

Gwent Europark, Magor

Biodiversity Management Plan

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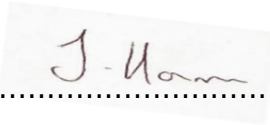
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Purpose

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Contents

1	Introduction	1
1.1	Purpose of Report	1
1.2	Site Description	1
1.3	Proposed Works	2
1.4	Ecological Background	2
1.4.1	Gwent Levels- Redwick and Llandevenny SSSI	2
1.4.2	Habitats	3
1.4.3	Bird Species- Nesting and Feeding	3
1.4.4	Foraging and Commuting Bats	3
1.4.5	Invertebrates	3
1.4.6	Amphibians	4
1.4.7	Dormice	4
1.4.8	Reptiles	4
1.4.9	Water Vole	4
1.4.10	Otter	4
1.4.11	Badger	5
2	Biodiversity Vision	6
2.1	Aim	6
2.2	Objectives	6
2.3	Limitations	6
3	Biodiversity Management Plan Details	7
3.1	OB1: Protect and enhance the reens associated with the Gwent Levels- Redwick and Llandevenny SSSI	7
3.2	OB2: Provide enhancement of remaining SSSI grassland habitats	7
3.3	OB3: Provide new nesting opportunities for bird species	9
3.4	OB4: Provide new roost features and foraging opportunities for common bat species	9
3.5	OB5: Provide habitat for terrestrial invertebrates	10
3.6	OB6: Provide enhancements for the amphibian populations of the site	10
3.7	OB7: Enhance the site to provide habitat for dormice	11
3.8	OB8: Maintain areas of habitat suitable for reptiles and enhance the site for hibernating reptiles	11
3.9	OB9: Provide biodiversity enhancement of the SuDS features proposed at the site.	12
4	Timeline for Implementation	13
A	Outline Surface Water Drainage Strategy	I
B	Construction Environmental Management Plan	II

List of Figures

Figure 1-1 – Site Location	2
Figure 1-2 Indicative Site Layout	Error! Bookmark not defined.
Figure 3-1 Biodiversity Enhancement Area	8
Figure 3-2 Hibernacula design (from The Great Crested Newt Mitigation Guidelines, English Nature, 2001)	12

List of Tables

Table 4.1 BMP Timeline	13
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Abbreviations

BMP	Biodiversity Management Plan
CEMP	Construction Environmental Management Plan
GCN	Great Crested Newt
IDD	Internal Drainage District
NRW	Natural Resources Wales
PEA	Preliminary Ecological Appraisal
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System

1 Introduction

1.1 Purpose of Report

This report has been prepared on behalf of CMF UK in relation to the proposed development of a series of industrial units at Gwent Europark, Magor, South Wales. JBA Consulting were commissioned to prepare a Biodiversity Management Plan (BMP) to cover the management of the site for five years' following completion of the works. Appendix B also provides recommendations for the protection and management of biodiversity during the works, this should be incorporated into the Construction Environmental Management Plan (CEMP).

The proposed development is being conducted over several phases. Planning permission for the development of the western part of the site has been granted previously subject to conditions relating to the protection and monitoring of the ditch and reen network on the site through Newport City Council.

In order to provide a comprehensive assessment of the proposed development this BMP covers all phases of the proposed development.

This report is based on the Preliminary Ecological Appraisal (PEA) (JBA Consulting 2025) and the Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b). The legislative basis for this plan is discussed in the and is not repeated here.

To address comments from NRW and the LPA on the PEA and Ditch and Reen Environmental Baseline and Monitoring Plan, this BMP will include all those measures determined to be necessary to avoid, mitigate and compensate for ecological impacts. It will also provide ecological enhancements and detail the required maintenance and monitoring regimes. The BMP will specifically detail the enhancement of remaining SSSI grassland habitats that are proposed, including the 7m buffer strips from the reens, and plans for the enhancement of the parcel of land located between the southern reen and the treeline. It also contains recommendations for the swales and attenuation lagoon of the detailed and outline drainage strategy (shown in Appendix A), which have been included to satisfy the requirement for the development to be served by Sustainable Drainage System (SuDS).

The plan does not preclude additional activities to enhance and maintain biodiversity on the site, and additional measures which come to light can either be incorporated into this plan or managed as additional enhancements.

This plan covers areas to be managed specifically for biodiversity and does not include the management of landscape features, which are incorporated into the Detailed Planting Scheme and Management Plan (Davies Landscape Architects, 2019).

1.2 Site Description

The site is greenfield in nature and is located in an industrial area approximately 2km west of Magor and approximately 3.5km north of the South Wales coastline, at the central grid reference ST 40533 86739. The boundary of the site is shown in Figure 1-1 below.

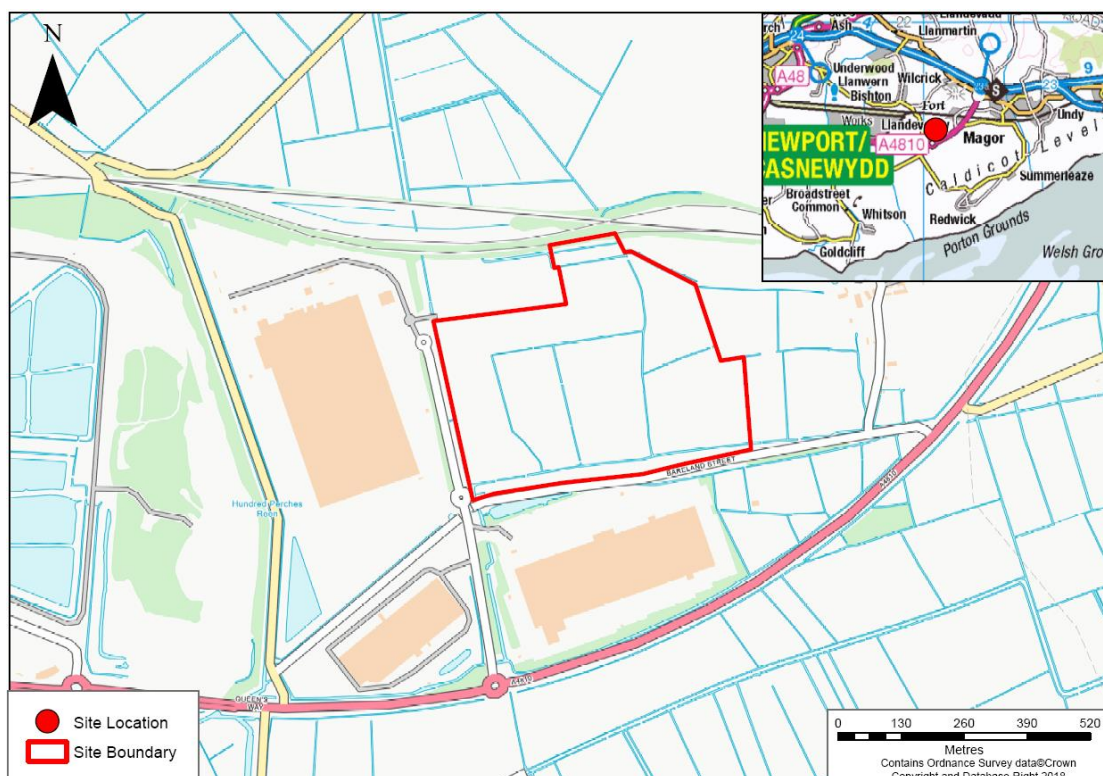


Figure 1-1 – Site Location

1.3 Proposed Works

Development proposals are for the construction of an industrial development (B1, B2 and B8 use) and associated access, parking and swales comprising of three main elements:

- Northern plot comprising of 9 industrial and one office starter units (838m² industrial & 330m² office)
- Central plot comprising of 2,100m² industrial unit o 1,120m² open storage areas
- Southern plot comprising of 4,600m² industrial unit

Combined the development provides a total of 7,538m² of industrial floorspace, 1,120m² of open storage space and 330m² of office floorspace.

1.4 Ecological Background

The ecological baseline survey completed as part of the PEA (JBA Consulting 2025) identified the following important ecological features on or adjacent to the site. The baseline information on these habitats and species is used to inform the proposed management and so is summarised here.

1.4.1 Gwent Levels- Redwick and Llandeenny SSSI

The Gwent Levels- Redwick and Llandeenny Site of Special Scientific Interest (SSSI) falls within the site. The levels are an area of reclaimed wet pasture and constitute the lowlands between Chepstow and Cardiff. They are drained by an ordered network of drainage ditches and reens, some of which cross the site. The large variety of reen types and their management regimes results in a rich plant assemblage and provides conditions for submerged species such as Hairlike Pondweed *Potamogeton trichoides* and Arrowhead *Sagittaria sagittifolia* to flourish. Aquatic invertebrate fauna is also very diverse across the Gwent Levels with nationally rare or notable species present such as *Haliphus mucronatus*

and *Hydrophilus piceus*. The Redwick and Llandeenny SSSI is a part of the wider Gwent Levels SSSI designation.

Magor Marsh is the last natural area of fenland on the Gwent Levels. It contains a variety of habitats including hay meadows, sedge fen, reedbeds, wet woodland, scrub, open water, and a network of reens and ditches.

The available baseline information on the SSSI site consists of quarterly ecological monitoring surveys of the reens dating between May 2005 and January 2007 (AMEC, 2007), this includes a freshwater invertebrate and macrophyte survey in September 2005 (AMEC, 2005), and aquatic invertebrate sampling surveys conducted in 2011 (Boyce, 2012). The surveys found the diversity of aquatic flora within the reens on site to be variable over the surveying period, this was attributed to management activities including bank cutting. The effect of dumping arisings from bank cutting into the reens was considered to have had a particularly detrimental effect on the communities of submerged macrophytes in the reens, by reducing dissolved oxygen levels in the water and increasing shading.

This BMP will be used to outline details for enhancements and future management to achieve that objective.

Impacts from construction pollution are considered below and a separate drainage strategy has been developed to avoid impacts from the development. A monitoring plan has been developed to check that there are no direct impacts to the reen network.

1.4.2 Habitats

Habitats currently present on the site include semi-improved neutral grassland, semi-natural broadleaved woodland, hedgerows, dense and scattered scrub, running water and a seasonally wet ditch. The majority of the terrestrial habitats on site have been assessed as being in poor condition, however, the mosaic of woodland, scrub and grassland, in combination with the reens have the potential to support a number of species. In order to compensate for the loss of terrestrial habitats, areas that are not being developed will be enhanced for biodiversity.

1.4.3 Bird Species- Nesting and Feeding

There is potential for the scrub, broadleaved trees, and hedgerow at the site to be utilised by nesting and foraging birds. The CEMP, contained in Appendix B, suggests the management of impacts on ecology and water quality during construction phases. This BMP aims to enhance the habitats for breeding birds upon completion of the works.

1.4.4 Foraging and Commuting Bats

There are no trees within the site that have potential roost features, and therefore there is currently no potential for the site to support roosting bats. The broad-leaved woodland, scrub, flowing water in the reens and semi-improved grassland habitats on site provide good foraging opportunities for bats. In addition, the reens and narrow strip of broad-leaved woodland to the south of the site provide corridors for commuting bats to move around the wider landscape.

1.4.5 Invertebrates

The works will result in the loss of habitats suitable for a number of terrestrial invertebrates. The wet meadows of the Gwent Levels are known to support local populations of the Shril Carder Bee *Bombus sylvarum*. Whilst the fields present in the site are heavily grazed and not in good condition, there is the potential for this species to be present. Provision for terrestrial invertebrates are included in the enhancements that are recommended in this BMP.

The reens are not considered to provide good habitat for the freshwater invertebrates associated with the SSSI in their current condition. There is the potential for the reens habitat to be enhanced for freshwater invertebrates associated with the SSSI, and this will be

reflected in this BMP. The associated Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b) includes provision for the monitoring of invertebrate populations in the reens after completion of the works.

1.4.6 Amphibians

Dense and scattered scrub habitats present on site provide good opportunities for foraging and sheltering amphibians. There is low potential for Great Crested Newt (GCN) *Triturus cristatus* on site within the reens, with a small amount of suitable wetland habitat present. Positive eDNA results were obtained for two separate reens/ wet ditches located approximately 200m and 300m to the south east of the scheme in 2015/16 (Welsh Government, 2016). Tests carried out in the south east corner of the development site at the same time provided negative results for GCN presence, however the full development site has not been surveyed.

There is potential for common and widespread amphibian species such as Common Frog *Rana temporaria* and Common Toad *Bufo bufo* to be present within the reens, broad-leaved woodland and scrub around the site.

1.4.7 Dormice

Generally, the site is considered to have low potential to support Hazel Dormouse *Muscardinus avellanarius*, the dense scrub within the site is separated from other areas of suitable habitat by reens and semi-improved grassland. However, the strip of broad-leaved woodland adjacent to Bareland Street at the south of the site is well connected to treelines and scrub in the wider area and may be used by Dormice. Dormice have been recorded in woodland located approximately 1.5km to the north west of the proposed development.

This document details actions to be taken during the construction phases to avoid impacts on this species and includes management actions to enhance the site for Dormice upon completion of the works.

1.4.8 Reptiles

Scattered scrub habitats present on site provide good opportunities for foraging and sheltering reptiles. No potential hibernacula were identified, however the areas of dense scrub to the western extent of the site were not accessible at the time of the survey and may contain suitable features for hibernation. This BMP details management actions to be taken to maintain and enhance the habitats present on site for reptiles.

1.4.9 Water Vole

Water Vole *Arvicola amphibius* are known to be present within the Gwent Levels SSSI and burrows have been observed on the banks of the reens within the site (JBA Consulting, 2020a and JBA Consulting 2025). The reens will not be impacted upon by the proposed works and the accompanying CEMP provides details of the minimum buffer zone of 7m from all of the reens on site. No works will occur within this buffer zone. The enhancement measures detailed in this BMP for the reens within the SSSI will also provide benefits to the Water Vole population.

1.4.10 Otter

Whilst no signs of Otter *Lutra lutra* have been observed on the site it is considered possible that the reens are used by commuting and foraging Otter as part of a wider territory. The accompanying CEMP table details measures to be taken during the construction works to avoid impacts on this species. The enhancement measures detailed in this BMP for the reens within the SSSI will also provide benefits to the Otter population.

1.4.11 Badger

It is considered unlikely that Badgers *Meles meles* will be encountered on site, as no setts were identified in the vicinity (JBA Consulting, 2020a). The accompanying CEMP details general avoidance measures to be taken throughout the construction works to avoid potential impacts on this species.

2 Biodiversity Vision

2.1 Aim

The plan is based around a site in which biodiversity co-exists with the regular uses of the site and enhances the value and sense of importance of the site.

The plan is designed to avoid, as far as possible, any conflicts between the intended site use and the biodiversity present.

2.2 Objectives

The aims of this plan will be fulfilled using the following objectives:

- OB1: Protect and enhance the reens associated with the Gwent Levels- Redwick and Llandeenny SSSI
- OB2: Provide enhancement of remaining SSSI grassland habitats
- OB3: Provide new nesting opportunities for bird species
- OB4: Provide new roost features and foraging opportunities for common bat species
- OB5: Enhance the site to provide habitat for terrestrial invertebrates
- OB6: Provide enhancements for the amphibian populations of the site
- OB7: Enhance the site to provide habitat for dormice
- OB8: Maintain areas of habitat suitable for reptiles and enhance the site for hibernating reptiles
- OB9: Provide biodiversity enhancement of the SuDS features proposed at the site.

2.3 Limitations

This BMP is based on the Indicative Masterplan as shown in Appendix A, should the plans for the site change significantly especially in relation to the proposed enhancement area, this management plan should be revised accordingly.

Further changes may also take place during the construction process. This plan should therefore also be reviewed following construction, prior to implementation. This will ensure the measures in the plan are necessary and sufficient to achieve the aims and objectives of the plan.

3 Biodiversity Management Plan Details

3.1 OB1: Protect and enhance the reens associated with the Gwent Levels-Redwick and Llandeenny SSSI

Rationale: The reens will be protected throughout the construction works through the implementation of buffer zones around each reen, which are detailed in the proposed ecology and water quality monitoring sections of the CEMP, contained in Appendix B. Therefore, upon completion of the works the reens will remain in their present condition with potential to be considerably enhanced for biodiversity. All of the main reens within the site are currently actively managed by NRW acting as the internal drainage district (IDD). Therefore, the reens within the developed area of the site will remain under the management of the IDD post-construction with access for maintenance retained.

It is recommended that vegetation is cut back to ground level in year 1, making sure to remove all arisings. 'Hay' cuttings from the other reens can be added and it can then be left to develop. This has the potential to bring about improvements in species diversity allowing the natural seedbank to germinate.

Management Plan

Action	Frequency and Timing	Responsibility
1a. Stop all grazing of the reens and prevent further deterioration in the reens condition from poaching	Throughout management plan period	Developer and construction contractor
1b. Continued management of main reens with rotational cuts. Year 1 vegetation cut to ground level		NRW/IDD

3.2 OB2: Provide enhancement of remaining SSSI grassland habitats

Rationale: As the majority of terrestrial habitats on the site will be permanently lost through the development there is a requirement to improve other existing habitats or create additional habitats to compensate this loss. The southern strip of the site between Bareland Street Reen and the woodland consists of approximately 1.68 Ha and will be used as a biodiversity enhancement area. This area of land is shown in Figure 3-1. It is currently comprised of semi-improved neutral grassland with a low sward diversity dominated by *Deschampsia sp.*, Common Dandelion *Taraxacum officinale* and Marsh Thistle *Cirsium palustre*. This provides opportunities for the grassland to be enhanced with a wildflower mix.

The current species-poor semi-improved grassland within the enhancement area should be sown with a wildflower mix. The composition of this should be agreed with NRW to match the target species within the SSSI.

Furthermore, it is recommended that this area is managed through low intensity grazing with cattle in the autumn months. This will allow a natural sward to develop and control the development of scrub within the site.

Clean site won material can also be added to this area to increase the topographic heterogeneity. This should be agreed by an ecologist prior to placement.



Figure 3-1 Biodiversity Enhancement Area

Management Plan

Action	Frequency and Timing	Responsibility
2a. Enhance grassland within biodiversity enhancement area by sowing with wildflower mix	Sow in autumn or spring in the first year after completion of construction In the first year mow the newly sown areas regularly in the year of establishment to a height of 40-60mm to control annual weeds After this the grassland should 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 take a 'hay cut': cut back with a scythe, petrol trimmer or tractor mower to around 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site. The site should then be managed through grazing.	Maintenance contractor.

2b. Add site won spoil to increase topographic heterogeneity	During the construction works.	Construction contractor with input from ecologist.
2c. Grazing of the site by 3no cattle in the Autumn months	Once a year from September to December	Maintenance contractor. Agreement with local farmer needs to be put in place.

3.3 OB3: Provide new nesting opportunities for bird species

Rationale: There will be some loss of nesting habitat for common bird species during construction. The provision of new nesting sites will be made during construction. These new sites will need a small amount of monitoring and maintenance to prevent a build-up of nest parasites and ensure they continue to be used regularly.

It is recommended that a minimum of 20 no. bird boxes are installed. Recommended bird boxes include:

- Cedarwood sparrow terrace (installed onto the buildings)
- Schwegler 1b bird box
- Schwegler roundhouse wren box 1ZA
- Schwegler 2H open-fronted robin box

Management Plan

Action	Frequency and Timing	Responsibility
3a. Monitor nest boxes for damage and replace as necessary	Annually in late Autumn (October or November)	Maintenance contractor

3.4 OB4: Provide new roost features and foraging opportunities for common bat species

Rationale: The biodiversity enhancement area to the south of the site already supports semi-improved grassland and broadleaved woodland which are likely to provide foraging opportunities for bat species. As detailed in OB2 this area will be enhanced once the construction works are completed through sowing of wildflowers. These enhancements will benefit bats by attracting more flying insects and providing additional foraging areas.

It should be ensured that there is no light spill over this area from the development.

As a site enhancement there will be provision of bat boxes on suitable trees in the southern enhancement area to provide new roosting opportunities for bats. If in use by bats, these boxes can only be maintained and inspected by a licenced ecologist. It is recommended that the local bat group is approached with a view to them including this site in their monitoring regime.

It is recommended that a minimum of 10 no. bat boxes are installed. Recommended bat boxes are:

- Schwegler 2F bat box
- Schwegler 1FD bat box
- 1FW bat hibernation box

Management Plan

Action	Frequency and Timing	Responsibility
4a. Check bat boxes for signs of use and clean or re-position as necessary	Annually in Autumn	Licenced bat ecologist (approach Gwent Bat Group)

3.5 OB5: Provide habitat for terrestrial invertebrates

Rationale: The habitats that will be lost on site are likely to support a wide range of common and widespread species of terrestrial invertebrates, the enhancement area to the south of the site should be used to provide suitable habitats for these species in the form of species rich grassland (as detailed in OB2). As well as providing additional habitat for species that require areas of bare ground.

The priority species Shrill Carder Bee is present in the area, with the Gwent Levels known to be a stronghold for the species. It is important that the development provides habitat enhancements for this species, which build nests on the ground or just below the surface in tall or tussocky grassland. Enhancements recommended in the above sections, including a grazing regime and the incorporation of site won material, has the potential to increase the habitat quality for this species and provide potential nest sites for Shrill Carder Bee.

Small log piles should be created within the enhancement area to the south of the site to provide areas of shelter for terrestrial invertebrates.

Management Plan

Action	Frequency and Timing	Responsibility
5a. Leave some grassland areas uncut each year to provide habitat diversity for terrestrial invertebrates	As necessary	Maintenance contractor
5b. Create 'bee banks' within grassland with the addition of sandy soil that can be placed in bunds	Created during construction	Construction contractor
5c. Creation of at least two small log piles containing a range of sizes of woody material including smaller sticks	Install with any left-over woody material from the site clearance works and leave in place	Maintenance contractor

3.6 OB6: Provide enhancements for the amphibian populations of the site

Rationale: As the semi-improved grassland and scrub habitats within the site currently provide habitat suitable for use by common species of amphibians, habitat areas need to be maintained that are suitable for this purpose.

Careful management of marginal areas around the reens and the provision of habitat in the enhancement area to the south of the development should allow amphibians to persist once the development of the site has finished.

The provision of hibernacula for amphibians is also important to give them a suitable environment to hibernate in on site.

Management Plan

Action	Frequency and Timing	Responsibility
6a. Leave some grassland areas uncut each year to provide habitat diversity for reptiles	As necessary	Maintenance contractor

6b. Creation of at least two log piles for use as amphibian hibernacula (would also be suitable for use by reptiles)	Install with any left-over woody material from the site clearance works and leave in place	Maintenance contractor
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3.7 **OB7: Enhance the site to provide habitat for dormice**

Rationale: Dormice have been recorded approximately 1500m to the north west of the site. The area of semi-natural broadleaved woodland to the south of the site is connected to this area, currently providing suitable foraging habitat for dormice, and will not be impacted by the works. Dormice nest boxes can be added to this area. It is recommended that a minimum of 10 boxes are installed, a number of manufacturers provide similar boxes but as a guide they should have minimum dimensions

- Height: 21cm
- Width: 13cm
- Depth: 15cm

Management Plan

Action	Frequency and Timing	Responsibility
7a. Install 10 no Dormouse nest boxes	Monitor yearly	Engage local group to monitor.

3.8 **OB8: Maintain areas of habitat suitable for reptiles and enhance the site for hibernating reptiles**

Rationale: As the semi-improved grassland and scrub habitats within the site currently provide habitat suitable for use by common species of reptiles, habitat areas need to be maintained that are suitable for this purpose. Careful management of marginal areas around the reens and the provision of habitat in the enhancement area to the south of the development should allow reptiles to persist once the development of the site has finished.

The creation of compost heaps is particularly important. They provide breeding sites for both Grass Snakes and Slow Worms. Arisings from grassland cuts should be raked into piles within the southern enhancement area as well as along the access strips adjacent to the reens. Locations of piles should be varied to avoid excessive nutrient enrichment.

The provision of hibernacula for reptiles is also important to give them a suitable environment to hibernate in on site. Log, rock and stone piles designed to create suitable conditions for reptiles and amphibians to hibernate can be placed around the site. An example for the design of a hibernacula is provided Figure 3-2.

Management Plan

Action	Frequency and Timing	Responsibility
8a. Create and maintain compost heaps	As needed – grass cuttings can be raked into piles and left in place	Maintenance contractor
8b. Leave some grassland areas uncut each year to provide habitat diversity for reptiles	As necessary	Maintenance contractor
8c. Creation of at least two log piles for use as reptile hibernacula	Install with any left-over woody material from the site	Maintenance contractor

(would also be suitable for use by amphibians)	clearance works and leave in place	
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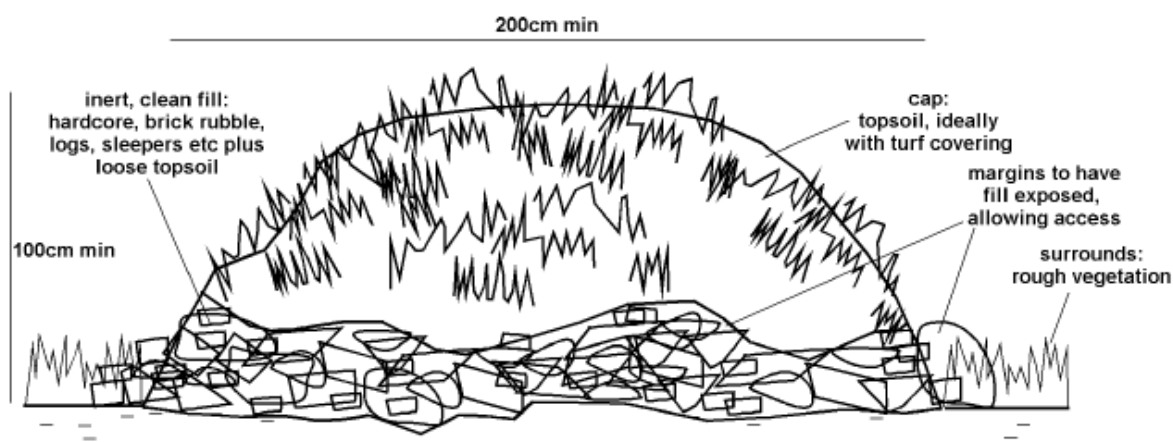


Figure 3-2 Hibernacula design (from The Great Crested Newt Mitigation Guidelines, English Nature, 2001)

3.9 OB9: Provide biodiversity enhancement of the SuDS features proposed at the site.

The SuDS features present the opportunity to create marshy grassland with features of value for invertebrates, bats, birds and reptiles. During construction it is expected that the areas will be landscaped and sown with a wildflower-rich seed mix, the composition should be agreed with NRW. It is also expected that a dedicated compost heap will be installed in a number of these areas. The management is based on maintaining the biodiversity of these features.

Management Plan

Action	Frequency and timing	Responsibility
9a. The wildflower grassland should be cut twice a year and at least some of the arising added to a designated compost heap	Annually in July/August and September/October	Maintenance contractor
9b. The wildflower component of the mixture should be monitored, and additional seeding used to enhance the area if needed	Annually in July/August (prior to first cut)	Ecologist

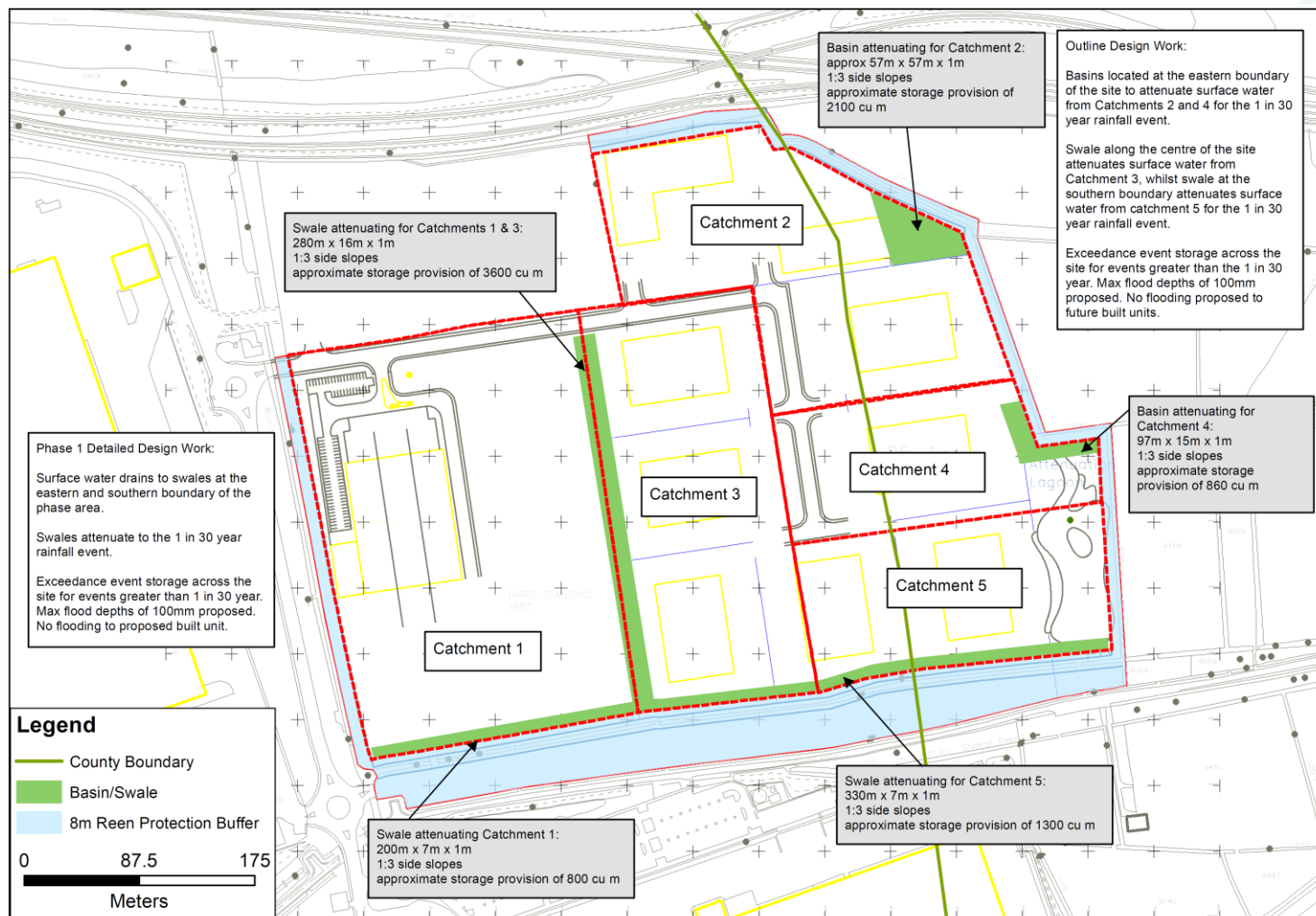
4 Timeline for Implementation

Table 4.1 shows the anticipated timings of the works for each of the five years of this plan, following completion of the construction phase. More specific timings will be established once the maintenance contractor for the scheme has been appointed. This table provides a clear and concise view of all of the actions set out in this BMP, using the action reference numbers given in Section 3. A tick and cross system is used to indicate whether that action should or shouldn't be completed that year. Where appropriate, a more detailed timeframe is given within each year. Where actions are repeated in Section 3, because they benefit multiple biodiversity receptors, they have been grouped together.

Table 4.1 BMP Timeline

Action Ref.	Year 1	Year 2	Year 3	Year 4	Year 5
1a.	✓	✓	✓	✓	✓
1b. 4b.	✓ late summer or spring	✗	✗	✓	✗
2a. 5c.	✓ autumn or spring	✓ Mow regularly	✓ August	✓ August	✓ August
2b. 4a. 7a.	✓	✗	✗	✗	✗
3a.	✓ late autumn	✓ late autumn	✓ late autumn	✓ late autumn	✓ late autumn
4c.	✓ late autumn	✓ late autumn	✓ late autumn	✓ late autumn	✓ late autumn
5a. 6a. 8b.	✓	✓	✓	✓	✓
5b.	✓	✗	✓	✗	✓
5d.	✓	✗	✗	✗	✗
6b.	✓	✗	✗	✗	✗
7b.	✗	✓ Winter	✗	✓ winter	✗
8a.	✓	✓	✓	✓	✓
8c.	✓	✗	✗	✗	✗

Appendix A Outline Surface Water Drainage Strategy



B Construction Environmental Management Plan

Below are the biodiversity actions that should be incorporated into a full CEMP. The following proforma should be used by the Construction Contractor's appointed ECoW to develop and maintain a CEMP for the duration of the construction works.

Ref.	Objective	Action	Responsibility	Further Info.	Progress and Further Action	Sign off and Date
Pre-Construction						
Consents						
PC.1.1	Obtain Planning Permission from Monmouthshire County Council (MCC)	Ensure any environment related planning conditions are discharged prior to the start of construction. Incorporate relevant planning conditions into the CEMP.	Developer, Construction Contractor and ECoW	Planning Decision Statement (once obtained)		
PC.1.2	Obtain an Environmental Permit from NRW	An environmental permit may be required to ensure that measures are taken to minimise the risk of flooding and marine pollution. Any measures to prevent pollution from fuels would need to be detailed incorporating principles of NRW's Pollution Prevention Guidance.	Construction Contractor	https://naturalresource.s.wales/permits-and-permissions/environmental-permits/?lang=en		
PC.1.3	Establish works specification	Detailed method statements must be prepared and accepted by the client two weeks before works commence.	Construction Contractor	N/A		
PC.1.4	Confirm site boundaries for each phase of the works	The working areas for each phase of the works must be clearly delineated and signposted before works commence on that phase.	Construction Contractor	N/A		
Ecological Receptors						
PC.2.1	Avoid impacts on wildlife	An Environmental Clerk of Works (ECoW) should be appointed to oversee the construction stage. The Construction Contractor shall ensure that site staff are fully briefed on this CEMP.	Developer or Construction Contractor			
PC.2.2	Complete required ecological monitoring in	An aquatic macrophyte and aquatic invertebrate survey is to be undertaken	ECoW	Full details of the surveys can be found		

	relation to the SSSI	immediately before (within a maximum of 1 week prior to) the start of construction.		here: Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b)		
PC.2.3	Establish required buffer zones around reens to minimise impacts to the SSSI	7m wide buffer strips will be established around each reen, before materials or machinery are brought to site. These areas will be signed and fenced off with no access by site operatives permitted.	Construction Contractor and ECoW	Buffer zones shown in Indicative Masterplan (Richard Andrews Architects, 2018).		
PC.2.4	Avoid impacts on breeding birds during any pre-construction vegetation clearance	Any clearance of vegetation required to permit works and access should be carried out outside of the bird breeding season (i.e. avoiding March to September inclusive) if possible. If works are proposed during the bird breeding season, or if following initial clearance, it becomes apparent that further de-vegetation is necessary during the bird breeding season, an experienced ecologist should first check all areas for the presence of nesting birds. Should any nests be found they should have an exclusion zone put in place to safeguard the nests until the chicks have fledged.	Construction Contractor and ECoW	N/A		
PC.2.5	Avoid impacts on reptiles during any pre-construction vegetation clearance	It is understood that the site will be cleared in phases. The ECoW should be present during the pre-construction vegetation clearance for each phase to ensure that reptiles are moving away from disturbance of their own accord. If a large population of reptiles is discovered vegetation clearance will need to be paused until a reptile translocation has taken place to move the reptiles to the southern part of the site that will remain undeveloped.	Construction Contractor and ECoW	N/A		
PC.2.6	Avoid impacts on dormice	The ECoW should be present during the pre-construction vegetation clearance for each phase to check no Dormouse nests are harmed. In the unlikely event a Dormouse or a nest is discovered, works must stop immediately until a licence has been granted and suitable mitigation	Construction Contractor and ECoW	N/A		

		instated.				
PC.2.7	Avoid impacts on Water Vole	Buffer zones of a minimum of 7m around each reed will be enforced during pre-construction site clearance works, to ensure the reeds are not impacted by the proposed works. Areas to be cleared in close proximity to these buffer zones should first be checked by the ECoW for evidence of Water Vole burrows.	Construction Contractor and ECoW	N/A		
PC.2.8	Avoid the spread of Invasive Non-native Species (INNS)	INNS may be present within the dense scrub in the phase 1 area of the site. The ECoW should be present during the pre-construction vegetation clearance to identify any potential INNS present. If any INNS are found works should be paused whilst the appropriate biosecurity measures are implemented, this may involve fencing off the area where the INNS is present and having a specialist contractor implement a management plan. The check-clean-dry protocol should be followed throughout the pre-construction vegetation clearance works to ensure no spread of INNS from off-site sources.	Construction Contractor and ECoW	http://www.nonnativespecies.org/checkcleanandry/index.cfm?dm_i=3X SU,DK50,1EVGO1,1FC RV,1		
During Construction						
Ecological Receptors						
DC.2.1	Continue required ecological monitoring in relation to the SSSI	Aquatic macrophyte and invertebrate surveys to be repeated at quarterly intervals throughout the construction programme.	ECoW	Full details of the surveys can be found here: Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b)		
DC.2.2	Continue required water quality monitoring in relation to the SSSI	Aquatic macrophyte and invertebrate surveys to be repeated at quarterly intervals throughout the construction programme.	ECoW	Full details of the surveys can be found here: Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b)		

DC.2.3	Maintain buffer zones around reens to minimise impacts on the SSSI	The 7m wide buffer strips around the reens must be maintained throughout the construction phases. These buffer areas must be regarded as sacrosanct and must not be removed, used for storage or any access permitted within them during construction (with the exception of the ECoW conducting monitoring surveys or for other ecological/environmental purposes).	Construction Contractor and ECoW	Buffer zones shown in Indicative Masterplan (Richard Andrews Architects, 2018).		
DC.2.4	Ensure no harm comes to wildlife	The construction contractor must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled. Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped. Any trenches or excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be used to allow animals to escape. If a Badger is discovered on site, works should cease, and an ecologist should be notified immediately, to determine the appropriate next steps. In the unlikely event that a GCN is found on site at any stage of the works, all works should cease, and an ecologist should be notified immediately. A European Protected Species Licence (EPSL) will need to be sought in this instance.	Construction Contractor	JBA Baseline surveys 2019s0501-JBAU-XX-XX-RP-EN-0001-A1-C03-Environmental Baseline		
DC.2.5	Avoid impacts on Water Vole and Otter	The 7m wide buffer strips around the reens must be maintained throughout the construction phases. Measures will be undertaken to reduce risks of pollution and run-off following CIRIA Guidance: Control of water pollution from construction sites, Guidance for consultants and contractors. Further details of the actions required are detailed	Construction Contractor and ECoW	https://www.ciria.org/Resources/All_toolbox_talks/Env_toolbox_talks/Working_on_or_near_watercourses.aspx		

		in DC.3.1 below. Any excavations should be covered when works are not active, to avoid the accidental trapping of Otters at night.				
DC.2.6	Avoid the spread of Invasive Non-native Species (INNS)	The check-clean-dry protocol should be followed throughout the construction works during every phase to ensure there is no spread of INNS from off-site sources. The ECoW should maintain vigilance for any imported INNS during the construction phase.	Construction Contractor and ECoW	http://www.nonnativespecies.org/checkcleandry/index.cfm?dm_i=3X SU,DK50,1EVGO1,1FC RV,1		
Water Environment Receptors						
DC.3.1	Avoid pollution of waterbodies	Measures would be undertaken to reduce risks of pollution and run-off following CIRIA Guidance: Control of water pollution from construction sites, Guidance for consultants and contractors. This will include the 7m buffer from all reens. Any fuel stores will be located on impermeable bases within a secured bund with a storage capacity 100% of the stored volume. Biodegradable fuels should be used if possible. Refuelling of vehicles should be carried out >10m from any watercourse. All machinery and site materials will be stored in a securely fenced construction compound at least 10m away from the riverbank. Emergency spill kits will be available on site and staff trained in their use. Working areas to be clearly marked and regularly checked by the ECoW. If herbicides are used, they must not be harmful to the aquatic environment. Silt management measures to be implemented to minimise, as far as is practical, the discharge of silt into watercourses. This may include the early construction of the swales/lagoons and the use of hay bales to trap sediment close to the works areas.	Construction Contractor and ECoW	NRW Guidance for Pollution Prevention: https://naturalresources.wales/guidance-and-advice/environmental-topics/watermanagement-and-quality/water-quality/guidance-for-pollution-prevention/?lang=en https://www.ciria.org/Resources/All_toolbox_talks/Env_toolbox_talks/Working_on_or_near_watercourses.aspx		
Post-Construction						

Ecological Receptors						
PC.1.1	Adhere to ecological monitoring requirements in relation to the SSSI	Aquatic macrophyte and invertebrate surveys will be undertaken one immediately post-construction and on an annual basis for 2 years following completion of construction.	ECow	Full details of the surveys can be found here: Ditch and Reen Environmental Baseline and Monitoring Plan (JBA Consulting, 2020b)		
PC.1.2	Continue required water quality monitoring in relation to the SSSI	Aquatic macrophyte and invertebrate surveys to be repeated at quarterly intervals throughout the construction programme.	ECow	Full details of the surveys can be found here:		
PC.1.3	Fully implement the BMP					

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