

**Margam Green Energy Plant**

Landscape and Ecology Management  
Plan 2020

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## Issuing office

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# 1 Introduction

- 1.1 BSG Ecology was commissioned by ECO2 Ltd. to update an existing Landscape and Ecological Management Plan (LEMP) for The Margam Green Energy Plant (MGEP) 'the Site', a 40MW biomass fired power station, located at junction 38 of the M4 (SA13 2NW).

## Project background

- 1.2 The Site is subject to multiple planning consents covering the various buildings and infrastructure associated with the MGEP. The principal consents governing development at the Site are:
- P2016/0949 for the main biomass plant
  - P2015/0992 for the waste wood storage building
  - P2016-0895 for the administration building.
- 1.3 All these consents refer to the implementation of a (LEMP).
- 1.4 The plant was transferred to the operator in 2019 and ECO2 is currently in the process of addressing outstanding planning conditions. A planning application for a new equipment store at the Site has also been submitted.
- 1.5 A LEMP (Morgan Henshaw, 2014) was produced to support the original planning application for the MGEP. This was followed by an addendum in 2016 to reflect an amended landscape scheme (AX-1065-PL-01 REV F) and incorporated a new administration building and several minor material amendments to the main plant.
- 1.6 An ecological walkover was undertaken by BSG Ecology in November 2019 to confirm the current Site conditions. This identified that elements of the approved landscape scheme, namely retention of marshy grassland habitat, creation of reptile hibernacula and some areas of new woodland planting have not been fully implemented.

## Planning review

- 1.7 Given its complex history, a planning audit of the MGEP was undertaken by ECO2 to confirm the operative planning permissions/approved schemes and determine the status of the associated planning conditions. The audit identified several conditions relating to Site ecology and landscaping which have not been discharged or fully implemented. These are listed in Table 1 for the main biomass plant permission (planning ref P2016/0949) along with a summary of their requirements and status. Corresponding conditions attached to the operant permissions for the waste wood storage and administrative buildings (planning refs P2015/0992 and P2016/0895) were also identified.
- 1.8 The planning audit set out recommendations for the MGEP to achieve compliance with the operative planning permissions. The recommendation regarding Site ecology and landscaping is to rationalise the undischarged planning conditions through the approval of a revised landscape scheme (2774-01-05) and LEMP (this document) as detailed in Table 1. These documents will form part of the planning submissions for the new equipment store and a s73 application to replace conditions which either no longer apply or cannot be fully implemented.

Table 1: Summary requirements of outstanding planning conditions (P2016/0949).

| Planning condition | Summary of outstanding requirements                            | Status         | Proposed method of discharge/rationalisation |
|--------------------|----------------------------------------------------------------|----------------|----------------------------------------------|
| Condition 2        | Submission and approval of an updated Landscape and Ecological | Not submitted. | Addressed by submission of LEMP (2020).      |

| Planning condition | Summary of outstanding requirements                                                                                                                          | Status                                                                                                                                                                                                                                                                                                                                                 | Proposed method of discharge/rationalisation                                                                                                                                                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | Management Plan (LEMP).                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                           |
| Condition 6        | Implementation of details within previously submitted documents (LEMP & Addendum, Reptile Mitigation Strategy, Landscape scheme and planting specifications) | References superseded documents and conflicts with approved documents listed in Condition 26.                                                                                                                                                                                                                                                          | Addressed by submission of LEMP (2020). Reptile translocation implemented as per approved details during construction and no longer required.                                                                                                             |
| Condition 7        | Submission and approval of a scheme for the monitoring of retained marshy grassland and monitoring to be undertaken for a period of 5 years.                 | Not submitted. Marshy grassland not retained. Area sown with a wet meadow seed mix with the intention of recreating the habitat. However, given that the ground levels have been raised significantly with material excavated from the adjacent attenuation basin, drainage conditions are not appropriate for the establishment of this habitat type. | Updated landscape scheme includes a new pond and area of wet/marshy grassland to offset the loss of marshy grassland as far as practicable given the available space, ground levels and hydrology.<br><br>LEMP (2020) includes habitat monitoring scheme. |
| Condition 15       | Implementation of previously approved ecological mitigation works.                                                                                           | Superseded by subsequent LEMP updates.                                                                                                                                                                                                                                                                                                                 | Addressed by LEMP (2020) as far as practicable given the available space, ground levels and hydrology.                                                                                                                                                    |
| Condition 16       | Implementation of previously approved reptile capture and relocation works                                                                                   | Strategy implemented as agreed.                                                                                                                                                                                                                                                                                                                        | Reptile translocation implemented as per approved details during construction and no longer required.                                                                                                                                                     |
| Condition 26       | Implementation of listed landscaping schemes and LEMPs                                                                                                       | LEMP and landscape scheme have not been implemented according to the submitted and approved details.<br><br>Marshy grassland not retained and impractical to reinstate due to level changes. Reptile hibernacula and some woodland planting not implemented.                                                                                           | Addressed by LEMP (2020) and landscape scheme as far as practicable given the available space, ground levels and hydrology.                                                                                                                               |

1.9 In addition, and as set out above, ECO2 have submitted a planning application for a new equipment store. The revised LEMP (this document) takes the proposed equipment store into consideration.

### Purpose of document

1.10 The purpose of the LEMP (2020) and the accompanying landscape scheme is as follows:

- i. To mitigate the loss of marshy grassland, dense scrub/wet woodland, hedgerow, and reptile habitat for the existing Site and the proposed equipment store.
- ii. To maximise the long-term biodiversity value of the Site through appropriate habitat management and monitoring.

- iii. To enable the rationalisation of existing planning conditions relating to Site landscaping and ecology

- 1.11 It sets out the proposed habitat creation, enhancement and management measures, a series of management objectives and a monitoring programme to assess progress against those objectives.
- 1.12 Detail on how each element of the plan will be implemented is presented as a series of management prescriptions with an accompanying works schedule which covers an initial five year period. Management prescriptions can be rolled forward, subject to review, for the 15 year duration of the LEMP and to inform Site management in the long-term.

### **Scope**

- 1.13 This document covers only those landscape elements for which the MGEP operator is responsible. These are indicated on the amended landscape plan (2774-01-05). Whilst the previously approved LEMP incorporated landscaping within the access road planning application boundary, these features are to be adopted by NPTCBC and therefore excluded.

### **Consultation**

- 1.14 A site meeting was held on 4 March 2020 between Caroline O'Rourke, Senior Ecologist at BSG Ecology, and Rebecca Sharp, Ecologist at Neath Port Talbot County Borough Council (NPTCBC). The purpose of the meeting was to review the existing Site conditions and constraints, which include changes in ground levels (and therefore hydrology) in the area originally intended for retention of marshy grassland and restricted space for additional habitat creation, and to agree an approach for the amended landscape scheme.
- 1.15 It was acknowledged that an overall reduction in the total area of habitat delivered by the new scheme would be unavoidable given the Site constraints. It was therefore agreed that the amended landscape scheme should prioritise creation of woodland and marshy grassland as far as possible where space and ground conditions allowed and include the following elements:
  - i. Creation of marshy grassland/marginal vegetation e.g. a new pond pond/scrape where this habitat has been lost in the north-east of the Site. Features for grass snake e.g. egg laying heap/basking features to be included close to the pond.
  - ii. Woodland planting along Site boundaries where possible to act as a buffer to existing wet woodland, including linking the existing hedge to new planting on north-eastern boundary to restore connectivity. Assessment of ground conditions in proposed woodland planting areas and appropriate pre-planting and aftercare measures implemented to prevent failures.

## 2 Ecological Features to be Managed

### Existing habitats

#### **Attenuation/balancing pond**

- 2.1 The balancing pond was sown with a mixture of native wildflowers and grasses tolerant of periodic inundation and translocated material from existing areas of swamp including common reed. Swamp vegetation consisting of soft rush, common reed and great reed-mace *Typha latifolia* is well established in the base of the pond, with grassland establishing on the banks along with some ruderal vegetation such as coltsfoot *Tussilago farfara*.

#### **Grassland to north-east of MGEP**

- 2.2 The area directly to the east of the woodchip building, shown as retained marshy grassland on the 2016 landscape plan (AX/1065/PL/01F), was sown with a wet meadow seed mix following deposition of material excavated from the adjacent attenuation pond with the intention of recreating marshy grassland. However, given that the ground levels have been raised, it is doubtful that the drainage conditions are now appropriate for the establishment of this habitat type.
- 2.3 The vegetation which has established is a mosaic of ephemeral/short perennial vegetation, tall ruderals and establishing grassland and is variable in composition, reflecting the recent disturbance. Common ruderal species typical of disturbed areas such as teasel *Dipsacus fullonum*, hemp agrimony, black mustard *Brassica nigra* and Canadian fleabane are present throughout, interspersed with similar ephemeral/short perennial species.
- 2.4 More established/vegetated areas consist of a mixture of grasses including common couch *Elymus repens*, perennial rye grass *Lolium perenne*, cock's foot *Dactylis glomerata*, creeping bent *Agrostis stolonifera* and timothy *Phleum pratense* with some herbs included in the seed mix such as red clover *Trifolium pratense* and greater bird's-foot trefoil *Lotus pedunculatus*.

#### **Species rich grassland**

- 2.5 All other grassed areas were sown with a native meadow mix of 20% wildflowers and 80% grasses. These are in the process of establishing and currently include a mixture of native grasses and ephemeral/short perennial species which rapidly colonise bare ground including ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, greater plantain *Plantago major* and annual meadow grass *Poa annua*.

### Habitats to be created

#### **Pond**

- 2.6 A new pond will be located to the north-east of the MGEP (as shown on 2774-01-05). This is intended to partially offset the loss of marshy grassland intended for retention in the original landscape proposals and will increase botanical diversity, provide habitat for reptiles, amphibians, and invertebrates, and increase foraging opportunities for bats and birds. The pond will be lined and fed by rainwater.

#### **Marshy/inundation grassland (new attenuation basin)**

- 2.7 Inundation grassland will be established in the base of the new attenuation basin for the proposed equipment store. Once constructed, the basin will be sown with a mixture of native wildflowers and grasses tolerant of periodic inundation. This will partially offset the loss of marshy grassland intended for retention in the original landscape proposals and provide habitat for reptiles and amphibians along with foraging opportunities for bats and birds.

***Native woodland/scrub***

- 2.8 The previously approved area of woodland/dense scrub east of the woodchip building will be planted to the original specification. Additional areas of native woodland/scrub will also be planted outside the security fence on the northern and western boundaries to compensate for previously approved woodland in the footprint of the equipment store which was not planted (see 2774-01-05).

***Native hedgerow***

- 2.9 Two new native hedgerows will be planted to link areas of establishing scrub within the access road planning permission boundary with the existing hedgerow to the north as shown on 2774-01-05.

***Species-rich grassland/scrub mosaic***

- 2.10 Areas identified as species-rich grassland/scrub mosaic will be sown with a native meadow seed mix (see 2774-01-05). Once the grassland is established, scrub will be allowed to generate naturally in a scattered fashion over a maximum of 10% of the total area. This will provide valuable habitat for reptiles, amphibians, and other wildlife.

***Reptile hibernacula and basking sites***

- 2.11 The previously approved reptile refugia/hibernation sites will be constructed in the locations indicated on 2774-01-05 to provide shelter for reptiles and amphibians.
- 2.12 An additional, south facing bank to encourage basking will be created adjacent to the new pond. Cuttings arising from grassland management within the Site will be piled adjacent to the bank to enhance the area for grass snake by provided egg laying opportunities.

### 3 Balance of habitat gain and loss

3.1 The previously approved LEMP (2014) identified four ecological commitments from the Environmental Statement (ES) and a previous Environmental Management Plan (TACP, 2009) These were:

- i. Vegetation retention and enhancement
- ii. Rhododendron clearance
- iii. Reptile translocation
- iv. Wet woodland/dense scrub creation

#### ***Rhododendron clearance and reptile translocation***

3.2 ECO2 have confirmed that rhododendron clearance and reptile translocation were completed in accordance with the approved details during construction.

#### ***Vegetation retention and enhancement***

3.3 The commitment to vegetation retention and enhancement states “*retention of original vegetation wherever possible... where this is not possible areas lost should be replaced through landscape planting*”. This commitment is noted as relating specifically to marshy grassland in the north-east of the Site which was intended to remain unaffected by development at the time the ES was produced.

3.4 Due to practicalities during construction, material excavated from the adjacent attenuation pond was deposited on this area and sown with a wet meadow seed mix with the intention of recreating marshy grassland. However, given that the ground levels have been raised significantly, the drainage conditions are no longer appropriate for the establishment of this habitat type.

3.5 The LEMP (2014) notes that very little marshy grassland would be retained in the final development platform. It states that the ES commitment would however be met by replacement of a range of open habitats including species-rich grassland around the Site along with marshy grassland and swamp within drainage swales.

#### ***Wet woodland/dense scrub creation***

3.6 The footprint of the proposed equipment store is currently occupied by a temporary hard standing and building. This area was allocated to woodland/scrub planting and species-rich grassland in the 2016 landscape scheme. To offset this loss, additional woodland and species-rich grassland creation has been incorporated into the 2020 scheme using available space outside the security fence on the northern and western boundaries.

**Habitat loss/gain**

- 3.7 Table 2 provides a comparison between the approved (2016) landscape scheme (AX/1065/PL/01F) and the current proposals (2774-01-05) within the LEMP (2020) boundary.

Table 2: Summary of changes to landscape proposals within MGEP boundary

| LANDSCAPE ELEMENT                                         | AREA IN APPROVED (2016) LANDSCAPE SCHEME (WITHIN MGEP BOUNDARY) (m <sup>2</sup> ) | AREA IN PROPOSED (2020) LANDSCAPE SCHEME (m <sup>2</sup> ) | LOSS/GAIN (m <sup>2</sup> ) |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------|
| Existing balancing pond                                   | 1015                                                                              | 1015                                                       | 0                           |
| New pond                                                  | 0                                                                                 | 250                                                        | 250                         |
| New swale                                                 | 0                                                                                 | 445                                                        | 445                         |
| Retained marshy grassland                                 | 887                                                                               | 0                                                          | -887                        |
| <b>Total wetland habitats (m<sup>2</sup>)</b>             | <b>1902</b>                                                                       | <b>1710</b>                                                | <b>-192</b>                 |
| Previously approved woodland                              | 1456                                                                              | 985                                                        | -471                        |
| New woodland - west boundary                              | 0                                                                                 | 310                                                        | 310                         |
| New woodland - north boundary                             | 0                                                                                 | 735                                                        | 735                         |
| New hedgerow                                              | 0m                                                                                | 75m                                                        | 75m                         |
| <b>Total woodland habitats (m<sup>2</sup>)</b>            | <b>1456</b>                                                                       | <b>2030</b>                                                | <b>574</b>                  |
| Species rich grassland/scrub mosaic (all remaining areas) | 5237                                                                              | 4328                                                       | -909                        |
| <b>Total grassland habitats (m<sup>2</sup>)</b>           | <b>5237</b>                                                                       | <b>4328</b>                                                | <b>-909</b>                 |
| <b>Total habitat delivery (m<sup>2</sup>)</b>             | <b>8595</b>                                                                       | <b>8068</b>                                                | <b>-527</b>                 |

- 3.8 Whilst there is an overall reduction in the total area of habitat delivery, which was acknowledged during consultation with NPTCBC's Ecologist, the amended landscape scheme will deliver a mosaic of different vegetation types including additional habitat for reptiles, amphibians, and invertebrates.
- 3.9 Creation of new native woodland/scrub and wetland habitats have been prioritised and incorporated into the new scheme wherever possible. Areas where soil conditions, drainage or ground levels are unsuitable for the creation of these habitats (e.g. much of the development platform constructed of blast furnace slag ('clinker')) has been allocated to species-rich grassland/scrub mosaic to provide additional habitat for reptiles and invertebrates.

- 3.10 As the LEMP (2014) states that the original ES commitment to habitat retention would be delivered through creation of a number of different open habitats, it is considered that the new proposals, including the new equipment store, will still meet this objective.

## 4 Aims and Objectives of Management

- 4.1 This section outlines the ecological management objectives, the overall aim of which is the maintenance and enhancement of the ecological value of the Site for the habitats and species within the local area. A summary of how each objective will be achieved is set out below.

### Objective 1 – Create new ecologically valuable habitats within the Site

- 4.2 Rationale: To mitigate for the loss of marshy grassland, dense scrub/wet woodland, hedgerow, and reptile habitat, enhance the Site for existing wildlife and to promote an increase in biodiversity through increasing the Site's suitability for locally occurring species. The habitat types to be created and the species they are likely to benefit are shown in Table 3.

Table 3: Habitat creation and associated biodiversity benefits.

| New habitat                                         | Purpose                                                                                                                                                                                                                                                                                                                                       | Biodiversity benefits                                                                                                                     |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Pond                                                | Offset the loss of marshy grassland by providing new alternative wetland habitats (aquatic and marginal vegetation).                                                                                                                                                                                                                          | Enhance botanical diversity, increase opportunities for invertebrates, increase foraging value for reptiles, amphibians, bats, and birds. |
| Marshy/inundation grassland (new attenuation basin) | Offset the loss of marshy grassland by providing new damp grassland habitat.                                                                                                                                                                                                                                                                  | Enhance botanical diversity, increase opportunities for invertebrates, increase foraging value for reptiles, amphibians, bats, and birds. |
| Native woodland/scrub                               | Implement previously agreed woodland planting and offset the loss of dense scrub/wet woodland within the footprint of the equipment store by providing new native planting. Provide a protective barrier to retained areas of wet woodland surrounding the Site.                                                                              | Increased opportunities for foraging bats, nesting birds and invertebrates.                                                               |
| Native hedgerow                                     | Offset the loss of hedgerow with new native planting and create connectivity between new and retained hedgerow and woodland/scrub.                                                                                                                                                                                                            | Increased opportunities for foraging bats, nesting birds and invertebrates. Enhanced connectivity between the Site and local landscape.   |
| Species-rich grassland/scrub mosaic                 | Offset the loss of previously approved species-rich meadow grassland replaced by woodland planting and within the footprint of the equipment store.<br><br>Establish species rich vegetation in all available areas around the development plateau where conditions are unsuitable for the establishment of wet woodland or marshy grassland. | Enhance botanical diversity, increase opportunities for invertebrates, increase foraging value for reptiles, amphibians, bats, and birds. |

### Objective 2 – Maintain and enhance existing habitats on Site

- 4.3 Rationale: To maximise the biodiversity value of existing elements of the previously approved landscape scheme. The habitat types to be maintained and the species they are likely to benefit are shown in Table 4.

Table 4: Previously created habitats and associated biodiversity benefits.

| Existing habitat           | Purpose                                                                                                                                           | Biodiversity benefits                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Attenuation/balancing pond | Offset the loss of marshy grassland and swamp vegetation. Provide habitat for reptiles and amphibians.                                            | Increase foraging value for reptiles, amphibians, bats, and birds.                                                                        |
| Species rich grassland     | Offset the loss of semi-improved neutral grassland. Establish species rich grassland and scrub as reptile habitat around the development plateau. | Enhance botanical diversity, increase opportunities for invertebrates, increase foraging value for reptiles, amphibians, bats, and birds. |

### Objective 3 – Maintain and enhance the Site for protected, Section 7 and locally important species

- 4.4 Rationale: To increase the suitability of the Site for protected, Section 7<sup>1</sup> and locally important species recorded at the Site or known to be present in the local area by enhancing the existing retained and newly created habitats. The enhancement measures to be incorporated into the Site are shown in Table 5.

Table 5: Habitat enhancement measures and associated biodiversity benefits.

| Enhancement measure                                                        | Purpose                                                                                                                              | Biodiversity benefits                                |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Hibernacula and basking features                                           | Implement previously agreed hibernacula and provide additional habitat value for reptiles with a new basking bank.                   | Increased opportunities for reptiles and amphibians. |
| Manage area around new pond to maximise value for reptiles and amphibians. | Create a structurally variable sward with areas for basking, foraging and shelter and provision of egg laying heaps for grass snake. | Increased opportunities for reptiles and amphibians. |

### Objective 4 – Monitor the establishment and condition of habitats

- 4.5 Rationale: To assess the status and condition of the retained, enhanced and newly created habitats and implement remedial measures where appropriate to ensure success and longevity of these features for biodiversity.
- 4.6 Monitoring and assessment will be undertaken via annual inspections and a reporting regime for a period of 15 years. Liaison with the NPTCBC Ecologist may be necessary from time to time and their advice sought, as appropriate, in relation to the delivery of the LEMP requirements.

<sup>1</sup> Species of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales under Section 7 of the Environment (Wales) Act, 2016.

## 5 Prescriptions for Management

### Overview

- 5.1 This section sets out the principles of habitat creation, enhancement and management that have been incorporated into the updated landscape scheme (Axis drawing ref).
- 5.2 Each objective has a series of management prescriptions to achieve that objective. Each management prescription is divided into two sections: provision of the habitat/feature and management of the habitat/feature following creation/enhancement/installation.
- 5.3 Each management prescription is assigned a code (e.g. 1A, 2A, 2B), which relates to the habitat type or feature that is to be created or enhanced under the relevant objective. This coding system is used in the Work Schedule (Section 6) and has been designed to enable the reader to cross reference to the detail set out in this section.
- 5.4 The key biodiversity benefits described are based on the species that have been identified as present within the Site during the planning process or are associated with the local area. The management of the various ecological features is designed to benefit those species and achieve an overall biodiversity benefit for the Site.

### Legislative considerations

- 5.5 Table 5 identifies ecological constraints that may influence management prescriptions for the Site within certain periods of the year. A number of these constraints arise from legislation protecting certain species or species groups which is summarised in Appendix 1.

Table 5: Ecological factors, habitats and seasonal management constraints

| Ecological factor                                                        | Habitat management consideration                                  | Seasonal constraints                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bird nesting season                                                      | Management of hedgerows, trees and scrub                          | Tree, scrub, and hedgerow management should be undertaken outside of the bird nesting season (Oct-Feb).<br><br>If works are required during the nesting period, it is recommended that structures / trees / vegetation are inspected by an ecologist to determine the presence of any nests. If active nests are identified, then work in the nesting area would need to be delayed until the young have fledged and/or the nest is no longer in use. |
| Active period for amphibians<br>(Good practice, not a legal constraint.) | Management of water features and surrounding terrestrial habitat. | Groundworks, ground clearance and the significant management of water features risk killing or injury of common amphibians.                                                                                                                                                                                                                                                                                                                           |
| Reptile use of refugia                                                   | Grassland and scrub management.                                   | Groundworks and ground clearance risks killing reptiles in their places of rest. Reptiles will take refuge during their active period and during winter hibernation in abandoned piles of materials such as bricks, tiles, roof sheeting and logs that have become part vegetated over a period of years. Such materials should be moved piece by piece within the period April to August.                                                            |
| Flowering season                                                         | Monitoring of habitats                                            | Monitoring of habitats should be undertaken between May and August to allow a robust assessment of habitat condition and establishment.                                                                                                                                                                                                                                                                                                               |

## Objectives 1 & 2 – Create new ecologically valuable habitats and maintain and enhance existing habitats on Site

### **Prescription 1A – Pond & 2A Balancing pond**

#### **Pond creation**

- 5.6 The new pond will be positioned as indicated on (2774-01-05) allowing for access to all sides to enable future management and monitoring and ensuring an appropriate stand-off from the existing hedgerow.
- 5.7 The pond will be excavated to provide c. 200 m<sup>2</sup> surface area in an organic shape with shallow, sloping margins (maximum 1:3). Topography within the pond will be varied with a maximum (winter) depth of approximately 1.5 m at the centre. The pond will be lined with sand and a heavy-duty pond liner to retain rainwater. Excavated material will be retained to create the reptile hibernacula and basking bank. (see Prescription 3A).
- 5.8 Coir rolls or pallets (<https://www.salixrw.com/product/coir-rolls/> or similar) will be installed around the margins of the pond. Material will be pre-planted with native marginal species such as yellow flag iris *Iris pseudacorus* and purple loosestrife *Lythrum salicaria* and will be installed to the manufacturer's instructions.

#### **Pond management**

- 5.9 Once established, the marginal vegetation will be managed to encourage structural diversity and maximise biodiversity value. Work will be undertaken between September and November to minimise disturbance to wildlife.
- 5.10 Up to 30% of bankside vegetation will be cut to 100 mm every 2 years, rotating around the perimeter so that all vegetation is cut by the end of every 4th year and some cover for wildlife is maintained at all times. Dense stands of larger species such as yellow flag iris and great reed-mace may be selectively thinned by up to 50% every 2-3 years as appropriate. Arisings will be removed and added to the egg laying heap for grass snake.

### **Prescription 1B – Inundation/marshy grassland (equipment store attenuation basin)**

#### **Inundation/marshy grassland creation**

- 5.11 A new attenuation basin will be constructed alongside the proposed equipment store (2774-01-05). Once constructed the basin will be used to establish species-rich inundation/marshy grassland.

#### **Ground preparation and sowing**

- 5.12 Following the completion of construction work, soil in the basin and sides will be cultivated to a fine tilth with stones and any other deleterious material greater than 50 mm removed and then left for two to three weeks prior to sowing to allow any weeds in the seed bank to germinate and be removed, either by hand or with herbicide. The basin and sides will be sown with Emorsgate EM8<sup>2</sup> (2774-01-05) at 3-5gms/m<sup>2</sup> to the supplier's instructions into the prepared ground.

#### **Establishment**

- 5.13 In years one and two maintain vegetation at 50-100 mm between July and March by regular mowing, provided ground conditions are dry. All cuttings should be removed.

<sup>2</sup> <https://wildseed.co.uk/mixtures/view/9>

- 5.14 From April to June control weeds by cutting vegetation to 400-600 mm and remove arisings. Control docks, ragwort, thistles, and other perennial weeds by regular pulling and/or spot treatment with herbicide.

#### **Inundation/marshy grassland management**

- 5.15 Once established, the marshy/inundation grassland will be allowed to flower and set seed between spring and summer. Vegetation will be cut to 100 mm annually between late June and late August, with the timing ideally varied from year to year to maximise diversity by allowing both early and late flowering species to set seed. Arisings will be removed and added to the egg laying heap for grass snake (see Prescription 3A).

#### ***Prescription 1C – Native woodland/dense scrub***

##### **Woodland/dense scrub creation**

- 5.16 Areas of woodland/dense scrub will be planted in a 2 m grid to the specification shown on (see 2774-01-05) with single species planted in groups of three or five plants. A proportion of the stock will be sessile oak to allow the natural long-term development of scrub into oak woodland.
- 5.17 Stock will be pit planted in accordance with BS 8545 Trees from Nursery to Independence in the Landscape. If the existing substrate is poor pits will be backfilled with an appropriate growing medium to ASTM D5268 – 19: Standard Specification for Topsoil Used for Landscaping and Construction Purposes.

##### **Woodland/scrub management**

- 5.18 New woody plants will be watered as necessary, to ensure survival. The bases of the newly planted scrub species will be kept weed free, either using mulch mats or regular weed removal. Within the first five years, any planted scrub species that fail to establish will be replaced by similar plants at the same location during the next planting season.
- 5.19 Further management will be on an ad-hoc basis, depending on the growth rate and extent of the scrub. Where cutting is required, for example if the scrub begins to encroach onto the security fence, this will be carried out between November and February inclusive to avoid the breeding bird season.

#### ***Prescription 1D – Native hedgerow***

##### **Hedgerow creation and establishment**

- 5.20 New hedgerows will be planted to the 2014 specification between November and March (see 2774-01-05). Stock will be cut back by 30% immediately after planting and by 50% after 12 months to encourage a dense structure.

##### **Hedgerow management**

- 5.21 Management will be undertaken between November and February to avoid the bird nesting season.
- 5.22 Hedgerows will be allowed to grow to a height of 3-4 m and ideally a width of 3 m. Annual extension growth may be lightly trimmed (avoiding cutting into old growth) during this period to maintain access and visibility as desired. Thereafter, the hedge will be cut to maintain the desired height once every three years.

**Prescription 1E & 2B Species rich grassland/scrub mosaic****Species rich grassland/scrub creation and establishment**

- 5.23 Areas identified as new species-rich grassland/scrub mosaic will be sown in early autumn with a native species seed mix designed for low fertility and drought conditions. This will maximise the chances of successful establishment of a species-rich sward on the existing development plateau which is constructed of blast furnace slag('clinker').

*Ground preparation and sowing*

- 5.24 All areas of clinker on the development plateau will be scarified with an excavator bucket or harrow to break up the existing surface and introduce topographical variation. A layer of compost will then be spread across the area to a depth of 30 mm.
- 5.25 Prepared ground will then be sown with Emorsgate EM6 Seed Mix<sup>3</sup> at 4g/m<sup>2</sup> to the supplier's instructions. Seed will be firmed in by rolling or treading.

*Establishment*

- 5.26 In years one and two maintain vegetation at 50-100 mm between July and March by regular mowing, provided ground conditions are dry. All cuttings should be removed.
- 5.27 From April to June control weeds by cutting vegetation to 400-600 mm and remove arisings. Control docks, ragwort, thistles, and other perennial weeds by regular pulling and/or spot treatment with herbicide.

**Management of species rich grassland/scrub mosaic**

- 5.28 Once the grassland is established, scrub will be allowed to generate naturally in a scattered fashion over a maximum of 10% of the total area. This will provide valuable habitat for reptiles, amphibians, and other wildlife.
- 5.29 Grassland areas will be cut to a height of 100 mm annually in July/August and all arisings removed and added to the grass snake egg laying heap. Cutting will be on a rotational basis, with a maximum of 50% of the total area cut in any one year to ensure continuity of some cover and foraging resource for reptiles, invertebrates, and other wildlife.

**Objective 3 – Maintain and enhance the Site for protected, Section 7 and locally important species****Prescription 3A – Reptile hibernation and basking features****Hibernacula & basking bank creation**

- 5.30 The hibernacula and basking bank are to be constructed to the specification in Appendix 2. Hibernacula will be a minimum of 3 m long, by 2 m wide by 1 m high. The basking bank will be 2 m wide by 1 m high and extend along the length of the southern edge of the new woodland/scrub planting.

**Management of hibernacula and basking bank**

- 5.31 The condition of the hibernacula & basking bank will be checked annually in summer. Material will be replenished as required. Problem weeds such as docks and thistles will be controlled either by hand pulling or spot treatment with an appropriate herbicide as required.

<sup>3</sup> <https://wildseed.co.uk/mixtures/view/7/meadow-mixture-for-chalk-and-limestone-soils>

- 5.32 The basking bank will be managed to Prescription 3B to prevent encroachment by scrub or ruderal vegetation and ensure continuity of suitable open areas for basking.

***Prescription 3B Manage area around new pond to maximise value for reptiles and amphibians***

- 5.33 Grassland around the new pond will be managed to provide favourable habitat for reptiles by maintaining a mosaic of open habitats and mid-successional scrub. All vegetation management in this area will be undertaken between November and February to avoid harm to reptiles, amphibians and nesting birds.
- 5.34 Grassland will be cut to a minimum height of 150 mm in winter and will be undertaken in an irregular fashion with several patches totalling 25% of the total area cut in any one year to create structural diversity. Arisings will be piled along the southern side of the basking bank to provide egg laying opportunities for grass snake. Scrub will be allowed to naturally colonise and thereafter will be maintained at a maximum of 10% of the total area. Excess scrub will be cut to ground level between November and February and arisings added to the hibernacula piles.

***Objective 4 – Monitor the establishment and condition of habitats***

- 5.35 An annual visit will be undertaken by an ecologist for the 15-year span of this LEMP, commencing in the first year after completion of habitat creation and enhancement. The visit will be undertaken in late spring/early summer during the optimum period for ecological survey.
- 5.36 Each monitoring visit will include the following:
- An assessment of the condition of all habitats on Site
  - An assessment of management carried out in the previous year
  - Recording of any incidental wildlife sightings.
- 5.37 A brief report will be prepared to document the findings of the annual visits and provide recommendations of any remedial action or changes in management as required. This report will then be submitted to NPTCBC for information on years 1, 2, 3, 5, 10 & 15.

## 6 Work Schedule and Responsibilities

### Work Schedule

- 6.1 Table 6 sets out the timings and frequency for each of the management prescriptions. This schedule covers an initial period of five years but can be rolled forward to inform Site management in the long-term.

### Management and operational responsibilities

The MGEP operator will be ultimately responsible for implementation of the LEMP and delivery of its objective, supported by appropriately experienced contractors where appropriate.

Table 6: Timings of management and monitoring

| Table 6: Timings of management and monitoring |                                           |      |   |   |   |   |
|-----------------------------------------------|-------------------------------------------|------|---|---|---|---|
| Management prescription                       | Timing                                    | Year |   |   |   |   |
|                                               |                                           | 1    | 2 | 3 | 4 | 5 |
| <b>Objective 1</b>                            |                                           |      |   |   |   |   |
| <b>1A: New pond</b>                           |                                           |      |   |   |   |   |
| Pond excavation and planting                  | September- October                        |      |   |   |   |   |
| Cut 30% of marginal vegetation                | September- November                       |      |   |   |   |   |
| Thin bulky marginals by up to 50%             | September- November                       |      |   |   |   |   |
| <b>1B: Attenuation basin</b>                  |                                           |      |   |   |   |   |
| Ground preparation and sowing                 | First spring or autumn after construction |      |   |   |   |   |
| Maintain vegetation at 50-100 mm              | July-March                                |      |   |   |   |   |
| Maintain vegetation at 400-600 mm             | April-June                                |      |   |   |   |   |

|                                                                 |                      |  |  |  |  |  |
|-----------------------------------------------------------------|----------------------|--|--|--|--|--|
| Spot treat weeds                                                | April-June           |  |  |  |  |  |
| Cut vegetation to 100 mm                                        | Late June-August     |  |  |  |  |  |
| <b>1C: Woodland and scrub</b>                                   |                      |  |  |  |  |  |
| Planting                                                        | November to March    |  |  |  |  |  |
| Check stock for damage & disease.                               | September            |  |  |  |  |  |
| Remove dead, dying & diseased stock and replace with equivalent | November-March       |  |  |  |  |  |
| Trim annual extension growth to maintain access (if required)   | November to February |  |  |  |  |  |
| <b>1D: Hedgerow</b>                                             |                      |  |  |  |  |  |
| Planting & cut back by 30%                                      | November to March    |  |  |  |  |  |
| Cut back by 50%                                                 | November to March    |  |  |  |  |  |
| Check stock for damage & disease.                               | September            |  |  |  |  |  |
| Remove dead, dying & diseased stock and replace with equivalent | November-March       |  |  |  |  |  |
| Trim annual extension growth to maintain access (if required)   | November to February |  |  |  |  |  |
| Cut to maintain 3-4m height                                     | November to February |  |  |  |  |  |
| <b>1E: Species-rich grassland/scrub mosaic</b>                  |                      |  |  |  |  |  |
| Ground preparation and sowing                                   | September-October    |  |  |  |  |  |
| Maintain vegetation at 50-100 mm                                | July-March           |  |  |  |  |  |
| Maintain vegetation at 400-600 mm                               | April-June           |  |  |  |  |  |
| Spot treat weeds                                                | April-June           |  |  |  |  |  |

|                                                         |                     |  |  |  |  |  |
|---------------------------------------------------------|---------------------|--|--|--|--|--|
| Cut 50 % of vegetation to 100 mm                        | Late June-August    |  |  |  |  |  |
| Maintain scrub at maximum 10% of total area             | November-February   |  |  |  |  |  |
| <b>Objective 2</b>                                      |                     |  |  |  |  |  |
| <b>2A: Balancing pond</b>                               |                     |  |  |  |  |  |
| Cut 30% of marginal vegetation                          | September- November |  |  |  |  |  |
| Thin bulky marginals by up to 50%                       | September- November |  |  |  |  |  |
| <b>2B: Species-rich grassland/scrub mosaic</b>          |                     |  |  |  |  |  |
| Cut 50 % of vegetation to 100 mm                        | Late June-August    |  |  |  |  |  |
| Maintain scrub at maximum 10% of total area             | November-February   |  |  |  |  |  |
| <b>Objective 3</b>                                      |                     |  |  |  |  |  |
| <b>3A: Reptile hibernacula and basking bank</b>         |                     |  |  |  |  |  |
| Creation                                                | September-October   |  |  |  |  |  |
| Check and replenish materials (as required)             | June-July           |  |  |  |  |  |
| Hand pull or spot check weeds                           | June-July           |  |  |  |  |  |
| <b>3B Area around new pond</b>                          |                     |  |  |  |  |  |
| Cut 25% of vegetation to 150 mm in an irregular fashion | November-February   |  |  |  |  |  |
| Maintain scrub at maximum 10% of total area             | November-February   |  |  |  |  |  |
| <b>Objective 4</b>                                      |                     |  |  |  |  |  |
| 4A Annual ecologist inspection                          | May-July            |  |  |  |  |  |

## 7 References

Morgan Henshaw (2014) *Biomass Plant and Access Road to PDR On Land Near Western Wood Energy Plant, 1 Longland Lane, Margam, Port Talbot Landscape and Ecology Management Plan*

Morgan Henshaw (2016) *Margam green energy plant longlands lane, margam, port talbot landscape and ecological management plan addendum*

TACP (2009) *Western Wood Energy Sustainable Energy Plant Port Talbot, Ecological Management Plan*

## Appendix 1: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

### Environment (Wales) Act 2016

The Environment (Wales) Act 2016 passed into law in March 2016. Part 1 of the Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

Section 6 of the Act places a duty on public authorities to '*seek to maintain and enhance biodiversity*' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to '*promote the resilience of ecosystems*'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 in relation to Wales, and applies to those authorities that fell within the previous duty.

Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience. This is expanded on in sub-section (2):

In complying with subsection (1), a public authority must take account of the resilience of ecosystems, in particular the following aspects—

- diversity between and within ecosystems;
- the connections between and within ecosystems;
- the scale of ecosystems;
- the condition of ecosystems (including their structure and functioning);
- the adaptability of ecosystems.

Section 7 concerns biodiversity lists and the duty to take steps to maintain and enhance biodiversity. It replaces the duty in section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

### Birds

All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the

conservation of wild birds (2009/147/EC, 'Birds Directive'<sup>4</sup>) (Regulation 10 (3)) requires that the objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive...' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

## Reptiles

All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as "European Protected species" under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).

All six native species of reptile are included as 'species of principal importance' for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.

Current Natural England Guidelines for Developers<sup>5</sup> states that 'where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.' Further the guidance states: 'Normally prohibited activities may not be illegal if 'the act was the incidental result of a lawful operation and could not reasonably have been avoided'. Natural England 'would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.'

The Natural England Guidelines for Developers state that 'planning must incorporate two aims where reptiles are present:

- To protect reptiles from any harm that might arise during development work;
- To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.'

## Wild mammals in general

The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

<sup>4</sup> 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

<sup>5</sup> English Nature, 2004. *Reptiles: guidelines for developers*. English Nature, Peterborough. <https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006>

## **Appendix 2: Specification for reptile hibernacula**