



St. Helens Council

Culverting Policy

Policy to be used in conjunction with the Lead Local Flood Risk Management Strategy (LFRMS) and with the Well-Managed Highway Infrastructure - A Code of Practice

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1 Introduction

1.1 Purpose

1.1.1 This document provides a detailed explanation of St.Helens Councils Policy with regard to culverts. It is intended for use by the planning authority landowners and developers. It has been developed with guidance with the Environment Agencies Culverts Policy.

1.2 Background

1.2.1 Culverts are artificial water channels that can vary considerably from narrow pipes through to large, square –sided channels. They can be constructed from a range of material including concrete, plastic, stone, metal etc. Most culverts have been constructed in order to enable development above watercourses.

1.2.2 Although culverts are often designed to improve local flood risk, culverts can themselves exacerbate flooding. This is because they can restrict water flow and thereby cause ponding of water near the entrance to the culvert or become blocked/ partially obstructed by debris that the water has washed into them. Many culverts within the borough have screens at the entrance to prevent debris entering a culvert. These blockages can heighten flood risk.

1.2.3 It is now more widely acknowledged the negative impacts of culverting water courses can have to flood risk, ecology and amenity. St.Helens council considers it be beneficial for watercourses to remain in an open state for both flood defence and environmental purposes. Conserving watercourses is one of the councils main aims as a lead local flood authority (LLFA) and, where possible will encourage and promote the removal of culverts in order to restore a more natural river environment.

1.2.4 In considering new development proposals our objective is to retain open watercourses with a corridor of open land on both sides. This maintains a flood channel and creates a valuable environmental feature which can enhance the site. St Helens Council will encourage developers to incorporate open watercourses within their site design. Such features are of particular importance to wildlife by providing valuable open land in developed area. Culverting should not be considered until other options have been thoroughly explored, for example:

- Clear open span bridges with existing banks and beds retained;
- Revision of site layout to incorporate an open watercourse;
- Diversion of the watercourse in an environmentally sympathetic channel and corridor;

1.2.5 It is recognised there are various reasons why in some instances landowners, developers and local authorities believe that open watercourse should be culverted. However, the problems caused by culverting often outweigh any benefits such as managing the system, the loss of habitats and difficulty in pollution detection.

1.2.6 Nevertheless, there may be cases where culverting may in practice be unavoidable for example, short lengths for access purposes or where highways cross watercourses. In such cases the length involved should be restricted to a minimum, the hydraulic and environmental design fully assessed and appropriate mitigating enhancements to the surrounding environment included in the proposal.

2 Legislative Framework

2.1 Setting the Framework

2.1.1 St.Helens Council as the Lead Local Flood Authority (LLFA), became responsible for ordinary watercourse consent applications under Section 23 of the Land Drainage Act 1991 in April 2012. Any culverting of an ordinary watercourse or the alteration of an existing culvert in the borough requires St Helens Council consent.

2.1.2 Consenting under Section 23 has previously been dealt with by the Environment Agency; as such they created extensive guidance on culverts. St Helens Council has therefore adopted many of the principles that the Environment Agency has already been working to. The following works require ordinary watercourse consent from the Lead Local Flood Authority under Section 23 of the Land Drainage Act 1991:

- 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
- Erect a culvert in an ordinary watercourse, or
- Alter a culvert in a manner that would be likely to affect the flow of an ordinary watercourse.

2.1.3 For works affecting Main Rivers the prior consent of the Environment Agency is required under the Water Resources Act 1991 and Environment Agency Byelaws. The Environment Agencies policy on culverts states, that they will 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. In all cases where it is appropriate to do so adequate mitigation must be provided for damage caused.

2.2 Enforcement Action against Unconsented Works

2.2.1 If any of the works in section 2.1.2 are carried out without consent, St Helens Council has the power to serve notice on the person who has carried out the work. If the notice is not complied with the person responsible may be enforced against, or St Helens Council are entitled to carry out the necessary works to remove or alter the work and recover its expenses.

2.2.2 We will always take a risk-based approach to enforcement action by taking into account the location and nature of the unconsented works, whether they are likely to increase flood risk or not 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 we are delivering value for money for the residents of St.Helens.

3 Aims of the Policy

3.1 Aims of the policy

3.1.1 St Helens Council as the lead local flood authority is responsible for ordinary watercourses consent applications within the borough under section 23 of the Drainage Act 1991. This policy provides a detailed explanation of the Council's views on works to watercourses, with particular regard to culverts. St Helens Council like the Environment agency and many other local authorities are opposed to the culverting of watercourses due to the detrimental effects it can have.

3.1.2 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 more costly alternative would not be justified. In all cases where it is appropriate to do so, applications must provide adequate mitigation measures.

4 Reasons for the Policy

4.1 Policy Development

4.1.1 St Helens Council has a duty to protect the health of local residents as part of its Public Health responsibilities. It also has a responsibility for recovery following major incidents which include flooding. By reducing the number of culverts we can reduce the risk of flooding, thus protecting our residents. We can also create a more pleasant environment with open water ways with recreational areas for residents and increase habitats for wildlife.

4.1.2 St Helens Council is generally opposed to culverting of watercourses because of the detrimental effects that are likely to arise. Such effects may be:

- Loss of and adverse effects on environmental features and wildlife habitat;
- Increased likelihood of flooding due to blockages;
- Increased impact of flooding;
- Loss of floodwater storage;
- Increased difficulties in providing for drainage connections;
- Difficulties in repair, maintenance and replacement of culverts;
- Increased health and safety hazards;
- Reduced groundwater recharge;
- Increased difficulty in detecting the origins of pollution and in monitoring water quality.

4.2 Loss of Environmental Features

4.2.1 Culverting watercourses have a detrimental impact on the environment. There is a complete loss of environmental features associated with that section of watercourse. The continuity of the river corridor is broken, adversely affecting the landscape and ecological value of the watercourse and inhibiting the migration of some species. An existing or potential amenity is lost for present and future generations.

4.2.2 Culverting results in the removal of species and river features such as pools, riffles, gravel, cobble, sand, silt, marginal/aquatic vegetation, earth banks with associated vegetation, invertebrate communities and fish. Even seasonally dry watercourses provide valuable habitats for many species, such as amphibians and invertebrates.

4.3 Increased likelihood of blockages

4.3.1 Compared with an open channel there is an increased risk of blockage once a culvert is installed. If the blockage is within the culvert, there is much greater difficulty in removing it. This blockage then prevents the water flow and thus can cause flooding. For these reasons many culverts have screens installed at their upstream end. These screens themselves are often prone to blockage and require frequent clearance and robust emergency procedures to ensure that they do not in themselves cause flooding.

4.3.2 It is sometimes argued that culverting will reduce the problem of open channels subject to rubbish deposition. However, we believe that alternative means should be pursued to address the littering problem.

4.4 Increase impact of flooding

4.4.1 The effect of the overland flooding that will occur when a culvert cannot cope with all the flow reaching it is often more serious than flooding from an open watercourse.

4.5 Loss of floodwater storage

4.5.1 Open watercourses often provide more storage capacity than culvert with the impact being greater over longer lengths. They also provide an open area for water to be channelled into during overland flow and allow natural processes such as evaporation, infiltration and groundwater recharge to take place. Culverting can also cause the speed the water is travelling at to increase which further exacerbates flooding and can also cause erosion problems. The speed is increased as the culvert will not possess the natural roughness of the channel bed.

4.6 Increased difficulties in providing for drainage connections

4.6.1 Drainage can be provided more easily with open watercourses into which drain connections can readily be 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.

4.7 Difficulty in the repair, maintenance, replacement and condition surveys of culverts

4.7.1 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.

4.7.2 The responsibility for the condition and maintenance of a culvert lies with the landowner or owner of the culvert (riparian landowner) 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.

4.8 Health and Safety Hazards

4.8.1 There are dangers associated with natural open watercourses but culverted watercourses can be equally dangerous. Culverting does not remove the risk of injury. There have been cases in the past where children have died or suffered injury after entering culverts and they therefore represent a considerable safety hazard. Water levels can rise suddenly and without notice, and there can be a lack of oxygen or build-up of potentially toxic or explosive gases in culverts. All these hazards are not only a danger to the public but also to the operatives who carry out maintenance and inspections.

4.9 Effect on recharge to groundwater

4.9.1 Culverting creates an impermeable bed to a watercourse and increases the speed of water flow, so reducing recharge to groundwater which can be particularly serious in large developments or areas of permeable geology.

4.10 Pollution and effect on water quality

4.10.1 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.

5 Exceptions

5.1 Exceptions

- 5.1.1 St Helens Council recognises that there will be situations where culverting may in practice be unavoidable, such as short lengths for access purposes or where highway crosses watercourses.
- 5.1.2 Applicants will be required to prove why culverting is necessary and the only reasonable practicable alternative, this can include explaining why 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/ or habitats and species present, and appropriate mitigating environmental enhancements included in the proposal.
- 5.1.3 Risk assessments must be carried out to assess the likelihood and consequences of a blockage within the culvert. The effects climate change and future development in the catchment on the watercourse should also be considered when calculating the capacity of the culvert.

6 Consent Procedures

6.1 Consent Procedures

- 6.1.1 Landowners and developers should seek St Helens Council's advice as early as possible on any proposal, allowing sufficient time to resolve any issues 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 the consent application to be processed when it is received.
- 6.1.2 Consent is not given retrospective and you will be required to remove any works constructed before consent is granted whether it is compliant or not and costs will be recovered from the individual responsible.
- 6.1.3 The consent application form and guidance notes on how to apply are available on the Council website,

<http://www.sthelens.gov.uk/what-we-do/environmental-services/flooding-and-drainage/consent-applications/>
- 6.1.4 The cost for the application is £50 and will need to be supplied with the completed application.

Appendix 1 - Definitions

Bridge	An open span structure that carried 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 a artificial obstruction.
Culverting	The act of creating an underground channel or conduit.
Climate Change	A significant and lasting change in the statistical distribution of weather patterns over time ranging from decades to millions of years.
Main River	All watercourses shown as such on the statutory main river maps held by the Environment Agency and the Ministry of Agriculture, Fisheries and Food, as appropriate. A main river can include any structure or appliance for controlling or regulating water in or out of the channel.
Ordinary Watercourse	A watercourse which does not form part of a main river.

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