

Appendix 6-3 – Drehid Habitat Management and Enhancement Plan



Bord na Móna

**Drehid Landfill Extension,
Timahoe South**

Habitat Management and Enhancement Plan

Document Control Sheet

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1. INTRODUCTION

Background

This Habitat Management and Enhancement Plan has been prepared by the Bord na Móna Ecology Team to accompany a planning application for a proposed extension to the existing Drehid Waste Management Facility (WMF) in Timahoe South, Co. Kildare. As part of the assessment of impacts of the proposed development an Environmental Impact Assessment Report (EIAR) has been prepared by TOBIN Consulting Engineers. Habitat and botanical surveys were carried out on the 4th and 5th of May 2022 by TOBIN ecologists. As described in detail in Chapter 6 of the EIAR, the site of the proposed development predominantly comprises recolonised Cutover Bog (PB4) and Birch Woodland (WN7). An area of Scrub (WS1) is located to the north and a linear strip of Dry Meadows and Grassy Verges (GS2) to the west which have potential to support pollinating species.

This document provides details of how the proposed development has been designed to avoid impacts on protected or threatened species as well as habitat management and enhancement measures during the construction and operational phase. These include:

- Pre-commencement measures for the avoidance of habitat loss and disturbance adjacent to the site boundary.
- The management of spoil generated during construction that contains a species rich seedbank and its use in the development of further species rich grassy verges.
- Long term vegetation management to support and further encourage the establishment of suitable habitat within the footprint of the proposed development for a diversity of pollinators and other species.
- Scrub and grassland management out on the finished capped landfill and habitats immediately adjacent.
- The construction of an Integrated Constructed Wetland.
- Enhancement measures to provide new roosting and nesting sites for bats and bird species.

Landscaping measures incorporated into the proposed development are also fully described in Chapter 11 'Landscape and Visual Impact' of the EIAR. Some of these measures are also referred to in this report and in Chapter 6 'Biodiversity' of the EIAR. A landscaping plan has been prepared as part of the proposed development and is provided in Appendix 1 of this report for ease of reference.

2. CONSERVATION MANAGEMENT ACTIONS FOR HABITATS AND LEPIDOPTERA SPECIES

No Marsh fritillary or suitable habitat for Marsh fritillary was recorded within the proposed development site. However, this species has been recorded to the north of the proposed development in the past (2017, 2018, Butterfly Conservation Ireland (BCI)). In addition, species of conservation interest Small skipper (*Thymelicus sylvestris*), Forester moth (*Adscita statices*) and Narrow-bordered five-spot burnet (*Zygaena lonicerae*) have also been recorded to the north of the proposed development site (BnM¹). Consequently, there is potential to create suitable supporting habitat that may encourage the expansion of these species to Timahoe South as part of the capping/reinstatement phases of the proposed waste management facility.

Small skipper (*Thymelicus sylvestris*), has previously been recorded in Timahoe North Bog, with the closest recording located approximately 1km north of the proposed development site. The Small skipper is generally native to the UK, with Timahoe North being the only place in Ireland the butterfly is known to have colonised. Although the Small skipper was not recorded during the surveys, suitable habitat does occur within the study area boundary, including grassy verges along the old rail line and areas of dry grassland.

This report provides measures for the minimisation of impact on local Lepidoptera species (butterflies and moths) during the initial commencement phase of the proposed waste management facility. It also provides specific management actions for the creation of enhanced supporting habitat for local Lepidoptera species post the reinstatement of the capping material over the proposed landfill cells as each phase is completed. The below sections describe the avoidance, enhancement and monitoring measures to be implemented during construction and operation of the proposed waste management facility.

Pre-Commencement Measures

- The works area will be clearly defined and fenced off in advance of the commencement of construction where it borders suitable supporting habitats for locally important pollinator species i.e., Dry meadows and grassy verges. The location of fencing will be undertaken under the guidance of a suitably qualified ecologist. This will avoid damage, loss or disturbance from construction machinery or the storage of materials/machinery.
- Vegetation clearance will be carried out in phases to reduce the initial magnitude of the effect.
- During the enabling works of the proposed development, there will be a need for some initial vegetation clearance and peat/soil stripping to prepare the development footprint.
- Where sub-peat material/mineral soils, gravels or marl are excavated, this material will be stored separately from the peat materials arising for use during the capping/reinstatement phases. This should include any areas where Dry meadows and grassy verges (GS2) occur on such material as this will contain a seed source of local origin that will facilitate revegetation.

Operational Phase Measures:

- The capping of the landfill will cover a total area of 35.75 ha. The following points describe how this area will be managed during the operational phase of the development.

¹ Timahoe North Solar Farm EIAR, Appendix 6-11 Lepidoptera Management Plan (BnM)

- Capping of the waste management facility should use sub-soil material rather than peat. This will generate a more species rich grassy habitat benefiting a wide variety of pollinators and stabilise the soil. A small amount of peat mixed with the sub-soil creates a suitable substrate.
- Natural colonisation is the preferred method in terms of stabilising the spoil surfaces as species are adapted to the specific environmental conditions.
- Wildflower seed mixes will not be used to revegetate the bare soil as they generally do not match the local vegetation. The new All Ireland Pollinator Plan (2021-2025) would recommend not to use these seed mixes in wild landscapes. This is because many seed mixes are not certified, can contain invasive species and, they generally only last for 1-2 years. It is more appropriate to use these seed-mixes in gardens and areas with ornamental planting.
- The use of “Green hay” sourced from suitable habitat locally will be explored and will be used to support reseeding the landfill capping. This will be done in addition to the use of an initial “nurse crop” that will initially revegetate the soil. Primarily, native Irish species red fescue (*Festuca rubra*) and Common bent-grass (*Agrostis stolonifera*) will be used.
- If required, fertiliser can be spread on the bare ground to initially encourage the establishment of vegetation post capping. Such measures will also benefit a diversity of other invertebrate and pollinator species locally.

Post-Capping Habitat Management

- An appropriate mowing regime will be implemented in agreement with a suitably qualified Ecological Clerk of Works (ECoW).
- The mowing regime will benefit pollinators and avoid impact on nesting birds (by mowing outside of the nesting season: 1st March-31st to August).
- Mowing outside of the nesting bird season will also allow most flowering plant species to self-seed while also maintaining suitable habitat for ground nesting birds.
- A combination of establishing a species rich grassland habitat as a landfill capping along with a sensitive mowing regime would benefit pollinators and other fauna generally.
- It is proposed that any mowing to be implemented will not be uniform. For example, the vegetation immediately adjacent to access tracks may be mown once per year in late autumn. Vegetation maintenance/mowing within the larger capped area could be restricted to every 2 years, or half of the area every year. This will avoid impacts on nesting birds and other sensitive ecological receptors. This would also provide a diversity in sward height; help support different plant species and create micro habitats for a range of pollinators and other fauna. The mowing regime will allow wildflowers to flower and self-seed before cutting, similar to management of a typical hay meadow. Such measures will further enhance the diversity of habitats and species already known to occur in the wider area.
- Where managing woody/scrub vegetation this could be done in sections, by cutting back one section in one year and other sections in subsequent years, thereby minimising the extent of labour required and loss of ground cover for local faunal species.
- Where scrub removal or maintenance may be required, cutting should favour the retention of south facing glades and sheltered areas that provide localised climatic conditions favourable to butterfly species.
- South facing banks are important for butterfly species as they provide a warm microclimate for feeding and breeding. As such, scrub management will be more important on the south facing sides of the site, with greater areas of scrub and establishing woodland more appropriate on the north and east facing sides.
- Some grassy areas will be managed using light machinery where accessible on the cap of the facility. Strimming may be more appropriate on the sloped edges, with consideration given to appropriate health and safety. Where vehicular access is used for mowing, this can cause

some ground disturbance. It has been noted that light disturbance creates bare peat/soil areas that are known to be a preferred micro-climate for the Small skipper butterfly, particularly when in occurrence with Yorkshire fog (*Holcus lanatus*) which is eaten by the caterpillars.

- Where tree planting is proposed as part of the landscaping plan, Alder buckthorn (*Frangula alnus*) should be included in suitable sheltered areas and south-facing margins. This species is the food plant of Brimstone butterfly (*Gonepteryx rhamni*) and several moth species. This rare scrub is known to occur in the wider environment in suitable habitats but was not located within the development footprint.

Other Habitat Management Actions

- As described in Chapter 6 of the EIAR, 'the berms enclosing the development from the north, east and west (comprising 12.6 hectares) will be planted with bands of locally sourced native peatland tolerant grass and shrub species. The remaining areas of the berm will be left to naturally revegetate over time. The vegetating of these areas will not only provide new habitats, but will also compact stabilise the peat, reducing runoff of suspended solids.
- 'The land located to the east of the eastern berms will also be vegetated with peat tolerant grass and shrub species creating a natural vegetative buffer between the berms and the drainage ditch, again reducing runoff. If required, fertiliser (in the form of rock phosphate) can be spread on some bare ground to initially encourage the establishment of vegetation post construction'.
- The lands located to the south of the proposed landfill site will benefit from the blocking of drains on the eastern boundary of the site and will likely re-wet overtime. This area covers an area of 16.46 ha. The location of the proposed drain blocks is shown in the accompanying Landscaping plan, see Appendix 1. Blocking drains will raise water levels locally which will maintain groundwater levels higher and help to re-wet previously drained peat. As such, drain blocking will have a localised positive effect. The regeneration of new habitats within this area will be encouraged firstly by reducing all disturbance within the area and allowing natural colonization, and through the creation of new habitats such as fens, reed swamps, heath, *Sphagnum*-rich vegetation communities and wet birch woodland communities, where conditions are suitable.

Integrated Constructed Wetland

As described in the accompanying EIAR, the proposed development will incorporate an Integrated Constructed Wetland (ICW). The development of the ICW will provide a new wetland feature which will be beneficial to invertebrate, amphibians and a range of breeding and wintering waterfowl species. The ICW will be approximately 5.61 ha in size and include a range of locally sourced and native wetland emergent species such as Greater pond sedge (*Carex riparia*), Reed sweet-grass (*Glyceria maxima*), Bulrush (*Typha latifolia*), Common club-rush (*Schoenoplectus lacustris*) and Yellow flag iris (*Iris pseudacorus*). In addition, native trees and shrubs such Alder buckthorn (*Frangula alnus*), Willow, Alder and Downy/Silver birch will also be planted around the ICW where suitable ground conditions can be achieved. The ICW covers an area of 5.61 hectares, along with a further 2.15 ha surrounding this where native tree and shrub species will be planted. The location and extent of this ICW is shown in the accompanying Landscaping plan, see Appendix 1.

The total area of new planted habitat, as detailed above, will equal 72.57 ha.

3. CONSERVATION MANAGEMENT ACTIONS FOR FAUNA SPECIES

Bat Boxes

It is recommended that four bat boxes (Schwegler Woodcrete 1FF bat box or equivalent) are erected on suitable mature trees or on existing buildings within the Bord na Móna landholding. The bat boxes will be erected prior to the construction works commencing and the exact siting of the bat boxes will be undertaken in consultations with a bat specialist/ecologist. The bat specialist will erect the bat boxes with assistance from the appointed Contractor. The bat boxes will be installed following the below points:

- The bat boxes will be located in areas where bats are known to forage or adjacent to suitable foraging areas. Locations should be sheltered from prevailing winds but in unshaded areas.
- The bat boxes should be erected at a height of 4-5m above ground to reduce the potential of vandalism and predation of resident bats.
- Locations for bat boxes should be selected to ensure that the lighting plan for the proposed site does not impact on the bat boxes.
- The diameter of tree should be wide and strong enough to hold the required number of boxes. Telephone poles can also be used, if located within suitable areas.
- It is recommended that several bat boxes should be grouped together at different aspects to provide a range of warm conditions.
- Monitoring of the bat box should be undertaken one year after erection to ensure they are still weather tight and to clear away any debris.

Bird Boxes

It is recommended that four bird boxes are installed within the Bord na Móna landholding. The exact siting of the bird boxes will be undertaken in consultation with an ornithologist/ecologist. The bird boxes will be installed by the ornithologist following the below points:

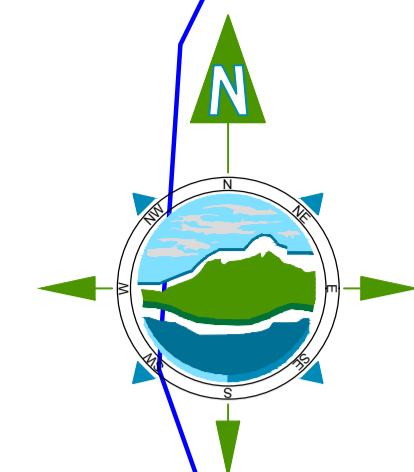
- The bird boxes should be placed at 2-4m above ground level and should face between north and east to avoid strong sunlight and the wettest winds.
- The bird boxes should have a clear flight path to the nest without any clutter directly in front of the entrance.
- The bird boxes should be tilted forward slightly to avoid any driving rain, which will instead hit the roof and bounce clear.

4. MONITORING

- All monitoring requirements will be carried out by a suitably qualified Ecologist.
- As part of the monitoring regime, vegetation establishment and species composition will be monitored. Further reseeded and/or fertiliser will be carried out as necessary.
- Pollinator transects will be conducted as appropriate to ascertain presence/absence of lepidoptera species and inform future enhancement measures.
- Establishment of scrub will be monitored. Small amounts of scrub and trees will be acceptable and provide localised shelter/micro-habitats beneficial to pollinators.
- The correct placement of bird and bat boxes will be documented post installation.

Appendix 1

Landscaping Plan



- Legend:
- PEATLAND TOLERANT GRASS AND SHRUB MIX
 - PROPOSED SCRUB MIX
 - HABITAT ENHANCEMENT AREA
 - DRAIN BLOCKS
 - SITE BOUNDARY
 - SITE OWNERSHIP

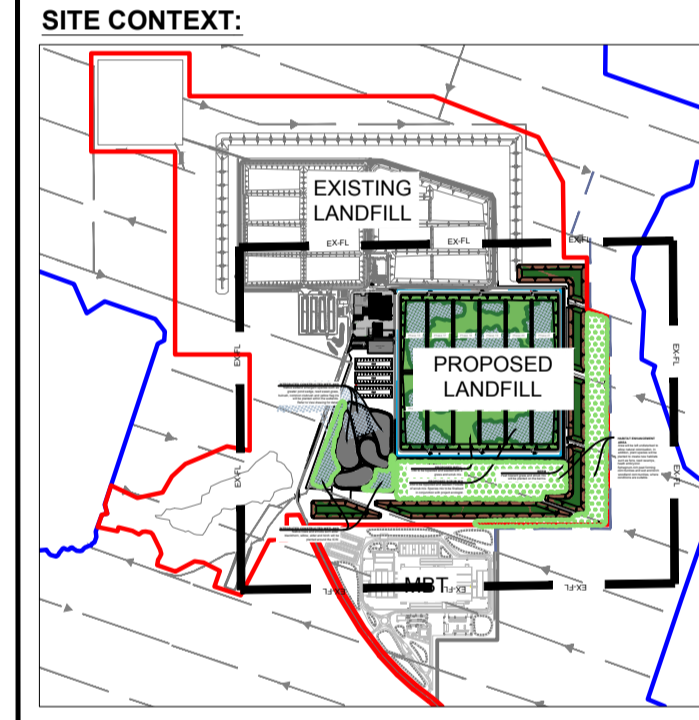
Notes:

Woodland Planting Mix
Woodland planting mix to comprise of High Canopy Dominants (<20%), Low-canopy: Sub-dominants (20-25%), Understorey and Fringe: High-Shrubs (20-40%) and Understorey and Edge: Lower-Shrubs (15-25%). Planting to be allowed to grow to reach maturity.

Species mix to be finalised in conjunction with the project ecologist. All species to be from certified native stock and preferably from an approved supplier of the Green, Low-Carbon, Agri Environment Scheme (GLAS).

WOODLAND MIX SPECIES:

Botanical name	Common name	Size	%
High Canopy (Dominants):			
<i>Quercus robur</i>	Pedunculatae Oak	Standard Tree 200-300cm, 10m x 10m	<20%
<i>Pinus sylvestris</i>	Scots Pine	Standard Tree 200-300cm, 10m x 10m	
Low Canopy (Sub-dominants):			
<i>Alnus glutinosa</i>	Alder	Standard Tree 200-300cm, 10m x 10m	20-25%
<i>Betula pubescens</i>	Downy Birch	Standard Tree 200-300cm, 10m x 10m	
<i>Salix cinerea</i>	Grey Willow	1+1tr 90-120cm, 10m x 10m	
Understorey and Fringe (Higher shrubs):			
<i>Sorbus aucuparia</i>	Rowan	1+1tr 90-120cm	20-40%
<i>Ilex aquifolium</i>	Holly	1+1tr 90-120cm	
Understorey and edge (Lower shrubs and herbs):			
<i>Lonicera periclymenum</i>	Common honeysuckle	1+1tr 40-60cm	15-25%
<i>Vaccinium myrtillus</i>	Bilberry	1+1tr 40-60cm	
<i>Calluna vulgaris</i>	Ling	1+1tr 40-60cm	
<i>Erica tetralix</i>	Heath	1+1tr 40-60cm	
<i>Myrica gale</i>	Bog Myrtle	1+1tr 40-60cm	
<i>Corylus avellana</i>	Hazel	1+1tr 40-60cm	
<i>Viburnum Opulus</i>	Guedler Rose	1+1tr 40-60cm	



INTEGRATED CONSTRUCTED WETLAND
Native wetland emergent species such as greater pond sedge, reed sweet-grass, bulrush, common clubrush and yellow flag iris will be planted within the wetlands. Refer to Vesi drawing for detail.

INTEGRATED CONSTRUCTED WETLAND
Native trees and shrubs such as alder, buckthorn, willow, alder and birch will be planted around the ICW.

HABITAT ENHANCEMENT AREA
Area will be left undisturbed to allow natural colonisation. In addition, plant species will be planted to create new habitats such as fens, reed swamps, heath embryonic Sphagnum-rich vegetation and wet and birch woodland communities, where conditions are suitable.

PROPOSED INFILL
Infill to be topsoiled and seeded with a grass and scrub mix.

PROPOSED SCRUB MIX
Infill to be topsoiled and seeded Pockets of scrub mix. Species mix to be finalised in conjunction with project ecologist.

BERM
Peat tolerant grass and shrub mix will be planted on the berms.

