

TRADEWORKS ENVIRONMENTAL INC

Empowering Nature for a Sustainable Future

ADB SMART WATER SOLUTIONS PRESENTATION
OCTOBER 21, 2021



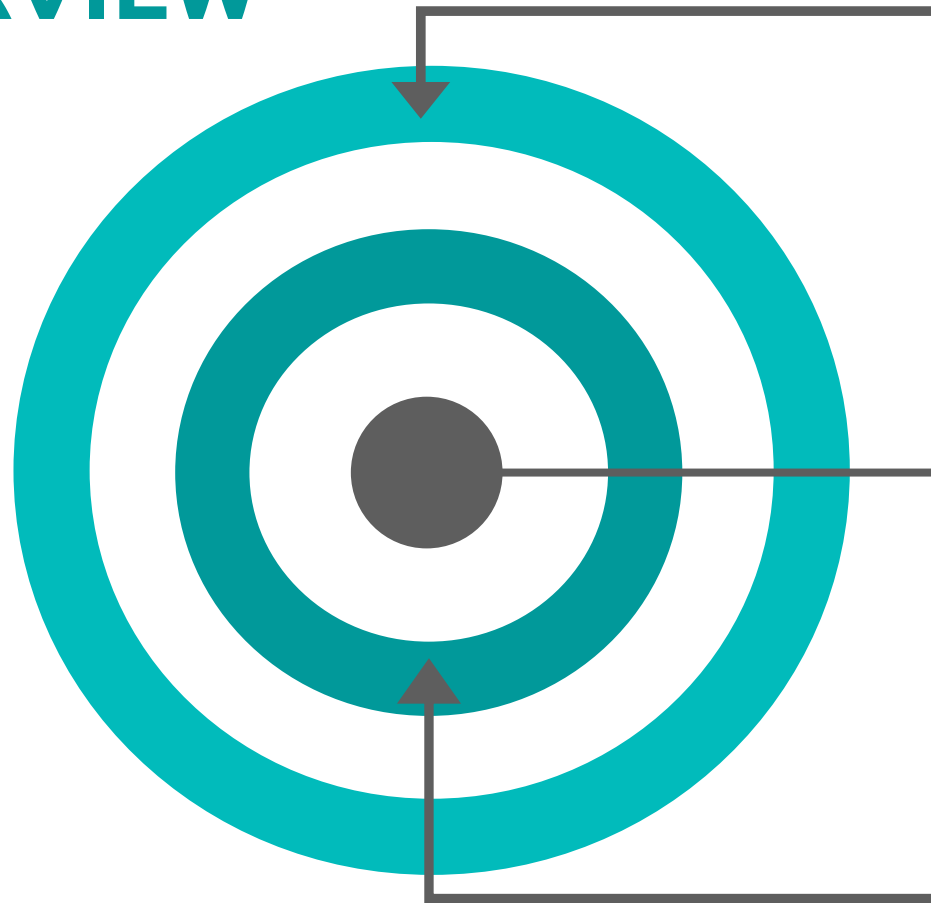
TRADEWORKS
ENVIRONMENTAL

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COMPANY OVERVIEW

TradeWorks Environmental is a woman-owned, cleantech solution provider headquartered in Ontario, Canada.

We offer sustainable solutions for hard-to-treat organic waste and wastewater.



WHAT WE DO

Avoid capital expenditure by optimizing existing biological treatment systems and targeting microbes for specific objectives

WHY WE DO IT

We believe everyone has a responsibility to be good stewards of the planet, and we have a unique opportunity to educate and share solutions for sustainable organic waste and wastewater treatment

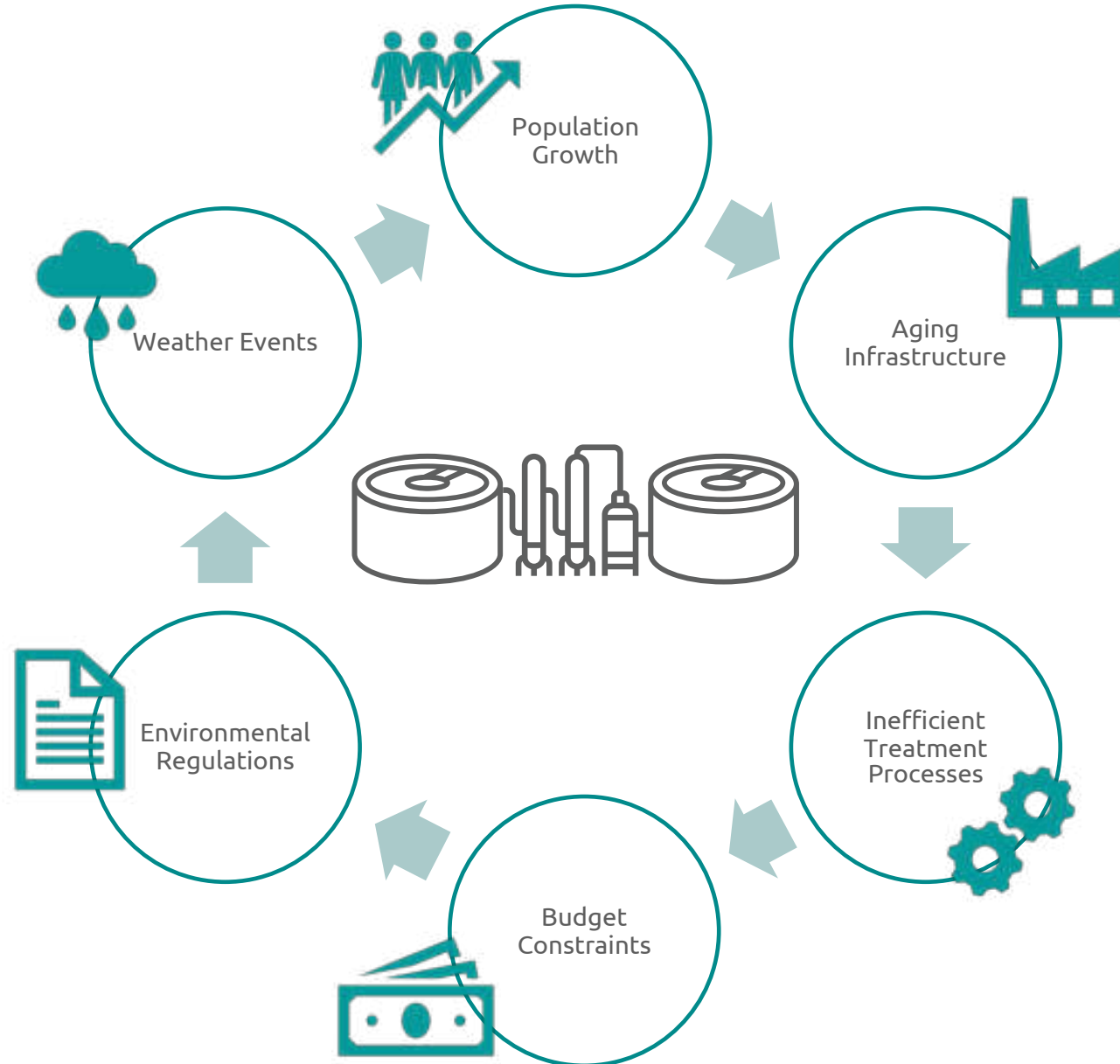
HOW WE DO IT

Through tailored analytics and technical support, we customize each solution based on treatment needs and site conditions

THE PROBLEM

Wastewater treatment facilities are responding to a growing number of challenges with limited funding and expansion opportunity.

The industry needs innovative solutions to improve efficiency and performance of treatment systems without additional footprint.



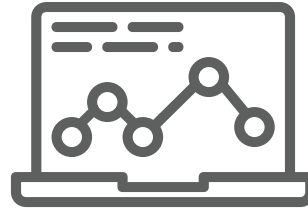
OUR SOLUTIONS

Combine process, equipment, and analytics to address wastewater treatment challenges and optimize existing systems

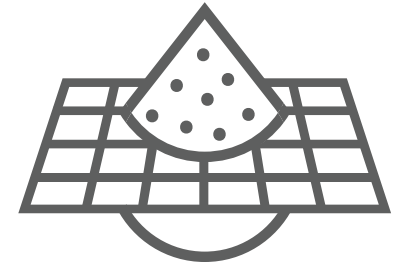


YDRO PROCESS® MICROORGANISMS

25+ microbial strains to enhance biological performance and achieve target objectives



YDRO PROCESS®
Tailored solutions using an analytics-based application approach



PRIME SCREEN™
Biologically enhanced primary screening for wastewater treatment

APPLICATIONS OF YDRO PROCESS® MICROORGANISMS



Collection System

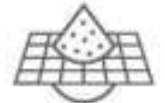


Ydro Process® microorganisms

Collection System Application

Reduce H₂S, FOG and Sludge

Specialized Ydro Process® microorganisms degrade FOG and take up Sulphur to prevent H₂S. Collection system dosing reduces the organic load to increase treatment capacity and reduce operational costs. By leveraging benefits provided by the Ydro Process® in the collection system, treatment performance is enhanced while minimizing common conveyance issues and reducing sludge production.



PRIME SCREEN™



Ydro Process® microorganisms

PRIME SCREEN™

Boost performance with Fine screening

Combined with the Ydro Process® collection system application, this very fine screen achieves equal or better effluent quality than traditional primary clarification. By reducing organic loading by 25% to 40% and removing fine inert material, the screen can reduce energy requirements for aeration, protect the integrity of downstream processes and equipment and reduce maintenance costs. The operating environment is cleaner and safer, because contact with sewage and screenings is eliminated by the automated bagging system.



Wastewater Treatment Plant

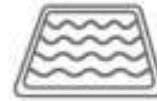


Ydro Process® microorganisms

Wastewater Treatment Plant Optimization

Enhance BNR and reduce excess sludge

The Ydro Process® uses an analytics-based approach to enhance biological treatment. Results include enhanced biological nutrient removal (BNR) and reduced sludge production. The application of the Ydro Process® significantly increases the rate and efficiency of degradation and drives overall optimization of the treatment process.



Lagoon-based Systems



Ydro Process® microorganisms

Lagoon-based System Rehabilitation

Improve performance and water quality, minimize odors

Ydro Process® microorganisms can be applied in lagoon-based plants to revitalize aging systems and enhance treatment performance. Our solution accelerates degradation of accumulated organic matter to avoid dredging and minimize odors.



Digestion



Ydro Process® microorganisms

Anaerobic Digestion

Optimize overall performance and increase total energy output

By increasing digestion efficiency rates and methane concentration in the produced biogas, the Ydro Process® can significantly improve energy recovery, reduce retention time, and minimize the need for scrubbing in anaerobic digestion systems.



Feedstock



Ydro Process® microorganisms

Composting Process Optimization

Increase efficiency and system capacity

The integration of Ydro Process® microorganisms in composting systems improves the degradation rate and increases processing temperature. This leads to reduced processing time and a significant improvement in treatment capacity and final product quality.

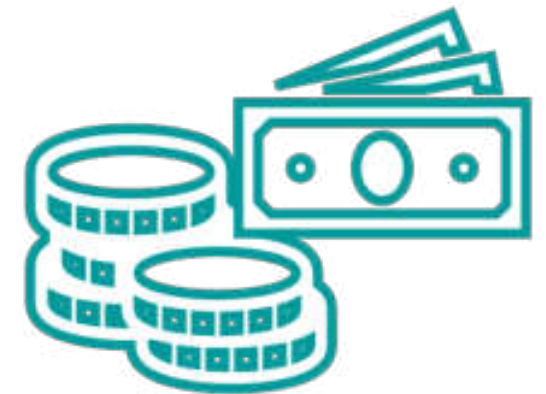
BENEFITS OF OUR SOLUTIONS

- Reduce odors, H₂S and Fats, Oils and Grease (FOG) in wastewater collection systems and organic waste treatment
- Reduce organic loading to treatment facilities
- Decrease excess sludge production
- Minimize negative treatment byproducts
- Increase treatment system performance and capacity
- Improve energy efficiency
- Avoid expensive upgrades
- Calculate and monetize carbon credits



UNIQUE DIFFERENTIATORS

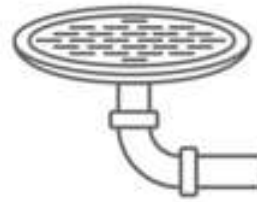
- Each solution is **tailored** for the site conditions and treatment objectives
- **Analytics-based** application of microbes, specialized for performance targets
- **Cost-effective alternative** to conventional treatment
- **Integrates into existing systems**, requiring no additional infrastructure footprint
- **Expert team** serves as an **extension of the staff**, providing a level of technical support and monitoring not traditionally offered



DOSING YDRO PROCESS® MICROORGANISMS IN COLLECTION SYSTEM



Wastewater released into the system



Ydro Process® microorganisms dosed into target manholes/lift stations within collection system



Wastewater Treatment Plant benefits from reduced organic loading



Wastewater released into the system



Ydro Process® microorganisms dosed into manholes or lift stations in the collection system



PRIME SCREEN™ filters out fine materials



Wastewater treatment plant benefits from reduced organic loading



HALIFAX WATER – MUNICIPAL

Timberlea WWTP - decommission of facility due to performance challenges

Primary Targets Objectives:

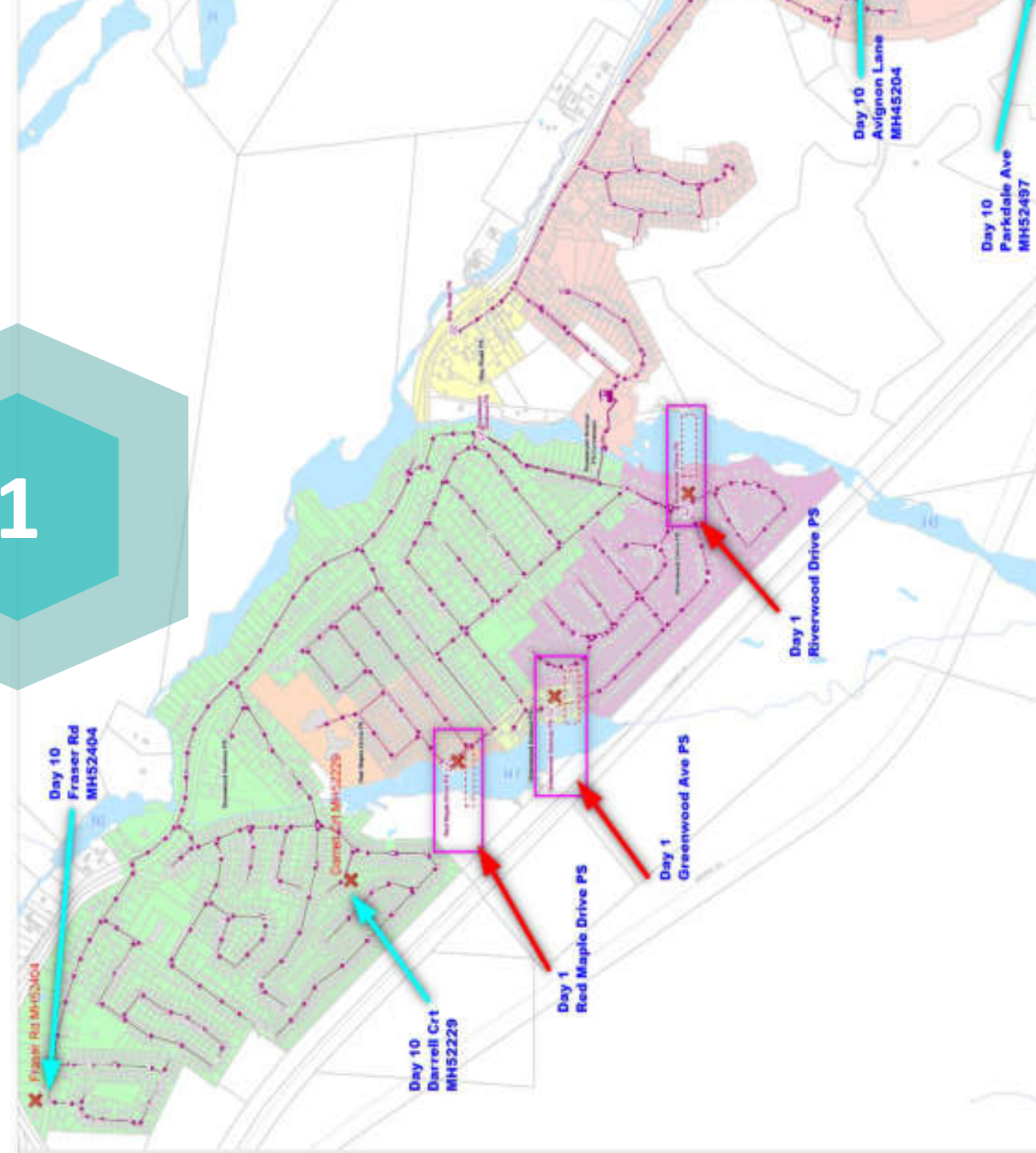
1. Enhance Nitrification to compliance

Secondary Objectives:

1. Evaluate the technology's efficacy:
 - **Collection system – odor & FOG control**
 - **Wastewater Treatment Plant – optimization**
 - **Anaerobic Digestion Stage – Biogas enhancement**
 - **Sludge Reduction**

Results:

- ***Avoided*** decommission of the facility and Ydro Process[®] has become part of the standard operations
- Enhancement of biological nutrient removal process
- Expand program application





PRIME SCREEN™

Collection System Application/Very Fine Screening at the headworks

Objectives:

Collection system application:

1. Eliminate Odors & FOG clogging in Collection System & Lift Station (EPA issues)

Fine Screen to remove:

1. Hair, strings, rags, stickers, fibrous solids, etc.
2. Protect the overall integrity of the system

Project date: Ongoing
Client: City of Delphos,
Place: Delphos Ohio, USA



COVERED AERATED STATIC PILE COMPOSTING – YDRO PROCESS® INTEGRATION

Objectives:

1. Increase Composting Performance and Efficiency
2. Reduce Composting Processing Time
3. Improve Degradation Rate & Efficiency
4. Increase Processing Temperature
5. Increase System Capacity & Cycles
6. Minimize & Control Odors

Project date: **July 2019**

Place: **Ontario**

TRADEWORKS ENVIRONMENTAL BENEFITS



Social Responsibility

Eliminate odors, trucks in the streets, sewer back-flows, etc., generated by wastewater & waste management



Environmental Responsibility

Reduce energy demand
Reduce by-product disposal
Reduce overall carbon footprint of system to levels incomparable to current methods and technologies



Economic Benefits

Reduce annual O&M costs by 10% - 25%
ROI: 3-10 Months



THE GLOBAL GOALS



TO LEARN HOW YOU CAN JOIN
THE MOVEMENT FOR A
CLEANER EARTH, CONTACT US

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TRADEWORKS
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*“Each one of us holds a responsibility
to future generations to be our best,
to do our best and, to leave our best
behind.”*