

**THE ENVIRONMENT AGENCY  
CODE OF PRACTICE FOR THE  
MANAGEMENT, DESTRUCTION  
AND DISPOSAL OF  
JAPANESE KNOTWEED**

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**ENVIRONMENT AGENCY**  
**CODE OF PRACTICE FOR THE MANAGEMENT,**  
**DESTRUCTION AND DISPOSAL OF JAPANESE**  
**KNOTWEED**

**Managing Japanese knotweed on development sites.**

Timely and appropriate management of land infected by Japanese knotweed can avoid excessive cost, potential prosecution and prevent physical damage to buildings and hard surfaces.

Early identification of Japanese knotweed on a site allows a developer to assess and cost options for disposal and management.

The most important element to knotweed management for a developer is the early application of an appropriate herbicide prior to any land disturbance.

The most effective time to apply a herbicide is from July to September (or until the first frosts cause leaf fall). Spring treatment is acceptable, but less effective. Herbicides are not effective during the winter dormant stage. Chemical control usually takes a minimum of three years to totally eradicate Japanese knotweed. Therefore, Japanese knotweed must still be regarded as infective within that three year period, or whilst regrowth still occurs during spring. Rhizome can remain dormant for a considerable period after regrowth has apparently stopped, and therefore the viability of rhizome would need to be ascertained prior to disturbance. However, treatment with an appropriate herbicide can reduce the vigour of knotweed material, even if it were only treated a few weeks prior to disturbance. If a developer is in a situation where their timescale prohibits effective chemical eradication of Japanese knotweed, the plant should still be treated, if it is in leaf, at the earliest possible convenience.

**Combined treatment methods.**

Site trials have shown a combined digging and spraying treatment method to be effective in reducing the time period required for chemical control. Great care is required with this method to avoid spreading plant material.

The majority of Japanese knotweed rhizome exists in the upper layers of topsoil. It has been estimated that in an infected area, 14,000 kg/ha dry weight of knotweed may exist in the top 25cm (Brock, 1994). An excavator may be used to scrape surface crowns and rhizomes into a pile. The exposed ground can then cultivated to a depth of 50cm, and the piled material re-spread over the cultivated area. This process stimulates the rhizome to produce a higher density of stems, which renders it more vulnerable to herbicide treatment. Subsequent herbicide treatment has been observed to eradicate knotweed after only two applications, which may be performed within the same growing season.

Digging can be carried out during the winter months, and regrowth treated during the spring and summer. Extreme care must be taken to ensure that all equipment used on site is free of Japanese knotweed material before leaving the site to avoid contravention of the Wildlife & Countryside Act, 1981. To reduce the risk of contaminating vehicles, excavators with caterpillar tracks should be avoided.

Soil contaminated with knotweed may also be stockpiled on an area of the site that will remain undisturbed. Knotweed regrowth should be regularly treated with herbicide to avoid

re-infestation. The upper 50cm of topsoil, which will contain all the crowns and the majority of the rhizome should be stockpiled separately from the other, less infested material. This will avoid burial of the bulk of the rhizome at the bottom of a large stockpile, where it may remain dormant and escape treatment. Regrowth, which will predominantly arise from the stockpile of topsoil can then be treated until the knotweed is killed. Larger pieces of rhizome and crowns can be isolated and burned where appropriate.

Material must not be reused until all the knotweed material has been confirmed as unviable.

### Which herbicide should I use?

The most important questions regarding the selection of a herbicide are;

Is the site in or near water?

Do I wish to re-use the soil from the treated area for replanting, and if so, how long before I intend to landscape with it?

Wherever there is a risk of contamination to a watercourse, choice is limited to formulations of Glyphosate and 2,4-D Amine that are approved for use in or near water. Not all herbicides containing these active ingredients are suitable for use in or near water. Use of a herbicide in or near water requires consultation with the Environment Agency.

If the site poses no risk to a watercourse, there is a greater choice of herbicide. Where soil is intended for continued use, or immediate reuse, for landscaping purposes, a non-residual herbicide, such as Glyphosate or 2,4-D Amine would be appropriate. In the event that replanting is likely to be delayed for a period of at least six weeks, a formulation containing triclopyr may be considered. If it is the intention to cover the area in a hard surface, or delay replanting for at least two years, persistent chemicals such as picloram and imazapyr would be appropriate.

Developers are advised to seek the advice of a qualified landscape gardener or BASIS<sup>1</sup> registered pesticides advisor prior to commencing a spraying programme.

When using a herbicide, always adhere to the advice given on the label.

Herbicide	Affects grasses?	Approved for use in or near water?	Persistency
Glyphosate	Yes	Yes	Non-persistent
2,4-D Amine	No	Yes	1 month
Triclopyr	No	No	6 weeks
Imazapyr	Yes	No	9 months
Picloram	No	No	2 years

Under the Duty of Care<sup>2</sup>, persistent chemicals must be included within the description of the waste if the material is being disposed of within the period of activity of that particular chemical.

<sup>1</sup>BASIS is an organisation committed to ensuring individuals involved in the handling and use of pesticides are competent. BASIS maintain a register of trained advisors, who need to demonstrate an annual programme of continual professional development to maintain their qualification. Details on the BASIS Professional Register are available from 34, St John Street, Ashbourne, Derbyshire DE6 1GH. Tel: 01335 343945.

<sup>2</sup>Section 34 of the Environmental Protection Act 1990 (EPA90) imposes a duty of care on persons concerned with controlled waste. The duty applies to any person who produces, imports, carries, keeps, treats or disposes of controlled waste, or as a broker has control of such wastes. Breach of the duty of care is an offence, with a penalty of an unlimited fine if convicted on indictment.

Stems must not be pulled, which tends to remove the highly infectious crown material with the stem. Where it is the intention to treat regrowth with a herbicide, cut material should be removed from the treatment area to allow effective spray contact with the emergent growth. It should be policy to chemically treat Knotweed, rather than continuously cut the regrowth.

Cut stems should be left in a situation that will encourage drying. This can be achieved by laying the cut stem on the 4 - 8" stumps of the Knotweed, thus preventing contact between the stems and the soil. Once the stems have dried to a deep brown colour they are dead. This is not the case with crown or rhizome material.

If it is intended to bury knotweed on site, it is essential that non-persistent herbicides, such as glyphosate, be used.

## **Burning & Burial of knotweed**

### **CODE OF PRACTICE FOR THE DISPOSAL OF JAPANESE KNOTWEED ON THE SITE OF PRODUCTION**

Where insufficient time is available to ensure complete eradication, it will be necessary to treat the remaining material in a manner that avoids further infestation. It is recommended that, wherever possible, this approach be adopted, even when a chemical control programme has been completed.

Controlled burning of stem and crown material may be used as part of the control programme. This reduces the viability of material and the volume for burial or off site disposal. Such burning must take into account any local by-laws and take account of the potential for nuisance or pollution that may occur as a result of the activity.

Burning in the open may be undertaken in accordance with a registered exemption as described in Paragraph 30 of Schedule 3 of the Waste Management Regulations 1994. The exemption also covers associated storage, which will allow for the drying of the material that is likely to be required before burning can take place. Japanese Knotweed stems can be left on site after cutting in preparation for burning if;

- The stem is of sufficient size to prevent dispersal by wind or traffic movement.
- There is no risk of dispersal into a watercourse.
- The stem has been neatly cut near its base using a cutter, hook or scythe.

Where the activity is taking place on a site other than that specified in para.30 of the 1994 Regulations, then provided all the other criteria are met (including the Relevant Objectives in schedule 4 of the 1994 Regulations) the Agency would not normally consider pursuing enforcement action.

Soil containing knotweed material and burnt remains of knotweed may be buried on site of production. Ideally, at least one application of non-persistent herbicide will have been performed to reduce the vigour of infective material. Soil to a depth of at least 3m and within a perimeter of 7m of the plant growth area should be excavated for burial. Site managers should check the periphery of the excavation for rhizome, to ensure that an adequate volume of material has been removed to account for all of the infective material.

On site burial must be performed to a depth of at least 5m. The potentially viable knotweed material should then be covered with a geotextile layer (e.g. Lowtrak) or a heavy gauge polythene sheet prior to infilling.

To ensure compliance with the Wildlife and Countryside Act and reduce the risk of spreading knotweed any such on site burial and any controlled burning must be done in accordance with this code of practice. If on site burial is undertaken in accordance with this code, then enforcement action would not normally follow for not having a Waste Management Licence for those operations that would require one.

Where on site burial is undertaken it is strongly advised that to prevent potential disturbance and re-infestation the burial site location is recorded, and that any future owners are advised of its position.

The local Environment Agency Area office environment protection team must be informed at least one week prior to the burial or burning activity.

Soil contaminated with knotweed may also be stockpiled on an area of the site that will remain undisturbed. Knotweed regrowth should be regularly treated with herbicide to avoid re-infestation.

## **OFF SITE DISPOSAL**

The option to bury material on site is not available where other contamination of the site requires compliance with waste management or other legislation unless it is done in accordance with that legislation. It is important to note that on site burial and/or burning of knotweed contaminated material is primarily an invasive weed control mechanism.

If the development cannot allow for burying or stock-piling infected soil on site, it must be disposed of at an approved disposal facility, having informed the site operator of the presence of viable knotweed within the material.

If off site disposal is used then great care must be taken to avoid loss of material on route. For small quantities this may include sealing the material in black bags. For larger quantities that are being moved in skips or trailers, this will include covering the skip etc. with sheeting.

Landfill operators dealing with material contaminated with Japanese Knotweed must ensure that:

- i They are licensed to receive it, and
- ii They have sufficient capacity to ensure the material can be dealt with in accordance with the following:

For material, including contaminated soils, rhizome and the crown at the base of the stem.

- Burial to a depth of at least 5 metres, (immediately cover to 1-2 metres, final depth after 2-4 weeks)
- Burial at least 7 metres from the margins of the site or any engineering features, eg drains or bunds, of the site,
- Burial at least 5 metres above the base/liner of the landfill.

## **Duty of Care for Hauliers**

Prior to accepting waste material for transfer or disposal, it must be inspected for knotweed contamination. If knotweed material is found, the waste cannot be regarded as soil or construction material only waste, and inappropriate disposal may result in prosecution. Material containing any infestation of knotweed should be taken to a landfill site or other disposal site that is licensed to receive Japanese knotweed, and the landfill operator must be informed of the nature of the waste so that it can be disposed of appropriately within the site.

Hauliers should not accept such infested waste unless they can guarantee its appropriate disposal. If hauliers are aware of waste producers who are failing to inform their hauliers of the presence of Japanese knotweed, or of hauliers who are knowingly disposing of knotweed infested material in an inappropriate manner, they should inform their local Environment Agency Area office.

Hauliers must also ensure that during the removal of material off site, vehicles do not carry knotweed containing soils on the wheels or bodies of their vehicles and that the vehicle is suitably covered or enclosed to prevent escape during transport. Where the material is being carried to landfill sites for disposal or where vehicles are involved in movements on the site of production great care should be taken to clean off material at the point of discharge so as not to transport the knotweed elsewhere. Vehicles should be brushed down and inspected for trapped pieces of rhizome.

The use of knotweed-infested soils for exemptions under Waste Management Licensing is not appropriate and the Environment Agency would treat any use in such exemptions as not complying with either Section 33 or 34 of the Environmental Protection Act 1990.

Failure to appropriately dispose of any material containing Japanese knotweed may lead to prosecution under Sections 33 and 34 of the E P A 1990 and Section 14 of the Wildlife & Countryside Act 1981.

## **Remember:**

**Failure to manage and dispose of Japanese knotweed responsibly may lead to prosecution.**

**Spreading Japanese knotweed is harmful to native plants and animals.**

**Failure to manage Japanese knotweed on a development site may result in eventual structural damage, especially to tarmac surfaces.**