Grandison Brook
Ecological Impact Assessment

Atkins
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TACP

Grandison Brook
Ecological Impact Assessment

Atkins

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CONTENTS

1 INTRODUCTION

1.1 Background

1.1.1 TACP were commissioned by Atkins to undertake an Ecological Impact Assessment (EcIA) for the Grandison Brook scheme as part of the Neath Port Talbot County Council flood alleviation programme.

1.1.2 This report provides an ecological overview for the Proposed Scheme, a description of potential ecological receptors, and provides an ecological impact assessment. Recommendations for mitigation and enhancement in relation to the potential impacts identified based on the available information are also presented. Proposed areas for retention and enhancement to benefit ecology and nature conservation have also been identified.

2 PROPOSED SCHEME

2.1 Site Description

2.1.1 The site is predominantly linear and located at Britton Ferry, Neath, starting at SS 75230 95048 (What3Words ///gossip.cars.famed) and culminating at SS 74104 95618 (///empire.bucked.lion).

2.1.2 The site comprises a culvert route through an urbanised and residential area that includes a cemetery and recreational facilities or amenities such as a bowling green, rugby and cricket club, an amateur football pitch, and allotments. An open channel area adjacent to the railway and a linear public-right-of-way knows as The Incline is located to the north eastern extent of the site. There is a park and a woodland (Britton Ferry woods) to the south east of the site, beyond the proposed scope of works though functionally lined to The Incline (also known as Rhodfa Clarke). (see Figure 1.0 for site boundaries).

2.1.3 Further to the North West, adjacent to Llys-y-Nant road, is an additional culvert outlet that has been highlighted for improvement works. This measures approximately 100m through a residential area and culminates at a railway line and is separated from the main area of proposed works by approximately 350m. Works to the open channel adjacent to the railway, accessed from Pant yr Heol (A474)will involve reinstating the channel in area of dense and widespread Japanese Knotweed.

2.2 Proposed Works

2.2.1 The Pantyrheol area of Briton Ferry has been subject to periodic flooding resulting from under-capacity of the Grandison Brook culvert that forces flows to the surface, which in turn flow downhill and collects on the A474 before entering adjacent residential and commercial properties.

2.2.2 Neath Port Talbot County Borough Council (NPTCBC) propose to upgrade the flood alleviation system by enhancing existing access points and introducing new culverts. The proposals for the new culvert are still being developed. However, the purpose is to improve the hydraulic capacity of the existing watercourse, in turn managing the risk of flooding. The main works is proposed to comprise of:

- Interception of surface water flows from The Incline footpath, into a new culvert system through undertaking minor earthworks to the top of low spots to the existing bank located along the northern side of the footpath.
- Placing a precast concrete inlet head wall at the western end of The Incline and a installing a new ditch (to pick up overland flows) and constructing a new 600mm diameter culvert from the new headwall along Ynysymaerdy Road.
- Improvements to the existing inlet structure of Ynysymaerdy Brook on Ynysymaerdy Road (including a galvanised steel trash screen).

- Construction of a new 900mm diameter surface water culvert from the Ynysmaerdy Brook Inlet Structure along Ynysmaerdy Road (and continuing through playing fields).
- Construction of a new 900mm diameter surface water culvert crossing across Old Road near the junction of Tyla Road and through the grounds of Ysgol Carreg Hir School.
- Construction of the new surface water culvert 1250 x 750mm across the A474 Pant yr Heol road and the lane through to Brook Court.
- Construction of new surface water culvert 1750 x 1000mm to the south of Brook Court to an existing culvert under the main rail line.
- Construction of a new culvert under the main rail line and a new ditch on Network Rail land at Penrhiwtin.
- Construction of new surface water culvert 1750x1000mm on Network Rail land between existing culverts under the main rail lines.

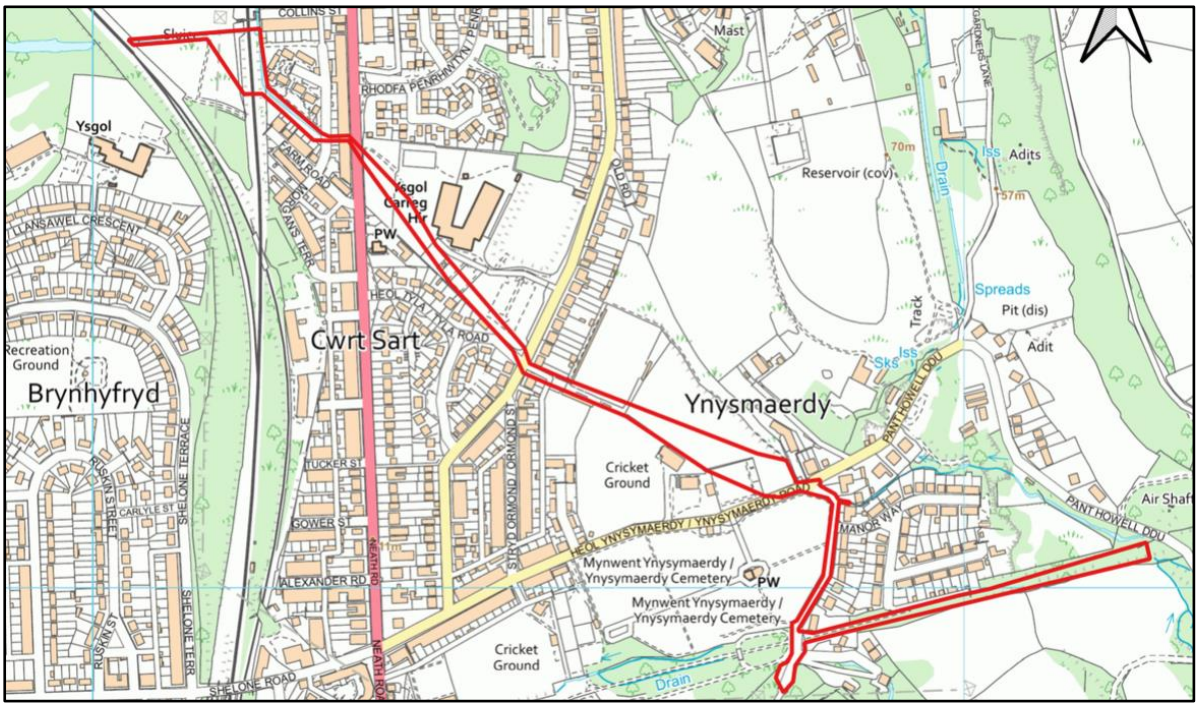

Figure 1.0 – The Site plan as delineated by the redline boundary with site extents from The Inlcine in the South East to the Railway area at the North Eastern extent.

2.3 Construction

2.3.1 A compound will be located at the car park at Briton Ferry woods off Ynysmaerdy Road and also a satellited compound on Network Rail land at Penrhiwtin.

2.3.2 No haul roads have been identified and it is expected that construction routes will follow closely to the planned culvert routes.

2.3.3 Works are planned for 2023/24.

2.3.4 Culverts will be laid into open trenches and then reinstated – this is also anticipated near the railway crossing.

3 METHOD

3.1 Limitations

3.1.1 Limitations to the survey included a lack of access to grounds and areas adjacent / surrounding the Ysgol Carreg Hir Primary school, and the cemetery / church precluding detailed survey of those areas.

3.1.2 Floristic species were identified as much as possible in light of management practices and seasonal constraints.

3.1.3 No species-specific surveys have been undertaken at the site and as such the value of the site in terms of protected species is based on the available desk study records and professional judgement.

3.1.4 The detailed proposals for the site have yet to be developed and agreed which limited the ability to identify and quantify detailed ecological impacts. Impacts and potential mitigation and enhancement measures have been identified based on the available information on a precautionary basis.

3.2 Baseline

3.2.1 Desk Study

3.2.2 A record search was undertaken in July 2022 using the South East Wales Biological Records Centre (SEWBReC) database. Covering 1km beyond the Site, it provides an indication of the protected species that are present in the wider area.

3.2.3 A review of available designated sites information was also undertaken within 2km of the site for internationally and nationally designed sites and within 1km for locally designated sites.

3.2.4 Field Surveys

3.2.5 Phase 1 Habitat Survey

3.2.6 An Phase 1 habitat survey was undertaken by TACP during July 2022, This followed a precious phase 1 survey undertaken by TACP in 2019 (and presented in 60940_REP_Grandison Brook_PEA_P1_S3). The aim was to provide a baseline to assess the value of the habitats and their potential to support protected species.

3.2.7 The survey was conducted following appropriate Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines and the methods outlined in the Joint Nature Conservation Committee (JNCC)'s '*Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*' (JNCC, 2010).

3.3 Site Assessment

3.3.1 The CIEEM Guidelines for Ecological Impact Assessment (EcoIA) in the U.K and Ireland (2019) have been used to undertake the impact assessment as detailed below. These guidelines provide the basis for more thorough surveys and assessments, which are used to provide detailed mitigation requirements and ecological enhancement measures.

3.3.2 The degree to which a feature can be replaced/substituted has also been taken into consideration. Guidance suggests that the loss of a feature of national value that is irreplaceable may be considered more significant than the loss of a feature that can be replaced or substituted.

3.3.3 The overall ecological value of the area has been considered in the context of the pattern of habitat and interdependencies between habitats, as well as the relative legislative value of any protected species, habitats, or sites.

3.3.4 Value

3.3.5 The value of the ecological features has been given, as far as possible, in terms of geographical context in accordance with CIEEM EcoIA guidance (2019):

- **International/European –** e.g., Natura 2000 sites, significant populations of European Protected Species (EPS), sites hosting significant populations under the Bonn Convention, non-designated international features such as large populations that are rare on an International/European scale.
- **National (UK) –** e.g., Sites of Special Scientific Interest, Geological Conservation Review sites, significant populations of U.K protected species significant populations of Section 7 species (Environment (Wales) Act 2016).
- **National (Wales)** –e.g., Nationally important designations which can be reasonably substituted such as National Parks, medium populations of European or U.K protected species, significant populations of U.K or Wales 'Red List' of Birds of Conservation.
- **Regional –** e.g., Regionally important designation which can be reasonably substituted such as Local Nature Reserves, important inventory site such as Ancient Woodland, small population of European or U.K protected species, medium population of Section 7 species, medium populations of U.K Birds of Conservation Concern, small populations of U.K or Wales 'Red List' of Birds of Conservation Concern or Wales Red Data List Species
- **County –** e.g., County Wildlife Sites or other county-wide designations, sites with Local Biodiversity Action Plan (LBAP) species, non-breeding individuals of European or U.K protected species, small populations of U.K Birds of Conservation Concern.
- **River Basin District**
- **Estuarine System/Coastal Cell**

- **Local –** features of value within the site area, district, borough, or parish only

- **Zone of Influence –** this can include any of the above features and is determined by the extent/potential extent of impacts identified and can vary from feature to feature, particularly for mobile species.

3.3.6 The 2019 guidelines also identify the need to assess potential impacts on ecosystem services resulting from a project's ecological effects. Ecosystem services can be divided into four types, as detailed below:

- **Supporting services –** services necessary for the production of all other ecosystem services, including soil formation, photosynthesis, primary production, nutrient cycling, and water cycling.

- **Provisioning services –** products obtained from ecosystems, including food, fibre, fuel, genetic resources, biochemical, natural medicines, pharmaceuticals, and fresh water.

- **Regulating services –** benefits obtained from the regulation of ecosystem processes, including air quality regulation, climate regulation, water regulation, erosion regulation, water purification, disease regulation, pest regulation, pollination, and natural hazard regulation.

- **Cultural services –** non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences thereby taking account of landscape values.

3.3.7 Magnitude

3.3.8 The assessment includes direct, indirect, short-term, medium-term, and long-term, secondary, and cumulative impacts. Both positive and negative impacts on the ecological baseline of the site are assessed.

3.3.9 Magnitude of impact is assessed by the scale of loss or damage predicted to semi-natural vegetation, wildlife habitats and protected species. Significance is assigned by looking at the magnitude of change to habitats and species of local and regional importance and assigning higher significance to greater loss of regionally important habitats.

3.3.10 The following criteria for determining the magnitude of impact are used and are based upon, or adapted from, those given in the Guidance:

- **Major negative –** The proposal may adversely affect the integrity of the site, in terms of the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the population levels of species of interest. This includes large-scale damage or loss of a large proportion of a particular semi-natural habitat type or protected species habitats that are of regional/national importance or listed as key habitats in the UK Biodiversity Action Plan Steering Group Report Loss of Protected Species.

- **Moderate negative –** The site's integrity will not be adversely affected but the effect on the site is likely to be significant in terms of its ecological objectives. If, in the light of full information, it cannot be clearly demonstrated that the proposal will not have an adverse effect on integrity, then the impact should be assessed as major negative. This would apply in the case of damage or loss of a small proportion of a particular semi-natural habitat type or protected species habitat that are of local importance or listed as key habitats in the UK Biodiversity Action Plan Steering Group Report.

- **Slight negative –** Neither of the above apply, but some minor negative impact is evident. (In the case of Natura 2000 sites a further assessment may be necessary if detailed plans are not yet available). This would apply in the case of damage or loss of common semi-natural vegetation, wildlife habitats or important wildlife but not protected species. Habitats are not locally or regionally important.

- **Neutral –** No observable impact in either direction. This would apply in the case of damage or minor losses of common types of habitats or common wildlife. Habitats are not locally or regionally important.

- **Slight Positive –** Impacts which provide a slight net gain for biodiversity overall. This would apply in the case of an increase in the population of a species or area of habitat which is not locally or nationally important.

- **Moderate Positive –** Impact which provide a net gain for biodiversity overall (but which will not positively affect the integrity of the site). This would include a small increase in the proportion of a semi-natural habitat or habitat of a protected species that are locally important or listed as key habitats within the UK Biodiversity Action Plan Steering Group Report.

- **Major Positive –** Impact which provides a net gain for biodiversity overall in terms of increases in habitat diversity (and which may positively affect the integrity of the site). This would apply in the case of a large-scale increase in a protected species or habitat of a protected species that are locally important or listed as key habitats within the UK Biodiversity Action Plan Steering Group Report.

3.3.11 Significance

3.3.12 The overall significance of each impact is determined from the ecological value of the feature and the magnitude of the potential impact, as shown in Table 1. Check

Table 1 - Overall significance of impact assessment

Magnitude of Potential Impact	Nature Conservation Value of Ecological Feature				
	Very High	High	Medium	Low	Negligible
Major Negative	Very large adverse	Very large adverse	Moderate adverse	Slight adverse	Neutral
Moderate Negative	Large adverse	Large adverse	Moderate adverse	Slight adverse	Neutral
Slight Negative	Slight adverse	Slight adverse	Slight adverse	Slight adverse	Neutral
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Slight Positive	Slight positive	Slight positive	Slight positive	Slight positive	Neutral
Moderate Positive	Large positive	Large positive	Moderate positive	Slight positive	Neutral
Major Positive	Very large positive	Very large positive	Moderate positive	Slight positive	Neutral

4 BASELINE

4.1 Desk Study

4.1.1 Designated Sites

4.1.2 There is one **designated** site within 2km of the site;

- Earlswood Road Cutting and Ferryboat Inn Quarries Site of Special Scientific Interest (SSSI). This is located approximately 1.5km south-west of the site and designated for geological features and ancient river systems.

4.1.3 There are four **locally designated** sites located within 1km of the site

- Eaglebush Valley local nature reserve, located approximately 1km north-east of the site
- The River Neath is a Sites of Importance for Nature Conservation (SINC) located 1km west of the site
- There is an ancient semi-natural woodland to the south (18274)
- There is also a restored ancient woodland (11351) located within the vicinity of jersey park to the south and adjacent to the above.

4.1.4 There are five SINCs within 1km (distance from centre of site in brackets);

- Neath Canal (984m)
- Giant's Grave (899m)
- Shelone Woods (926m)
- Garth Mor (370m)
- The Waun, Cimla (713m)

4.1.5 Species Record

Records were returned for notable and protected species within 1km of the site. These are summarised below by genus.

4.1.1 Notable **floral** species recorded within 1km of the Site are listed in Table 2.

Table 2 - Records of notable plant species within 1km of the Site and their protection (SEWBReC, 2022)

Binomial Name	Common Name	Status
Hyacinthoides non-scripta	Bluebell	Priority Species
Inula crithmoides	Golden-samphire	Species of Conservation Concern
Lepidium latifolium	Dittander	Species of Conservation Concern

4.1.2 **Invasive non-native species** (INNS) recorded within 1km of the site are listed on Table 3 below. Species that are listed on Schedule 9 of the WCA 1981 (as amended) makes it illegal to plant or otherwise cause these species to grow / spread in the wild.

Table 3 - Records of INNS species within 1km of the Site and their protection (SEWBReC, 2022)

Binomial Name	Common Name
Rhododendron ponticum	Rhododendron
Crocosmia sp	Montbretia
Fallopia japonica	Japanese Knotweed
Cotoneaster horizontalis	Wall Cotoneaster
Cotoneaster simonsii	Himalayan Cotoneaster
Pseudosasa japonica	Arrow Bamboo
Epilobium brunnescens	New Zealand Willowherb
Impatiens glandulifera	Himalayan Balsam

4.1.3 Records of **bat** species within 1km of the Site are listed in 4. All UK bat species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are protected by European legislation being listed under Annex IV of the Habitats Directive (Council Directive 92/43/EEC), which is transposed into UK law by the and the Conservation (Natural Habitats &c.) Regulations 2017(as amended).

Table 4 - Bat species with records with 1km of the Site and their protections (SEWBReC, 2022)

Binomial Name	Common Name	Status
Myotis daubentonii	Daubenton's Bat	Priority Species
Myotis mystacinus	Whiskered Bat	Priority Species
Myotis nattereri	Natterer's Bat	Priority Species
Nyctalus noctula	Noctule	Priority Species
Pipistrellus pipistrellus	Common Pipistrelle	Priority Species
Pipistrellus pygmaeus	Soprano pipistrelle	Priority Species
Plecotus auritus	Brown Long-Eared Bat	Priority Species

4.1.1 There are records of **Eurasian Badger** (*Meles meles*) within 1km of the Site. This species is afforded full U.K. protection under the Protection of Badgers Act 1922, which protects both the individual animals and their setts. However, habitats used for any other purpose are not afforded any form of protection under this or other legislation. This species is also listed on Schedule 6 of the WCA 1981 (as amended), which outlaws certain methods of taking and killing when this is necessary.

4.1.1 There are records of European Hedgehog (*Erinaceus europaeus*) within 1km of the site. This species is listed as a living organism of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales on Section 7 of the Environment (Wales) Act 2016. They are also afforded protection under the Berne Convention.

4.1.2 There are records of European Otter (*Lutra lutra*), within 1km of the proposed works. Otters are listed on Annex IV of the Habitats Directive 1992 which is transposed into U.K law by the Conservation (Natural Habitats &c) Regulations 1994 or "Habitats Regulations" and consolidated within The Conservation of Habitats and Species Regulations 2017. Otters are also listed on Section 7 of the Environment (Wales) Act 2016. Otters are also protected through Schedules 5 and 6 of the WCA 1981 (as amended), and the Bern Convention on the Conservation of European Wildlife and Natural Habitats.

4.1.3 *There are records of* ***Water Vole*** *(Arvicola* amphibious) within 1km of the proposed works, which are protected under Schedule 5 of the WCA 1981 (as amended) and listed on Section 7 of the Environment (Wales) Act 2016.

4.1.4 No records for other protected mammals such as **Polecat** (*Mustela putorius*) were found within 1km of the site, although it should be noted that this does not rule out the potential presence for these species.

4.1.5 All bird species, including their eggs and nests, are protected from harm during the breeding season under the WCA 1981 (as amended) to varying degrees. Further protection is afforded to those listed on Schedule 1 of this Act making it an offence to disturb these birds intentionally or recklessly at, on or near an 'active' nest. Certain species are also afforded further protection under Annex I of the EC Birds Directive and under Section 7 of the Environment (Wales) Act 2016. All UK birds are categorized under the Birds of Conservation Concern (BoCC) listings as Red, Amber or Green for their conservation status. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green.

Table 2 - Bird species with records within 1km of the Site and their protections (SEWBReC, 2022)

Binomial Name	Common Name	Status
Acanthis cabaret	Lesser Redpoll	Priority Species
Accipiter gentilis	Goshawk	Priority Species
Actitis hypoleucos	Common Sandpiper	Species of Conservation Concern
Aegithalos caudatus	Long-tailed Tit	Species of Conservation Concern
Aix galericulata	Mandarin Duck	Other Species
Alauda arvensis	Eurasian Skylark	Priority Species
Alcedo atthis	Kingfisher	Priority Species
Alopochen aegyptiaca	Egyptian Goose	Other Species
Anas crecca	Teal	Species of Conservation Concern
Anas platyrhynchos	Mallard	Species of Conservation Concern
Anser brachyrhynchus	Pink-footed Goose	Locally Important Species
Anthus pratensis	Meadow Pipit	Species of Conservation Concern
Anthus spinoletta	Water Pipit	Locally Important Species
Anthus trivialis	Tree Pipit	Priority Species
Apus apus	Swift	Species of Conservation Concern
Ardea cinerea	Grey Heron	Species of Conservation Concern
Aythya ferina	Pochard	Species of Conservation Concern
Branta canadensis	Canada Goose	Other Species
Bucephala clangula	Goldeneye	Priority Species
Calidris alpina	Dunlin	Species of Conservation Concern

Binomial Name	Common Name	Status
Cettia cetti	Cetti's Warbler	Priority Species
Charadrius hiaticula	Common Ringed Plover	Priority Species
Chloris chloris	Greenfinch	Species of Conservation Concern
Chroicocephalus ridibundus	Black-headed Gull	Priority Species
Cinclus cinclus	Dipper	Species of Conservation Concern
Curruca communis	Whitethroat	Species of Conservation Concern
Curruca undata	Dartford Warbler	Priority Species
Emberiza schoeniclus	Common Reed Bunting	Priority Species
Falco columbarius	Merlin	Priority Species
Falco peregrinus	Peregrine	Priority Species
Falco tinnunculus	Kestrel	Priority Species
Ficedula hypoleuca	European Pied Flycatcher	Priority Species
Fringilla montifringilla	Brambling	Priority Species
Fulica atra	Eurasian Coot	Species of Conservation Concern
Gallinago gallinago	Snipe	Species of Conservation Concern
Haematopus ostralegus	Oystercatcher	Species of Conservation Concern
Hirundo rustica	Swallow	Species of Conservation Concern
Ichthyaetus melanocephalus	Mediterranean Gull	Priority Species
Larus argentatus	European Herring Gull	Priority Species
Larus canus	Common Gull	Species of Conservation Concern
Larus fuscus	Lesser Black-backed Gull	Species of Conservation Concern
Larus marinus	Great Black-backed Gull	Species of Conservation Concern
Larus michahellis	Yellow-legged Gull	Locally Important Species
Linaria cannabina	Linnet	Priority Species
Mareca penelope	Wigeon	Species of Conservation Concern
Milvus milvus	Red Kite	Priority Species
Morus bassanus	Gannet	Species of Conservation Concern
Motacilla cinerea	Grey Wagtail	Species of Conservation Concern
Muscicapa striata	Spotted Flycatcher	Priority Species
Numenius arquata	Curlew	Priority Species
Numenius phaeopus	Eurasian Whimbrel	Priority Species
Oceanodroma leucorhoa	Leach's Storm Petrel	Priority Species
Oenanthe oenanthe	Wheatear	Species of Conservation Concern
Pandion haliaetus	Western Osprey	Priority Species
Passer domesticus	House Sparrow	Priority Species
Phalacrocorax carbo	Cormorant	Species of Conservation Concern
Phoenicurus ochruros	Black Redstart	Priority Species
Phoenicurus phoenicurus	Redstart	Species of Conservation Concern
Phylloscopus sibilatrix	Wood Warbler	Priority Species
Phylloscopus trochilus	Willow Warbler	Species of Conservation Concern

Binomial Name	Common Name	Status
Picus viridis	European Green Woodpecker	Species of Conservation Concern
Platalea leucorodia	Spoonbill	Priority Species
Poecile palustris	Marsh Tit	Priority Species
Prunella modularis	Dunnock	Priority Species
Puffinus puffinus	Manx Shearwater	Species of Conservation Concern
Pyrrhula pyrrhula	Eurasian Bullfinch	Priority Species
Regulus regulus	Goldcrest	Species of Conservation Concern
Riparia riparia	Sand Martin	Species of Conservation Concern
Scolopax rusticola	Woodcock	Species of Conservation Concern
Streptopelia turtur	Turtle Dove	Priority Species
Sturnus vulgaris	Starling	Priority Species
Tadorna tadorna	Shelduck	Species of Conservation Concern
Tringa ochropus	Green Sandpiper	Priority Species
Tringa totanus	Redshank	Species of Conservation Concern
Turdus iliacus	Redwing	Priority Species
Turdus philomelos	Song Thrush	Priority Species
Turdus pilaris	Fieldfare	Priority Species
Turdus torquatus	Ring Ouzel	Priority Species
Turdus viscivorus	Mistle Thrush	Species of Conservation Concern
Tyto alba	Western Barn Owl	Priority Species
Vanellus vanellus	Lapwing	Priority Species

4.1.1 **Reptile** records for within 1km of the site are included below in Table 6. All reptiles are protected against killing, injuring, and sale under UK legislation through their inclusion in Appendix III of the Bern Convention (1979), Schedule 5 of the WCA 1981 (as amended) and Section 7 of the Environment (Wales) Act 2016. **Amphibian** species are afforded protection of various levels under Schedule 5 of the WCA 1981 (as amended) and common Toad (*Bufo bufo*) are also listed as a living organism of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales on Section 7 of the Environment (Wales) Act 2016. They are also included within the Bern Convention 1979. records for within 1km of the site are included below in Table 6

Table 3 - Reptile species with records within 1km of the Site and their protections (SEWBReC, 2021)

Binomial Name	Common Name	Status
Anguis fragilis	Slow worm	Priority Species
Lissotriton vulgaris	Smooth Newt	Priority Species
Rana temporaria	Common Frog	Priority Species

4.1.1 For notable **invertebrate** species within 1km of the Site, see Table 77.

Table 7 - Invertebrate species with records within 1km of the Site and their protections (SEWBReC, 2022)

Binomial Name	Common Name	
Acronicta rumicis	Knot Grass	Priority Species
Amphipoea oculea	Ear Moth	Priority Species
Anania funebris	White-spotted Sable	Priority Species
Apamea remissa	Dusky Brocade	Priority Species
Aporophyla lutulenta	Deep-brown Dart	Priority Species
Arctia caja	Garden Tiger	Priority Species
Atethmia centrago	Centre-barred Sallow	Priority Species
Boloria euphrosyne	Pearl-bordered Fritillary	Priority Species
Boloria selene	Small Pearl-bordered Fritillary	Priority Species
Brachylomia viminalis	Minor Shoulder-knot	Priority Species
Caradrina morpheus	Mottled Rustic	Priority Species
Ceramica pisi	Broom Moth	Priority Species
Chesias legatella	Streak	Priority Species
Cirrhia icteritia	Sallow	Priority Species
Cupido minimus	Small Blue	Priority Species
Diarsia rubi	Small Square-spot	Priority Species
Ecliptopera silaceata	Small Phoenix	Priority Species
Erynnis tages	Dingy Skipper	Priority Species
Eucera longicornis	Long-horned Bee	Priority Species
Eugnorisma glareosa	Autumnal Rustic	Priority Species
Euphydryas aurinia	Marsh Fritillary	Priority Species
Euxoa nigricans	Garden Dart	Priority Species
Helotropha leucostigma	Crescent	Priority Species
Hepialus humuli	Ghost Moth	Priority Species
Hipparchia semele	Grayling	Priority Species
Hoplodrina blanda	Rustic	Priority Species
Hydraecia micacea	Rosy Rustic	Priority Species
Jodia croceago	Orange Upperwing	Priority Species
Litoligia literosa	Rosy Minor	Priority Species
Malacosoma neustria	Lackey	Priority Species
Melanchra persicariae	Dot Moth	Priority Species
Melanthia procellata	Pretty Chalk Carpet	Priority Species
Orthonama vittata	Oblique Carpet	Priority Species
Orthosia gracilis	Powdered Quaker	Priority Species
Perizoma albulata albulata	Grass Rivulet	Priority Species
Scotopteryx chenopodiata	Shaded Broad-bar	Priority Species
Spilosoma lubricipeda	White Ermine	Priority Species
Spilosoma lutea	Buff Ermine	Priority Species
Stilbia anomala	Anomalous	Priority Species
Tholera cespitis	Hedge Rustic	Priority Species
Tyria jacobaeae	Cinnabar	Priority Species
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	Priority Species

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Acronicta rumicis	Knot Grass	Priority Species
Amphipoea oculea	Ear Moth	Priority Species
Anania funebris	White-spotted Sable	Priority Species
Apamea remissa	Dusky Brocade	Priority Species
Aporophyla lutulenta	Deep-brown Dart	Priority Species
Arctia caja	Garden Tiger	Priority Species
Atethmia centrago	Centre-barred Sallow	Priority Species
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Ceramica pisi	Broom Moth	Priority Species
Chesias legatella	Streak	Priority Species
Cirrhia icteritia	Sallow	Priority Species
Cupido minimus	Small Blue	Priority Species
Diarsia rubi	Small Square-spot	Priority Species
Ecliptopera silaceata	Small Phoenix	Priority Species
Erynnis tages	Dingy Skipper	Priority Species
Eucera longicornis	Long-horned Bee	Priority Species
Eugnorisma glareosa	Autumnal Rustic	Priority Species
Euphydryas aurinia	Marsh Fritillary	Priority Species
Euxoa nigricans	Garden Dart	Priority Species
Helotropha leucostigma	Crescent	Priority Species
Hepialus humuli	Ghost Moth	Priority Species
Hipparchia semele	Grayling	Priority Species
Hoplodrina blanda	Rustic	Priority Species
Hydraecia micacea	Rosy Rustic	Priority Species
Jodia croceago	Orange Upperwing	Priority Species
Litoligia literosa	Rosy Minor	Priority Species
Malacosoma neustria	Lackey	Priority Species
Melanchra persicariae	Dot Moth	Priority Species
Melanthia procellata	Pretty Chalk Carpet	Priority Species
Orthonama vittata	Oblique Carpet	Priority Species
Orthosia gracilis	Powdered Quaker	Priority Species
Perizoma albulata albulata	Grass Rivulet	Priority Species
Scotopteryx chenopodiata	Shaded Broad-bar	Priority Species
Spilosoma lubricipeda	White Ermine	Priority Species
Spilosoma lutea	Buff Ermine	Priority Species
Stilbia anomala	Anomalous	Priority Species
Tholera cespitis	Hedge Rustic	Priority Species
Tyria jacobaeae	Cinnabar	Priority Species
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	Priority Species

4.1.2 No Fish species were identified from a record search or from the Environment Agency's ecology and Fish data explorer for the site. However, it must be noted that the site is hydraulically (and therefore functionally) linked to the River Neath.

4.2 Field Surveys

4.2.1 Phase 1 Survey

4.2.2 The Site comprises of a variety of habitat types (see Phase 1 Habitat Plan and Site photos in the Appendix), as follows (with the phase 1 habitat code in parenthesis):

- Parkland and scattered trees (A3)
- Mixed semi – natural woodland (A1.3.1)
- Cultivated/disturbed land –amenity grassland (J1.2)
- Buildings (J3.6)
- Scrub (A2.2)
- Bare Ground and Hard Standing (J.4)
- Hedge with Tree (J2.3)
- Fence (J2.4)
- Wall (J2.5)

4.2.3 The south eastern extent of the site is situated amongst urbanised and residential land with amenity features such as **parkland** and a semi-natural and restored ancient **woodland** (Jersey Park) beyond the site extent. The adjacent car park comprises of **hard standing**. There is evidence of management within this car park with Ash (Fraxinus excelsior) trees having been felled.

4.2.4 The Ynysmaerdy cemetery and associated church buildings. The boundary **wall** of which has a very small (approx. 30-45cm) strip of managed amenity grass adjacent to the road.

4.2.5 The Incline is situated to the east of the car park but functionally linked for public use. Recreational use seems to be the primary function. This comprises of a track / **bare ground** with an open channel on the south eastern extent of the track. An 'avenue' of **trees** line the track reaching the site extent (See appendix for species list). Residential areas back onto this. A number of trees are close to the open channel but are not currently anticipated to require felling.

4.2.6 A culvert (numbered CUL_0015) is located on Ynysmaerdy Rd. with a small grouping of Alders (Alnus glutinosa) adjacent that present some signs of management (pruning). The next culvert (numbered CUL_0014) is located approximately 30m north of this and has a similar small scrub profile adjacent. Residential areas to the north west pass an unmanaged public footpath leading to the boundary fence of the bowling green. An area of **scrub** with scattered trees comprising of Ash, Alder, and Holly (*Ilex aquifolium*) and patches of bramble scrub (Rubus fruticosus agg.) are contained by metal boundary fencing.

4.2.7 The rugby and cricket club comprises a planted birch avenue (Betula sp.) **hard standing**, **buildings**, and **amenity grassland**. The latter has both a cricket pitch and a rugby pitch that is divided by a fence and a small (60m2) grassy scrub with infrequent willowherb (Epilobium sp.) that has evidence of management. Four Elm (Ulmus procera), two of which are mature are located in the north western extend of the grounds.

4.2.8 Allotments of approximately 0.09ha are located beyond the sports grounds (separated by fencing and a narrow residential lane) with isolated alder and a variety of temporary structures within.

4.2.9 Culvert CUL_0019 is located beyond the main proposed site at a distance of approx. 350m and is open and located in an urbanised setting with isolated examples of alder where it meets the road. Beyond this is an area of amenity grassland that is dominated by **Japanese knotweed**, leading to the railway. Beyond this the open channel of the culvert is surrounded by dense and extensive Japanese knotweed.

4.2.10 It is likely that access will be from the level crossing at Pant yr Heol (A474). While this is beyond the site boundary it was noted that considerable Japanese knotweed lines the railway that would be parallel to the access to the open channel and area of works.

4.2.11 No protected floral species were recorded during survey..

4.2.12 Japanese Knotweed was recorded in the vicinity of CUL_0019 leading to the railway line and is extensive in the open channel beyond this.

4.2.13 Preliminary Protected Species Assessment

4.2.14 Elm trees located within the rugby and cricket grounds had potential roost features for **bats**. The scrub lined fencing offers potential commuting routes with the wider area offering opportunities for foraging. Additionally, Jersey Park has potential for roosting and commuting / foraging for bats. The Incline has potential for roosting and commuting / forgoing bats, is adjacent to wider forgoing habitat beyond the scheme and is unlit.

4.2.15 Few suitable opportunities for **European Otter** (*Lutra lutra*) were identified, commuting aspects present at the north western aspects of the site adjacent to the railway. However, no holts or opportunities for such were apparent during the survey within Site boundaries.

4.2.16 There were no signs of **Eurasian Badgers** (Meles meles) during the survey. However, there were opportunities for foraging and commuting and potential residency in areas adjacent to the Site that were not accessible, it is, therefore, possible that badger utilise the Site, particularly given the opportunities afforded by the anthropogenic influences

throughout the site and the wider areas to the south (woodland and adjacent to The Incline)

4.2.17 Habitats adjacent to the Site provide potential **bird** nesting habitat, attractive to a variety of species but mainly of common or noise / light tolerant species due to anthropogenic influence. Areas of hardstanding also providing bathing and preening opportunities. The areas of scrub throughout the site and the large trees within the rugby and cricket ground have the potential to support birds during the breeding season (Late February to early September inclusive, weather dependent). The Incline provides opportunities for birds, again likely tolerant species due to the proximity of residential dwellings and the frequency of use recreationally – particularly by dog walkers.

4.2.18 The majority of the site is considered to have some degree of suitability to support for **reptiles** or **amphibians**. However, there few examples of basking or forgoing grounds and little in the way of potential or suitable hibernacula . The areas of scrub within the rugby and cricket ground and the allotments have detritus and scrub that could support foraging and resting transient species. However, this is a frequently disturbed and managed area with poor connectivity to more suitable habitat. There are opportunities afforded by the wider habitats adjacent to in close proximity to the site boundaries, most notably at The incline. This area itself does have some opportunities for these species but suitability is likely reduced by the frequent recreational use – particularly by dog walkers.

4.2.19 The site is considered to be able to offer opportunities for **European hedgehog** (*Erinaceus europaeus*), with potential to foraging / resting sites with the residential areas. However, some aspects such as the amenity area and anthropogenic pressures may preclude movement.

4.2.20 The site has an open water channels of culvert suitable for **water vole** (Arvicola amphibius) However, there is little connectivity to wider areas in addition to being in a highly urbanised setting with few opportunities for foraging or areas to reside/rest due to the nature of the culvert. While the variety of foodstuffs consumed by water vole is appreciated, few examples were found in areas with potential.

4.2.21 While records for smaller **mustelid** species were not returned for the site there is some potential for presence in the wider habitat. However, actual onsite habitat is unlikely to offer any significant opportunities to these species.

4.2.22 There are some opportunities for **invertebrates** on site, mostly due to the wider habitat. However, there are limited opportunities for Dingy Skipper on site. Despite being occasionally found in urbanised areas, there is little areas that would support their main foodstuff such as Common Bird's-foot Trefoil (*Lotus corniculatus*), Horseshoe Vetch (*Hippocrepis comosa*)or Greater Bird's-foot Trefoil (*L. pedunculatus*. However, there is little opportunity for richness with only small, isolated patches of amenity grassland and dominance of species poor scrub.

4.2.23 Opportunities for **fish** species are limited to low suitability for Eel due to the hydraulic linkage to the River Neath (off Site). The substrate of the culverts within the site are unlikely to provide opportunities for fish reds and therefore migratory species movements are the most probable (However, this conclusion is caveated by the lack of fish surveys).

4.2.24 Incidental Observations

4.2.25 No notable species were observed on site during the survey. However, considerable stands of Japanese knotweed were recorded on the wester extent near the railway.

5 SITE ASSESSMENT

5.1 Value

5.1.1 Habitats

5.1.2 The urbanised and residential land has some opportunities for common or tolerant species of bird and invertebrate. There may also be isolated occurrences of other species despite the limited potential. However, these are occasional examples of diversity only and the area's primary value is for anthropogenic not biodiversity purposes. When considered with the limited species diversity, is deemed to have **negligible** importance for ecology and nature conservation.

5.1.3 Amenity features such as the sports grounds are heavily managed and present little species diversity beyond low numbers of common species and present limited opportunities. These are therefore considered to have **negligible** importance for ecology and nature conservation.

5.1.4 Despite frequent recreational use and proximity to residential areas, The Incline presents opportunities for protected species as it comprises woody species and connectivity to wider suitable habitats. It is therefore, considered to have **local** importance for ecology and nature conservation.

5.1.5 Bats

The trees on The Incline have features with bat roosting potential and this area of site presents a linear feature with limited lighting / light spill for commuting and foraging bats. The Elm trees located within the rugby and cricket grounds also had potential roost features for bats. Further, the scrub lined fencing offers potential commuting routes with the wider area offering opportunities for foraging. Jersey Park has potential for roosting and commuting and foraging for bats but is beyond the area proposed for the works. Therefore, there are areas with isolated pockets of favourable habitat despite the area of the site proposed for works predominantly being urbanised and less favourable to all but light tolerant bats species. While anthropogenic influence on the suitability of the are must be considered, The Incline and the area north west near the railway have potential for light tolerant bat species. Therefore, the site is considered to have at least **local** importance for bats.

5.1.6 Otter

5.1.7 European Otter has been identified as part of the desk study. However, the Phase 1 survey revealed no apparent opportunities or evidence thereof (no field signs such as, but not limited to, holts, lay ups, spraint, anal jelly, live or dead animals, feeding remains). There is little connectivity to wider areas and the majority of the site is situated within a highly urbanised setting with few opportunities for foraging or areas for otter to reside/rest. Therefore, it is considered that the Site is of **negligible** importance for otters.

5.1.8 Water vole

5.1.9 Water Vole was identified as part of the desk study. However, the Phase 1 survey revealed no apparent opportunities for burrows or evidence thereof (no field signs such as but not limited to 'gardens', droppings, characteristic feeding evidence, burrows, or runs). There is little connectivity to wider areas and the majority of the site is situated within a highly urbanised setting with few opportunities for foraging or areas for water vole to reside/rest. While it is acknowledged that water vole use a wide variety of foodstuffs, no notable aggregations of the preferred species were found during the survey . Therefore, it is considered that the Site is of **negligible** importance for otters.

5.1.10 Breeding and Non-Breeding Birds

5.1.11 The Site has a variety of potential breeding habitat for more common and widespread bird species as well as a variety of foraging opportunities. There are opportunities for the site to be used by small (likely) non-breeding populations and as such the Site is considered to have **local** importance for birds. Nevertheless, it should be noted that the Site is part of a wider mosaic, particularly with regards to areas surrounding The Incline and where potentially functionally linked to the River Neath.

5.1.12 Reptiles and Amphibians

5.1.13 Some areas of the site have suitability to provide opportunities for reptiles and amphibians, primarily localised to the railway in the east and less so The Incline in the west. However, the remainder of the site has extremely isolated and small opportunities only (such as within the confines of the allotments). The presence of wider suitable habitat beyond the site is acknowledged. However, there are few examples of basking or forgoing grounds and little in the way of potential or suitable hibernacula within the site and near areas currently proposed for works. As noted above, the areas of scrub within the rugby and cricket ground and the allotments present opportunities for foraging transient species. However, this is a frequently disturbed and managed area with poor connectivity to more suitable habitat. As such is considered to have at **negligible** importance for reptiles and amphibians with an acknowledgement that despite this presence must be assumed, particularly in The Incline and near the railway to the west.

5.1.14 Badgers

5.1.15 Badgers have been identified in the wider area from record searches but no evidence of this species was found during surveys (no fields signs such as, but not limited to, footprints, snuffles, latrines, guard hairs, setts etc). It is unlikely that setts would be constructed in the main part of the site but the Incline and the railway to the east present opportunities that could contribute to sustaining an offsite badger population. Consequently, the Site itself is considered to be of **negligible** importance for badgers.

5.1.16 European Hedgehog

5.1.17 The Site has the potential to support hedgehog but in limited and likely isolated aspects. As such the Site is considered to be of **negligible** importance for hedgehogs.

5.1.18 Invertebrates

5.1.19 There is little opportunity for sufficient floristic diversity and richness, with only small, isolated patches of amenity grassland and species poor scrub, sufficient to support aggregations of protected invertebrates. As such the site is considered to be of **negligible** importance to Invertebrates.

5.1.20 Fish

5.1.21 The opportunities for fish are presented by way of the open channel culverts. However, this is likely to be suitable only to migratory Eel and in limited areas. As such the Site is considered to have **Negligible** importance for fish.

5.1.22 Ecosystem Services

5.1.23 The Site and survey area provides a number of ecosystems services on a Site and local level, considered as follows:

- **Supporting services** – soil formation, photosynthesis, primary production, nutrient cycling, and water cycling.
- **Provisioning services** – not applicable for this Site.
- **Regulating services** – air quality regulation, climate regulation, water regulation, erosion regulation, water purification, and pollination.
- **Cultural services** – the site is open to formal public use and as such provides cognitive development, reflection, recreation, and aesthetic experiences.

5.2 Magnitude and Significance

5.2.1 Construction

5.2.2 Habitats

5.2.3 There are no designated sites within the site area and none of those identified by the desk study would be affected by the current construction proposals. Potential impacts on designatory species have been addressed in the species-specific assessments below.

5.2.4 The development proposals in their current form would not result in the permanent loss of the habitats within the site boundary.

5.2.5 The impact upon scrub, parkland scattered trees, and mixed semi natural woodland trees would have a magnitude of slight negative resulting in a **neutral** ecological significance of impact at the local level only.

5.2.6 Other, non-ruderal vegetation, amenity grassland, would have a magnitude of slight negative which would result in a **neutral** ecological significance of impact overall.

5.2.7 The remaining habitats within the survey area, predominantly The Incline, would be subject to direct and indirect disturbance during the construction works. The magnitude of this would be slight to moderate negative, depending on construction methodologies, resulting in a **slight adverse** ecological significance of impact. (Should the works result in an increased extent of INNS or the occurrence of these in areas they are not present currently, this significance of impact could increase.)

5.2.8 Bats

5.2.9 During construction there is potential of effect upon habitats on Site that would reduce the extent of available foraging habitats for bats resulting in a magnitude of slight negative.

5.2.10 No other direct impacts on bats are anticipated. However, there may be indirect impacts depending on the construction methodologies, particularly in terms of light and noise pollution.

5.2.11 Overall, the potential impact on bats would be slight negative in magnitude resulting in a **slight adverse** ecological significance of impact.

5.2.12 Otter

5.2.13 No actual or potential holts or resting Sites were identified on Site at the time of the surveys and as such impacts on such features are not anticipated.

5.2.14 Depending on the construction requirements, direct impacts on otters may occur should they utilise the Site during the works, particularly if there are excavations left open overnight as these could result in trapped or injured animals. There may also be indirect impacts depending on the construction methodologies, particularly in terms of light and noise pollution. However, given the location of the Site within a residential or railway area it is anticipated that this would be carefully managed. As such these construction impacts would be of a slight negative magnitude.

5.2.15 Overall, the potential impact on otters would be slight negative in magnitude resulting in a **neutral** significance of impact. It should be noted that this would increase should active holts be found on site prior to or during the work.

5.2.16 Water Vole

5.2.17 No actual or potential resting or sites were identified on Site at the time of the surveys and as such impacts on such features are not anticipated.

5.2.18 Depending on the construction requirements, direct impacts on water vole may occur should they utilise the Site during the works, particularly if there are excavations left open overnight as these could result in trapped or injured animals. There may also be indirect impacts depending on the construction methodologies, particularly in terms of light and noise pollution. However, given the location of the Site within a residential or railway area it is anticipated that this would be carefully managed. As such these construction impacts would be of a slight negative magnitude.

5.2.19 Overall, the potential impact on water vole would be slight negative in magnitude resulting in a **neutral** significance of impact. It should be noted that this would increase should active holts be found on site prior to or during the work.

5.2.20 Breeding and Non-Breeding Birds

5.2.21 There is potential for the construction phase to reduce availability of habitats for both breeding and non-breeding birds resulting in a slight negative magnitude. Clearance of these areas, though likely to be minimal in duration, could also result in direct mortality, injury, or disturbance to birds, particularly if clearance is to be undertaken during the breeding season (late February to early September inclusive, weather dependent).

5.2.22 Indirect impacts are also dependant on the construction methodologies, particularly in terms of noise pollution and disturbance of adjacent retained habitats, and particularly during the breeding season when bird species are more sensitive to indirect impacts. As such these construction impacts would be of a **slight negative** magnitude.

5.2.23 Overall, the potential impact on birds would be slight negative in magnitude resulting in a **negligible** significance for non-breeding birds and **slight adverse** significance of impact for breeding birds.

5.2.24 Reptiles and Amphibians

5.2.25 Works could result in direct mortality, injury, or disturbance to both species groups resulting in a slight negative magnitude in terms of their populations.

5.2.26 Further direct impacts on reptiles and amphibians may occur should they utilise the Site during the works, particularly if works are undertaken during the active season and excavations are left open overnight, as these could result in trapped or injured animals. These impacts would be of a negligible to slight negative magnitude.

5.2.27 Indirect impacts are not anticipated in terms of either reptiles or amphibians.

5.2.28 Overall, the potential impacts on reptiles and amphibians would be slight negative in magnitude resulting in a **neutral** significance of impact.

5.2.29 Badger

5.2.30 No actual or potential active setts were identified on Site at the time of the surveys and as such sett impacts are not anticipated.

5.2.31 Depending on the construction requirements, direct impacts on badgers may occur should they utilise the Site during the works, particularly if there are excavations left open overnight as these could result in trapped or injured animals. There may also be indirect impacts depending on the construction methodologies, particularly in terms of light and noise pollution. However, given the location of the site within a residential area and railway area it is anticipated that this would be carefully managed. As such these construction impacts would be of a slight negative magnitude.

5.2.32 Overall, the potential impact on badgers is considered to be slight negative in magnitude resulting in a **neutral** significance of impact. It should be noted that this would increase should active setts be found on Site prior to or during the work.

5.2.33 European Hedgehog

5.2.34 Depending on the construction requirements, further direct impacts on hedgehogs may occur should they utilise the Site during the works, particularly if there are excavations left open overnight as these could result in trapped or injured animals. There may also be indirect impacts depending on the construction methodologies, particularly in terms of light and noise pollution. As such these construction impacts would be of a slight negative magnitude.

5.2.35 Overall, the potential impact on hedgehogs would be slight negative in magnitude resulting in a **neutral** significance of impact.

5.2.36 Invertebrates

5.2.37 Works could result in direct mortality and injury to and disturbance of invertebrate species. However, further direct impacts are not anticipated.

5.2.38 Indirect construction impacts would be limited to light pollution effects on nocturnal invertebrate species, this would be slight negative in magnitude.

5.2.39 Overall, the potential impact on invertebrate would be slight negative in magnitude and therefore, **neutral** in terms of significance.

5.2.40 Fish

5.2.41 In channel works could cause impacts to migratory species through noise or vibration and should be restricted to outside the Environment Agency embargo period of October 15th to May 15th (i.e., works permitted between May 15th and October 15th subject to further survey). Therefore, it is considered that the impact would be **negligible** in terms of magnitude.

5.2.42 Indirect construction impacts would be limited to light pollution effects if night works occurred which are currently unanticipated or noise. This would be **negligible** in magnitude as no work requiring artificial lighting are currently considered.

5.2.43 Overall, the potential impact on fish would be **negligible** in magnitude and therefore **neutral** in terms of significance.

5.2.44 Ecosystem Services

5.2.45 The construction impacts identified above would not result in negative changes to the ecosystem services provided by the Site and have a **slight positive** particularly in terms of supporting services (soil formation, photosynthesis, primary production, nutrient cycling, and water cycling) and regulating services (air quality regulation, climate regulation, water regulation, erosion regulation, water purification, and pollination). Cultural services (cognitive development, reflection, recreation, and aesthetic experiences) may also be affected during the construction period, primarily by more indirect effects, such as noise and dust creation, altering the experience of those utilising the Site. The magnitude of these impacts would be negligible in the working area and therefore restricted in spread and of negligible magnitude and **neutral** significance in the wider Site context.

5.2.46 Operation

5.2.47 Habitats

5.2.48 The operation phase is not anticipated to have any additional impacts on any of the habitats identified as there would be no significant change in the type or level of Site use.

5.2.49 Bats

5.2.50 The operation phase is not anticipated to have any additional impacts on any of the habitats identified as there would be no significant change in the type or level of Site use by bats. As such, the magnitude would be an overall neutral and significance of the impact, **neutral**.

5.2.51 European Otter

5.2.52 The operation phase would result in changes in the hydrology within the Site. The Site is located within an residential and railway area where anthropogenic influences are already present. As such the impact of this increase would be limited primarily to the Site itself and would be **Neutral** in terms of magnitude.

5.2.53 No other operational impacts such as increased shading are anticipated due to the otter use of the Site being limited, therefore, the significance of operational impacts on otter would be **neutral**.

5.2.54 Breeding and Non-Breeding Birds

5.2.55 No operational impacts are anticipated and therefore the significance of operational impacts on breeding and non-breeding birds would be **neutral**.

5.2.56 Reptiles and Amphibians

5.2.57 No operational impacts are anticipated and therefore the significance of operational impacts on these species would be **neutral**.

5.2.58 Badger

5.2.59 No operational impacts are anticipated and therefore the significance of operational impacts on badgers would be **neutral**.

5.2.60 European Hedgehog

5.2.61 No operational impacts are anticipated and therefore the significance of operational impacts on hedgehogs would be **neutral**.

5.2.62 Invertebrates

5.2.63 The operation phase is not anticipated to have any additional impacts on invertebrate populations as no change in the type or level of Site use is anticipated. The significance of operational impacts on Invertebrates would be **neutral**.

5.2.64 Fish

5.2.65 No operational impacts are anticipated and therefore the significance of operational impacts on fish would be **neutral**.

5.2.66 Ecosystem Services

5.2.67 The operational phase is anticipated to have a continued impact in terms of both supporting and provisioning services resulting from the overall impacts of flood alleviation. The magnitude of this impact would be slight positive at the Site level only and is therefore of a negligible magnitude and **neutral** significance.

5.2.68 No operation impacts are anticipated in relation to the cultural services and there is potential, depending on the design proposals for some benefits to these services. These are likely to be slight positive at the Site level only and of **neutral** significance.

6 MITIGATION

6.1 Construction

6.1.1 General Construction Measures

6.1.2 Potential indirect construction impacts on protected species would largely be mitigated through the implementation of the following measures and governed by the development of specific method statements (with prominence of appropriate best practice for protected species on Site), the production and implementation of a suitable pollution and sediment management plan, and associated toolbox talks to guide Site operations

6.1.3 While clearance works is currently proposed to be kept to a minimum, best practice would include, but not be limited to:

1. A precautionary method of works adopted with clearance following a two-staged approach following full ecological checks with a first cut of vegetation to 150mm (300mm for woody species). Subsequent levels of clearance would follow detailed ecological checks. Arisings would be removed from Site or used to develop habitat piles in agreed retained areas.

2. Clearance would be undertaken during seasonally appropriate times that accord with the ecological receptors present on Site. Such as; works being undertaken during the active reptile season (April to End of September dependent on weather and temperature) despite the conflict with the nesting bird season as the latter can be mitigated for by ecological checks.

3. Removal of trees is not anticipated but will adhere to BCT guidance for potential bat roosts.

4. All works will be subject to a pre work check by a suitably experienced ecologist for protected species including for nesting birds, otter, water vole, badger, reptile and amphibian, bat, and any other potential or highlighted species (as encapsulated in the site specific Method Statement and tool box talks).

5. Works near trees will not impact root protection zones.

6. Use of directional and low-level lighting to reduce additional light spill into retained and adjacent habitats.

7. Careful consideration of working methodologies to minimise noise and vibration impacts, particularly during more sensitive period such as breeding, hibernation, and migration seasons.

8. Works during the time of the migratory fish embargo (15th October – 15th May) in close proximity to the water bodies will be restricted unless agreed with the county ecologist.

9. Closure or covering of any excavations overnight to prevent trapping or injuring animals. Where this is not possible, excavations should be fenced off and a means of escape provided.

10. Restrictions to night-time working particularly within proximity to trees.

11. Careful placement of Site compounds, storage, lay down areas etc. to ensure connectivity for protected species is maintained where possible and use of noise barrier fencing to reduce noise impacts within retained habitats.

12. Use of secure and clearly identified barrier fencing to prevent accidental encroachment into retained/adjacent areas.

13. Clear identification of access routes into and through the construction Site, maximising the use of existing access roads and other hard standing areas already present.

14. Implementation of appropriate material and waste management plans including contingency and emergency measures and avoidance of re-fuelling and parking of vehicles close to watercourses wherever possible.

15. Use of dust suppression measures as and when appropriate and provision of spill kits close to high risk areas for rapid deployment in the event of a pollution event.

16. Involvement of an Ecological/Environmental Clerk of Works during clearance and construction works to identify and address other risks as and when they arise.

6.1.4 Designated Sites

6.1.5 No direct impacts have been identified on the designated sites and therefore mitigation measures would not be required.

6.1.6 Habitats

6.1.7 The identified habitat losses have been assessed to be of slight adverse significance at the Site and local level and therefore, mitigation would be required. This would be implemented through best practice and replacement of any removed trees at a ratio of 2:1 when lost to the scheme.

6.1.8 Where the identified habitat impacts have been assessed to be of neutral significance, mitigation would not be required (species specific mitigation requirements are detailed for each species below, as appropriate).

6.1.9 The direct and indirect impacts identified in relation to the retained habitats would be mitigated through avoidance measures and the application of best practice demolition and construction methodologies.

6.1.10 The Proposed Scheme includes flood compensation areas, which would provide ecological benefits. Consideration would also be given to creating additional damp and wet areas, in appropriate areas on Site. Natural recolonisation would be permitted within these areas or encouraged through reduced seeding rates.

6.1.11 INNS

6.1.12 An Invasive Non-Native Species Management Plan would be produced to cover the clearance works, construction and post construction periods. This management plan would include appropriate methodologies for vegetation clearance, soil excavation and disposal, and ongoing management during and post construction. The methodologies to be applied would depend on the work required and the level of disturbance associated with these.

6.1.13 There are notable stands of INNS within the site, most notably surrounding the railway and along the railway line itself. A deliberate and specific method statement is recommended to be undertaken by contractors qualified to do so in accordance with Welsh government advice. Wider site works should adhere to specific biosecurity measures to reduce the potential for spread of these species. This would include (but not be limited to); the use of specialist contractors, wheel wash / brush down areas, area specific working, and methods to control the spread via the watercourses. It is recommended that the county ecologist is consulted prior to works with regards to these species.

6.1.14 Bats

6.1.15 As no bat roosts have been identified on Site, a European Protected Species licence would currently not be required. However, appropriate measures would still be implemented, including (but be not limited to) the following:

1. A pre works assessment if are trees to be removed. This would follow the principles of the GLTA to ensure as much as possible that roost features have been identified prior to works.
2. Appropriate timing of feature removal (i.e., trees) to minimise impacts on bats.
3. Careful checking and removal of potential roost features using appropriate methodologies and under a suitable ecological watching brief.

6.1.16 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed above in section 6.1.

6.1.17 Otter

6.1.18 The potential impact resulting from the loss of potential otter foraging habitats would be mitigated through the measures proposed above in section 6.1.

6.1.19 The clearance approach detailed in relation to breeding and non-breeding birds, reptiles and amphibians would ensure that otters are not present and reduce the risk of harm to individual animals.

6.1.20 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed above in section 6.1.

6.1.21 Breeding and Non-Breeding Birds

6.1.22 The potential impact resulting from the loss of potential breeding and non-breeding bird habitats, although at present anticipated to be minimal, would be mitigated through the measures proposed in section 6.1.

6.1.23 Ideally, vegetation clearance would take place outside the bird nesting season (late February to early September inclusive, weather dependent). However, clearance works need to consider the sensitivity of other species and the overall construction programme, therefore a staged approach is to be taken in relation to the higher risk habitats. This approach would follow the procedure recommended for reptile clearance incorporating a nesting bird check (including ground nesting birds). Here, the first cut of vegetation would be to no less than 150mm following ecological checks and under a full ecological watching brief, with all arisings removed. The second cut of these areas would take place again under a full ecological watching brief.

6.1.24 Should breeding birds be present, a minimum no-works buffer of 10m radius (species dependent) should be established around the nest location. This buffer should be kept in place until such time as the young have fledged, and the nest has been confirmed as inactive by a suitably experienced ecologist.

6.1.25 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in section 6.1.

6.1.26 Reptiles and Amphibians

6.1.27 Clearance within the site is currently considered to be minimal and unlikely to require an exclusion and trapping exercise as populations of both reptiles and amphibians. If present, these species recorded in the vicinity of the site are unlikely to rely solely on the areas within the site and also the wider, more suitable habitat, is not to be effected by the proposed works. Works that encounter reptiles will be governed by the method statement which will include recommendations such as (but not limited to) translocation into the wider adjacent habitat beyond works by a suitably experienced ecologist and the following (based on and in conjunction with measure outlined in section 6.1 above):

1. Pre-clearance ecological checks would be carried out, a toolbox talk delivered, and a full ecological watching brief provided by a suitably experienced ecologist.
2. Low ground bearing cutting machinery that can be set at a specific height or hand-held cutting equipment would be utilised.
3. Vegetation would initially be cut to 150mm.
4. A second ecological check would precede a second cut to ground level and topsoil strip.
5. Arisings would be removed form site immediately.
6. Any animals found would be translocated outside of the working area immediately.
7. A scorched earth condition would be maintained to demarcate the area and reduce the opportunities for species to re-colonise the area.

6.1.28 Habitat features to benefit these species, such as log/brash piles, green waste compost heaps or rock/gravel basking Sites, would be incorporated into some of the new and retained habitat areas within the Site. These species would also benefit from the creation of scalloped edges in reinstatement planting and in the provision of scrapes.

6.1.29 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed above in section 6.1. and through the proposed method statement for works.

6.1.30 Badger

6.1.31 The potential impact resulting from the loss of potential badger foraging habitats would be mitigated through the measures proposed in Section 6.1.

6.1.32 The clearance approach detailed in relation to breeding and non-breeding birds, reptiles and amphibians would ensure that otters are not present and reduce the risk of harm to individual animals.

6.1.33 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1.

6.1.34 Otter

6.1.35 The potential impact resulting from the loss of potential otter foraging habitats would be mitigated through the measures proposed in Section 6.1.

6.1.36 The clearance approach detailed in relation to breeding and non-breeding birds, reptiles and amphibians would ensure that otter are not present and reduce the risk of harm to individual animals.

6.1.37 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1. and the proposed method statement.

6.1.38 Water Vole

6.1.39 The potential impact resulting from the loss of potential foraging habitats would be mitigated through the measures proposed in Section 6.1.

6.1.40 The clearance approach detailed in relation to breeding and non-breeding birds and reptiles / amphibians would ensure that water vole are not present and reduce the risk of harm to individual animals.

6.1.41 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1. and the proposed method statement.

6.1.42 European Hedgehog

6.1.43 The clearance approach detailed in relation to breeding and non-breeding birds, reptiles and amphibians would ensure that otters are not present and reduce the risk of harm to individual animals.

6.1.44 Habitat features to benefit hedgehogs, such as log/brash piles, compost heaps, or creation of 'hedgehog homes,' would be incorporated into some of the new and retained habitat areas within the Site.

6.1.45 Clearance is predicted to be minimal and not directly impact this species. However, the approach detailed in relation to breeding and non-breeding birds and reptiles / amphibians would ensure that hedgehog are not present and reduce the risk of harm to individual animals.

6.1.46 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1.

6.1.47 Fish

6.1.48 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1.

6.1.49 Invertebrates

6.1.50 The potential impact resulting from the loss of potential invertebrate habitats would be mitigated through the measures proposed in Section 6.1.

6.1.51 Habitat features to benefit invertebrates, such as log/brash piles, creation of 'bug houses' or provision of small bare scrapes in sunny locations, would be incorporated into some of the retained and new habitat areas.

6.1.52 The potential indirect construction impacts would be mitigated through the implementation of the general construction measures detailed in Section 6.1

6.1.53 Ecosystem Services

6.1.54 The potential impacts resulting from changes to the supporting and regulating services would generally be mitigated through combined effects of the measures detailed in Section 6.1.

6.1.55 The potential impacts resulting from changes to the cultural services provided by the Site cannot be entirely mitigated due to the nature of construction works and the impact this would have on the aesthetics of the Site. However, this impact would be managed through the general construction measures detailed in Section 6.1.

6.2 Operation

6.2.1 Due to the nature of the works little operational impacts are anticipated.

7 ENHANCEMENTS

7.1.1 The following measures are not specifically required to mitigate impacts associated with the Proposed works but could be considered during detailed design and construction to enhance the environment.

7.1.2 Implementation of ecologically sensitive management regimes should be applied where possible to provide ecological enhancement during this phase. This is of particular note in The Incline which has the potential as a good ecological resource when considered within the context of the wider habitat. Enhancements here could include bat boxes on retained trees (to be monitored by a suitably licenced bat worker) and 2 bird boxes suitable for tit species for both enhancement and to limit the use of bat boxes by these species.

7.1.3 Retained amenity grassland habitats could be enhanced for ecological purposes, if possible, through a reduction in the management frequency and implementation of more ecologically sensitive management techniques, such as:

1. Infrequent cutting regimes using low ground pressure machines and removal of arisings.

2. Cutting regimes designed to leave a taller sward and timed to encourage natural wildflower establishment, allowing the setting of seed.

3. Turf removal to create bare areas permitted to naturally recolonise from the local seed bank, with only light grass seeding where necessary to accelerate cover.

8 FURTHER SURVEYS

8.1.1 Should works not be undertaken within 2 years of the issue of this report, up-to-date habitat surveys would be recommended. It is also recommended that pre works assessment of the extent of INNS (particularly near the railway line) is undertaken to inform the management plan and site wide method statement.

8.1.2 Species specific surveys should be undertaken prior to detailed scheme design and including:

a. Ground level tree assessment for potential bat roost features (GLTA) in the trees should any be scheduled to be affected in any way.

b. Pre-construction nesting bird surveys are recommended if works are to be undertaken during the active season (late February to early September inclusive, weather dependent).

c. Fish surveys may be required dependent on the construction measures proposed.

8.1.3 These surveys should be undertaken by suitably experienced ecologists in accordance with best practice guidelines.

8.1.4 Further surveys may be necessary depending on the results of the above, particularly the GLTAs or if the scheme designs and habitat changes across the sites in the interim period

9 SUMMARY

9.1.1 TACP were commissioned by Atkins PLC to undertake a Phase 1 habitat survey to support this Ecological Impact Assessment for the proposed flood alleviation works centred on Grandison Brook in Britton Ferry.

9.1.2 The site is located contains a culvert network that flows beneath and urbanised and residential area. There is a large cemetery and a public park to the south with a public right of way comprising of an 'avenue' of mixed species trees lining an track. Amenity grassland and hardstanding are located within a bowling green, and a rugby / cricket club, and a football club. Further west separate from the main area of works, the culvert is again exposed and channels down to the local railway culminating in an open channel with considerable aggregations of Japanese Knotweed.

9.1.3 Neath Port Talbot County Borough Council are currently planning to undertake maintenance or replacement works at the culvert inlet with little operational change to the majority of the site from a biodiversity perspective.

9.1.4 Further surveys recommended including for potential bat roost in any trees to be effected and pre-works surveys for breeding birds i(f the work is undertaken during the active season).

9.1.5 A INNS specific and a separate species specific method statement is recommended to inform on site activities and form the basis of a tool box talk.

9.1.6 The measures incorporated into the Proposed Scheme's design along with additional mitigation adequately mitigates impacts to the species and habitats identified.

9.1.7 Enhancements to the area could include management of the woodland to the west, adding bats boxes and bird boxes.

10 REFERENCES

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APPENDICES

Appendix A

Phase 1 Habitat Map

Maxar, Microsoft, OS, Esri, HERE, Garmin, GeoTechnologies, Inc.

TargetNotes2022

ClippedHabitats

Habitat

- A1.1.1 - Broadleaved woodland - semi-natural
- A2.2 - Scrub - scattered
- A3.1 - Broadleaved Parkland/scattered trees
- J1.2 - Cultivated/disturbed land - amenity grassland
- J3.6 - Buildings
- J4 - Bare ground
- J1.5 (Gardens)
- J3.7 (Track)
- SiteBoundaryJuly2022

V.	S.	Date	Description	B.	C.	A.
P1	S3	27.07.22	Phase 1	JB	DJH	JW

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Grandison Brook

Ecological Impact Assessment

Phase 1 Habitat Plan Sheet 1 of 3

Drawing no.:	60940B_DWG_Phase 1 Habitats

Maxar, Microsoft, OS, Esri, HERE, Garmin, GeoTechnologies, Inc.

TargetNotes2022

ClippedHabitats

Habitat

- A1.1.1 - Broadleaved woodland - semi-natural
- A2.2 - Scrub - scattered
- A3.1 - Broadleaved Parkland/scattered trees
- A3.3 - Mixed Parkland/scattered trees
- J1.2 - Cultivated/disturbed land - amenity grassland
- J3.6 - Buildings
- J4 - Bare ground
- J1.5 (Gardens)
- SiteBoundaryJuly2022

V.	S.	Date	Description	B.	C.	A.
P1	S3	27.07.22	Phase 1	JB	DJH	JW

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Ecological Impact Assessment

Phase 1 Habitat Plan Sheet 2 of 3

Drawing no.:	60940B_DWG_Phase 1 Habitats

Maxar, Microsoft

TargetNotes2022

ClippedHabitats

Habitat

- A2.2 - Scrub - scattered
- A3.3 - Mixed Parkland/scattered trees
- B6 - Poor semi-improved grassland
- J1.2 - Cultivated/disturbed land - amenity grassland
- J2.6 - Dry ditch
- J3.6 - Buildings
- J4 - Bare ground
- J5 - Other habitat
- J1.5 (Gardens)
- SiteBoundaryJuly2022

V.	S.	Date	Description	B.	C.	A.
P1	S3	27.07.22	Phase 1	JB	DJH	JW

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Ecological Impact Assessment

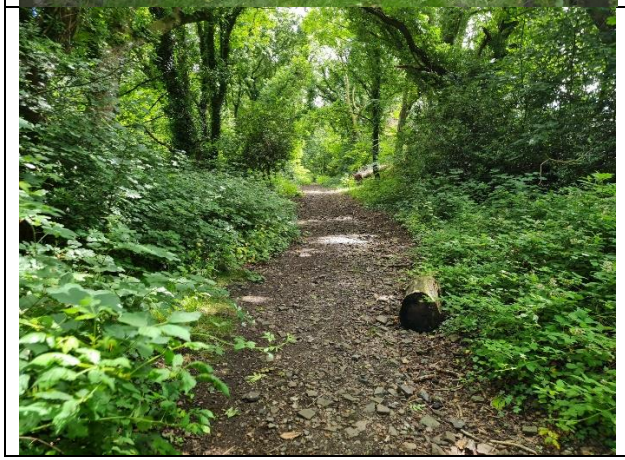
Phase 1 Habitat Plan Sheet 3 of 3

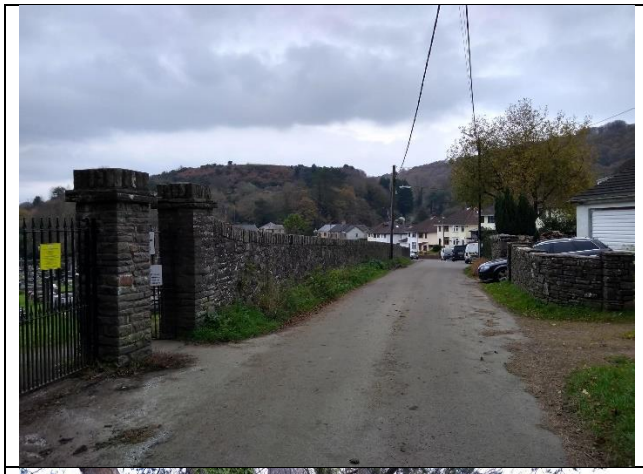
Drawing no.:	60940B_DWG_Phase 1 Habitats

Appendix B

Site Photos and Target Notes

Image	Target Note ID (if applicable)	Notes
	1	Access to car park and proposed site compound
	2	Culvert at southernmost aspect of the site between The Incline and the park

	3	Access to The Incline
	4	The Incline at the end boundary of the site

	5	Ynysmaerdy Rd
	6	Entrance to the Cemetery

		7	Culvert 0015 at Ynysmaerdy Rd
		8	Culvert 0014 at Ynysmaerdy Rd

	9	Bowling green at the recreational facilities
	10	Entrance to sports ground

	11	Sports facilities with allotments in distance.
	12	Allotments

	13	Lane behind allotments

Image	Target Note ID (If applicable)	Notes
	14	Egress of the sports facilities.
	15	Rear of Ysgol Carreg Hir (out of shot due to access restrictions).

	16	Open channel culvert leading to railway (off Pant yr Heol and Alexander Rd)
	17	Level Crossing that is proposed as access to the north easter aspect of the site near the railway (note biosecurity measures are required here).

	18	Extensive Japanese Knotweed surrounding the open channel near and adjacent to the railway.

Appendix C

Species Lists

Species found on site

Common Name	Scientific Name
Dandelion	*Taraxacum agg.*
Greater plantain	*Plantago major*
Burdock sp.	*Arctium sp.*
Broad-leaved dock	*Rumex obtusifolius*
Lesser celandine	*Ficaria verna*
Silverweed	*Potentilla anserina*
Creeping buttercup	*Ranunculus repens*
Garlic mustard	*Alliaria petiolata*
Cow parsley	*Anthricus sylvestris*
Hogweed	*Heracleum sphondylium*
Willowherb	*Epilobium sp.*
Holly	*Ilex aquifolium*
Teasel	*Dipsacus fullonum*
Cock's-foot	*Dactylis glomerata*
Yorkshire fog	*Holcus lanatus*
Perennial rye-grass	*Lolium perenne*
Sedge species	*Carex sp.*
Elm	*Ulmus procera*
Birch	*Betula pendula*
Hawthorn	*Crataegus monogyna*
Willow	*Salix sp.*
Sycamore	*Acer pseudplantanus*
Alder	*Alnus glutinosa*
Ash	*Fraxinus excelsior*

Species found on The Inlcine.

Common Name	Scientific Name
Hawthorn	*Crataegus monogyna*
Willow	*Salix sp.*
Sycamore	*Acer pseudplantanus*
Birch	*Betula pendula*
Ash	*Fraxinus excelsior*
Alder	*Alnus glutinosa*
Oak	*Quercus sp.*
Common nettle	*Urtica dioica*
Silverweed	*Potentilla anserina*
Bramble	*Rubus fruticosus*
Scaly male fern	*Dryopteris affinis*
Hogweed	*Heracleum sphondylium*
Cow parsley	*Anthriscus sylvestris*