

Ecological Road System



A positive effort to improve
water quality from road runoff...



Ecological Road System

The Atlantis philosophy moves away from end of line methods and resolves water management issues at the source. For this reason Atlantis has developed the "Ecological Road Concept". This holistic approach greatly reduces surface run off and contamination. Water is cleaned and then stored ready for re-use.

Traditional Impermeable Road System

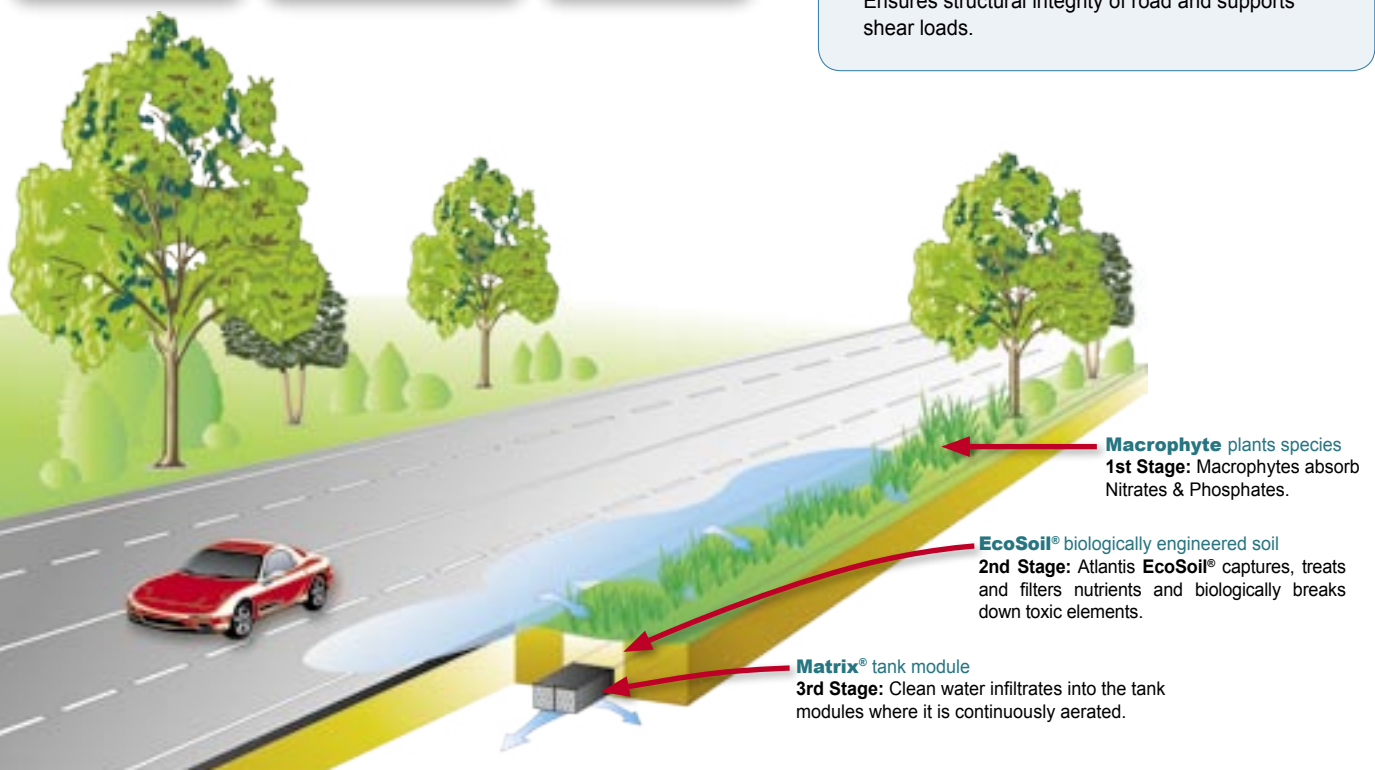
Impermeable roads and open concrete channels are currently one of the main causes of contaminated waste stormwater being discharged into creeks, rivers and oceans. Open channels are used widely in the urban landscape even though they are considered environmentally unsafe. Current channels are also a breeding ground for vermin and vector that endanger human health. In addition to the health and safety problem, large concrete channels take up vast areas of land and have a negative impact on the amenity of the area.

Atlantis Ecological Road

Due to the sub surface location of the Atlantis system the health and safety issues of open channels no longer are a problem. The Atlantis system can be designed to follow the inherent contours of the landform and emulate the flow of natural waterways. The Atlantis system functions as soon as there is stormwater runoff, gross pollutants are left on the surface while dissolved contaminants are treated within the biologically amended soil layer (EcoSoil®). When water has infiltrated the soil layer and reaches the tank modules it is already free of pollutants. As water travels through the tank modules, vortex turbulence is created reducing flow and aerating the water.

Environmental Benefits

By replacing existing impervious road designs and open concrete channels with the Atlantis system, cities can now benefit from increased environmental amenities. Greater recreational space and healthier conditions can be obtained by using the vast tracts of land once given over to open stormwater channels.



Benefits

Road Safety

• Saves Lives

Dangerous open water channels are eliminated.

Environment

• Flood Reduction

Stormwater runoff is immediately infiltrated into the ground reducing the burden on existing infrastructure and urban flooding.

• Reduced Erosion

Reduces erosion by infiltrating water at the source.

• Water Re-use/Harvesting

Water is purified, stored and recycled on site.

• Improve Urban Health Conditions

The Atlantis system is located underground, eliminating stagnant ponds that host mosquitoes infestations and open drains that house vermin and vectors. All gross pollutants are kept out of the system, dissolved pollutants are treated within the system resulting in clean healthy water released into the environment.

Economical

• Increase Land Use

The Atlantis system is sub surface providing more land space for recreational areas.

• Save Time & Labour

The Atlantis system is cheaper and faster to install than traditional concrete based methods.

• Maintenance Free Channel

All gross pollutants and sediment are prefiltered ensuring that Atlantis channels are maintenance free.

• Increases Road Lifetime

Effectively relieves hydrostatic pressure preventing potholes and maintaining optimum road conditions.

Engineering

• High Compressive Strength

Supports heavy loads up to 148.58t/m².

• Structural Design

Ensures structural integrity of road and supports shear loads.



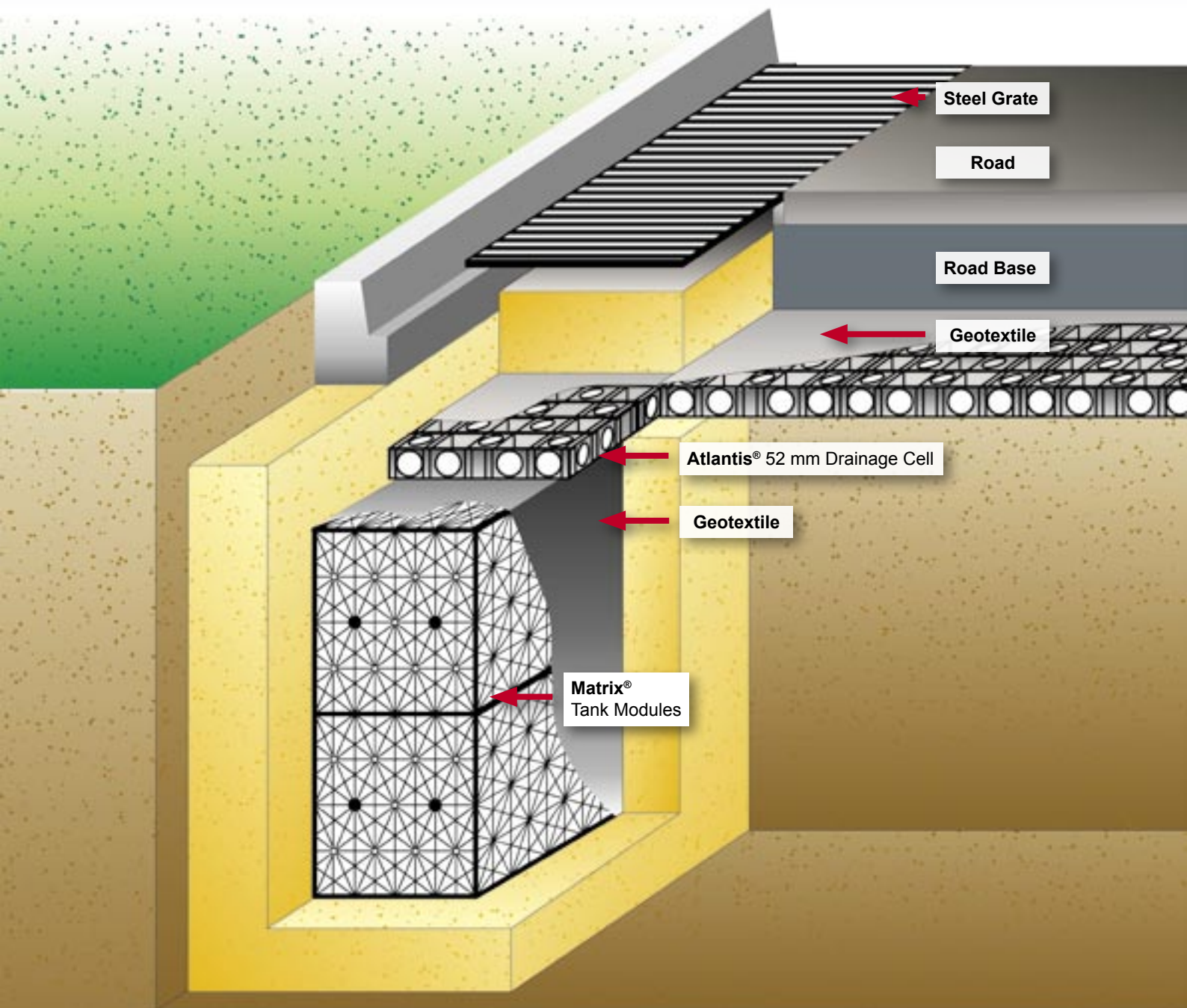
Installation of Atlantis road system at Manly Beach, Sydney, NSW.



Installation of Atlantis road system at Concord, Sydney, NSW



Installation of Atlantis road system at Lake Macquarie, NSW



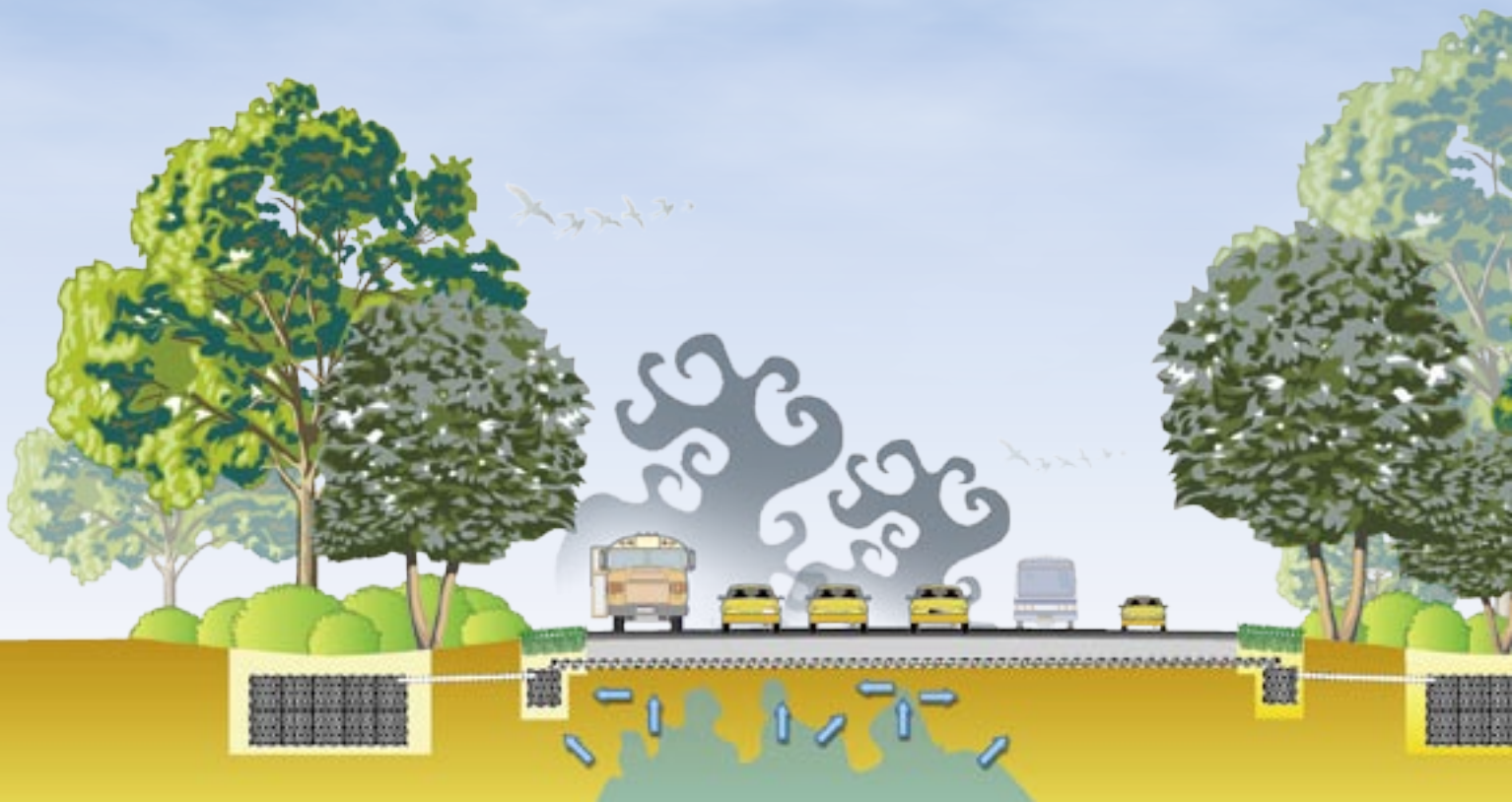
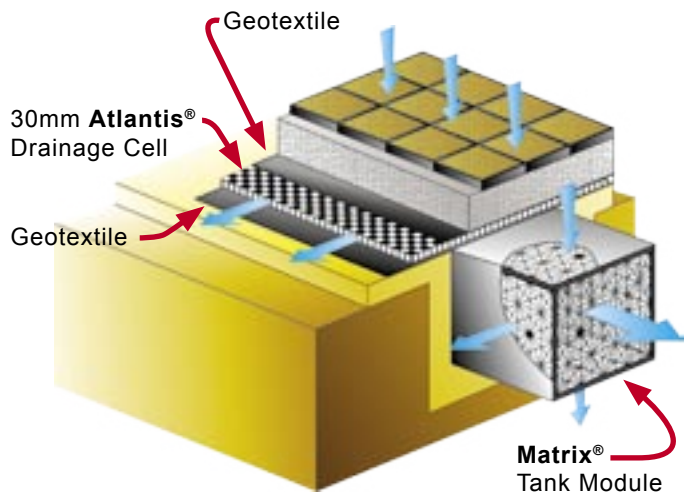
Water Sensitive Road Design

The Atlantis road system is the first genuine advance in managing surface run-off in more than 2000 years.

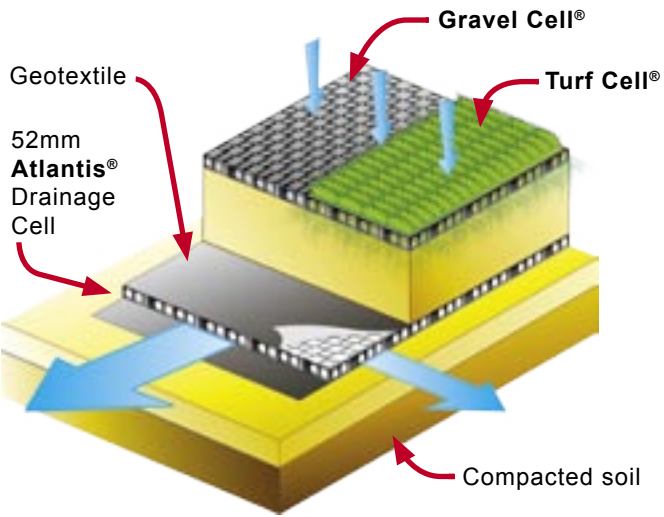
The Atlantis system can solve the most difficult environmental problems in a simplistic manner. The water is captured, purified, stored and can be made available for re-use. The Atlantis system also provides a strong, permeable structure, that can capture and manage water along the length of the system.

The Atlantis road system reduces thermal contamination up to 17°C in relation to the conventional road methods. In cold areas, permafrost penetration is reduced.

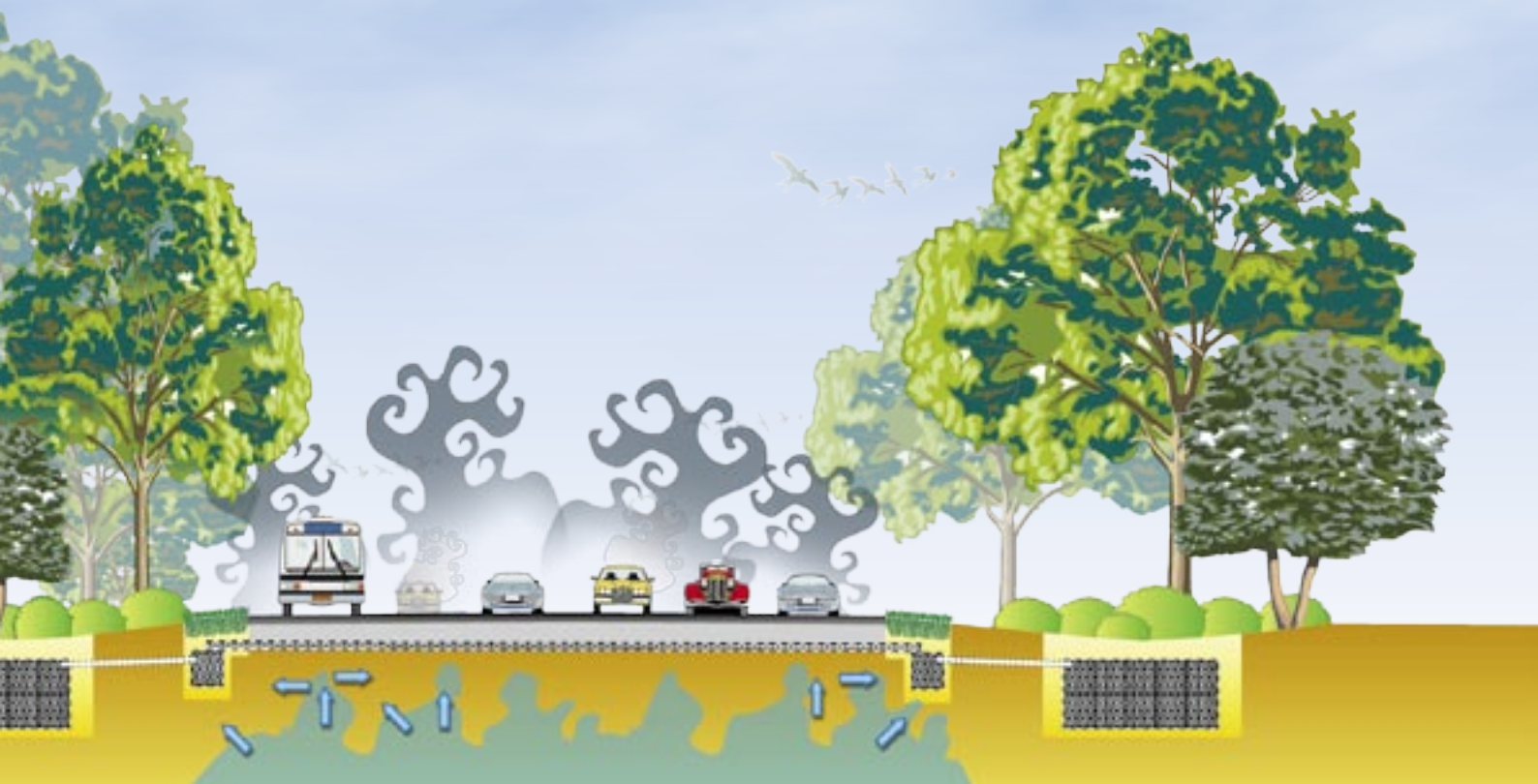
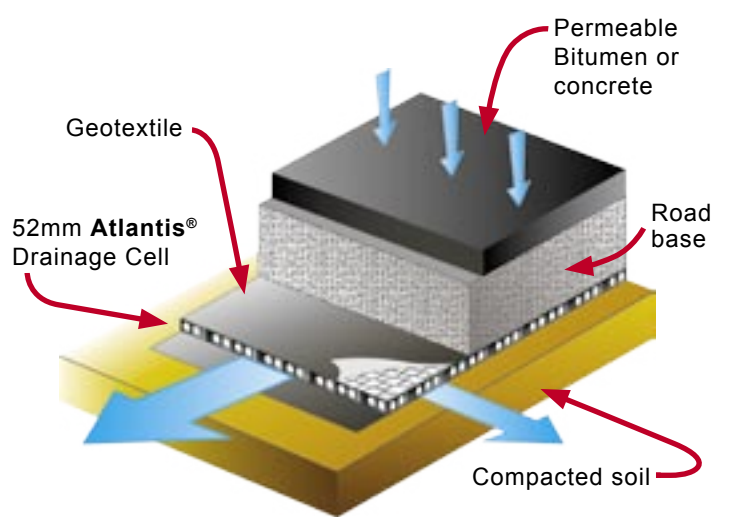
Permeable Paving



Reinforced Grass / Gravel



Permeable Road



Road Remediation

Princess Highway, Sydney.

The Problem:

Continuous road damage, due to rising spring waters beneath the road surface. The road was under continuous repair. Open pot holes were covered over with large steel boards. This scenario was dangerous for high speed highway conditions.

The Solution:

Atlantis Water Management provided a solution to alleviate the rising spring waters by using a blanket of Atlantis® Drainage Cell beneath the road surface.



Excavation of road and removal of previous drainage system.



Installation of geotextile being laid over Atlantis® Drainage Cell.



View of Atlantis® Drainage Cell beneath road base.

Completed Project - Princess Highway, Sydney, Australia.



Dangerous Roads

In Spain, road authorities realised that road stormwater channels are extremely dangerous and contributed to many fatal accidents. The channels also are a major environmental problem producing contaminated water and contributing to urban floods.



Over a thousand people die on Spanish roads every year due to road drainage design.



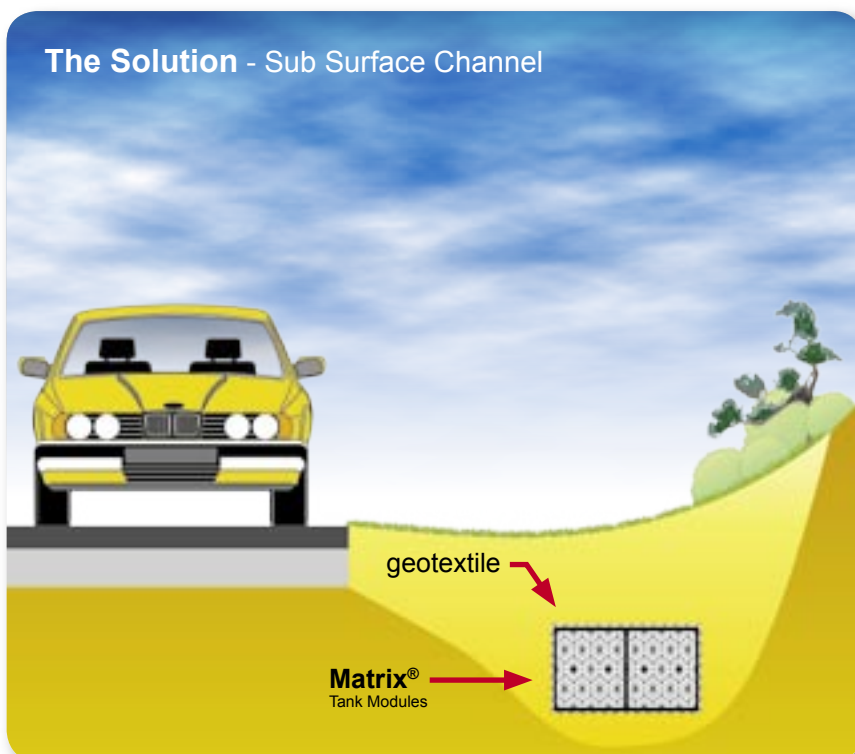
Poisonous green algae formed in open road drainage.

Safe Ecological Road Drainage

Atlantis was approached to analyse the extent of the danger posed by roads in Spain. Over one thousand people die in road related-accidents every year, mainly due to open drainage systems. Independent studies showed that the “murderous roads” cost approximately one million US dollars per victim, plus unquantified emotional grief. Adding to these tragedies is the risk of water becoming poisonous with green algae and other water-borne infectious diseases. Atlantis collaborated with Valencia authorities in Spain to provide a solution.



Installation of Atlantis Water Management solution into a highway in Valencia, Spain. Valencia is one of the most environmentally progressive communities in Europe.



By using the Atlantis® Channel System, both major problems mentioned above are solved.



Completed installation, Valencia Spain.

Atlantis® Drainage Cell

30mm Drainage Cell (With Clips)

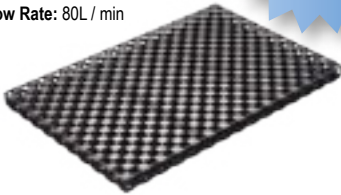
Part No: 10001
Size: 30 x 300 x 300mm



*Supplied in 1.2m x 1.2m panel for quick install

30mm Drainage Cell

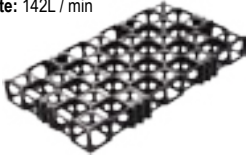
Part No: 10002
Size: 30 x 405 x 607mm
Strength: 77.98 t / m²
Flow Rate: 80L / min



*Supplied in 1.2m x 1.2m panel for quick install

52mm Drainage Cell

Part No: 80001
Size: 52 x 260 x 480mm
Strength: 148.58 t / m²
Flow Rate: 142L / min



Matrix® II Tank Module

Single Module

Part No: 70003
Size: (W)408 x (L)685 x (H)450mm
Units / m³: 8 modules per m³
Crush Strength: 26.8 t/m²



Double Module

Part No: 70004
Size: (W)408 x (L)685 x (H)880mm
Units / m³: 4.06 modules per m³
Crush Strength: 26.8 t/m²



Triple Module

Part No: 70005
Size: (W)408 x (L)685 x (H)1310mm
Units / m³: 2.73 modules per m³
Crush Strength: 26.8 t/m²



Strip Filter Pipe

Sub-surface Drainage Pipe

Part No: 30014
Size: 100 x 80 x 1562mm
Strength: 3.41 t / m²
Flow Rate: 80 l/min



Turf Cell® / Gravel Cell®

Reinforcement Structure

Part No: 80002
Size: 52 x 260 x 480mm



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