An Introduction to AquaBlok®:

A Unique, Patented & Highly Versatile Geotechnical Material

Geotechnical Applications Summary

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AquaBlok, Ltd. – Toledo, OH

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*** Unique stone-core design**

AquaBlok®
Composite Particle System

www.aquablok.com

AquaBlok®

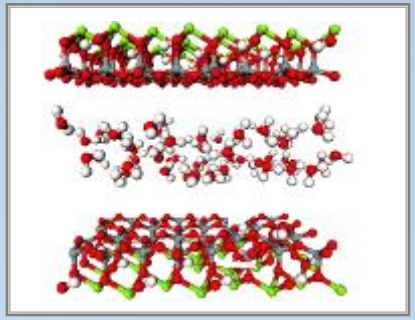
Presentation Objectives

- **Introduce AquaBlok** – the original invention, its history, and the evolution of associated products
- **Discuss key technical advantages** – focusing particularly on VERSATILITY
- **Explore various application scenarios** – relating primarily to sealing/containment
- **Field preliminary questions**

We've built a Better Bentonite.sm

BENTONITE: 101

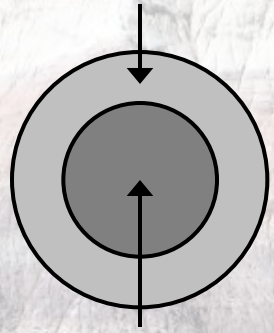
Not Your Average Clay



- **Naturally Occurring** – weathering volcanic ash
  - composed mostly of montmorillonite
  - classified by dominant elements (e.g. Na and Ca)
- **Known for Swell**
  - ionic interaction between water and mineralogy create "shingle effect" when exposed to water
- **Recognized for Low Permeability**
  - used for generations in sealing and water proofing applications in a broad range of commercial and environmental settings

BENTONITE: 101

Swell + Compaction = Low Permeability



sodium bentonite powder

+

crushed limestone

=

AquaBlok® bentonite-stone composite particle

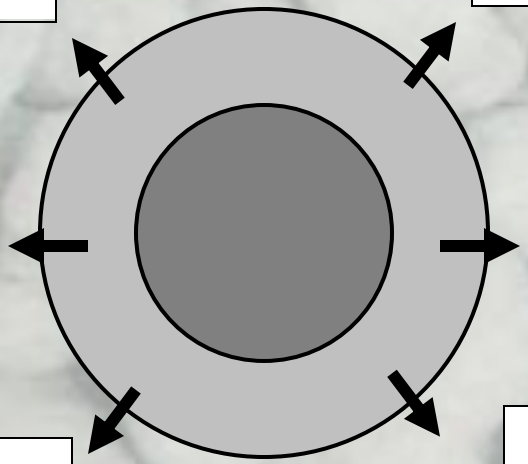
AquaBlok®

Composite Particle System

PONDSEAL™

AquaGate + ORGANOCLAY

HoleBlok™



AquaGate + CARBON

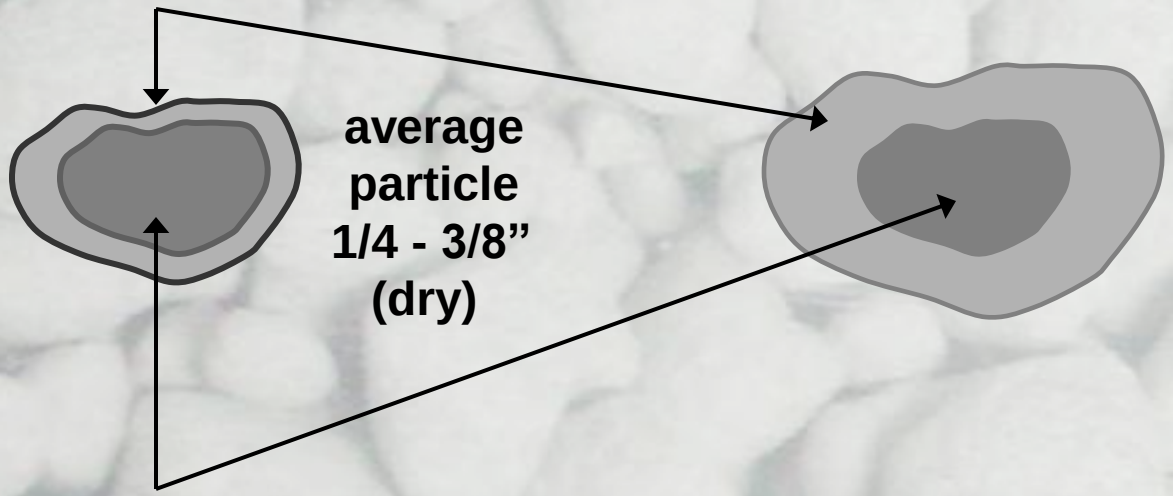
AquaBlok® SALTWATER

submerseed®

AquaBlok®

Material Composition

sodium bentonite and adhesive binder expands when hydrated



solid aggregate (limestone) core

not to scale

AquaBlok

1 min post hydration

→ **time**

AquaBlok

24 hr post hydration

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Values & Technical Advantages

- **Technically Effective** – extreme low permeability a result of reliable swell and self-compaction
- **Offers Targeted Placement** – even ***through*** water
  - will not drift or dissipate, minimal dusting
- **Easy to Handle** – behaves much like stone aggregate
  - installed by hand or using a broad range of standard construction equipment
  - in-field blending typically not recommended
  - often no need to mechanically compact the material
- **Adds Safety** – reduces exposure and manual labor

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Values & Advantages, cont . . .

- **Durable**
  - Self-healing (even through drying and re-hydration)
  - Self-supported (thanks to internal aggregate core)
- **Eco-friendly** – comprised entirely of earthen ingredients
  - Does not detrimentally alter water chemistry
  - Evaluated by EPA in projects throughout US & beyond
- **Versatile** – addresses a broad range of technical challenges in and around aquatic environments

Nature's Duct Tape.™

Simple. Unique. Versatile. Effective.

AquaBlok®

Ponds & Basins

Sealant “Blanket” Lining

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Ponds & Basins, cont . . .

Bioretention Basins

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Ponds & Basins, cont . . .

Torn/Compromised Synthetic Liner

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Dams, Berms & Levees

Vertical Barrier Trench Construction

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Dams, Berms & Levees, cont . . .

Plugging Remnant Field Tiles

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Dams, Berms & Levees, cont . . .

Repairing/Discouraging Animal Damage

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Utility-related Applications

Anti Seep Collar/Plug Installation

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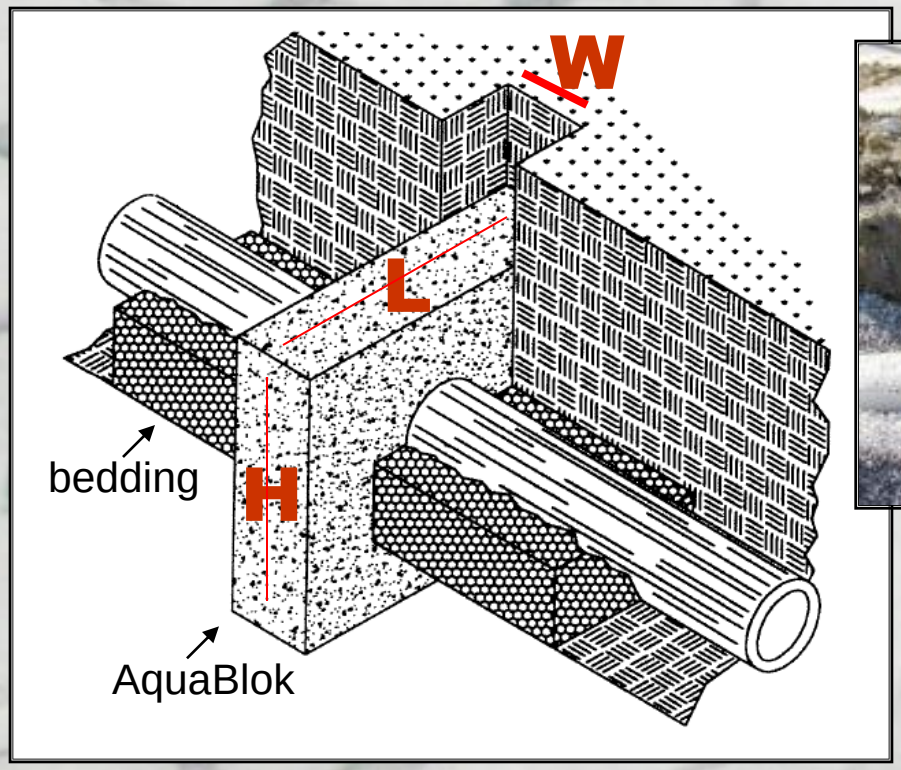
Utility-related Applications



Trench Dams/Water Stops

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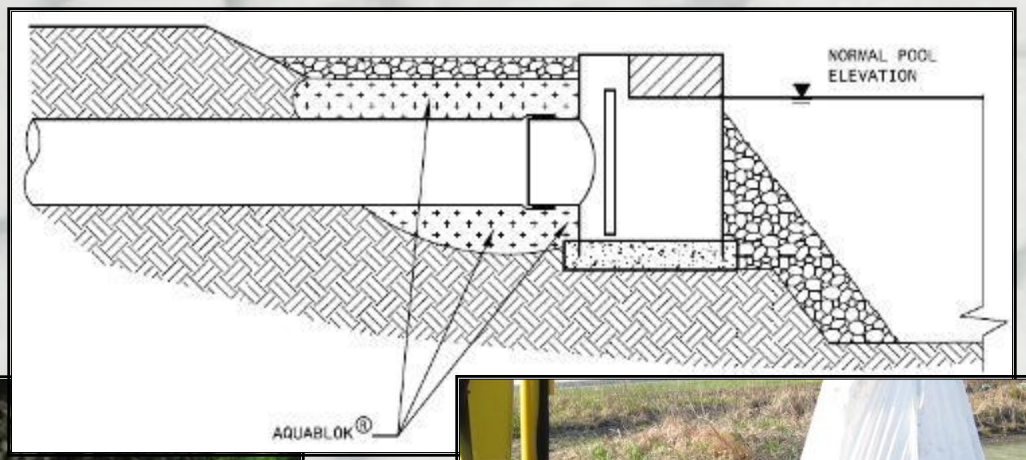
Utility-related Applications/I & I



Reinforcing/Bedding Control Structures

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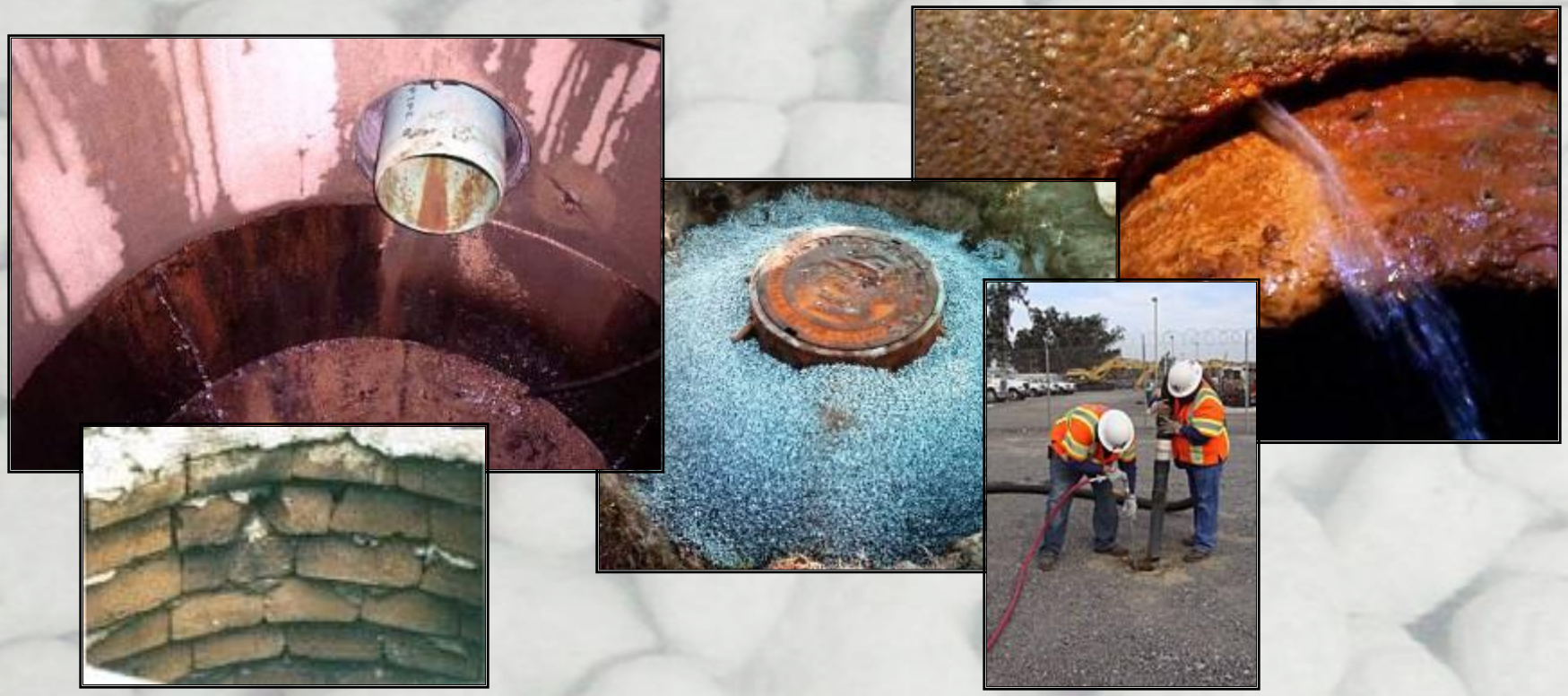
Utility-related Applications/I & I



Loose Mortar, Stub Outs, Fatigue Cracks

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Utility-related Applications/I & I

CASE STUDY:
Pre-Treatment

Pre-cast Joints, Failing Rings

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Utility-related Applications/I & I

CASE STUDY:
Treatment

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Utility-related Applications/I & I

CASE STUDY:
Post-Treatment

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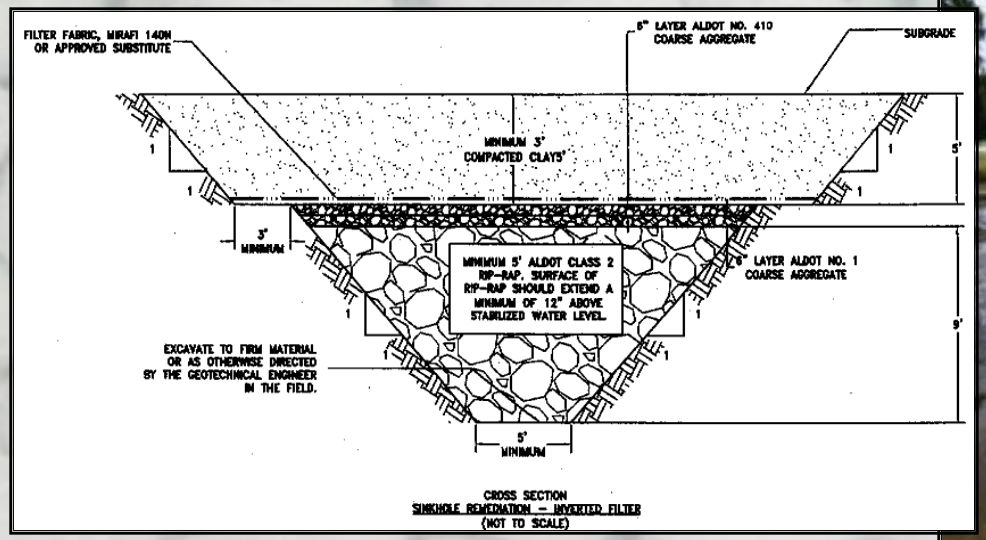
Other Geotechnical Applications



Sink Holes

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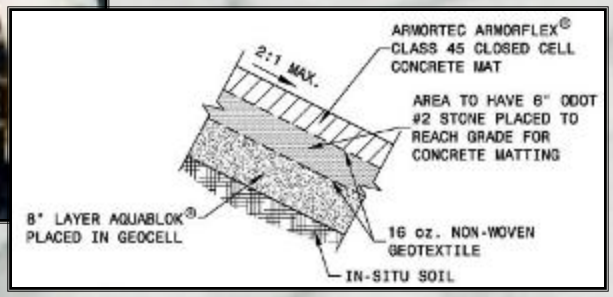
Other Geotechnical Applications



Cellular Confinement/Bank Stabilization

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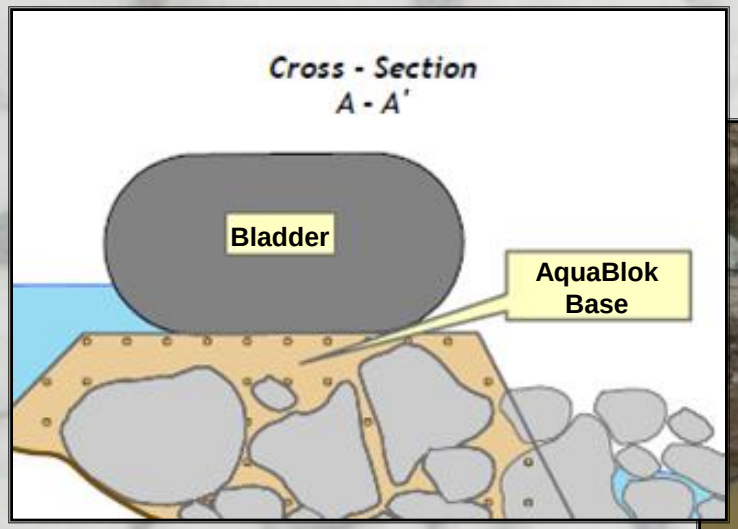
Other Geotechnical Applications



Temporary Dams/Stream Diversion

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Other Geotechnical Applications

Channel/Stream Linings

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Other Geotechnical Applications

Flood Mitigation

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Packaging Options

50-lb. bags*

48 bags/pallet (2,400-lbs.)
Durable 3-ply paper bags
Available singly and by the pallet

Bulk bags*

2,400-lb (1cy) per tote
Water resistant poly w/ discharge snout
Available singly or by the truckload

**** Product extremely water sensitive -- should be stored under-roof or completely beneath reliable tarps prior to application***

AquaBlok®

Geotechnical Data

- Dry State Characteristics
- Permeability
- Percent Swell
- Shear Strength
- Erosion Resistance
- Swell Pressure
- Bearing Capacity
- Compaction
- Freeze/Thaw Response

All testing conducted by independent, AASHTO-certified soils lab

Post-It® Note
= scrap paper + glue

Just as . . .

AquaBlok®
= bentonite + stone

In both cases,
The whole is greater than
the sum of its parts . . .

AquaBlok®

Composite Particle System

better Bentonite

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AquaBlok® HYDRATION DEMONSTRATION

1 2 3

Set-up Steps:

1. Obtain a clear 20 oz. Gatorade bottle or wi
2. Add 5-6 oz (one sample pack) of Aqu Blok,
3. Fill bottle with clean water, add cap, and imm
4. Tap any loose particles that stick to bottle so that they
   the inverted bottle. Draw a line at the particle/water boundar
   date and time that water was added.

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