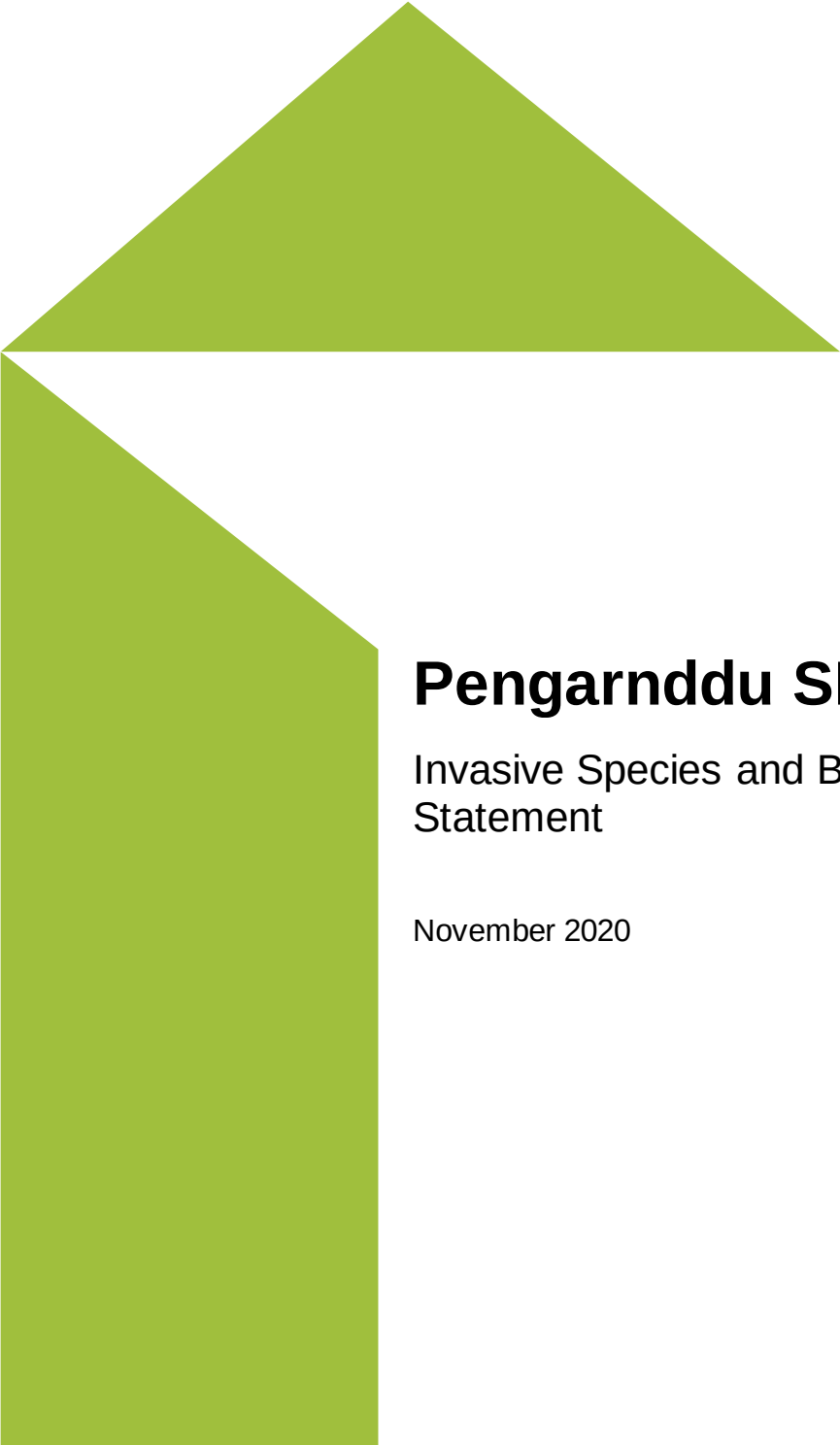




Pengarnddu SRv

Invasive Species and Biosecurity Method
Statement

November 2020

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areas or those that maybe influenced by construction works appropriate control measures will be implemented.

1.3 INNS Status on Site

A Phase 1 habitat survey of the site was undertaken by Arcadis Consulting (UK) Limited in 2019.

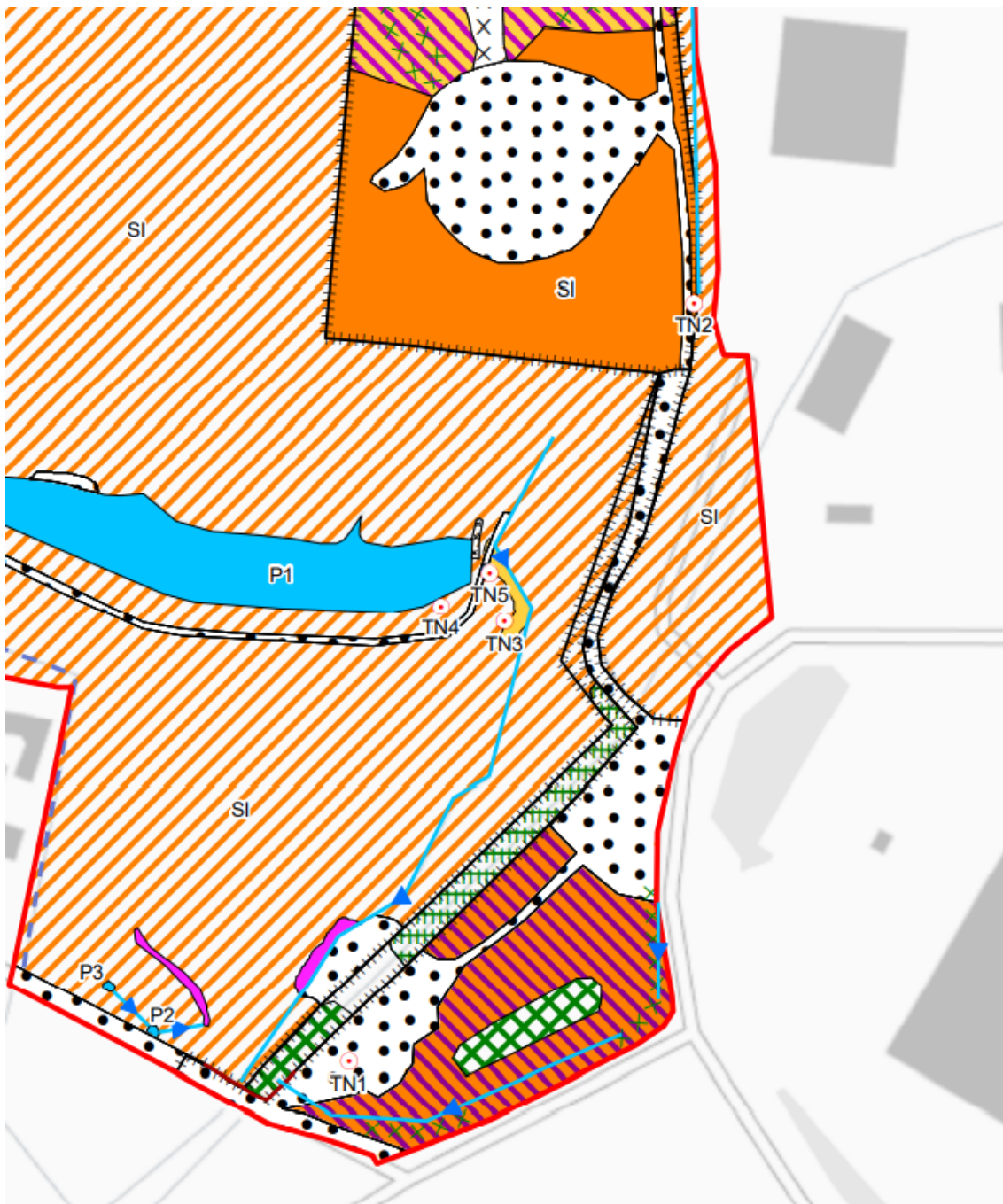
The Extended Phase 1 habitat survey identified one strand of Japanese Knotweed (TN2) and an area of Indian (Himalayan) Balsam (TN1) within the extent of the original survey area.

Japanese Knotweed was located within the operational site compound along the eastern boundary of site. No evidence of Japanese Knotweed could be found during the May 2020 surveys; however, there is the potential for the plant to regrow in this area in the future. Although not confirmed it is likely that the area was treated by Welsh Water's land maintenance team. No ground works are proposed within 7m of the area where Japanese knotweed was previously recorded.

Indian Balsam was located in the south-eastern corner of the original survey area within bare ground (from previous works) and hedgerow. These plants were located over 150m from the works area and were recorded in 2019 and 2020.

Whilst no invasive species are known to be present within the current working area there remains a potential for species to be introduced to the site during the works through windblown seed dispersal from further afield. There is also potential for Japanese Knotweed to regrow along the eastern boundary of the site. As a precautionary approach the works are to follow this method statement if any invasive species colonise the site during the works.

Figure 2 Location of INNS - TN1 (IB) and TN2 (JK)



1.4 Relevant Legislation

The following legislation is relevant to invasive and injurious plants and their proposed treatment and disposal:

- Environmental Protection Act 1990. Defines the legal framework for duty of care for waste, contaminated land and statutory nuisance;
- Ragwort Control Act 2003. Inserts into the Weeds Act 1959 a new section enabling the government to make a code of practice on preventing the spread of ragwort;

- Weeds Act 1959. Enables the Secretary of State for the Environment, Food and Rural Affairs (or their delegates through the Natural Environmental and Rural Communities Act 2006) to enforce land occupiers where injurious weeds (including ragwort) are growing to take action to stop them spreading and fined if the order is not complied with;
- Wildlife and Countryside Act 1981 (Section 14); bans certain methods of killing or taking wild animals, including birds, and restricts the introduction and sale of certain non-native animals and plants. Also sets out the amended laws relating to public rights of way;
- Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order SI 2010/609; amends the Wildlife and Countryside Act 1981 by adding new species to the list of plants not to be planted or allowed to grow in the wild, including Indian balsam, floating pennywort and cotoneaster;
- Environmental Permitting (England and Wales) Regulations 2016 (as amended); provides a consolidated system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators; and
- Control of Pesticides Regulations 1986; requires any person who uses pesticides to take all reasonable precautions to protect the health of human beings, creatures and plants, and to safeguard the environment and in particular avoid pollution of water.
- The Invasive Alien Species (Enforcement and Permitting) Order 2019; outlines restrictions prevent and manage the introduction and spread of invasive alien species

1.5 Identification of Invasive Weed Species

Appendix A provides a guide to Japanese Knotweed, Indian Balsam and Giant Hogweed identification (NNSS, 2015); these being commonly encountered invasive plants.

1.6 How Invasive Plants Spread

The following section presents a short account of how invasive plants spread, as given by the Department of the Environment Food and Rural Affairs (Defra, 2013).

How Japanese Knotweed Spreads

Japanese Knotweed does not spread from seeds in the UK as all of the plants recorded in the UK are female. It is spread when small pieces of the plant or rhizomes (underground root-like stems) are broken off. One piece of rhizome or plant the size of a fingernail can produce a new plant. Pieces of plant or rhizome can be transported to a new location by:

- Water - if the parent plant is close to a river or stream;
- Moving soil which contains them; and
- Fly-tipping cut or pulled stems.

Individual plants can cover several square meters of land, with an extensive rhizome network below ground. Herbicide treatment can be a very effective way of controlling Japanese Knotweed, but a lack of regrowth does not mean the underground rhizome is dead. If the soil is disturbed, knotweed can regrow.

How Indian Balsam Spreads

Indian balsam plants can produce around 2,500 seeds each year. The seed pods open in such a way that the seeds are thrown up to 7m away from the parent plant, helping the species to quickly spread. Seeds can also be transported by:

- Water - if the parent plant is close to a river or stream;
- Tracked vehicles;
- Footwear; and
- Moving soil which contains them.

Even if you remove these plants, or treat them with herbicides and they die, several hundred seeds can be waiting in the ground below for the opportunity to take their place. The seeds can survive for several years, so any control programme needs to continue for a couple of years, including checks for new growth.

2 Biosecurity Risk Assessment

This section of the report assesses the risk of encountering or introducing invasive plants during construction.

2.1 Methodology

The following approach to assess biosecurity risks has been adopted:

- Activities and associated hazards posed by invasive species were identified;
- For each activity/hazard, an assessment of the severity of impact and likelihood of activity to cause spreading of invasive species prior to control measures was undertaken;
- The overall risk factor was calculated; and
- Control measures to reduce the likelihood of invasive species spread were considered and the residual risk determined.

The assessment is shown in Table 1. Risks are assessed qualitatively using the following descriptors of severity and likelihood:

Severity of Impact:	1 Minimal
	2 Minor
	3 Moderate
	4 Major
	5 Massive
Likelihood of Impact:	1 Very Unlikely
	2 Unlikely
	3 Possible
	4 Probable
	5 Very Likely

The risk factor is calculated as the product of the severity and likelihood so that an activity with a 'Moderate severity' that was considered 'Probable' to occur would have a risk factor of $3 \times 4 = 12$. Guidance is provided on actions to be taken dependent upon the calculated residual risk factor:

Risk Factor 1-4	OK to proceed;
Risk Factor 5-12	Further controls should be applied to further reduce risk; and
Risk Factor 12+	Unacceptable risk.

This Method Statement is concerned with the potential for invasive plants to be present within the construction area; whilst no invasive plants have been positively identified within the site their presence in the wider area has been noted and consequently the potential for plants to be encountered requires consideration.

2.2 Risk Assessment

Table 1: Risk Assessment

Activity/ Hazard	Severity	Likelihood	Risk Factor	Mitigation	Severity	Likelihood	Residual Risk Factor
Top soil strip	1	1	1	No invasive species have been identified during the 2020 site surveys. The probability of encountering invasive species is considered low. Further to this any residual seed in the seed bank will be outside of working areas.	1	1	1
Interaction with historic strands of JKW or Indian Balsam	2	2	4	No invasive species have been identified during the 2020 site surveys. If new patches are identified during subsequent seasons, exclusions zones will be established. Based on historic evidence working areas will not fall within INNS exclusion zones.	1	1	1
Seeds and Japanese knotweed infected soils spread to the site through importation of soil	3	2	6	Any topsoil requirements will be met using indigenous soil from the construction area. Should additional soil be needed this will be from accredited sources.	3	1	3
Spreading of infected soil on machinery brought to site	3	3	9	All machinery to be cleaned prior to arrival.	3	1	1
Material being stored in the area along the eastern boundary where Japanese knotweed was previously recorded causing rhizomes to be spread around site	3	2	6	Area should be marked out to prevent materials being stored in this potentially infected area	3	1	3

3 Treatment of Invasive Weed Species

3.1 Method Statement

Prior to the commencement of works all construction staff shall be briefed in relation to the contents of this method statement which should then be displayed prominently within the site office.

3.2 Site Preparation

No invasive species have been recorded within the proposed construction area. Japanese Knotweed had been noted during 2019 survey within the operational boundary (but over 7m away from any ground works). Construction staff are to remain vigilant during the works and are to report if any invasive plants have spread on site. Any new stands of invasive weeds will also need to be noted on the plans and marked out on site.

The outer edges of all unprotected stands of invasive weeds will be marked with highly visible fencing, or similar to denote the presence of invasive weeds. Fencing is to be retained in place for the duration of the contract. Signs warning site workers of the presence of invasive weeds will be attached to the fencing at agreed locations.

3.3 Avoidance of Contamination and Suitable Treatment Methods

If the presences of invasive plants are confirmed, it may be possible to exercise avoidance measures to avoid their spread if the number of individual plants is low and if they are located away from high activity areas. If avoidance is not feasible, then suitable treatment methods are recommended.

Japanese knotweed

As previously discussed, the main cause for the spread of Japanese knotweed is either via fragmentation of the plant above ground, or through disturbance to its underground root system.

If a small number of knotweed plants are identified, and the plants can be avoided, fencing should be erected to provide an 'Exclusion Zone' around the plants. As the area of Japanese Knotweed infestation can extend 7m horizontally from the nearest stem growth that can be seen, the exclusion zone should take this into account. Signs warning site operatives of the presence of Japanese Knotweed should be put up in this area to prevent inadvertent trafficking.

Where access routes and working areas cannot be altered to avoid the plants, the focus should be on avoiding breaking the surface of the soil within these areas and containment of the plant parts within the areas which are already contaminated. Where this is not possible, then digging out the plants and the soil around it within a 7m diameter may be undertaken. This method should be employed with caution because it is likely that this soil will contain rhizomes which can establish themselves and spread the infestation. Potential contaminated soil should be regarded as 'controlled waste' under the Environmental Protection Act 1990, and as discussed earlier, this requires disposal at licensed landfill sites or treatment on site in accordance with the Japanese Knotweed code of practice.

It is highly recommended that the guidance document produced by the Welsh Government The Control of Japanese Knotweed (*Fallopia japonica*) in Construction and Landscape Contracts is referred to prior to undertaking management works (Welsh Government, 2011).

Indian balsam

As the main cause for the spread of Indian balsam is via seed dispersal, the focus should be to avoid moving the soil within both the infected and adjacent areas where the seeds may have fallen. As with Japanese Knotweed, where possible, fencing should be erected to provide an 'Exclusion Zone' around the plants. Where avoidance is not possible, it is recommended that bashing down or brush cutting to ground level is carried out before the plants set seed in April or early May. Small infestations can be controlled by hand-pulling as the species is shallow rooted. If cutting or hand pulling is to be carried out after this time, bag plant tops to prevent seed spread. Should Indian Balsam be introduced to the site a control programme will be initiated to remove plants each May prior to seed germination and dispersal until such time as no further plants emerge.

3.4 Cleaning

All machines and equipment are to be in a clean condition before entering site with no clumps of soil attached to wheels or chassis. On leaving site all vehicles will be cleaned with road pin, brush or shovel to remove soil clumps. The use of chemicals and washing with water is not advised.

3.5 Use of Herbicides

Should the use of herbicides be required at any time to control invasive plants the Contractor will select an appropriate chemical and use it in accordance with legislative controls. Table 2 provides information on the application of commonly used herbicides.

Table 2: Herbicides

Herbicide	Affects grasses?	Application Period	Use in or near water?	Persistency
Glyphosate	Yes	May – October (late season preferable)	Yes (certain formulations)	Non-persistent
2,4 D-amine	No	May – October (early season preferable)	Yes (certain formulations)	Up to 1 month
Triclopyr	No	May – October (early season preferable)	No	Up to 6 weeks
Picloram	No	All year (soil treatment in winter)	No	Up to 2 years

Source: Environment Agency Japanese knotweed CoP

Any use of a herbicide within the adjacent watercourse or close enough that spray could reach the stream will be advised to Natural Resources Wales in advance of the works.

4 References

Arcadis, (2019). Pengarnddu SRV Baseline Ecological Survey Report

GB Non-native Species Secretariat (2015). website.

<http://www.nonnativespecies.org/home/index.cfm>

Defra (2013). Environmental Management –Guidance. Japanese knotweed, giant hogweed and other invasive plants. <https://www.gov.uk/japanese-knotweed-giant-hogweed-and-other-invasive-plants#identifying-invasive-plants> (accessed February 2015).

MMB (2020). Pengarnddu Service Reservoir Ecological Impact Assessment.

Non-Native Species Secretariat, Invasive species sheets:

- Japanese Knotweed
- Indian Balsam
- Giant Hogweed

Appendices

A.	Invasive Plants Identification Sheets
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A. Invasive Plants Identification Sheets

