



Town Wall Survey & Management Plan



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Town Wall is part of the Wild about Tamworth initiative; a partnership between Staffordshire Wildlife Trust, Tamworth Borough Council and the communities of Tamworth Borough. Wild about Tamworth aims to involve local people in improving the wild spaces of Tamworth for both people and wildlife.



1.0 Background

1.1 Survey Brief

In 2006 Staffordshire Wildlife Trust (SWT) carried out a survey of Town Wall, Tamworth, Staffordshire. On 30th July 2008 a repeat survey was carried out on the site. This provided not only a more current species list, but also the opportunity to compare the results and evaluate the ecological impact of minimal site management and extensive public use in some areas of the site. On 9th June 2012 a species list of flowering plants was compiled to assess the species diversity of the main meadow following improvement works in 2010/11.

The survey results and report have provided the basis for this document along with expert advice on how best to develop the site for nature conservation, detailing works to be carried out to achieve this.

*It has been arranged for a full site survey to be carried out in Spring 2013 to provide a full and current species list. This will also provide further opportunity to compare the results and evaluate the ecological impact of recent site management.

2.0 Site Description

2.1 Location

Town Wall is located at SK 224 008, 3km to the south east of Tamworth town centre and occupies the land adjacent to the Tame Valley Business Centre. Most of the surrounding land has been developed for housing and industry and the site is bordered by housing developments to the north, east and south and the trading estate and business centre to the west (**Figure 1**).

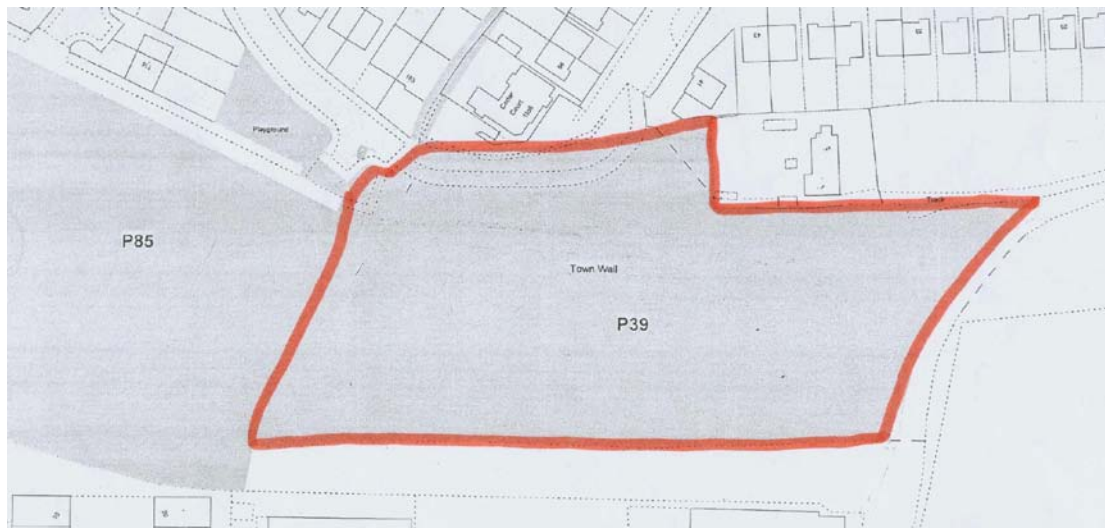


Figure 1. The red outline indicates the proposed boundaries of Town Wall proposed Local Nature Reserve (pLNR).

2.2 Background Information

Historically, Town Wall was common land dating back to the 13th Century where commoners exercised their rights to graze animals and collect firewood. Town Wall is so named as it is thought to be the boundary between the parish (now Borough) of

Tamworth and “the countryside” (which was Sutton Coldfield then). [Note: After recent research by the Town Wall Conservation Group (TWCG) it is uncertain whether this historical information is accurate. Further research is currently being conducted by TWCG to establish further information].

Up until WWII, Town Wall would have looked similar to the surrounding farmlands as cattle, horses, goats and some poultry grazed the site and drank from the series of ponds. Adults who played as children on the site before the War have reported remembering an array of wildflowers in the meadow, amphibians and invertebrates in the ponds and ditches and mammals in the hedgerows and woodland copses.

However, from 1940-1950 the grazing ceased and the site began to be used to dump a variety of materials including waste from the pottery works, in addition to items such as clay pipes, bottles and jars. Between 1960 and 1980’s “treasure hunters” began to dig on Town Wall to unearth unusual items and relics from the War, which lead to the surface of Town Wall becoming hilly and extremely uneven. Lack of management in the time since has created an untapped community resource, which is used as a dumping ground and viewed by locals as an eyesore and a dangerous place to be.

Due to the extensive movement of the land in the 80’s and the dumping from the local industries during WWII, the original drains, ditches and ponds have been filled. During a wet spell, the water runs down the footpaths, due to lack of alternative site drainage routes. This has lead to massive erosion of the paths, making them dangerous to use and degrading them further.

The Town Wall Conservation Group (TWCG) were keen to restore this site to its former glory and make it a haven for wildlife, a safe and enjoyable area for the local community and an educational resource for those who visit.

In 2010 a Community Spaces grant enabled major works to be undertaken to improve the site. The uneven terrain across the main grassland area was re-graded to enable more effective management; the main pathways were improved and the camber designed to encourage surface water to run off the site in a channel adjacent to the main footpath; and smaller footpaths were created to enable better access across the site. TWCG seeded the main area with wildflower seed to encourage botanical diversity of the site; installed wooden logs to create seating areas; and installed notice boards at the two main entrances to the site. The site was officially opened by MP Christopher Pincher in July 2011.



Photograph 1. Opening event in July 2011

2.3 Habitats

Town Wall is approximately 1.13ha and prior to substantial management in 2010, consisted of mainly tall, poor semi-improved grassland, which was becoming succeeded by tall ruderal community and bramble scrub.

Town Wall now consists of a mosaic of habitats including broad-leaved woodland, scrub and floristically enhanced semi-natural grassland.

The habitats on the site can be compartmentalised as follows (see compartments on **Figure 2**):

Compartment 1: Southern boundary. A planted broad-leaf woodland forms the border between the site and the Business Centre with canopy species such as Silver Birch, Field Maple, Ash, Common Oak and Goat Willow. The Business Centre owns this strip of woodland and have granted permission for TWCG to manage the woodland on the condition that a substantial vegetation border is maintained for security.

Compartment 2: Eastern boundary. To the eastern side, the site is bordered by a public right of way, with a small area of dense scrub and a dry ditch running north-south. A land registry ownership request was submitted to ascertain who owns this land and Tamworth Borough Council are now in the process of obtaining a statutory declaration for this land. Permission to manage this area will be dependent on the outcome of the statutory declaration.

Compartment 3: Northern boundary. The northern edge of the site is separated from the housing estate by small patches of dense scrub and an improved loose aggregate footpath that runs east-west. This land is owned by TBC, except for a small section in the north-east corner, which is owned by Lichfield Diocese.

Compartment 4: Western boundary. A ditch containing run-off from the housing estate forms the western boundary of the site. This ditch contains small numbers of soft-rush, but few other species of note.

Compartment 5: Eastern Central area. The majority of the central area is semi-natural grassland that has been floristically enhanced using a seed mix (see compartment 6 for further information regarding the grassland).

There are some areas of scrub consisting mainly of Blackthorn, Hawthorn and Bramble, which are currently being controlled to prevent encroachment across the site. Pockets of semi-natural broad-leaved woodland occupy the southern part of this compartment. Bramble is frequent within the woodland and ground flora species are sparse although there is a small patch of Bluebell.

Compartment 6: Western Central area. Following works in 2010 to re-grade and provide a more level terrain for management, the western central area is predominantly semi-natural grassland that has been floristically enhanced using a seed mix. Species such as Knapweed, Ox-eye Daisy, Common Bird's-foot Trefoil, Meadow Buttercup, Yellow Rattle, Ribwort Plantain and vetches as well as grasses such as Crested Dog's-tail, Yorkshire Fog, Red Fescue and Timothy are typical of Lowland meadows.

There is a rich mix of plants more typical of an arable habitat within the sward such as Wild Carrot, Shepherd's Purse, Common Poppy, Cornflower and Viper's Bugloss which are often used in arable crop margins as a seed and nectar source for insects and birds. Hemlock is also present in the sward and should be removed as it is harmful to people.

Compartment 7: Additional area. To the west of the site is an amenity grassland area, bordered by planted woodland and hedges. Whilst not part of the Town Wall site, TWCG are also permitted to manage the hedgerows surrounding the amenity area for wildlife.



Figure 2. This map shows the compartment outlines as referred to in Section 2.3.

2.4 Social

The amenity area in compartment 7, which borders the western side of the proposed Local Nature Reserve (pLNR), is an important focal point for the local community, particularly the young people and children. There is a grassed ball play area which young people use as a meeting place and for play.

The pLNR is primarily used as a cut-through. The central path to the north of the site has been upgraded to a loose aggregate surface and is designed to suit all abilities and be DDA compliant. In addition, the camber of the path has been graded to improve surface water run-off and decrease run-off erosion. Large numbers of children and young people use the paths to walk to school and the local shops and a few dog walkers use the pLNR paths to access the amenity grassland bordering it.

Improvements to access, line of sight and increased visibility across the site as a whole has decreased the frequency of anti-social behaviour and fly-tipping and has helped to increase use of the site by the wider community.

3.0 Management of Town Wall

3.1 Substantial Management Works in 2010

Recommendations from initial surveys of the site in 2006 advised for habitat creation, rather than habitat management due to the sites significant lack of management and degraded habitat.

In 2010 major works were carried out to prepare the site for suitable habitat creation. This primarily consisted of re-grading the main grassland area to address the uneven nature of the terrain and enable more effective management.

The main footpath which runs east to west across the site was upgraded to a loose aggregate surface and is designed to suit all abilities and be DDA compliant. In addition, the camber of the path is graded to improve surface water run-off and decrease run-off erosion. Footpaths running the length of compartments 1 and 2 have also been re-surfaced to provide more substantial paths, improved drainage and reduced run-off erosion.

TWCG seeded the main grassland area with wild flower seed mix and planted wildflower plugs in 2011 to increase the botanical diversity of the site. The group have also removed larger patches of dense scrub in order to create lines of sight across the site to deter negative activity and to enable improvements to biodiversity.

3.2 Overall Management Aim for Town Wall

The main aim is to enhance the habitats at Town Wall to benefit wildlife and to maximise benefits for local people. The site should be managed to maximise its wildlife value for both flora and fauna whilst taking into account the needs of local people. There are opportunities to improve and enhance all the habitats on the site and to further improve access and interpretation in order that local people might make even greater use of the area.

To achieve this aim the following management tasks must be completed:

7

3.2 Tree and Scrub Management

Scattered scrub and dense thickets are valuable habitats that can support rich assemblages of invertebrates and provide cover and food for many bird species. Therefore, some of the scrub bordering the compartments 5 and 6 should be retained but will require management to prevent encroachment onto the grassland.

The majority of dense scrub in the centre of the site has been removed to improve access and provide sight lines across the site. Some small patches of scrub consisting mainly of Blackthorn, Hawthorn and Bramble have been retained for wildlife and will be managed to prevent encroachment onto the grassland. The cleared areas of scrub should be managed through a cutting regime rather than through the use of chemicals.

Contracting a professional body, such as Staffordshire Wildlife Trust or Staffordshire Mammal Group, to carry out a mammal survey before clearance of any large volumes of scrub in the future would be advisable.

Rotational thinning of trees and removal of some scrub in compartment 2 and the creation of habitat piles would benefit fauna in this area of the site.

Some trees along the Public Right of Way to the south of compartment 2 have Tree Preservation Orders (TPOs) placed on them by Tamworth Borough Council. Before any work is carried out on these trees an application for tree works must be submitted and permission granted by TBC.

With the permission of the Business Centre, the trees in compartment 1 should be thinned on rotation and new trees planted to improve age structure and diversity. Once newly planted shrubs and trees have started to establish, selective thinning of established birches should be carried out subject to permission from TBC Tree Officer. This improved diversity would make these areas more valuable to wildlife and as an educational resource, as would the addition of habitat piles.

As part of a Staffordshire Environment Fund (SEF) grant, a large patch of blackthorn has been removed by a contractor in the south eastern corner of compartment 5 and a herbicide treatment has been applied to control re-growth. This area should be planted to add to the semi-natural broad-leaf woodland with species including Sessile oak, Pedunculate oak, Silver birch, Alder, Rowan, Ash, Hazel, and Alder buckthorn.

Oak trees scattered across the site should be left to develop as standalone specimens or incorporated into newly planted woodland areas such as along the southern edge of compartments 5 and 6 where the TWCG are developing Oak woodland.

The majority of trees in compartment 6 should be removed and the land managed to encourage greater ground flora species diversity.

Planting and management of hedgerows to allow dense, high growth and a greater diversity of species in compartments 1, 3 and 7, would provide a good nesting habitat for many small bird species. In the 1998 survey climbers such as White Bryony were abundant and reinstating hedgerows and removal of dense scrub would encourage such species to return to the site. Planting of more hedgerow ground flora species would also be of benefit throughout the site. In addition TWCG are

developing a new hedge along the eastern and southern boundaries of compartment 5 providing an ideal boundary around the semi-natural broad-leaf woodland.

The TWCG are keen that the north-western corner of compartment 3 should retain some of its wild and unmanaged characteristics to provide a comparison area for visitors; however the group agree that some management must be carried out in order to make the area of value to wildlife. Rotational thinning and removal of pockets of dense scrub would be recommended. Replacement of scrub with hedging plants in this area would also be recommended.

3.3 Grassland Management

Throughout the period 2006-2008 the site had become degraded and was becoming progressively succeeded by tall ruderal community and bramble scrub. Recommendations were for habitat creation, rather than habitat management.

Levelling of the site across compartments 5 and 6 was essential to enable management of the grassland (see **Section 3.1** for details of 2010 works).

The semi-natural grassland has now been floristically enhanced using a seed mix. Species such as Knapweed, Ox-eye Daisy, Common Bird's-foot Trefoil, Meadow Buttercup, Yellow Rattle, Ribwort Plantain and vetches as well as grasses such as Crested Dog's-tail, Yorkshire Fog, Red Fescue and Timothy are typical of Lowland meadows and are best retained through a regular cutting regime (2 – 3 times a year, with one cut after mid July to allow flowers to set seed).

There is a rich mix of plants more typical of an arable habitat within the sward such as Wild Carrot, Shepherd's Purse, Common Poppy, Cornflower and Viper's Bugloss which are often used in arable crop margins as a seed and nectar source for insects and birds. Hemlock is also present in the sward and should be removed as it is harmful to people.



Photograph 2. Floristically enhanced semi-natural grassland.

Another option to increase the botanical diversity of the site would be hay strewing. This would include:

- After a cut in mid July or after levelling of ground has taken place spray the area with a suitable herbicide such as Glyphosate
- Spread green (fresh) hay from a local source site and leaving for a few days to dry out and seeds to drop in to the ground. (Ensure enough time elapses for the active ingredients in the herbicide to become inactive before strewing hay. Check recommended time with herbicide manufacturers)
- Remove surplus dry hay.

See **Appendix 2** for further strewing guidance.

With appropriate management there is potential to significantly improve the botanical diversity and structure of the grassland. As well as increasing floral diversity, more suitable management of the grassland may attract birds of higher conservation interest. Grazing is not practicable on this site. Management includes at least one cut per year in mid July; if a further cut is necessary it may be taken in early autumn. All cuttings should be removed from the site to prevent nutrient enrichment. This may be carried out by the local community and volunteers or by the local authority Street Scene team. Every 2-3 years the area should be turned over to maintain bare ground, which annual plants require in order to thrive. TWCG should collect seed at the end of each season and scatter onto lightly raked ground.

Further surveys every 2-3 years to evaluate the frequency of species under a new management regime would be recommended. The Town Wall Conservation Group have also been trained in flora identification in order to maintain continuous records for species on site.

3.4 Ditch and Water Course Management

The brooks that run north to south on the eastern and western boundaries of the site are dry for much of the year. The dumping of industrial waste on the site during the last century ensured that the ditches and drainage that originally criss-crossed the site were blocked and the water on site now finds its own routes off-site, particularly adjacent to the main footpath.

The ditch in compartment 2 is not on TBC land and so consent of landowners must be agreed before work can commence on it.

In the past, water on the site frequently travelled down the footpath on the southern edge of compartment 3, following the east-west incline. It was previously suggested that suitable drainage systems should be put into place to divert run off to a central pond/series of small pools in compartment 6 and on into the ditch in compartment 4. Expert recommendations have advised that the site drainage should not be altered with the intention of creating a pond and that no ponds or scrapes are re-instated on the site.

The western ditch currently carries run-off from the bordering housing estate and contains a large amount of sediment and silt. Whilst the primary function of this ditch is to divert grey water from the housing estate, it may be possible to impede the flow of water in order to allow more water to sit in the ditch all year round and be used to

create a boggy area on its eastern banks in compartment 6 if the ditch were re-profiled. Permissions from Tamworth Borough Council must be secured before any diversionary or re-profiling work is planned. If permission is granted, the drainage could be impeded with logs and an earth bund and in due course the introduction of wetland plant species could be considered. The bank could be re-profiled to a 1:35 gradient providing a shelf for emergent vegetation and creating marshy grassland improving the habitat for amphibians and invertebrates.

Currently this brook contains occasional presence of Soft Rush. Cutting back overgrown vegetation on the banks during August would increase diversity of ground flora species.

Marginal planting could be carried out by the Town Wall Conservation Group, by community groups, schools (under guidance) or by Street Scene.

Future management of the ditch would include rotational removal of sediment and vegetation by raking and digging out by hand. The nature of such operations inevitably results in the destruction of aquatic life. Opinions vary as to the best time to undertake dredging with respect to wildlife; in spring and summer, breeding cycles are likely to be disrupted, while winter dredging will remove many organisms that over-winter in the bottom sediments. In general, September offers a reasonable compromise; most aquatic organisms will have completed their reproductive cycles while most animals will still be mobile enough that a proportion of them should be able to avoid the disturbed areas and to re-colonise areas following dredging. Cleared vegetation should be left on the bank for a while, prior to removal, to allow aquatic creatures to find their way back into the water. The key to wildlife-friendly dredging and clearance is to stagger works, thinning only small pockets at a time therefore ensuring that undisturbed areas are always available as reservoirs and sanctuaries for aquatic life. No more than 20% of the ditch should be cleared in any one year. Usually the recommendation would be for the ditch to be managed every 2 years to prevent it becoming choked with vegetation, however as blockages may result in excess water creating a backup of water onto the paths, it is recommended that the TWCG regularly monitor water levels and blockages to the flow caused by vegetation, removing them as necessary in order to protect the paths.

3.5 Footpaths

There are two primary footpaths on Town Wall which service the 3 main entrances to the site: from the housing estate to the north; the B5404 to the far-east and the public right of way alongside the Business Centre to the south. The central path runs east to west between the amenity area and the B5404, in-between compartments 3 and 5/6. The Public Right of Way is at the eastern border of the site, in-between compartments 2 and 5, and runs north to south from a fork in the central path towards the business centre to the south of the site. There is an additional surfaced path which runs east to west adjacent to compartment 1.

Several mown paths intersect the site and these are maintained by the TWCG.

Although the central path was improved in 2010, the surfacing requires further improvement. This footpath should be top-dressed with a crushed stone finish to improve its quality and durability.

In general, the better the surface of a path the more likely people are to use it and since the initial improvements in 2010 the use of footpaths across the site is visibly significantly higher. It is hoped that these improved paths will both to encourage the less adventurous to enter the site and discourage others from starting their own paths.

TWCG have worked with an artist and the community to create an artwork feature in the centre of the site in the form of a large stone bird bath with a decorative mosaic from pottery found on the site on the ground in the centre of the site (in-between compartments 5 and 6).

3.6 Bird Boxes

The site is home to a small number of woodland and hedgerow birds such as tits and robins. Bird boxes have been installed by TWCG in compartments 3, 5 and 6 to encourage breeding. These boxes should be well maintained and cleaned out after use by visiting birds.

Bird box building is an excellent activity for involving the local community, and particularly children and young people, in the site and the local environment (refer to **Appendix 1** for recommended bird box building and maintenance practices).

Any further boxes should be positioned around the site, with particular focus upon the clusters of trees in compartments 3 and 5. Some boxes could also be placed in the larger trees surrounding the adjacent amenity grassland and in the established trees in the centre of the site. Boxes should be numbered, their positions recorded and monitoring of use should take place. The boxes should be well maintained and cleaned out after use by visiting birds.

3.7 Monitoring

The key to successful habitat management or creation schemes is monitoring. The site should be surveyed each year for the next five years. Regular monitoring will inform management and therefore any problems with establishment of vegetation, water levels etc can be resolved quickly and the project brought back into favourable condition. Bird, plant and invertebrate monitoring are particularly important to measure habitat improvements.

Interested members of TWCG should be trained in surveying and identification in order that new species be identified quickly.

4.0 Community Involvement

A group called "Town Wall Conservation Group" has been established at the pLNR. The group comprises members of the local community who want to manage and develop the site for people and wildlife.

The group have carried out significant work so far on the site and are trained, monitored and supported by SWT with their work on site legally covered as a constituted umbrella organisation affiliated with SWT.

The group carry out capital works such as path creation, scrub removal and hedgerow planting. Similarly the group are responsible for the annual management of the site including brook and ditch, wildflower meadow and woodland management and species monitoring etc. The group have been trained in wildplay activities and wildflower identification. They monitor the site and record species as well as running events such as guided walks around the site and activity days to encourage involvement of the wider community.



Photograph 3. Members of TWCG carrying out practical conservation at Town Wall.

4.1 Picnic Tables and Benches

To encourage use of the site a series of wooden logs have been installed in three locations to act as benches, stools and leaning posts; adjacent to the main footpath and towards the centre of the site adjacent to the wildflower meadow in compartments 5 and 6.

The log seating and surrounding vegetation should be monitored and maintained throughout the year. Vegetation clearance should take place as is required.

Picnic benches could be considered for compartment 7.

4.2 Litter and Bins

Litter bins are currently provided on the site, but due to the site's high usage both litter and dog fouling remain an issue. Provision of a dog bin and dog fouling signs would be beneficial.

This situation may be improved through education work with the local community, particularly young people and adults. In addition, the bins need to be maintained and emptied regularly and regular litterpicks should also take place.

Any flytipping should be promptly reported so that removal can be arranged.

4.3 Interpretation Boards

Interpretation boards illustrating site management and wildlife interest are very important, especially at heavily used sites such as Town wall. Educational interpretation boards could be erected at the entrances to the site and adjacent to the footpaths.

The boards should include information and pictures regarding the management of the site. Another board should be dedicated to flora and fauna, giving identification guidelines and brief descriptions of species likely to be encountered in and around the site.

The cost of an A1 Satin Polycarb interpretation board and stand (including graphics printing) is around £800.00.



Photograph 4. An interpretation board at a Local Nature Reserve in Tamworth.

Maintenance and monitoring of the site signage should be arranged.

4.4 Renovation of the Town Wall

Remnants of the sandstone Town Wall can still be seen in sections, less than 2 metres long, and less than half its original width and height at the eastern entrance to the site off the Hockley Road. Some of the original stone is still in place in small sections at other places on the site, but is covered by overgrown rank vegetation and is difficult to detect. It is estimated that originally this dry stone wall would once have traversed the site for more than 200m.

The TWCG have worked with an artist to design and install a dry-stone wall style feature near the seating area alongside the main footpath. The relevance of this should be reflected in interpretation placed around the site in the form of boards.

4.5 Incorporating Heritage of Site

As a dumping site for the ceramics industry for many years, there is potential for the site to have an archaeological value.

TWCG arranged a small archaeological dig on the site and collected a variety of pottery items. They have since worked with an artist to engage with the local community to design sculptures and interpretation into which the unearthed pottery has been incorporated.

A trail around the site could be developed to increase awareness of the site's heritage and wildlife value.

5.0 Management Summary

TOWN WALL			
Management task	Brief description/technique	Timeframe for work to be carried out	Section in report
Tree & scrub management	Prevent scrub encroachment on the grassland by rotational cutting	Nov-early March	5.2
	Blackthorn Consider herbicide treatment of blackthorn stumps to control re-growth		
	Selective thinning of established birches once newly planted shrubs & trees have started to establish (2 years time and subject to permission from tree officer)	Nov-early March	5.2
	New planting New planting (as part of SEF) bid for 2012/13 Hedge species: Field maple, dog wood, hawthorn, guelder rose, dog rose, honey suckle, holly, hazel Woodland species: Sessile oak, Pedunculate oak, silver birch, alder, rowan, ash, hazel, alder buckthorn	Nov-early March	
	Management of existing oaks and maturing		

	<p>trees</p> <p>The oak trees scattered across the site are to be left to develop as standalone specimens or incorporated into newly planted wooded areas as appropriate</p>		
	<p>Establishing woodland flora</p> <p>To be done in patches where either tree planting has already been undertaken or under the existing tree canopy in suitable areas (2012-14)</p> <p>Wildflower species: *Bluebell, **wood anemone wood sorrel, yellow archangel, dog violet, sweet violet, bugle, primrose, greater stitchwort. * Bluebell can be established either from seed or bulbs ** It is difficult anemone from seed or from bulbs – possibly consider growing on in pots then planting</p>	Late august - October	5.2
Bramble and tall herb areas	<p>Bramble patches</p> <p>Recognise that bramble has significant wildlife value so seek to control but always maintain some areas Cut on a rotational basis where patches are to be kept. Cut on a 4 year cycle to refresh growth.</p>		
	<p>Patches of gorse</p> <p>Plant additional patches of gorse to eventually replace existing patch</p>		
	<p>Tall herb.</p> <p>Has wildlife value, but needs to be managed. Cut back on a rotation always leaving 25-50% standing. Particular problem around edge of ditch</p>		
Grassland management	<p>Areas of annual wildflowers</p> <p>Define the areas that will be managed as annual wildflower meadow.</p> <p>Collect seed at the end of each season and scatter onto lightly raked ground.</p> <p>Every 2-3 years the area should be turned over (could be light digging or rotavating) to maintain the bare ground, which these annual plants require to thrive. A 'top-up of purchased annual wildflower seed is likely to be required every 2-3 years.</p>	Anytime July-September September onwards	5.3
	<p>Wildflower meadow</p> <p>*Cut and removal of cuttings from wildflower meadow area</p> <p>* Grass cuttings need to be removed – either by contractors or the group.</p>	mid July to late September	5.3
	<p>Wildflower meadow improvements</p> <p>Monitor success of wildflowers in meadow. Consider hay strewing or additional seed sowing to increase botanical diversity</p> <p>The introduction of Yellow rattle will help suppress dominant coarse grasses and create better conditions</p>	After a hay cut in July 2012 -2013	5.3

	for wildflowers to spread.		
Ditch management and wetland creation	<p><u>'Re-wetting' the ditch</u> Investigate whether drainage ditch can be 'impeded' to allow more water to sit in the ditch all year round</p> <p>If agreement is reached, impede drainage with logs and earth bund</p> <p>Consider introducing wetland plant species if more water is retained in the ditch</p>	<p>Summer 2012</p> <p>Autumn 2012</p> <p>2013</p>	5.4
	<p><i>Manage vegetation around ditch edge</i></p> <p>Cut back vegetation on banks of ditch. Implement a cutting rotation cutting one section each year</p>	August	5.4
Foot Paths	<p><i>Improve footpath surfacing</i> Top dress the footpath with a crushed stone finish to improve quality of the path</p>	Autumn 2012 to Spring 2013	5.5
Bird boxes	<p><i>Install and monitor bird boxes</i> Construct and install birds boxes.</p> <p>Number boxes, monitor and maintain annually.</p>	Nov-early March	5.6
Monitoring	<p><i>Keeping records of wildlife using Town Wall</i> Annually monitor birds, plants & invertebrates</p> <p>Use training opportunities to build up level of skill in identifying particular groups of plants and animals species</p>	Throughout the year	5.7
Community involvement	<p><i>Involving the wider community in Town Wall</i> Provide regular opportunities for new members to join the group and volunteer to do practical work. These could be one off sessions or regular involvement</p> <p>Run events and guided walks</p> <p>Work with other local community groups</p>	Throughout the year	6.0
Picnic tables & benches	<p>Maintain log seating around the site</p> <p>Consider picnic benches on uncontaminated land adjacent to the nature reserve</p>	Any time	6.1
Litter & Bins	<p><i>Keeping the site litter free</i> Maintain and empty bins around the site to reduce litter and dog fouling.</p> <p>Carry out litter picks as required</p>	Any time	6.2
Site Interpretation	Install boards explaining the wildlife interest & management of the site	Any time	6.3
Renovation	Dry stone walling	Any time	6.4

of Town Wall			
Incorporate Heritage of site	Archaeological dig	Under advisement	6.5
	Creation of artwork with artefacts from site	Any time	6.5

Figure 3. A summary of the management requirements for Town Wall.

REFERENCES

Nick Mott pers comm.
 Archaeologist pers comm.
 Sustainable drainage expert pers comm.
 Maurice Arnold pers comm.

APPENDICES

Appendix 1 - Bird Box building and maintenance practice guidelines

Appendix 2 - Hay Strewing RDS Advice Notice



Appendix 1- Bird box building and maintenance practice guidelines

Small open-fronted and small-hole nesting birds

Small open-fronted nest box

A variety of species may be attracted to an open-fronted nest box placed in a garden, the commonest of which will be *Robin* and *Wren*, although it could also be used by *Pied Wagtail*, *Spotted Flycatcher* and *Black Redstart*.

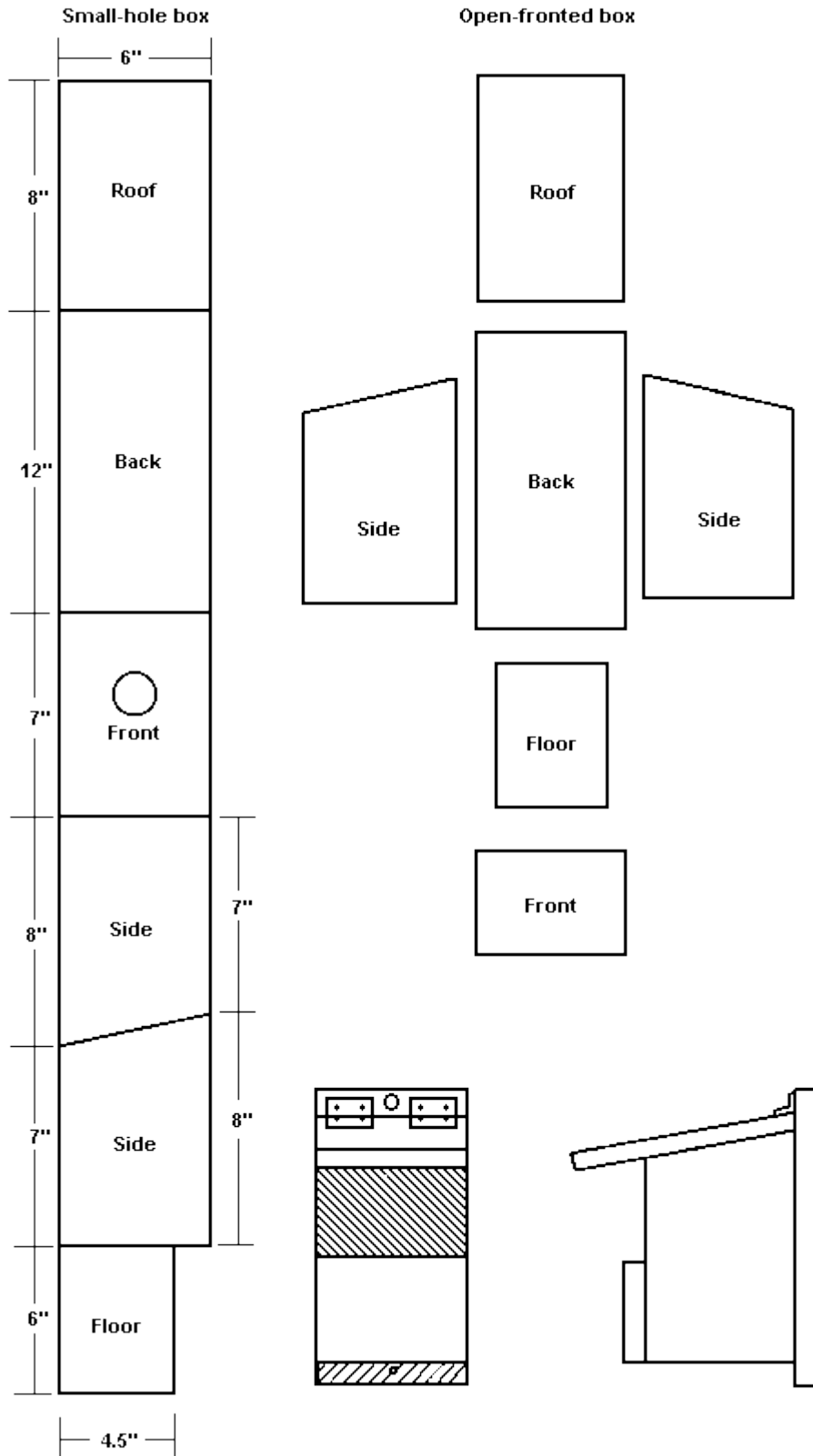
The size and construction is similar to that for a small-hole nest box, except that the front will be a piece of wood 3.5 x 6 inches. This box too can be made from one 48 inch plank of timber, 6 inches wide, 0.75 inch thick. It is not necessary to hinge the roof as the box can be cleaned through the entrance hole. The floor should have small drainage holes drilled in it.

Nest box for small hole-nesting birds

Many garden and woodland birds nest in holes and may be attracted to a nestbox. The particular species attracted will depend on its local distribution and population, and on the size of hole provided in the nestbox. An entrance hole of 28 millimetres in diameter will admit *Blue Tit*, *Great Tit*, *Coal Tit*, *Tree Sparrow* and *Pied Flycatcher*; whereas a slightly larger hole of 32 millimetres in diameter will also attract *House Sparrow*, *Nuthatch*, and *Lesser Spotted Woodpecker*.

The following design is for a basic small-hole nestbox. The roof should be hinged, for ease of cleaning out, either by a non-ferrous hinge and screws or by a rubber strip. The dimensions are only an approximate guide and are by no means critical; but if they are followed, this box can be made from one 48 inch piece of timber, 6 inches wide, and 0.75 inch thick.

The box may be screwed or nailed together, and small drainage holes should be drilled in the floor.



House sparrow terrace nest box

Where have all the sparrows gone?

House sparrows are found in a variety of habitats from city centres to farmland, but in the UK the population has plummeted. In the early 1970s there were 25 million breeding house sparrows in the UK, now there are around 13 million.

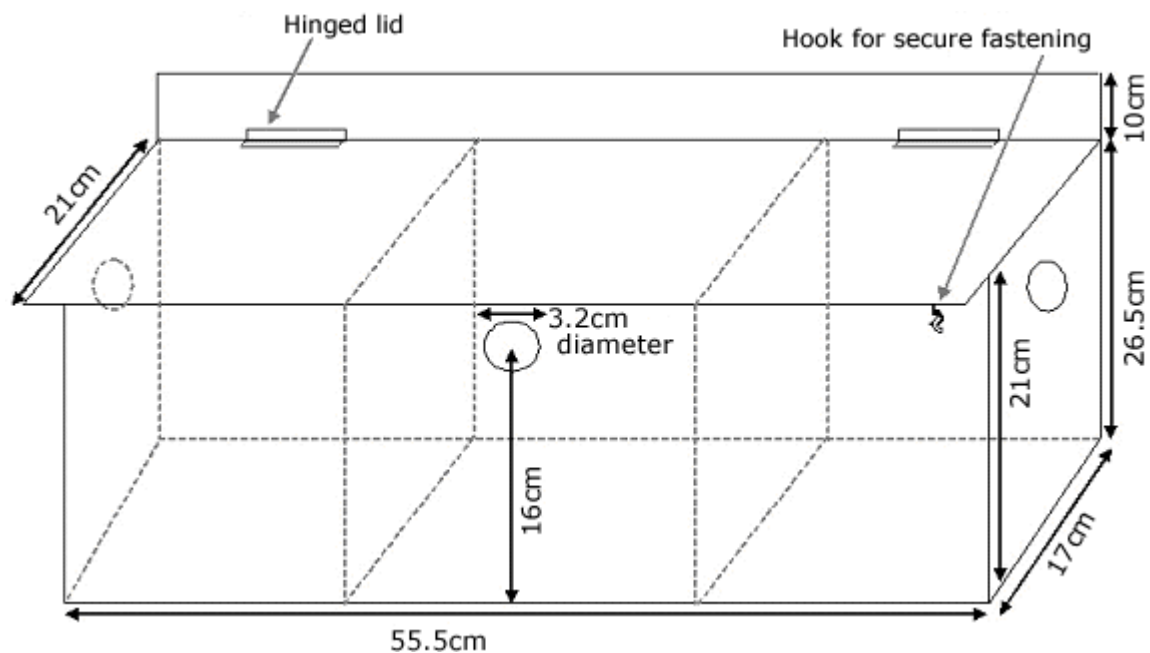


The population crash is not fully understood but is likely to be linked with changing agricultural practices such as the mechanisation of the grain harvest and more efficient grain storage reducing the amount of seed available for sparrows to feed on. The lack of nest sites and food in towns has also had an impact. In Lincolnshire, house sparrows remain relatively common but there are things we can do here to ensure we retain a healthy house sparrow population.

How to help house sparrows in your garden	
Provide food House sparrows eat seeds, fruits and insects	<ul style="list-style-type: none">▶ Put out sunflower seeds and millet.▶ Leave a small 'weedy' patch. Sparrows eat the seeds of annual plants such as chickweed and plantains, and insects will find shelter.▶ Leave a section of lawn to grow longer. The long grass will shelter insects and provide seeds.
Avoid using chemicals	<ul style="list-style-type: none">▶ Chemicals such as lawn treatments kill insects reducing the food available to sparrows.
Provide shelter	<ul style="list-style-type: none">▶ Thick, dense shrubs and climbers will provide shelter and nest sites.
Provide nest sites	<ul style="list-style-type: none">▶ House sparrows will nest in thick vegetation but they prefer holes in buildings in particular behind fascias and soffits of roofs. If these are replaced, retain an access hole for sparrows.▶ House sparrows will nest in boxes. They nest in loose colonies so a special terrace nest box has been designed for sparrows.

Make a terrace nest box

The terrace nest box can be made using the plan below. Fasten it securely below the eaves of your house or at least 3 metres above ground level. The box should face in an easterly direction avoiding direct heat from the sun and the prevailing wind and rain.



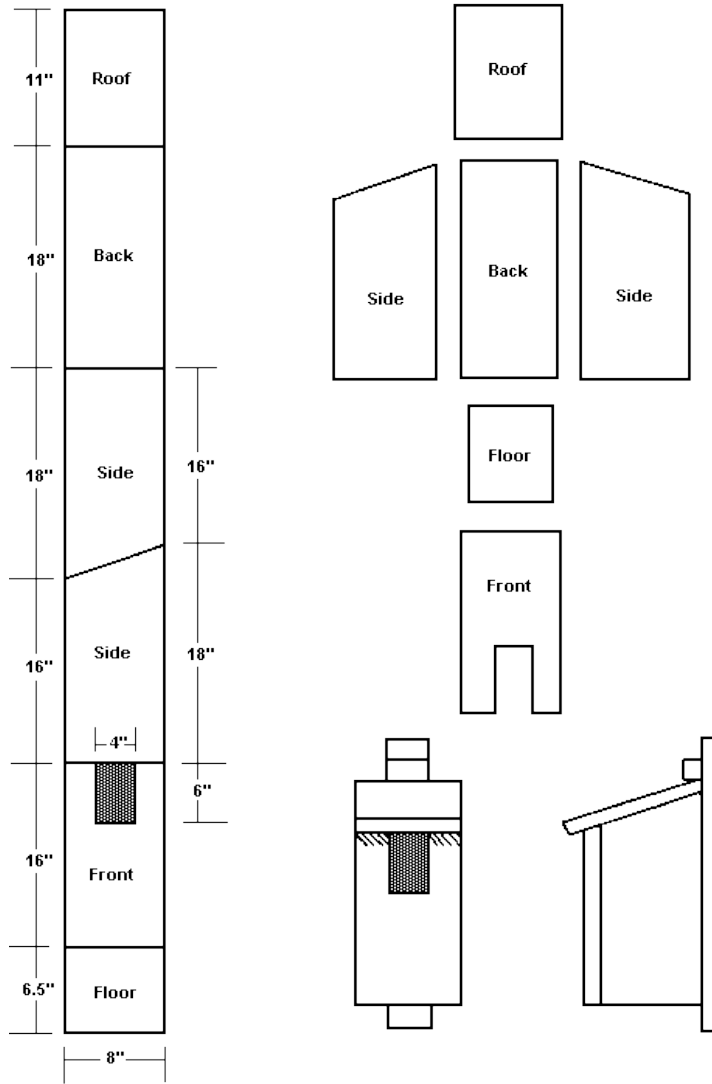
Nest box for large-hole nesting birds

Species such as *Stock Dove*, *Jackdaw*, *Starling*, *Green Woodpecker* and *Great Spotted Woodpecker* are all species which nest in holes, and a box of the following dimensions will meet their requirements.

The design shows a rectangular entrance hole 6 x 4 inches, which is acceptable to *Stock Dove*, *Jackdaw* and *Starling*. For Woodpeckers it is better instead to have a front hole of 2 inches diameter (50 millimetres) for *Great Spotted Woodpecker*, and 2.5 inches (60 millimetres) for *Green Woodpecker*. For all Woodpeckers, the box should be packed with expanded polystyrene which they can excavate to make their nest.



The roof should be hinged, preferably with a strong brass hinge, so that new polystyrene may be put in each year. Drainage holes should be drilled in the floor. The box should have a stout batten (approximately 24 inches long, or 3 x 1 inches timber) screwed firmly to the back of nestbox for mounting to a tree as high as possible in a secluded place.



Useful information

People often ask the question: "Do nest boxes in gardens really serve any useful purpose other than giving pleasure to us humans?" The answer to that question is definitely **yes!** Gardens are a most important habitat. The total area of all gardens in Britain exceeds that of all nature reserves, and as modern lifestyles destroy trees, hedges and old buildings, natural nesting sites are in decline. So nest boxes placed in gardens can make a real difference to the success or failure of a breeding species in a given area, especially when accompanied by the regular supply of suitable food and water.

Design

There is no standard, accurate design for a nest box. Birds do not insist on their nest sites being mathematically precise! What they do require is a nest site which is secure and weatherproof, and as safe as possible from predators. Different bird species favour different types and locations of nesting sites, and so boxes must be constructed accordingly to meet these different needs. Two basic designs however will accommodate most common garden birds; either a partly open-fronted box, or a box with a circular hole at the front (of varying diameter for different species).

Dimensions need not be precise; make the box to suit the materials available rather than buying materials to match any given dimensions.

Materials

Undoubtedly wood is the best material to use; new or old wood, rough or planed, softwood or hardwood - it is really not important. Use what is readily available. A thickness of about 0.75 inches is ideal.

Manufactured board (plywood and chipboard) are not suitable for outdoor use (except for resin-bonded marine quality ply, which can be expensive), although they are perfectly acceptable for a nest box placed under cover, for example a Barn Owl box placed in an old building.

After construction, the **outside only** of the box should be treated with a water-based wood preservative product such as 'Cuprinol' or 'Sadolin', etc., (**NOT creosote**) to prolong its life and help repel water. If using planed timber, clear polyurethane may be used instead. All boxes should be treated annually in this way and allowed to dry thoroughly before being erected. A piece of roofing felt fixed to the roof will also prolong the life of the box and render it more waterproof.

Siting of nest boxes

For nest boxes with open fronts and small entrance holes:

Height

Whether fixed to a tree or a wall, the height above ground is not critical to most species of bird, so long as the box is clear of inquisitive humans and prowling cats.

Aspect

If there is no natural shelter, it is best to mount a box facing somewhere between south-east and north, to avoid strong direct sunlight and the heaviest rain. The box should be tilted slightly forwards so that the roof may deflect the rain from the entrance.

Predators

It may be possible to deter predators by fixing the nest box in a thorny bush or by placing chicken-wire around the entrance, but always ensure a direct flight-path to the entrance. If squirrels or woodpeckers are a serious threat, fix a metal plate around the entrance, so that it can not be enlarged.

Fixing

Some authorities recommend nails to attach the box directly to a tree trunk or branch; others prefer the use of rope or wire right around the box and trunk (remembering to protect the trunk from wire cutting in by the use of a piece of rubber or the like). Both methods are satisfactory, but obviously annual maintenance is easier if the box is wired and can thus be taken down easily for cleaning.

Number

The number of nest boxes which can be placed in a garden depends on the species you wish to attract. Many species are fiercely territorial, such as *Blue Tits*, and will not tolerate another pair close by. About 2 to 3 pairs per acre is the normal density for *Blue Tits*. Other species such as *Tree Sparrow*, which are colonial nesters, will happily nest side by side.

Do not place any nest box close to a bird-table or feeding area, as the regular comings and goings of many other birds are likely to prevent breeding in the box.

Annual cleaning of nest boxes

After the end of each breeding season, all nest boxes should be taken down and the old nesting materials removed, and the box should be scolded with boiling water to kill any parasites. Do **not** use insecticides or flea-powders - boiling water is adequate. Annual cleaning is best carried out in October or November.

Under the terms of the "Wildlife and Countryside Act 1981", if un-hatched eggs are found in the box, they can only legally be removed from October to January inclusive, and they **must** be destroyed! It is illegal to keep them.

Winter

Leave the bird box up in winter as it will be useful as a roosting site for birds in bad weather.

Appendix 2– Hay Strewing RDS Advice Note

See Rural Development Service Technical Advice Note 28

Sward enhancement: diversifying grassland by spreading species rich green hay.

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