



**INFILTRATOR<sup>®</sup>**  
water technologies



**delta**  
treatment systems

The logo for Delta treatment systems features a stylized graphic of three water droplets in shades of blue above the word "delta" in a bold, lowercase, sans-serif font. Below "delta" is the phrase "treatment systems" in a smaller, lowercase, sans-serif font.

# Decentralized Wastewater Solutions

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Christopher Strycharz, P.E.  
Western Region Sales Engineer



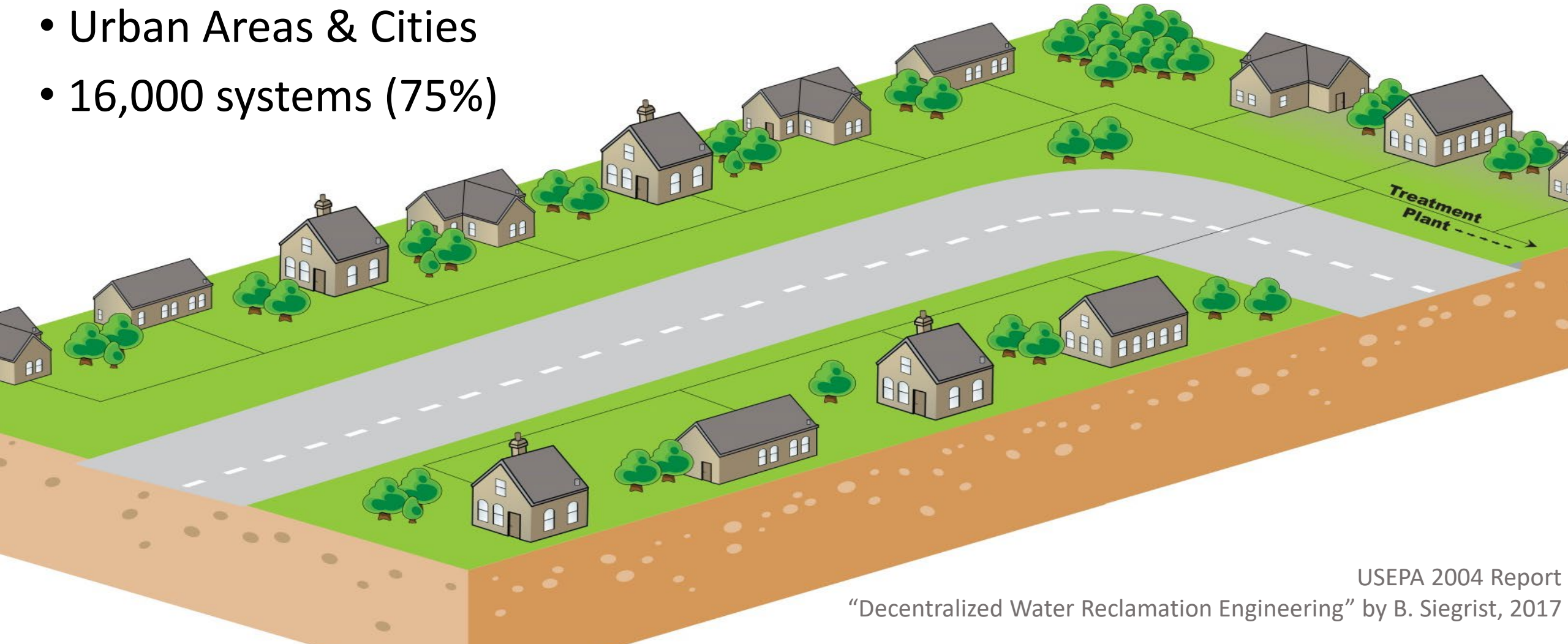
## Agenda

- Background
- Our Products & Their Design
- Case Studies
- Q & A



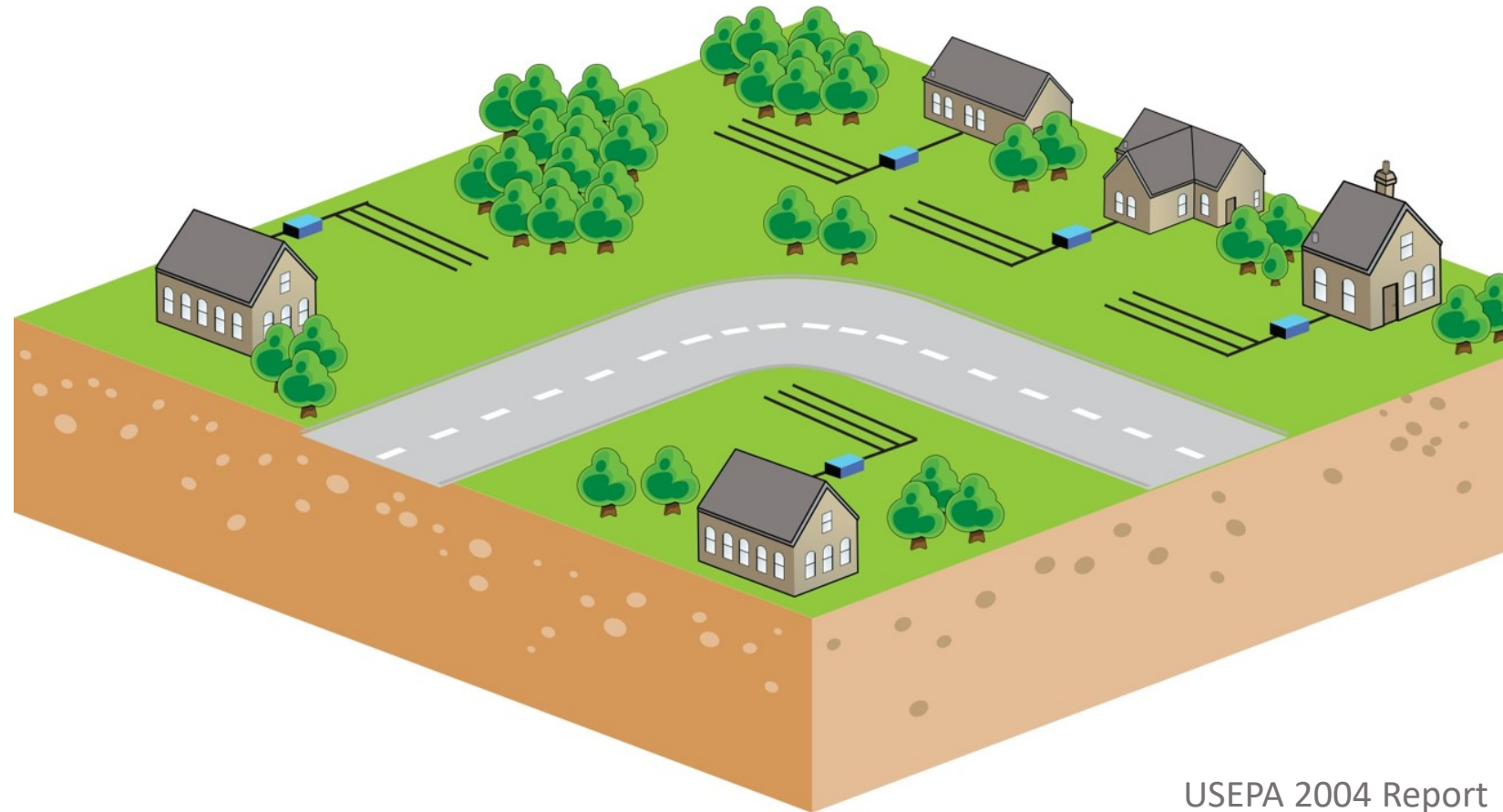
# Centralized Systems are the norm for wastewater

- Urban Areas & Cities
- 16,000 systems (75%)

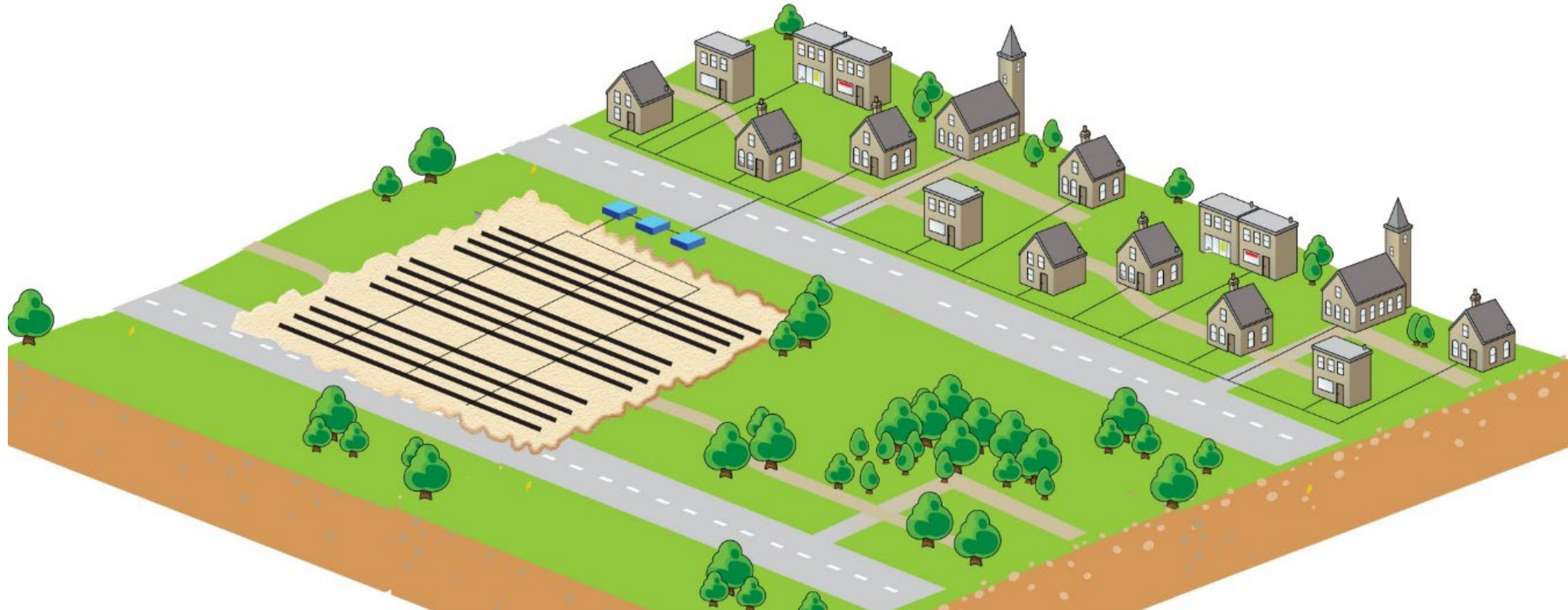


# Onsite (Individual Septic) Systems

- Rural Areas
- 25M systems (25%)
- 30% of New Single-Family Housing



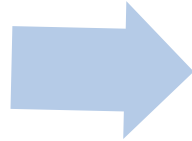
# Decentralized Systems - Collect, Treat & Disperse



# Application Types

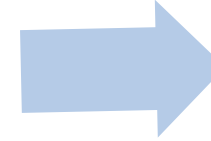
*2-10k GPD*  
*small*

- Rest Stops
- Strip Malls
- Restaurants
- Schools
- Daycares
- Parks
- Churches



*10-50k GPD*  
*medium*

- Lodges
- Campgrounds
- Truck Stops



*50-100k+ GPD*  
*large*

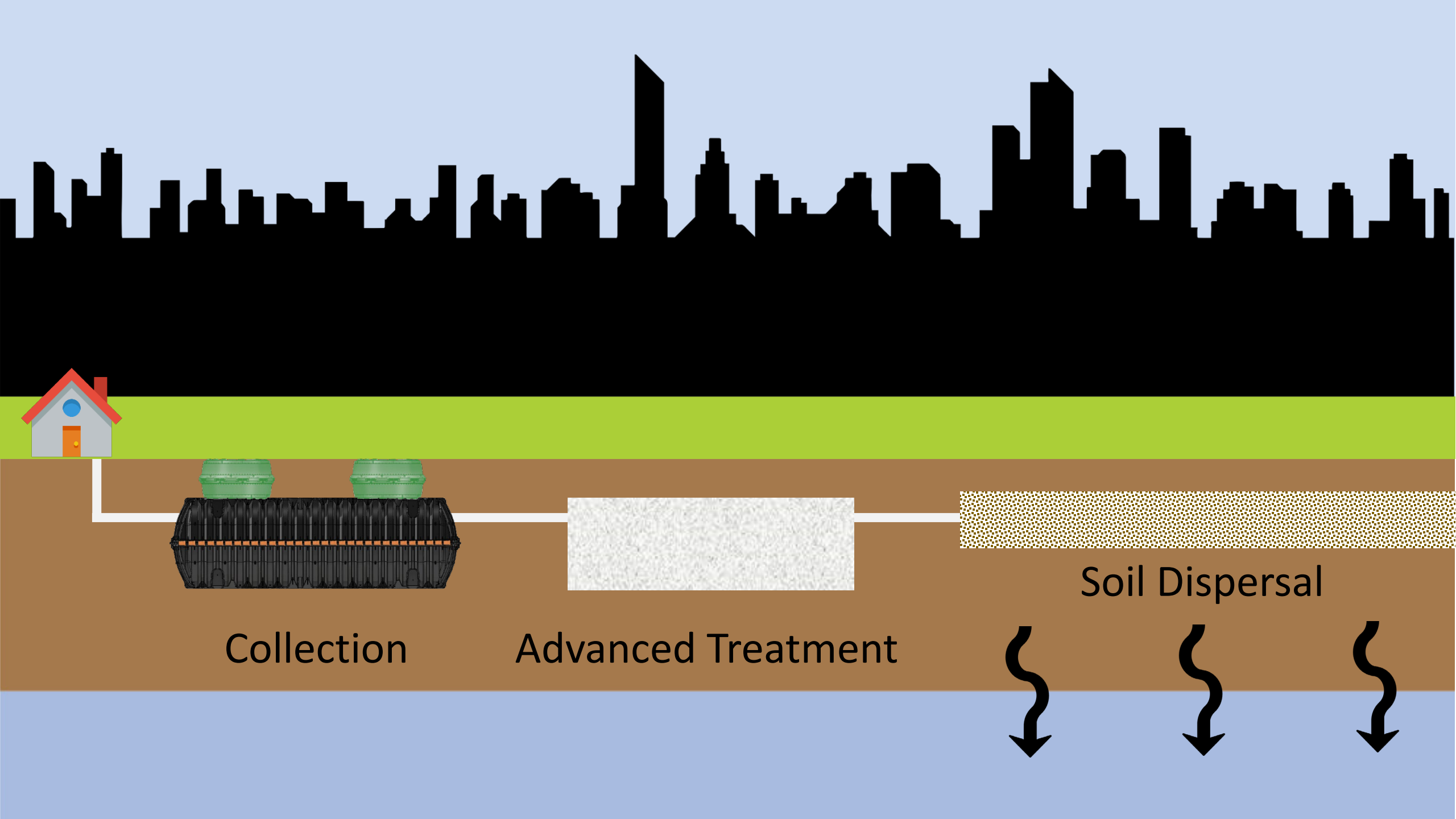
- Casinos
- Arenas
- Small towns & villages





# Our Products & Their Design





Collection

Advanced Treatment

Soil Dispersal

# Collection

A landscape photograph showing a white field in the foreground and a dark treeline on the horizon under a blue sky. The word "Collection" is overlaid in white text on the blue sky.

# IM-Series Thermoplastic Tanks



**IM-540 Tank**

500gal

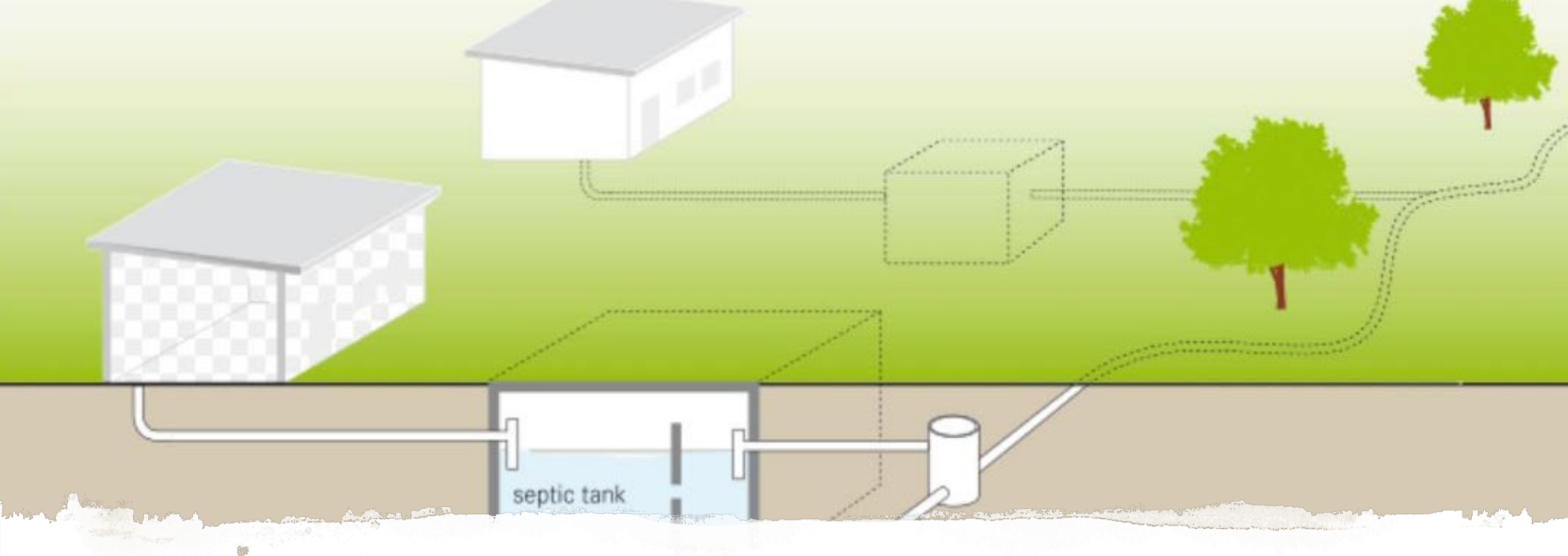
**IM-1060 Tank**

1000gal

**IM-1530 Tank**

1500gal

**Insist that tanks are watertight and structurally sound**



# STEP/STEG Systems

- **S**ephic
- **T**ank
- **E**ffluent
- **P**ump / **G**ravty

# Benefits of STEP/STEG

✓ Energy Efficient

✓ Smaller Sewer Lines

✓ Cost Effective

✓ Reduced Sludge

Management

✓ Isolated malfunctions

✓ Possible Fed. Funding



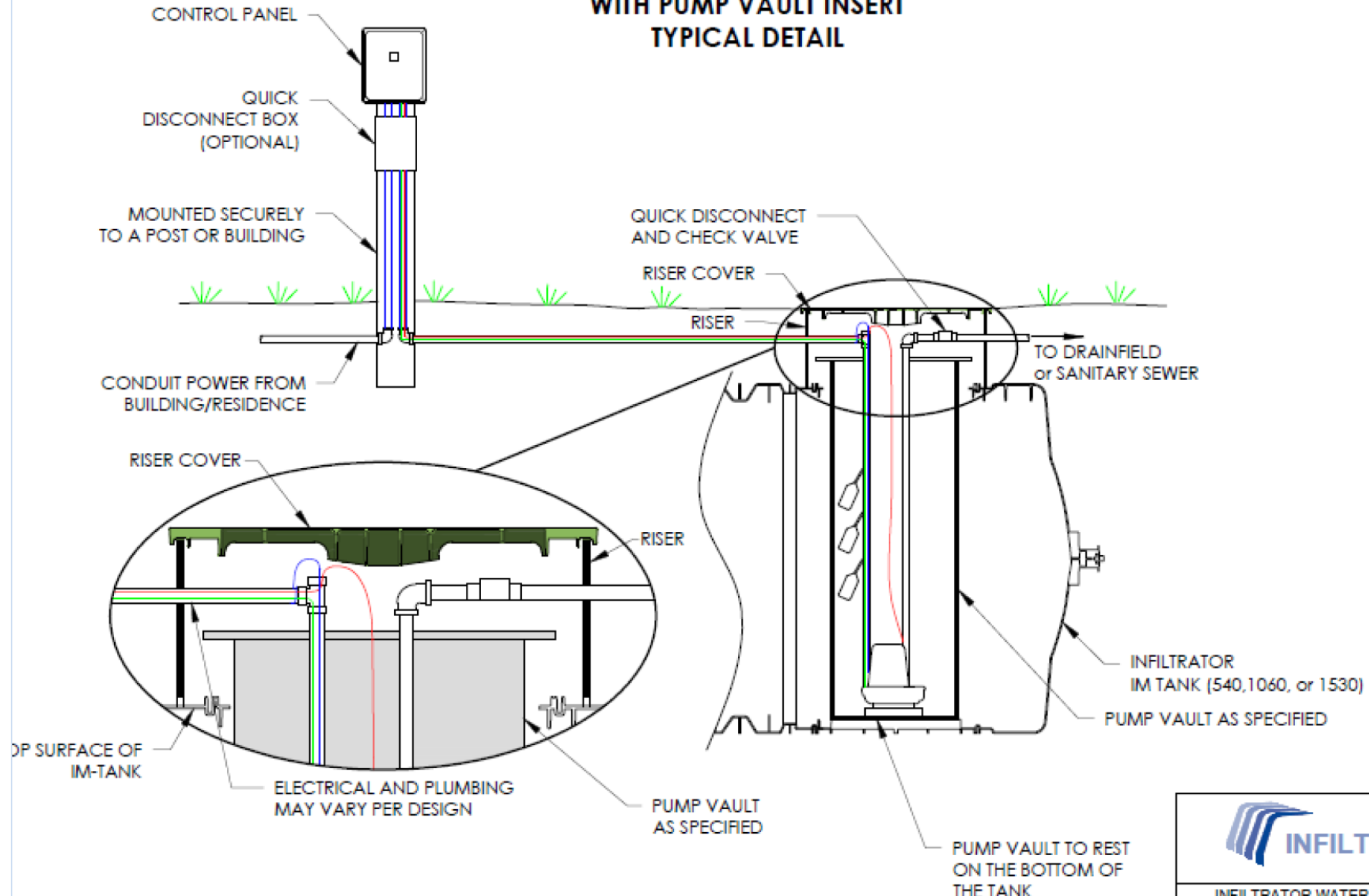


# Delta Accessories

- ECOFILTER - Pump Vault
  - 49" and 57" models
  - Up to 50 GPM capability
  - 1" up to 2" discharge assemblies
- Custom Panels available
  - Demand, time dosed, PLC, Explosion Proof

# Pump Tank details

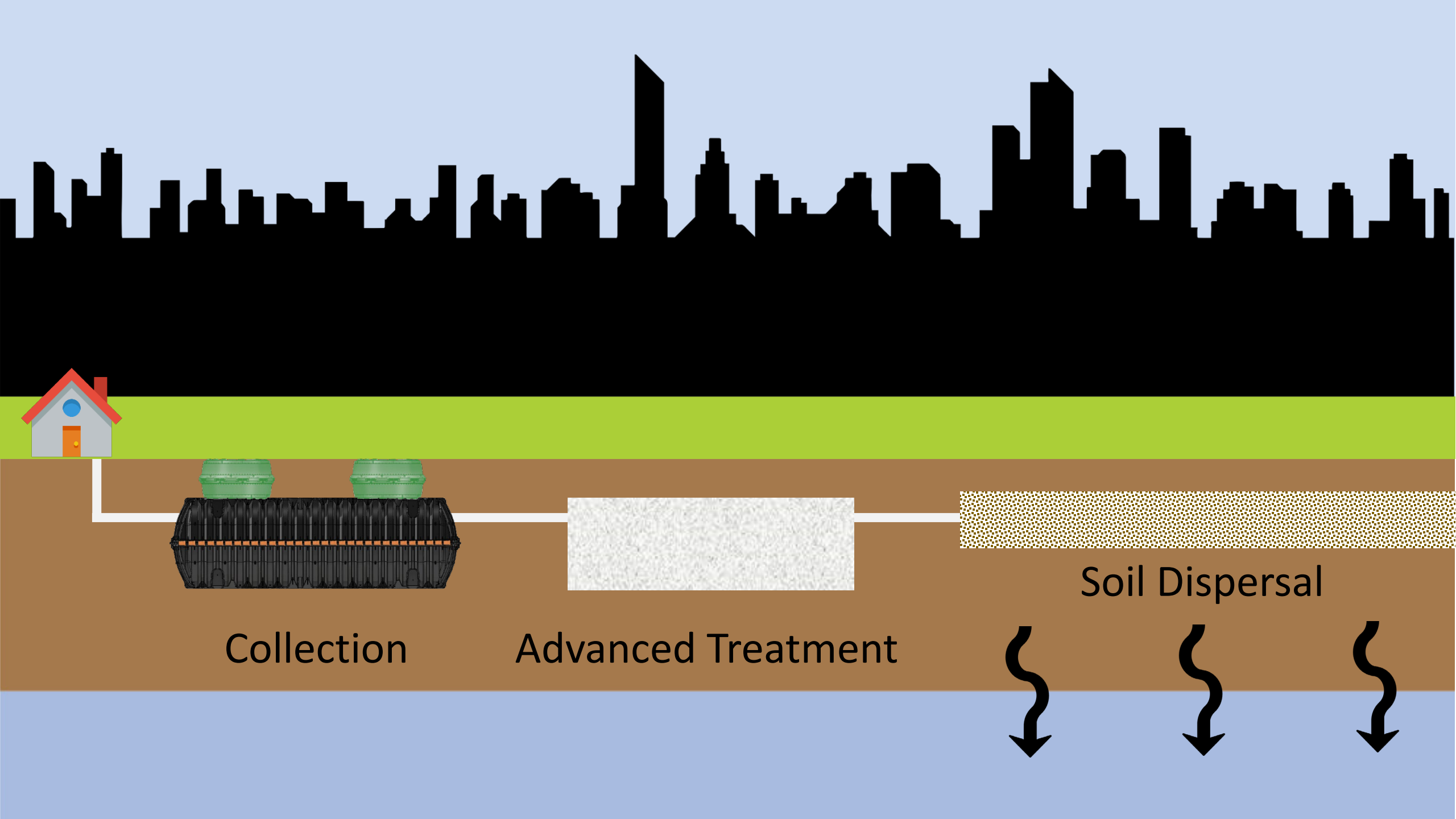
## INFILTRATOR IM-SERIES TANKS WITH PUMP VAULT INSERT TYPICAL DETAIL





# Treatment Systems



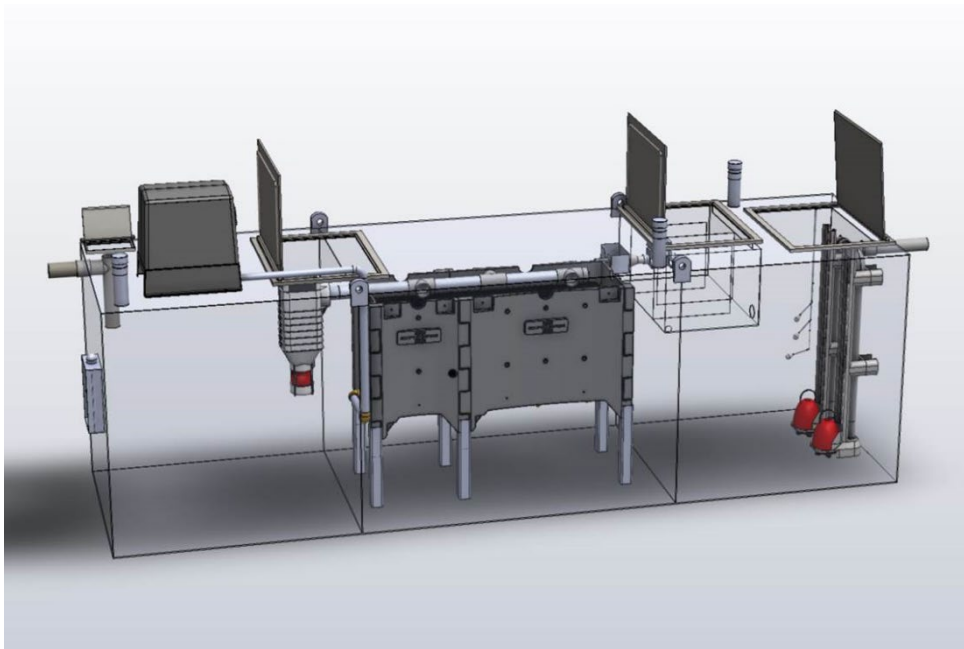


Collection

Advanced Treatment

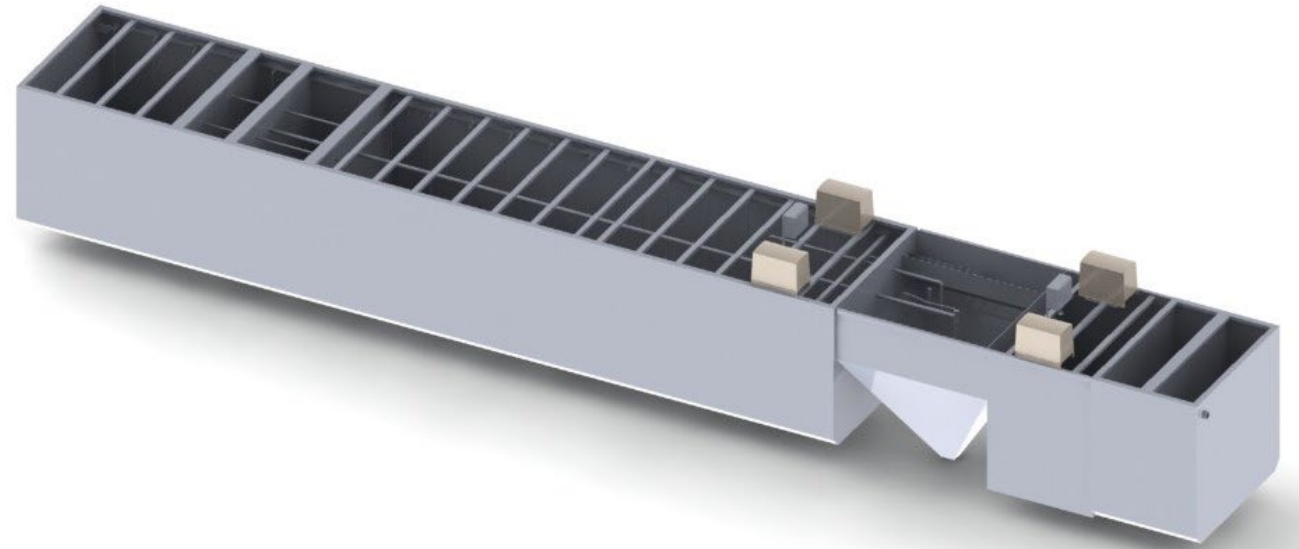
Soil Dispersal

# Treatment Plants Up to 100,000 GPD



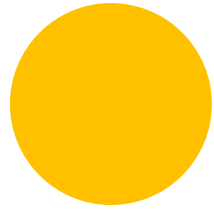
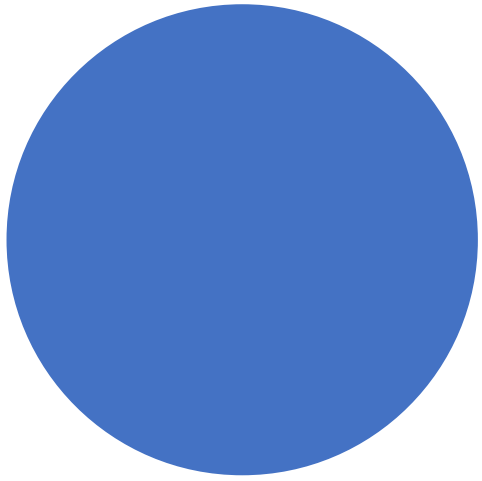
## ECOPOD-D<sup>®</sup>

Proprietary design



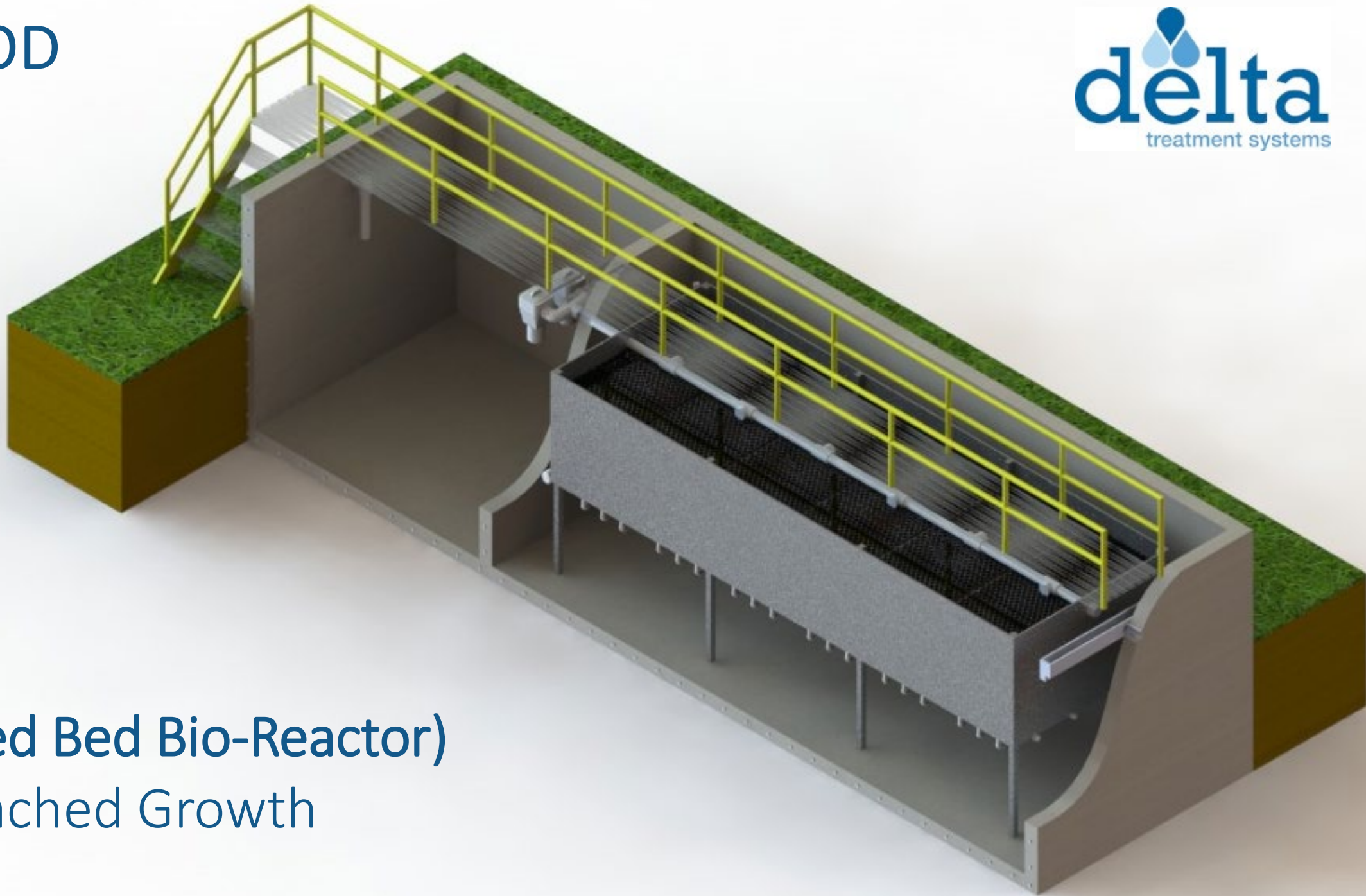
## Package Treatment Plants

10 States Standards design

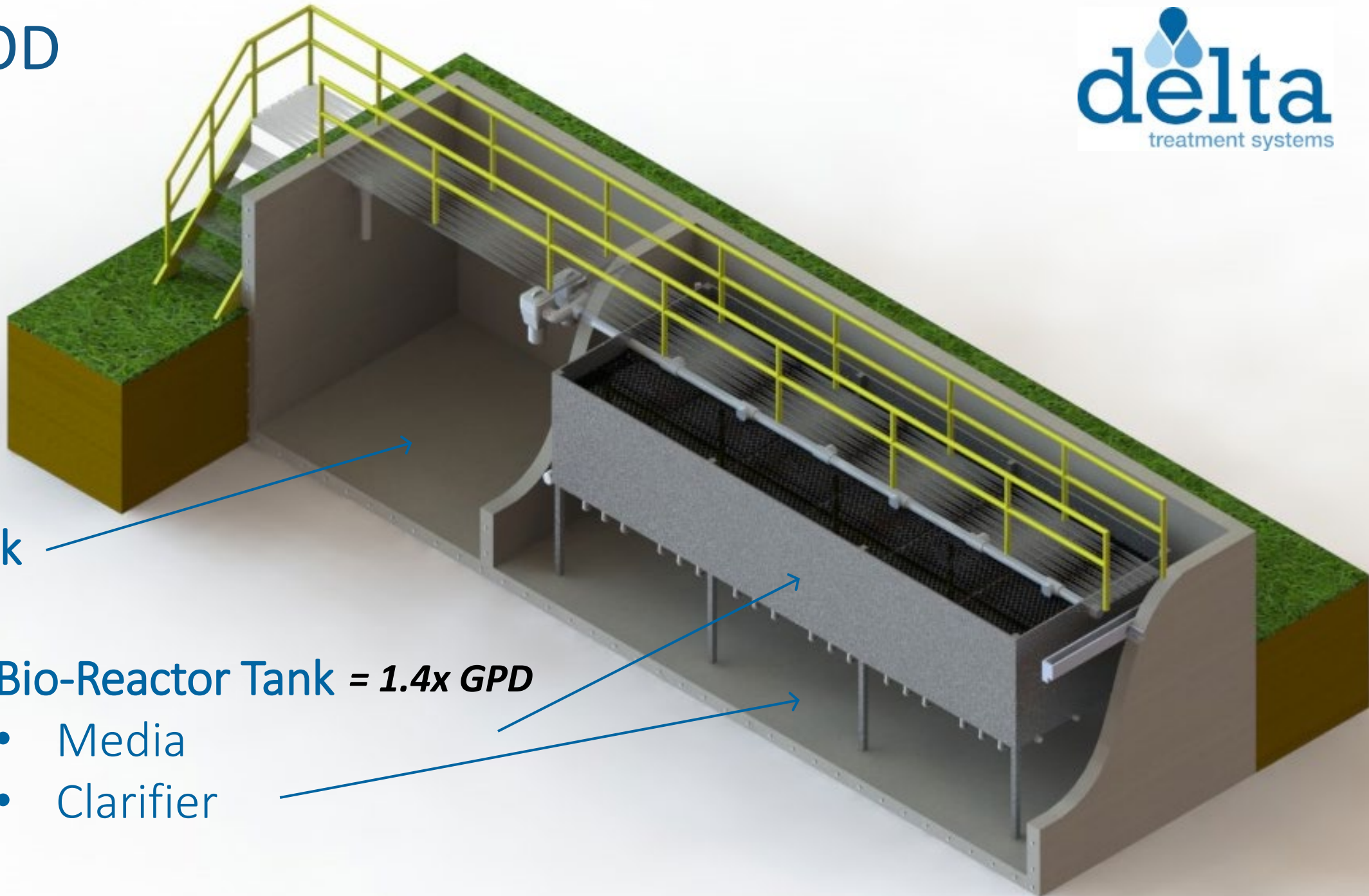


**ECOPOD-D®**





**FBBR (Fixed Bed Bio-Reactor)**  
Fixed/Attached Growth



Primary Tank  
(required)

Bio-Reactor Tank = **1.4x GPD**

- Media
- Clarifier

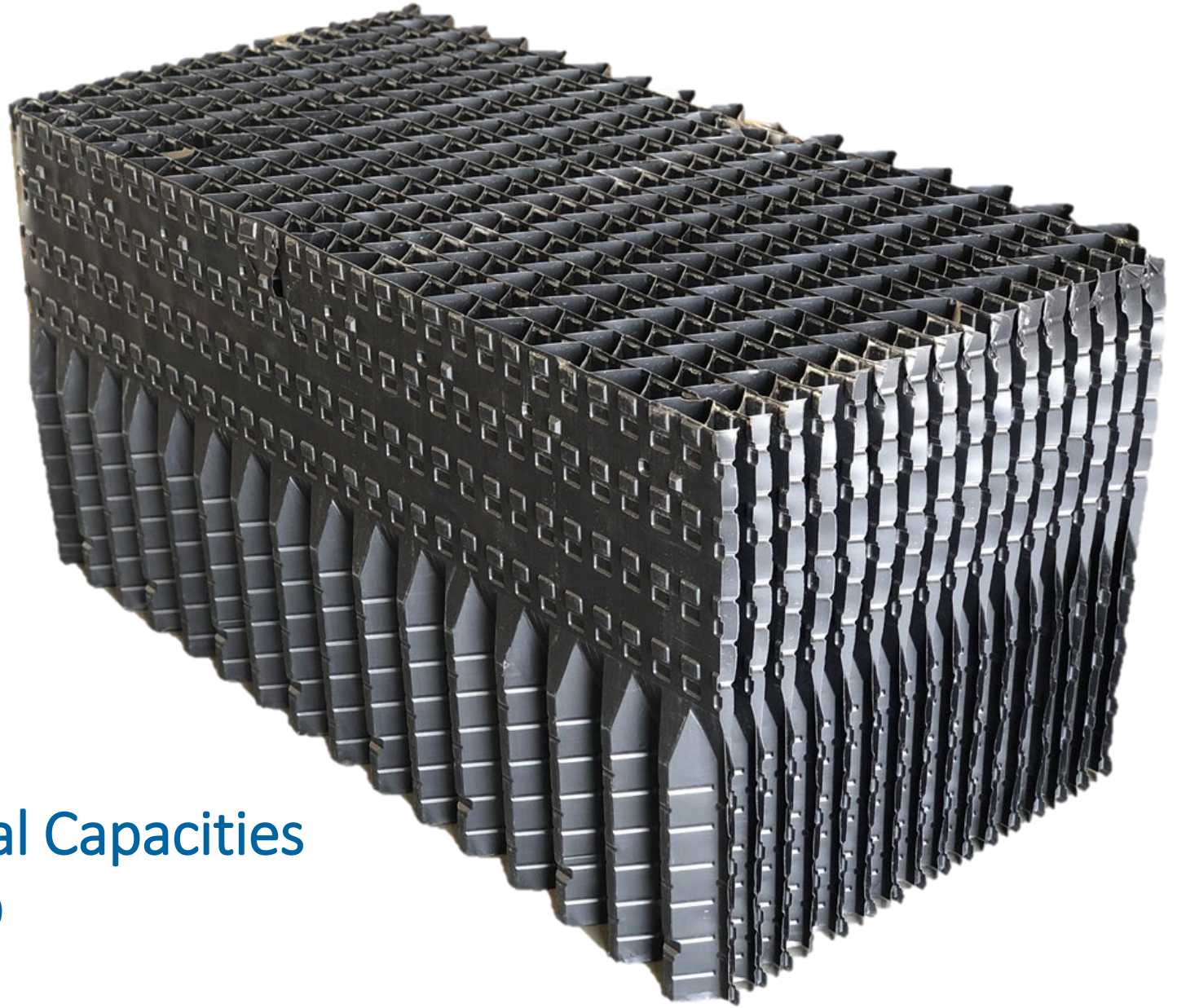
# Media

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## Vertical Fixed Film

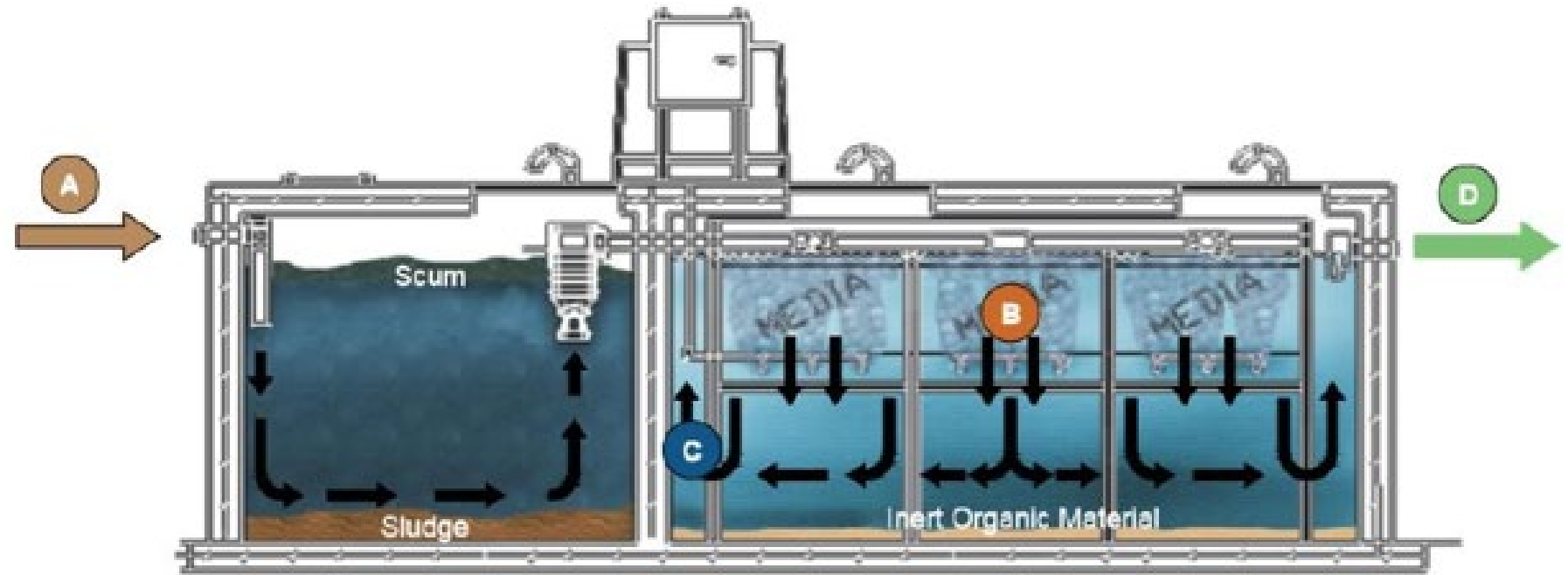
### Removal Capacities

- BOD
- TSS
- Ammonia

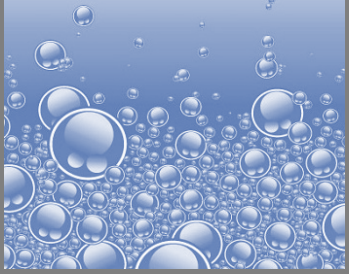


# ECOPOD System

## Treatment Process



- A. Wastewater enters the primary tank
- B. Aerated media area where nitrification takes place
- C. Anoxic area where denitrification takes place (completely mixed)
- D. Effluent is discharged to dispersal system



# Aeration

Patented  
Air Ports

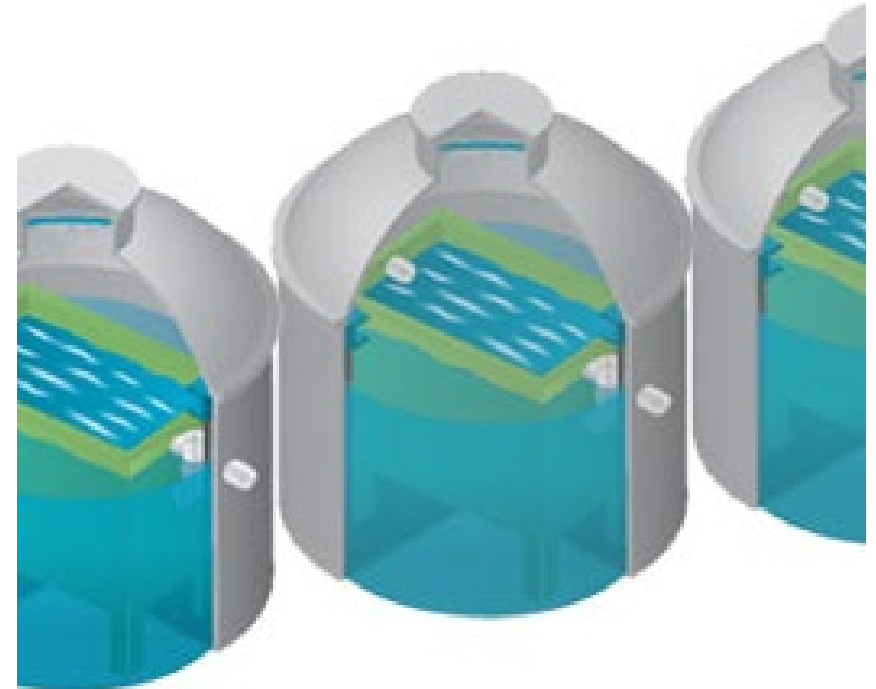
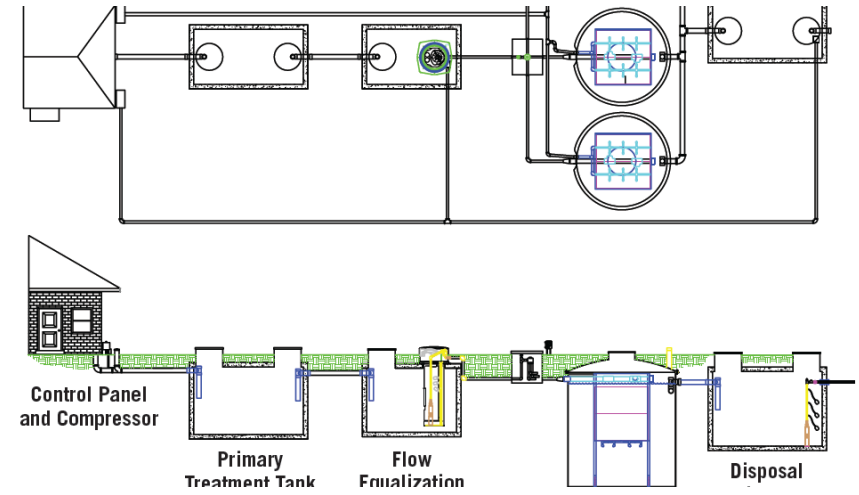




# ECOPOD-C® System

## Light Commercial Applications

- Small commercial treatment plants – 2,000 to 10,000 gpd
- Offered in standard, catalog configurations requiring no special design or engineering
- Designed for commercial and multiple residential wastewater treatment applications





# ECOPOD

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## Features & Benefits

### Fixed Bed Biological Reactor (FBBR)

- ✓ Submerged Media
  - Gravity fed equal influent distribution
  - Reduces odors & filter flies
  - Nothing to clog, no adjustments needed
- ✓ Patented Air Ports
  - Non-pressurized, no back pressure on air compressor

# ECOPOD

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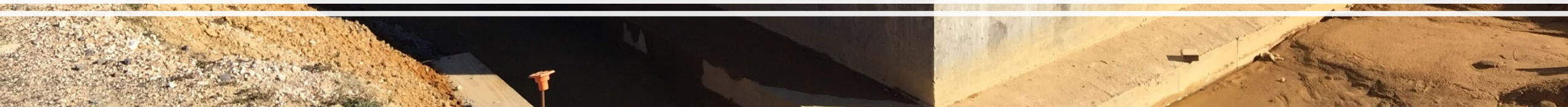
## Features & Benefits

### Fixed Bed Biological Reactor (FBBR) cont...

- ✓ Vertical flow path increases treatment levels
  - Less Sludge Buildup
- ✓ Minimal Routine Maintenance (passive system)
  - Self-Cleaning Media
  - Simple Controls
- ✓ Custom Configurations
  - Existing or Local Tank Sizes
  - Nitrogen Reduction



## Flexible Tank Options



# At-Grade Tanks

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# Partial Bury Tanks

Above-Grade  
Indoors





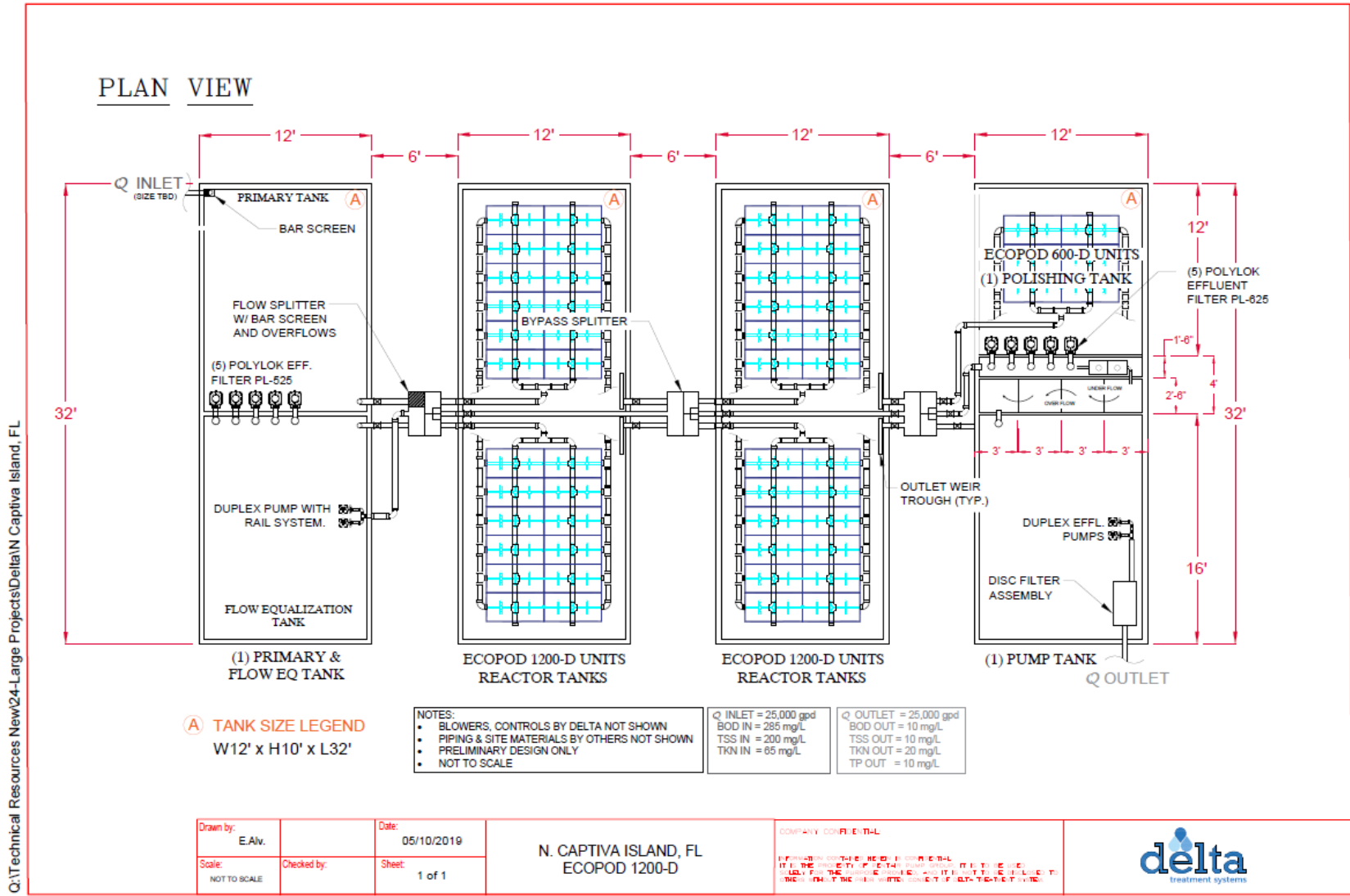








Custom Controls



Nearly every project is custom designed

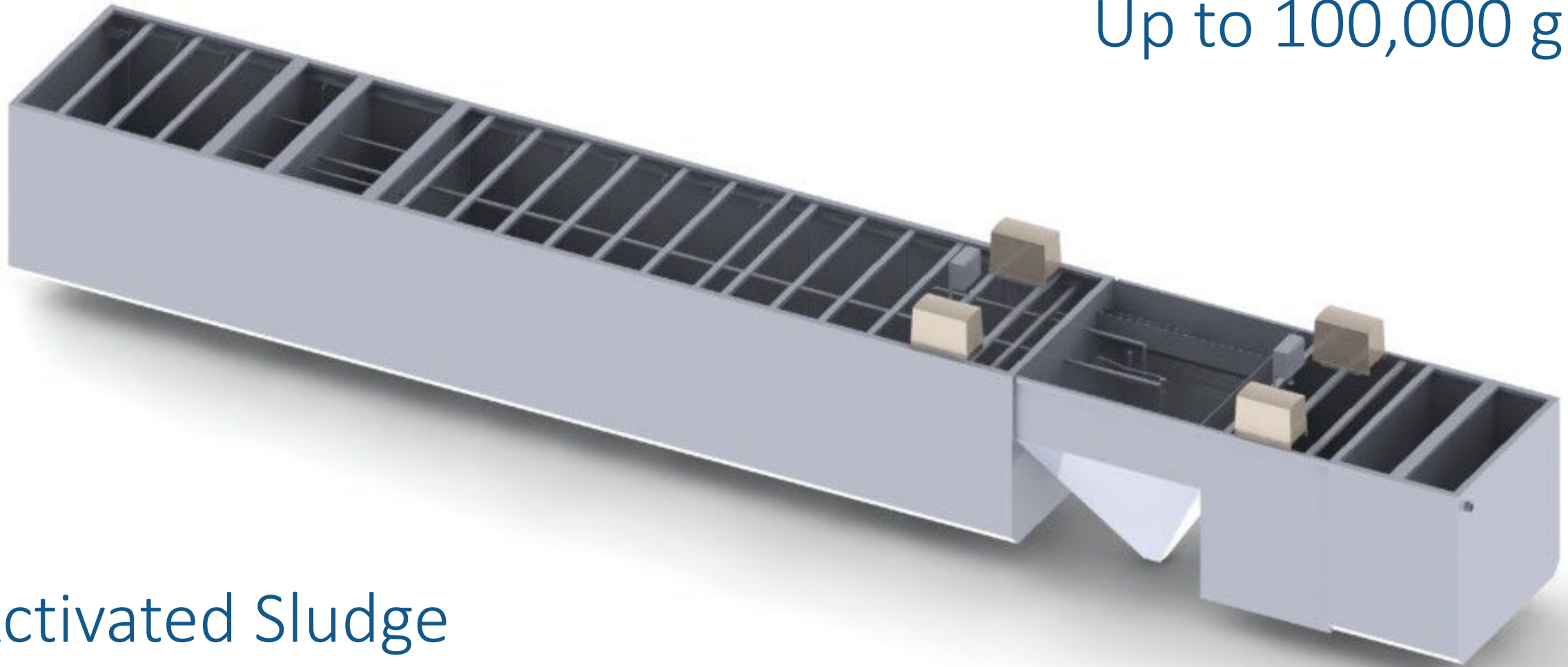
# Package Treatment Plants



# Package Treatment Plants

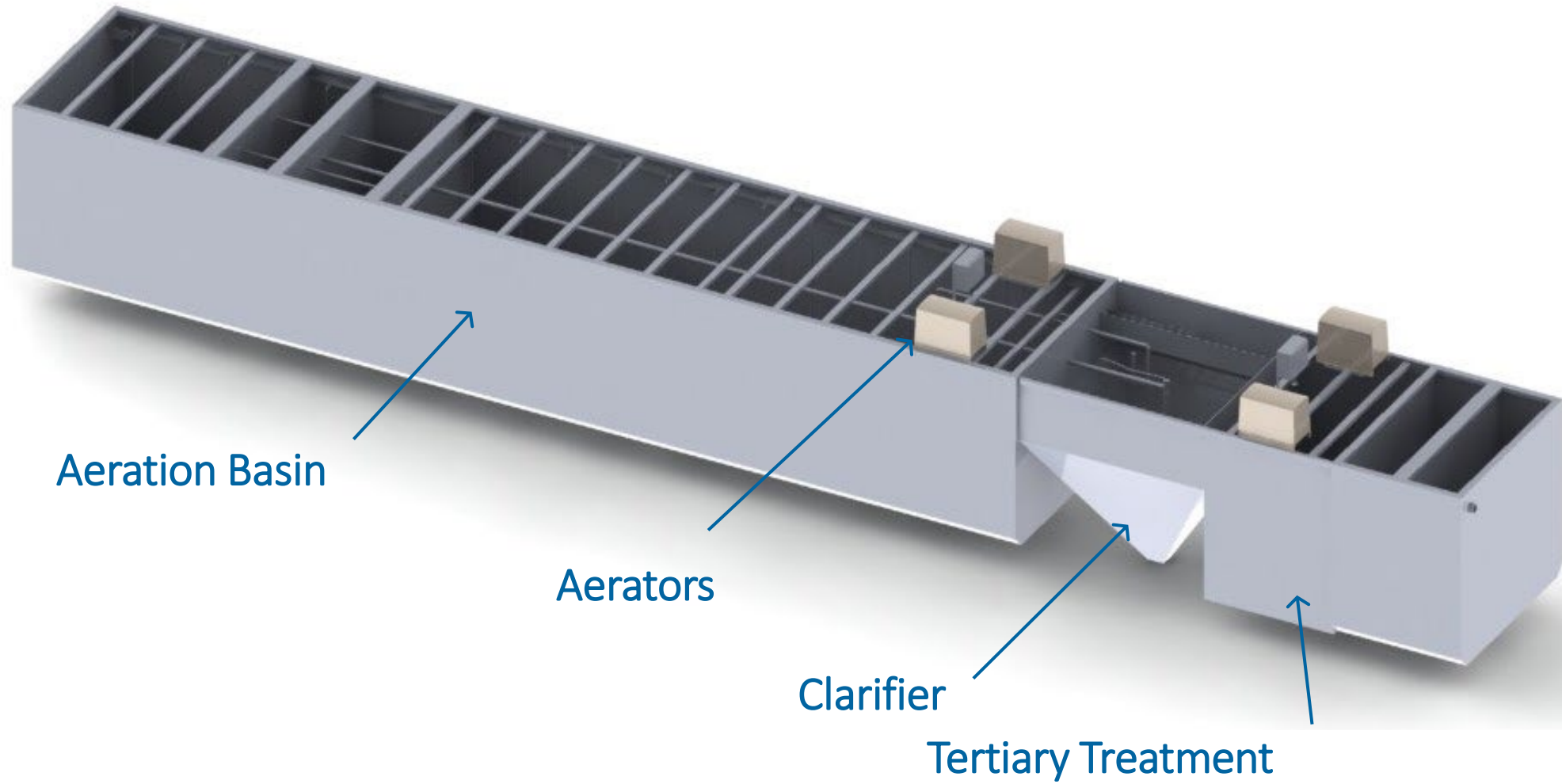


Up to 100,000 gpd

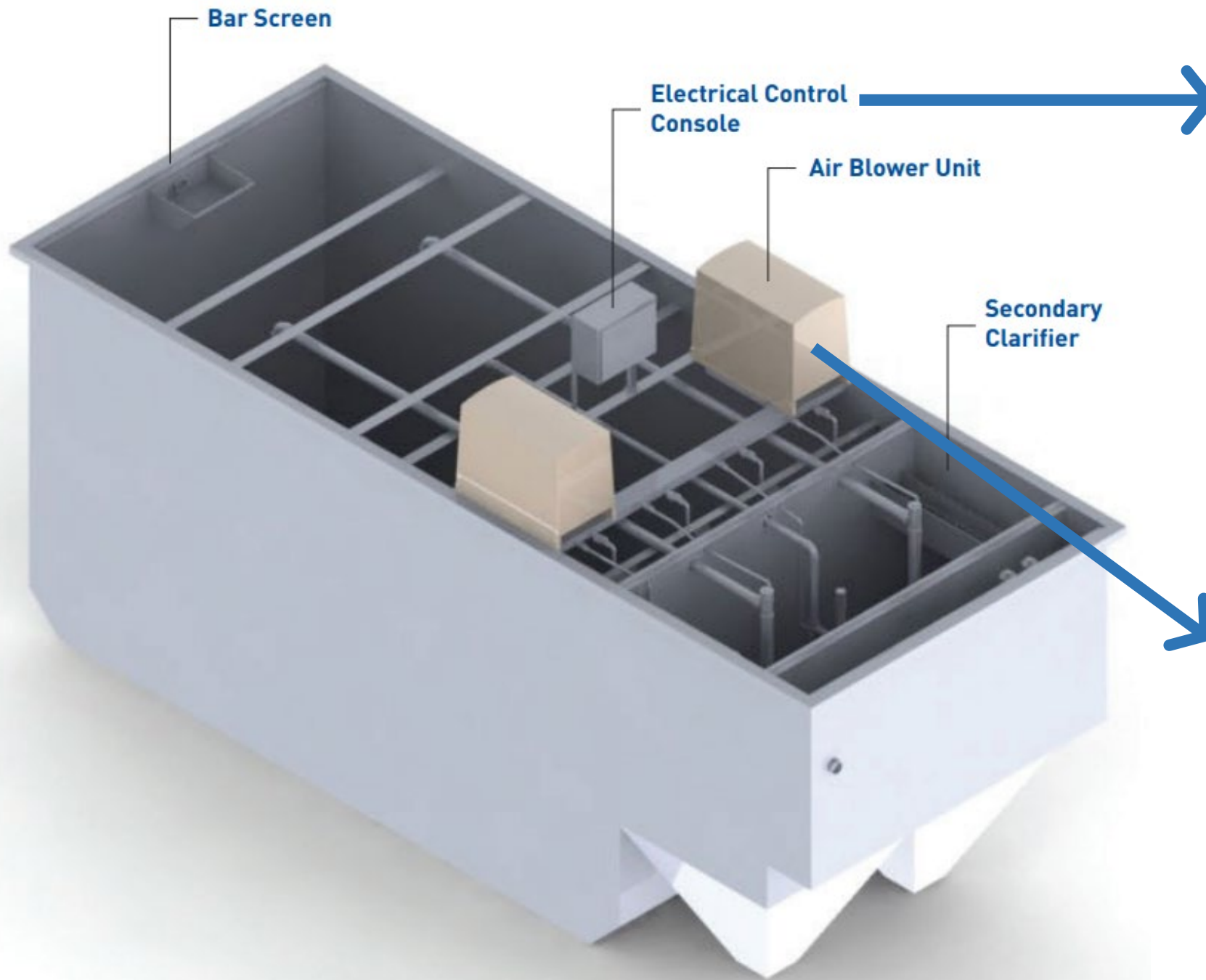


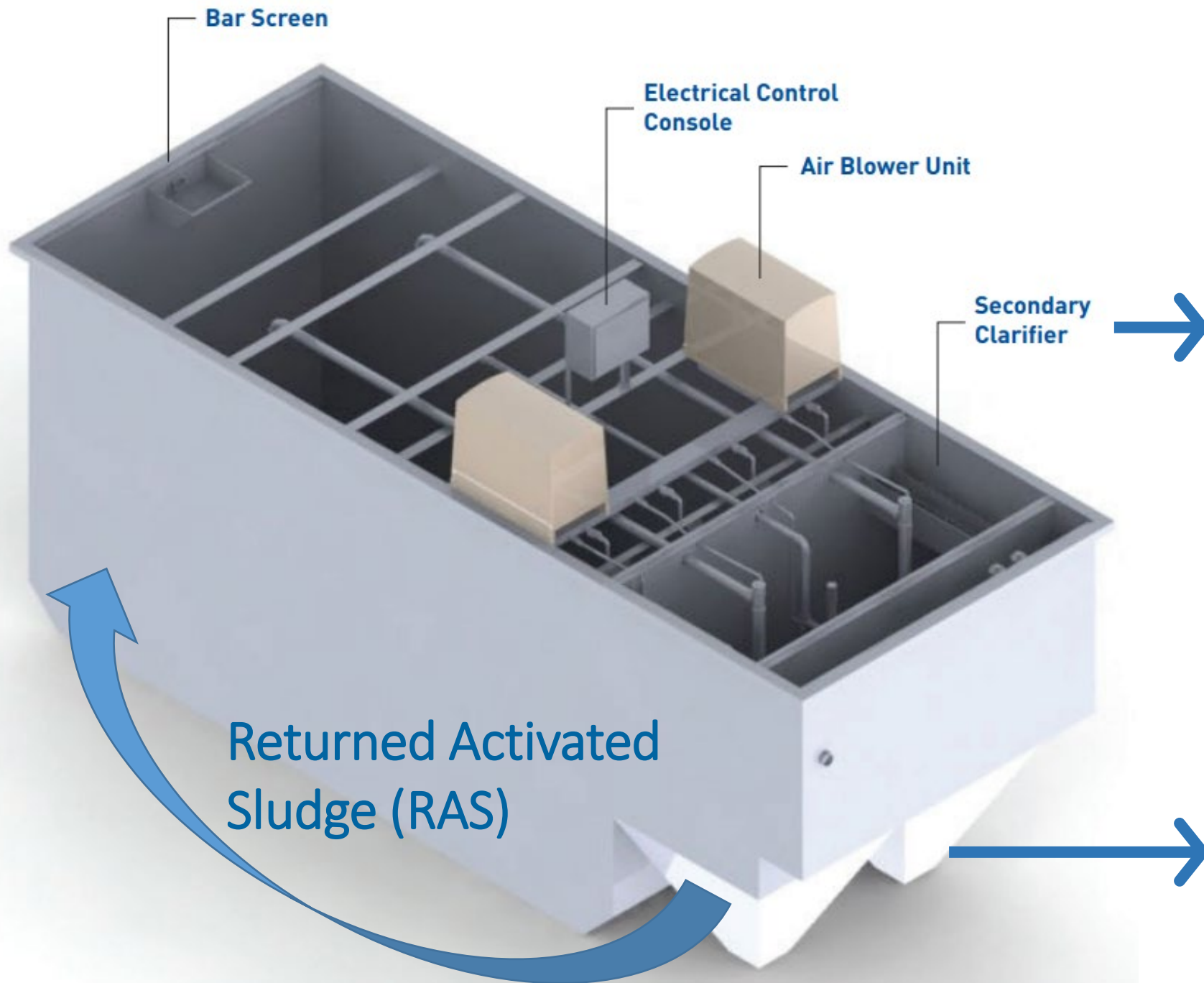
Activated Sludge  
Suspended Growth

# Package Treatment Plant









Waste Activated Sludge (WAS)

# Package Treatment Plant

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Features  
& Benefits

## Custom Configurations

- ✓ Treatment: Basic Model up to a BNR System
- ✓ Coatings
- ✓ Controls
- ✓ Materials
- ✓ Layouts
- ✓ Options: Tertiary Filter, UV, Chlorine, Flow equalization, Sludge Storage, etc.

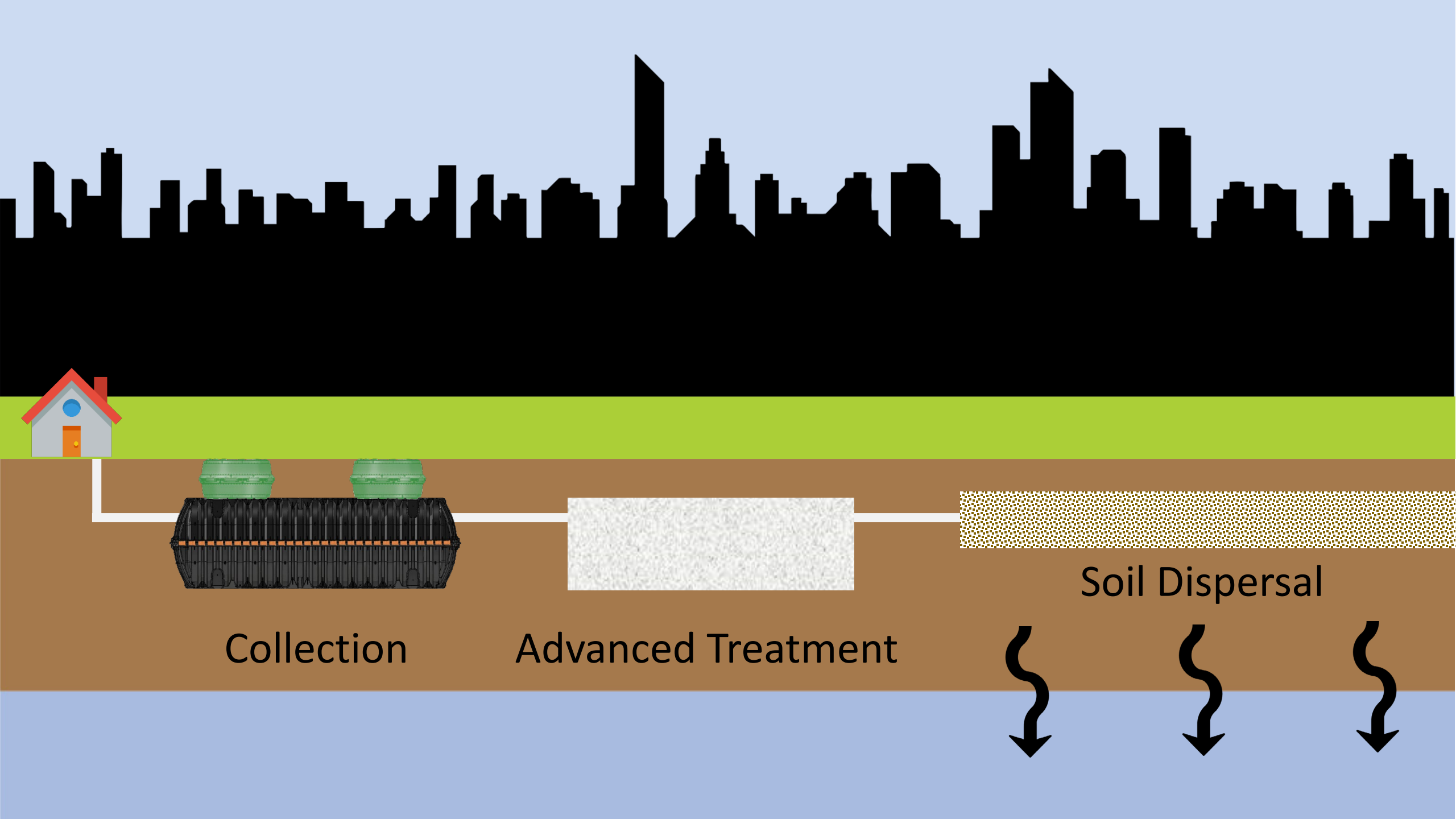




# Wastewater Treatment Summary

	ECOPOD	Package Treatment Plant
Sizing Method	NSF Certified "Pilot"	10 States Standard
Microorganisms	Fixed/Attached Growth	Suspended Growth
Wastewater Flow		
• Intermittent	X	
• Continuous	X	X
Treated Water Dispersal		
• Subsurface Dispersal	X	
• Surface Discharge		X

# Dispersal Options



Collection

Advanced Treatment

Soil Dispersal

# Subsurface Dispersal Technologies

Chambers /  
Synthetic  
Aggregate  
Systems



Low Pressure  
Pipe Systems



Drip Dispersal  
Systems





# Chamber Technologies



**Bed Systems**



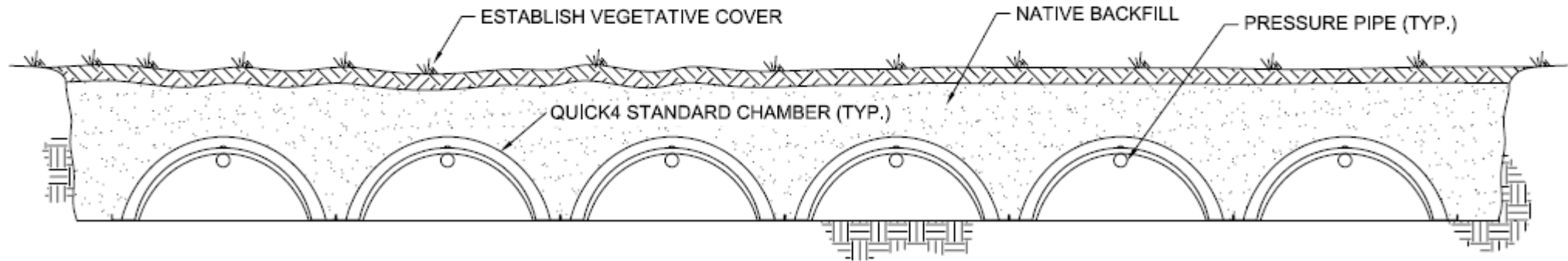
**Trench Systems**

# Standard Chamber details

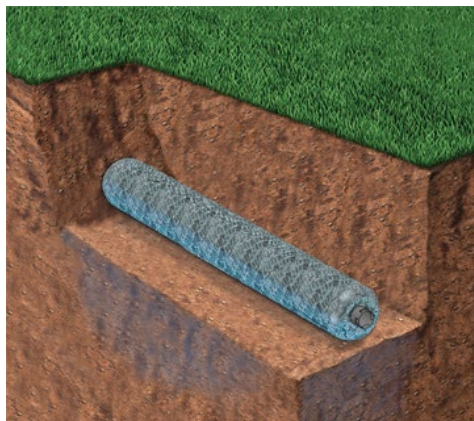
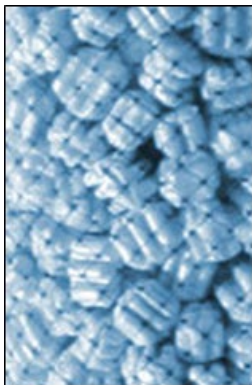


## INFILTRATOR QUICK4 STANDARD CHAMBER CROSS-SECTION

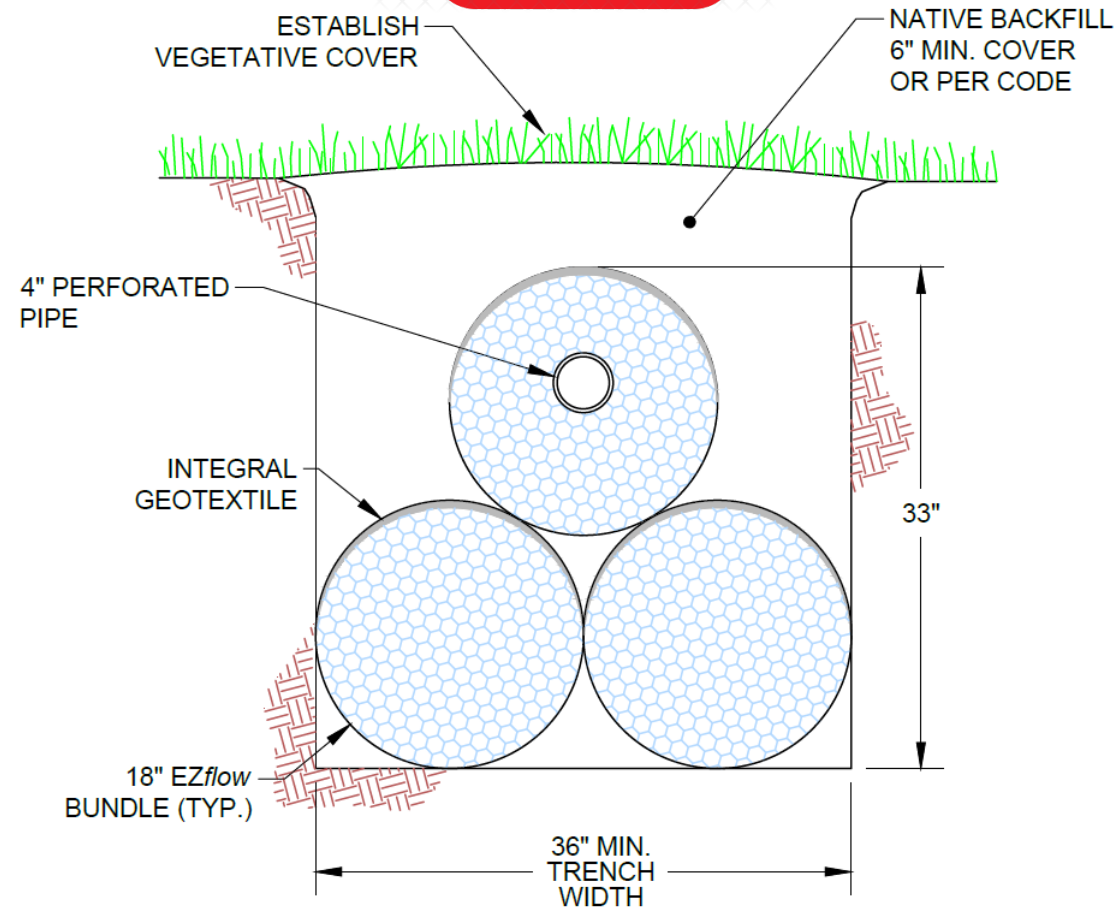
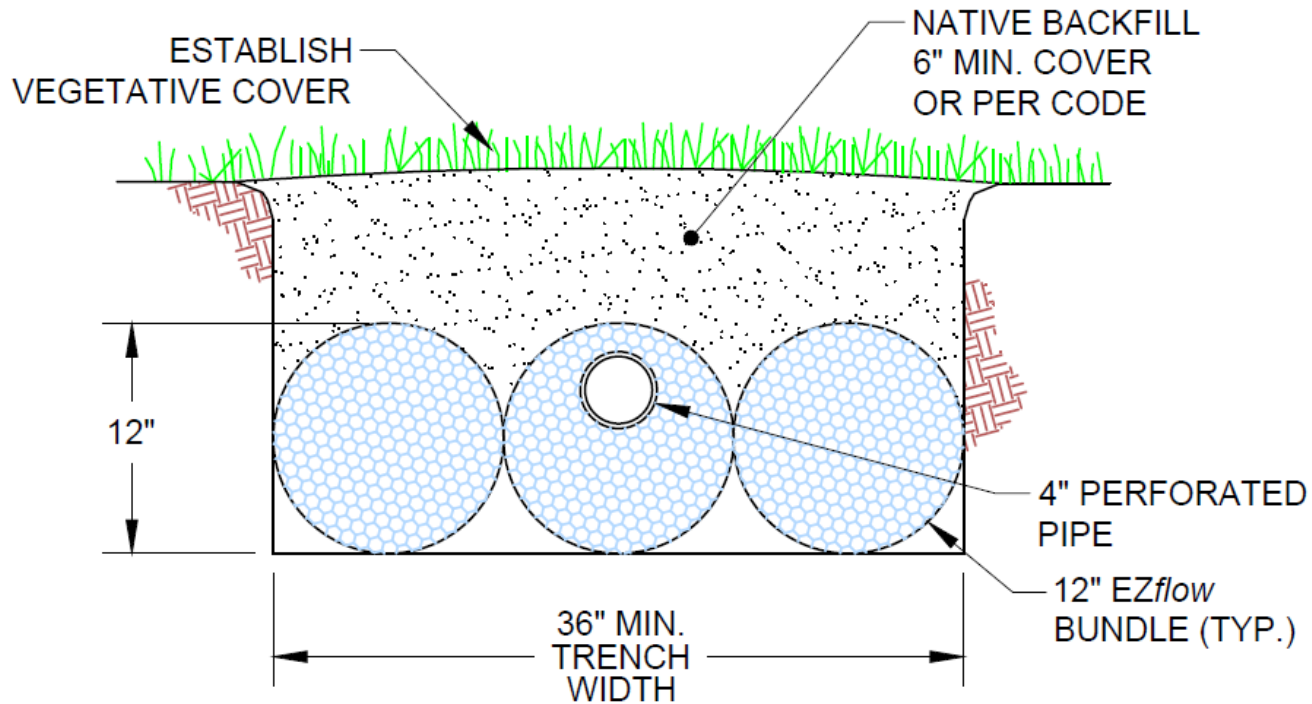
NOT TO SCALE



**EZflow™**  
by INFILTRATOR



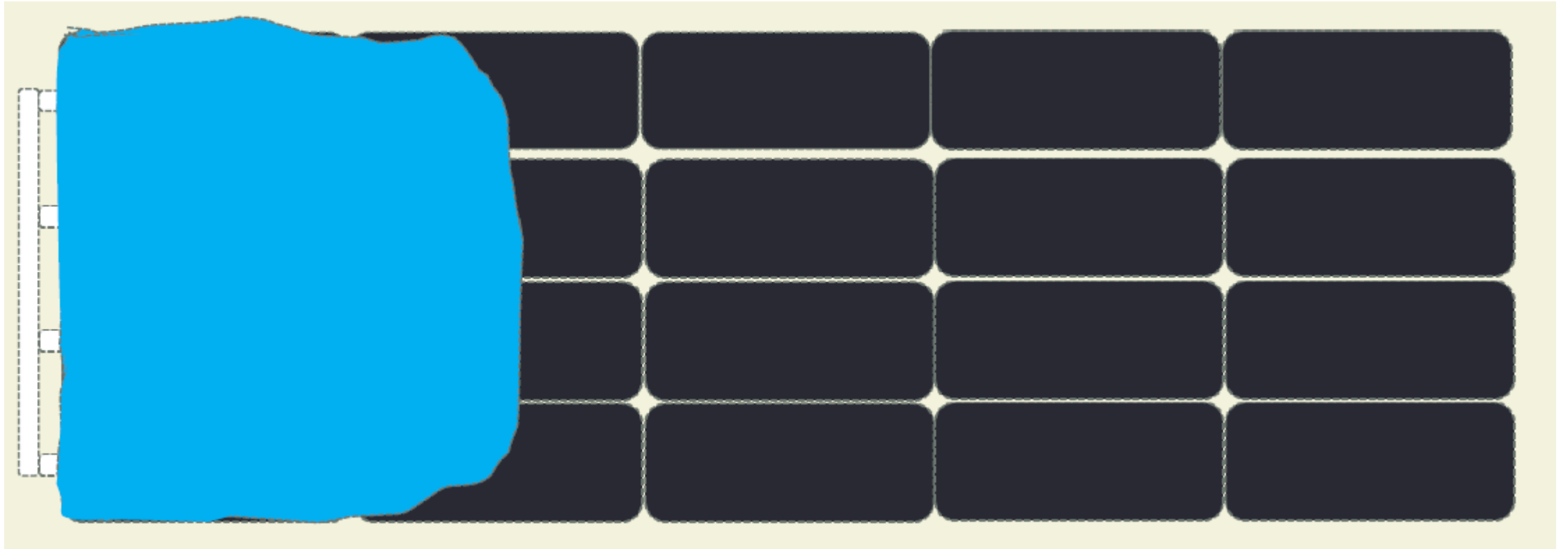
standard  
details



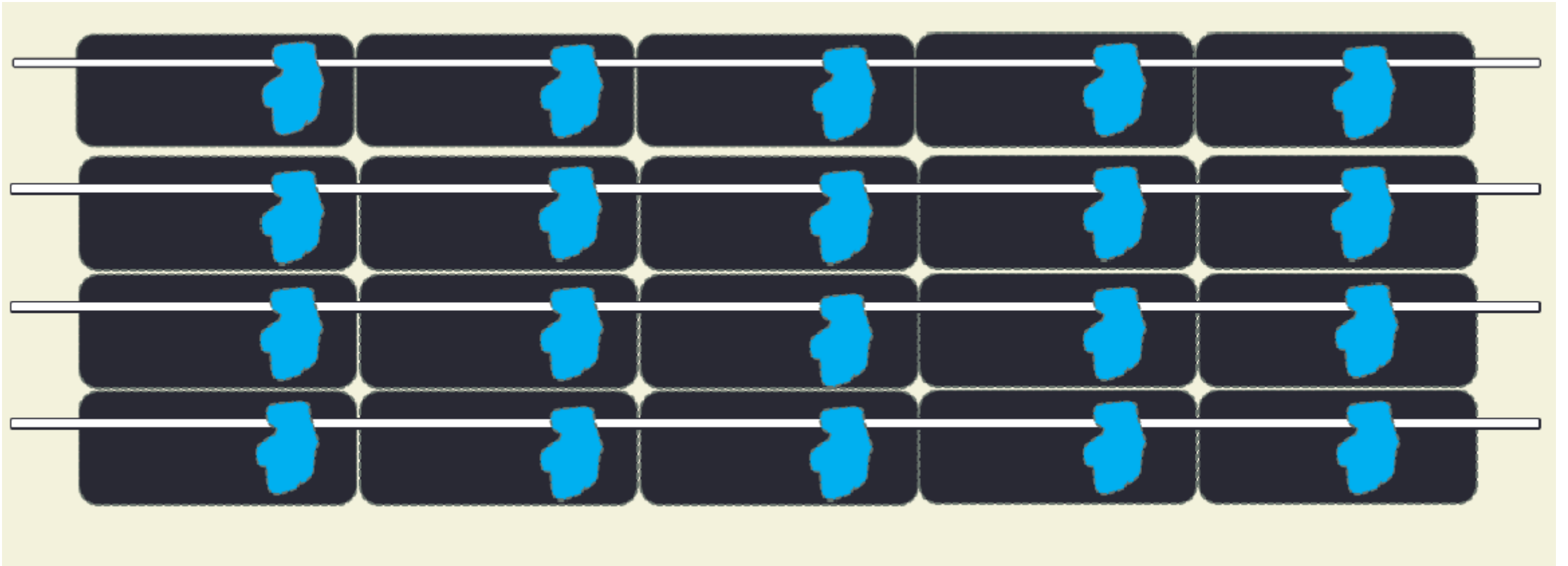
# Low Pressure Pipe



# Conventional Gravity



# LPP Dosing

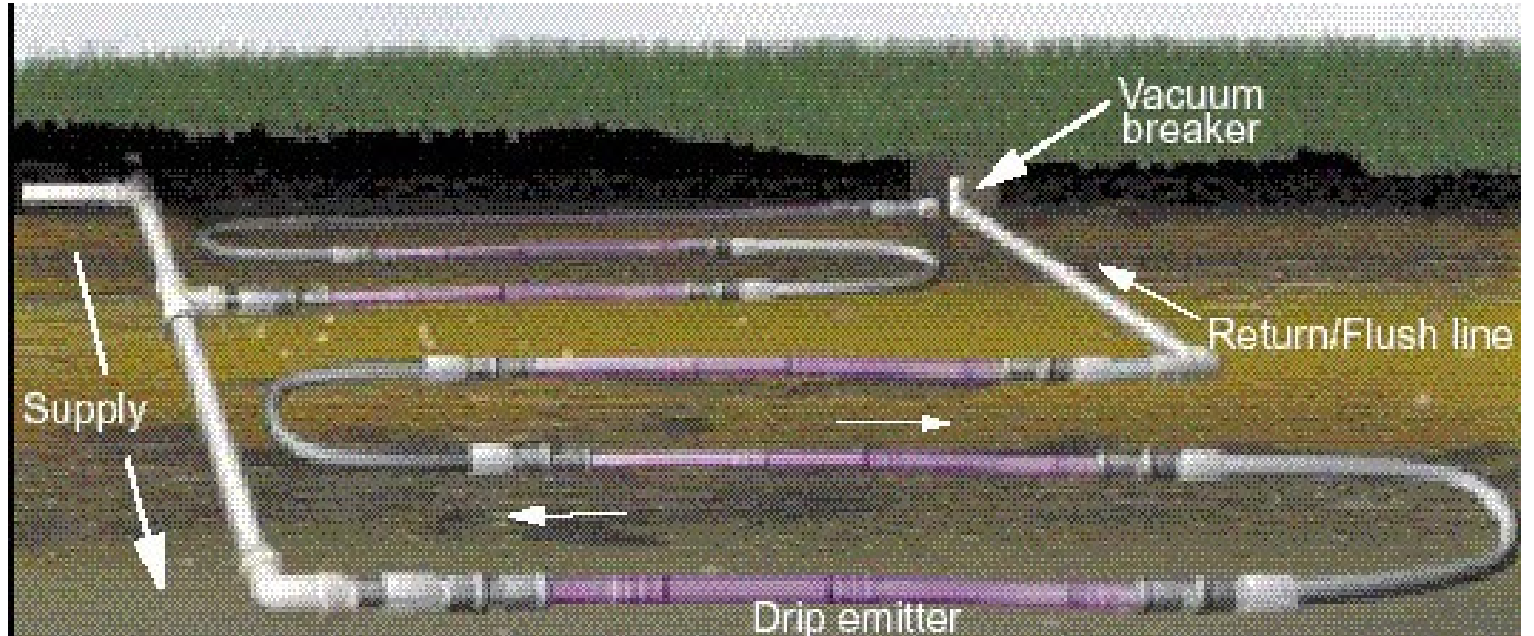


# Drip Tubing



- ½" Polyethylene Tubing
- Emitters and tubing spaced 12" or 24" apart
- Buried 6" to 8" below the soil surface





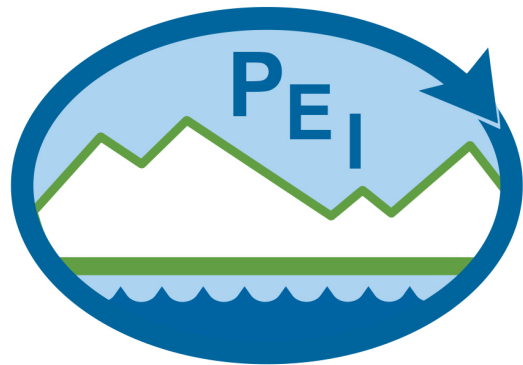
# Drip Dispersal

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# Soil Dispersal Options - Summary

	Why this Technology?
Chambers/ EZflow	<ul style="list-style-type: none"><li>• Limit embedment for improved infiltration</li><li>• Possible drainfield size reduction</li><li>• Higher Storage for Peak Flow Capacity</li><li>• No Fines, Quick and Easy to Install</li></ul>
Drip	<ul style="list-style-type: none"><li>• Shallow Soil Restrictions</li><li>• High Ground Water or Bedrock</li><li>• Tight Soils</li></ul>



Presby Environmental, Inc.



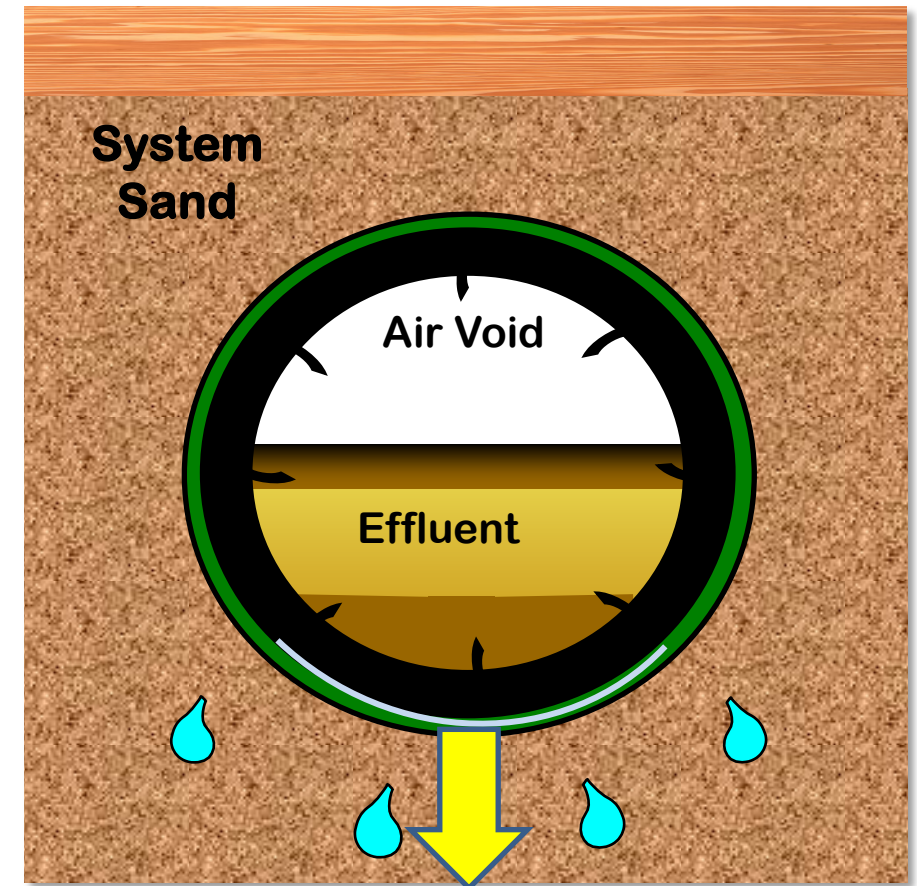
# Advanced Enviro-Septic<sup>®</sup> (AES)

Combined Treatment & Dispersal System

# Advanced Enviro-Septic<sup>®</sup> (AES) for Combined Treatment & Dispersal



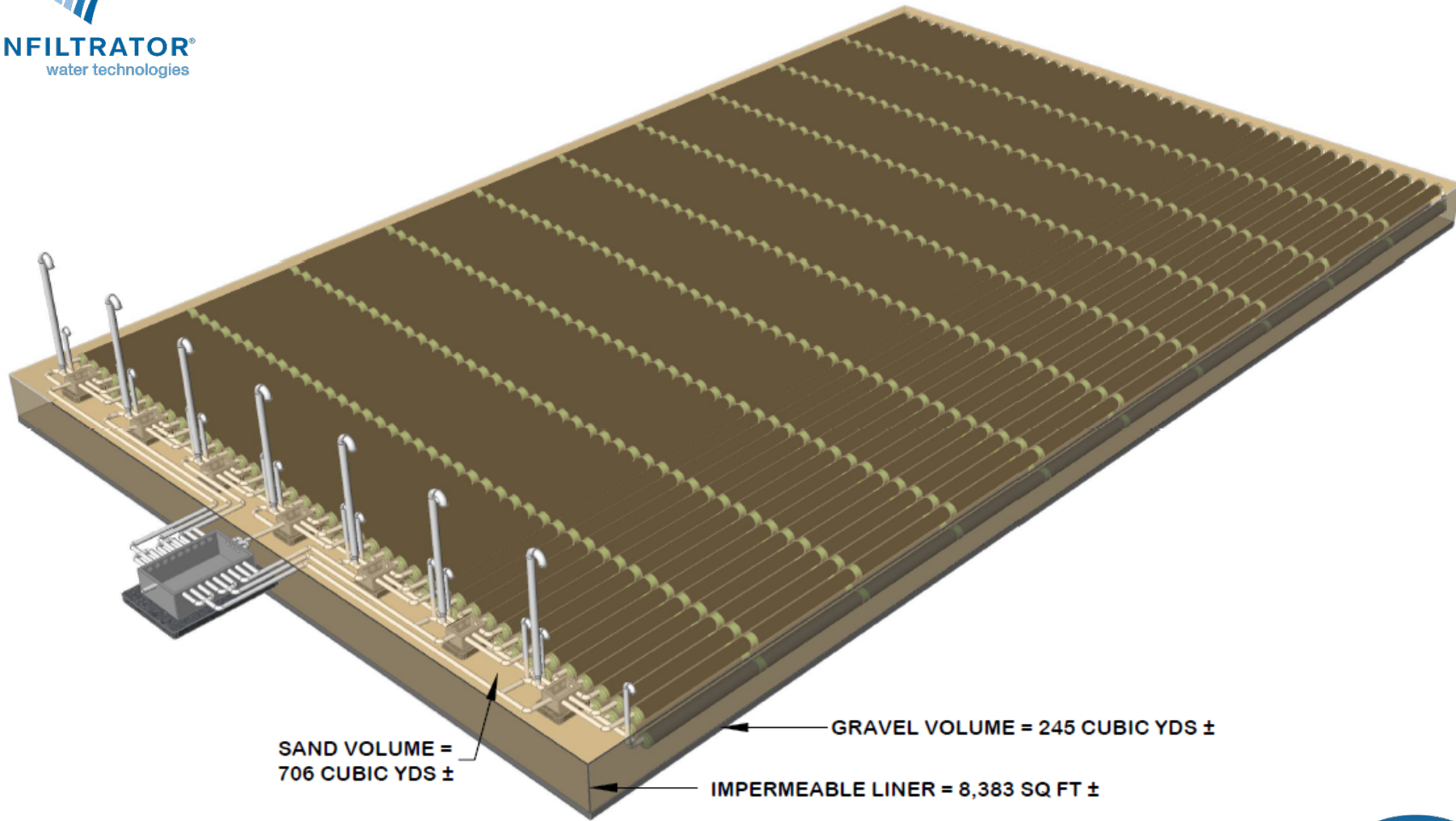
- Passive System
- Advanced Treatment & Dispersal
- No Mechanical Devices, Electricity or Chemicals
- Durable, Non-Biodegradable Components



# California FEMA Base Camp



- Largest AES system to date
- 100,000 gallons per day
- Multi-Level™
- All treated water captured
- Over 1,500 workers
- Kitchens and Laundry Facilities



### Right Front ISO View - Near End

SCALE: NONE

Prepared for:

**Tuscan Ridge FEMA Base Camp**  
3100 Skyway Boulevard  
Paradise, CA 95967

Presby Environmental, Inc.  
143 Airport Road  
Whitefield, NH 03598

THE PRESBY WASTEWATER  
TREATMENT SYSTEM

**25K GPD Module**

Drawn by	Checked	DWG #	Date	Job #
Presby		Rev. B	4-16-19	







[More Case Studies](#)





# Surgoinsville STEP System

**Location:** Hawkins County, TN

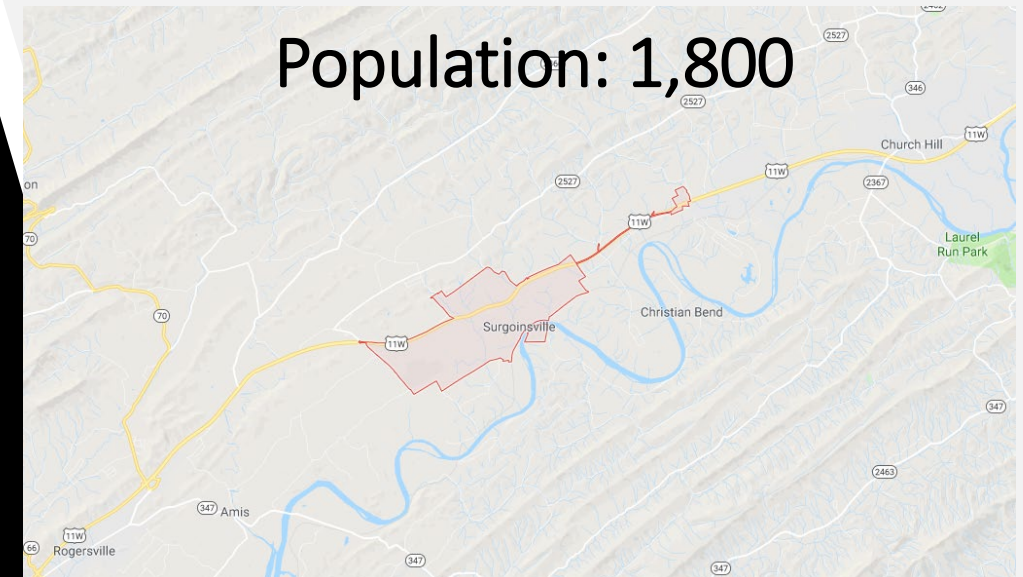
**Installation:** 2016

**Design Flow:** 1.6 mgd

## Specs:

\$4M project serves 250 residences (up to 700), 2 schools, and 9 Businesses.

STEP system with discharge off-site to the Church Hill WWTP.





# Raceway Concession Stand

**Location:** Avondale, AZ  
**Installation:** September 2004  
**Design Flow:** 4,520 gpd

## Specs

Gravity-fed Septic Tank to Drainfield

2-In Series Tanks (6400gal + 4000gal)  
1525 LF Chambers to a soil with an  
absorption rate of 15 MPI.





# Crazy D's Truck Stop



**Location:** Remington, IN  
**Install:** December 2005  
**Design Flow:** 7,000 gpd

## Specs

Advanced Treatment System to a flood-dosed (P2G) 8000 LF trench system.





# ***Gillette STADIUM***



**Location:** Foxborough, MA  
**Install:** 2002  
**Design Flow:** 1.2 mgd

## Specs

MBR Treatment Facility to drainfield under parking lot.



# Questions?



**For further questions please  
contact Infiltrator Water Technologies at  
[info@infiltratorwater.com](mailto:info@infiltratorwater.com)**



**THANK YOU**

**A certificate of course completion will  
be issued to attendees by email.**