

A CONDUIT

The invention relates to a conduit, and in particular, a conduit for use as a gutter or drain.

Roadside drains are prone to blockage which may result in water remaining in the drain and not flowing along and out of the drain. In addition, due to for example, ground movement, an unevenness in the drain may be created after installation of the drain which may also result in water lying within the drain and not flowing along the drain.

A problem with drains where water does not flow completely out of the drain but is retained in puddles within the drain, is that the water may become stagnant and may become a breeding ground for insects which carry disease, such as mosquitoes. Such a situation is clearly undesirable, especially as drains are often difficult to access in order to determine whether stagnant water may be a problem.

In accordance with the present invention, a conduit comprises a liquid permeable member which permits liquid inside the conduit to permeate to the outside of the conduit, in use.

An advantage of the invention is that by providing a conduit which comprises a liquid permeable member, liquid which cannot flow through the conduit may drain out of the conduit through the liquid permeable member.

Typically, the conduit is a drain or gutter through which water is channelled.

Preferably, the longitudinal axis of the conduit is intended to be generally horizontal, or within a few degrees of the horizontal, in use.

Preferably, the liquid permeable member is permeable to water.

Typically, the liquid permeable member may comprise a portion of a side wall of the conduit. Alternatively, the conduit may consist of the liquid permeable member.

Preferably, the liquid permeable member extends along the conduit in substantially the same direction as the longitudinal axis of the conduit. Typically, the liquid permeable member extends along the full length of the conduit.

Typically, after entering the permeable member, liquid may flow in all directions within the permeable member. This has the advantage that if a layer of impermeable material is directly below where the liquid in the conduit enters the permeable member, the liquid may flow through the permeable member until it reaches a position where there is permeable material below the conduit and then flow out of the permeable member to the outside of the conduit.

Where the permeable member comprises a portion of a side wall,

of the conduit, the permeable member may be removable from the conduit and may be held in position, in use, by a locking device.

Preferably, the permeable member may comprise a substantially rigid member with through apertures therein, covered with, or having inserted into, a flexible liquid permeable material which covers or obturates the apertures. Typically, the permeable member may comprise a number of layers of the rigid member with intervening layers of liquid permeable material.

Typically, the surface of the permeable member facing into the conduit may be covered by a liquid permeable protective cover, such as a metal mesh. The metal mesh may be a steel mesh, such as a stainless steel mesh.

Preferably, the substantially rigid member may comprise a plastic grid which may be molded.

Typically, the liquid permeable material is flexible and may, for example, comprise a material known as "geotextile".

Typically, the conduit may be a generally "U-shaped" channel or may be an enclosed channel, for example, of rectangular or cylindrical cross-section.

An example of a conduit in accordance with the invention will now be described with reference to the accompanying drawing, in which:

Fig. 1 is a cross-sectional view through a roadside drain having a water permeable insert.

Fig. 1 shows a conduit in the form of a roadside drain 1. The drain 1 includes a concrete structure 2 which is rectangular in cross-section and defines an internal channel 3 through which water may flow.

The concrete structure 2 has four sides 4, 5, 6 and 7. In the side 7, the concrete structure 2 has an aperture 8 into which a water permeable member 9 is located. The water permeable member 9 comprises three layers of molded plastic grid 10. The plastic grid 10 has opposite planar, parallel sides which extend substantially two-dimensionally and has through apertures extending from one parallel side of the grid to the opposite side. Each layer of molded plastic grid 10 is wrapped with a flexible water permeable material 11, such as "geotextile". Covering the water permeable member 9 is a stainless steel mesh cover 12 which helps to protect the water permeable member 9 from damage caused by objects moving through the drain 1 due to water flow within the channel 3.

In addition, two removable precast concrete members 13 are located within the drain 1 to prevent the water permeable member 9 and the mesh cover 12 moving out of the aperture 8 and into the channel 3.

Preferably, the water permeable member 9 runs along the full

length of the drain 1 and may be divided into sections to permit easy installation, and repair and/or maintenance after installation.

In use, the drain 1 is installed with the side 7 as the lowermost surface of the drain 1 and with the surface 7 at a slight angle to the horizontal so that water or other liquids within the channel 3 of the drain 1 flow through the drain 1 in the desired direction. Hence, the water permeable member 9 is held in position by the ground below the drain 1 supporting the lower surface of the member 9 and the concrete members 13 holding the member 9 against the ground below the drain 1.

In the event that there is any blockage within the channel 3 of the drain 1, and water is prevented from flowing along the channel 3 by the blockage, the water will permeate through the steel mesh and the permeable member 9 and flow into the ground.

Hence, the permeable member 9 helps minimise the possibility of water lying within the channel 3 and becoming a breeding ground for insects, such as mosquitoes.



CLAIMS

1. A conduit comprising a liquid permeable member which permits liquid inside the conduit to permeate to the outside of the conduit, in use.
2. A conduit according to Claim 1, wherein the liquid permeable member comprises a portion of the side wall of the conduit.
3. A conduit according to Claim 2, wherein the permeable member is removable from the conduit.
4. A conduit according to Claim 3, wherein the permeable member is retained in position in the conduit side wall by a locking device.
5. A conduit according to any of the preceding Claims, wherein the liquid permeable member extends along the conduit in substantially the same direction as the longitudinal axis of the conduit.
6. A conduit according to Claim 5, wherein the liquid permeable member extends along the full length of the conduit.
7. A conduit according to any of the preceding claims, wherein the permeable member comprises a substantially rigid member with through apertures therein covered by a flexible liquid permeable material.

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8. A conduit according to Claim 7, wherein the permeable member comprises a number of layers of the rigid member with intervening layers of liquid permeable material.
9. A conduit according to any of the preceding claims, wherein the surface of the permeable member facing into the conduit is covered by a liquid permeable protective cover.
10. A conduit according to any of the preceding claims, wherein after liquid enters the permeable member it may flow in all directions through the permeable member.
11. A conduit according to any of the preceding claims, wherein the liquid permeable member is permeable to water.
12. A drain or gutter comprising a conduit in accordance with any of the preceding claims.

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