Protecting the Design Features

To protect the integrity and function of the Water Sensitive Urban Design features, certain steps need to be taken:

- **Avoid parking vehicles on the grassed swale verges as this compacts the soil and reduces soil infiltration;**
- **Maintain the swale drains free of any obstruction to the flow of water, such as garden beds, mounds, trees and structures;**
- **Avoid planting vegetation with expansive root systems that will encroach or damage the sub-surface drainage system;**
- **Maintain the slope and grass on your nature strip to allow water to flow freely and seep into the ground;**
- **Cars must not be washed in the streets because detergents and oils are harmful to the environment;**
- **Maintain the silt barrier fencing and temporary fencing around the nature strip until the council advises that it can be removed.**

Some of the issues raised are covered by Greater Shepparton City Council's Local Law 7.

Getting the fish back on side.

Be an industry leader. Be environmentally proactive. By setting the standard for others to follow, you will be protecting the health of the Goulburn and Broken Rivers for generations to come.

For more information on building site best practise methods and the new local law.

GREATER SHEPPARTON

Please contact the
Greater Shepparton City Council on
5832 9700 Fax 5831 1987

If fish can't live in it you can't drink it.

Only Rain Should Go Down The Drain.

WATER SENSITIVE URBAN DESIGN

WATER SENSITIVE URBAN DESIGN

A change in land subdivision development design is being introduced to the latest stages of residential development within the City of Greater Shepparton to improve stormwater quality. It will improve the water quality of the Broken and Goulburn Rivers and help to ensure the health of our natural waterways and man-made water bodies.

When rain falls on roofs, roads, car parks and pavements, it is transformed into fast flowing stormwater that takes with it all types of urban deposits including nutrients and pollutants. The stormwater also has the ability to cause erosion of soil and transport the eroded soil downstream. It is the build-up of litter, sediments and nutrients that cause pollution problems in the downstream enviroment and waterways.

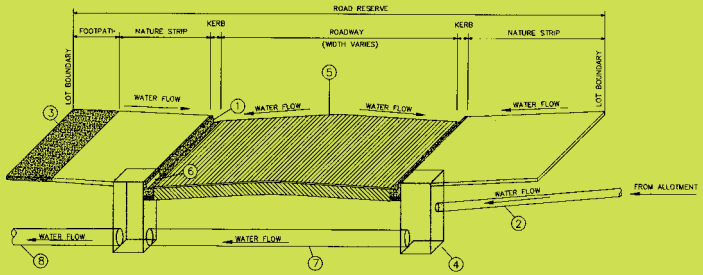
Previously, the enviromental impacts of stormwater have not been considered in the design of new urban developements. This brochure explains the benefits of Water Sensitive Urban Design to potential purchasers of future lots in new residential developments.

This type of design is a relatively new concept that has been implemented in only a small number of urban residential developments throughout Victoria, but is considered to be a fore runner for standard application in all future land developement. The Water Sensitive Urban Design Treatment has been implemented in the following residential subdivision devlopements within the City of Greater Shepparton:

- Kialla Lakes Estate;
- Finborough Estate;
- Rosemont Estate;
- Grammar Park Estate and
- Bonny Estate.

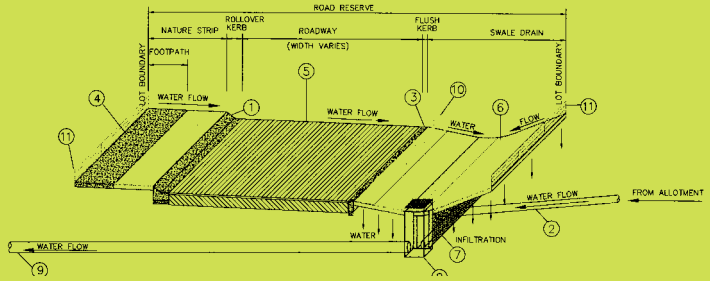
Conventional Drainage Systems

Conventional drainage systems within urban environments of the City of Greater Shepparton involve carrying stormwater runoff via undergroung pipe networks to the Broken River, Goulburn River and Goulburn-Murray Water surface drains. The disadvantages of piped drainage systems are the speed at which the water is transported and the fact that no treatment of the polluted water is provided prior to it discharging into our rivers. The rapid discharge of stormwater carries various pollutants including litter, sediments and nutrients which leads to the degradation of our waterways adding to problems such as algal blooms.



LEGEND

1 STANDARD CONCRETE KERB AND CHANNEL
2 STORMWATER HOUSE DRAIN - FROM ALLOTMENT
3 CONCRETE FOOTPATH
4 STORMWATER DRAINAGE PIT
5 ROAD PAVEMENT (TYPICALLY CROWNED WITH TWO WAY CROSSFALL)
6 WATER ENTERS VIA PIT INLET
7 UNDERGROUND DRAINAGE PIPE
8 FINAL FLOWS TO RIVER OR LAKES



LEGEND

1 CONCRETE ROLLOVER KERB
2 STORMWATER HOUSE DRAIN - FROM ALLOTMENT
3 CONCRETE FLUSH RETAINING KERB
4 CONCRETE FOOTPATH
5 ROAD PAVEMENT (TYPICALLY WITH ONE WAY CROSSFALL)
6 GRASSED OPEN SWALE DRAIN (DESIGNED TO HOLD WATER AS A MINI RETENTION BASIN)
7 SAND INFILTRATION TRENCH WITH SLOTTED SUB-SOIL DRAINAGE PIPE
8 RAISED GRATED PIT
9 FINAL FLOWS TO RIVER OR LAKES
10 NATIVE GRASS
11 SILT BARRIER FENCE

Features of Water Sensitive Urban Design

•Swale Drains

Swale drains are grassed open drains that collect stormwater and allow seepage via infiltration trenches into underground, perforated pipe drains. Swale drains slow the water and filter pollutants such as grass fertilizers and silts. They act as mini retention basins that are designed to allow localised ponding of water that dissipate shortly after the storm has passed.

•Vehicle Crossover

Vehicle crossovers provide access to properties over swale drains. They function as a weir wall to retard or slow stormwater within the swale drains and encourage infiltration through the soil and sand to the sub-surface drainage systems. Water is designed to flow over the crossovers and along the swale drains to act as the overflow routes during heavy storms.

•Sub-surface Drainage

Sub-surface drainage is installed to convey filtered water to the conventional drainage system after the infiltration trench has filtered the sediments and pollutants. The filtering system uses both physical and natural biological processes to clean the water.

•Landscaping

Additional plantings assist in the removal of leaf litter and other gross pollutants (eg. litter) and are positioned in such a way as to prevent vehicles damaging the sub-surface drainage system.

•Tempory Fencing

Tempory fencing is erected to protect landscaping and Water Sensitive Urban Design features during the building period.