Austin-Smith:Lord

Llangatwg Comprehensive School, Neath

Green Infrastructure Statement

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01 Introduction

01.1 Introduction

This statement sets out the Green Infrastructure associated with the proposed development of Llangatwg Comprehensive School in Heath.

This report has been prepared by Austin-Smith:Lord for Morgan Sindall, to support the scheme's planning application.

Specifically, the document sets out and identifies how the landscape proposals and associated mitigation have been developed to support Green Infrastructure and Ecology within the local context.

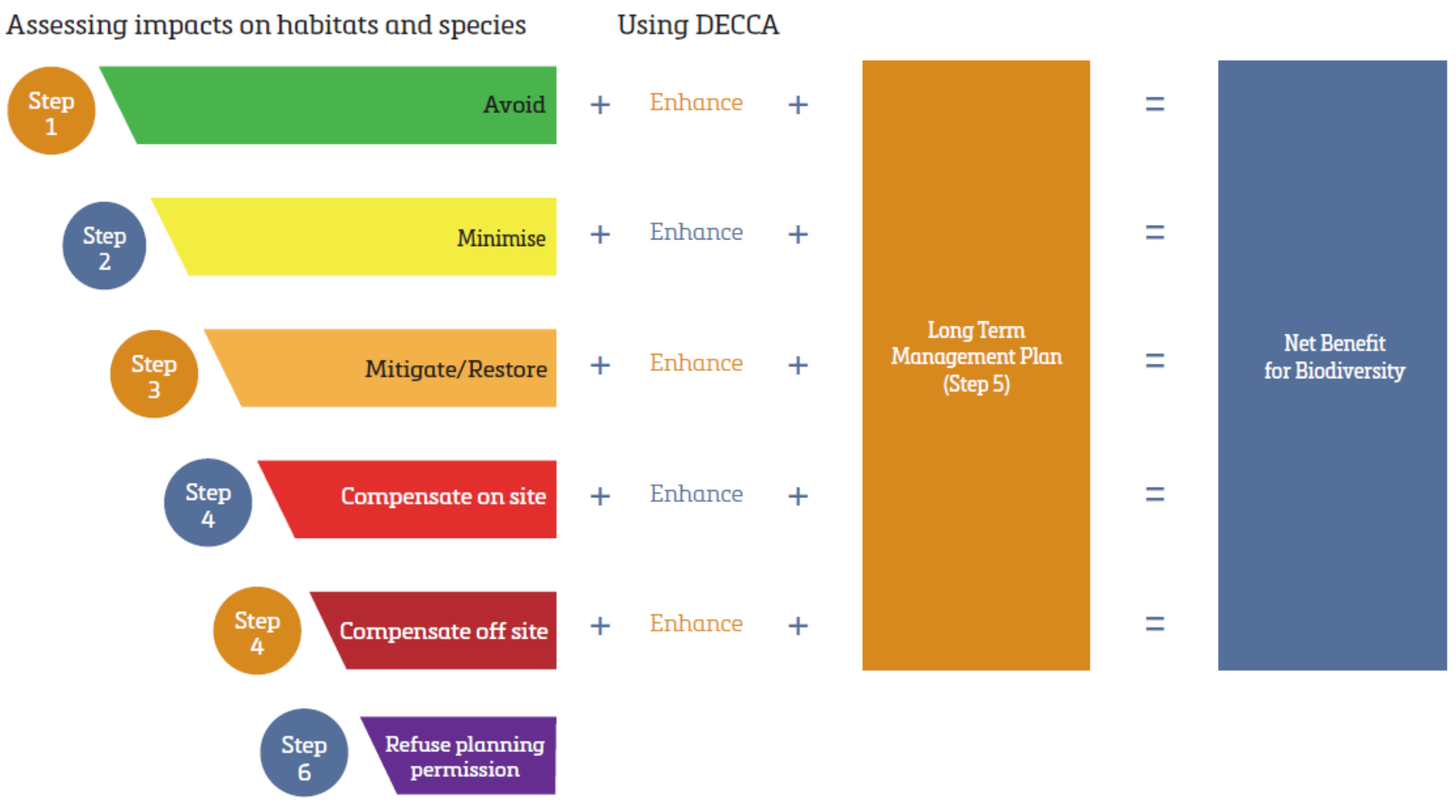


01.2 Planning Guidance

In compilling this statement, Planning Policy Wales (Edition 12) has been taken into consideration, with a focus on the step-wise approach suggested in the document.

This approach is clearly identified on each section of the statement, providing evidence of its use and the outputs of our design process and rationale.

Figure 12: Summary of the Step-Wise Approach



Extract from Planning Policy Wales Edition 12

02 Existing Site Context

02.1 Site Context

The site is located to the north east of the town of Neath. The site is connected to the small settlement of Cilfrew to the north east, and Caxton to the south west, with post-industrial and agricultural land and woodland to the north of the site.

Residential housing lies to the east of this area, and to the south west of the main school site. The Tennant Canal and River Neath corridor lies to the south east, with the A4230 between the school and this corridor.

The A465 dual carriageway is also situated to the south of the site.

The development site is considered to be in a semi-rural location being surrounded by both housing and woodland, tree lines and riparian corridors, with post-industrial and agricultural land to the north.

The River Neath and Tennant Canal are present to the south of the site, and is hydrologically connected with the watercourse flowing through the site. The River Dulais lies to the north and east.

Direct habitat connectivity to the east and south east of the site is more limited due to the presence of housing and a major road. However, there are a number of habitat types in the wider area which provide biodiversity value.



03 Landscape Proposal

03.1 Design Development

AVOID

Building footprint - initial concepts

The proposals will be developed in two stages, with the first phase including partial demolition of the existing school building while a large section of it still remaining operational during the Phase 1 works and the construction of the two MUGAs and the Youth pitch.

The rest of the proposals will be delivered at phase 2.

There are various site constraints that informed the position of the new building, such as the existing woodland to the north, the position of the existing building that would still be operational during the works and also two drainage culverts that could not be relocated.

Taking all of the above constraints into account, initial thoughts revolved around placing the new buildings over the existing sports pitches. This would minimise disturbance on the normal operation of the school during the construction period.



Figure 1 - early sketches of building arrangement

03.1 Design Development

Building footprint - final layout

The preferred building layout is based on a single building instead of multiple ones and also stepping each storey back and away from the main road and the residential properties across it.

This building layout is sympathetic to the existing green infrastructure and only existing sports grass will need to be removed to accommodate it, however this will be provided back at phase 2.

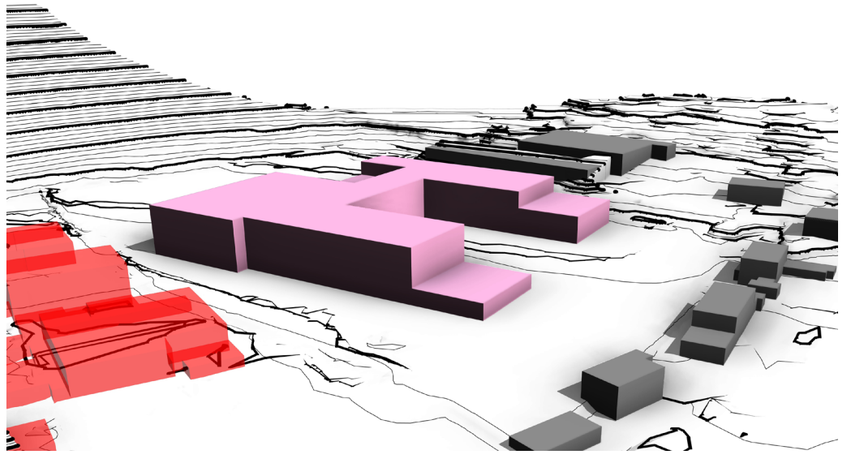


Figure 2a - 3D view of the preferred building layout's massing

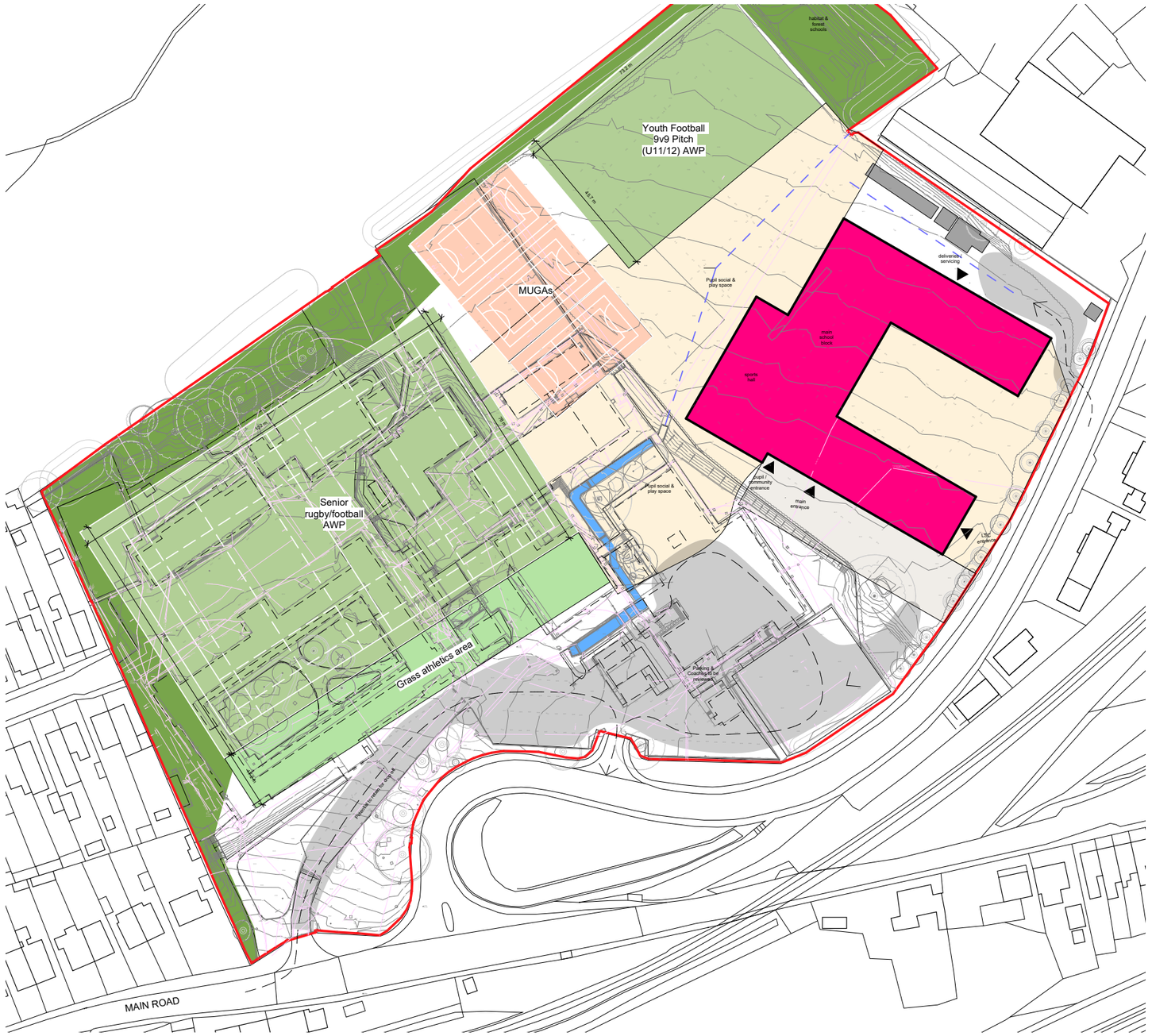


Figure 2 - extract from final site layout not to scale

03.2 Existing Green Infrastructure

MINIMISE

There are three garden areas within the site; a central garden courtyard within Building 1 (Figure 3 - Building 1) supporting shrubs and other ornamental species, a small garden area adjacent to the watercourse and to the west of Building 14 with three mature ornamental conifers, and a small pond.

There are three short sections of hedgerow within the built up section of the site. These hedgerows consist of species including Wild Privet, Common Ivy, Viburnum, Hawthorn, Rosa rugosa, Bramble, Bracken and Elder. Although these hedges are short sections they form well managed dense habitat ideal for nesting birds. These hedgerow sites are isolated and do not connect with any other habitat within the site or the wider landscape.

There are areas of more diverse grassland (semi-improved neutral grassland) on the bank in front of the Old Block (Building 1), and another grassy bank behind the canteen (Figure 3 - Building 7).

There are several scattered trees amongst the school buildings.

The sports field to the east of the site consists of regularly managed amenity grassland. The perimeter and corners of the pitch to the north and west support non-ruderal herbs and grassland species associated with woodland edge, with marshy grassland species present to the eastern end of the boundary.

There is also a small school allotment adjacent to the woodland boundary in the north consisting of raised beds.









Photos of existing vegetation

03.2 Existing Green Infrastructure

The semi improved neutral grassland to the north east of the sports field is fenced along the western boundary and has a northern and eastern boundary supporting mature tree species including Sycamore, Willow species, English Oak, Alder, Hazel Rhododendron and Bramble.

There is an area of scrub in the north east corner of the rough grassland and all along the edge of the wooded boundary. The scrub and tall ruderal vegetation continues along the eastern boundary of the sports field to the south east corner.

The southern boundary of the sports field is planted with a linear corridor of Cherry trees with grassland of a slightly taller sward than the rest of the field. There is a single mature White Willow tree in the south west corner of the field.

There is an area of south facing but shaded woodland edge habitat along the northern boundary to the rear of buildings 7 and 10. This area is separated from the woodland by a hoop-top fence and has been mapped as non-ruderal vegetation, scrub habitat with scattered trees in the PEA.

There were several notable invasive non-native plant species (INNS) recorded on the site, including Rhododendron within the woodland and northern boundary within the area of grassland. Buddleja was also recorded along the northern boundary. There is a large stand of Japanese Knotweed close to the south east corner of the field.

There has been some scrub vegetation clearance to the north boundaries to expose the extent of the current fence line and water body that runs along that end.



Photos of existing vegetation

03.2 Existing Green Infrastructure



Figure 3 - extract from PEA

03.3 Vegetation Retention and Removal

Figure 4 shows the extent of the existing vegetation that needs to be removed to realise the scheme, however many of the existing trees to be removed are identified as either Category C or U in the tree survey (refer to Appendix 04.1) and therefore provide limited value.

The removal of some of the higher quality trees is dictated by conflicts with the proposals to meet the school needs in terms of sports or access provisions.

Table 1 below indicates the number of individual trees that are marked on figure 4 for removal and the overall areas of vegetation groups that will also be removed and need to be mitigated with similar areas.

SITE TREES	Existing removed	Mitigation
Individual (no)	34	102
Groups (m^2)	1316	1316

Table 1 - mitigation requirements

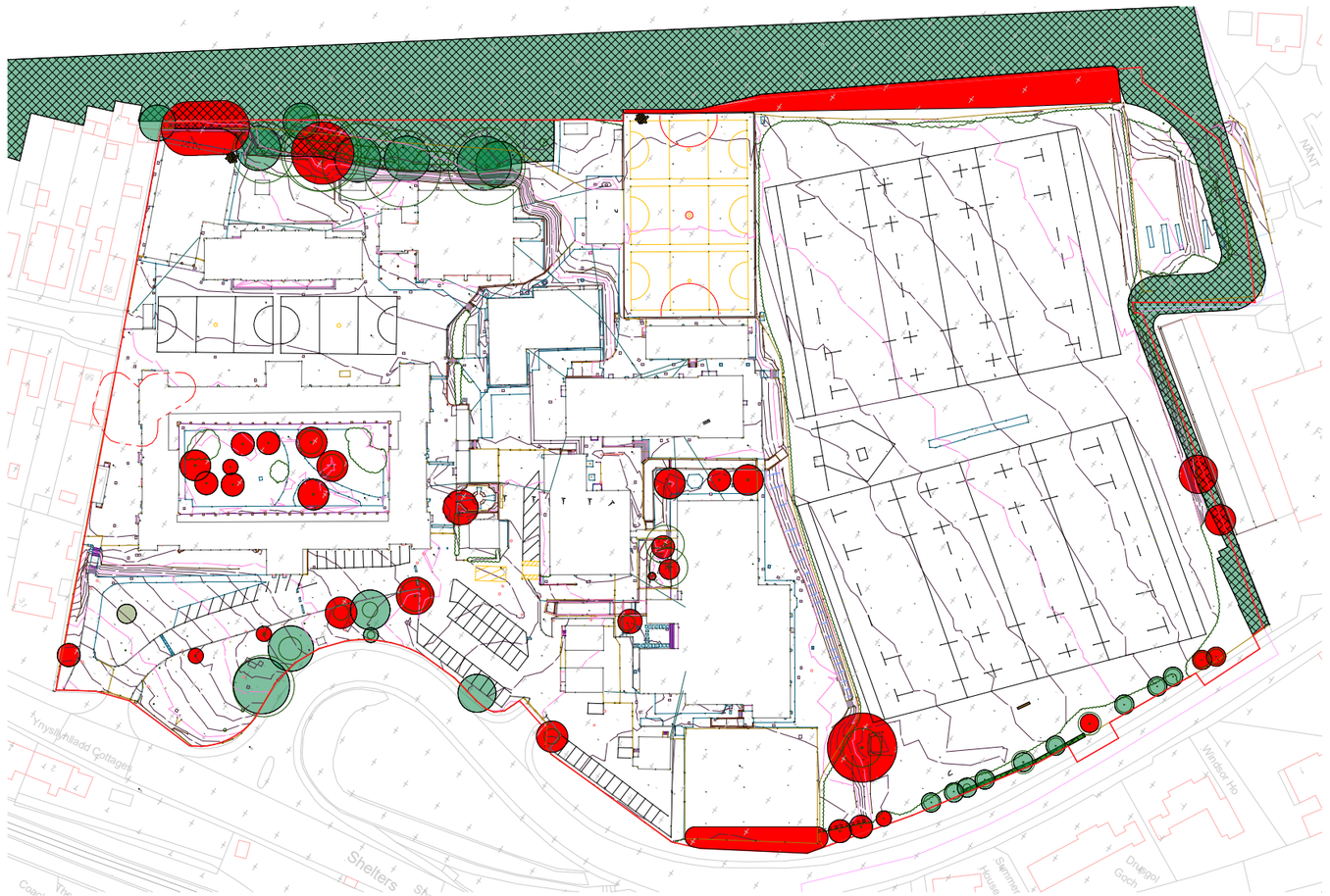


Figure 4 - extract from Trees Removed and Retained Plan not to scale

03.4 Landscape Proposal

MITIGATE / RESTORE

Any existing tree loss is mitigated by providing new trees at a ratio of 3:1 as recommended in Planning Policy Wales 12.

Grouped vegetation clearance that isn't identified as individual tree planting, is mitigated by providing similar or larger size areas of native species vegetation. This includes the understorey planting to the west and the buffer planting to the south of the site.

The removal of the existing amenity grass to the sports pitches is partially mitigated by the re-seeding of grass to provide the informal soft landscape areas around the sports pitches.

Areas of shrub planting are proposed at various locations around the site, with an overall increase in the soft landscape planting compared to the existing areas. This includes both ornamental shrubs around the building including pollinating species and native shrub mixes towards the boundaries, creating links to habitat areas and increase the biodiversity benefits.

Stretches of proposed native hedgerows are proposed along the southern boundary to mitigate the loss of the internal hedgerows. The proposed hedgerows will be better connected to adjacent buffer planting, creating a stronger habitat link and enhancing the southern boundary planting.

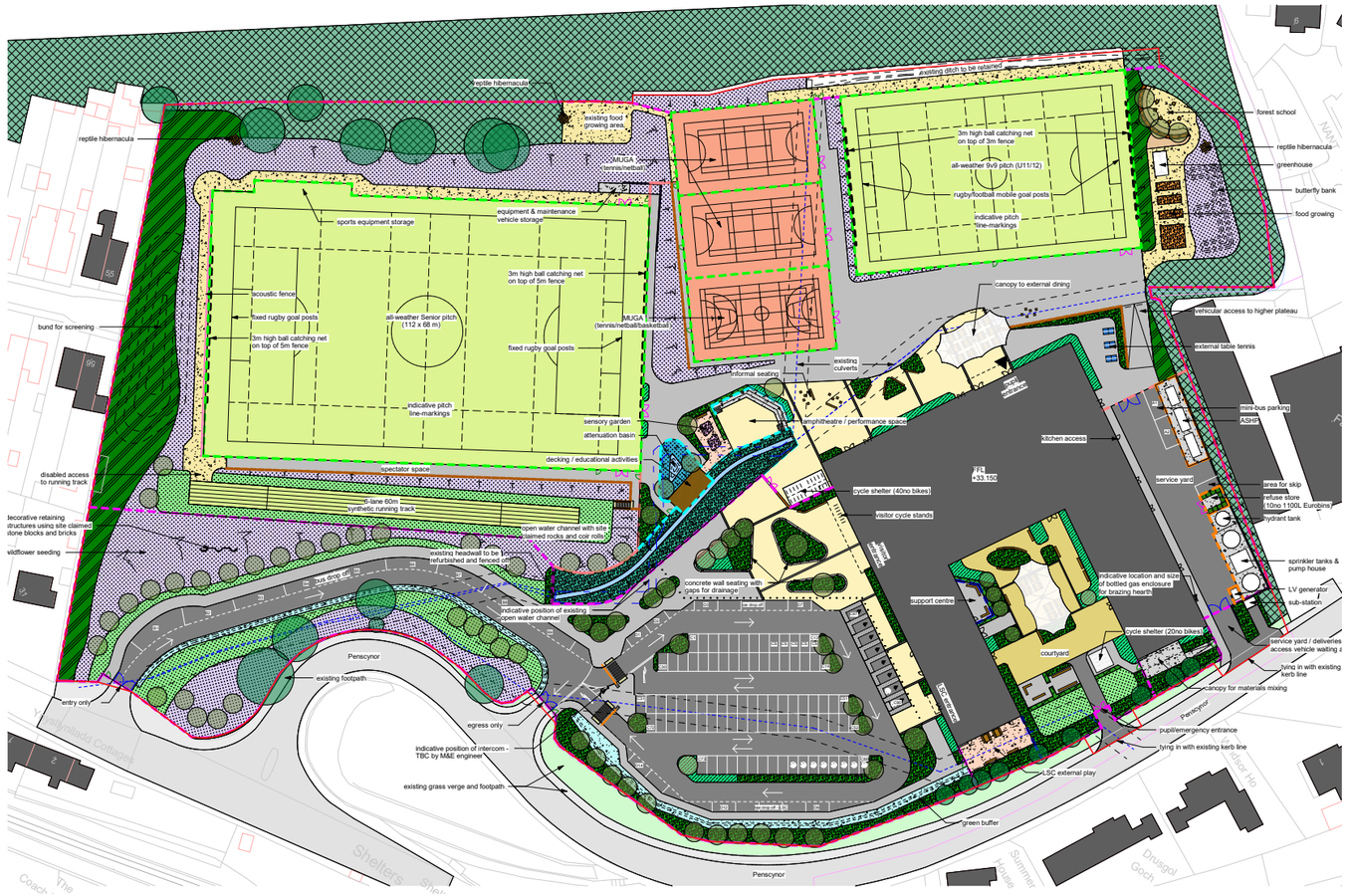


Figure 5 - extract from Landscape Masterplan not to scale

03.4 Landscape Proposal

COMPENSATE ON SITE

The compensation measures intend to offer an improvement in terms of bioversity, with landscape elements that were either not present on the existing site or have significantly improved the functionality of existing features.

Wildflower meadows are proposed at large areas around the sports pitches and close to the existing woodland, as well as at areas where the gradient is not suitable for any other type of vegetation.

The sensory garden plants offer a different palette of species with benefits to both the pupils as well as for local habitat and can attract a variety of insects.

A butterfly bank is proposed to the northern side of the site close to the forest school and existing woodland.

A reptile hibernacula is also proposed to the forest school area and close to the existing woodland which creates an habitat rich environment while providing educational opportunities.

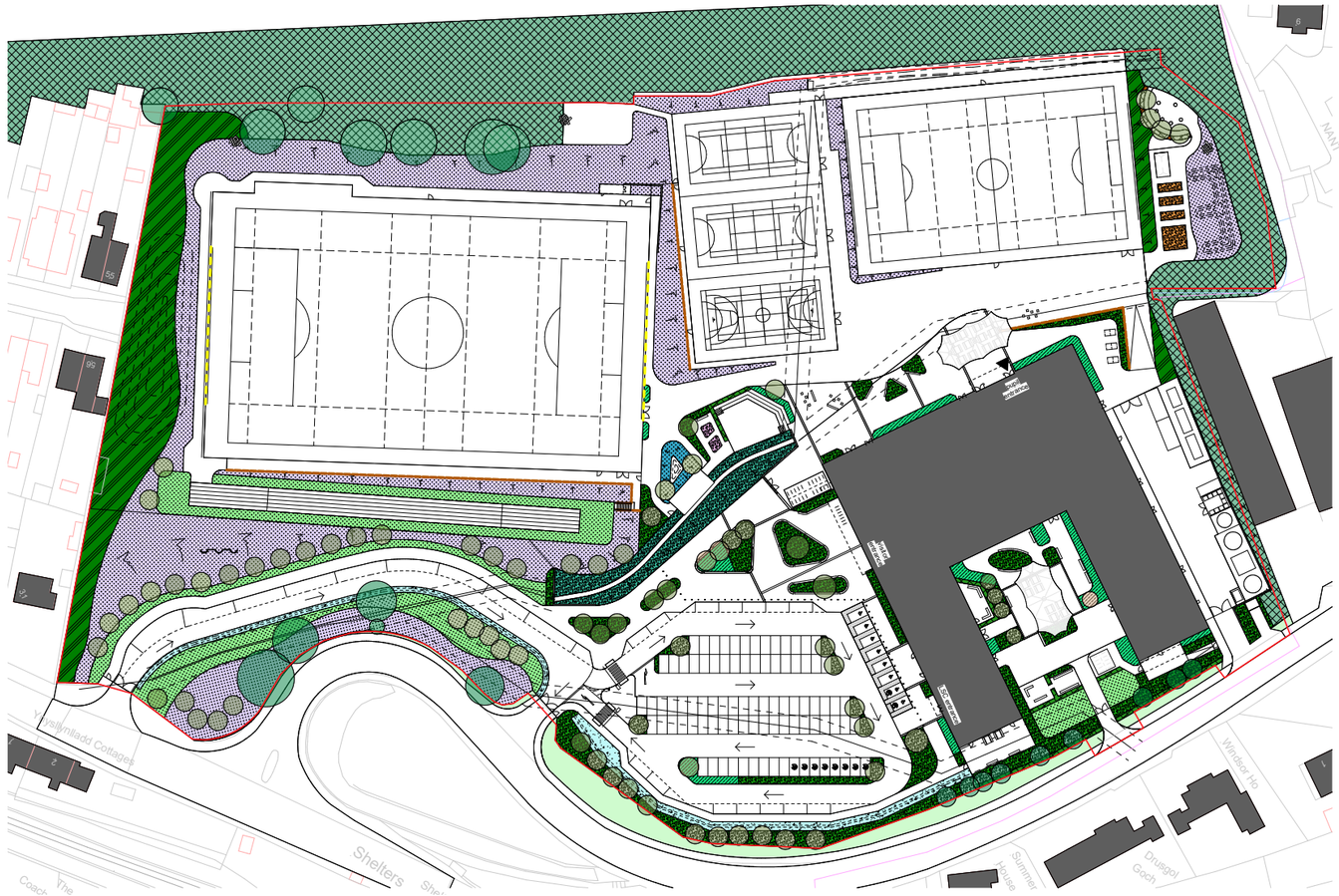


Figure 6 - extract from Soft Landscape plan
not to scale

03.5 SuDS Planting

SuDS features

The open water concrete channel is proposed to be converted to a habitat rich water corridor, where a variety of planting species are introduced. The proposals include wetland tolerant species and coir rolls along the base of the channel and the constantly flowing water. This creates a more diverse environment for habitats and also helps improve the aesthetics of this central space and the pupils' wellbeing.

In coordination with the civil engineers, rain gardens are proposed in key locations around the main building, harvesting and utilising surface water run-off. This also provides these spaces with different textures in the soft landscape.

The proposed attenuation pond will have a shallow depth of standing water and its banks will be seeded as mashy grassland, while its base will have water tolerant planting species. Both of these types of planting will be contributing to a habitat creation currently not present.

The swales to the south end of the entrance road and main car park offer sustainable infliltration and transfer of surface water, while providing biodiversity benefits to the scheme.











Examples of SuDS planting

03.6 Long Term Management Plan Summary

LONG TERM MANAGEMENT PLAN

The Landscape Management Plan provides general guidance for the successful establishment and thriving of the landscape proposals.

The scheme's success heavily relies on the consistent and timely application of the actions proposed in the plan. For more details on the maintenance strategy refer to Appendix 04.3.

Tree Planting

Task	Timescale's and frequency	J	F	M	A	M	J	J	A	S	O	N	D
Inspect stakes, ties and underground guy performance for support. Adjust ties and tighten wires as required. Straighten out and re-firm trees as required.	October to March Annually and after major storm events	X	X	X							X	X	X
Fertilize trees which are not thriving and are not otherwise affected by disease, poor drainage etc. Not required in first season.	May or early June Once per year					X	X						
Check any tree guards are upright.	October to March	X	X	X							X	X	X
Check SuDS and trees in hard landscape details, such as tree grilles.	October to March	X	X	X							X	X	X
Keep soil around trees weed free by hand	March to October			X	X	X	X	X	X	X			
Maintain amenity bark mulch around trunk to keep bark dry	All year	X	X	X	X	X	X	X	X	X	X	X	X
Check trunks for mowing damage	March to October			X	X	X	X	X	X	X			
Irrigation during year 1 Allow for watering once per week through growing season to field capacity using irrigation tube in addition to overhead watering.	April to October Every week				X	X	X	X	X	X			
Irrigation during year 2 Water in accordance with regimes depending on tree situation - within SuDS, hard landscape or soft landscape. Monitor soil moisture if temperature in line with BS 8545:2014 during the 3 year establishment phase.	May to September Every month					X	X	X	X	X			
Monitor health of SuDS trees and review trunk growth	All year	X	X	X	X	X	X	X	X	X	X	X	X
Remove above ground tree stakes after no more than two growing seasons. Backfill holes with topsoil. Cut underground guys wires over rootball to free up root growth.	October to March End of second growing season	X	X	X							X	X	X
Monitor soil around newly planted trees for poor drainage especially after high rainfall events. If pits are retainaing water, open up and rectify issue. Backfill to original specification.	After high or prolonged rainfall	X	X	X	X	X	X	X	X	X	X	X	X
Failures to be replaced as soon as planting season allows	November to March	X	X	X								X	X
Every 3 years, undertake safety inspections by arboriculturalist to BS 5837:2012. Carry out remedial work in accordance with BS 3998:2010	As required Every 3 years and after severe storms												

Shrub/Hedge Planting

Task	Timescales and frequency	J	F	M	A	M	J	J	A	S	O	N	D
Annual pruning to control shape, height and width.	February Once per year		X										
Undertake formative pruning to remove dead/dying branches as required.	October to March	X	X	X							X	X	X
Remove all arisings to compost either off site or on site as directed.	All year	X	X	X	X	X	X	X	X	X	X	X	X
Check guards and stakes are upright and remove by year 5.	October to March	X	X	X							X	X	X
Refirm as required during establishment period.	Monthly Year 1 to 3	X	X	X	X	X	X	X	X	X	X	X	X
Maintain amenity bark mulch around trunk to keep bark dry	All year	X	X	X	X	X	X	X	X	X	X	X	X
Keep soil weed free by hand	March to October			X	X	X	X	X	X	X	X		
Water during establishment to year 3 as directed.	March to October			X	X	X	X	X	X	X	X		
Failures to be replaced as soon as planting season allows	November to March	X	X	X								X	X
Monitor soil around newly planted shrubs for poor drainage especially after high rainfall events. If beds are retainaing water, open up and rectify issue. Backfill to original specification.	March to October			X	X	X	X	X	X	X	X		

Amenity Grass

Task	Timescales and frequency	J	F	M	A	M	J	J	A	S	O	N	D
Establishment first cut at 50mm	If autumn sown, first cut to be following spring												
Mow to retain height of 35-50mm. Remove all arisings to compost off site or on site as directed. From year 2 to encourage flowering or species rich lawn, mowing can be relaxed from late June. Cut again when the sward gets untidy (after 4-8 weeks). Mowing may be suspended earlier in the year to allow spring species to flower. Heavy quantities of cuttings should be collected and composted. Avoid mowing if ground conditions are wet.	March to October			X	X	X	X	X	X	X	X		
Water to maintain healthy growth until established.	March to October			X	X	X	X	X	X	X	X		
Strim around obstables as required. Avoid damaging trees	March to October			X	X	X	X	X	X	X	X		
Remove litter, fallen branches and stones over 25mm	March to October			X	X	X	X	X	X	X	X		
Reseed over any bare areas or worn areas	April or September				X					X			
Monitor for poor drainage especially after high rainfall events. Rectify issue if required to original specification.	March to October			X	X	X	X	X	X	X	X		
Remove perennial weeds	March to October			X	X	X	X	X	X	X	X		
Fill hallows with topsoil to level out and create positive dranage falls where required. Cultivate and seed to original specification.	March to October				X					X			

Meadow Grass and Wetland Meadow

Task	Timescales and frequency	J	F	M	A	M	J	J	A	S	O	N	D
Establishment in year 1 Control any weeds by topping or mowing. First cut 50-75mm. Mow or strim regularly to maintain 40-60mm and remove heavy quantities of cuttings. Leave approximately 33% of arisings within wetland meadow areas for reptiles.	If autumn sown, first cut to be following spring												
Allow flowering and seed to set from May to July/August before cutting. Leave cuttings to dry and shed seed for 1-7 days. Cut again to 50mm in September/October. Leave approximately 33% of arisings within wetland meadow areas for reptiles.	July/August and September/October							X	X	X	X		
Strim around obstables as required. Avoid damaging trees	March to October			X	X	X	X	X	X	X	X		
Remove litter, fallen branches and stones over 25mm	March to October			X	X	X	X	X	X	X	X		
Reseed over any bare areas or worn areas	April or September				X					X			
Monitor for poor drainage especially after high rainfall events. Rectify issue if required to original specification.	March to October			X	X	X	X	X	X	X	X		
Remove perennial weeds	March to October			X	X	X	X	X	X	X	X		
Fill hallows with topsoil to level out and create positive dranage falls where required. Cultivate and seed to original specification.	March to October				X					X			

SuDS / Rain Garden

Task	Timescales and frequency	J	F	M	A	M	J	J	A	S	O	N	D
Mowing regime refer to Meadow Grass and Wetland Meadow maintenance schedule.													
Refer to Tree Planting maintenance schedule for tree planting within SuDS and Rain Gardens													
Remove litter, fallen branches and stones over 25mm	March to October			X	X	X	X	X	X	X	X		
Shrub maintenance visits	March to October Monthly during growing season until planting established in year 3			X	X	X	X	X	X	X	X		
Removal all cuttings to compost either off site or on site as directed	All year	X	X	X	X	X	X	X	X	X	X	X	X
Maintain amenity bark mulch and gravel to rain gardens throughout	All year	X	X	X	X	X	X	X	X	X	X	X	X
Keep soil weed free by hand weeding	March to October			X	X	X	X	X	X	X	X		
Prune, dead head and trim shrubs and perennials to species requirements. Cut back herbaceous plants and grasses in spring. Retain seed heads of winter.	March to October			X	X	X	X	X	X	X	X		
Water during establishment to year 3 as directed.	March to October			X	X	X	X	X	X	X	X		
Failures to be replaced as soon as planting season allows	November to March	X	X	X								X	X
Remove any plant supports/guards as soon as plants are established	November to March	X	X	X								X	X
Inspections Assess plants for disease and poor growth. Assess seed and planting mix success and failures in relatino to SuDS drought and floor conditions and identify measures to rebalance if required.	6 times during growing season for year 1 3 times between March and October for year 2 onward												
Control any over dominant species, cut back or remove by hand.	March to October			X	X	X	X	X	X	X	X		
Replace plants to maintain planting density	November to March	X	X	X								X	X

03.7 Net Benefit for Biodiversity

NET BENEFIT FOR BIODIVERSITY

Landscape input

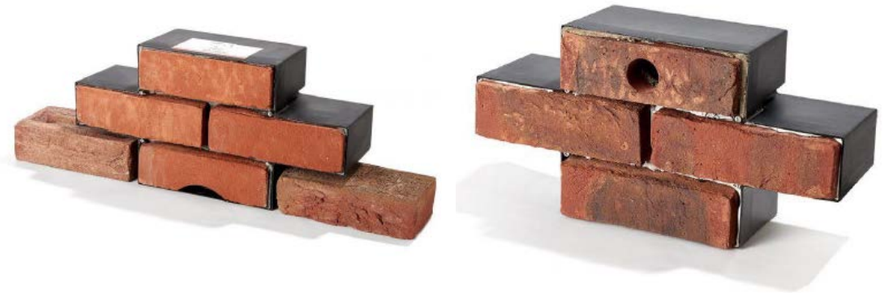
The list below provides a summary of the net loss and gain for biodiversity.

- Native and climate resilient tree planting is proposed within the site.
- Hedgerows not linked to the wider landscape are removed but replaced with stretches of hedgerows linked to adjacent planting forming a stroger soft buffer.
- Rain gardens are introduced into the site, previously not present.
- Ornamental and native shrub planting including polinating species, provide an attractive external environment with additional ecological benefits.
- A butterfly bank is proposed close to the forest school with habitat and educational benefits.
- A reptile hibernacula is proposed close to the forest school area using site-gained materials, promoting sustainability and habitat creation.
- The creation of a lively open water channel provides opportunities for new habitat creation.
- Creation of a sensory garden.

Ecological input

As mentioned in the Preliminary Ecological Assessment (refer to Appendix 04.2) the proposals will achieve biodiversity net benefit by:

- Planting of additional stretches of hedgerow using locally-sourced native species.
- Creation of habitat connectivity around the site.
- Incorporation of bat and bird boxes within the fabric of the new development.
- Inclusion of native tree and shrub mix species within the landscape design to provide additional resources for invertebrates.
- Provision of an appropriate landscape management plan to ensure spaces are useful to wildlife.
- Hedgehog friendly fencing around the site - proposed perimeter fencing to allow for wildlife access by having regular gaps at its base.



Examples of bat and bird boxes

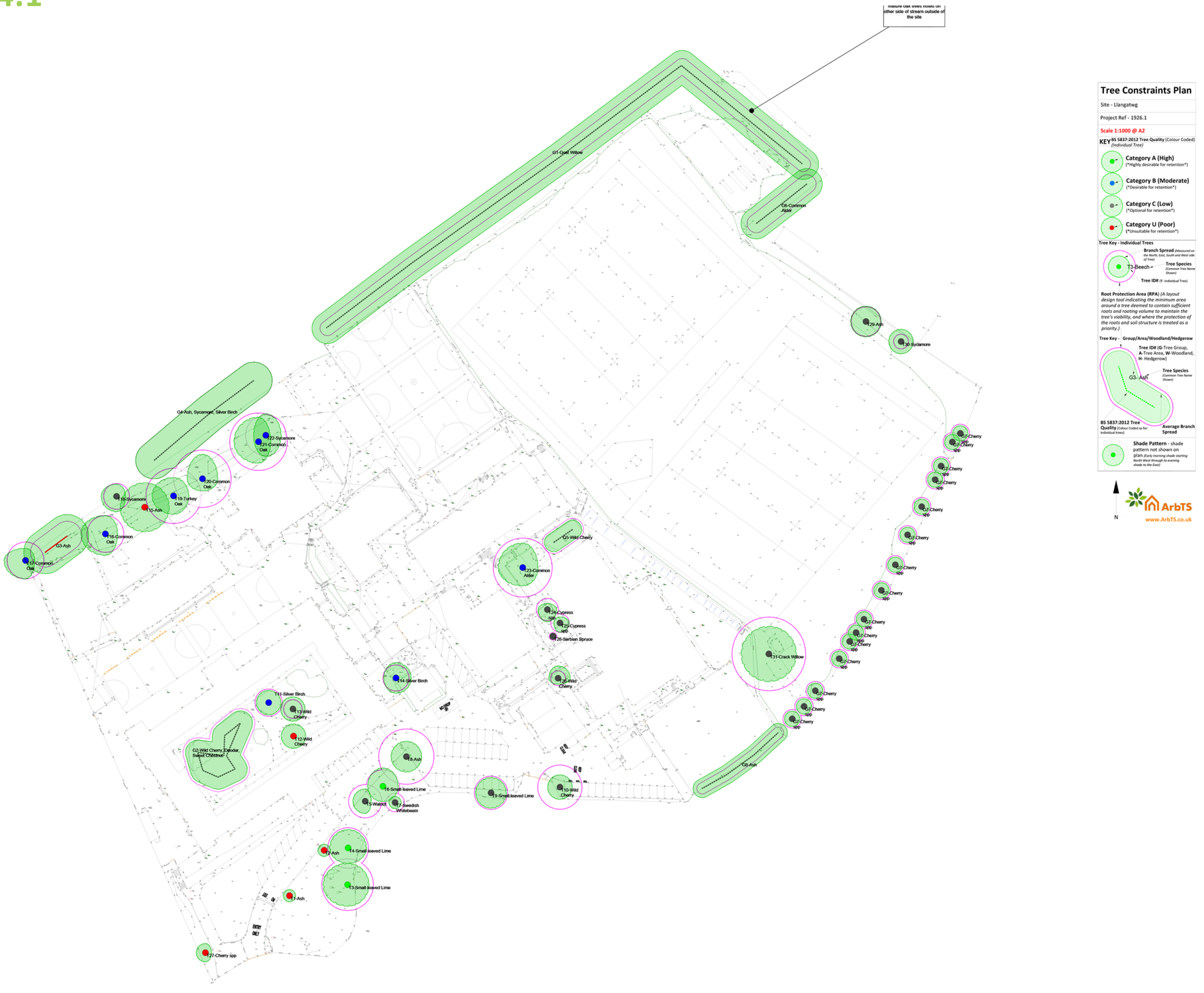


Example of reptile hibernacula with site-won materials and butterfly bank

04 Appendices

04.1 Tree Survey

Appendix 04.1



Tree Constraints Plan

Site - Llangatwg

Project Ref - 1926.1

Scale 1:1000 @ A2

KEY **BS 5837:2012 Tree Quality** (Colour Coded) *(Individual Tree)*

- **Category A (High)** (*Highly desirable for retention*)
- **Category B (Moderate)** (*Desirable for retention*)
- **Category C (Low)** (*Optional for retention*)
- **Category U (Poor)** (*Unsuitable for retention*)

Tree Key - Individual Trees

Root Protection Area (RPA) *(A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.)*

Tree Key - Group/Area/Woodland/Hedgerow

Shade Pattern - shade pattern not shown on plan *(Early morning shade starting North West through to evening shade to the East)*

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04.2 Preliminary Ecological Assessment

Preliminary Ecological Assessment



Project: Llangatwg Comprehensive School, Aberdulais
Instructed by: Morgan Sandal Construction

Reported by: Ecological Services Ltd
10 Mount Pleasant, Llanelly Hill, Abergavenny, Monmouth NP7 0NT
Reported by

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4. Aerial View of Site
5.Invertebrate Habitat Potential Assessment
6. Reptile Hibernacula
7. Legislation

1. Introduction

The development proposals are in the very early stages and detailed designs are not available. The proposals seek to demolish the current school buildings, and build new school buildings in a new location within the existing school boundary, to the south east. The remainder of the site is proposed for a variety of playing fields and car parking provision to service the new school building. The exact layout and design of the building has not been agreed. It is anticipated that the proposals will affect the majority of the site.

At present the site is a large school complex which consists of permanent and temporary school buildings (portacabins), sports pitches, car parks, access road, and associated landscaping within, and around the edge of the site centred at SS7672699322. The buildings are of a varied age ranging from old Victorian through to more recent construction. Metal palisade fencing (2m high) surrounds the site.

An unnamed watercourse flows in a south westerly direction through the school complex, and is culverted in places within the site. This unnamed watercourse connects with a second watercourse to the north which flows through the broad-leaved woodland to the northwest of the site. This broadleaved woodland forms the north west boundary of the site and connects the site with the wider landscape in the north. A small area of rough grassland is located to the north of the sports field in the north east, adjacent to a small industrial estate to the west, with a watercourse forming the northern and eastern boundary of the area.

This report will assess the potential of the land within the site boundary to support habitats and species and the implications that any future development proposals could have on them.

1.1 Site Description

The site is located to the north east of the town of Neath. The site is connected to the small settlement of Cilfrew to the north east, and Caxton to the south west, with post-industrial and agricultural land and woodland to the north of the site. Residential housing lies to the east of this area, and to the south west of the main school site. The Tennant Canal and River Neath corridor lies to the south east, with the A4230 between the school and this corridor. The A465 dual carriageway is also situated to the south of the site.

The development site is considered to be in a semi-rural location being surrounded by both housing and woodland, tree lines and riparian corridors, with post-industrial and agricultural land to the north.

1.2 Survey Constraints

The site visit was completed during October which is a sub optimal time of year to undertake habitat assessments. However, it was possible to draw broad conclusions on habitat types within the site boundary.

The absence of desk study records cannot be relied upon to determine absence of particular species/habitat. Often, the absence of records is a result of under-recording within the given search area.

The optimal time period to carry out ground-based visual assessments of trees for bat roosting potential is between December to March inclusive, when broadleaved trees are devoid of leaves and features are more readily visible. It should be noted that ground based assessments are inherently constrained and potential roosting features present upon the skyward facing surfaces of limbs and branches will most likely be missed.

1.3 Surveyor Experience

Viv Geen is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Viv is an ecologist with over 30 years experience undertaking a wide range of flora and fauna surveys. All survey work is undertaken following JNCC Phase 1 Survey Guidelines and CIEEM Guidelines for Preliminary Ecological Appraisal (2nd Ed 2017). Viv is a licensed bat (England), great crested newt and dormouse (England and Wales) ecologist with a wide variety of experience undertaking ecological surveys, including botanical surveys (Level 4 FISC rated, 2024).

2. Desktop Study

A data search was undertaken via Aderyn for the proposed development site and surrounding area (ref: 0245-550). A 2km buffer zone was searched and records returned within 500m of the site are noted below:

- Common Frog (*Rana temporaria*) - there are 5 records within 500m with the closest record 41m directly to the north of site.
- Common Toad (*Bufo bufo*) - the closest record was returned 41m directly north of the site
- Hedgehog (Erinaceus europaeus) - there are six records within 500m of the site with the closest being approximately 140m to the north west.
- Brown/Sea Trout (*Salmo trutta)* - closest records are within the River Dulais 310m to the west of the site
- Grass Snake (*Natrix natrix)* - closest record being approximately 300m north east of the site.
- Badger (*Meles meles*) - there are five records within 500m of the site with the closet record being approximately 200m to the south east of site.
- Common Lizard (*Zootoca vivipara*) - closest record being approximately 220m north of site.
- Otter *(lutra lutra*) - closest record being approximately 365m away to the north east.
- Records of birds listed under Section 7 of the Environment (Wales) Act 2016 (EWA 2016) within 500m of the site including:, Song Thrush (*Turdus philomeios*), Herring Gull (*Laurus argentatus*),, Common Bullfinch (*Pyrrhula pyrrhula*), Common Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), Spotted Flycatcher (*Muscicapa striata*), Black-headed Gull (*Chroicocephalus ridibundus*), Common Linnet (*Linaria cannabina),* Northern Lapwing (*Vanellus vanellus*), Common Cuckoo (*Cuculus canorus)*, and Wood Warbler (*Phylloscopus sibilatrix*).
- Records of birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 within 500m of the site include: Barn Owl (*Tyto alba*), Osprey (*Pandion haliaetus)*, Hobby (*Falco subbuteo*), Goshawk (*Accipiter gentilis)*, Red kite (*Milvus milvus)*, Redwing (*Turdus illacus*), and Kingfisher (*Alcedo attis).*
- Invertebrate records within 500m including: Small Blue (*Cupido minimus*), Wall (*Lasiommata megera*), Small Phoenix moth (*Ecliptopera silaceata*), Sallow moth (*Cirrhia icteritia*), Heath Rustic moth (X*estia agathina*), Dot Moth (*Melanchra persicariae)*, Cinnabar moth (*Tyria jacobaeae*), Oak-Hook-tip moth (*Watsonalla binaria*), Brindled Beauty moth (*Lycia hirtaria*), Blood-vein moth (*Timandra comae*), Garden Tiger moth

(*Arctia caja*), Buff Ermine moth (S*pilosoma lutea*), Rustic moth (*Hoplodrina blanda*), and Flounced Chestnut (*Anchoscelis helvola*).

Records of note returned for the rest of the 2km buffer zone are detailed below:

- Roost record for Daubenton's bat (*Myotis daubentonii).*
- Roost record for an unidentified Pipistrelle bat species.
- Slow Worm (*Anguis fragilis*).
- Smooth Newt (*Lissotriton vulgaris*).
- Palmate Newt (*Lissotriton helveticus*).
- Commuting and foraging records for Common Pipistrelle (*Pipistrellus pipistrellus),* Noctule bat (*Nyctalus noctula),* Daubenton's bat, Natterer's bat (*Myotis nattereri*), Whiskered bat (*Myotis mystacinus*)
- Roost record for Soprano Pipistrelle (*Pipistrellus pygmaeus*).
- Lesser Redpoll (*Acanthis cabaret*)
- Cetti's Warbler (*Cettia certi)*
- Peregrine (*Falco peregrinus*)
- Willow Tit (*Poecile montanus*)
- Fieldfare (*Turdus pilaris*)
- Crossbill (*Loxia curvirostra*)
- Grasshopper Warbler (*Locustella naevia*)
- Yellow Wagtail (*Motacilla lava*)
- Reed Bunting (*Emberiza schoeniclus*)
- Skylark (*Alauda arvensis*)

2.1 Protected Sites

The search also considered statutory and non-statutory protected sites within 2km of the site boundary.

Statutory Protected Sites

There are no statutory protected sites within 2km of the site.

Non- Statutory Protected Sites

There are 10 Sites of Interest for Nature Conservation (SINCs) within 2km of the site. The NPT watercourse SINc appears to cover the entire county of Neath Port Talbot. However it is thought to be only relevant for watercourses in the local area. The closest SINC site is and area of Ancient Semi Natural Woodland along the northern boundary of the development site. The remaining SINC sites along with an approximate distance from site are listed below:

- Ffynnon Fawel (33m)
- Tennant Canal (152m)
- Catwg Wetland (182m)
- Neath Canal (445m)
- Neath Estuary (509m)
- Cilfrew Meadow (942m)
- Sarn Helen (1.7km)
- Gnoll Country Park (1.1km)
- NPT Watercourses

There is one Regionally Important Geodiversity Site (RIGS) within 2 km of the site. Aberdulais RIGS is located approximately 276m north east of the site.

There is one Wildlife Trust Reserve (WTRS) within 2 km of the site. Coed Gawdir WTR is located approximately 1.9km east of the site.

There are 45 areas of Ancient Semi Natural Woodland (ASNW) within 2km of the site. The closest area is approximately 500m to the south of site. These are broadleaf woodlands comprising mainly native tree and shrub species which are believed to have been in existence for over 400 years. The ground vegetation will reflect the naturalness of these woodlands and will frequently feature species which provide clear indication of long and

continued woodland cover. They will have been woodland for centuries and contribute substantially to our natural and cultural heritage.

There are 35 areas of Restored Ancient Woodland within 2km of the site boundary. The closest area is adjacent to the northern boundary of the site These woodlands are predominately broadleaved now and are believed to have been continually wooded for over 400 years. They will have gone through a phase where canopy cover will have been more than 50% non-native conifer tree species and now have a canopy of more than 50% broadleaf.

There are 24 areas of Plantation on Ancient Woodland Sites within 2km of the site boundary. The closest areas is approximately 40m north of the site at the closest point. These are sites which are believed to have been continuously wooded for over 400 years. They have been replanted with native or non-native species, most commonly with conifers. They currently have a canopy cover of more than 50% non-native conifer tree species. They will have varying levels of remnant features of ASNW.

The development site is located within B-Lines designation. B-Lines are non-statutory protected sites which aim to restore and create wildflower habitats forming stepping stones that link existing wildlife areas together creating a network of habitats across the landscape benefiting not only pollinators but a host of other wildlife.

There are short sections of hedgerow habitat is present within the site boundary. Hedgerow is a section 7 habitat of importance for protection under The Environment (Wales) Act 2016. Therefore any impacts to hedgerow must be avoided. If impacts are unavoidable replacement hedgerow planting must be provided.

2.2 Potential Impacts to Protected Sites

There are no statutory designated sites within 2km of the site.

The proposed development site lies adjacent to a NPT Woodland SINC site. Figure 1 below shows the location of the SINC and proximity to the development site. Generally a suitable buffer between a SINC site and closest point of development would be recommended. However, the school site already functions adjacent to the SINC and a certain level of disturbance to the adjacent habitat is already experienced. It is recommended that steps be taken during construction and site design to reduce secondary impacts to the adjacent SINC as much as possible. For example, consideration to lighting and light spill where the site abuts the woodland must be given.

The watercourse flowing through the school site, and to the north east appears to be hydrologically connected with the Tennant/Neath Canal and River Neath/Dubai's SINC corridors to the south and south east of the proposed development site. The watercourse

flowing through the site is culverted along some sections, and where it forms an open channel it is canalised with grills in three different locations. Although it is understood that European Eel have been recorded using this riparian corridor, it is unlikely to be used by other species such as Otter as a wildlife corridor because of the obstacles present. A sustainable drainage straight will be required to inform the development proposals and ensure all water entering the water course is adequately dealt with and clean. Pollution prevention measures must be adopted as part of any construction works to prevent negative impacts to water quality.

It is noted that hedgerow is a Section 7 habitat of importance for protection under The Environment (Wales) Act 2016. Any hedgerow loss must be avoided and appropriately mitigated for if undertaken. Additional hedgerow planting within the site of native species with an appropriate aftercare regime must be provided.



Figure 1 - Site boundary and adjacent SINC indicated by dark blue area

3. Phase 1 Survey

3.1 Habitats

A walkover survey of the site was completed on the **9th and 22nd October 2024.** A species list can be found in Appendix 1, photographs of the site can be found in Appendix 2 and a map of the habitats found within the site is provided in Appendix 3.

The site is split into two areas; the playing field and associated natural habitat is located in the east of the site. The school buildings, parking, hard standings and access road are located in the west, along with landscaped areas of vegetation. There are fourteen permanent buildings and three small portacabins on the site. The buildings vary in age from Victorian brick structures to buildings of a 1970s design, and one modern building (Canteen). One of the older Victorian buildings has been refurbished in more recent years and supports bat mitigation features in the roof. Detailed building descriptions can be found in Table 1 within section 3.4 of this report.

All of the **buildings** are connected with **hard standing.** There are two playgrounds areas, and an all terrain hockey pitch which has artificial lighting at each corner. The playgrounds pitches, parking areas and footpaths have all been mapped as hardstanding within the habitat map in Appendix 3.

There are regularly managed areas of vegetation between some of the buildings, and also in the south of the site adjacent to the school access road. These areas consist mainly of **species poor semi-improved neutral grassland** supporting species including Common Rye-grass, Creeping Buttercup, Common Daisy, Dandelion, and White Clover. The grassland south of the school access road supports four mature lime trees, two pollarded Ash, a mature Ash, and a cherry tree. There is an area of immature trees along the southern boundary south of the fenced playground area.

There are areas of more diverse grassland (semi-improved neutral grassland) on the bank in front of the Old Block (Building 1), and another grassy bank behind the canteen (Building 7). The area of **semi-improved neutral grassland** to the front of Building 1 supports species including Ribwort plantain, Yarrow, Mouse-eared Hawkweed, Rough Hawk-bit, Common Mouse-ear, Creeping Cinquefoil, Dandelion, Cock's-foot, Self-heal, Common Daisy, Creeping Buttercup, and Cuckoo-flower. The south facing shaded grassy bank between the woodland edge and Building 7 is less managed and supports shade-loving plant species associated with woodland habitat; including Herb-robert, Remote Sedge, Cock's-foot, False-oat Grass, Ribwort Plantain, Broad-leaved Dock, Yorkshire-fog, Creeping Buttercup, Ground Ivy, Dog-wood saplings, Soft-rush, Perforate St.John's-wort, Agrimony, Wood Geum, Common Ivy, Creeping Jenny, Self-heal, Dandelion, Wild Strawberry, Enchanter's Nightshade, Male Fern,

Lady Fern, Angelica, Brooklime, Common Ragwort, and Willow-herb species. This area of grassland appears to be dominated by woodland flora.

There are three **garden areas** within the site; a central garden courtyard within Building 1 supporting shrubs and other ornamental species, a small garden area adjacent to the watercourse and to the west of to Building 14, with three mature ornamental conifers, and a small pond. There is also a small school allotment adjacent to the woodland boundary in the north consisting of raised beds.

There are three short sections of **hedgerow** within the built up section of the site. These hedgerows consists of species including Wild Privet, Common Ivy, *Viburnum sp*., Hawthorn, *Rosa rugosa*, Bramble, Bracken, and Elder. Although these hedges are short sections they form well managed dense habitat ideal for nesting birds. These hedgerow sites are isolated, and do not connect with any other habitat within the site or the wider landscape.

There are several **scattered trees** amongst the school buildings including a cherry tree to the east of the portacabins (Buildings 4), a Silver Birch to the north of Building 2 adjacent to the walled courtyard area, a mature Alder within the grassy area adjacent to the watercourse north of Building 14, and two cherry trees further east of the Alder.

The sports field (to the east of site) consists of regularly managed **amenity grassland** supporting rye-grass with creeping buttercup. The perimeters and corners of the pitch to the north and west support non-ruderal herbs and grassland species associated with woodland edge, with marshy grassland species present to the eastern end of the boundary. There is an uncut margin of 15cm along the boundary fence-line which supports species such as False-oat Grass, Willow-herb species, Common Ragwort, Angelica, Bracken, Spear Thistle, Great Willow-herb, Hawk's-beard sp., Mare's-tail, Broad-leaved Dock, Black Knapweed, Ribwort Plantain, Dandelion, Common Mouse-ear, Common Daisy, Creeping Buttercup, Creeping Bent, Wood Geum, Bramble, Lady Fern, Angelica, Clover sp., Soft Rush, Greater Trefoil, Bittersweet, Cleavers, Rough Meadow-grass, and Meadow Buttercup. A Broad-leaved Helleborine plant was recorded, along the northern boundary along with one stand of **Rhododendron.**

A parcel of rough grassland to the north east of the sports field has gated access and sits outside of the playing field boundary. There are several sections of hardstanding in amongst the grassland. The area is south west facing and slopes away from the adjacent woodland to the north. The grassland appears to be transitional in nature with several marshy and neutral grassland species noted within the sward. Species noted with the sward include Sharp-flowered/Jointed Rush, Greater Trefoil, Lesser Spearwort, Hairy Sedge, Compact Rush, Soft Rush, Angelica, Ribwort Plantain, Creeping Buttercup, Meadow Buttercup, Black Knapweed, Creeping Bent, Meadow Cranesbill, Dandelion, Common Ragwort, Rough Meadow-grass, Common Sorrel, Yorkshire-fog, Common Mouse-ear, Hawkweed sp., and

Agrimony. On balance the grassland is considered to be **semi improved neutral grassland** and has been mapped as such within the habitat map in Appendix 3.

The **semi improved neutral grassland** to the north east of the sports field is fenced along the western boundary, and has a northern and eastern boundary supporting mature tree species including Sycamore, Willow species, English Oak, Alder, Hazel **Rhododendron,** and Bramble. A **watercourse** flows to the north and east of this corridor of trees. There is an area of **scrub** in the north east corner of the rough grassland, and all along the edge of the wooded boundary. **Tall ruderal** and non-ruderal herbs were recorded along the edge of the scrub. Species present include Bramble, Bracken, Willow sp., Common Ivy, Common Nettle, Rose-bay Willow-herb, Hemp Agrimony, Lesser Burdock, and Cock's-foot. The grassland, tall ruderal vegetation and scrub habitat all grade into different habitats making it difficult to identify clear habitat boundaries.

The **scrub** and **tall ruderal vegetation** continues along the eastern boundary of the sports field to the south east corner with Bracken, Bramble, Buddleja, Hemp Agrimony, Hawthorn, Tutsan, and Common Ivy present. There are **several semi-mature trees** along this boundary including an Ash, and a coppiced Sycamore. There is a large stand of **Japanese Knotweed** close to the south east corner of the field.

The southern boundary of the sports field is planted with **a linear corridor of cherry trees** with grassland of a slightly taller sward than the rest of the field. There is a single mature White Willow tree in the south west corner of the field.

There is an area of south facing but shaded **woodland edge habitat** along the northern boundary to the rear of buildings 7 and 10. This area is separated from the woodland by a hoop-top fence and has been mapped as **non-ruderal vegetation, scrub** habitat with **scattered trees**. Species present include Hart's-tongue Farm, Herb-robert, Remote Sedge, Male Fern, Common Ivy, Creeping buttercup, Broad-leaved Dock, Pendulous Sedge, Common Nettle, Willow-herb sp., Wood Germ, Cock's-foot, Bracken, Bramble, Bittersweet, Angelica, Rosebay Willow-herb, False-oat Grass, and Yorkshire-fog. There is coppiced Hazel, Beech, Holly, Wild Privet, and Hawthorn with a mature Ash, and two mature English Oak trees situated along this corridor.. There are log piles and lying deadwood within this area which has good connectivity with the adjacent woodland. There are well used paths through the habitat likely made by school pupils frequenting the area.

The fast-flowing **watercourse** that flows across the site from the east is culverted beneath the sports field and enters a open canalised channel flowing in-between the school buildings in a westerly direction. The walls of the channel consist of stone, with the a concrete bed. The **watercourse** continues into a culvert beneath the parking areas in the south of the site. There is very little vegetation growing along the walls, and very sparse substrate to the bed

of the watercourse. There is a grill at each end of the culvert, and additional grills along the open section of the channel.

The whole site perimeter is fenced with 2m hoop-topped **metal fencing**, with meshed metal fencing separating areas within the built area of the school.

Security lighting is present on the buildings throughout the site, with artificial lighting around the all terrain hockey pitch. There is no lighting around the sports field.

3.2 Great Crested Newts (GCN)

Great crested newts (*Triturus cristatus)* are a European protected species and are protected under the Conservation of Habitats and Species Regulations 2017. In summary, they are protected from:

- Deliberate capture, killing and injuring,
- Deliberate disturbance of a breeding site or resting place,
- Deliberate taking or destroying of eggs,
- Damage or destruction of a breeding site or resting place.

Great crested newts (GCN) are listed on schedule 5 of The Wildlife & Countryside Act 1981 which protects them from intentional or reckless disturbance or obstruction when using a structure or place for shelter and / or protection. It is also an offence to sell, offer or expose for sale a GCN. GCN and Common toad are listed in section 7 of the Environment (Wales) Act 2016 which makes them key species to sustain and improve biodiversity.

There are no records of Great Crested Newt within 2 km of the site.

The rough grassland, tall ruderal vegetation, and scrub recorded in the east and north of the sports field are all suitable habitat for use by GCN during their terrestrial life stages. GCN generally like to have a necklace of suitable waterbodies for breeding purposes within a local area. There are no suitable ponds within the development site. The site has good habitat connectivity with woodland to the north where two ponds are present within the Craig Gwladys Country Park within 500m of the site (records of breeding toads and frogs were returned from the data search). Ponds may be present within residential gardens to the west and not visible on maps. There may also be ponds within the residential gardens to the east beyond the area of rough grassland, however the watercourse that bounds the grassland area would present an obstacle to migration. The road network to the south of the site would also form an obstacle to migration.

The lack of records within close proximity to the site, and the lack of ponds within the local area, make it unlikely that GCN will be utilising the site itself for breeding purposes. GCN could commute through the site, although this is unlikely as there is no network of suitable commuting habitat across the site. GCN are considered unlikely to be present within the site. **No further survey recommendations are made for this species.**

3.3 Dormouse

The dormouse (*Muscardinus avellanarius)* is a European protected species and is protected under the Conservation of Habitats and Species Regulations 2017. In summary, they are protected from:

- Deliberate capture, killing and injuring,
- Deliberate disturbance of a breeding site or resting place,
- Damage or destruction of a breeding site or resting place.

Dormouse is listed on schedule 5 of The Wildlife & Countryside Act 1981 which protects them from intentional or reckless disturbance or obstruction when using a structure or place for shelter and / or protection. It is also an offence to sell, offer or expose for sale a native dormouse. Dormouse is listed in section 7 of the Environment (Wales) Act 2016 which makes them a key species to sustain and improve biodiversity.

There are no records for dormouse within 2km of the site returned within the data search.

The broad-leaved woodland adjacent to to the site to the north could potentially provide optimal habitat for this species. There is small area of woodland edge habitat within the site and in connection with this woodland that could provide habitat for dormice, however, because of the disturbance caused by school pupils within this area, it is considered unlikely that dormice would be present. It is recommended that a search of the vegetation is carried out by a dormouse licensed ecologist or accredited agent prior to the removal of this vegetation if and when this is to be carried out. **Further survey work for dormouse is not recommended.**

3.4 Bats

All British bats are a European protected species and are protected under the Conservation of Habitats and Species Regulations 2017. In summary, they are protected from:

- Deliberate capture, killing and injuring,
- Deliberate disturbance of a breeding site or resting place,
- Damage or destruction of a breeding site or resting place.

Schedule 5 of The Wildlife and Countryside Act (1981) also protects all species of British bat and their roosting locations. British bats are protected from intentional or reckless disturbance and or obstruction of their roosting places. Barbastelle, Bechstein, Noctule, Brown long-eared, Common pipistrelle, Soprano pipistrelle, Greater horseshoe and Lesser horseshoe are also listed in section 7 of the Environment (Wales) Act 2016 which makes them a key species to sustain and improve biodiversity.

There are commuting and foraging records for Common Pipistrelle (*Pipistrellus pipistrellus),* Noctule bat (*Nyctalus noctula),* Daubenton's bat, Natterer's bat (*Myotis nattereri*), Whiskered bat (*Myotis mystacinus*) within 1 km of the site. A roost record for Soprano Pipistrelle (*Pipistrellus pygmaeus*) was returned 700 m west of the site. There is a roost record for Daubenton's bat (*Myotis daubentonii)* 570 m north west of the school site, and a roost record for an unidentified Pipistrelle bat species 600 m to the south west.

Tree Assessment

Trees within the site were subject to a cursory ground level assessment for the potential presence for roosting bats. The optimum time for such surveys is during the winter months when trees have lost their foliage. Should any tree be considered likely to have above low potential for roosting bat use, further detailed survey work will be recommended following the ground based visual assessment methodology provided in the BCT Survey Guidelines 2023 (4th Ed).

As the trees on site are all in leaf it was difficult to fully survey them for potential bat roosting features. Many of the trees within tree line and scrub along the northern boundary adjacent to an area of rough grassland are large specimens and appear to be of an age and structure where features suitable for roosting use by bats may be present. A small number of mature trees with suitable features for roosting bats and dense ivy around the trunks are also present within the woodland edge habitat along the the northern boundary. There are also several scattered mature trees throughout the site supporting potential bat roosting features, particularly a mature Alder adjacent to the watercourse flowing through the site.

In the first instance all tree removal should be avoided where possible and a precautionary approach to any new lighting and increased noise disturbance should be adopted. **Detailed survey work for the potential roosting use by bats may be required depending on the final designs and plans for site and if tree removal cannot be avoided.**

Habitat Assessment

The habitat within the site is considered to have **moderate** suitability for use by commuting and foraging bats. The development site sits between residential housing (to the east and west) with a corridor of broad-leaved woodland to the north which would provide excellent feeding, commuting and roosting habitat for a variety of bat species. The watercourse

flowing through the site may also be used by bats as a commuting corridor to the riparian corridors of the Neath Canal and river to the south of the site.

These watercourses, including the River Dulais to the east are likely to be important foraging and commuting routes for bats across the wider landscape.

It is currently not known which habitat is likely to be lost as part of the development works, however, **bat transect surveys are recommended to inform the future development proposals.** A period of transect survey work during the spring, summer and autumn should be sufficient to provide suitable information on bat usage of the boundary features within the site.

Building Assessment

Visual assessments were made of each building on the site from the ground Potential bat roost features (PRFs) were recorded, and the building was given a grading of Low, Moderate or High depending on the features, or evidence of bats recorded refer to the BCT Bat Survey Guidelines, 2023 (4th Edition).

The location of all of the buildings can be found in the Appendix 1 Habitat Map.

	Building Description	Features	Bat Potential
B1	***External:*** Large single-storey Victorian brick building with slate roof consists of four wings around a central courtyard area.	This building supported several PRFs including lifted and missing roof tiles, gaps within the roof ridge, gaps between the flashing on the chimneys, and gable window in the north wing, loose soffits, and ventilation grills. There is also a cellar with louvred door access. Security lighting was present.	Moderate
	***Internal*:** There appears to be no attic space, and suspended ceilings were noted to be present on the interior. There is a cellar.	- 	

B2	***External:*** A two-storey Victorian brick house with a slate roof. The wooden sash windows are sealed with perspex sheets. It is surrounded by a hedge on three sides, with a garden area between the hedge and the house. This area supports stone rubble. The is an ornamental metal fence with a gate along the southern boundary. There is dense ivy on the south east corner of the house.	The building supported PRFs including gaps between the soffit, lifted roof tiles, and gaps between the chimney and flashing.	Moderate
	***Internal*:** There may be an attic space within this building.	- 	
B3	***External:*** A two-storey 1960s building constructed of brick with concrete cladding, and flat felted roof. The building is situated close to the watercourse to the east. Security lighting was present on this building. A single storey block of garages are connected to Building 3 to the north.	Gaps between the concrete cladding, and behind the solar panels on the southern elevation of the building. Garages: several old bat droppings were recorded on the floor at the base of the metal doors. There are gaps at the top of the doors where bats could gain access to the interior, and gaps in the plastic cladding.	Low/Moderate
	***Internal*:** N/A 		
B4	***External:*** Three single-storey portacabins are located to the south of the site adjacent to the parking area. They have felted flat roofs with plastic soffits and plastic weatherboarding around the top of the buildings.	Gaps between the soffit and the felt roof, and gaps in the felt.	Low

	***Internal*:** N/A		
B5	***External:*** This single-storey building is constructed of brick with plastic weatherboarding and a felted flat roof. It is located adjacent to the watercourse which flows through the site.	Features included gaps between the soffit and the building, and gaps in the felt. There were also ventilation holes present.	Low
	Internal: N/A		
B6	***External:*** This is a single storey Victorian brick building with a ridged asbestos roof and wooden doors, used as a store.	It is in disrepair and as such supports numerous PRFs such as large holes in the roof, gaps beneath the roof, gaps above the doors, and between the wooden soffit which is hanging off in places.	Moderate
	Internal: N/A		
B7	***External:*** This is most modern building on the site, and is a two-storey building constructed of steel and brick with plastic cladding, and a several ridged areas of roof. The location of the building adjacent to broad-leaved woodland which can provide excellent foraging, commuting, and roosting sites for bats.	Gaps between the cladding, ventilation grills.	Low

	Internal: N/A		
B8	***External:*** This is a small single storey brick building with an ridged asbestos roof. There is a wooden door on the southern and northern elevations with holes along the eastern elevation where the ventilation grills have fallen out. This building lies on the western boundary adjacent to residential gardens.	A pile of fresh bat droppings were recorded at the base of the door in the southern elevation. Small flies were also recorded flying around the top of the south east corner of the building on the first visit to the site. The holes along the top of the wall would allow bats to easily access the interior of the building. There are also gaps beneath the felt of the roof.	High/Moderate
	Internal: N/A		
B9	***External:*** This brick building is lies adjacent to the broad-leaved woodland to the north of the site. It is a modern building in a good state of repair with a one storey section with a flat felted roof, and a another section of the building with a tiled ridged roof. There is a louvred door along one section of the building.	PRFs included gaps beneath the felt to the front of the building, and between the soffit and the wall. Old bat droppings were recorded on the window sill to the rear of the building, but this is likely to be evidence of foraging bats. A large shiny bat dropping (possibly Serotine) was recorded at the base of the louvred door.	Low
	Internal: N/A		

B10	***External:*** This is a single storey Victorian brick building which has been refurbished in recent years. There is a slate tile roof, and large brick chimneys. Security lighting is present. The building is adjacent to the broad-leaved woodland to the north.	PDFs include lifted and broken tiles.	Moderate
	Internal: Bat mitigation features are present along the ridge of the roof, and there is likely to be an attic space/void present.		
B11	***External:*** This building is constructed with breeze blocks with a corrugated metal ridged roof. There is a louvred door in the southern elevation. The building sits on the edge of the sports field close to the woodland to the north.	No PRFs recorded.	Low
	Internal: N/A		
B12	***External:*** This is a single-storey building constructed of brick with a felted flat roof and plastic weatherboarding to the tops of the walls. There is a louvred door to the western elevation.	Potential gaps beneath the felt.	Low
	Internal: N/A		

B13	***External:*** This building is located adjacent to the hockey pitch and sports field. It is a single-storey portacabin with a flat felt roof and sides with plastic cladding around the top of the walls.	PRFs include gaps beneath the felt and cladding.	Low
	Internal: N/A		
B14	***External:*** This 1960s building is the largest building on the site. It consists of various section of 3-storey, 2-storey, and single storey construction all with a flat felted roof. There is a covered walkway over the watercourse to the west which connects to Building 3.	PRFs include gaps between the concrete cladding, gaps beneath the plastic weather boarding, gaps beneath the felt, and gaps beneath lead flashing on the ground floor in a section to the west.	Low
	Internal: N/A		
B15	***External:*** This small brick building with a flat felted roof, and a metal palisade gate access. It is located adjacent to the woodland in the north. This building appears to be in good repair.	The gate in the southern elevation may allow access for bats to the interior of the building.	Low
	Internal: N/A		

Given the height and complex structure of the buildings is considered possible that potential access points were missed. Internal surveys of the building were not undertaken during the October site visits. The school is in use and access to the interior of all buildings is difficult to arrange. Many of the buildings have suspended ceilings preventing access to any attic spaces above also.

In summary, the building are listed below with their bat roosting suitability:

- Low Bat Roosting Potential - Building 15, 14, 13, 12, 11, 7, 5, 4
- Moderate Bat Roosting Potential - Building 10, 9, 6, 3, 2, 1
- High Bat Roosting Potential - Building 8

Bat activity surveys were recommended on all buildings to overcome the scoping survey constraints and based on the potential roosting suitability of the structures.

3.5 Otters

The Otter (*Lutra lutra)* is a European protected species and is protected under the Conservation of Habitats and Species Regulations 2017. In summary, they are protected from:

- Deliberate capture, killing and injuring,
- Deliberate disturbance of a breeding site or resting place,
- Damage or destruction of a breeding site or resting place.

Otter are listed on schedule 5 of The Wildlife & Countryside Act 1981 which protects them from intentional or reckless disturbance or obstruction when using a structure or place for shelter and / or protection. It is also an offence to sell, offer or expose for sale an otter. Otter is listed in section 7 of the Environment (Wales) Act 2016 which makes them a key species to sustain and improve biodiversity.

There were 11 records of Otter returned within 500m of the site. The closest record was of a spraint recorded in 2002 365m east on the River Dulais. The majority of the records were of spraints on the River Neath to the south, south west, east, and north east of the site. Of note, there were 3 old spraints recorded in a resting place in the undercut bank of the River Dulais 752m to the north east in 2002.

Otters tend to prefer secluded locations for their holts to help prevent them being disturbed by other animals. It is accepted that otters can travel long distances from river corridors to find acceptable holt sites.

The vast majority of the site is considered to be unsuitable for otter holt creation as much of the site is dominated by amenity grassland and built areas. However, watercourses are present within the woodland to the north, and to the east of the site. Potential mammal runs were recorded along the northern boundary of the playing field adjacent to the woodland, and within the area of rough grassland to the east of the site. Potentially, otters could be using these areas of the site as commuting corridors between the two watercourses, but these mammal runs could also be made by other mammals rather than otter.



Photo 1 Potential mammal run

The watercourse flowing across the site is unlikely to provide a corridor for otters because of the narrow grills present along the channel, the culverted sections (which otters do not like to use), and the fencing and gated access to the site; all presenting obstacles to movement across the site.

Detailed development proposals have not yet been finalised. Providing the areas adjacent to the riparian corridors to the north and east of the site can be retained, further detailed survey work for otter is unlikely to be required. **Should development proposals impact the northern boundary and the area of rough grassland to the east, then suitable commuting corridors must be included in any future designs for the site.**

Should development proposals impact the riparian corridors, a check of the vegetation for the presence of otter by an ecologist will be required prior to any vegetation removal.

3.6 Badger

Badgers (*Meles meles)* are protected under the Protection of Badgers Act 1992. In summary they are protected from:

- Taking, killing or injuring;
- Cruelty;
- Interfering with a badger sett;
- The selling and possession of badgers;
- Marking or ringing.

Badgers are also listed on schedule 6 of the Wildlife and Countryside Act 1981 as amended.

Badgers tend to have a variety of setts with different uses and functions within the territory for the family unit. In general there is usually a main sett which the family will use the most. There are then annex, subsidiary and or outlier setts which depending on family structures and environmental pressures may be used at different times of the year. As female badgers tend to have their cubs over winter the disturbance and damage of badger setts is prohibited between December and June inclusive. NRW are the licensing body for any actions which may contravene the above legislation.

Badgers favour a dry sloping site for digging their setts preferably within woodland or even under a large hedgerow bank. Badgers are creatures of habit and tend to follow regular pathways between their setts and foraging grounds.

There are a small number of badger records within 2km of the development site, the majority of the records are associated with the A465 dual carriageway to the east. The closest record is for a road traffic collision approximately 220 m to the south east.

The site is considered to be unsuitable for badger sett creation as the majority of the site is amenity grassland and built up areas, and frequently disturbed by school activities and pupils. The grassland is suitable for foraging and commuting use by badger. Mammal runs were recorded along the northern boundary of the playing field adjacent to the woodland, and within the area of rough grassland to the east of the site. Potentially, badgers could be using these areas of the site as commuting corridors travelling from the adjacent woodland, but these mammal runs could also be made by other mammal species.

Detailed development proposals have not yet been finalised. Providing the northern boundary and the area of rough grassland to the east can be retained, further detailed survey work for badger is unlikely to be required. **Should development proposals impact these areas then suitable commuting corridors must be included in any future designs for the site.**

No field signs for badger such as latrines, snagged hair or snuffle pits were noted on site. The presence of a badger sett within the adjacent woodland is considered to be possible. Badgers may use the site for commuting purposes, and as a precaution, **a visual inspection of scrub immediately prior to any vegetation clearance is recommended.**

3.7 Birds

All breeding birds are protected under schedule 1 of the Wildlife and Countryside Act (1981) as amended. Under this Act it is an offence to:

- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.

- Intentionally take or destroy the egg of any wild bird.

Enhanced protection is afforded to species listed on Schedule 1 of the Act, this additional protection makes it an offence to:

- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

A variety of bird species listed under Section 7 of the Environment (Wales) Act 2016 (EWA 2016) Schedule 1 of the Wildlife & Countryside Act 1981 (WCA1.1) have been recorded in the local area. There are 46 records of priority bird species, and 46 records for birds of conservation concern within 500m of the site.

The majority of the site is considered to be unsuitable for nesting use by bird species as the amenity grassland and built up area provides little shelter or cover for such use and the site is frequently disturbed by school activities. However, several species of gull were recorded on the roof tops of the buildings, and jackdaws were also noted foraging in the grounds. These species will nest on and within buildings (jackdaws are known to nest in chimney stacks).

Nesting opportunities also occur in the mature trees, scrub and woodland edge habitat around the periphery of the site. Dunnock and Robin were observed moving between the edge habitat and the woodland in the north of the site during the PEA survey. Short sections of hedgerow within the development site provide habitat for nesting birds. Dunnocks were recorded entering the hedgerow around the edge of the old Victorian house (Building 2) during the survey. A Grey Wagtail was recorded on the roof of the Victorian house during the survey. This species of bird is known to forage and nest along watercourses, and may be using the watercourse flowing through the site as a foraging site.

A precautionary approach to the removal of habitat with bird nesting potential will be required, including the demolition of any building within the site. A check of buildings and suitable vegetation ie trees, scrub, hedgerow for any active nests must be undertaken prior to demolition. **Compensation measures for the loss of any vegetation that is suitable for bird foraging or nesting will be required.**

3.8 Reptiles and Amphibians

Reptiles such as the Slow-worm, Common lizard, Adder and Grass snake are protected under the Wildlife and Countryside Act 1981 (as amended). They are protected from killing, injuring and sale. They are protected from killing, injuring and sale. They are also listed in section 6 of The Environment (Wales) Act 2016.

The four widespread species of amphibian i.e. the Smooth and Palmate newts, Common frog and Common toad, are protected under the Wildlife and Countryside Act 1981 (as amended) by Section 9(5) of the Wildlife and Countryside Act 1981. This section prohibits sale of these species. Common toad is listed in section 6 of The Environment (Wales) Act 2016.

The closest reptile records to the development site are for Common Lizard approximately 296m to the north west, and Grass Snake approximately 296m north west; both records within the woodland adjacent to the development site. Records of Grass Snake were also recorded along the Neath Canal to the south east, and to the north east at Aberdulais Falls. The closest records for common amphibian species are for Common Frog, and Common Toad, and are approximately 41m to the north of the site within the adjacent woodland where there is a breeding pond. Records of Common Newt, and Palmate Newt were recorded further away from the site at 525m, and 604m respectively. There were no records of GCN records within 2km of the site.

Reptiles prefer a mosaic of habitats with diverse vegetation structure creating open areas and nearby cover to provide protection from predators and the elements. Common amphibian species require still pools of water for breeding purposes and damp conditions with foraging habitat during their terrestrial life stages.

There is one very small within the garden area of the site itself, but it appears to hold little water and is inundated with vegetation, and therefore unsuitable for amphibians. There are two ponds to the north west within the woodland, and the Neath canal to the south within 500m of the site. The canal is separated from the development site by a road.

The scrub, and tall ruderal vegetation along the boundaries of the sports field, and the rough grassland area to the east may provide habitat for amphibians and reptiles. The woodland edge and grassy bank behind the buildings to the north of the site may provide some habitat, but is shaded. These habitat types are suitable for foraging, commuting and overwintering purposes. The remainder of the grassland within the site is regularly maintained, and therefore offers little cover for amphibians and reptiles.

There are areas of rubble and ground vegetation around the Victorian house (Building 2), and a drystone wall in the corners of a courtyard to the rear of the building. These would provide suitable reptile habitat, but because of the lack of connective habitat it is unlikely that reptiles would be present.

Due to the lack of standing water within the site it is highly unlikely that amphibians will utilise the site for breeding. However they may use it for commuting, foraging and over-wintering purposes. The habitats within the site boundary provide a mosaic structure and have connectivity to green spaces to the north and east. The site is considered to have at

least moderate potential to support common reptile species. **Reptile surveys are recommended to support any future planning application for the proposed development site boundary.**

3.9 Other Mammals

Other notable mammal species listed under Section 7 of the Environment (Wales) Act 2016 which had records returned during the data search include Hedgehog.

Hedgehog - there are 24 records of Hedgehog within 1km of the site. The closest record returned is approximately 138m to the north west of the site. A large black dropping was recorded within the porch area of Building 9 which could potentially be a hedgehog dropping. Mammal runs were recorded along the northern boundary of the playing field adjacent to the woodland, and within the area of rough grassland in the east of the site. Potentially, hedgehog are using these areas of the site as commuting corridors, but it could be other species of mammal creating these corridors.

This species is considered likely to be present within the site, at least on an occasional basis, for foraging and overwintering. Hedgehog is considered to be a species of principal importance, for the purpose of maintaining and enhancing biodiversity in relation to Wales. As such **consideration must be given to this species in any plans proposed for the site.**

It is recommended that a search of all scrub and rough grassland on the site is carried out prior to its removal to check for the presence of hedgehogs and their nesting/hibernation sites.

3.10 Invertebrates

Notable invertebrate species records, those species that are listed under Section 7 of the Environment (Wales) Act 2016, returned from the data search include: Small Blue (*Cupido minimus*), Wall (*Lasiommata megera*), Small Phoenix moth (*Ecliptopera silaceata*), Sallow moth (*Cirrhia icteritia*), Heath Rustic moth (X*estia agathina*), Dot Moth (*Melanchra persicariae)*, Cinnabar moth (*Tyria jacobaeae*), Oak-Hook-tip moth (*Watsonalla binaria*), Brindled Beauty moth (*Lycia hirtaria*), Blood-vein moth (*Timandra comae*), Garden Tiger moth (*Arctia caja*), Buff Ermine moth (S*pilosoma lutea*), Rustic moth (*Hoplodrina blanda*), and Flounced Chestnut (*Anchoscelis helvola*).

The site comprises of semi improved grassland, marshy grassland, tall ruderal vegetation, scrub, woodland edge habitat, tree lines and hedgerows. Mosaic habitats are important for invertebrates as many require two or more habitats to complete their lifecycle. The variety of habitats present therefore allows the site to support a wide range of invertebrate groups.

The habitats of the site and immediately adjacent habitats were assessed for their potential to support invertebrates using the Invertebrate Habitat Potential Assessment (IHPA) as found in CIEEM in practice Issue 112, June 2021. See Table 1 for results. The IHPA protocol has been produced to allow ecologists without specialised entomological expertise to identify key habitats and features likely to support important invertebrate assemblages. Full details of habitat types can be found in Appendix 6.

Table 1. Invertebrate Habitat Potential

Habitat Element	**Grade**
Decaying Wood – H1	D - Minor
Rotational Management – H2	E - Negligible/Absent
Nectar Resources – H3	D - Minor
Wet Substrates – H4	E - Negligible/Absent
Other Water Habitats – H5	E - Negligible/Absent
Structural Patchwork – H6	D - Minor
Still Air (S) – H7	D - Minor
Still Air (H) – H8	D - Minor
Connectivity – H9	C- Moderate
Ecoclines – H10	C - Moderate
Bare Earth – H11	E - Negligible/Absent

Based on the Invertebrate Habitat Potential Assessment (IHPA) the site, in its current state, is considered to have low potential to support common and widespread species of invertebrate. **No further survey work is recommended for invertebrates** but considering that the site lies within a designated B-line area and steps should be incorporated into the new site design to create and enhance habitats that encourage invertebrate populations, and allow invertebrates to migrate using corridors on the site

3.11 Invasive non-native species

There were several notable invasive non-native species (INNS) of plant recorded on the site during the survey, including Rhododendron within the woodland and eastern boundary within the area of grassland. Buddleja was also recorded along the northern boundary. A large patch of Japanese Knotweed was recorded along the eastern boundary in the southern corner of the site. The approximate location is shown within the habitat map in Appendix 3. **It is recommend that an INNS management plan is written to inform the removal of these species on the site.**

4. Recommendations and Mitigation

The development proposals are in the very early stages and detailed designs are not available. The proposal seeks to demolish the existing school buildings and build new school buildings within the east of the site including parking spaces and an access road, with new sports pitches in the southern part of the site. The exact layout and design of the building has not been agreed.

It is assumed that the majority of habitats within the development site will be affected by the development proposals. Broad recommendations are made below to help inform the design process. **Once the development proposals are progressed and finalised and the considerations to development within the site are addressed, further ecological input will be required**. Our recommendations are:

Habitat

- Any loss of hedgerow habitat must be avoided where possible. If impacts to hedgerow habitat are unavoidable, replacement planting will be required on a 2:1 basis. Ideally the replacement planting will include supplementary planting.
- A root protection zone (RPZ) must be implemented around any retained trees which lie adjacent to or within the boundary of the proposed development site. British Standard BS 5837, Trees *in relation to design, demolition and construction - Recommendations* will be followed. Measures will include clear marking of the RPZ to guarantee no machinery is used or digging carried out in that area. This will ensure that there is no detrimental impact to the trees and the flora or fauna it supports.
- Pollution measures must be put in place to avoid any impacts on to the River Neath/ Dulais and Neath Canal SINCs. There are also minor watercourses to the north and north west of the site. All machinery used during any on-site works must be stored in an agreed location away from the south, east, north, and north west of the site. Spill kits must be kept on site at all times to deal with any fuel, oil or material spills. All machinery will be kept in a bunded, water-tight storage compound to prevent spills. The storage compound must be at least 10m away from any surrounding watercourse.
- A sustainable urban drainage plan is recommended to reduce the impact of the proposed re-development of the site on the waterbodies in the area, and determine how the existing watercourse on the site is to be incorporated into the new development.

Species

- An arboricultural assessment will identify the trees to be removed as part of the proposed development. If trees are to be lost, or the trimming or cutting back of any mature trees are required then **detailed ground based visual assessment of all trees** in question for their use by roosting bats will be required. Should any tree be found to have bat roost potential for use by roosting bats or above further detailed surveys such as aerial inspections to fully inspect any suitable feature will be required.

- **Bat transect surveys** of the development site are recommended. Bat transect surveys must follow the guidance given within the BCT Good Practice Guidelines 2023 (4th Edition). Transect surveys are recommended during the spring, summer and autumn months to to provide seasonal data on how bats use features within the site boundary.

- It is recommended that **bat activity surveys of all the buildings** are carried out during May to September 2025. Internal bat roost assessments of the buildings, where practically possible, will be required.

- A **refugia survey** of the site will be required to establish the presence or likely absence of reptiles and other amphibian species within the area of rough grassland to the north of the site. Artificial refugia must be set out within suitable habitat within the site boundary following advice given in Froglife Advice Sheet 10.

- **A pre-works inspection of all grassland, woodland and scrub habitat by an ecologist is recommended immediately prior to vegetation clearance works**. The use of the site by mammal species such badger, otter, and hedgehog within the site boundary is likely. A pre inspection check of vegetation immediately prior to clearance work will check for any mammal signs.

- Should development proposals impact the north west boundary and the area of rough grassland to the north, then **suitable commuting corridors must be included in any future designs for the site.**

- Ideally all excavations within the site will be securely covered over if left unattended. Any excavations that have a depth in excess of 0.5m and that are left open overnight will have a means of escape let for any mammals (e.g. hedgehog) that may fall into them. A wooden board or equivalent will be left from the bottom to the top of the hole at an angle no steeper than 45^{o}. This will allow any mammal to escape and avoid increased stress from being trapped.

- **A pre-works inspection for dormice of all the woodland edge and scrub habitat around the periphery of the site, and in connection with the woodland in the north west, is**

recommended by a suitably licensed ecologist is recommended immediately prior to vegetation clearance works.

- The woodland edge, tree lines, scrub, rough grassland, ruderal vegetation, and hedgerows around the periphery and within the site have the potential for use by **nesting birds**. The buildings across the development site also appear suitable for bird nesting use with gulls observed on building 14. Any nesting bird habitat removal must be completed outside of the bird nesting season of March to August inclusive. If this is not achievable an ecologist must inspect any vegetation with the potential for birds to be present for active birds' nests prior to removal works beginning. If an active nest is identified a buffer zone of at least 5m around the nest must be observed until the chicks have fledged. Only then can the vegetation be removed. Greater buffer zones around nests may be required depending on the species and habitat the nest is within.

- There were several notable invasive non-native species (INNS) of plant recorded on the site during the survey, including Rhododendron within the woodland and northern boundary within the area of grassland. Buddleja was also recorded along the northern boundary. A large patch of Japanese Knotweed was recorded along the northern boundary in the eastern corner of the site. It is recommend that an **INNS management plan** is written to inform the removal of these species on the site.

- **Careful consideration must be given to the use of lighting within the development site,** as this can adversely affect the activity of a variety of fauna, particularly foraging bats, nesting birds, badger, otter and dormice. Light spillage into adjacent semi-natural habitats must be avoided and brightness kept to the lowest permissible level in the areas adjacent to such habitats. All lighting must meet recommendations in the BCT Guidance Note 08/23 Bats and Artificial Lighting at Night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/.

5. Biodiversity Enhancements & Green Infrastructure

The Environment Act (Wales) 2016 places a duty on competent authorities and councils including Neath Port Talbot Council to conserve and enhance biodiversity. Chapter 6 of Planning Policy Wales (version 12), paragraph 6.2.5 requires Green Infrastructure considerations to be included with all planning applications. Development proposals must detail how green infrastructure considerations which are proportionate to the scale and nature of the plans are being provided.

Green infrastructure currently within the site takes the form of semi-improved grassland, poor semi-improved grassland, tall ruderal vegetation, woodland edge habitat, scrub, watercourse, tree lines, and hedgerows. The site has good direct habitat connectivity to the wider landscape via the woodland areas adjacent to the northern boundary of the site.

The River Neath and Tennant Canal are present to the south of the site, and is hydrologically connected with the watercourse flowing through the site. The River Dulais lies to the north and east. Direct habitat connectivity to the east and south east of the site is more limited due to the presence of housing and a a major road. However, there are a number of habitat types in the wider area which provide biodiversity value.

General considerations to green infrastructure to be considered as part for the development include:

- Paragraph 6.4.42 of Planning Policy Wales (version 12) requires that at least 3 trees of a similar type and compensatory size are planted for every tree lost. The site layout should avoid tree loss where possible. If loss is unavoidable, space within the site boundary and development plans to allow a suitable amount of compensatory planting is required.

- Creating habitat connectivity around the site would be a positive step for biodiversity. Pulling layout and engineering boundaries away from the edge of the development site boundary and providing green areas around the periphery of the site that are managed to benefit wildlife can help wildlife continue to commute across the site.

- Wildlife friendly lighting that avoids light spill onto retained habitat and any habitat corridors created across the site will be required. By reducing light spill onto vegetated features wildlife are more likely to commute and forage across a development site.

- Should the watercourse that flows through the site be retained within the school design, the biodiversity value of the feature could be improved. The watercourse is canalised at present with a concrete bed and sides. Providing a more natural channel

design would increase the likelihood of the watercourse being more attractive to fish, invertebrates and crustaceans.

The below bullet points are some simple measures that could be achieved to enhance the overall biodiversity value of the site:

- The use of native species within the soft landscaping works on the site. Suitable long term management of soft landscaping also helps ensure spaces are useful to wildlife. Management measures will need long term funding and must reflect the different habits to be retained and created within the development site. Tree and hedgerow planting would help to create screening around individual units for privacy and also integrate the development into the landscape.

- The provision of integrated bird boxes within the new buildings created on site. At least eight integrated bird boxes should be provided within the new development proposals. A variety of box designs are suggested to provide nesting sites for a wide range of bird species. All boxes must be placed at least 2m high from ground floor.

- The provision of integrated bat boxes within the new buildings created on site. At least eight integrated bat boxes should be provided within the new development to create roosting provision for bats. Integrated bat boxes must not be placed within 2m of any extrernal light source and should be positioned close to retained habitat or areas of soft landscaping. The exact design of the box will depend on the final finish and construction materials used within the building design.

- All fencing across the site must be hedgehog friendly in design. A friendly design is considered to allow passage of small animals across the site. Close board or mesh fencing should provide either a continuous gap between the bottom of the fence and ground of approximately 13cm, or 13cm by 13cm gaps cut every 3m along fencing.

- A reptile hibernacula can be created within the grounds of the development site using rubble and brash from on site clearance works. The hibernacula must at least measure 0.5m in depth, 2m wide and 2m long each. It will be made by creating layers of wood, brash, rubble and soil. The hibernacula will create a mound approximately 0.3m above ground level which will be covered over with soil and seeded using a native seed mix. A diagram of a Reptile Hibernacula is located in Appendix 6 for reference.

- The creation of at least one butterfly bank within the grounds of the site would be welcomed. A butterfly bank creates a range of micro climates and habitats for use by invertebrates. In simplified terms, a butterfly bank requires a mound of poor quality soil to be created ideally 30m long and ‘C’ shaped. At the base of the bank a gravel substrate should be spread a few metres in width. The mound can then be seeded with a native seed mix and subject to low intensity cut and collect mowing.

Appendix 1 – Species Recorded

Common Name	*Scientific Name*	Common Name	*Scientific Name*
Trees & Shrubs		Broad-leaved Dock	*Rumex obtusifolius*
Conifer sp.	*Conifer sp.*	Creeping Jenny	*Lysimachia nummularia*
Ash	*Fraxinus excelsior*	Bracken	*Pteridium aquilinum*
Silver Birch	*Betula pendula*	Angelica	*Angelicum sylvestris*
Sycamore	*Acer pseudoplatanus*	Herb-robert	*Geranium robertianum*
Willow sp.	*Salix sp.*	Hogweed	*Heracleum sphondylium*
Rhododndron	*Rhododendron ponticum*	Wood Geum	*Geum urban*
English Oak	*Quercus robur*	Common Mouse-ear	*Cerastium fontanum*
Dogwood	*Cornus sanguines*	Wild Strawberry	*Fragaria vasca*
Hawthorn	*Crataegus monogyna*	Perforate St Johns-wort	*Hypericum perforatum*
Hazel	*Corylus avellana*	Great Willowherb	*Epilobium hirsutum*
Bramble	*Rubus fruticosus*	Bittersweet	*Solanum dulcamara*
Holly	*Ilex aquifolium*	Rosebay Willowherb	*Chamaenerion angustifolium*
Lime sp.	*Tillia sp.*	Willowherb sp.	*Epilobium sp.*
Elder	*Sambucus nigra*	Dandelion	*Taraxacum officinale agg.*
Buddleja	*Buddleja davidii*	Male Fern	*Dryopteris flix-mas*
Alder	*Alnus glutinosa*	Lady Fern	*Athyrium filix-femina*
Cherry sp.	*Prunus sp.*	Ground-ivy	*Glechoma hederacea*
White Willow	*Salix alba*	Spear Thistle	*Cirsium vulgare*
Wild Privet	*Ligustrum vulgare*	Meadow Buttercup	*Ranunculus acres*
Common Ivy	*Hedera helix*	Cleavers	*Gallium acarine*
Herbaceous plants		Lesser Burdock	*Arctium minus*
Common Nettle	*Urtica dioica*	Common Daisy	*Bellis perennis*
Greater Bird's-foot trefoil	*Lotus pedunculatus*	Hawkweed sp.	*Hieracium sp.*
Common Ragwort	*Senecio jacobaea*	Common Knapweed	*Centaurea nigra*
Common Sorrel	*Rumex acetosa*	Self-heal	*Prunella vulgaris*
Creeping Buttercup	*Ranunculus repens*	Lady's-smock	*Cardamine pratensis*
Creeping Thistle	*Cirsium arvense*	**Grasses, Sedges & Rushes**	
Lesser Spearwort	*Ranunculus flammula*	Cock's-foot	*Dactylis glomerata*
White Clover	*Trifolium repens*	Yorkshire-fog	*Holcus lanatus*
Ribwort Plantain	*Plantago lanceolata*	Italian Rye-grass	*Lolium multiflorum*
Hemp Agrimony	*Eupatorium cannabina*	False Oat Grass	*Arrhenatherum elatius*
Brook-lime	*Veronica becabunga*	Pendulous Sedge	*Carex pendula*
Enchanter's Nightshade	*Circaea lutetiana*	Compact Rush	*Juncus conglomeratus*
Agrimony	*Agrimonia eupatoria*	Toad Rush	*Juncus ranarius*
Hart's-tongue Fern	*Asplenium scolopendrium*	Remote Sedge	*Carex remota*
Broad-leaved Helleborine	*Epipactis helleborine*	Soft Rush	*Juncus effusus*
Mare's-tail	*Equisetum arvense*	Creeping bent	*Agrostis stolonoifera*
Comfrey	*Symphytum officinale*	Rough Meadow-grass	*Poa trivialis*

Creeping Cinquefoil	*Potentilla replans*	Sharp-flowered/Jointed Rush	*Juncus acutiflorus/ articulatus*
Rough Hawk-bit	*Leontodon saxatilis*	Fescue sp.	*Festuca sp.*
Mouse-eared Hawkweed	*Pilosella officinarum*	Hairy Sedge	*Carex hirta*
Common Yarrow	*Achillea millefolium*		
Birds			
Robin	*Erithacus rubella*		
Dunnock	*Prunella modularis*		
Jackdaw	*Coloeus monedula*		
Grey Wagtail	*Motacilla cinerea*		
Black-headed Gull	*Chroicocephalus ridibundus*		

Appendix 2 – Site Photographs



Photo 2 Grilled end of the culvert south of sports field (Looking east)



Photo 3 Canalised channel flowing south (Looking east)



Photo 4 Channel flowing west (Looking north)



Photo 5 Channel flowing to the south in between Buildings 3 and 4 (Looking east)



Photo 6 Grilled entrance to the culvert beneath the car park (Looking south west)



Photo 7 Semi-improved grassland bank to the south of building 1 (Looking north)



Photo 8 Sports Field (Looking north west)



Photo 9 Poor Semi-improved grassland to the south east adjacent to the access (Looking south east)



Photo 10 Poor semi-improved grassland to the rear of building 10 (Looking north)



Photo 11 Semi-improved rough grassland to the north of the sports field with woodland beyond (Looking north)



Photo 12 Grassland and hedgerow to the east of Building 7 (Looking west)



Photo 13 Mature ornamental conifers within a small garden area to the south of Building 14 (Looking north west)



Photo 14 Small pond within garden area shown in Photo 13



Photo 15 Allotment adjacent to the western boundary (Looking north west)



Photo 16 vegetation to the rear of Building 7 (Looking north)



Photo 17 Grassland to the north of Building 7 (Looking south east)



Photo 18 Site boundary to the west showing residential housing (Looking north west)



Photo 19 Woodland edge habitat along the north boundary to the rear of building 9 (Looking west)



Photo 20 Woodland edge habitat on the site along the north boundary (Looking east)



Photo 21 East boundary of the site adjacent to an industrial unit showing scrub habitat (Looking north east)



Photo 22 North weest boundary of the area of rough grassland showing scrub (Looking north)



Photo 23 Boundary to the south of the site showing the line of cherry trees (Looking south west)



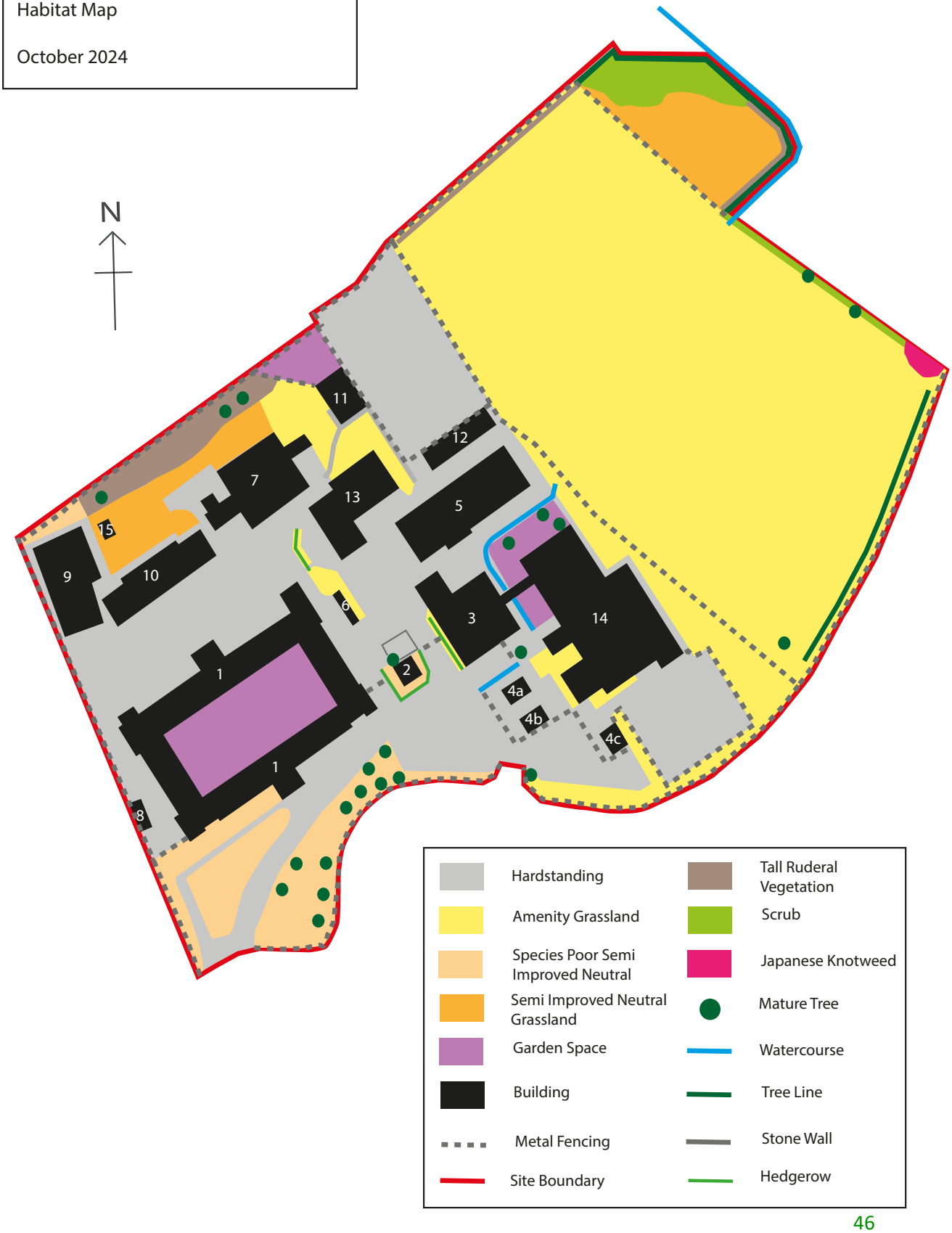
Photo 24 Mature oak tree within the woodland edge habitat along the north boundary (Looking east)

Appendix 3 Habitat Map

LLANGATWG COMPREHENSIVE SCHOOL, ABERDULAIS

Habitat Map

October 2024



Appendix 4 Aerial View of the Site

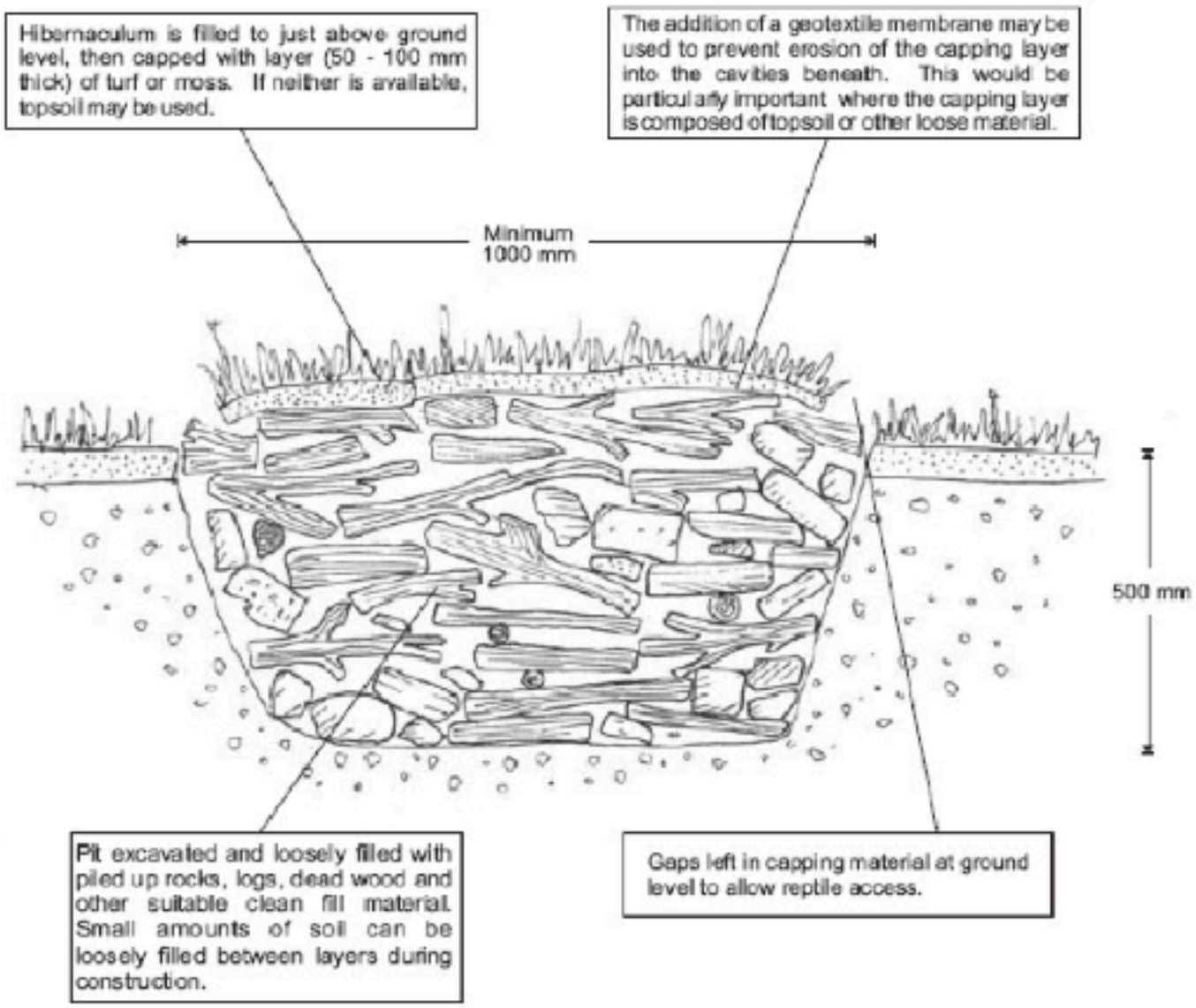


Appendix 5 Invertebrate Habitat Assessment

Table 1. Summary of the 11 habitat elements assessed by IHP survey.

Habitat element	No.	Comments
Decaying Wood	HE1	In all its forms, from decaying wood on/in large trees to woodland floor debris
Rotational Management	HE2	Planned or serendipitous, and whether for nature conservation or other purposes
Nectar Resources	HE3	As a proxy for nectar- and pollen resources, as assessment of pollen resources is impracticable on a walk-through survey
Wet Substrates	HE4	Including marginal, marshy, muddy and seasonally inundated habitats, as well as flushes
Open Water Habitats	HE5	The open water element of rivers, lakes, ponds, streams, ditches, etc
Structural Patchwork	HE6	Habitat mosaics, including, but by no means restricted to open mosaic habitats on previously developed land
Still Air (S)	HE7	Suntraps and still-air microclimates in open situations; the term 'still air' is used in preference to 'wind breaks' as many rigid wind breaks are likely to produce turbulent air in their lee
Still Air (H)	HE8	Humid still-air microclimates in sheltered and shaded situations
Connectivity	HE9	Landscape-scale connectivity between the site and external habitats
Ecotones	HE10	A graded transition between two or more broad habitats
Bare Earth	HE11	Unshaded bare or sparsely vegetated well-drained substrate, regardless of soil type

Appendix 6 - Reptile Hibernacula



Source: Highways Agency (2005) *Design Manual for Roads and Bridges: Volume 10 Section 4 Part 7 – Nature Conservation Advice in Relation to Roads and Reptiles*

Appendix 7 - Legislation

The Habitats Directive (Directive 92/43/EEC) aims to '*contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States*'. The Directive requires the establishment and conservation of a network of sites within each member state which protect the rarest flora and fauna found across Europe. A number of species and habitats are listed in Annex 2 of the directive for which areas can be designated as a SAC. The aims of the Habitats Directive are transposed into British Law through the Conservation of Habitats and Species Regulations 2017.

The Wildlife and Countryside Act (1981) as amended provide the legislation framework and protection for SSSI. A SSSI is designated by a statutory nature conservation body such as Natural Resources Wales (NRW) for its make up of flora, fauna, geological and / or physiographical features. Each SSSI should have a citation which describes the site and its special features.

The Environment (Wales) Act 2016 is a wide reaching piece of legislation which seeks help improve the management of Wales' natural resources into the future. The Act sets out a Wales wide approach to planning and managing its natural resources at a national and local level in a sustainable manner. One main requirement for all public bodies, such as local councils, is to maintain and enhance biodiversity where possible within their duties.

The Well-Being of Future Generations (Wales) Act 2015 places a duty upon public bodies to produce well-being objectives that contribute to achieving a set of overarching well-being goals. The Resilient Wales goal is the key goal that biodiversity and geodiversity conservation, as part of the planning process, will contribute towards delivering.

04.3 Landscape Management and Maintenance Plan

Llangatwg Comprehensive School, Neath

Landscape Management and Maintenance Plan



Austin·Smith:Lord

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Client	Morgan Sindall
Project	Llangatwg Comprehensive School
Document no.	26CC07-ASL-10-XX-T-L-0101
Revision	P03
Notes	02/07/25 P03 – Issued for Planning. Additional section for Ecology and Biodiversity benefits. Appendices added. 25/04/25 P02 – Issued for PAC. 11/04/25 P01 - Issued for Information.

1.0 Introduction

1.0.1 This Landscape Management and Maintenance Plan has been prepared following guidance from BS 42020:2013 and outlines the strategies and procedures for the upkeep and preservation of the landscape scheme for Llangatwg Comprehensive School in Neath.

1.0.2 The purpose of this document is to provide a maintenance, management and monitoring plan for a 5-year period from the first beneficial use of the school occupation, with key objectives for the long-term management. After this period, this document can be used as a basis to help inform any longer-term maintenance and management strategies for this area.

1.0.3 The proposed development site sits within the residential area of Aberdulais. Residential dwellings are present to the north-east and south-west of the school and houses extend along Penscynor Road to the north and the A4230 to the south-west. An area of Ancient Semi Natural Woodland (ASNW) is present along the northern boundary of the school. The woodland extends to the north and south-east of the local area providing excellent habitat connectivity into the wider landscape northwards. A railway line is present approximately 45m south and the A465 is located approximately 140m south from the southern school boundary. These features both extend into the wider landscape. The Tenant Canal and River Neath lie to the south of the A465. Both these features provide excellent habitat connectivity into the wider landscape.

1.0.4 The school site sits between areas of woodland to the north and the Tenant Canal and River Neath to the south and as such aids with habitat connectivity for a range of wildlife. As such the design of the new school and grounds has been created to help maintain habitat connectivity to the wider landscape. The drainage design within the school site aims to treat all surface water within the school grounds using SUDs principles to prevent any pollution incidents. The landscape design has considered climate change incorporating species within the planting schedule that are drought and warm weather tolerant. Dark commuting corridors will be retained along the eastern and western boundaries of the site to create commuting corridors for wildlife across the landscape.

1.0.5 The document should be read in conjunction with the specification, schedules and drawings submitted with the planning application. For details of the location and extent of the areas described in this report, please refer to the following plans:

- 26CC07-ASL-30-XX-D-L-1001 Landscape Masterplan
- 26CC07-ASL-30-XX-D-L-1003 Soft Landscape
- 26CC07-ASL-30-XX-D-L-1008 Biodiversity Enhancement.

2.0 General soft landscaping maintenance

2.0.1 Maintenance operations will be scheduled based on weather conditions and carried out as necessary by the Contractor or as directed by the Contract Administrator (CA). While the CA may instruct the Contractor to perform operations at any time during the Maintenance

Period, it is the sole responsibility of the Contractor to arrange the operations appropriately to keep weed growth in check, ensure adequate watering, maintain a well-groomed appearance and achieve the intended establishment of the plantings.

2.1 Mowing regimes

2.1.1 The grassed areas should be mown and strimmed in line with the management program detailed for grassland type (see below). While there are no grass areas with gradients exceeding 1:3, caution should still be exercised when mowing on softer gradients.

2.2 Watering

2.2.1 Water all trees if there has been no rain for 10 consecutive days during the establishment period.

2.2.2 The Contractor should water the plants during dry periods in sufficient quantities to ensure thorough penetration of the rooting zone.

2.2.3 The Contractor should provide all necessary hoses, fittings, sprays, etc., to implement watering as required until practical completion.

2.2.4 If mains water is unavailable, freshwater delivery should be arranged through a bowser or another suitable method.

2.3 Mulching

2.3.1 Mulch should be brushed monthly to ensure even coverage and topped up to maintain a depth of 75 mm.

2.3.2 The mulch depth should be reviewed annually, and additional material should be applied, if necessary, to maintain a depth of 75 mm on a weed-free surface in April/May.

2.3.3 Mulching should not be carried out after a long dry period.

2.4 Weed control

2.4.1 Maintenance visits should occur at least every four weeks between April and November to remove any species that have not intentionally been planted in ornamental areas.

2.4.2 Only products listed in the current Agricultural Chemicals Approval Scheme should be used. Weed control in hedgerows should be achieved through hand weeding and/or spot treatments of glyphosate (weed killer).

2.4.3 No invasive non-native plant species have been recorded at the site during pre-construction surveys. The presence of any invasive non-native plant species must be immediately reported to the CA. These weeds are classified as ‘Controlled Waste’ and must be treated and disposed of in accordance with current regulations. A list of invasive non-native plants is provided in Appendix 3.

2.5 Pest and disease control

2.5.1 All pesticides/herbicides used must be authorized by the CA and approved for use in amenity horticulture, following the Control of Pesticides Regulations 1986 (Amended 1997).

2.5.2 The control of pests should be carried out using suitable and appropriate methods as determined by the CA. A method statement must be submitted for approval in advance of treatment. Pests will be identified, eradicated and litter will be removed.

2.5.3 The Contractor must possess recognised Certificates of Competence for the use of pesticides approved for amenity plant protection unless working under the direct supervision of a certified individual. The Contractor should provide written evidence to the CA regarding which members of their staff are certified to apply pesticides.

2.5.4 During the regular monthly site inspection, the Contractor should identify any pests or diseases and take necessary action, including the use of approved chemicals or removal of infected plants. Replacement planting should be conducted as needed.

2.6 Litter removal

2.6.1 Remove litter from all areas fortnightly.

3.0 Management Objectives and Actions

3.0.1 Management and maintenance are essential for the establishment of new vegetation and wildlife features. Specific objectives and management for each green infrastructure element are described in subsequent sections.

3.0.2 Even though native, hardy and disease resilient species have been selected in the planting palette, if any planting disease is identified on site it will need to be reported immediately to the client and dealt with by a specialist.

3.1 Tree planting

3.1.1 Objective: the establishment of healthy, mature trees across the site connecting hard and soft landscaping.

3.1.2 The management of tree planting aims to ensure successful establishment, following the plans specified in Part 1.0 of this document. All tree-related tasks will adhere to the guidelines outlined in BS3998:2010 Tree Work. Existing retained trees should be allowed to grow naturally, considering safety precautions.

3.1.3 The maintenance contractor will be responsible for irrigation/watering throughout the maintenance period to promote establishment, healthy growth, and vitality of the tree planting. If there is bark mulch, it should be pulled back to allow water to penetrate the entire topsoil depth. Watering tubes will be used where applicable. Sufficient watering will be provided to ensure full penetration of the tree's rooting zone.

3.1.4 Tree protection, stakes, and ties will be inspected twice a year by the Contractor during the establishment phase and adjusted as needed to prevent tree damage. Trees will be maintained upright, with necessary adjustments made after strong winds. The Contractor will remove all stakes and ties no earlier than year three and no later than year five, once the

trees can support themselves. Any trees with underground guying will be monitored to ensure their stability.

3.1.5 Weeding activities will be carried out during the main growth period (April to June) for three years to maintain a weed-free area around each tree with a minimum radius of 0.5 m. Weeding will be performed using appropriate safeguards such as hand pulling, strimming (avoiding tree damage) or chemical means with approved herbicides following manufacturer's instructions. Care will be taken to prevent harm to the trees.

3.1.6 The Contractor will regularly assess the health of each tree and prune to eliminate dead, dying, or diseased wood and encourage healthy growth, following good horticultural and arboricultural practices. Lower branches causing obstructions or damage to other plants will be pruned as part of formative pruning to maintain a well-balanced and healthy crown. This pruning should be done once or twice a year, ideally in late winter before spring growth and outside of nesting bird season (March-September). Any wounds on the trees will be carefully trimmed back to sound tissue. Disposal of any waste material will be done at a licensed tip or recycling facility.

3.1.7 Annual monitoring of newly planted trees will be conducted each autumn by an arboriculturist during the first five years after planting to assess establishment. The arboriculturist will make recommendations for additional management, as necessary. Any failed trees will be replaced by the contractor. If, after 5 years the trees have established no further monitoring will be required. Ongoing maintenance, as described in this document, will be applied to ensure their health and tidiness.

3.2 Ornamental and native shrub planting

3.2.1 Objective: To establish diverse shrub planting that is aesthetically pleasing and provides cover for wildlife.

3.2.2 Ornamental shrub beds will be kept free from debris, litter, grass and weed growth throughout the maintenance period. Weeds will be controlled either manually or using herbicides, with a tolerance limit of no more than 5% coverage and a maximum height of 100 mm. Any dead weeds will be removed and disposed of at a licensed tip or recycling facility.

3.2.3 A surface layer of wood bark mulch will be applied to control weed growth. A 75 mm depth of wood bark mulch will be maintained and topped up as necessary in ornamental shrub beds during the maintenance period. Mulch spillage on adjacent edgings and paving will be promptly cleared during each visit.

3.2.4 Scotts Enmag fertiliser will be applied each spring as a top dressing to the area around the shrubs at a rate of 70 gms/m2, lightly raked in.

3.2.5 Each plant's health will be monitored, and pruning will be carried out to remove dead, diseased, or damaged branches, water shoots and reversion growth. Spring pruning will promote bushiness and mulch of well-rotted manure or garden compost may be applied.

3.2.6 Disposal of any waste material will be done at a licensed tip or recycling facility. Plants that have been loosened by wind or frost will be firmed back into place.

3.2.7 Annual monitoring of newly planted shrubs will be conducted by the landscape contractor each autumn during the first five years after planting to assess establishment. Any failed shrubs will be replaced. If, after 5 years the shrubs are established no further monitoring will

be required. Ongoing maintenance, as described in this document, will be applied to ensure their health and tidiness.

3.3 Hedgerow Planting

3.3.1 Objective: to establish a dense, mature hedgerow that connects habitats within and adjacent to the site and can be used for foraging, commuting and nesting by local species.

3.3.2 The Contractor should regularly inspect the health of each plant and conduct pruning to remove any dead, diseased or damaged branches. Trimming of hedges should follow the schedule in the table below. The cutting and pruning should aim to maintain a strong and even shape, cutting back the previous growth to maintain a height between 1000 mm and 1100 mm. All trimmings should be taken to a licensed tip/recycling facility.

3.3.3 Newly established hedging will be protected with post and wire timber fencing to prevent accidental damage by the public. Once the hedging has developed strong roots and dense growth and is self-supporting, the fence can be removed. Regular monitoring will determine the optimal timing for fence removal, allowing the hedging to thrive while maintaining its protection during the establishment phase.

3.3.4 The following actions should be taken to support the long-term establishment of the hedgerow:

Year	Action
1	Ensure the base of each plant is weed-free within 1 m diameter. Litter should be picked up during each visit.
2	Lightly trim plants in February, maintain weed-free conditions, and apply general-purpose fertiliser in spring. Litter should be picked up during each visit.
3-4-5	Lightly trim and begin shaping the hedge to reach a final height of approximately 1 m by 1 m wide. Litter should be picked up during each visit. Year 4 - Apply Scotts Enmag fertiliser or agreed alternative once between mid-May and August.
6+	<u>Formal hedgerows:</u> The hedge should have reached its final height of 1 m - 1.1 m. They should be clipped at least four times a year to maintain a neat and tidy appearance. Monthly clipping may be necessary during the summer months if growth limits access. <u>Native hedgerows:</u> Allow the hedge to reach its final height of 1.5 m - 2 m. Cut once every 2 years between the months of November to February inclusive. Apply general-purpose fertiliser in spring. Litter should be picked up during each visit. During the summer period if the hedgerows need to be clipped, they must be assessed appropriately by a fully qualified ecologist before each cut to ensure there are no active nests within.

3.3.5 Weed control along the hedgerow alignment should be carried out using appropriate herbicides to achieve a weed-free strip of 0.5 m. The Contractor should ensure that weeds are removed from the planting beds and hedgerow alignment, with a tolerance of no more than 5% of the area and not exceeding a height of 100 mm.

3.3.6 The Contractor should apply Scotts Enmag fertiliser or agreed alternative to each planting station at a rate of 5 gms per plant. This application should take place between mid-May and August each year.

3.3.7 Annual monitoring of new hedgerows will be conducted each autumn during the first five years after planting to assess establishment.

3.4 Amenity grassland

3.4.1 Objective: To provide recreational grassland areas.

3.4.2 Amenity grassland will be maintained below 75 mm. Grass cutting will be performed as needed between March and the end of October, keeping the cut height at 40 mm. A rotary mower fitted with a steel roller will be used and all clippings will be collected and disposed of at a licensed tip or recycling facility. Before each cut, all litter and debris will be removed.

3.4.3 Grass cutting will not be performed in adverse weather conditions or excessively wet or dry ground conditions.

3.4.4 During each cut, the grass edges around trees, manholes, etc., will be trimmed while taking precautions to avoid damage to tree trunks. All clippings will be removed and adjacent hard areas will be swept clear of cuttings and swept material will be disposed of.

3.4.5 Broad-leaved weeds in the grassland will be controlled as required by applying suitable approved selective herbicides. Fallen leaves will be removed in autumn.

3.4.6 Failures in grass growth, including bare patches and areas with extreme wear, bare patches, or wheel ruts that have not established, will be rectified through re-cultivation and reseeding using specified seed mixes.

3.4.7 The grassland will be watered as necessary to maintain a healthy sward until it becomes established.

3.5 Species-rich Grassland / Marshy Grassland

3.5.1 Objective: Species rich wildflower grassland containing similar species to those found pre-construction, to provide a biodiverse grassland resource which supports local wildlife.

3.5.2 During the first year after sowing, grasslands will be left to establish without mowing until early August. The regrowth will then be cut through to late autumn/winter to 50 mm.

3.5.3 In subsequent years, existing and proposed areas of species-rich grassland will be cut twice annually. The first cutting will occur at the end of July after flowering with grassland cut to a height of 100 mm, and the second cut will take place in September/October mowing to a height of 75 mm, depending on weather conditions. The cut material will be left on the ground for 2-3 days to allow seed dispersal and support invertebrates. All cut material will then be removed from the site or sent for composting.

3.5.4 Scrub and weed control will be carried out as necessary to prevent the establishment of persistent perennial weed species (such as broad-leave dock, ragwort and nettle) or scrub species (sucking blackthorn, bramble, tree saplings, etc). Control methods may include hand-

pulling or spot treatment with suitable approved selective herbicides, depending on the affected species and appropriate timing. Weeds and scrub will not exceed 20 % coverage.

3.5.5 Worn or damaged areas of wildflower meadows will be repaired by over-seeding into prepared seedbeds using the appropriate wildflower mixture specified in the Landscape Masterplan drawing. This will be done within seasonal limitations and suitable weather and ground conditions, following best practice guidelines.

3.5.6 Monitoring of the grassland areas will be completed annually by an ecologist between May-August to ensure plants are becoming established. If low diversity of species is recorded, plug planting of grassland species will be recommended to improve diversity. If less than 5% coverage of bird's-foot trefoil is recorded along the buttery bund, seeding of this species will be recommended.

3.6 Butterfly Bund Planting

3.6.1 The central bund and adjacent 4m of habitat either side will be subject to low intensity management. One side of the bank and 4m width will be cut using a trimmer or bush cutter once per year during April. The opposite side will be cut in the alternate year.

3.6.2 Every two years bare ground scrapes will be created. At least two bare earth scrapes covering 25% of the bund and two bare earth scrapes covering 25% of the 4m wide buffer from the base of the bund will be provided.

3.7 Wildflower blanket green roof

3.7.1 Objective: Species rich wildflower grassland to provide a biodiverse grassland resource for locally occurring invertebrates.

3.7.2 A wildflower blanket green roof will be installed by an appropriately experienced contractor on the roof terraces. The manufacturer should be consulted on the most appropriate product and installation method in advance of purchase and on the need for built-in irrigation. Material will be pre-planted with native wildflower species and will be installed to the manufacturer's instructions.

3.7.3 Once established, management will be in line with the wildflower grassland across the rest of the site, with added maintenance tasks required for a green roof as described below.

3.7.4 Maintenance actions:

Spring maintenance actions:

- Removal of unwanted plant material such as saplings or dense patches of perennial weeds, as detailed in the annual report from the previous year.
- If the application of fertiliser is recommended in the annual report, organic 6-month slow release granular fertiliser will be applied in spring.

Summer maintenance actions:

- During dry periods water weekly to the point of saturation.

Autumn maintenance actions:

- Vegetation should be strimmed back to a height of 50-70mm in late August. The cut material will be left on the roof for 2-3 days to allow seed dispersal and support

invertebrates. All cut material will then be removed from the site or sent for composting.

- Inspection of rainwater outlet chambers, inspection chambers, walkways and vegetation barrier, and removal of vegetation.
- Replenishment of any areas of settled substrate.

Winter maintenance actions:

- No visit needed.

3.7.5 Monitoring of the wildflower roof will be completed annually between May-August to ensure plants are becoming established. If low diversity of species is recorded, the original supplier will be consulted on how best to achieve more diversity and remedial work carried out during the following year.

3.8 Rain garden planting mix

3.8.1 Objective: To establish functional rain gardens that provide cover for commuting wildlife.

3.8.2 Twice a year during May and August, the landscape contractor will inspect areas to identify accumulation of sediment and matted organic debris that could seal the surface as well as extended duration of ponding (ponding for more than 24 hours after cessation of rain). The contractor should rake accumulated sediment from the rain garden surface, taking care to protect the plants. Minor accumulations may be raked into the soil. The inspection will also include the correction of erosion problems and identify any damage to vegetation. Inspect for uniformity in cross-section and longitudinal slope, correct as needed.

3.8.3 Mow and trim vegetation to ensure safety, aesthetics, proper operation, and to suppress weeds and invasive vegetation; mow only when areas are dry to avoid rutting. Perform these actions twice during the growing season (April to October). Cut back ornamental grasses and flower stalks from herbaceous plants from the previous season's growth. Clean up shall be completed by the end of April each year.

3.8.4 Replant bare areas in accordance with project plans and specifications; install appropriate erosion control measures when native soil is exposed or erosion channels are forming. Re-mulch any void areas.

3.9 Woodland

3.9.1 Objective: To maintain and improve the woodland along the boundaries of the site and establish a functional extension through woodland planting.

3.9.2 Once operational, annual inspections of woodland areas should be conducted by an arboriculturist to assess the health and condition of the trees, understory and woodland generally. The arboriculturist will make recommendations for pruning or thinning of trees as appropriate to improve the structure and diversity of the woodland and understory.

3.9.3 Pruning of trees should be carried out as needed to remove dead, diseased or damaged branches, and to shape the canopy. Pruning activities should follow good arboricultural practices and ensure the long-term health and structural integrity of the trees.

3.9.4 Invasive species management should be implemented to prevent the establishment and spread of non-native plants. Prompt removal and control measures should be undertaken to prevent their dominance.

3.9.5 If thinning is required it should take place during the dormant months, typically November to January and outside of the wildlife nesting and breeding seasons.

3.10 Pond Edge Planting

3.10.1 Objective: To establish a species-rich plant margin around new ponds on site, to support local wildlife.

3.10.2 Coir rolls to be installed along the edges of the ponds. The manufacturer should be consulted on the most appropriate product and installation method in advance of purchase.

3.10.3 Once established, native marginal vegetation will be managed to encourage structural diversity and maximise biodiversity value. Work will be undertaken between September and November to minimise disturbance to wildlife, using pedestrian operated machinery or hand tools as desired.

3.10.4 Short lengths of bankside vegetation (5-10 m) will be cut to <100 mm and the arisings removed every 2 years, rotating around the Site so that all vegetation is cut by the end of each 4th year. Removal of contiguous sections will be avoided to maintain some cover for wildlife at all times. Dense stands of larger species such as yellow flag iris and great reed-mace may be selectively thinned as appropriate.

3.10.5 Monitoring of the pond edge planting will be completed annually by an ecologist between May-August to ensure plants are becoming established. If areas of the coir rolls fail to be established, additional pond planting will be recommended.

3.10.6 One dredge of the pond every 10 years. Remove 75% of the vegetation and silt, leave on the side for 24hrs and then remove. Allow natural regeneration of the pond via retained vegetation.

3.11 Bat boxes

3.11.1 Objective: to increase the provision of bat roost features within the site, supporting local bat populations.

3.11.2 The bat boxes selected do not require internal maintenance. The boxes will be monitored annually to ensure they are still present and suitable for use by bats. Damaged or missing boxes will be replaced. A bat licensed surveyor will inspect the boxes prior to replacement. If bats are present the boxes will be left in situ and the need for replacement reviewed.

3.12 Bird boxes

3.12.1 Objective: to maintain the provision of bird nesting features within the site, supporting local bird populations.

3.12.2 Bird boxes will be checked annually during the winter (October- Jan) and cleaned out, if necessary. Damaged or missing boxes will be replaced.

3.13 Hedgehogs

3.13.1 Objective: to facilitate continued movement of hedgehog through and around the site.

3.13.2 Access points through fencing will be checked quarterly to ensure that routes through the site have not become blocked.

3.14 Reptiles

3.14.1 Objective: to ensure continued use of the site by local reptile populations.

3.14.2 Habitat around and on top of the hibernaculum will be managed as wildflower grassland and monitored annually.

3.14.3 Recommendations for vegetation management to be provided to the Client with the intention of reducing scrub encroachment and developing structural diversity within the grassland.

4.0 Ecology and Biodiversity

4.0.1 This section summarises the landscape proposals and highlights their positive impact towards ecology and biodiversity.

4.1 Ecological value within the site boundary

4.1.1 Refer to Appendix 5 drawing *26CC07-ASL-30-XX-D-L-1008 Biodiversity Enhancement* for more details on the ecological enhancement proposals.

4.2 Benefits & making the most of the local ecology

4.2.1 The landscape strategy has identified the following principal objectives, which will ensure a comprehensive approach to achieve the enhancement of the existing landscape and successful integration of the proposed landscape within the site.

4.2.2 Planting of additional stretches of hedgerow using locally-sourced native species.

4.2.3 Creation of habitat connectivity around the site.

4.2.4 Incorporation of bat and bird boxes within the fabric of the new development.

4.2.5 Inclusion of native tree and shrub mix species within the landscape design to provide additional resources for invertebrates.

4.2.6 Hedgehog friendly fencing around the site - proposed perimeter fencing to allow for wildlife access by having regular gaps at its base.

4.3 Enhancing Ecological value

4.3.1 Native and climate resilient tree planting is proposed within the site.

4.3.2 Hedgerows not linked to the wider landscape are removed but replaced with stretches of hedgerows linked to adjacent planting forming a stronger soft buffer.

4.3.3 Rain gardens are introduced into the site, previously not present.

4.3.4 Ornamental and native shrub planting including pollinating species, provide an attractive external environment with additional ecological benefits.

4.3.5 A butterfly bank is proposed close to the forest school with habitat and educational benefits.

4.3.6 A reptile hibernacula is proposed close to the forest school area using site-gained materials, promoting sustainability and habitat creation.

4.3.7 The creation of a lively open water channel provides opportunities for new habitat creation.

4.3.8 Creation of a sensory garden.

4.4 Contact Details

4.4.1 Refer to Appendix 4 for details of the maintenance responsibilities and appointed professionals.

4.5 Local Information - links

4.5.1 Wildlife in your Ward (gov.wales)

4.5.2 Local Places for Nature (gov.wales)

4.5.3 Biodiversity (gov.wales)

5.0 Reporting

5.0.1 An annual report of monitoring surveys will be produced by an arboriculturist (tree, shrub and woodland) and ecologist (other biodiversity features) detailing the results of the survey and any additional management that may be required to achieve the objective set for each feature. It will also include a figure showing the as-built locations of all biodiversity features. This report will be provided to the management company and Council Ecologist.

5.0.2 NPT Council will be responsible for appointing appropriate companies / consultants.

6.0 Establishment and Defects Liability Period

6.0.1 If any plants are found to be defective within the 12 month Defects Liability Period due to:

- failure
- poor materials
- lack of vigor
- damage from theft or vandalism

the contractor is responsible for rectifying them and maintaining the scheme as described in this document during that period.

6.0.2 From year 2 and until the completion of year 5, the responsibility for maintenance and replacement of failed plants will lie with the developer.

6.0.3 There is no limit on the number of times plant replacement can be carried out during the Defects Liability Period in order to achieve complete plant coverage and maintain the intended scheme designed by the Landscape Architect and indicated in the plans specified in Part 1.0 Introduction.

6.0.4 The Contractor/Managing Agent must carry out all maintenance operations at a time that is suitable for wildlife and planting. Refer to Appendix 1 for details.

6.0.5 All maintenance operations, including irrigation, will be dependent on weather conditions and carried out as necessary by the Contractor or as directed by the Contract Administrator (CA). While the CA may instruct the Contractor to perform operations at any time during the Maintenance Period, it is the Contractor's responsibility to ensure that the operations are arranged appropriately to ensure the proper establishment and vitality of the planting material.

6.0.6 Before commencing maintenance work, the Contractor/Managing Agent must inspect all areas on each visit to ensure there are no visible hazards that could cause injury.

6.0.7 Protective barriers and signage must be used at all times, and alternative routes should be provided if public access is affected.

6.0.8 Excavated or imported materials must not be placed directly on any surface. Any damage or disturbance to the soil structure or other features resulting from the implementation of the management plan should be addressed by reinstating them to their original condition.

6.0.9 All operations must comply with relevant legislation and current sections of Health and Safety, including:

- Health and Safety at Work Act 1974
- Control of Pollution Act 1974
- Food and Environment Protection Act 1985
- The Wildlife and Countryside Act 1981
- The Control of Pesticides Regulations 1986
- The Environmental Protection (Duty of Care) 1991
- The British Standards included in Part 6 of this document.

Appendix 1 - Summary of Management Works

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
Tree and shrub planting	Monitoring of tree failures - Replace failed trees and shrubs	Landscape management contractor / ecologist	Once annually	✓	✓	✓	✓	✓	N/A
	Assessment of tree health and pruning - Prune dead, damaged or diseased branches, and those obstructing / damaging other plants. - Firm in any loose trees by foot - Any wounds to be trimmed back to sound tissue	Landscape management contractor / arborist	Up to twice annually (outside of nesting bird period)	✓	✓	✓	✓	✓	✓
	Assessment of tree protection, stakes and ties - Straighten trees, maintain tree protection and ties	Landscape management contractor	Twice annually	✓	✓	✓	✓	✓	TBC
	Removal of tree protection and stakes once trees can support themselves	Landscape management contractor	Between year 3 and year 5						
	Weed removal - Remove weeds within 0.5 m of the trunk by hand, using a strimmer or approved herbicide, avoiding damage to the tree.	Landscape management contractor	Regularly from April - June	✓	✓	✓			
	Top up bark mulch - A 75 mm layer of bark mulch to be maintained within a 1000 mm diameter of the tree.	Landscape management contractor	Annually	✓	✓	✓			
Ornamental and native shrub planting	Monitoring of shrub failures - Replace failed shrubs	Landscape management contractor / ecologist	Once annually	✓	✓	✓	✓	✓	TBC

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Assessment of shrub health and pruning - Prune dead, damaged or diseased branches, water shoots and reversion growth. - Firm in any loose shrubs by foot - Any wounds to be trimmed back to sound tissue	Landscape management contractor / arborist	Up to twice annually (outside of nesting bird period)	✓	✓	✓	✓	✓	✓
	Weed control and rubbish removal - Remove weeds and rubbish by hand, using a strimmer or approved herbicide, avoiding damage to the shrubs.	Landscape management contractor	Regularly from April - June	✓	✓	✓			
	Top up bark mulch - A 75 mm layer of bark mulch to be maintained around shrubs	Landscape management contractor	Annually	✓	✓	✓			
	Apply Scotts Enmag fertiliser - Apply at a rate of 70 gms/m2 and lightly rake in.	Landscape management contractor	Annually between mid-May and August	✓	✓	✓	✓	✓	✓
Hedgerow planting	Monitoring of hedgerow failures - Replace failed trees	Landscape management contractor / ecologist	Once annually	✓	✓	✓	✓	✓	TBC
	Assessment of hedgerow health and pruning - Prune dead, damaged or diseased branches - shape hedgerow	Landscape management contractor / arborist	Follow schedule for each year provided in section 4.4.3	✓	✓	✓	✓	✓	✓
	Weed control - Remove weeds by hand, using a strimmer or approved herbicide, avoiding damage to the hedgerow.	Landscape management contractor	Regularly from April - June	✓	✓	✓			

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Rubbish removal - remove rubbish regularly	Landscape management contractor	Regularly year round	✓	✓	✓	✓	✓	✓
	Apply Scotts Enmag fertiliser - Apply at a rate of 5 gms/plant	Landscape management contractor	Annually between mid-May and August				✓	✓	✓
Amenity grassland	Grass cutting - Grass to be maintained below 75 mm	Landscape management contractor	Regularly between March and the end of October	✓	✓	✓	✓	✓	✓
	Weed control - broad-leaved weeds to be controlled using selective herbicides.	Landscape management contractor	Regularly from April - June	✓	✓	✓			
	Rubbish removal - remove rubbish regularly - remove dead leaves through the autumn	Landscape management contractor	Regularly year round	✓	✓	✓	✓	✓	✓
	Grass failures - re-cultivate and re-seed bare patches, wheel ruts and areas of wear.	Landscape management contractor	As needed	✓	✓	✓	✓	✓	✓
Species-rich grassland / marshy grassland / butterfly bund	First year cutting - Grasslands to be maintained below 75 mm	Landscape management contractor	Regularly through the year	✓					
	Maintaining a diverse sward - Cut to 100 mm in late July - Leave arisings for 2-3 days then remove - Mow to 75 mm in September / October	Landscape management contractor	Annually		✓	✓	✓	✓	✓

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Scrub and weed controlled to below 20% area - broad-leaved weeds to be controlled using selective herbicides. - scrub species to be removed	Landscape management contractor	Regularly throughout the year	✓	✓	✓			
	Grassland failures - re-cultivate and re-seed bare patches, wheel ruts and areas of wear.	Landscape management contractor	As needed	✓	✓	✓	✓	✓	✓
	Assessment of diversity - a survey will be completed to assess the species composition of the grassland, if low species diversity is apparent advice on ways to increase diversity will be provided.	Ecologist	Annually in summer	✓	✓	✓	✓	✓	✓
Pond edge planting	Detail needed	Landscape management contractor		✓	✓	✓	✓	✓	✓
	Assessment of diversity - a survey will be completed to assess the species composition of the grassland, if low species diversity is apparent advice on ways to increase diversity will be provided.	Ecologist	Annually in summer	✓	✓	✓	✓	✓	✓
Wildflower blanket green roof	First year maintenance - Follow detail schedule provided in section 3.6	Landscape management contractor		✓					

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Removal of unwanted plant material - remove unwanted plants by hand pulling	Landscape management contractor	Annually in spring and autumn		✓	✓	✓	✓	✓
	Application of fertiliser - Apply 6-month slow release granular fertiliser	Landscape management contractor	Annually between April and May		✓	✓	✓	✓	✓
	Maintaining a diverse sward - Cut to 50-70 mm in late August - Leave arisings for 2-3 days then remove	Landscape management contractor	Annually		✓	✓	✓	✓	✓
	Grassland failures - to be discussed with supplier, actions taken in the following year	Landscape management contractor	Annually						
	Assessment of diversity - a survey will be completed to assess the species composition of the grassland, if low species diversity is apparent advice on ways to increase diversity will be provided.	Ecologist	Annually in summer	✓	✓	✓	✓	✓	✓
Rain gardens	Ensure rain gardens are functional - identify and correct accumulations of sediment / organic matter - correct erosion problems - identify damage to vegetation	Landscape management contractor	Twice a year during May and August	✓	✓	✓	✓	✓	✓

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Maintaining a healthy rain garden - mow / trim vegetation - remove weeds and invasive vegetation	Landscape management contractor	Twice during growing season (April - October) when the ground is dry	✓	✓	✓	✓	✓	✓
	Maintenance of plants - cut back ornamental grasses and flower stalks from previous season	Landscape management contractor	Annually by the end of April	✓	✓	✓	✓	✓	✓
	Failures - Replant bare areas with specified plants	Landscape management contractor	As needed	✓	✓	✓	✓	✓	✓
Woodland areas	Assessment of tree health and pruning - Prune dead, damaged or diseased branches, and those obstructing / damaging other plants. - Firm in any loose trees by foot - Any wounds to be trimmed back to sound tissue	Landscape management contractor / arborist	Up to twice annually (outside of nesting bird period)	✓	✓	✓	✓	✓	✓
	Invasive plant control - Annual monitoring to identify any Non-Native Invasive (plant) Species (INNS) that have colonised the woodland. - Appropriate management and controlled removed of INNS before it spreads and becomes established.	Specialist contractor	Annually in late spring	✓	✓	✓	✓	✓	✓

Specific management task	Detail	Who completes task?	Timing	Management year					
				1	2	3	4	5	6 to 10
	Woodland thinning - an annual monitoring will be completed which will identify the need for selective thinning to support a diverse understorey. - trees identified for thinning will be cut and dropped avoiding damage to retained trees.	Landscape management contractor / arborist	Annual survey in spring / summer, selective thinning in winter.	✓	✓	✓	✓	✓	✓
Bat boxes	Maintain roost features for bats - Check for signs of damage - Replace boxes if damaged (following inspection by licenced ecologist)	Landscape management contractor / ecologist	Annually in winter	✓	✓	✓	✓	✓	✓
Bird boxes	Maintain nesting features for birds - Check for signs of damage and remove old nests as needed. - Replace boxes if damaged	Landscape management contractor	Annually in winter	✓	✓	✓	✓	✓	✓
Hedgehog/ wildlife access	Maintain access through site for hedgehog - visual checks for obstructions - removal of obstruction	Landscape management contractor	Quarterly through year	✓	✓	✓	✓	✓	✓
	Management of translocation area - control of scrub encroachment - implementation of other management recommendations	Landscape management contractor	Suitable timings to be agreed based on activities.	✓	✓	✓	✓	✓	✓

Appendix 2 - British Standards

As well as the standards described above the soft landscape works should meet the following British Standards:

Topsoil handling, stripping and storage

- BS ISO 15799:2003 Soil quality - guidance on eco-toxicological characterization of soils and soil materials
- BS 3882:1994 Specification for topsoil
- BS 6031:1981 Code of practice for earthworks
- BS 7562-4:1992 Planning, design and installation of irrigation schemes guide to water resources
- BS 4428:1989 guide of practice for general landscape operations (excluding hard surfaces) AMD 6784
- BS 3882:1994 specification for topsoil and AMD 9938.

Quality of Trees and Shrubs

- BS 3936-1:1992 Nursery stock specification for trees and shrubs
- BS 3936-5:1985 nursery stock specification for poplars and willows
- BS 3936-10:1990 nursery stock specification for ground cover plants.

Maintenance of gardens/ Landscapes

- BS 7370-3:1991 grounds maintenance recommendations for maintenance of amenity and functional turf (other than sports turf)
- BS 3998:2010 recommendations for tree work and AMD 6549.

Horticulture

- BS EN 12579:2000 Soil improvers and growing media - sampling
- BS EN 13037:2000 Soil improvers and growing media - determination of pH.

Turf

- BS 3969:1998 Recommendations for turf for general purposes
- BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces).

Appendix 3 – Invasive Non-Native Plant Species

Wildlife and Countryside Act 1981 Section 14 Schedule 9 Part II Plants
Under the Act it is illegal to plant or otherwise cause to grow in the wild any plant listed in

Schedule 9 to the Act. The current list is available at:
http://www.nonnativespecies.org/index.cfm?pageid=67

Northern Ireland list:
http://www.legislation.gov.uk/nia/2011/15/schedules/enacted

(These lists omit marine algae)
Schedule 9 Plant Species: Land plants

Common name	Scientific name	England & Wales	Scotland	Northern Ireland
Alexanders, Perfoliate	Smyrnium perfoliatum	✓		
Archangel, Variegated Yellow	Lamiastrum galeobdolon subsp. argentatum	✓		
Azalea, Yellow	Rhododendron luteum	✓		
Balsam, Himalayan	Impatiens glandulifera	✓		✓
Bluebell, Spanish	Hyacinthoides hispanica			✓
Cabbage, Skunk	Lysichiton americanum			✓
Cotoneaster	Cotoneaster horizontalis	✓		
Cotoneaster, Entire-leaved	Cotoneaster integrifolius	✓		
Cotoneaster, Himalayan	Cotoneaster simonsii	✓		
Cotoneaster, Hollyberry	Cotoneaster bullatus	✓		
Cotoneaster, Small-leaved	Cotoneaster microphyllus	✓		
Creeper, False Virginia	Parthenocissus inserta	✓		
Creeper, Virginia	Parthenocissus quinquefolia	✓		
Dewplant, Purple	Disphyma crassifolium	✓		
False-acacia	Robinia pseudoacacia		✓	
Fig, Hottentot	Carpobrotus edulis	✓	✓	✓
Garlic, Three-cornered	Allium triquetrum	✓		

Hogweed, Giant	Heracleum mantegazzianum	✓	✓	
Honeysuckle, Japanese	Lonicera japonica			✓
Knotweed, Himalayan	Polygonum wallichii			✓
Knotweed, Giant	Fallopia sachalinensis	✓		✓
Knotweed, Hybrid	Fallopia japonica x Fallopia sachalinensis	✓		
Knotweed, Japanese	Fallopia japonica (Polygonum cuspidatum)	✓	✓	✓
Leek, Few-flowered	Allium paradoxum	✓	✓	✓
Mile-A-Minute Weed	Polygonum perfoliatum			✓
Montbretia	Crocosmia x crocosmiiflora	✓		
Reed, Giant	Arundo donax			✓
Rhododendron	Rhododendron ponticum Rhododendron maximum	✓		
Rhubarb, Giant	Gunnera tinctoria	✓		✓
Rose, Japanese	Rosa rugosa	✓		
Salmonberry	Rubus spectabilis			✓
Sea-buckthorn	Hippophae rhamnoides			✓
Shallon	Gaultheria shallon		✓	

Schedule 9 Plant Species: Freshwater plants

Common name	**Scientific name**	**England & Wales**	**Scotland**	**Northern Ireland**
Fanwort (or Carolina Water-shield)	Cabomba caroliniana	✓	✓	✓
Fern, Water	Azolla filiculoides	✓	✓	✓
Hyacinth, Water	Eichhornia crassipes	✓	✓	
Lettuce, water	Pistia stratiotes	✓	✓	✓
Parrot's Feather	Myriophyllum aquaticum	✓		✓

Pennywort, Floating	Hydrocotyle ranunculoides	✓		✓
Potato, Duck	Sagittaria latifolia	✓		
Primrose, Floating Water	Ludwigia peploides	✓		✓
Primrose, Water	Ludwigia grandiflora Ludwigia uruguayensis	✓		✓
Salvinia, Giant	Salvinia molesta	✓	✓	✓
Stonecrop, Australian Swamp (or New Zealand Pigmyweed)	Crassula helmsii	✓	✓	✓
Water chestnut	Trapa natans			✓
Water soldier	Stratiotes aloides			✓
Waterlily, fringed	Nymphoides peltata			✓
Waterweed, Curly	Lagarosiphon major	✓	✓	
Waterweeds	All species of the genus Elodea	✓		✓

Species in bold are now banned from sale under “The Wildlife and Countryside Act 1981 (prohibition on Sale etc. of Invasive Non-native Plants) (England) Order 2014”.

Appendix 4 – Maintenance Team Directory

Specific management areas	Subcontractor/ Specialist team name	Company address	Contact number	Name of main contact
Tree and shrub planting				
Ornamental and native shrub planting				
Hedgerow planting				
Amenity grassland				
Species-rich grassland / marshy grassland / butterfly bund				
Pond edge planting				
Wildflower blanket green roof				
Rain gardens				
Woodland areas				
Bat/bird boxes				
Hedgehog/wildlife access				

Appendix 5 – Biodiversity Enhancement Plan



Austin-Smith:Lord

Enhancing Life & Environments By Design

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