

ASTONFIELDS BALANCING LAKES HABITAT MANAGEMENT PLAN 2010-2014



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Executive Summary

Astonfields LNR is 4.2 ha of reedbed, open water and woodland. It has a great variety of wildlife including uncommon plants and birds. An enthusiastic community group, The Friends of Astonfields, help support this popular site. In order to maintain the habitats found on the reserve, it is essential that management take place. A detailed appraisal of the work can be found in the text but in summary, approximately £1500 is needed annually in order to:

- Maintain paths and verges
- Control vegetation/tree works
- Maintain hedges

By managing the Borough's natural assets the Council is following national and local policy set out in:

NERC Act 2006 – Section 40 & 41

Corporate Plan – Cleaner, Greener, Safer.

1. Introduction

In declaring Astonfields a Local Nature Reserve, Stafford Borough Council is making a public statement recognising the site as a valuable resource for both local wildlife and local people. The declaration will contribute towards the main aim of the Stafford Borough Biodiversity Strategy, namely "to conserve and enhance the characteristic biodiversity of Stafford Borough for present and future generations" and the Stafford Borough Local Agenda 21 Strategy, which aims "to help achieve a better quality of life for all, both today and in the future".

Management History: This document updates and replaces the 2004-2009 Management Plan, which has directed management at the site since its formal declaration as an LNR in 2004.

Name: Astonfields Balancing Lakes	Area: 4.2 ha	Grid reference: SJ 926 248
OS Map: Explorer 244 (6)	1:25,000	
Ownership: Stafford Borough Council		
Local Planning Authority: Stafford Borough Council		
District: Stafford Borough		
Conservation Status: Staffordshire Site of Biological Importance, Local Nature Reserve (LNR)		

Access: The site has free and open access and can be entered via five main access points. Two of these are off the Isabelle Trail cycleway and footpath that marks the northern boundary of the site. Two more are located off Astonfields Road on the southern edge of the site and the other one is close to the Schott Glass building on Astonfields Industrial Estate on the western perimeter. Within the site boundaries a surfaced footpath circles the balancing lakes.

2. Site Description

Astonfields Balancing Lakes are situated on the northeastern edge of Stafford. The primary purpose of these water bodies is flood defence, but over the years a series of important habitats have developed on the site. The area of land where the balancing lakes are located was originally wet meadowland, which flooded regularly. The northern balancing lake was constructed in the late 1970s to protect parts of Stafford from flooding. In 1990 the southern balancing lake was constructed to increase the flood retention capacity and the northern one was dredged at the same time.

The northern lake is mostly open water with a small amount of emergent vegetation. In contrast, the southern lake contains little open water throughout most of the year. At one end of the southern lake is an extensive reedbed that is dominated by Common Reed; whilst at the other there is a small area that contained a saltmarsh community flora. The

saltmarsh was of particular botanical interest because this type of habitat has been found at only one other location in Staffordshire. Notable saltmarsh species include, Grey Club-Rush and Buttonweed (a non-native species that is not found anywhere else in the county). Generalised wetland species such as Marsh Arrowgrass and Round-fruited Rush, which are both uncommon in Staffordshire, can also be found in this location.

There are records of the lakes being used by numerous species of bird including Teal, Water rail, Sedge and Reed warbler. The steep, dry banks of the lakes support grasslands containing a variety of species such as Common Knapweed, Creeping Cinquefoil and Meadow Vetchling. The LNR covers an area of approximately 4ha, and is already identified as a grade 1 Site of Biological Importance (SBI). The SBI survey document can be found in section 9 of this Management Plan.

3. Management objectives

Local Nature Reserves are a very important part of our heritage and it is important that we treat them as such. We want to encourage and enhance biodiversity within our Borough and encourage as many of our residents to visit and to enjoy our LNR's.

- To maintain and enhance both open water and reedbed habitats and to encourage the associated flora and fauna.
- To maintain the rare saltmarsh habitat and its uncommon species by preventing invasion by scrub and aggressive herbaceous species of lower conservation value.
- To maintain and enhance the lakes as an important area for birds.
- To maintain and enhance the populations of any notable species.
- To enhance the educational value of the site and increase the number of educational visitors.
- To contribute towards achieving the aims, objectives and targets identified in the UK Biodiversity Action Plan, the Staffordshire Biodiversity Action Plan, the Stafford Borough Biodiversity Strategy and Stafford Borough Council's Climate Change and Sustainable Development Strategy.

4. Main management operations

This section details the main management operations that are required to protect and enhance the biodiversity of this site and also maintain its community amenity value. A new management plan should be written during 2013 to succeed this document. This current plan should be revised at any time during that period, if necessary, to provide greater protection to the important habitats and species that are found on this site.

4.1 Summary Table of Main Management Tasks

Activity	Date
Litter pick	Spring & Autumn
Step maintenance	(To be monitored)
Paths	May, July, Sept
Verges	Apr & Sept

Hedges	August
Vegetation Control	Nov - Feb
Surveys	All year
Reedbed work	Nov - Feb

4.2 Wetland Management

Two separate balancing lakes, which contain a variety of wetland habitats, can be identified at this site. The Marston Brook enters at the north of the site via a culvert beneath the old railway line. It flows through the lakes and exits the site at the southern boundary on Astonfields Road where it joins the Sandyford Brook. A variety of birds, including Staffordshire Biodiversity Action Plan species such as Snipe, take advantage of the wetland habitats that are present on this site.

The balancing lakes were constructed to protect parts of Stafford, in particular the Sandon Road and surrounding areas, from flooding. Although the site has since naturally developed into an area of biological importance, flood defence remains its primary function. Stafford Borough Council is currently responsible for maintaining the flood capacity of the balancing lakes. The northern lake was dredged when the southern lake was constructed in 1990. There has been no subsequent dredging of either lake. **It is important that any future dredging work should be carefully planned to protect the wildlife value of the site whilst ensuring that the flood capacity of the lakes is maintained.**

4.3 Reedbeds

- The extensive reedbed at the top end of the southern lake is mainly composed of Common Reed (*Phragmites australis*), although it also contains species such as Common Reedmace, Lesser pond sedge and Yellow Iris. The reedbed is larger than many other local examples and supports a broad variety of bird species.
- It is important that this valuable habitat is conserved, but this will not immediately necessitate active management as the reedbed is currently thriving. In fact the reeds are growing so successfully that their spread onto areas of open water may need to be controlled.
- However, it is possible that future changes in hydrology or soil chemistry might cause *Typha latifolia* or other commonplace species to expand at the expense of the *Phragmites australis*, in which case, appropriate action might be needed to correct that change. Regular monitoring of the reedbed habitat should therefore be undertaken.

4.4 Open water

- Currently the largest expanse of open water is in the northern lake. The southern lake has a small area of open water in its northwest corner, but is otherwise dominated by vegetation.
- The open water on the southern lake provides important diversity of habitat within the extensive reedbed and should therefore be maintained. Manual reed pulling should be carried out annually, where locally necessary, to maintain the current balance of reedbed and open water. This work should be carried out in autumn/winter to ensure minimum disturbance to pond life and nesting birds.

- The spread of reedbed vegetation on the northern lake should also be monitored annually. Although this lake is currently at least 80% open water the areas of *Phragmites australis* on the southern and eastern sides have noticeably expanded in the last few years. Other marginal species, such as *Typha latifolia*, Reed canary grass or Reed sweet grass, might also spread in the future and would need to be controlled. Manual removal of vegetation should be carried out as necessary during early autumn to maintain at least 60% open water.
- These management operations are only designed to maximise the wildlife value of the site. Separate management may be required for flood defence purposes if the reedbed spreads excessively over the northern lake.

4.4.2 Saltmarsh vegetation

The community of saltmarsh vegetation is mainly located in the southern lake. There are also traces of saltmarsh vegetation along the western shoreline of the northern lake and along parts of the Marston Brook to the north of the proposed LNR area. It is essential that scrub invasion be prevented. Young self-set trees should be up-rooted and larger trees should be coppiced. This work should be carried out each winter.

This area was re-surveyed by Dr Sarah Whild and Alex Locton in June 2009 who had originally surveyed the salt marsh in 1997. They found that the site has altered with a loss of much of the salt marsh community. The vegetation has developed and the ground is much drier. There is an increase in species like False Fox Sedge (*Carex obtrubae*), grasses and weeds such as thistles and docks. In their opinion the most significant plant remaining is Round-fruited rush (*Juncus compressus*), which is only recorded on two other sites in the County.

In order to restore the marsh, it would be necessary to excavate the top layer of soil off site to re-expose wet mud. This would then naturally succeed back to its current state anyway. It would be both expensive and temporary. The only probable means of achieving this would be if and when the site is cleared for future flood prevention works. Thistles and docks could be topped or possibly sprayed out in order to control their spread.

4.5 Grassland Management

There are several areas of grassland vegetation around the site, which provide an important habitat for invertebrates including Small tortoiseshell butterflies, Six-spot burnet moths, Nursery web spiders, Common green grasshoppers and bumblebees.

4.5.1 Banks of the lakes

- The banks of the lakes are rich in a variety of wildflower species including Common Knapweed, Meadow Vetchling, Creeping Cinquefoil, Hairy Tare and 'garden escapes' such as Bluebells. Teasel, which provide a food source for seed-eating birds, are particularly common around the northern lake.

- To prevent the loss of these grassland areas the growth of scrub and trees should be controlled. This includes the removal of both natural regeneration and planted exotic species. In particular it would be desirable to remove many of the young trees from the banks of the northern pool as these could eventually 'shade out' many wildflower species. The spread of brambles onto grassland areas should also be controlled. However, areas of currently well-developed scrub and individual mature trees should be retained, as they will provide important diversity of habitat.

4.5.2 Grass verges alongside the Marston Brook

- Annual dredgings from the Marston Brook and Sandyford Brook are deposited on this strip of land, which lies between the brook and the footpath (see map no.2). The nutrient levels in the soil are consequently very high and nettles dominate the area during the summer. Diversifying the ground flora in this location is deemed unfeasible at the present time because of the annual disturbance.
- The dredgings from the brooks often include large items of waste such as corrugated iron or plastic crates. These are not only visually unpleasant but could also pose a potential health and safety risk. Efforts should be made to ensure that contractors are instructed to remove such bulky waste items from the deposited material when they have dredged the brook.

4.5.3 Area to the east of the footpath alongside the northern lake

- When the Balancing Lakes were last dredged in 1990 all of the dredgings were deposited on this area of land (marked as a 'willow copse' on map no.2). Nutrient levels in the soil are consequently high and species such as nettles and cleavers thrive.

4.5.4 Strip of woodland to the east of the southern lake

- There is great potential for diversifying the ground flora of this area. Currently the ground flora is not particularly diverse, although lesser celandine and forget-me-not can be found alongside the footpath. These species should be encouraged to spread naturally and other native wildflowers such as wild garlic, red Campion, native bluebell and foxglove have been planted to provide greater floral diversity.
- Wet grassland flower species such as cuckooflower have been identified in small numbers alongside the footpath at the far southeastern corner of the southern lake. These are likely to be a remnant of the wet meadow vegetation that was historically found on this site. Efforts should be made to protect these species and encourage them to spread by controlling nearby patches of bramble and other competitive species.

4.5.5 Tree, Scrub and Hedgerow Management

Around the site there are a variety of woodland, hedgerow and scrub habitats. These all provide valuable habitat diversity and should be managed sensitively to benefit the fauna that utilise them. Native tree/shrub species should be strongly encouraged on this site.

4.5.6 Hedgerows

- The hedgerows are located in the southern half of this site and mainly consist of hawthorn and blackthorn. Some sections may be suitable for hedge laying, but no such management has ever been carried out on any of the hedges on this site. They were planted along the boundary of the site as a screen between the lakes and the adjoining Industrial Estate.
- All hedgerows on the site should be carefully managed. Wherever possible hedges should be cut or laid during January so that spring nesting birds are not disturbed and the autumn supply of berries are not affected.
- However, the hedgerows are planted very close to the footpath that leads to the lakes from the Astonfields Road entrance, so summer growth seriously affects access. In this case overhanging vegetation should be carefully cut back during August.
- Work will need to be done on the main hedge as it is beginning to “crown”. This work will be needed over the next few years and should be looked at every five years.

4.5.7 Areas of willow woodland/scrub

- There are a number of willow trees to the east of the northern lake on the land previously described in 5.2.3. These willows are all of a similar age and were probably planted after dredgings from the balancing lakes were deposited on this area in 1990.
- Some management of these trees will be required to ensure their long-term health and encourage a greater structural diversity (i.e. a variety of growth stages and ground flora). A programme of rotational coppicing should be implemented, which would involve coppicing two of the trees each year. Cut material should either be stacked in ‘habitat piles’ within woodland/scrub areas or chipped into the perimeter hedgerows.
- There is also a small area of willow woodland just to the south of the southern lake. The trees here are more mature and more densely planted than those alongside the northern lake, but there is a similar lack of structural diversity. Again, a programme of rotational coppicing would be beneficial.

4.5.8 Strip of woodland to the east of the southern lake

- This is the only section of mature woodland around the balancing lakes so it consequently provides an important habitat for birds, bats and squirrels. The existing trees should be maintained and there may be some opportunities for planting native shrub layer species.
- Some trees have died at the back of this area (possibly Elms) and one came down causing damage to the fence of the flats at Sandon Mews. Further tree removal may be necessary.
- No tree management operations should be carried out without authorisation from Stafford Borough Council.

4.5.9 Other areas of scrub and trees

- The guelder rose shrubs on the western bank of the southern lake, which were planted in the early 1990s, may require some management to prevent encroachment onto the footpath. Any coppicing or pruning should be carried out in late winter after birds have taken advantage of the supply of berries.

- Areas of bramble should be retained as they provide both cover and a food source for local wildlife. However, they may need to be controlled if they spread excessively over surrounding vegetation.
- If tree planting is carried out on the site then only native tree and shrub species should be used. Species such as dogwood, guelder rose, holly, rowan, willow and hawthorn would be suitable on this site. Non-native species such as a rhododendron and evergreen coniferous trees should be discouraged. Further planting should be prevented and existing specimens should, wherever possible, be removed.

4.5.10 Other tree management tasks

- Whenever possible ropes should be removed from the branches of trees, although only if it is safe to do so. Old tree ties should also be removed from any planted trees.
- Friends of Astonfields have been active in installing bird boxes and there are now many nest boxes across the site. The Friends monitor the boxes and a record kept of species present.

4.6 Other Site Management Tasks

There are numerous general site management tasks that need to be undertaken. Some of these are suitable to be undertaken by volunteer work-parties, whilst others will require the use of specialist contractors.

4.6.1 Footpaths

- Monitoring of the condition of on-site footpaths should be undertaken regularly.
- Over-hanging vegetation will be cut back from all footpaths on the site during late July/early August each year. A 1m wide strip should be strimmed either side of the paths to maintain easy pedestrian access.
- Any footpath repairs should be arranged as necessary.
- The set of steps in the north east corner of the site have recently been repaired. These should be monitored regularly, maintained in good condition and kept free of overhanging vegetation.

4.6.2 Litter

- Community litter-pick are arranged during the spring and also in late autumn. Stafford Borough Council will provide necessary equipment and remove the litter that is collected.
- Volunteers who litter-pick around the site regularly can make arrangements with Stafford Borough Council to be provided with blue bags and litter-pickers. Any bagged litter will be collected by arrangement (call the street cleaning hotline on 01785 619407) from Schott Glass car park by the entrance to the reserve.
- Dog fouling problems should be monitored closely. All site users should be required to clean up after their pets. Any new bins should be identified as poop-scoop receptacles.
- Businesses on the Astonfields Industrial Estate have been contacted to encourage them control their litter to prevent it spreading onto the LNR. So far, response has been poor.

4.6.3 Signage

- There are several issues with the old signs on site. Firstly, they suffer from graffiti and need cleaning regularly. Secondly, some of the information on the signs is incorrect. These signs should be removed, and improved replacement signs installed.
- Once installed these signs should be kept clean.

4.6.4 Bollards and barriers

- The access point in the northwest corner of the site is often used by motorcyclists who drive along the footpaths. Motorbikes should not be used on any of the footpaths within the site so this access should be restricted. A barrier that stops motorbikes, but allows wheelchair, pushchair and cycle access is required.
- The access points at the Astonfields Road and Astonfields Industrial Estate entrances prevent motorcycle access, but are not suitable for wheelchairs or pushchairs. A suitable alternative design could be investigated.
- All fencing on the site should be maintained. The site boundaries should be monitored and any encroachments should be reinstated.

4.6.5 Wildlife Surveys

- Wherever possible it is important that members of the Friends of Astonfields Balancing Lakes and other local residents and site users are involved in the recording and reporting of information about wildlife on the site. Some members of the Friends of Astonfields Balancing Lakes already have a wealth of records and knowledge regarding the bird species that use the site. If possible these records should be co-ordinated and utilised, together with current wildlife sightings, to compile a comprehensive database that could then be used to inform future management decisions. All wildlife records that are collected, whether historical or current, should be sent to the Staffordshire Ecological Record (SER).

5. Community Cohesion

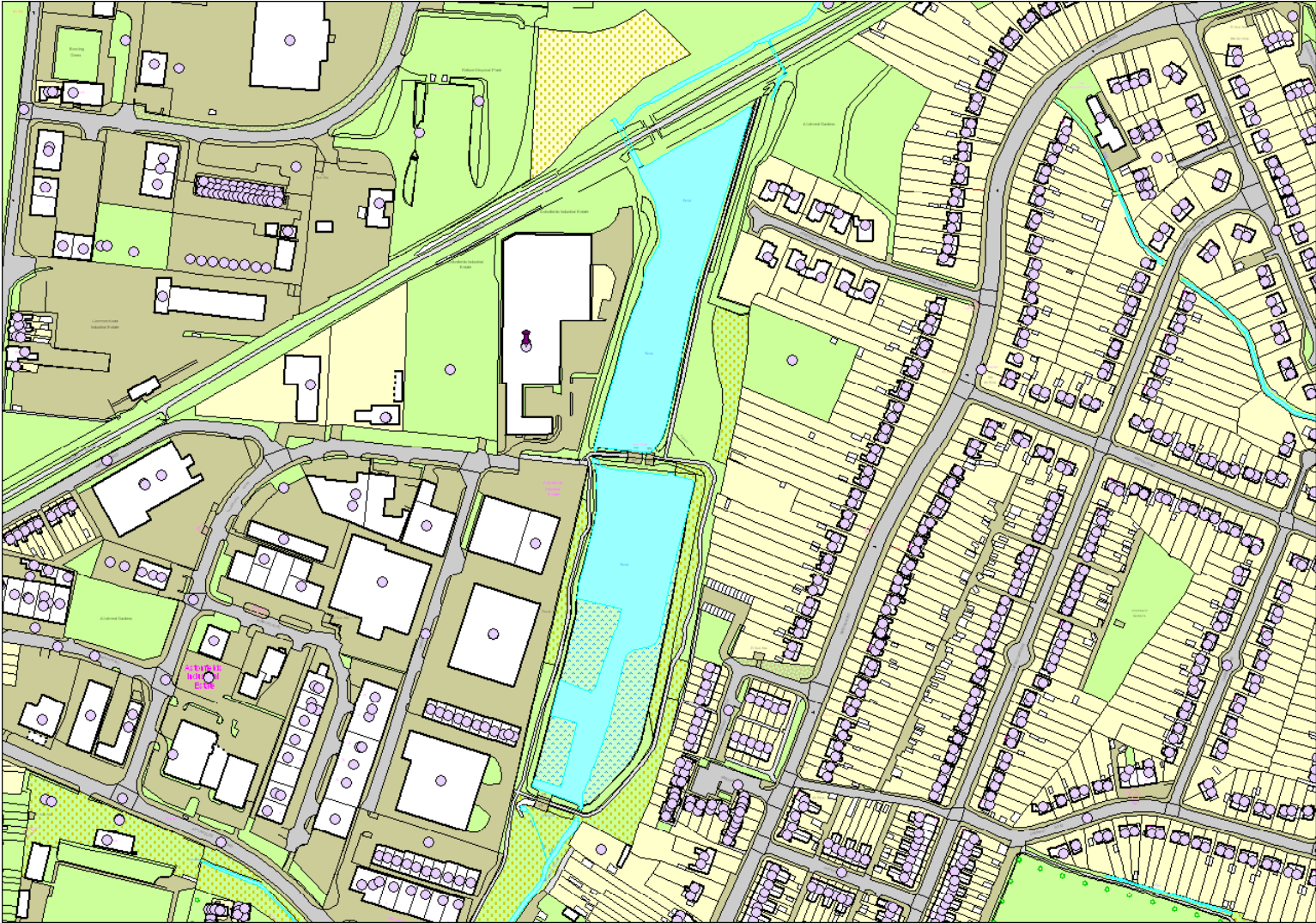
The site has a well-developed community group, the 'Friends of Astonfields Balancing Lakes'. This group have been involved with a variety of practical activities, including step repairs, litter picking, nest box installation and wildflower planting. Members of the group were also involved in the development of the original management plan for the site.

Every year a programme of practical conservation activities is organised for the site. The events are open to any members of the local community. The Biodiversity Officer may also liaise with local specialist groups, such as the mammal group and bat group, with a view to running targeted educational/training events.

Contact for further Information:

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MAP OF ASTONFIELDS LNR



Staffordshire Ecological Record SBI Report

92/25/63

Site Name: **Astonfields**
 Locality Type: **Neutral grassland {B}**
 Grid Ref.: SJ926248
 UA: Stafford (Staffordshire, England)
 GB Vice-County: Staffordshire

Keywords

Keyword	Details	Date
Original Recorder Code	81103	pre-1970

Local Site Status

Site of Biological Importance		1997
NI 197 Site	Baseline - Management Plan	2008

Biotopes (Habitats)

Code	Habitat	Area
A112	Woodland: broadleaved, plantation	0.20
A21	Scrub: dense/continuous	0.20
A22	Scrub: scattered	
B21	Grassland: neutral, unimproved	7.80
B5	Grassland: marsh/marshy grassland	0.10
C31	Tall herb and fern: other, tall ruderal	0.60
F1	Swamp	1.00
F21	Marginal/inundation: marginal	
G11	Open water: standing, eutrophic	1.10
G21	Open water: eutrophic running water	
H24	Coastland: saltmarsh, scattered plants	
H26	Coastland: Saltmarsh, dense/continuous	0.10
S20	Scirpus lacustris ssp tabernaemontani swamp	0.30
S28	Phalaris arundinacea tall-herb fen	0.30
S4	Phragmites australis swamp and reedbeds	0.30
S7	Carex acutiformis swamp	0.30
SM20	Eleocharis uniglumis saltmarsh	0.10
SM23	Spergularia marina-Puccinellia distans saltmarsh	0.30

Site Description

Source: Allen, Mr Richard J., 1997

Summary: An area of derelict land, with brine waste tips, which has been colonised by species-rich grassland. The site also includes two former brine settling ponds with areas of reed-bed and salt marsh, and a brook bordered by salt-influenced marginal vegetation.

The site is located on the northern edge of Stafford between Astonfields Industrial Estate to the west and Tollgate Industrial Estate to the East. Marston Brook flows along the eastern edge and the site is divided in two by a disused railway, which links it to Stafford Common and Doxey Marshes. The surrounding land is mainly industrial, with gardens and allotments to the southeast and arable fields to the north. The area to the south of the disused railway is crossed by several footpaths and well used by the public. The Borough Council have also erected interpretation boards in this area. The area to the north of the railway is less accessible and relatively undisturbed.

The area north of the disused railway

This area is relatively flat with several large mounds of dumped material. Most of this area has been colonised by tall grassland dominated by False Oat-grass, with other tall grass and herb species including Rosebay Willowherb, Hogweed, Hemlock, Mugwort, Cock's-foot and Couch.

Also present are large areas of shorter, richer, grassland where the False Oat-grass is less abundant and occurs with Red Fescue and Crested Dog's-tail. Here a rich variety of broadleaved species are present, with a high proportion of leguminous species, which are typical of poor soils. These include large patches of Hairy Tare, Tufted Vetch, Ribbed Mellilot, Meadow Vetchling, Black Medick and Bird's-foot Trefoil. Other species include Creeping Cinquefoil, Black Knapweed, Autumn Hawkbit, Cut-leaved Crane's-bill and Oxeye Daisy. Several introduced species have also colonised parts of the site including Dotted Loosetrife, Large-flowered Evening

Primrose and White Stonecrop, all of which are rare in Staffordshire.

Within the grassland are small damp areas marked by patches of Tufted Hair-grass, Yorkshire Fog and Creeping Bent with Compact Rush, Hard Rush, Common Sedge and False Fox-sedge.

A small area to the east of one of the mounds is marshy with shallow pools of standing water. This area has been colonised by Tufted Hair-grass with Creeping Bent, Hard Rush, Reed Canary-grass, Soft Rush, Common Reedmace, Lesser Reedmace, Common Spike-rush and Grey Club-rush, which is very rare in Staffordshire and an indicator of brackish conditions. Another small wet area to the south of this is dominated by Common Reed. The waste mounds themselves support tall ruderal vegetation dominated by Nettles. A large patch of Hemlock also occurs on one of the mounds.

Marston Brook

Marston Brook is bordered by dense stands of Common Reed throughout most of its length, up to 5m wide in places. Other species occur occasionally and include Great Willowherb, Teasel, Valerian, Meadowsweet, Lesser Pond Sedge, Common Reedmace, Hemlock and Fool's Watercress.

In the area slightly north of the disused railway, adjacent to the Tollgate Industrial Estate, are several flat muddy areas next to the brook. These have been colonised by small patches of Lesser Sea Spurrey with Reflexed Salt-marsh Grass and Grey Club-rush, all of which are indicators of salty conditions and very rare in Staffordshire.

The brook appears to be polluted in places, with a grey scum floating on the surface, but is still able to support a large population of Three-spined Sticklebacks.

The Balancing Reservoirs

The northern reservoir is mostly open water and marginal vegetation is mainly restricted to a narrow strip along the eastern and southern edges. This is dominated by Common Reed with occasional Reedmace, Great Willowherb, Reed Canary-grass and Yellow Iris. Grey Club-rush is also present in places.

The southern reservoir, marked as two separate reservoirs on the map, supports an extensive Reedbed, with open water being restricted to a small area in the northwestern corner. Also present are smaller stands of Grey Club-rush, Great Willowherb, Common Reedmace, Lesser Pond Sedge and Yellow Iris.

The most botanically interesting part of this reservoir is a small area of saltmarsh in the southwestern corner. Saltmarsh is an extremely rare habitat in Staffordshire and this area has been well surveyed in the past. The central area contains abundant Lesser Sea Spurrey and Reflexed Saltmarsh Grass with large patches of Buttonweed, which is not found anywhere else in Staffordshire. Marsh Arrowgrass is also frequent and towards the edges the saltmarsh vegetation gives way to grassland dominated by Creeping Bent.

The steep, dry banks of the balancing reservoirs support a species-rich grassland similar to that north of the railway line. False Oat-grass is dominant, with Ribbed Mellilot, Black Knapweed, Hairy Tare, Meadow Vetchling, Creeping Cinquefoil and a wide range of other species, including several garden escapes such as Fennel. Some tree planting has also taken place along the banks of the reservoirs, including Willow, Poplar, Sycamore and Wild Cherry.

An area of ruderal vegetation at the southern end of the site contains several introduced species including Prickly Lettuce, which is very rare in Staffordshire, and Canadian Goldenrod, which is uncommon.

Fauna at the site

The grassy areas provide an important habitat for invertebrates including ants, bumble bees, Common Green Grasshoppers, Nursery Web Spiders, Six-spot Burnet Moths and Small Tortoiseshell butterflies. The reservoirs are also important for birds, with Mallard, Moorhen, Black-headed Gull and a species of warbler being seen during the survey. Over the winter of 1996/ 97 a large flock of Teal were present, with other species seen including Water Rail, Heron, Lapwing, Heron, Ringed Plover and Redshank.

Bibliography

unknown **Wild Associates (1997)**

Staffordshire Grasslands Survey. Report for English Nature, West Midlands Team.; English Nature, Attingham Park, Shrewsbury