Sully to Cosmeston ATR

Ecological Impact Assessment

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EXECUTIVE SUMMARY

An Ecological Impact Assessment (EcIA) was commissioned by the Vale of Glamorgan Council (the applicant) in support of a planning application for an active travel route (ATR) between Sully and Cosmeston. This EcIA should be read in conjunction with the Preliminary Ecological Appraisal, Badger Survey Report, Hazel Dormouse Survey Report and Bat Roost Assessment Report.

An initial Phase 1 Habitat Survey was undertaken in 2022 to assess and map habitats within the site (red line boundary) and included an assessment of habitat in relation to its condition to support protected / notable species. Further survey work for badgers, bats and hazel dormouse was undertaken over the appropriate survey windows in 2023 to ensure sufficient baseline results were recorded to inform an impact assessment in line with CIEEM guidelines for an EcIA. A walkover survey was completed in July 2024 to ensure no change in conditions on site that would affect the validity of the survey results; no significant changes were noted.

This assessment assumes the proposed development would be constructed in accordance with industry standard techniques and mandatory minimum standards. It assumes suitably experienced contractors would be appointed to design, construct and commission the development of each plot. A Construction Environmental Management Plan (CEMP) would be produced for each construction phase detailing all construction standards and techniques. The successful implementation of the CEMP would ensure that retained habitats and features adjacent to the site would be protected during construction from uncontrolled surface water runoff, fugitive dust and excessive noise.

The following ecological features have been scoped in as needing further consideration with regard to the proposed development (potential for significant effects from construction and/or operation) and proposed mitigation identified:

- **Non-Statutory Designated Sites**: Ty-r-Orsaf SINC is adjacent to the site and could potentially be impacted by the proposed development. The boundary of Ty-r-Orsaf SINC will be fenced off and signs erected to stop contractors entering the area.
- **Habitats of principal importance**: The proposed development will lead to the loss of some trees located within the semi-natural broadleaved woodland.
- **Hazel Dormouse**: One hazel dormouse record was found in adjacent connected habitat as part of the desk study. Dormouse presence was not confirmed on site, therefore a dormouse protected species licence will not be required, but as dormouse is known to be located within proximity of the site, all vegetation clearance works will be undertaken in a sensitive manner following a method statement.
- **Reptiles, Amphibians and Hedgehog**: Reptiles, common amphibian species and hedgehog were recorded as part of the desk study. Habitats within the site were suitable to support reptiles and amphibians during their terrestrial phase and foraging and nesting hedgehog. A method statement will be followed which outlines sensitive vegetation clearance methods, reducing the potential for injury/harm to these species.
- **Birds**: The woodland, hedgerows, scattered trees and scrub on site are likely to support nesting birds. All works (where possible) will be undertaken outside of nesting bird season which runs for March to August (inclusive). If this is not possible a nesting bird check will be undertaken by an experienced ecologist no more than 48 hours prior to clearance, if nesting birds are present, a suitably sized buffer will be located around the nest and all vegetation within the buffer will be left until the chicks have fledged.
- **Bats**: There were multiple records for bat species returned as part of the desk study. Trees within the woodland have low potential to support roosting bats and the woodland networks provide foraging habitats. Bats may be negatively impacted by the proposed development through the loss of roosting sites and increased lighting along the route. Bat boxes will be installed on retained trees prior to the

felling or tree works on low bat roost potential trees under method statement. A sensitive lighting scheme has been designed to ensure dark corridors are maintained once the proposed development is operational.

- **Badger**: No records of badger were returned as part of the desk study, but the woodland and adjacent fields were suitable for supporting foraging badger and may support badger setts. Potential setts were identified within the proposed development site, but surveys determined that these were not active. Although no active setts have been identified to date, a preconstruction check 8-10 weeks before works commence will be undertaken to ensure no new activity is identified. Badgers may be negatively impacted by the proposed works if they transverse the site during construction and by increased lighting along the route. A sensitive lighting scheme has been designed to ensure dark corridors are maintained once the proposed development is operational. All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a badger enters the excavation they can escape and do not become trapped.

Proposed landscape planting (rain gardens, shaded species-rich grassland, species-rich grassland and hedgerow) will reinforce habitat connectivity. It will provide additional foraging habitat for birds, bats, badger, dormouse hedgehog, reptiles and common amphibians. It is considered that, in combination with the benefits to air quality and climate change from providing improved non-car transport options in the Cosmeston area that there will be an overall net benefit for biodiversity if all the mitigation is followed and the landscaping fully established.

1 INTRODUCTION

1.1 Background

Arcadis Consulting (UK) Limited (Arcadis) was commissioned by Vale of Glamorgan Council to produce an Ecological Impact Assessment in support of a planning application submitted to Vale of Glamorgan Council under Planning Policy Wales [1] for the development of an active travel route (ATR) located between Sully and Cosmeston ("the proposed development").

1.2 Site Location and Setting

The site is located between Penarth and Barry with a central grid reference (Ordnance Survey) of ST 17533 68504. Figure 1 shows the red line boundary (the site). The site comprises of a disused railway line and existing footpath adjacent to roads and is located primarily in semi-natural broadleaved woodland, dense scrub, semi-improved natural grassland and tall ruderal habitat, ending in a residential estate.

Figure 1: Overview of proposed active travel route between Sully and Cosmeston © Google Image

1.3 Previous Reports

In 2022 Arcadis was commissioned to undertake a Preliminary Ecological Appraisal [2] in support of the planning application of the proposed development. An extended Phase 1 habitat survey and desk study were completed in 2023, with subsequent surveys completed for ground level tree assessments for roosting bats (GLTA) [3]; dormouse (*Muscardinus avellanarius*) [4], and badger (*Meles meles*) [5].

1.4 Scope of Work

In 2024 Arcadis was commissioned to undertake an Ecological Impact Assessment in support of the planning application of the proposed development.

The following objectives were set:

- Establish the baseline through field and desk-based assessment work.
- Identify important ecological features that may be affected.
- Consider the potential legal and policy implication of the development and refer to the latest guidance.
- Assess the potential impacts on important ecological features and the significance of the residual effects of the project.
- Incorporate methods to avoid, reduce and compensate negative ecological impacts and their effects and provide ecological enhancement measures.
- The methods, results and assessment are provided in this report.

1.5 Proposals

The proposals for the site are for a new ATR between Sully and Cosmeston. An ATR is a path that will be used for walking and cycling (including the use of mobility scooters) for everyday journeys.

The western section follows the footpath on the northern side of the B4267, before crossing the road and continuing along a disused railway line under the canopy of woodland to St Mary's West Bay Road. This connects to the eastern section which is located (predominately) along a bare ground track through tall ruderal and grassland habitat. This section connects with the hardstanding of the residential street, Cosmeston Drive.

The proposed development, consisting of a shared footway and cycleway from Sully to Cosmeston, will include the following works:

- Site drainage, access roads and footpaths, task specific lighting, security gates and fencing, landscaping, biodiversity planting and CCTV.
- Path and cycle path creation through widening of existing path.
- Toucan crossing creation.
- Lighting of the operational scheme.

The proposals will lead to some vegetation clearance of small areas of broadleaved woodland, species poor grassland, amenity grassland, and very limited areas of other habitat.

2 METHODOLOGY

2.1 Overview

This section sets out the methodologies applied to establish the baseline conditions and identifies any limitations encountered.

The baseline was established through a desk-based study and Phase 1 habitat survey which was extended to consider all protected and notable species relevant to the area. Following the initial habitat suitability assessment, further survey work was then completed in 2023 for the following species:

- Roosting bats
- Dormouse
- Badger

In 2024 a walkover was undertaken to ensure conditions had not changed. Details of all methods employed are presented below.

2.2 Desk Study

A desk study was undertaken in July 2022 to identify any existing ecological information relating to the proposed development and its surroundings. The following resources/sources were used/consulted:

- The Multi-Agency Geographical Information for the Countryside (MAGIC) website [6] was used to search for statutory designated sites of nature conservation value within 2km of the site. The search buffer was extended to 10km for Special Areas of Conservation (SACs) designated for bats.
- South East Wales Biodiversity Records Centre (SEWBReC) was consulted for records of protected and notable species or species of conservation concern (from data collected in the last 10 years only) including Species of Principal Importance listed under Section 7 of the Environment (Wales) Act 2016 [7] and Local Nature Conservation Sites within 2km of the site.
- Natural Resources Wales Ancient Woodland Inventory 2021 [8] was used to search for areas of ancient woodland within 200m of the proposed development.
- Habitats of Principal Importance in Wales listed under Section 7 of the Environment (Wales) Act 2016 [7] within 200m were also gathered from SEWBReC data.
- A review of Ordnance Survey data for waterbodies within 500m of the proposed development.
- A review of planning applications submitted to the Vale of Glamorgan Council within 500m of the proposed development [9].

The desk study area for the proposed development comprised various search areas as listed in Table 1. These are the Zones of Influence over which effects may arise. These distances are precautionary and were identified ahead of the field survey before the ecological features where known. Where hydrological links to the site or mobile species have been identified the search area is large. Any variation is explained in the results section.

Table 1 Desk Study Search Buffers

Policy / Guidance	Search Buffer / Zone of Influence (ZoI)
International or European statutory designated sites	2km (SAC designated for bats – 10km)
National statutory designated sites	2km

Policy / Guidance	Search Buffer / Zone of Influence (ZoI)
Non-statutory designated site, protected and notable species Invasive, non-native species	2km
Priority and notable habitat (including ancient woodland)	200m

2.3 Field Survey

All surveys were conducted within the red line boundary.

2.3.1 Extended Phase 1 Habitat Survey

An extended Phase 1 Habitat survey was undertaken on 2 August 2022 by Arcadis Senior Ecologist Julie Player (MCIEEM) accompanied by Graduate Ecologist Dafydd James. The survey was undertaken during the daytime. Weather conditions were dry, sunny and windy. This survey covered the central and eastern sections of the site and the B4267 option to the west.

The surveys comprised a walkover survey to map habitats present within the site following the standard survey methodology [10]. Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. The habitats on site were also assessed for their potential to support protected or notable species.

2.3.2 Ground Level Tree Assessment

A Preliminary Ground Level Tree Assessment (GLTA) [3] was undertaken during daylight hours of trees and structures on 25 May 2023 by bat licenced Senior Ecologist Julie Player (MCIEEM) and accompanied by Graduate Ecologist Rachel Turcan (Qualifying member of CIEEM) and on 30 July 2024 by Julie Player and accompanied by Senior Ecologist Rebecca Howells. This survey was undertaken following Bat Conservation Trust Guidelines [11] to assess trees and structures to identify any potential roost features suitable for roosting bats which are most likely to be impacted by the proposed development between Sully and Cosmeston.

An inspection of the trees was undertaken from ground level to compile information about the trees and bridges, identify features that bats could potentially use for roosting and record any evidence of roosting bats. The survey was carried out using binoculars, an extendable mirror and endoscope when required.

A total of 93 trees/groups of trees and three bridge structures underwent a preliminary ground level bat roost assessment.

2.3.3 Hazel Dormouse Survey

Hazel Dormouse (hereafter referred to as ‘dormouse’) surveys [4] were undertaken in accordance with the guidance provided in the Dormouse Conservation Handbook [12].

The ‘dormouse nest-tube survey methodology’ was used, whereby specially constructed artificial nesting tubes were fastened underneath horizontal branches in areas of suitable habitat using garden wire and were left in place over a period of several months. When present, dormouse often find and make nests in these tubes and presence can then be detected by means of periodic monitoring to find actual animals or nests, both of which are distinctive.

Sixty dormouse tubes were deployed in the hedgerows and woodland identified as suitable dormouse habitat during the survey on 19 May 2023. Nest tubes checks were carried out monthly between June and November

2023 by licensed surveyors Julie Player and Siân Car (MCIEEM), and assisted by Rebecca Howells, Morgan Greedy and Rachel Turcan.

2.3.4 Badger Survey

A badger survey was undertaken by Arcadis Senior Ecologist Rebecca Howells and Consultant Ecologist Morgan Greedy on 14 July 2023. Sticks were placed at the entrance of potential badger setts and monitored whenever surveyors were on site during the dormouse and GLTA surveys in 2023.

An additional inspection of the potential badger setts was undertaken on 30 July 2024 by Julie Player and Rebecca Howells to confirm their current status.

The surveys included a walkover of the proposed development, concentrating on habitat suitable for badger and searching for characteristic signs of badger activity, including setts, latrines, paths, footprints, hairs, and signs of digging and foraging. Badger setts and their entrance holes were then classified as Main, Annex, Subsidiary, or Outlier, and Well-Used, Partially Used, or Disused, following best practice guidance [13].

2.4 Limitations

In line with CIEEM guidance [14] the baseline surveys undertaken are considered to be valid to the periods outlined in Table 2.

Table 2 Limitations of previous surveys.

Survey	Limitations	Data Validity (providing no change in site use or management)
Extended Phase 1	Extended Phase 1 habitat surveys are limited by a variety of factors which affect the presence of flora and fauna (e.g. climatic variation, season and species behaviour). A lack of evidence of a protected species during a survey does not mean that the species is absent; hence the survey also records and assesses the ability of habitats to support such species. The time frame in which the survey is implemented provides a snapshot of activity within the survey area and cannot necessarily detect all evidence of use by a species. Whilst every effort has been made to provide a comprehensive description of the Site, no investigation can ensure the complete characterisation of the natural environment. The extended Phase 1 habitat survey does not constitute a full botanical survey. Plant species may have been under-recorded, unidentifiable or not visible due to the time of year the survey was carried out.	01 July 2026
Ground Level Tree Assessment	The GLTA can only identify what was present on the site at the time of the field survey, and trees and their features and usage by bat species can change over time. The surveys were undertaken in line with Edition 3 of the Bat Conservation Trust Good Practice Guidelines [11] which were current at the time of survey. In October 2023 a fourth edition was published; recommendations are based on this edition [15].	25 May 2025

Survey	Limitations	Data Validity (providing no change in site use or management)
Dormouse	Surveys were completed in line with survey guidance. Tubes were not deployed in a central area of the site due to access restrictions. Additionally, the northeast end of the site is predominantly grass and scattered trees, which is not suitable dormouse habitat and therefore tubes were not deployed at this location.	19 June 2025
Badger	Surveys were undertaken following survey guidelines in predominantly good weather, but there were some periods of heavy rain. This was considered a limitation of the survey due to the possibility of signs of badgers being washed away. Additional constraints are identified by lack of access to some areas of the site, as well as limited access to other areas due to dense vegetation.	14 July 2025

2.5 Assessment Methodology

In accordance with the BS 42020:2013 Biodiversity - Code of Practice for Planning and Biodiversity [16], the criteria that have been used to determine the assessment of effects follows the approach recommended by the CIEEM guidelines [17], with the focus on those activities that could potentially generate significant ecological effects on Important Ecological Features (IEF) or result in a breach of wildlife legislation.

2.5.1 Determining Importance

A geographic frame of reference has been used to determine the importance of the ecological feature, from the most important being International and European to National, County, Local and the least important being Site level importance (Appendix C).

Those ecological features of Site importance and above, i.e., of sufficient importance to be material to decision-making and which could potentially experience significant effects as a result of the proposed development (effects that could negatively affect the integrity of the habitat or the favourable conservation status of a species' local population), have been classified as Important Ecological Features (IEFs) and have been 'Scoped In' for more detailed assessment, as outlined in the CIEEM Guidelines [17]. Those ecological features of less than 'Site' importance have been 'Scoped Out' and are not subject to any further assessment within this impact assessment.

In accordance with the CIEEM Guidelines [17], where there is the potential for a breach of legislation in relation to protected species (regardless of their value), those species are also considered as IEFs.

2.5.2 Assessing Significance

The significance of an effect on an IEF has been determined following an analysis of the factors that characterise the effect. The CIEEM Guidelines [17] define significant effects as those that:

'…either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general... In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).'

Thus, in each case, significance has been determined on the basis of a likely effect on the integrity or favourable conservation status of a feature, at a given geographic scale. The nature conservation importance of significantly affected IEF has been used to guide mitigation and related measures and help interpret the significance of residual effects.

3 RESULTS

3.1 Reporting Outline

This section outlines the biodiversity baseline based on both desk-based research and field survey. Based on the information obtained, a statement is made whether an ecological feature will be scoped in for impact assessment based on the assessment methodology outlined in Section 2.5. It is noted that although a feature may not be scoped in, mitigation and / or enhancement measures may still be applied in line with legal compliance and both national and local planning policy.

3.2 Desk Study

3.2.1 Designated Site for Nature Conservation

3.2.1.1 Statutory Designated Sites for Nature Conservation

There are eight statutory designated sites within 2km of the proposed development site and the SSSI are of **national** value and the SPA, SAC and Ramsar sites are of **International** Value (Table 3). One of these sites known as Hayes Point to Bedrick Rock Site of Special Scientific Interest (SSSI) is designated for geological reasons and is therefore not of ecological importance or considered further in this report. There are no SACs designated for bats within 10km of the site.

Table 3 Statutory Designated Sites within 2km of the proposed development.

Site Name	Reasons for Designation	Location in relation to the proposed development
Penarth Coast Site of Special Scientific Interest (SSSI)	This coastal section holds some species rich calcareous grassland and cliff-top scrub which supports a number of plant species of limited occurrence and distribution in the former counties of Mid and South Glamorgan, including Dyer's Greenweed (*Genista tinctoria*), Greater Butterfly Orchid (*Plantanthera chlorantha*), Bee Orchid (*Ophrys apifera*) and Adder's Tongue (*Ophioglossum vulgatum*). Lavernock Point is a well-known observation point for migratory birds.	210m south of site

Site Name	Reasons for Designation	Location in relation to the proposed development
Seven Estuary Special Area of Conservation (SAC)	This SAC supports Annex I habitats and Annex II species, the details of which are summarised below: • Annex I habitats: 1130 estuaries, 1140 mudflats and sandflats, 1330 Atlantic salt meadows • Annex I habitats present as a qualifying feature, but not as a primary reason for site selection: 1110 sandbanks which are slightly, 1170 reefs • Annex II species: sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra faluviatilis*) and twaite shad (*Alosa fallax*)	230m east of site
Seven Estuary Special Protection Area (SPA)	The SPA holds national and international importance for breeding, feeding, wintering and migration of rare and vulnerable species of birds, such as: • Bewick's Swan (*Cygnus Columbanus bewickii*) • Greater white-fronted goose (*Answer albifrons*) • Dunlin (*Calidris alpina*) • Common redshank (*Tringa tetanus*) • Common shelduck (*Tadorna tadorna*) • Gadwall (*Anas strepera*)	230m east of site
Seven Estuary Ramsar Site / Wetland of International Importance	The Seven Estuary is a designated Ramsar site as it supports: • Annex I habitats under Criterion 1 • Unusual estuarine communities under Criterion 3 • Rich assembly of fishes (over 110 species recorded) under Criteria 8; supports the run of migratory fish been sea and river via estuary; important for migratory birds during spring and autumn under Criterion 4 • Assemblages of international importance with species peak counts in winter under Criterion 5 • Species / populations occurring at levels of international importance under Criterion 6	230m east of site
Seven Estuary Site of Special Scientific Interest (SSSI)	The SSSI is of international importance for wintering and passage wading birds, with total winter populations averaging about 44000 birds. The SSSI holds most of the estuary's internationally important curlew (*Numenius arquata*) and redshank populations, and most of its nationally important ringed plover (*Charadrius hiaticula*) and grey plover (*Pluvialis squatarola*) populations. The SSSI is internationally important for Dunlin and supports about 7.5% of the British wintering population of this species. Seven species of migratory fish move through the estuary between the seas and rivers. These are particularly large numbers	230m east of site

Site Name	Reasons for Designation	Location in relation to the proposed development
	of Atlantic Salmon (*Salmo salar*) and Common Eel (*Anguilla anguilla*). The other species are Allis Shad, the nationally rare Twaite Shad, the Sea Trout (*Salmo trutta*), Sea Lamprey (*Petromyzon marinus*) and the River Lamprey (*Lamptera fluviatilis*).	
Llynnoedd Cosmeston / Cosmeston Lakes Site of Special Scientific Interest (SSSI)	This site includes two lakes, created from flooded limestone quarries which are connected by a narrow channel. These are deep, eutrophic water bodies which support a range of submerged plants. The presence of starry stonewort (*Nitellopsis obtuse*) in one of the lakes is of special interest. This site also includes areas of swamp, ponds, grassland that form part of the water catchment area for the lake.	240m west of site
Sully Island Site of Special Scientific Interest (SSSI)	Sully Island provides the main roost site for waders feeding in winter in the Taff/Ely estuary. The roost holds up to 100% of the dunlin, grey plover and ringed plover of the Taff/Ely and over 50% of the redshank and knot. The Taff-Sully system also constitutes an important part of the wider Severn estuary which is an internationally important wintering area for redshank, knot and dunlin.	800m south of site
Cog Moors Site of Special Scientific Interest (SSSI)	This SSSI supports extensive areas of relatively unimproved species-rich grassland, which traditionally managed for hay. Grassland is characterised by Common Knapweed (*Centaurea nigra*), Crested Dog's-tail (*Cynosurus cristatus*), Common Bird'sfoot-trefoil (*Lotus corniculatus*) and Meadow Vetchling (*Lathyrus pratensis*). Other distinctive species found at Cog Moors include Pepper Saxifrage (*Silaum silaus*) and Meadow Barley (*Hordeum secalinum*). Cog Moors also supports populations of several species which are uncommon including Brown Sedge (*Carex disticha*), Adder's Tongue and Green-winged Orchid (*Orchis morio*).	1,300m west of site

3.2.1.2 Non-statutory Designated Sites for Nature Conservation

There are ten non-statutory designated sites for nature conservation within 2km of the site, including nine Sites of Importance for Nature Conservation (SINCs) and one Wildlife Trust Reserve (Table 4). These are of **county** value.

Table 4 Non-Statutory Designated Sites within 2km of the proposed development.

Site Name	Reasons for Designation	Location in relation to the proposed development
Ty-r-Orsaf SINC	An old railway line supporting scrub and rough grassland with areas of species-rich neutral and calcareous grassland, lowland meadows, lowland calcareous grassland and mosaic habitats.	Immediately adjacent south/south-east of the site
Cosmeston Lakes SINC	An extensive Country Park supporting a mosaic of habitats including species-rich calcareous grassland and neutral grassland, scrub, hedgerows, woodland, streams and ponds which all support a wide assemblage of species.	300m west of site
Lavernock Point East SINC	Meets SINC criteria for lowland meadows and calcareous grassland.	300m south of the site
Lavernock Point Wildlife Trust Reserve	Supports 120 species of birds and nine species of mammals	300m south of the site
Downs Wood SINC	Neutral grassland community that meets SINC criteria for lowland meadows. It holds potential for reptile/ warblers. However, the area requires mowing.	420m north-west of the site
North of Cog Moors SINC	Ancient Semi-Natural Woodland	1,100m north of the site
Cogan Point SINC	Large pond supporting reedbed.	1,200m north of the site
Cog Moors SINC	Presence of purple moor-grass and rush pasture. A botanical survey found this area also supports broad-leaved plantation woodland, scrub, species-rich semi-improved neutral grassland, marshy grassland and tall ruderal habitat.	1,200m north of the site
North of North Road SINC	Site with large pond supporting large stands of reed bed, scrub and scattered trees.	1,700m north-west of the site
Pop Hill SINC	Predominately ancient semi-natural broadleaved woodland.	1,900m north of the site

3.2.2 Important Habitats

There are no important habitats within 200m of the proposed development.

3.3 Habitats

3.3.1 Overview

The site included areas of species-poor hedgerow, hedgerow with trees and scattered trees adjacent to the hardstanding footpath along the north of the B4267 (western section of the site) and near Cosmeston Drive (north-eastern section of the site). The central area of the site included areas of amenity grassland, semi-natural broadleaved woodland with semi-improved neutral grassland, tall ruderal vegetation and amenity grassland within the eastern section of the site. These habitats are shown on the Phase 1 Habitat Plan (Drawing 10056562-ARC-AT-010-DR-E-00001). Hollyberry Cotoneaster (*Cotoneaster bullatus*) (Target Note 1) was recorded along the disused railway section off Swanbridge Road, however this section is no longer included in the ATR design.

3.3.2 Semi-Natural Broadleaved Woodland and Scattered Trees

Small blocks of semi-natural broad-leaved woodland were recorded along the central section of the route, with some new planting observed adjacent to the road. Canopy tree species constituted of Oak (*Quercus spp*), Sycamore (*Acer pseudoplatanus*), Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*), and Willow (*Salix spp*) species. A footpath and disused railway line were located within the woodland creating woodland rides.

Understory habitat within the woodland was dense in places, especially adjacent to St Mary's Well Bay Road and where the disused railway line meets Lavernock Road. The dominant understory species were Hazel (*Corylus avellana*) and Bramble (*Rubus fruticosus* agg.*)* with Hawthorn (*Crataegus monogyna*), Butterfly-bush (*Buddleja davidii*) and Dog Rose (*Rosa canina agg.*) also present.

Ground flora species recorded included Common Nettle (*Urtica dioica*), Wild Teasel (*Dipsacus fullonum*), Hogweed (*Heracleum sphondylium subsp. sphondylium*), Hedge Bindweed (*Calystegia sepium subsp. sepium*), Pendulous Sedge (*Carex pendula*), Yarrow (*Achillea millefolium*), Scarlett Pimpernel (*Anagallis arvensis subsp. arvensis*), Yorkshire-fog (*Holcus lanatus*), Cock's-foot (*Dactylis glomerata*), Herb-Robert (*Geranium robertianum*), Perforate St John's-wort (*Hypericum perforatum*), Cleavers (*Galium aparine*), Hairy-Brome (*Bromopsis ramosa*), Ivy (*Hedera helix agg.)*, Wood Avens (*Geum urbanum*), Hart's-tongue Fern (*Asplenium scolopendrium*) and Creeping Cinquefoil (*Potentilla reptans*).

Broadleaved trees were located adjacent to the footpath alongside the northern side of the B4267 within the western extent of the proposed development (Sully), and adjacent to amenity grassland near Cosmeston Drive, species recorded include Ash, Oak and Sycamore.

Lowland mixed deciduous woodland is an Environment (Wales) Act 2016 Section 7 [7] habitat of principal importance and is therefore of **county** value. The scattered trees are of **local** value.

3.3.3 Hedgerow

Species poor hedgerow and a hedgerow with trees were located adjacent to the footpath along the B4267 along the western section of the site and the eastern section of the proposed development near Cosmeston Drive. The hedgerow was Hawthorn-dominated with bramble, field maple, hazel and ash were also present. Trees within the hedgerow included Sycamore, Ash and Hazel. Other species recorded include Lord's-and-Ladies, Traveller's-joy, Hedge Bindweed, and Sow-thistle (*Sonchus spp*.)

Hedgerows are an Environment (Wales) Act 2016 Section 7 [7] habitat of principal importance and is therefore of **county** value.

3.3.4 Semi-Improved Neutral Grassland

Semi-improved neutral grassland was recorded adjacent to a bare-ground pathway along the eastern section of the site. Tall ruderal habitat and dense scrub were located immediately adjacent to the grassland.

Species recorded include Cock's-foot, False Oat-grass (*Arrhenatherum elatius*), Perennial Rye-grass (*Lolium perenne*), Crested Dog's-tail (*Cynosurus cristatus*), Yorkshire-fog, Smaller Cat's-tail (*Phleum bertolonii*), Yarrow (*Achillea millefolium*), Oxeye Daisy (*Leucanthemum vulgare*) and White Clover (*Trifolium repens*).

Semi-improved neutral grassland is not indicative of priority grassland habitat types with significant geographical importance and is therefore of **site** value.

3.3.5 Tall Ruderal

Tall ruderal habitat was located adjacent to the semi-improved neutral grassland, within the woodland understory and a large stand was recorded within the eastern section of the site adjacent to a bridge near Cosmeston Drive. The dense stand located near Cosmeston Drive, was dominated by Common Nettle, other tall ruderal habitat species recorded included Hemp-Agrimony and Rosebay Willowherb (*Chamerion angustifolium*).

Tall ruderal habitat is not indicative of a priority habitat within the region and is therefore of **less than site** value.

3.3.6 Scrub

Dense areas of scrub were located within areas of the woodland and adjacent to the pathway within the eastern area of the site. Species recorded include Bramble, Hawthorn and Blackthorn.

There was also a small area of Bramble-dominated dense scrub on a bridge, with bare areas exposing track ballast, within the western section of the site. Creeping Cinquefoil, Herb-Robert, Common Toadflax (*Linaria vulgaris*) and Raspberry (*Rubus idaeus*) were recorded in this area.

Scrub habitat is not indicative of a priority habitat and is common within the region, it is therefore of **less than site** value.

3.3.7 Amenity Grassland

Regularly managed amenity grassland was located along the B4267 adjacent to the road and the footpath along the western section of the site and towards Cosmeston Drive along the eastern section of the site. Species recorded include Annual Meadow-grass (*Poa annua*), Perennial Rye-grass, Dandelion (*Taraxacum agg.*), Daisy (*Bellis perennis*), Bristly Oxtongue (*Helminthotheca echolodes*) and Yarrow.

Amenity grassland is a man-made habitat, it is not considered to be of significant geographical value, i.e., this habitat is of **less than site** importance.

3.3.8 Other Habitat

Hardstanding footpaths, roads and bare ground paths were located along the north-eastern and western sections of the site. Three bridges were located where the proposed development crosses Fort Road, St Mary's Well Bay Road and adjacent to Cosmeston Drive.

These habitats offer no ecological value and have therefore been left out of the assessment and not assigned a value.

3.4 Potential for Protected Species

A full range of protected species were considered at an initial stage in planning the current work. Some have been discounted on the grounds that there was no likelihood of their occurrence on site (for example, due to an absence of suitable habitat). Only those species with ranges within the geographical area of the site and where suitable habitats were present within or adjacent to the site as included below. Where confirmed presence was established or a likelihood of presence was anticipated, the relevant legislation is included in Section 5.

3.4.1 Protected and Notable Plants

No protected or notable plants were identified on site. The habitats are common in the area and are considered unlikely to support protected or notable species. No value has been assigned.

3.4.2 Invertebrates

The desk study returned records of 30 terrestrial invertebrate species, these include a range of butterfly, moth, beetle and bee species including: small blue butterfly (*Cupido minimus*), marsh fritillary (*Euphydryas aurinia*), lattied heath (*Chiasmia clathrata*), lackey (*Malcaosoma neustria*), dingy skipper (*Erynnis tages*), two toned reed beetle (*Donacia bicolora*) and moss carder bee (*Bombus muscorum*).

Suitable food species for the small blue butterfly were recorded within the survey boundary (e.g. Common Bird's-foot-trefoil). Deadwood within the woodland is suitable to support beetles amongst other invertebrate species, although there was no habitat located on site suitable to support the two-toned reed beetle. The grassland and some understory species within the woodland are suitable to support a range of common butterfly species. Important food plants for marsh fritillary were not recorded within the survey boundary. The semi-natural grassland located within the western section of the site is suitable to support a variety of bee species including species associated with the moss carder bee. The woodland on site is also suitable to support a range of moth species.

The site is of **site** value for common invertebrates.

3.4.3 Amphibians

The desk study returned records of four species of amphibians namely common toad (*Bufo bufo*), common frog (*Rana temporaria*), great crested newt (GCN) (*Triturus cristatus*), and palmate newt (*Triturus helveticus*).

There are no waterbodies within the site boundary, therefore the site was not suitable for breeding amphibians. One waterbody suitable to support breeding amphibians was identified on Ordnance Survey mapping next to the site within woodland east of Fort Road in TY-r-Orsaf SINC. A planning application (2020/01170/OUT) made in 2022 for nearby works determined that the Ty-r-Orsaf pond did not support GCN and was therefore scoped out for any further survey GCN survey requirements [18]. Terrestrial habitats such as woodland, hedgerows and tall ruderal vegetation were considered suitable for common amphibian species during their terrestrial phases. These habitats provide cover from predation, foraging and potential hibernation sites.

The proposed development is of **site** value for common amphibians.

3.4.4 Reptiles

Three reptile species were recorded as part of the desk study: slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake (*Natrix helvetica*). The site supports suitable habitats for all three common species recorded as part of the desk study. The woodland, tall ruderal and grassland can be utilised by reptile species for foraging, cover from predation and hibernation.

The proposed development is of **site** value for reptiles.

3.4.5 Birds

There were multiple records of notable bird species within 2km of the site, with the closest records being for dunnock (*Prunella modularis*), Eurasian skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), European herring gull (*Larus argentatus*), Eurasian bullfinch (*Pyrrhula pyrrhula*), black-headed gull (*Chroicocephalus ridibundus*), kestrel (*Falco tinnunculus*), marsh tit (*Poecile palustris*), mistle thrush (*Turdus viscivorus*), linnet (*Linaria cannabina*), yellowhammer (*Emberiza citrinella*) and willow warbler (*Phylloscopus trochilus*).

Habitats on site suitable to support the above species and more common tree/shrub nesting birds include hedgerows, scattered trees, grassland and scrub and semi-natural broadleaved woodland.

The proposed development is of **site** value for birds.

3.4.6 Badger

The desk study returned no records of badger within 2km of the site.

The woodland located within the site was suitable to support badgers and their setts. Adjacent fields were also suitable to support foraging badgers along the site. Mammal paths were noted within the woodland, and under fences during the survey, but these could not be confirmed as badger paths. Potential badger setts were assessed, and sticks were inserted at the entrances in 2023 to determine if the potential setts were in use (if potential setts are active, the sticks would be moved by the badger to enter the sett). The potential setts were monitored throughout 2023, the sticks had not been moved and were still present during a further check in 2024, confirming that the potential setts were not in use. Further evidence was observed that would suggest that rabbits are more likely present in the form of fresh rabbit droppings and fresh digging. Full details of the 2023 survey can be found in the badger survey report [5].

The proposed development is of **site** value for foraging badgers.

3.4.7 Bats

The desk study returned records of eight species of bats – lesser horseshoe (*Rhinolophus hipposideros*), whiskered bat (*Myotis mystacinus*), common noctule (*Nyctalus noctula),* lesser noctule (*Nyctalus leisleri*), common pipistrelle (*Pipistrellus pipistrellus*), Nathusius's pipistrelle (*Pipistrellus nathusii*), soprano pipistrelle (*Pipistrellus pygmaeus*), and serotine (*Eptesicus serotinus*).

Habitats located within the site suitable to support foraging and commuting bats include the hedgerow, scattered trees and woodland. Trees located within the woodland and hedgerow along the B4267 at the most western section of the site were of a suitable size and structure that they could support potential bat roosting features.

The GLTA assessed all 93 trees that were considered likely to be directly impacted as part of the proposed development. The survey confirmed that all trees likely to be impacted were either negligible potential or offered low potential (e.g. some Ivy present on trunk or one feature present on tree) to support roosting bats. In line with guidance [11] no further surveys for roosting bats in trees is required.

All bridges on site were in a good condition with only a thin spread of Ivy on the bridge deck walls which was unsuitable to support roosting bats and a small number of crevices where mortar is missing (suitable to support individual bats only), the bridges were considered to offer low suitability (St Marys Well Bay Road and Fort Road Bridge). In line with guidance [11] no further surveys for roosting bats in the bridges is required.

The proposed development is of **site** value for bats

3.4.8 Otter

The desk study returned no records for otter (*Lutra lutra*) and there were no habitats within the site suitable to support otter. There were no watercourses suitable to support otter within proximity to the site, it is therefore unlikely that they would transverse the site or use it as a laying up area. Otter have therefore been scoped-out and will not be considered further within the report.

3.4.9 Water Vole

The desk study returned ten records of water vole (*Arvicola amphibius*). There were no suitable habitats to support water vole within the site boundary and have therefore been scope-out and will be considered further within the report.

3.4.10 Dormouse

The desk study returned four records of dormouse within 2km of the proposed development. These records were from the Cosmeston Livery and Dinas Powys, with the closest record being within a hedgerow 58m northeast of the site in 2017. This record is connected to the site boundary via woodland and hedgerows.

The woodland, scrub and hedgerow within the proposed development were suitable to support foraging and nesting dormouse, with woodland contained a range of suitable food species including Hazel, Oak and Bramble.

No dormouse nests were recorded during the dormouse presence/absence surveys. The records are from 2017 [4] and it is possible that the population is in decline in this area. Based on the records and habitats present the site, and the most recent survey work in 2023, the proposed development is of, at most, **site** value to dormouse.

3.4.11 Other Mammals

The desk study returned records for the European hedgehog (*Erinaceus europaeus*). The scrub and woodland habitats are suitable to support nesting and foraging hedgehog.

The proposed development is of **site** value to hedgehog.

3.4.12 Invasive non-native species

The desk study recorded several invasive species. These include Harpoon Weed (*Asparagopsis armata*), Three-cornered Garlic (*Allium triquetrum*), Japanese Knotweed (*Fallopia japonica*), Himalayan Cotoneaster (*Cotoneaster simonsii*), Small-leaved Cotoneaster (*Cotoneaster microphyllus*), Indian Balsam (*Impatiens glandulifera*), Montbretia (*Crocosmia* × *crocosmiiflora*), Wall Cotoneaster (*Cotoneaster horizontalis*), Western conifer seed bug (*Leptoglossus occidentalis*) and Zebra Mussel (*Dreissena polymorpha*).

The habitat on site is not suitable to support some of the invasive species mentioned above namely the aquatic species Harpoon Weed and Zebra Mussel. No Japanese Knotweed or Himalayan Balsam was recorded on site during the ecological surveys.

Invasive species are not assigned a level of ecological importance, but they are a threat to biodiversity.

3.5 Summary of Baseline Value

Table 5 summarises all relevant ecological features and the geographical context in which each is considered to be important in relation to the site. Those considered of Site importance and above will be taken forward for assessment as IEFs.

Table 5 Relevant ecological features and their geographical importance.

Ecological Feature	Importance
Designated Areas	
Statutory Designated Sites	International/National
Non-statutory designated sites	County
Ancient Woodland	National- but absent from ZoI
Priority Habitats	County- but absent from ZoI
Habitats	
Semi-natural broadleaved woodland	County
Scattered broadleaved trees	Local
Hedgerow	County
Semi-Improved Neutral Grassland	Site
Tall Ruderal	Less than site
Scrub	Less than site
Amenity grassland	Less than site
Hardstanding	N/A
Flora and Fauna	
Protected and Notable Plant Species	N/A
Invertebrates	Site
Amphibians	Site
Reptiles	Site
Birds	Site
Badger	Site
Bats	Site
Otter	N/A
Water Vole	N/A
Dormouse	Site
Other Mammals (hedgehog)	Site

4 DISCUSSION

4.1 Ecological Constraints

4.1.1 Ecological Features Scoped Out

The following ecological features, valued as site or above importance have been scoped out as not requiring further consideration with regard to the proposed development (no likely significant effects are anticipated from construction or operation):

- **Statutory Designated Sites**: All works will be localised affecting the site and the immediate adjacent habitats. These sites are considered to be sufficiently distanced from the site, with no impact pathways identified so they will not be impacted by the proposed development.

- **Non-Statutory Designated Sites (except Ty-r-Orsaf SINC)**: All sites (except Ty-r-Orsaf SINC) are sufficiently distanced from the site with no impact pathways identified and they will not be impacted by the proposed development.

- **Protected and Notable Plant Species**: The woodland and grassland within the site were suitable to support protected/notable species, but with the clearance of vegetation will be localised with large areas of similar habitat within the wider area. There will be no significant impacts on the species recorded as part of the desk study.

- **Invertebrates**: The site offered a range of habitats within its boundaries suitable to support invertebrates, but the clearance of vegetation will be localised with larger areas of similar habitat within the wider area. New habitats will be created as part of the landscape planting for the proposed development that will mitigate for any habitat that is removed. There will be no significant impacts to invertebrates.

- **Great Crested Newt**: GCN was recorded as part of the desk study located adjacent to the site, east of Fort Road. No waterbodies suitable to support breeding amphibians were recorded during the survey. The results of a planning application for proposed works on Fort Road confirmed that the pond located east of Fort Road is no longer suitable to support breeding GCN [18], therefore no further GCN surveys were considered necessary, and they have been scoped out with no significant impacts predicted.

- **Water Vole and Otter**: There were no habitats within the site suitable to support these species, and with no suitable watercourses connected to the site it is unlikely that these species will transverse the site at any time. Therefore they have been scoped out with no significant impacts predicted.

4.1.2 Ecological Features Scoped In

The following ecological features have been scoped in as needing further consideration with regard to the proposed development (potential for significant effects from construction and/or operation):

- **Non-Statutory Designated Sites – Ty-r-Orsaf SINC**: Ty-r-Orsaf SINC is adjacent to the site and habitats could potentially be damaged by the proposed development.

- **Habitats**: The proposed development is likely to lead to the loss of some trees located within the semi natural broadleaved woodland, potentially some scattered trees and species poor grassland and scrub

within the site.

- **Reptiles and common amphibians**: Reptiles and common amphibian species were recorded as part of the desk study. All habitats within the site were not suitable to support breeding amphibians, but the site contained habitats suitable to support reptiles and amphibians during their terrestrial phase. In the absence of mitigation, if reptiles or amphibians are present, they may be negatively impacted through killing/injury during vegetation clearance.

- **Birds**: The woodland, hedgerows, scattered trees and scrub on site were likely to support nesting birds. The nesting bird season for most UK species runs for March to August (inclusive). If vegetation clearance is undertaken on site during this period in the absence of mitigation, there will be potential for negative impacts on nesting bird species. Development on site is also likely to lead to the loss of bird nesting habitat.

- **Badger**: No records of badger were returned as part of the desk study, but the woodland and adjacent fields were suitable for supporting foraging badger and may support badger setts. Potential setts were identified within the proposed development site, but surveys determined that these were not active and were most likely used by rabbits. Badgers may be negatively impacted by the proposed works if they transverse the site during construction and increased lighting along the route.

- **Bats**: There were multiple records for bat species returned as part of the desk study. Scattered trees, trees within the hedgerow and woodland may have bat roosting potential and the hedgerows and field margins will be used for foraging. All trees that will be directly impacted as part of the proposed works were assessed as having negligible and low potential to support roosting bats. Bats may be negatively impacted by the proposed development through the loss of roosting sites and increased lighting along the route.

- **Dormouse**: Dormouse was recorded as part of the desk study, with one record being in connected habitat. Surveys indicated that dormouse was not present within the survey boundary. As dormouse was recorded as part of the desk study within connected habitat, individuals may travel into the site boundary occasionally. In the absence of mitigation, if dormouse are present during the works they may be negatively impacted due to disturbance/injury/killing and also due to loss of habitat and post development (through disturbance and lighting along the route).

- **Other Mammals (Hedgehog)**: The dense scrub/woodland and edge habitats were considered suitable for foraging and nesting hedgehog and the presence of this species on site was considered to be likely. In the absence of mitigation site clearance/construction works will have potential for negative impact in this species.

4.2 Ecological Impacts and Mitigation

4.2.1 General

Where possible, the development should satisfy the requirements of the ‘mitigation hierarchy’ of Planning Policy Wales [1] with regards to impacts on ecological features, through the following stepwise approach:

- Avoidance of impacts to wildlife and habitats e.g., by designing the layout to avoid ecological receptors;
- Mitigation, where significant harm cannot be entirely or partially avoided e.g., through the creation of alternative habitats elsewhere on site; and
- Compensation, where significant residual harm is offset e.g., through the provision of an equivalent or greater value of biodiversity.

More details are provided in Section 5.2.

4.2.2 Proposed Works

Proposed works are for a shared footway and cycleway. Works will include:

- Installation of site drainage
- Temporary access roads and footpaths, task specific lighting, security gates and fencing, and CCTV during construction.
- Path and cycle path creation through widening of existing path.
- Installation of a pedestrian and cycle footbridge and a toucan crossing creation.
- Installation of a wildlife sensitive lighting scheme

This assessment assumes the project would be constructed in accordance with industry standard techniques and mandatory minimum standards. It assumes suitably experienced contractors would be appointed to design, construct and commission the development of each plot. A Construction Environmental Management Plan (CEMP) would be produced for each construction phase detailing all construction standards and techniques. The CEMP would include, as a minimum, the following environmental measures:

- correct storage of materials and chemicals;
- appropriate cleaning/maintenance of machinery and tools including provision of wheel washing;
- appropriate pollution prevention control plan in line with CIRIA (2001) including spillage/containment procedures;
- monitoring of surface water quality during the construction phase will be followed in order to ensure that the specified mitigation measures are effective and that there are no impacts on surface water features.
- construction waste to be removed at earliest opportunity;
- measures to reduce dust, noise and light spill; and
- implementation of habitat protection areas including root protection zones where necessary, where no construction can be undertaken and no materials or soil can be stored.

Extent of vegetation clearance to enable the construction includes:

- Broadleaved parkland/scattered trees (approx. 0.09ha)
- Amenity Grassland (approx. 0.15ha)
- Tall Ruderal (approx. 0.17ha)
- Poor semi-improved grassland (0.13ha)
- Scattered scrub (<0.0001ha)
- The proposed development goes through areas of broadleaved semi-natural woodland (approx. 0.562ha), but due to the footprint of the dismantled railway line creating an open/bareground area through the majority of the proposed development (see Photograph 1), only approx. 0.1ha vegetation clearance within the woodland is required to create the necessary width – mainly scrub and understorey near St Marys Well Bay Road but also some trees adjacent to Lavernock Road).

Photograph 1: Area of broadleaved semi-natural woodland showing footprint of disused railway.

The landscape proposals as shown on Drawing 10056562-ARC-300-XX-DR-LA-00001 to 00011 include:

- Planting species rich rain gardens at the western end, north and south of the B4267.
- Native hedgerow, native deciduous woodland, and shaded species-rich grassland at the St Mary's Well Bay Road bridge.
- Amenity grassland and shade tolerant species-rich grassland along the ATR edge throughout the woodland section.
- Native hedgerow at the north end near Cosmeston Drive.

4.2.3 Ty-r-Orsaf SINC

Construction works adjacent to the SINC have the potential to damage habitats abutting the boundary, and a pollution event could impact habitats and wildlife in the site boundary.

A Construction Environmental Management Plan (CEMP) shall include pollution prevention plan and before works commence retained habitats should be clearly demarcated and signposted to ensure they are not damaged during construction. Where necessary this will correlate with the tree protection plan outlined in the arboricultural impact assessment [19].

The proposals are not considered to have a significant residual effect at a county level in the long term.

4.2.4 Priority Habitats – Broadleaved Woodland

Works are proposed within the woodland area under canopy (approx 0.562ha). Most of these works are within the footprint of the disused railway and will be constructed on the compacted ballast/bare ground of the existing footpath. Only approx 0.1ha of vegetation clearance is anticipated, much of which is Bramble scrub. This is not considered to be significant in the context of the wider landscape.

0.03ha replacement woodland planting is proposed near St Marys Well Bay Road and new hedgerow of approximately 166m is considered to provide a significant long term increase in hedgerow habitat at a local level. All existing vegetation beyond the earthworks will be retained and left to naturally regenerate. There will be no residual effect from the habitat loss once the habitat left to regenerate matures i.e., within 10 years.

4.2.5 Amphibians and Reptiles

Small areas of woodland, scrub, tall ruderal and grassland will be removed. New hedgerow, tree planting and grassland areas will be created.

It is considered that a minor decrease in reptile habitat and amphibian habitat (in their terrestrial phase) is not significant in the wider landscape context and will be offset by be the planting scheme (once matured). There is a residual risk that amphibians could become injured/killed during vegetation clearance. A method statement should be followed during vegetation clearance which will include sensitive methods for clearance to reduce the risk of injury/killing of common amphibians and reptiles on site. Materials arising from site clearance can be used to build habitat piles for reptiles and amphibians to shelter.

The minor reduction in foraging and resting habitat in the short term is not considered to have a significant residual effect at site level and in the long term with the new species rich grassland would provide more foraging resources.

4.2.6 Birds

Removal of vegetation on site has the potential for damaging and destroying active birds' nests and/or eggs. The removal of nesting habitat is considered to be a negative impact for bird nesting and foraging until replacement planting is established (approximately 10 years). Disturbance for birds during construction would be temporary. The short term decrease in bird foraging and nesting opportunities is not considered significant in the context of the wider landscape.

Vegetation clearance should be undertaken outside of nesting bird season which generally runs from March to September (although some birds can breed throughout the year). If this is not possible, an experienced surveyor should undertake a nesting bird check of habitat no more than 48 hours prior to clearance to ensure that active bird's nests are not disturbed or destroyed. If nesting birds are present, a suitably sized buffer should be located around the nest and all vegetation within the buffer will be left until the chicks have fledged. Measures to safeguard nesting birds would be captured in method statements incorporated into the CEMP.

4.2.7 Badger

Construction activities have the potential to harm individuals (e.g. construction materials being left on site, excavations being left open) and task lighting along the proposed development has potential to harm and disturb foraging and commuting badger.

Although no active setts have been identified to date, a preconstruction check 8-10 weeks before will be undertaken to ensure no new activity is identified. All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a badger enters the excavation they can escape and do not become trapped. A sensitive lighting scheme has been designed to ensure dark corridors are maintained once the proposed development is operational.

The minor reduction in badger foraging habitat in the short term, is not considered to have a significant residual effect at site level as new planting will quickly establish that will be suitable for use by foraging badgers (within 2 years).

4.2.8 Bats

Removal of vegetation on site has the potential for damaging and removing bat feeding and commuting habitat. However, only small areas of woodland, scrub, tall ruderal and grassland will require removal and in the context of the wider landscape the loss of habitat is not considered significant, but mitigation will be required to ensure that commuting pathways are not lost.

Trees with low potential [15] that will be subject to works will be removed/managed under a method statement. Bat boxes will be located on retained trees prior to the commencement of the works, this will mitigate for the loss of low potential bat roosting features and enhance the habitat for roosting bats. A sensitive lighting scheme has been designed to ensure dark corridors are maintained once the proposed development is operational [11]. If potential roost features cannot be sufficiently protected, an aerial assessment should be completed prior to works being undertaken on or close to the tree, and works should be undertaken under the guide of an experienced Ecological Clerk of Work (ECoW).

The landscape planting that forms part of the proposed development will ensure that the commuting routes will be maintained and feeding/roosting reestablished. The minor decrease in bat commuting and foraging habitat, and potential loss of potential roost features is not considered to have a significant residual effect at site level as roost boxes will be provided before potential roost features are removed and the retained vegetation will recover within a few years to maintain vegetation corridors suitable for bats.

4.2.9 Dormouse

Dormouse was not recorded on site during the 2023 targeted survey. Due to the historic records of dormouse within adjacent habitat, it is possible that a small population may be present; a sensitive method should be followed during vegetation clearance that would encourage dormice to leave site using a two-stage process as outlined in the Sully to Cosmeston ATR Dormouse report [4].

Although the footprint indicates 0.562ha of broadleaved woodland would be lost, due to the topography and the existing disused railway embankments/cuttings and the open glade created by the disused railway line (Photograph 1) the extent of vegetation clearance is less (less than 0.1ha). A continuous wooded corridor and network of hedgerows will be maintained and there will be no effects of fragmentation. Any minor changes in habitat will be mitigated for by the woodland and hedgerow planting which includes species mix with a range of food sources for dormouse. The minor decrease in dormouse habitat is not considered significant.

A sensitive lighting scheme has been designed to ensure dark corridors are maintained which will ensure that dormouse (a nocturnal species) is not negatively affected by the proposed development once it is operational.

4.2.10 Other Species – Hedgehog

Activities during construction have the potential to harm individual hedgehog (e.g. construction materials being left on site, excavations being left open) and task lighting along the proposed development has potential to harm and disturb foraging and commuting hedgehog, a nocturnal species.

All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a hedgehog enters the excavation they can escape and do not become trapped.

The proposed sensitive lighting scheme will ensure dark corridors are retained suitable for nocturnal species.

The minor reduction in hedgehog habitat in the short term, is not considered to have a significant residual effect at site level.

4.2.11 Summary

Table 6 summarises any residual effects predicted to result from the proposed development, as well as any mitigation required and how this mitigation can be secured.

Table 6 Summary of residual effects.

Receptor	Significance of residual effects	Mitigation
Ty-r-Orsaf SINC	Not significant	Fencing will be installed on the boundary of the SINC with appropriate signage to ensure that works encroach into the SINC.
Habitats	Not significant	New planting (Drawing 10056562-ARC-300-XX-DR-LA-00001 to 00011) including: – Replacement tree and hedgerow planting – Species rich grassland mixes – Native planting mixes Green corridors with interconnecting canopies will be maintained alongside the proposed development.
Amphibians and Reptiles	Not significant	Reasonable avoidance measures method statement to be produced and followed for vegetation clearance.
Birds	Not significant	Reasonable avoidance measures method statement to be produced and followed for vegetation clearance. Vegetation clearance should be undertaken outside of nesting bird season which generally runs from March to September (although some birds can breed throughout the year). If this is not possible, an experienced surveyor should undertake a nesting bird check of habitat no more than 48 hours prior to clearance to ensure that active bird's nests are not disturbed or destroyed. Planting will provide additional resources for both foraging and nesting birds.
Badgers	Not significant	Pre-construction check for badger activity, 8-10 weeks before construction commences CEMP to include safe practices such as construction works to be restricted to day light hours only, all construction materials to be retained in safe, lockable stores overnight and any excavations to be covered overnight, or a ramp installed to ensure that if a badger enters the excavation it can escape and do not become trapped. Planting will provide additional resources for foraging badgers. A sensitive lighting design will be implemented and dark corridors maintained.
Bats	Not significant	Felling and/ or pruning should be carried out as "soft / section felling" under supervision by a licensed bat worker as a precaution. These works should be undertaken in accordance with a method statement and 2x bat boxes per tree with low potential should be erected in advance, mitigation measures delivered through the CEMP. A sensitive lighting design will be implemented and dark corridors maintained.

Receptor	Significance of residual effects	Mitigation
Dormouse	Not significant	Reasonable avoidance measures method statement for vegetation clearance delivered through the CEMP. Vegetation clearance to take place in two stages: • January – February: Trees, scrub and shrubs will be cut down by hand to at least 30 cm using sensitive methodologies to avoid disturbing hibernating dormouse. • April: Tree stumps, low vegetation and leaf litter will be removed at least one full month after the initial cut. If a dormouse nest is encountered the advice of an ecologist will be sought and Natural Resources Wales (NRW) will be contacted if a licence is required. A sensitive lighting design will be implemented, and dark corridors maintained. Planting will provide additional resources for foraging dormouse.
Hedgehog	Not significant	Reasonable avoidance measures method statement for vegetation clearance delivered through the CEMP. A sensitive lighting design will be implemented and dark corridors maintained. All works during the construction phase will be restricted to day light hours only, all construction materials will be retained in safe, lockable stores overnight and any excavations will be covered overnight, or a ramp installed to ensure that if a hedgehog enters the excavation it does not become trapped. Planting will provide additional habitat for resting and foraging hedgehog.

5 LEGISLATION AND POLICY COMPLIANCE

5.1 Legislation

5.1.1 Amphibians

The most common amphibian species are protected from sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) [20]. These include:

- Common frog
- Common toad,
- Palmate newt,
- Smooth / common newt, *Triturus vulgaris*

This legislation protects them from sale or advertising / offering them for sale. This protects them from exploitation in the pet trade or for laboratory use.

NRW can issue licenses for several purposes under this legislation including scientific, research, educational, conservation and photography, but not development.

Reasonable avoidance measures during site clearance will comply with legislation for common amphibians.

5.1.2 Reptiles

All native British reptile species are protected from international killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) [21]. The four more widespread species including common lizard (*Lacerta vivipara)*, slow worm (*Anguis fragilis)*, adder (*Vipera berus)* and grass snake (*Natrix helvetica)* are subject to some of the provisions of Section 9 of the Act, which make it an offence to: *

- intentionally kill or injure a reptile; or * sell, offer or expose for sale, or
- to possess or transport for sale alive or dead reptile or any part of, or anything derived from, a reptile.

NRW can issue licences for several purposes under this legislation, including scientific, research, educational, conservation and photography, but not for development.

Smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) have additional protection, but they are not known to occur in this part of Wales and the site did not support habitat suitable for these species.

Reasonable avoidance measures during site clearance will comply with legislation for common reptiles.

5.1.3 Birds

All wild birds in the UK are protected from killing and injury, and against the destruction of eggs and active nests, under the Wildlife and Countryside Act 1981 (as amended) [21]. Undertaking vegetation clearance outside of the breeding bird season or providing pre-clearance nest checks (within 48 hours prior to clearance) will comply with this legislation.

5.1.4 Badger

Badger is afforded legal protection under the Protection of Badgers Act 1992 [22], which makes it an offence to:

- Wilfully kill, injure or take a badger (or attempt to do so);
- Cruelly ill-treat a badger;
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett;
- Disturb a badger when it is occupying a sett;
- Possess or control a live badger; and
- Mark or ring a badger.

Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) [21] protects badger (and other mammals) against being killed or taken by certain methods (i.e., trapping or snaring).

Badger is also protected by the Wild Mammals (Protection) Act 1996 [23], which prohibits cruel treatment.

If disturbance is considered likely to occur or sett closure is considered likely to be required as the results of any works, appropriate monitoring of affected setts would need to be carried out and the works undertaken under a licence from NRW. Such licences can only be obtained after planning permission is granted and are usually only issued between July and November (inclusive). Artificial setts may need to be constructed in advance of sett closure to provide shelter for badgers displaced by sett closure.

Pre-construction checks and safe construction practices outlined within this document shall ensure compliance with this legislation.

5.1.5 Bats

All UK bat species are European Protected Species (EPS). It is an offence under the Conservation of Habitats and Species Regulations 2017 (as amended) [24] (the Habitats Regulations) and Wildlife and Countryside Act (WCA) 1981 (as amended) [21] to recklessly, intentionally, or deliberately:

- Take, kill or injure EPS;
- Damage, destroy or obstruct access to any structure or place which EPS use for shelter or protection; and/or
- Disturb EPS

The Habitats Regulations further define disturbance as acts which are likely to:

- Impair the ability to survive, breed, reproduce, rear/nurture their young, hibernate or migrate; or
- Significantly affect the local distribution or abundance of the species.

Maintaining hedgerows, woodland and scrubland, with particular attention to trees with potential roost features will minimise the loss of biodiversity on site. Maintaining low light levels on site will be imperative to maintaining connectivity between feeding and roosting locations.

5.1.6 Dormouse

Dormouse is protected from international killing, injuring, possession and sale on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) [25] and protected from the following:

- Disturbance whilst occupying place of shelter or protection
- Obstruction of access to a place of shelter or protection
- Sale/offering for sale.

NRW can issue licences for several purposes under this legislation, including scientific, research, educational, conservation and photography, but not for development.

Dormouse is also protected under the Conservation of Habitats and Species Regulations 2017 [26]. Under the Habitat Regulations it is an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS
- Deliberately disturb wild animals of any such species
- Deliberately take or destroy the eggs of such an animal, or
- Damage or destroy a breeding site or resting place

Hedgerow, scrub and trees will be removed under a sensitive vegetation clearance method statement with an ecologist present shall ensure compliance with legislation.

5.1.7 Hedgehog

Hedgehog is listed on Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) [21], which makes it illegal to kill or capture wild hedgehog using certain techniques. They are also covered by the Wild Mammals (Protection) Act 1996 [23], which prohibits cruel treatment, and hedgehog are also a species of principal importance (Environment Act Wales).

Sensitive site clearance identified in this document will ensure compliance with this legislation.

5.2 Policy

5.2.1 Net Benefit to Biodiversity Policy

The Well-being of Future Generations Act 2015 [27], Planning (Wales) Act 2015 [28] and the Environment (Wales) Act 2016 [7] provide the legislative context for delivering green infrastructure across Wales. Green infrastructure is also a key thread that runs through Planning Policy Wales 12 [1] and the National Development Framework, Future Wales: the National Plan 2040 [29]. The Welsh Government has prepared new guidance on green infrastructure and its delivery within the planning system, as an update to the National Planning Policy for Chapter 6 of Planning Policy Wales [1], published in October 2023 which advocates a more proactive approach to Green Infrastructure setting out how in particular, planning authorities must demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment (Wales) Act [7] by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions.

New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless it can be demonstrated that: 1) the need for the development clearly outweighs the biodiversity value of the proposed development; and 2) the impacts of the development can be satisfactorily mitigated and acceptably managed through appropriate future management regimes i.e. a net benefit to biodiversity (NBB). NBB is delivered under a broad framework called DECCA, Diversity, Extent, Condition Connectivity and Adaptation attributes of ecosystem resilience (adaptability, recovery and resistance).

When considering NBB in Wales, a whole system approach is encouraged with an understanding of the following required:

- The biodiversity value of the site,
- Its ecosystem resilience (using DECCA),
- The ecosystem services or benefits provided,
- Its existing and potential linkages with the wider green infrastructure network pre- and post- development proposals.

In order for a planning proposal to be accepted, the application must demonstrate it has maintained and enhanced biodiversity as well as built resilient ecological networks. A stepwise approach needs to be implemented which comprises:

- Avoidance
- Minimising
- Mitigating (as a last resort)
- Compensating for any adverse impacts as a result of the development
- In the event of adverse effects outweighing other material considerations then the application would be refused.

For the proposed development, the following has been considered in relation to NBB:

- Evaluation of the current ecosystem resilience, achieved through the undertaking of the walkover survey and habitat mapping as well as the consideration of suitability for protected species.
- Consideration of the value of the site for biodiversity.
- Review of existing linkages with surrounding green infrastructure.
- Review of the proposed development and application of the “Stepwise” approach.

5.2.2 Site Valuation

The site is typical of the surrounding agricultural grazing landscape and overall is considered to be of **local** value. The woodland and hedgerow habitats are of **county** value (as they are habitats of principal importance).

5.2.3 Green Infrastructure

The proposed development is considered unlikely to impact the green infrastructure: the main connectivity alongside Lavernock Road will be retained as will the semi-natural broadleaved woodland either side of the proposed development (with some trimming and understorey clearance) and hedgerows. Further details are provided in the Green Infrastructure Statement [30].

The proposed landscape design (Drawings 10056562-ARC-AT-300-DR-A-00001 to 00011)) includes new hedgerows, new woodland and species rich grassland. At the western end species-rich raingardens are also proposed. This will provide opportunities for a range of species currently using the site (birds, bats, amphibians, reptiles) but has the potential to encourage new species, in particular the woodland and hedgerow species mix has been chosen to target dormouse (field maple, blackthorn and hawthorn), a target species of the local nature recovery plan, historically known to the be in the area but not recorded during the survey work undertaken in 2023. The Emorsgate EM1 general purpose meadow mix and Emorsgate EH1 Hedgerow mixture will be used to create species rich grassland along the route and these seed mixes will provide foraging resources for invertebrates.

5.2.4 Stepwise Approach

Avoidance – the design has kept to existing tracks and low biodiversity value habitats (i.e. amenity grassland, poor semi-improved grassland) where possible. Existing gateways and gaps in vegetation, including the existing bare ground under the woodland canopy along the dismantled railway line (Photograph 1) have been used where possible to reduce the loss of hedgerow and woodland habitats and maintain connectivity.

Minimise – the proposed development footprint will be the extent of the ATR, with minor disturbance either side during construction. The footprint has been designed to use the existing of pavements and the compacted ballast of the old railway. Compounds will be located elsewhere on hardstanding. A sensitive lighting design will be implemented and dark corridors maintained.

Mitigate - Preparation and adherence to a CEMP will ensure impacts are avoided and/or minimised. The CEMP shall include those items listed in Section 4 and (but not limited to):

- Toolbox talk about the sensitivities of the site including proximity to T-yr-orsaf SINC and fauna that are present.
- Sensitive vegetation clearance method statement in respect to fauna (nesting birds, amphibians and reptiles, bats, dormouse and badger with ecological supervision/clerk of works where necessary).
- Habitat protection fencing/clear demarcation of working areas to protect retained adjacent SINC habitats and prevent accidental damage to trees [19].
- Excavations covered and/or means of egress provided
- No night-time working unless agreed with an ecologist and only task lighting for dusk/dawn during winter months.

The short-term negative effects of the proposed development are considered to be off-set by the proposed planting to maintain habitat connectivity.

5.2.6 DECCA

The proposed development will promote sustainable travel, reducing congestion, air pollution and increase resilience. A full assessment against all attributes of the DECCA framework is provided in Table 7 and overall a NBB is anticipated.

Table 7 Assessment against the attributes of the DECCA framework pre- and post- development.

Attribute	Baseline	Post Development	Assessment
Diversity[1]	Woodland (28) Scattered trees (3) Hedgerow (3) Amenity grass (6 species) Semi-improved grassland (9)	New woodland (13) Scattered Trees (3) New Native Hedgerow (9) New areas of amenity (4) Species-rich grassland (14) Shaded species-rich grassland (30) New Rain Garden (22)	The loss of semi-natural broadleaved woodland to accommodate the proposed development is mitigated by additional shrub and hedgerow planting and species rich grassland mixes in the verges and raingarden.
Extent	Bare ground (0.09ha) Broadleaved Parkland/scattered trees (0.1ha) Broadleaved woodland - semi-natural (0.75ha) Cultivated/disturbed land - amenity grassland (0.19ha) Hardstanding (0.25ha) Other tall herb and fern – ruderal (0.025ha) Poor semi-improved grassland (0.15ha) Scrub – scattered (0.000125ha)	Bare ground (0.00 ha) Broadleaved Parkland/scattered trees (0.085ha) Broadleaved woodland - semi-natural (0.456ha) Amenity Grassland (0.224ha) Hardstanding (0.4ha) Other tall herb and fern – ruderal (0.00ha) Poor semi-improved grassland (0.00ha) Scrub – scattered (0.00ha) Species-rich grassland (0.124ha) Shaded species-rich grassland (0.157ha) Rain Garden (0.076ha) New Woodland (0.036ha) Hedgerow (166m, linear)	Extending and reinforcing the hedgerow planting at the east of the proposed development. Minor reduction (0.04ha) in extent of broadleaved semi-natural woodland to accommodate the footprint of the proposed development. Replacement planting is species rich and includes priority woodland and hedgerow habitats.
Condition	A condition assessment (Appendix D) has identified the habitat condition as follows:-	Condition of woodland will remain unchanged, changes in management may see	The habitat condition is likely to remain stable along the ATR, it could be enhanced in some areas (e.g woodland and semi-improved

[1] Numbers in brackets in baseline and post-development columns refer to the number of species in each habitat type.

Attribute	Baseline	Post Development	Assessment
	Woodland – moderate Scattered Trees – poor Amenity grass - moderate Semi-improved grass - good Tall ruderal – poor Scrub - poor	improvements to grassland conditions.	grassland) where management and new planting could take place within habitats adjacent to the public right of way, but landownership means that further habitat condition improvements cannot be made.
Connectivity	Good – network of hedgerows and woodland blocks across the proposed development and out into wider landscape.	Good – minor improvement at east end where current hedge/scrub planting will be reinforced and gaps filled.	Additional tree and shrub planting will increase and enhance the connectivity especially at the east of the route.
Adaptability	Moderate	Good – the proposed development will provide opportunities for non-motorised traffic.	The proposed development will promote sustainable travel, reducing congestion, air pollution and climate change. Tree planning will capture pollutants and help improve air quality. The new rain garden will provide additional water management capacity.

5.2.7 Compensation, Enhancement and Monitoring

No off-site compensation is considered necessary as all mitigation would occur on site. Enhancement measures that will be incorporated include wildlife piles created from removed woody vegetation.

Monitoring of the new landscape planting for the first three years with weeding, watering and replacement planting being completed during this period will ensure habitats are established. Habitats and bat boxes will then be incorporated into the council's Right of Way management and maintenance schedule. The nature of the development and lack of anticipated residual effects mean that it is considered unnecessary to undertake any long-term population monitoring for species.

6 Conclusion

Survey work identified the potential for loss of habitat of principal importance (woodland), potential for damage to habitat of principal importance, and potential for harm to reptiles, amphibians, birds, bats, badger, dormouse, and hedgehog due to construction of the proposed development.

All impacts are considered to be adequately mitigated for through:

- Sensitive site clearance in line with the method statements to be detailed in the CEMP;
- Implementation of the landscaping plan to replace vegetation that is removed and re-enforce existing green infrastructure; and
- A sensitive lighting design.

Once the landscaping planting is fully established, it is considered that, in combination with the benefits to air quality and climate change from providing non-car transport options in the area and a raingarden that there will be an overall net benefit for biodiversity if all mitigation is followed.

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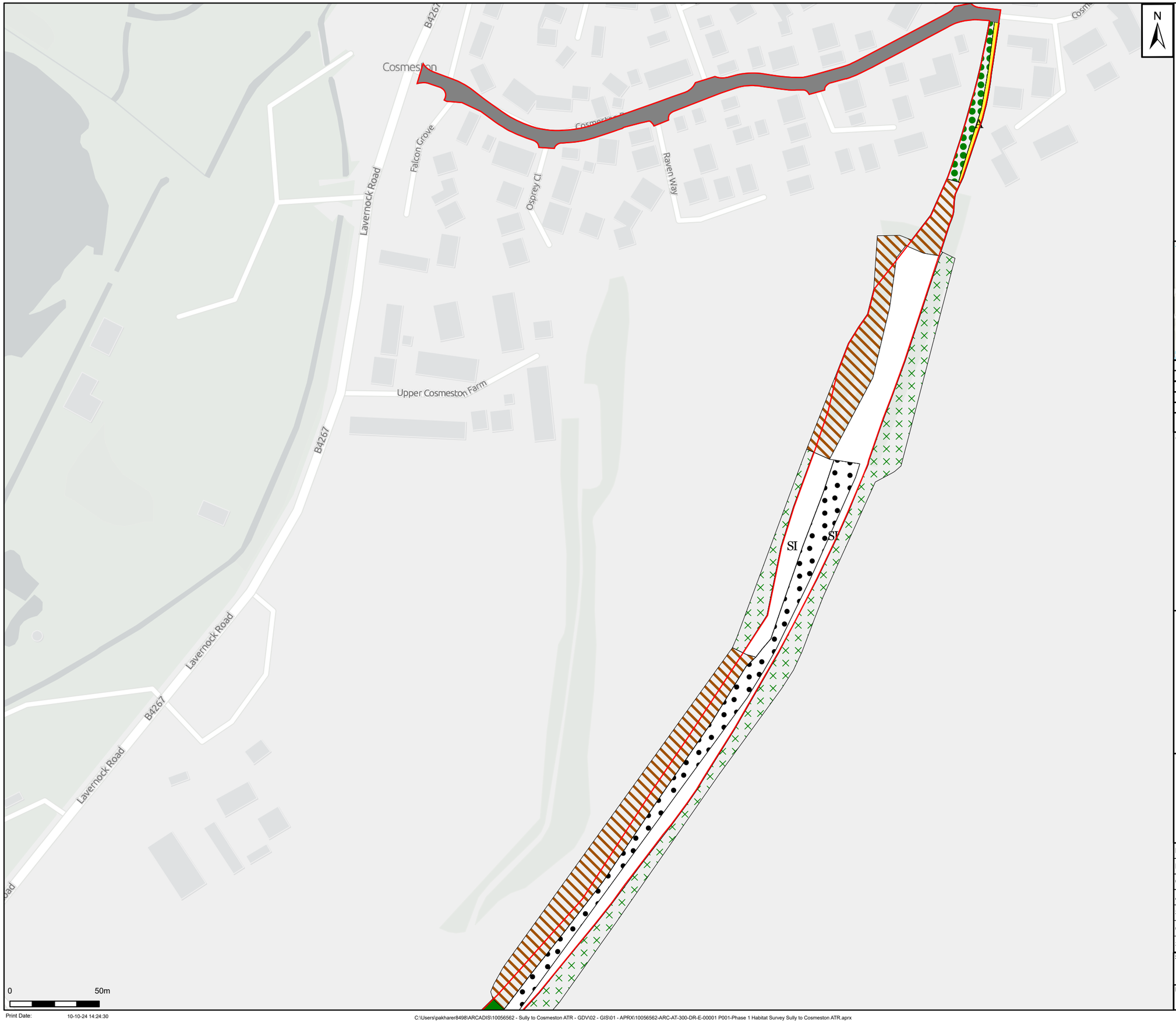
Appendix A

Site Drawings

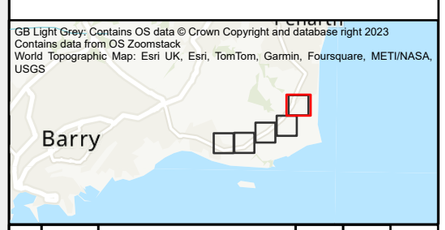
Phase 1 Habitat Drawing 10056562-ARC-AT-010-DR-E-00001

Landscape Design 10056562-ARC-AT-300-DR-A-00001 to 00011



Legend

- Site boundary
- Bare ground
- Broadleaved Parkland/scattered trees
- Broadleaved woodland - semi-natural
- A — Cultivated/disturbed land - amenity grassland
- Hardstanding
- Other tall herb and fern - ruderal
- SI — Poor semi-improved grassland
- Scrub - scattered



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Client: Vale of Glamorgan / Bro Morgannwg

PROJECT: SULLY TO COSMESTON ATR

Site: Sully to Cosmeston Active Travel Route

Client: Vale of Glamorgan County Borough Council

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Checked	A. Cordon	Date: 10 OCT 24	Signed:
Approved	S. Walters	Date: 10 OCT 24	Signed:
Scale:	1:2,000	Datum:	AOD
Original Size:	A3	Grid:	OS
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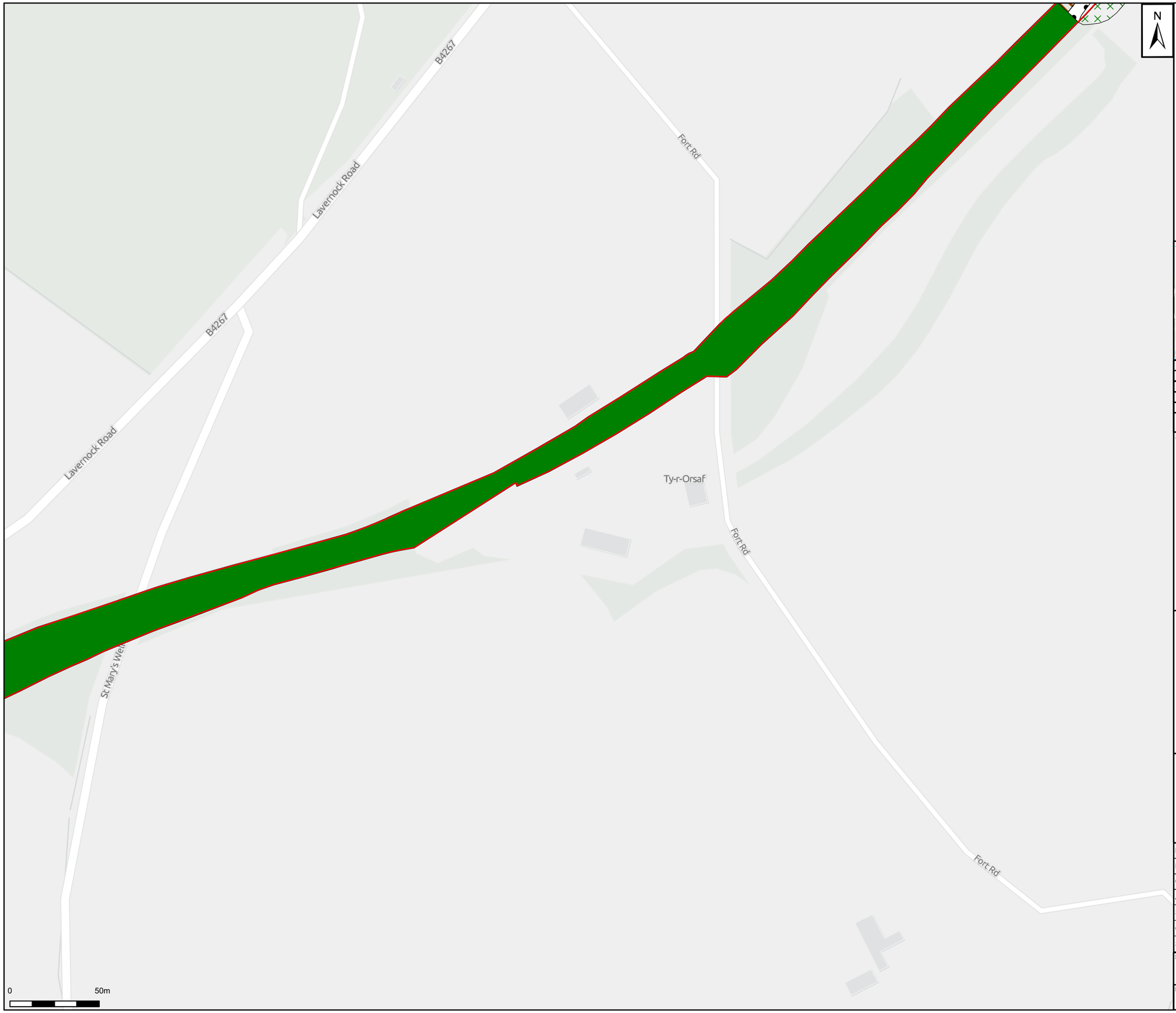

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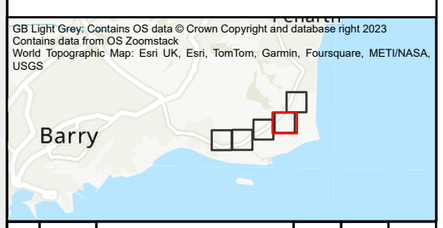
Legend

- Site boundary
- Bare ground
- Broadleaved woodland - semi-natural
- Other tall herb and fern - ruderal
- SI — Poor semi-improved grassland
- Scrub - scattered



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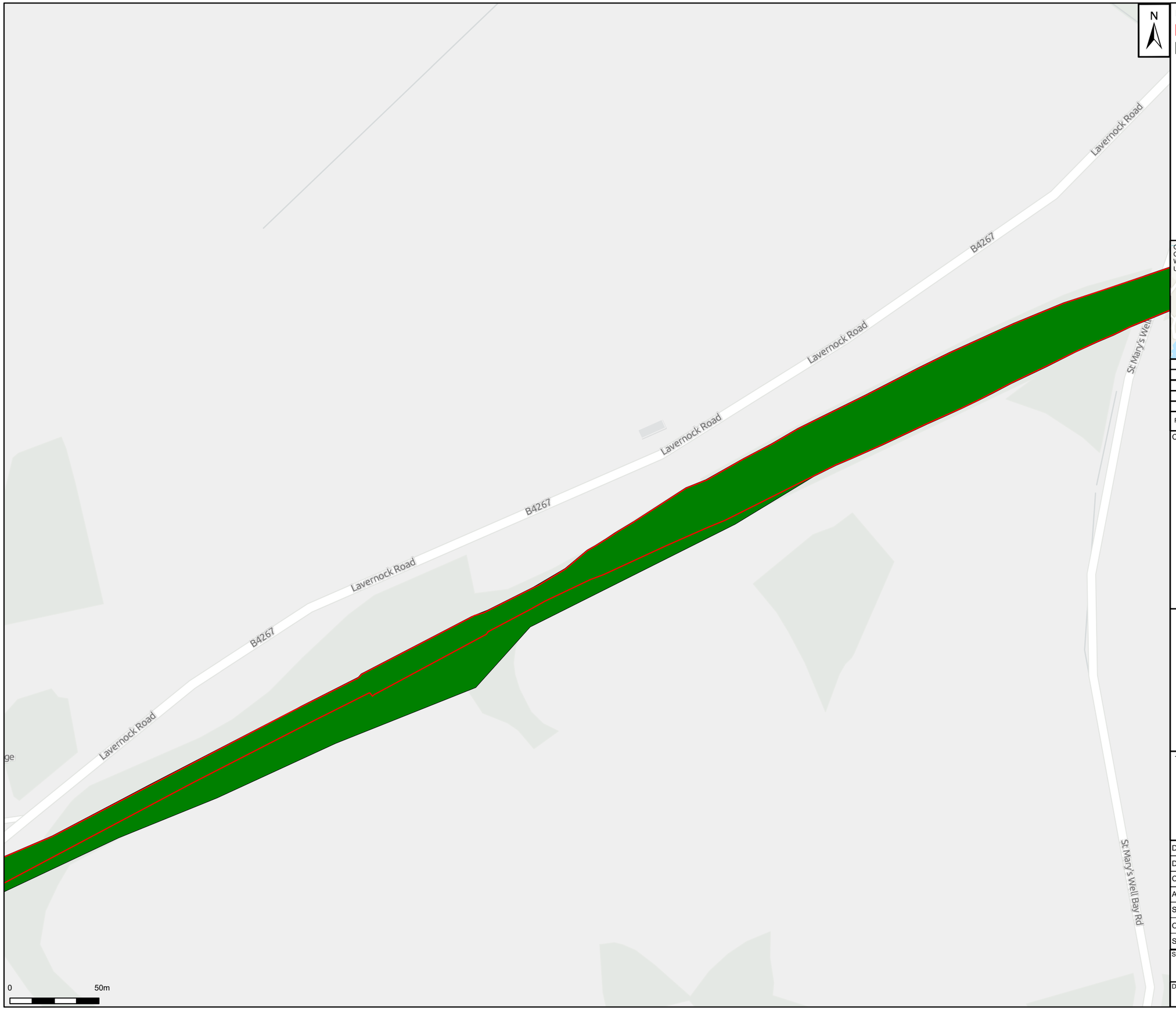

Legend

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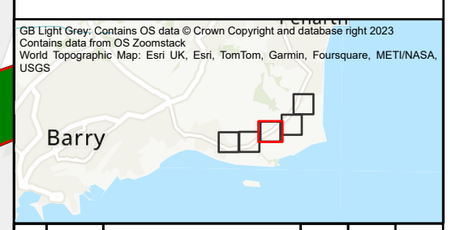
- Broadleaved woodland - semi-natural



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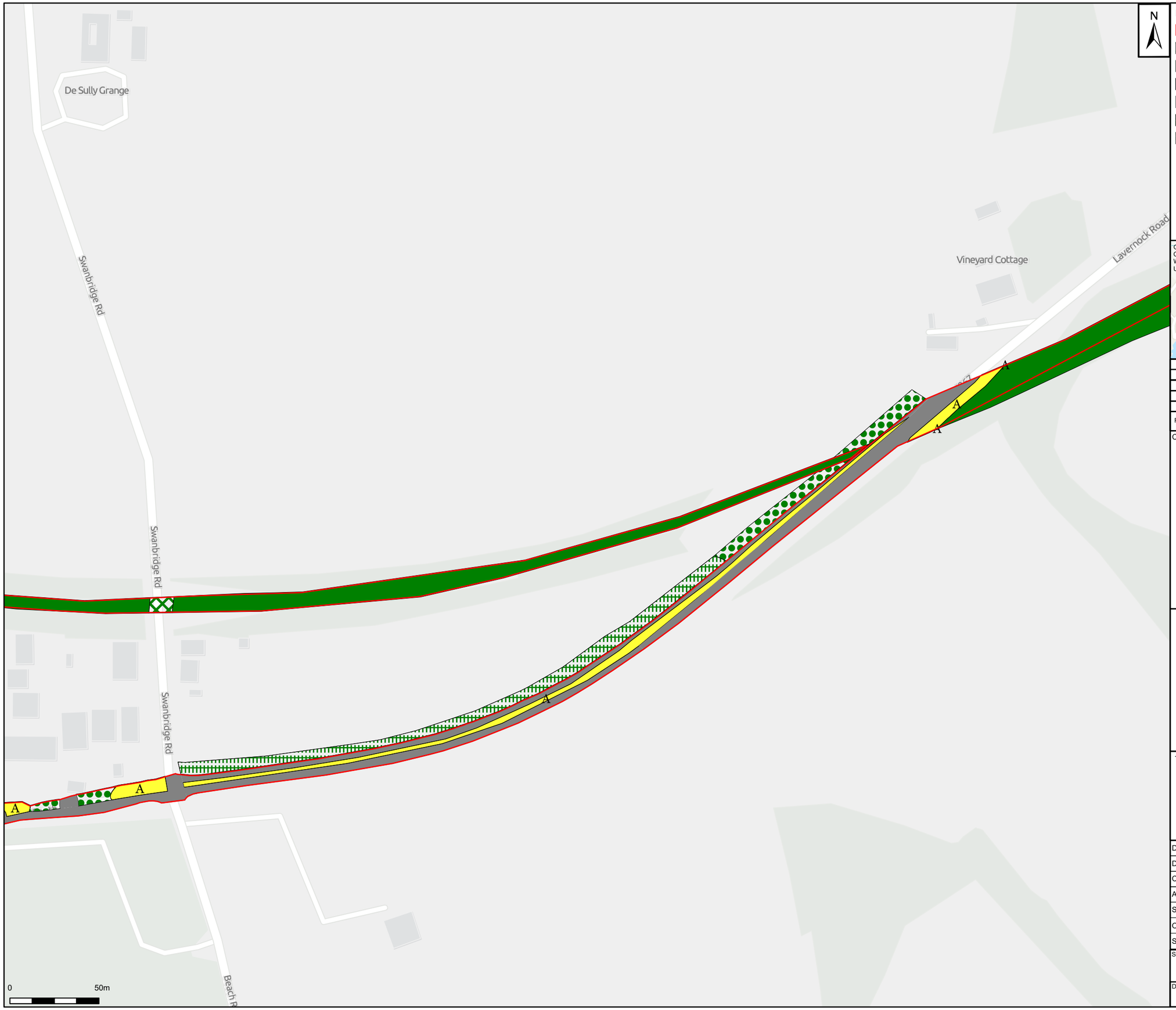
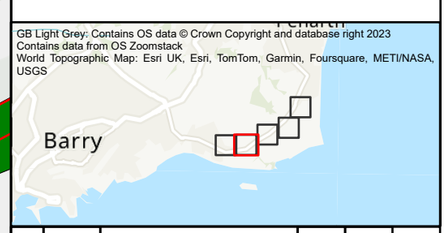


Legend

- Site boundary
- Broadleaved Parkland/scattered trees
- Broadleaved woodland - semi-natural
- Cultivated/disturbed land - amenity grassland
- Hardstanding
- Hedge with trees - species-poor
- Scrub - dense/continuous



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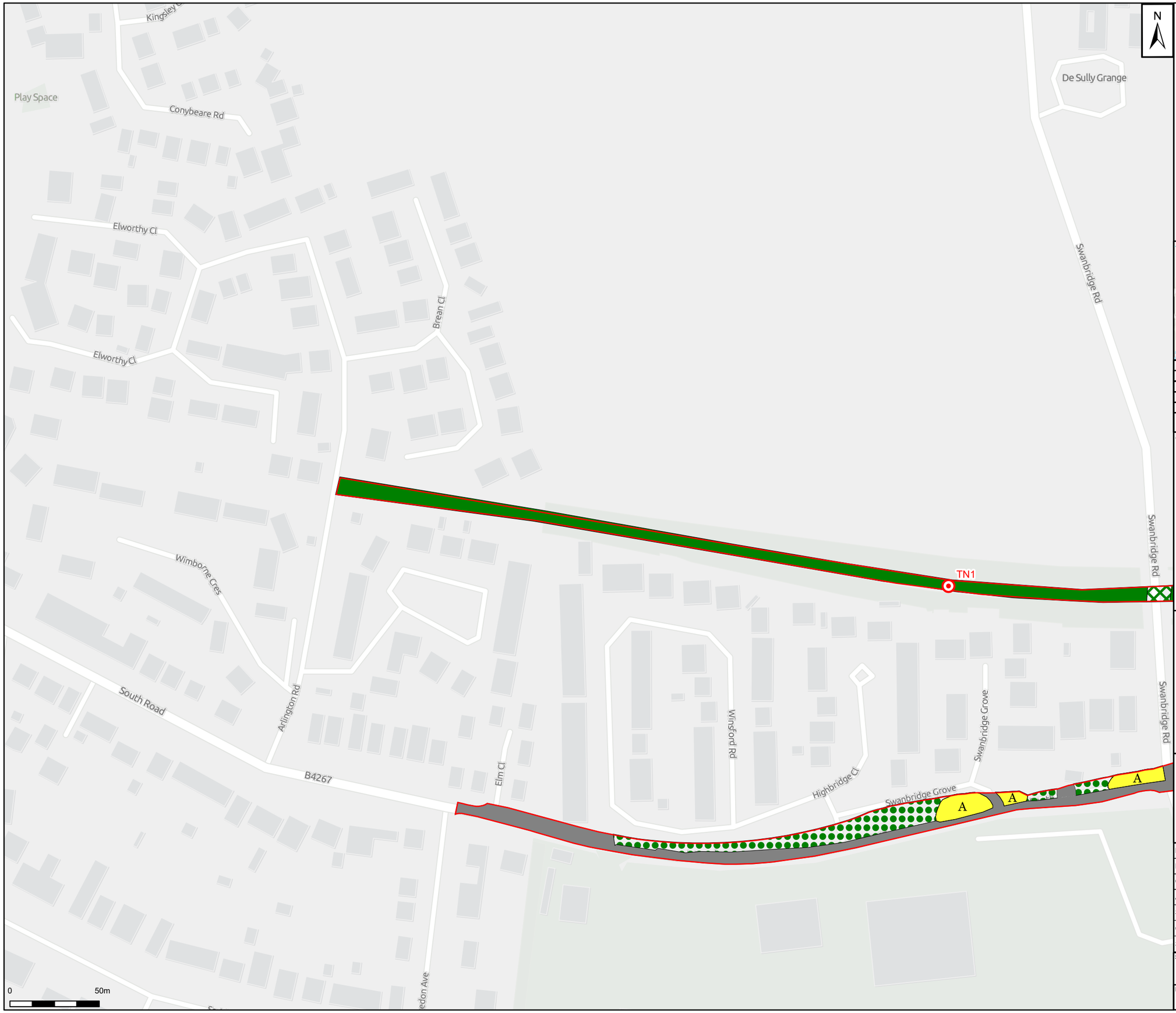

Legend

- Site boundary
- Target note
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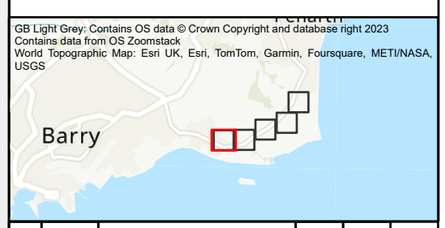
- Broadleaved woodland - semi-natural
- Cultivated/disturbed land - amenity grassland
- Hardstanding
- Scrub - dense/continuous



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EC3M 4BY

Coordinating Office:
Cymru House
St Mellons Business Park
Fortran Road
Cardiff, CF3 0EY

www.arcadis.com

Title:

Phase 1 Habitat Survey
Sully to Cosmeston ATR

Page 5 of 5

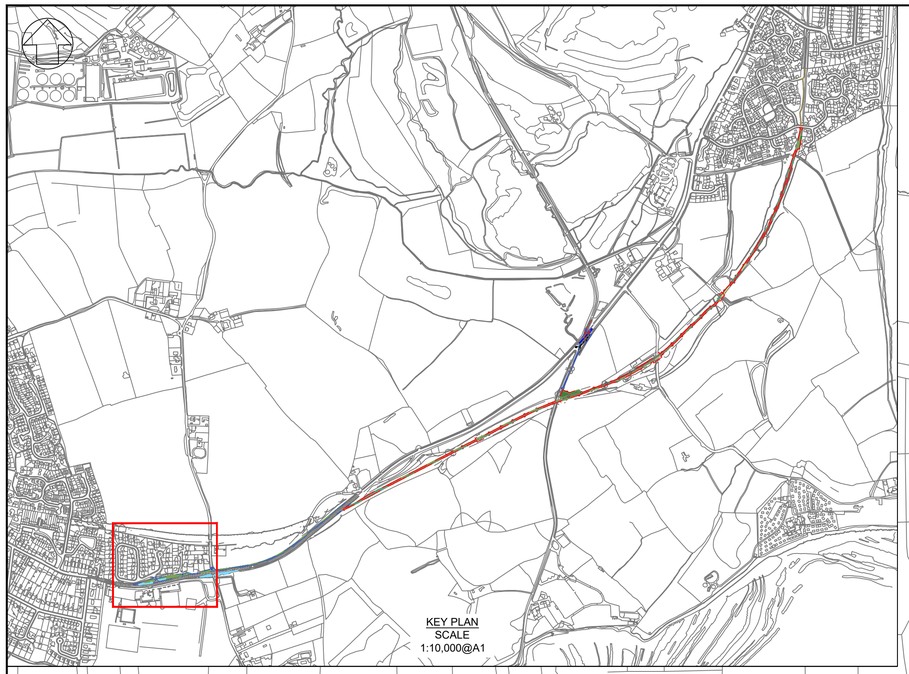
Designed	A. Cordon	Date: 10 OCT 24	Signed
Drawn	R. Pakhare	Date: 10 OCT 24	Signed
Checked	A. Cordon	Date: 10 OCT 24	Signed
Approved	S. Walters	Date: 10 OCT 24	Signed
Scale:	1:2,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	10056562

Suitability Description:
For Information

Drawing Number: 10056562-ARC-AT-010-DR-E-00001
Revision: P01

Print Date: 10-10-24 14:24:54

C:\Users\pakharer8498\ARCADIS\10056562 - Sully to Cosmeston ATR - GDV\02 - GIS\01 - APRX\10056562-ARC-AT-300-DR-E-00001 P001-Phase 1 Habitat Survey Sully to Cosmeston ATR.aprx



NOTES:
1. DO NOT SCALE FROM DRAWING, USE FIGURED DIMENSIONS ONLY.
2. ALL UNITS IN METRES UNLESS STATED OTHERWISE.
3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRAWING 10056562-ARC-AT-072-DR-C-00001 & 00003 FOR TYPICAL CROSS SECTIONS.
5. REFER TO DRAWING 10056562-ARC-AT-051-DR-C-00001 FOR EXISTING UTILITIES LAYOUT.
6. THE DESIGN IS BASED ON THE ASSUMPTION THAT THE POSTED SPEED LIMIT IS REDUCED FROM 40mph TO 30mph.
7. RAIN GARDEN EXTENTS ARE INDICATIVE AT THIS STAGE. STORAGE VOLUMES & TECHNICAL DESIGN PARAMETERS TO BE DEFINED AT DETAILED DESIGN STAGE.

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

- Active Travel Route
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Native Deciduous Woodland
- Native Hedgerow
- Rain Garden
- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage

CUTLINE - FOR CONTINUATION SEE SHEET 2 of 10

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site
Sully to Cosmeston
Cardiff

Client
Vale of Glamorgan Council
Civic Offices
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

Registered office:
80 Fenchurch Street
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EC3M 4BY

Coordinating office:
Arcadis Cymru House
St Mellons Business Park,
Fortran Road
Cardiff , CF3 0EY
Tel: 44 (0)29 2092 6700

www.arcadis.com

Drawing Title:

Soft Landscape Design Sheet 1 of 11

Designed: D.Watts	Signed D.Watts	Date 02/10/2024	
Produced: D.Watts	Signed D.Watts	Date 02/10/2024	
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024	
Reviewed: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Design Stage: For Planning			
Original Size: A1	Grid: OS	Datum: AoD	
Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 00001

Revision: P01.1

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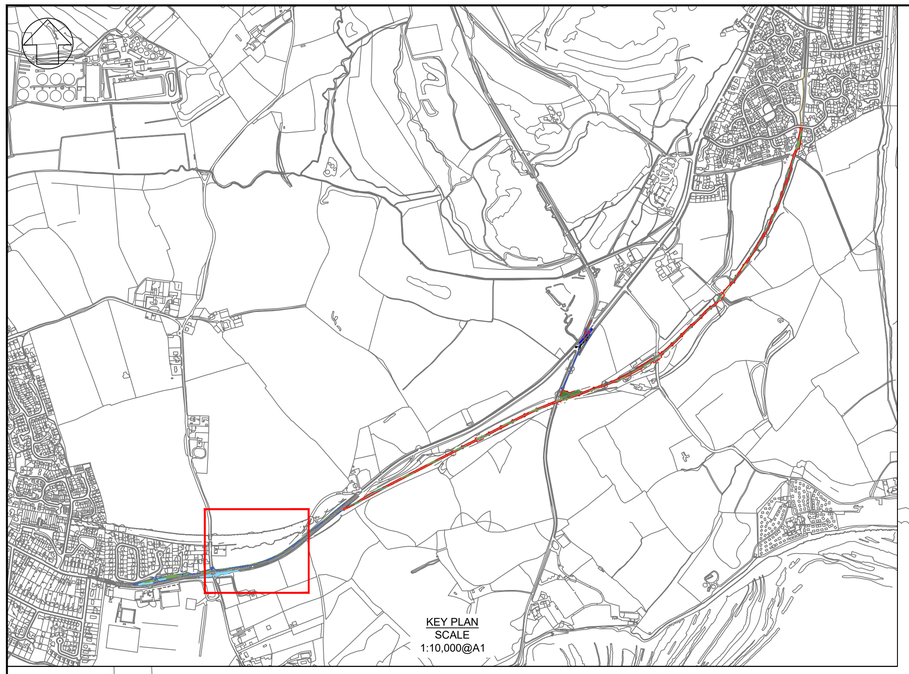
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



NOTES:
1. DO NOT SCALE FROM DRAWING, USE FIGURED DIMENSIONS ONLY.
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3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRAWING 10056562-ARC-AT-072-DR-C-00001 & 00003 FOR TYPICAL CROSS SECTIONS.
5. REFER TO DRAWING 10056562-ARC-AT-051-DR-C-00001 FOR EXISTING UTILITIES LAYOUT.
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Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

- Active Travel Route
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- Vehicle Crossover Point
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- Native Deciduous Woodland
- Native Hedgerow
- Rain Garden
- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

Client

Vale of Glamorgan Council
Civic Offices
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

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EC3M 4BY

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Cardiff , CF3 0EY
Tel: 44 (0)29 2092 6700

www.arcadis.com

Drawing Title:

Soft Landscape Design Sheet 2 of 11

Designed: D.Watts	Signed D.Watts	Date 02/10/2024	
Produced: D.Watts	Signed D.Watts	Date 02/10/2024	
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024	
Reviewed: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Design Stage: For Planning			
Original Size: A1	Grid: OS	Datum: AoD	
Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 00002

Revision: P01.1

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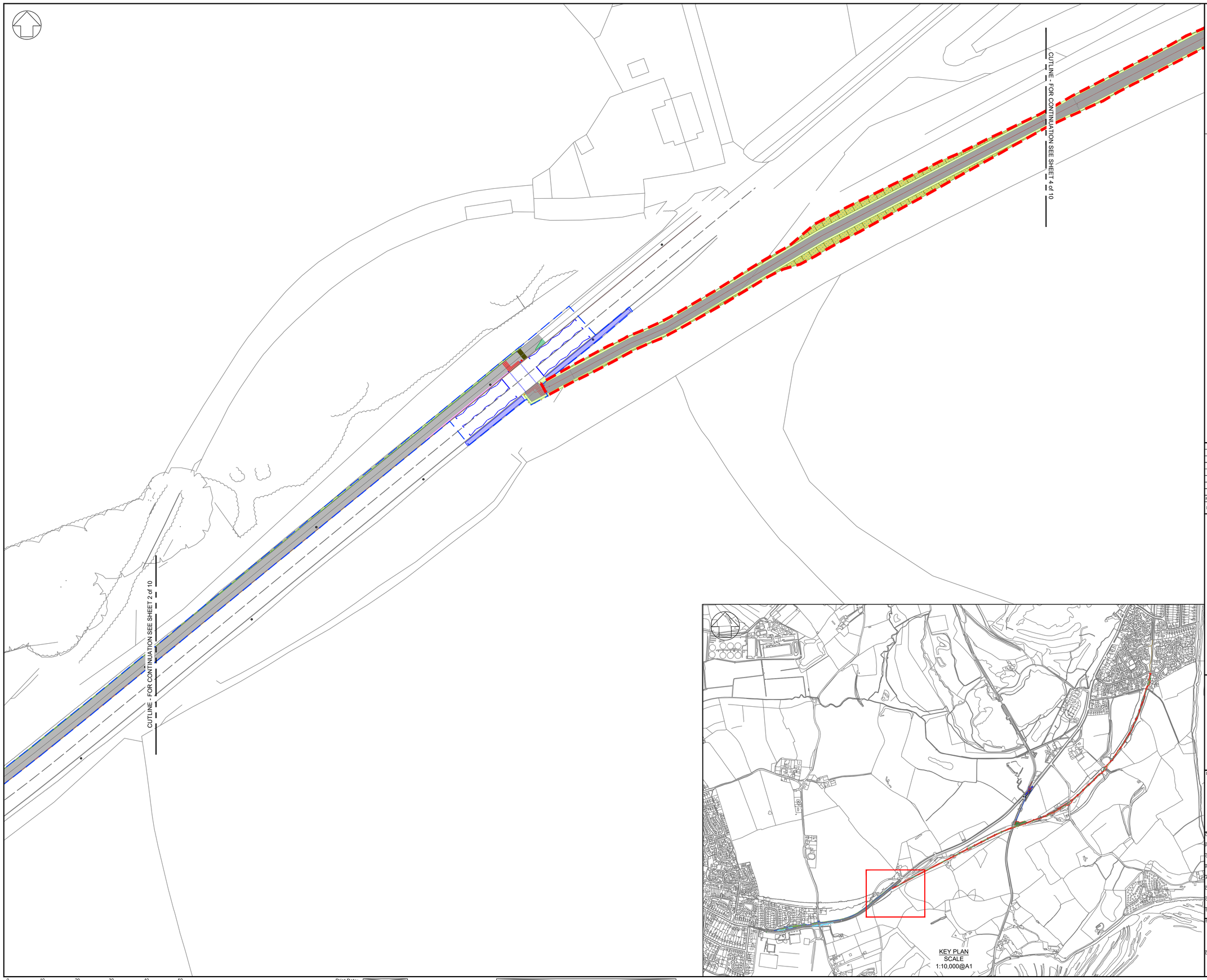
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



NOTES:
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3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRAWING 10056562-ARC-AT-072-DR-C-00001 & 00003 FOR TYPICAL CROSS SECTIONS.
5. REFER TO DRAWING 10056562-ARC-AT-051-DR-C-00001 FOR EXISTING UTILITIES LAYOUT.
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Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

- Active Travel Route
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- Vehicle Crossover Point
- Pedestrian Priority Crossing
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- Native Hedgerow
- Rain Garden
- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage

Rev.	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

Client

Vale of Glamorgan Council
Civic Offices
Holton Rd. Barry
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www.valeofglamorgan.gov.uk

ARCADIS

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Fortran Road
Cardiff , CF3 0EY
Tel: 44 (0)29 2092 6700

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Drawing Title:

Soft Landscape Design Sheet 3 of 11

Designed:	D.Watts	Signed	D.Watts	Date	02/10/2024
Produced:	D.Watts	Signed	D.Watts	Date	02/10/2024
Checked:	H.Gilroy	Signed	H.Gilroy	Date	02/10/2024
Reviewed:	A.Zorlutuna	Signed	A.Zorlutuna	Date	02/10/2024
Approved:	A.Zorlutuna	Signed	A.Zorlutuna	Date	02/10/2024
Design Stage:	For Planning				
Original Size:	A1	Grid:	OS	Datum:	AoD
Suitability Code:	S0	Scale:	1:500	Project Number:	10056562

Suitability Description:

For Planning

Drawing Number:	Revision:
10056562 - ARC - 300 - XX - DR - LA - 00003	P01.1

0 10 20 30 40 50
SCALE 1:500 (A1)
SCALE 1:1000 (A3)
METRES

Print Date:

NOTES:
1. DO NOT SCALE FROM DRAWING, USE FIGURED DIMENSIONS ONLY.
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CUTLINE - FOR CONTINUATION SEE SHEET 5 of 10

Existing vegetation beyond earthworks, retained and left to naturally regenerate

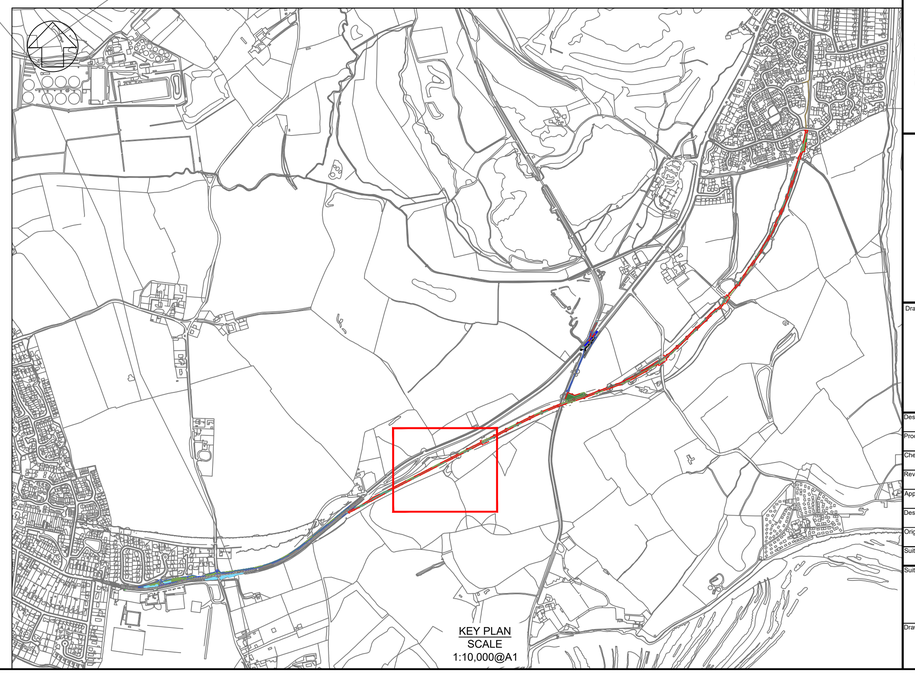
CUTLINE - FOR CONTINUATION SEE SHEET 3 of 10

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

- Active Travel Route
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Native Deciduous Woodland
- Native Hedgerow
- Rain Garden
- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage



KEY PLAN
SCALE
1:10,000@A1

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P01.1	02.10.2024	For Planning	DW	HG	A2	A2

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site
Sully to Cosmeston
Cardiff

Client
Vale of Glamorgan Council
Civic Offices
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

Registered office:
80 Fenchurch Street
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Tel: 44 (0)29 2092 6700

www.arcadis.com

Drawing Title:

Soft Landscape Design Sheet 4 of 11

Designed: D.Watts	Signed D.Watts	Date 02/10/2024	
Produced: D.Watts	Signed D.Watts	Date 02/10/2024	
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024	
Reviewed: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Design Stage: For Planning			
Original Size: A1	Grid: OS	Datum: AoD	
Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:
For Planning

Drawing Number:
10056562 - ARC - 300 - XX - DR - LA - 00004

Revision:
P01.1

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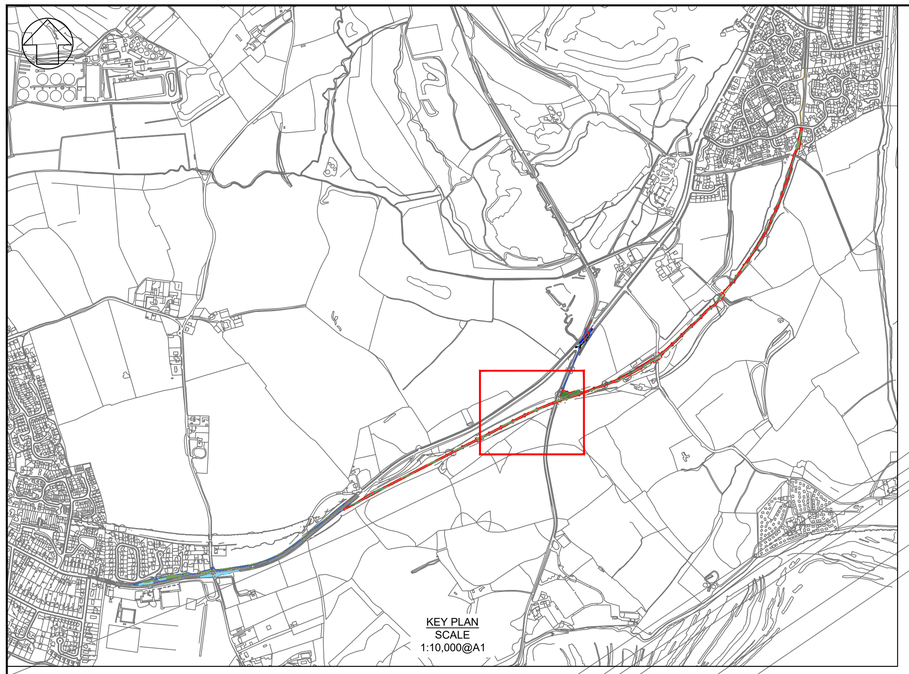
METRES
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



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3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
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Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

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- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

Client

Vale of Glamorgan Council
Civic Offices
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

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Coordinating office:
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Cardiff , CF3 0EY
Tel: 44 (0)29 2092 6700

www.arcadis.com

Drawing Title:

Soft Landscape Design Sheet 5 of 11

Designed: D.Watts	Signed D.Watts	Date 02/10/2024			
Produced: D.Watts	Signed D.Watts	Date 02/10/2024			
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024			
Reviewed: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024			
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024			
Design Stage:	For Planning				
Original Size: A1	Grid: OS	Datum: AoD			
Suitability Code: S0	Scale: 1:500	Project Number: 10056562			

Suitability Description:

For Planning

Drawing Number:	Revision:
10056562 - ARC - 300 - XX - DR - LA - 00005	P01.1

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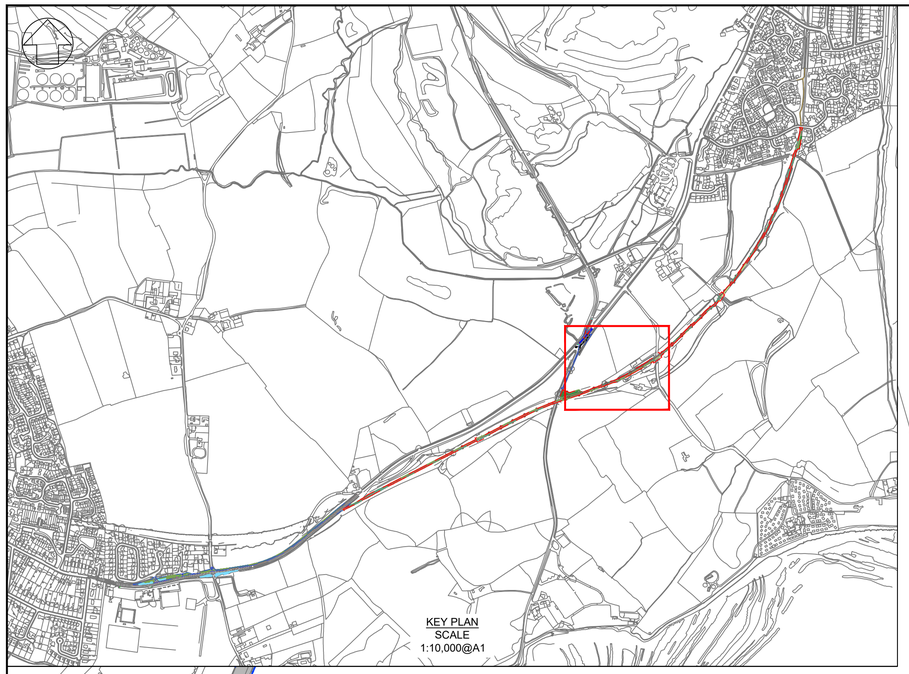
SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



CUTLINE - FOR CONTINUATION SEE SHEET 7 of 10

CUTLINE - FOR CONTINUATION SEE SHEET 5 of 10

2.4m close board fence
to mitigate possible views

Existing vegetation beyond earthworks,
retained and left to naturally regenerate

NOTES:
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3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRAWING 10056562-ARC-AT-072-DR-C-00001 & 00003 FOR TYPICAL CROSS SECTIONS.
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Legend

- Planning Application Boundary
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Proposed

- Active Travel Route
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- Road Signage

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

Client

Vale of Glamorgan Council
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Tel: 44 (0)29 2092 6700

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Drawing Title:

Soft Landscape Design
Sheet 6 of 11

Designed:	D.Watts	Signed	D.Watts	Date	02/10/2024
Produced:	D.Watts	Signed	D.Watts	Date	02/10/2024
Checked:	H.Gilroy	Signed	H.Gilroy	Date	02/10/2024
Reviewed:	A.Zorlutuna	Signed	A.Zorlutuna	Date	02/10/2024
Approved:	A.Zorlutuna	Signed	A.Zorlutuna	Date	02/10/2024
Design Stage:	For Planning				
Original Size:	A1	Grid:	OS	Datum:	AoD
Suitability Code:	S0	Scale:	1:500	Project Number:	10056562

Suitability Description:

For Planning

Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 00006

Revision: P01.1

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

CUTLINE - FOR CONTINUATION SEE SHEET 8 of 10

Existing vegetation beyond earthworks, retained and left to naturally regenerate

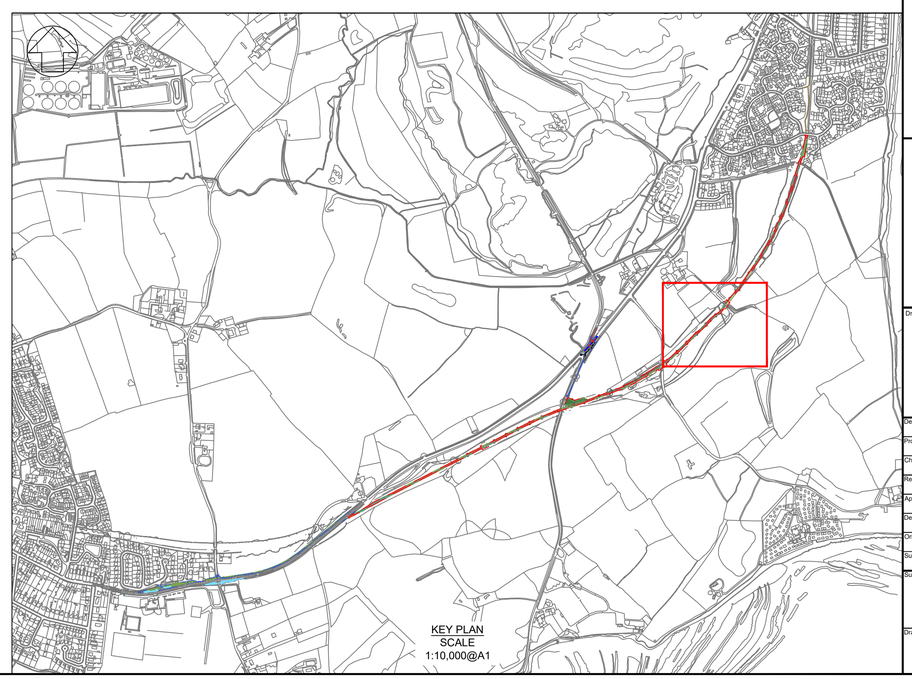
CUTLINE - FOR CONTINUATION SEE SHEET 6 of 10

0 10 20 30 40 50

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

METRES

Print Date:



KEY PLAN
SCALE
1:10,000@A1

NOTES:
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Legend

- Planning Application Boundary
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Proposed

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Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

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Drawing Title:

Soft Landscape Design Sheet 7 of 11

Designed: D.Watts	Signed D.Watts	Date 02/10/2024	
Produced: D.Watts	Signed D.Watts	Date 02/10/2024	
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024	
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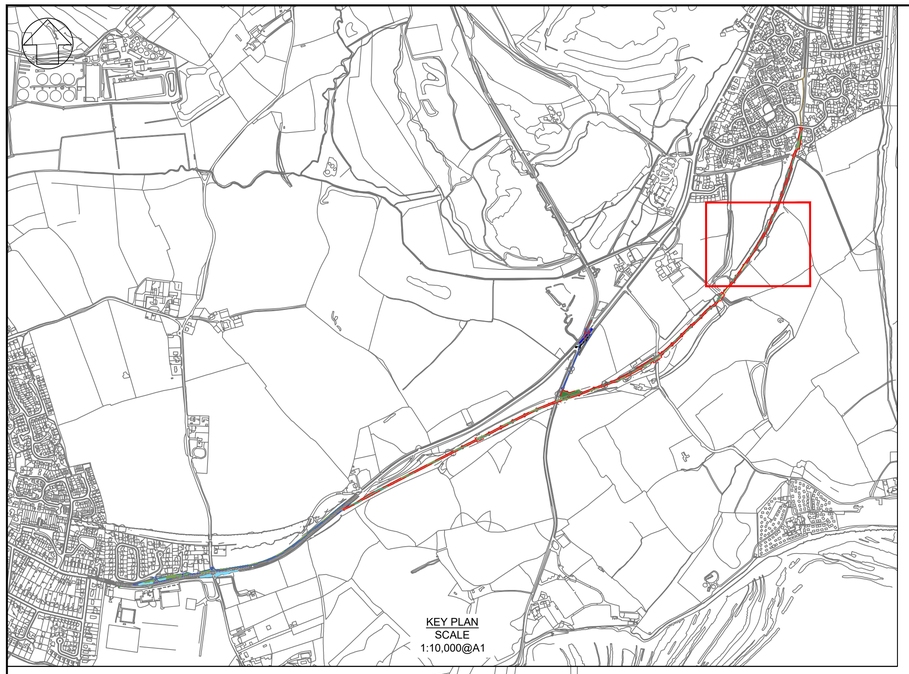
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Design Stage: For Planning			
Original Size: A1	Grid: OS	Datum: AoD	
Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number:	Revision:
10056562 - ARC - 300 - XX - DR - LA - 00007	P01.1



KEY PLAN
SCALE
1:10,000@A1

CUTLINE - FOR CONTINUATION SEE SHEET 9 of 10

Existing vegetation beyond earthworks, retained and left to naturally regenerate

CUTLINE - FOR CONTINUATION SEE SHEET 7 of 10

0 10 20 30 40 50
METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

NOTES:
1. DO NOT SCALE FROM DRAWING, USE FIGURED DIMENSIONS ONLY.
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Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site
Sully to Cosmeston
Cardiff

Client
Vale of Glamorgan Council
Civic Offices
Holton Rd, Barry
CF63 4RU
www.valeofglamorgan.gov.uk

ARCADIS

Registered office:
80 Fenchurch Street
London
EC3M 4BY

Coordinating office:
Arcadis Cymru House
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Tel: 44 (0)29 2092 6700

www.arcadis.com

Drawing Title:

Soft Landscape Design Sheet 8 of 11

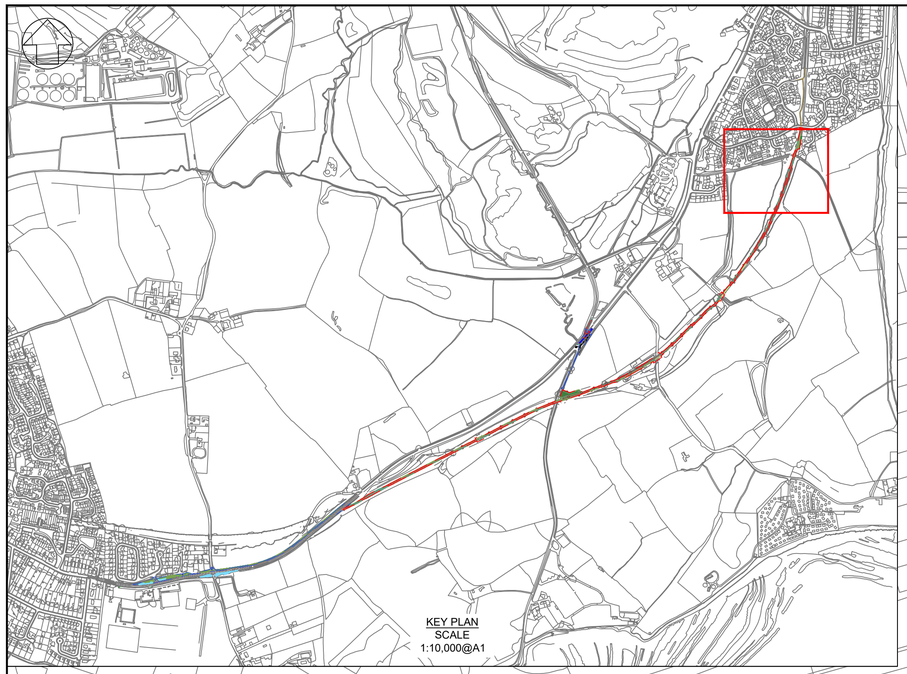
Designed: D.Watts	Signed D.Watts	Date 02/10/2024	
Produced: D.Watts	Signed D.Watts	Date 02/10/2024	
Checked: H.Gilroy	Signed H.Gilroy	Date 02/10/2024	
Reviewed: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Approved: A.Zorlutuna	Signed A.Zorlutuna	Date 02/10/2024	
Design Stage: For Planning			
Original Size: A1	Grid: OS	Datum: AoD	
Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 00008

Revision: P01.1



CUTLINE - FOR CONTINUATION SEE SHEET 10 of 10

CUTLINE - FOR CONTINUATION SEE SHEET 8 of 10

NOTES:
1. DO NOT SCALE FROM DRAWING, USE FIGURED DIMENSIONS ONLY.
2. ALL UNITS IN METRES UNLESS STATED OTHERWISE.
3. REFER TO DRAWING 10056562-ARC-AT-110-DR-C-00003 FOR GENERAL ARRANGEMENT OVERVIEW.
4. REFER TO DRAWING 10056562-ARC-AT-072-DR-C-00001 & 00003 FOR TYPICAL CROSS SECTIONS.
5. REFER TO DRAWING 10056562-ARC-AT-051-DR-C-00001 FOR EXISTING UTILITIES LAYOUT.
6. THE DESIGN IS BASED ON THE ASSUMPTION THAT THE POSTED SPEED LIMIT IS REDUCED FROM 40mph TO 30mph.
7. RAIN GARDEN EXTENTS ARE INDICATIVE AT THIS STAGE. STORAGE VOLUMES & TECHNICAL DESIGN PARAMETERS TO BE DEFINED AT DETAILED DESIGN STAGE.

Legend

- Planning Application Boundary
- Highways Proposed Development Boundary

Proposed

- Active Travel Route
- Tactile Paving
- Vehicle Crossover Point
- Pedestrian Priority Crossing
- Native Deciduous Woodland
- Native Hedgerow
- Rain Garden
- Amenity Grassland
- Species-rich Grassland
- Shaded Species-rich Grassland
- Road Signage

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

VALE of GLAMORGAN
BRO MORGANNWG

Project:

Sully to Cosmeston ATR

Site

Sully to Cosmeston
Cardiff

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Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

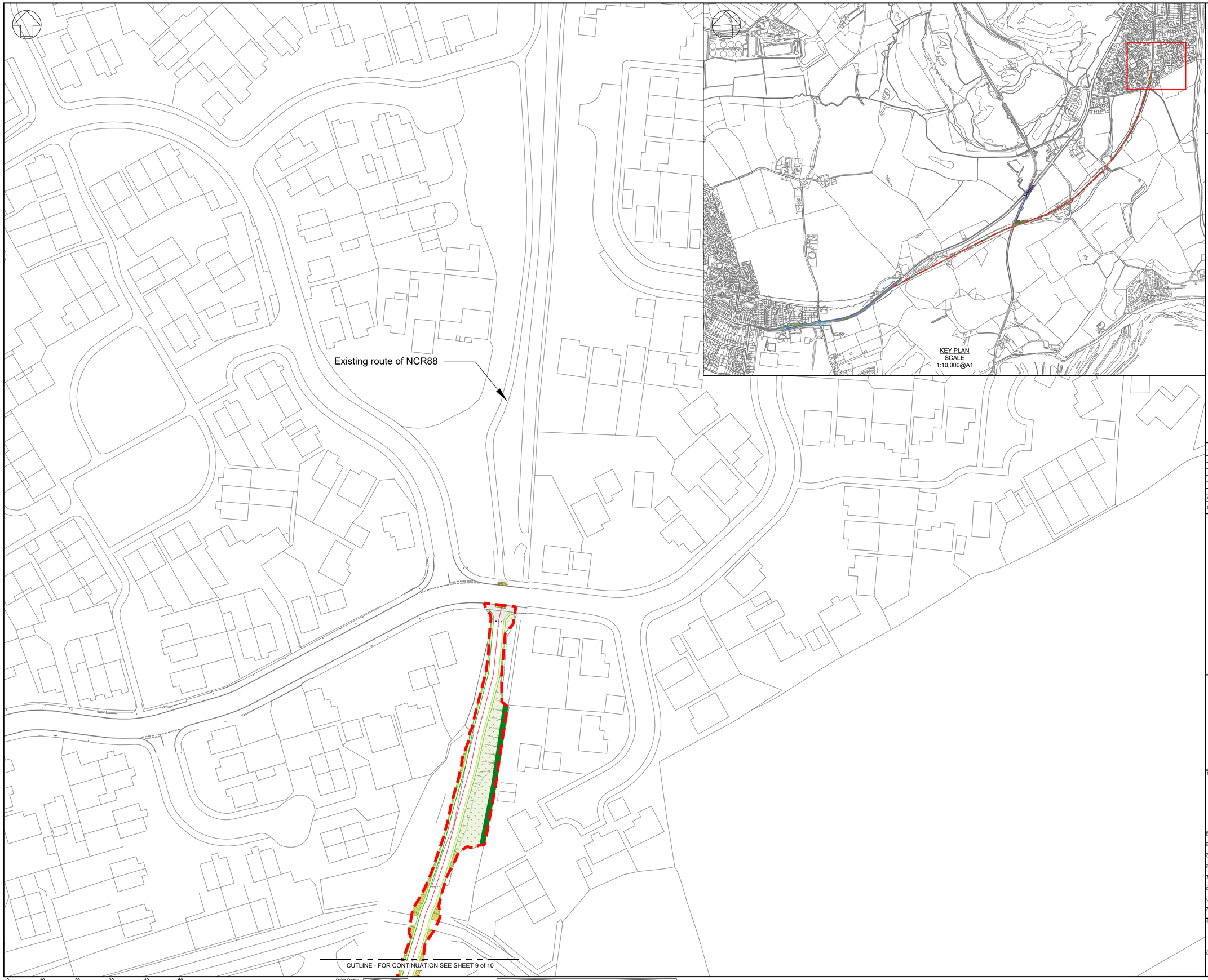
Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 00009

Revision: P01.1

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:



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Legend

Planning Application Boundary

Highways Proposed Development Boundary

Proposed

Active Travel Route

Tactile Paving

Vehicle Crossover Point

Pedestrian Priority Crossing

Native Deciduous Woodland

Native Hedgerow

Rain Garden

Amenity Grassland

Species-rich Grassland

Shaded Species-rich Grassland

Road Signage

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P0.1.1	02.10.2024	For Planning	DW	HG	AZ	AZ

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Suitability Code: S0	Scale: 1:500	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number: 10056562 - ARC - 300 - XX - DR - LA - 000010

Revision: P01.1

0 10 20 30 40 50 METRES

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

Print Date:

Proposed Plant & Grass Species:

Grasses	Sowing Rate
Emorsgate - EG22 Strong Lawn Grass Mixture (Amenity Grassland)	25g/m²
Emorsgate - EM1 Basic General Purpose Meadow Mixture (Species Rich Grassland)	4g/m²
Emorsgate - EH1 Hedgerow Mixture (Shaded Species Rich Grassland)	4g/m²

Native Woodland			
Planted at 1.5m centres			
Species	**Height cm**	**Root**	**Specification**
Acer campestre	60-80	BR	Transplant - seed raised
Betula pendula	60-80	BR	1+1; Transplant - seed raised
Corylus avellana	60-80	BR	1+2; Transplant - seed raised; branched; 3 breaks
Crataegus monogyna	60-80	BR	Transplant - seed raised
Cytisus scoparius	40-60	2L	Bushy; 5 breaks
Hedera helix	40-60	2L	Several shoots; 3 breaks
Ilex aquifolium	80-100	RB	Leader with laterals
Malus sylvestris	60-80	BR	1+1; Transplant - seed raised
Prunus avium	60-80	BR	1+1; Transplant - seed raised
Prunus spinosa	60-80	BR	1+1; Transplant - seed raised; branched; 2 breaks
Quercus robur	60-80	BR	1+2; Transplant - seed raised
Salix caprea	60-80	BR	0/1; Cutting; branched; 2 breaks
Viburnum lantana	60-80	BR	1+2; Transplant - seed raised; branched; 3 breaks

Native Hedgerow			
Planted at 0.5m centres in a double staggered row with 0.3m between rows. 5 Plants per linear m			
Species	**Height cm**	**Root**	**Specification**
Acer campestre	60-80	BR	Transplant - seed raised
Cornus sanguinea	60-80	BR	1+1; Transplant - seed raised; branched; 3 breaks
Corylus avellana	60-80	BR	Transplant - seed raised; branched; 3 breaks
Crataegus monogyna	60-80	BR	Transplant - seed raised
Euonymus europaeus	60-80	BR	1+2; Transplant - seed raised; branched; 5 breaks
Ilex aquifolium	80-100	RB	Leader with laterals
Malus sylvestris	60-80	BR	1+1; Transplant - seed raised
Prunus spinosa	60-80	BR	Transplant - seed raised; branched; 2 breaks
Rosa Canina	60-80	BR	1+1; Transplant - seed raised; branched; 3 breaks

Rain Gardens		
Species	**Root**	**Specification**
Allium 'Mount Everest'	2L	Full pot
Aquilegia vulgaris	2L	Full pot
Bergenia cordifolia	2L	Full pot
Campanula glomerata	2L	Full pot
Carex pendula	2L	Full pot
Crocosmia 'Lucifer'	2L	Full pot
Dryopteris dilatata	2L	Full pot
Dryopteris felix-mas	2L	Full pot
Eupatorium cannabinum	2L	Full pot
Helenium autumnale	2L	Full pot
Helleborus foetidus	2L	Full pot
Hosta 'Royal Standard'	2L	Full pot
Inula hookeri	2L	Full pot
Iris pseudocorus	2L	Full pot
Iris sibirica	2L	Full pot
Juncus effusus	2L	Full pot
Miscanthis sinensis	2L	Full pot
Osmunda regalis	2L	Full pot
Panicum virgatum	2L	Full pot
Rudbeckia birta	2L	Full pot
Veronicastrum virginicum	2L	Full pot
Viburnum opulus	2L	Full pot

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Sheet 11 of 11

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Suitability Code: S0	Scale: N/A	Project Number: 10056562	

Suitability Description:

For Planning

Drawing Number:
10056562 - ARC - 300 - XX - DR - LA - 000011

Revision:
P01.1

Print Date:

Appendix B

Desk Study

Common Name	Scientific Name	Legislation /Status
Algae		
Harpoon Weed	*Asparagopsis armata*	LBAP (VoG)
Wig Wrack/ Sea-loch Egg Wrack	*Ascophyllum nodosum*	INNS
Bryophyte		
Small-bud Bryum	*Bryum gemmiferum*	RDB1 (Wales) - LC
Heath Star Moss	*Campylopus introflexus*	INNS
Common Feather-moss	*Kindbergia praelonga*	RDB1 (Wales) - LC
Marble Screw-moss	*Syntrichia papillosa*	RDB1 (Wales) - LC
Showy Feather-moss	*Oxyrrhynchium speciosum*	RDB1 (Wales) - LC,
Nicholson's Beard Moss	*Didymodon nicholsonii*	RDB1 (Wales) - LC
Awl-leaved Earth-moss	*Pleuridium subulatum*	RDB1 (Wales) - LC
Strap-leaved Earth-moss	*Ephemerum recurvifolium*	RDB1 (Wales) - VU
Golden Thread-moss	*Leptobryum pyriforme*	RDB1 (Wales) - LC
Dwarf Feather-moss	*Oxyrrhynchium pumilum*	RDB1 (Wales) - LC
Great Plait-moss	*Hypnum cupressiforme*	RDB1 (Wales) - LC
Pteridophyte		
Maidenhair Fern	*Adiantum capillus-veneris*	RDB2 (UK) - S, LBAP (VOG), LI(SEWBReC)
Fungi		
Persistent Waxcap	*Hygrocybe acutoconica*	
Flowering plant		
Dwarf Thistle	*Cirsium acaule*	LI(SEWBReC)
Rigid Hornwort	*Ceratophyllum demersum*	LI(SEWBReC)
Bird Cherry	*Prunus padus*	LI(SEWBReC)
Wayfaring-tree	*Viburnum lantana*	LI(SEWBReC)

Common Name	Scientific Name	Legislation /Status
Bee Orchid	*Ophrys apifera*	LI(SEWBReC)
Japanese Knotweed	*Fallopia japonica*	WCA9, INNS
Meadow Barley	*Hordeum secalinum*	LI(SEWBReC)
Pale Flax	*Linum bienne*	LI(SEWBReC)
Autumn Lady's-tresses	*Spiranthes spiralis*	RDB1 (UK) - NT, LI(SEWBReC)
Yellow-wort	*Blackstonia perfoliata*	LI(SEWBReC)
Hairy Violet	*Viola hirta*	LI(SEWBReC)
Pyramidal Orchid	*Anacamptis pyramidalis*	LI(SEWBReC)
Wild Madder	*Rubia peregrina*	LI(SEWBReC)
Pepper-saxifrage	*Silaum silaus*	LI(SEWBReC)
Woolly Thistle	*Cirsium eriophorum*	LI(SEWBReC)
Dwarf Spurge	*Euphorbia exigua*	RDB1 (Wales) - NT, RDB1 (UK) - NT, LI(SEWBReC)
Service-tree	*Sorbus domestica*	RDB1 (Wales) - EN, RDB1 (UK) - CR, RDB2 (UK) - R, LBAP (VOG)
White Water-lily	*Nymphaea alba*	LI(SEWBReC)
Stinking Iris	*Iris foetidissima*	LI(SEWBReC)
Hairy St John's-wort	*Hypericum hirsutum*	LI(SEWBReC)
Spurge-laurel	*Daphne laureola*	LI(SEWBReC)
Butterfly-bush	*Buddleja davidii*	INNS
Greater Periwinkle	*Vinca major*	INNS
Spotted Medick	*Medicago arabica*	LI(SEWBReC)
Bluebell	*Hyacinthoides non-scripta*	INNS
Cherry Laurel	*Prunus laurocerasus*	INNS
Ivy Broomrape	*Orobanche hederae*	LI(SEWBReC)
Greater Butterfly-orchid	*Platanthera chlorantha*	RDB1 (UK) - NT, LI(SEWBReC)
Butcher's-broom	*Ruscus aculeatus*	HDir, RDB1 (Wales) - VU, LI(SEWBReC)
Greater Knapweed	*Centaurea scabiosa*	LI(SEWBReC)
Small Leaved Elm	*Ulmus minor*	LI(SEWBReC)
Yellow Horned-poppy	*Glaucium flavum*	LI(SEWBReC)

Common Name	Scientific Name	Legislation /Status
Lesser Celandine	*Ficaria verna var. bulbifer*	
Black Horehound	*Ballota nigra*	LI(SEWBReC)
Charlock	*Sinapis arvensis*	RDB1 (Wales) - VU
Smooth Brome	*Bromus racemosus*	LI(SEWBReC)
Upright Brome	*Bromopsis erecta*	LI(SEWBReC)
Common Rock-rose	*Helianthemum nummularium*	LI(SEWBReC)
Hoary Plantain	*Plantago media*	LI(SEWBReC)
Black Poplar	*Populus nigra subsp. betulifolia*	LI(SEWBReC)
Himalayan Cotoneaster	*Cotoneaster simonsii*	WCA9, INNS
Small-leaved Cotoneaster	*Cotoneaster microphyllus*	WCA9, INNS
Indian Balsam	*Impatiens glandulifera*	WCA9, INNS
Knotted Hedge-parsley	*Torilis nodosa*	LI(SEWBReC), LI(VC47), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
Autumn Lady's-tresses	*Spiranthes spiralis*	RDB1 (UK) - NT, LI(SEWBReC)
Broad-leaved Everlasting-pea	*Lathyrus latifolius*	INNS
Montbretia	*Crocosmia*	WCA9, INNS
Wall Cotoneaster	*Cotoneaster horizontalis*	WCA9, INNS
Himalayan Honeysuckle	*Leycesteria formosa*	INNS
Three-cornered Garlic	*Allium triquetrum*	WCA9, INNS
Invasive Non-Native Species		
Wig Wrack/ Sea-loch Egg Wrack	*Ascophyllum nodosum*	INNS
Western Conifer Seed Bug	*Leptoglossus occidentalis*	INNS
Zebra Mussel	*Dreissena polymorpha*	INNS
Heath Star Moss	*Campylopus introflexus*	INNS
Japanese Knotweed	*Fallopia japonica*	WCA9, INNS
Butterfly-bush	*Buddleja davidii*	INNS

Common Name	Scientific Name	Legislation /Status
Greater Periwinkle	*Vinca major*	INNS
Bluebell	*Hyacinthoides non-scripta*	INNS
Cherry Laurel	*Prunus laurocerasus*	INNS
Himalayan Cotoneaster	*Cotoneaster simonsii*	WCA9, INNS
Small-leaved Cotoneaster	*Cotoneaster microphyllus*	WCA9, INNS
Indian Balsam	*Impatiens glandulifera*	WCA9, INNS
Broad-leaved Everlasting-pea	*Lathyrus latifolius*	INNS
Montbretia	*Crocosmia*	WCA9, INNS
Wall Cotoneaster	*Cotoneaster horizontalis*	WCA9, INNS
Himalayan Honeysuckle	*Leycesteria formosa*	INNS
Three-cornered Garlic	*Allium triquetrum*	WCA9, INNS
Terrestrial Invertebrates (Beetle)		
Harlequin Ladybird	*Harmonia axyridis*	INNS
Two-tone Reed beetle	*Donacia bicolora*	S7, RDB2 (UK) - S
Ground Beetle	*Ophonus ardosiacus*	RDB2 (UK) - NB
Oedemera femoralis	*Oedemera femoralis*	RDB2 (UK) - NB, RDB2 (UK) - S
Orthochaetes insignis	*Orthochaetes insignis*	RDB2 (UK) - NB
Hedobia imperialis	*Hedobia imperialis*	RDB2 (UK) - NB
Terrestrial Invertebrates (Butterfly)		
Brown Argus	*Aricia agestis*	
Dingy Skipper	*Erynnis tages*	S7, RDB1 (UK) - VU, LBAP (VOG), LI(SEWBReC)
Dark Green Fritillary	*Speyeria aglaja*	LI(SEWBReC)
Silver-Washed Fritillary	*Argynnis paphia*	LI(SEWBReC)
Marbled White	*Melanargia galathea*	LBAP (VOG)
Marsh Fritillary	*Euphydryas aurinia*	HDir, WCA5, S7, RDB1 (UK) - VU, LBAP (VOG), LI(SEWBReC)

Common Name	Scientific Name	Legislation /Status
Small Heath	*Coenonympha pamphilus*	S7, RDB1 (UK) - NT, LBAP (VOG)
Small Pearl-bordered Fritillary	*Boloria selene*	S7, RDB1 (UK) - NT, LBAP (VOG), LI(SEWBReC)
Small Blue	*Cupido minimus*	WCA5, S7, RDB1 (UK) - NT, LBAP (VOG), LI(SEWBReC)
Grayling	*Hipparchia semele*	S7, RDB1 (UK) - VU, LBAP (VOG), LI(SEWBReC)
Terrestrial Invertebrates (Dragonfly)		
Black-tailed Skimmer	*Orthetrum cancellatum*	LI(SEWBReC)
Beautiful Agrion	*Calopteryx virgo*	LI(SEWBReC)
Hairy Dragonfly	*Brachytron pratense*	LI(SEWBReC)
Common Emerald Damselfly	*Lestes sponsa*	LI(SEWBReC)
Ruddy Darter	*Sympetrum sanguineum*	LI(SEWBReC)
Banded Agrion	*Calopteryx splendens*	LI(SEWBReC)
Black Darter	*Sympetrum danae*	LI(SEWBReC)
Terrestrial Invertebrates (Hymenoptera)		
Red-tailed Bumblebee	*Bombus lapidarius*	
Common Carder Bee	*Bombus pascuorum*	
Buff-tailed Bumblebee	*Bombus terrestris*	
White-tailed Bumblebee	*Bombus lucorum*	
Early Bumblebee	*Bombus pratorum*	
Garden Bumblebee	*Bombus hortorum*	
Red-tailed (hill) Cuckoo Bee	*Bombus rupestris*	RDB2 (UK) - NB
Painted Nomad Bee	*Nomada fucata*	RDB2 (UK) - NA
Brown-banded Carder-bee	*Bombus humilis*	S7, LBAP (VOG)
Moss Carder-bee	*Bombus muscorum*	S7, LBAP (VOG)
Terrestrial Invertebrates (Moth)		
Greenweed Flat-body	*Agonopterix atomella*	S7

Common Name	Scientific Name	Legislation /Status
Latticed Heath	*Chiasmia clathrata*	S7, LBAP (VOG)
Large Wainscot	*Rhizedra lutosa*	S7
Shaded Broad-bar	*Scotopteryx chenopodiata*	S7, LBAP (VOG)
Grey Dagger	*Acronicta psi*	S7, LBAP (VOG)
Centre-barred Swallow	*Atethmia centrago*	S7, LBAP (VOG)
Dusky Thorn	*Ennomos fuscantaria*	S7, LBAP (VOG)
Blood-vein	*Timandra comae*	S7, LBAP (VOG)
Lackey	*Malacosoma neustria*	S7, LBAP (VOG)
Dot Moth	*Melanchra persicariae*	S7, LBAP (VOG)
Knot Grass	*Acronicta rumicis*	S7, LBAP (VOG)
Narrow-bordered Bee Hawk-moth	*Hemaris tityus*	S7
Dark-barred Twin-spot Carpet	*Xanthorhoe ferrugata*	S7, LBAP (VOG)
Rustic	*Hoplodrina blanda*	S7, LBAP (VOG)
Green-brindled Crescent	*Allophyes oxyacanthae*	S7, LBAP (VOG)
Small Square-spot	*Diarsia rubi*	S7, LBAP (VOG)
Sallow	*Cirrhia icteritia*	S7, LBAP (VOG)
White Ermine	*Spilosoma lubricipeda*	S7, LBAP (VOG)
Pretty Chalk Carpet	*Melanthia procellata*	S7, LBAP (VOG)
Buff Ermine	*Spilosoma lutea*	S7, LBAP (VOG)
August Thorn	*Ennomos quercinaria*	S7, LBAP (VOG)
Small Phoenix	*Ecliptopera silaceata*	S7, LBAP (VOG)
Greenweed Groundling	*Mirificarma lentiginosella*	RDB2 (UK) - NB
Bulrush Veneer	*Calamotropha paludella*	RDB2 (UK) - NB
Coronet	*Craniophora ligustri*	
Round-winged Muslin	*Thumatha senex*	
Six-belted Clearwing	*Bembecia ichneumoniformis*	
Coastal Pearl	*Mecyna asinalis*	RDB2 (UK) - NB

Common Name	Scientific Name	Legislation /Status
Fern	*Horisme tersata*	
Barred Sallow	*Tiliacea aurago*	
Terrestrial Invertebrates (Orthoptera)		
Long-winged Cone-head	*Conocephalus fuscus*	LI(SEWBReC)
Short-winged Cone-head	*Conocephalus dorsalis*	LI(SEWBReC)
Speckled Bush-cricket	*Leptophyes punctatissima*	LI(SEWBReC)
Fish		
Common carp	*Cyprinus carpio*	INNS
Amphibians		
Common Toad	*Bufo bufo*	WCA5, S7, LBAP (VOG)
Common frog	*Rana temporaria*	HDir, WCA5
Great crested newt	*Triturus cristatus*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Palmate newt	*Lissotriton helveticus*	WCA5
Reptiles		
Slow-worm	*Anguis fragilis*	WCA5, S7, LBAP (VOG)
Red-eared Terrapin	*Trachemys scripta*	INNS
Birds		
Spotted Flycatcher	*Muscicapa striata*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Eurasian Skylark	*Alauda arvensis*	S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Lesser Black-backed Gull	*Larus fuscus*	WBAm(RSPB), UKBAm(RSPB)
Long-tailed Tit	*Aegithalos caudatus*	WBAm(RSPB)
Dunnock	*Prunella modularis*	S7, LBAP (VOG), UKBAm(RSPB)
Canada Goose	*Branta canadensis*	WCA9, INNS
Mallard	*Anas platyrhynchos*	WBAm(RSPB), UKBAm(RSPB)
Tufted Duck	*Aythya fuligula*	LBAP (VOG), WBAm(RSPB)
Mistle Thrush	*Turdus viscivorus*	WBAm(RSPB), UKBR(RSPB)
Goldcrest	*Regulus regulus*	WBAm(RSPB)

Common Name	Scientific Name	Legislation /Status
Song Thrush	*Turdus philomelos*	S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Linnet	*Linaria cannabina*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Greenfinch	*Chloris chloris*	WBAm(RSPB)
Whitethroat	*Curruca communis*	WBR(RSPB)
Cormorant	*Phalacrocorax carbo*	WBAm(RSPB)
Redwing	*Turdus iliacus*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Swallow	*Hirundo rustica*	LBAP (VOG), WBAm(RSPB)
European Herring Gull	*Larus argentatus*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Eurasian Coot	*Fulica atra*	LBAP (BRG), WBAm(RSPB)
Gadwall	*Mareca strepera*	UKBAm(RSPB)
Eurasian Bullfinch	*Pyrrhula pyrrhula*	S7, WBR(RSPB), LBAP (VOG), UKBAm(RSPB)
Common Reed Bunting	*Emberiza schoeniclus*	S7, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Grey Heron	*Ardea cinerea*	WBAm(RSPB)
European Green Woodpecker	*Picus viridis*	WBAm(RSPB)
Pochard	*Aythya ferina*	WBR(RSPB), UKBR(RSPB)
Black-headed Gull	*Chroicocephalus ridibundus*	S7, WBR(RSPB), LBAP (VOG), UKBAm(RSPB)
Kingfisher	*Alcedo atthis*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Teal	*Anas crecca*	WBAm(RSPB), UKBAm(RSPB)
Starling	*Sturnus vulgaris*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Lesser Whitethroat	*Curruca curruca*	
Willow Warbler	*Phylloscopus trochilus*	WBR(RSPB), UKBAm(RSPB)
Swift	*Apus*	LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Sand Martin	*Riparia riparia*	LBAP (VOG), WBAm(RSPB)
Snipe	*Gallinago gallinago*	WBAm(RSPB), UKBAm(RSPB)
House Sparrow	*Passer domesticus*	S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)

Common Name	Scientific Name	Legislation /Status
Red Kite	*Milvus milvus*	BDir1, WCA1.1, WCA9, WBAm(RSPB)
Kestrel	*Falco tinnunculus*	S7, WBR(RSPB), LBAP (VOG), UKBAm(RSPB)
Common House Martin	*Delichon urbicum*	LBAP (VOG), UKBAm(RSPB)
Marsh Tit	*Poecile palustris*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Grey Wagtail	*Motacilla cinerea*	WBAm(RSPB), UKBR(RSPB)
Brambling	*Fringilla montifringilla*	WCA1.1, WBAm(RSPB)
Fieldfare	*Turdus pilaris*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Peregrine	*Falco peregrinus*	BDir1, WCA1.1, LBAP (VOG)
Wigeon	*Mareca penelope*	WBAm(RSPB), UKBAm(RSPB)
Meadow Pipit	*Anthus pratensis*	WBAm(RSPB), UKBAm(RSPB)
Shoveler	*Spatula clypeata*	WBAm(RSPB), UKBAm(RSPB)
Night-heron	*Nycticorax nycticorax*	BDir1, WCA9, INNS
Tree Pipit	*Anthus trivialis*	S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Whinchat	*Saxicola rubetra*	WBR(RSPB), UKBR(RSPB)
Cetti's Warbler	*Cettia cetti*	WCA1.1, LBAP (VOG)
Wheatear	*Oenanthe oenanthe*	WBAm(RSPB)
Redstart	*Phoenicurus phoenicurus*	WBAm(RSPB), UKBAm(RSPB)
Common Gull	*Larus canus*	WBR(RSPB), UKBAm(RSPB)
Yellow-legged Gull	*Larus michahellis*	UKBAm(RSPB)
Cuckoo	*Cuculus canorus*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Scaup	*Aythya marila*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Goshawk	*Accipiter gentilis*	WCA1.1, WCA9, LBAP (VOG)
Ring Ouzel	*Turdus torquatus*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
European Pied Flycatcher	*Ficedula hypoleuca*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Pintail	*Anas acuta*	WCA1.2, WBAm(RSPB), UKBAm(RSPB)
Hobby	*Falco subbuteo*	WCA1.1, LBAP (VOG)
Bearded Reedling	*Panurus biarmicus*	WCA1.1, WBAm(RSPB)

Common Name	Scientific Name	Legislation /Status
Lesser Redpoll	*Acanthis cabaret*	S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Common Loon	*Gavia immer*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Hawfinch	*Coccothraustes coccothraustes*	S7, , LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Common Sandpiper	*Actitis hypoleucos*	WBR(RSPB), UKBAm(RSPB)
Ruddy Duck	*Oxyura jamaicensis*	WCA9, INNS
Grasshopper Warbler	*Locustella naevia*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Merlin	*Falco columbarius*	BDir1, WCA1.1, WBR(RSPB), (UKBR(RSPB)
Black-tailed Godwit	*Limosa limosa*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Mediterranean Gull	*Ichthyaetus melanocephalus*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Goldeneye	*Bucephala clangula*	WCA1.2, UKBAm(RSPB)
Western Marsh Harrier	*Circus aeruginosus*	BDir1, WCA1.1, WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)
Lapwing	*Vanellus vanellus*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Western Yellow Wagtail	*Motacilla flava*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Western Barn Owl	*Tyto alba*	WCA1.1, WCA9, LBAP (VOG)
Woodlark	*Lullula arborea*	BDir1, WCA1.1, S7
Black-throated Loon	*Gavia arctica*	BDir1, WBAm(RSPB), UKBAm(RSPB)
Whooper Swan	*Cygnus cygnus*	BDir1, WCA1.1, UKBAm(RSPB)
Eurasian Bittern	*Botaurus stellaris*	BDir1, WCA1.1, S7, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Shelduck	*Tadorna tadorna*	LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Iceland Gull	*Larus glaucoides*	UKBAm(RSPB)
Common Firecrest	*Regulus ignicapilla*	WCA1.1, WBAm(RSPB)
Bar-headed Goose	*Anser indicus*	WCA9, INNS
Oystercatcher	*Haematopus ostralegus*	WBAm(RSPB), UKBAm(RSPB)
Curlew	*Numenius arquata*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Little Gull	*Hydrocoloeus minutus*	BDir1, WCA1.1, WBAm(RSPB)

Common Name	Scientific Name	Legislation /Status
Common Tern	*Sterna hirundo*	BDir1, WBAm(RSPB), UKBAm(RSPB)
Jack Snipe	*Lymnocryptes minimus*	WBAm(RSPB)
Redshank	*Tringa totanus*	WBAm(RSPB), UKBAm(RSPB)
Turtle Dove	*Streptopelia turtur*	S7, WBR(RSPB), UKBR(RSPB)
Pink-footed Goose	*Anser brachyrhynchus*	UKBAm(RSPB)
Great Black-backed Gull	*Larus marinus*	WBR(RSPB), UKBAm(RSPB)
Barnacle Goose	*Branta leucopsis*	BDir1, WCA9, UKBAm(RSPB), INNS
Black-tailed Godwit	*Limosa limosa*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Black Swan	*Cygnus atratus*	WCA9, INNS
Red Crossbill	*Loxia curvirostra*	WCA1.1
Eurasian Whimbrel	*Numenius phaeopus*	WCA1.1, WBAm(RSPB), UKBR(RSPB)
Hen Harrier	*Circus cyaneus*	BDir1, WCA1.1, S7, WBR(RSPB), LBAP (VOG)
Woodcock	*Scolopax rusticola*	BDir21, WBR(RSPB), UKBR(RSPB)
Glaucous Gull	*Larus hyperboreus*	UKBAm(RSPB)
Wood Warbler	*Phylloscopus sibilatrix*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Black-necked Grebe	*Podiceps nigricollis*	WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Green Sandpiper	*Tringa ochropus*	WCA1.1, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Garganey	*Spatula querquedula*	WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Shag	*Phalacrocorax aristotelis*	WBAm(RSPB), UKBR(RSPB)
Egyptian Goose	*Alopochen aegyptiaca*	WCA9, INNS
Yellow Wagtail	*Motacilla flava flavissima*	S7, WBR(RSPB), UKBAm(RSPB)
Crane	*Grus grus*	BDir1, WCA9, UKBAm(RSPB)
Long-tailed Duck	*Clangula hyemalis*	WCA1.1, RDB1 (UK) - VU, WBR(RSPB), UKBR(RSPB)
Caspian Gull	*Larus cachinnans*	UKBAm(RSPB)
Spoonbill	*Platalea leucorodia*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Dipper	*Cinclus cinclus*	WBAm(RSPB), UKBAm(RSPB)

Common Name	Scientific Name	Legislation /Status
Common Ringed Plover	*Charadrius hiaticula*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Turnstone	*Arenaria interpres*	WBAm(RSPB), UKBAm(RSPB)
Black Redstart	*Phoenicurus ochruros*	WCA1.1, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Fulmar	*Fulmarus glacialis*	LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Manx Shearwater	*Puffinus puffinus*	WBAm(RSPB), UKBAm(RSPB)
Gannet	*Morus bassanus*	WBAm(RSPB), UKBAm(RSPB)
European Storm Petrel	*Hydrobates pelagicus*	BDir1, WBAm(RSPB), UKBAm(RSPB)
Sandwich Tern	*Thalasseus sandvicensis*	BDir1, WBAm(RSPB), UKBAm(RSPB)
Common Scoter	*Melanitta nigra*	WCA1.1, S7, LBAP (VOG), WBAm(RSPB), UKBR(RSPB)
Arctic Tern	*Sterna paradisaea*	BDir1, WBR(RSPB), UKBAm(RSPB)
Dunlin	*Calidris alpina*	WBR(RSPB), UKBAm(RSPB)
Wryneck	*Jynx torquilla*	WCA1.1
Short-eared Owl	*Asio flammeus*	BDir1, WBR(RSPB), UKBAm(RSPB)
Golden Plover	*Pluvialis apricaria*	BDir1, S7, WBR(RSPB), LBAP (VOG),
Ruff	*Calidris pugnax*	BDir1, WCA1.1, WBAm(RSPB), UKBR(RSPB)
Greenshank	*Tringa nebularia*	WCA1.1, UKBAm(RSPB)
Yellowhammer	*Emberiza citrinella*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Grey Plover	*Pluvialis squatarola*	WBR(RSPB), UKBAm(RSPB)
Willow Tit	*Poecile montanus*	S7, WBR(RSPB), LBAP (VOG), UKBR(RSPB)
Light-bellied Brent Goose	*Branta bernicla hrota*	UKBAm(RSPB)
Red-throated Loon	*Gavia stellata*	BDir1, WCA1.1, WBAm(RSPB)
Leach's Storm Petrel	*Oceanodroma leucorhoa*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Common Murre	*Uria aalge*	WBAm(RSPB), UKBAm(RSPB)
Corn Bunting	*Emberiza calandra*	S7, WBR(RSPB), UKBR(RSPB)
Spotted Redshank	*Tringa erythropus*	WBAm(RSPB), UKBAm(RSPB)
Common Rosefinch	*Carpodacus erythrinus*	WCA1.1
Sanderling	*Calidris alba*	WBAm(RSPB), UKBAm(RSPB)

Common Name	Scientific Name	Legislation /Status
Bar-tailed Godwit	*Limosa lapponica*	BDir1, S7, WBR(RSPB), LBAP (VOG), UKBAm(RSPB)
Roseate Tern	*Sterna dougallii*	BDir1, WCA1.1, S7, WBR(RSPB), UKBR(RSPB)
Parasitic Jaeger	*Stercorarius parasiticus*	WBAm(RSPB), UKBR(RSPB)
Indet. Diver	*Gavia*	WCA1.1
Knot	*Calidris canutus*	WBR(RSPB), UKBAm(RSPB)
Purple Sandpiper	*Calidris maritima*	WCA1.1, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Red-breasted Merganser	*Mergus serrator*	WBAm(RSPB)
Water Pipit	*Anthus spinoletta*	UKBAm(RSPB)
Nightjar	*Caprimulgus europaeus*	BDir1, S7, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
Razorbill	*Alca torda*	WBAm(RSPB), UKBAm(RSPB)
Dark-bellied Brent Goose	*Branta bernicla*	S7, WBAm(RSPB)
Black Tern	*Chlidonias niger*	BDir1, WCA1.1
Little Tern	*Sternula albifrons*	BDir1, WCA1.1, WBR(RSPB), UKBAm(RSPB)
Pomarine Jaeger	*Stercorarius pomarinus*	WBAm(RSPB)
Long-tailed Jaeger	*Stercorarius longicaudus*	WBAm(RSPB)
Western Osprey	*Pandion haliaetus*	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB)
Herring Gull	*Larus argentatus argenteus*	S7, UKBAm(RSPB)
Mammals		
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Whiskered Bat	*Myotis mystacinus*	EPS, HDir, WCA5, RDB2 (UK)
Common Noctule	*Nyctalus noctula*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Lesser Noctule	*Nyctalus leisleri*	EPS, HDir, WCA5, RDB2 (UK)
Common Pipistrelle	*Pipistrellus pipistrellus*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Nathusius's Pipistrelle	*Pipistrellus nathusii*	EPS, HDir, WCA5, RDB2 (UK)

Common Name	Scientific Name	Legislation /Status
Soprano Pipistrelle	*Pipistrellus pygmaeus*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Serotine	*Eptesicus serotinus*	EPS, HDir, WCA5, RDB2 (UK)
Hazel Dormouse	*Muscardinus avellanarius*	EPS, HDir, WCA5, S7, RDB2 (UK), LBAP (VOG)
Water Vole	*Arvicola amphibius*	WCA5, S7, LBAP (VoG)
Eastern Grey Squirrel	*Sciurus carolinensis*	WCA9, INNS
European Hedgehog	*Erinaceus europaeus*	S7, LBAP (VOG)
American Mink	*Neovison vison*	WCA9, INNS
Stoat	*Mustela erminea*	NRW

Species List Abbreviations		
BA = Protection of Badgers Act	WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)	WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species
BDir1 = EC Birds Directive Annex 1 Species	UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)	WCA5 = Wildlife and Countryside Act Schedule 5 Species
EPS = European Protected Species	S7 = Environment Act (Wales) Section 7 Species	WCA8 = Wildlife and Countryside Act Schedule 8 Species
HDir = EU Habitats Directive Species	INNS = Invasive Non-Native Species	WCA9 = Wildlife and Countryside Act Schedule 9 Species
NRW = Natural Resources Wales Priority Species	LBAP (VOG) = Local Biodiversity Action Plan Species (Vale of Glamorgan)	LI (SEWBReC) = Locally Important Species (as identified by local specialists) in SEWBReC area

Appendix C

Valuation Criteria

Importance	Feature type	Attributes
International	Sites	European sites; Ramsar sites; Biogenic Reserves; and World Heritage Sites. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.
	Habitats	N/A
	Species	A species population sufficiently large or critical that its loss would adversely affect the conservation status or distribution at an international or European scale.
National	Sites	Sites of Special Scientific Interest (SSSIs); National Nature Reserves (NNRs) and National Parks. Areas which meet the published selection criteria but have not themselves been designated as such.
	Habitats	Habitats of Principal Importance as listed under Section 7 of the Environment (Wales) Act 2016. Areas of irreplaceable habitats including ancient woodland and ancient or veteran trees.
	Species	A species population sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a national scale.
Regional	Sites	Wildlife sites designated at a regional level.
	Habitats	Areas of habitats identified (including for restoration) in regional plans or strategies.
	Species	A species population or community sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a regional scale. Species identified in regional plans or strategies.
County	Sites	Wildlife sites designated at a county (or equivalent) level including: County Wildlife Sites (CWSs); Local Wildlife Sites (LWS); Local Nature Conservation Sites (LNCS); Local Nature Reserves (LNRs); Sites of Importance for Nature Conservation (SINCs); and Sites of Nature Conservation Importance (SNCIs).
	Habitats	Areas of habitats identified in county or equivalent authority plans or strategies (where applicable).
	Species	A species population or community sufficiently large or critical that its loss would adversely affect the conservation status or distribution at a county or unitary authority scale.

Importance	Feature type	Attributes
		Species identified in a county or equivalent authority area plans or strategies.
Local	Sites	Wildlife sites listed at a local or parish level.
	Habitats	Areas of habitat considered to appreciably enrich the habitat resource in the local context including features of importance for migration, dispersal, or genetic exchange.
	Species	Species populations or communities considered to appreciably enrich the habitat resource in the local context including features of importance for migration, dispersal or genetic exchange.
Site	Sites	N/A
	Habitats	Areas of habitat considered to appreciably enrich the site, but not sufficiently large in extent or favourable condition to warrant inclusion at the Local level.
	Species	Species populations or communities considered to appreciably enrich the site, but not sufficiently large or critical to warrant inclusion at the Local level.
Not important	Sites	N/A
	Habitats	Habitats making a negligible contribution to biodiversity, even at the Site level.
	Species	Small or common / widespread species populations or communities making a negligible contribution to biodiversity, even at the Site level.

Appendix D

Habitat Condition Assessment

Based on Statutory Biodiversity Metric – Technical Annex 1 – Condition Assessment Sheets (July 2024)

Broad Parkland / Scattered Trees

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The tree is a native species (or at least 70% within the block are native species).	Y	
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	N	
C	The tree is mature (or more than 50% within the block are mature)[1].	N	
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Y	
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	
	Number of criteria passed	3	
Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**	
Passes 5 or 6 criteria	Good (3)		

Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)	X	
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.			

Broadleaved Semi-Natural Woodland

Condition Assessment Criteria						
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**	**Notes (such as justification)**
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	2	
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in less than 40% of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3	
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, and other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] ≥10% cover.	3	
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found	Two or less native tree or shrub species[4] across woodland parcel.	2	

			across woodland parcel.			
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3	
F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	1	
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2	
H	**Tree health**	Tree mortality 10% or less, no pests or diseases and no crown dieback[9].	11% to 25% tree mortality and or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	2	

I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	1	
J	**Woodland vertical structure**	Three or more storeys across all survey plots, or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	2	
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1	
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1	
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area, and or less than 20% of woodland area has damaged ground[14].	1 hectare or more of nutrient enrichment, and or 20% or more of woodland area has damaged ground[14].	3	
				Total Score (out of a possible 39)	26	

Habitat Condition Assessment

Condition Assessment Result	Condition Assessment Score	Result Achieved
Total score >32 (33 to 39)	Good (3)	26 - moderate
Total score 26 to 32	Moderate (2)	
Total score <26 (13 to 25)	Poor (1)	
Suggested enhancement interventions to improve condition score		

Amenity Grassland and Poor Semi-Improved Grassland

Condition Assessment Criteria		Amenity Grassland	Semi-improved grassland	
		Criterion passed (Yes or No)		**Notes (such as justification)**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	Y	Y	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N	Y	
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	Y	

D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	N	Y	
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Y	Y	
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y	Y	
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Y	Y	
Essential criterion achieved (Yes or No)		Y	Y	
Number of criteria passed		5	7	

Condition Assessment Result (out of 7 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		X
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	X	
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)		

Suggested enhancement interventions to improve condition score

Tall Ruderal

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
Core Criteria - must be assessed for **all urban habitat types**:			
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	N	
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	N	
C	Invasive non-native plant species (listed on Schedule 9 of WCA[1]) and others which are to the detriment of native wildlife (using professional judgement)[2] cover less than 5% of the total vegetated area[3]. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**	Y	
		Essential criteria relevant for habitat type achieved (Yes or No)	Y
		Number of criteria passed	1
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**	
Results for habitats requiring assessment of **3 core criteria** only **(all listed urban habitats except Open mosaic habitat on previously developed land, Bioswale, SuDS and Green roofs)**:			
Passes all 3 core criteria; AND Meets the requirements for Good condition within criterion C.	Good (3)		
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the	Moderate (2)		

requirements for Good condition within criterion C.			
• Passes 0 or 1 of 3 core criteria.	Poor (1)	X	
Suggested enhancement interventions to improve condition score			

Scrub

Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover).	N	
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.	N	
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition[6] make up less than 5% of ground cover.	Y	
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Y	
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	N	
		Number of criteria passed	2

Habitat Condition Assessment

Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)	X	
Suggested enhancement interventions to improve condition score			

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