

**NORTH LITTLEHAMPTON (CENTRAL WETLAND),
TODDINGTON LANE, WEST SUSSEX**

**ECOLOGICAL MITIGATION AND MANAGEMENT
PLAN**

Final Document (Revision 6)

December 2025

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EcIA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

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¹ CIEEM, 2018. Guidelines for Ecological Report Writing. 2nd ed. Winchester: Chartered Institute of Ecology and Environmental Management.

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ECOLOGICAL MITIGATION AND MANAGEMENT PLAN

Table of Contents

1.0	INTRODUCTION	1
1.1	Background.....	1
1.2	The Site	2
1.3	Aims and Scope of Report.....	2
1.4	Site Proposals.....	3
2.0	MITIGATION AND MANAGEMENT PLAN OBJECTIVES	4
2.1	Introduction	4
2.2	Overview of Mitigation and Management Plan Objectives	4
2.3	Structure of the Mitigation and Management Plan	4
3.0	GENERAL MANAGEMENT PRESCRIPTIONS	5
3.1	Introduction	5
3.2	Review	5
3.3	Responsibilities.....	5
3.4	Contractors	5
4.0	SPECIES-SPECIFIC MITIGATION AND MANAGEMENT	6
4.1	Introduction	6
4.2	Water Vole	6
4.3	Bats.....	7
4.4	Birds.....	7
4.5	Reptiles.....	9
4.6	Badger	9
4.7	Invertebrates.....	10
5.0	HABITAT-SPECIFIC MANAGEMENT.....	12
5.1	Introduction	12
5.2	Native Trees and Shrubs.....	12
5.2.1	<i>Objectives</i>	<i>12</i>
5.2.2	<i>Mitigation and Enhancement</i>	<i>12</i>
5.2.3	<i>Management Prescriptions.....</i>	<i>13</i>
5.3	Seasonally Wet Grassland	13
5.3.1	<i>Objectives</i>	<i>13</i>
5.3.2	<i>Mitigation and Enhancement</i>	<i>13</i>
5.3.3	<i>Management Prescriptions.....</i>	<i>14</i>
5.4	Meadow Grassland.....	14
5.4.1	<i>Objectives</i>	<i>14</i>
5.4.2	<i>Mitigation and Enhancement</i>	<i>15</i>
5.4.3	<i>Management Prescriptions.....</i>	<i>15</i>
5.5	Standing Water	15
5.5.1	<i>Objectives</i>	<i>16</i>
5.5.2	<i>Mitigation and Enhancement</i>	<i>16</i>
5.5.3	<i>Management Prescriptions.....</i>	<i>18</i>
5.6	Running Water.....	18
5.6.1	<i>Objectives</i>	<i>18</i>
5.6.2	<i>Mitigation and Enhancement</i>	<i>18</i>
5.6.3	<i>Management Prescriptions.....</i>	<i>18</i>

6.0	MONITORING AND REVIEW	19
7.0	TIMETABLE OF MANAGEMENT AND MONITORING WORKS	20
Map 1	Site Location Plan	
Map 2	Ecological Enhancements	
Map 3	Grassland Management Areas	
Appendix 1	Landscape Strategy	
Appendix 2	Planting Plan	

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Persimmon Homes Limited to prepare an Ecological Mitigation and Management Plan for North Littlehampton (Central Wetland), Toddington Lane, West Sussex.

The central wetland is located within the wider North Littlehampton development which comprises the construction of up to 1,260 dwellings, associated facilities, employment areas and open space (Arun District Council planning reference LU/47/11).

Within this document where reference is made to 'the site' this refers to the central wetland and reference to the 'wider site' relates to the wider North Littlehampton development. The location of the site in relation to the wider site is shown in **Map 1**.

This EMMP has been prepared in relation to discharge of conditions for the Central Wetland Area which received reserved matters permission under Arun District Council reference LU/369/21/RES. Under LU/47/11 there are three conditions relating to ecology (**Table 1**).

Table 1: Ecological conditions

Condition	Details
17	Prior to the submission of any reserved matters applications, a scheme shall be submitted for the creation of the proposed central wetland area and the restoration of habitat onsite. The scheme shall be submitted to and approved in writing by the Local Planning Authority. Thereafter the development shall be constructed as set out in the approved scheme and any subsequent amendments shall be agreed in writing with the Local Planning Authority.
19	Development shall not begin until further ecological surveys have been carried out and submitted to the Local Planning Authority. These surveys shall relate to water voles, bats, birds, invertebrates and reptiles.
20	Prior to the commencement of development on any phases of development east of the new road than spans the railway line (running north – south), details of appropriate mitigation, and a programme of implementation, in relation to water voles, bats, birds, invertebrates and reptiles shall be submitted to an approved in writing by the LPA.
21	No development within any phase or sub phase shall commence until details of an ecological management plan for the construction phase of that element of the development has been submitted to and approved in writing by the Local Planning Authority. The management plan shall be implemented in accordance with the approved plans.

The EMMP is based on the results of ecological surveys and assessments carried out by ECOSA and White Young and Green (WYG) between 2008 and 2018 (**Table 2**). Further details of the species surveys and results are provided in Section 4.0.

Table 2: Summary of ecological surveys

Species Group/Species	2008	2009	2014	2017	2018
Ecological scoping Phase One habitat survey ²	✓	-	-	-	-
Ecological constraints appraisal ³	-	-	✓	-	-
Updating walkover survey ⁴	-	-	-	✓	-
Bat transect surveys		✓	✓	✓	
Reptile survey ⁵	-	✓	✓	-	-
Water vole survey ⁶	-	-	✓	✓	✓
Breeding Bird Survey ⁷	✓	-	✓	-	-

This 2025 update provides additional details on the mammal tunnel beneath the southern road crossing and includes a revised landscaping plan featuring enhanced planting within the Central Wetland Area (CWA). The EMMP has also been updated to provide additional context in relation to the waterbodies within the CWA.

1.2 The Site

The site is located in Littlehampton, West Sussex, centred on National Grid Reference (NGR) TQ 03672 04236 (**Map 1**).

The site is located within the centre of the wider development site and covers an area of seven hectares. Prior to demolition and clearance works taking place on site between 2016 and 2017 the site contained a number of industrial buildings, grassland, scattered trees and hardstanding. During 2017 the site was cleared of all existing buildings.

The wider landscape comprises the agricultural land associated with the floodplain of the Black Ditch (a river) to the north, an allotment to the west and housing to the east and south of the wider site. The main south coast railway line and its associated bankside vegetation is located close to the sites southern boundary. Littlehampton is town centre is located approximately 1.3 kilometres south.

1.3 Aims and Scope of Report

The aim of this document is to outline the proposed ecological mitigation and management required at the site. The mitigation and management plan set out the

² White Young and Green (2009) Proposed Lyminster Bypass (South) North Littlehampton - Ecological Scoping / Phase 1 Habitat Survey. White Young and Green, Droxford, Hampshire

³ White Young and Green (2014) Toddington Lane, North Littlehampton - Ecological Constraints Appraisal. White Young and Green, Droxford, Hampshire

⁴ An ecological walkover survey was undertaken by ECOSA on 13th January 2017

⁵ White Young and Green (2014) Proposed Lyminster Bypass (South) North Littlehampton - Reptile Presence / Absence Survey Report. White Young and Green, Droxford, Hampshire

⁶ White Young and Green (2014) Toddington Lane, North Littlehampton - Water Vole Presence / Likely Absence Survey Report. White Young and Green, Droxford, Hampshire

⁷ White Young and Green (2014) Toddington Lane, North Littlehampton – Breeding Bird Report. White Young and Green, Droxford, Hampshire

prescriptions for the site in order to retain the long-term ecological value. This plan covers a period of 10 years following the commencement of the development.

1.4 Site Proposals

Proposals of the site are to create an area of greenspace within the wider development site. This is to include parkland, a wetland area and areas of scattered trees and shrubs. Pathways are to be constructed across the site for pedestrian access from the newly constructed residential houses (**Appendix 1**). The landscaping strategy for the site is presented in **Appendix 2**.

2.0 MITIGATION AND MANAGEMENT PLAN OBJECTIVES

2.1 Introduction

This section provides an overview of the objectives of the Ecological Mitigation and Management Plan for the central wetland. Specific objectives for each individual habitat type are detailed within the management prescriptions.

2.2 Overview of Mitigation and Management Plan Objectives

The overarching objective of the Ecological Mitigation and Management Plan is to retain and enhance the long-term ecological value of the site. These will be achieved through the following measures:

- Creation of new, native species-rich and wildlife friendly habitats to enhance biodiversity at the site;
- Establishment of long-term management prescriptions for new and retained habitats to ensure the habitat diversity and suitability for wildlife is maintained; and
- Delivery of mechanisms to ensure ecological connectivity is included across the site and into semi-natural habitats in the wider landscape.

2.3 Structure of the Mitigation and Management Plan

The general overarching management prescriptions for the site are provided within Section 3.0, with species specific management and mitigation measures detailed in Section 4.0.

The main habitat types which are the focus of this management plan are wetland area, grassland and native trees. Management prescriptions for each of these habitat types are detailed individually within Section 5.0.

3.0 GENERAL MANAGEMENT PRESCRIPTIONS

3.1 Introduction

This section provides an overview of the general management prescriptions for the site.

3.2 Review

As part of on-going monitoring and review process, the management plan will be periodically reviewed in order to ensure that the objectives are being met. Details of this review process are provided within Section 7.0.

3.3 Responsibilities

The implementation of the management plan will be the responsibility of the landowner, who will likely transfer the ownership of the land to a third party following the completion of the development. This third party will be responsible for implementing the management plan. For the purposes of this management plan the “management site” is the area of the site which will be retained by the third party and outside of residential ownership.

3.4 Contractors

The proposed management works will be undertaken by specialist contractors with suitable experience in the management measures proposed. Monitoring and review will be undertaken in conjunction with suitably qualified ecologists with other specialists, such as arboricultural consultants employed/consulted as necessary.

4.0 SPECIES-SPECIFIC MITIGATION AND MANAGEMENT

4.1 Introduction

This section provides an overview of the species-specific mitigation measures and management prescriptions for the site.

4.2 Water Vole

Surveys undertaken by WYG in 2008² and 2014⁶ identified the presence of water vole within the Black Ditch (river) in the north of the site. No records were made from the ditch immediately west of the central wetland (**Figure 1** and **Figure 2**). No water vole were recorded by WYG within the westernmost on-site reservoir and this waterbody has subsequently been drained.

Updating water vole surveys undertaken by ECOSA in January 2017 and January 2018 did not record evidence water vole in the ditch to the west of the site or to the north of the central wetland. In addition, in January 2018 the two ponds to the east of the site were surveyed however, no evidence of water vole was recorded.



Figure 1: Southern end of ditch immediately west of the site.



Figure 2: Northern end of ditch immediately east of the site

The ditches and ponds outlined above are due to be filled in as part of site levelling works. Before the ditch and ponds are filled, a survey of the banks will be undertaken by a suitability qualified ecologist to reassess the site for water vole presence and identify if the status of the species on the site has changed. If the species is identified on site a licence from Natural England will be required prior to filling works commencing.

If no evidence of water vole is located it will be possible to continue with the infilling of the ditch and ponds under the supervision of a suitability qualified ecologist. If water vole evidence is recorded during infilling, work will stop and a licence from Natural England obtained.

As an enhancement for water vole within the site a pond and wetland feature are to be constructed which will connect the site to the Black Ditch. The wetland habitat will be

constructed to provide suitable habitat for water vole, further details are provided within Paragraphs 5.5 and 5.6.

4.3 Bats

Pre-demolition the site contained a number of large greenhouses. All buildings were assessed to have negligible bat roosting potential by WYG Ecology³ an assessment which was reconfirmed by ECOSA during a walkover survey undertaken in 2017. As a result these buildings were demolished in 2017.

Prior to clearance works, the site provided limited bat foraging and commuting opportunities in the form of hardstanding, a small number of trees and greenhouses. Bat transect surveys undertaken by WYG Ecology² and ECOSA has recorded a small range of common and widespread species across the wider site.

No artificial lighting is proposed within the Central Wetland and light spill from adjacent areas will be minimised. This will have the effect of creating a dark corridor from the Black Ditch in the north to the south cost railway line in the south.

As an enhancement, bat boxes will be erected. This will include two Schwegler 1FF and two Schwegler 2F bat boxes within suitable retained on-site trees (**Figure 3** and **Figure 4**). The bat boxes should be installed between four metres and six metres high. If Schwegler bat boxes are unavailable a suitable alternative woodcrete / WoodStone[®] box such as the General Purpose Bat Box and Low Profile Woodstone Bat Box will be used.



Figure 3: Schwegler 2F Bat Box



Figure 4: Schwegler 1FF Bat Box

4.4 Birds

Breeding bird surveys were carried out by WYG Ecology in 2008² covering the floodplain grazing land to the north of the wider development site. Updating surveys carried out by WYG Ecology in 2014⁷ covered the whole site, these surveys recorded

eight red listed and seven amber listed Birds of Conservation Concern⁸. A single Schedule 1⁹ species the Cetti's warbler *Cettia cetti* was frequently recorded around the reservoirs to the east of the site. Occasional records of this species were also made from the ditches within the wider site.

Any vegetation clearance work will be undertaken outside the main breeding bird season of March to August, inclusive, or if this is not possible, an ecologist will be present immediately prior to clearance to check vegetation. Active nests will be left with an undisturbed 5-10m buffer until nesting ends naturally. If nests are identified then there is the potential for the programme of the works to be affected.

To avoid potential impacts on Cetti's warbler vegetation clearance works around the ditches and waterbodies on site will be undertaken outside of the species' breeding season which extends from March to August¹⁰, inclusive.

As an enhancement measure a single barn owl box (such as the Flat-pack Barn Owl Nest Box or similar (**Figure 5**)) is to be installed within a suitable location to the north. The barn owl box should be installed at a height of at least three metres. The water features proposed as part of central wetland have been designed to provide suitable habitat for Cetti's warbler, see Paragraphs 5.5 and 5.6 for further details.



Figure 5: Barn owl box

In addition, five bird nest boxes comprising three Vivara Pro Seville 32mm WoodStone Nest Box (or similar) (**Figure 6**) and two Vivara Pro Barcelona WoodStone Open Nest Box (or similar) (**Figure 7**) will be erected on retained trees at the site as per **Map 2**.

⁸ The UK's birds are split into three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995; are in severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period, or; subject to severe (at least 50%) contraction of UK breeding range over last 25 years, or longer-term period.

⁹ Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended) are afforded additional protection receive further protection making it an offence to: Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or; Intentionally or recklessly disturb the dependent young of any such bird.

¹⁰ Frances Le Sueur (1980) Some Cetti's Warbler breeding observations, Bird Study, 27:4, pgs. 249-253,



Figure 6: Vivara Pro Seville 32mm WoodStone Nest Box



Figure 7: Vivara Pro Barcelona WoodStone Open Nest Box

4.5 Reptiles

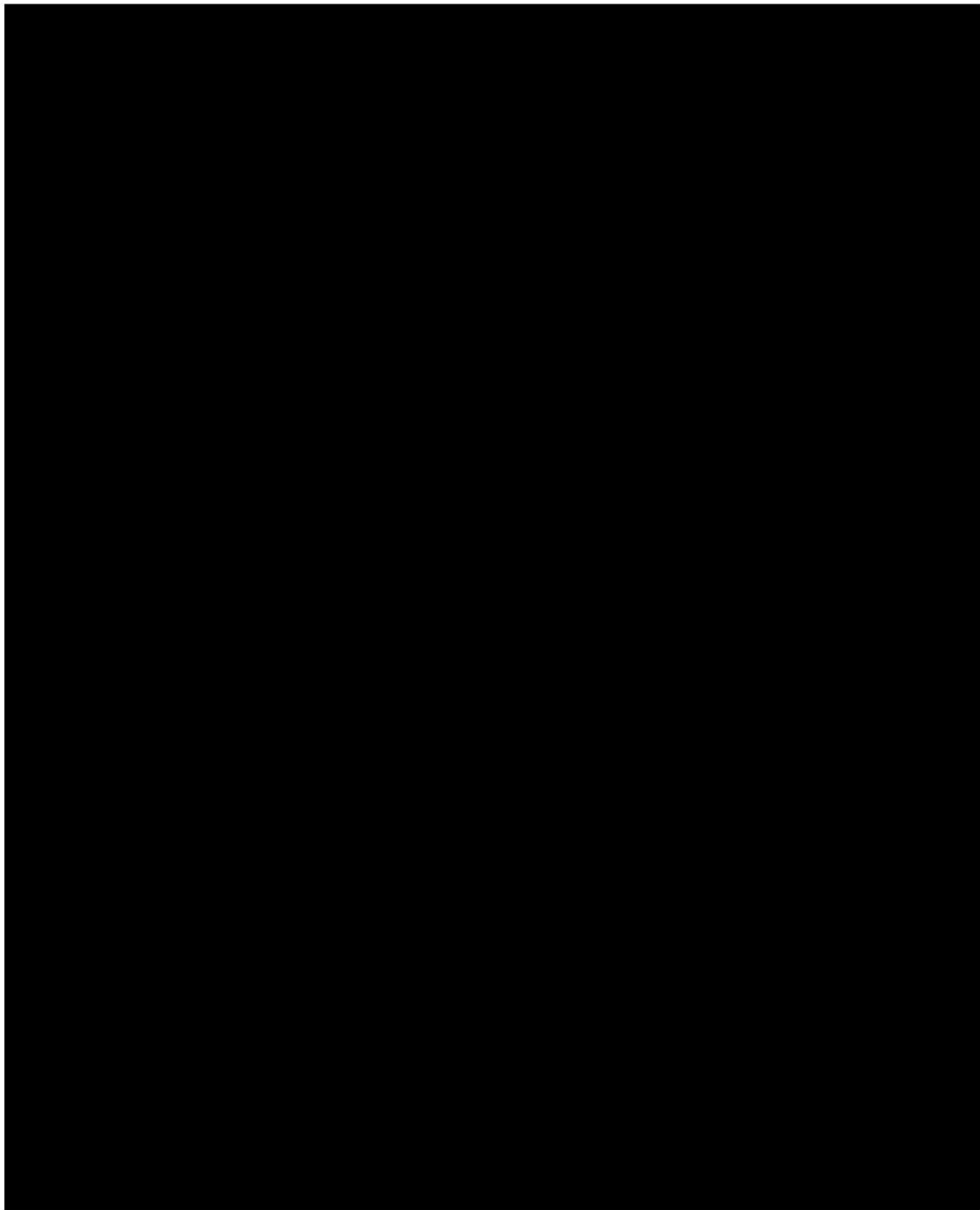
Reptile surveys were carried out across the wider by WYG Ecology during 2008² and 2014⁵. No reptiles were recorded within the central wetland area. Low populations of common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* were recorded in the wider site.

The site will be enhanced for reptiles through the management of grassland (paragraph 5.3.3 and 5.4.3) to leave a longer sward and the margins will be improved to provide better sheltering opportunities. As an enhancement measure, three log piles will be installed along the eastern and western edges of the site within suitable newly created scrub and other boundary vegetation (**Figure 8**). Log piles do not require regular maintenance but will be repaired / replaced if subject to damage/vandalism. The log piles will be constructed by an ecologist.



Figure 8: Log pile example

The grassland, parkland, wetland and interface between these habitats within the whole central wetland area will provide suitable habitat for common species of reptiles.



The northern bridge includes a single span structure with an arched bridge which will permit both aquatic and terrestrial animal movements.

4.7 Invertebrates

A Corsica Extra Large Bee and Insect Hotel (or similar) will be provided at the site (**Figure 10**) in the location shown on **Map 2**. This will deliver suitable nesting habitat for a range of invertebrates.



Figure 10: Corsica Extra Large Bee and Insect Hotel (or similar)

In addition, two stag beetle loggeries will be provided, these will follow the Peoples Trust for Endangered Species (PTES) 'Build a log pyramid for stag beetle'¹¹ design (**Figure 11**). The key design features are as follows (as taken from the PTES guide (PTES, 2025):

- Use wood from broadleaved trees
- All logs should be at least 10cm thick
- Logs should be placed in partial shade to prevent them drying out.
- Partially bury the logs and allow plants to grow over them.

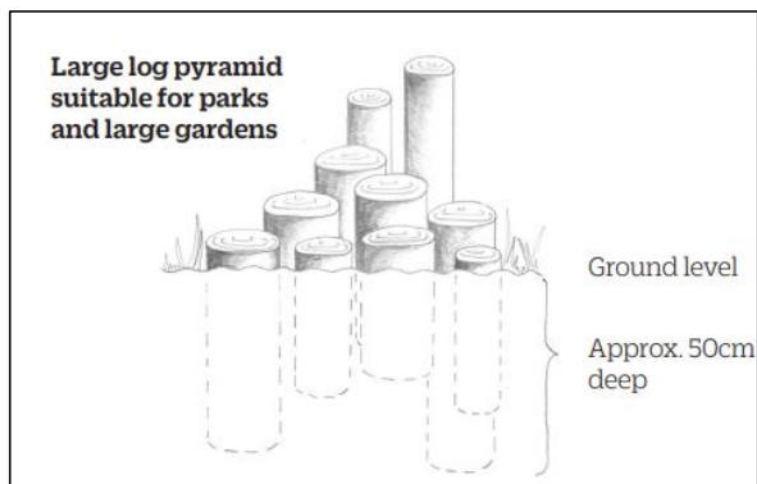


Figure 11: Stag Beetle Loggery Design

¹¹ [Build-a-log-pyramid-for-stag-beetles-with-video-link.pdf \(ptes.org\)](https://www.ptes.org/build-a-log-pyramid-for-stag-beetles-with-video-link.pdf)

5.0 HABITAT-SPECIFIC MANAGEMENT

5.1 Introduction

This section provides an overview of the habitat-specific management objectives and prescriptions for the site.

5.2 Native Trees and Shrubs

A number of native trees are present within the site, particularly to the north and within the central area. A number of trees within the centre of the site are to be retained and new tree planting introduced, with further details including the planting schedule found within **Appendix 2**.

5.2.1 Objectives

The specific objectives for native tree and shrub habitat are to:

- Protect all retained trees;
- To establish and maintain new tree and shrub planting.

5.2.2 Mitigation and Enhancement

Any trees not to be removed during construction will follow protective measures in line with BS 5837:2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*. This document outlines the use of tree protection barriers to be used for the duration of the construction phase. These barriers are proposed to shield the boundary vegetation from damage during construction.

A number of trees will be included within the site, these will comprise native species. Additional native species shown within the planting strategy in **Appendix 2** include:

- Dogwood *Cornus sanguinea*;
- Hazel *Corylus avellana*;
- Hawthorn *Crataegus monogyna*;
- Holly *Ilex aquifolium*;
- Honeysuckle *Ligustrum vulgare*;
- Blackthorn *Prunus spinosa*;
- Buckthorn *Rhamnus frangula*;
- Dog rose *Rosa canina*;
- Goat willow *Salix caprea*;
- Grey willow *Salix cinerea*;
- Elder *Sambucus nigra*;
- Yew *Taxus baccata*;
- Guelder rose *Viburnum opulus*;
- Field maple *Acer campestre*;
- Alder *Alnus glutinosa*;

- Silver birch *Betula pendula*;
- Cherry *Prunus avium*;
- Crab apple *Malus sylvestris*;
- Crack willow *Salix fragilis*;
- Pedunculate oak *Quercus robur*, and
- Rowan *Sorbus aucuparia*.

5.2.3 Management Prescriptions

The tree and shrub planting will be subject to management annually in order to maintain a dense bushy structure. Management works will be undertaken over winter (October to February) in order to avoid the nesting bird period.

Any plants dying within the first year will be replaced with matching species. Light, regular, trimming of the trees and shrubs in the first five years will encourage dense, bushy growth and is recommended. After five years, cutting will occur on a biennial basis (every two years) to provide a bushy habitat with suitability for a range of species including common breeding birds.

5.3 Seasonally Wet Grassland

Pre-development there were no areas of seasonally wet grassland present within the site, therefore management of retained areas of this habitat are not relevant.

5.3.1 Objectives

The specific objectives for seasonally wet grassland habitat are to:

- Increase ecological value of grassland habitats on site through creation of native species rich areas of planting; and
- Introduce a suitable management regime for grassland, in order to encourage herbaceous diversity and provide suitable habitat for a range of species.

5.3.2 Mitigation and Enhancement

The northern end of the central wetland area and banks of the standing water areas will comprise grassland and other herbaceous species subject to occasional flood events. There is likely to be natural colonisation of grassland plants from the Black Ditch and its associated floodplain to the north of the site. However, relying on natural colonisation throughout the site is unlikely to result in a diverse sward in the seasonally wet grassland.

Therefore, natural recolonisation will be augmented with an appropriate seed mixture such as Emorsgate EM8. This mix is suitable for seasonally wet soils, especially those that may flood for short periods in winter but are usually well drained in the summer.

Management Prescriptions

EM8 should be sown in September / October, alternatively in spring once the land has drained sufficiently. The seed must be surface sown and can be applied by machine. The soil will then be rolled to give good soil/seed contact.

After cultivation, dormant weed seeds will germinate, these should be sprayed off with a general purpose herbicide and harrowed. After a second germination of annual weeds, the site should be sprayed and harrowed again, now the ground should be ready for sowing. If annual weeds continue to germinate repeat the herbicide application and harrowing until the weeds diminish.

5.3.3 Management Prescriptions

The areas subject to management prescriptions for Seasonally Wet Grassland are shown on **Map 3**. In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing. No fertilizers are to be used on the grassland. The grassland will be managed at a longer sward so that it is suitable for reptiles.

The vegetation will not be cut from spring through to late July/August to give the sown species an opportunity to flower. After flowering in July or August a 'hay cut' will be taken with arisings removed.

In the event that the seasonally wet grassland fails to develop successfully a suitably qualified ecologist will be contacted to provide advice on remediation. Potential remediation might include:

- Altering the management regime.
- Amending the species mix based on site conditions e.g. if the grassland is drier than expected.
- Allowing the grassland to develop naturally, rather than attempting to resow another seed mix.

5.4 Meadow Grassland

Pre-development there were no areas of seasonally wet grassland present within the site, therefore management of retained areas of this habitat are not relevant.

5.4.1 Objectives

The specific objectives for meadow grassland habitat are to:

- Increase ecological value of grassland habitats on site through creation of native species rich areas of planting; and

- Introduce a suitable management regime for grassland, in order to encourage herbaceous diversity and provide suitable habitat for a range of species.

5.4.2 Mitigation and Enhancement

Areas of grassland associated with the parkland area and road embankments will comprise meadow grassland. The meadow grassland habitat will be sown with Emorsgate EM2 General Purpose Meadow Mixture (or similar).

5.4.3 Management Prescriptions

The areas subject to management prescriptions for Meadow Grassland are shown on **Map 3**. The overall objective of the grassland will be to provide a continued nectar source for invertebrates throughout the spring and summer.

Within the first year of grassland sowing areas will be mown regularly to a height of 40-60 millimetres. It is important when managing an area of wildflower that the (arising) cuttings will be removed to prevent the grassland from becoming enriched with nitrates from discarded arisings. This will deter vigorous weed species such as common nettle *Urtica dioica* and creeping thistle *Cirsium arvense* from colonising the flowering lawn. In the second and subsequent years post-grassland sowing mowing will not be undertaken from spring to late July/August to allow plants to flower.

In the event that the meadow grassland fails to develop successfully a suitably qualified ecologist will be contacted to provide advice on remediation. Potential remediation might include:

- Altering the management regime.
- Amending the species mix based on site conditions e.g. if the grassland is wetter than expected.
- Allowing the grassland to develop naturally, rather than attempting to resow another seed mix.

5.5 Standing Water

The existing standing water within the site will be filled and levelled. There are three proposed waterbodies with the central wetland area, these are designed to capture and hold water to create ponds as shown on the landscaping strategy (**Appendix 1**). During a visit in 2024 this channel held water and mute swan *Cygnus olor* were recorded swimming between the ponds north and south of the link road (**Figure 12**).



Figure 12: Mute swan moving between ponds north and south of the link road – October 2024

5.5.1 Objectives

The specific objectives for the standing water habitat are to:

- Increase ecological value of the central wetland through creation natural waterbodies with associated native aquatic vegetation
- Provide habitat for a range of species including Cetti's warbler and water vole.
- Provide a habitat linkage with the Black Ditch to the north.

5.5.2 Mitigation and Enhancement

The waterbodies will be designed with the following overarching characteristics which will provide habitat for a range of wildlife:

- Scalloped edges to increase habitat for invertebrates;
- Shallow marginal areas suitable for establishment of aquatic vegetation;
- Planting of marginal aquatics, reedbed and natural colonisation of waterbodies.
- No stocking of fish or crayfish; stocking with fish has detrimental impacts on amphibian populations; and
- The marginal areas of the waterbodies will be provided with an undulating landform, providing a variety of water depths to further add diversity.
- The depths of the waterbodies will be dependent on engineering constraints and seasonal variations in water levels, however in the period between November and March the larger waterbody will have a minimum depth of one metre and the two smaller waterbodies will have a minimum depth of 0.5 metres.
- The size of waterbodies is presented on the landscaping strategy as referenced as wetland areas in **Appendix 2**.
- The waterbodies will be checked and signed off by a suitably qualified ecologist post construction.

In its response to Version 5 of the CWA EMMP, Arun District Council stated that “...there is no certainty these basins (Ed: i.e., those within the CWA) will retain permanent water as required by the approved mitigation.” However, the waterbodies have been designed with a base level one metre below the surrounding constant ground level of the wider CWA. This ensures they will always contain some permanent water, with levels fluctuating seasonally in line with the specified design parameters. Such variation is typical of natural waterbodies, where drawdown zones play an important role in supporting biodiversity¹².



Figure 13: Standing water area after period of drought – August 2025



Figure 14: Standing water area after period of drought – August 2025

The waterbodies will be subject to a combination of planting and natural colonisation of aquatic plants. Information from the Freshwater Habitats Trust¹³ indicates that ponds not stocked with aquatic vegetation colonise rapidly. Indeed, the early successional stages of ponds provide valuable wildlife resources for a range of species. Given the location of Black Ditch to the north of the site it is likely that colonisation with aquatic plants will occur quickly.

The following native species will be planted in the standing water areas:

- Common reed *Phragmites australis*;
- Reedmace *Typha latifolia*;
- Reed sweet grass *Glyceria maxima*;
- Reed canary grass *Phalaris arundinacea*;
- Meadowsweet *Filipendula ulmaria*;
- Yellow flag iris *Iris pseudacorus*; and

¹² Freshwater Habitat Trust (no date) What makes a good wildlife pond? From: <https://content.freshwaterhabitats.org.uk/2015/10/What-makes-a-good-wildlife-pond.pdf?#:~:text=Vegetated%20drawdowns,with%20very%20different%20invertebrate%20communities>.

¹³ Freshwater Habitats Trust (2011) Aggregate Toolkit Sheet A2 - Pond Design Principles for Biodiversity Available from: www.freshwaterhabitats.org.uk/projects/million-ponds/

- Purple loosestrife *Lythrum salicaria*.

5.5.3 Management Prescriptions

It is possible that some vegetation clearance may be required on an occasional basis, the exact management prescription should be reviewed in the second year after creation of the ponds. If vegetation clearance is required then this work should be done outside of the nesting bird season which runs from March-August, inclusive.

5.6 Running Water

A central channel through the wetland will hold running water on a seasonal basis. This channel will be created through significant earthworks and will connect site to the Black Ditch to the north, providing suitable habitat for water vole and breeding birds.

5.6.1 Objectives

The specific objectives for the running water habitat are to:

- Increase ecological value of habitats on site through diversification; and
- Provide a habitat linkage with the Black Ditch to the north.

5.6.2 Mitigation and Enhancement

The central ditch running from the Black Ditch into the site will be newly created. The only mitigation required involves protection of retained trees and vegetation within the site (see Paragraph 5.2.2 for further details).

The central channel will be functionally linked to the Black Ditch in the north of the site and therefore will colonise naturally with the species present in this area. Where appropriate natural colonisation is preferable to planting.

5.6.3 Management Prescriptions

It is possible that some in channel clearance of vegetation may be required on an occasional basis, the exact management prescription should be reviewed in the second year after creation of the central channel. If vegetation clearance is required then this work should be done outside of the nesting bird season which runs from March-August, inclusive.

6.0 MONITORING AND REVIEW

A review of the mitigation and enhancement measures implemented will be undertaken by a suitably qualified ecologist following the completion of the development. Following the implementation of the proposed mitigation and enhancement measures, any necessary revisions to the Ecological Mitigation and Management Plan will be made.

It is proposed that the party responsible for implementation of this mitigation and management plan carry out regular *ad hoc* monitoring at the site to establish any obvious deviations or faults. A walkover will also be carried out by a suitably Qualified Ecologist to ascertain whether the habitat prescriptions are meeting their objectives. Where any issues are highlighted, a suitably qualified ecologist will be consulted for advice where necessary.

An integral part of the mitigation and management plan process will be a system of monitoring and a formal progress review. There will be a review meeting at the end of five years, post-completion, attended by the landowner and management contractor, to discuss the progress of the activities undertaken. This will enable issues to be identified and resolved where required. The meeting will take place to assess the effectiveness of the plan's aims, objectives and prescriptions.

The monitoring and review process will comprise a review report to include the following elements:

- Details of extent, timing and outcome of all works undertaken in the previous five years;
- Managing agent's assessment of effectiveness of works undertaken and the Ecological Mitigation and Management Plan as a whole; and
- Recommendations for next five year's management requirements.

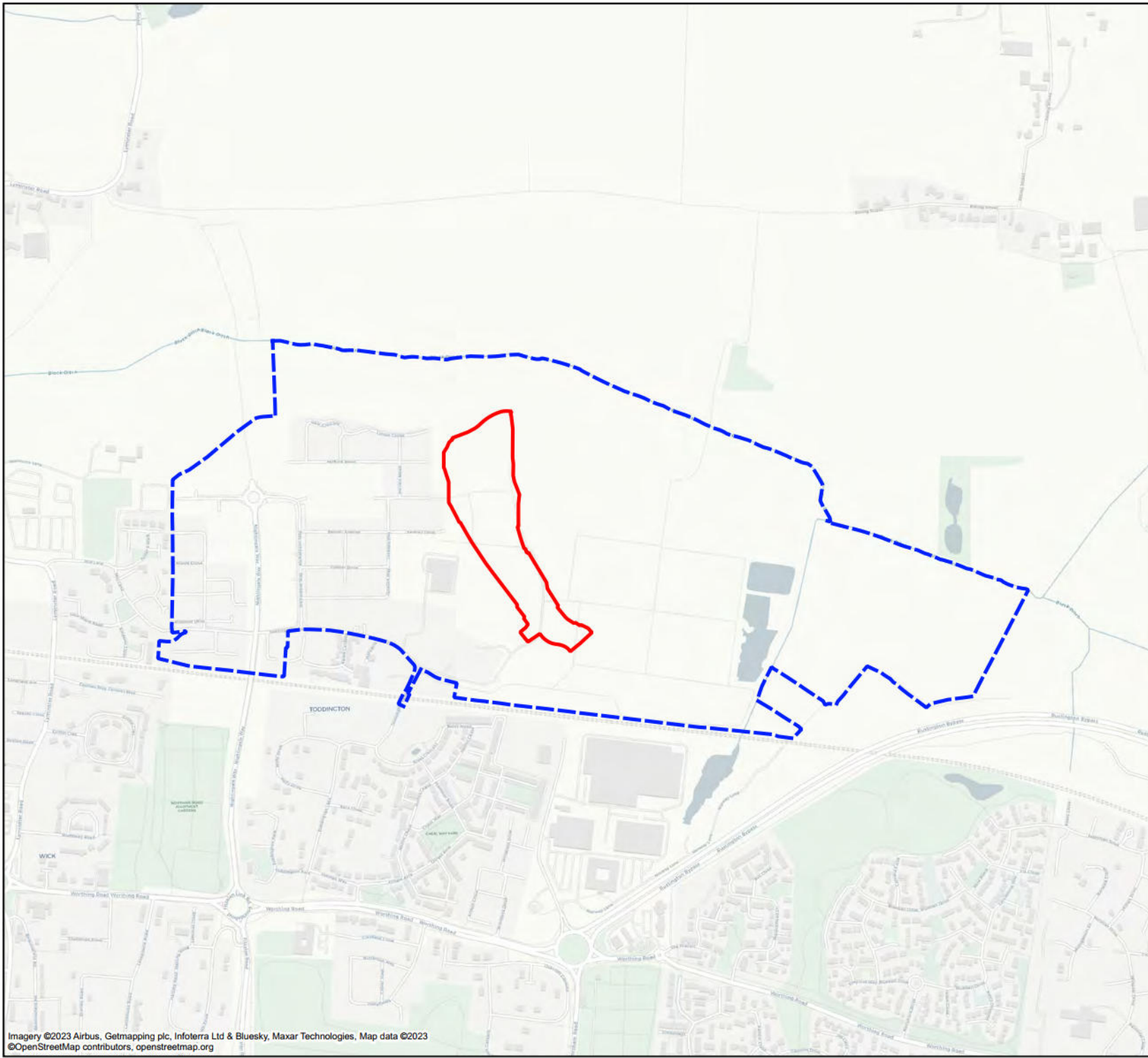
7.0 TIMETABLE OF MANAGEMENT AND MONITORING WORKS

Management Prescription		Paragraph Reference	Year ¹⁴											
			-1	0	1	2	3	4	5	6	7	8	9	10+
Pre-Construction	Inspection of waterbodies in the east of the site for evidence of water vole prior to filling and levelling work	4.2												
Construction Phase Mitigation and Enhancement	Protection of retained trees in accordance with BS 2012:5387	5.2.2												
	Vegetation clearance necessary to be undertaken outside of nesting bird season (March to August)	4.4												
	Erection of new bat boxes at the site	4.3												
	Erection of new bird boxes within the site, including barn owl box	4.4												
	Creation of log piles for reptiles	4.5												
		4.6												
	Creation of stag beetle loggeries and erection of insect hotel	4.7												
	New landscaping implemented at the site including new grassland seeding and tree and scrub planting and creation of water features	5.3, 5.4 and Appendix 1												
Habitat Management	Meadow grassland and seasonally wet grassland management (late summer / autumn), arisings removed	5.3.3 and 5.4.3												

¹⁴ The exact timescales for the construction of the development are unknown. For the purposes of this mitigation and management plan, construction works are referred to as “Year 0” with the mitigation and management plan covering subsequent years “Year 1 – 10”.

Management Prescription		Paragraph Reference	Year ¹⁴												
			-1	0	1	2	3	4	5	6	7	8	9	10+	
	Management of tree and scrub habitat to be undertaken outside of nesting bird season (March to August)	5.2.3													
	Waterbody management, as necessary (October to March)	5.5.3 and 5.6.3													
Monitoring and Progress Review	Walkover survey by Suitably Qualified Ecologist	6.0													
	<i>Ad hoc</i> monitoring by management contractors	6.0													
	Five-year management review	6.0													

Map 1 Site Location Plan



**NORTH LITTLEHAMPTON,
TODDINGTON LANE,
LITTLEHAMPTON, WEST SUSSEX**

**ECOLOGICAL MITGATION AND
MANAGEMENT PLAN**

Map 1 - Site Location Plan

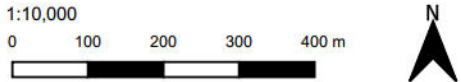
Client:	Persimmon Homes Thames Valley
Date:	July 2024
Status:	Draft

KEY

-  Site Boundary
-  Wider Ownership Boundary



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Prepared by: KM	Date: 300724
Last amended by: N/A	Date: N/A



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Map 2 Ecological Enhancements

NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL MITIGATION AND MANAGEMENT PLAN

Map 2 - Ecological Mitigation Features

Client:	Persimmon Homes Thames Valley
Date:	September 2024
Status:	Draft

KEY

- Site Boundary
- Barn Owl Box
- Corsica Extra Large Bee and Insect Hotel (or Similar)
- Log Pile
- Schwegler 1FF Bat Box or Similar
- Schwegler 2F Bat Box or Similar
- Stag Beetle Loggery
- Vivara Pro Barcelona WoodStone Open Nest Box (or similar)
- Vivara Pro Seville 32mm WoodStone Nest Box (or Similar)



1:2,500



Prepared by: KM	Date: 290524
Last amended by: N/A	Date: N/A

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Map 3 Grassland Management Areas



**NORTH LITTLEHAMPTON,
TODDINGTON LANE,
LITTLEHAMPTON, WEST SUSSEX**

**ECOLOGICAL MITIGATION AND
MANAGEMENT PLAN**

Map 3 – Grassland Management Areas

Client:	Persimmon Homes Thames Valley
Date:	October 2024
Status:	Final

KEY

- Site Boundary
- Meadow Grassland Management
- Wetland Areas, including ponds

Note:
Where non-grassland habitats are present within the areas highlighted within the grassland management polygons these will be managed as per the Ecological Management Plan.

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1:2,500

0 20 40 60 80 m

N

Prepared by: KM	Date: 040924
Last amended by: N/A	Date: N/A

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Appendix 1 Landscape Strategy

North Littlehampton: Central Wetland Area

Landscape Strategy LA.1



Key



Application area



SuDS Landscaping to be detailed up in future RM phase application

1



Wetland area: Pond to be created for interest and to increase the potential for species diversity. Pond to include aquatic plants, rushes and reeds. A footpath link at low level to be provided at the north with a boardwalk where appropriate. Tree and shrub planting provided at the edge of the development plateaux to allow for open uninterrupted views towards the north, to the hills within the National Park.

2



Parkland area: retained trees to be bolstered with new native tree and shrub planting, and hazel coppice, to create an area for informal recreation. Footpaths at low level to be provided with boardwalks where appropriate. Long grass / species rich grass and wildflowers to be established.

3



Open views provided across the wetland to the north and south from the bridge. Tree and shrub planting positioned strategically on the embankments, at both ends, to ensure that views from the bridge are maintained.

4



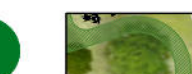
Tree planting positioned at the top of the bank, to provide an edge to the development and define the wetland area.

5



Existing trees to be retained

6



Large specimen native trees.

7



Native tree and shrub planting

8



3m wide shared asphalt path

0 10 20 30 40 50 100 metres

Scale 1:1,000 @ A1



TC22029_A088461-LA1-LA10[G].dwg

03 December 2025

Appendix 2 Planting Plan



Plant schedule

Trees					
Number	Abbreviation	Species	Specification	Girth	Height
33	Ac	Acer campestre	Selected standard: 2x: B	10-12cm	300-350cm
13	-	Agl	Alnus glutinosa	Multi stem: 3x: RB	250-300cm
9	-	Agl	Alnus glutinosa	Semi mature: 3x/4x: RB	20-25cm 550-600cm
15	-	BEPE	Betula pendula	Semi mature: 3x/4x: RB	20-25cm 550-600cm
19	-	BEPE	Betula pendula	Multi stem: 3x: RB	250-300cm
8	-	BEPE	Betula pendula	Selected standard: 2x: RB	10-12cm 300-350cm
7	-	MALSY	Malus sylvestris	2x: Standard; clear stem 175-200cm; 4 breaks; B	8-10cm 250-300cm
8	-	PRUAV	Prunus avium	3x; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; B	14-16cm 400-450cm
23	-	PRUAV	Prunus padus	3x; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; B	14-16cm 400-450cm
5	-	QUE ILE	Quercus ilex	3x; Extra Heavy Standard; clear stem 175-200cm; RB	18-20cm 450-500cm
6	-	Qr	Quercus robur	Extra heavy: 3x: RB	18-20cm 450-500cm
5	-	Qr	Quercus robur	Selected standard: 2x: RB	10-12cm 300-350cm
6	-	Sa	Salix alba	Extra heavy: 3x: B	16-18cm 400-450cm
1	-	Sa	Salix alba	Selected standard: 2x: B	10-12cm 300-350cm
5	-	SALFR	Salix fragilis	Selected standard: 2x: B	10-12cm 300-350cm
19	-	Sau	Sorbus aucuparia	Extra heavy: 3x: B	16-18cm 400-450cm
48	-	TcGS	Tilia cordata 'Green Spire'	Extra heavy :3x: RB	16-18cm 450-500cm

Shrubs

Number	Abbreviation	Species	Specification	Pot Size	Height	Density
54	-	CORAV	Corylus avellana	Branched; 4 breaks; C	10L	80-100cm Counted

Native mix

Number	Abbreviation	Species	Specification	Height	Pot Size	Density	Percentage Contribution
167	-	CORSA	Cornus sanguinea	1+1; Transplant - seed raised; branched; 3 breaks; B	60-80cm	1.25Cr	9%
130	-	Cav	Corylus avellana	1+2 or 1/1: B: Branched :B :3 brks	60-80cm	1.25Cr	7%
221	-	Cmo	Crataegus monogyna	1+1 or 1/1: B	60-80cm	1.25Cr	12%
130	-	Ia	Ilex aquifolium	Leader with laterals; C	60-80cm	3L	1.25Cr 7%
130	-	Lvu	Ligustrum vulgare	0/2; Cutting; branched; 3 breaks; B	60-80cm	1.25Cr	7%
130	-	PRUSP	Prunus spinosa	1+1 or 1/1: B: Branched :2 brks	60-80cm	1.25Cr	7%
94	-	RHAFR	Rhamnus frangula	1+1; Transplant - seed raised; leader with laterals; 3 breaks; B	60-80cm	1.25Cr	5%
94	-	ROSCA	Rosa canina	1+1; Transplant - seed raised; branched; 3 breaks; B	60-80cm	1.25Cr	5%
148	-	SACA	Salix caprea	0/1: B: Branched :2 brks	60-80cm	1.25Cr	9%
130	-	SLCI	Salix cinerea	0/1: B: Branched :2 brks	60-80cm	1.25Cr	7%
94	-	SALVI	Salix viminalis	1+0 or 1/0: B: Branched :B	30-40cm	1.25Cr	5%
148	-	SAMNI	Sambucus nigra	1+1 or 1/1: B: Branched :3brks	60-80cm	1.25Cr	8%
113	-	TAX BAC	Taxus baccata	Leaders; feathered to base; C	40-60cm	3L	1.25Cr 6%
130	-	VIBOP	Viburnum opulus	1+2 or 1/2: B: Branched :3 brks	60-80cm	1.25Cr	7%
Total :1859 -							

Note: Evergreen species and Rosa canina to be positioned on drier land

Native mix 2

Number	Abbreviation	Species	Specification	Density	Pot Size	Height	Percentage Contribution
97	-	Cav	Corylus avellana	1+2 or 1/2 :Branched :B :3 brks	1.25Cr	60-80cm	7%
164	-	EUOAL	Eucynymus alatus	Branched; 3 breaks; C	1.25Cr	3L	20-40cm 12%
97	-	Ia	Ilex aquifolium	Leader with laterals; C	1.25Cr	3L	60-80cm 7%
97	-	Lvu	Ligustrum vulgare	0/2; Cutting; branched; 3 breaks; B	1.25Cr	60-80cm	7%
164	-	POP ALB	Populus alba	0/1; Cutting; B	1.25Cr	60-80cm	12%
83	-	RHAFR	Rhamnus frangula	1+1; Transplant - seed raised; leader with laterals; 3 breaks; B	1.25Cr	60-80cm	6%
97	-	ROSCA	Rosa canina	1+1; Transplant - seed raised; branched; 3 breaks; B	1.25Cr	60-80cm	7%
110	-	SACA	Salix caprea	0/1: B: Branched :2brks	1.25Cr	60-80cm	8%
83	-	SALVI	Salix viminalis	1+0 or 1/0 :Branched :B	1.25Cr	30-40cm	6%
136	-	SAMNI	Sambucus nigra	1+1 or 1/1: B: Branched :3brks	1.25Cr	60-80cm	10%
83	-	TAX BAC	Taxus baccata	Leaders; feathered to base; C	1.25Cr	3L	40-60cm 6%
164	-	VIBOP	Viburnum opulus	1+2 or 1/2: B: Branched :3 brks	1.25Cr	60-80cm	12%
Total :1375 -							

Note: Evergreen species and Rosa canina to be positioned on drier land

Marginals

Number	Abbreviation	Species	Specification	Pot Size	Density	Percentage Contribution
356	-	CarObt	Carex otrubae	Full pot; Sept to April planting; British native-origin; C	1L	0.5Cr 30%
439	-	F.u	Filipendula ulmaria	Full pot; Sept to April planting; British native-origin; C	1L	0.45Cr 30%
294	-	IRIPS	Iris pseudacorus	Full pot; C	0.5L	0.45Cr 20%
371	-	Lsa	Lythrum salicaria	Full pot; C	0.5L	0.4Cr 20%
Total :1460 -						

Reedbed planting

Number	Abbreviation	Species	Specification	Pot Size	Density	Percentage Contribution
704	-	GLY VAR	Glyceria maxima 'Variegata'	Plug; established root 2-3 months minimum; Sept to April planting; British native-origin; 50cc min	1-1.5L	0.7Cr 25%
704	-	PHA ARU	Phalaris arundinacea	Full pot; Sept to April planting; British native-origin; C	1-1.5L	0.7Cr 25%
843	-	PHR	Phragmites	Full pot; June to Sept planting; British native-origin; C	1-1.5L	0.7Cr 30%
282	-	TYPLA	Typha latifolia	Full pot; C	1L	0.7Cr 10%
282	-	TYPMI	Typha minima	Full pot; C	1L	0.7Cr 10%
Total :2815 -						

S: Standard
SS: Selected Standard
HS: Heavy Standard
EHS: Extra Heavy Standard
SM: Semi Mature
Key Multi-Stem

- Existing Category A trees to be retained
- Existing Category B trees to be retained
- Existing Category C trees to be retained
- Root protection areas of existing trees
- Native tree and shrub planting: whips/transplants to be implemented from day 1.
- Native mix 2: tree and shrub planting: whips/transplants to be implemented from day 1.
- Proposed native tree planting: Standard/ Selected Standard/ Heavy Standard/ Extra Heavy Standard/ Semi-mature sizes/ Multi-stem to be implemented from day 1.
- Proposed species-rich grass/ natural regeneration: to be kept long and cut once a year
- Proposed species-rich grass: to be kept short and cut regularly throughout the year
- Grass reinforcement
- Hazel coppice
- Reed bed planting/ natural regeneration
- Marginal aquatics
- Bark mulch path through trees with stone edging. No dig through trees
- Pond to capture and hold water for interest
- Lighting columns
- Timber bench (9no. including along top edge of wetland)
- Bin (9no. including along top edge of wetland)
- Jupiter Play (or similar) Trunk Pile
- Jupiter Play (or similar) Stepping Stilts
- Boulders
- Protection to shared use path: 1.5m high post and 3 rail timber fence

Ecology note

Given that the land within the proposed central wetland largely comprised buildings and hardstanding with limited areas of vegetation which comprised managed grassland and scattered trees. The proposed landscaping scheme is considered to provide biodiversity net gain through the provision of biodiverse, native species habitats including: native tree and shrub planting, new native tree planting, species rich grassland to develop into a long sward length, reed bed planting and aquatic vegetation.

SCHOOL SITE
1.3Ha