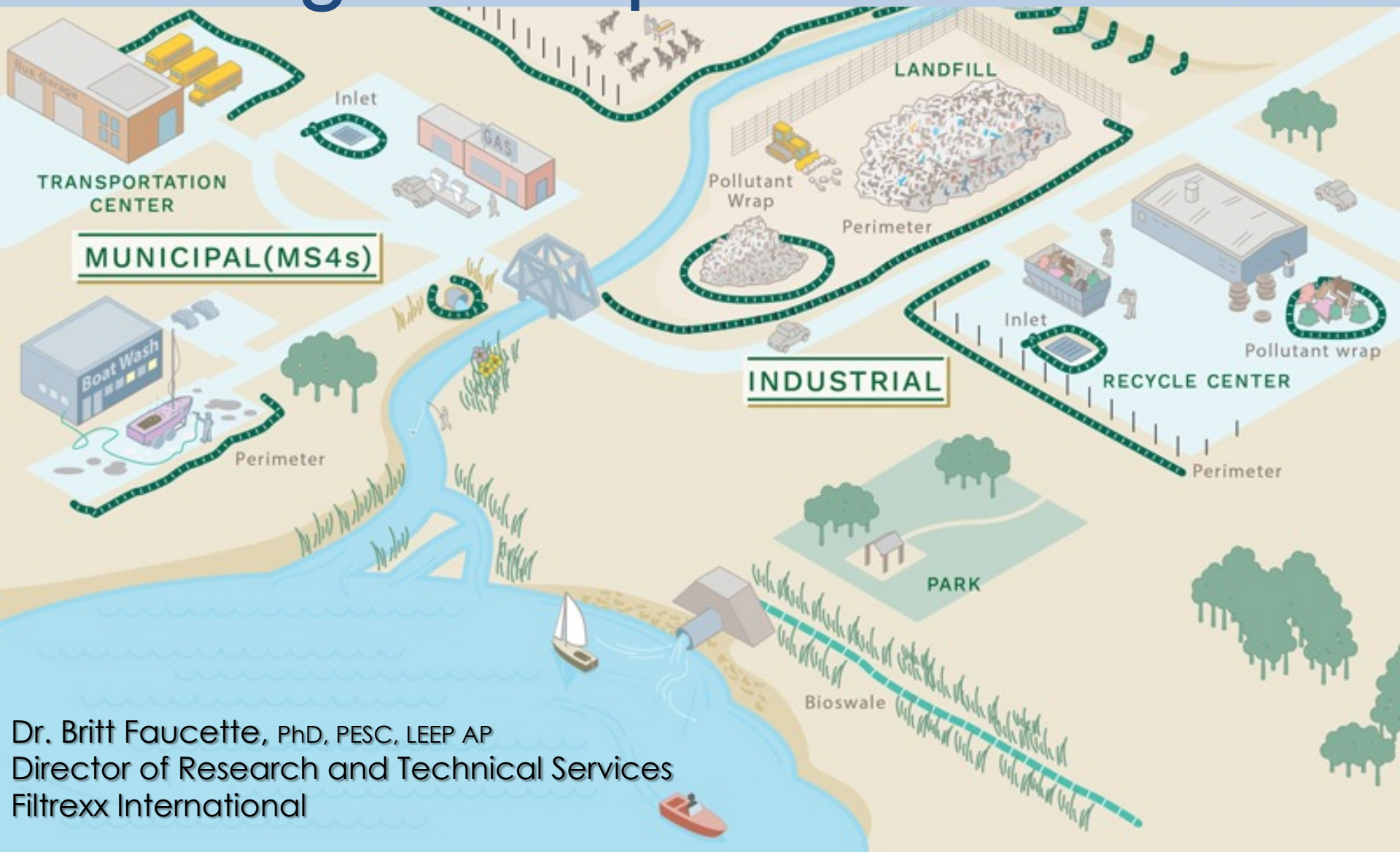
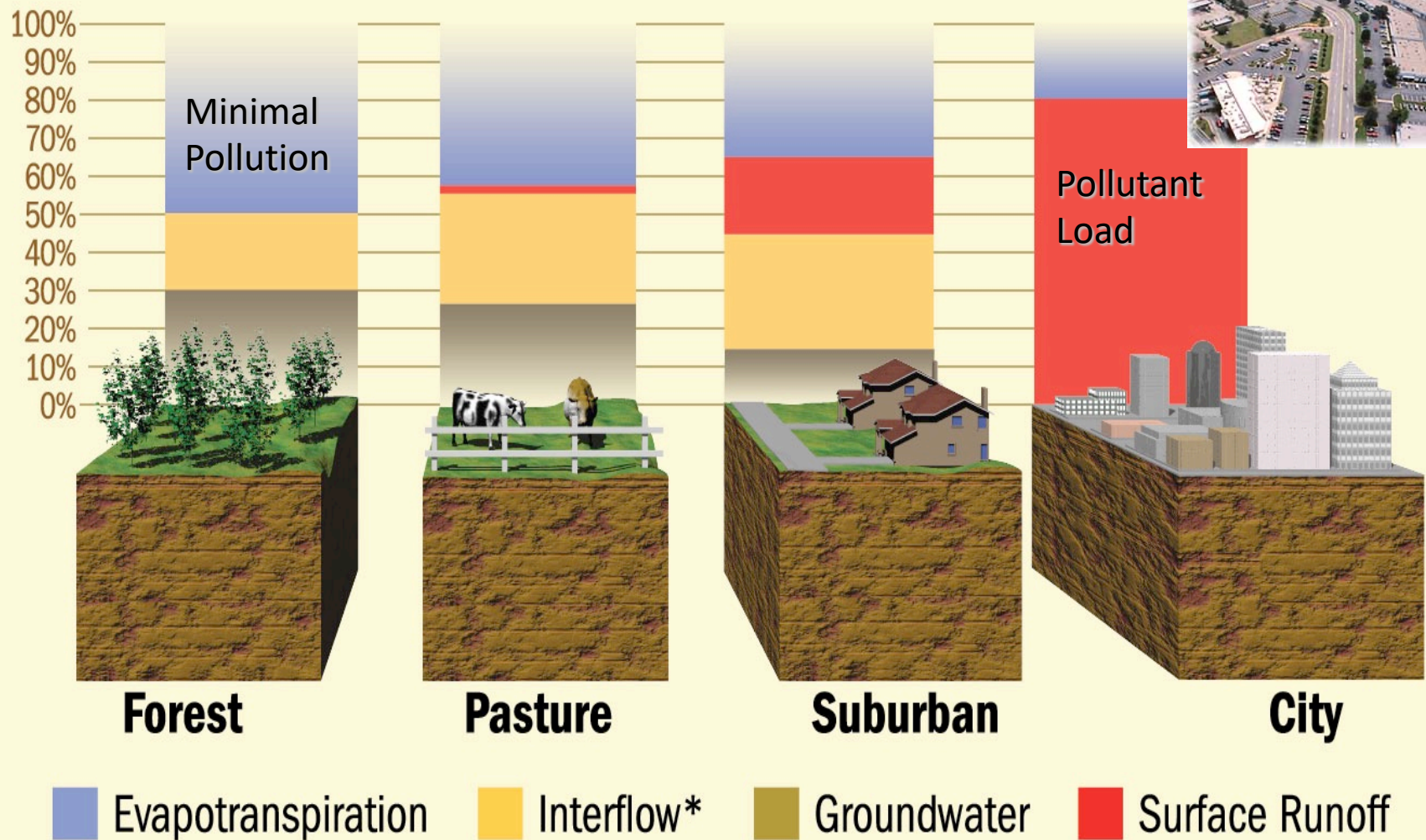


# Improving Storm Water Quality through Compost Filter Socks



Dr. Britt Faucette, PhD, PESC, LEED AP  
Director of Research and Technical Services  
Filtrex International

# Land Use = Hydrology = Pollutant Load = Water Impairment

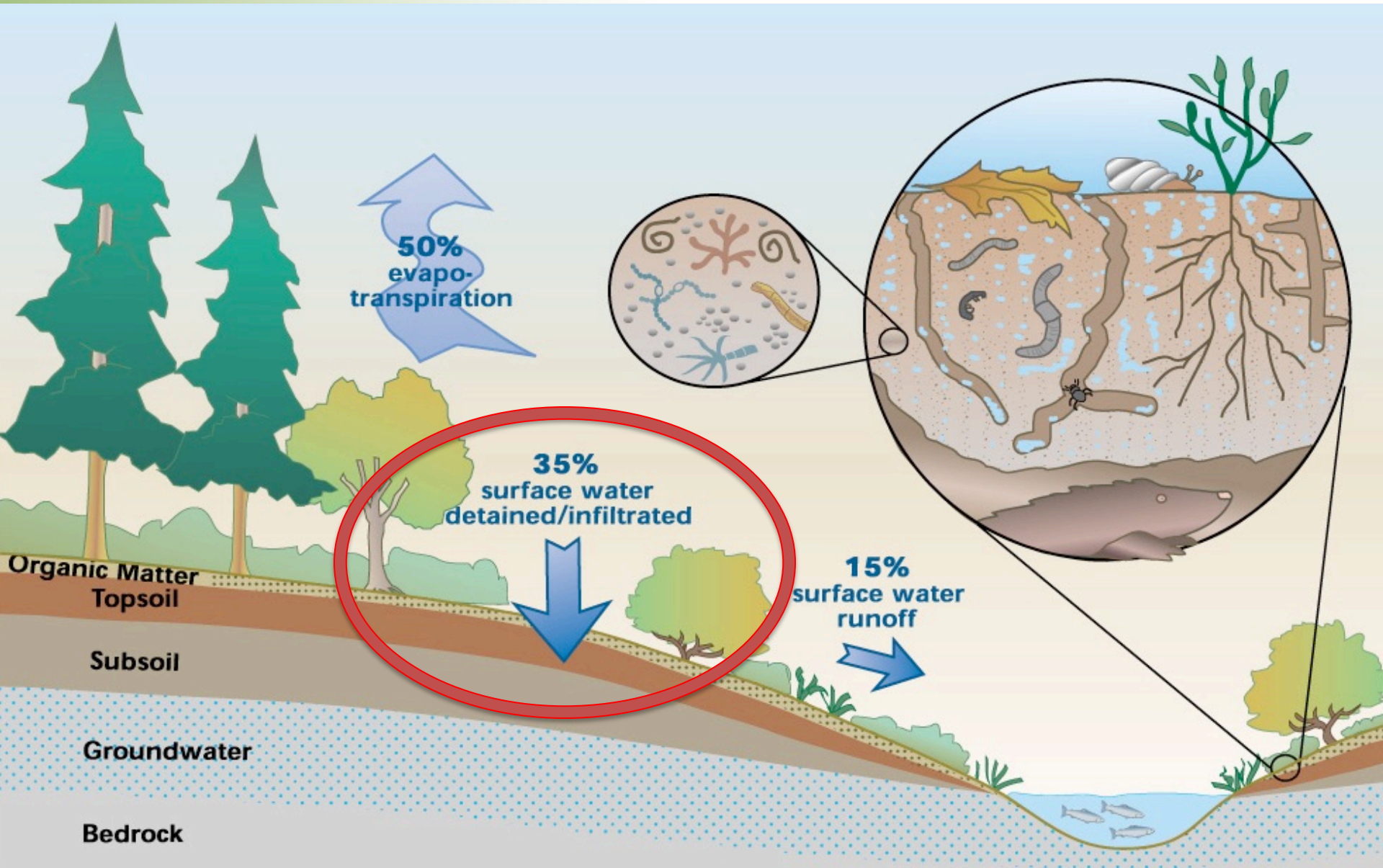


Source: Sego Jackson, 2001

\*water that travels just below the surface



# Biomimicry - Natural Biofiltration



# Research Literature

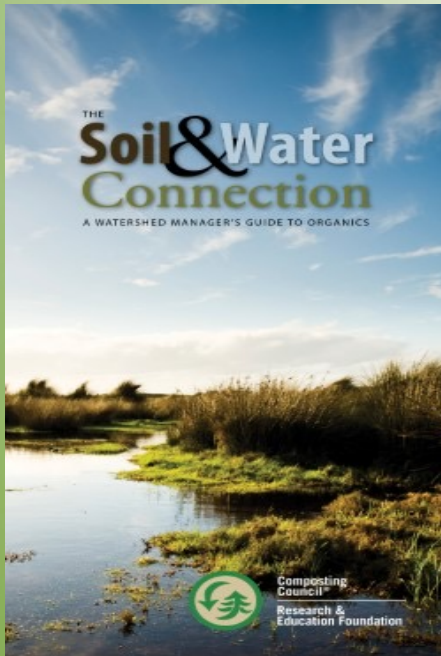


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- Faucette, L. Britt, J. Governo, C.F. Jordan, B. G Lockaby, H. F. Carino, and R. Governo. 2007. Erosion control and storm water quality from straw with pam, mulch, and compost blankets of varying particle sizes. *Journal of Soil and Water Conservation*. 62:6: 404-413.
- Faucette B, C. Jordan, M. Risse, M. Cabrera, D. Coleman, L. West. 2005. Evaluation of Storm Water from Compost and Conventional Erosion Control Practices in Construction Activities. *Journal of Soil and Water Conservation*. 60:6: 288-297.



# Ecosystem Services

## Technical Publications



# Federal & State Agency Approval

- US Environmental Protection Agency (EPA) National Menu of BMPs
- USDA Natural Resources Conservation Service (NRCS)
- US Army Corp of Engineers
- American Association of State Highway Transportation Officials (AASHTO)
- US Composting Council (USCC)
- Nearly all State EPA & DOT Agencies



# Compost-Based BMPs

## Erosion & Sediment Control

1. Perimeter Control
2. Inlet Protection
3. Ditch Check
4. Filter Ring/Concrete washout
5. Slope Interruption
6. Runoff Diversion
7. Vegetated Cover
8. Erosion Control Blanket
9. Sediment Trap
10. Pond Riser Pipe Filter

## Low Impact Development

11. Runoff Control Blanket
12. Vegetated Filter Strip
13. Engineered Soil
14. Channel Liner
15. Streambank Stabilization
16. Biofiltration System
17. Bioretention System
18. Green Roof System
19. Living Wall
20. Green Retaining Wall
21. Vegetated Rip Rap
22. Level Spreader
23. Green Gabion
24. Bioswale









# Compost Types

## Biofilter Media

- Designed for Optimum Filtration & Hydraulic-flow

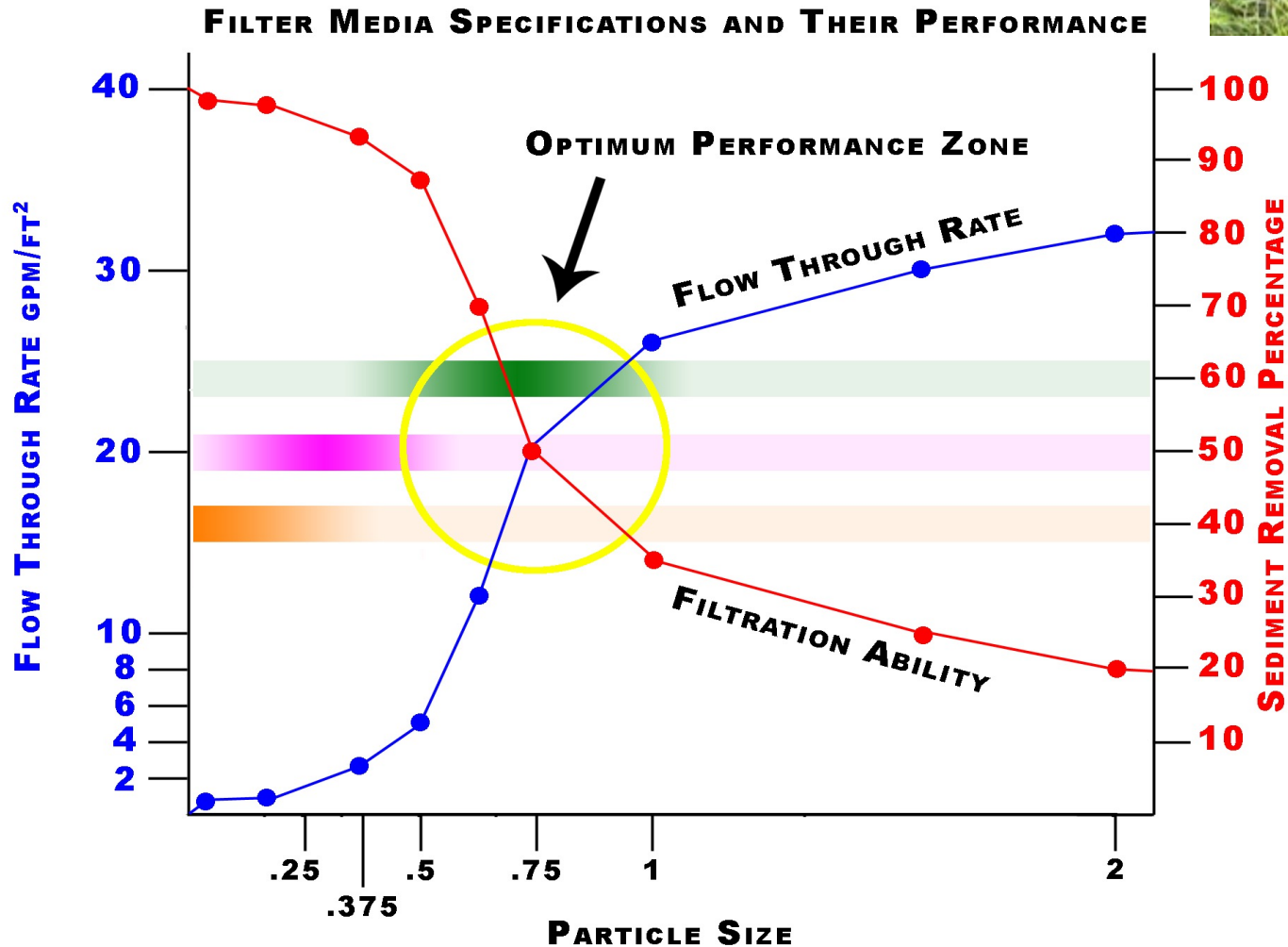


## EC Blanket Media

- Designed for Optimum Water Absorption & Plant Growth



# Particle Size Specifications





# Compost Biofilter

## 3-Way Biofiltration

- Physical
  - Traps sediment in matrix of varying pore spaces and sizes
- Chemical
  - Binds and adsorbs pollutants in storm runoff
- Biological
  - Degrades various compounds with bacteria and fungi

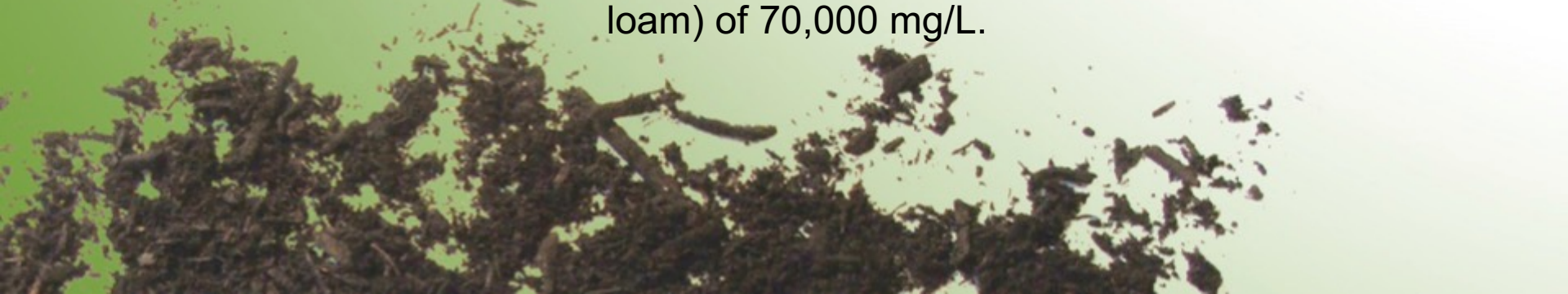


# Sediment Summary

## % Reduction of TSS & Turbidity


Treatment	TSS	Turbidity
Silt Fence	67	52
Compost Filter Sock	78	63

\* Based on rainfall of 3.0 in/hr for 30 min; runoff sediment concentration (sandy clay loam) of 70,000 mg/L.





# TS Reduction of Sediment Barriers

 SAN DIEGO STATE UNIVERSITY	Runoff Exposure	Sediment Exposure	Removal
Compost Filter Sock	<ul style="list-style-type: none"><li>•260 gal</li><li>•1.7 g/ft<sup>2</sup></li><li>•2.75 ac-in</li></ul>	<ul style="list-style-type: none"><li>•850 lbs</li><li>•150 lbs/ft<sup>2</sup></li><li>•125 t/a</li></ul>	77%
Straw Wattle	<ul style="list-style-type: none"><li>•260 gal</li><li>•1.7 g/ft<sup>2</sup></li><li>•2.75 ac-in</li></ul>	<ul style="list-style-type: none"><li>•850 lbs</li><li>•150 lbs/ft<sup>2</sup></li><li>•125 t/a</li></ul>	59%

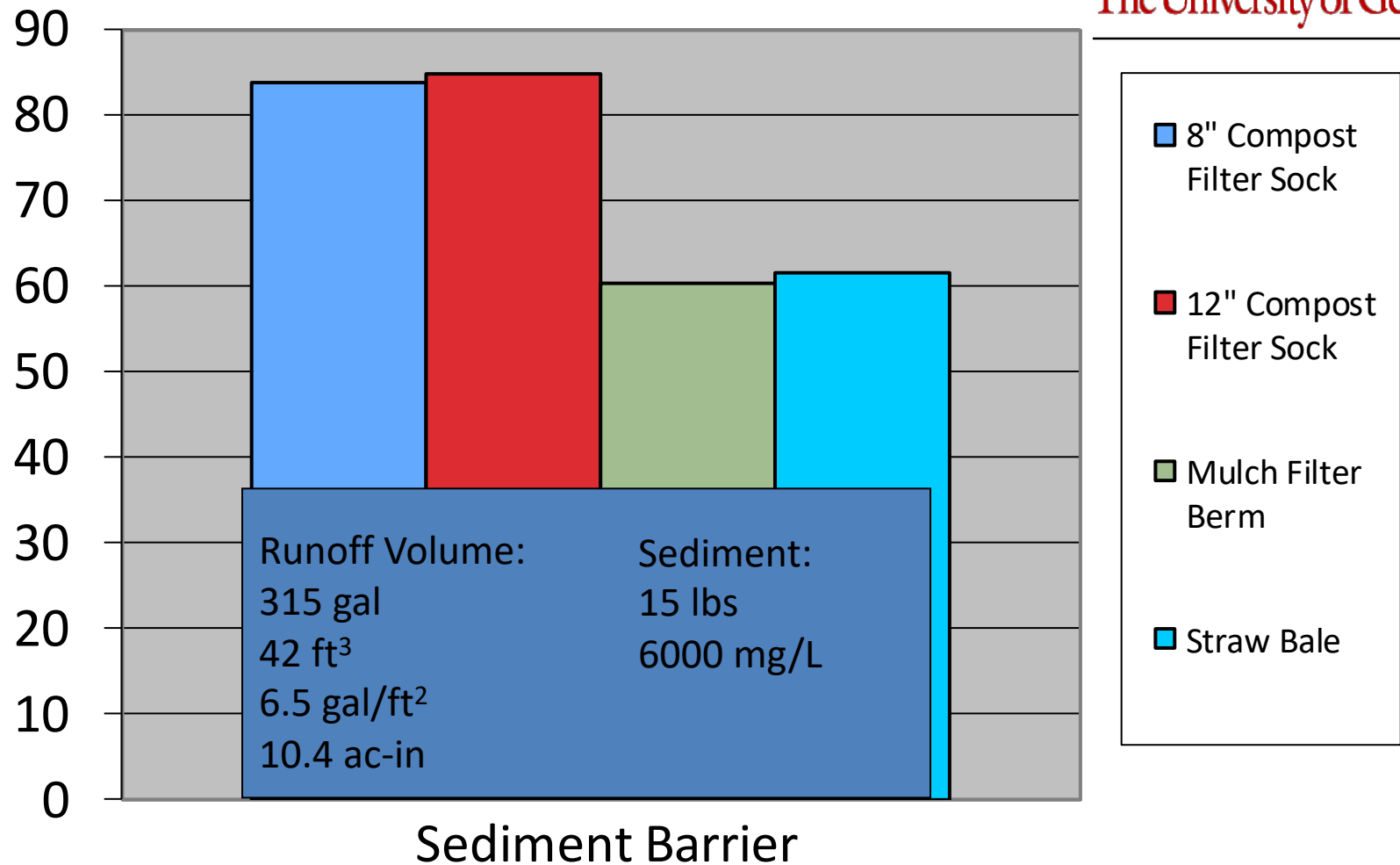
ASTM D-6459



# % TSS Reduction of Sediment Barriers



The University of Georgia





# Stormwater Pollutant Removal

	TSS	Turbidity	Total N	NH <sub>4</sub> -N	Total P	Total coli.	E. coli.	Cu, Cd, Cr, Ni, Pb, Zn	Oil	Diesel
Compost Filter Sock	80%	63%	35%	54%	60%	98%	98%	37- 78%	99%	99%



# Natural Fiber/Biodegradable Mesh

## What?

A natural, biodegradable mesh made from wood fiber yarns, creating a 100% natural, biodegradable erosion and sediment control product.

## Why?

Reduce petroleum based products, micro-plastics, materials in landfills, labor costs to remove products and materials at the end of projects, wildlife entrapment, landscape equipment entanglement, and materials and products not compatible with the permanent or natural landscape.



- ✓ No removal cost
- ✓ No disposal
- ✓ 100% Natural





# The Sustainable BMP

- 100% Recycled (compost)
- Bio-based, organic materials
- Locally manufactured
- Reduces Carbon Footprint
- Uses Natural Principles  
(Biomimicry)
- High Performance

RODNEY W. TYLER | ALEXANDER MARKS | DR. BRITT FAUCETTE

## The Sustainable Site



THE DESIGN MANUAL FOR  
GREEN INFRASTRUCTURE AND  
LOW IMPACT DEVELOPMENT

# Summary of Key Advantages for Compost Filter Socks

- Natural, biodegradable, can/should be left on site – good for soil quality and eliminates removal & disposal costs;
- Natural, biodegradable mesh – cotton, wood fiber;
- High flow and high pollutant removal performance;
- Not required to be trenched in or rope lash-over;
- Variety of sizes – 5 in, 8 in, 12 in, 18 in, 24 in diameter;
- Versatile: perimeter control, slope interruption, check dam, inlet protection, stockpile protection, sediment trap, post-construction stormwater treatment.





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