

## PROPOSED SITE CLOSURE AND RESTORATION

### Restoration Scheme

The principal activity which will be undertaken at the application site is the backfilling and restoration of disturbed lands within an existing sand pit and a neighbouring agricultural field. The objective of the backfilling using imported inert soil and stone waste is to restore the disturbed landform to something similar to that which predated the extraction activity at the site and in so doing provide an improved landform which merges into the surrounding landscape and facilitates the return of the site to agricultural use, refer to the restoration plan provided in Figures 9-1. The subject lands will either be left as natural grassland, let to a local farmer for grazing / tillage purposes or left largely fallow / unattended, to be naturally recolonised by native vegetation.

The waste activity which is the subject of this licence application is, in and of itself, essentially a site closure and remediation project, albeit using imported inert natural soil and stone materials which are managed and controlled as waste. On cessation / completion of backfilling and restoration activities, the bulk of the site closure works will be completed and some minor works will be required thereafter to complete the works. These are outlined below.

### Capping and Decommissioning

A cover layer comprising 150mm of topsoil and approximately 150mm of subsoil shall be placed over the inert filled materials on completion of the filling activities. This will initially be seeded with a native grass mix in order to promote stability and minimise soil erosion and dust generation. In addition, a number of woodland areas will be planted, as per the planting scheme identified on Figure 9-1.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in the restoration of the worked-out pit. The topsoil and subsoil shall be stockpiled separately pending re-use toward the latter stages of the infilling works, when the top surface of filled ground approaches the finished ground levels envisaged by the restoration scheme. These materials shall be stored separately within the application site, away from the active filling areas and in such location and manner as not to create any temporary adverse visual impact or dust nuisance.

### Site Management and Supervision

The Applicant will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information (from the EIAR, planning application and waste licence application) and authority to manage and direct the restoration works. Relevant site based staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

### Decommissioning

On completion of the filling and restoration works, all mobile plant and equipment associated with the waste recovery activities will be removed off-site. Any dedicated site accommodation infrastructure and/or services (not shared with other site activities) will also be progressively decommissioned and/or removed off-site. Any mobile plant or equipment which is shared and also used or required to operate the adjoining concrete production facility will remain in-situ. Where necessary, hard standing surfaces will be broken up using a hydraulic breaker and subjected to validation testing prior to transfer off-site to authorised construction and demolition waste recovery facilities.

### Long Term Security and Safety

At the present time, the former pit / property boundary is secured by entrance gates, post and wire fencing and/or hedgerow. Following licence award, a perimeter survey of the entire property boundary will be undertaken and where necessary, new boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

All components of the barrier system outlined above will remain in place following cessation / completion of waste recovery activities at the application site. Existing hedgerows surrounding the development will be strengthened and thickened where required. These measures, combined with the secure and locked entrance gates to the development will continue to prevent unauthorised third party access.

### Long Term Surface Water and Groundwater Management

Following restoration, surface water will continue to percolate to ground around the application site. There will be no requirement for any active long term surface water or groundwater management at the application site.

### Aftercare and Monitoring

Establishment maintenance will be carried out for 3 years following the planting works (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.

Thereafter, the restored lands will either be let to a local farmer for grazing/tillage purposes or will be left largely unattended, to be naturally recolonised by native vegetation. It is expected that over time, the infilled site will return to a woodland / grassland habitat, similar to that which originally existed prior to sand and gravel extraction, and that the restored landform will ultimately merge into the surrounding local landscape which comprises a woodland / grassland mosaic.



**LANDSCAPE AND RESTORATION PROPOSALS**

The proposed landscape and restoration works at the Halverstown waste recovery site will be carried out in 2 phases, as described below:

**LANDSCAPE PHASE** - to be carried out on commencement of development:

**Hedge Protection Fence:** A sturdy 1.5m high post & wire or post & rail fence (to fulfill the barrier requirements of BS 5837:2012) will be constructed along the canopy line of the existing vegetation to be retained along the boundaries of the fill area, to protect the existing vegetation.

**Native Enhancement Planting to Existing Hedgerows:** The existing vegetation along the site boundary will be augmented in locations, where it is gappy or missing, as indicated on the plan. The *Native Enhancement Planting Mix to Existing Hedgerows* and plant numbers will be as per the table below.

**RESTORATION PHASE** - to be carried out on completion of all filling works:

**Agricultural Land:** That part of the fill area to be restored to agricultural land, as indicated on the plan, will be covered with topsoil, from stockpiles within the site, to a depth of 15cm topsoil and grass seeded.

**Native Woodland Planting with Shrub Understorey:** That part of the fill area to be planted, as indicated on the plan, will be covered with topsoil (from stockpiles within the site) to a depth of ca. 15cm and planted, as per the *Native Woodland Planting Mix with Shrub Understorey* and plant numbers in the table below. This planting will provide ecological enhancement on completion of the extraction works and will compensate for the loss of scrub vegetation due to the waste recovery works.

**GENERAL NOTES - LANDSCAPE WORKS:**

**Grass Seeding:** As soon as the topsoil is placed on the fill area, the areas will be seeded with a suitable grass and/or wildflower seed mix, whilst suitable weather conditions prevail. The surface preparation and the sowing specifications will be as per the manufacturer's instructions.

**Woodland Planting:** Both plant mixes contain locally occurring native species. All stock is proposed to be supplied as transplants at the specified heights, as this type of stock is known to establish more successfully compared to larger stock. All plant handling, planting and establishment works will be carried out in accordance with current best practice and will take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions. The planting will be carried out by a suitably qualified landscape contractor. Establishment maintenance will be carried out for 3 years following the planting works (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.

**NATIVE ENHANCEMENT PLANTING MIX TO EXISTING HEDGEROWS**

Planting to be carried out in locations where the existing boundary vegetation is sparse, as indicated on the plan. Approximately 2,450m<sup>2</sup> in total. To be planted at 2m centres (i.e. 1 plant per 4m<sup>2</sup> = 610 plants in total). Transplants to be planted in random same species groups of 5-8 plants. All plants to be protected with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
<i>Transplants</i>					
215	Crataegus monogyna	Hawthorn	60-90	1+1	35
215	Prunus spinosa	Blackthorn	60-90	1+0	35
30	Quercus robur	Pedunculate oak	60-90	2+0	5
90	Rosa canina	Dog rose	40-60	1+1	15
60	Sambucus nigra	Elder	60-90	1+1	10

**NATIVE WOODLAND PLANTING MIX WITH SHRUB UNDERSTOREY**

Woodland planting to be carried out at 3m centres (i.e. 1 plant every 9m<sup>2</sup>) in a number of areas within the site, as indicated on the plan. Approximately 39,600 m<sup>2</sup> in total (i.e. 4400 plants). Main tree species (i.e. birch, wild cherry and oak) to be planted in groups of 5-8 towards the centre of the planting blocks. Shrub/small tree species to be planted in random same species groups of 8-10. All plants to be protected with spiral guards or alternatively the entire planting block to be enclosed with stock and rabbit proof fencing.

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
<i>Transplants</i>					
220	Betula pendula	Silver birch	60-90	1+1	5
1540	Corylus avellana	Hazel	60-90	1+0	35
660	Malus sylvestris	Crap Apple	60-90	1+1	15
220	Prunus avium	Wild Cherry	60-90	1+0	5
220	Quercus robur	Pedunculate oak	60-90	2+0	5
880	Rosa canina	Dog rose	40-60	1+1	20
<i>Container Grown Shrubs</i>					
660	Ilex aquifolium	Holly	60-80	2 Lt	15

**NOTES**

'Orthomosaic produced from Aerial Photography flown **October 2016** by SLR Consulting Ireland (IAA Permit No. 150052) [www.slrconsulting.com](http://www.slrconsulting.com) Tel. +353-1-2964667.  
Orthomosaic produced using Ground Control Points; Related to Irish Transverse Mercator Coordinate System and OS Malin Head Level Datum.  
All Dimensions and Levels are to be checked on site.  
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Refer to Figure 4-8-1D for the Existing and Proposed Cross Sections.

**LEGEND**

- LICENCE APPLICATION AREA
- LANDSCAPE PHASE:**  
WORKS TO BE CARRIED OUT ON COMMENCEMENT OF THE FILLING OPERATIONS
- EXISTING VEGETATION TO BE RETAINED AND PROTECTED WITH FENCING (IN ACCORDANCE WITH BS 5837:2012) WHERE IT ADJOINS THE FILL AREA
- NATIVE ENHANCEMENT PLANTING TO EXISTING HEDGEROWS
- RESTORATION PHASE:**  
WORKS TO BE CARRIED OUT ON COMPLETION OF ALL FILLING ACTIVITIES
- FILL AREA TO BE RE-GRADED, COVERED WITH TOPSOIL AND GRASS SEEDED
- PROPOSED NATIVE WOODLAND PLANTING WITH SHRUB UNDERSTOREY

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**PROPOSED LANDSCAPE AND RESTORATION PLAN**

**FIGURE 9-1**  
Scale 1:2,500 @ A3 Date JANUARY 2019