Invasive Species Management Plan

Deansgrange Cycle Scheme

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NM Ecology Ltd - Consultant Ecologists
38 Maywood Avenue, Raheny, Dublin 5
Website: www.nmecology.com
Email: info@nmecology.com
Tel: 087-6839771

Executive Summary

Two legally-restricted invasive plant species – Spanish bluebell and three-cornered leek – have been identified within Deansgrange Cemetery in the vicinity of the proposed Deansgrange Cycle Scheme. It is an offence under the *EC (Birds and Natural Habitats) Regulations 2011* to cause the spread of either species. To ensure compliance with this legislation, NM Ecology Ltd has developed a plan for the management of invasive species prior to, during and after construction works.

The management plan includes details of their distribution within the site, an outline of the development proposals, and the legal restrictions that apply to the plant. The management strategy includes the following measures:

1. Pre-construction herbicide treatment and monitoring
2. Biosecurity measures for the construction phase
3. Excavation of invasive species for on-site burial
4. Monitoring the site and spot-treating any re-growth

The measures outlined in this plan will avoid the spread of restricted invasive plant species during the construction of the development. This will ensure compliance with relevant legislation, and minimal disruption of the proposed construction works.

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1 Introduction

1.1 Background to the report

The Deansgrange Cycle Scheme will involve a range of modifications to existing roads and paved surfaces to provide a safe walking and cycling route within the Deansgrange area. It will provide a connection between two of the proposed routes within the Active School Travel project, the "Park to Park" route and the "Mountains to Metals" route. The majority of works will be on existing road surfaces and paved surfaces. Part of the route passes through Deansgrange Cemetery.

Two legally-restricted plant species – Spanish bluebell and three-cornered leek – have been recorded in the vicinity of the working area in Deansgrange Cemetery. In response, NM Ecology Ltd was engaged to develop an Invasive Species Management Plan for the project. This plan outlines the measures that will be implemented to avoid or minimise the spread of Spanish bluebell and three-cornered leek prior to, during and following the proposed works, and to ensure compliance with the law. It is based on current best practise in the treatment of these species.

1.2 Legislative background

Spanish bluebell and three-cornered leek are listed as restricted plant species on the third schedule of the *European Communities (Birds and Natural Habitats) Regulations* 2011 (SI 477/2011, as amended). Relevant extracts from the regulations are reproduced below.

> *49(2) Save in accordance with a licence granted* [by the Department of Housing, Local Government and Heritage]*, any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place* [a restricted non-native plant]*, shall be guilty of an offence.*
>
> *49(3) … it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.*

Therefore, it is an offence under regulation 49(2) to cause the spread of either species. An offence may be avoided if a licence is obtained from the Department of Housing, Local Government and Heritage, and if reasonable steps and due diligence are put in place. In recognition of these regulations, this management plan outlines the reasonable steps and due diligence that will be implemented to ensure compliance with the legislation.

1.3 Characteristics of Spanish bluebell *Hyacinthoides hispanica*

Spanish bluebell is a native of the Iberian countries and North Africa. It is a perennial species that grows from large bulbs. Most of its life cycle occurs in winter and spring, with leaves first appearing in December, and flowers emerging in April and May. Leaves die back in later summer, but dry fruiting stems remain for most of the year. It spreads primarily by seeds, although bulbs can also regrow if moved elsewhere.

Spanish bluebell is considered an invasive species because it readily hybridises with the Irish native bluebell *Hyacinthoides non-scripta*. This poses a threat to the long-term genetic health of the native species.

Fig 1. Spanish bluebells

1.4 Characteristics of three-cornered leek *Allium triquetrum*

This species is also native to countries in the western Mediterranean region. It is a perennial that grows from small white bulbs resembling cloves of garlic. It is a member of the onion family and the whole plant has a faint smell of garlic; for this reason it is often referred to as three-cornered garlic. Its leaves emerge in mid-winter, and it flowers in April and May. By June it often dies back and disappears completely the following winter. It spreads primarily by seeds, although bulbs can also regrow if moved elsewhere.

Three-cornered leek is considered an invasive species because it spreads very rapidly and forms dense infestations that exclude native flora.

Fig 2. Three-cornered leek

2 Distribution of Invasive Species within the Site

These species were initially recorded by Faith Wilson Ecological Consultant during an Ecological Survey of Deansgrange Cemetery in 2021. The following was noted in her report:

> "*Two plant species listed under the Birds and Natural Habitats Regulations 2011 were recorded in the cemetery. These are Three Cornered Leek (Allium triquetrum) and Spanish Bluebell (Hyacinthoides hispanica). The largest infestations of Three Cornered Leek are found near the main entrance (just inside the wall) as shown on* [Figure 3] *but there are scattered plants of this and Spanish Bluebell across the cemetery – it is too large a site to individually map these.*"

A second walkover survey was carried out by NM Ecology Ltd in August 2022 as part of an Ecological Impact Assessment of the Deansgrange Cycle Scheme. Some patches of Spanish bluebell were recorded in the south-east of the cemetery under mature sycamore trees. However, the survey was undertaken outside the growing season of Spanish bluebell or three-cornered leek, so it is unlikely that the distribution of either species was recorded accurately. Therefore, the initial survey by Faith Wilson should be considered the baseline for this management plan.

Outside of Deansgrange Cemetery, the majority of the Deansgrange Cycle Scheme will be constructed on existing roads and paved surfaces. These areas are unsuitable for either Spanish bluebell or three-cornered leek.

Fig 3. Main infestations of three-cornered leek recorded by Faith Wilson in 2021

3 Development Proposals

The proposed development will involve a range of modifications to existing roads and paved surfaces that will provide a safe walking and cycling route that meets the current school and commuting demand within the Deansgrange area. It will provide a connection between two of the proposed routes within the Active School Travel project, the “Park to Park” route and the “Mountains to Metals” route. The majority of works will be on existing road surfaces and

paved surfaces. Some works will require the removal of narrow strips of grassland on roadside verges and within Deansgrange Cemetery.

The general scope of work is as follows:

- Provision of segregated cycle lanes alongside the carriageway, and a new off-road cycle path through Deansgrange Cemetery
- Junction improvements including traffic signal upgrades / installation
- Remodelling of a number of major junctions

The route of the scheme within Deansgrange Cemetery is shown in Figure 4. Detailed drawings and descriptions can be found elsewhere in the planning documentation.

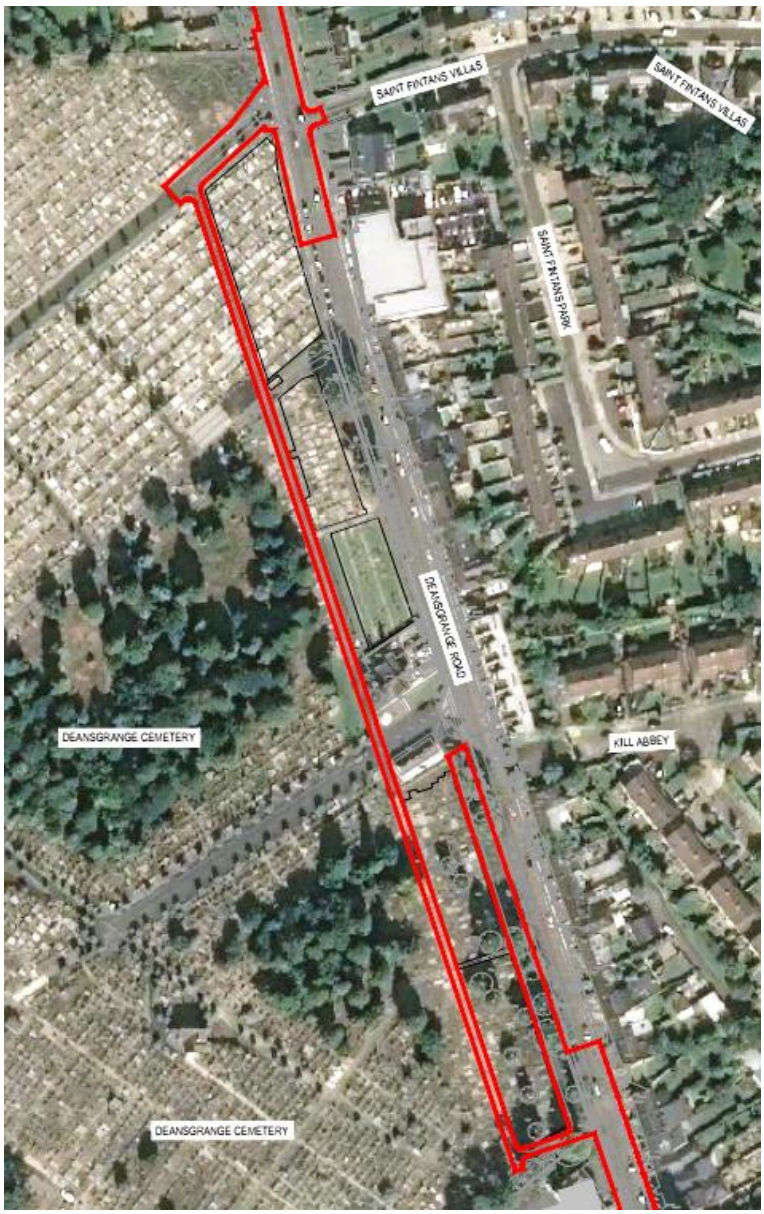

Fig 4. Proposed working area within Deansgrange Cemetery

4 Management Strategy

4.1 Review of treatment options

Spanish bluebell and three-cornered leek have relatively similar ecological characteristics, as both are bulb-forming herbaceous species of a similar size, and they produce leaves and flowers at similar times. Therefore, both species can be managed in the same manner.

Physical control

Leaves can easily be pulled by hand, but plants will regrow from their bulbs. Therefore, it is often necessary to use a shovel or fork to loosen the soil so that bulbs can be removed.

Alternatively, repeated strimming or pulling of leaves will eventually deplete the energy stores of their bulbs. However, this typically requires regular and repeated treatment over at least one year in order to be effective.

Chemical control

Plants for both species can usually be killed using a single application of a systemic herbicide e.g. glyphosate-based herbicides such as Roundup.

Timing of treatment

Either physical or chemical control must be implemented in March or April when plants have fully-formed leaves. Control is not recommended if plants have finished flowering and produced seed (usually from May onwards) because the movement of plants may cause their seeds to spread.

Management of regrowth

Both plants produce abundant seed each year, some of which may remain dormant for a few years before germinating. Therefore, It is often necessary to implement the above physical or chemical treatment for a number of consecutive years in order to deplete the seed bank.

4.2 Management objectives

Based on the treatment options discussed above, the objectives of this management plan are to:

1. Implement physical / chemical control until the commencement of construction
2. Prevent the accidental spread of these species during construction works
3. Remove any plants remaining in the working areas
4. Monitor the site and control any re-growth

4.3 Who will implement the management plan?

Faith Wilson proposed measures for the management of Spanish bluebell and three-cornered leek in her 2021 report. These measures will be implemented by cemetery management staff employed by Dun Laoghaire – Rathdown County Council (DLRCC).

The Deansgrange Cycle Scheme has also been proposed by DLRCC, although it will be implemented by an independent construction contractor. It will take some time to complete the procurement process for the construction contractor, and they may be engaged outside the growing season for invasive species. This means that they may not have time to implement pre-construction physical or chemical control of the invasive species. If engaged outside the growing season, the contractor may not be able to establish the distribution of invasive species accurately.

Therefore, it is recommended that the pre-construction treatment and monitoring of invasive species (Section 5.1 below) is implemented by DLRCC, either by cemetery management staff or a specialist invasive species contractor.

If the invasive species can be eradicated before the commencement of construction, then the construction contractor will not need to take any further action. However, if eradication cannot be achieved, then the contractor will need to implement the remainder of the management plan outlined below (Sections 5.2 onwards). This should be communicated to contractors during the tendering process to ensure that they can account for it appropriately.

5 Details of management measures

5.1 Pre-construction control and monitoring

The distribution of Spanish bluebell and three-cornered leek in the vicinity of the Deansgrange Cycle Scheme will be monitored each year in March or April, and a map will be produced. This will ensure that the construction contractor has an accurate baseline assessment of the distribution of invasive species within the proposed working area.

All patches of these species will be treated annually using either physical or chemical control, as outlined in Section 4.1.

5.2 Isolating the infested areas and implementing bio-security measures

If these species cannot be eradicated before the construction work, there will be a risk of spread during construction works. To prevent accidental spread, the construction contractor will take precautions prior to and during works. These precautions are referred to as ‘bio-security measures’ and will include fencing of existing stands, restrictions on the removal of any materials, and measures to clean any vehicles that work within them.

5.2.1 Exclusion zones

Before any site clearance or site preparation work takes place, exclusion zones will be established around all patches of Spanish bluebell and three-cornered leek. They will be marked with a temporary construction fence (e.g. Heras-style fencing), which will be fixed in position for the duration of works. The exclusion zones will be set back 0.5 m from all above-ground stems of either species. Signs will be attached to the fences to inform construction personnel that the areas contain legally-restricted invasive species, and of the restrictions to work in these areas. In order to avoid or minimise the spread of invasive species from the infested areas, the following bio-security measures must be implemented:

- All unnecessary work within the exclusion zones will be avoided. No vehicles will drive through them, and they will not be used for the storage of materials.
- The contractor's compound will not be placed in any areas containing invasive species
- No soil, vegetation, rubbish or any other material will be removed from them
- The exclusion zones will remain in place until the measures outlined in Section 5.3 have been completed and signed off by an ecologist / invasive species specialist

5.2.2 Toolbox talk

Relevant construction personnel will be given a 'toolbox talk' by the project ecologist / invasive species specialist regarding the procedures for working in the exclusion zone. Where necessary, the ecologist will supervise any work within the exclusion zones, notably the measures outlined in Section 5.3 below.

5.2.3 Cleaning of contaminated vehicles and clothing

Invasive species can easily be snagged in construction vehicles (particularly in tracks), providing a high risk that they can be spread to other parts of the construction site. Therefore, any vehicles or personnel that need to work within the excavation zones will be cleaned before being used in any other construction works, as outlined below:

- All plant material and soil will be removed from the vehicles using shovels and brushes. Special attention will be paid to tracks and joints.
- All removed plant fragments and soils will be returned to the exclusion zones
- When vehicles have been cleaned, they can leave the exclusion zones and be re-used for other construction work

5.3 Excavation and disposal of invasive species

If any Spanish bluebell or three-cornered leek are present in the footprint of works, they will be excavated and buried elsewhere within the Site. This will involve the excavation of all plant material and surrounding soil, digging to a depth and horizontal radius of 0.5 m. The excavated material will then be buried at a depth of at least 1 m below ground level. At this depth, the bulbs will not be able to regrow, and will eventually rot.

As the measures above will involve the movement of legally-restricted invasive species, a licence may be required from the National Parks and Wildlife Service for this process, as per Regulation 49(2) of the *European Communities (Birds and Natural Habitats) Regulations* 2011 (as amended). This management plan can be submitted in support of the licence application.

5.4 Post-construction monitoring and herbicide treatment.

Although the measures outlined in this report should eradicate or remove the vast majority of invasive species from the site, it is possible that some plants may accidentally be overlooked during excavation works, or subsequently re-introduced to the site by a third party (e.g. planted on a grave). To manage this risk, it is best practice to implement a programme of monitoring and spot-treatment after the completion of works.

Monitoring will commence in the year following the completion of construction, and will continue for at least three years after the completion of construction works. This will ensure that any new growth is identified early and can be controlled (physically or chemically) before it becomes established.

6 Conclusion

In recognition of their obligations under the *EC* (*Birds and Natural Habitats) Regulations*, Dun Laoghaire - Rathdown County Council has commissioned NM Ecology Ltd to prepare this management plan on their behalf. The management plan includes pre-construction herbicide treatment and monitoring, 'bio-security' measures for the construction phase, the excavation and burial of plant material, and post-construction monitoring. These approaches are consistent with best practice and are regularly undertaken at construction projects around Ireland.

Subject to the successful implementation of these measures, the contractor would not commit an offence under Regulation 49(2) of the *EC* (*Birds and Natural Habitats) Regulations*. Even if some material was accidentally spread within the site, the contractor would have demonstrated that they "*took all reasonable steps and exercised all due diligence to avoid committing the offence*", as outlined in Regulation 49(3).