



A culvert is a bridge-like structure made up of one or more cross-section ducts that are covered with granular material. It allows a path to cross an obstacle such as a stream or a ditch.

Various types of risks must be taken into account when designing or modifying this type of structure:

- hydraulic: deficient drainage, water accumulation, overflow, erosion, flooding, deposition, obstacle to the movement of fish, increased flow velocity.
- structural: failure, collapse, damage to infrastructures (pavement, roads, road system) and hazardous traffic areas for users, obstruction of normal water flow, risk of obstruction by bedload, wood debris and beavers.
- reduced service life, financial impacts for owners due to damage or premature replacement.

## General Rule

Culverts are subject to the *Engineers Act* whenever they meet one of the following criteria:

- They are dependencies of road works, i.e. they have a functional dependency on the road and allow it to perform its role.; OR
- They are structures that require studies on the properties of their materials.

When culverts meet either of these two criteria, the plans and specifications used to build, modify or authorize them must be signed and sealed by an engineer.

The plans and specifications required for culverts located in a (public or private) forest may be prepared by forest engineers. Forest engineers may also monitor and inspect these types of culverts.

## Studies on the properties of materials

When designing a culvert, studies on the properties of its materials are required if its load bearing capacity or its effect on the flow of water come into question. Generally speaking, culverts that do not pose any potential risk to public safety will not be considered subject to the *Engineers Act*.

For example, a culvert that crosses a municipal road is always subject to the Act because it is dependent upon a road work that requires bearing capacity calculations. This type of culvert meets the two criteria of the above mentioned rule. Conversely, a culvert in a curb cut for a private residence does not pose any major risk or involve any load carrying capacity issue. Furthermore, a private driveway is not a road work. Unless its effect on the flow of water is a factor requiring engineering calculations, such a culvert will not be subject to the Act.

## Exceptions

- 1 Even if they meet one of the above mentioned criteria, certain culverts are excluded from the application of the *Engineers Act*. In such cases, non-engineers may design the culverts, supervise related work, inspect them or carry out other related tasks. These exceptions are clarified in the diagram below.
- 2 An employee of a municipality may supervise repair work on a culvert that belongs to the municipality, provided no modifications are made to its original design.
- 3 Finally, the person responsible of municipal by-law enforcement with respect to culverts may inspect the culvert and make recommendations to ensure its compliance with these regulations within the scope of the powers granted to that person by the by-law at issue.

We thank the following associations for participating in the preparation of this document:



# CULVERT GUIDELINES

To determine whether a culvert is subject to the *Engineers Act*, you need to ask the following questions:

