

Appendix 5.12. Invasive Alien Plant Species Management & Biosecurity Plan (INVAS), 2026



Invasive Alien Plant Species Management & Biosecurity Plan

WwTP, Mortarstown, Carlow.



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Client			Project		
AtkinsRéalis Infrastructure Ireland			Mortarstown, Carlow		
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Cover Photo: Japanese knotweed

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1. INTRODUCTION

At the request of AtkinsRéalis Infrastructure Ireland, INVAS Biosecurity (INVAS) was commissioned to prepare a management and biosecurity plan to facilitate the safe and biosecure development of the Waste Water Treatment Plant at Mortarstown, Carlow.

1.1. Objectives

For the purposes of this document, biosecurity refers to all practical measures used to manage and prevent the introduction and spread of Invasive Alien Plant Species (IAPS). Three IAPS have been recorded on the Mortarstown outfall site to the west of the Kilkenny Road, viz, Japanese knotweed (*Reynoutria japonica*), Himalayan balsam (*Impatiens glandulifera*) and the aquatic Nuttall's waterweed (*Elodea nuttallii*). Small stands of Three-Cornered Leek (*Allium triquetrum*) were recorded to the east of the Kilkenny Road.

A number of high impact aquatic and riparian Invasive Alien Species (IAS) are currently present in Ireland, and most are continuing to spread aggressively. Prominent among the terrestrial IAPS are: Japanese knotweed (*Reynoutria japonica*), Giant knotweed (*Reynoutria sachalinensis*), Bohemian knotweed (*Reynoutria x bohemica*), Giant rhubarb (*Gunnera tinctoria*), Giant hogweed (*Heracleum mantegazzianum*), Rhododendron (*Rhododendron ponticum*), Himalayan balsam (*Impatiens glandulifera*) and Nuttall's waterweed (*Elodea nuttallii*)

1.2. National and European legislation concerning invasive alien species.

Legal Requirements and Implications for Management Japanese knotweed and Himalayan balsam are all subject to restrictions under SI374/2025, being listed in the First Schedule (Part 1) of this legislative Act. Japanese knotweed and, Himalayan balsam are also contained on the list of Union concern in the Invasive Alien Species (IAS) Regulation (EU Regulation (1143/2014)) and states that management actions must be taken to eradicate Japanese knotweed, Himalayan balsam. This EU Regulation entered into force on 1st January, 2015. Central to the legislation is the establishment, and regular updating, of a list of IAS considered to be of Union concern ('the Union list'). The placing of a species on the Union list activates a number of obligations on Member States (MS) regarding those species (e.g. "Within 18 months of an IAS being included on the Union

list, MS shall have in place effective management measures for those invasive alien species of Union concern...”. Member States are required to take action on pathways of unintentional introduction, take measures for early detection and rapid eradication of these species, and to manage species that are already widely spread in their territory.

The ecological effects of IAS are often irreversible and, once established, they are extremely difficult and costly to control and eradicate; hence, the urgent need to prevent their introduction and spread. Prevention is clearly more cost-effective and less environmentally damaging than long-term containment, control or eradication. The most effective measure to reduce introductions and halt spread of IAS in aquatic situations is to promote and implement good biosecurity practice.

Globally, IAS are regarded as one of the biggest causes of biodiversity loss next to climate change. The environmental impact of IAS was discussed at the ground-breaking international Convention on Biological Diversity in 1992 and, since that time, targeted legislation to prevent introduction and spread of these harmful species has been introduced at a national and European level. The most relevant legislation that takes IAS into account in Ireland is summarised in Table 1.1.

Table 1.1: National and European legislation concerning invasive alien species.

Republic of Ireland: European Union (Birds and Natural Habitats) Regulations 2011, S.I. 477 http://www.irishstatutebook.ie/eli/2011/si/477/made/en/print	Regulation 49 on the ‘Prohibition on introduction and dispersal of certain species’ makes it an offence to knowingly disperse or allow to escape species that are listed in the Third Schedule, which is the list of high impact IAS that are subject to restrictions under the Regulations.
Republic of Ireland: River Basin Management Plan for Ireland 2018 – 2021 (Water Framework Directive) https://www.housing.gov.ie/sites/default/files/publications/files/rbmp_report_english_web_version_final_0.pdf	For the first time invasive species have been explicitly mentioned in this latest cycle of the River Basin Management Plan (RBMP) for Ireland. A list of Principal Actions on invasive species has been included

	(e.g. implement the EU (European Union) IAS Regulation, develop Management Plans for IAS, develop national guidelines for biosecurity).
Republic of Ireland: Control of the use of pesticides and biocides https://www.nibusinessinfo.co.uk/content/pesticides-and-biocides	A guide to appropriate use of herbicides, pesticides, and other biocides.
Republic of Ireland: Sustainable Use of Pesticides Directive http://www.pcs.agriculture.gov.ie/sud/	The Sustainable Use of Pesticides Directive (SUD) establishes a framework for European Community action to achieve the sustainable use of pesticides by setting minimum rules to reduce the risks to human health and the environment that are associated with pesticide use. It also promotes the use of integrated pest management. The Directive is designed to further enhance the high level of protection achieved through the entire regulatory system for pesticides.
Invasive Alien Species Regulation (EU) 1143/2014 http://ec.europa.eu/environment/nature/invasivealien/list/index_en.htm	This EU Regulation entered into force on 1 st January 2015. Central to the legislation is the establishment, and regular updating, of a list of IAPS considered to be of Union concern ('the Union list'). The placing of a species on the Union list activates a number of obligations on Member States (MS) regarding those species (e.g. "Within 18 months of an IAS being included on

	the Union list, MS shall have in place effective management measures for those invasive alien species of Union concern...". The 49 species included on the Union list are subject to restrictions on keeping, importing, selling, breeding and growing. Member States are required to take action on pathways of unintentional introduction, take measures for early detection and rapid eradication of these species, and to manage species that are already widely spread in their territory.
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2. SURVEY RESULTS

It has been ascertained from previous surveys (2022-2025) that there are abundant infestations of Japanese knotweed and Himalayan balsam throughout the proposed development works area west of the Kilkenny Road (Plate 2.1).



Plate 2.1: General invasive species distribution at Mortarstown site.

3. SPECIES DESCRIPTION

3.1. Himalayan balsam

Himalayan balsam is a non-native invasive riparian plant species that is widespread throughout Northern Ireland and the Republic of Ireland. An individual plant may produce as many as 2,500 seeds with its method of dispersal contributing towards its invasiveness. When seed pods have fully matured they explosively split open, propelling the contents up to 7 meters from the parent plant which, in large stands, can lead to densities of up to 6,000 seeds per square metre. Seeds can also float leading to dispersal throughout an infested watercourse. They also can be dispersed by wind and animals moving through the site. The plant species is frequently found as dense monocultures in riparian zones and moist woodlands or floodplains in close proximity to watercourses. Himalayan balsam becomes dominant through its rapid growth pattern with plants reaching up to 3 meters in height. It can outcompete native vegetation by shading leading to severe impacts on local biodiversity. When parent plants die back in winter, they leave riverbanks exposed and vulnerable to erosion. This can lead to siltation and the further dispersal of seeds downstream (Figures 3.1 - 4).



Figure 3.1: Himalayan Balsam in Flower



Figure 2.2: HB Stem
(Pics courtesy CABI)



Figure 3.3: HB Leaf



Figure 3.4: HB Root

3.2. Japanese knotweed

Distinguishing features	Knotweed will be described in the context of Japanese knotweed (<i>Reynoutria japonica</i>) for the purposes of this report. Japanese knotweed is a robust, vigorous herbaceous perennial that grows in dense and often continuous stands. Individual plants are up to 3m tall. Japanese knotweed has branched, hollow, red or purple mottled bamboo-like shoots. In winter the stems remain visible as tall, dry, straw-coloured, hollow canes. Leaves are over to 17cm long, bright green, shield- or heart-shaped but with a flattened (truncate) base and lacking any obvious hairs on the underside. Lower leaves lack the truncated base in Japanese knotweed. Leaves arranged in zig-zag pattern on an arching stem. Flowers are small, creamy-white and hang in clusters from leaf axils; the cluster is the same size as the subtending leaf. This species has deeply penetrating, woody rhizomes – up to 2m deep and 7m from the last visible plant.
Habitat	This is a species of waste ground, roadsides, rail corridors and riparian habitats - alongside lakes, rivers, canals, ponds and ditches in rich to poor soil types.
Ecology	Non-native species (native to East Asia in Japan, China and Korea) and widespread in Ireland. Two closely related knotweed species are present in Ireland and can be equally problematic to Japanese knotweed. These are Giant knotweed (<i>R. sachalinensis</i>) and Japanese knotweed (<i>R. japonica</i>).
Impact	This species can impact on biodiversity by outcompeting native plants. Riparian habitats invaded by knotweeds have lower invertebrate abundance, species richness and biomass, and lower plant species richness compared to uninvaded sites, which is likely to impact on local fauna that use riparian habitats. Following dieback in winter the ground surrounding infestations is left vulnerable to soil erosion and bankside subsidence due to the absence of a root weft that is normally produced by native grasses and herbs to bind the soils against winter floods.

	The presence of Japanese knotweed leaf litter in streams has also been shown to have adverse effects on the species composition of affected streams.
Dispersal	The rhizomes of this species are highly regenerative and even small rhizome fragments can produce new plants. Rhizome material can remain dormant in the soil for many years. Cut or discarded stems with nodes can also root and produce new plant stands. As only female plants have been recorded in Ireland, no viable seeds are produced.
Legislation	Japanese knotweed is subject to restrictions under Regulations 49 and 50 (the latter not currently commenced) of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477), being listed in the Third Schedule (Part 1) of this legislative Act. Soil taken from a place that is infested with Japanese knotweed (vector material) is also restricted under Part 3 of this Third Schedule. The law relating to Japanese knotweed is primarily contained in Regulation 49 (2), which states that it is an offence to 'allow or cause to disperse' plants listed in the Third Schedule, of which Japanese knotweed is one. As such, any Japanese knotweed plant material or contaminated soil that is to be removed from an infested site can only be done so under a licence issued by the National Parks and Wildlife Service (NPWS).
Biosecurity	Do not cut or interfere with the plant. Report any sighting of additional infestations of this species immediately. Exclusion/Buffer zones for machinery and personnel will be put in place for all infestations. Do not dig or carry out ground works in or near infestations until a suitable biosecurity plan has been put in place.
Management	Mechanical (excavation or root barriers) and herbicide (foliar application or stem injection) management options can achieve effective control of all knotweed species. All management works will require a full site-specific Management Plan as well as post treatment monitoring and may require a licence from the National Parks and Wildlife Service (NPWS).



Figure 3.6: Identification of Japanese knotweed throughout the year.



Figure 3.7: Japanese knotweed key identification features.

4. MANAGEMENT PLAN

4.1. Excavation and disposal off-site

To facilitate the laying of the outfall pipe from its emergence from below ground to the river it is planned to excavate the area within the Japanese knotweed infested zone to a depth of 2 metres (Plates 4.1-4.2). Due to biodiversity concerns and collateral damage to trees the excavation will be limited to that necessary for the installation of the outfall pipe, with the arising material being stockpiled and removed off-site for disposal as described in this section.

This will require site operations to excavate all Japanese knotweed plants and associated contaminated soil within this area. The soil and plant material will be carefully stockpiled in preparation for removal by bio secure trucks which will transport the contaminated material to the licenced IMS landfill at Naul, Co. Dublin. Strict biosecurity protocols must be adhered to at all times during this process. Detailed records of all operations will be maintained by throughout the project. This will specifically focus on the exact areas excavated, the method of excavation, the depth of excavation, the volume of material (as numbers of truck loads) removed, an inventory of personnel and equipment entering and leaving the Japanese knotweed demarcated areas, and the operation of cleaning and disinfection facilities provided. Any problems encountered during the operation will also be recorded. The excavated area can be backfilled with inert soil from site works on the east side of the Kilkenny Road.



Plate 4.1: Japanese knotweed infestations at Mortarstown

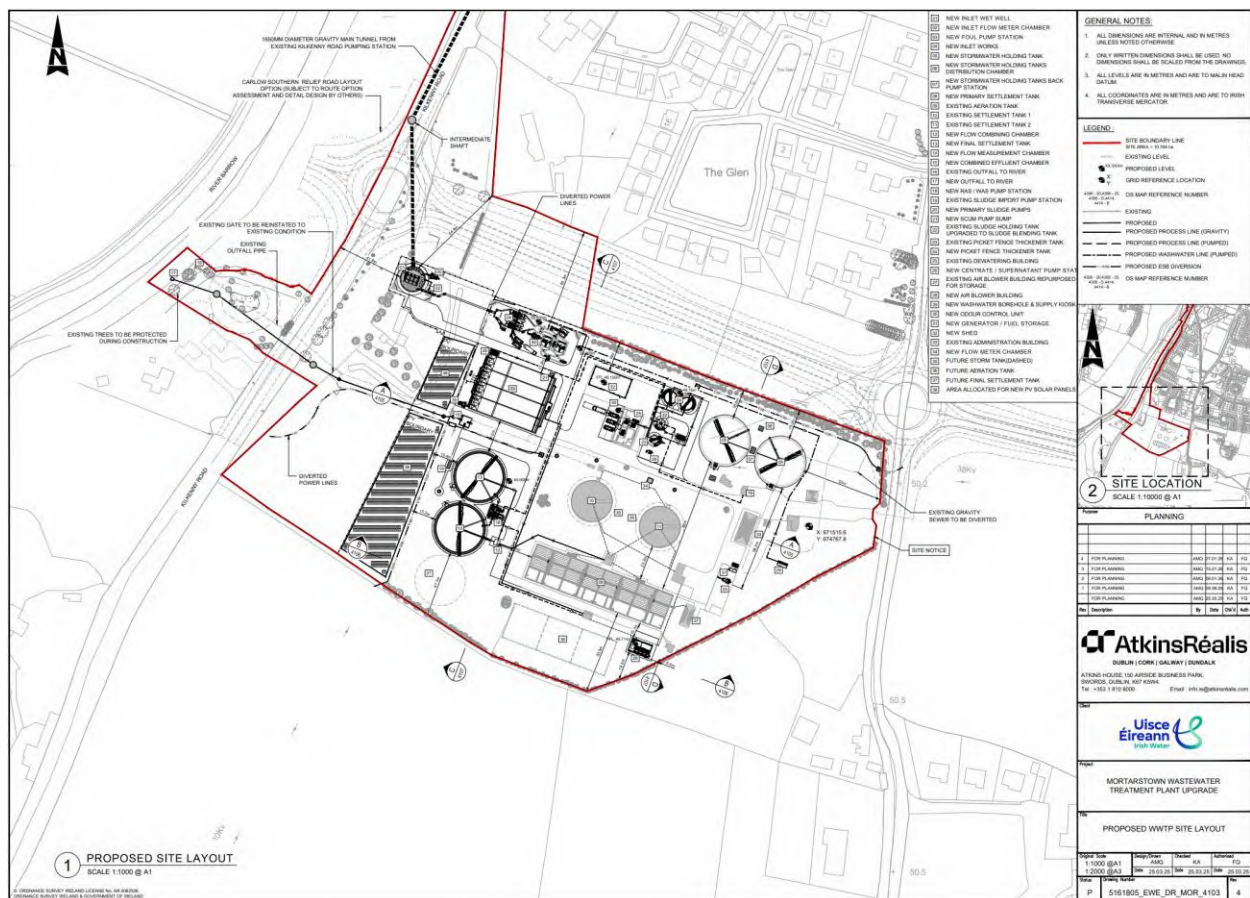


Plate 4.2. Proposed excavation area (courtesy AtkinsRéalis)

5. BIOSECURITY PLAN.

The successful implementation of this Biosecurity Plan will prevent the spread of Himalayan balsam and Japanese knotweed throughout the area or beyond as a result of the proposed works.

The widespread distribution of the Himalayan balsam infestations makes it certain that there is a large and extensive seed bank depository within this zone. INVAS advises that the entire area west of the Kilkenny Road be regarded as infested and would recommend that the works in this area should proceed on this understanding.

5.1. Pre Works

It is anticipated that the works will follow three phases i.e. surveying, ground works, construction. As there will be considerable movement of surveyors, trial holing and other visitors to the site prior to construction work commencing, it is therefore essential that these visitors are made aware of their responsibilities in preventing the spread of IAPS throughout the site and beyond. The Japanese knotweed infested areas must be fenced off, allowing for a 7metre buffer zone around each infestation. Signage should be erected throughout the site highlighting to all visitors that they are encroaching on IAPS-contaminated ground.

Suitable entrance and egress points will be identified and established both for foot and vehicular traffic and these points must be demarcated as the only possible entry or exit points available to and from the site. All equipment used in sampling or trial holing must be washed down before exiting the site. Boot wash facilities equipped with a boot scraper, hard brushes and a disinfectant solution will be positioned at the pedestrian exit. A washdown pad will be established on stone at the exit with a power washer available to wash wheels, tracks etc. A sump will be constructed adjacent to this stand to capture runoff from the wash down process. Alternatively, and preferably, a permanent drive through wheel wash can be positioned at this point which will be ideal for long term works.

5.2. Ground works

A haul road will be established by the placement of heavy duty matting. This will reduce the possibility of the further spread of Himalayan balsam throughout the site. If it is deemed necessary to remove soil that may contain balsam seed, this should be

stockpiled on a root barrier membrane at a suitable location adjacent to the haul road for later removal to the IMS landfill at Naul, Co. Dublin. (Plate 5.1).

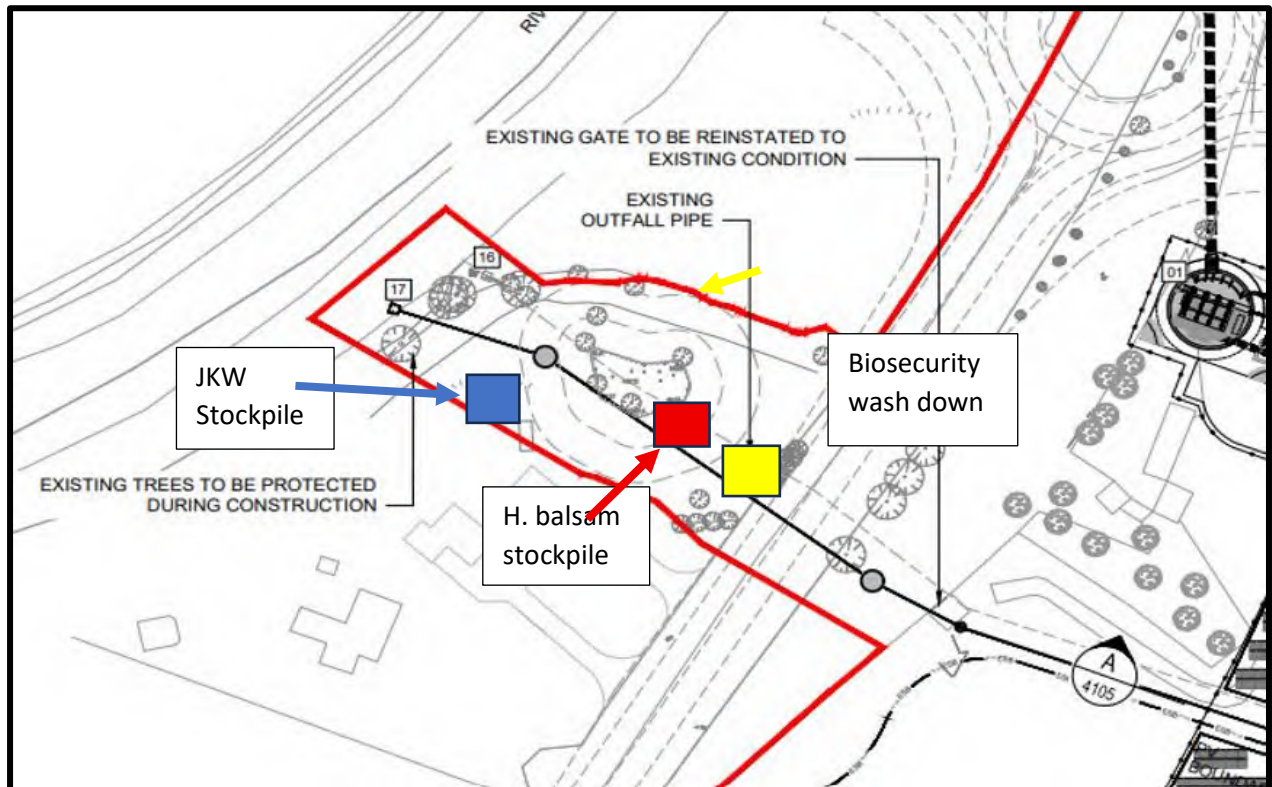


Plate 5.1: Works footprint.

It is anticipated that the initial ground works will involve the clearance of trees and undergrowth to facilitate the establishment of haul routes and compounds. The resulting brash from these initial works will be regarded as contaminated material and be chipped and deposited in the stockpile. Tree trunks, boughs and roots must be washed down before being transported to a green waste landfill.

All soil that is removed within the JKW infested zone will be stockpiled on a root barrier membrane for later removal off site. Soil outside the above JKW zone that is considered as contaminated with Himalayan balsam seed should be stockpiled separately on a root barrier to be removed off site, as disposal costs are 50% less than that of JKW.

On completion of the works, the heavy duty matting used on the haul road will be considered as contaminated and will be washed down before removal off site. All tunnelling machinery, equipment and vehicles must be washed down of all debris before

exiting the site. A WAC (Waste Acceptance Criteria) test and a NPWS Reg 49 Licence will be required for removal of spoil to the land fill.

5.3. Construction

It is intended to employ tunnelling methodology to insert the outfall pipe from the Kilkenny Road. Should the tunnelling impinge on the Japanese knotweed infested areas including the surrounding 7 metre buffer zones the resulting spoil must be considered contaminated and be deposited on the stockpile. No plant or machinery can exit the site for other requirements without first being thoroughly washed down and consequently, it is recommended that these works be placed at the end of the schedule of works to minimise this process.

Once the surface of the construction site has been cleared of its potential seed bank, the risk of dispersal of the Himalayan balsam seed will have been greatly reduced. There will, however, be further ongoing risks of contamination as the site is surrounded by Himalayan balsam infestations making it vulnerable to reinfestation by wind borne seeds. There will also be river bourn seed from upriver which will be a constant source of recontamination. It will be important that biosecurity protocols continue to be observed throughout the construction period. This will require all personnel to be aware and observe basic biosecurity protocols, i.e. vehicles to pass through the wheel wash when exiting the site, including all personnel cleaning boots before leaving the site.

5.4. Post Works

For a minimum of 4 years following completion of construction, Uisce Eireann shall continue to monitor the invasive alien plant species on this site and implement the biosecurity measures described in the NIS including the Biosecurity SOP set out in this document. They will manage the Himalayan balsam infestation in the vicinity of the outfall, following Irish Water Guidance of the Management of Himalayan balsam (IAMT-GL-022). Any regrowth of treated infestations shall be accurately mapped and reported to Uisce Eireann.

5.5. Biosecurity Standard Operating Procedure for Personnel and Equipment

This plan provides standardised practical methods for cleaning and disinfecting all equipment that comes into contact with 'Third Schedule' IAPS while carrying out the works. It will enhance the existing biosecurity activity to deliver an improved biosecurity system that will help stop the spread of Himalayan balsam, Japanese knotweed.

- Before commencement of operations at the site, a toolbox talk to will be presented to all personnel that are likely to use the site.
- An access and egress route to the works area will be put in place before works commence. Only personnel and machinery that are involved in the work activities are permitted to enter this zone. A disinfectant foot bath and brushes will be provided in this area for all personnel to clean their boots before emerging from this zone.
- All machinery / tools that will be used within the works area must be thoroughly cleaned before exiting the works area.

As the works are being carried out adjacent to the river Barrow it is recommended that Virkon Aquatic disinfectant be used in all wash down and disinfection processes. All staff that are involved in the works should have access to disinfection facilities that include but is not limited to:

- Detailed guide to proper cleaning and disinfection procedure and instructions for making the correct disinfection concentration.
- A solution of clean water and Virkon Aquatic tablets or powder for the disinfection of equipment and PPE
- Hard-bristle brushes

Before commencing operations, a 1% Virkon Aquatic disinfection solution (10g Virkon Aquatic powder in 1 litre of clean water) should be prepared for staff working in infested areas. The disinfectant solution will remain pink in colour while it is still active. Additional clean water should be readily available for further disinfectant solution is required.

Best biosecurity practice will be achieved by ensuring that the following guidelines are adhered to when planning work activities.

It is important that all PPE and equipment used are cleaned and disinfected according to the procedures below. These biosecurity measures should be conducted before leaving the site.

- Put on disposable gloves before cleaning and disinfecting the equipment.
- Visually inspect all equipment for evidence of attached IAPS material, or adherent mud or debris. Remove any such material before cleaning and disinfecting the equipment and leaving the site.
- Dispose of any IAPS material taken from the equipment onto infested area.
- Use the hard-bristle brush to remove all mud and debris from boots and equipment. Then spray with the prepared disinfectant solution onto the cleaned surfaces to the point of run-off. During inspection and cleaning, pay particular attention to places where IAPS could be accidentally trapped, such as the treads of boots and attachment points on equipment.
- Remove disposable gloves and dispose of safely.

5.6. Biosecurity Standard Operating Procedure for Vehicles and Plant.

All machinery that will be used on the site must be thoroughly cleaned before entering the site (to avoid contaminating the site with invasive species from elsewhere) and again sprayed with a solution of Virkon Aquatic Disinfectant and cleaned before leaving the works area. A designated route will be marked out from which vehicles will not deviate. Trucks will enter the site and be loaded directly from the stockpiles. The trucks will be loaded to a maximum level of 100cms below the top sides of truck. The load will be covered over by a tarpaulin before exiting the site. The trucks wheels and undercarriage will be inspected to ensure that they are fully bio secure and will be washed down with a solution of Virkon Aquatic before exiting the site. On completion of the works the load area of the trucks will be washed out using a solution of Virkon Aquatic disinfectant. All machinery used in the excavation process must be washed and disinfected before exiting the site. Following the removal of all contaminated material the area will be handed back to the contractor to progress with the upgrade. All personnel including drivers must disinfect their boots and any equipment used at the disposal site. Following the

completion of the excavation and disposal works an end of contract report detailing the specifics and metrics of the operations will be drawn up.







6. References

The following guidance documents were consulted for the preparation of this report.

- *Inland Fisheries Ireland guidance regarding aquatic invasive species control.* (<http://www.fisheriesireland.ie/Research/invasive-species.com>)
- *Japanese knotweed (Kelly et al 2008)*
- *Invasive Species Ireland guidance* (<http://invasivespeciesireland.com>)
- *Irish Water (2016) Information and Guidance Document on Japanese knotweed*
- *NPWS (2011) Actions for Biodiversity 2011-2016.*
- *EA (2006) The Knotweed Code of Practice. Managing Japanese knotweed on development sites*
- *NRA (2010) Guidelines on management of noxious weeds and non-native invasive plant species on national roads.*
- *Stokes et al. (2004) Invasive species in Ireland*
- *Dept Of Environment (2013) An Invasive Alien Species for N. Ireland*

Appendices

Appendix 2: Biosecurity Record for vehicles

 Daily Biosecurity Record Sheet 				
Site ID	Mortarstown			
Project details				
Biosecurity supervisor				
Date				
Infestation /works boundary in place (Yes/No)		Vehicle access demarcated (Yes/No)		
Staff access/egress decontamination in place (Yes/No)		Vehicle/equipment decontamination in place (Yes/No)		
Vehicle (description/reg)	Activity	Time decontaminated	Picture	Driver signature
Notes/Comments:				

Appendix 3: Schedule of activities.

 Schedule of Activities 			
Site ID	Mortarstown		
Project details	Site investigations		
Biosecurity supervisor			
Date			
	Phase	Date	Additional comments
Site survey and development of Management Plan	1		
Establish and implement biosecurity protocol	2		
Erection of fencing and signage	3		
Toolbox talks to appropriate staff	4		
Implementation of Management Plan	5		
Decontamination of vehicles and equipment	6		
Sign off	7		

• **Appendix 4: Non-native invasive plant species regulated by the European Union (Birds and Natural Habitats) Regulations 2011 to 2015**

• Common name	Scientific name	Geographical application
American skunk-cabbage	<i>Lysichiton americanus</i>	Throughout the State
A red alga	<i>Grateloupia doryphora</i>	Throughout the State
Brazilian giant-rhubarb	<i>Gunnera manicata</i>	Throughout the State
Broad-leaved rush	<i>Juncus planifolius</i>	Throughout the State
Cape pondweed	<i>Aponogeton distachyos</i>	Throughout the State
Cord-grasses	<i>Spartina</i> (all species and hybrids)	Throughout the State
Curly waterweed	<i>Lagarosiphon major</i>	Throughout the State
Dwarf eel-grass	<i>Zostera japonica</i>	Throughout the State
Fanwort	<i>Cabomba caroliniana</i>	Throughout the State
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Throughout the State
Fringed water-lily	<i>Nymphoides peltata</i>	Throughout the State
Giant hogweed	<i>Heracleum mantegazzianum</i>	Throughout the State
Giant knotweed	<i>Fallopia sachalinensis</i>	Throughout the State
Giant-rhubarb	<i>Gunnera tinctoria</i>	Throughout the State
Giant salvinia	<i>Salvinia molesta</i>	Throughout the State
Himalayan balsam	<i>Impatiens glandulifera</i>	Throughout the State
Himalayan knotweed	<i>Persicaria wallichii</i>	Throughout the State
Hottentot-fig	<i>Carpobrotus edulis</i>	Throughout the State
Japanese knotweed	<i>Fallopia japonica</i>	Throughout the State
Large-flowered waterweed	<i>Egeria densa</i>	Throughout the State
Mile-a-minute weed	<i>Persicaria perfoliata</i>	Throughout the State
New Zealand pigmy weed	<i>Crassula helmsii</i>	Throughout the State
Parrot's feather	<i>Myriophyllum aquaticum</i>	Throughout the State
Rhododendron	<i>Rhododendron ponticum</i>	Throughout the State

• Common name	Scientific name	Geographical application
Salmonberry	<i>Rubus spectabilis</i>	Throughout the State
Sea-buckthorn	<i>Hippophae rhamnoides</i>	Throughout the State
Spanish bluebell	<i>Hyacinthoides hispanica</i>	Throughout the State
Three-cornered leek	<i>Allium triquetrum</i>	Throughout the State
Wakame	<i>Undaria pinnatifida</i>	Throughout the State
Water chestnut	<i>Trapa natans</i>	Throughout the State
Water fern	<i>Azolla filiculoides</i>	Throughout the State
Water lettuce	<i>Pistia stratiotes</i>	Throughout the State
Water-primrose	<i>Ludwigia</i> (all species)	Throughout the State
Waterweeds	<i>Elodea</i> (all species)	Throughout the State
Wireweed	<i>Sargassum muticum</i>	Throughout the State

Part 3: Vector Materials

Vector material	Species referred to	Geographical application
Blue mussel (<i>Mytilus edulis</i>) seed for aquaculture taken from places (including places outside the State) where there are established populations of the slipper limpet (<i>Crepidula fornicata</i>) or from places within 50 km. of such places	Mussel (<i>Mytilus edulis</i>) Slipper limpet (<i>Crepidula fornicata</i>)	Throughout the State
Soil or spoil taken from places infested with Japanese knotweed (<i>Fallopia japonica</i>), giant knotweed (<i>Fallopia sachalinensis</i>) or their hybrid Bohemian knotweed (<i>Fallopia x bohemica</i>)	Japanese knotweed (<i>Fallopia japonica</i>) Giant knotweed (<i>Fallopia sachalinensis</i>) Bohemian knotweed (<i>Fallopia x bohemica</i>)	Throughout the State

Appendix 6: Non-native Invasive Plant species of European Concern

PLANTS

Scientific name	English name	Entry into force
<i>Acacia saligna</i> (<i>Acacia cyanophylla</i>)	Golden wreath wattle	15-Aug-19
<i>Ailanthus altissima</i>	Tree of heaven	15-Aug-19
<i>Alternanthera philoxeroides</i>	Alligator weed	02-Aug-17
<i>Andropogon virginicus</i>	Broomsedge bluestem	15-Aug-19
<i>Asclepias syriaca</i>	Common milkweed	02-Aug-17
<i>Baccharis halimifolia</i>	Eastern baccharis	03-Aug-16
<i>Cabomba caroliniana</i>	Fanwort	03-Aug-16
<i>Cardiospermum grandiflorum</i>	Balloon vine	15-Aug-19
<i>Cortaderia jubata</i>	Purple pampas grass	15-Aug-19
<i>Eichhornia crassipes</i>	Water hyacinth	03-Aug-16
<i>Elodea nuttallii</i>	Nuttall's waterweed	02-Aug-17
<i>Ehrharta calycina</i>	Perennial veldt grass	15-Aug-19
<i>Gunnera tinctoria</i>	Chilean rhubarb	02-Aug-17
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	15-Aug-19
<i>Heracleum mantegazzianum</i>	Giant hogweed	02-Aug-17
<i>Heracleum persicum</i>	Persian hogweed	03-Aug-16
<i>Heracleum sosnowskyi</i>	Sosnowsky's hogweed	03-Aug-16
<i>Humulus scandens</i>	Japanese hop	15-Aug-19
<i>Hydrocotyle ranunculoides</i>	Floating pennywort	03-Aug-16
<i>Impatiens glandulifera</i>	Himalayan balsam	02-Aug-17
<i>Lagarosiphon major</i>	Curly waterweed	03-Aug-16
<i>Lespedeza cuneata</i> (<i>Lespedeza juncea</i> var. <i>sericea</i>)	Chinese bushclover	15-Aug-19
<i>Ludwigia grandiflora</i>	Water-primrose	03-Aug-16
<i>Ludwigia peploides</i>	Floating primrose-willow	03-Aug-16
<i>Lygodium japonicum</i>	Vine-like fern	15-Aug-19
<i>Lysichiton americanus</i>	American skunk cabbage	03-Aug-16
<i>Microstegium vimineum</i>	Japanese stiltgrass	02-Aug-17
<i>Myriophyllum aquaticum</i>	Parrot's feather	03-Aug-16
<i>Myriophyllum heterophyllum</i>	Broadleaf watermilfoil	02-Aug-17
<i>Parthenium hysterophorus</i>	Whitetop weed	03-Aug-16
<i>Pennisetum setaceum</i>	Crimson fountaingrass	02-Aug-17
<i>Persicaria perfoliata</i>	Asiatic tearthumb	03-Aug-16
<i>Prosopis juliflora</i>	Mesquite	15-Aug-19
<i>Pueraria lobata</i>	Kudzu vine	03-Aug-16
<i>Salvinia molesta</i> (<i>Salvinia adnata</i>)	Salvinia moss	15-Aug-19
<i>Triadica sebifera</i> (<i>Sapium sebiferum</i>)	Chinese tallow	15-Aug-19



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