

Greenspace 4- Flint Mill

1.0 Introduction

1.1 Flint Mill is a large area of open greenspace on the Moors Burn with a mix of grassland and woodland plantations of a similar age with boundary hedges onto adjacent farmland. It was the location of a mill in the 19th Century (which initially involved using sluice gates along the Houghton Burn) and later on the site became part of a sewage works. Presently, the greenspace lacks any entrance signs and identity. There is also evidence of anti-social behaviour particularly from motor bikes. Flint Mill is used as a cut through between housing estates and for dog walking.

1.2 The Moors Burn flows along the west edge of the site, heading north to join the Herrington Burn to become the Lumley Park Burn around 780 metres north-west of the site. The Houghton Burn also flows directly beneath the site in a culvert, and only emerges as it reaches the Moors Burn.



2.0 Location and Accessibility

2.1 The Flint Mill site is between two residential areas within Houghton-le-Spring, Sunderland. The eastern site boundary borders the Burnside Estate, and the western boundary is adjacent to Dubmire Industrial estate, north of Mulberry Way, and adjoins the Dubmire and Fencehouses residential areas. Areas immediately north and south form continued greenspace and green corridor.

2.2 Although the local area is generally built-up and residential, the site sits in within a corridor of greenspace along the river corridor which leads into larger expanses of arable and pasture fields towards Herrington Burn (north) and Rainton Bridge (south). Towards the southern end of the site lies an electricity substation and access road.

3.0 Methodology

3.1 Durham Wildlife Services (DWS) were commissioned to carry out an ecological appraisal of Flint Mill in May 2022. DWS used the following methodology:

- Desk Based Study;
- An Ecological Assessment;
- Protected Species and Other Species of Nature Conservation Importance;
- Controlled Invasive Species.

4.0 Site Context

4.1 Research revealed two statutory designated sites within 2km of the site and a further five non-statutory designated sites within 2km (4 Sunderland Local Wildlife Sites, and 1 Durham Local Wildlife Sites).

4.2 A summary of designated sites within 2km is shown below.

- Joe's Pond SSSI
- Hetton Bogs SSSI
- Houghton Hill, Cut and Scarp LWS
- Redburn Marsh LWS

- Morton Wood Durham LWS
- Rainton Meadows LWS
- The Clouds LWS.

5.0 Strategic Significance

5.1 The entire site lies within an identified wildlife corridor and is protected from development as greenspace and as a Settlement Break in the city's Local plan- the Sunderland Core Strategy. The habitats have therefore been included within the Biodiversity Net Gain (BNG) Metric Calculator as "formally identified within local strategy."

6.0 Habitat Assessment

6.1 The habitat types found in Flint Mill are set out below and shown in the map further below.

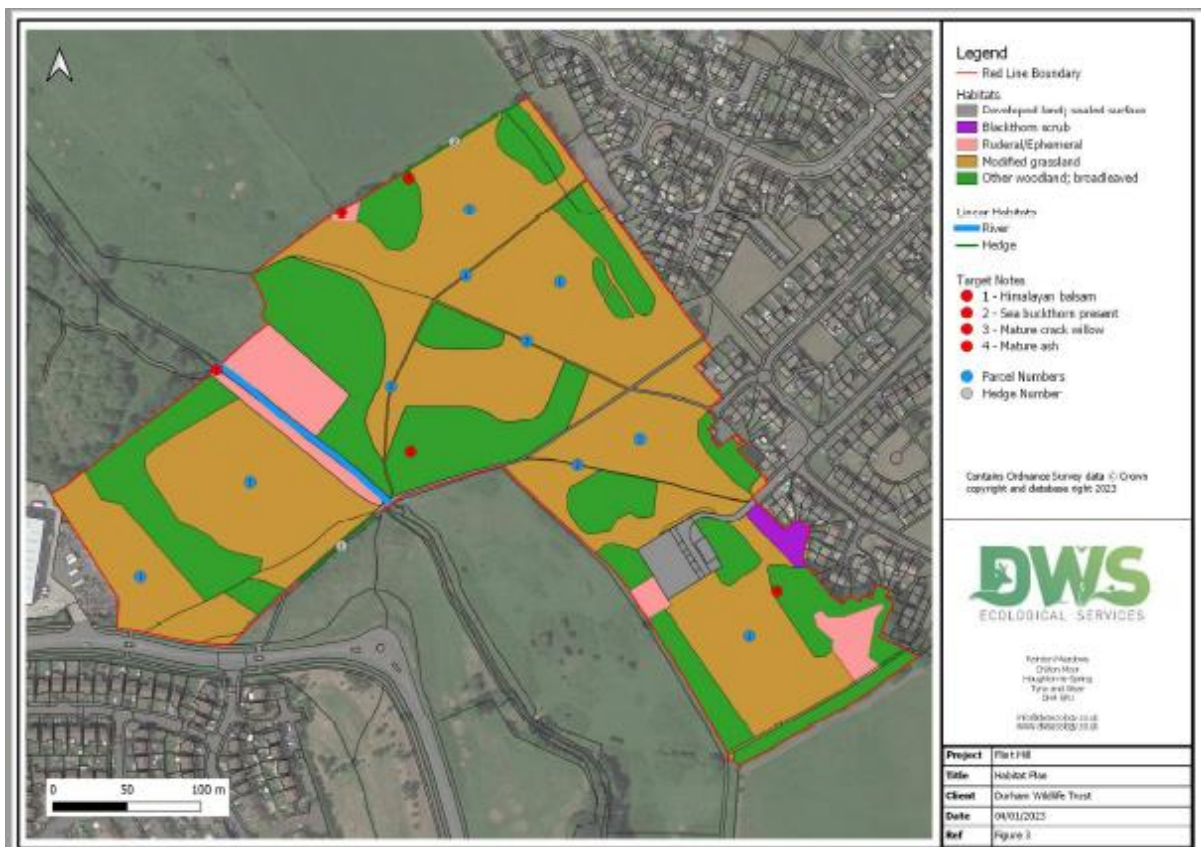
Habitats	Conditions
<p>Sparsely vegetated - Ruderal/Ephemeral</p> <p>Several areas of ruderal vegetation were noted across the site. All with similar compositions of tall growing species including large bindweed cow parsley, common hogweed, creeping thistle, creeping buttercup, and the grasses: false oat grass, and Yorkshire fog. Some bramble is present within ruderal habitat within the easternmost section of site and along the west bank of the Moors Burn.</p>	Poor
<p>Grasslands Modified</p> <p>Grassland is present across much of site with a range of tall grass species present. Within the habitat there is on average between 6 – 8 species per square metre (m²). The sward height is generally high, with little variation. Paths are mown throughout the habitat and the sward height in these areas is consistently low. Species include grasses and herbs, all of which are relatively common species. Aspen saplings were recorded within grassland within the centre of site. Damper areas of site around woodland to the north include additional species to those recorded elsewhere: goat willow, reed canary grass and hard rush. Butterbur is present near to the burn.</p>	Moderate
<p>Woodland Other Woodland Broadleaved</p> <p>There are various blocks of woodland across site, all of which are made up of various broadleaved species, both native and non-native (e.g., Swedish whitebeam).</p> <p>Aspen and ash are both noted to be most common across the site. However, woodland closer to the Moors Burn contains a higher frequency of basket willow. Additionally, both grey alder and hybrid poplars are present within the north-east of the site, and sea buckthorn is rarely recorded within woodland in the centre of site. Several mature trees are present within site, including crack willow within the north and three mature/ veteran ash within the south-east.</p> <p>Woodland within the north of site has been damaged and features evidence of being used as an anti-social area.</p>	Moderate
<p>Heathland and shrub – blackthorn scrub</p> <p>A small section of dense scrub is present within the east of site, adjacent to housing off site. This habitat is dominated by blackthorn with a single sycamore, and elder. The habitat is so dense that ground flora is heavily shaded and was</p>	Poor

not visible during survey. The edge of the habitat is tall growing modified grassland, as described below.

Hedgerow – Native hedgerow

An overgrown hedgerow is present along the northern site boundary, toward the east of site. The hedgerow is defunct, with some gaps. The hedge is mostly comprised of hawthorn, with some elder, with some of the latter covered in ivy *Hedera helix*. Hedge parsley, cow parsley, and large bindweed are all also present.

Moderate



7.0 Protected Species and Species of Nature Conservation Importance

Breeding and wintering birds

7.1 Over 13,000 bird records have been recorded from within 2km of the site with many records from around Eppleton, Hetton Lyons Country Park, and Hetton Bogs. Records include species which are listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981, and local and national Biodiversity Action Plan (BAP) species. A total of 1,387 records are for Schedule 1 species of bird.

7.2 Woodland provides ample habitat for a range of birds to roost, nest, and forage, as well as providing some connectivity across the site and within the wider area. The river habitat is likely to support additional species, such as hunting kingfisher. Owls or birds of prey may potentially use open areas to hunt. During the survey blackbird, woodpigeon, and blue tit were observed.

Bats

7.3 The Environmental Records Information Centre (ERIC) returned nine records of bats within 2km of the site ranging from 1996 – 2007. Species recorded include common pipistrelle and whiskered bat. A

total of seven of these records are for bat roosts, one of which is a common pipistrelle maternity roost. Given that there are records of bats around the area, it is possible that bats will utilise site to commute and forage. Mature/veteran trees identified on site are likely to contain features suitable for roosting bats such as cracked and/ or lifted bark, rot holes, and hazard limbs.

Badger

7.4 No evidence of badger.

Western European Hedgehog

7.5 ERIC returned 15 records of hedgehog within 2km of site, 13 of which are for dead individuals, with records ranging from 2006 – 2018. The relatively urban nature of the surrounding area leads to hedgehog deaths, with roads acting as barriers to dispersal. The site itself provides areas of thick vegetation for hedgehogs to shelter, as well as areas suitable for foraging. Hedgehogs may commute from the south and north to utilise site. No individuals were recorded during the survey as it was carried out during the day.

Riparian Mammals – Otter and Water vole

7.6 No records of otter have been provided, with two historic records (1998) of water vole within 2km of site. The Moors Burn flows through site and may support riparian mammals. However, only signs of rats were found during the otter and water vole survey (DWS 2023).

Great Crested Newts (GCN)

7.7 Habitats on site could be used by newts in their terrestrial phase, with areas of woodland providing potential hibernation use. However, there are no ponds on site, or within 500m, meaning it is unlikely that any GCN within the local area would travel to site. Seven records have been returned from ERIC, most of which are from 2015 and all from Hetton Bogs, which is 2km away.

Invertebrates

7.8 ERIC provided 47 records of invertebrates from within 2km. These are from a range of notable/red list/Natural Environment and Rural Communities (NERC) Act butterflies, moths, beetles, dragonflies, bees, and flies; confirmed records from local BAP species are all for Northern brown argus from 2001 – 2006. The variety of habitats and sward heights across site means that a range of invertebrate species are likely to be present on site. Rarer species are less likely due to the lack of higher quality habitats on site.

8.0 Existing Management and Maintenance

8.1 Environment Services cut the footpaths 2 or 3 times per year, empty the bins and maintain the site's entrance features. There are rights of way through Flint Mill are maintained by Highways. Property Services maintain the barriers and other site infrastructure. Moors Burn is classed as main river and so it is the responsibility of the Environment Agency along with SCC.

9.0 General description and observations

9.1 Flint Mill is a large open site with mosaic of semi-mature woodland blocks, areas of open grassland and scrub. The site is bounded by the Moors Burn, open farmland, sports field and residential housing. Flint Mill feels very natural and is a valuable informal open space, providing habitat for wildlife and opportunities for residents to experience nature. However, there is no signage, little maintenance and so it lacks identity or sense of place. Local residents use Flint Mill as a cut through between the Burnside Estate and Fencehouses, and for dog walking. There is also evidence of anti-social behaviour in one woodland block close to the Moors Burn and use of motor bikes. There are extensive tracks around the centre of the site and evidence of recent damage to barriers on the bridge over the Moors Burn.

9.2 The main habitats improvements include additional woodland planting in areas around the substation and central space hedgerows, management of existing woodland, scrub and hedgerows, grassland management and creation of wetland scrapes.

9.3 Through proactive management and community engagement activity, Flint Mill can be transformed as part of Link Together, creating a greater sense of ownership and identity.

9.4 The Moors Burn, designated as main river, skirts along the edge of Flint Mill. It should also be noted that the Houghton Burn flows directly beneath the site in a culvert, and only emerges as it reaches the Moors Burn - in the long term, options should be considered whether this section of river could be de-culverted.

9.5 Invasive species, including Himalayan Balsam and sea buckthorn, have been identified on site and should be treated in order to prevent further spread.

Access and Interpretation

9.6 There is a tarmac path through the centre of Flint Mill, which connects the residential housing and other conurbations. Access barriers at the Moors Burn bridge (seeking to restrict motorbike and quad bike use) have been vandalised and subsequently repaired (this will be monitored and repaired by the project, should further vandalism occur). There is also a secondary route past the substation and an area of open space which is suitable for additional trees.

9.7 A new footpath (which can be part of a circular walk around the site) will encourage greater use by local residents. Vegetation management to open out scrub and thickets will deter some anti-social behaviour and encourage more legitimate community use. General vegetation management to create better access and feelings of security will be beneficial.

10.0 Summary of Constraints and Key Issues

Issue	Comment
Planning Policy	Proposals support local policy, enhancing the existing greenspace, Settlement Break and wildlife corridor.
Climate Change and Health	Proposals will support further opportunities for carbon sequestration. Within an area of deprivation nearby- site enhancement will support area.
Greenspace	Area has low quality greenspace and is deficient in woodland cover. Proposals will reduce deficiencies.
Biodiversity	Proposals will further support stepping stone connectivity within wildlife corridor and improve overall biodiversity.
Invasive Species	Himalayan Balsam and Sea Buckthorn present on site and will be treated/removed.
Landscape Character	Not an area of higher landscape value. Landscape Character Assessment recommends more woodland cover to area.
Historic Environment	Limited historic importance on site. Local importance- former mill was located on site. Site interpretation to be enhanced.
Water Environment	Partly lies within Flood Zone 3, though this portion of land is also affected by the Central Route (road) alignment, and as such there are no significant interventions in this area. Proposals will not negatively impact on water environment.
Rights of Way / Access	Public footpath crosses site west-east, and additional informal paths exist across site. These routes will be retained. Access barriers will be enhanced where needed in order to restrict motorbike access. Signing and seating also to be improved.

Soil and Nitrates	No negative impact on soils. No nitrate fertilisers will be used as site lies within Nitrate Vulnerable Zone.
Utilities	NWL pipe leading to electricity substation – otherwise no major utilities identified.

11.0 Proposed Works

Locations of proposed works are shown in the map below.

11.1 Habitat Management aims at Flint Mill:

- To increase area of new woodland and tree planting in identified areas including area behind substation and central space;
- To set up mowing regime on grassland by cutting and removing arisings;
- To improve quality of other areas of grassland by planning a programme of scrub management to maintain open areas, and putting in place suitable grazing or mowing regime;
- To treat and remove invasive species, including Himalayan Balsam and Sea Buckthorn;
- To protect bankside from erosion and slow flows in heavy rain;
- To manage existing woodland plantation, which are encroaching onto footpath, to create new woodland edge habitat and improve woodland understory.

11.2 Access and Interpretation Aims

- Erect site signage and waymarks to give Flint Mill greater identity;
- To redesign entrances to reduce motorbikes and quad bikes using the site and make entrances more welcoming;
- To improve access around new planting with surface footpath, vegetation management and additional fencing.

12.0 Budget

Source of Funding	Amount (£)
Section 106	40,364
Area Committee	55,917
NECF	35,865
NLHF	24,083
Total	156,229

Habitat	Project	Season Completed	Budget
Woodland Management	Removal of old fencing	September - October	2,412
	Selective thinning of non-native species to create woodland edge and improve sight lines and thinning out scrub	October – March	14,500
	Understory Planting	March/May	2,700
New Woodland Planting	Provide new hedgerow, heavy standards and whips	October - March	28,678
	Design Fees		3,600
Grassland	Cut and remove arisings	August - September	9,000
Wetland	Create new Scrapes	October - February	1,350
Moors Burn Intervention WRT costs combined.	Green Bank Protections	October – March	6,308
	Woody debris	Anytime	-
	Earth Bund	Anytime	-
	Management Fee WRT	Anytime	3,217
Invasive Species	Treatment and removal of Himalayan Balsam	Anytime	1,800
Access	Entrance gateways	Anytime	7,200
	Footpath 260m 2.5 carboniferous limestone footpath	Anytime	52,712
	Paint existing railings	Anytime	2,306
	Entrance Signage & Promoted routes and waymarkers		4,823
Contingency – DWT		-	2,408
Contingency – SCC		-	13,215
Total			156,229

The specification for each area of work is outlined in the Specifications Link Together document and details of future maintenance and management are outlined in the Maintenance and Management Plan document.

