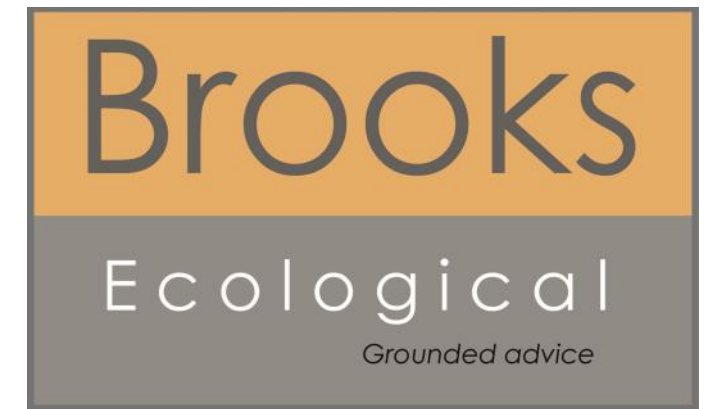




Ecological Design Strategy (EDS)

Greenhead College

Galliford Try Building Ltd.

Report Reference: ER-5303-03-E

11/08/2022



Report Reference:	Ecological Design Strategy Greenhead College
Report Reference:	ER-5384-03-D
Written by:	Christopher Shaw BSc (Hons) MCIEEM Principal Ecologist
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Approved for issue:	Peter Brooks BSc (Hons) MA, MCIEEM, CEnv Managing Director
Date:	Written 30/03/2022 Amended 07/04/2022 Amended 27/06/2022 Amended 28/06/2022 Amended 06/07/2022 Amended 11/08/2022



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

The following Ecological Design Strategy (EDS) has been produced for Galliford Try Building Ltd. to aid in the discharge of Condition 16 (Planning Ref. 2021/62/93674/W) for redevelopment at Greenhead College in Huddersfield.

The Plan 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. As these names refer to the same output we standardise the name of our reports regardless of what appears in a planning condition.

Proposals

Partial redevelopment of Greenhead College including demolition and making good, erection of 2 and 4 storey buildings, reconfiguration of parking and access arrangements, reconfiguration of sports provision and other associated external works (Within a Conservation Area).

Scope of Plan

This plan relates to the scheme outlined in oobe Proposed Planting Plan, Sheets 1-4, drawing numbers NE8659-OOB-ZZ-00-DR-L-0401 to 0404 Rev.C11 (02/08/22).

Aims of the Plan

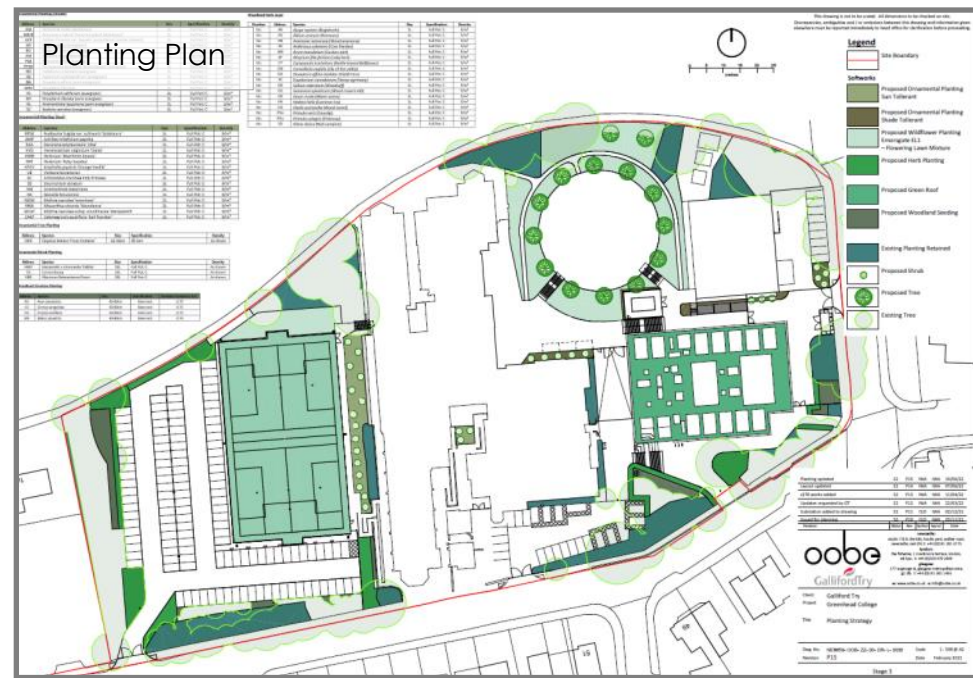
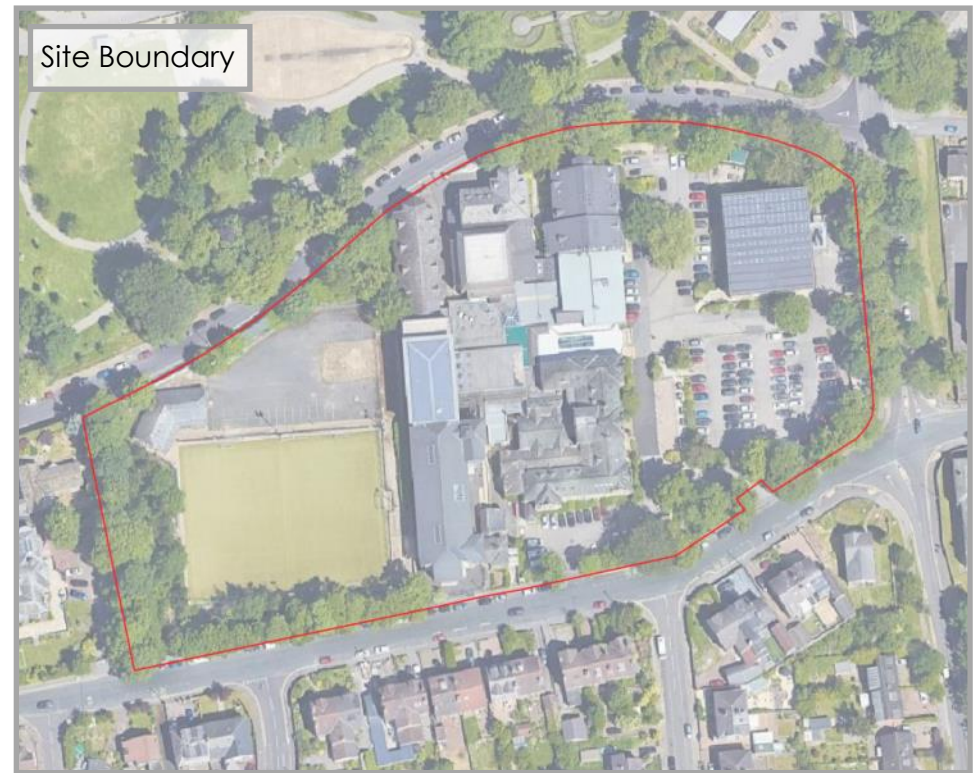
- 1) To maximise the Site's biodiversity value, through creating a range of semi-natural habitats within the boundary greenspaces, that will support and attract greater volumes of invertebrates and urban wildlife, than would otherwise be present within typical ornamental landscaping.
- 2) To demonstrate how planting can be enhanced to meet the habitat types and condition assessments outlined in the Ecological Impact Assessment report, ref. ER-5303-03A.

Delivering the Plan

The Developer is responsible for the creation and establishment works. After this, management will be the responsibility of the Greenhead College's grounds maintenance team, whence it will be implemented in perpetuity.

The college will ensure that the grounds maintenance team have received a copy of this Management Plan, and will liaise with an Ecological Clerk of Works (ECoW) to ensure proper 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.



Condition 16

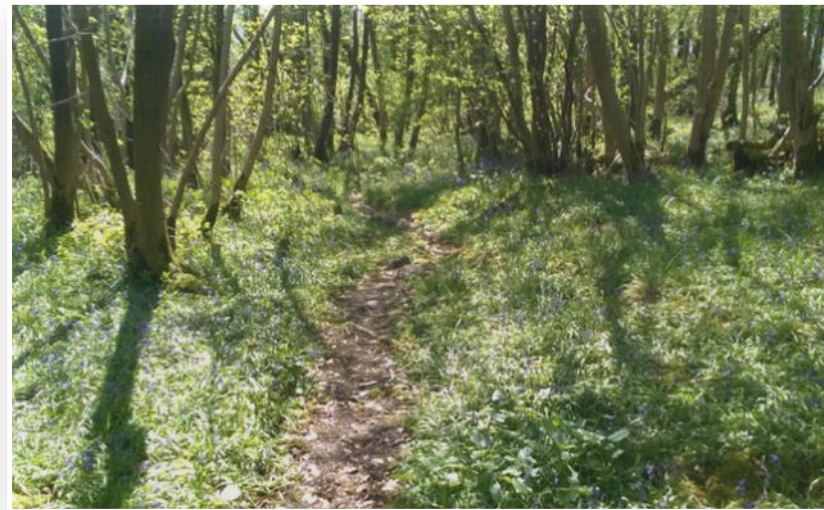
Prior to above-ground building works commencing, (excluding the demolition of existing structures and temporary car parking provision), an Ecological Design Strategy (EDS) to ensure that a biodiversity net gain is achieved post-development shall be submitted to, and agreed in writing by, the Local Planning Authority. The EDS shall be in accordance with the Biodiversity Metric 3.0 calculations as received on the 16th September 2021 with the planning application and agreed in principle with the Local Planning Authority prior to determination, and shall provide a minimum of a 10% net gain in habitat units post development. The EDS shall include the following.

- Purpose and conservation objectives for the proposed works;
- Review of site potential and constraints;
- Detailed design(s) and/or working method(s) to achieve stated objectives;
- Extent and location/area of proposed works on appropriate scale maps and plans;
- Details on the establishment of wildflower meadows and introduced shrub planting on the site;
- Type and source of materials to be used where appropriate, e.g. native species of local provenance;
- Timetable for implementation demonstrating that works are aligned with the proposed phasing of development;
- Persons responsible for implementing the works;
- Details of initial aftercare and long-term maintenance;
- Details for monitoring and (where the results from monitoring show that conservation aims and objectives of the EDS are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers a measurable biodiversity net gain; and
- Details for disposal of any wastes arising from works.

The EDS shall be implemented in accordance with the approved details and all features shall be retained in that manner thereafter.

Extent / Location of Enhancements

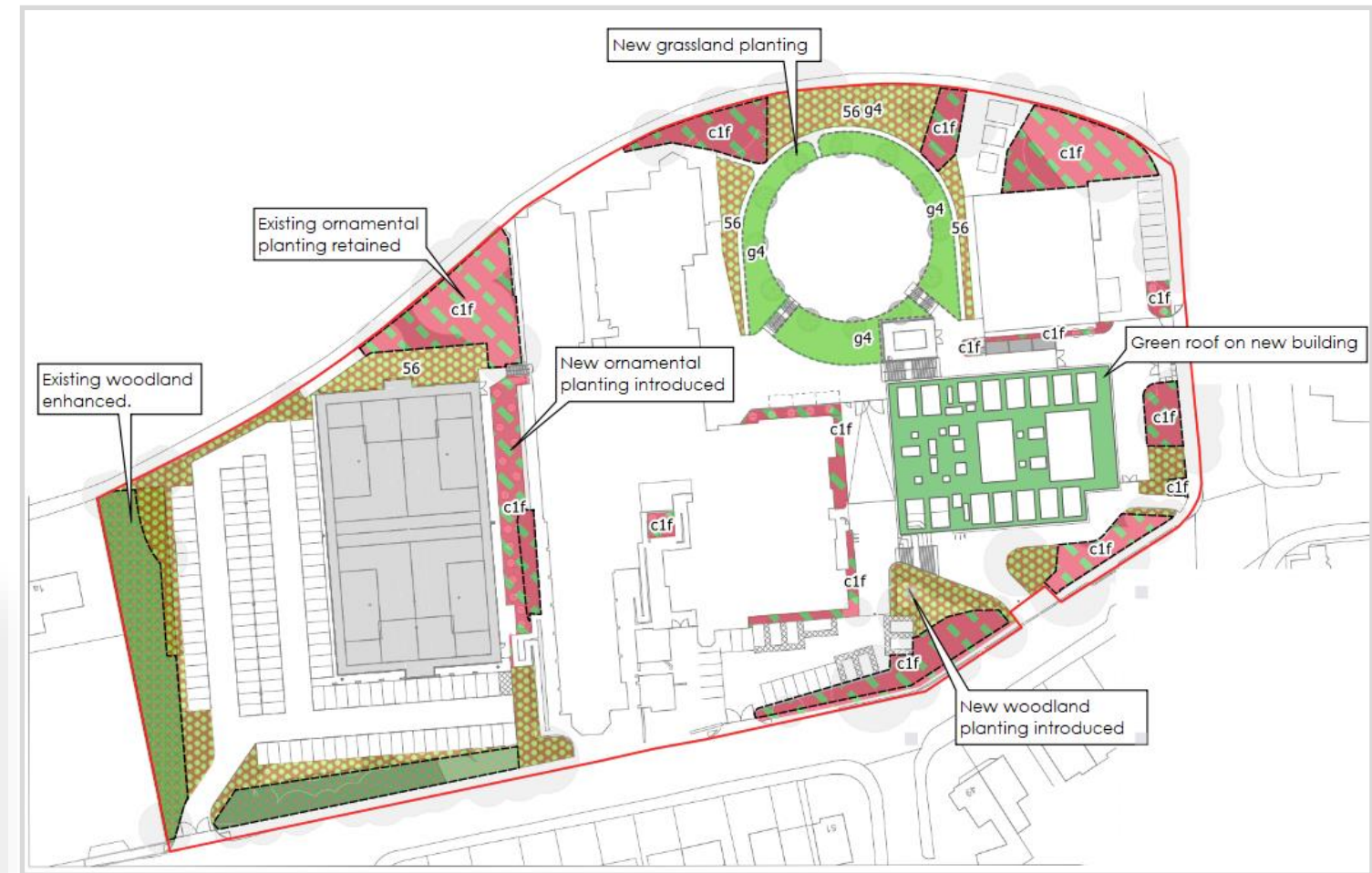
The Site Baseline plan below shows the Site's pre-development layout —in terms of habitat types present.



Post-development, most of the existing woodland and ornamental planting will be retained as ornamental planting.

This plan covers only the creation, enhancement and management of woodland and grassland habitats. The latest revision of the oobe Planting Plans outlines the retention of most of the ornamental shrub beds and woodland planting, with the creation of further ornamental and woodland planting areas.

The following plan outlines how the habitat creation and enhancement works will be undertaken in order to achieve a minor uplift in Biodiversity score of 0.71 Habitat Units (+11.13%), as shown in the Biodiversity Metric Calculator Tool 3.0.



Grassland (Seeding)

Objectives

- 1. To generate 0.24 Habitat Units, through the creation of 0.07ha of Modified Grassland in Moderate Condition.

Defra Metric Condition Assessment (Version 3.0)

The table below outlines the condition assessment criteria for modified grassland habitat, and outlines what criteria will be targeted by planting and management.

	Condition target	Targeted?
1	There must be 6-8 species per m².	Yes
2	Sward height is varied (at least 20% is less than 7cm and at least 20% over 7cm)	No
3	Scrub accounts for less than 20% of total grassland area.	Yes
4	Physical damage is evident in less than 5% of the grassland total area.	No
5	Cover of bare ground between 1% - 5%	Yes
6	Cover of bracken less than 20%	Yes
7	Absences of INNS. Cover of undesirable species accounts for less than 5% of total area	Yes
		4 / 6 Moderate

Specification

Preparation

No more than 5cm of topsoil will be spread over the subsoil profile. This will be loose tipped and spread with back actor to avoid compaction, and harrowed to a fine tilth ready for seeding.

Seeding

Seed according to supplier's instructions.

If soils have been spread before September, any weed growth that has established in the meantime will be sprayed off with glyphosate and a seedbed be re-prepared.

Seed will either be broadcast by hand or by approved lightweight machinery at ca. 40kg/Ha. Following seeding the area will be lightly rolled to incorporate the seed with the growing substrate.

EL1 – FLOWERING LAWN MIXTURE

Wild Flowers

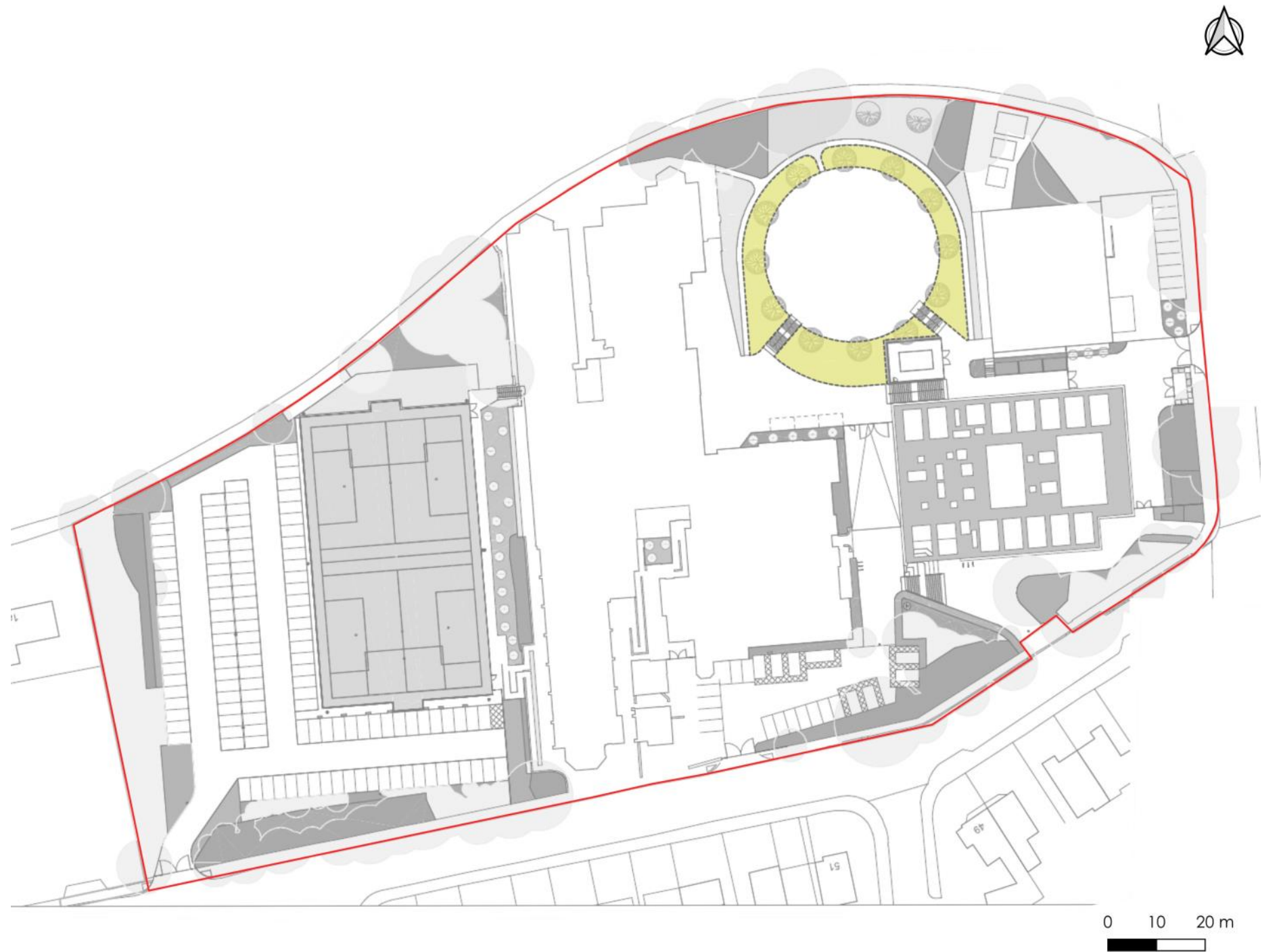
%	Latin name	Common name
0.2	Betonica officinalis - (Stachys officinalis)	Betony
1.2	Centaurea nigra	Common Knapweed
0.7	Galium verum	Lady's Bedstraw
0.4	Leontodon hispidus	Rough Hawkbit
1.2	Lotus corniculatus	Birdsfoot Trefoil
1.4	Plantago lanceolata	Ribwort Plantain
0.4	Primula veris	Cowslip
0.6	Ranunculus acris	Meadow Buttercup
0.2	Silene alba	Pepper Saxifrage
0.2	Vicia cracca	Tufted Vetch
6.5		

Grasses

%	Latin name	Common name
8	Agrostis capillaris	Common Bent
1	Carex flacca	Glaucous Sedge
39	Cynosurus cristatus	Crested Dogtail
28	Festuca rubra	Red Fescue
4	Phleum bertolonii	Smaller Cat's-tail
80		

Clovers, legumes and herbs

%	Latin name	Common name
1	Medicago lupulina	Black Medick (Ag)
2.5	Trifolium repens	Small Leaved White Clover (Ag)
3.5		



Grassland (Management)

Management

Year 1

Five cuts undertaken across the growing season, from April to September. All arisings to be collected and removed from Site.

Hand pull or weed wipe three times in Year 1 to kill off weeds - spear thistle, creeping thistle, broad-leaved dock, clustered dock, wood dock, curled dock, nettle, ragwort, and others, according to ECoW recommendations. Operatives must be proven competent in weed identification.

Year 2 - onwards

Cut once per month during the growing season, leave for 5 weeks in June. Arisings may be left to rot *in situ* unless condition is deteriorating.

Continue to spot treat competitive weed species each year until under control according to ECoW.

Monitoring

Ecological Clerk of Works Year 2 and 5 monitoring visit to check trajectory to condition requirement.

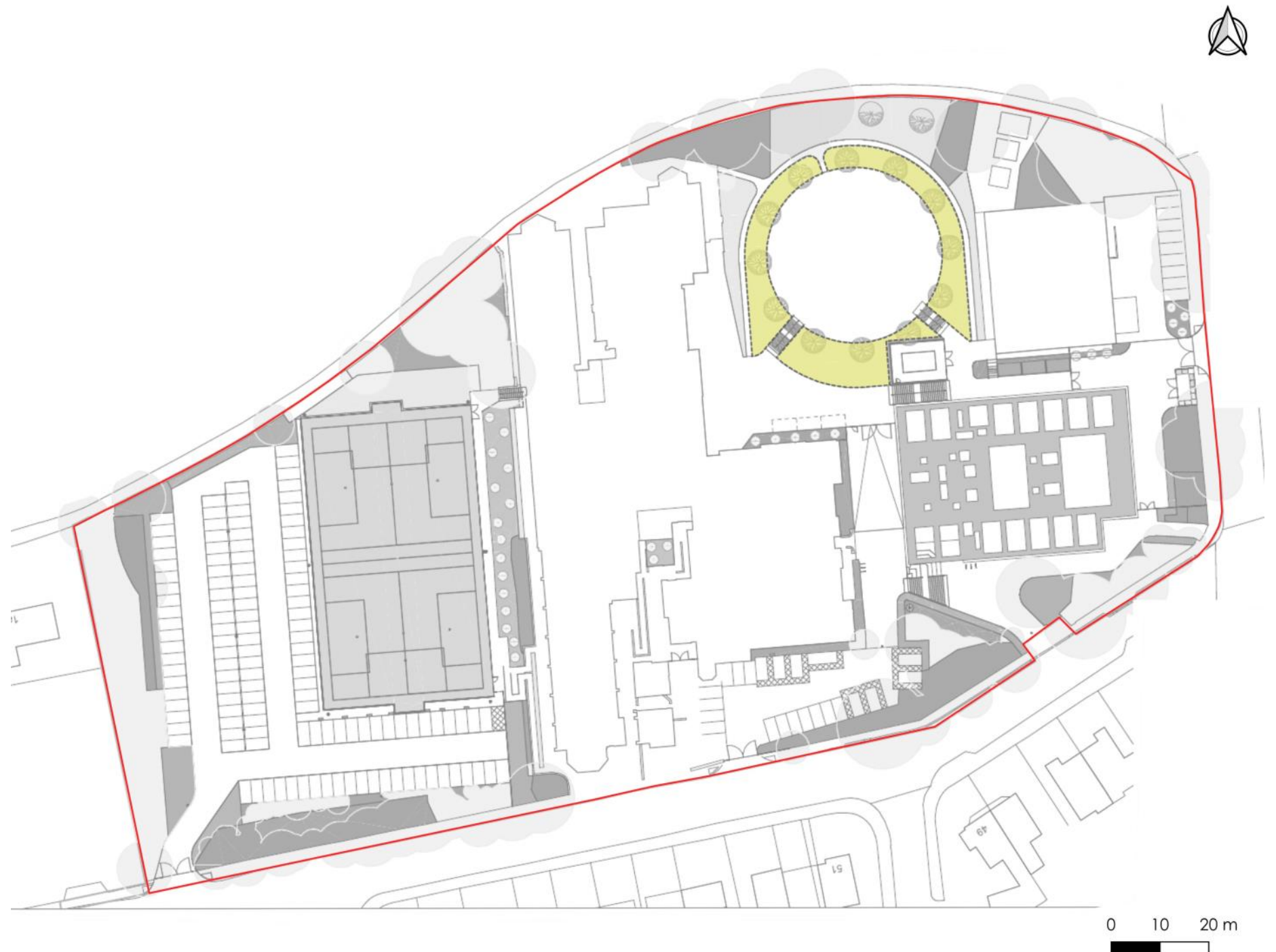
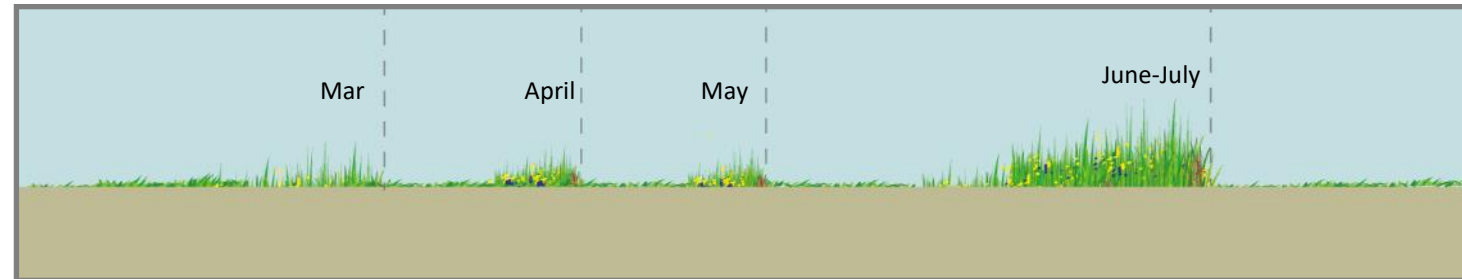
Output

ECoW report year 2 and 5.

Remedial action options

- Increase the number of cut and collects - to reduce nutrients
- Scarify soils after first cut in August - to remove thatch
- Increase weed control if undesirable species establish
- Soil scrape to reduce nutrients
- Re-seed and replant locally

Standard Cutting regime Year 2 onwards



Broad-leaved Woodland (Planting)

Objectives

- 1. To generate 0.68 Habitat Units, through the enhancement of 0.1ha of retained Other Broadleaf Woodland, uplifting the Condition score from Poor to Moderate.
- 2. To generate 0.47 Habitat Units, through the creation of 0.1ha of new Other Broadleaf Woodland, with a Condition score of Moderate.

Specification

Preparation (for Habitat Creation):

Soils will be checked by ECoW for suitability: this to be a friable low nutrient load neutral soil.

No more than 5cm of topsoil will be spread over the subsoil profile. Spread using back actor, spread and firmed. Not driven over and compacted. All soil handling and spreading to be supervised and sanctioned by ECoW.

Preparation (for Habitat Enhancement):

Existing habitat which will be retained and enhanced into woodland (i.e. introduced shrub beds) will be cleared of non-native shrubs and flowering plants, and the soils spread back lightly to create a suitable planting bed.

No additional soils will be brought into this area.

Planting:

All areas (Creation & Enhancement) will be planted up with a mix of woodland flowering plans and native bare root whips, as shown in the tables opposite.

These tables having been taken from oobe latest iteration of the Proposed Planting Plans, Sheets 1 - 4.

Seeding:

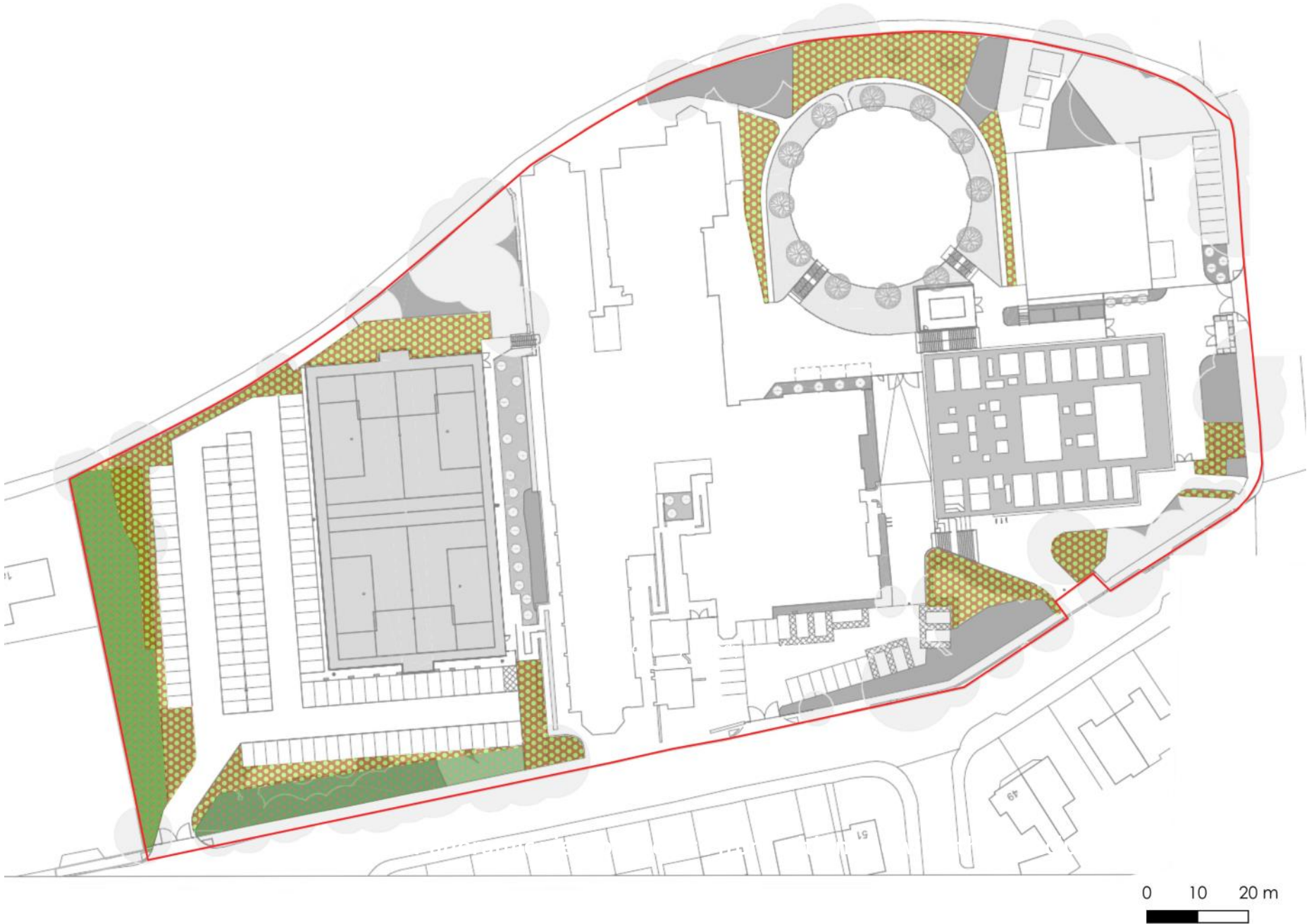
All areas will be seeded with a suitable woodland wildflower seed mix. A suitable example includes EW1 –Woodland Seed Mix.

Woodland Herb Layer (Area – 1120m2)

Number	Abbrev.	Species	Size	Specification	Density
435	AR	Ajuga reptans (Bugleherb)	1L	Full Pot: C	7/m ²
435	AU	Allium ursinum (Ramsons)	1L	Full Pot: C	7/m ²
435	AN	Anemone nemorosa (Wood anemone)	1L	Full Pot: C	7/m ²
435	AS	Anthriscus sylvestris (Cow Parsley)	1L	Full Pot: C	7/m ²
435	AM	Arum maculatum (Cuckoo-pint)	1L	Full Pot: C	7/m ²
435	AF	Athyrium filix-femina (Lady fern)	1L	Full Pot: C	7/m ²
435	CT	Campanula trachelium (Nettle-leaved Bellflower)	1L	Full Pot: C	7/m ²
435	CM	Convallaria majalis (Lily of the valley)	1L	Full Pot: C	7/m ²
435	DA	Dryopteris affinis (Golden Shield Fern)	1L	Full Pot: C	7/m ²
435	EC	Eupatorium cannabinum (Hemp-agrimony)	1L	Full Pot: C	7/m ²
435	GO	Galium oderatum (Woodruff)	1L	Full Pot: C	7/m ²
435	GS	Geranium sylvaticum (Wood crane's-bill)	1L	Full Pot: C	7/m ²
435	GR	Geum rivale (Water avens)	1L	Full Pot: C	7/m ²
435	HH	Hedera helix (Common ivy)	1L	Full Pot: C	7/m ²
435	OA	Oxalis acetosella (Wood sorrel)	1L	Full Pot: C	7/m ²
435	PVe	Primula veris (Cowslip)	1L	Full Pot: C	7/m ²
435	PVu	Primula vulgaris (Primrose)	1L	Full Pot: C	7/m ²
435	SD	Silene dioica (Red campion)	1L	Full Pot: C	7/m ²

Woodland Structure Planting

Num	Abbrev.	Species	Size	Specification	Density Counted or m2
158	AC	Acer campestre	60-80cm	Bare root	0.75
158	CS	Cornus sanguinea	60-80cm	Bare root	0.75
158	CA	Corylus avellana	60-80cm	Bare root	0.75
158	MS	Malus sylvestris	60-80cm	Bare root	0.75



Broad-leaved Woodland

(Management)

Defra Metric Condition Assessment (Version 3.0)

The table opposite summarises the condition assessment criteria for woodland habitat, and outlines what criteria will be targeted by the plan.

All existing planting beds support a uniform mature age class of broadleaf trees. Planting native whips within these areas will automatically secure Criteria 1, 5, 7 and 10.

Management

Years 1-2

- Keep a 0.5m diameter around each new bare roost tree clear of weeds to minimise competition during establishment.
- If there is a prolonged dry spell, check soil moisture and water each tree station to saturation at a sufficient frequency to ensure the health of the tree.
- Check the tree guards and stakes are firmly secured in the ground.
- Check trees for pest damage and remove any grass or weeds growing inside the tree guards.
- All timber and brash to be retained on Site, within woodland, in log/brash piles.
- Monitor for, and quickly control and INNS.
- Remove any non-native shrubs that may regrow or establish naturally.
- Do not use any chemicals within woodland area (i.e. herbicides, pesticides or fertilizers).

Years 3-10

- Monitor and replace dying trees.
- Remove any INNS that may colonise.
- Control grey squirrels if they present a problem in terms of browsing damage/ ring barking.

Monitoring

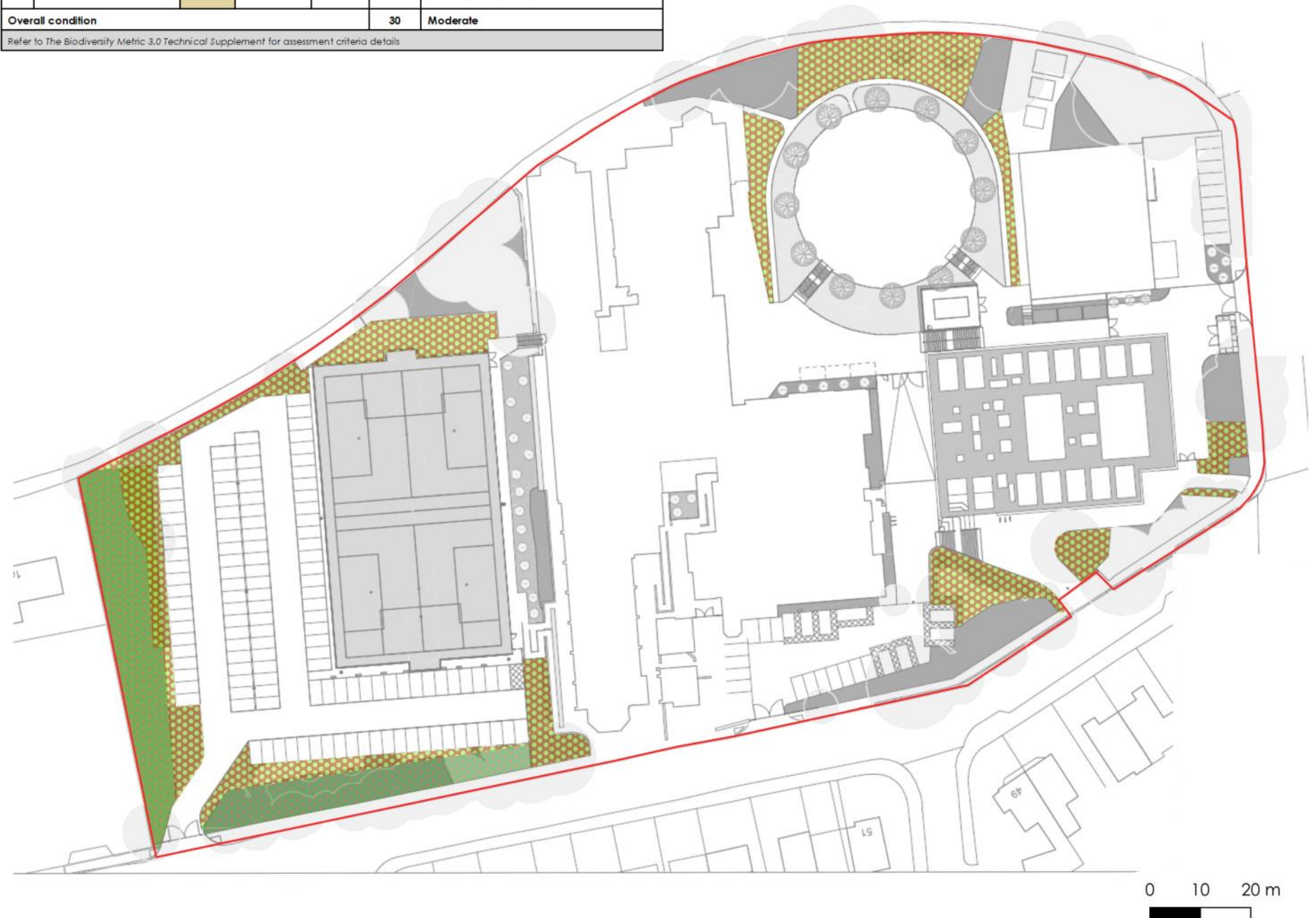
ECoW to conduct monitoring visits in years 2 and 5 to check trajectory to Moderate condition.

Output ECoW report, years 3 and 5.

Remedial action options

- Increase weed control if undesirable species establish.
- Replace any tree failures.

Condition Assessment Criteria: Woodland broad habitat type		Target condition				Notes
		Good	Moderate	Poor	Score	
1	Age distribution of trees		Target		2	Two age classes present
2	Wild, domestic and feral herbivore damage	Target			3	No significant browsing damage evident
3	Invasive plant species	Target			3	no INNS present
4	Number of native tree species		Target		2	Three to four native tree or shrub species found across woodland parcel
5	Cover of native tree and shrub species		Target		2	50-80% of canopy trees and 50-80% of understorey shrubs are native
6	Open space within woodland	Target			3	10-20% of woodland has areas of temporary open space
7	Woodland regeneration		Target		2	One or two classes present in woodland
8	Tree health	Target			3	Tree mortality less than 10%
9	Vegetation and ground flora			Target	1	No recognizable NVC community present
10	Woodland vertical structure		Target		2	Two storeys across all survey plots
11	Veteran trees			Target	1	No veteran trees present in woodland
12	Amount of deadwood			Target	1	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps
13	Woodland disturbance	Target			3	No nutrient enrichment or damaged ground
Overall condition					30	Moderate
Refer to The Biodiversity Metric 3.0 Technical Supplement for assessment criteria details						



Green roof (Planting & Management)

Objectives

- 1. To generate 0.36 Habitat Units, through the enhancement of 0.08ha of Intensive Green Roof on the new school building.

Defra Metric Condition Assessment (Version 3.0)

The table below outlines the condition assessment criteria for Urban habitat, and outlines what criteria will be targeted by planting and management.

	Condition target	Targeted?
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	No
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.	Yes
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area.	Yes
		2/3 Moderate

Specification

Preparation & Planting

As outlined in the Landscape Proposals produced by oobe Ltd.

Management

No specific management required for habitat to reach target condition score. Standard management required; as outlined in the Landscape Proposals produced by oobe Ltd.

Monitoring

As outlined in the Landscape Proposals produced by oobe Ltd.



Bat boxes

Rationale

Ready-made roosting boxes can be incorporated into developments to provide shelter and breeding sites for crevice dwelling bats, such as pipistrelles.

Specification

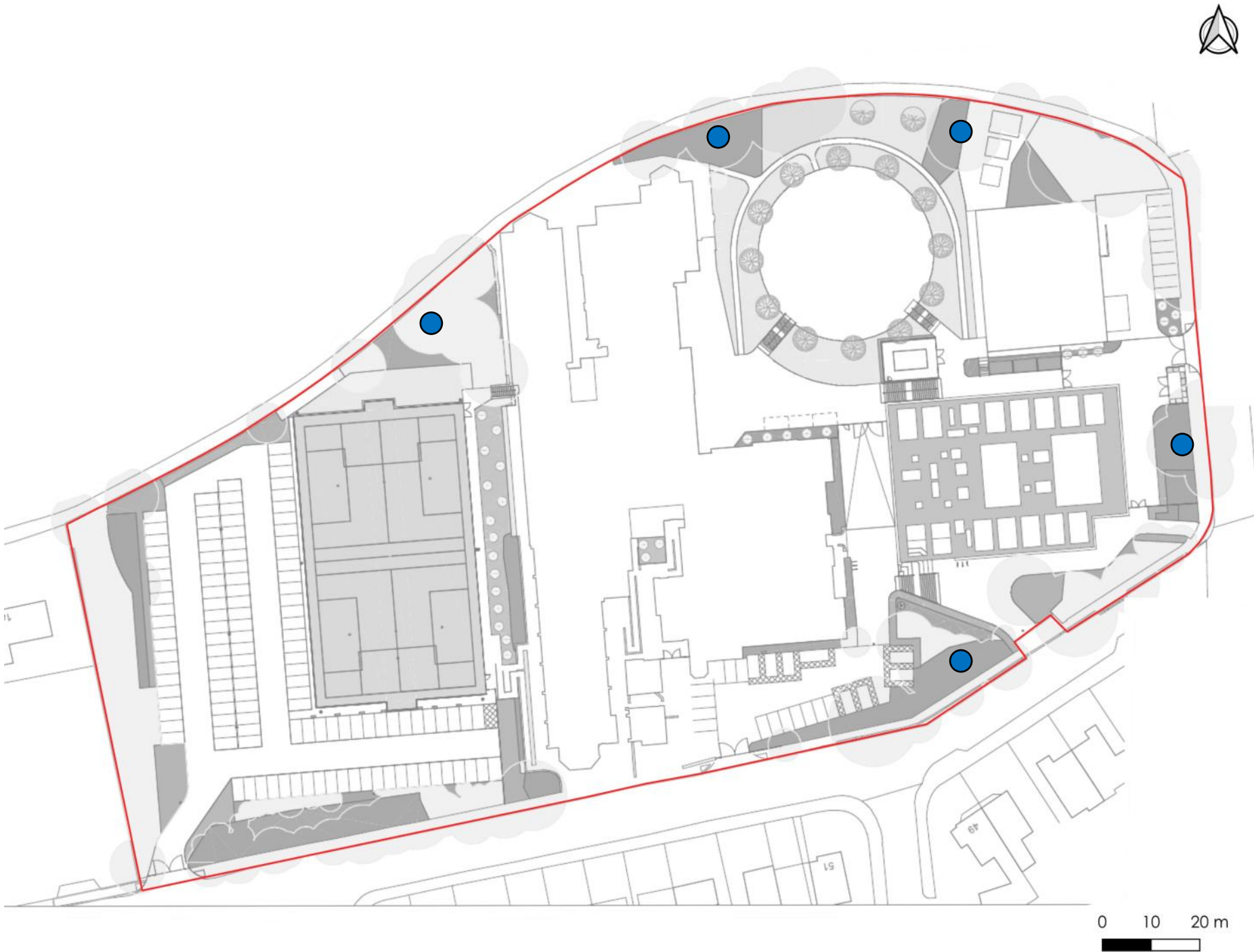
Box Type	No.	Plan ref.
Eco Kent-style Bat Box	5	Blue dots

Location Notes

- Sited as high as possible on suitable mature trees, at least 4m above ground level.
- Boxes will not be positioned where external lighting will cause an issue, or where the tree canopy or surrounding vegetation will cause an obstruction.
- Ideally these should be positioned on a southern-eastern aspect for summer roosting bats.
- Where possible, boxes should be positioned so as to face onto retained boundary vegetation.

Installed

During construction.



Bird boxes

Rationale

Ready-made nesting boxes can be incorporated into developments to provide shelter and breeding sites for declining garden birds such as swift, house sparrow, house martin, and starling.

Specification

Box Type	No.	Plan ref.
Manthorpe Swift Box	12*	Orange dots

* Installed in groups of 2.

Although designed to attract swift, Swift boxes have been shown to act as 'universal' bird boxes, being used by other declining garden birds such as house sparrow, house martin, and starling.

Location Notes

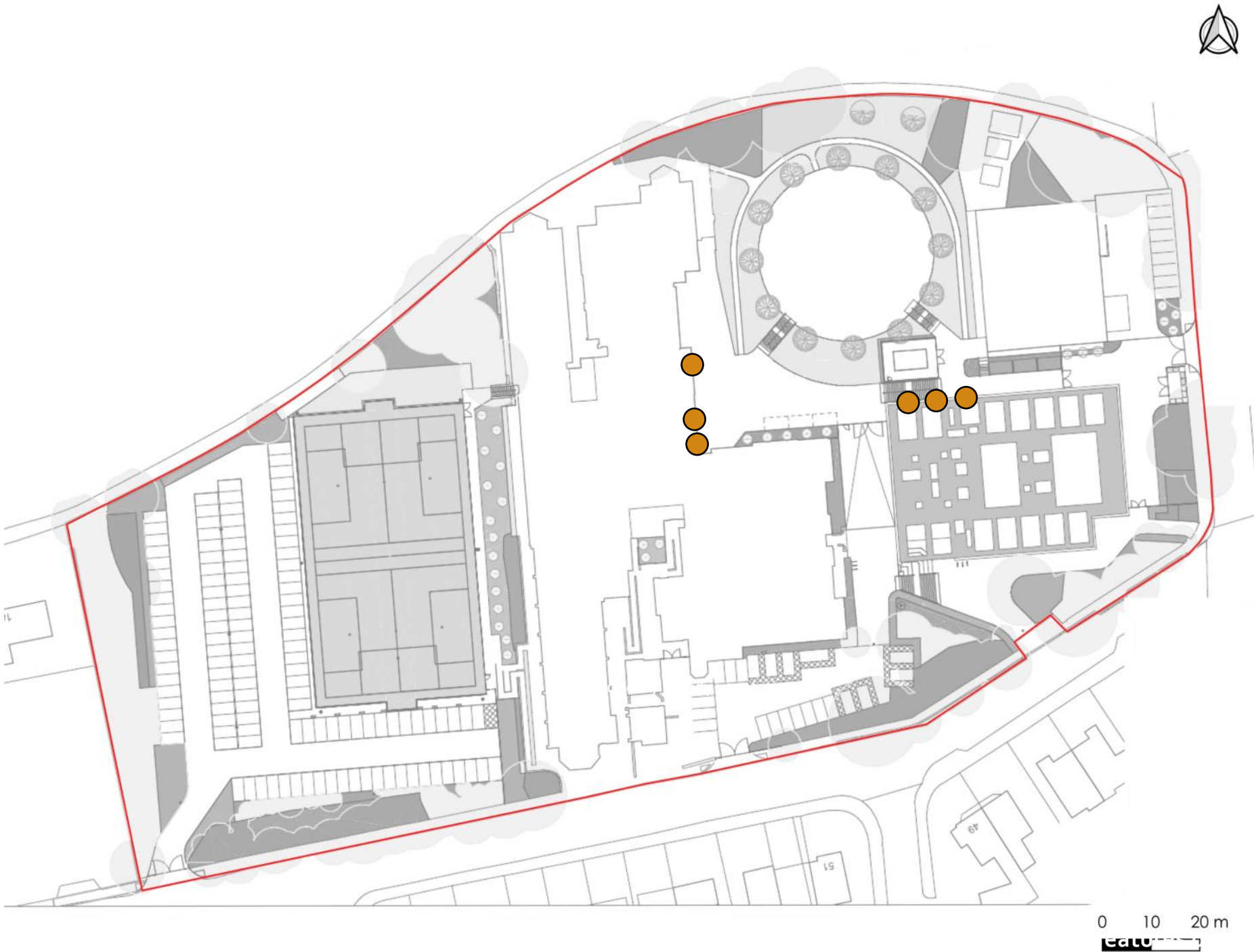
As shown by orange in figure opposite. One orange dot denotes two boxes.

Sited as high as possible on new build, ideally directly below the apex of the verge.

Boxes will not be positioned directly above windows, to prevent potential conflict with new homeowners.

Installed

During construction.



Insect boxes

Rationale

Invertebrates are often overlooked in new housing developments, but represent an incredibly important and diverse group of animals which provide a wide range of ecosystem services and form the basis of most food webs.

Specification

Box Type	No.	Plan ref.
Insect box	5	Yellow dots
Log piles	5	Brown dots

Location Notes

Any timber created from tree works, either to facilitate development, or through routine tree maintain will be retained on Site in the form of log piles. These will be positioned on the boundaries of Open Areas within scrub planting, so as to offer suitable cover/shelter.

Insect boxes will be fixed to new tree supports within wildflower grassland areas.

Installed

During construction.



ECoW Activities



Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Tree and woodland flower Planting					
Grassland seeding					
Grassland cutting					
Create Green roof					
Grassland Weed control					
Habitat monitoring		Grassland	Woodland		Grassland & Woodland
Habitat Condition assessment report grassland and woodland					
Estimated* ECOW days	2	1	1	1	2

* Time needed will depend upon factors beyond the ECoW's control and may vary significantly from this estimate.

Task	ECoW to direct	ECoW to carry out	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6+
Soiling of new habitats	Yes	No	To construction programme	To construction programme				
Seeding and planting of new habitats (woodland and grassland)	Yes	No	October-February					
Preparation of existing grassland habitat, ready for re-seeding	Yes	No	August—October					
Seeding / planting within retained grassland areas	Yes	No	September—October					
Manage wildflower grassland	Yes (in Year 1-2)	No	-	Five cuts March—October	Monthly cuts, avoid cut in June			
Manage Woodland	No	No	-	Standard landscape establishment				
ECoW Monitoring		Yes	Yes	Yes			Yes	Yes—as required