

Cambridgeshire's Culvert Policy

An explanation of our policy regarding applications to
culvert ordinary watercourses.

Document History

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1. Purpose and legislative framework

Cambridgeshire County Council, as the Lead Local Flood Authority (LLFA), became responsible for ordinary watercourse consent applications under Section 23 of the Land Drainage Act 1991 on 06th April 2012. Any culverting of an ordinary watercourse, or the alteration of an existing culvert in Cambridgeshire outside of Internal Drainage Board (IDB) areas, requires our prior consent.

Consenting under Section 23 had previously been dealt with by the Environment Agency; as such they created extensive guidance on culverts. We have therefore adopted many of the principles that the Environment Agency had already been working to, which is detailed within this document.

This policy has been produced with reference to the Environment Agency's 'Culvert Policy' documents and provides our view on applications to culvert ordinary watercourses. Many IDB's within Cambridgeshire have similar guidance or policies on applications to culvert watercourses and therefore we are following a consistent approach across Cambridgeshire.

2. Policy and Aims

2.1 Our Policy

Cambridgeshire County Council is generally opposed to culverting of a watercourse due to the adverse ecological, flood risk, human safety and aesthetic impacts as well as other effects which are likely to arise as described in this document.

We will consider each application to culvert a watercourse on its own merits but we will only approve a culvert if there is no reasonably practicable alternative or if we think the detrimental effects would be so minor that a more costly alternative would not be justified. In all cases where it is appropriate to do so, applicants must provide adequate mitigation measures.

Where culverting is proposed as part of a scheme to build over a watercourse, we would generally be opposed to the proposal because of health and safety considerations, increased maintenance costs and because this would preclude future options to restore the watercourse

2.2 Our culvert policy aims to:

- Clarify our approach to assessing permissions for culverts;
- Ensure a consistent approach to culverting approvals; and
- Demonstrate how we will take action to protect the continuity and integrity of watercourses within the county.

3. Reasons for policy

3.1 Loss of environmental features and wildlife habitats

Installation of a culvert results in complete loss of environmental, geomorphological and habitat features within that section of watercourse. The continuity of the water corridor is broken which affects the landscape and ecological value of the watercourse and in some cases prevents the migration of fish species. Even seasonably dry watercourses provide habitats for many species of amphibians and invertebrates. This amenity will be lost for present and future generations.

3.2 Increased likelihood of flooding due to blockages

Compared to an open channel there is an increased risk of blockage once a culvert is installed. When blockages occur they cannot be easily identified and in many cases only become apparent after heavy rainfall when flooding begins, this can be difficult to remedy at the time if it is not safe to do so or without special equipment.

One argument is that culverting prevents flytipping and litter dropping within open channels, however these advantages are only short term and the overall disadvantages of culverting outweigh an issue which can be reduced using other measures.

3.3 Increased impact of flooding

The effect of the overland flooding that will occur when a culvert cannot cope with all the flow reaching it can be more serious than flooding from an open watercourse. Flooding may also affect open sections of a watercourse further upstream from the culvert, which previously may not have been the first location to experience flooding. This is often the case where flooding has occurred because of a blockage.

3.4 Loss of floodwater storage

Open watercourses generally provide more storage capacity than a culvert with the impact being greater over longer lengths. They also provide an open area for water to be channeled into during overland flow and allow natural processes such as evaporation, infiltration and groundwater recharge to take place. The natural roughness of the channel bed is also lost through culverting which can increase the speed water travels downstream further exacerbating flooding or creating erosion problems.

3.5 Increased difficulties for providing for drainage connections

Drainage can be provided more easily with open watercourses in which drain connections can be readily made and the performance of drainage systems 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.

3.6 Difficulty in the repair, maintenance and replacement of culverts

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 runoff from future developments could be impossible or uneconomic due to the cost of replacing or enlarging culverts. There have been cases of serious flooding caused by culverts collapsing due to large amounts of material stockpiled above them.

The responsibility for the condition and maintenance of a culvert lies with the landowner or owner of the culvert unless other agreements are in place. The responsible party must therefore ensure 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.

3.7 Increased health and safety hazards

Culverting does not remove the risk of drowning or injury. There have been many cases in the past where children have died or suffered injury after entering culverts representing a considerable safety hazard. Water levels can rise suddenly and without notice, or there can be a lack of oxygen or build up of potentially toxic or explosive gases in culverts. These hazards are a danger to the public as well as those who maintain the structure.

3.8 Pollution and effect on water quality

Culverting increases the difficulty in detecting the origins of pollution and in monitoring water quality, increasing any adverse impacts as a result of pollution. There is also a loss of biological processes which are essential for water 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.

4. Exceptions to policy

It is recognised that there are situations in which culverting is unavoidable such as short lengths for access or where highways cross watercourses. In such cases alternatives such as open span bridges or diversion of the watercourse must have been considered, the length of the culvert restricted to the minimum length necessary to meet each applicants objectives and where appropriate, mitigating environmental enhancements included in the proposal. Options to culvert will not be considered lightly so applicants must have strong justification for taking this route.

Applicants will be required to prove why culverting is both necessary and the only reasonable practicable alternative, this can include where alternatives are unreasonably costly to install. The applicant must still provide information to show that it will not have a detrimental effect on flood risk and the habitat(s) and species present, or that mitigation measures can be put in place to reduce these effects.

The proposal must include appropriate assessment of flood risk and environmental impact. The applicant should take into account the possible effects of climate change and future development in the catchment on the watercourse when calculating the capacity of the culvert.

Alternatives to culvert which can be considered include:

- Construction of a bridge
- Constructing infrastructure elsewhere
- Diverting the watercourse
- Constructing a ford in small streams for non critical infrastructure

5. Consent procedures

Landowners and developers should seek the County Councils advice as early as possible on any proposal, allowing sufficient time before work is to start. Identifying and resolving potential problems before plans reach an advanced stage will minimise costs to all parties and will reduce the time taken for us to assess the consent application when it is received. In addition opportunities for environmental enhancements can be identified which may not necessarily entail significant additional costs.

Detailed guidance on applying for consent can be found on the county council web pages under 'Flood and Water Management'. Where alternatives to culverting are not possible applicants should refer to the most up to date industry guidance on designing culverts such as the CIRIA Culvert Design and Operation Guide (C689).

Failure to seek our consent prior to carrying out any new culverting or culvert alterations can lead to enforcement action being taken against the relevant party as prescribed within the accompanying enforcement policy.

Applicants should be aware that Byelaw consent will also be required from South Cambridgeshire District Council where a proposal will impact on one of the districts award drains.

Definitions

Ordinary watercourse - As defined in the Land Drainage Act 1991 is a watercourse that does not form part of a main river, and includes all ditches, drains, cuts, culverts, dykes sluices, sewers (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows.

Bridge - An open span structure that carries something such as a road, footpath or railway over a watercourse.

Culvert - A covered channel or pipe which is used to continue a watercourse or drainage path under an artificial obstruction

Internal Drainage Board - A board elected by ratepayers and established for designated, particularly low lying, areas of England and Wales where flood protection and land drainage are necessary to sustain agricultural and developed land use.

Main River - All watercourses shown on the statutory main river maps held by the Environment Agency. Main river can include any structure or appliance for controlling or regulating the flow of water in or out of a river.