Brooks Ecological

Grounded advice

Biodiversity Enhancement Management Plan

Interchange 26, Phase 2 — Former Sewage Works, North Bierley

Tungsten Properties

ER-5146-01.1

December 2020

Report Reference:	Biodiversity Enhancement Management Plan Interchange 26, Phase 2 — Former Sewage Works, North Bierley
Report Reference:	ER-5146-01.1
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Date	10.12.2020

The information which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report does not constitute legal advice.

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Introduction

This Biodiversity Enhancement Management Plan (BEMP) is produced for Tungsten Properties Ltd to show how biodiversity has been designed into their proposed development at the site known as Interchange 26 Phase 2, a former sewage works at North Bierley, Oakenshaw, West Yorkshire (SE 180 274).

The BEMP is produced in accordance with Chapter 11 of British Standard 42020. Reports which set out how wildlife interests will be enhanced, restored and maintained go under a variety of names, generated by the planning case officer or their internal consultant. This BEMP is the equivalent of 'Biodiversity Management Plans' (BMPs), a term referenced in BS42020 Clause D.4.5.

In producing this plan, the following information sources are referred to:

- **Preliminary Ecological Appraisal. Brooks Ecological R-1623-01. September 2013.**
- **Environmental Statement. Land at North Bierley Waste Water Treatment Works, Oakenshaw. July 2016.**
- **Environmental Statement Addendum (ESA) – Volume 1 Keyland Redevelopment of Former North Bierley WWTW. November 2017.**
- **Biodiversity Management Plan. Brooks Ecological ER-4003-02.4. August 2020.**
- **Proposed Site Plan: 2454-P402A, HTC Architects Ltd .**
- **Soft Landscaping Proposal, Drawing KL-449-001, Kova Ltd. August 2020.**

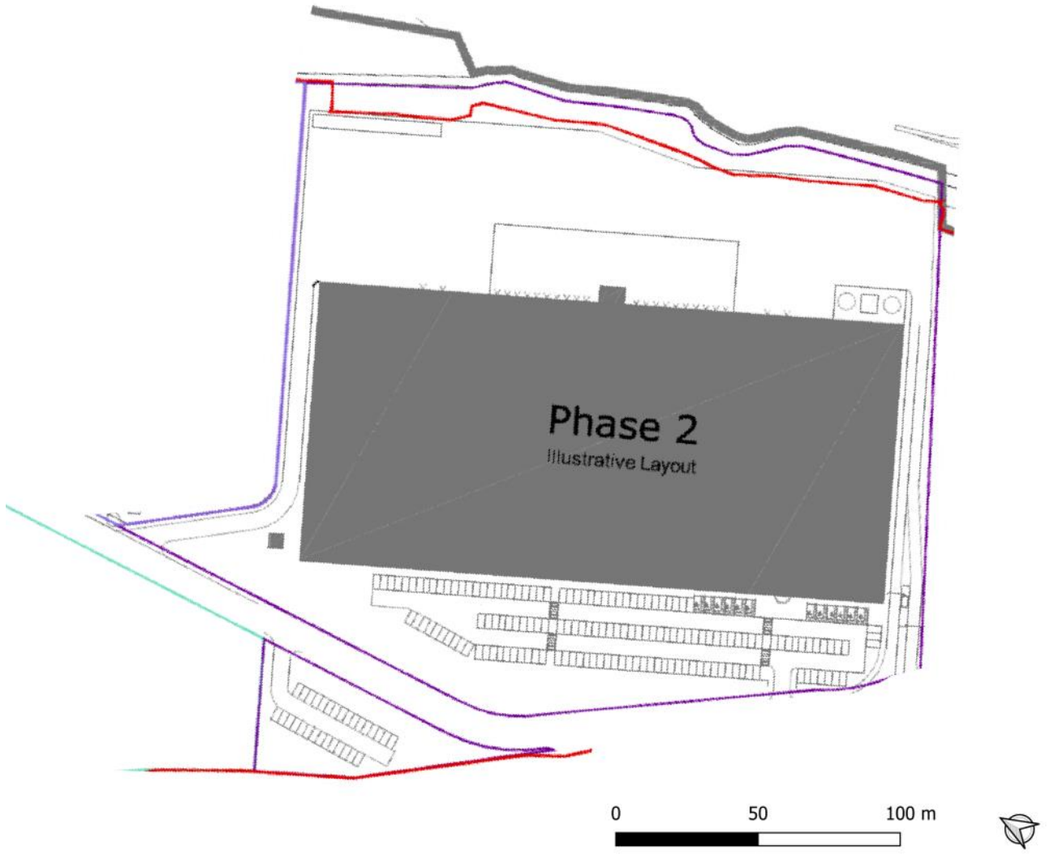


Figure 1

Phase 2 Masterplan layout (purple line)

Scope of Plan

This BEMP relates to development of part of the former sewage works into a business unit with associated landscaping and infrastructure (see Figure 1). The BEMP addresses biodiversity enhancement across the Phase 2 development plot with particular management prescriptions for areas of retained natural habitat and new features to support biodiversity created through development.

The BEMP accords with aims and objectives of the submitted BEMP (reference ER-4003-02.4) produced for the Phase 1 of development incorporating the overall site. This BEMP provides additional detail and biodiversity enhancement appropriate to the layout and development of Phase 2 specifically.

The BEMP is to be read in accordance with the Soft Landscaping Proposals (Drawing KL-449-001, August 2020) which address specification for new native tree and shrub planting within the development footprint. The BEMP references this where appropriate and provides additional prescriptions for biodiversity features and their management not addressed in the Landscaping Proposal.

Delivering the Plan

The developer is responsible for the creation and establishment works for a five-year period.

The developer will appoint either a Specialist Ecological Management Company (SEMC) or a company working under the direction of an Ecological Clerk of Works (ECoW) to oversee the delivery of this plan prior to any work commencing on site.

The ECoW would be a qualified Ecologist and member of the Chartered Institute of Ecology and Environmental Management, or be otherwise approved by the LPA.

After Year 5, this plan will be the responsibility of a Site Management Company. This plan and the use of an ECoW or SEMC will be included in the terms of reference of the Site Management Company and incorporated into their long-term Management Plan.

Legal and Funding Mechanisms

The developer will award a contract appointing either a Specialist Ecological Management Company or a suitable company working under the direction of an Ecological Clerk of Works (ECoW) to implement this plan to Year 5, prior to commencement of any works. In-perpetuity management will be secured from the Site Management Company's management fund.

Funds needed to manage the site in perpetuity will be set by the Developer before the Site Management Company is instructed so that management prescriptions are itemised and budgeted for.

Description and Evaluation of Features

The Preliminary Ecological Appraisal report produced for the entire former sewage works identified the main habitat areas and features that are present within the site red line boundary. These are reproduced below (Figure 3) and described in detail in the PEA report.

The existing site is characterised as a large parcel of land which includes a strip of pasture and former water treatment works on the outskirts of Cleckheaton adjacent to the junction of the M62 and the M606. Significant features of likely wildlife value in the wider areas include Hanging Wood and Hunsworth Beck along the eastern boundary of the site.

Summary findings from all ecological surveys of protected species and designations for the site are given on page 5. Much of the site comprises areas of low distinctiveness habitat which have value to site based wildlife, and present opportunities for enhancement in key locations through development.

Approved development plans under the previous Phase 1 scheme have resulted in site decommissioning and ground preparation works in order to prepare the plot for Phase 2 development, as shown right.

Figure 2 Typical views of the former sewage works around the Phase 2 area following recent ground works for Phase 1. September 2020.

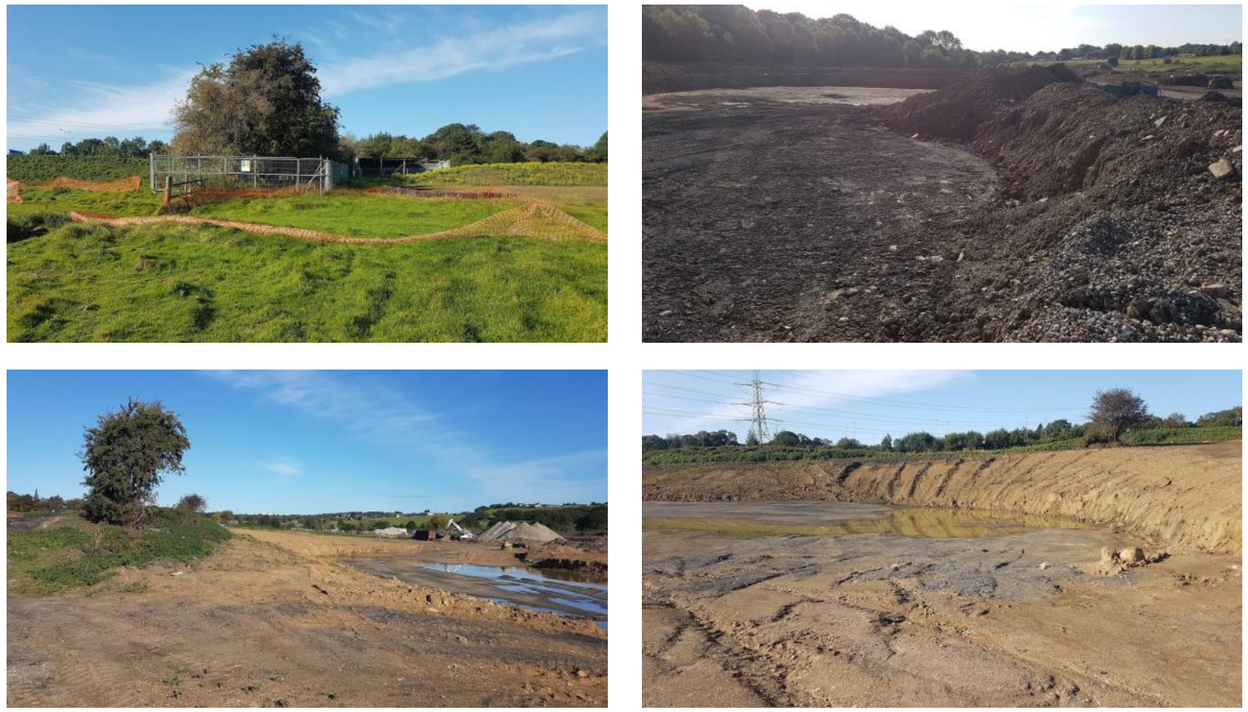
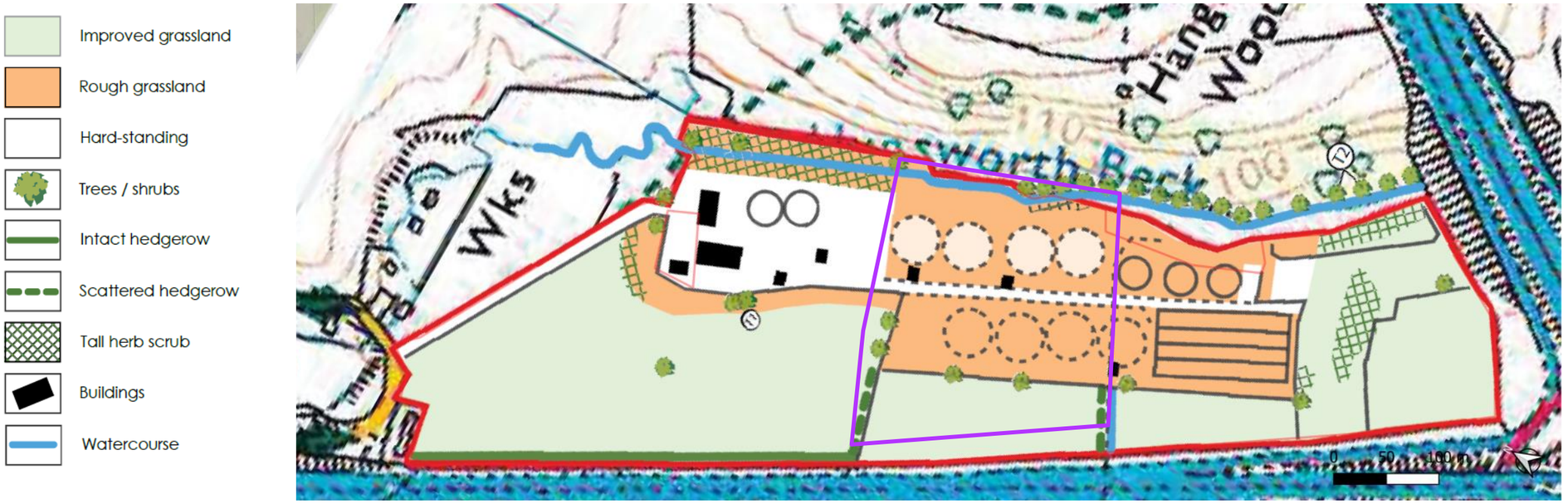


Figure 3 Phase 1 habitats map from Preliminary Ecological Appraisal Approximate area of Phase 2 shown in purple.



Ecological Trends and Constraints

Protected sites

The site adjoins Hanging Wood, a Kirklees Site of Wildlife Significance (SWS). The development will need to provide appropriate vegetation and habitat enhancement to its eastern boundaries to provide a buffer to this locally important site.

Protected Species

No protected species have been identified on the site. Summary findings from dedicated surveys state:

Bat survey

Bat activity has been found to be low on site during the summer, confirming the assessment that the habitats on site are of relatively low importance for local bat populations. More valuable habitat is found to the east – this should be buffered within the masterplan to ensure minimal impacts on local bats.

Riparian mammal and crayfish survey

Dedicated survey has demonstrated the likely absence of water vole, otter and white clawed crayfish from the watercourse passing through the application site. Proposed development would therefore present minimal risk of impacting upon these species.

Reptiles

No reptiles have been found on site and impacts on reptiles are not predicted by the site's development.

Nesting birds

To prevent the proposed works impacting on nesting birds, site clearance will need to be undertaken outside of the breeding bird season which is 1st March – 31st August inclusive. Any clearance that is required during the breeding bird season should be preceded by a nesting bird survey to ensure that the Wildlife and Countryside Act (1981) is not contravened .

Invasive species

Three invasive species have been found on the site. Himalayan balsam is present in the stream corridor and has spread into the former sewage works. Japanese knotweed is present in stands along the stream. A small patch of Cotoneaster is present towards the Site centre. Where growing in areas planned for excavation these plants pose a risk and must be controlled in accordance with an agreed plan or method statement. Where present in retained areas these plants degrade the quality and biodiversity of the habitats and their control should form part of habitat enhancement.

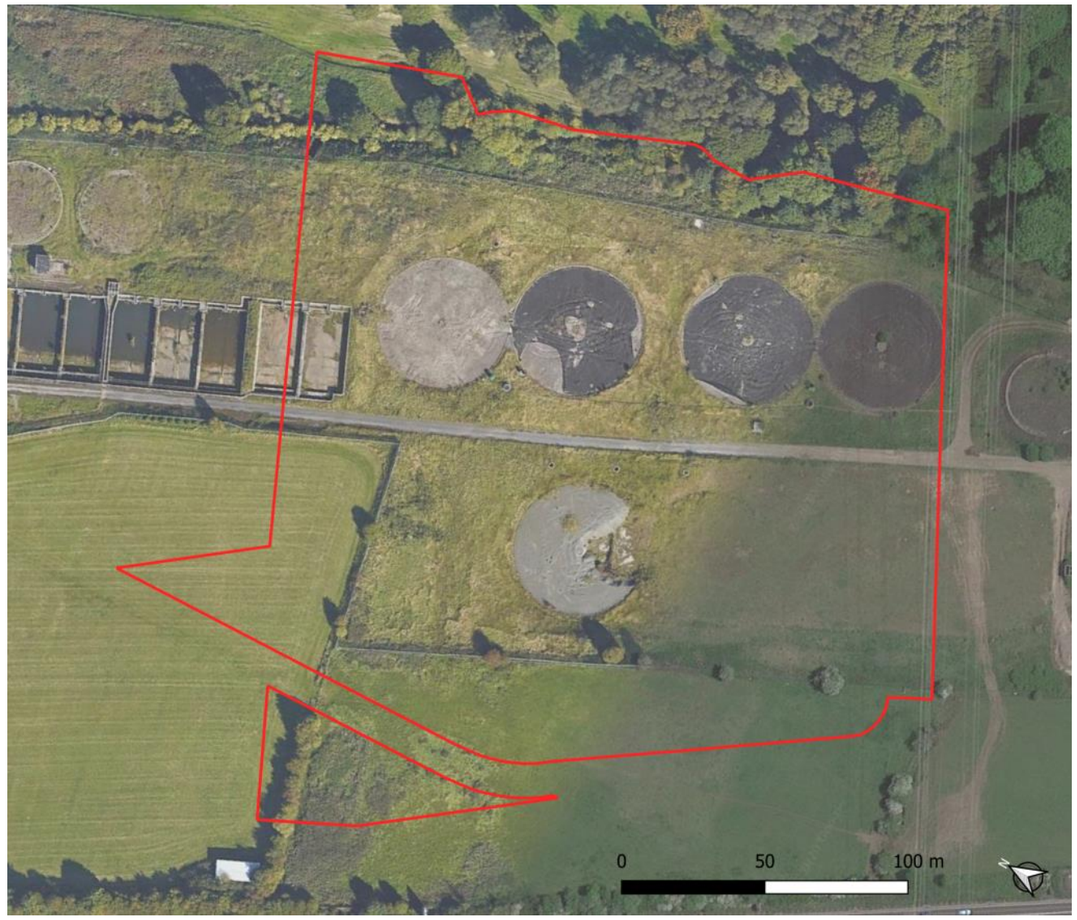
Access

Access to the majority of the site is unrestricted and the proposed development does not present clear obstacles to the establishment and management of habitats and features specified in this document. Occasional access for management of land to the east of the stream may require agreement with neighbouring land owners.

Hydrology

Hydrological issues are not anticipated though measures should be in place to buffer run-off from the construction towards the stream corridor as has been installed under Phase 1 works. If ground profiling works are required to extend further into the stream corridor, run-off controls will need to be adapted to accommodate this and mitigate pollution risk.

Figure 4 Red line boundary of Phase 2 development in relation to aerial photography, prior to recent site preparation works



Aims and Objectives of Management

The plan aims to protect and enhance the biodiversity of natural habitats that are present, and create new habitat features that improve the ecological value to local wildlife.

Specific aims of management are to:

- Establish target sown and planted habitats
- Maintain an open and diverse range of grassland, wildflower, scrub and woodland vegetation
- Enhance the ecological function and habitat quality of the Hunsworth Beck corridor
- Eradicate where possible non-native invasive plants
- Encourage use of the site by target groups such as pollinating insects, birds and riparian mammals.

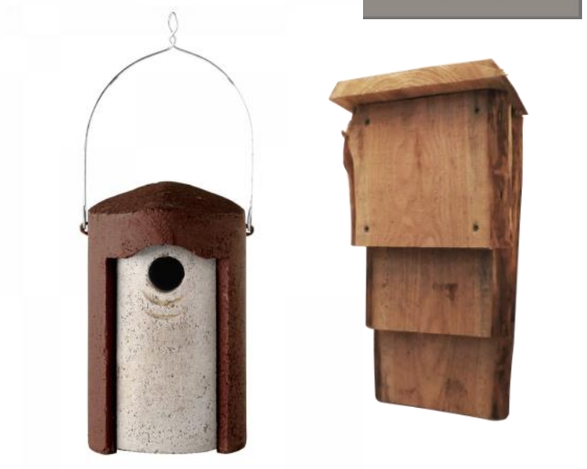
Specific objectives of management to achieve the aims are:

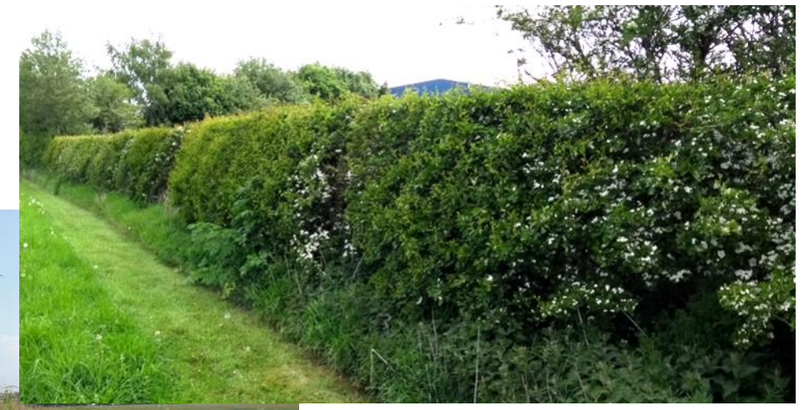
1. Native hedgerow management
2. Scrub and riparian enhancement
3. Establish and manage new wildflower grassland
4. Features for bats and birds
5. Features for hedgehogs and otters
6. Increase dead wood habitats

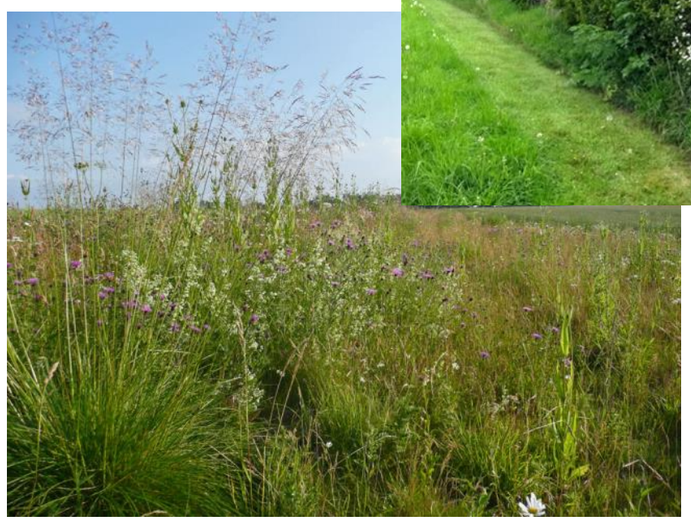
Opportunities and Themes

Homes for declining birds & bats

A wide range of designs of faunal boxes are now available which can either be integrated into built structures or positioned in optimal habitat locations

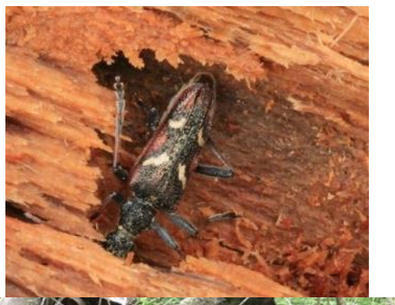






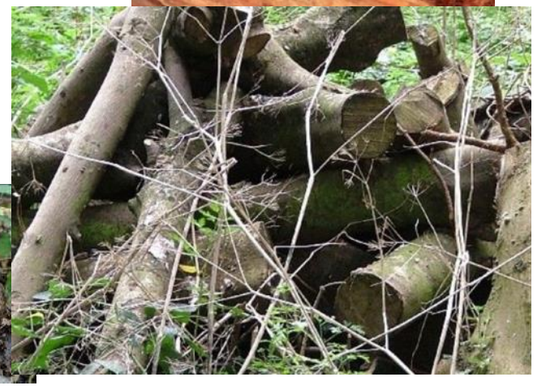
Enhance linear habitats

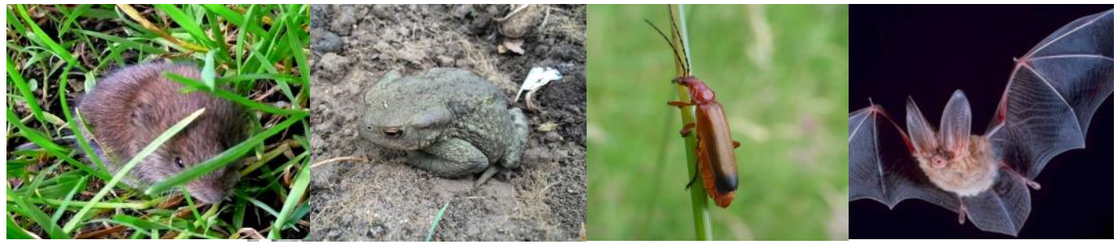
Native tree, hedgerow and grassland planting will provide a natural and diverse habitat buffer between the developed site and stream and woodland habitat to the east.



Deadwood for fungi and invertebrates

Wood piles make homes for invertebrates, amphibians and small mammals. They also slow the release of carbon into the atmosphere.

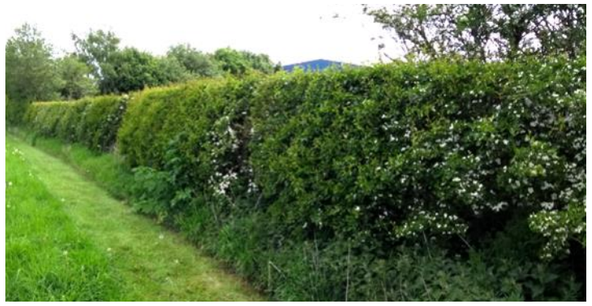




Native Tree, Shrub and Hedgerow Management

Rationale

Retained boundary hedges and new hedgerows, trees, and shrubs within the development will maximise the value to fauna such as birds and insects - as sources of food, shelter and connected dispersal corridors.



New native hedgerows within Phase 2 will enhance ecological connectivity through and within the wider developed site.

Objectives

1. All hedgerows remain continuous and unbroken through gap planting where required
2. Berries or berry bearing spurs remain on trees until the end of winter
3. A margin no less than 1m of uncut grass around at least one side of the hedge
4. Tree and shrub borders to maintain balanced structure with healthy canopy, understorey and ground flora.

Specification

Planting schedules for native trees and shrubs are provided in the Soft Landscaping Proposal. Planting must follow the technical detail given in the Implementation Programme. Rabbit protection on planted stock will be required using tree shelter tubes as specified.

Aftercare and Management

Hedgerows:

Year 1 –3 standard hedgerow establishment as per landscape proposal.

Year 4 onwards - Cut no more than 90% of hedge in February, spread chippings under the hedge. Leave remaining sections to grow for 1 further year. Vary the location of sections which are left for two years each year.

Native Tree and Shrub Areas:

Periodic arboricultural assessment will be required as all planted trees reach maturity. **Year 5 onwards -** Pruning and thinning works to ensure maturing trees remain in healthy form and not over shaded. Thinning should aim to maintain structural diversity of canopy, understorey and ground flora layers.

Monitoring

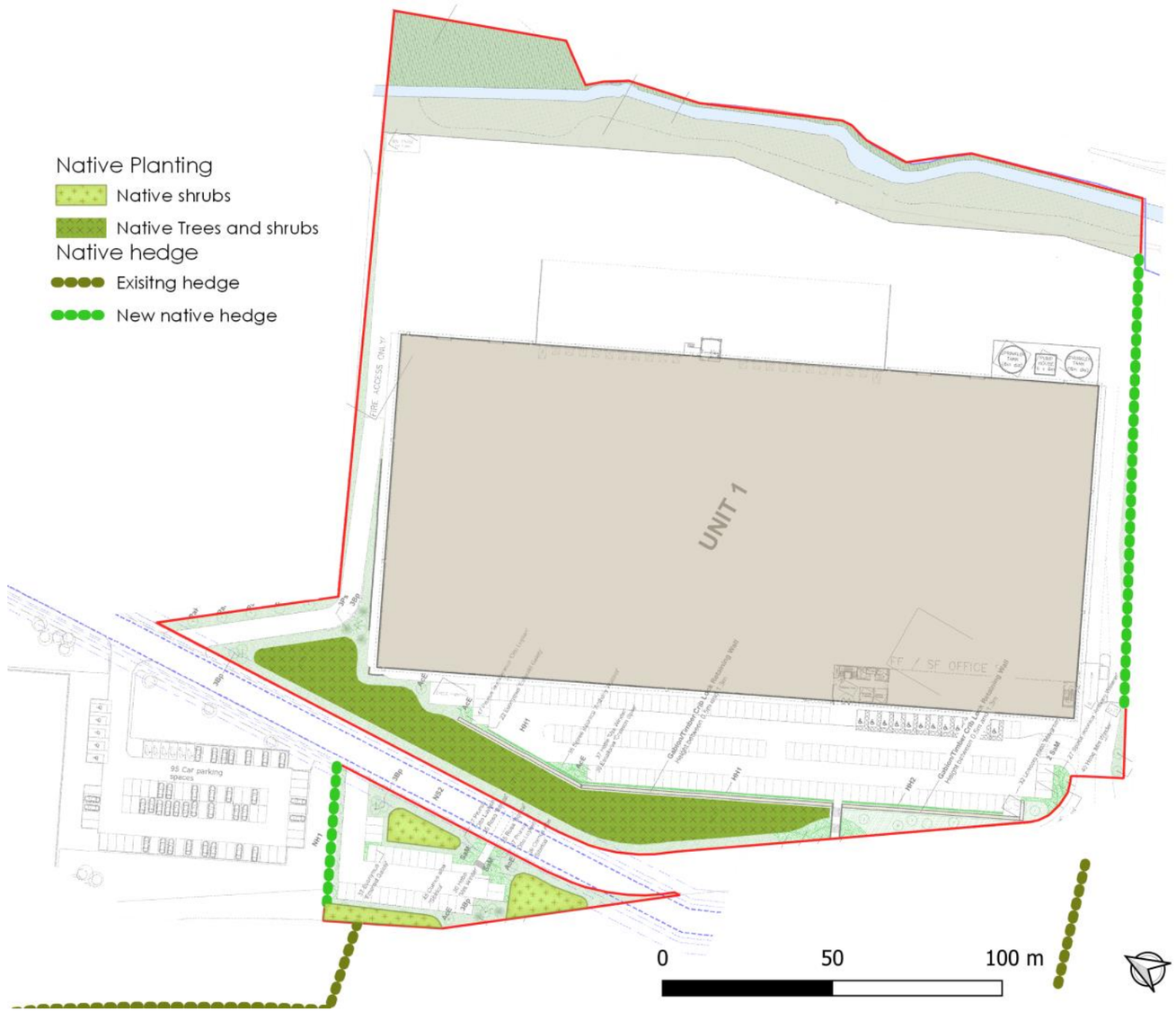
Year 3 and 5 Ecologist to record according to objective 1- 3.

<u>Output</u>

ECoW report.

<u>Remedial actions</u>

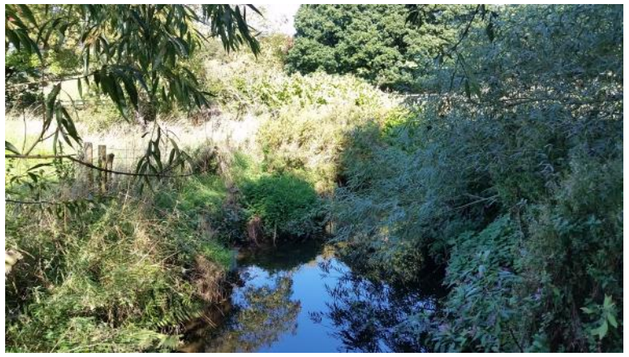
ECoW to liaise with contractor to amended cutting regime, localised gapping up or replacement planting.



Scrub and Riparian Enhancement

Rationale

Strips of habitat bordering Hunsworth Beck are dominated by patches of nettle and tall ruderal plants indicating high nutrient soils with potential to increate the structural diversity and species composition of the riparian vegetation.



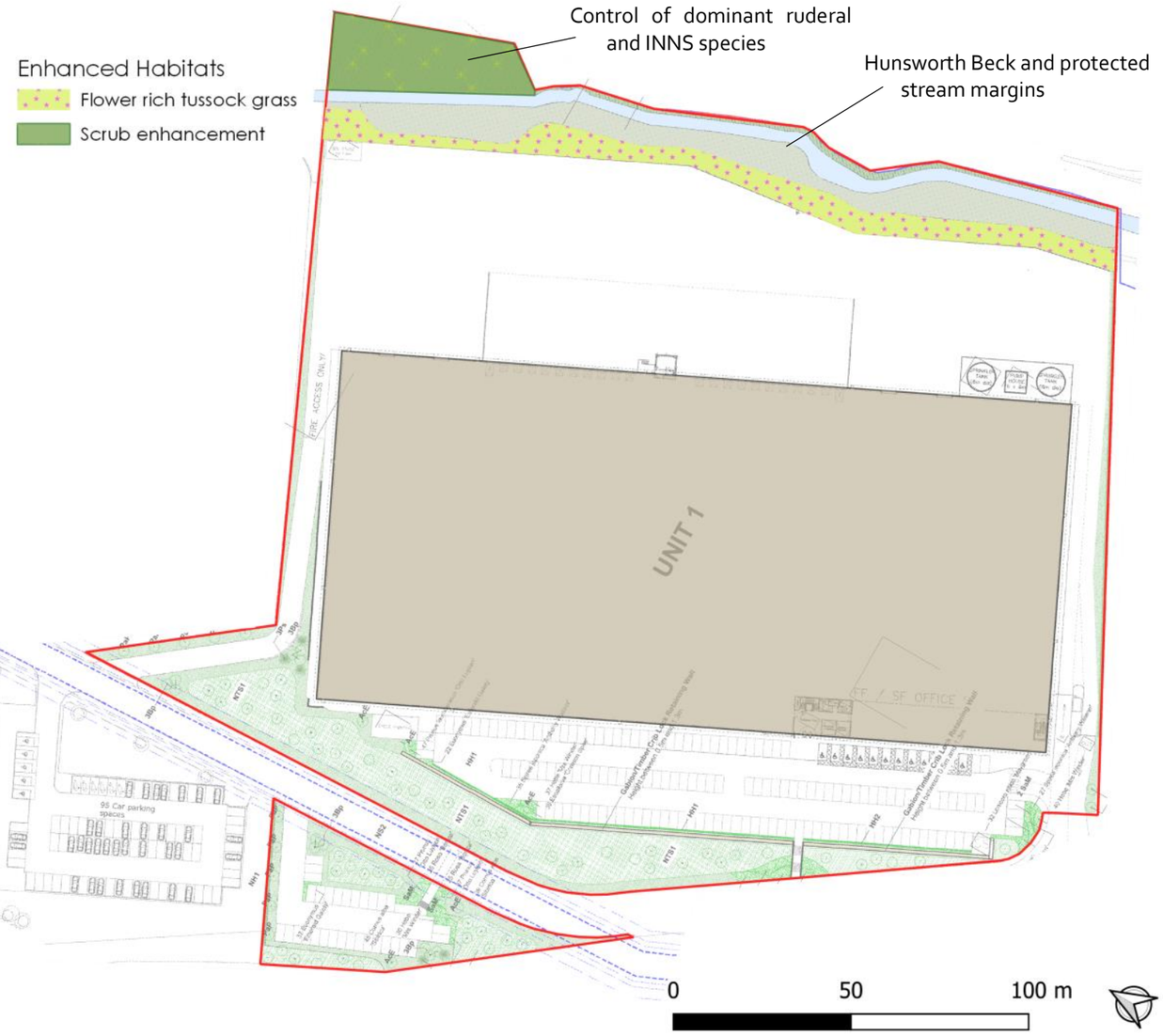
Stream margins are dominated by tall herb and invasive plant species.

Objectives

1. Reduce cover of dominant ruderal species and control invasive non-native weeds (INNS)
2. Establish diverse open structure of flowering herbs and woody shrub species
3. Increase volume of dead wood

Specification

- EM10 (flowering tussock mix) along reprofiled stream margins (in accordance with Landscape Proposal)
- EW1 (flowering woodland mix) in cleared patches of scrub.



Establishment—Year 1

Tussock grassland: in accordance with Landscape Proposal, noting limitation on use of herbicide near water bodies.

Scrub: October— April Strimming / brush cutting to clear patches of dominant weeds followed by seeding in to cleared patches and margins with EW1 mix.

Works can be timed and carried out in accordance with other objectives for creating otter, amphibian and hedgehog resources in this zone.

Management

Treatment of INNS in the riparian zone should be included in a site wide management for control of INNS throughout the site. Control methods will be sensitive to the ecology of the stream and riparian corridor and compliant with legislation in relation to use of herbicides in proximity to fresh water bodies. Mechanical control should be favoured over chemical methods where possible.

Year 1—5

Tussock grassland: Annual weeds shall be controlled by topping or regular mowing until the sown grasses are established.

Scrub: October—April Strimming / brush cutting to clear patches of dominant weeds (nettles, thistles, willowherb) in an annual rotation.

Monitoring

Year 2 and 4 Ecologist survey to record according to objective 1- 3.

Output

ECoW report.

Remedial actions

Localised weed control or over sowing with seed under the instructions of the ECoW.

Features for Otter, Hedgehog and Amphibians

Specification

A single Filcris recycled plastic otter holt will be erected within the Riparian Zone. (http://www.filcris.co.uk/products/product-details/otterholt or approved equivalent).

Dead wood arisings from site clearance works may be utilised to create refuge features that are valuable habitat for hedgehogs and amphibians as shelter and hibernation resources.

Location Notes

Otter holt located in close proximity to Hunsworth Beck in the position indicated in the plan right, in retained habitat to the north-east of the beck. Holts require entrance holes close to the stream side and at a higher level.

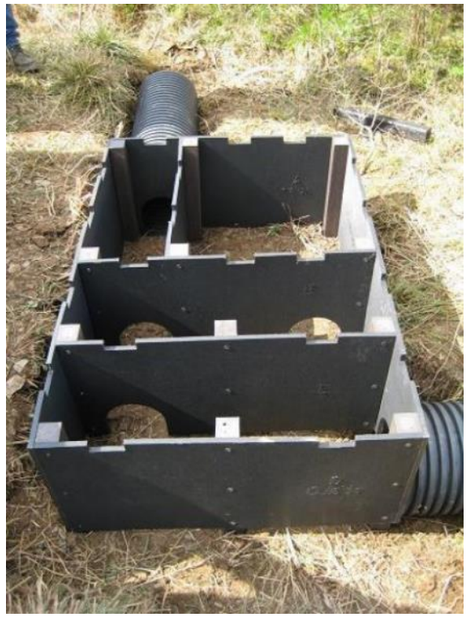
Refuges will be integrated into the stream corridor in suitable locations above the flood line.

Number

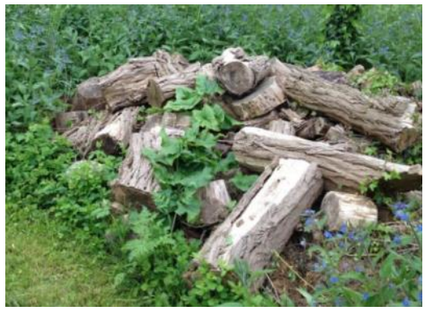
1 otter holt, 4 refugia

When erected?

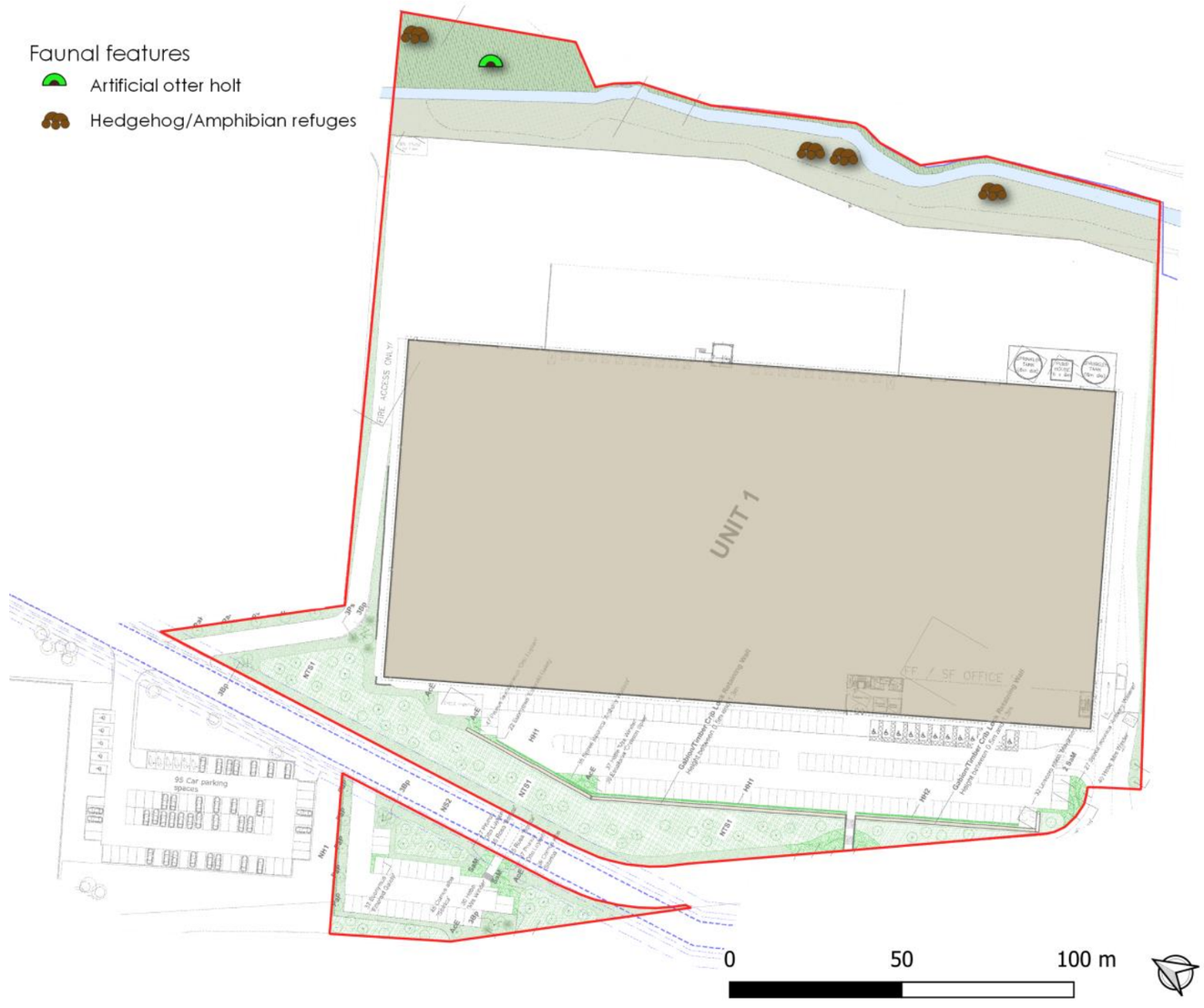
Otter holt and refuges put in place during year 1.



Illustrative examples of an artificial otter holt



Hedgehog / amphibian refuges constructed from dead wood reclaimed during site clearance.



Features for Birds and Bats

Tree mounted bat and bird boxes

Specification—as below or equivalent agreed by ECoW

Due to constraints with mounting of boxes on building cladding materials, bat and bird box locations are identified on retained mature trees associated with beneficial habitat. Additional boxes are specified as part of the wider site biodiversity plans for Phase 1 outside of the red line shown here.

9 x Kent Bat Box (NHBS.co.uk) - mounted in groups of 3 in trees .

4 x 1B Schwegler Nest Box (NHBS.co.uk) - individual tree mounted

(2 x 32mm hole, 2x 26mm hole)

Location Notes

See illustrations with location notes.

When erected?

Prior to site operation in Year 1

Verification

Ecological Clerk of Works Certificate.

Monitoring

Year 3 and 5 Ecologist survey to record utilisation and integrity checks.

Output

ECoW report.

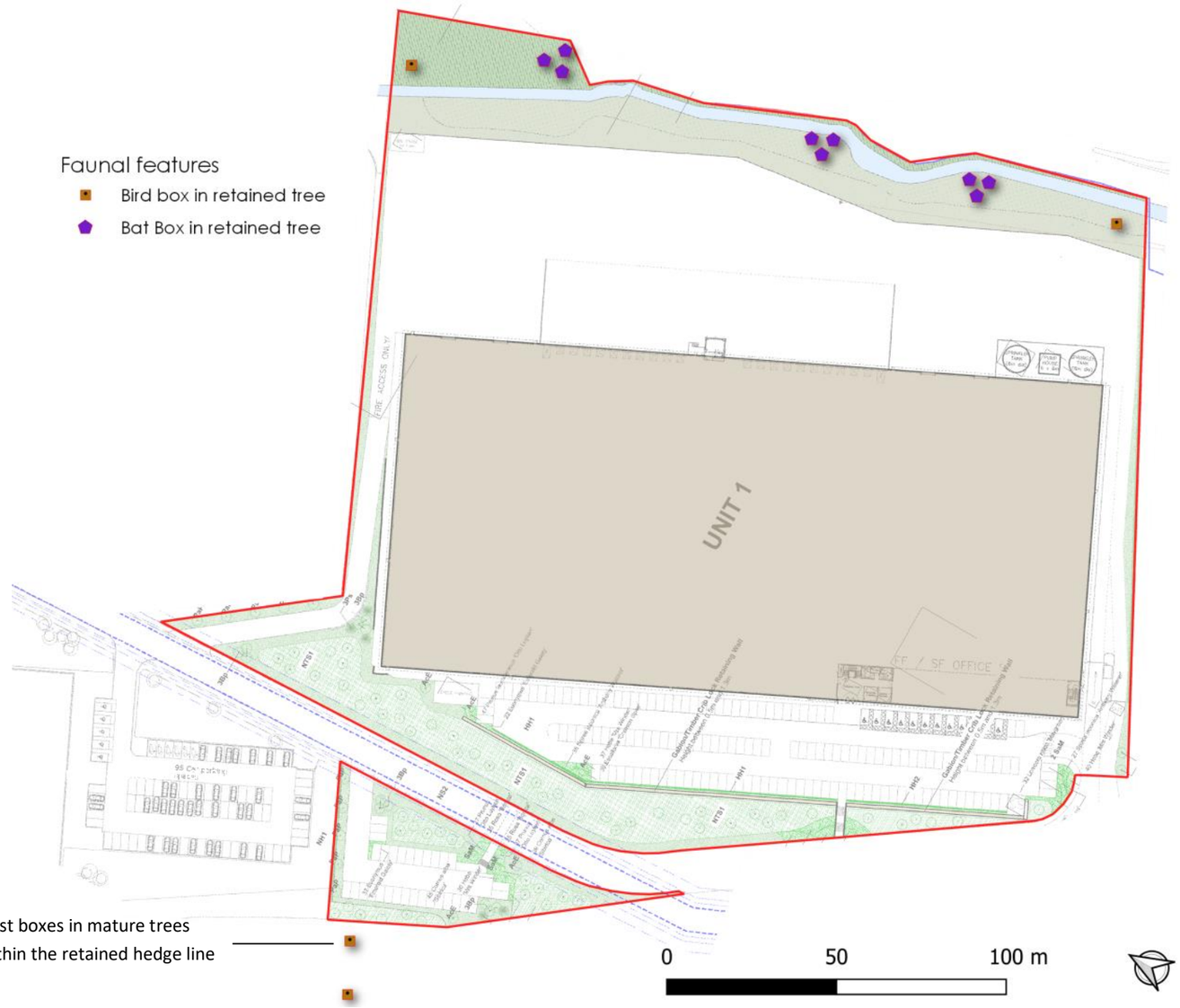
Remedial actions

Remedial works or replacement of boxes as required following checks - to take place outside of the breeding season (March—August for birds). Visual external checks to bat box siting and integrity are sufficient to avoid undue disturbance to roosting bats or the need for licencing.

1B Schwegler Nest Box (with 32mm entrance hole) will favour species such as great tit, blue tit, marsh tit , coal tit and crested tit, redstart, nuthatch, collared and pied flycatcher, wryneck, tree and house sparrow. Bats may also make use of these boxes.

Mounting under ECoW instruction on shaded north facing sides.

Kent Bat boxes to be located in trees according to the ECoW instructions at minimum of 4m with clear flight-lines and providing a range of orientation.



Work Schedule

The work schedule overleaf covers the 5-year establishment period (Developer's responsibility) and the in-perpetuity period [6+] (Site Management Company's responsibility). This addresses establishment of habitat and biodiversity features and should be read in conjunction with the establishment and maintenance of amenity planting specified in the Soft Landscaping Proposal.

'Year 1' is triggered as soon as any works commence on site. The following actions will be carried out by the site's landscape maintenance company under the direction of the ECoW where required.

A two year window for planting and establishment has been identified to allow for appropriate seasonal timings in relation to the overall development construction program.

Task	ECoW to direct	ECoW to carry out	Prior to any work	Year 1	Year 2	Year 3	Year 4	Year 5	6+
Ground forming and soil cultivation				yes					
Prepare grassland areas for seeding				March-September	March-September				
Seed wildflower grassland				September-October	September-October				
Woody planting Tree, shrub and hedgerows				October—March	October—March				
Establish wildflower grassland	Yes			April-September	April-September				
Manage wildflower grassland	Yes			April-September	April-September	April-September	April-September	April-September	April-September
Monitor grassland		Yes			June				
Riparian scrub planting	Yes			October-April	October-April				
Monitor riparian scrub		Yes			June			June	
Create hedgehog, amphibian refuges and otter holt	Yes			Any time					
Erect bird and bat boxes	Yes			Any time					
Monitor bat and bird boxes Remediate or replace as required	Yes					Check and Remediate outside breeding season		Check and Remediate outside breeding season	
Planting defects maintenance (as Landscape Proposals Document)					Yes	Yes	Yes	Yes	