Viable Markets for Compost....

... IT'S ALL ABOUT THE <u>SOIL</u>

Wayne King ERTH Products, LLC April 21, 2011

ERTH Products LLC Environmental Resource & Technology for Humanity

ERTH Products is a organic recovery, recycling and compost manufacturing company specializing in the engineering of <u>soils</u> for landscapes and green building projects

ERTH PRODUCTS, LLC Changing the Way the World Grows







Waste Recovery and Conversion Through Composting

The Environmental Impact of Diverting Waste Destined for Landfills Speaks for Itself...

...Far more important are the <u>Economic</u>, <u>Environmental</u> & <u>Life</u> <u>Style</u> benefits that can be derived from the use of <u>compost</u> in sustainable landscape practices

Traditional Markets for Compost

Soil Amendment..Sold in Bag or Bulk

- Garden Centers/Nurseries
- Landscapers
- Topsoil/Mulch Material Yards
- Sport Turf
- Agriculture/Horticulture

The US Composting Council.. ..Working to Shape New Markets for Compost

PRODUCT QUALITY !

- STA Seal of Testing Assurance,
- TMECC Test Methods for the Examination of Composting and Compost
- CAP.... Compost Analysis Proficiency Testing

CUP.....Consumer Use Program

A Game Changer !

Quality

Consistency

Availability

A Paradigm Shift in Compost Uses Environmental Applications

•Green Building, Sustainability & The "Soil Water Connection"

- Erosion and Sediment Control
- Stormwater Management
- Water Quality & Quantity
- Water Conservation

New Markets Take Shape

Green Buildings, Green Roofs, Green Walls **Bio-Retention Ponds – Rain Gardens** Erosion Sediment Control (Blankets & Socks) Urban Gardens – Organic Fertilizers Alternative Landfill Covers—Eco Systems Golf Courses – Audubon/Environmental Friendly Other Environmental Uses: Brownfields, Wetlands, Bioremediation

Functional Soil and Landscapes

- Landscapes Have Long Been Ignored as Essential Reservoirs Responsible for:
 - Stormwater Retention & Storage
 - -Ground Water Recharge,
 - -Control of Ground Water Base Flows

-Overall Water Quality and Quantity



Impervious Surfaces

- Reduces Infiltration and Ground Water Base Flows
- Aggravates Flooding
- A Cause of Contaminates in Receiving Water and Drinking Water Supplies
- Contributes to Erosion and Habitat Destruction



The Soil Water Connection

Photo courtesy of Environmental Science & Technology

Healthy Soils are the Very Basis for Clean Water.....

- Water Loss, contamination, and purification are all directly affected by the soil
- When soil no longer stores nutrients, regulates water flow or filters chemical and biological contaminants water quality is directly compromised
- The decline and degradation of soil starts a chain reaction with profound consequences for water

 Compositing Council Research and Education Foundation, A watershed Manager's Guide to Organics: The Soil and

Engineered Soils

Soils designed with <u>compost</u> and mineral aggregates in a measurable way so as to meet specific soil quality and depth requirements

Soils designed to perform to a standard of:
Permeability
Stability
Fertility

Engineered Soils and Landscape Systems

Conserve Water During the Low-Flow Summer Period

Improve Control of Stormwater Runoff and Pollution

Promote Superior Plant Water and Nutrient Retention

Provide an Aesthetically Pleasing, Economical and Sustainable Landscape

Compost and Organics <u>Matter !</u>

The percentage of organic content directly relates to water holding capacity

Each 1% of Organic Matter adds about 1.5% to available water capacity

For every 1% of Organic Matter content, the soil can hold 16,500 gallons of plant available water per acre of soil down to one foot in depth

Source: National Sustainable Agriculture Information Service (ATTRA)

Compost & Organic Matter!

➤ A 10,000 square foot lawn would hold 18,800 gallons of plant available water that would otherwise not be held and made available

A town of 5,000 residences each with 10,000 square feet of lawn could <u>potentially</u> <u>save 94 million gallons of water a year</u> as a result of increased organic matter content in the soil by 5%

Vegetation and Soils

It is important that both quality soil and vegetation be viewed together as an essential part of a <u>dynamic system</u> in managing water resources

A valuable tool for use in land disturbing activities to re-establish the predevelopment volume of runoff, recharge, storage, and evaporation.



Rain Simulator



6

6

6

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INNOVATIVE USES OF ENGINEERED SOILS AND FUNCTIONAL LANDSCAPES IN STORMWATER MANAGEMENT AND LANI LANNING

Video

Engineered Soil and Landscape Systems

GreenScapes and GreenBuilding Programs

- Reduce Life Cycle Cost for Stormwater Infrastructure
- Shifts maintenance burdens away from local governments
- Provide superior control of non-point source pollution and hydrologic control of small, frequently-occurring storms
- Help with NPDES Phase II final Rule Compliance
- Help Mitigate Combined Sewer Overflows
- Help with Watershed Pollutant load management

Welcome to...

Healthy soil for a healthy, beautiful home

Congratulations!

Your new home has healthy soil – for a vibrant landscape that's easier to care for, and healthier for families too.

Your builder has followed new Washington guidelines for building deep, organic rich soil. That helps soak up and clean stormwater, protecting our streams, lakes and Puget Sound. Just like a quality roof or kitchen, it also has lasting benefits for you:

- Lower summer irrigation needs and fertilizer needs – saves you money
- Healthy, vibrant landscapes with less need for pesticides – healthier for your family
- Less yard work, more yard fun!



What's under a beautiful, healthy landscape? Your builder has followed "best practices" that include preserving or reusing high quality native soils, amending soils with compost, and mulching, to reduce compaction and grow a healthy, easy-care landscape. In this case, beauty goes a foot deep, and has lasting benefits!

Keeping your new landscape healthy – it's easier from the start

Here are a few tips to help keep your soil and landscape healthy and easy to care for:

- Refresh mulch around beds once a year with coarse bark, wood chip, compost, or shredded leaves. That feeds the soil organisms that keep plants healthy, helps conserve water in summer, keep roots warm in winter, and prevent weeds all year long.
- Mulch mow return grass clippings to the lawn. Studies by Washington State University show that mulch-mowing cuts fertilizer needs, and builds healthy soil and thick turf that resists weeds, pests, and summer drought. You can leave clippings with a conventional mower, but if you're buying a new one, shop for a "mulching" mower. You save money, save time mowing, and get a healthier lawn.
- Be sure to water and weed well through the first summer. Water deeply once each rainless week, to help establish deep roots. Pull weeds in beds when they're small, before they go to seed. Once lawns and plants grow deep roots and fill in beds, much less weeding and watering will be needed. A little extra attention in the first year will pay big dividends!

Want to learn more about easy, natural yard care?

Landscape professionals and scientists have assembled some great guides for Washington home owners. Just go to <u>www.BuildingSoil.org</u> and click on "Landscaping Guide," or Google "Natural Yard Care".



Learn more at www.BuildingSoil.org

Builders



get ahead of regulations, sell houses faster at a higher price point

satisfied customers are spreading the word

Builders, developers, and landscapers are adopting practices that preserve and improve the soil on building sites. Benefits include faster planting and vibrant plant growth for quicker sales, plus better stormwater infiltration. Local governments are beginning to require these practices.

Why build healthy soil?

- More marketable buildings and landscapes
- Better site erosion control
- Reduced need for water and chemicals
- Less stormwater runoff, better water quality, lower costs to comply with new regulations
- Healthy landscapes = satisfied customers

Soil "best management practices" (BMPs) include preserving site topsoil and vegetation where possible, reducing soil compaction, and amending disturbed soils with compost to restore healthy soil functions.

These BMPs will soon be required throughout western Washington. Home buyers are asking for them now.









Learn more at www.BuildingSoil.org

Model Ordinances

Greeley Colorado

- "Because soil amended with compost requires less water (as much as 30% less), the city of Greeley is requiring proof of compost to obtain a variance to water your new lawn."
- Minimum rate of 4 cubic yards per 1,000 square feet of area tilled into a depth of 6-8 inches

Model Ordinance

City of Leander Texas

All new Landscapes (non-residential and residential) are required to have a minimum of six inches of soil depth in areas planted with turfgrass.

The 6" minimum soil depth will consist of 75% soil blended with 25% compost. The soil/ compost blend shall be incorporated into the top two inches of the native soil

Soil BMP Requirements

Washington State

DOE Stormwater Manual BMP t 5.13 -- Soil Quality and Depth

 Building permit requires achieving a post-construction soil standard to preserve and restore soil quality and meet new code requirements

Four options

- Leave native soil undisturbed and protect from compaction
- Amend existing soil in place (pre-approved amendment rate of 2.5 " to a depth of 8 inches
- Import topsoil mix with 8-13% organic matter content
- Stockpile site duff and topsoil and reapply after grading and construction 8" minimum depth

Examples of Projects & Use of Engineered Soils

ERTH Products, LLC.

Compost Amended Soils Sports Fields-Landscape Systems



Alpharetta High School







Alpharetta High School



Compost Amended Soils Landscape System Alys Beach, FL



Compost Amended Soils Landscape System **Federal Reserve Bank- Atlanta, GA**









Atlanta, GA

Sports Field Construction Alpharetta High School





PRODUCTS

THE WAY THE WORLD





Intensive & Extensive GREENROOFS

- Deeper soil and greater weight
- Higher capital cost
- Increased plant diversity
- More maintenance requirements



Mayfair Renaissance

13th Street Atlanta, GA

Architect: Smallwood, Reynolds, Stewart & Stewart of Atlanta, GA Landscape Contractor: Valley Crest Installation Date: November 2001 Structural Soil: 2100 cu/yds Lightweight Soil: 1100 cu/yds









Eclipse Buckhead Architect: Preston Partnership Landscape Contractor: ProLandscapes Installation Date: December 2004 Intensive Lightweight Soil: 480 cu/yds







Eclipse Buckhead Architect: Preston Partnership Landscape Contractor: ProLandscapes Installation Date: December 2004 Intensive Lightweight Soil









Paramount At Buckhead

Stratford Road Atlanta, GA Landscape Contractor: Builders Landscape Installation Date: December 2003 Intensive Lightweight Soil: Rooftop Gardens/Planting



Midtown Metropolis

933 Peachtree Street Atlanta, GA Architect: HighGrove Partners Landscape Contractor: HighGrove Partners Installation Date: October 2002 Lightweight Soil: Rooftop Gardens/Planting











Midtown Metropolis

933 Peachtree Street Atlanta, GA Architect: HighGrove Partners Landscape Contractor: HighGrove Partners Installation Date: October 2002 Lightweight Soil: Rooftop Gardens/Planting







Realm

Atlanta, GA Architect: Preston Partners Landscape Contractor: Prolandscapes Installation Date: March 2006 Lightweight Soil: Rooftop Gardens/Planting







World Congress Center Viaduct

Atlanta, GA Landscape Contractor: Ray Landers Company Installation Date: June 2004 Intensive Lightweight Soil



Manhattan Condos

Atlanta, GA Landscape Contractor: Pro-Care Environenmental Installation Date: July 2006 Intensive Lightweight Soil



Bio-Retention / Rain Gardens



Milton High School – Bio-Retention Ponds



Filter Fabric & Under-Drain Installation



Design Characteristics



Conveyer or Blow Soil Into Place to Alleviate Over-Compaction

Milton High School – Bio-Retention Ponds



Stabilize soils surrounding cells as soon as possible to avoid clogging cells with sediment.



Milton High School – Bio-Retention Ponds



April 1, 2005

September 14, 2006

Georgia Department of Natural Resources Wildlife Resources Headquarters Social Circle, GA LEED Certified Gold Project



RAIN CHAINS



Georgia Department of Natural Resources Wildlife Resources Headquarters

PERVIOUS PARKING







Georgia Department of Natural Resources Wildlife Resources Headquarters

BIO-RETENTION







Georgia Department of Natural Resources Wildlife Resources Headquarters

Cornell University Structural Soil[™]







Columbus Streetscape

Cornell University Structural Soil[™]



1 Year after planting



CU-Structural Soil







ALYS BEACH, FL

Cornell University Structural Soil[™]



Georgia Tech-Technology Square

Cornell University Structural Soil[™]







Georgia Tech-Technology Square

EXCAVATION OF TREE PLANTED IN CU-SOIL[™] FOR 3 YEARS



EXCAVATION OF TREE PLANTED IN CU-SOIL[™] FOR 5 YEARS



Conclusion

There are only between six and eight inches of topsoil left on this planet ---

We have a loss of 10 million tons per day from U.S. Farms Alone

It takes a minimum geologic evolution of 150 years to create a single inch of topsoil

 Choices made during construction and landscaping projects can impact soil and water functions for decades

 The continued practice of installing poorlyperforming landscapes and hard scapes which contribute to impervious surfaces when properly functioning soil and vegetated systems are practical and cost-effective should be viewed as a lost opportunity

SOS....

Save Our Soils !

•The End •Or should it be •the beginning?

www.erthproducts.com

