



Invasive Species Survey & Management Plan

Invasive Species Survey & Management Plan in relation to
a proposal by Donegal County Council to construct a
Transport Hub at Port/Pearse Road in Letterkenny,
Co. Donegal.

Greentrack Environmental Consultants

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Table of Contents

List of Figures	4
List of Photographs	4
List of Tables	4
1 INTRODUCTION	5
1.1 Site Invasive Species Management Objectives	10
1.2 Limitations and Threats to the Proposed Development Site	10
1.3 Implementation of the Invasive Species Management Plan	11
1.4 Statement of Authority	11
1.5 Issues Associated with the Invasive Species at the Site	11
1.5.1 Himalayan honeysuckle (<i>Leycesteria formosa</i>)	11
1.5.2 Buddleia (<i>Buddleia davidii</i>)	11
1.5.3 Japanese knotweed (<i>Fallopia japonica</i>)	11
1.5.4 Himalayan balsam (<i>Impatiens glandulifera</i>)	12
1.5.5 Milkflower cotoneaster (<i>Cotoneaster lacteus</i>).....	12
1.5.6 Montbretia (<i>Crocasmia X crocosmiiflora</i>)	12
1.5.7 Rhododendron (<i>Rhododendron ponticum</i>).....	12
2 MEASURES FOR THE MANAGEMENT OF POTENTIAL INVASIVE SPECIES	13
2.1 Avoidance and Reduction of Proximity	13
2.2 General Control Measures.....	13
2.3 Specific Treatment Options	14
2.3.1 Chemical Treatment for Himalayan Honeysuckle.....	14
2.3.2 Chemical Treatment for Buddleia	14
2.3.3 Chemical Treatment for Japanese knotweed.....	15
2.3.4 Chemical Treatment for Himalayan balsam	16
2.3.5 Chemical Treatment for Milkflower cotoneaster.....	16
2.3.6 Chemical Treatment for Montbretia	16
2.3.7 Chemical Treatment for Rhododendron	17
2.3.8 Physical Excavation and Burial or Disposal of Invasive Species	17
2.3.9 Combination treatments for Japanese knotweed	20
2.3.10 Vertical root barrier membrane.....	20
2.3.11 Options for the Disposal of Excavated Material.....	20
2.4 Site Specific Recommendations.....	21
2.4.1 Himalayan honeysuckle	22
2.4.2 Buddleia / Milkflower cotoneaster	22
2.4.3 Japanese knotweed	22
2.4.4 Himalayan balsam.....	23
2.4.5 Rhododendron.....	23
2.4.6 Montbretia.....	23
2.5 Site Specific Treatment Programme	23
2.6 Site Specific Disposal Options	24
3 SPECIFIC METHOD STATEMENT FOR INVASIVE SPECIES AT THE PROPOSED WORKS SITE	26
3.1 Method Statement	26
3.2 Risk Assessment	27
3.3 Health and Safety Policy	28
4 CONCLUSIONS AND RECOMMENDATIONS	29
5 REFERENCES	30

List of Figures

Figure 1.1: Approximate position of invasive species on site.	6
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List of Photographs

Photograph 1.1: Stand of flowering Himalayan honeysuckle in the western part of the site.	7
Photograph 1.2: Buddleia was present in the main site area.	7
Photograph 1.3: Japanese knotweed was present adjacent to Pearse Road.....	8
Photograph 1.4: Himalayan Balsam was widespread adjacent to Pearse Road.....	8
Photograph 1.5: Milkflower Cotoneaster was present in isolated areas of site.	9
Photograph 1.6: Montbretia was present in small quantities at the waste soil stockpile.....	9
Photograph 1.7: Rhododendron was discovered along the northern site boundary	10

List of Tables

Table 2.1: Proposed Invasive Species Treatment Programme.....	24
Table 2.2: Proposed Invasive Disposal Options	25

1 INTRODUCTION

The Part 8 proposal by Donegal County Council is for the construction of a Transport Hub in Letterkenny, Co. Donegal. The proposed location is at the former Bacon Factory on Pearse Road, Letterkenny. The current proposal includes the following elements:

- Total 0.89 hectares (2.2 acres) of new Regional Transport Hub infrastructure
- 15 bus bays
- 1 no Canopy shelter of 360sqm including photovoltaic panels.
- 1,886sqm of high-quality public realm/orientation space/amenity space
- Public conveniences including accessible WC and Changing Places facility
- Capacity for future integrated ticketing space
- 1 Casual trading bay opportunity and power provision
- Cycle stands, seating, planting, signage, branding, service-related information panels
- 1,194sqm of nature-based drainage solutions in addition to attenuation
- 143m of footpath, public lighting and carriageway improvements along Isle Lane
- 25 drop-off car spaces including 3 bays beside taxi rank.
- Capacity for 64m of taxi rank / 10 taxi bays.
- Connection to future LK Green Connect walking/cycling project.

Donegal County Council commissioned Greentrack Consultants to carry out ecological surveys of the site for invasive species and to recommend an appropriate treatment programme if invasive species were encountered.

Small stands of Himalayan honeysuckle (*Leycesteria formosa*), *Montbretia* (*Crocasmia x crocosmiiflora*) and Rhododendron (*Rhododendron ponticum*) were encountered at the site. Buddleia (*Buddleja davidii*), Himalayan balsam (*Impatiens glandulifera*), Milkflower cotoneaster (*Cotoneaster lacteus*) and Japanese knotweed (*Reynoutria japonica*) were more established at the site. Invasive species were widespread throughout the site where tree cover was absent.

An isolated stand of Himalayan honeysuckle was located at the western boundary of the site. The stand is relatively small with the plant at 1.5-2m height and extent of the stand estimated at 1.5 m x 1.5 m.

Isolated stands of Milkflower cotoneaster were located predominantly in the central part of the site within the tree canopy, and also at Isle Lane. The stands were relatively small with the shrub at up to 1-3m height and extent of the stands estimated at 1 m x 1 m each.

Isolated stands of Montbretia were observed in the south-central part of the site within the tree canopy and located on the waste soil stockpile. The three stands observed were small and the extent of the stands estimated at 0.5 m x 0.5 m each.

An isolated stand of Rhododendron was observed at the northern boundary of the main site. The stand is relatively small with the plant at 1 - 3 m height and the extent of the stand 3.0 m x 3.0 m. New growth of Rhododendron saplings were observed establishing around the main infestation.

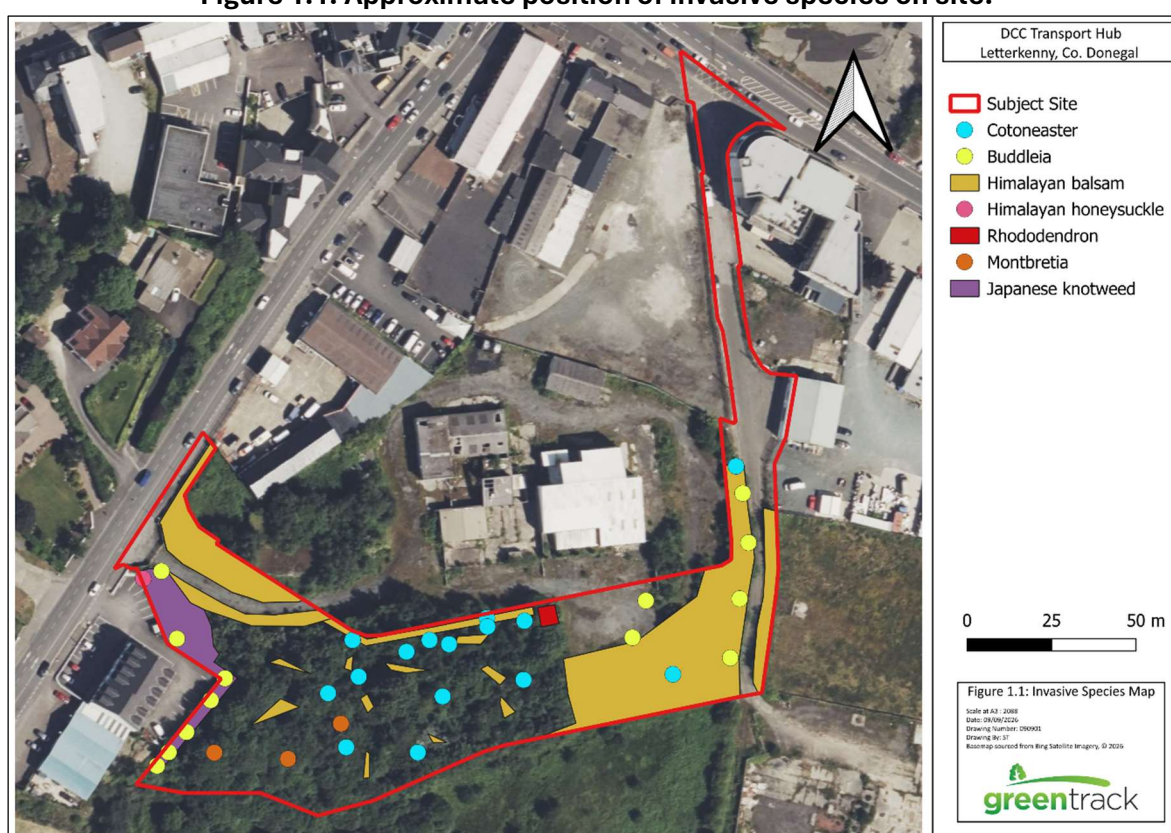
Approximately 13 stands of Buddleia were present on the eastern part of the site on Isle Lane, adjacent to the western site boundary at Pearse Road and were also present within the main site. Most of the stands were well established and capable of spreading further through seed dispersal. The Buddleia were up to 1-4 m height and each of the stands covered an average ground area of approximately 2 m x 2 m.

Himalayan balsam was widespread at the site where there was no tree cover, with small stands also present within the woodland area where there were breaks in the tree canopy allowing shafts of sunlight in. The plants were observed at 1-3 m height and covered an area of c. 3,000m². The affected area was not entirely covered in Himalayan balsam, but it was consistently present throughout the affected areas. On the day of the site walkover, Himalayan balsam seed heads were observed to be seeding explosively across the site.

The stand of Japanese knotweed was located on the western part of the site adjacent to Pearse Road, mostly located within a dense stand of trees and bushes. The stand of knotweed was extensive with the plants up to c. 1-3 m height and covering an area of c. 470 m², and which could extend further via lateral spreading of the root system. Japanese knotweed was observed to be spreading at the site during the summer monitoring period.

The position of the invasive species at the site is indicated in Figure 1.1 below.

Figure 1.1: Approximate position of invasive species on site.



(Created using QGIS and Bing satellite imagery)

The implementation of the project cannot avoid interaction with the invasive species at the site. None of the invasive species within the site appear to have received any form of mechanical or chemical treatment previously. Photographs 1.1 to 1.7 show the stands of invasive species encountered within the site.

Photograph 1.1: Stand of flowering Himalayan honeysuckle in the western part of the site.



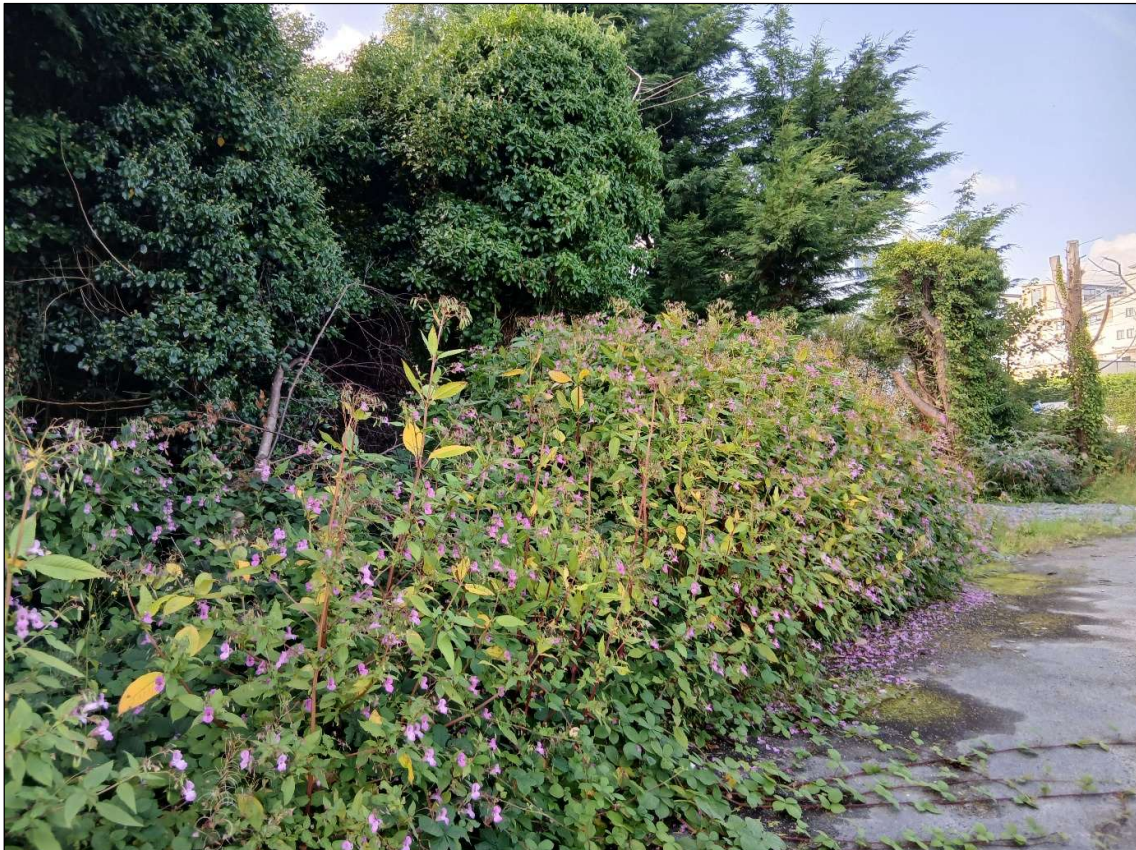
Photograph 1.2: Buddleia was present in the main site area.



Photograph 1.3: Japanese knotweed was present adjacent to Pearse Road.



Photograph 1.4: Himalayan Balsam was widespread adjacent to Pearse Road.



Photograph 1.5: Milkflower Cotoneaster was present in isolated areas of site.



Photograph 1.6: Montbretia was present in small quantities at the waste soil stockpile.



Photograph 1.7: Rhododendron was discovered along the northern site boundary

1.1 Site Invasive Species Management Objectives

It is anticipated that construction works will commence in August 2027, subject to achievement of all statutory approvals. The main objective of this Management Plan is to eradicate invasive species present to allow the proposed works to proceed without causing any further spread of the identified invasive plants. Appropriate measures will be put in place to prevent the spread of the invasive species in accordance with European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) to satisfy the requirements of the National Park and Wildlife Service and Donegal County Council.

1.2 Limitations and Threats to the Proposed Development Site

The presence of invasive species at the site has the potential to lead to an offence under the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). Regulation 49 of the 2011 Regulations prohibits (unless under licence) the planting, allowing or causing dispersal, and spreading of any plant listed in the Third Schedule. Himalayan balsam and Rhododendron are plants listed in the Third Schedule and are regulated invasive species of Union concern under the European Regulation on the prevention and management of the introduction and spread of invasive alien species [1143/2014]. Some well-known IAS such as Japanese knotweed are not listed either because they are already so widespread that inclusion on the EU list would not effectively prevent, minimise or mitigate their adverse impact or because they do not have a risk assessment; or the risk assessments did not include some of the information required by the Regulation, or there was insufficient evidence that the species meet the criteria for listing. Buddleia, Cotoneaster and Himalayan honeysuckle are not currently on the EU list of Invasive Alien Species of Union Concern but are however described as medium impact invasive species by the Irish National Biodiversity Data Centre. Montbretia is not listed under the third schedule, however, is considered a widespread, non-native invasive species.

The Global Invasive Species Programme categorises Japanese Knotweed as one of the world's 100 worst invasive alien species, in light of the economic and environmental damage associated with this species. It is an offence to plant or encourage the spread of both by moving contaminated soil from one place to another or incorrectly handling and transporting contaminated material or plant cuttings. Persons must therefore take all reasonable steps and exercise due diligence to avoid committing an offence under these Regulations.

It is an offence to plant or encourage the spread of invasive species by moving contaminated soil from one place to another or incorrectly handling and transporting contaminated material or plant cuttings. Operators must therefore take all reasonable steps and exercise due diligence to avoid committing an offence under these Regulations.

When considering excavation and containment methods, it is necessary to have regard to the Waste Management Acts 1996 to 2008. A waste license or waste facility permit is required for disposal of excavated material off site. It is also required that the waste haulier employed to haul waste is authorised by a waste collection permit or is exempt from such a requirement.

1.3 Implementation of the Invasive Species Management Plan

The appointed contractors will be responsible for the management / control of the invasive species and contaminated spoil on the site, the implementation of the Management Plan for the works and ensuring that provisions are made for avoiding any further contamination. This Management Plan is a working document; any revisions of the plan, which shall be limited to improvement only, should be maintained for future reference.

1.4 Statement of Authority

This report has been prepared by Sean Toland, Environmental Scientist at Greentrack. Sean holds a BSc. (Hons.) in Environmental Science (1999) and an MSc. in Coastal Zone Management (2000) from the University of Ulster.

1.5 Issues Associated with the Invasive Species at the Site

Several invasive species were identified at the proposed transport hub site. A brief description of issues associated with the invasive species identified is included below.

1.5.1 Himalayan honeysuckle (*Leycesteria formosa*)

Himalayan honeysuckle is a vigorous shrub that can spread into the wild from gardens, forming dense thickets that outcompete native vegetation and reduce biodiversity. Its flowers attract pollinators like bees, which may preferentially visit the invasive species over native plants, while birds disperse its berries over long distances, aiding its spread. Although it spreads more slowly than some other invasive plants, it can still crowd out native flora and alter natural ecosystems.

1.5.2 Buddleia (*Buddleia davidii*)

Buddleia is a fast-growing shrub that can escape from gardens and spread into the wild, forming dense stands that outcompete native vegetation and reduce biodiversity. Its nectar-rich flowers attract pollinators, which may favour buddleia over native plants. The plant produces large numbers of wind-dispersed seeds, allowing it to colonise disturbed habitats including riverbanks, railway embankments, and wasteland. Once established, buddleia can crowd out native species, and damage walls and buildings through its vigorous root growth.

1.5.3 Japanese knotweed (*Fallopia japonica*)

Japanese knotweed readily establishes population along roadsides, railways, riverbanks and hedgerows proving to be a driving hazard by blocking sightlines and damaging road surfaces. The plant can grow through concrete and tarmac causing dangerous and expensive structural damage. Its persistence means its impact is often felt long-term. By establishing itself on

riverbanks the plant can affect flood defence structures and increase flood risks. Given its vigorous growth rates, it can quickly form tall thickets (up to 3m in height) shading out the areas immediately below it, leading to a loss of native plants. It can leave areas particularly riverbanks exposed to erosion from heavy rain and flooding

The principal means of spread of Japanese knotweed is entirely through the deliberate or accidental movement of rhizome fragments or cut stems. Japanese knotweed has the extraordinary ability to spread and even tiny amounts of cut stem, crown or rhizome are capable of producing a new plant. Controlling spread is therefore dependent on preventing the spread of the stem, crown or rhizome.

1.5.4 Himalayan balsam (*Impatiens glandulifera*)

Himalayan balsam produces dense stands, creating monocultures and reducing biodiversity by limiting nutrient and habitat availability and shading out native plants. Himalayan balsam's prolific nectar production draws pollinators away from other plants and is a main draw for gardeners wanting to attract more pollinating species. However, growing this plant should be avoided, as it spreads rapidly and will quickly overtake native species and reduce biodiversity. This species can aggressively replace native perennial plants along riverbanks, over time leading to soil erosion as the plants die which leaves soil more exposed to erosion, ultimately leading to increased risk of flooding.

1.5.5 Milkflower cotoneaster (*Cotoneaster lacteus*)

Milkflower cotoneaster can form dense stands, potentially creating areas of reduced native plant diversity by competing with native vegetation for light, space, nutrients and water. Its dense growth can suppress the regeneration of native plants and alter the structure of habitats. The species produces numerous small berries which are readily eaten by birds, providing an effective means of seed dispersal and allowing plants to establish away from parent shrubs. Once established, Milkflower cotoneaster can be difficult to control because plants can regenerate following cutting and may spread through branches rooting where they come into contact with the ground.

1.5.6 Montbretia (*Crocsmia X crocosmiiflora*)

Dense colonies of Montbretia prevent the regeneration of native vegetation as they smother seedlings. Streambanks are at risk of collapse as Montbretia corms may become very heavy and destabilising. It's increasing rapidly and is especially frequent in the west and around coasts; in western Ireland whole roadsides can be densely carpeted for miles on end.

1.5.7 Rhododendron (*Rhododendron ponticum*)

Rhododendron is an aggressive coloniser which is both environmentally and ecologically damaging to infected sites. Once established, it forms dense, long-lived thickets which smother the ground flora and suppress the regeneration of native trees and shrubs. Its dense thickets can reach several metres in height. Well established thickets eventually form a toxic layer of leaf litter which produces a dark sterile environment and supports little wildlife. The foliage of Rhododendron is unpalatable to grazing animals. Dense tangles of Rhododendron stems can block pathways, smother watercourses and encroach on roadways, resulting in an impingement of sightlines.

2 MEASURES FOR THE MANAGEMENT OF POTENTIAL INVASIVE SPECIES

This section provides an overview of control measure options for the invasive species and the suitability of these options for the proposed transport hub in Letterkenny. The specific method statement is provided in Section 3.

2.1 Avoidance and Reduction of Proximity

Great care is needed to ensure that plant material (i.e. fragments of stems, leaves and roots) is not spread whilst performing any of the project works.

2.2 General Control Measures

Effective site hygiene is essential. Such hygiene and site management measures include, but are not limited to, the following: -

- Fencing-off and signing the infested area is usually the first measure implemented in an invasive species site. A fence at least 7 metres away from the plants to contain any contaminated soil or roots is advised. Where possible, the contaminated area and the extent of the rhizomes will be clearly marked for clarity in the eradication programme. Signs should be erected to warn people that the area is infested / contaminated.
- Areas where contaminated soil is to be stockpiled on site will be clearly identified and marked out.
- Designated entry and exit points will be identified for personnel on foot and for machinery and equipment.
- Tracked vehicles should not be used within the areas of infestation.
- All machinery used on site will be thoroughly pressure-washed down on geotextile membrane and cleaned immediately prior to leaving the contaminated areas and all run off will be drained into a designated holding area.
- Where cross-contamination is possible (i.e. from one site to another), consider designating vehicles or machinery to specific sites where possible to prevent spread.
- Cover all lorries, dumpers or haulage vehicles carrying contaminated soil or plant material.
- There will also be a boot wash implemented for all personnel on site. Overall leggings should be worn by all on site, and these should be rinsed off before leaving the area with all run-off directed into the designated area. A designated pair of footwear and leggings should be used exclusively for this site during the works and changed before leaving the area. These should be washed every time the site is left and thoroughly treated at the end of the job.
- Where a species requires long-term management ensure a site management plan is put together that addresses all issues associated with it in the long term and throughout the works.
- Nominate a designated Clerk of Works to manage the issue of non-native species on site from an early stage.

- All workers should be informed on the management plan and risks associated with *the* Invasive species on site. This could be done through ‘toolbox’ talks or within site introductions. Everybody working on site must understand the role and authority of the Clerk of works managing the issue of the non-native species.
- Look out for regrowth by roads and areas where vehicles have been parked or cleaned. Spray any regrowth with herbicide if required.
- If works are undertaken between November and March in an area where invasive plants are known to be present, look for dead canes from the previous year to identify infected areas. Even if there is no growth evident above ground, seeds and rhizomes may still be present. A development site must be inspected for evidence of invasive species before it is cleared.
- All chemicals, if used for the control of non-native species, should be stored and used in a responsible manner and in accordance with the product instructions.
- All wash facilities including wastewater from washing vehicles, equipment or personnel should be collected and managed in a responsible way so as not to cause harm to the environment. Disposal of contaminated wash water, including all silt and other solids (e.g. plant fragments), must also be dealt with in a responsible manner to avoid pollution and to prevent the spread of any non-native species present. Water can be treated by passing it through a settlement tank to remove any soil before passing it through a very fine mesh sieve to remove seeds or plant material. Settlement alone may not be adequate because seeds and plant material float.

2.3 Specific Treatment Options

2.3.1 Chemical Treatment for Himalayan Honeysuckle

The use of herbicides is often an effective option for the control of Himalayan Honeysuckle. It should be noted that herbicide treatment is usually the most cost-effective method, however, it can take a long time to achieve acceptable control. Caution must be exercised as many of these herbicides are not effective during the winter as the active ingredient needs to be taken up by live plant material. Control can be achieved using glyphosate.

Herbicide control for Himalayan Honeysuckle recommends stem injection or frilling for larger plants and the cut and paint method for smaller to medium sized plants (up to 10cm in diameter). Plants should be healthy and actively growing for effective herbicide treatment. Deciduous plants should be treated in spring and autumn when leaves are fully formed. For multi-stemmed plants, inject or chip below the lowest branch or treat each stem individually. Herbicide must be injected immediately before the plant cells close (within 30 seconds before translocation of herbicide ceases.)

When treating large areas, a suitable grass and forb mix should be sown to prevent bare ground and recolonization or colonization of other unwanted species.

2.3.2 Chemical Treatment for Buddleia

The use of herbicides is often an effective option for the control of Buddleia. It should be noted that herbicide treatment is usually the most cost-effective method, however, it can take a long time to achieve acceptable control, and caution must be exercised as many of these herbicides are not effective during the winter as the active ingredient needs to be taken up by live plant material. The most effective time to apply Glyphosate to Buddleia is from during active growth in late spring or summer.

Chemical control of is most effective when combined with physical removal. For established plants, stems should be cut close to ground level and a suitable systemic herbicide applied immediately to the freshly cut stump to prevent regrowth. Herbicides containing glyphosate are commonly used where permitted and in accordance with product label instructions. Smaller plants and seedlings may be treated by foliar application during active growth, ensuring thorough coverage of the leaves. Care should be taken to avoid drift onto non-target vegetation and contamination of watercourses. Follow-up monitoring is recommended, as repeat treatment may be necessary to control regrowth.

2.3.3 Chemical Treatment for Japanese knotweed

Chemical treatment is the most environmentally friendly method to control Japanese knotweed. Using this method all treatment work is confined to the site. This eliminates the requirement to disturb, excavate or remove the infested soil, thus significantly reducing the risk of spreading the weed. Treatment using herbicides can effectively control Japanese knotweed. However, it is highly unlikely that a single application of any approved herbicide will effectively kill this pervasive weed and complete eradication may take three years or longer. It is important to only use herbicides that are cleared for use by the Pesticide Control Service of the Department of Agriculture, Fisheries and Food. Where the Japanese knotweed infestation is near water, only glyphosate-based herbicides can be used. Herbicide treatment must only be conducted by competent and qualified personnel. Herbicide treatment can be administered through the following:

- **Foliar Application:** This type of treatment is usually applied with a sprayer such as a knapsack sprayer. It is an efficient way to treat large monocultures of invasive plants, or to spot-treat individual plants that are difficult to remove mechanically such as Japanese knotweed. For deep rooted species, such as Japanese knotweed, regrowth will occur in subsequent years, albeit much less vigorously, which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed.
- **Cut and Inject Treatment:** This methodology is sometimes used for Japanese knotweed control where knotweed is mixed in with other sensitive vegetation such as a hedgerow. This treatment requires a higher concentration of the active ingredient than is used in foliar applications. In addition, many of the recommended herbicides for foliar application are not approved for application by this method. Treatments for Japanese knotweed, through the application of glyphosate-based products, are most effective when applied in the early Autumn (Mid to Late Sept). Stems should be cut approximately 20- 30cms from the base of each cane. Approx. 10 mls of herbicide mix is injected into each cane at a ratio of 5:1 through the use of a specialist stem injection tool. Delaying the application will reduce the effectiveness of the treatment. Regrowth will occur in subsequent years which will require follow up treatment at the appropriate time of year. Spot treatment will be required each year until no regrowth is observed. The cut Japanese knotweed canes must be treated with extra care. They can either be kept in-situ, where it is possible to do so, and left on top of plastic sheeting and subsequently monitored for any sign of regrowth (this is not recommended for a riverbank habitat where there is the possibility of flooding occurring). Alternatively, the canes can be disposed of at a licensed landfill site for deep burial via the use of a licensed waste carrier. The landfill site must be notified that the waste material contains Japanese knotweed. Alternatively, through seeking the necessary exemptions to burn, the canes maybe burnt on site.

2.3.4 Chemical Treatment for Himalayan balsam

Treatment by herbicide can be achieved with a weed wiper in mixed stands, or by foliar spray in dense stands. Plants should be sprayed in the spring before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the spray. A long-lance sprayer may assist in the spraying of less accessible areas out of the reach of conventional knapsack sprayers. Glyphosate has been shown to be effective in controlling Himalayan balsam. It is sold under a number of brand names; some are not licensed for use near water. Always read the label. Other herbicides which contain the active ingredient 2,4-d amine can be used to control Himalayan balsam in some situations. However, most products which contain the active ingredient 2, 4- d amine are however not approved for use near water where Himalayan balsam typically grows. The selection of chemical by the contractor and clerk of works will depend on seasonal factors, site conditions, proximity to water, surrounding habitats etc. Herbicide application should only be carried out by suitably qualified contractors or operators with strict reference to the product label, local land use, health and safety considerations and any pertinent regulations

Repeat checks will be required on a monthly basis for any late germinating seeds. Repeat checks should be carried out each year throughout the growing season to prevent any new plants from setting seed until no further growth is found.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003).

When treating large areas, a suitable grass and forb mix should be sown to prevent bare ground and recolonization or colonization of other unwanted species.

2.3.5 Chemical Treatment for Milkflower cotoneaster

Chemical control of Milkflower cotoneaster can be used where mechanical removal is impractical or where plants are regenerating from cut stumps. Herbicides containing suitable active ingredients can be applied to freshly cut stumps or directly to foliage, depending on the size and location of the plant and the product label. Cut-stump treatment can reduce regrowth and minimise the amount of herbicide required. Treatment should be undertaken by appropriately trained personnel and in accordance with Irish pesticide legislation and product labels, particularly near watercourses or other sensitive habitats. Follow-up monitoring is important because surviving plants or seedlings may require further treatment.

2.3.6 Chemical Treatment for Montbretia

The use of herbicides is often an effective option for the control of Montbretia. It should be noted that herbicide treatment is usually the most cost-effective method, however, it can take a long time to achieve acceptable control and caution must be exercised as many of these herbicides are not effective during the winter as the active ingredient needs to be taken up by live plant material. Control of both can be achieved using glyphosate.

The most effective time to apply Glyphosate to Montbretia is from during active growth in late spring or summer. Montbretia leaves can also be wiped with a dilute herbicide mix where there are individual plants, small patches or where montbretia is found with native plants. This is a successful technique when done correctly. Dense patches of montbretia can be sprayed if away from all native plants and from any watercourses.

However, it should be noted that for the small quantity of Montbretia present onsite it may be more practical to excavate and dispose of the plant.

2.3.7 Chemical Treatment for Rhododendron

Rhododendron can be difficult to treat chemically because the uptake of foliar-acting herbicides through the thick, waxy leaves is low. It is imperative that close attention to detail is followed when undertaking herbicidal control of rhododendron. Due to the growth habit and internal transport system in rhododendron, herbicides are not moved around the plant between adjacent stems. Therefore, when applying herbicide, each individual stem of each plant must be treated in order to kill the plant. Spraying cut stems with ammonium sulfamate is effective in controlling the growth of Rhododendron though surrounding vegetation may be affected. Glyphosate is commonly used to control Rhododendron after the bulk of the biomass has been removed by burning or mechanical removal, and triclopyr and imazapyr at differing concentrations have also been used with varying success. It is vital that any chemical treatment of rhododendron is undertaken during a period of prolonged dry weather as rainwater (and other water) will wash herbicide off the leaves (treated plants must remain dry for at least 6 hours after application).

Note on the use of chemical herbicide treatments

Any herbicide treatment of invasive plant material will follow best practice guidelines and be applied by a certified competent operator with reference to current herbicide control measures and specifically Sustainable Use of Pesticides Regulations: European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012), as amended by the European Communities (Sustainable Use of Pesticides) (Amendment) Regulations, 2019 (S.I. No. 438 of 2019). Where chemical control measures are proposed, advice will be sought from a registered pesticide advisor, where appropriate. All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice. It is an offence to use Plant Protection Products in a manner other than that specified on the label. EC Regulation No. 1107/2009 of the European Parliament governs plant protection products.

2.3.8 Physical Excavation and Burial or Disposal of Invasive Species

Excavation is very expensive and highly disruptive. Hence, it should be the method of last resort. However, in some cases of relatively small infestations, or when a site requires cleared quickly, it can be the most cost-effective method of invasive removal.

Clearing the leaves and stems of invasive species that are above ground and then removing soil contaminated with roots, rhizomes (underground root-like stems) and seeds can provide faster results than just spraying with herbicide. Efforts should be made to minimise the amount of waste generated that contains invasive plants, or their seeds and rhizomes. Any waste produced should be treated on site where possible. Never stockpile contaminated soil or plant material within 10 metres of a watercourse or within 7 metres of subject site boundary.

2.3.8.1 Physical methods for Himalayan honeysuckle

For Himalayan honeysuckle, it is recommended to dig plants out small clumps in early spring before seed is set. Himalayan honeysuckle has taproots so care must be taken to ensure that all the roots have been removed when digging out. Plants that have been dug out can be left on site to dry and rot down.

Excavated material should be removed from site to licensed landfill as controlled waste or dealt with on site in waste management areas or buried. For the removal off-site to landfill, a license from National Parks and Wildlife Service (NPWS) is required. Where infestations are limited in extent, the entire stand can be excavated and buried at a depth of at least 2m, incinerated or disposed of in licensed landfill.

Alternatively, and only in agreement with NPWS, any plants present may first be treated with a systemic herbicide such as glyphosate, during the growing period prior to site works being

undertaken. Any use of chemicals must be undertaken only by a trained operative, in full accordance with the manufacturer's instructions, following the protocol outlined below. In order to prevent spray drift onto adjacent habitats, a wiper application should be used, not a foliar spray.

2.3.8.2 Physical methods for Buddleia

Physical removal of Buddleia is only suitable for very small infestations of this species. If this is the chosen method of removal, care should be taken to remove all parts of the plant as branches are capable of re-rooting from cuttings. The plants should not be removed when in seed as there would be a risk of spreading the seeds further. Where removal of mature plants is not immediately feasible, the flower heads should be removed in June before they go to seed. It is essential to plant the ground with native species immediately following removal to prevent new seedlings taking hold.

Alternatively, and only in agreement with NPWS, any plants present may first be treated with a systemic herbicide such as glyphosate, during the growing period prior to site works being undertaken.

2.3.8.3 Physical methods for Japanese knotweed

Excavation is very expensive and highly disruptive. Hence, it should be the method of last resort. However, where it is deemed necessary to excavate, effective control of Japanese knotweed can be achieved. As the rhizomes can penetrate to 3 metres deep and 7 metres beyond the leading edge of the foliar infestation, sites for excavation must be clearly marked and take into account the underground extent of the weed. Barriers should be erected at least 10 metres distant from the last obvious stems and leaves, and all soil excavated to at least 7 metres from this leading edge. Manual methods of removal include:

- **Cutting/Mowing:** Cutting or mowing Japanese knotweed is not recommended. Stem fragments can root at the nodes and generate new plants. Frequently, knotweed is spread by roadside mowing crews in just this manner. Although cutting is often recommended to reduce the plant's height and facilitate treatment, unless all plant parts can be removed and destroyed, the risks outweigh the benefits.
- **Hand-pulling:** Mature Japanese knotweed populations have deep, extensive root systems and hand-pulling the species is not an effective control method.
- **Digging/Tilling/Excavating:** For very small infestations (fewer than 50 stems), digging up and removing ALL the plant's parts may provide control, but the site should be carefully monitored for at least four years. Since root fragments may sprout to form new plants, for most populations, digging alone will not provide effective control. Tilling or cutting through roots will also increase sprouting. Digging, tilling and excavating are never appropriate along river or stream banks, where soil disturbance may result in fragments being washed downstream.

2.3.8.4 Physical methods for Himalayan balsam

Hand-pulling: Whilst labour intensive, if done in the correct manner hand pulling can be a very effective strategy where an infestation is relatively low. Himalayan balsam has a relatively small, shallow root network which is easily pulled out with the rest of the plant if the plant is pulled firmly and steadily from the base of the plant. If snapping occurs at a node the pulling must be completed to include roots. If broken off stems are left (even low down on the plant) then the Himalayan balsam will re-shoot and send up new flowerheads. Hand-pulling could start as early as March, but by May the plants will be large enough to recognise easily. Pulling should continue at least through June, prior to seed formation, though some plants can germinate later in the season so hand-pulling may need to continue through the autumn. The optimum time for control

is when the Himalayan balsam is just starting to develop flowering buds. Padded gloves should be worn to avoid risk of injury to hands.

Cutting or Mowing: Cutting can be done before the flowering stage in June. Plants must be cut at ground level, below the lowest node. Any cuts above the lowest node will lead to regrowth and re-flowering. Cutting too early will promote greater seed production from the plants that re-grow. Similarly, cutting once the seedheads have formed will simply distribute them, making the problem worse. Cutting more than once a year might be required. Make sure you place cut Himalayan balsam material on a surface that is not in direct contact with the ground to avoid regrowing. Regular mowing is an alternative, though most of these plants would need to be cut beneath the lowest node (any that have been missed can be hand pulled later), provided the frequency is sufficient to prevent the formation of flowers and seeds. This is best carried out before June for maximum effectiveness.

Seeds are not very robust and only survive for up to 18 months so a two-year control programme 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 after May) otherwise they explosively spread when brushed against. Programmes should be undertaken in April or early May. If hand pulling after this time, bag plant tops to prevent seed spread.

2.3.8.5 Physical methods for Milkflower cotoneaster

Physical removal involves cutting Milkflower cotoneaster close to ground level and removing the root system where practical. Small plants can be hand-pulled, while larger shrubs may require tools or machinery. All root material should be removed to prevent regrowth. Follow-up monitoring is necessary to identify and remove seedlings or regrowth.

2.3.8.6 Physical methods for Montbretia

The most effective time to remove Montbretia is before the flowering/seeding season. For small young plants (less than 10 cm), digging up is successful if the soil is loose. As plants can have a long string of corms, digging up more established plants will only work if it is followed up repeatedly. Small areas can be effectively controlled by digging out and disposing of entire plants, corms and rhizomes but this is usually futile in large spots as corms resprout. It is essential that all the plant material and corms are removed. If corms are broken up or accidentally left, they can produce new plants potentially making the problem worse. Excavated material should be removed from site to licensed landfill as controlled waste or dealt with on site in waste management areas or buried. For the removal off-site to landfill, a license from National Parks and Wildlife Service (NPWS) is required. Where infestations are limited in extent, the entire stand can be excavated and buried at a depth of at least 2m, incinerated or disposed of in licensed landfill. The corms are very hardy and are not suitable for composting. Due to the potential for reinfestation from corms, regular follow-up will be required over a period of at least 2 years to deal with any regrowth.

2.3.8.7 Physical methods for Rhododendron

Clearing the leaves and stems of invasive species that are above ground and then removing soil contaminated with roots, rhizomes (underground root-like stems) and seeds can provide faster results than just spraying with herbicide. Efforts should be made to minimise the amount of waste generated that contains invasive plants, or their seeds and rhizomes. Any waste produced should be treated on site where possible. Never stockpile contaminated soil or plant material within 10 metres of a watercourse or within 7 metres of subject site boundary.

For Rhododendron removal, heavy machinery with long hydraulic arms is best for digging up the root material and crushing the branches. Operator knowledge of the structural growth of the plant is essential to enable full eradication of the plant without leaving underground suckers. The surface rooting characteristics of Rhododendron should allow for the shrub to be lifted entirely from a site with most of the main rooting structure intact. Rhododendron removal is best suited to autumn and winter to make, and take advantage of, a clean uncontaminated seedbed in the spring. Due to the spread of the shrub, a systematic approach is best suited to the removal of the plant at each stage. If Rhododendron is just cut back, this will be followed by vigorous growth from the stumps during the next growing season. An approach of methodical cutting, mechanical removal and burning of root material and stumps is the preferred means to achieve a Rhododendron free site.

Uprooting of plants provides a better result than simply cutting and is more cost effective in the long term. The roots of rhododendron are relatively shallow, being confined to the upper horizons (seldom deeper than 45cm) and typically extend uphill from the plant. This allows plants to be easily toppled using a hand operated turfer or mechanical winch. Younger plants in newly established infestations can be readily hand-pulled.

2.3.9 Combination treatments for Japanese knotweed

A combination of physical and chemical treatments may be more effective than chemical treatment alone in controlling Japanese knotweed. The Environment Agency has indicated that combining digging and spraying is effective in reducing the time needed for chemical control. By digging and breaking up the rhizome, the aim is to stimulate leaf production leaving the plant more vulnerable to treatment with a plant protection product.

The Japanese knotweed canes are cut using a cutter, hook or scythe and carefully set aside on a suitable membrane surface until they have dried and are certain to be dead. A wheeled excavator is used to scrape the top 25 cm of topsoil, containing the surface crown and rhizomes, into a pile. The exposed ground is then cultivated to a depth of at least 50cm and the piled material is then re-spread over the cultivated area. This process will stimulate the rhizome to produce a higher density of stems, leaving the plant more susceptible to treatment with a herbicide.

2.3.10 Vertical root barrier membrane

This involves the placement of vertical root barrier membrane along the exposed edge of an excavation prior to filling / backfilling. This is intended to prevent Knotweed from the infested area beyond the works from spreading back into the works area in future years via horizontal rhizome (root stock) growth. Commercially available 'Japanese Knotweed-proof' membranes should be used. These should be installed under expert supervision, ideally provided by the supplier. Key considerations in the installation of the membrane are:

- Avoid joints; ideally use a single sheet of the membrane.
- Joints must be sealed securely.
- Damaged membrane will not be used.

As set out in The Knotweed Code of Practice (Environment Agency, 2013), if services or other small-scale structures need to be constructed in areas infested with Japanese Knotweed, it is often more cost effective to protect the integrity of the structure within a root barrier membrane rather than subject the entire area to a full-scale Japanese knotweed Management Plan.

2.3.11 Options for the Disposal of Excavated Material

If disposal at the site is chosen as the preferred method of eradication, there are a number of options for disposal of material which are outlined below.

- Bury the contaminated material in a 5m deep receiving pit. This strategy may not be suitable for this site due to the soil depth and the possibility of encountering the groundwater table.

Alternatively contaminated material can be moved off site under license. For the removal off-site to landfill, a license from the National Parks and Wildlife Service (NPWS) is required. The following information is required to obtain such a license:

- Methods of removal
- Methods of transport
- Biosecurity measures
- Copy of Management Plan
- Timeframe for completion of works
- Documentary evidence that chosen landfill facility will accept the material.

Excavation and removal off-site of the potentially contaminated soil is generally considered to be the least favourable option because of the high costs involved. Taking plant material and soil containing plant material away for disposal off site uses valuable landfill capacity and increases the likelihood of the spread of invasive plants. Where the removal of excavated material may be the only option, small amounts of material to be removed can be double bagged and the material is sent to a licenced waste facility for disposal. Where the amount of material is larger in volume, it will be necessary to haul it from site to a suitably licenced waste facility.

- The removal of contaminated material off site may require a licence from the National Parks and Wildlife Service in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477). Any waste that is taken off site must be taken by a licensed waste carrier and must go to a suitably authorised landfill site. Waste transfer notes (WTNs) must be kept for any material leaving the site. Any material that contains invasive plants or their seeds must be listed on the WTN. The waste carrier can only take the waste containing invasive weeds to sites authorised to accept it. The waste site may need notice so that an area can be prepared. For example, a landfill site will need an area away from their main domestic waste for material containing invasive plants. All WTNs, signed by both businesses, must be kept for at least two years.
- Plant material, or soil containing plant material or seeds, is likely to be classed as non-hazardous waste - this is a different category from inert waste. Invasive species plant material or soil containing residual herbicides may be classified as either 'hazardous waste' or 'non-hazardous waste' under the terms of the Waste Management Acts, and both categories may require special disposal procedures or permissions. If the material has been treated with a persistent herbicide, the excavated material must be classified as hazardous waste and must be disposed of to a hazardous waste facility. Advice would need to be sought from a suitably qualified waste expert, or the environmental section of local authority, regarding the classification of the waste and the suitability of different disposal measures. The movement of invasive plant material requires a licence from the NPWS under Section 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended).

2.4 Site Specific Recommendations

The following treatment options are proposed for each of the invasive species as the most practicable in the context of the development proposal and the nature of invasive species presence on-site.

All areas of the site, and particularly those areas with previous invasive infestations, should be regularly inspected for signs of regrowth and treated for such if applicable.

Removal off site is usually expensive but, in some instances, it may be the most cost and time effective solution for this site.

2.4.1 Himalayan honeysuckle

The amount of Himalayan honeysuckle on site is small.

- Excavate the plant, removing the root crown to prevent regrowth.
- Cut the mature shrub at ground level prior to berry production.
- Remove all uprooted plant material from the affected area.
- Stockpile removed material within a black plastic-lined area.
- Dispose of excavated material at a suitably licensed waste facility.
- Inspect treated areas regularly and remove any regrowth by hand-pulling or digging.

2.4.2 Buddleia / Milkflower cotoneaster

The amount of Buddleia / Milkflower cotoneaster on site is relatively extensive.

- Small plants and seedlings can be manually or mechanically removed.
- The infestation can be controlled by hand-pulling young plants or digging out the larger specimen, including as much of the root system as possible.
- Plants should be removed at ground level, ensuring roots are extracted to reduce regrowth.
- Removed plant material should be stockpiled within a black plastic-lined area.
- Removal should occur before flowering and seed production, to prevent further spread.
- Care should be taken to remove all parts of the plant as branches are capable of re-rooting from cuttings.
- The flower heads should be removed before they go to seed.

2.4.3 Japanese knotweed

Japanese knotweed is present in an area of site of approximately 470 sqm. A foliar application of herbicide is recommended for the site infestation of Japanese knotweed. Chemical treatment of Japanese knotweed typically involves the application of a systemic herbicide to actively growing foliage or stems. Herbicides containing glyphosate are commonly used where approved and applied in accordance with label instructions and relevant regulations. Treatment is generally most effective in late summer or early autumn when the plant is translocating nutrients to its roots, improving herbicide uptake. Multiple treatments over several growing seasons are often required due to the plant's extensive root system.

- The full extent of the infestation must be identified before any excavation works begin.
- Root systems can extend up to 3 m deep and 7 m beyond visible growth.
- Work exclusion zones should be established around infested areas to prevent inadvertent spread because of construction activities.
- All contaminated soil within the excavation area must be carefully removed.
- Uncontrolled disposal of contaminated soil should not occur to avoid spread of the plant. Disposal of contaminated soil to appropriate waste disposal facilities should occur.
- Cutting or mowing is not recommended as stem fragments can generate new plants.
- Hand-pulling is ineffective due to the plant's extensive root system.
- Digging may be effective only for very small infestations if all root material is removed.
- Tilling or root disturbance can increase sprouting and spread the infestation.
- Chemical control using herbicides can avoid soil excavation and disturbance.

It is recommended that the chemical treatment of Japanese knotweed commences in good time before the proposed main site works commence around August 2027.

2.4.4 Himalayan balsam

The infestation of Himalayan balsam is relatively large in relation to the full site extent. For small to medium infestations of Himalayan balsam, hand-pulling is an effective control method. Removal should be carried out between late spring and early summer, before flowering and seed production occur. Plants are shallow-rooted and can usually be pulled easily by hand, particularly when the soil is moist. Each plant should be grasped near the base of the stem and pulled carefully to remove the root system. Any detached roots or stem fragments should be checked to ensure they are no longer in contact with the soil. Pulled plants can be left on site to decompose, provided they have not yet developed flowers or seed pods and are placed in piles away from watercourses and damp ground where re-rooting could occur.

Follow-up monitoring is essential, as Himalayan balsam seeds can remain viable in the soil for up to two years and may be reintroduced from neighbouring infestations. The site should be inspected regularly throughout the growing season, with any new plants removed before flowering. Particular attention should be paid to disturbed ground and areas where seed may accumulate. Repeated visits during the season may be required to ensure complete control of the issue. All personnel undertaking the work should be able to identify Himalayan balsam accurately and follow biosecurity measures to minimise the spread of seeds between locations. Consistent annual management can significantly reduce and eradicate infestations.

- The infestation can be manually / mechanically removed.
- The infestation onsite can be hand pulled.
- The plant should be gripped c. 0.5m above ground and pulled.
- Removed plants should be stockpiled within a black plastic-lined area.
- Removal should occur ideally before seed capsules appear.

2.4.5 Rhododendron

The amount of Rhododendron on site is small.

- Immature non-flowering plants can be hand pulled.
- Larger plants should be cut as near to the base as possible.
- Following this removal of root system should be possible using an excavator.
- Removed stumps should be turned upside down to prevent regrowth.
- This should be done outside the flowering period (usually May and June) of the plant.

2.4.6 Montbretia

The amount of Montbretia on site is small.

- Dig out corms and rhizomes thoroughly.
- Remove soil containing broken corms.
- Avoid strimming, which spreads fragments.
- Remove flower heads before seeding.
- Bag plant material; don't compost it.
- Monitor treated areas for regrowth.

2.5 Site Specific Treatment Programme

Site clearance leading to construction works is proposed by Donegal County Council before the end of August 2027. Prior to the commencement of site clearance works an invasive species treatment programme should be undertaken. This will ensure that the invasives are managed in good time to prevent delays to the construction programme. The proposed invasives treatment programme for the site is outlined in Table 2.1 below.

Table 2.1: Proposed Invasive Species Treatment Programme

SPECIES	Autumn 2026	Winter 2026	Spring/Summer 2027
Himalayan honeysuckle		Cut down, excavate and remove. Stockpile removed material within a black plastic-lined area.	Check for regrowth and remove. Burial onsite.
Buddleia		Cut down, excavate and remove. Stockpile removed material within a black plastic-lined area.	Check for regrowth and remove. Burial onsite.
Himalayan balsam			Excavate / Hand pull and remove before seeds form. Check for regrowth and remove. Burial onsite.
Japanese knotweed	Chemical Treatment. Inspect treatment effectiveness. Repeat chemical treatment if necessary.		Repeat chemical treatment if necessary. Excavate and remove. Burial onsite.
Cotoneaster		Cut down, excavate and remove. Stockpile removed material within a black plastic-lined area.	Check for regrowth and remove. Burial onsite.
Rhododendron		Cut down, excavate and remove. Stockpile removed material within a black plastic-lined area.	Check for regrowth and remove. Burial onsite.
Montbretia		Excavate and remove. Stockpile removed material within a black plastic-lined area.	Check for regrowth and remove. Burial onsite.

2.6 Site Specific Disposal Options

Donegal County Council is considering disposal options for the invasive species with burial at the site being the current preferred method of disposal. Where invasive species material is buried below the proposed construction site, on-site burial may provide a practical disposal option where sufficient space and suitable ground conditions are available. Material should be contained within a purpose-built excavation lined with an appropriate geotextile barrier capable of resisting root penetration. The burial area should be clearly recorded and protected from future disturbance. It is recommended that the invasive species at the site should be gathered for disposal prior to burial to understand the extent of the excavation required for containment.

Burial depth and the area required will depend on the volume and type of invasive material present. Sufficient depth should be provided to prevent material being disturbed by excavation, foundations, drainage works or future landscaping. The burial location should therefore be positioned below the maximum anticipated construction disturbance depth, with an appropriate buffer to account for construction tolerances and potential root growth.

Where suitable burial cannot be safely achieved, disposal at a licensed landfill facility should be considered. This may reduce the risk of spread during construction, but transport and handling must prevent accidental dispersal. The selected option should minimise risks to construction activities, workers and surrounding habitats. Table 2.2 below sets out the proposed disposal options for the invasive species at the site.

Table 2.2: Proposed Invasive Disposal Options

Species	Burial on site	Depth (TBC)	Estimated Area (m ²) (TBC)	Combined with other invasives	Above construction	Landfill disposal
Buddleia	Yes	3m	5m x 5m	Yes	Low to Medium Risk	Optional
Himalayan honeysuckle	Yes	3m	1m x 1m	Yes	Yes	Optional
Himalayan balsam	Yes	3m	5m x 5m	Yes	Yes	Optional
Japanese knotweed	Risky	3m	5m x 5m	Optional	Medium to High risk	Less risky option, but still acceptable.
Milkflower cotoneaster	Yes	3m	1m x 1m	Yes	Yes	Optional
Rhododendron	Yes	3m	5m x 5m	Yes	Low to Medium Risk	Optional
Montbretia	Yes	3m	1m x 1m	Yes	Yes	Optional

Any waste invasive species material will need to be placed in an excavation lined with a suitable geotextile barrier capable of withstanding potential root growth.

Care must be taken to ensure that burial does not interfere with the groundwater level. Buried soil and plant material that have been treated with a herbicide that does not break down in the environment could cause groundwater pollution. Material intended for burial should only be treated with glyphosate herbicide. Herbicides that do not break down in the environment are described as persistent. Those that do break down are described as biodegradable or non-persistent. The herbicide packaging or safety data sheet will state whether it is persistent or non-persistent. Soil contaminated with some persistent herbicides will be classed as hazardous and so will need to be disposed of as special waste.

Where burial is the preferred disposal method, but it is not possible to bury to 5m, the excavated material may be placed in a structured bund, i.e. a raised area above ground level or a shallow excavation, no more than 0.5m deep, lined with a root barrier membrane which must stay intact for at least 50 years. A manufacturer's guarantee is required. This method of treatment can be used where invasive material needs to be moved from a location and there is another ideal area of the site available to contain it. Following the provisions of the Waste Management Act 1996, as amended, a license or permit may also be required for the burial of excavated material. The aim of this method is to concentrate the rhizome material into the upper surface of the bund, where it will grow and be controlled by herbicide. If the rhizome is buried deep, it will become dormant when inside the bund and regrow when the apparently clean soil is used for landscaping on the site. The bund location needs to be clearly signed and protected from potential accidental damage. Reapplication of herbicide may be required for up to five years after the initial application, subject to the site-specific management plan.

Material should be buried in an area where it is not likely to be disturbed. Records must be kept of the quantity of material that has been buried and a map showing the location of the burial pit

and its depth. Use signs to mark the burial pit and keep heavy tracked machinery off the area. Deep buried material should not be buried within 7 metres of an adjacent landowner's site. An accurate map and record of the location of the burial site, to prevent any future accidental disturbance, is required, and future owners must be informed of its position.

3 SPECIFIC METHOD STATEMENT FOR INVASIVE SPECIES AT THE PROPOSED WORKS SITE

3.1 Method Statement

Description of Task:	Eradication of invasive species to allow the construction of the proposed LK Transport Hub in Letterkenny, Co. Donegal. Contractor to provide their own method statement, risk assessment and health and safety policy prior to clearance of invasive species commence.
Project Name:	Donegal County Council, Letterkenny Transport Hub
Start date:	August 2027
Personnel Involved:	Contractors: Unknown Ecologists: Greentrack Clerk of works: Unknown
Key Plant and Tools required:	Impenetrable membrane, plastic sheeting, PPE, cutting shears, mini-digger, digging tools, chosen herbicide and associated equipment, signage.
Specific Health and Safety Measures:	• Correct PPE to be worn at all times. • Ensure operators using herbicide are trained in safe use. • See risk assessment for further details.
Specific Staff Training Requirements:	All workers to be experienced and trained appropriately in the tasks they are asked to perform.
Sequence of Operations:	1. Carry out chosen method of eradication as per outlined procedures in this management report prior to construction works commencing at the site, as follows: 1a. Japanese knotweed – Foliar application of herbicide treatment onto the actively growing foliage or stems of the plant. 1b. Buddleia, Cotoneaster, Himalayan honeysuckle, Montbretia – Small plants and seedlings to be manually removed by hand or hand tools. Larger plants to be excavated out using hand tools or a mini digger. Removed plant material should be stockpiled within a black plastic lined area for appropriate disposal. Ensure that root systems are fully extracted and that all the invasive plant material is removed to reduce risk of regrowth. 1c. Himalayan balsam – Plants to be manually removed by hand. Removed plant material should be stockpiled within a black plastic lined area for appropriate disposal. Monitor for regrowth and repeat. 1d. Rhododendron – Small plants and seedlings to be manually removed by hand. Larger plants to be excavated out using hand tools or a mini digger. Removed plant material should be stockpiled within a black plastic lined area for appropriate disposal. Ensure that root systems are fully extracted and that all the invasive plant material is removed to reduce risk of regrowth.

	- Should any additional invasive species be noted within the site boundary, discuss management plan with client and ensure all personnel on site are familiar with procedures. - Monitor the area for re-growth and treat any new cases appropriately and continue to liaise with the client throughout the treatment and monitoring of invasive species onsite. - The treated invasive species will be buried onsite in the chosen location using the approved methodology.
Emergency Procedures:	<u>Accident</u>- Report immediately to site supervisor and record in company Health and safety handbook. <u>Location of nearest hospital</u> – Letterkenny University Hospital
PPE:	All workers are responsible for taking care of their PPE and will undertake inspections to identify any defects prior to each use. All tools, footwear, overalls and equipment to be cleaned after each use and biosecurity measures must be taken to limit the spread of invasive species.

The methods employed will be agreed between the client, contractors and ecological Clerk of Works and follow the measures outlined in this invasive species survey and management plan.

3.2 Risk Assessment

Hazard	Risk	Who / what might be harmed	Likelihood of risk (Taking into account the proposed actions)	Proposed action
Uneven ground	Slips, trips and falls	Invasive species technicians	Low	Ensure all workers are wearing appropriate sturdy footwear. Be careful of putting away equipment and materials in a safe place. Be wary of hazard at start and throughout activity.
Weather – rain, wind, sun	Hypothermia, slippery conditions, sunstroke	Invasive species technicians	Low	A decision will be made on the day to cancel works if the weather conditions are too severe.
Brambles and nettles	Cuts, thorns, allergic reactions, entanglement	Invasive species technicians	Low	Wear all PPE and ensure these are in good condition. Warn others of brambles flicking back behind them or catching clothes. Identify any plants that could be potential hazards and exercise caution.
Over-hanging or falling branches or trees	Injury to eyes and face from branches or crushing injuries from larger trees.	Invasive species technicians	Low	Check area for potentially hazardous branches before works begin. Cancel activities if it is windy.
Spread of invasive species	Damage to native flora communities, structural damage to buildings or tarmac, damage to drainage and services.	Surrounding environment and vegetation	Low	Implement management plan. Ensure all involved are familiar with the plan and method statement and are trained appropriately for all tasks asked of them. Follow best practice and exercise caution at all stages. Continue monitoring of the site and act accordingly.

3.3 Health and Safety Policy

Statement of General Policy	Action/Arrangements
To prevent accidents and cases of work-related ill health and provide adequate control of health and safety risks arising from work activities.	Adequate PPE to be worn and inspected regularly for any defects. Provide health and safety briefing to all staff.
To implement emergency procedures - evacuation in case of fire or other significant incident.	Fire extinguisher and First Aid kit available and located in company vehicle. All employees are in mobile phone contact.
To provide adequate training to ensure employees are safe and competent to do their work.	All invasive species technicians are to be trained appropriately.
Health and safety law poster is displayed in the company vehicle along with First-aid box and accident book. Accidents and ill health at work to be recorded and reported.	Replenish and update accordingly. Ensure staff are aware that the accident book is to be completed for any minor accidents or near misses.
To engage and consult with employees on day-to-day health and safety conditions and provide advice and supervision.	Site safety briefing with all employees will be given prior to commencing any work on site. Walk the site to identify any potential risks including tripping hazards and difficult access areas.
To maintain safe and healthy working conditions, provide and maintain plant, equipment and machinery, and ensure safe storage and use of substances and materials.	All substances to be stored in sealed, labelled containers. Correct PPE to be worn when handling all chemicals. Chemicals to be handled by qualified personnel only. Plant machinery and equipment to be serviced regularly and operated by experienced personnel.

4 CONCLUSIONS AND RECOMMENDATIONS

This invasive species survey and management plan identifies the stands of invasive species present on site as Himalayan balsam, Japanese knotweed, Himalayan honeysuckle, Montbretia, Rhododendron, Milkflower cotoneaster and Buddleia. Contact with areas of invasive species within the site is unavoidable. This management plan provides both chemical and physical methods to eradicate the invasive species onsite. Appropriate working protocols and biosecurity measures have been proposed which, if implemented in full, will negate potential for spread of invasive species, either within the site or to other locations.

The following treatment options are recommended for each of the invasive species as the most practicable in the context of the development proposal and the nature of invasive species presence on-site.

- Donegal County Council is considering disposal options for the site invasive species with burial at the site being the current preferred method of disposal. Groundwater and soil conditions at the site should be investigated for suitability of this method of disposal prior to committing to this strategy.
- Japanese knotweed is present in an area of site of approximately 470 sqm. A foliar application of herbicide is recommended for the site infestation of Japanese knotweed. It is recommended that the chemical treatment of Japanese knotweed commences in good time before the proposed main site works commence in 2027.
- The infestation of Himalayan balsam is extensive at the site. The most straightforward method of removal may be hand-pulling the plants from the site prior to seed formation and repeating this process as required later in the growing season before site clearance works commence.
- The amount of Himalayan honeysuckle, Montbretia, Rhododendron on site is relatively small. These plants should be cut down, excavated and removed. The removed material should be stockpiled within a black plastic-lined area for burial during site clearance works.
- The amount of Milkflower cotoneaster and Buddleia on site is relatively extensive. These plants should be cut down, excavated and removed. The removed material should be stockpiled within a black plastic-lined area for burial during site clearance works.
- All areas of the site, and particularly those areas with previous invasive infestations, should be regularly inspected for signs of regrowth, treated and removed prior to site clearance works commencing.

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5 REFERENCES

- Dept of Agriculture, Food and the Marine Publications Japanese Knotweed <https://assets.gov.ie/79137/5f95a93e-5502-4950-9c4b-3ef98c92d4a7.pdf>
- Dept of Agriculture, Food and the Marine Publications Japanese Knotweed <https://assets.gov.ie/79137/5f95a93e-5502-4950-9c4b-3ef98c92d4a7.pdf>
- EPA (2000). Landfill Manual: Landfill Site Design. Environmental Protection Agency, Wexford. Environment Agency (2013).
- National biodiversity data centre, Policy and legislation, Non-native and invasive species, <https://www.biodiversityireland.ie/projects/invasive-species/policy-and-legislation/>
- EPA (2000). Landfill Manual: Landfill Site Design. Environmental Protection Agency, Wexford. Environment Agency (2013). The Knotweed Code of Practice. Managing Japanese Knotweed on Development sites V3. UK Environment Agency.
- Irish Water (2016). Irish Water Report: Information and Guidance Document on Japanese knotweed. Uisce Eireann.
- Kelly, J., Maguire, C.M. and Cosgrove, P.J., Muir, R.A. (2015). Best Practice Management Guidelines Japanese knotweed *Fallopia japonica*. Prepared for NIEA and NPWS as part of Invasive Species Ireland.
- NRA (2006). A Guide to Landscape Treatments for National Road Schemes in Ireland. National Roads Authority.
- NRA (2008). Guidelines for the Management of Waste from National Road Construction Project. National Roads Authority.
- NRA (2010). Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads.
- DOENI, SEPA, (2018), Guidance for Pollution Prevention Works and maintenance in or near water: GPP 5 Version 1.2
- Inland Fisheries Ireland, (2016), Guidelines on protection of fisheries during construction works in and adjacent to waters
- NPWS (2023) Ireland's Invasive Alien Species Soil and Stone Pathway Action Plan 2023 – 2027, Actions to reduce the risk of introduction and spread of invasive alien species through movement of soil and stone.