INFILTRATOR®
water technologies

Small Community Solutions: Packed Bed Filter achieves stable Nutrient Reduction

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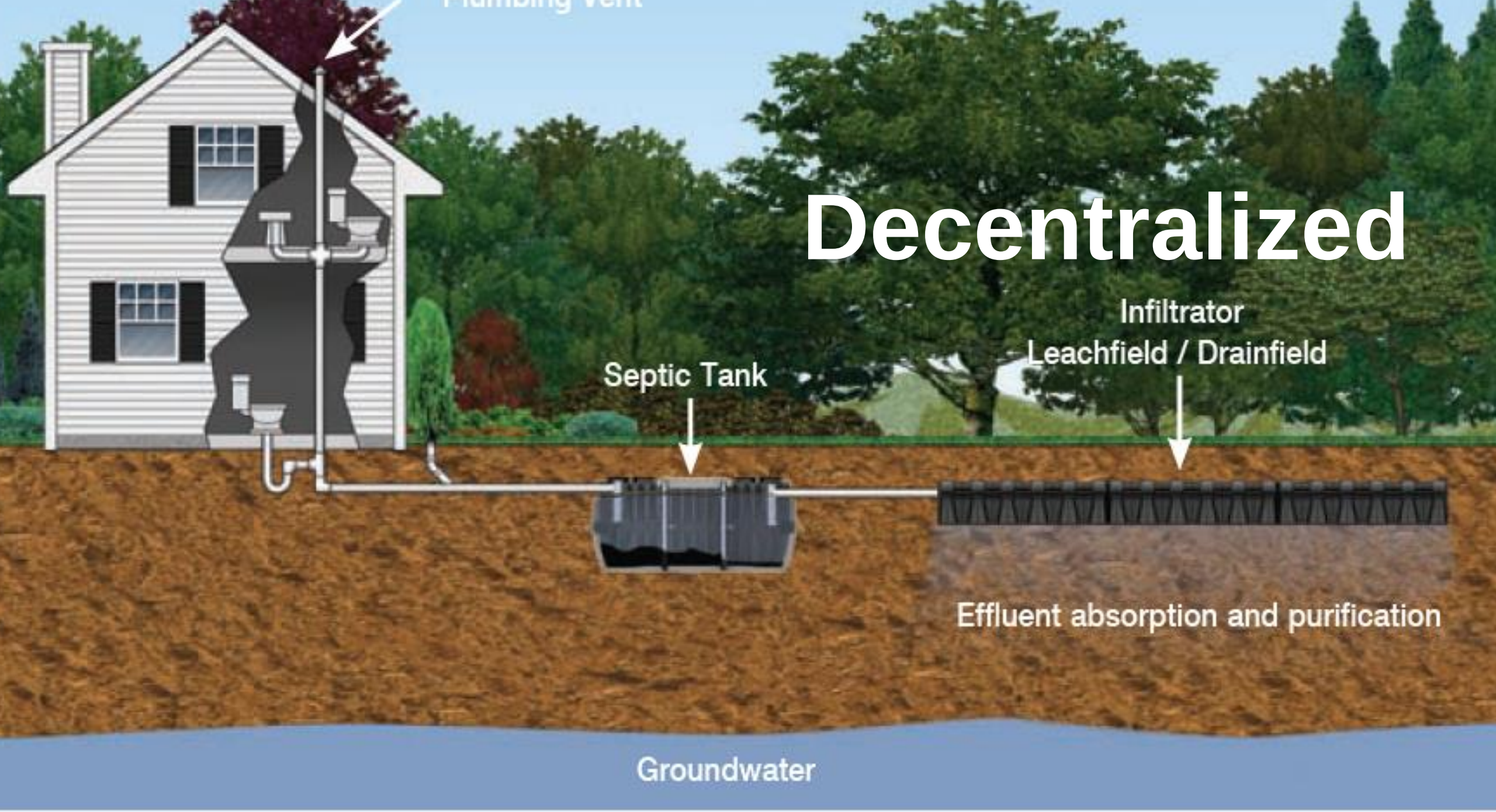
Technical Director


Plumbing Vent
Decentralized
Infiltrator
Leachfield / Drainfield
Septic Tank
Effluent absorption and purification
Groundwater

California FEMA Base Camp

- Town of Paradise
- 100,000 gallons per day
- Over 1,500 workers
- Kitchens and Laundry Facilities
- Sand Filter System
- All treated water captured


SUPERIOR

Gillette STADIUM

Installation Date: 2002
Design Flow: 1.2 MGD

Treatment: MBR w/Reuse

Disposal: drainfield under parking lot.

Residential

Up to 1,500 gallons per day

Community

STEP or cluster systems

Commercial

Up to 100,000 gallons per day

Enhanced Sand Filter System

- **<u>Combined Treatment and Dispersal (CTD)</u> system**
- **Gravity flow secondary treatment system**
- **Passive, No Energy input**
- **Manufactured in NH**

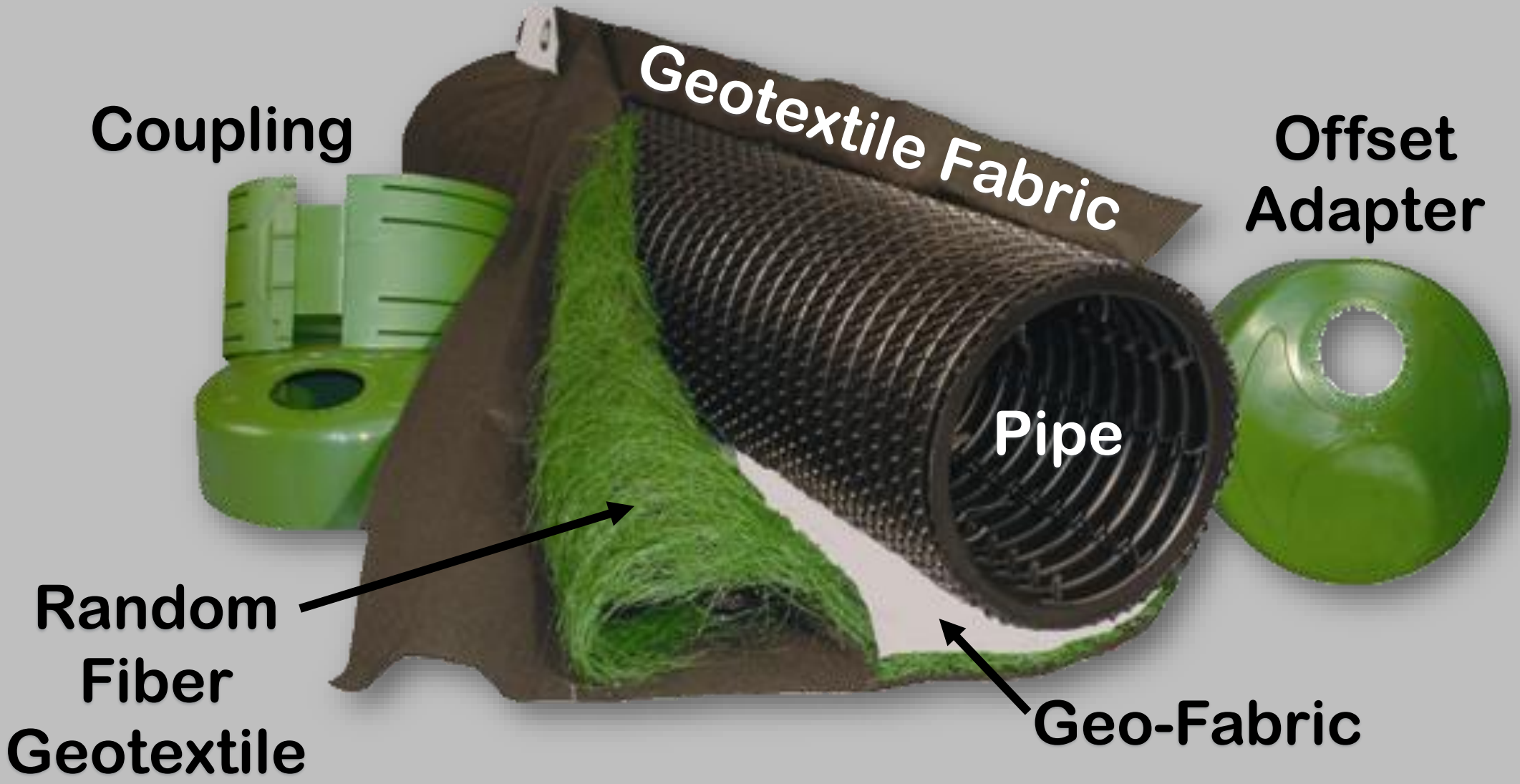
NSF
SPD & CTD Models Certified to NSF/ANSI Standard 40, Class I

CEBEDEAU

BNQ
BUREAU DE NORMALISATION DU QUÉBEC

Presby Product

Presby Product



Sand Filter Advantages

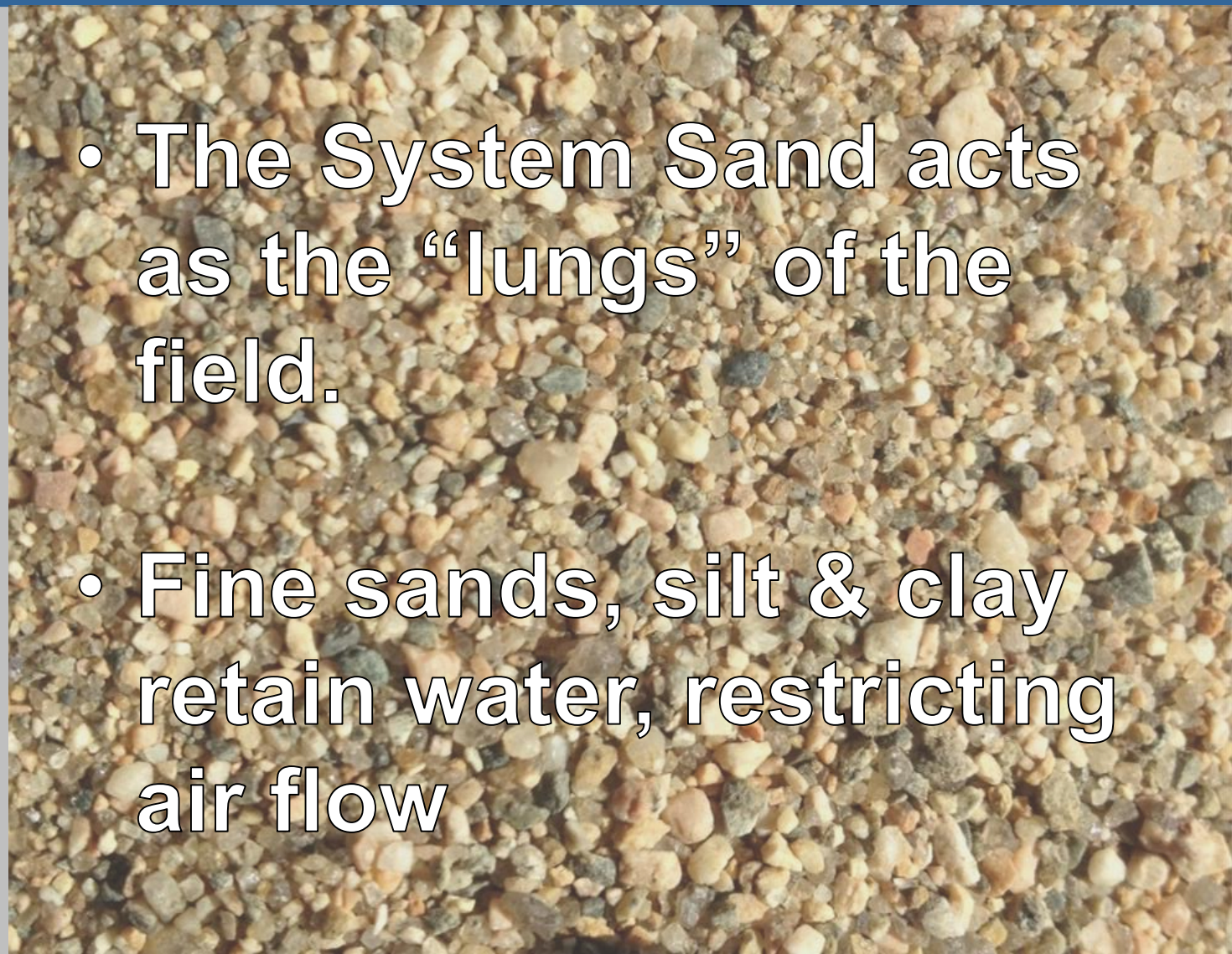
- Passive System, Low Energy
- Advanced Treatment
- No Chemicals
- Diverse Configurations to fit the site
- Very limited O&M
- Does not require skilled personnel to operate
- Low cost, locally sourced materials

Sand Filter Disadvantages

- Clogging
  - Improved dispersal system, better air exchange
- Land Intensive
  - Reduced footprint due to increased loading rate
- Cold Temperature performance
  - Bury the system
- Sand Specification (quality)

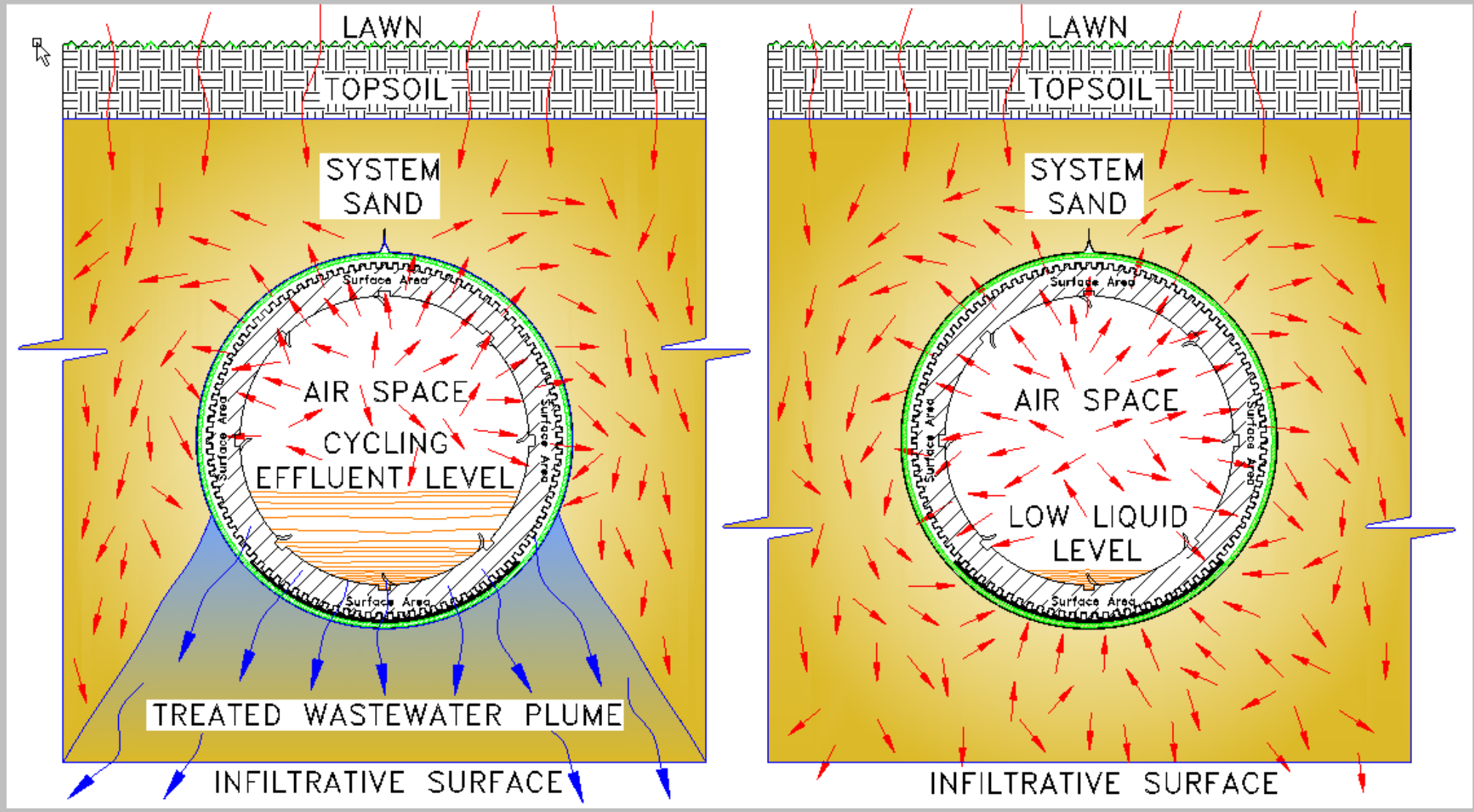
System Sand Sourced Locally, Specified Criteria

Sieve Size	ASTM C-33 Fine Aggregate
3/4 inch	
3/8 inch	100% passing
#4	95-100% passing
#8	80-100% passing
#10	
#16	50-85% passing
#30	25-60% passing
#35	
#40	
#50	5-30% passing
#100	0-10% passing
#200	0-3% passing (default if not specified)



- The System Sand acts as the “lungs” of the field.
- Fine sands, silt & clay retain water, restricting air flow

Efficient Oxygen Delivery to Biologically Active Surface Areas



Blodgett Landing Treatment Plant

Newbury, New Hampshire

Residential Community

Design Flow

50,000 GPD


Blodgett Landing, Newbury, NH
50,000 GPD
Google Earth

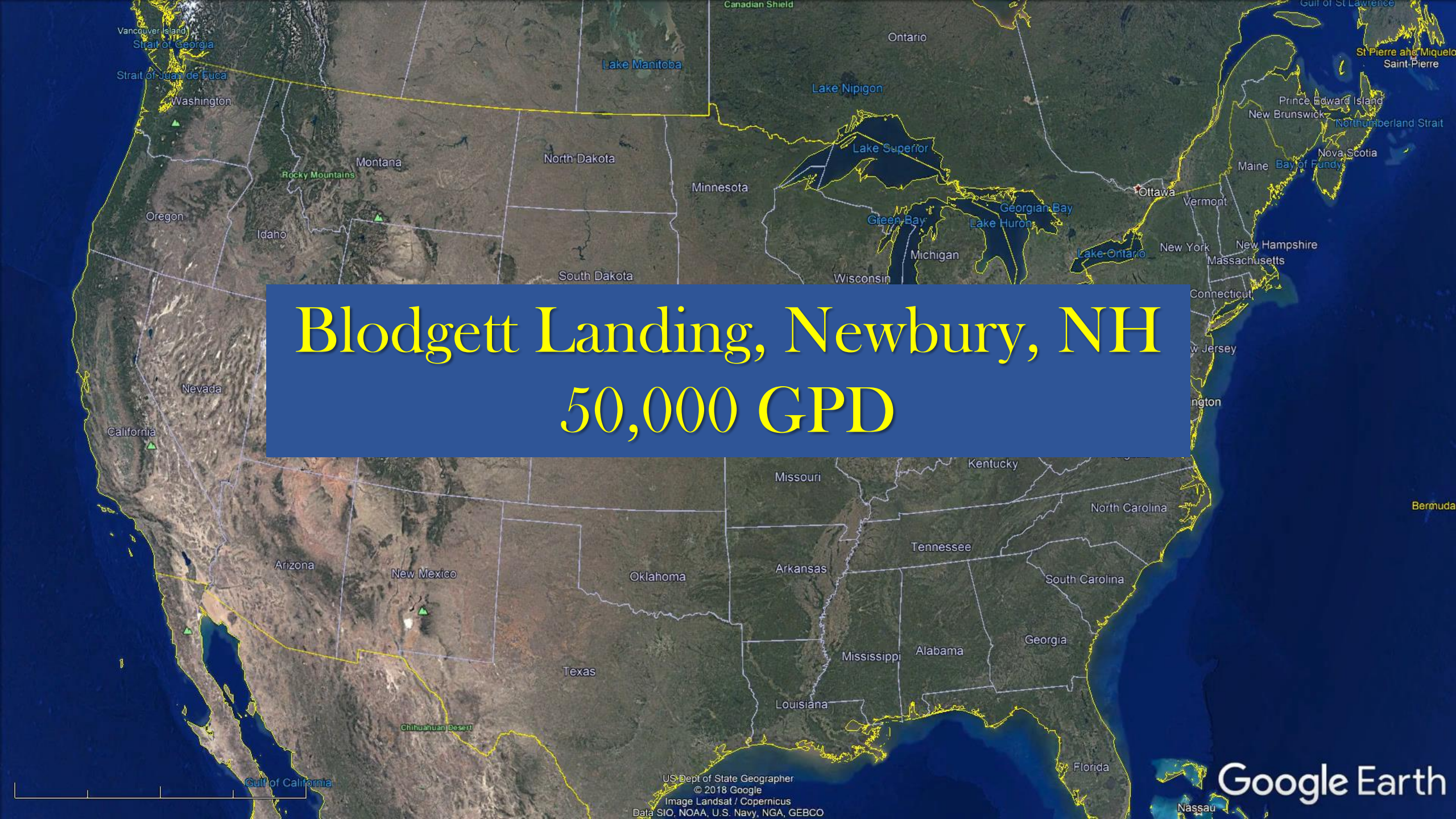

Blodgett Landing, Newbury, NH
50,000 GPD
Canadian Shield
Ontario
Lake Manitoba
Lake Nipigon
Lake Superior
Georgian Bay
Lake Huron
Green Bay
Lake Ontario
Michigan
Wisconsin
Minnesota
North Dakota
South Dakota
Montana
Rocky Mountains
Oregon
Idaho
Washington
Vancouver Island
Strait of Georgia
Strait of Juan de Fuca
Ottawa
Vermont
New York
New Hampshire
Massachusetts
Connecticut
Maine
Bay of Fundy
Nova Scotia
New Brunswick
Prince Edward Island
Northumberland Strait
St Pierre and Miquelo
Saint-Pierre
Nevada
California
Arizona
New Mexico
Oklahoma
Texas
Missouri
Kentucky
Tennessee
Arkansas
North Carolina
South Carolina
Georgia
Mississippi
Alabama
Louisiana
Florida
Bermuda
Nassau
Chihuahuan Desert
Gulf of California
US Dept of State Geographer
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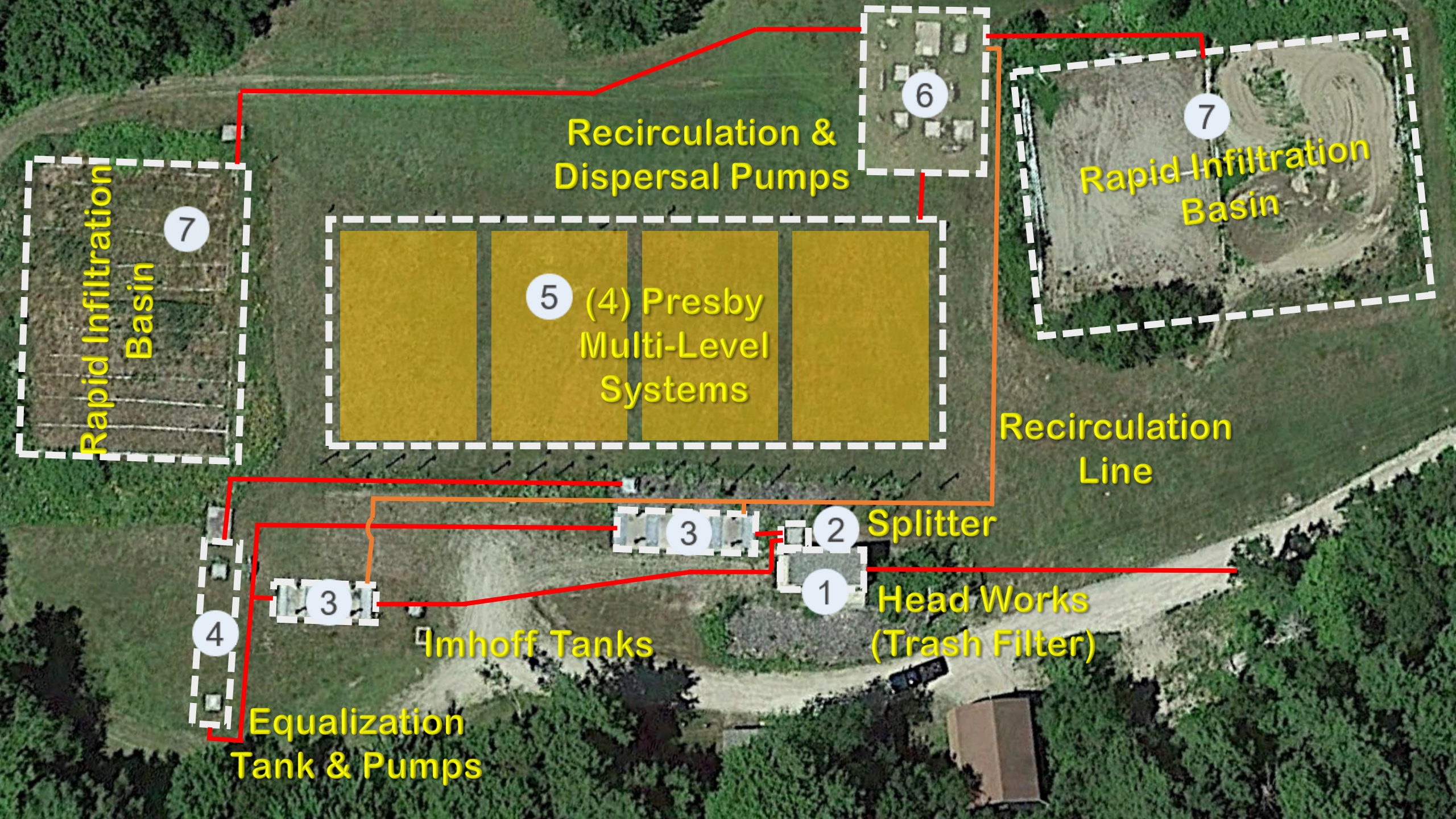
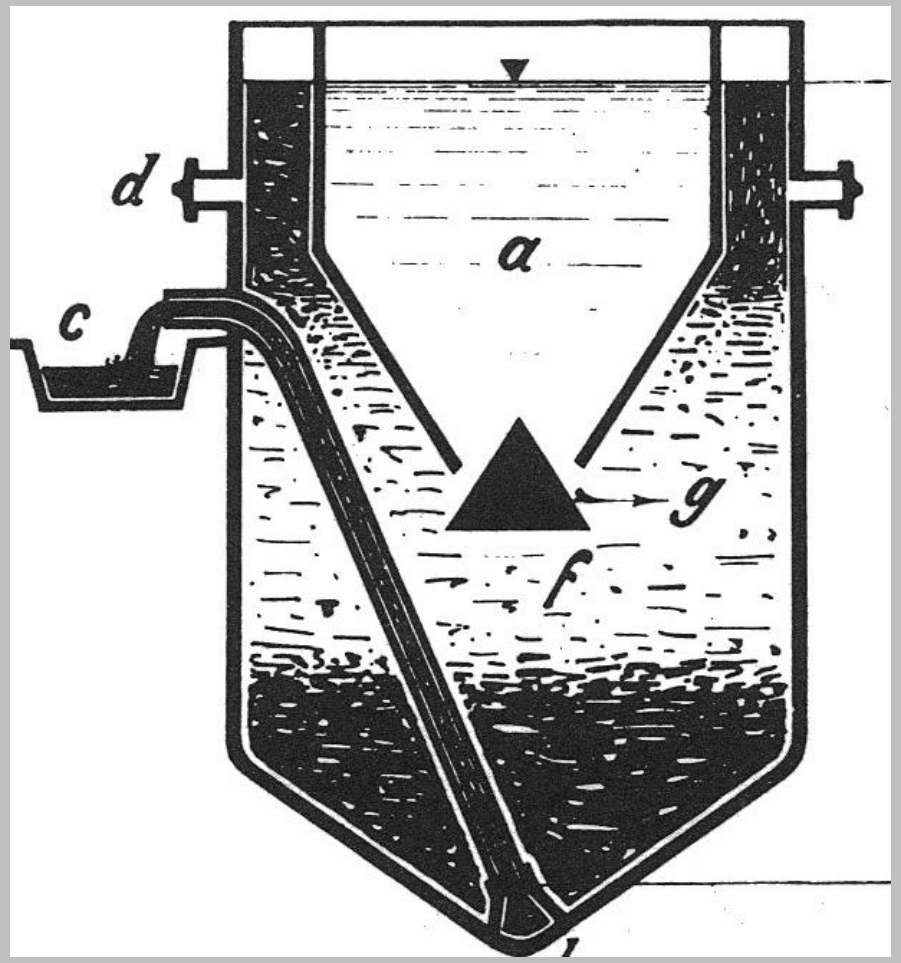
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google Earth


Recirculation &
Dispersal Pumps
6
7
Rapid Infiltration
Basin
7
Rapid Infiltration
Basin
5
(4) Presby
Multi-Level
Systems
Recirculation
Line
3
2
Splitter
1
Head Works
(Trash Filter)
3
4
Imhoff Tanks
Equalization
Tank & Pumps

Imhoff Tank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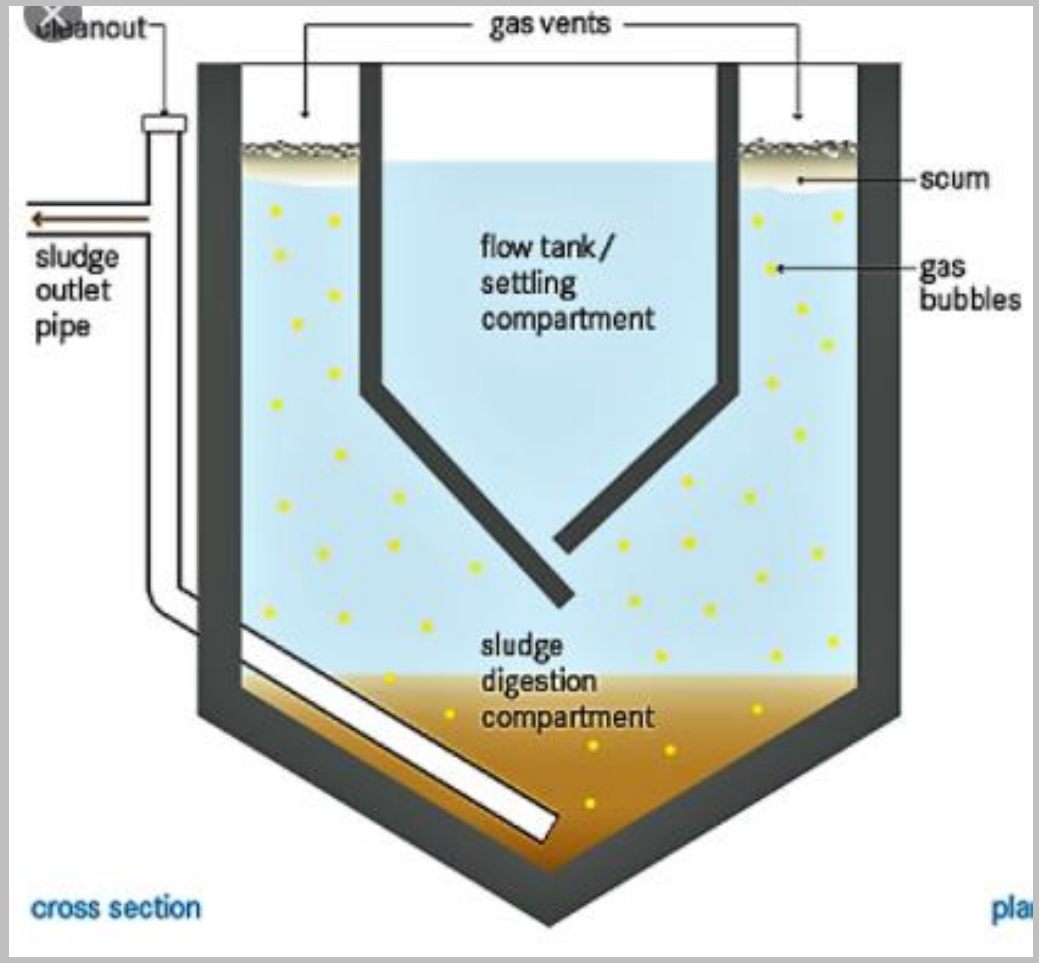
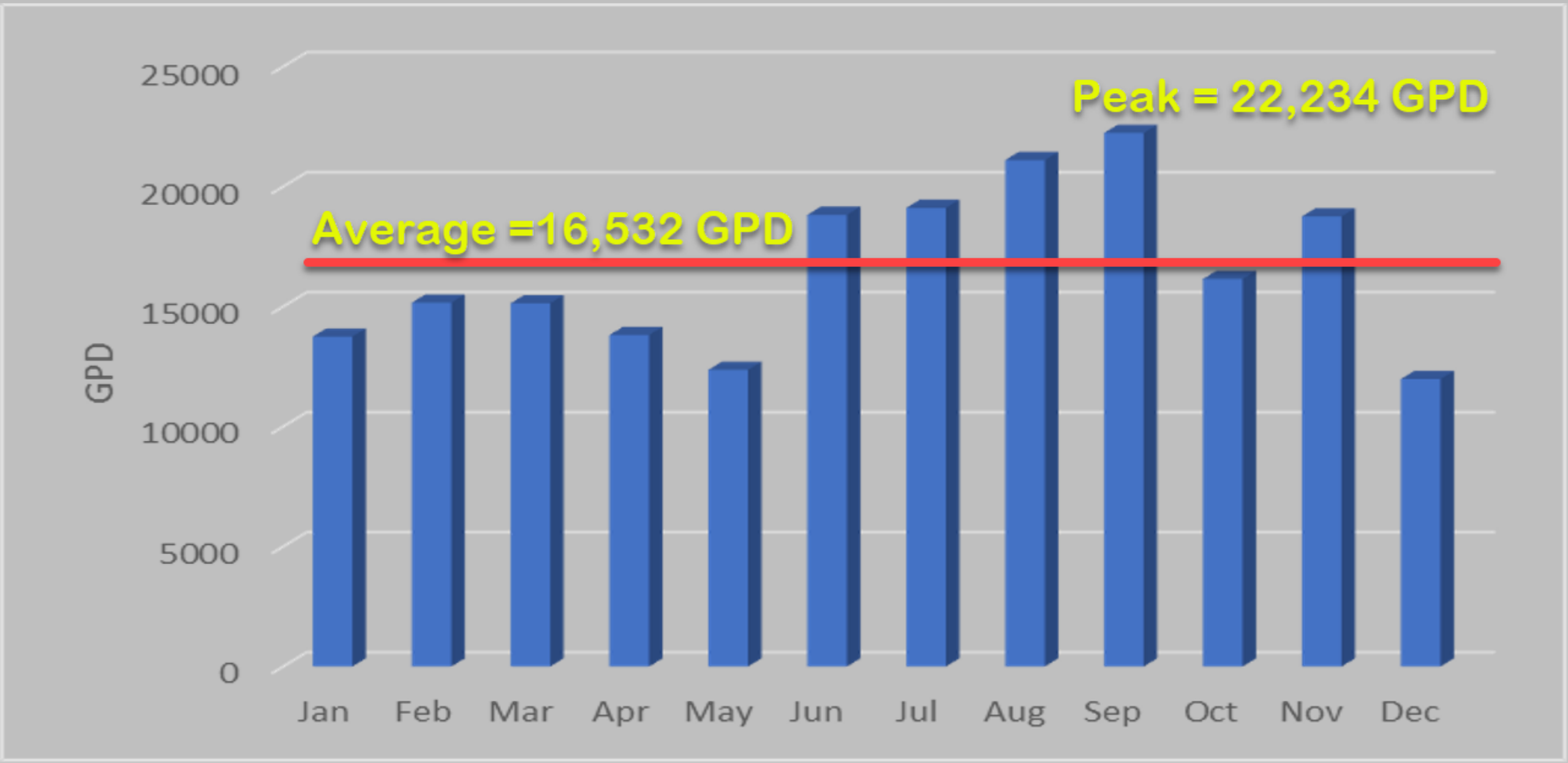

cleanout
gas vents
scum
sludge
outlet
pipe
flow tank /
settling
compartment
gas
bubbles
sludge
digestion
compartment
cross section

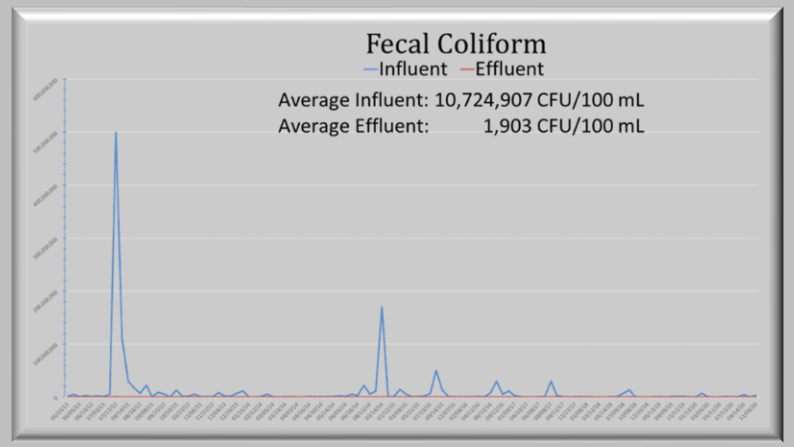
Average Daily Flows 2018

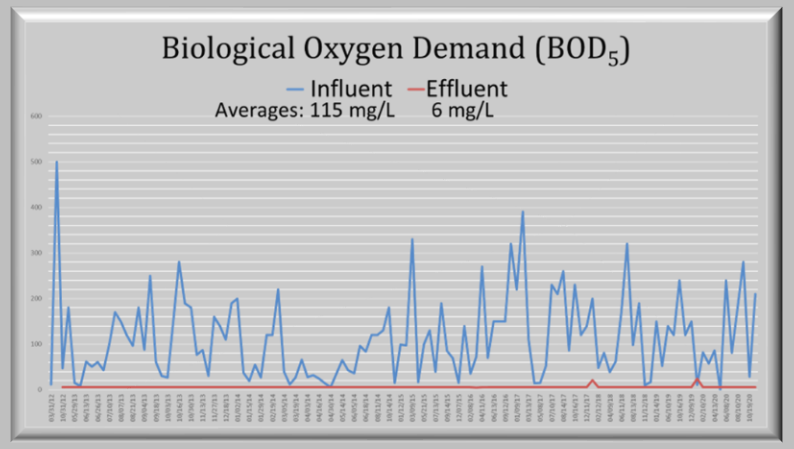


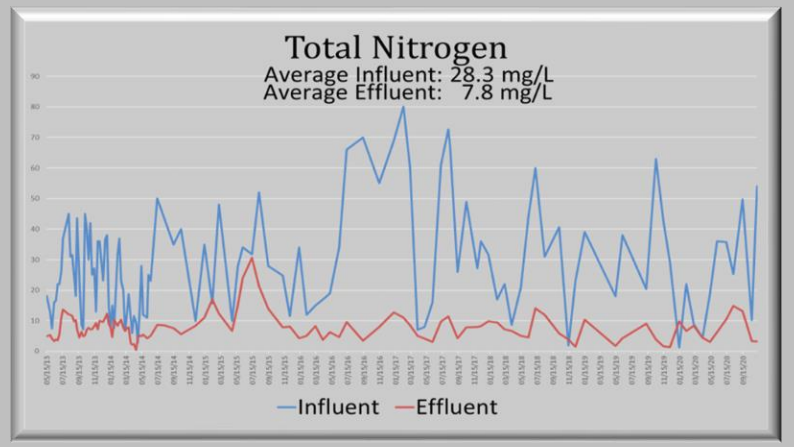
Blodgett Landing Data
(≈80% Recirculation Volume)

Parameter	Average		% Change	Parameter	Average		% Change
TSS - Influent	122	mg/L	-95.78%	Total Nitrogen - Effluent	7.8	mg/L	-72.40%
TSS - Effluent	5	mg/L		Total Phosph. - Influent	4.7	mg/L	-61.0%
Nitrite - Influent	0.50	mg/L	-1.51%	Total Phosph. - Effluent	1.8	mg/L	
Nitrite - Effluent	0.49	mg/L		BOD - Influent	115	mg/L	-94.5%
Nitrate- Influent	0.93	mg/L	573%	BOD - Effluent	6	mg/L	
Nitrate - Effluent	6.29	mg/L		pH - Influent	6.8		2.69%
Ammonia - Influent	19.8	mg/L	-96.98%	pH - Effluent	7.0		
Ammonia - Effluent	0.6	mg/L		Total Coliform - Influent	263,071,948	CFU/100 mL	-99.9972%
TKN - Influent	27.4	mg/L	-93.70%	Total Coliform - Effluent	7,251	CFU/100 mL	
TKN - Effluent	1.7	mg/L		Fecal Coliform - Influent	10,724,907	CFU/100 mL	-99.9823%
Total Nitrogen - Influent	28.3	mg/L		Fecal Coliform - Effluent	1,903	CFU/100 mL	

Average Values from January 2012 to November 2020







Data Collection 2013 to 2020

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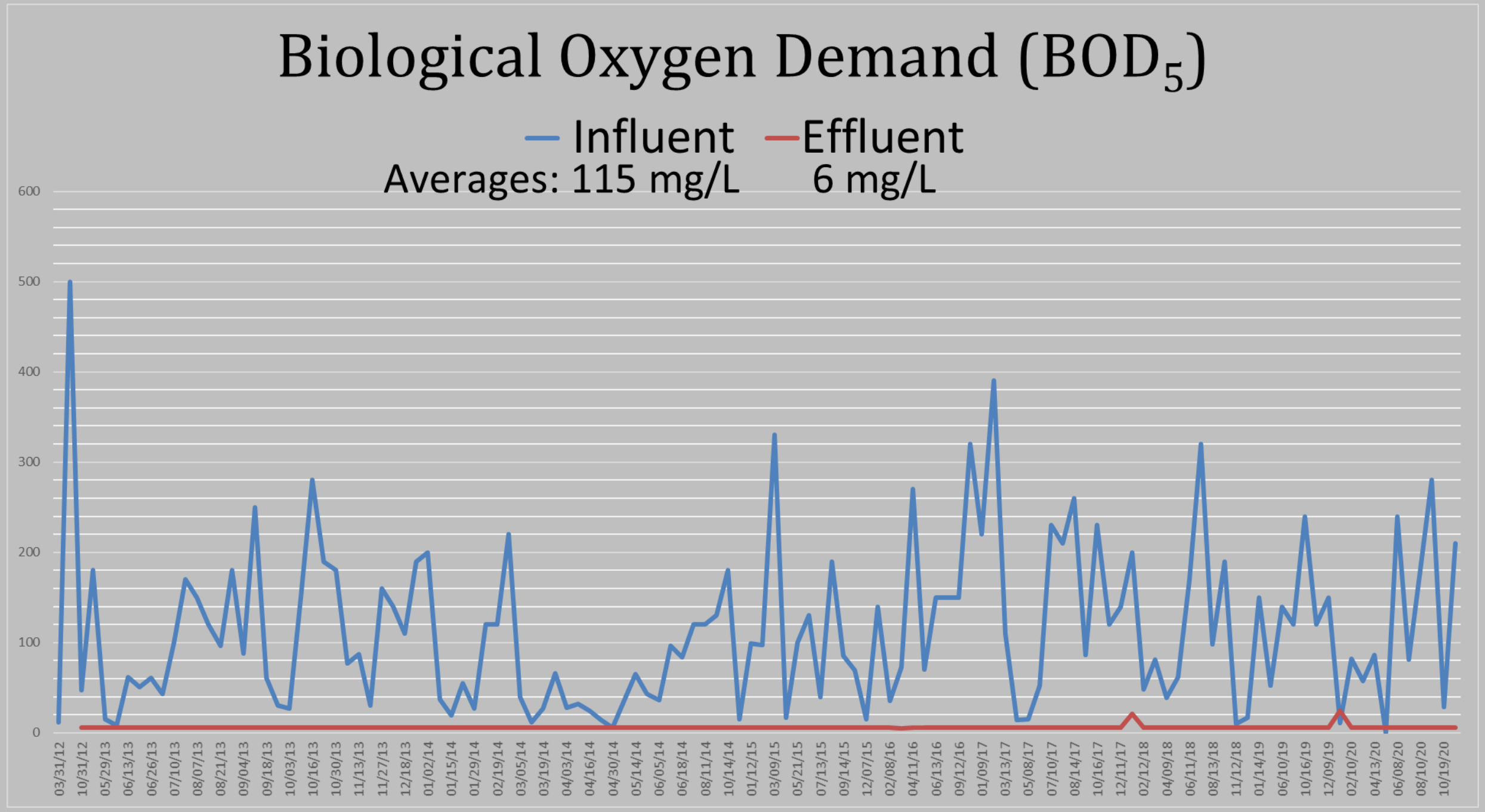
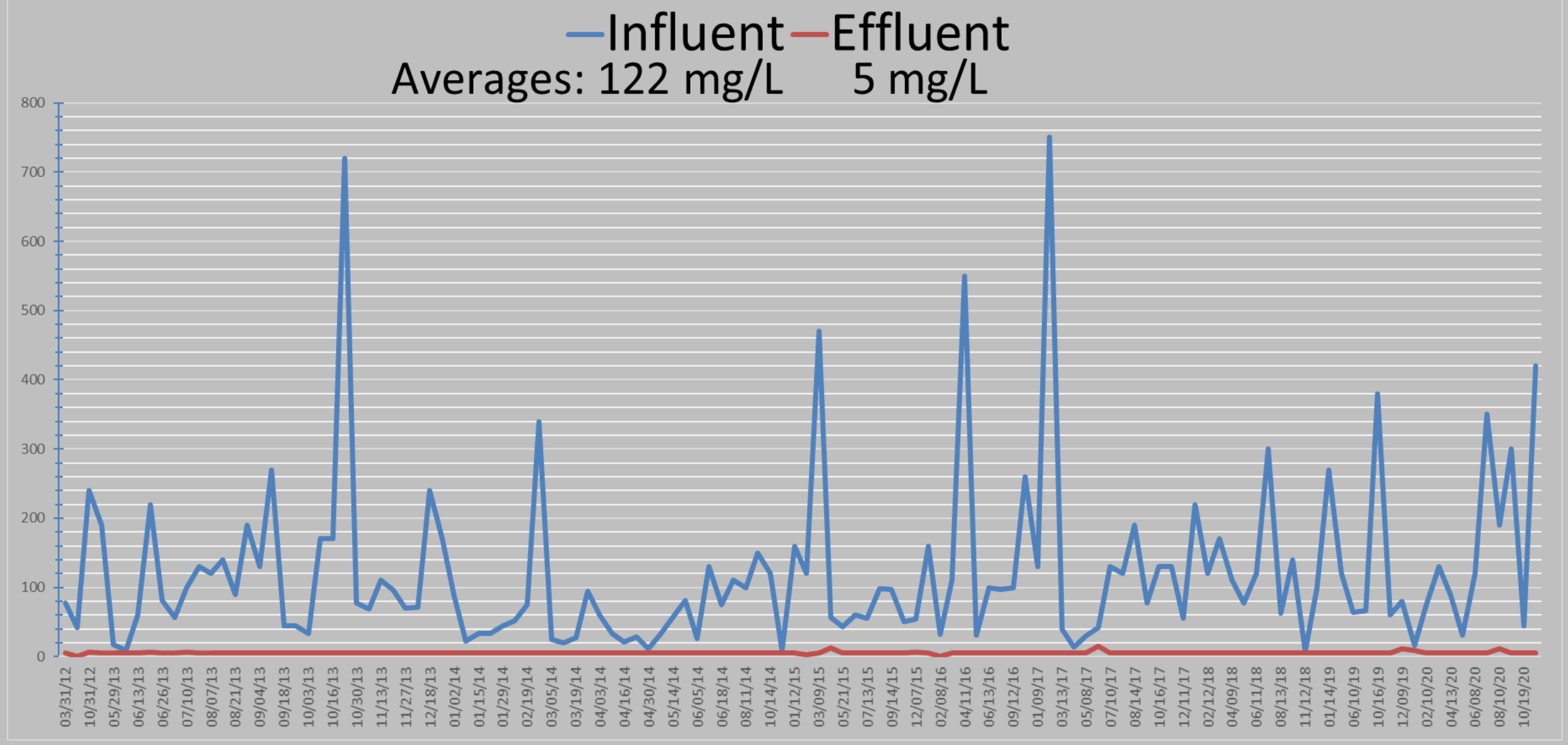
Average Values from January 2012 to November 2020

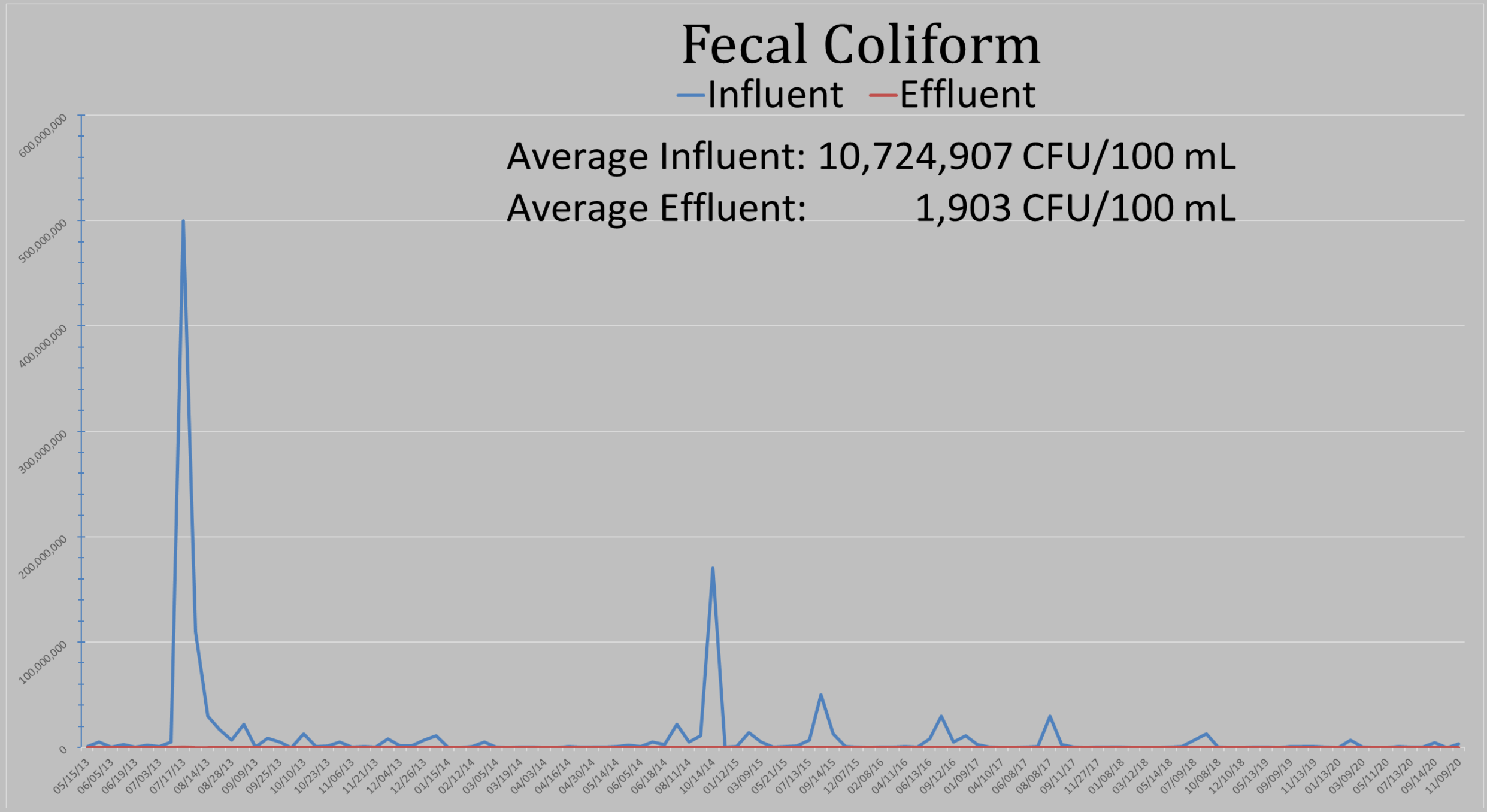
Biological Oxygen Demand (BOD_5)



Total Suspended Solids (TSS)

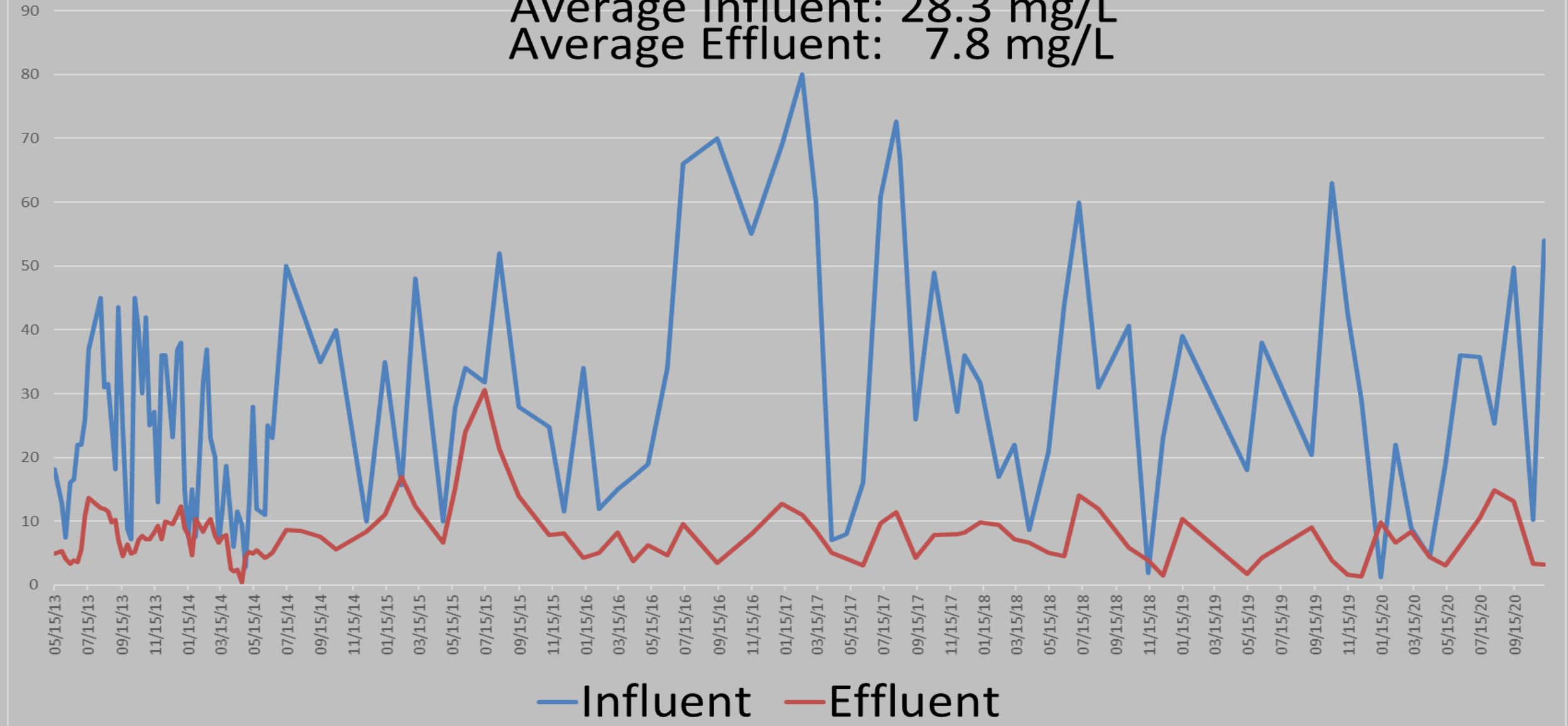


Fecal Coliform



Total Nitrogen

Average Influent: 28.3 mg/L
Average Effluent: 7.8 mg/L



In Conclusion:

- Decentralized Systems can be an effective solution
- Decentralized can be adapt to the site
- Simple Solutions can be investigated as an option, and can be customized to treat for specific contaminants such as nitrogen

Questions?

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