature, West Midlands Region;
  - Environment Agency;
  - Local bat and badger groups;
  - Sandwell MBC;
  - The Wildlife Trust for Birmingham and The Black Country; and
  - West Midland Bird Club.
- A Phase 1 Habitat Survey <sup>(149)</sup> undertaken by ERM in June 2002 using standard methodology (JNCC 1993) <sup>(150)</sup> but extended for use in Environmental Assessment (Institute of Environmental Assessment

1995) <sup>(151)</sup>.

- Preliminary fauna surveys undertaken by Carter Ecological in June and September 2002 using standard methodologies to determine the presence of certain fauna including birds, bats, water vole, badger, otter and amphibians.
- Review of relevant information and reports including, the Dudley Unitary Development Plan (UDP) <sup>(152)</sup> (and statutory planning guidance <sup>(153)</sup>), the Sandwell Unitary Development Plan (UDP) <sup>(154)</sup> and the Draft Birmingham and the Black Country Local Biodiversity Action Plan (LBAP) <sup>(155)</sup>.

Details of the habitat and species survey methodology are contained in *Appendix G*.

### 6.8.3 Relevant Planning Policy Information

#### Overview

The Sandwell and Dudley UDPs and supplementary planning guidance cover local nature conservation policies and designations. The Birmingham and the Black Country LBAP covers the whole of the route (see *Section 6.8.4* below).

The key policies that relate to nature conservation for both local authority areas are outlined below and a more detailed assessment of plans and policies is made in *Section 4* of this ES.

#### Revised Deposit Draft Unitary Development Plan (UDP) for the Metropolitan Borough of Sandwell, March 2001

Chapter 6 of Part 2 of the Sandwell UDP outlines the policies relating to nature conservation. These policies reflect advice that emerged during the preparation of the Black Country Nature Conservation Strategy, 1997 and the Draft Birmingham and the Black Country LBAP. A summary of policies relevant to the proposed scheme is provided below.

*Policy NC1* relates to nature conservation and new development and states that *'The Council [SMBC] will seek to promote development in accordance with natural ecological processes and nature conservation interests'*. The policy also lists a number of measures that should be addressed by new development in order to protect the nature conservation interests of the site, as follows:

- retention of existing natural features, including geological and habitats, and protecting them during construction;
- making provision for replacement, where loss of such features is unavoidable;
- incorporating creative measures, such as the development of new habitats, or where possible the opening up of fresh geological exposures;
- incorporating the maximum possible proportion of appropriate native vegetation in any landscaping and planting schemes;
- incorporating the maximum possible area of permeable ground surface, and taking necessary steps to regulate surface water flows in the interests of nature conservation;

- including, in the design of built structures, features attractive to wildlife; and
- positively addressing adjacent or nearby nature conservation resources.

Policy NC2 relates to The Nature Conservation Network. ‘These are the Local Nature Reserves, the Sites of Importance for Nature Conservation and the Wildlife Corridors. The Council will seek to maintain and where possible, enhance the quality, amount and distribution of the Borough’s natural assets. The Council will seek the management for wildlife of these features in its ownership, where resources allow, and of sites in private ownership through voluntary agreement and where appropriate the development process’.

Sites of Importance for Nature Conservation (SINCs) <sup>(156)</sup> and Local Nature Reserves (LNRs) <sup>(157)</sup> are afforded protection under Policy NC3. This policy states that development will not normally be permitted if it would directly or indirectly destroy or adversely affect any LNR or SINC. Over the plan period the Council will support the identification where justified of new LNRs and SINCs and will apply the policy to these, following consultation and notification. There are currently no Sites of Special Scientific Interest (SSSIs) <sup>(158)</sup> identified in the Sandwell area of the proposed alignment.

The proposed alignment crosses the Tame Valley Canal, which is designated as a LNR under Policy NC5. A SINC is proposed for the Great Bridge Canal Basins under Proposal Nat 24.

Policy NC4 outlines the protection for Sites of Local Nature Conservation Interest (SLINCs) <sup>(159)</sup> as follows: ‘The nature conservation value of Sites of Local Nature Conservation Interest will normally be protected from development which would damage them. Over the plan period the Council will support the identification of new SLINCs and will apply this policy to these, following consultation and notification. Proposals which directly or indirectly would have adverse effects on these will be required to demonstrate that a full ecological survey has been carried out; how the ecological information has been evaluated; what the relevant design considerations are; how the most valuable features will be protected; and how the overall ecological value of the site will be maintained’.

Ocker Hill Balancing Pond, which is located to the west of the proposed alignment, is identified as a SLINC under Policy NC4 and illustrated on the Sandwell UDP Deposit Draft Proposals Map.

Wildlife corridors <sup>(160)</sup> are protected under Policy NC5, which states that ‘The integrity of wildlife corridors and linear features will be protected. Proposals that sever these, or reduce their value to wildlife, will not be permitted, unless they demonstrate adequate mitigation measures’. The proposed alignment crossed the Tame Valley Canal, Walsall Canal, Birmingham Canal (Birmingham Level) and the River Tame. All of these watercourses are designated as wildlife corridors under Policy NC5.

Under Policy NC6, ‘The Council will seek to ensure that the quantity of the Key Habitat types ie Hedgerows, Woodland, unimproved and semi-improved Grassland, Heathland, Open Water and Wetland remains at least at the current levels. It will contribute as far as possible, through the development process, to the implementation of the Biodiversity Action Plans on habitats, thereby enhancing both the quality and quantity of the resource’.

Policy NC7 relates to key species in Sandwell. It states that ‘Development will not normally be permitted if it would harm the habitat requirements of wildlife species (plant or animal) protected by law, or the population of which is endangered or vulnerable in the West Midlands. Where there is evidence or strong indications that a site is used by a species that is legally protected or rare in the West Midlands, any proposals affecting the site will be required to:

- provide an up-to-date ecological survey and impact analysis;
- demonstrate how the species will be accommodated in the design and layout of the proposal; and
- adequately mitigate for any adverse effects.

The Council will contribute as far as possible, through the development process, to the implementation of the Biodiversity Action Plans for species’.

Finally, Policy NC8 addresses access to natural open space. ‘The Council will seek to ensure accessible wildspace within 400 m of all homes. Proposals which would prejudice this will not normally be permitted unless adequate and appropriate alternatives are provided’.

The impacts of the scheme on sites designated for nature conservation interest are discussed in Section 6.8.9.

## Revised Draft Deposit UDP for the Metropolitan Borough of Dudley, February 2002

Part II, Chapter 1 (Design and Development) of the Dudley UDP <sup>(161)</sup> addresses the nature conservation issues relating to development. Part II, Chapter 9 (Nature Conservation) outlines the nature conservation policies for Dudley. Dudley’s statutory planning guidance <sup>(162)</sup> on nature conservation is designed to advise developers on appropriate procedures in respect of complying with nature conservation policies set out in the UDP and to clarify what the authority expects to see in planning applications in respect of nature conservation. A description of the relevant policies is provided below.

Nature conservation and development is addressed in Policy DD10 of the UDP, which states ‘the Council will ensure that the effects of development proposals on wildlife and geological features are taken into full account. Particular care will be taken to safeguard designated sites and protected species’. It also states that ‘The Council will seek to promote development in accordance with natural ecological processes and nature conservation interest’. The supplementary Planning Guidance on nature conservation explains how nature conservation can be incorporated into development.

Policy NC1 states that ‘the Council is committed to the protection and enhancement of biodiversity’ through contributing to Biodiversity Action Plan targets for habitats and species identified in the UK and the Draft Birmingham and the Black Country Biodiversity Action Plan and through sympathetic management of features important for wildlife (see Section 6.8.4 for further details on the LBAP).

Policies NC2 and NC4 outline that sites designated for their nature conservation value including candidate Special Areas of Conservation (cSACs) <sup>(163)</sup>, National Nature Reserves (NNRs) <sup>(164)</sup>, SSSIs, SINCs and LNRs, afford protection, in that development that would directly or indirectly

damage or adversely affect these areas will not be permitted. The Castle Hill SINC is protected under *Policy NC4* (see also *Table 6.23* below).

*Policy NC5* states that development within Sites of Local Importance for Nature Conservation (SLINCs) will be required to 'protect areas of high ecological value in the design and layout of the proposal and provide appropriate mitigation for the loss of other areas of nature conservation value'. Parkhead Locks, Dudley No 1 Canal and Pensnett Canal are designated as SLINCs. All canals in the borough, and related open space, are designated as Wildlife Consultation Areas (WCAs) <sup>(65)</sup> in the adopted UDP <sup>(66)</sup> (*Policy 21*).

*Policy NC6* relates to the protection of wildlife. It states that 'Development will not normally be allowed if it would have an adverse effect on the habitat requirements of wildlife species that are specially protected by law, are rare and vulnerable in the Black Country and/or are the subject of a Species Action Plan in the UK or Local Biodiversity Action Plan'.

Trees and woodland are afforded protection under *Policies NC9* and *NC10*. The policies state that development that would adversely affect ancient woodland will not be permitted, with other woodland being protected and appropriate management encouraged. Where loss of mature trees is unavoidable, they should be replaced by the appropriate native species.

*Policy DD10, Nature Conservation and Development*, states that "The Council will ensure that the effects of development proposals on wildlife and geological features are taken into full account. Particular care will be taken to safeguard designated sites and protected species".

*Policy DD11* relates to development and watercourses. It states that "Development will be required to maintain or enhance the quality and value for nature conservation of existing watercourses and their floodplains. The Council will promote the restoration of natural watercourses and floodplain features such as bends, riffles, pools and wetlands".

### Local Biodiversity Action Plan (LBAP)

Several of the habitats and species that have an action plan in the Birmingham and the Black Country Local Biodiversity Action Plan (LBAP) <sup>(67)</sup> have been identified in the environmental studies to date, as shown in *Table 6.29*.

Consultation has also identified records of black redstart from the Ocker Hill Balancing Pond area from 1986 and 1987 (see *Section 6.8.6* below).

Table 6.29 LBAP Habitats and Species identified within the Route Corridor

Habitats/Species	Location
Scrub and naturally regenerating woodland	The majority of the route is lined with woodland and scrub that is regenerating on the mothballed railway line. Dominant species include <i>Acer pseudoplatanus</i> (sycamore), <i>Betula pendula</i> (silver birch), <i>Buddleja davidii</i> (butterfly bush), <i>Salix caprea</i> (goat willow) and <i>Sambucus nigra</i> (elder).
Lowland neutral and base-rich grassland	The majority of the mothballed railway line is covered by neutral grassland dominated by <i>Arrhenatherum elatius</i> (false oat-grass) both on the track-way and in verges towards the edges.
Rivers and streams	The route crosses the River Tame at GR SO 984943 and then runs parallel to it approximately 200 m to the north west of the route for approximately 800 m.
Standing open water and canals	Ocker Hill Balancing Pond at the western end of the route will be affected by the proposals.  The route crosses the following canals: <ul style="list-style-type: none"> <li>· Tame Valley</li> <li>· Walsall</li> <li>· Birmingham</li> <li>· Pensnett</li> <li>· Dudley No 1</li> <li>· Parkhead Locks</li> </ul>
Orchids	A patch of <i>Dactylorhiza praetermissa</i> (southern marsh orchid) and <i>Dactylorhiza maculata</i> (heath spotted orchid) was recorded at GR SO 950909. A few orchids are scattered elsewhere along the railway corridor.
Water vole <sup>(68)</sup>	Recorded on the River Tame along the southern side of the casement south of Eagle Lane Industrial Estate, Birmingham

	Canal, Pensnett Canal and Parkhead Locks.
Pipistrelle bats <sup>(69)</sup>	Recorded emerging from a roost within Parkhead Viaduct. Several other areas were considered suitable roost sites and foraging habitat, including man-made structures, canals and woodland.
Badger <sup>(70)</sup>	Badger droppings were recorded near the Leabrook Waste Repository Site and Ocker Hill Balancing Pond.
Skylark <sup>(71)</sup>	Recorded on a grassland area on the west side of Birmingham Canal at approximately GR SO 957914.
Song thrush (a Red List species)	Recorded in the stretch of the route between the existing line at Wednesbury and the Tame Valley Canal crossing and in the Parkhead Viaduct area.
Bullfinch (a Red List species)	Recorded in the Parkhead Viaduct area.
Reed Bunting (a Red List species)	Recorded in the stretch of the route between the existing line at Wednesbury and the Tame Valley Canal crossing.
Starling (a Red List Species)	Recorded in the stretch of the route between the existing line at Wednesbury and the Tame Valley Canal crossing.
Amphibians	Common frog adults and tadpoles were recorded in small sunken concrete structures in several locations along the mothballed railway line.

#### 6.8.4 Designated Sites

There are no statutory designated sites of nature conservation interest less than 500m from the proposed route corridor. The closest site is *Fens Pools* cSAC and SSSI (GR SO 920886) approximately 500m to the north west of the route. The SSSI comprises 37.6ha and the cSAC comprises 20.4ha. The site is designated a cSAC as it is considered to be one of the best areas in the United Kingdom for great crested newt, a Red List species (English Nature, 2001). It is designated a SSSI for being the best amphibian site known in the West Midlands (English Nature, 1989).

The route crosses a number of areas designated for local nature conservation interest, as detailed in *Table 6.30* below.

No Tree Preservation Orders (TPOs) <sup>(72)</sup> have been identified along the route.

Sites designated for their nature conservation interest are illustrated in

[Figure 6.11.](#)

Table 6.30 Sites of Local Importance for Nature Conservation

Designation	Site Name	Grid Reference and Proximity to the route	Summary of Interest
SINC	Castle Hill	GR SO 947908 c. 10 m north west of the route	Important area for wildlife and geology.
SLINC/WCA	Parkhead Locks/Dudley Canal	GR SO 934890 crossed by the route	High ecological value, and abundance and diversity of wildlife.
SLINC/WCA	Pensnett Canal	GR SO 926883 crossed by the route	High ecological value, and abundance and diversity of wildlife.

SLINC/WCA	Dudley No 1 Canal	GR SO 926878 and 923872 at the Waterfront development and at Merry Hill	High ecological value, and abundance and diversity of wildlife.
SLINC	The Ocker Hill Balancing Pond adjacent to the River Tame, north of Tame Valley Canal.	GR SO 983942 c. 35 m north west of the route	Supports locally important aquatic and grassland habitats and is an educational and recreational resource.
Wildlife Corridor	The River Tame	GR SO 983943 crossed by the route.	Supports aquatic habitat and enables the movement of species through and into the Borough.
Local Nature Reserve (LNR) and Wildlife Corridor	The Tame Valley Canal	GR SO 982937 crossed by the route.	Diverse aquatic flora and the associated characteristic towpath/embankment supports woodland, scrub and grassland.
Wildlife Corridor	The Walsall Canal	GR SO 978937 crossed by the route.	Supports aquatic habitats and enables the movement of species through and into the Borough.
Wildlife Corridor	The Birmingham Canal Birmingham Level	GR SO 968917 crossed by the route.	Supports aquatic habitats and enables the movement of species through and into the Borough.
Wildlife Corridor	The Birmingham Canal	GR SO 956915 crossed by the route.	Supports aquatic habitats and enables the movement of species through and into the Borough.

### 6.8.5 Species of Note

A number of species of note <sup>(173)</sup> were recorded during the extended Phase 1 and associated fauna surveys, as follows:

- Orchids (*Dactylorhiza praetermissa* (southern marsh orchid) and *Dactylorhiza maculata* (heath spotted orchid)) were recorded on the railway track between Tipton Road and the former Dudley freightliner depot;
- Signs of water vole were recorded from the River Tame, Birmingham Canal, Pensnett Canal and Parkhead Locks;
- Pipistrelle bats were recorded emerging from a roost within Parkhead Viaduct and several areas were considered suitable foraging habitat;
- Signs of badger were recorded close to the Leabrook Waste Repository Site and Ocker Hill Balancing Pond;
- Kingfishers <sup>(174)</sup> were recorded at Parkhead Viaduct and the River Tame;
- Five Red List bird species: skylark, song thrush, starling, bullfinch and reed bunting; and
- Amphibians <sup>(175)</sup> (common frog adults and tadpoles) were recorded in water-filled concrete structures along the existing railway track.

The specific nature conservation interests of these species are described in Table 6.30 above. All of these species have a local action plan as part of the Birmingham and the Black Country LBAP (see Section 6.8.3).

Two species listed on *Schedule 9, Part II of the Wildlife and Countryside Act 1981 and amendments* were recorded along the route. These were *Fallopia japonica* (Japanese knotweed) recorded in several locations along the route and *Impatiens glandulifera* (Indian balsam), recorded growing at the edge of the River Tame near the underbridge. Both are aggressive alien species and under *Section 14* of the Act it is an offence to release or allow them to escape into the wild. Measures to prevent the spread of these species, if encountered during construction works are included in the draft CoCP (see *Appendix D*).

Black redstart (a protected <sup>(176)</sup> and LBAP priority species) has been recorded from Ocker Hill Balancing Pond (SO 982939) in the past <sup>(177)</sup>. The Birmingham Metropolitan area is of national importance for black redstart and can be associated with the structures and waste ground associated with railway corridors (*pers comm* RSPB, 2002). It is found in canal areas in Birmingham city centre (*pers comm* British Waterways Board, 2002). Although this species was not recorded during the bird survey <sup>(178)</sup>, suitable foraging habitat <sup>(179)</sup> was noted.

### 6.8.6 Baseline Ecology

## General

Habitats are described in this section using Phase 1 habitat classification and plant nomenclature (English and scientific names), which follow that in Stace (1997) ([80]). The Phase 1 habitat map is presented as *Figures G3.1 to G3.7 in Volume 2* with supporting Target Notes in *Appendix G*.

The mothballed railway corridor, which the alignment follows for much of its length, has not been in use for approximately 10 years. The alignment runs through an urban area, of mainly industrial and residential land use (see *Section 5*). There are also open areas of waste ground, woodland and grasslands of varying quality adjacent to the route. Several watercourses cross underneath the corridor via bridges, including The River Tame, Tame Valley Canal, Walsall Canal, Birmingham Canal, Parkhead Locks, Pensnett Canal and Dudley No 1 Canal (see *Section 7.9 Water Resources*).

The railway corridor has developed a fairly uniform habitat structure along its length, comprising mainly common species typical of this type of environment. The track bed has been colonised by coarse neutral grassland dominated by *Arrhenatherum elatius* (false oat-grass), with a limited diversity of other grass and herb species. To the edges of the track, the grassland grades into a tall herb/scrub community characterised by common species including, *Chamerion angustifolium* (rosebay willowherb), *Epilobium hirsutum* (great willowherb), *Urtica dioica* (common nettle), *Anthriscus sylvestris* (cow parsley) and *Rubus fruticosus* agg (bramble). There are occasional patches of *Fallopia japonica* (Japanese knotweed). Shrubs and regenerating woodland have established on the track bed, dominated by *Betula pendula* (silver birch), *Buddleja davidii* (butterfly bush), *Salix caprea* agg (goat willow), *Sambucus nigra* (elder) and *Acer pseudoplatanus* (sycamore). More mature trees of these species line the track in belts at various locations along the route. There are a few areas of broadleaved woodland adjacent to the track (see below).

The habitat types described above are characteristic of the majority of the route and provide habitat for a variety of birds, small mammals, invertebrates and other animals. There are a few areas of greater ecological interest in close proximity to the route. These are described below with further detail provided in the Target Notes (see *Appendix G*).

### Ocker Hill Balancing Pond Site of Local Importance for Nature Conservation (SLINC)

This site lies adjacent to and west of the railway line at the northern end of the route at Wednesbury (see *Target Note 3*). The pool is still, open water with some aquatic vegetation, including *Mentha aquatica* (water mint), *Iris pseudacorus* (yellow flag), *Typha latifolia* (bulrush), *Juncus* spp (rushes), *Glyceria maxima* (reed sweet-grass) and *Epilobium hirsutum* (great willowherb) with abundant *Salix* spp (willows) approximately 2 m tall. It is separated from the track way by an embankment approximately 4 m high and 3 m wide. The embankment is covered in coarse grassland (dominated by *Arrhenatherum elatius* (false oat-grass)) and tall herb/scrub species, including *Rubus fruticosus* agg (bramble), *Anthriscus sylvestris* (cow parsley) and *Urtica dioica* (common nettle)). Beyond the pool is Leabrook Waste Repository Site, an open area of semi-improved grassland with scattered scrub (mainly *Salix* spp (willows)) and patches of *Juncus* spp (rushes). The land grades up to a hill covered in semi-improved grassland and tall ruderal species with dense *Ulex europaeus* (gorse), *Cytisus scoparius* (broom) and *Salix* spp (willow) scrub.

The combination of open water, grassland and scrub at the site provides valuable nesting and foraging habitat for birds, bats and other small mammals. Canada goose, mute swan, moorhen and coot were recorded on the pool, grey wagtail and reed bunting were recorded in close proximity. The pools are used for angling.

### Birmingham Canal

Where Birmingham Canal crosses the railway near Coneygre Leisure Centre playing fields, it is very slow moving and approximately 6 m wide. Aquatic vegetation in the canal includes *Nuphar lutea* (yellow water lily) and *Iris pseudacorus* (yellow iris). Concrete retaining walls mean that there is little in the way of marginal vegetation. There is a neutral grassland strip dominated by *Arrhenatherum elatius* (false oat grass) between the towpath and the canal on the north eastern side of the canal and tall ruderal communities along the south western edge. There is broadleaved woodland dominated by *Acer pseudoplatanus* (sycamore), *Fraxinus excelsior* (ash), *Quercus robur* (pedunculate oak), *Salix caprea* (goat willow) and *Sambucus nigra* (elder) between the towpath and the railway corridor adjacent to the Birmingham Canal underbridge (see below and *Target Note 13*).

### Broadleaved Woodland

There are several locations along the route where mature broadleaved woodland occurs either at the edge of the railway corridor, or in areas adjacent to the route (see *Target Notes 5, 6, 7, 8, 13, 16* and *22*). Areas of particular nature conservation interest are described below.

- There is mature broadleaved woodland to the north of the towpath abutting the railway embankment adjacent to Birmingham Canal (see *Target Note 13*). It has a closed canopy in the more dense central area of woodland, with more open areas towards the edges. Dominant species include *Acer pseudoplatanus* (sycamore), *Fraxinus excelsior* (ash), *Quercus robur* (pedunculate oak), *Salix caprea* agg (goat willow) and *Sambucus nigra* (elder), with some *Crataegus monogyna* (hawthorn). The understorey is dominated with *Urtica dioica* (common nettle), with *Anthriscus sylvestris* (cow parsley) and coarse grassland dominated by *Dactylis glomerata* (cock's foot) with some *Hordeum secalium* (wall barley). The south eastern edge is bordered by neutral grassland and a line of mature trees including *Betula pendula* (silver birch).
- A broadleaved woodland strip stretches along the south side of the track, between Birmingham New Road and Tipton Road (see *Target Note 16*). It is a well-established woodland strip with a mix of broadleaved species including *Betula pendula* (silver birch), *Salix caprea* agg (goat willow), *Acer pseudoplatanus* (sycamore), *Fraxinus excelsior* (ash), with *Crataegus monogyna* (hawthorn), *Buddleja davidii* (butterfly bush) and *Sambucus nigra* (elder) scrub. The woodland is encroaching on to the track bed, where tall ruderal and grassland communities have established, of a similar mix of species as in other stretches of the route, particularly *Rubus fruticosus* agg (bramble), *Anthriscus sylvestris* (cow parsley), *Epilobium hirsutum* (great willowherb) and *Arrhenatherum elatius* (false oat-grass) dominated grassland.
- There is a mature, broadleaved woodland, where the route comes off-line from Dudley Canal to the Brierley Hill Terminus (see *Target Note 22*). It lines the north western edge of an amenity grassland area and abuts a Buddhist Temple. The woodland is dominated by *Quercus robur* (pedunculate oak), *Alnus glutinosa* (alder), birch (*Betula pendula*), *Crataegus monogyna* (hawthorn) and *Acer* sp (maple). The understorey comprises mainly *Urtica dioica* (common nettle), *Rubus fruticosus* agg (bramble) and *Galium aparine* (cleavers).

## Grassland

A grassland community has established on the track between Tipton Road and the former Dudley freightliner depot, which is of interest for the orchid species it supports (see *Target Note 17*). Both *Dactylorhiza praetermissa* (southern marsh orchid) and *Dactylorhiza maculata* (heath spotted orchids) were recorded in this area. In addition, the grassland supports a variety of common grass and herb species including *Holcus lanatus* (Yorkshire fog), *Festuca* sp (fescue) and *Arrhenatherum elatius* (false oat-grass) and *Leucanthemum vulgare* (oxeye daisy), *Trifolium pratense* (red clover) and *Tussilago farfara* (colt's-foot). There is also some *Rubus fruticosus* agg (bramble) and regenerating *Acer pseudoplatanus* (sycamore) and *Betula pendula* (silver birch).

## Waste Ground

The former Dudley freightliner depot is an area of waste ground that has developed ruderal vegetation on the rubble and thin soil beneath (see *Target Note 18*). The species present are common and typical of these areas and include *Reseda lutea* (weld), *Euphrasia nemorosa* (common eyebright), *Digitalis purpurea* (foxglove), *Cirsium* spp (thistles), *Chamerion angustifolium* (rosebay willowherb) and *Epilobium hirsutum* (hoary willowherb). The area is surrounded by mature trees mainly *Betula pendula* (silver birch) and *Salix* spp (willows) that are encroaching on the waste ground.

## Parkland

Dudley Canal passes through Parkhead Viaduct at Parkhead Locks (see *Target Note 19*). There is a parkland area to the north west below the alignment, with open amenity grassland that stretches down to the edges of the concrete sided canal. There are also areas of developing broadleaved woodland and scrub lining the canal and bordering the amenity grassland, with a substantial tract of mature woodland adjacent to the railway embankment and towards the housing on Kent Place. The casement is scrubby in this section, with mainly *Salix caprea* agg (goat willow) and *Crataegus monogyna* (hawthorn).

## Fauna

Preliminary fauna surveys were undertaken in June 2002 and were supplemented by additional bat and water vole surveys in September 2002 (see *Appendix G*).

Water voles were recorded on the River Tame that runs along the southern side of the corridor south of Eagle Lane Industrial Estate. Signs of water vole were also recorded on Birmingham Canal, Pensnett Canal and Parkhead Locks. No sign of otter was identified.

Pipistrelle bats were recorded emerging from a roost in Parkhead Viaduct. A number of bridges and a few mature trees along the route were identified as being potential bat roost sites. The canals and woodland areas adjacent to the route provide suitable foraging habitat for bats.

Badger droppings were found at two separate areas of grassland; one on the west side of the Ocker Hill Balancing Pond and one area of scrub and grassland near the Leabrook waste site. No badger setts were identified along the route corridor.

A total of 40 bird species were recorded along the route corridor during the survey undertaken in June 2002 (see *Appendix G*). The majority of these were common bird species, typical of habitats within the region. Kingfisher (a protected species (see *Section 6.8.5*) was recorded near Parkhead Viaduct and the River Tame. Five species of conservation concern were recorded including skylark, song thrush, starling, bullfinch and reed bunting (see *Section 6.8.5*).

There are records of black redstart, a *Schedule 1* species, relating to Ocker Hill Balancing Ponds in 1986 and 1987.

No protected species of amphibian were recorded along the route corridor. Young common frog and tadpoles were recorded from concrete tanks in the section of the route between Lower Church Lane and Park Lane East.

## 6.8.7 Potential Impacts

Potential impacts resulting from the scheme that have been considered as part of this assessment include:

- permanent loss of habitat or species due to permanent or temporary landtake for the proposed scheme;
- fragmentation of habitat and severance of ecological corridors between isolated habitats of ecological importance;
- barrier effect to wildlife and increased risk of kills;
- alteration of drainage regimes which may affect habitats; and
- creation of new habitats and introduction of species as a result of reinstatement works, habitat enhancement proposals and landscaping.

## 6.8.8 Assessment of Impacts

### Evaluation Criteria

The potential for nature conservation impacts has been assessed in the light of habitats and the species that will be affected by the proposals in line with the Guidelines for Ecological Evaluation and Impact Assessment published in the Institute of Ecology and Environmental Management's (IEEM) Bulletin <sup>(81)</sup>.

The significance of impacts has been evaluated taking into account the following factors:

- the magnitude of the effect, as determined by its intensity and by its extent in space and time;
- the vulnerability of the habitat or species to the change caused by the development;

- its ability to recover; and
- the value, in nature conservation and ecological context, of affected species, populations, communities, habitats and ecosystems.

Significance is determined by the interaction of these primary criteria, being high for large effects on receptors of high value, and lower or insignificant for smaller effects on receptors of lower value.

Habitats are assessed according to the widely accepted criteria of which the most important are naturalness, extent, rarity and diversity; these and others are described in extensive literature. Existing statutory and non-statutory designations for the nature conservation importance and amenity value of the sites are also taken into consideration. In addition it is now generally considered that special importance be attached to ancient semi-natural habitats that depend for their survival upon traditional kinds of land management. These habitats can support special plant and animal communities that cannot be recreated quickly (if at all) and have suffered large reductions in the post-war period due to development and agricultural intensification. Species are similarly assessed according to accepted criteria and the extent to which they are under threat. The importance of species to wider communities is considered. Protection of species by the relevant legislation including the Wildlife and Countryside Act, 1981 and amendments and the Conservation (Natural Habitats &c) Regulations, 1994 and non-statutory guidance are taken into account.

In the urban context several specific criteria are also relevant. These broadly relate either to the social and amenity value of the sites or to the ecological importance that may accrue to particular sites as a result of the general fragmentation of urban wildlife habitat.

A more detailed account of the criteria used in the assessment is contained in [Appendix G](#).

### Agreed Mitigation Measures

- Subject to Network Rail standards <sup>(1821)</sup> relating to the management of lineside vegetation, habitat loss will be limited to the minimum needed for operational purposes (see also [Section 6.6.7](#)).
- Impacts on areas of nature conservation interest identified in the UDPs, including SINCs, SLINCs, LNRs, Wildlife Corridors and Wildlife Consultation Areas will be avoided as far as possible. Where these areas are to be affected, the contractor will ensure that best practice measures are adopted to minimise any direct adverse impacts and comply with UDP policy.
- The construction of the scheme will result in the removal of all marginal vegetation on the northern side of the Ocker Hill balancing ponds. In order to maintain the capacity of the pond (which acts as a balancing pond for the River Tame) it may be necessary to widen the circumference of the pond. The vegetation will be stored for replanting on completion of the works as part of the reinstatement and landscaping proposals. Standing water is an LBAP habitat (see [Table 6.29](#)). Mitigation of impacts will be consistent with the habitat priorities set out in the LBAP.
- Best site management practices during construction will be adopted on site to minimise the risk of secondary impacts to adjacent habitat (for example, direct incursions, pollution, draining of adjacent wet habitats).
- The site will be checked for the presence of protected species (eg water vole and badger) prior to work commencing and appropriate mitigation measures will be agreed with English Nature and implemented if any protected species are identified prior to or during construction.
- Invasive alien species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 and amendments will be removed from site at the start of works following best practice guidance to ensure they are not spread inadvertently along the route.
- Wherever possible habitat removal (especially woodland and other trees) will take place outside the breeding bird season (approximately mid March to the end of June) to avoid effects on nesting birds. Where this is not possible, all woodland and scrub will be checked for nesting birds before removal. If any are identified appropriate mitigation measures will be agreed with English Nature and implemented.
- All bridges and other built structures and mature and dead trees will be checked for roosting bats and nesting birds prior to removal and appropriate mitigation measures agreed with English Nature and implemented if bats are found.
- Where practical, 'bat bricks' will be incorporated into the design of any bridge reconstruction, replacement or extension works, to provide bat roosting habitat.
- Impacts on adjacent wetland habitats and watercourses will be avoided by appropriate design of site drainage and by use of construction techniques to maintain existing drainage patterns along sensitive sections of the route.
- The mitigation of impacts to wildlife will be consistent with species and habitat priorities set out in the LBAP.
- Opportunities will be taken to enhance existing habitats of nature conservation interest that are retained and to create new habitats of value within the site landscaping proposals. Where possible, landscape planting will be undertaken using native species typical of the area, obtained from local sources if possible.

### Residual Impacts to Designated Sites

No statutory designated sites of nature conservation interest will be affected by the proposals. The closest site is *Fenns Pools* candidate Special Area of Conservation (cSAC) and Site of Special Scientific Interest (SSSI) (*SO 920886*) approximately 500 m north west of the route (see [Section 6.8.5](#)).

Nine sites of local conservation interest are in close proximity to the route (see [Table 6.31](#)). Eight of these will be affected by proposed bridge works or widening of the railway corridor.

Table 6.31 Works Affecting Sites of Local Nature Conservation Interest

Site Name	Designation	Works that will affect the site

Parkhead Locks/Dudley Canal	SLINC	Reconstruction of Parkhead Viaduct.
Ocker Hill Balancing Ponds	SLINC	This section of the route will require widening of the railway formation and construction of a new retaining wall. The northern edge of both ponds will be drained using a temporary sheet piled wall and dewatering pumps. This will then become a temporary works area. The ponds will be reinstated upon completion of the works.
Pensnett Canal	SLINC/WCA	Pensnett Canal underbridge to be extended with canal retaining works.
Dudley No 1 Canal	SLINC/WCA	New bridge to be constructed near Round Oak rail terminal.
River Tame	Wildlife Corridor	River Tame underbridge extension.  Possible work area between river and Black Country New Road.
Tame Valley Canal	LNR/Wildlife Corridor	Tame Valley Canal underbridge extension. Widening of the railway formation.
Walsall Canal	Wildlife Corridor	Walsall Canal underbridge deck to be replaced/extended.
Birmingham Canal	Wildlife Corridor	Birmingham Canal underbridge deck to be replaced/extended.

Approximately 500 m<sup>2</sup> of the western edge of Ocker Hill Balancing Pond SLINC will be lost during construction. The embankment will be widened by approximately 2 m and a new permanent retaining wall installed at the base. A further 2 m of land will be required for construction, so a temporary sheet-piled wall will be installed to retain the pool behind it. The temporary construction area will be drained while construction is under way.

Ocker Hill Balancing Pond is locally designated for its aquatic and grassland habitat (see *Table 6.30*). Developments that will affect SLINC sites are addressed under *Policy NC4* of the Revised Deposit Draft UDP for Sandwell (see *Section 6.8.3*), as follows:

*'Proposals which directly or indirectly would have adverse effects on SLINC sites will be required to demonstrate that a full ecological survey has been carried out; how the ecological information has been evaluated; what the relevant design considerations are; how the most valuable features will be protected; and how the overall ecological value of the site will be maintained.'*

Habitat loss will be limited to the minimum needed for safe implementation of the works and best site management practices will be adopted to minimise the risk of secondary impacts to the pools (including direct incursions, pollution, draining of adjacent wet habitats etc). On completion of the works, the pools will be restored and enhanced through the landscaping proposals, which will, in agreement with Sandwell MBC, be designed to enhance existing habitats and to create new habitats of nature conservation value. The landscape planting will be undertaken using native species typical of the area, obtained from local sources including the vegetation removed during construction.

Water vole inhabits the River Tame (see *Section 6.8.5*), which flows into the pools. There are no known records of great crested newt from the site and it is thought to be unsuitable due to presence of fish <sup>(1831)</sup>. The site will be checked for the presence of protected species prior to work commencing and appropriate mitigation measures will be agreed with English Nature and implemented if any protected species are identified prior to or during construction.

There will be some habitat loss from the margins of the remaining designated areas (the canal network) for the bridge supports and to allow access for construction plant. However, there will be no direct effects on any of the watercourses or their immediate bank sides. Best site management practices will reduce the risk of pollution incidents during construction. Mitigation measures will ensure that the effects on any of the watercourses or their immediate bank sides is reduced to the necessary minimum required for the works.

### Residual Impacts on Species of Note

Water vole is known to inhabit the River Tame (see above), Birmingham Canal, Pensnett Canal and Parkhead Locks. There are no known badger setts along the route corridor; however, signs of badger were recorded during surveys from two areas close to the route. The site will be checked for the presence of protected species prior to work commencing and appropriate mitigation measures will be agreed with English Nature and implemented if any are identified prior to or during construction.

Bridges and other built structures and mature (and over mature) trees are known to support bat roosts (184). A bat roost is known in Parkhead Viaduct. All bridges and other built structures and mature and over mature trees will be checked for bats prior to being removed or extended and appropriate mitigation measures agreed with English Nature and implemented if bats are found. Mitigation measures could include incorporating bat bricks into the reconstruction of the bridges affected to provide bat roosting habitat.

Kingfisher is known to inhabit the Parkhead Viaduct area and the River Tame. Banksides that will be affected by the scheme will be surveyed for active nest holes prior to construction and appropriate mitigation measures will be agreed with English Nature and implemented if any are identified prior to or during construction.

Records of Black redstart indicate the species is present along the route corridor. Measures will be taken to reduce the disturbance to this species habitat during construction (see Section 7.8.8). The five Red List bird species will be subject to some disturbance during construction (see Section 7.8.5); however, no significant or long-term impacts are predicted.

Wherever possible habitat removal (especially woodland and other trees) will take place outside the breeding bird season (mid March to the end of June) to avoid effects on nesting birds. Where this is not possible, all woodland and scrub will be checked for nesting birds before removal. If any are identified appropriate mitigation measures will be agreed with English Nature and implemented. All bridges and other built structures and mature and dead trees will be checked for nesting birds prior to removal and appropriate mitigation measures agreed with English Nature and implemented if any are found.

### Permanent Impacts

The scheme will result in the loss of some 20,000 m<sup>2</sup> of habitat (including some

500 m<sup>2</sup> from sites of local importance and all areas to be lost during temporary works). This habitat predominantly comprises coarse grassland, scrub, tall ruderals and regenerating woodland, much of which has established along the corridor of the mothballed railway.

The scheme will also result in the loss of all the vegetation on the track bed of the mothballed railway corridor. In addition, in many areas, the removal of most of the vegetation to an approximate distance of 5 m from the outside track will be required to allow widening of the route and creation of tram stops. There will be loss of coarse, neutral grassland, ruderal species, scrub and young trees that have regenerated over the last 10 years. Most of these habitat types are common in the area.

One area of greater interest is the orchid-rich grassland close to Tipton Road overbridge as described in Section 6.8.6, which will be removed during construction. If no suitable areas for translocation are identified within the working corridor, Dudley MBC has identified a site to which the topsoil from this grassland could be translocated and managed to maintain the populations of these species (*pers comm* Ali Gasher 2002). Some mature trees along the corridor margins will be removed. Habitat loss will be reduced to the minimum necessary to allow safe construction (see Section 6.8.8).

The setting of the railway corridor within a predominantly urban area increases its nature conservation value. The corridor allows the movement of wildlife between the Wednesbury Great Western stop and the A4037 (Tipton Road) and between the A461 (Dudley Southern Bypass) and Round Oak freight terminal. However, all vegetation up to 5 m either side of the track-bed will be removed during construction. As described in Section 6.8.8, Network Rail operate standards on the management of lineside vegetation which would prevent the planting of vegetation within 5 m of any future heavy railway track. As a result, the effectiveness of the route as a wildlife corridor upon operation of the Midland Metro (and possibly heavy rail) will be reduced due to the implementation of these standards. However, wherever possible, existing habitat bordering the railway corridor will be retained and replacement planting will seek to maintain the corridor intact, using native species local to the area where appropriate (see Section 6.8).

Where the route leaves the railway corridor at the Dudley freightliner depot, approximately 15,000 m<sup>2</sup> of waste ground will be lost. The vegetation that has established on the rubble comprises common weedy species of limited nature conservation interest (see Section 6.8.6) and no significant impacts are predicted. The area is surrounded by mature trees mainly *Betula pendula* (silver birch) and *Salix* spp (willows) that are encroaching on the waste ground. These will be retained as far as possible.

Where the route leaves the heavy rail corridor, it runs predominantly on existing roads and areas of hardstanding of no particular nature conservation interest. Where the route runs parallel to Dudley southern bypass, it will result in the loss of an amenity grass verge of limited nature conservation value. The off-line section in Brierley Hill between Level Street and the Brierley Hill terminus will result in the loss of amenity grass of limited nature conservation value. An area of greater nature conservation interest is the mature *Quercus robur* (pedunculate oak) and *Alnus glutinosa* (alder) woodland west of the proposed Dudley Canal underbridge (see Section 6.8.7), where the route will result in a local impact from the loss of the western section of the woodland.

The potential spread of the invasive alien species *Fallopia japonica* (Japanese knotweed) and *Impatiens glandulifera* (Indian balsam) along the new railway corridor will be avoided by early removal from the site.

One park and ride site adjacent to the Dudley Southern Bypass roundabout is proposed within an area of disturbed ground with ruderal vegetation of limited nature conservation interest, including a few mature *Alnus glutinosa* (alder) and *Salix* sp (willow) trees. The remainder of the park and ride facilities and the proposed extension to the Depot facilities at Wednesbury are to be on areas of hard standing of no apparent nature conservation interest.

A total of fourteen temporary work areas are required, the majority of which are on hard standing or amenity grassland areas of little nature conservation value. In addition, there will be habitat loss at the following locations:

- The proposed temporary works area between the River Tame and Black Country New Road will result in the loss of approximately 2 500 m<sup>2</sup> of rough grassland and scrub of limited nature conservation value.
- Temporary lands at Parkhead Viaduct will result in the loss of approximately 6 000 m<sup>2</sup> of broadleaved woodland of some nature conservation value (see Target Note 19).
- Temporary lands at Tipton Road overbridge, will result in the loss of approximately 10 000 m<sup>2</sup> of waste ground that has developed an

ephemeral and tall ruderal vegetation (see *Section 6.8.6 Waste Ground*) and scattered broadleaved woodland (see *Target Note 18*).

Temporary access routes will utilise existing roads to access the majority of the scheme works and temporary lands. There will, however, be some habitat loss at the following locations.

- A temporary access route to connect Black Country New Road with the temporary lands at Ocker Hill Balancing Pond, will result in the loss of approximately 900 m<sup>2</sup> of semi-improved grassland with scattered scrub (mainly *Salix* spp (willows)) and patches of *Juncus* spp (rushes) (see *Section 6.8.6 Ocker Hill Balancing Pool SLINC and Target Note 3*).
- A temporary access route to connect the A4037 (Tipton Road) to the temporary lands at the existing Tipton Road overbridge, will result in the loss of approximately 1 000 m<sup>2</sup> of waste ground that has developed an ephemeral and tall ruderal vegetation (see *Section 6.8.6 Waste Ground and Target Note 18*).
- A temporary access route to connect Station Drive to the temporary lands at the existing Tipton Road overbridge, will result in the loss of approximately 750 m<sup>2</sup> of waste ground that has developed weedy vegetation (see *Section 6.8.6 Waste Ground*).
- A temporary access route to connect Holly Hall Road with the temporary lands at Parkhead Viaduct will result in the loss of approximately 250 m<sup>2</sup> of amenity grassland of low nature conservation value (see *Target Note 19*).

Habitat loss will be limited to the minimum needed for operation of the scheme. Where habitat loss is unavoidable, the area will be restored as close as possible to the original state, and as a result, no significant impacts are expected to occur.

Disturbed sites that have been allowed to re-colonise often support good assemblages of invertebrates due to the presence of ruderal plant species. Although many of the species thrive in such areas which are typically widespread, rarities are known from some derelict sites <sup>(185)</sup>.

However, these communities are transient and successional and the invertebrates are frequently opportunist species of no particular value and thus loss of these areas is not considered significant.

A description of those structures that will be demolished and/or rebuilt as a result of the proposed scheme is provided in *Section 2.7.3*.

All bridges and other built structures will be checked for their use by bats prior to removal and appropriate mitigation measures agreed with English Nature and implemented if bats are found. If work has to be undertaken within the breeding bird season, they will also be checked for nesting birds before removal. If any are identified appropriate mitigation measures will be agreed with English Nature and implemented. Best site management practices will be adopted to minimise the risk of pollution incidents on site (see *Agreed Mitigation Measures* described above).

### Impacts during Operation

There is an increased likelihood of wildlife casualties once the scheme is operational. However, this is not expected to have a significant impact on the species identified. Maintenance activities will be required from time to time along the route. The physical impacts from maintenance will be no greater than those for construction and no significant impacts are predicted.

There will also be some impacts to wildlife through disturbance from noise and human presence during maintenance. However, it is likely that wildlife will become habituated to the regular noise from the running of the Metro vehicles. Disturbance from human presence will be infrequent and no significant impacts to wildlife are predicted.

### 6.8.9 Summary of Residual Impacts

No statutory designated sites of nature conservation interest will be affected by the proposals. Approximately 500 m<sup>2</sup> of Ocker Hill Balancing Pond SLINC. The nature conservation value of the site will be retained both during and on completion of construction. Landscaping proposals will enhance the habitat at the edge of the pools and go some way to mitigate the area lost; no significant or long-term impacts are predicted.

Habitat loss will be limited to the minimum needed for safe implementation of the works and mature trees will be retained wherever possible. However, there will be impacts on the value of the railway as a wildlife corridor through the removal of the majority of the vegetation along the route.

The orchid-rich grassland close to Tipton Road overbridge will be lost. However, Dudley MBC has identified suitable sites for retention of topsoil and seed banks to ensure the future management of the orchids (all of which are Biodiversity Action Plan species) if translocation elsewhere along the working corridor is not possible.

Several protected species are known to occur along the route corridor from existing records and from surveys. The area to be affected will be checked prior to work commencing and appropriate mitigation measures will be agreed with English Nature and implemented if any protected species are identified prior to or during construction.

All trees and built structures to be removed or affected by construction works will be checked for their use by bats and birds and appropriate mitigation measures agreed with English Nature and implemented if any are found.

Five LBAP bird species will be displaced by the proposals but the effects are not considered likely to be significant given that similar habitat will remain in the area.

(1) Babbie (February 2003) **Midland Metro Line 3 (Wednesbury – Brierley Hill) Construction Strategy Report**.

(2) The 2001 Census is available from February 2003 with ward data to follow. As a result, the required information was not available at the time of writing.

(3) Region in Figures, West Midlands, 2002.

(4) NOMIS, July 2002.

- ([5]) Region in Figures, West Midlands, 2002.
- ([6]) The DTLR's Indices of Deprivation (2000) defines 'employment deprived' as "those who want to work but are unable to do so through unemployment, sickness or disability." Effectively, the indicator measures forced exclusion from the world of work.
- ([7]) Region in Figures, West Midlands, 2002.
- ([8]) Royal Institution of Chartered Surveyors and Office of the Deputy Prime Minister (October 2002) **RICS Policy Unit: Land Value and Public Transport, Stage 1 - Summary of findings.**
- ([9]) DLA Architecture (2002) **King Street/Flood Street Redevelopment Masterplan**, April.
- ([10]) Gallon, Alexander and Oxley (1992) **National Travel Survey.**
- ([11]) Department of Transport, Local Government and the Regions (2000) Indices of Deprivation, [www.neighbourhood.statistics.gov.uk](http://www.neighbourhood.statistics.gov.uk).
- ([12]) Faber Maunsell (February 2003) **Midland Metro Line 1 (Brierley Hill to Wednesbury) Transport Assessment.**
- ([13]) David Lock Associates (February 2002) **Urban Context Analysis.**
- ([14]) Faber Maunsell (June 2002) **Impact of the Introduction of Midland Metro into Dudley and Brierley Hill.**
- ([15]) Crompton D H (1981) **Pedestrian Delay, Annoyance and Risk**, Imperial College London
- ([16]) Institute of Environmental Assessment (1993) **Guidelines for the Environmental Assessment of Road Traffic**, Guidance Notes No. 1, IEA
- ([17]) Faber Maunsell (February 2003) op cit
- ([18]) A study looking into car parking at each stop, the potential volume of parking provision, identification of modes of access, estimating demand for car parking at each stop and identifying the likely parking capacity issues and potential parking management measures required has been undertaken (by Faber Maunsell (January 2003) **Midland Metro Line 1 Extension Park and Ride Study**) and accompanies this planning application.
- ([19]) Department of the Environment (September 1994) **Planning Policy Guidance: PPG 24 Planning and Noise.**
- ([20]) Institute of Environmental Management and Assessment and Institute of Acoustics (April 2002) **Guidelines for Noise Impact Assessment**, consultation draft.
- ([21]) British Standard BS 6472 (1984) **Guide to the evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz).**
- ([22]) Presentation of Vibration Data Measures on Phase 1 of the Manchester Metrolink, ERM, Halcrow Fox and CES, February 1996
- ([23])  $L_{Aeq} 16 \text{ hr day} = L_{Aeq} \text{ peak hr} - 0.5\text{dB}$
- ([24])  $L_{Aeq} 1 \text{ hr night} = L_{Aeq} 2300-0000 = L_{Aeq} 0600-0700$
- ([25])  $L_{Aeq} 8\text{hr night} = L_{Aeq} 1\text{hr night} - 6\text{dB}$
- ([26]) Faber Maunsell (February 2003) **Midland Metro Line 1 Extension (Brierley Hill to Wednesbury) Transport Assessment, Final Draft Report.**
- ([27]) Faber Maunsell (February 2003) **Midland Metro Line 1 Extension (Brierley Hill to Wednesbury) Transport Assessment, Final Draft Report.**
- ([28]) DTLR (2000) **Guidance on the Methodology for Multi-Modal Studies**, Volume 2, DETR, London, 2002.
- ([29]) Highways Agency **Design Manual for Roads and Bridges, Screening Method**, Version 1.01 (Feb 2003).
- ([30]) Statutory Instruments 2000 No. 928, The Air Quality (England) Regulations 2000, H.M. Government, London.
- ([31]) Review and Assessment of Air Quality in Sandwell, Stage 3: An Assessment of Air Quality for 1999 and Onwards to 2005, Birmingham City Council, 2000. Obtained from [www.sandwell.gov.uk](http://www.sandwell.gov.uk).
- ([32]) Air Pollution Report 2000. Dudley Metropolitan Borough Council, Dudley, West Midlands. Obtained from [www.dudley.gov.uk](http://www.dudley.gov.uk).
- ([33]) [www.airquality.co.uk](http://www.airquality.co.uk).
- ([34]) [www.dudley.gov.uk](http://www.dudley.gov.uk).
- ([35]) Review and Assessment: Pollutant Specific Guidance. LAQM.TG4(00) May 2000. Part IV The Environment Act 1995. Local Air Quality Management. DEFRA, London.
- ([36]) Faber Maunsell (February 2003) op cit.
- ([37]) Highways Agency **Design Manual for Roads and Bridges, Screening Method**, Version 1.01 (Feb 2003).
- ([38]) Brier School is no longer operating and is subject to redevelopment proposals.
- ([39]) Based on 0.15MW consumption when running (15 minutes per trip) and 0.75MW consumption whilst pulling away from standing (7.5 minutes per trip).
- ([40]) <http://www.thecarbontrust.co.uk/foundation/0301prot.html>
- ([41]) Landscape Institute and Institute of Environmental Management Assessment (2002) **Guidelines for Landscape and Visual Impact Assessment** 2nd Edition, E & F N Spon.
- ([42]) Countryside Agency and Scottish Natural Heritage, **Interim Landscape Character Assessment Guidance**, 1999.
- ([43]) First Deposit Draft Unitary Development Plan for the Metropolitan Borough of Sandwell, July 2000 and the Revised Deposit Draft, March 2001.

- ([44]) First Deposit Draft, Unitary Development Plan for the Metropolitan Borough of Dudley, June 2000 and the Revised Deposit Draft, February 2002.
- ([45]) Character areas are derived from work undertaken by English Nature and the Countryside Commission, with help from English Heritage, who have produced a map of England depicting the natural and cultural dimensions of the landscape. The map identifies 159 distinctive character areas throughout England.
- ([46]) Specifically, Railtrack PLC (March 1996) **Model Clauses for Specifying Civil Engineering Works, Section 255 - 257: Management of Lineside Vegetation, Issue No. 1 Revision B.**
- ([47]) Planning Policy Guidance 16: **Archaeology and Planning**, November 1990.
- ([48]) Planning Policy Guidance 15: **Planning and the Historic Environment**, September 1994.
- ([49]) A standardised system developed by the former Nature Conservancy Council to allow identification of areas of habitat of nature conservation interest relatively rapidly over a wide area.
- ([50]) Joint Nature Conservation Committee (1993) **Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit** Joint Nature Conservation Committee, Peterborough.
- ([51]) Institute of Environmental Assessment (1995) **Guidelines for Baseline Ecological Assessment** Spon, London.
- ([52]) Dudley Metropolitan Council, February 2002, **Dudley Unitary Development Plan Revised Deposit Draft.**
- ([53]) Dudley Metropolitan Council, 2000: **Statutory Planning Guidance for Nature Conservation – Habitats and Species.**
- ([54]) Sandwell Metropolitan Council, March 2001: Unitary Development Plan Revised Deposit Draft.**
- ([55]) The Government and its advisors have developed national action plans to help conserve habitats that are threatened and species which are in significant decline. The Local Biodiversity Action Plans reflect the aims and objectives of the national plans for the habitats and species found in the local area.
- ([56]) A site of local nature conservation importance that is designated by a local authority and afforded protection through policies in structure and local plans.
- ([57]) A site that is designated by a local planning authority under the National Parks and Access to the Countryside Act 1949 for its local special interest and/or educational value and is afforded protection through policies in Structure and Local Plans.
- ([58]) A site notified by English nature (EN) under the provision of the Wildlife and Countryside Act 1981 and subsequent amendments as of national nature conservation or geological importance.
- ([59]) A site of local nature conservation importance of lower quality than a SINC, identified by the Wildlife Trust. It is designated by a local authority and afforded protection through policies in Structure and Local Plans.
- ([60]) A linear area of habitat, for example a disused railway, hedgerow or watercourse, which connects other patch of habitat and is used by wildlife as a means of moving between isolated areas of habitat.
- ([61]) Dudley Metropolitan Borough Council Unitary Development Plan (2002) op cit.
- ([62]) Dudley Metropolitan Council (2000) op cit.
- ([63]) A site pending designation under the European Directive on the Conservation of Natural Habitats and Wild Flora and Fauna (79/709/EEC) (known as the Habitats Directive) to protect sites that are considered rare because of their habitats or species contained within them. Enacted in the UK through the Conservation (Natural Habitats &c) Regulations 1994. The site affords protection as if it were formally designated a SAC.
- ([64]) A site designated under the Wildlife and Countryside Act 1981 and subsequent amendments, or the National Parks and Access to the Countryside Act 1949 and are notified as a SSSI.
- ([65]) Locally important sites for nature conservation. This Policy was updated in the Revised Deposit Draft as *Policy NC5*, to recognise the new SLINC designation (equivalent to WCA).
- ([66]) Dudley Metropolitan Borough Council Unitary Development Plan, Adopted November 1993.
- ([67]) Birmingham City Council (July 2000) **Biodiversity Action Plan for Birmingham and the Black Country.**
- ([68]) Protected under the *Wildlife and Countryside Act 1981 and amendments, Section 9 (4)* only. This protects the water vole's places of shelter but does not safeguard the animal itself. Legal protection makes it an offence to intentionally damage, destroy or obstruct access to water vole burrows and nests or to disturb them while they are being used.
- ([69]) Protected under the *Wildlife and Countryside Act 1981 and amendments and the Conservation (Natural Habitats, & c) Regulations 1994.*
- ([70]) Badgers receive full protection under the *Protection of Badgers Act 1992.*
- ([71]) Red List species, whose population or range is rapidly declining, recently or historically and those of global conservation concern (RSPB *et al* (2002) *Birds of Conservation Concerning the United Kingdom, Channel Islands and the Isle of Man, The Population Status of Birds in the UK - Birds of Conservation Concern:2002-2007.* RSPB).
- ([72]) An order made by the local planning authority which in general makes it an offence to cut down, top, lop, uproot, wilfully damage or wilfully destroy a tree without the planning authority's permission, as defined in the Town and Country Planning Act, 1990.
- ([73]) Species protected by law, those in significant decline or identified as a priority species in the LBAP.
- ([74]) Protected under Schedule 1 of the Wildlife and Countryside Act (1981). A particularly vulnerable species subject to special conservation measures and listed on Annex 1 of EC Wild Birds Directive 79/404/EEC.
- ([75]) Priority animal group identified in the Birmingham and the Black Country LBAP.

([76]) Afforded protection under Schedule 1 of the Wildlife and Countryside Act 1981 and amendments.

([77]) This information was obtained during consultation with EcoRecord. Records are from Ocker Hill Balancing Pond in May 1986 and 1987.

([78]) The main survey period for black redstart is late April and the first two weeks of May (Gilbert G, Gibbons DW and Evans J (1998) Bird Monitoring Methods, RSPB). This period in 2002 fell before ERM was commissioned to undertake the surveys.

([79]) Black redstart favour areas of waste ground colonised by weed species, with many bare, disturbed areas of soil and a choice of commanding song posts and cavities suitable for nesting (Perrins C (1998) **The Complete Birds of the Western Palearctic on CD-Rom**, Oxford University Press).

([80]) Stace C (1997) **New Flora of the British Isles** Cambridge University Press.

([81]) Article in IEEM Bulletin (In Practice) Number 29 September 2000.

([82]) Specifically, Railtrack PLC (March 1996) **Model Clauses for Specifying Civil Engineering Works, Section 255 - 257: Management of Lineside Vegetation, Issue No. 1 Revision B**.

([83]) Great crested newts suffer their heaviest predation during the egg and larval stages of their life cycle (Langton *et al* , 2001). Eggs are taken by water beetles, dragonfly larvae, snails, newts, fish, waterfowl (indirectly with vegetation) and a few wading and diving birds. Fish predation on newt larvae is often a major limiting factor to newt populations (Gent and Gibson, 1998).

([84]) Mitchell-Jones A J and McLeish A P (1999) The Bat Worker's Manual, JNCC.

([85]) Fry (1991) **Habitat Conservation for Insects: A Neglected Green Issue**, AES.

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