grasscrete®

cast-in-place pervious concrete

Grasscrete. An Environmentally Sustainable, Continuously Reinforced, Cast-in-Place Pervious Concrete Pavement

SelfDraining
GroundWater
Recharge
Greenspace
RecycledMaterials
Rainwater
Harvesting
Structural
Performance
Environmental
Benefits
Sustainable
Drainage
Advanced
Percolation
Hydraulically
Efficient
NaturalRevetment
System
SlopeProtection
ResistsDifferential
Settlement
GreenConstruction
Solutions
SelfDraining
GroundWater
Recharge
Greenspace
RecycledMaterials
Rainwater
Harvesting
Structural
Performance
Environmental
Benefits
Sustainable
Drainage
Advanced
Percolation

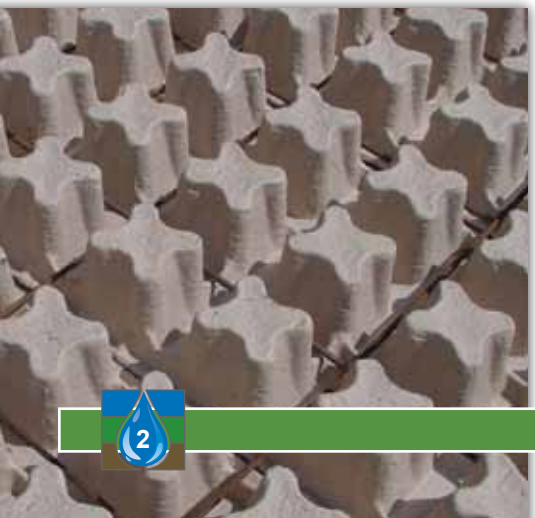
Grasscrete Overview

Just once in a while a system is developed that transcends normal comparisons. A system so unique that it becomes a watchword across a range of industries and applications

Grasscrete®
is one such system

Cast-in-place concrete, containing a grid series of voids created by a patented forming process, which allow the system to be pervious in nature

Grasscrete is made by pouring concrete over "Formers", a mold that leaves voids in the concrete- that once opened can be filled with a variety of porous materials such as vegetation or no-fines stone

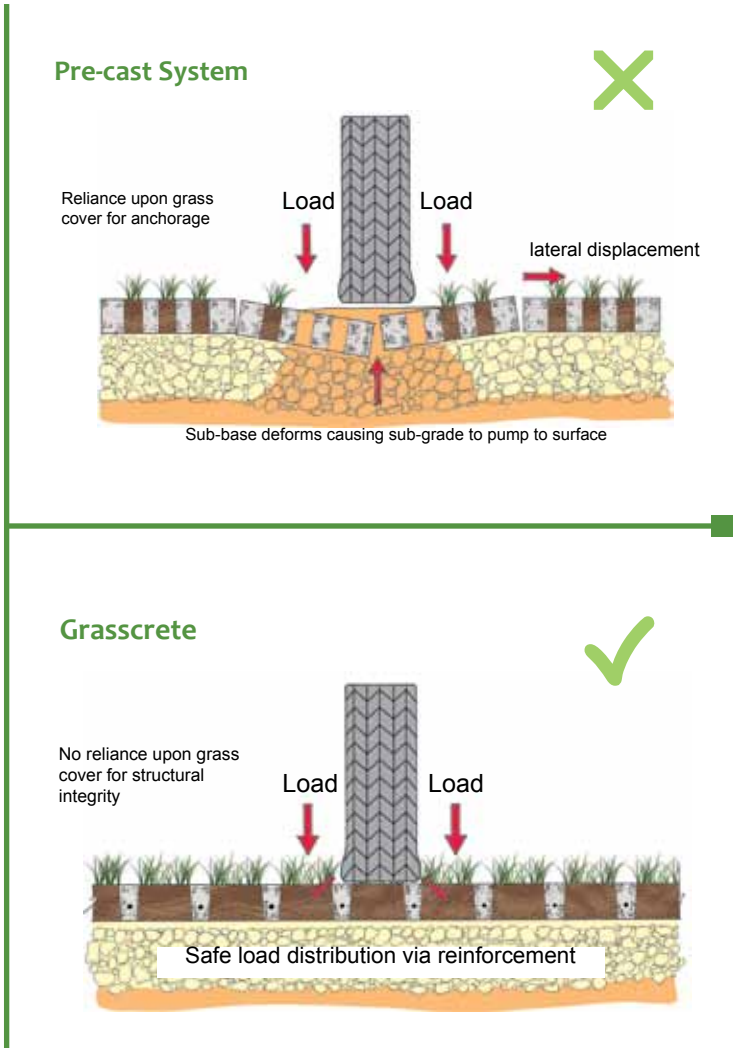


Structural Performance

Grasscrete combines the environmental appeal of natural grass with the engineering principles of reinforced concrete, to provide year round access for a variety of applications.

High Load Bearing Capacity Effective with Saturated Sub-base

Standard systems support up to114,000 pound vehicles along with such customized applications as military tank use or light speed rail track access; even when the sub-base becomes saturated.



Resists Differential Settlement

As seen to the left, a monolithic concrete slab spreads the weight of the load over more surface area, thus resisting differential settlement often found with modular pre-cast or plastic systems.

The structural integrity of Grasscrete is not reliant upon the vegetation and can be trafficked once the concrete reaches adequate compressive and flexural strengths. Modular, pre-cast concrete or plastic systems rely significantly upon grass for stability by forming a composite tensile

No Requirement for Edge Details

Modular pre-cast concrete or plastic systems require edge restraints or curbs. Grasscrete, however, requires no such details, enabling it to blend naturally with adjacent finishes with subtle delineation created by a monolithically cast solid concrete edge margin.

Lower Sub-base Depth Needed

Due to its section thickness and continuous reinforcement, Grasscrete can be installed over slimmer sub-bases than required for pre-cast or plastic type pervious pavements.

Withstands Freeze-Thaw Resists Ground Heave

Grasscrete's unique pocket profile enables the release of frost heave and hydro-static pressure. These benefits enable the system to be used over frost influenced ground and in demanding slope protection works.

Featured Benefits

Environmental Benefits

Stormwater Infiltration

Grasscrete infiltrates water at about the same rate as would an ordinary lawn in the same location. Grasscrete maintains the natural equilibrium of ground water re-charge and reduces runoff significantly.

In addition, infiltration promotes water quality improvement through bioretention as toxins and metals are cleansed naturally through vegetation and soil structure.

Recycled Content

Grasscrete maintains environmental focus by using 100% recycled materials in the production of the Molded Pulp Formers. The Molded Pulp Former biodegrades naturally, making it a truly sustainable product.

Recycled materials are also encouraged to be used within the concrete mix, the fill chosen for the voids and sub-base layers.

Increase Greenspace
Reduce Heat Island Effect

Grasscrete allows a conventionally barren vehicle area to be transformed into a green urban oasis. Visually appealing greenspace also boasts a reduction in the heat island effect, creating a comfortable, calming and attractive vehicle use area that maintains structural integrity.

Economical Benefits

Long Lifecycle

Grasscrete has installations dating back to 1974 still in place today. The longevity of Grasscrete is far greater than pre-cast or plastic systems.

Build a Larger Footprint

Precious space is used in order to add detention ponds, bioswales and other Best Management Practices. This is not only costly but these applications use space that could, for example, be used to increase the building footprint and ultimately bottom line profits.

Eliminate Costly Infrastructure

Treating stormwater on site is not only practical but is also regulated by many agencies. Since Grasscrete allows natural water infiltration, the need for expensive stormwater infrastructure such as curbs, gutters and underground piping can be significantly reduced or even eliminated.

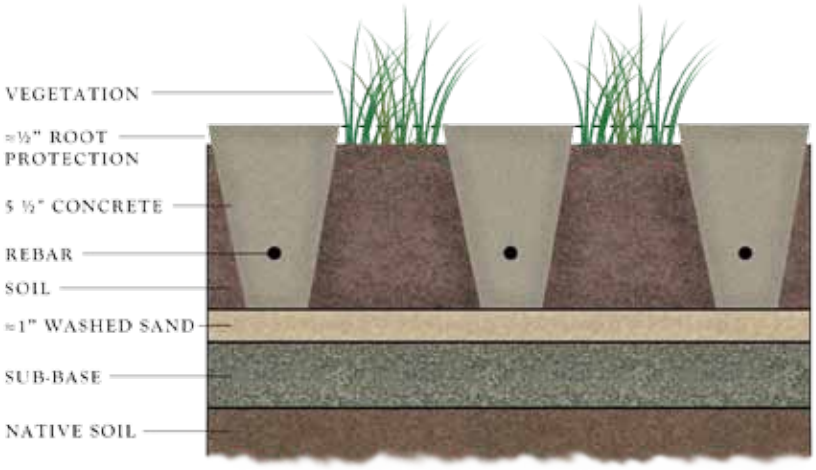
Low Maintenance Costs

Stone filled Grasscrete is most widely used for the low maintenance costs associated with it. Due to the large size of the voids and installation at <1% slope, clogging is not typical. If needed, the voids can be cleaned out. Vacuum trucks and regularly scheduled maintenance are not needed.

If using vegetation, treat it as an ordinary grassland when it comes to care. Water, nutrients and mowing are all typical care for vegetated Grasscrete.

Grasscrete can be snow plowed easily.

Partially Concealed Grasscrete

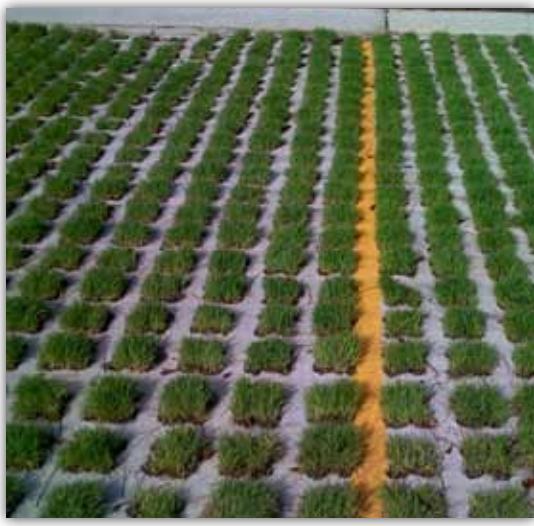


PARTIALLY CONCEALED SYSTEM

Ideal for sustained traffic areas, Grasscrete can be

partially concealed with vegetation

so it is functional, environmentally friendly and pleasing in appearance.



The 'feel good' factor of greenspace cannot be overlooked as street scenes are softened without losing essential structural performance.

Greenspace within urban areas is invaluable in balancing CO_2 levels created by vehicular traffic. Located at the actual point of emission, the natural digestion by a grassed parking area can help to avoid atmospheric CO_2 build up and reduce the "urban green island effect".

Common Partially Concealed Applications Include:

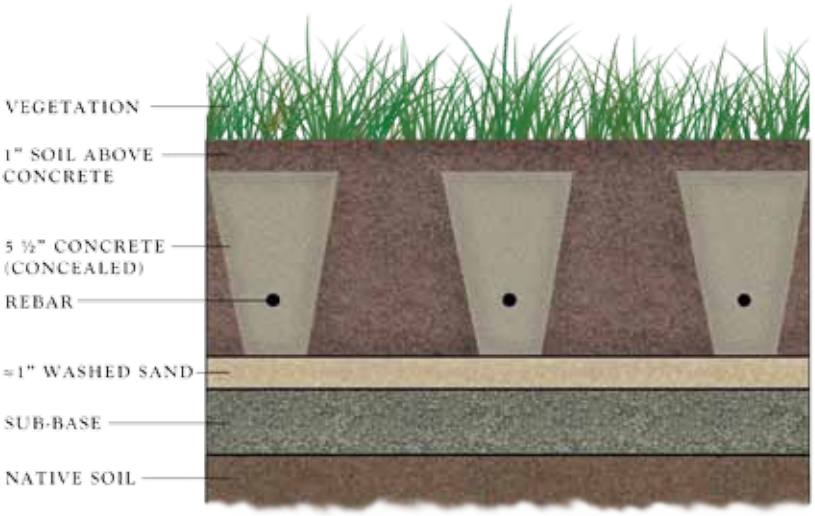
- Vehicle Parking
- Access Roads
- Road Shoulders
- Driveways
- Fire and Emergency Access

Concealed Grasscrete

Ideal for low traffic areas, Grasscrete can be

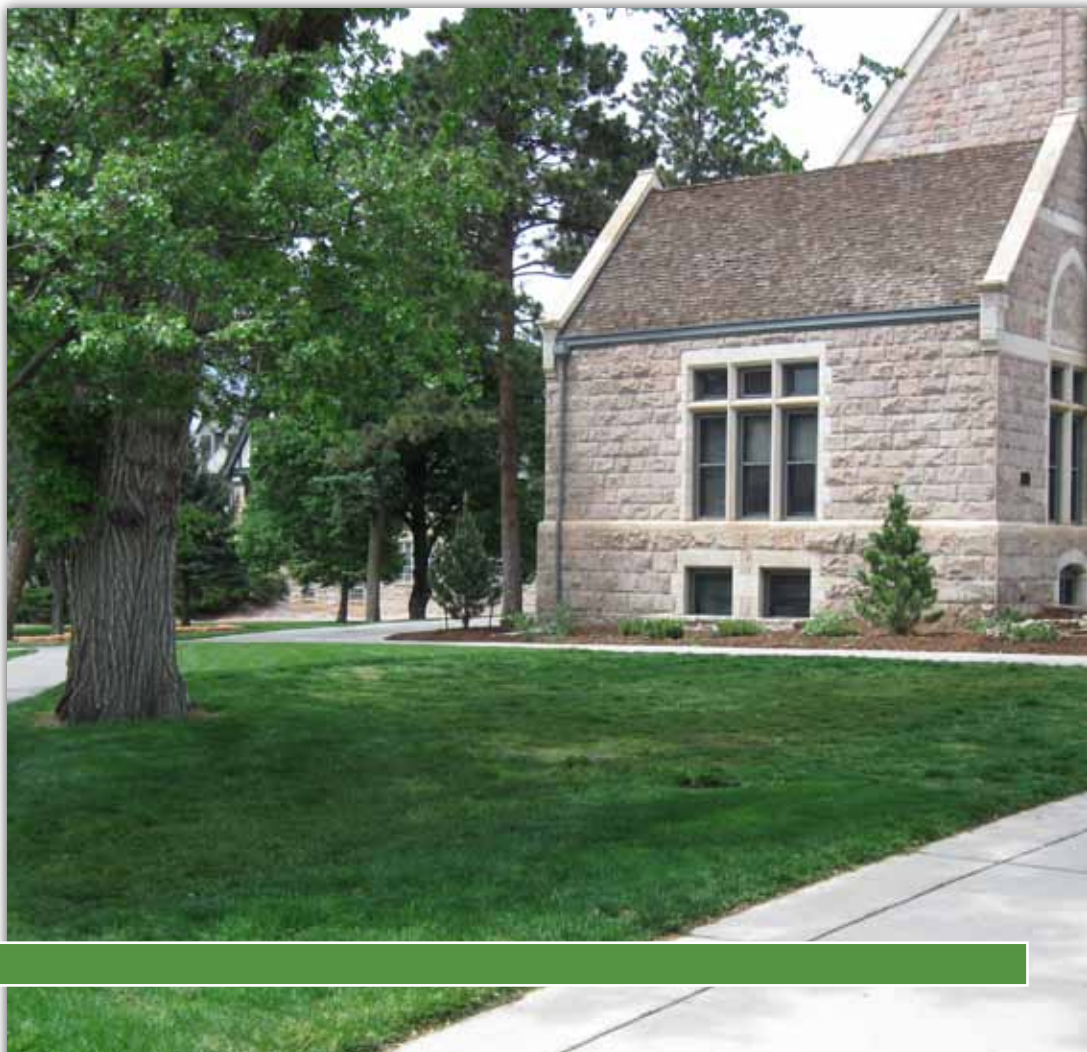
concealed with vegetation

so it is functional, environmentally friendly and pleasing in appearance.



CONCEALED SYSTEM

Grasscrete offers the end-user the ability to provide year-round access for a variety of applications requiring structural paving surfaces without compromising the aesthetics of their exterior landscaping and having to utilize traditional hard pavements, minimizing the need to control stormwater runoff.



Common Concealed Applications Include:

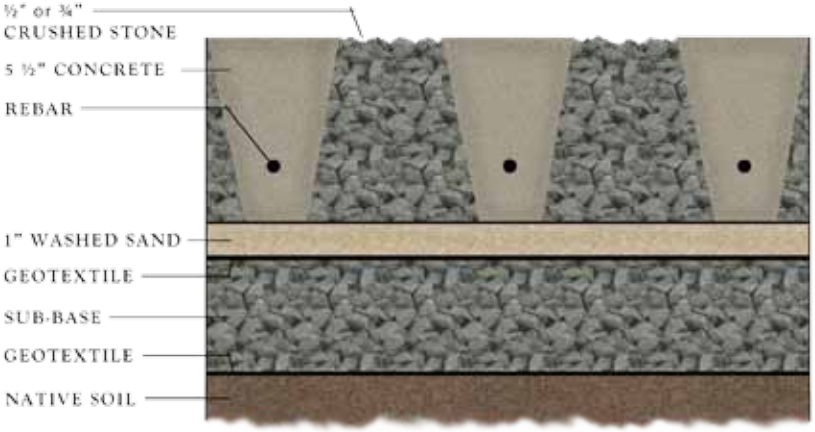
- Fire and Emergency Access
- Overflow Vehicle Parking
- Low Traffic Access Roads
- Medians

Stone Filled Grasscrete

Ideal for sustained traffic areas, Grasscrete can be

filled with no-fines stone

for maximum percolation rates and a low maintenance option that is both functional and environmentally friendly.



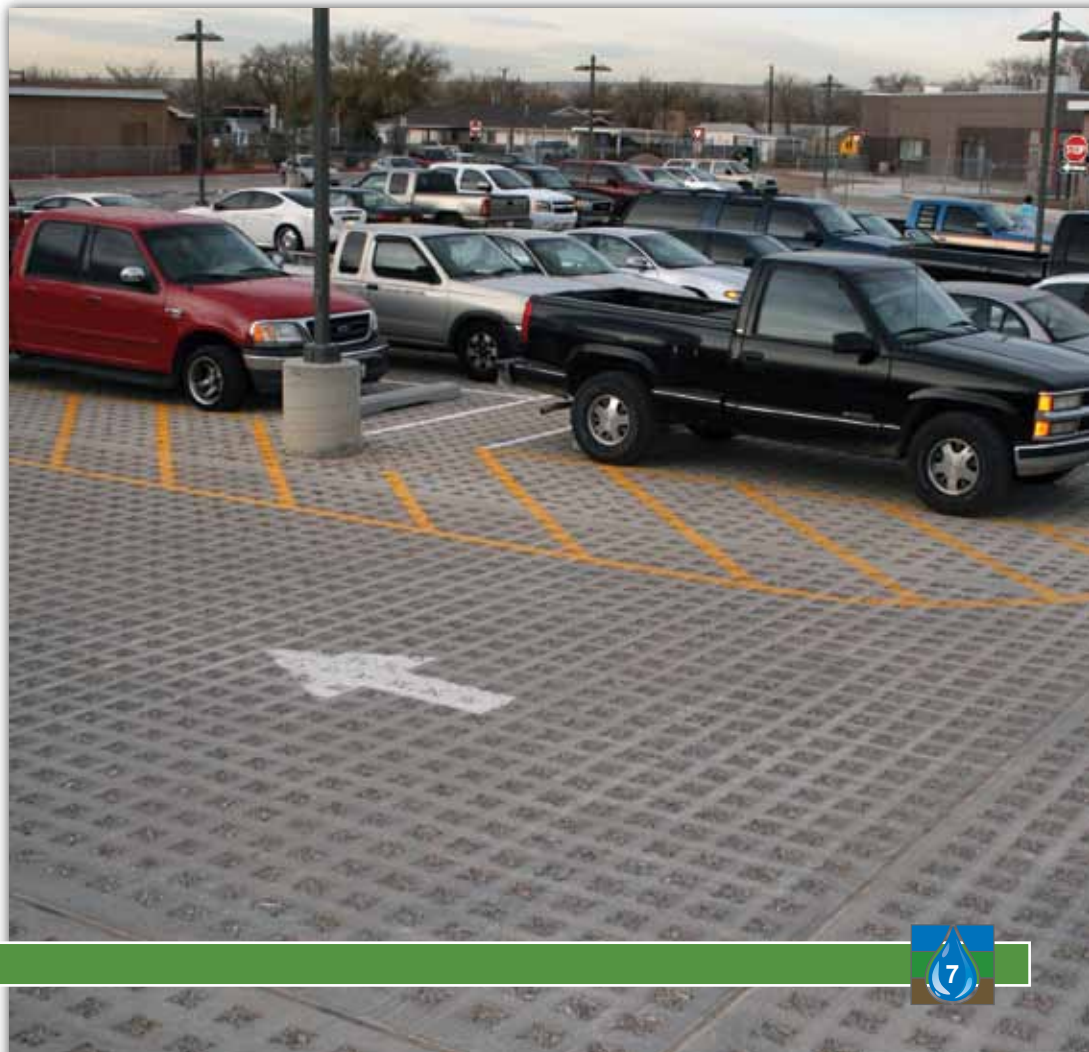
STONE FILLED SYSTEM

Stone filled systems are capable of draining at rates of up to 480 inches per hour with 100% retention of water possible with correct design.

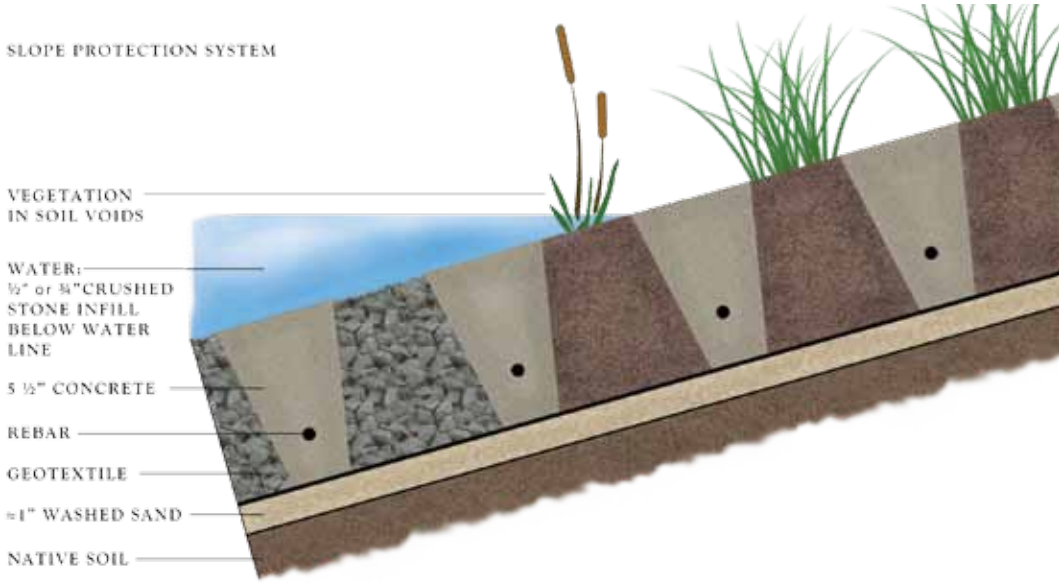
The stone filled application is ideal if seeking a low maintenance design.

Common Stone Filled Applications Include:

- Vehicle Parking
- Access Roads
- Fire and Emergency Access
- Military Installations



Slope Protection Grasscrete

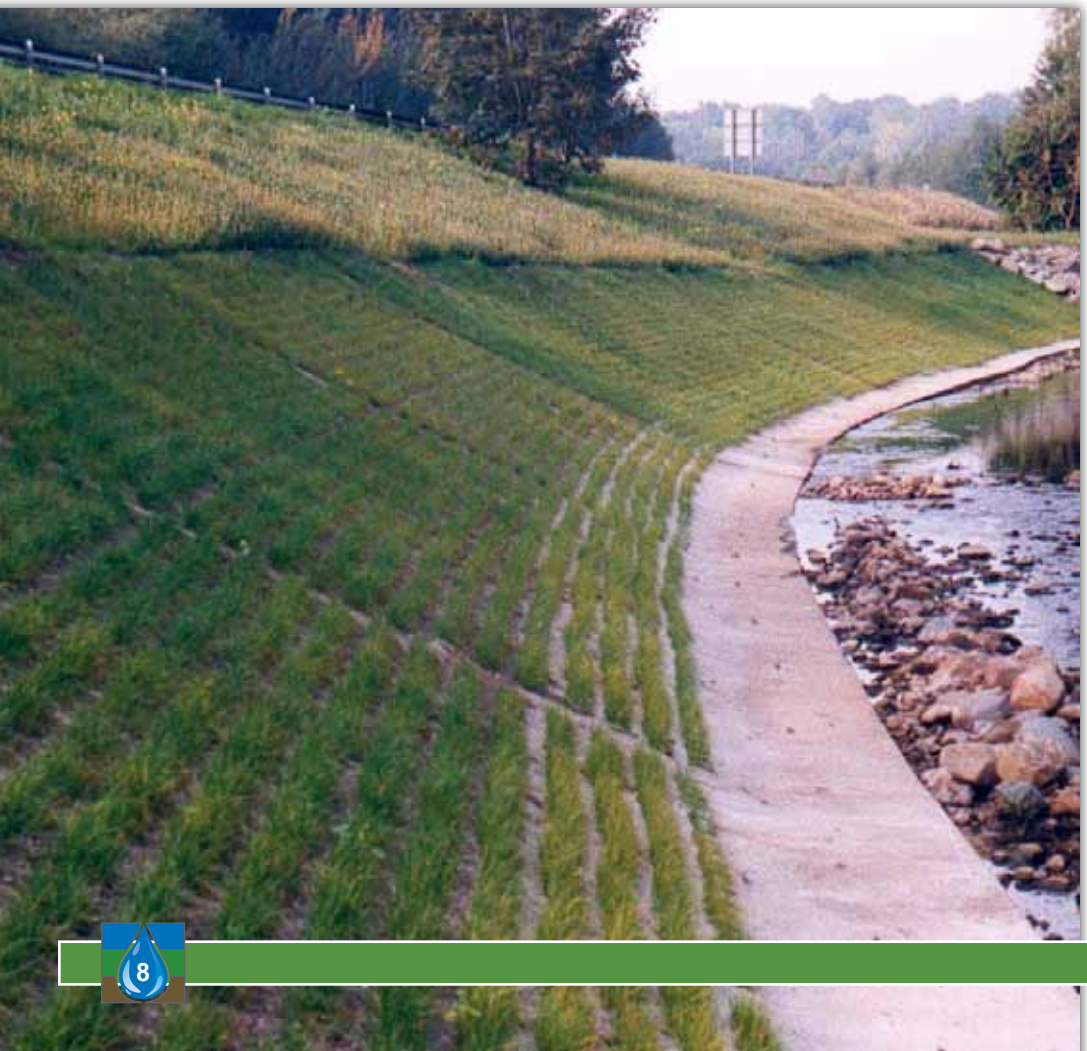


Grasscrete can be

installed on a slope

to control erosion while protecting and vegetating banks for both a functional and visually appealing option.

Capable of installing at a slope of 1:2 (50%), Grasscrete has been flow tested to rates in excess of 26 feet per second. This enables it to be used in exacting locations such as emergency spillways. The same testing process has also shown that when used in water flow Grasscrete is hydraulically efficient. Under heavy flow, long stemmed grass is flattened with the resulting thatch reducing the Mannings 'n' value for hydraulic roughness to as low as 0.03. Pre-cast concrete systems require infill panels to create directional changes. These spaces can cause turbulent flow that become a focal point for erosion, Grasscrete by contrast is a continuous slab with no such weakness.



Common Slope Protection Applications Include:

- Drainage Channels
- Emergency Spillways
- Access Roads and Ramps
- Swales
- Detention/Retention Ponds

1 Edge Forming and Sub-base Prep

2 Lay Formers and Reinforcement

3 Place and Finish Concrete

4 Remove Former Tops

5 Typical: Fill Void with Soil and Seed

6 Alternate: Fill Void with Stone

Grasscrete Applications

Dr. Martin Luther King Jr. Memorial

JP Morgan Chase Bank

Army National Guard

National Renewable Energy Laboratory

Kansas City Zoo

Molded Pulp Formers

- Manufactured from 100% Recycled Content
- Naturally Biodegradable
- Contains No Volatile Organic Compounds
- 5 ½" Thick Cast-in-Place Concrete
- 37.5% Surface and Effective Void

Available exclusively in the U.S. and Canada by Sustainable Paving Systems

Private Residence

info@sustainablepavingsystems.com
A full range of technical guides are available upon request

© 2020 Sustainable Paving Systems, LLC

34501 E. Quincy Ave Building 28
Watkins,CO80137
Tel 916.235.9088 Fax 916.914.2433
www.sustainablepavingsystems.com