

Invasive Alien Plant Species Management and Control Plan (species listed on the  
Third Schedule of the European Communities (Birds and Natural Habitats)  
regulations 2011 (as amended), as regards proposed Spicer's Mill Masterplan,  
Athlumney, Navan, Co. Meath  
September 2022



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## DOCUMENT CONTROL

	
<b>Document:</b>	Invasive Alien Plant Species Management and Control Plan (species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) regulations 2011 (as amended), as regards proposed Spicer's Mill Masterplan, Athlumney, Navan, Co. Meath, September 2022
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## *Executive Summary*

*Meath Co. Council are preparing a Master Plan for the development of lands occurring at and around Spicer's Mill, Athlumney, Navan, Co. Meath. The vision for Spicer's Mill is to strengthen and develop the area's existing riverfront heritage assets, environmental resources and social amenities into a dynamic range of vibrant and attractive parkland facilities, ecological protected areas and unique visitor attractions.*

*The Spicer's Mill Masterplan area is within/immediately adjacent to the River Boyne and River Blackwater Special Area of Conservation and River Boyne and River Blackwater Special Protection Area. As such, the Master Plan required Appropriate Assessment (Habitats Directive) screening in accordance with Article 6(3) of the EU Habitats Directive. The Natura Impact Statement produced in regard to the proposed Masterplan outlined the necessity for the preparation of an Alien Invasive Plant Species Management and Control Plan (owing to the presence of Japanese Knotweed and Himalayan Balsam on site) in order to mitigate against potential impacts associated with such plants.*

*The primary purposes of the Alien Invasive Plant Species Management and Control Plan, therefore, are:*

- To assess the Masterplan Area for the presence of Third Schedule species;*
- To map the presence of any such species within the Masterplan area (where practicable);*
- To outline measures for eradication or control of such populations as may be found present;*
- To prevent the exportation from site of any propagules of such species*
- To prevent importation to site of any propagules of such species;*
- To comprehensively monitor the site in order to assess the success of mitigation measures in eradicating/controlling populations; and*
- To ensure that any risks posed to the ecological integrity of the Natura 2000 network by the proposed development associated with the import of propagules of Alien Invasive Plant Species are reduced to negligible levels.*

*This document comprises an Alien Invasive Plant Species Management and Control Plan. It is the responsibility of Meath Co Council to ensure the implementation of this Management and Control Plan in full.*

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# 1 Background Information

## 1.1 FERS Ltd Company Background

Forest, Environmental Research and Services have been conducting ecological surveys and research since the company's formation in 2005 by Dr Patrick Moran and Dr Kevin Black. Dr Moran, the principal ecologist with FERS, holds a 1<sup>st</sup> class honours degree in Environmental Biology (UCD), a Ph.D. in Ecology (UCD), a Diploma in EIA and SEA management (UCD) an Advanced Diploma in Environmental and Planning Law (King's Inn) and a M.Sc. in Geographical Information Systems and Remote Sensing (University of Ulster, Coleraine). Patrick has in excess of 20 years of experience in carrying out ecological surveys on both an academic and a professional basis. Dr Emma Reeves, senior ecologist with FERS holds a 1<sup>st</sup> class honours degree in Botany, and a Ph.D. in Botany. Emma has in excess of 10 years of experience in undertaking ecological surveys on an academic and professional basis. Ciarán Byrne, a senior ecologist with FERS holds a 1<sup>st</sup> class honours degree in Environmental Management (DIT) and a M.Sc. in Applied Science/Ecological Assessment (UCC). Ciarán has in excess of 5 years in undertaking ecological surveys on both an academic and a professional basis.

FERS client list includes National Parks and Wildlife Service, An Bord Pleanála, various County Councils, the Heritage Council, Teagasc, University College Dublin, the Environmental Protection Agency, Inland Waterways Association of Ireland, the Department of Agriculture, the Office of Public Works and Coillte in addition to numerous private individuals and companies. FERS Ltd. FERS has a large body of experience working with Alien Invasive Plant Species, including the preparation of Alien Invasive Species Management and Control Plans.

## 1.2 Description of proposed project

The vision for the Spicer’s Mill Masterplan is to strengthen and develop the area’s existing riverfront heritage assets, environmental resources and social amenities into a dynamic range of vibrant and attractive parkland facilities, ecological protected areas and unique visitor attractions.

The approximate location of the proposed development site is indicated in Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5.

An excerpt illustrating the Concept Masterplan is provided in Figure 6.

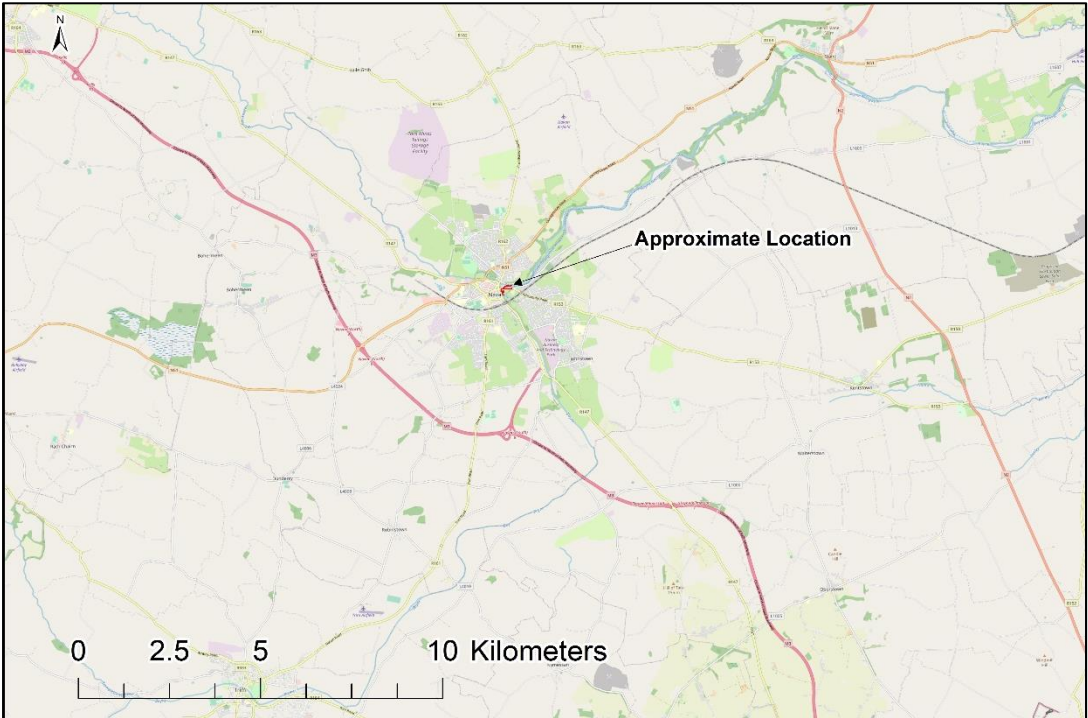


Figure 1: Approximate location of Masterplan area (1:100,000)

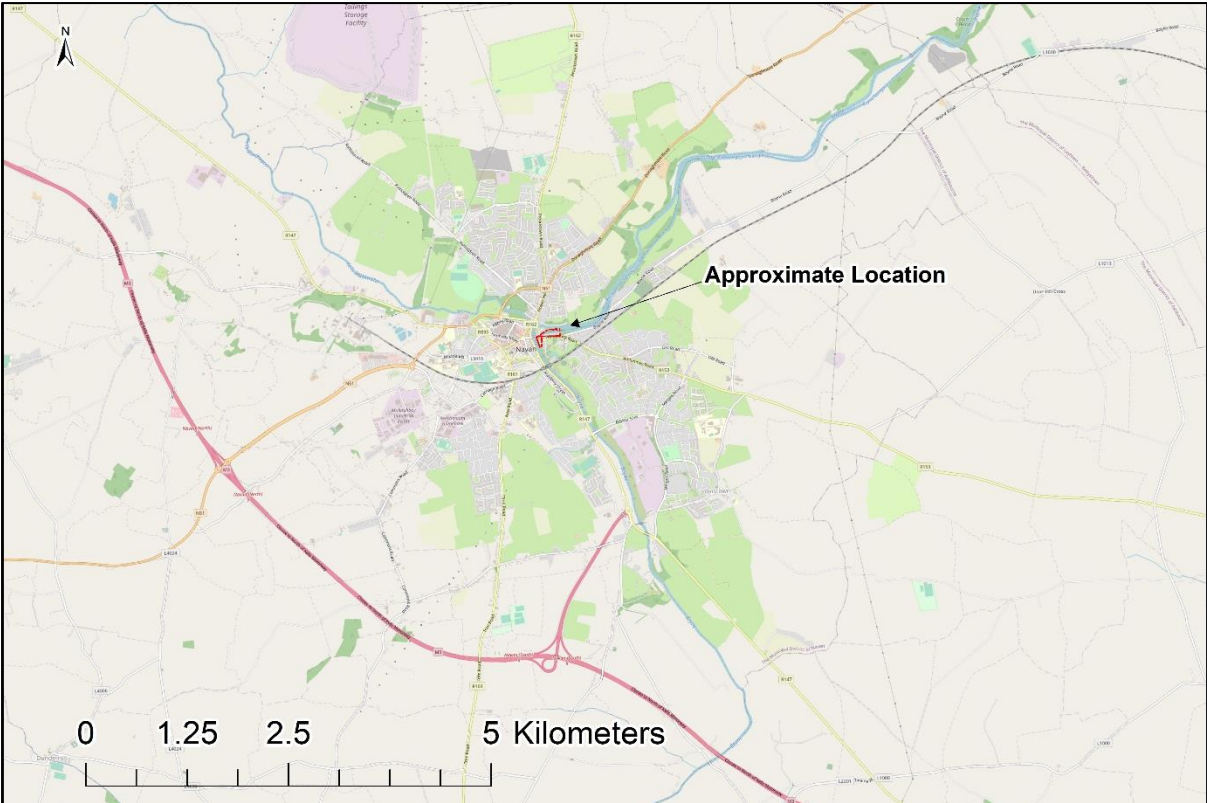


Figure 2: Approximate location of Masterplan area (1:50,000)



Figure 3: Approximate location of Masterplan area (1:25,000)



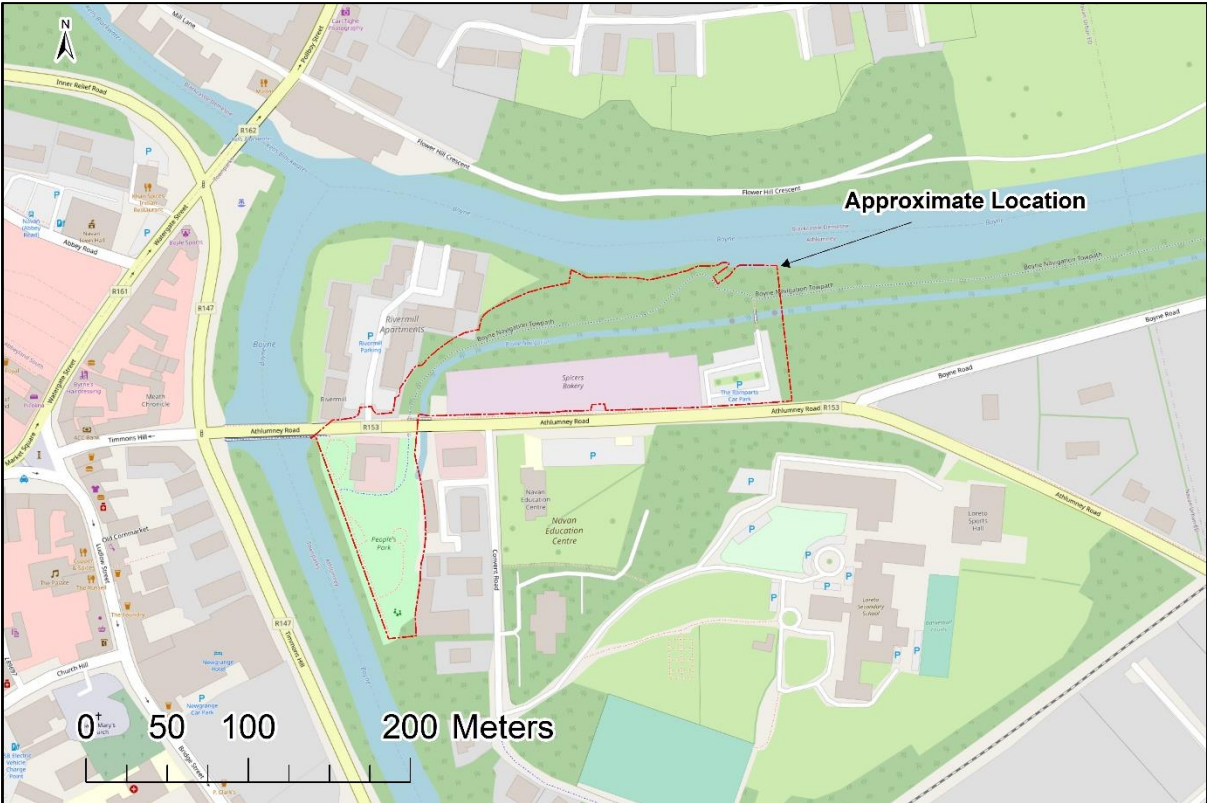


Figure 4: Approximate location of Masterplan area (1:2,500)

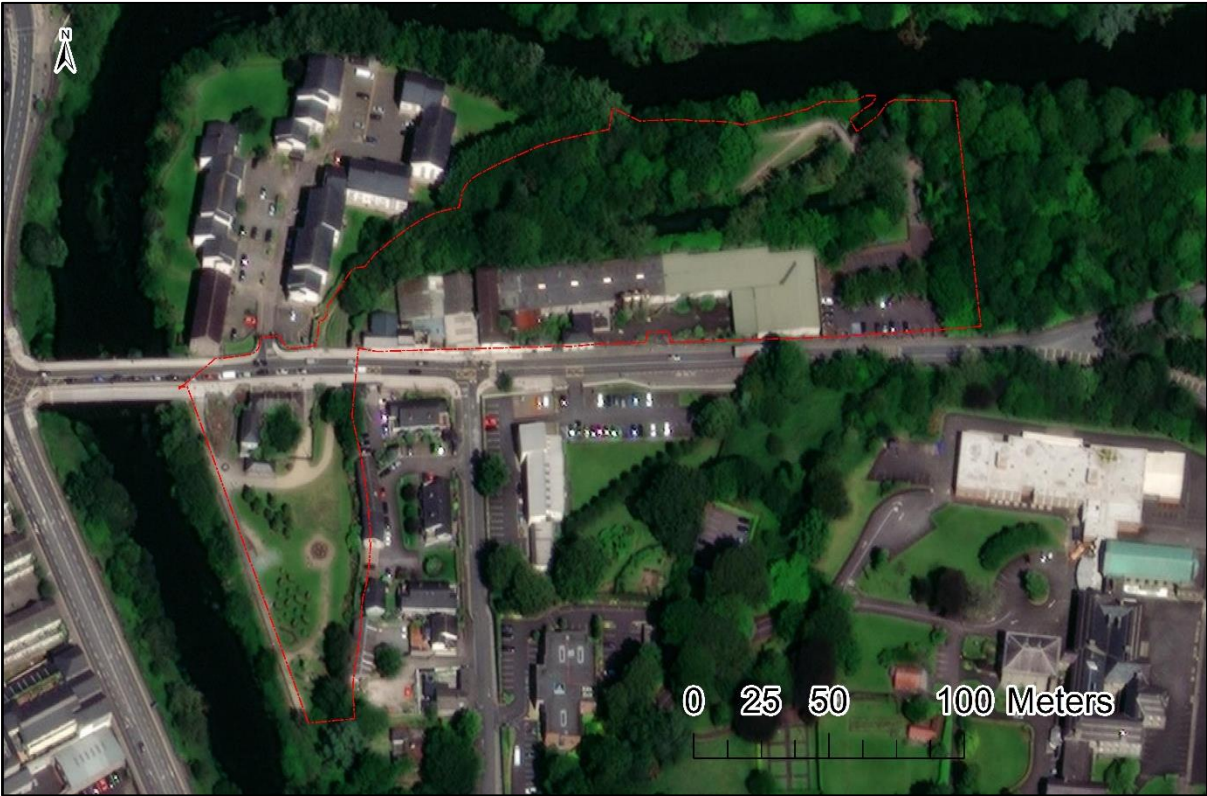


Figure 5: Approximate location of Masterplan area overlain on satellite imagery (1:1,500)



Figure 6: Concept Masterplan for Spicer's Mill, Navan,

## 1.3 Background – Alien Invasive Plant Species

The human introduction of alien plant species into ecosystems (intentionally or unintentionally) is historically a common-place occurrence. The vast majority of these alien plant species, when introduced into a foreign ecosystem for which they are not adapted, will die without specific care. In a small number of cases, however, these plants can come to dominate the ecosystem into which they have been introduced and become “Invasive”. There is presently a great deal of concern regarding the potential for invasive plant species to threaten the species composition, community structure, ecosystem services provided and overall biodiversity of native Irish habitats. Invasive species can change the character and/or condition of an ecosystem over an extensive area through several mechanisms, depending on the species of plant and the nature of the habitat.

### 1.3.1 Legislation – Biodiversity and Invasive Species

#### 1.3.1.1 Irish Law – *The Wildlife (Amendment) Act 2000*

The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976. The aims of the wildlife act according to the National Parks and Wildlife Service are “... *to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims.*” All bird species are protected under the act. The Wildlife (Amendment) Act of 2000 amended the original Act to improve the effectiveness of the Act to achieve its aims. The main objectives of the Wildlife (Amendment) Act, 2000 are to:

- Provide a mechanism to give statutory protection to NHAs;
- Provide for statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs;
- Improve some existing measures, and introduce new ones, to enhance the conservation of wildlife species and their habitats;
- Enhance a number of existing controls in respect of hunting, which are designed to serve the interests of wildlife conservation;
- Broaden the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act;
- Introduce new provisions to enable regulation of the business of commercial shoot operators;

- Ensure or strengthen compliance with international agreements and, in particular, enable Ireland to ratify the Convention on International Trade in Endangered Species (CITES) and the African-Eurasian Migratory Waterbirds Agreement (AEWA).
- Increase substantially the level of fines for contravention of the Wildlife Acts and to allow for the imposition of prison sentences;
- Provide mechanisms to allow the Minister to act independently of forestry legislation, for example, in relation to the acquisition of land by agreement;
- Strengthen the provisions relating to the cutting of hedgerows during the critical bird-nesting period and include a requirement that hedgerows may only be cut during that period by public bodies, including local authorities, for reasons of public health or safety;
- Strengthen the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites;
- Give specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

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### 1.3.1.2 *European Law*

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#### 1.3.1.2.1 *Habitats Directive*

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union and lists certain habitats and species that must be protected within wildlife conservation areas, considered to be important at a European as well as at a national level. A “Special Conservation Area” or SAC is a designation under the Habitats Directive. The Habitats Directive sets out the protocol for the protection and management of SACs.

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#### 1.3.1.2.2 *Birds Directive*

The Birds Directive (Council Directive 2009/147/EC on the Conservation of Wild Birds) provides for a network of sites in all member states to protect birds at their breeding, feeding, roosting and wintering areas. This directive identifies species that are rare, in danger of extinction or vulnerable to changes in habitat and which need protection (Annex I species). A Special Protection Area or SPA is a designation under The Birds Directive.

### 1.3.1.2.3 European Communities (Birds and Natural Habitats) Regulations (As amended 2015)

With the introduction of the Birds Directive and the Habitats Directive, came the obligation to establish the Natura 2000 network. In 1997, the Habitats Directive was transposed into Irish national law. The relevant Regulations, the European Communities (Natural Habitats) Regulations 1997, SI 94/1997 represent a fundamental shift in nature conservation policy and law. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in judgments of the Court of Justice of the European Union (CJEU). The European Communities (Birds and Natural Habitats) Regulations 2011 were amended in 2015 (S.I. No. 355 of 2015).

### 1.3.2 Species of plant listed in Part (1) of the Third Schedule

There are more than 30 species listed in Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011, which states (49) “*...Save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to such plant in the third column of Part 1 of the Third Schedule, any plant which is included in Part 1 of the Third Schedule, shall be guilty of an offence...*”

Regulation 49 of the Regulations of 2011 was amended by inserting the following paragraphs after paragraph (12),

- (13) Where the Minister considers—
- a) that a species of flora or type of vegetation poses a threat to any of the objectives of the Birds and Habitats Directives, or
  - b) that a population of a species of flora hosts or is likely to host a pathogen, disease, pest or parasite that poses or is likely to pose a threat to that species or to other species of flora and hence to securing compliance with the requirements of the Birds and Habitats Directives, and that the destruction of that population is a practical, appropriate and proportionate measure to reduce that threat,

the Minister may, notwithstanding anything contained in Section 40 of the Wildlife Act 1976, grant a licence for the destruction, by such means as the Minister may specify, of vegetation comprising or containing that species at any time including, where he or she considers it warranted, during the period from 1 March to 31 August.

Table 1: List of plant species appearing on the Third Schedule

Common Name	Latin Name	Associated with freshwater habitats
American skunk-cabbage	<i>Lysichiton americanus</i>	Yes
Red alga	<i>Grateloupia doryphora</i>	No
Brazilian giant-rhubarb	<i>Gunnera manicata</i>	Yes
Broad-leaved rush	<i>Juncus planifolius</i>	Yes
Cape pondweed	<i>Aponogeton distachyos</i>	Yes
Cord-grasses	<i>Spartina (all species hybrids)</i>	No
Curly waterweed	<i>Lagarosiphon major</i>	Yes
Dwarf eel-grass	<i>Zostera japonica</i>	No
Fanwort	<i>Cabomba caroliniana</i>	Yes
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Yes
Fringed water-lily	<i>Nymphoides peltata</i>	Yes
Giant hogweed	<i>Heracleum mantegazzianum</i>	Yes
Giant knotweed	<i>Fallopia sachalinensis</i>	Yes
Giant-rhubarb	<i>Gunnera tinctoria</i>	Yes
Giant salvinia	<i>Salvinia molesta</i>	Yes
Himalayan balsam	<i>Impatiens glandulifera</i>	Yes
Himalayan knotweed	<i>Persicaria wallichii</i>	Yes
Hottentot-fig	<i>Carpobrotus edulis</i>	No
Japanese knotweed	<i>Fallopia japonica</i>	Yes
Large-flowered waterweed	<i>Egeria densa</i>	Yes
Mile-a-minute weed	<i>Persicaria perfoliata</i>	Yes
New Zealand pigmyweed	<i>Crassula helmsii</i>	Yes
Parrot's feather	<i>Myriophyllum aquaticum</i>	Yes
Rhododendron	<i>Rhododendron ponticum</i>	No
Salmonberry	<i>Rubus spectabilis</i>	Yes
Sea-buckthorn	<i>Hippophae rhamnoides</i>	No
Spanish bluebell	<i>Hyacinthoides hispanica</i>	No
Three-cornered leek	<i>Allium triquetrum</i>	No
Wakame	<i>Undaria pinnatifida</i>	No
Water chestnut	<i>Trapa natans</i>	Yes
Water fern	<i>Azolla filiculoides</i>	Yes
Water-primrose	<i>Ludwigia (all species)</i>	Yes
Waterweeds	<i>Elodea (all species except E. canadensis)</i>	Yes
Wireweed	<i>Sargassum muticum</i>	Marine/transition

The majority of the species listed on Part (1) of the Third Schedule are particularly problematic within riparian habitats, with constant disturbance and the presence of a medium for spread. In the case of works/developments adjacent to water-courses, therefore, there is a particular threat posed by many of these plants. In the event of the presence of a Source-Pathway-Receptor linkage between a proposed development and a Natura 2000 site, in particular a riparian site, a very significant threat is posed to the ecological integrity of that site in the event of the spread of an Alien Invasive Plant Species to that site.

### 1.3.3 Requirement for Invasive Species Management and Control Plan

Several species, listed in Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as Amended) including Three-cornered Garlic, Japanese Knotweed and Himalayan Balsam are recorded within the 10 km square in which the Spicer's Mill Masterplan is located. Giant Hogweed occurs approximately 20 km downstream. *Gunnera tinctoria* is record several kilometres upstream. Three-cornered Garlic, Japanese Knotweed, Himalayan Balsam and Giant Hogweed have the potential to spread very aggressively, establish sizeable populations very quickly, and are capable of inflicting a high degree of ecological damage within short spaces of time. A brief outline of these species is given as follows.

#### 1.3.3.1 Three-cornered Garlic

According to Webb's Flora<sup>1</sup> This spring-flowering bulb (typically flowering from April to June) is described as "...Stem sharply 3-angled, about 30 cm high. Leaves linear, keeled, 5 – 10 m wide, bright green. Flowers nodding in small, 1-sided umbel; perianth bell-shaped, white with as green line along each segment. Stamens without appendages. Hedges and waste places, mainly in the south and east; local but abundant in some districts...". This plant is thought to have introduced into Ireland some three-hundred years ago and it has become naturalised in many counties. The plant fruits abundantly and the seeds are dispersed by ants; it also reproduces vegetatively by daughter bulbs and bulblets that are dispersed with soil movement<sup>2</sup>. The This plant forms very dense colonies that can outcompete native spring flowers like primroses and violets impacting on biodiversity. This species is particularly problematic as an alien invasive species in Australia.



Figure 7: Three-cornered Garlic at a site in Dublin

<sup>1</sup> Parnell J and Curtis T (2012). Webb's An Irish Flora (8<sup>th</sup> edition). Cork University Press, Cork, Ireland

<sup>2</sup> Terahncian P, Adair R, Van T, Morrison P, Williams H and Lawrie A (2020). Biological control of the noxious weed Angled Onion (*Allium triquetrum*) thwarted by endophytic bacteria in Victoria, Australia. *Australasian Plant Pathology*, **49**, pp 373 - 392

### 1.3.3.2 Japanese Knotweed

This plant is a rhizomatous perennial, capable of reaching 2m in height. This plant spreads exclusively by vegetative means, spreading very aggressively under disturbed conditions. The plant is capable of forming extensive monoculture stands. There is a negative impact on ecosystem function and biodiversity through a number of mechanisms – primarily through the shading-out of native plants due to the rapidity with which large stands of the plant can form. In addition, this plant has a deleterious effect on the banks of waterways owing to the fact that during the winter, when *F. japonica* dies back, there is little or no vegetation growing underneath, and hence nothing to prevent erosion of the bank. This species is well established in Ireland and is rapidly spreading throughout the country, especially by roadsides and along watercourses.



Figure 8: Established population of Japanese Knotweed on site

### 1.3.3.3 Himalayan Balsam

*Impatiens glandulifera* is one of the tallest annuals occurring in Europe, growing up to 150 cm. It is a native of the Himalayas and has rapidly become one of the most problematic of invasive species in Europe, particularly along watercourses. The dominance of large stands of *I. glandulifera* along watercourses causes problems for stream management in addition to the negative impact on native flora due to the formation of large monoculture stands. The massive production of nectar to induce pollinators, in addition to the “explosive” means by which seeds are spread (pods explode on contact, hurling seeds away from the parent plant) contribute to the ability of this plant to out-compete native species. This plant is rapidly becoming a serious threat to biodiversity along Ireland’s waterways.





Figure 9: Himalayan Balsam

#### 1.3.3.4 *Heracleum mantegazzianum*, Giant Hogweed.

Giant Hogweed, as its name suggests, can reach heights of 5m. This perennial reproduces exclusively by seed, but can produce up to 100,000 seeds per individual, with up to 90% germination rate. In addition to this, this plant is capable of self-fertilisation, which means that one plant is capable of resulting in the invasion of a new habitat. Like *F. japonica*, and *I. glandulifera*, it is the tendency of Giant Hogweed to grow very tall very quickly, forming a monospecific stand that results in the negative impact of this species on native biodiversity. It is, however, the phototoxic sap of this species, and the increasing number of human injuries associated with this sap that has made *H. mantegazzianum* one of the most problematic alien invasive plant species throughout Europe.

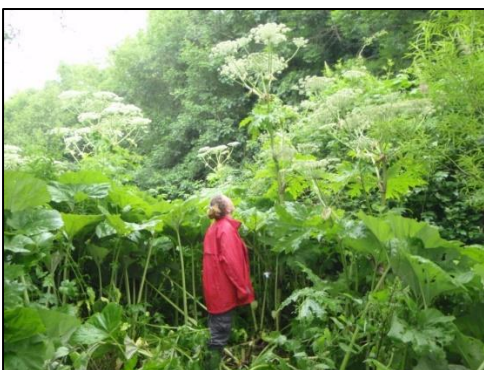


Figure 10: Giant Hogweed occurring at a location in Meath

Given the known occurrence of *F. japonica* and *I. glandulifera* on site, and the records of numerous other species listed on Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as Amended) within the 10km square which the Masterplan is located (source NBDC database) there is a significant risk that any disturbance on site could result in the spread and/or introduction of these species at/to the site.

The stages in this Alien Invasive Plant Species Management and Control Plan as outlined are based on the recommendations of the recent TII Publication<sup>3</sup>:

- 1) Carry out detailed site assessment and use results to prioritise risk management needs;
- 2) Devise and management and control plan for implementation; and
- 3) Monitoring - protection to prevent future infestations.

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<sup>3</sup> The Management of Invasive Alien Plant Species on National Roads – Standard (G-ENV-01104). Accessed online at <https://www.tiipublications.ie/library/GE-ENV-01104-01.pdf>

## 2 PHASE I - detailed site assessment and prioritisation of risk management needs

### 2.1 Desk study

The desk study undertaken comprised querying the National Biodiversity Data Centre Database ([www.biodiversityireland.ie](http://www.biodiversityireland.ie)) for records of Alien Invasive Plant Species recorded within the 10 km square in which the proposed development is located. The proposed Masterplan will entail movements of material to/from/within the site. This activity has the potential to introduce and/or spread propagules of Alien Invasive Plant Species if such species are present in the vicinity. The database was accessed on the 21<sup>st</sup> of September 2022. The location of the 10 km square queried is indicated in Figure 11. Alien Invasive Plant Species (Third Schedule) recorded within this 10 km square are listed in Table 2.

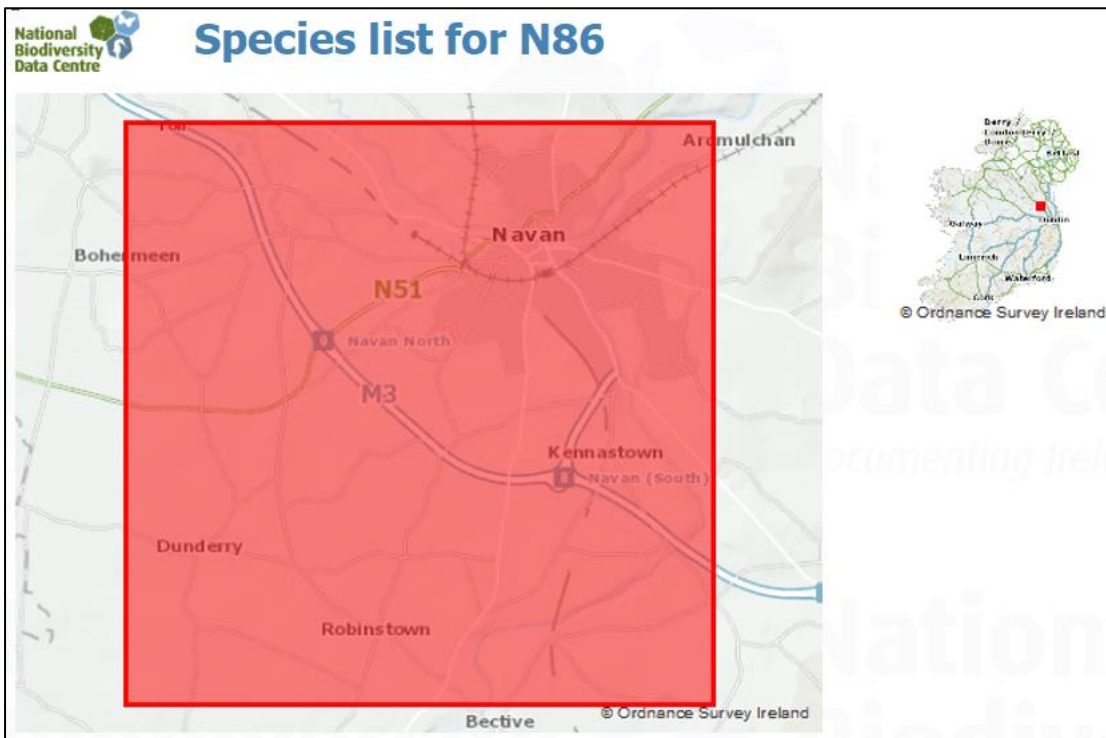


Figure 11: N86 - 10 km square queried

Table 2: Invasive Plant Species recorded within N86 (\*listed on the Third Schedule)

<b>Scientific Name</b>	<b>Common Name</b>	<b>Date of last record</b>
<i>Buddleja davidii</i>	Butterfly-bush	09/01/2021
<i>Prunus laurocerasus</i>	Cherry Laurel	24/06/2020
<i>Gunnera tinctoria</i> *	Giant-rhubarb	31/12/1999
<i>Impatiens glandulifera</i> *	Indian Balsam	05/08/2021
<i>Fallopia japonica</i> *	Japanese Knotweed	18/09/2020
<i>Rosa rugosa</i>	Japanese Rose	13/07/2021
<i>Acer pseudoplatanus</i>	Sycamore	15/11/2020
<i>Allium triquetrum</i> *	Three-cornered Garlic	10/04/2021
<i>Clematis vitalba</i>	Traveller's-joy	21/09/2013
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster	21/09/2013

## 2.2 Field survey

In March, June, July and September of 2022, site visits were undertaken by Dr Patrick Moran of the Spicer's Mill Masterplan area in order to investigate the Third Schedule species present within the Masterplan area and to establish the extent of any such species. Populations of two such species were present.

### 2.2.1 Japanese Knotweed – *Fallopia japonica*

There are present within the Masterplan Area well-established populations of Japanese Knotweed (*Fallopia japonica*) in the vicinity of the buildings associated with Spicer's Mill. The area to the rear of these buildings has hosted a population of Japanese Knotweed for decades, which has been relatively stable. In March of 2022, it was observed that this population had been recently extensively disturbed (Figure 12). Japanese Knotweed spreads exclusively by vegetative means (the plant in Ireland does not produce viable seed) and disturbance is the primary means by which this species spreads.



Figure 12: Extensive population of Japanese Knotweed that had been disturbed

The Masterplan Area was visited several times during the Summer of 2022. A final survey undertaken on the 9<sup>th</sup> of September indicates that this population has spread significantly with plants present for virtually the entire length of the buildings associated with Spicer's Mill. Fortunately, the disturbance did not occur adjacent to flowing water and the spread of the plant has been limited by the static nature of the water within the canal. Pictures illustrating the extent of the population are shown in

Figure 13. This population has almost certainly undergone significant expansion as a result of the disturbance.



Figure 13: Photomontage of population of Japanese Knotweed to rear of Spicer's Mill

In addition to the primary population to the rear of Spicer's Mill, there is another population associated with an area of concrete and wall along the main road to the fore of Spicer's Mill and associated buildings. While this population is limited in size and is not likely to be disturbed, there is evidence that the population has begun to undermine the wall and has likely weakened the foundations.

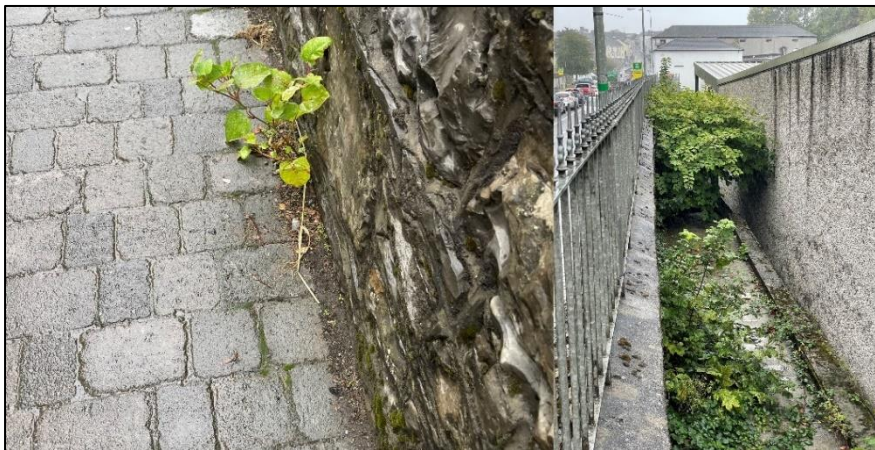


Figure 14: Population of Japanese Knotweed undermining wall at fore of buildings

### 2.2.2 Himalayan Balsam – *Impatiens glandulifera*

Himalayan Balsam, a species listed in Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as amended), also occurs within the Masterplan Area. It is important to note that while the Himalayan Balsam plants observed were limited to the area in the vicinity of Andy Brennan Park, propagules of this species are almost certainly present along the

bank of the Boyne at the Ramparts and any disturbance of the river bank or canal bank here would almost certainly result in a proliferation of this species, which reproduced by seed and thrives under conditions of disturbance. Currently, the plant is relatively limited in distribution, being confined to the area associated with the wall on the boundary of Andy Brennan Park. Indeed, this population may be present as a direct result of the construction of the wall, which provided the disturbance necessary to allow this species to gain a foothold.

It is important to note that unlike Japanese Knotweed, this species reproduces sexually and produces “explosive” seed pods that can hurl seeds several metres from the parent plant. This is particularly problematic along pathways, where seeds can be transported on the shoes of passing walkers.



**Figure 15: Himalayan Balsam occurring on both sides of the wall at Andy Brennan Park and in adjacent scrub**

## 3 PHASE II - Alien Invasive Plant Species Management and Control Plan

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### 3.1 Background

A comprehensive set of surveys undertaken during the optimal survey windows has identified that there are a minimum of two species of plant listed on Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as Amended) within the proposed Masterplan Area:

- Japanese Knotweed (*Fallopia japonica*); and
- Himalayan Balsam (*Impatiens glandulifera*).

It is possible that there are propagules of other species, such as Giant Hogweed buried in sediment within the River Boyne or BNC that would germinate under suitable conditions.

### 3.2 Aims

The aims of the Alien Invasive Plant Species Management and Control Plan are:

- (1) To eradicate from the proposed Masterplan area the population of *Fallopia japonica* present prior to any works being undertaken in order to prevent its' spread/dispersal from the current locations;
- (2) To eradicate the current population of *Impatiens glandulifera* from the site prior to any works being undertaken. Unfortunately, the complete eradication of this species is not possible owing to a continuous "seed rain" from populations upstream. A management protocol to **control** this species within the Masterplan area must, therefore, be established to prevent further spread of this species within the Masterplan Area;
- (3) To prevent the export of propagules of any species of plant listed on Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as Amended) to the Masterplan Area (and in particular *F. japonica* and *I. glandulifera*);
- (4) To prevent the import of propagules of any species of plant listed on Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011 (as Amended) to the Masterplan Area;



### 3.3 Eradication of populations of *Fallopia japonica*

Please note that the eradication of *Fallopia japonica* populations of the extent present to the rear of the Spicer's Mill buildings should be undertaken by certified and indemnified professionals. There are numerous companies specialising in the eradication of this species. In their on-line recommendations, invasive species Ireland (<https://invasivespeciesireland.com/wp-content/uploads/2012/01/Best-practice-control-measures-for-Japanese-knotweed.pdf>) recommend the following measures for the effective control of Japanese Knotweed:

*"...Herbicide treatment using glyphosate (as Round-up Bioactive) has been successfully used by IFI during the EU LIFE+ CAISIE project to control Japanese knotweed. This herbicide can be used as a foliar application, through stem injection or as stump cut application where the stems are cut and the herbicide is directly applied immediately after cutting. Treatment can be carried out between May and October. For best results, it is recommended that foliar treatment is conducted in July, with follow-up treatment in September (application rate of 5 litres per hectare). For stem injection, treatment is most effective when applied to flowering stems (late summer to October). For stump cut application, treatment is most effective in September / October before senescence...*

*.. Stem injection and stump cut application can be used to treat individual knotweed canes when they are interspersed among native vegetation, thus avoiding non-target impacts. For stem injection, glyphosate should be injected into the cane between the 1st and 2nd node above the stem base.*

*...For stump cut application, individual stems should be cut 20 cm above their base and 4 cm above a node, and the cut surface should be hollowed out to create a well. The herbicide can then be applied within 15 minutes of cutting with a pipette. For both treatments, a 10 ml dose per stem is recommended (made up of 5 parts water and 1 part glyphosate). For extensive stands, it may be also necessary to mechanically excavate a 7 m area around the stand to 3 m depth to remove any knotweed rhizomes present. The excavated spoil should be disposed of in a biosecure manner (e.g. removed to a licenced land fill facility). Excavation equipment should be disinfected on site after use to prevent any further spread of the knotweed outside of the treatment area as plants will regenerate from rhizomes fragments remaining in the spoil. Excavation is a costly option and every effort should be made to treat the knotweed stands in situ, if feasible. Repeat herbicide treatment will be necessary over a three to four year period to achieve eradication..."*

Although the final decision will rest with the professionals commissioned to undertake the removal, it is highly recommended from an ecological point of view that the herbicide application be through injection when the plants occur within a 5m buffer of the BNC as the canal here is within the River Boyne and River Blackwater SAC/SPA. A derogation application may be required as Qualifying Interests

including Lamprey and Kingfisher are almost certain to occur in the vicinity of main Knotweed Population (Figure 16).



Figure 16: Location of populations of Japanese Knotweed

### 3.4 Eradication/control of populations of *Impatiens glandulifera*

Currently, the populations of *I. glandulifera* are relatively small (Figure 17). This is almost certainly owing to the dominance of the areas in which the plants occur by vigorous native plants such as Bramble and Bindweed in combination with a lack of disturbance. There is certainly an extensive seed bank present that will result in mass germination if the areas in which the plants occur is disturbed. The seeds of this species are fortunately not long-lived and are likely to be viable for only up to two years. According to best practice (<https://invasivespeciesireland.com/wp-content/uploads/2012/01/Himalayan-Balsam-BPM.pdf>) “..Small infestations (most common in gardens) can easily be controlled by hand-pulling as the species is shallow rooted. Padded gloves should be worn to avoid risk of injury to hands. Seeds are not very robust and only survive for up to 18 months so a two year control programmes can be successful in eradicating this plant if there is not further infestation from upstream or adjacent sites.

*To avoid additional spread do not disturb plants if seeds pods are visible (usually sometime after May). Programmes should be undertaken in April or early May. If hand pulling after this time, bag plant tops to prevent seed spread...”.*

It is recommended that this species be controlled at the site by a management program entailing the bi-annual (April and again in early June to detect any late germinating plants) monitoring of the Masterplan Area and hand-pulling of plants before seed-head are present. This methodology will prevent the needless destruction of native vegetation (through indiscriminate chemical treatment of the area or strimming), maintaining the current biodiversity resource present. It is likely that this management would rid the general area of Himalayan Balsam in 2 – 3 years, but would have to be maintained as a management measure.



Figure 17: Approximate locations of Himalayan Balsam populations

### 3.5 Implementation of Strict Biosecurity Measures

#### 3.5.1 To prevent spread of Japanese Knotweed within/from the application site

In order to prevent spread of Japanese Knotweed within/from the Masterplan Area, the plant must be eradicated from areas infested and these areas surveyed and declared free of Japanese Knotweed before any works in the vicinity.

### 3.5.2 To prevent spread of Himalayan Balsam within/from the application site

In order to prevent spread of Himalayan Balsam within/from the Masterplan Area, the plant must be eradicated from areas infested and these areas surveyed and declared free of Japanese Knotweed before any works in the vicinity. Where it is necessary to work in contaminated areas, every effort should be made not to use vehicles with caterpillar tracks. All vehicles and equipment that have been used potentially contaminated areas must be thoroughly pressure-washed in a designated wash-down area each time they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment. It is important to remove soil that may contain seeds or plant fragments, which otherwise could be transported along the road corridor as works are being undertaken. Vehicles leaving potentially contaminated areas should be pressure-washed before leaving the area.

It is vitally important that only vehicles that are deemed to be biosecure (i.e., sealed so that no material can escape) are used to transport any potentially contaminated soil and all must be thoroughly pressure-washed in the designated washdown area before exiting the infested area.

### 3.5.3 To prevent importation of propagules of Third Schedule Species to the application site

The importation of the propagules of any other species of Third Schedule species must be prevented.

The primary sources of the spread of propagules of Alien Invasive Plant Species are:

- Importation of contaminated material; and
- The wheels/body of vehicles moving between sites.

In order to prevent the importation of any further Third Schedule species:

- Any materials imported to the site must have a written guarantee that they are free from any propagules of (Third Schedule) Alien Invasive Plant Species; and
- Any vehicles, machinery, etc. working on site must arrive at the site with a written guarantee that they are free from any propagules of (Third Schedule) Alien Invasive Plant Species.

## **4 PHASE III - Monitoring**

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The proposed development site should be subject to a comprehensive monitoring program post development, with appropriate habitats within the site being surveyed for the presence of any Alien Invasive Plant Species twice a year, in late March/early April and again in September. This biannual monitoring should be undertaken for three years post construction such as to ensure eradication of populations of Alien Invasive (Third Schedule) Plant Species has been successful. Annual reports of the biannual monitoring should be prepared and submitted to Meath Co. Council and NPWS in order to illustrate compliance with the Invasive Alien Plant Species Management and Control Plan.

## **5 Conclusions of the Invasive Species Management and Control Plan**

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The risks regarding the facilitation of the spread or dispersal of potential propagules of Alien Invasive Plant Species within/from the proposed development site (and in particular Japanese Knotweed and Himalayan Balsam) have been considered in this Alien Invasive Plant Species Management and Control Plan.

Having implemented the measures as outlined in this report, the risks regarding the spread or dispersal of species listed on Part (1) of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations of 2011) associated with the proposed development will be reduced to negligible levels.

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- [www.epa.ie](http://www.epa.ie) – official website of the Environmental Protection Agency.
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