



Sirius Planning

Land off Goat Mill Road, Merthyr Tydfil

Construction Landscape Ecology Management Plan

March 2022

A paper copy of this document shall be kept in the Site Office

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CONTENTS

1.0	INTRODUCTION	2
2.0	AIMS & OBJECTIVES	2
3.0	TIMELINE FOR IMPLEMENTATION.....	3
4.0	CONSTRUCTION: PROTECTION FOR HABITATS & PROTECTED SPECIES.....	3
5.0	LANDSCAPE & ECOLOGICAL SPECIFICATION.....	6
6.0	LANDSCAPE & ECOLOGICAL MANAGEMENT	12
7.0	MONITOR THE SITE AND REVIEW THE PLAN	14

PLATES

Plate 1: Timeline of Implementation

Plate 2: Log Pile Detail

TABLES

Table 1: Ten Year Management Works Programme

FIGURES

Figure 1: Construction Landscape Ecological Management Plan

APPENDICES

Appendix A: Landscape and Ecological Masterplan

Appendix B: Ecology Schedule for land off Goat Mill Road, Merthyr Tydfil

1.0 INTRODUCTION

- 1.1 Since 2019 FPCR have been conducting ongoing ecological works on behalf of Sirius Planning at Land off Goat Mill Road, Merthyr Tydfil. The works have been completed to accompany a planning application for a proposed plastic recycling and processing facility with associated office accommodation, external storage area, vehicular parking and weighbridge, surface water lagoon.
- 1.2 FPCR provided an Ecological Appraisal (Eco App) – dated September 2021. The Eco App details the results of all ecological survey work conducted by the time of the pre-application consultation and second pre-application request submission to Merthyr Tydfil CBC. The Eco App discusses the expected ecological impact of the proposed development and, where necessary provides recommendations to avoid, mitigate and compensate for any such impacts.
- 1.3 Following submission of the second pre-application request to Merthyr Tydfil CBC comments from the LPA Ecologist were received, dated 3rd November 2021.
- 1.4 FPCR have produced three further documents to address the comments provided by the LPA ecologist, these are as follows:
 - a) Ecology Response
 - b) Ecological Addendum
 - c) Construction and Landscape Ecological Management Plan (CLEMP)
- 1.5 The present report forms Item C.
- 1.6 The CLEMP has been divided into sections. Section 4 details the proposed measures to be followed during the Construction phase of the proposals. Section 5 provides details of proposals to create and manage habitats into the operation phase of the scheme. Section 5 also provides specifications for proposed wildlife enhancements to be installed as part of the proposals.
- 1.7 This document should be read in conjunction with the Landscape and Ecological Masterplan. For reference, these are shown in **Appendix A**.

2.0 AIMS & OBJECTIVES

Aims & Objectives

- 2.1 The purpose of this CLEMP is to ensure the main Aims (from an Ecology perspective) are secured as part of the proposals. The **Aims** of the CLEMP are outlined below, with **Objectives** described in detail on the following pages.

Aim 1: Maintain and enhance the biodiversity value of the site

Objective 1: Protect and maintain retained habitats and protected species within the site;

Aim 2: Manage the site for biodiversity value in the long-term

Objective 2: Create a matrix of complimentary new habitats and assimilate the Sustainable Drainage System (SuDS) for the development into the GI.

Objective 3: Ensure the matrix of new and existing habitats establish and are suitably maintained to ensure long-term biodiversity gain.

Aim 3: Monitor the site and review the Plan

Objective 4: Provide a framework of monitoring and review periods.

3.0 TIMELINE FOR IMPLEMENTATION

- 3.1 The Gantt Chart forming **Appendix B** provides a proposed timeline for the key stages of the construction phase protection of habitats and creation of new habitats. The timeline does not specify dates – exact dates are to be agreed between the ECoW and Site Manager during the initial site meeting. It does however provide a proposed order of events to ensure the successful implementation of the specifications included within the present report.

4.0 CONSTRUCTION: PROTECTION FOR HABITATS & PROTECTED SPECIES

Objective 1: Protect and maintain retained habitats and protected species within the site.

General Measures

- 4.1 The Site Manager will appoint an Ecological Clerk of Works (ECoW) prior to commencement of construction. Following the appointment, a site meeting between the ECoW and Site Manager will take place. This meeting will be used to decide upon the proposed timeline of protection and landscape works as specified within this CLEMP.
- 4.2 The ECoW contact details shall be kept in the Site Managers office and shall be contacted where it is indicated below that site supervision works or checks are required.
- 4.3 This document shall be kept in the Site Managers office. Contractors will be informed of the locations of the main ecological constraints.
- 4.4 The ECoW will keep a record of site visits and supervision works.
- 4.5 When present, the ECoW will provide an ecological toolbox talk to contractors before supervision works.
- 4.6 Any licensable protected species work will be conducted by the appropriate class-licenced or low-impact class-licenced members of staff.
- 4.7 The ECoW shall be contacted for advice on any currently unplanned changes that may have an impact on the important ecological features shown in **Figure 1**, or any other ecology queries or issues that arise.

Habitat Protection

- 4.8 The potential for impacts on retained habitats outside of the immediate working areas during construction activities will be minimised through the erection of protective Heras fencing.
- 4.9 The Heras fencing will follow the external edge of the developable area. All areas of retained habitat outside of the Heras fencing will be considered a Biodiversity Protection Zones. The proposed location of the Heras fencing is shown in **Figure 1**.

- 4.10 Where outside of the Biodiversity Protection Zones (i.e. on the western boundary of the site adjacent to Goat Mill Road) trees will be protected by high visibility fencing as recommended in the separate Arboricultural Assessment.
- 4.11 Warning signs will be placed on all protective fencing around the protection areas stipulating that access is not permitted.
- 4.12 Weekly checks of the fencing demarcating the Biodiversity Protection Zones will be made by the Principal Contractor and this will ensure:
- The integrity and correct positioning of protective fencing
 - Repairs are made to the fencing, as necessary.
- 4.13 No temporary storage of materials, construction of haul routes, or Site machinery shall be sited within retained habitats, their Biodiversity Protection Zones or outside of the Site boundary, unnecessary or informal access to these areas by construction Site personnel will be prevented.
- 4.14 Any environmentally hazardous material will be kept in dedicated stores, and storage tanks should have appropriate bunding to prevent run-off to the retained habitats and into the nearby ditches.
- 4.15 There shall be no lighting outside of site hours (07:30-18:00) throughout the year during construction.

Pollution Control

- 4.16 There is a stream flowing on the north and west boundaries.
- 4.17 Measures will to be taken to avoid water pollution during construction. These are as follows:
- Site materials such as concrete mix, fuel, paint and other toxic chemicals will be segregated in secure storage containers;
 - Drains will be covered to prevent liquid entering the water course;
 - All wastewater will be collected and treated;
 - Place walls of sandbags at the Site boundaries closest to the streams to prevent construction debris running off; and
 - Leave maximum vegetation cover close to the stream to provide additional debris interception.

Wildlife Protection

Badgers (and other terrestrial wildlife)

- 4.18 No evidence of badger has been found on Site. A pre commencement walkover will be conducted to confirm this remains the case at the point of the construction phase commencing.
- 4.19 If, pre-construction works or during works the Site Manager suspects badger activity (specifically earthworks or an established sett) then works should stop immediately and an ECoW contacted.
- 4.20 General precautionary measures will be implemented during the construction phase to ensure that badgers (and other terrestrial wildlife) are not indirectly harmed through isolation or injured from falls into excavations such as trenches, holes and ditches:

- Trenches, holes and ditches will be covered outside of working hours or, where excavations are too large to cover, a means of escape will be provided, such as sloping banks or wooden planks.
- Pipes over 250mm in diameter will be capped overnight, this will reduce the possibility of badgers and other mammals becoming trapped and injured.
- Construction offices, material compounds and security buildings will be located in appropriate locations away from retained habitats in order to reduce the potential for accidental damage to habitats.
- All waste materials will be appropriately stored, in particular domestic waste from construction site welfare units that may attract badgers should be stored in heavy duty bins with lids.

Nesting Birds

- 4.21 Removal of woody vegetation will not take place during the bird nesting season (**March to September inclusive**), unless a thorough survey by an appropriately experienced ecologist first confirms that no active nests are present. Should any nests be observed, a suitable buffer will be placed around them, and the habitat left in situ until the young have fledged and this is confirmed by an ecologist.
- 4.22 A precautionary pre-construction check for ground nesting birds shall be conducted **March to September inclusive** where ground clearance takes place in the developable area. Should any nests be observed, they will be marked, and a suitable buffer will be placed around them, and the habitat left in situ until the young have fledged and this is confirmed by an ecologist. The check will be conducted by the ECoW as follows:
- ECoW will be contacted prior to works to arrange site presence.
 - Check will be conducted ideally on the day of removal, so that the ECoW can judge whether or not the vegetation requires constant supervision; for example, where dense vegetation requires removal in small increments (e.g. 1m to 2m sections) to enable observation; or
 - within 24 hours if the habitat being removed if suitable.
 - Toolbox talk will be given prior to works.
 - Any nest's observed will be appropriately buffered, as advised by the ECoW, and marked with hazard tape.
 - Timings will be provided in writing to the contractor as to when suitable to re-check to see if young have fledged and the above shall be repeated.
 - In the unlikely event a WCA Schedule I bird is recorded nesting, the nest shall be marked with hazard tape and appropriately buffered according to the species. Special measures may also be required including licencing and/or compensation, and therefore further ecological advice will be given to the client.

Bat Species (and other nocturnal wildlife)

- 4.23 All retained boundary habitat has been marked in **Figure 1** and shall be protected with Heras fencing during construction.
- 4.24 Construction works will not be conducted outside of 07:30-18:00 throughout the year.

- 4.25 Directional lighting to be used away from Biodiversity Protection Zones. Light levels of the Biodiversity Protection Zones during construction must not exceed those agreed as part of the lighting scheme for the operation phase.

Reptiles

- 4.26 No population of reptiles was present on-Site during surveys. Due to some suitable habitat, the following Reptile Mitigation Strategy will be followed as a precaution to allow passive displacement.
- 4.27 Clearance of the developable area shall take place under the following precautionary method statement:
- Removal of potential reptile habitat will be completed during the active reptile season when temperatures are above 10°C.
 - ECoW will be contacted prior to works to arrange Site presence for supervision.
 - Toolbox talk will be given prior to works.
 - The area will first be walked over and hand searched by the by the ECoW to thoroughly search for reptiles, and potential hibernacula (if present) moved to the Site boundary.
 - The mosaic habitat will be strimmed from the centre of the area to be cleared towards retained habitat in two cuts, allowing reptiles to move from these areas into retained habitats. The first cut will be to 200mm and the second to 50mm 2 hours later.
- 4.28 If the timeline of works does not allow for clearance during the active reptile season, the developable area will be made **unsuitable** for reptiles during the active reptile season. The following measures will be taken:
- Vegetation in the developable area will be cut to no less than 200mm in height. A second cut to 50mm will be made and vegetation then managed as such until clearance takes place.
- 4.29 Removal of **suitable** reptile habitat in the winter is discouraged and will only take place following a fingertip search by the ECoW. If a hibernating reptile is encountered, it shall be left in situ if possible, or if not, it shall be carefully moved into or along with appropriate cover, on the boundary.

5.0 LANDSCAPE & ECOLOGICAL SPECIFICATION

Objective 2: Create a matrix of complimentary new habitats and assimilate the Sustainable Drainage System (SuDS) for the development into the GI.

- 5.1 The Plan will retain areas of Open Mosaic Habitat (north and south of the developable area respectively). It will provide new features in the form of a surface water lagoon, adjacent scrapes and discrete areas of new tree planting.
- 5.2 The Landscape and Ecological Masterplan forms **Appendix A**. This appendix details areas of proposed retained habitats and habitat creation. **Appendix A** also details species mixes proposed for planting, incorporating Tree and Shrub planting and Attenuation Basin planting. Also see **Appendix A** for details of proposed species for planting and plant establishment and maintenance.
- 5.3 The following paragraphs detail proposals for habitat creation and management as well as proposed ecological enhancements, as follows:

- Translocation of marshy grassland;
- Attenuation basin planting methods;
- Translocation of grassland/substrate;
- Creation of scrapes;
- Installation of wildlife enhancements; and
- Ongoing management of retained OMH;

5.4 The following section outlines the specification and implementation, with **Section 6** outlining the works programme and management regime.

Translocation Of Marshy Grassland

5.5 Marshy grassland will be translocated from the area of marshy grassland in the north of the site and laid around the margins of the proposed attenuation basin. The attenuation will therefore be created early in the construction phase to allow the marshy grassland turves to be collected and translocated prior to site clearance.

5.6 The turves will be placed in an open and unshaded part of the attenuation basin, which is not inundated on too regular a basis.

5.7 The method for translocating the marshy grassland will be as follows:

- The donor area (as shown on **Figure 1**) will be identified to the Site Manager and protected whilst the attenuation basin is created;
- The works will ideally be conducted in late winter/early spring, prior to the primary growth period for plants;
- Works to be undertaken during dry conditions;
- Attenuation basin receiving soils should be harrowed/scarified as necessary and gently rolled to create a flat level soil bed with a fine tilth at a suitable depth to receive turves c150mm deep;
- Area to be translocated may need strimming (to no less than 100mm) to remove longer vegetation prior to lifting. Arisings to be removed;
- Lift turves using a 360° digger with a forward facing tilt head large sized bucket/turf cutter to maximise the length and width of turf removed, remove to the maximum depth of root stock only, likely to be between 150-250mm;
- Bucket or cutter to cut in forwards direction so that turve is maintained flat on bucket/cutter surface;
- Place turve carefully (soil side down as removed) onto flatbed transport (eg trailer or dumper) as a single layer - pallets or plywood boards may be used to help keep flat whilst transported across/aid placement if required. **Do not** cover, roll or stack turves;
- Turve to be placed carefully onto the prepared ground placing furthest side down first - carefully slide the turve off the pallet/board if using and onto the receiving bed;
- Lay turves as evenly and levelly as possible and without gaps between adjoining turves to enhance adhesion. Turves to be in full contact with the subsoil. Gently press to encourage soil

contact as necessary with back of excavator bucket/roller. Any gaps may be filled with soils from donor area;

- Turf placement to be undertaken in a direction so that no machinery will track over re-placed turves during process;
- Following placement, turves should be watered as necessary to prevent drying out whilst roots bed in to aid establishment; and
- Receiving area to be fenced off (as part of the Biodiversity Protection Zone) with suitable protective fencing to prevent accidental ingress during the remainder of site works.

Attenuation Basin Planting Methods

- 5.8 Species to be planted are listed within Appendix A.
- 5.9 The attenuation pond will also be planted with areas of aquatic/marginal planting to create further biodiversity habitats such as providing food and shelter to wildlife such as newts and water voles.
- 5.10 From a wildlife point of view, ponds do not need to have large areas of open water; ponds which appear to be choked with vegetation often support the greatest diversity of plant and animal species. The habitat value is, however, enhanced if there are a variety of vegetation structures from dense tussock stands to bare and recently colonised mud. Management of these wetland areas will therefore aim to create variation with minimum disturbance to animal populations.

Marginal Plug Planting

- 5.11 Plants to be planted at a density of 4no. plants per m² and firmly heeled in to prevent plants being dislodged/floating away.

Reed Bed Planting

- 5.12 9cm container grown plants to be planted at a density of 6no. plants per m² and firmly heeled in to prevent plants being dislodged/floating away.
- 5.13 Reed beds should last at least 15 years before renewal is required, if not longer, due to low level of particulates expected.

Creation Of Scrapes

- 5.14 A cluster of scrapes will be established in the southern area of retained habitat. These will complement the proposed attenuation basin, providing ephemeral features adjacent to the more permanent basin.
- 5.15 The specifications for each scrape is as follows:
- No scrape will be less than 20m²
 - The scrape will be dug to a depth of no less than 50cm at its deepest;
 - Variations in depth will be created and the scrapes should hold water periodically between March and the end of June;
 - Scrapes to be created at the same time as the attenuation basin is installed (prior to translocation of grassland substrate) and can be dug using a 360° digger with bucket; and

- Arisings from the scrape creation may be piled within the retained southern OMH area and may form the receiving areas for translocated grassland substrate (from Habitats 2, 3 and 4) as detailed below.

Translocation Of Grassland/Substrate

- 5.16 Small areas of substrate from Habitats 2, 3 and 4 (as described in the Eco App) are to be translocated to the retained areas of OMH located south and north of the developable area.
- 5.17 The method for translocating these substrates is as follows:
- The donor areas of approximately 20m x 20m (as shown on **Figure 1**) will be identified **to the Site Manager** and protected until it is time to clear the area and substrates can be translocated;
 - The works will ideally be conducted in late winter/early spring, prior to the primary growth period for plants;
 - Works to be undertaken during dry conditions;
 - Scrape surface substrate using a 360° digger with a forward facing tilt head large sized bucket cutter. Remove to the maximum depth of root stock only, likely to be between 150-250mm;
 - Each bucket load to be deposited in piles onto flatbed transport (e.g. trailer or dumper);
 - Substrate to be removed from the flatbed transport and deposited in discrete piles within retained areas of OHM. Importantly a mosaic of substrates will be created;
 - Piles may be spread within retained areas of OMH to achieve variations in height to complement the mosaic of substrate; and
 - Receiving area to be fenced off (as part of the Biodiversity Protection Zone) with suitable protective fencing to prevent accidental ingress during the remainder of site works.

Installation Of Wildlife Enhancements

Night Roost Bats

- 5.18 A bespoke night roost will be installed within the southern area of retained OMH (indicative location shown within **Figure 1**). This area will remain unlit from the proposals. The night roost will increase the roost provision for bats on site and will be designed to provide a suitable roost site for lesser horseshoe bats, which have been recorded in small numbers on site.
- 5.19 The design of the night roost is to be fixed at the detailed design stage upon consultation with the local authority Ecologist. The following specifications will be incorporated into the final design:
- Roost dimensions will be at least 1.2m in width, 1.8m in depth and 2.8m in height.
 - Minimum entrance size – 30cm (wide) x 20cm (high);
 - Entrance will be a minimum of 1.3m above ground level;
 - Entrance will be away from prevailing wind, overhanging vegetation and light pollution; and
 - Rough lining material or mesh/batons fixed to the underside of the roof for hanging/roosting.

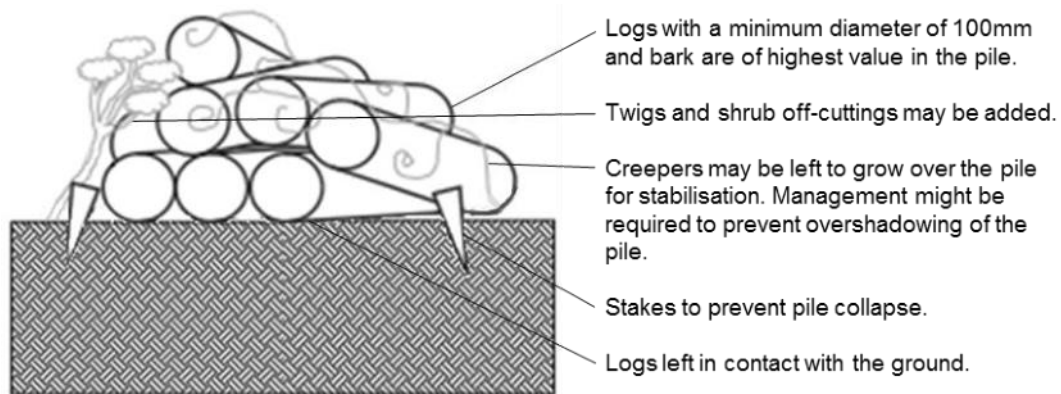
Bird Boxes and Bat Boxes

- 5.20 Bat boxes will be erected on suitable retained semi-mature / mature trees within the retained woodland on the eastern boundary of the site (see **Figure 1**) and positioned out of reach of opportunistic predators such as cats. The bat boxes will be installed in accordance with standard best practice, such that the boxes are positioned at least 4m above the ground, with the entrances to the boxes facing south-west to south-east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential roost sites. This measure will provide increased roosting opportunities across the site over the existing situation.
- 5.21 The following boxes will be installed within the Green Infrastructure:
- 3 x Schwegler 2FN or similar
 - 3 x Ibstock C boxes
- 5.22 Bird boxes will also be erected on retained semi-mature / mature trees within the retained woodland on the eastern boundary of the site (see **Figure 1**). Using a variety of nest box types will provide new suitable nesting opportunities for a range of birds and potentially encourage new bird species into the site. The bird boxes will be installed in accordance with standard best practice, such that the boxes are positioned generally around 1-3m above the ground, with the entrances to the boxes facing between north and east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential nesting sites.
- 5.23 The following boxes will be installed within the Green Infrastructure:
- 3 x 3S Schwegler Starling boxes or similar
 - 3 x 1B Schwegler boxes or similar

Hibernacula / Refugia

- 5.24 Log piles will ideally be created from tree work arisings from site and from ongoing scrub clearance in the OMH areas. These will be placed at the interface between woodland and grassland habitats on the eastern boundary, avoiding north facing areas. The logs should be left in contact with the ground in dappled shade and built into a compact pile to maintain humidity. Stakes should be driven into the ground either side of the log pile to prevent the pile from collapsing.
- 5.25 Larger diameter logs (at least 100mm thick) with bark are of most value, particularly hard wood like ash, oak and beech, whereas freshly cut willow and poplar may re-sprout. Twigs, stems and shrub off-cuttings may also be added. Climbers may be allowed to grow thinly over the dead wood pile for stabilisation and moisture. Full sun will dry and heat the wood, supporting little life, whereas dense shade will promote the growth of fungi but may be too cool for insects.

Plate 2: Log Pile Detail



Ongoing Management Of Retained Habitats

- 5.26 Retained OMH areas (as identified in **Figure 1**) will be subject to ongoing “disturbance” to prevent succession. Grassland will be manged, but not uniformly. Scrub will routinely be cleared. Rocky substrate will be moved to prevent establishment. Management will maintain a mosaic of grassland, bare substrate and scrub in the retained OMH areas.
- 5.27 Specifications for this ongoing management are as follows:
- Grassland to be rotationally, but not uniformly cut. At each cutting occasion no greater than 70% of grassland area will be cut at any one time. The remainder will be left uncut.
 - Cut to be conducted once yearly in autumn.
 - Arisings to be left in situ for no less than 2 days before being removed.
 - Scrub located centrally within the retained OMH areas will be removed on a five yearly cycle. No greater than 70% of scrub to be removed at any one time.
 - Scrub to be removed outside of bird nesting season (March – September inclusive).
 - Edges of boundary woodlands to be routinely scalloped to prevent encroachment into retained OMH areas. Works to be conducted on a five yearly cycle in accordance with ongoing scrub management.
 - Boundary woodlands to be selectively thinned on a ten yearly cycle to promote the development of trees contained within.
 - Initial thin of no less than 10% of total tree cover.
 - Substrate in retained OMH areas to be moved (using digger with bucket) or scarified/rotavated on a five yearly cycle. No less than 30% of retained OMH areas to be disturbed in this manner during each occasion.

6.0 LANDSCAPE & ECOLOGICAL MANAGEMENT

Objective 3: Ensure the matrix of new and existing habitats establish and are suitably maintained to ensure long-term biodiversity gain.

- 6.1 The following section outlines the works programme and management regime, with **Section 5** outlining the specification and implementation.

Table 1: Ten Year Management Works Programme

Prescriptions	Years with Priority									
	1	2	3	4	5	6	7	8	9	10+
Existing Retained Trees and Hedgerows										
Trees will be assessed by an experienced arboriculturalist or tree surgeon prior to works including tree removal necessary to permit creation of access paths and structures / bridges. Tree works will follow best practice procedures as set out in BS 3998:2010. No removal of woody vegetation will take place during the bird nesting season unless checked by a qualified Ecologist. Existing retained trees will be left unmanaged unless otherwise dictated for reasons of public safety.	✓									
Retained trees will be protected from damage and from soil compaction during construction using fenced Root Protection Areas (RPAs) where construction works are to be undertaken in the vicinity, in accordance with guidance in British Standard 5837:2012 – Trees in Relation to Design, Demolition and Construction – Recommendations.	✓									
Arisings from any woodland management activity will, where possible will be used to provide opportunities for invertebrates and bryophytes by forming micro-habitats from piles of dead wood or recumbent dead logs away from publicly accessible areas. Woodpiles will be created at the woodland edge and within the woodland interior. Where practical, piles will be situated in partial sunlight with some shade.	As required									
Tree Planting (as specified within Appendix A)										
A weed-free mulched 1m diameter circle around the tree stem to a minimum depth of 75mm. When trees have reached independence, the sward can be allowed to grow up to the trunk, although tall weeds, bramble and ivy will be removed from around the trees. Care will be taken when using strimmers or mowers to avoid damaging trees. Weeds and grass within 100mm of the trunks will be removed by hand.	✓	✓	✓	✓	✓					

Prescriptions	Years with Priority									
	1	2	3	4	5	6	7	8	9	10+
Examine all tree stakes and ties, replace or adjust as appropriate. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed – filling any holes with suitable topsoil.	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis. Top up mulch to a depth of 75mm where necessary.	✓	✓	✓	✓	✓					
Where periods of extreme drought occur, trees that have not yet established (not healthy, not in full leaf, suppressed growth) need to be watered where their tolerance to drought is deemed to be insufficient.	✓	✓	✓	✓	✓					
Marginal Plug Planting										
The vegetation in each of the water bodies will be cleared on a rotational basis, starting at year 3. The basin will be cleared, between September and November, to create a varied structure of habitat that will be of benefit to invertebrates, amphibians and other species. The vegetation will be removed by hand. Machines and heavy equipment should not be used to avoid damage to soil and vegetation.			✓	✓	✓	✓	✓	✓	✓	✓
Dense stands of single species (e.g. yellow iris) may benefit from selective thinning as required. Vegetation removal causes the least disruption to wildlife when carried out between September and November.				As required						
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As required									
Reed Bed Planting										
Reeds in the drainage basin will be cut and removed on a three year rotational basis, starting at year three. Clearance between September and November , which will create a varied structure of habitat that will be of benefit to invertebrates, amphibians and other species. The vegetation will be removed by hand. Heavy equipment should not be used to avoid damage to soil and vegetation.			✓			✓			✓	
Bird Boxes and Bat Boxes										
Bird boxes will have a non-invasive inspection in autumn or winter to check for damage. Replace lost or damaged boxes.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Prescriptions	Years with Priority									
	1	2	3	4	5	6	7	8	9	10+
Bat boxes will have a non-invasive visual inspection in autumn or winter to check for damage, unless a separate agreement has been agreed with Natural England. Replace lost or damaged boxes. Any work required to the bat boxes will be carried out by a licenced bat worker.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bat night roost to be monitored over the first three years. Automated static detector to be placed within roost on no less than two occasions between May and August. Each deployment will be for no less than five nights with a minimum gap of four weeks between deployments. Details of results of each monitoring occasion will be provided to LPA.	✓	✓	✓							
Ongoing Habitat Management for OMH										
Rotational cut of grassland in retained OMH areas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scrub clearance from central retained OMH areas	✓					✓				
Woodland management to prevent encroachment to retained OMH areas						✓				
Thinning of boundary woodlands	✓									
Substrate disturbance of retained OMH areas by moving and/or scarification/rotovation		✓			✓			✓		

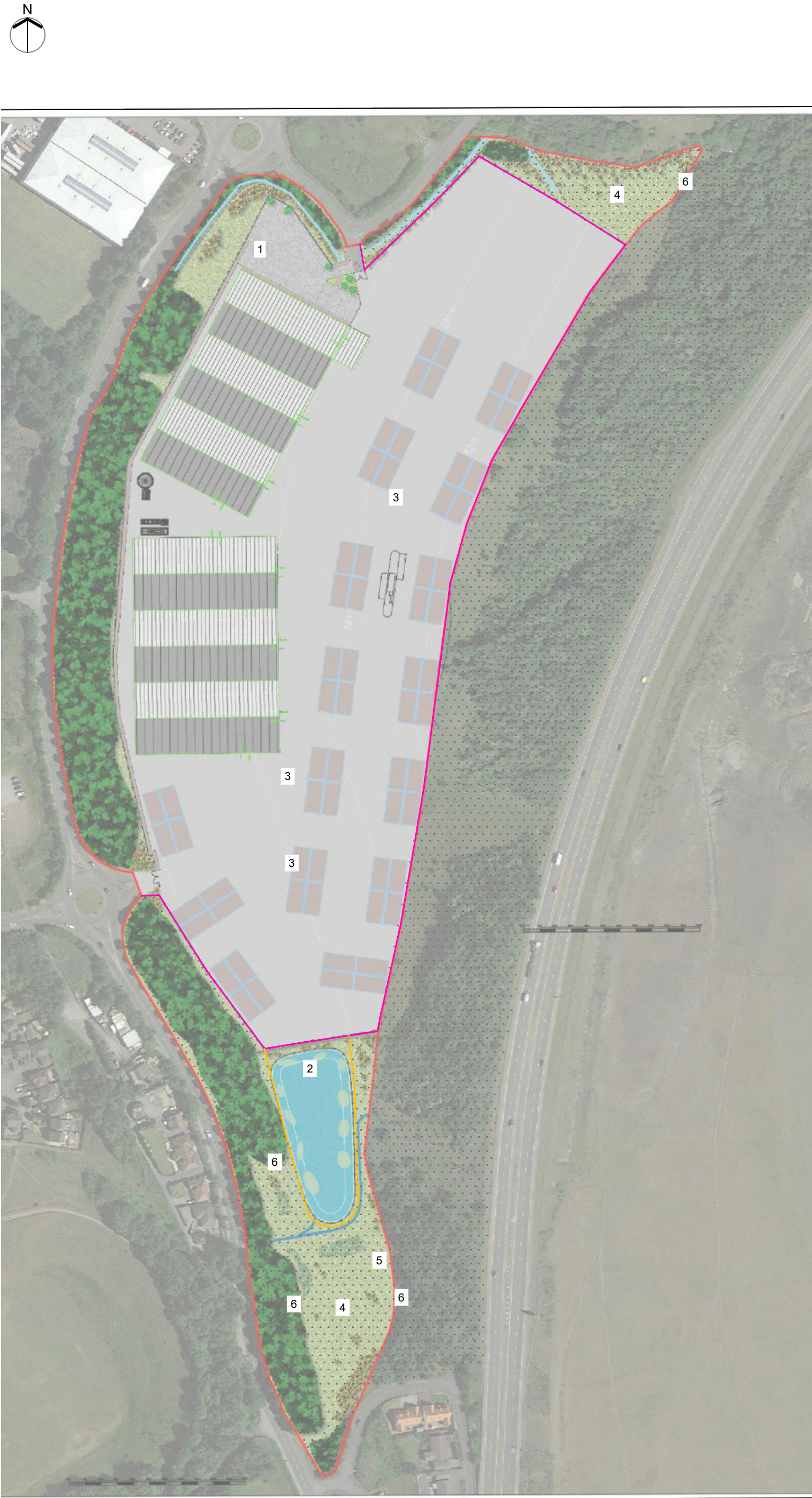
7.0 MONITOR THE SITE AND REVIEW THE PLAN

Objective : Provide a framework of monitoring and review periods.

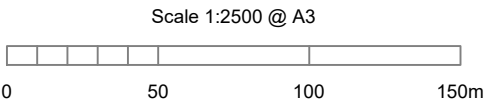
- 7.1 In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats will be monitored.
- 7.2 Results of this monitoring will be used to inform changes to the management plan and ten- year work programme. The prescriptions provided here will not be set in stone and will be altered if required in agreement with the Local Planning Authority (LPA). The management plan will run for a period of ten years, with the work programme fully reviewed at the end of the initial five year period by those members of staff involved in site management, and the LEMP updated accordingly, to be updated for the life of the development.
- Ecological inspection by a qualified ecologist in years 5 and 10 to provide baseline data for future surveys to be monitored against.
 - Annual arboricultural visual inspection, as part of the tree safety risk assessment for the development.

FIGURES

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- KEY**
-  Protective Heras fence line delineating extent of developable area
 -  Secondary protective Heras fence line - to protect retained habitats during creation of attenuation basin and to ensure establishment of translocated marshy grassland following completion of attenuation basin.
 -  Biodiversity Protection Zone
 -  Marshy grassland donor area - Habitat 1 - turves to be translocated to attenuation basin once construction of basin is complete.
 -  Receptor area for marshy grassland turves - edge of basin
 -  Grassland/substrate donor areas - Habitats 2, 3 & 4 (exact areas to be agreed between ECoW and Site Manager)
 -  Receptor areas for grassland/substrate - Habitats 2, 3 & 4
 -  Proposed location of bespoke night roost - to be constructed in retained, dark habitat.
 -  Suitable habitat for tree mounted bat and bird boxes



NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only.

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masterplanning ■
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Sirius Planning

project
**Land off Goat Mill Road
Merthyr Tydfil**

drawing title
CONSTRUCTION LANDSCAPE ECOLOGICAL PLAN

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1:2500 @ A3

drawn/checked
JRM/DJC

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Figure 1

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APPENDICES

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APPENDIX A

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JOB TITLE

GOAT MILL ROAD, MERTHYR

DRAWING TITLE

LANDSCAPE AND ECOLOGICAL MASTERPLAN

KEY

 PLANNING APPLICATION BOUNDARY

 RETAINED OPEN MOSAIC GRASSLAND HABITAT (incl Translocation)

 RETAINED WOODLAND AND SCRUB

 PROPOSED NATIVE WOODLAND / SCRUB MITIGATION PLANTING (MIX A)

 STANDARD TREES (CAR PARK AREA)

 PROPOSED SURFACE WATER POND

 PROPOSED MARGINAL WETLAND PLANTING (MIX B)

 PROPOSED WET SCRAPES

 PROPOSED CLOSE BOARDED FENCE

 PROPOSED PALADIN SECURITY FENCE

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REV	DESCRIPTION	DATE	BY
1	ISSUED FOR TENDERS	28/2/2022	D.B

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S.T	28/2/2022	D.B	28/2/2022

SCALE	SHEET	DRAWING NUMBER	REVISION
nts	t 1	JAY1001/04/21	0



PLANTING ESTABLISHMENT AND MAINTENANCE NOTES

1.0 GENERAL

- These outline specification notes are for guidance only.
- All works to be undertaken by a competent and qualified specialist landscape contractor.
 - The contractor must verify the locations of all below ground services prior to tree planting and other works
 - Existing trees and shrubs to be retained to be fenced in accordance with the provisions of BS5837 (Trees in Relation to Construction) prior to commencement of works.
 - Trees, hedges and shrubs to be retained are to be protected and clearly marked on site.
 - No spoil heaps, rubbish, machinery, plant or fuel to be stored in proximity to existing plants - in the case of trees this restriction extends to the spread of the tree canopy.
 - Protective fencing to be maintained during site works.

2.0 LANDSCAPE MANAGEMENT GENERAL

- The overall objectives for the Management Plan are as follows:
- To ensure the successful planting operations, establishment and continued growth through to maturity of the trees, shrubs, hedgerow planting for the benefits of the users and wildlife;
 - To ensure that both the existing planting to the boundaries of the site and proposed planting integrate successfully in creating an enhanced landscape structure and effective visual screen for sensitive receptors with potential views to the development area;
 - To ensure the methods employed respect and encourage wildlife, wherever possible; and
 - Defects in the landscape are identified early and addressed promptly.

3.0 MAINTENANCE & PLANT GUARANTEE

- All planting beds / tree pits to be kept in a weed free condition.
- Spot treat pernicious or notifiable weeds (e.g. thistle, nettle, dock, ragwort).
- Watering to be undertaken as necessary to ensure good establishment and growth of plants.
- Stakes and ties to be checked and adjusted regularly.
- Litter to be removed from planting beds.
- Pruning to be undertaken as necessary to ensure development of correct form and habit
- All planting and seeding to be subject to 12 month defects replacement guarantee period whereby all failed material to be replaced to original specification.
- Long term maintenance to comprise removal of tree stakes (circa year 3-5 after planting), crown pruning as necessary to maintain shape, removal of damaged or diseased branches.

4.0 SOILS, CULTIVATION & MULCH

SOILS, CULTIVATION & MULCH IMPORTED OR EXISTING SITE SUBSOIL

- DEPTHS TO BE FORMED FOR NEW PLANTING AREAS
- SUBSOIL: minimum 500mm
- TOP SOIL: minimum 500mm
- Used as a free draining subbase to topsoiled areas and a rooting substrate for deeper rooting plants. Subsoil to be approved by the CA prior to spreading topsoil.
 - Subsoil to be friable, free draining, free from weeds and stone greater than 75mm in any dimension, free from phytotoxic compounds, waste, rubble, hazardous or other deleterious material.
 - Base of planting beds to be existing approved subsoil broken up and thoroughly decompacted to minimum 300mm depth (or otherwise as necessary to ensure a free draining rooting medium) prior to placing topsoil. Where existing substrates are unsuitable as a subsoil, excavate and remove substrates and replace with an imported subsoil spread to 600mm settled depth.

IMPORTED OR EXISTING SITE SUBSOIL

- Used as a free draining subbase to topsoiled areas and a rooting substrate for deeper rooting plants. Subsoil to be approved by the CA prior to spreading topsoil.
- Subsoil to be friable, free draining, free from weeds and stone greater than 75mm in any dimension, free from phytotoxic compounds, waste, rubble, hazardous or other deleterious material.
- Base of planting beds to be existing approved subsoil broken up and thoroughly decompacted to minimum 300mm depth (or otherwise as necessary to ensure a free draining rooting medium) prior to placing topsoil. Where existing substrates are unsuitable as a subsoil, excavate and remove substrates and replace with an imported subsoil spread to 500mm settled depth.

IMPORTED OR SITE RECLAIMED TOPSOIL

- Used as a planting medium for trees and shrubs.
- Imported topsoil to be an approved quality general purpose topsoil to BS 3882, free of weeds, stones, contamination and all deleterious material.
- Topsoil to be placed on friable, free draining subsoil.
- Topsoil to planting beds to be 500mm settled depth.
- Topsoil in new or replanted beds to be rotovated to 200mm depth to produce a medium tilth, incorporating soil conditioner
- Planting beds to be cleared of weed/grass growth prior to planting.
- All tree and shrub planting pits and planting areas to receive approved quality 'Amenity Bark Mulch' to 75mm settled depth after planting.

5.0 ESTABLISHMENT MAINTENANCE & PLANT GUARANTEE

- All planting beds / tree pits to be kept in a weed free condition.
- Spot treat pernicious or notifiable weeds (e.g. thistle, nettle, dock, ragwort).
- Watering to be undertaken as necessary to ensure good establishment and growth of plants.
- Stakes and ties to be checked and adjusted regularly.
- Litter to be removed from planting beds.
- Pruning to be undertaken as necessary to ensure development of correct form and habit
- All planting and seeding to be subject to 12 month defects replacement guarantee period whereby all failed material to be replaced to original specification.
- Long term maintenance to comprise removal of tree stakes (circa year 3-5 after planting), crown pruning as necessary to maintain shape, removal of damaged or diseased branches and addition of slow release fertiliser in Year 2-3 after planting.

Tree and Scrub Planting

					Area: 2262m²
Species	Common Name	% mix	Density	Specification	Number
Alnus glutinos	Alder	10	1.5 m² spacing	BR 1+1 60-80	151
Betula pendula	Birch	10	1.5 m² spacing	BR 1+1 60-80	151
Betula pubescens	Downy Birch	10	1.5 m² spacing	BR 1+1 60-80	151
Crataegus monogyna	Hawthorn	15	1.5 m² spacing	BR 1+1 60-80	226
Pinus sylvestris	Pine	10	1.5 m² spacing	3L 40-60	151
Prunus spinosa	Blackthorn	10	1.5 m² spacing	BR 1+1 60-80	151
Sorbus aucuparia	Rowan	10	1.5 m² spacing	BR 1+1 60-80	151
Salix caprea	Goat Willow	7.5	1.5 m² spacing	BR 1+1 60-80	113
Salix cinerea	Gret Willow	7.5	1.5 m² spacing	BR 1+1 60-80	11
Ulex europaeus	Gorse	10	1.5 m² spacing	2L 20-30	11

Whip planting within plastic shelters, in accordance with specification. Pine & Gorse in wider diameter shrub shelters

Plants to be planted in odd number groups, minimum 5 plants per group. **Excluding Pine** - single planting spaced throughout plantation

Salix and Alder to be planted within areas of wet soils, notably the northern ditch corridor

Attenuation Basin - Marginal and Emergent Planting

Species
Typha latifolia
Phragmites australis
Caltha palustris
Mernta aquatica
Iris pseudacorus
Myosotis scorpioides

Wetland fringes to be created using translocated material taken from site.

Donor areas of marshy grassland will be cut and turves translocated to the edge of the attenuation basin.

Substrate from wet areas adjacent to the basin will be translocated to the help form the wetland fringe.



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APPENDIX B

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APPENDIX B

