Culverting Works and Drainage Maintenance Protocol 2019

Guidance on the Culverting of Ordinary Watercourses in North Yorkshire and Maintenance of Third Party Drainage Assets

1 Purpose

North Yorkshire County Council, as the lead local flood authority for North Yorkshire, became responsible for managing local sources of flood risk on 06 April 2012. As a result, NYCC now has consenting and enforcement powers relating to ordinary watercourses under the Land Drainage Act 1991 (as amended).

Before this date, the Environment Agency dealt with works of this nature and produced extensive guidance on the subject. NYCC has therefore adopted many of the principles and policies that the Environment Agency have historically worked to.

This guidance note has been adapted from the Environment Agency’s ‘Culvert Policy’ documents and provides a detailed explanation of the NYCC view on works to watercourses, with particular regard to culverts. It is complimentary to the NYCC SuDS Design Guidance for Development and is intended for use by planning authorities, highway engineers, landowners and developers.

2 Introduction

Watercourses fulfil many roles in today’s environment. They provide drainage for developed and agricultural land and can be vital water resources, while some also have important recreational value. They are important features of the landscape and provide habitats for a wide variety of wildlife. It is therefore important that watercourses and their associated habitats are protected and enhanced for the benefit of present and future generations.

3 Section 23 Land Drainage Act 1991

Under section 23 of the Land Drainage Act 1991, the written consent of the lead local flood authority (known as ‘Ordinary Watercourse Consent’) is required in order to undertake any of the following works:

a) erect any mill dam, weir or other like obstruction to the flow of any ordinary watercourse or raise or otherwise alter any such obstruction; or
b) erect a culvert in an ordinary watercourse, or
c) alter a culvert in a manner that would be likely to affect the flow of an ordinary watercourse.

Consent will not be unreasonably withheld, and may be granted subject to reasonable conditions.

For works affecting Main Rivers a Flood Risk Activity Permit may be required under the Environmental Permitting Regulations. The EA may be contacted for advice concerning the appropriate permit or permissions required.
If any of the above works amount to or include ‘development’ for the purpose of the Town and Country Planning Act 1990 then planning permission may also be required from the relevant planning authority. North Yorkshire County Council as an upper-tier authority is not the relevant planning authority, other than for county matters and regionally or nationally significant projects.

4 **Section 24 - Enforcement actions against unconsented works**
If any of the above works are carried out without consent it will constitute a nuisance under Section 24 of the Land Drainage Act 1991, and North Yorkshire County Council has the power to serve notice requiring the nuisance to be abated. Notice may be served on the person who carried out the work (if they have the ability power to remove the obstruction at the time the notice is served) or the any person having ability power to remove the obstruction. If the notice is not complied with by the date specified on the notice then the person responsible will be guilty of an offence and liable to a fine on summary conviction. North Yorkshire County Council will be entitled to carry out the any necessary works to remove or alter the unconsented work and to recover its expenses in doing so from the person named on the notice. The Council will take a risk-based approach to enforcement action taking into account the location and nature of the unconsented works, whether they are likely to increase flood risk and what the consequences of any increase in risk may be. The cost-benefit of pursuing an enforcement case will also be investigated to ensure it would be delivering value for money to the tax-payer.

5 **North Yorkshire County Council Statement on the Culverting of Ordinary Watercourses**
NYCC is, in general, opposed to the culverting of watercourses because of the adverse implications it may have on flood risk and the ecology of the location and the other effects discussed above.

NYCC will therefore only approve an application to culvert a watercourse if there is no reasonably practicable alternative or if the detrimental effects of culverting would be so minor that they would not justify a more costly alternative.

The reasons for refusing consent unless there is no reasonably practicable alternative is that culverting increases the likelihood of blockages and flooding, Increases the difficulties in providing new drainage connections, and the repair, maintenance and replacement of culverts, and causes pollution and a detriment to water quality, all these reasons are explored in more detail below.

Of course, there are examples of situations where there is no practicable alternative to culverting a watercourse. For example, Highways Act Section 101 affords the highway authority the “power to fill in/culvert roadside ditches”

This power is only used by NYCC on grounds of safety to protect highway users, for example, to protect the integrity of the road.

In all cases where it is appropriate to do so, adequate mitigation must be provided for damage caused. Wherever practical NYCC will seek to have culverted watercourses restored to open channels.

6 **Reasons for the Protocol**
6.1 **Increased likelihood of blockages and flooding**
Compared with an open channel there is an increased risk of blockage once a culvert is installed. If the blockage occurs within the culvert, there is much greater difficulty in removing it.
It is sometimes argued that culverting will reduce the problem of open channels subject to litter and fly-tipping. Such short-term advantages are outweighed by the overall disadvantages, and alternative means should be pursued to address rubbish problems. Flooding is more likely to result from culverts when they become obstructed, and culverted channels also provide less flood storage than open ones. There have also been cases of serious flooding caused by culverts collapsing due to root damage from vegetation or the weight of development above them.

Culverting will create a less permeable bed to a watercourse and often increases the speed of water flow, possibly increasing flood risk downstream and also preventing local recharge of groundwater.

6.2 Increased difficulties in providing new drainage connections, and the repair, maintenance and replacement of culverts.

Drain connections are more easily made to open watercourses where the performance of drainage systems can be visually monitored. Outfalls within culverts are prone to blockage or, in the case of flapped outfalls, can seize up. Maintenance of these outfalls is considerably easier in open channels.

Culverts conceal the presence of a watercourse and can lead to development or unacceptable land-use above or near them. In many urban areas buildings have been constructed above or adjacent to culverts. This means that improving standards of flood protection or accommodating run-off from future developments could be impossible or uneconomic due to the cost of replacing or enlarging existing culverts.

The responsibility for the condition and maintenance of a culvert lies with the landowner or the owner of the culvert, unless other agreements are in place. The responsible party must therefore ensure that the culvert remains in good condition and free from obstructions. Failure to do so could result in liability for any damage caused by flooding. Access to culverts is generally safe only with the use of special procedures and equipment, making inspection and maintenance both difficult and costly.

6.3 Pollution and effect on water quality

Culverting a watercourse makes the early detection and tracing of pollution sources more difficult, resulting in the adverse impacts being more serious.

There is further impact on water quality due to the loss of the biological processes which are essential for river purification, and there is normally a reduction in oxygenation of water passing through a culvert. Culverting may also result in stagnant water problems, particularly if culvert levels are badly planned or constructed.

6.4 Loss of environmental features

Culverting has a detrimental impact on the environment, resulting in a loss of features within a watercourse. The continuity of the river corridor is broken, adversely affecting the landscape and ecological value of the watercourse for migrating species. An existing or potential amenity would also be lost for present and future generations.

7 Consent Process

Landowners and developers should seek the advice of the NYCC Flood Risk Management Team as early as possible on any proposal, allowing sufficient time before the intended start date of the development or works. The consent application forms and details on how to apply and pay the appropriate fee are available on our website at https://www.northyorks.gov.uk/making-changes-waterways
On receipt of a complete and valid application, NYCC has a period of two months in which to determine it, but will aim to reach a decision as soon as possible within this timeframe. As part of the process and where appropriate, various authorities including the Local Planning Authority, Highways Department, Environment Agency and Natural England will be consulted. This will enable the identification and resolution of possible problems before plans reach an advanced stage will minimise costs to all parties and will reduce the time taken to determine the application.

Once determined, we will notify the applicant of NYCC’s approval or refusal in writing along with a written copy of your consent or reason for refusal if applicable.

8 **Design Guidance**

Detailed design plans will need to be submitted with your consent application.

An applicant should demonstrate that they have considered the environmental implications of all options, and preferably settle on the least environmentally damaging solution.

If no other alternative is feasible, any proposed culvert length should be as short as possible and the diameter as large as possible. NYCC specifies a minimum culvert diameter of 600mm, unless there are local conditions which prevent this and a clear and defensible case for an alternative size can be demonstrated.

Culverts must be designed so they do not cause a restriction to flow and this must be demonstrated by submitted supporting evidence. They must not increase the risk of flooding or prevent maintenance of the adjacent open watercourse. Consideration must also be given to overland flow paths in the event of a culvert becoming obstructed or overloaded. It should be ensured that flows will not affect property or cause unreasonable nuisance or harm.

The responsibility for future maintenance and clearance of a culvert must be agreed and details of those responsible submitted with your application for consent. The responsibility for the maintenance of a culvert lies with the landowner or the person who owns the culvert unless otherwise arranged.

Appropriate inlet and outlet structures should be provided in order to ensure smooth hydraulic transition and avoid erosion. Headwall arrangements at the upstream and downstream ends of a culvert should be suitably keyed into the bed and banks of the watercourse, and should be appropriate to the local environment.

Suitable access arrangements for maintenance should be included in the design. Access chambers must be provided at each change of direction if the culverting is not straight. Other access/inspection chambers should be installed at suitable intervals.

Inlet and outlet screens should not be used unless absolutely necessary. An appropriate risk assessment must be submitted with your application to demonstrate when a trash screen is necessary, and a formal maintenance regime must be agreed prior to approval.

In most situations it is appropriate for the inverts of culverts to be set slightly below the existing bed level to allow for future maintenance or other works on the watercourse. It also aids the provision of a more “natural” bed to the culvert.
Multiple small culvert arrangements are prone to blockage by accumulation of waterborne debris at the inlet. Where multiple culverts are unavoidable, a minimum number of culverts should be used and cutwaters should be provided between pipes at the culvert inlet.

9 Environmental Considerations

Environmental mitigation measures may be appropriate if any open watercourse is being removed. The key aims of the Water Framework Directive must be considered throughout the consenting processes. Overall this Directive aims to:

- prevent further deterioration and protect and enhance the status of aquatic ecosystems and associated wetlands;
- promote sustainable water consumption;
- progressively reduce or phase out discharges, emissions and losses of priority substances and priority hazardous substances;
- progressively reduce the pollution of groundwater; and contribute to mitigating the effect of droughts and floods.

Possible Environmental mitigation for larger culverts:

- Make the culvert slightly larger than that needed to accommodate the design flow and then position the invert of the culvert below the natural bed of the watercourse, to enable some more natural bed features to form.
- Provide ledges running through the culvert (approximately 500 mm wide and 300 mm above normal water level) to allow for the passage of mammals. Or make provision for appropriately located mammal underpasses close to the culvert.
- The height of the invert should not pose an obstruction to fish movement.
- Provide structures to encourage bat roosting and bird nesting as appropriate.

Environmental mitigation for smaller culverts:

- Propose suitable environmental enhancements, for example opening up a length of previously culverted watercourse elsewhere on the site, enhancing other lengths of the watercourse, creation of a pond/marshy area, scrub/hedge planting.
- Construct headwalls and wingwalls in ‘soft-engineering’ or natural materials in keeping with the natural channel.

10 Planning Considerations

The requirement for ordinary watercourse consent is independent of the need for planning permission and therefore the granting of planning permission does not imply or guarantee that consent will also be given.

NYCC would normally recommend refusal to the planning authority and refuse ordinary watercourse consent on flood risk and/or conservation grounds where there is a culvert proposed as part of a development and where there are reasonable alternatives. Such alternative solutions might include a revised site layout or an ecologically acceptable diversion of an open channel.

Buildings should not be sited over the top of new or existing culverts. Building regulations (Approved Document H) stipulate the distance from which a watercourse or sewer should be laid from new foundations.

NYCC would recommend refusal to the planning authority for any building over a culvert. This is because in the future the culvert may need to be repaired, replaced or up-graded if conditions in the catchment change. There is also the need to maintain an overland flow route if the culvert is blocked or its capacity exceeded.
Consent is also required for development within a specified distance of either side of a Main River in accordance with Environment Agency Byelaws.

11 **NYCC policy regarding maintenance of third party drainage including culverts**

**Responsibilities of riparian owners in North Yorkshire**

Landowners whose land is adjacent to a watercourse are known as ‘riparian owners’. A landowner can be an individual e.g. home owner or farmer, private business or an organisation e.g. the district council as park owner, on school grounds the county council as property owner.

A watercourse is defined as every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and feature through which water flows, but which does not form part of a Main River.

Riparian owners have legal duties, rights and responsibilities under common law and the Land Drainage Act 1991 for watercourses passing through or adjoining their land. These responsibilities are to:

- Pass on the flow of water without obstruction, pollution or diversion affecting the rights of others
- Accept flood flows through their land, even if these are caused by inadequate capacity downstream.
- Maintain the banks and bed of the watercourse and keep structures maintained
- Keep the bed and banks free from any artificial obstructions that may affect the flow of water including clearing litter, heavy siltation or excessive vegetation.


Although NYCC does have permissive powers to carry out works to reduce flood risk related to Ordinary Watercourses, these will only be used as a last resort and do not replace the responsibilities of the riparian owner under common law and the Land Drainage Act 1991.

12 **Circumstances where NYCC may pursue action through use of its enforcement powers bestowed by Section 21 and 25 of the Land Drainage Act 1991**

When internal flood risk to property or public highway/significant infrastructure is caused through the lack of maintenance of the drainage system

OR

Where applicable, the affected land owner suffering increased flood risk and damage arising from the disrepair of the watercourse has exhausted all avenues including pursuing Section 28 of the Land Drainage Act 1991.

AND

When ownership is clear and demonstrable, e.g. through land register, deeds, riparian legislation.

If action is not forthcoming, as a result of discussions, NYCC reserves the right to organise the undertaking any work required to reduce flood risk and to recharge costs to those with riparian responsibility for the drainage system.
13 **Circumstances where NYCC will undertake works to third party riparian drainage using its powers under section 14A of the Land Drainage Act (1991)**

NYCC will consider use its powers to carry out flood risk management work following flood risk investigation and when the following conditions are observed:

- The land and/or the drainage is in a significant state of neglect
- Riparian ownership of the system is unclear – e.g. non-registered
- When the direction of the run of a culvert is unclear and cannot be ascertained through dye-testing and requires survey in order to ascertain riparian ownership
- When multiple owners of a culvert are identified, who may be unaware of its existence and their associated responsibilities, in order that the associated flood risk is immediately addressed, and giving time for those with riparian ownership to be contacted directly to be informed of their responsibilities towards a functioning system
- When the risk of internal flooding to adjacent properties is very significant and requires immediate action.

In any of the circumstances above, if land ownership is known or is clarified definitively as a result of the action taken by NYCC the council reserves the right to recharge costs incurred by NYCC to the responsible riparian owner of the watercourse.

14 **Acronyms and Definitions**

- **EA** – Environment Agency
- **LPA** – Local Planning Authority
- **NYCC** – North Yorkshire County Council
- **LLFA** – Lead Local Flood Authority
- **FWMA** – Flood and Water Management Act
- **LDA** – Land Drainage Act
- **WFD** – Water Framework Directive
- **SuDS** – Sustainable Drainage Systems

**Ordinary Watercourse** - all rivers, streams, ditches, drains, cuts, dykes, sluices, sewers (other than public sewers) and other passages through which water flows that are not designated as main rivers.

**Main River** - all watercourses shown as such on the statutory main river maps held by the Environment Agency and Defra, as appropriate.

**Bridge** - an open span structure that carries a road, footpath, railway etc over a watercourse.

**Culvert** - a covered channel or pipeline which is used to continue a watercourse or drainage path under an artificial obstruction.

**Wingwalls** - a wing wall is a smaller wall attached or next to a larger wall or structure

**Headwalls** - a headwall is a small retaining wall placed at the outlet of a stormwater pipe or culvert.

**Inverts** - the invert level is the base interior level of a pipe, trench or tunnel