

# Culverting Watercourses

Guidance: 170\_19

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**Audience:** All Environment Agency staff, particularly those involved in designing, permitting or responding to works on watercourses.

This Guidance and the associated [Internal Policy 169\\_19](#) should be used to provide advice to local planning authorities, lead local flood authorities, internal drainage boards, drainage and highways authorities, developers, consultants, landowners and the general public.

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## Why is guidance on culverting watercourses required?

Watercourses are valuable features of the landscape for people and wildlife. We have legal duties under the Environment Act 1995, the Water Environment (Water Framework Directive) Regulations 2017 and the Natural Environment and Rural Communities Act 2006 which aim to ensure that they are protected and enhanced for the benefit of present and future generations. Naturally functioning rivers and coasts provide vital benefits including; flood storage, sustainable natural flood management and increased resilience to drought and climate change. They also provide vital water resources and recreational assets for people, help drain agricultural and urban land, ameliorate urban heating and are the foundation for the diversity, coherence and connectivity of wildlife habitats.

The Flood and Water Management Act 2010 defines a culvert as “a covered channel or pipe which prevents the obstruction of a watercourse or drainage path by an artificial construction”.

Culverting works against the natural processes of watercourses. It can exacerbate the risk of flooding and increase maintenance cost and complexity. It can also destroy wildlife habitats, hinder fish passage, reduce amenity value, interrupt the continuity of the linear corridor of a watercourse and can affect channel stability. It can also significantly reduce resilience to the effects of drought, floods and pollution. We will therefore take this into account in our decision making.

This guidance provides the background information to support the Environment Agency [Internal Policy 169\\_19](#) on culverting watercourses.

## What are the detrimental effects of culverting?

Detrimental effects of culverting watercourses can include:

- increased likelihood of flooding due to their limited capacity and propensity for blockage, both of which can result in obstructions to flow, and loss of floodwater storage;
- exacerbating the nature of flooding by increasing flow velocities and speed of onset;
- loss of and adverse effects on morphology, fisheries and wildlife habitat including substrate;
- if present, adverse effects on protected species;
- the creation of barriers to fish passage through increased water velocities, behavioural deterrent, shallow depths, darkness, oxygen depletion and eroded culvert entrances;
- increased geomorphological risk including changes to channel stability, river bank and bed erosion and increased deposition around the culverted sections;
- greater difficulties in providing for drainage connections;
- increased liabilities and costs due to the need to maintain, repair and replace culverts or to manage upstream and downstream risks;
- increased health and safety hazards, notably for workers clearing blockages and for children in urban areas;
- locally reduced groundwater recharge;
- increased difficulty in detecting the origins of pollution and in monitoring water quality;
- reduced resilience for communities and wildlife to the effects of extreme weather events, climate change and acute pollution.

## What are the benefits of removing culverts?

In addition to avoiding the detrimental effects of new culverting listed above, the restoration of river corridors by removing or opening sections of existing culverting and restoring natural river beds and banks can have wider benefits, including:

- providing habitat for wildlife and improving its connectivity;
  - providing additional flood storage capacity and slowing flows;
  - ameliorating the urban heat island effect;
  - providing areas for recreational use;
  - improving amenity, health and educational opportunities;
  - increasing property prices and their desirability;
  - reducing maintenance costs and improving safety.
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## What is the legal framework?

Any culverting of a watercourse, or the alteration of an existing culvert:

- on [main rivers](#), requires a [flood risk activity permit](#) from the Environment Agency under the Environmental Permitting Regulations 2016. Conditions can be imposed on such permits.
- on all other watercourses, except within the district of an internal drainage board (IDB), requires a land drainage consent under Section 23 of the Land Drainage Act 1991 from the Lead Local Flood Authority (LLFA).
- in an IDB district, is likely to require the consent of the IDB under the Land Drainage Act 1991.
- Highway authorities are also required under Section 339 Highways Act 1980 to seek the consent of the drainage authority before carrying out any works affecting a watercourse.

The Environmental Permitting Regulations 2016: Flood Risk Activities states, in paragraph 5 of Part 1 of Schedule 25, that the Environment Agency must exercise its relevant functions for the purposes of achieving the following objectives -

- (a) managing flood risk;
- (b) managing impacts on land drainage;
- (c) environmental protection.

Planning permission under the Town and Country Planning Act 1990 is also likely to be required.

In determining or advising on the above permits, consents or relevant planning applications, The Environment Agency must:

- secure compliance with the WFD.

Other relevant public bodies have a duty to:

- have regard to the relevant River Basin Management Plan.
  - have regard to the purpose of conserving biodiversity.
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## What is the Environment Agency role in permitting and planning?

We have a direct regulatory role under the Environmental Permitting Regulations in relation to the culverting of [main rivers](#) and we have an advisory role on planning applications as a statutory consultee where proposals are in proximity to [main rivers](#). We are not however a statutory consultee purely because proposals are in proximity to ordinary watercourses, but we will often be consulted in these cases as such proposals often lie within Flood Zones 2 or 3, for which we are a statutory consultee.

We also have an advisory role as a statutory consultee on the preparation of Local Plans, Spatial Development Strategies and their associated Strategic Environmental Assessments, so have the opportunity to influence policies and land allocations in relation to culverting. We also have a strategic overview role for all sources of flooding.

## How will we consider environmental permit applications for culverting?

We will consider each environmental permit application to culvert or extension of a culvert on a [main river](#) on its own merits and in accordance with our risk-based approach to permitting. We will normally only grant such a permit application if there is no reasonably practicable alternative, and we think the detrimental effects would be so minor that a more costly alternative would not be justified or there are reasons of overriding public or economic interest. In all cases where we believe it to be necessary, applicants should provide measures based on applying a hierarchy:

- Acceptable avoidance measures.
- Where this is not possible, the appropriate mitigation.
- Where this is not possible, the appropriate compensation measures

Applicants should also robustly secure the responsibility for future maintenance and public safety liability.

The cumulative impact of any culvert proposal will be taken into consideration if other culverts are pre-existing on the same watercourse or if a precedent may be set which could result in unacceptable damage.

We will be unlikely to grant permit applications for proposals to build over existing [main river](#) culverts because of health and safety considerations, increased maintenance costs and complexities, and because future options to restore the watercourse may be precluded.

### **How will we consider planning applications involving culverting?**

The Environment Agency is a statutory consultee for planning applications on land in or within 20m a [main river](#) or land in flood zone 3 or 2 under Schedule 4 to the Town and Country Planning (Development Management Procedure) Order 2015. Therefore, we will normally be consulted by local planning authorities for advice on development proposals which include new culverting or built development on top of existing culverts.

We will consider such development proposals on their own merits and provide advice in the context of the planning policies and guidance relevant at the time. We will only support such planning applications if there is no reasonably practicable alternative, and we think the detrimental effects would be so minor that a more costly alternative would not be justified or there are reasons of overriding public or economic interest. In all cases where we believe it to be necessary, applicants will also be expected to accept sole ownership and responsibility for future maintenance and public safety liability. Planning conditions or obligations should be used to ensure any necessary measures, including future maintenance, are robustly secured.

Where such culverting is proposed on an ordinary watercourse, we will work with the relevant Lead Local Flood Authority or Internal Drainage Board to ensure our respective advice is aligned.

We are unlikely to support planning applications for proposals to build over existing [main river](#) culverts because of health and safety considerations, increased maintenance costs and complexities, and because future options to restore the watercourse may be precluded.

Where development proposals present opportunities for the restoration of culverted watercourses to open channels, we will actively pursue this through our statutory consultee role, provided doing so would not increase flood risk elsewhere or cause other unacceptable environmental impacts.

Opening up culverts can also help developers meet wider planning policy objectives such as to achieve environmental and biodiversity net gains, and create and strengthen networks of multifunctional green infrastructure.

Our ability to provide bespoke advice across the full range of potential issues associated with culverting, will always be subject to the prioritisation applied by any external or internal screening tools or standing advice, valid at the time.

We should also provide this advice, where appropriate, when consulted for pre-application advice.

### **How will we respond to spatial planning policy consultations?**

Planning policy requires new development and spatial plans to ensure proposed new development is safe from flooding and does not increase flood risk elsewhere, taking climate change into account. It also encourages use of opportunities provided by new development to reduce the causes and impacts of flooding, including natural flood management techniques. It is also a requirement to recognise the wider benefits from natural capital and ecosystem services and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries; this could include the opening of culverts.

The Environment Agency is also a statutory consultee for strategic planning documents including Spatial Development Strategies, Local Plans and Neighbourhood Plans, including their associated Strategic Environmental Assessments (SEA) and Sustainability Appraisals. We are also often consulted on related evidence base and background documents such as Strategic Flood Risk Assessments and Water Cycle Studies.

When we are consulted on such strategic planning documents, their associated SEA and Sustainability Appraisals and on relevant evidence base and background documents we should take the opportunity to:

- Advocate for planning policies and allocations which resist proposals for new culverting
- Advocate for planning policies and allocations which encourage the restoration of culverted watercourses to open channels
- Advise when it is unlikely a permit will be granted for any new culverting, culvert extension or development on top of existing culverting on [main rivers](#)
- Advise on compliance with River Basin Management Plan objectives including the Water Framework Directive 'no deterioration' objective
- Explain the detrimental effects of culverting and the benefits of removing culverts

## How will we manage the interface between permitting and planning?

For developments that require both planning permission and an environmental permit, the focus of planning decisions should be on whether the proposed development is an acceptable use of the land. Planning permissions should not duplicate controls that are subject to separate regulatory regimes. Whilst the two regimes are legally separate, in order to prevent conflict between the two regimes, we should look to identify any issues which may be material to the granting of either application and provide a substantive planning response so that it may be considered during the application assessment. We should look to avoid situations where planning permission is granted but we then refuse a permit application, causing the applicant to have to apply for a new planning permission. Similarly, if a permit is applied for and granted first, we should not be raising objections at planning applications stage, on issues which have already been considered as part of the permit determination.

Local Planning Authorities will assume that the regulatory regime will operate effectively, however, they will need to know the scope of matters a permit can control. Where such measures to control impacts could have implications for planning, such as building location, layout, design or scale, we should recommend that applicants parallel track their permit and planning applications to allow all issues to be considered together. However, we cannot insist on this.

We may be asked by the Local Planning Authority whether we see any impediment to being able to grant an environmental permit application. We should be cautious in our planning responses and make sure we are not seen to pre-determine a permit application. We will need to consider any permit application on its own merits and will need to follow due process in assessing and determining any such application.

## How does culverting impact on delivering the Water Framework Directive and the 25 Year Environment Plan?

Water Framework Directive

[The Water Environment \(Water Framework Directive\) \(England and Wales\) Regulations 2017](#) (WFD regulations) applies to surface waters (including some coastal waters) and groundwater (water in underground rock). These regulations set out requirements, to prevent deterioration of aquatic ecosystems and protect, enhance and restore water bodies to 'good' status.

Culverting can result in adverse impacts on water bodies, which could instigate their deterioration or prevent their achievement of good status (or potential, for artificial and heavily modified water bodies) under the WFD regulations.

Under the WFD regulations the Environment Agency must exercise its functions so as to secure compliance with the requirements of the WFD. We can therefore only grant a permit for a culvert if it meets the requirements of the WFD (including the Article 4.7 exemption).

Applicants should assess the impact of proposed culverts on water bodies and the objectives in the relevant River Basin Management Plan. If culverting results in deterioration of the WFD water body status or prevents it from meeting 'good' status, the applicant will have to demonstrate the development meets the requirements of Article 4.7 of the Water Framework Directive as transposed by the WFD regulations. Further guidance can be found in 'Guiding principles to follow when considering exemptions under Article 4.7 of the Water Framework Directive'

## 25 Year Environment Plan

The government's 25 Year Environment Plan (25YEP) has a target of improving at least three quarters of our waters to be close to their natural state as soon as is practicable. Physical modification, which includes culverting, is the top pressure affecting England's water environment preventing the achievement of Water Framework Directive objectives. The Culverting Watercourses [Internal Policy 169\\_19](#) is a key document in helping deliver for both the 25YEP and Water Framework Directive drivers.

## Other Environmental Considerations

Some habitats and species which may or may not be designated are more valuable or more vulnerable than others. For example habitats of principal importance under NERC require more scrutiny due to their value. Rivers, such as chalk rivers, are particularly vulnerable to disruption by culverts. More than ever, it is vital to get expert advice on these from FBG when dealing with culverts so that a reasonable decision on culverting can be taken based on the merits of each case.

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## What other documents relate to this guidance?

[REDACTED]  
[Flood and Water Management Act 2010](#)

[The Environmental Permitting Regulations 2016](#)

[Owning a watercourse](#)

[REDACTED]  
[Natural Environment and Rural Communities Act 2006](#)

[Land Drainage Act 1991](#)

[Environment Act 1995](#)

[634\\_08 Flood and Coastal Risk Management – conserving, enhancing and restoring biodiversity](#)

[325\\_07 Conservation screening: taking nature conservation into account for permits, consents, licences and our works](#)

[REDACTED]  
[Guiding principles to follow when considering exemptions under Article 4.7 of the Water Framework Directive](#)

[488\\_10 Protecting and improving the water environment - Water Framework Directive compliance of physical works in rivers](#)

[1340\\_16 Supporting implementation of river basin management plans](#)

[1340\\_16\\_SD01 Implementation of the river basin management plans position statement](#)

[659\\_16 Flood risk assessments: climate change allowances - guidance for Sustainable Places and Partnerships and Strategic Overview teams](#)