
18 April 2007

Appendix 9.1 The Waterfront, Temple Quay Central

Ecological Assessment

C2004_08a

Quality Assurance – Approval Status

This document has been Prepared and checked in accordance with
Waterman CPM's IMS (BS EN ISO 9001: 2000 and BS EN ISO 14001: 2004)

Author Date

Approved

QA Checked

CCFF Sent

Contents

Section 1	Introduction	1
Section 2	Methodology	2
Section 3	Planning Policy Context	4
Section 4	Baseline Conditions	6
Section 5	Conclusions and Recommendations	11

PLAN

Habitat Features
(2004LON/10a 04/07 COR/LS)

Section 1 Introduction

- 1.1 This ecological assessment has been prepared by Waterman CPM Ltd (WCPM) on behalf of Castlemore Securities Ltd to inform proposals for a development, centred on National Grid Reference (NGR) ST 597 727. It sets out the results of an ecological assessment carried out on the site, shown in **Plan 2004LON/10a**.
- 1.2 It has previously been subject to a number of ecological investigations as part of a larger site, which was granted outline planning permission (ref. 01/016060/P/C). This report presents the results of an updated Phase I of the site.
- 1.3 The ecological appraisal comprises an extended Phase I habitat survey and background data search for existing ecological records. This data search is important as it can identify potential constraints which may not be visible during a single site visit.
- 1.4 The aims of this report are, therefore, to:
 - Describe the habitats present within the site and in adjacent areas that could be affected by the redevelopment proposed, and to identify any protected or notable species issues that may exist and which could influence proposed redevelopment of the site;
 - Assess other possible ecological constraints to redevelopment, such as impacts to protected sites;
 - Assess the likely scale and significance of potential ecological impacts; and
 - Make recommendations for mitigation and enhancement, where appropriate, and specify further work that may be required.

Section 2 Methodology

Desk Based Assessment

- 2.1 Understanding nature conservation issues within the wider area helps in the assessment of the value of a site and the habitats and species that it supports. Accordingly, background ecological records are obtained for the site and the local area. This consultation exercise is valuable in identifying past records of for example, protected species, and sites subject to nature conservation designations.
- 2.2 The following organisations were contacted for records of protected species and designated sites in a 2km and 5km radius of the site respectively:
- Bristol Regional Environmental Records Centre (BRERC);
 - Avon Badger Group;
 - Local County bird recorder;
 - Environment Agency;
 - Bristol City Council; and
 - Avon Wildlife Trust.
- 2.3 In addition, MAGIC¹ was consulted for contextual information regarding the habitats of value in the area. The national and local Biodiversity Action Plans (BAPs) were also consulted to identify those features where nature conservation action is being targeted. Understanding local nature conservation issues helps in the assessment of the value of a site and habitats and species that it supports.
- 2.4 Information from the above consultees has been incorporated into this report, where relevant, with due acknowledgement.

Field Survey

- 2.5 An extended Phase I survey was undertaken to classify and map the habitats present and to assess the potential for protected species. This survey aims to identify and map habitats and dominant flora present, together with the presence of, or potential for, specially protected species. In the case of protected species,

¹ MAGIC Multi Agency Geographic Information for the Countryside www.magic.gov

data obtained will be used to define any special working practices or where appropriate further work to clarify particular protected species constraints.

- 2.6 The survey took place on 31st January 2007 and is an update of surveys carried out in 2001.
- 2.7 The winter months are a suboptimal time of year for carrying out ecological assessments, as some plant species may not be visible at this time. However, a survey at this time will identify any potential protected species issues and give an indication of the ecological value of the habitats present.

Evaluation

- 2.8 The habitats and species evaluations are based on the guidance from the Institute of Ecology and Environmental Management (IEEM)². The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and, lastly, within the immediate zone of influence of the proposals only.
- 2.9 Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as SSSI) or, for undesignated features, the size, conservation status (either locally, nationally or internationally) and the quality of the ecological resource. In terms of the latter, "quality" can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

² Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006)*.
<http://www.ieem.org.uk/ecia/index.html>. Institute for Ecology and Environmental Management, Winchester

Section 3 Planning Policy Context

National Policy

- 3.1 Planning Policy Statement 9 (PPS9) published in August 2005, reaffirms the Government's commitment to the conservation of wildlife and natural features. PPS9 supersedes PPG9 and differs insofar as there is an emphasis on restoration and enhancement of features of ecological value. The policies and guidance within PPSs are a material consideration in planning applications.

Regional Policy

- 3.2 The Regional Planning Guidance (RPG) for the South West was adopted in September 2001 and provides a framework over the period to 2016.

- Policy **EN1** is the only policy relevant to nature conservation, stating that:

“Local authorities and other agencies in their plans, policies and proposals, should:

- I. provide for the strong protection and enhancement of the region's internationally and nationally important landscape areas and nature conservation sites;*
- II. draw up policies for the protection of nature conservation interests of regional and local significance;*
- III. encourage the maintenance and enhancement of the biodiversity resources of the region, having particular regard to the targets set out in tables 3, 4 and 5;*
- IV. promote the restoration and expansion of depleted and vulnerable biodiversity resources in order to reverse fragmentation and create continuous viable habitats;*
- V. indicate that the protection and, where possible, enhancement of the landscape and biodiversity should be planned into new development;*
- VI. have regard to the significant landscape joint character areas of the region set out in this RPG (Map 4) and aim to conserve and enhance local character;*
- VII. take measures to protect the character of the countryside and the environmental features that contribute towards that character, including the minimisation of light pollution.”*

Local Policy

- 3.3 The Bristol Local Plan was formally adopted in 1997 and includes the following policies relevant to nature conservation:

- Policy **NE3** refers to the conservation of trees and woodlands;

- Policy **NE4** relates to the conservation of the aquatic environment and safeguarding water quality and waterside vegetation;
- Policy **NE5** relates to the protection of Sites of Nature Conservation Interest, Special Protection Areas, Ramsar Sites and Sites of Special Scientific Interest;
- Policy **NE6** relates to the protection of habitats and wildlife networks; and
- Policy **NE8** relates to the protection of protected species and habitats.

Biodiversity Action Plans (BAP)

- 3.4 The National and Local BAP (Bristol BAP) identifies habitats and species of nature conservation concern and sets out objectives to improve their conservation status, together with actions to fulfil these objectives. The BAPs are divided into Species Action Plans (SAPs) and Habitat Action Plans (HAPs).
- 3.5 There are no priority habitats within the application Site boundaries. The only SAP of possible relevance in the LBAP for Bristol is water vole *Arvicola terrestris*, however it is thought unlikely that this species occurs on the Site.

Section 4 Baseline Conditions

General Site Context

- 4.1 The Site lies in the Temple Quay region of Bristol adjacent to the Floating Harbour. It has previously been subject to a number of ecological investigations as part of a larger site, which was granted outline planning permission (ref. 01/016060/P/C). It covers some 2.43 hectares and is centred on National Grid Reference (NGR) ST 597 727.
- 4.2 The Site lies within the Avon Valleys and Ridges Natural Area. It is defined by a diverse and varied landscape due to a complex pattern of earth movements and erosion patterns and a range of rock types with ridges underlain by sandstones, mudstones and limestone's and river valleys characterised by clays and alluvial deposits.

Statutory Sites

- 4.3 The site is not covered by, or adjacent to any statutory or non-statutory designations for nature conservation. It does however lie within a 5km radius of a number of sites designated for their nature conservation value.

European Sites

- 4.4 Avon Gorge Woodlands Special Area of Conservation (SAC) lies approximately 3.1km to the west of the Site. The SAC has been designated due to the high concentration of small-leaved lime *Tilia cordata* and the presence of rare whitebeams *Sorbus* spp., including two unique to the Avon Gorge (*S. bristoliensis* and *S. wilmottiana*), and other uncommon plants such as green hellebore *Helleborus viridis*. Other characteristic species include soft shield-fern *Polystichum setiferum* and hart's-tongue *Phyllitis scolopendrium*. Species-rich transitions to scrub and grasslands are also associated with the woodland.

National Sites

- 4.5 Ashton Court Site of Special Scientific Interest (SSSI) lies approximately 3.2km to the west of the Site. Ashton Court has been designated for its rich saproxylic invertebrate fauna including many species which are nationally scarce. Species include the beetle *Ctesias serra*, the false darkling beetle *Phloiotrya vaudoueri* and the darkling beetle *Eledona agricola*.
- 4.6 Leigh Woods National Nature Reserve (NNR) lies approximately 3.2km to the west of the Site. The NNR covers the southern end of Avon Gorge and the adjoining plateau, and is a woodland pasture comprised of a mosaic of grassland, scrub and

old pollarded trees. The pollarded trees support various species of rare insect, fungi and bat.

Non-statutory Sites

4.7 Sites of importance for local wildlife in Bristol are designated as Sites of Importance for Nature Conservation (SNCIs). There are six SNCIs within a 2km radius of the site:

- Feeder site SNCI is an artificial water channel connected to the Floating Harbour, with semi-improved neutral grassland and scrub along its banks, and is located approximately 300m south of the site;
- Phoenix Wharf SNCI lies 1.8 km to the west of the Site and is hydrologically linked to the site;
- The River Avon (part of) SNCI includes the river and its associated marginal habitats, and is located approximately 350m to the south of the site;
- Easton-Staple Hill Disused Railway includes grassland, scrub, secondary woodland, planted trees and flower beds, and is located approximately 800m to the north east of the site;
- Arno's Vale Cemetery SNCI comprises neutral grassland, semi-improved neutral grassland and semi-natural broadleaved woodland, and is located approximately 1.2km to the south east of the site; and
- Brandon Hill SNCI is a public park with semi-natural and planted broadleaved woodland, ponds, grassland and recreated wildflower meadows, and is located approximately 1.6km to the west of the site.

Habitats

- 4.8 The Floating Harbour is situated adjacent to the southwest of the Site and runs approximately parallel and to the north of the River Avon through the centre of Bristol. The dock is lined by stone walls and therefore provides little habitat for either aquatic plants or protected species such as water vole *Arvicola terrestris* or kingfisher *Alcedo atthis*. No emergent or submerged plant species were noted in the water course at the time of survey.
- 4.9 The southeast corner of the site, adjacent to the railway bridge, is currently used as a steel storage area. The area is not vegetated (disturbed ground) and no habitats of interest were noted.
- 4.10 The rest of the site is a mosaic of hard standings, rubble and pioneer vegetation. Butterfly bush *Buddleja davidii* occurs frequently across the site, along with bramble *Rubus fruticosus* agg. A mixture of tall ruderal, herb and grass species occur, the most frequent being colts foot *Tussilago farfara*, biting stonecrop *Sedum acre*, teasel *Dipsacus fullonum*, bristly oxtongue *Picris echioides*, hawkweed *Pilosella*

officinarium, thistle *Cirsium* sp., dock *Rumex* sp., mullein *Verbascum* sp., smooth sow thistle *Sonchus oleraceus*, vetch *Vicia* sp., clover *Trifolium* sp., ribwort plantain *Plantago lanceolata* and yarrow *Achillea millefolium*. Nettle *Urtica dioica* and unidentified umbellifer species were also recorded on the site. Grasses on site included red fescue *Festuca rubra*, perennial rye-grass *Lolium perenne* and cock's-foot *Dactylis glomerata*. Stinking iris *Iris foetidissima* was also recorded on the site in previous surveys. Previous survey on the site did not identify any plant species of nature conservation value and as such the species assemblage is likely to be of negligible ecological value. However further survey has been recommended in the spring to pick up any other species.

- 4.11 A small section of ornamental planting lies adjacent to the Temple Quay footbridge, which spans the Floating Harbour. These species are considered to be of negligible ecological value.
- 4.12 The data search returned a record for Japanese knotweed *Fallopia japonica* for the site although the species was not recorded during the site survey.

Protected Species

Flora

- 4.13 There are no records of protected flora within the vicinity of the site; however, there is one record of twiggly mullein *Verbascum virgatum*, which is a nationally scarce plant, located approximately 350m to the south of the site.
- 4.14 The habitats on Site are relatively recent and composed of species that are typically pioneer species. Although the survey was undertaken outside of the optimum period for carrying out vegetation surveys, previous botanical surveys on the Site have not identified any species of nature conservation interest³.

Amphibians and Reptiles

- 4.15 Data from BRERC indicate that both slow worms and great crested newts have been recorded within 2km of the site. Both species have been recorded approximately 1.6km west of the site boundary at Brandon Hill SNCI, and slow worms have been recorded approximately 1.5km to the south east of the site.
- 4.16 The vegetation on site lacks the structural diversity to support a reptile population. Additionally the size of the site, coupled with its relative isolation, reduce its potential to support reptiles. With reference to protected amphibian species, again the relative isolation of the site and the vegetation structure limit the potential for amphibians to occur on the site.

Badger

- 4.17 Several records of badger sightings have been returned through the data search, the closest of which is a reported sighting immediately adjacent to the site. The Avon Badger Group holds no records of setts within 2km of the site, however, the

³ CPM. 2001. Supplementary Ecology Surveys. Temple Quay North, Bristol

BRERC holds three badger sett records within the site vicinity, the nearest record being approximately 930m from the site boundary.

- 4.18 No signs of the species or setts were noted during the Site survey. No suitable foraging habitat was recorded and it is reasoned that the Site is not important to the local badger population.

Bats

- 4.19 A number of bat species have been recorded within 2km of the site, including Leisler's bat *Nyctalus leisleri*, lesser horseshoe *Rhinolophus hipposideros*, pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula*, Daubenton's bat *Myotis daubentoni*, brown long-eared *Plecotus auritus* and Bechstein's bat *Myotis bechsteini*. There are no records of bat roosts within 2km of the Site.
- 4.20 No roosting opportunities for bats were identified within the Site. Foraging habitat was also limited within the Site boundaries. It is possible that bats may forage along the adjacent watercourse, although the area is generally well lit at night, limiting bat potential.

Birds

- 4.21 Data from the County Recorder indicates that the site itself is not considered to provide optimal habitat to support any significant populations of species of conservation concern.
- 4.22 The County Recorder identified the following notable species that breed in the vicinity of the Site: sparrowhawk *Accipiter nisus*, sand martin *Riparia riparia*, grey wagtail *Motacilla cinerea* and song thrush *Turdus philomelos*. Furthermore, several records of kingfisher sightings within the vicinity of the site were returned from the BRERC. Potential for these species on site is relatively limited.
- 4.23 Urban brownfield sites can be important for breeding black redstarts *Phoenicurus ochruros*, a legally protected species, and two records of individual birds have been returned through the data search, one located approximately 500m to the south west and the second located approximately 1km to the west of the site. However, these sightings were recorded in 1997 and no further sightings have been recorded. In addition, consultation of the Avon Bird Report⁴ indicates that this species is rare in the vicinity of the Site, and was last recorded breeding in the Bristol area in 1994. A site survey for the species was undertaken in 2001 but its presence was not recorded on site. As this survey was undertaken a number of years ago, further survey has been recommended.
- 4.24 Habitat for breeding birds on Site is limited to a number of small areas of bramble scrub and old walls bordering the river. At the time of survey, a singing male blue tit *Parus caeruleus* was noted. Blackbird *Turdus turdus* and wren *Troglodytes troglodytes* were also noted on the Site. A sparrowhawk was recorded flying over the Site towards a copse on the opposite side of the river.

⁴ Avon Bird Report 2004, Avon Ornithological Group

Fish

- 4.25 The harbour supports a coarse fishery dominated by roach *Rutilus*, with bream *Abramis brama*, carp *Cyprinus carpio* and some tench *Tinca tinca*. It is possible that these fish species spawn in the area. Records of eel *Anguilla anguilla* are also known from the watercourse⁵.

Invertebrates

- 4.26 No records of protected invertebrate species have been returned for the site. Additionally no records of protected freshwater or estuarine invertebrates were returned through the data search.
- 4.27 The mosaic of habitats on site has the potential to support a range of invertebrates. Brownfield sites can often support species of nature conservation importance⁶ and as such further survey is recommended.

Otter

- 4.28 Otter have been recorded in the River Avon at a location approximately 2km to the west of the site boundary.
- 4.29 The site however does not provide any lying up or holt sites for the species and therefore it is highly unlikely that the species occurs on the Site.

Water vole

- 4.30 No records for water vole were returned through the records search and no suitable bankside habitat was noted for the species. Therefore it is unlikely that water vole occur within the Floating Harbour.

⁵ Andy Dune – Environment Agency, Bristol per comm.

⁶ English Nature. 1998. Brownfield: red data. The values artificial habitats have for uncommon invertebrates. Research Report No. 273. English Nature, Peterborough.

Section 5 Conclusions and Recommendations

- 5.1 The site lies adjacent to the Floating Harbour in Bristol which is in hydrological connectivity with two non-statutory SNCI and feeds into the River Avon. The site itself is considered to be of limited ecological value in terms of its botanical interest but further survey will be undertaken to determine value. There is also some potential to support protected species.
- 5.2 The redevelopment of the site has been considered in the context of potential impacts on the adjacent watercourse and protected species that may occur on the site.

Potential Impacts and Mitigation

- 5.3 Works on the site may have the potential to impact on the adjacent Floating Harbour through the remobilisation of ground contaminants and/or the release of sediments into the water course. These may potentially affect water quality within the Floating Harbour as well as sites such as the Feeder SNCI and Phoenix Wharf SNCI, which are in hydrological connectivity with the Floating harbour. Direct impacts to water quality can indirectly affect fauna associated with the water courses. In line with policies NE4 and NE5 of the local plan, mitigation to prevent these impacts should include the development of a Construction Management Plan to ensure works on site do not affect the Floating Harbour. This would need to be developed in conjunction with the Environment Agency and the Harbour Master.
- 5.4 The development will require the installation of an intake and discharge pipe into the Floating Harbour as part of a cooling system for the buildings on the site. The installation and running of this system has the potential to impact fauna within the Floating Harbour through initial disturbance impacts during installation and long-term changes in temperature levels around the discharge pipe. Mitigation to prevent disturbance during the installation process includes avoiding the most sensitive time for coarse fisheries, 15th March to 15th June, inclusive. In terms of long-term mitigation for the proposed warm water discharge, modelling to identify the zone of impact as a result of the release of warm water into the water course along with monitoring will be required to develop mitigation for this impact.
- 5.5 With regard to the site itself, further work will be required to quantify its value in terms of the protected species it may support. The desk study and site survey has highlighted potential for black redstart on the site. This species is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and as such must be given consideration as to what impact the proposed development may have. Further survey is therefore recommended to determine whether the species is present, in line with policy NE8 of the local plan.
- 5.6 The site has also been assessed as regards its potential to support protected invertebrate species. A brownfield invertebrate survey is therefore recommended to determine if the site has any notable invertebrate interest.

- 5.7 Other potential impacts include the potential for increased light pollution onto the Floating Harbour. Light pollution can impact on nocturnal or crepuscular species like bats and some fish species, either by changing behaviour or causing them to abandon an area. Although light levels are probably already quite high in the vicinity of the site, mitigation to reduce light pollution is recommended in line with policy NE6 which relates to the protection of wildlife networks.

Recommendations and Enhancement Opportunities

- 5.8 As stated earlier, further surveys are required to determine the likely absence/presence of black redstarts and invertebrates of nature conservation value.
- Black redstart surveys should to be carried out between May and August, with at least five visits needed to determine whether or not the species is breeding on the site;
 - Invertebrate surveys should be carried out during the summer months, when the majority of terrestrial invertebrates are active; and
 - An updated Phase 1 habitat survey should be undertaken in conjunction with the other surveys to check for any botanical interest during the spring and summer.
- 5.9 Although the site survey did not find any evidence that Japanese knotweed was present, the data search results indicate a recent record for the site. It is therefore recommended further survey be undertaken to determine its likely presence/absence during the growing season in the spring and summer. If the species is found to be present on site, a management plan will need to be formulated to ensure its eradication from the site in line with the legislation.
- 5.10 In terms of enhancement opportunities, the Floating Harbour could be enhanced through proposals to incorporate timber fencing and/or artificial shelves along the Harbour walls. These could be planted with native species. Such features would be of value to birds and invertebrates. Nesting sites for kingfisher and grey wagtail could also be provided along the Harbour walls.
- 5.11 Landscaping measures could incorporate planting of native species on the site to provide breeding bird habitat and increase the ecological value of the site. Where possible, vegetation along the bank side should be encouraged as it would provide a natural buffer between the development and adjacent water course.

Plan

Habitat Features
(2004LON/10a 04/07 COR/LS)

