

Friern Barnet Former Sewage Works

Botanical Survey

June 2009

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1 Introduction

1.1 Previous survey work

Jacobs UK Ltd carried out an Extended Phase I Habitat survey of the former Friern Barnett Sewage Works on 18th January 2008. A desk-based records search was also carried out at the same time.

The study was commissioned by the London Borough of Barnet in connection with potential commercial development and was carried out in order to assess possible ecological constraints.

The report produced highlighted the following:

- The site is designated by the Greater London Authority as a Site of Borough Grade I Importance for Nature Conservation.
- There are records of bee orchids (*Ophrys apifera*) and the nationally scarce golden dock (*Rumex maritimus*) noted on the site in the past.
- A number of different habitat types were identified including broad-leaved semi-natural woodland, dense and scattered scrub, scattered trees, semi-improved neutral grassland, tall ruderal and some ephemeral/short perennial areas.
- Several areas of Japanese knotweed (*Fallopia japonica*) are on the site, together with a stand of giant hogweed (*Heracleum mantegazzianum*).
- The site is likely to support a larger diversity of plants than was observed during the site visit and may be of significant interest within the local area.

The report advised that the botanical interest of the site should be considered further at a more appropriate time of year. In particular it was advised that a check for bee orchids, golden dock and any other species of note should be made.

1.2 Aims of this survey

This report outlines the methodology, results and implications of a botanical survey carried out in May 2009 and aims to help inform the developer and local planning authority about the botanical value of the site. Advice is also given in relation to retention of habitats and possible enhancement.

2.1 Methodology

The site was surveyed for its botanical interest on Tuesday 19th May 2009 by two suitably experienced Jacobs' ecologists. A general classification of the habitats present on the site was made together with a comprehensive list of species for each vegetation type. In addition a check for the bee orchid and golden dock was also made.

The National Vegetation Classification (NVC) System was not used due to the nature of the site (i.e. regenerated brownfield site) which was considered unlikely to fall within standard NVC vegetation types. General habitat/vegetation description together with detailed species lists was considered to be sufficient for the purposes of this assessment.

Section 3 sets out the results of the surveys; Section 4 outlines the implications of the results and gives some suggestions about incorporation of the botanic interest into the design proposals.

3.1 General site background

The site is bordered to the north by the North Circular Road (A406) with Muswell Hill Golf Course located on the southern side of the site. Hollickwood Park lies immediately adjacent to the western boundary, with residential properties beyond, and a railway line runs along the eastern edge of the site. The site has a total area of about 17ha.

The site can be divided into three main vegetation types, as follows:

- Woodland and scrub, which the majority of the site comprises
- Tall herbaceous vegetation dominated by Russian comfrey (*Symphytum x uplandicum*); this was initially thought to be semi-improved grassland during the Extended Phase I Habitat survey carried out in January 2008 but this has clearly changed during the summer months
- Ruderal and ephemeral/short perennial, characterised by the presence of grasses and species of the daisy (Asteraceae) and pea (Fabaceae) family.

A number of mature trees were noted along the northern, eastern and southern boundaries and additionally there were some very small areas of rough grassland.

3.2 Vegetation descriptions

The following paragraphs describe in detail the vegetation types present on the site, including species names and their abundance. Figure 1 gives approximate locations of the different vegetation types and a full list of species identified is given in Appendix 1.

3.2.1 Woodland and scrub

Much of the site is covered with young/semi-mature broad-leaved semi-natural scrubby woodland, dominated by hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), goat willow (*Salix caprea*) and elder (*Sambucus nigra*). Other woody species include pedunculate oak (*Quercus robur*), sycamore (*Acer pseudoplatanus*), silver birch (*Betula pendula*), common lime (*Tilia x europaea*), and ash (*Fraxinus excelsior*). Holly (*Ilex aquifolium*) was noted rarely, together with dogwood (*Cornus sanguinea*) and hazel (*Corylus avellana*). One hornbeam (*Carpinus betulus*) tree was noted, plus a small cluster of laburnum (*Laburnum anagyroides*) and several crab apple specimens (*Malus sylvestris*). Bramble (*Rubus fruticosus* agg.) is frequent, especially on the edges of woodland areas, occasionally with dog-rose (*Rosa canina*) and white-bryony (*Bryonia dioica*).

Due to the dense nature of the woodland in many areas the ground flora is limited to a dense carpet of ivy (*Hedera helix*). However, in sunnier spots such as along footpaths and more open areas, forbs are abundant and include typical species such as common nettle (*Urtica dioica*), cleavers (*Gallium aparine*), garlic mustard (*Alliaria petiolata*), cow parsley (*Anthriscus sylvestris*), hoary willowherb (*Epilobium*

parviflorum), herb-Robert (*Geranium robertianum*), wood avens (*Geum urbanum*), white deadnettle (*Lamium album*), wood forget-me-not (*Myosotis sylvatica*), creeping buttercup (*Ranunculus repens*), creeping thistle (*Cirsium arvense*), green alkanet (*Pentaglottis sempervirens*) wood dock (*Rumex sanguineus*), hogweed (*Heracleum sphondylium*), red campion (*Silene dioica*) and white campion (*S. latifolia*). The forb species are mixed in with a variety of grasses including barren brome (*Anisantha sterilis*), soft brome (*Bromus hordeaceus*), false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), Yorkshire-fog (*Holcus lanatus*) and creeping bent (*Agrostis stolonifera*).

3.2.2 Tall herbaceous vegetation

A considerable area towards the south and western sides of the site was found to be dominated by Russian comfrey during the survey. This area was previously classed as semi-improved grassland, however during the summer months it is clear that the comfrey shades out most other species resulting in what is effectively an impenetrable mono-culture. However, some other species were noted along the pathways and slightly less dense areas, including creeping bent, sheep's-fescue (*Festuca ovina*), cock's-foot and common couch (*Elytrigia repens*). Common nettles were also present, together with creeping thistle.

3.2.3 Ruderal and ephemeral/short perennial

At the time of the survey the remainder of the site comprised ruderal, ephemeral and short-perennial species interspersed with grasses. The character of the vegetation in this area was rather sparse, although became denser adjacent to the areas of tall herbaceous vegetation and scrub/woodland where the soil retains more moisture. The extensive areas of bare earth recorded during the Extended Phase I Habitat survey had become much more colonised by vegetation due to the later season.

Forb species located in this area are dominated by species of the daisy (Asteraceae) and pea (Fabaceae) family, such as bristly ox-tongue (*Picris echinoides*), ragwort (*Senecio jacobaea*), groundsel (*S. vulgaris*), dandelion (*Taraxacum officinale* agg.), goat's-beard (*Tragopogon pratensis* agg.), yarrow (*Achillea millifolium*), mugwort (*Artemisia vulgaris*), creeping thistle, spear thistle (*Cirsium vulgare*), lesser trefoil (*Trifolium dubium*), red clover (*Trifolium pratense*), white clover (*T. repens*), hairy tare (*Vicia hirsuta*), common vetch (*Vicia sativa*) and bush vetch (*V. sepium*). Other forb species present include cow parsley, burdock (*Arctium lappa*), teasel (*Dipsacus fullonum*), cleavers, cut-leaved crane's-bill (*Geranium dissectum*), ribwort plantain (*Plantago lanceolata*), greater plantain (*P. major*), creeping cinquefoil (*Potentilla reptans*), creeping buttercup, scentless mayweed (*Tripleurospermum inodorum*), colt's-foot (*Tussilago farfara*) and common nettle, together with crucifers rape (*Brassica napus*), wavy bitter-cress (*Cardamine flexuosa*) and winter-cress (*Barbarea vulgaris*).

Grasses under-lie this area and include creeping bent, false oat-grass, soft brome, cock's-foot, sheep's fescue, Yorkshire-fog, perennial rye-grass (*Lolium perenne*), Timothy (*Phleum pratense*) and annual meadow grass (*Poa annua*).

3.2.4 Other habitats

A number of mature/semi-mature trees are located along the boundaries of the site, in particular along the northern and eastern boundaries. These trees mainly comprise lime, black-poplar (*Populus nigra*), Lombardy poplar (*Populus nigra* var. *Italica*) whitebeam (*Sorbus aria* agg.) and crack willow (*Salix fragilis*). Additionally, several mature oaks are located in the south eastern corner of the site.

There are several areas of Japanese knotweed located on the site, together with a stand of giant hogweed at the northern end of the site.

No signs of bee orchid present on the site were noted during the visit and no signs of this species were noted during any other surveys carried out on the site.

Several dock species were found on the site, including one that resembled golden dock, however no fruits or flowers were present at the time of the survey. Dock species are notoriously difficult to identify without these features, therefore positive identification of these specimens was not possible at this time.

4.1 Site value assessment

The site is used on occasion by dog-walkers and in the past has clearly been subject to fly-tipping in the form of dumped burnt-out cars, however public access during the summer months appears far more limited – probably due to the dense nature of much of the vegetation. The site is not currently subject to any habitat management and it is likely that this has been the case for several decades. Due to this many of the mature trees on the boundary of the site have suffered from wind-damage or become decayed causing branches to fall off leaving open wounds, splits and cracks. These trees may potentially be used by roosting bats and breeding birds, thereby supporting protected species.

The site at Friern contains a high diversity of plant species and is designated as a Site of Borough Grade I Importance for Nature Conservation, the citation of which notes that it is a typically diverse wasteland site with high botanical diversity and supports a good range of wildlife. The site is therefore considered to be a valuable habitat, especially due to the size and location in such an urbanised environment, with the most valuable habitats being the more diverse woodland-edge areas, the ruderal areas and the mature trees.

No bee orchids were noted on the site, however it is possible that this species may return as a result of suitable management. The presence of golden dock on the site is not currently confirmed either way.

4.2 General recommendations

Should the site be developed, it would be good practice to retain as much variety of habitat as possible, as well as ensure that the retained habitat did not become further fragmented. In particular it would be favourable to retain the mature trees on the boundaries as far as possible, together with a strip of land to the eastern edge of the site. Habitats would then remain linked to Hollickwood Park to the west, the golf course to the south and the railway to the east.

Site management may include tree maintenance and some light scrub clearance and/or the creation of rides in wooded areas for example. This would open up the ground to more light and allow further species to colonise, which in turn would be likely to increase diversity of habitat for invertebrates and breeding birds.

It was observed during the course of the surveys that the vegetation (in particular the areas of comfrey) supported high populations of pollinating insects and other invertebrates, something which is probably a result of the undisturbed nature of the site and the diversity of vegetation and the likely absence of reptile species (Jacobs, 2009).

A brief additional visit is recommended during July or later in the summer in order to allow full identification of the dock species that resembles golden dock in vegetative character. Consideration of this species should be taken into account during design

of the scheme if subsequently it is found to be present. For example, retention of any population in its' current location may be appropriate, or if this were not possible, translocation to an area of the site that would be managed for wildlife following completion of works would be a good alternative.

4.3 Invasive species

Japanese knotweed and giant hogweed are listed on Schedule 9 (Part I) of the Wildlife and Countryside Act; it is an offence under Section 14 of the same Act to plant or otherwise cause to grow in the wild any plant listed on this Schedule. It is advised that appropriate methods for the control of these two species should be taken in line with current appropriate Environment Agency guidance (EA, 2009).

Based on recommendations made within the Jacobs Invasive Weed Summary Report (May 2009) LBB are restricting access to areas of invasive weeds by installation of Herras fencing and treatment of the Giant Hogweed is currently underway.

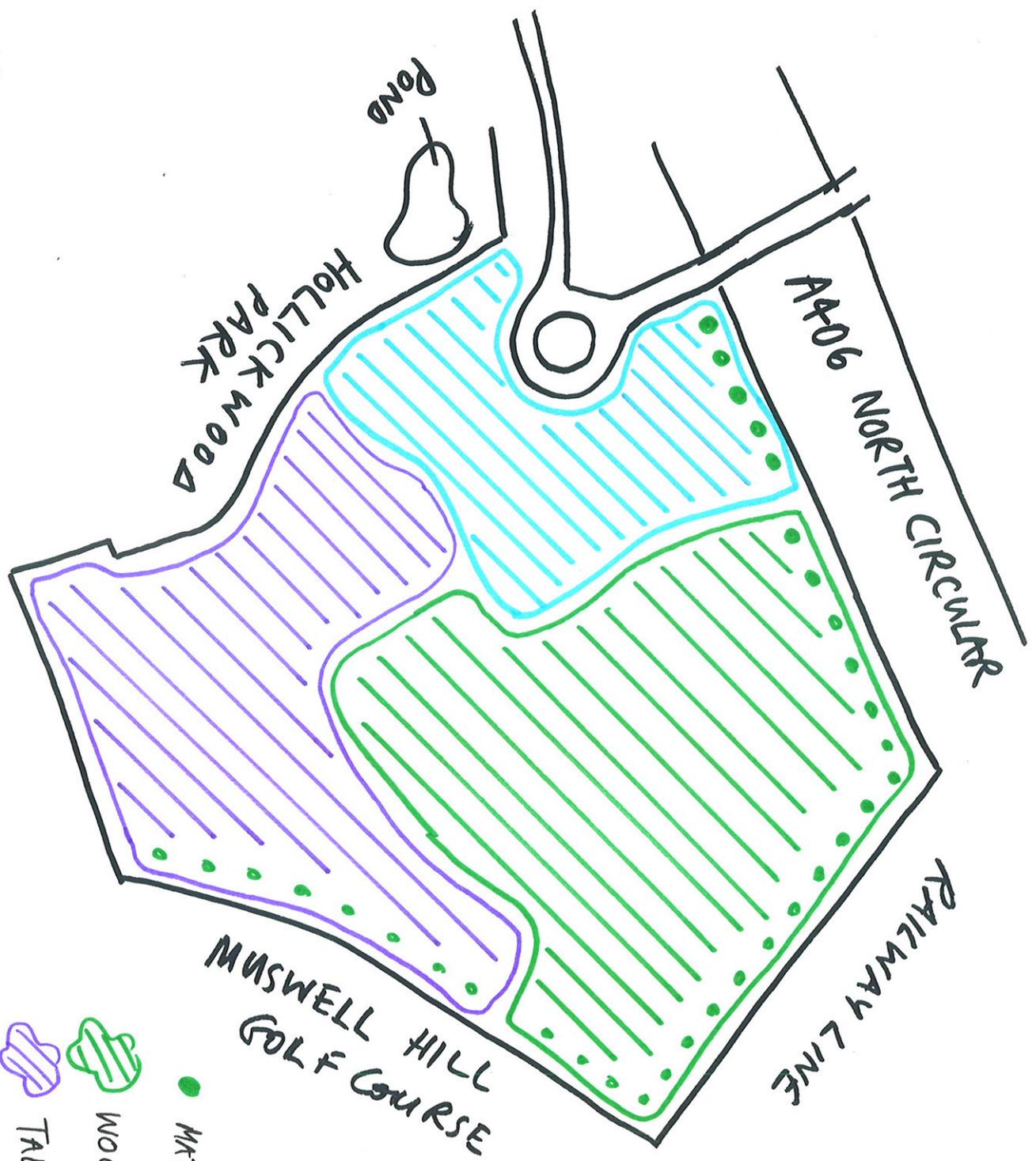
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| Environment Agency, 2009 | Advice on the management of Japanese knotweed Part 1 to 3. Environment Agency, London. |
| Jacobs, 2009 | Reptile Survey. Jacobs, Reading. |
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| Stace, C., E., 1997 | New Flora of the British Isles (second edition). Cambridge University Press, Cambridge. |
| Statutory Instrument, 1981 | Wildlife and Countryside Act 1981 (as amended). HMSO, London. |
| WS Atkins, 1998 | Outline Ecological Assessment Report: Former Friern Barnet Sewage Treatment Works. |

6 Appendix 1 – Plant species list

The following plant species were observed during the site visit. All plant names (common and scientific) follow the nomenclature of Stace, 1997.

| Latin name | Common name |
|---------------------------------|-------------------------|
| <i>Acer pseudoplatanus</i> | Sycamore |
| <i>Achillea millifolium</i> | Yarrow |
| <i>Agrostis stolonifera</i> | Creeping bent |
| <i>Alliaria petiolata</i> | Garlic mustard |
| <i>Anisantha sterilis</i> | Barren brome |
| <i>Anthriscus sylvestris</i> | Cow parsley |
| <i>Arctium lappa</i> | Burdock |
| <i>Arrhenatherum elatius</i> | False Oat-grass |
| <i>Artemisia vulgaris</i> | Mugwort |
| <i>Barbarea vulgaris</i> | Winter-cress |
| <i>Brassica napus</i> | Rape |
| <i>Bromus hordeaceus</i> | Soft brome |
| <i>Bryonia dioica</i> | White bryony |
| <i>Buddleja davidii</i> | Butterfly-bush |
| <i>Cardamine flexuosa</i> | Wavy bitter-cress |
| <i>Carpinus betulus</i> | Hornbeam (r) |
| <i>Cirsium arvense</i> | Creeping thistle |
| <i>Cirsium vulgare</i> | Spear thistle |
| <i>Cornus sanguinea</i> | Dogwood |
| <i>Corylus avellana</i> | Hazel |
| <i>Crataegus monogyna</i> | Hawthorn |
| <i>Dactylis glomerata</i> | Cock's-foot |
| <i>Dipsacus fullonum</i> | Teasel |
| <i>Elytrigia repens</i> | Common couch |
| <i>Epilobium parviflorum</i> | Hoary willowherb |
| <i>Fallopia japonica</i> | Japanese knotweed |
| <i>Fescue ovina</i> | Sheep's fescue |
| <i>Fraxinus excelsior</i> | Ash |
| <i>Galium aparine</i> | Cleavers |
| <i>Geranium dissectum</i> | Cut-leaved crane's-bill |
| <i>Geranium robertianum</i> | Herb Robert |
| <i>Geum urbanum</i> | Wood avens |
| <i>Hedera helix ssp helix</i> | Ivy |
| <i>Heracleum mantegazzianum</i> | Giant hogweed |
| <i>Heracleum sphondylium</i> | Hogweed |
| <i>Holcus lanatus</i> | Yorkshire-fog |
| <i>Laburnum anagyroides</i> | Laburnum |
| <i>Lamium album</i> | White dead nettle |
| <i>Lolium perenne</i> | Rye grass |

| | |
|----------------------------------|---------------------------------------|
| <i>Malus sylvestris</i> | Crab apple |
| <i>Malva sylvestris</i> | Common mallow |
| <i>Myosotis sylvatica</i> | Woodland forget-me-not |
| <i>Pentaglottis sempervirens</i> | Green alkanet |
| <i>Phleum pratense</i> | Timothy |
| <i>Picris echioides</i> | Bristly ox-tongue |
| <i>Plantago lanceolata</i> | Ribwort plantain |
| <i>Plantago major</i> | Greater plantain |
| <i>Poa annua</i> | Annual meadow grass |
| <i>Potentilla reptans</i> | Creeping cinquefoil |
| <i>Prunus avium</i> | Wild cherry, poss. ornamental variety |
| <i>Prunus spinosa</i> | Blackthorn |
| <i>Ranunculus repens</i> | Creeping buttercup |
| <i>Rosa canina</i> agg. | Dog-rose |
| <i>Rubus fruticosus</i> agg. | Bramble |
| <i>Rumex sanguineus</i> | Wood dock |
| <i>Salix caprea</i> | Goat willow |
| <i>Sambucus nigra</i> | Elder |
| <i>Senecio jacobaea</i> | Ragwort |
| <i>Senecio vulgaris</i> | Groundsel |
| <i>Silene dioica</i> | Red campion |
| <i>Silene latifolia</i> | White campion |
| <i>Symphytum x uplandicum</i> | Russian comfrey |
| <i>Taraxacum officinale</i> agg. | Dandelion |
| <i>Tragopogon pratensis</i> agg. | Goat's-beard |
| <i>Trifolium dubium</i> | Lesser trefoil |
| <i>Trifolium pratense</i> | Red clover |
| <i>Trifolium repens</i> | White clover |
| <i>Tripleurospermum inodorum</i> | Scentless mayweed |
| <i>Tussilago farfara</i> | Colt's foot |
| <i>Urtica dioica</i> | Common nettle |
| <i>Vicia hirsuta</i> | Hairy tare |
| <i>Vicia sativa</i> | Common vetch |
| <i>Vicia sepium</i> | Bush vetch |



- MATURE/SEMI MATURE TREES
- WOODLAND + SCRUB
- TALL HERBACEOUS
- RUDERAL AND EPHEMERAL/SHORT PERENNIAL

FIGURE 1 - VEGETATION TYPES