CHADDESDEN PARK
NATURE AREA

MANAGEMENT PLAN
2009 - 2014

Friends of Chaddesden Park

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1 Description of the site

1.1 Location

The site lies at the northern end of Chaddesden Park immediately to the east of the park entrance from Maine Drive. It covers the woodland alongside the road, the banks of Chaddesden Brook as far as the first bridge and an area of rough ground adjacent to the allotments.

1.2 Land tenure

Chaddesden Park is owned and managed by Derby City Council. The Nature Area is being managed jointly with the Friends of Chaddesden Park.

1.3 Past land use

The part of the Park occupied by the Nature Area forms part of the former grounds of Chaddesden Hall, established by the Wilmot family in 1727. It is registered as historic parkland. The woodland, Moseyard Plantation, was established as part of the parkland landscape, although most of the current canopy trees date from the late 1800s. The area of rough ground enclosed by hedges immediately adjacent to the allotments was previously also occupied by allotments, although these were abandoned some years ago. The channel of Chaddesden Brook has been substantially modified by drainage operations in the 1970s.

1.4 Compartments and Habitats

Although relatively small in area the Nature Area holds a wide range of closely inter-related habitats. Woodland and hedges characterise the north of the site with areas of open grassland and tall herb in the east and south. Chaddesden Brook runs close to the western margin. For the purposes of the plan the site has been divided into compartments based on the existing habitats, as shown in Plan A. These are described in more detail below.

Woodland. Compartments Ai & Aii

The character of the woodland is quite varied, reflecting different soil conditions. To the west of the brook (compartment Ai) the canopy is mostly dominated by mature ash up to 30 metres tall, although towards the road oak is more frequent. There are also a few sycamores and a single sweet chestnut and a few pines. There is no shrub layer, although recently some shrubs have been planted by children from local schools. The ground flora has abundant nettles, cleavers and cow parsley plus occasional ground ivy, hogweed, white dead-nettle and woodland grasses. The larger block of woodland to the east of the brook (compartment Aii) is mostly dominated by tall even-aged trees of oak and pine. The eastern end has more sycamore in the canopy and there are a few ash along the roadside margin and a single canopy elm. Again there is no real shrub layer apart from a few

scattered elder and hawthorn, however there is an understorey of younger rowan, sycamore and Norway maple and in the east yew. There are two patches of the snowberry on the southern margin. Now that this area is no longer mown tree seedlings are starting to establish locally including ash, oak, hawthorn, holly, yew, Norway maple and sycamore. The ground flora is often grassy with patchy nettles and cow parsley but has some more characteristic woodland plants such as wood avens, red campion, white dead-nettle and ivy.

Hedges. Compartments Aii & B

An old hedge borders the southern side of the woodland in Aii following the allotment edge and continuing around the boundary of the former allotment compartment B. It is dominated by hawthorn with occasional ash saplings coming through. The section between the woodland and the former allotments has been cut and laid recently and then subsequently trimmed annually. The rest of the hedge has not been managed in recent times and is tall with gaps developing.

Grassland. Compartments B, C & D.

The grassland in the former allotment area compartment B is dominated by tall species such as cock's-foot, false oat-grass, common bent and Yorkshire-fog. Tall herbs also occur including broad-leaved dock, creeping buttercup, nettle, creeping thistle, and comfrey. There are also frequent large leaves of horseradish. Patchy scrub composed mostly of young ash trees with bramble beneath have developed within the grassland. The bulk of the area is now mown three times a year which prevents further development of scrub.

On the margins of the wood either side of the brook are two similar areas of grassland (compartments C & D) that are currently mown with the rest of the park. The short grassland is dominated by rye-grass and common bent with frequent white clover.

Chaddesden Brook. Compartment E.

The brook runs in a deep channel roughly 1 to 2 metres wide and about as deep. In average conditions the flow is 10 to 30 cm deep over a bed of shingle and pebbles with occasional riffles and pools. Marginal aquatics are scarce but occasional brooklime, watercress and fools-watercress occur. Where the brook runs within open grasslnd the steep banks are dominated by tall herbs and grass with frequent nettles, creeping thistle, great willowherb, false oat-grass and cock's-foot. Patches of bramble occur and there is occasional reed canary-grass, hard rush, bittersweet, meadow crane's-bill, cow parsley and creeping cinquefoil. Himalayan balsam has invaded the watercourse though it has been partly controlled. One section of the banks has been re-profiled and subsequently planted with a wildflower seed mix including bird's-foot-trefoil, yarrow, knapweed, ox-eye daisy, meadow vetchling and red clover. In the north the brook runs through the woodland of compartment A. Here the banks show similar vegetation

to the main body of the woodland although the tree cover tends to be younger and includes some alder and crack willow. The banks are dominated by nettle with occasional hogweed, creeping buttercup and Himalayan balsam.

2 Evaluation of the features

The Nature Area supports a variety of habitats, including woodland and hedges, different types of grassland, and the course of Chaddesden Brook. The habitats on site fall into four BAP habitats identified in the Lowland Derbyshire Biodiversity Action Plan. These include:

- Lowland broadleaved mixed woodland
- Semi-natural grassland
- Rivers and streams
- Hedgerows

There are few available records of fauna. The following bird species recorded within the Park as a whole are UK BAP Priority Species (asterisk indicates breeding record):

- Bullfinch
- Dunnock*
- Hawfinch
- House sparrow*
- Spotted flycatcher*
- Song thrush*
- Starling*

In addition water vole have been recorded along sections of Chaddesden Brook and may use the length within the Nature Area, though they have not been sighted recently.

3 Description of Optimal State for the Site

The long-term optimal state for Chaddesden Park Nature Area is the enhancement and maintenance of the existing habitats to create the best conditions for wildlife.

The woodland would be enhanced by the addition of a shrub layer but otherwise left to mature naturally. All dead wood would be retained both on the ground and in the canopy. The nest boxes would be maintained and replaced as necessary.

The hedges would be cut and laid with any gaps planted up and then maintained as dense low structures suitable for breeding birds and small mammals.

The grassland areas would be maintained to provide a range of structures to suit different interests. The former allotments would have tall tussocky grassland with patchy scrub; the pockets on the edge of the woodland would be enhanced to provide wildflowers and managed as hay meadows.

Chaddesden Brook would be maintained with banks of tall grass and herbs in the south to provide cover for small mammals, birds and foraging habitat for insects, to contrast with the shaded, wooded section in the north. Willows would be maintained by pollarding.

A new pond would be dug within the former allotment area and maintained for a range of plants, amphibians and insect life.

4 Outline Management objectives

- Improve the woodland structure by enhancing the shrub layer but otherwise allow it to develop naturally.
- Maintain a nest box scheme involving local schools.
- Return the hedges from a state of neglect to dense low structures with a variety of shrubs present .
- Manage the grassland to provide the maximum range of structures and plant diversity.
- Manage the brook and its banks to maintain the open southern section.
- Create a new pond and supporting habitats.
- Record the wildlife present within the Nature Area on a regular basis.
- Encourage the involvement of the local community, especially schools, in the management of the site.

5 Management Prescriptions

5.1 Habitat management

5.1.1 Woodland. Compartments Ai & Aii

Shrub and tree planting. The aim here is to plant small groups of shrubs and small trees in places where the tree canopy is not too thick so that light gets through to the woodland floor. Species should be selected to suit the soil conditions, using British native species throughout, with a balance of two-thirds shrubs to one-third tree species. Under the ash in compartment Ai these should include:

Alder
Wild cherry
Field maple
Hawthorn
Hazel
Blackthorn
Guelder rose

Through the rest of the wood, where oak and pine occur species should include:

Sliver birch
Rowan
Hawthorn
Hazel
Blackthorn

Establishment may be a problem where there is a lot of competing plant growth, as there is in compartment Ai. Here the use of a thick layer of chipped bark or other mulch in a 5 metre circle around the shrubs will help keep other vegetation at bay for the first few years. Rabbits do not seem to be a problem in the Park so the expense of rabbit guards is probably not justified. Shrubs should be planted between October and February, but they will need to be looked at regularly during the following summer and any competing weeds removed. It is probably better to phase the planting over a number of winters to see how well the plants establish.

In parts of compartment Aii there is already quite a lot of natural regeneration of tree seedlings (see section 1.4). In a few years time it may be necessary to thin this growth to select trees to develop. If this is needed then as a general rule all sycamore and Norway maple should be removed first before moving on to thin the site-native species (ash, oak, hawthorn, holly, yew) if they are still too dense.

Dead wood. Dead wood is an essential part of any woodland ecosystem providing habitat for a range of insects and fungi which in turn provide food for other animal life. Therefore as much dead wood possible should be retained throughout the woodland. Wherever it is safe to do so dead branches should be kept on the trees (advice may need to be sought from suitably qualified professionals regarding Health & Safety issues). Fallen dead wood should also be retained including naturally fallen timber and any that comes from necessary tree works. These should be stacked as low habitat piles in quiet parts of the wood. Small piles of dead leaves and other vegetation (coming from other operations in the Park) could also be left in the woodland to add to the habitat diversity as they will act as refuges for small mammals, amphibians and overwintering insects.

Nest box scheme. Opportunities for hole nesting birds are generally limited throughout the woodland and the bird population will definitely benefit from provision of nest boxes. Quite a lot have been put up already and as these appear to have been free from vandalism it would be worth extending the scheme, possibly with the addition of bat boxes. The latter should be placed in small groups high up on the branches of the larger trees. All boxes should be inspected annually at the end of the summer to be cleaned out and repaired as necessary. Maintenance of the bat boxes will need to be carried out by a suitably licensed bat worker.

Mowing. In past years the whole of the woodland has been mown. This has limited the development of the shrub layer and stopped natural regeneration of trees making an artificial woodland structure that is not best suited to wildlife. This practice has now ceased which will bring long-term benefits for the woodland. Mowing either side of

the entrance to the Park off Maine Drive will continue, but this is outside the Nature Area boundary in compartment Ai. There should be no other mowing in the woodland compartments, although the main paths may need trimming to keep them open when there is a lot of plant growth in the summer.

5.1.2 Hedges. Compartments Aii & B

Hedge restoration. Some lengths of hedge have been neglected for a long time and need restoration work before they can be managed in the long term. These include:

- The hedge along the edge of the allotment against the woodland compartment Aii;
- The hedge between the former allotment compartment B and the rest of the park.

These hedges should be cut and laid in the traditional manner (or if the stems are now too big for this they should be coppiced and allowed to grow back) to form a dense low hedge. Deadwood should be incorporated in the base of the hedge for additional habitat. At the same time any gaps should be planted up with suitable British native shrub species. These should include: hazel, field maple, blackthorn and wild rose.

Hedge trimming. All hedges, including the ones that have already been cut and laid and the ones that are to be restored, should be trimmed regularly to keep them as dense low structures. They should be cut every other year to allow fruits and berries to ripen as food for birds and small mammals. Trimming should take place in the winter and as late as possible to leave the current years harvest as a source of winter food. This work can be done by machine, though the trimmings may need to be cleared up and disposed of by hand if there has been a lot of growth.

New hedge. There is a gap in the length of hedge around the former allotment compartment B, where a big patch of snowberry has developed replacing the original hedge. As a longer term project the snowberry could be removed and the 'missing' length of hedge replanted. The snowberry would need to be uprooted, as it grows back very quickly when cut, but fortunately it is shallow rooting. A hedge could then be planted using British native shrubs, 6 to the metre in a double row. Suitable species include: hawthorn, hazel, field maple, blackthorn and wild rose. To help them establish a thick mulch of woodchip or chipped bark could be used. Shrubs should be planted between October and February, but they will need to be looked at regularly during the following summer and any competing weeds removed.

5.1.3 Grassland. Compartment B.

Mowing. This area is to be kept as tall tussocky grassland to provide good supporting habitat for amphibians and insect life using the new pond (see section 5.1.6). The existing patches of scrub within it can be retained, but no more should be allowed to develop. The best way to prevent this is to mow the grassland every other year, ideally by cutting just half of the area each year, leaving the other half uncut. The cut should be left until late summer or early autumn. Mowings can be left where they lie, as they will encourage invertebrate life making good foraging habitat for amphibians.

Planting wildflowers. The grassland could be varied by the addition of wildflowers in the grassland. The types chosen should be tall growing to compete with the thick growth of grasses and provide abundant flowers as a pollen and nectar source for invertebrates. They are best planted as young plant plugs, put in during the autumn immediately after the grass cut. Suitable species include: wild angelica, purple loosestrife, hemp agrimony, great willowherb, greater burnet, common valerian and meadowsweet.

5.1.4 Grassland. Compartments C & D.

Mowing. These areas of grassland should be managed along the lines of a traditional hay meadow to allow flowers and insects to develop in the tall grass through the summer months before it is cut. They should be mown once a year only, at the end of the summer in late August or early September. The cuttings should be removed so that the grass underneath is not smothered and to prevent soil enrichment.

Planting wildflowers. The variety of wildflowers could be increased to make the grassland more attractive to the eye and more valuable to insect life such as butterflies and bees. The types chosen should be British native species that are typical of lowland hay meadows and provide abundant flowers as a pollen and nectar source for invertebrates. They are best planted as young plant plugs, put in during the autumn immediately after the grass cut. Suitable species include: ox-eye daisy, common knapweed, yarrow, meadow buttercup, field scabious, selfheal, meadow vetchling, lady's bedstraw, red clover and rough hawkbit.

Turf stripping. Before planting wildflowers the turf could be stripped from a sample area of one of the compartments to remove the top 5 cm of soil. This layer of soil is often enriched (as it appears to be in compartments C & D) which gives grasses a competitive advantage over wildflowers. By removing it a greater range of wildflowers should be able to thrive. This would allow more low-growing wildflowers to be planted such as bird's-foot trefoil, salad burnet, ribwort plantain, common cat's-ear, cowslip and hay rattle. A wildflower grassland seed

mix containing these species and a range of native grasses should be sown following turf removal. If part of one compartment was stripped and the other half left it would provide a good educational resource to demonstrate to visiting school children (and others).

5.1.5 Chaddesden Brook and its banks. Compartment E.

Mowing. This would be limited to the open southern section. The aim is to keep the banks as tall rough grassland with tall wildflowers but stop any more trees or bushes developing and causing shading. The best way to achieve this is to mow the grassland every other year, ideally by cutting just one bank each year, leaving the other bank uncut. The cut should be left until late summer or early autumn. Mowings can be left where they lie, as they will encourage invertebrate life making good foraging habitat for amphibians.

Pollarding/coppicing. This would also be limited to the open southern section. To prevent the existing willow trees along the bank sides from getting too big and becoming a danger of falling into the brook and blocking it, they should be coppiced or pollarded at intervals. The larger trees can be pollarded, cutting them between 1 and 2 metres above ground level. Smaller bushes can be coppiced, cutting them at ground level. It is best to treat individual trees in different years so that not all are cut at once. Cutting on a 5 to 10 year rotation would be best.

Himalayan balsam control. Himalayan balsam is an introduced species that can quickly take over wetland habitats, swamping the natural vegetation. It is of relatively low value for wildlife and should be prevented from taking over the banks of the brook. Control is best by pulling up the plants before they have had a chance to finish flowering and set seed. As flowering is spread out through the summer a number of visits may be needed to catch early and late flowering plants. Plants should be pulled up by the roots making sure that there are no small bits of stem left, as these will easily grow back. Flowers continue to mature even after the plants have been uprooted, so they should not be stacked near the banks of the brook, but taken away and composted. Unfortunately, as the plant occurs higher up the brook, complete control is unlikely to be possible as seeds will be washed downstream and some new plants will continue to come in each year, making this an annual task. Hopefully though there will be less work involved in each subsequent year.

5.1.6 Pond creation in Compartment B

Pond creation. The enclosed nature of the former allotment compartment B makes it an ideal location for the creation of a small pond. This should be dug out of the existing soil and lined with a suitable waterproof membrane, such as butyl liner. It should have water of a variety of depths including some shallow margins as well as

deeper water. Some soil should be backfilled over the liner to provide a substrate for plants to root and as a habitat for aquatic invertebrates. Suitable aquatic vegetation of British native plant species can be introduced to speed up the colonisation process. These should be sourced very carefully so that they are not contaminated with aggressive non-native species, such as New Zealand pygmy weed (*Crassula helmsii*) that can choke a small pond in a single season. Suitable species include: brooklime, water forget-me-not, water crowfoot, water starwort and broad-leaved pondweed. Other plants species are likely to colonise naturally over the first few years.

Subsequent management. The pond should require relatively little management, however a few things may need to be done over the years:

- It should be monitored for the growth of blanket weed, which can be a problem in the first few years after creation. This thick mat of algae can block out other plants and starve the pond of light. If it does develop it should be raked out of the pond by hand and left at the water's edge for a few hours, for any animal life to escape back to the pond, before being removed and composted elsewhere.
- Overhanging trees should be kept back to allow as much light as possible in to the pond and prevent too many leaves falling in during autumn.
- Management of the surrounding grassland to support the pond habitat is described in section 5.1.3.

5.2 Educational use

Every opportunity should be taken to encourage use of the Nature Area for organised activities by local school children. A number of schools have been involved with the site in recent years, taking part in shrub planting and putting up nest boxes. These activities should continue as part of an active programme of schools involvement.

5.3 Further survey and monitoring

5.3.1 Survey information on key species, especially amphibians, invertebrates and small mammals appears to be quite scant and it is important to ensure more information is collected to allow optimal management of the site. Surveys of the above groups should be organised within the first year and at regular intervals throughout the next 5 years. Local Naturalists' groups could be approached to provide specialist expertise for recording some wildlife groups.

5.3.2 Records should be kept of birds using the nest boxes and of any use of the bat boxes. A suitably qualified bat worker should be asked to make bat records.

5.3.3 Some aspects of the site require regular monitoring in order to plan future management work. These include:

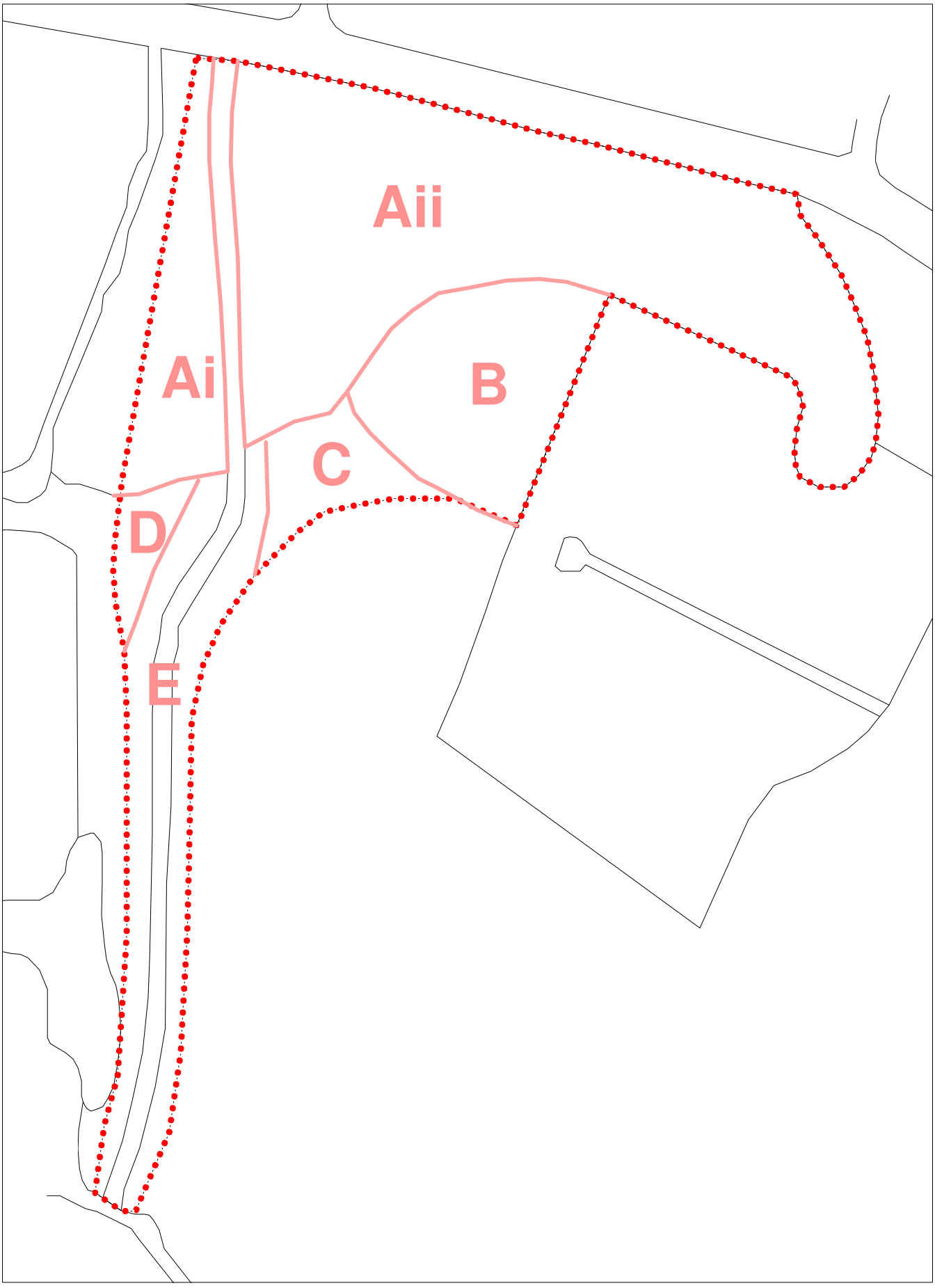
- Establishment success of the planted shrubs in the woodland and hedges.
- Establishment success of wildflowers in the grassland.
- Plant development in the pond.

WORK PROGRAMME

Compartment	Management Prescription	Season	Year 1	Year 2	Year 3	Year 4	Year 5	Labour	Capital
Woodland Ai & Aii	Shrub and tree planting	Winter	●	●				Volunteer	Moderate
	Shrub and tree weeding	Summer	●	●	●	●		Volunteer	None
	Add dead wood & habitat piles	Autumn	●	●	●	●	●	Parks Dept + Vols.	None
	Maintain nest boxes/bat boxes	Winter	●	●	●	●	●	Volunteer	Low
	Mow either side of entrance drive	Late summer	●	●	●	●	●	Parks Dept	None
Hedges Aii & B	Cut & lay allotment hedge in Aii	Winter	●					Parks Dept	None
	Cut & lay hedge in B	Winter			●			Parks Dept	None
	Trim hedges	Winter		●		●		Parks Dept	None
	Plant new hedge	Winter					●	Volunteer	Moderate
Grassland B	Mow tall grassland	Late summer	●	●	●	●	●	Parks Dept	None
	Plant wildflower plugs	Late summer	●	●	●			Volunteer	Moderate
Grassland C & D	Mow and remove cuttings	Late summer	●	●	●	●	●	Parks Dept	None
	Plant wildflower plugs	Late summer	●	●	●			Volunteer	Moderate
	Strip turf in area C and reseed	Late summer	●					Parks Dept /Contractor	None
Chaddesden Brook and banks E	Mow tall bankside grassland	Autumn	●	●	●	●	●	Contractor	None
	Control Himalayan balsam	Summer	●	●	●	●	●	Volunteer	None
	Pollard willows	Winter			●			Parks Dept	None
Pond creation in B	Create new pond	Any	●					Contractor + Vols.	High
	Manage pond	Autumn		●	●	●	●	Volunteer	None
All	Record wildlife	All	●	●	●	●	●	Parks Dept + Vols.	None

* 'Volunteer' includes Friends of Chaddesden Park Group, Groundwork, local schools etc. as appropriate.

CHADDESDEN PARK NATURE AREA
Plan A: Compartments and Boundaries



CHADDESDEN PARK NATURE AREA
Plan B: Management work