APPENDIX I: Invasive Species Survey & Management Plan

Environmental Consultants

Invasive Species Survey & Management Plan

Invasive Species Survey & Management Plan in relation to a proposal for social housing by Donegal County Council on a site in Ballyhasky, Newtowncunningham, Co. Donegal.

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Table of Contents

List of Figures

List of Photographs

1 Introduction

The site in Ballyhasky, Newtowncunningham is being examined for potential for social housing by Donegal County Council. As part of the preliminary Ecological Appraisal a site walkover was undertaken on 28th June 2024. A stand of Montbretia (*Crocosmia x crocosmiflora)* was encountered on site.

The stand of Montbretia is a relatively small strip 1.5m – 2m wide and approximately 8m long. Plants average 1m height. There is another isolated 0.5m x 0.5m x 0.5m patch approximately 5 m south of the main stand. The Montbretia is located in the northwestern part of the site near the site boundary. The position of the invasives is indicated in Figure 1.1 below.

Figure 1.1: Approximate position of invasive species on site.

(Created using QGIS & Bing satellite imagery)

The development is for up to 40 no. housing units on the site and cannot avoid the areas containing Montbretia. The Montbretia within the site does not appear to have received any form of mechanical or chemical treatment previously. Montbretia is listed by the Invasive Species Ireland Risk Assessment in the Amber list 'Recorded species and also listed as a 'Non-native Invasive species in the Management of Invasive Alien Plant Species on National Roads – Technical Guidance" (TII, 2020). Photograph 1.1 below highlight the main stand of Montbretia encountered within the site.

Photograph 1.1: Stand of Montbretia in the northwest corner of the site

1.1 Site Invasive Species Management Objectives

It is anticipated that construction works will commence as soon as possible, subject to purchase of the site and 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 Montbretia. Appropriate measures will be put in place to prevent the spread of Montbretia in accordance with European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) to satisfy the requirements of Donegal County Council.

1.2 Implementation of the Invasive Species Management Plan

The appointed contractors will be responsible for the management of the Montbretia and contaminated spoil on the site and 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.

1.3 Statement of Authority

This report has been prepared by Shannen McEwen, Ecologist with Greentrack. Shannen holds a B.Sc. (Hons) Environmental Science with a Diploma in Professional Practice from the University of Ulster. She has been involved in all aspects of Appropriate Assessment, Natura Impact Statement and Environmental Impact Assessment preparation since 2017. Shannen is an Associate Member of the Institution of Environmental Sciences.

1.4 Biology of Montbretia

Montbretia is a member of the Iris family (Iridaceae), native to the grasslands of the Cape Region in South Africa. It is an artificially-produced horticultural hybrid that has become invasive in many parts of Europe and New Zealand. Montbretia is a perennial herb that grows from underground corms. The corms form linear chains with the youngest at the top and the oldest buried deepest in the soil. The chains are fragile and corms readily break off giving the plant a ready means of spread. The linear leaves are up to 500mm in length and may not die back completely in winter in milder areas. The bright reddish-orange flowers are produced in a loose terminal panicle on slender stems. The flowers are capable of producing viable seed which further aids the spread of the plant, resulting in dense stands at the exclusion of all other vegetation. Dense colonies 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.

2 Measures for The Management of Potential Invasive Species

This section provides an overview of control measure options and the suitability of these options for the site at Ballyhasky, Newtowncunningham, County Donegal. The specific method statement is provided in Section 3.

2.1 Avoidance and Reduction of Proximity

The project cannot avoid interaction with the stands of Montbretia. Great care is needed to ensure that plant material (i.e. fragments of stems, corms, 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. 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 used for the control of non-native species should be stored and used in a responsible manner.
- 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

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 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 an extremely successful technique when done correctly. Dense patches of montbretia can be sprayed if away from all native plants and from any watercourses.

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.

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). The application of herbicides needs to be approved by a registered pesticide advisor and

if chemical control measures are required, an advisor will be appointed. 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). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

2.3.2 Physical Excavation and Burial or Disposal

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.

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.

2.2.5 Options for the Disposal of Excavated Material

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

- 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.
- 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. 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.
- Excavation and removal off-site of the potentially contaminated spoil 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, material to be removed can be double bagged 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.

- 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.
- 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).
- Cutting down or digging up invasive plants and burning the waste plant material can be a useful, low-tech means of control. It can reduce the volume of waste that you need to dispose of offsite. Burning alone may not be sufficient to kill the plant material. Burnt material should be placed on top of a membrane and monitor it for regrowth. Burning plant material should only give rise to white smoke. The local fire brigade should be informed before burning commences so that they are not called out unnecessarily. Burning waste in the open may require a waste management licence or exemption.

3 Specific Method Statement for Invasive Species at the Proposed Works Site

3.1 Method Statement

Description of Task:	Eradication of Montbretia to allow the construction of social housing development at Ballyhasky, Newtowncunningham, Co. Donegal.
Project Name:	Donegal County Council, Newtowncunningham social housing
Start date:	Unknown
Personnel Involved:	Contractors: Unknown Ecologists: Greentrack Clerk of works: Unknown
Key Plant and Tools required:	Impenetrable membrane, PPE, cutting shears, 3 to 6 tonne excavator, chosen herbicide and associated equipment, signage.
Specific Health and Safety Measures:	• Correct PPE to be worn at all times. • 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. Should any invasive species be noted within the site boundary, discuss management plan with client and ensure all personnel on site are familiar with procedures. 2. Carry out chosen method of eradication as per outlined procedures in this management report. 3. Monitor the area for re-growth. 4. Treat any new cases appropriately and continue to liaise with the client throughout the treatment and monitoring of invasive species onsite.
Emergency Procedures:	Accident- Report immediately to site supervisor and record in company Health and safety handbook. Location of nearest hospital – 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 bio-security measures must be taken to limit the spread of invasive species.

As detailed in Section 2, a number of methods have been developed to deal with and control invasive species on development sites. Where feasible, preference should be given to treating invasive species in its original location (Environmental Agency, 2013). Excavation should only be considered where construction requires it (NRA, 2010). The particular methods employed will be agreed between the client, contractors and ecological clerk of work and follow the measures outlined in this invasive species 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

Hazard	Risk	Who / what might be harmed	Likelihood of risk (Taking into account the proposed actions)	Proposed action
				putting away equipment and materials in a safe place. Be wary of hazard at start and throughout activity.
Weather – rain, wind, sun	Hypothermia, slippy 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 Montbretia	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.

Statement of General Policy	Action/Arrangements
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

This management plan identifies invasive species present on site. The proposed development of the project cannot avoid interaction with the stands of Montbretia. This management plan provides both chemical and physical methods to eradicate all 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.

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