1

Hydrograph Method

SPS 385.60(4) Hydrograph Procedure

- (2) …where regional water table fluctuations are considered in deep sandy soil, the predicted high groundwater elevation shall be established using hydrograph documentation.

2

2

3

Hydrograph Method

SPS 385.60(4) Hydrograph Procedure

- Observed water at proposed site is compared to USGS or other wells with known historical data.
- Extrapolation is made to predict high groundwater elevation at proposed site.

4

4

Friendship USGS Well

Hancock USGS Well

5

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Colburn Well (Adams Co.)

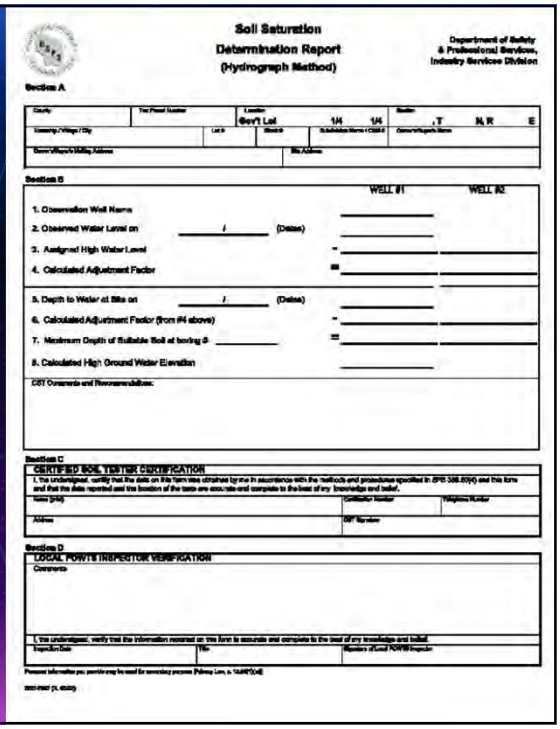
Lucy Well (Juneau Co.)

6

6

Hydrograph Method

Form SBD-7987



Soil Saturation
Determination Report
(Hydrograph Method)

Department of Safety & Professional Services, Industry Services Division

Section A

Section B

WELL #1 WELL #2

1. Observation Well Name
2. Observed Water Level on ____/____/____ (Date)
3. Assigned High Water Level
4. Calculated Adjustment Factor
5. Depth to Water at Site on ____/____/____ (Date)
6. Calculated Adjustment Factor (from #4 above)
7. Maximum Depth of Suitable Soil at boring #: _____
8. Calculated High Ground Water Elevation

DST Comments and Recommendations:

Section C

CERTIFIED SOIL TESTER CERTIFICATION

I, the undersigned, certify that the data on this form was obtained by me in accordance with the methods and procedures specified in (NR 135.60(4)) and this form and that the data reported and the location of the tests are accurate and complete to the best of my knowledge and belief.

Name (print) | Certification Number | Telephone Number

Address | DST Signature

Section D

LOCAL POWTS INSPECTOR VERIFICATION

Comments:

I, the undersigned, verify that the information recorded on this form is accurate and complete to the best of my knowledge and belief.

Inspection Date | Title | Signature of Local POWTS Inspector

Personal information you provide may be used for secondary purposes [What's this?]

(recommended by, county)

7

Hydrograph Method

Example:

Water at site	84”
Water at well	100”
Correction factor	24”
Assumed high	60”

8

8

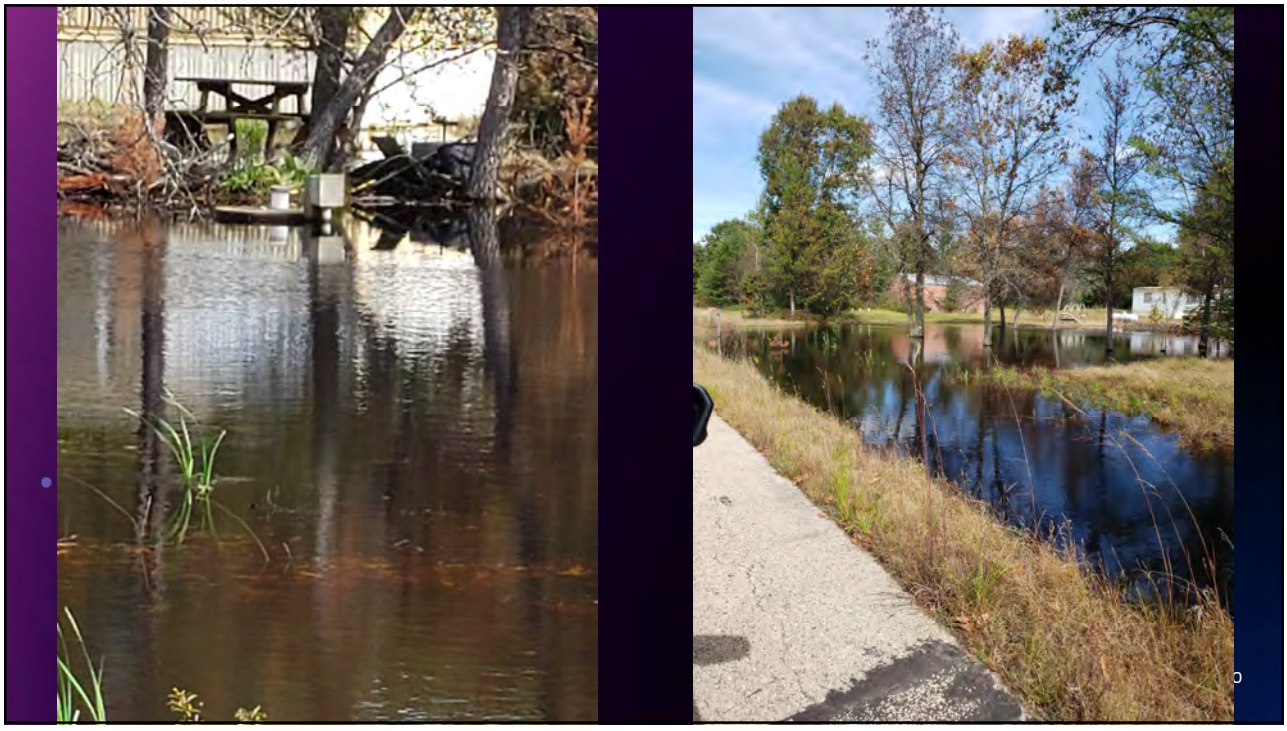
Hydrograph Method

Known issues…

- Hydrograph method is not well defined in the code.
  - Which well(s) to use?
  - What geographical area corresponds to each well?
  - What are the correction factors?
  - Restrictive or non-uniform soils.
  - Procedures are “oral tradition”.
  - Recent “groundwater flooding”

9

9



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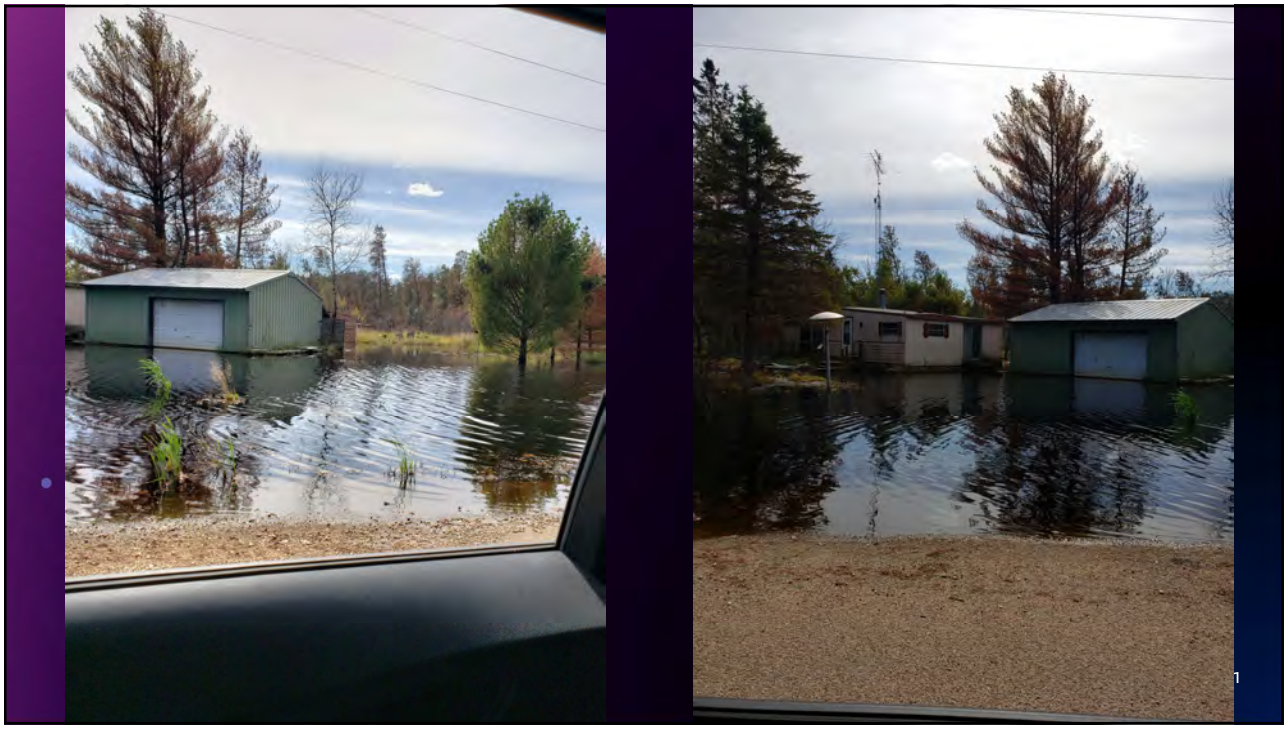


11

Hydrograph Method

June 2022 DSPS field research

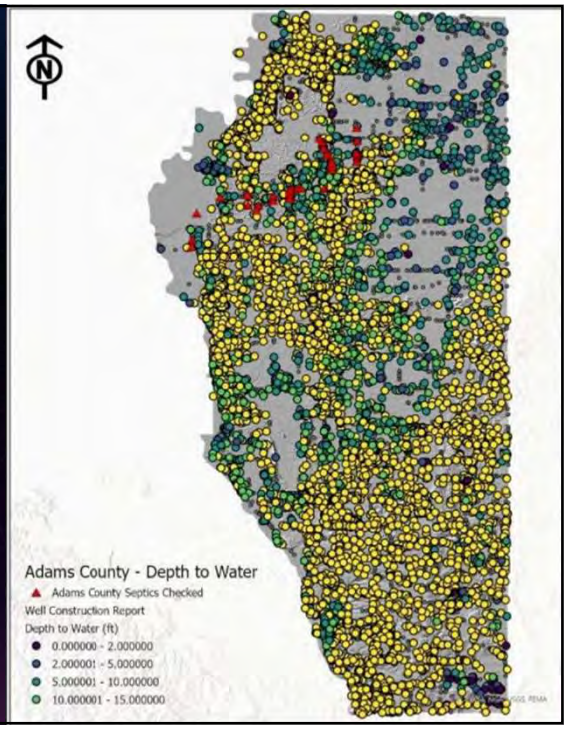
Address	Township	System Type	System Elev	Redox depth	Static Water	Date Install
1445 21st Ave.	Strongs Prairie	Conv. EZ flow	48"	80	none to 72	
1404 21st Ave.	Strongs Prairie			0	0	
1234 17th Ave.	Monroe	Conv.	22	33	75	
1688 Buttercup	Monroe	Conv.	38	26	65	1990
1164 15th Ave.	Big Flats	Conv. Chambers		0	0	2015
1147 15th Ave.	Big Flats	Conv.	40	40	70	1995
1126 15th Ave.	Big Flats			0	0	
1119 15th Ave.	Big Flats	Conv.	36	36	76	2010
1109 15th Ave.	Big Flats	Conv. Chambers	22	36	69	2006
1105 15th Ave.	Big Flats	Conv.	25	26	none to 72	1990
1496 Brown Deer	Big Flats	In-ground pres.	14	23	35	1984
1490 Brown Deer	Big Flats	35x12 bed	27	38	none to72	1988
1448 Brown Deer	Big Flats	32x8 pump to bed		0	0	1976
1428 Brown Deer	Big Flats			0	0	
1194 Brown Deer	Big Flats	Conv. Chambers	22	29	60	2005

12

Hydrograph Method

June 2022 DSPS field research

WGNHS well data



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Hydrograph Method

SPS 385.60(4)(f) The governmental unit or the department may reject or suspend use of the hydrograph procedure when erratic groundwater tables are present due to recent, significant recharge events.

14

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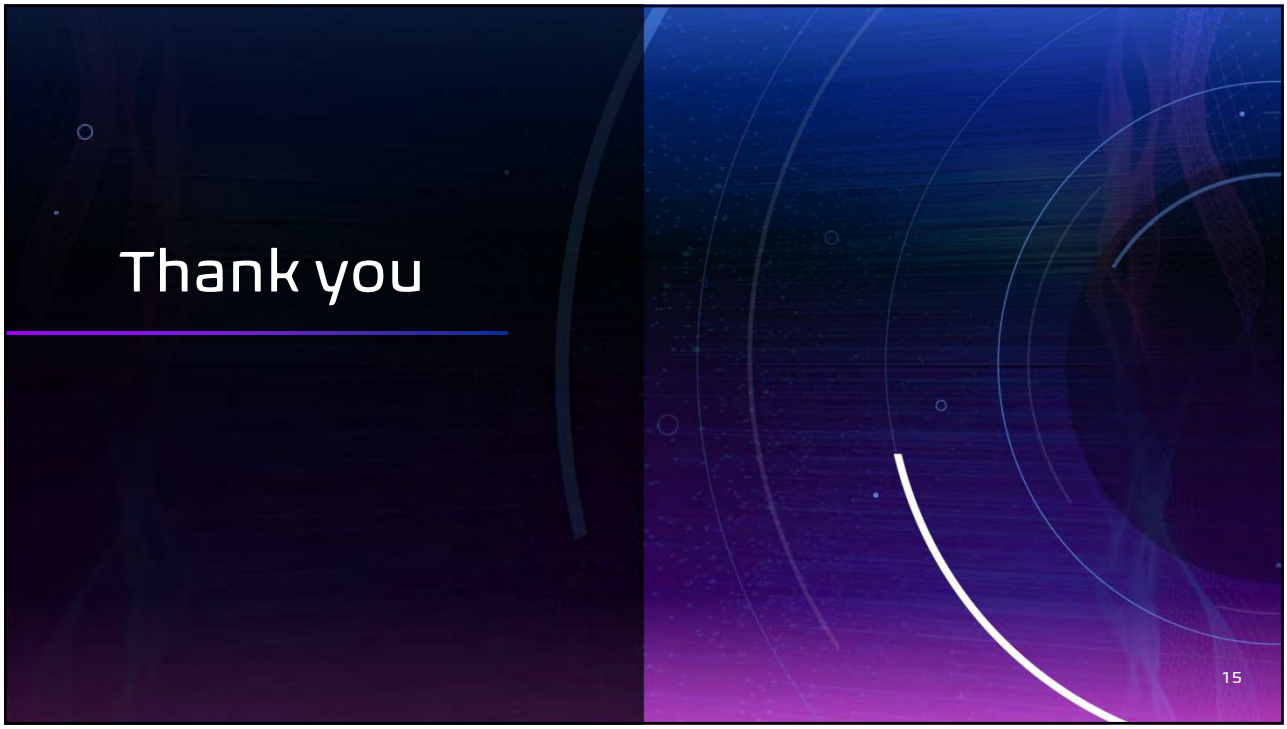


15

AeroFin Combined Treatment & Dispersal System

INFILTRATOR®
water technologies

Wisconsin DSPS
POWTS Technical Advisory Committee
February 9, 2024





Introduction

1. What is AeroFin?
2. Pending Request
3. System Testing
4. Similar Approved Technologies

What is AeroFin?

Infiltrator's Latest Combined Treatment and Dispersal (CTD) System

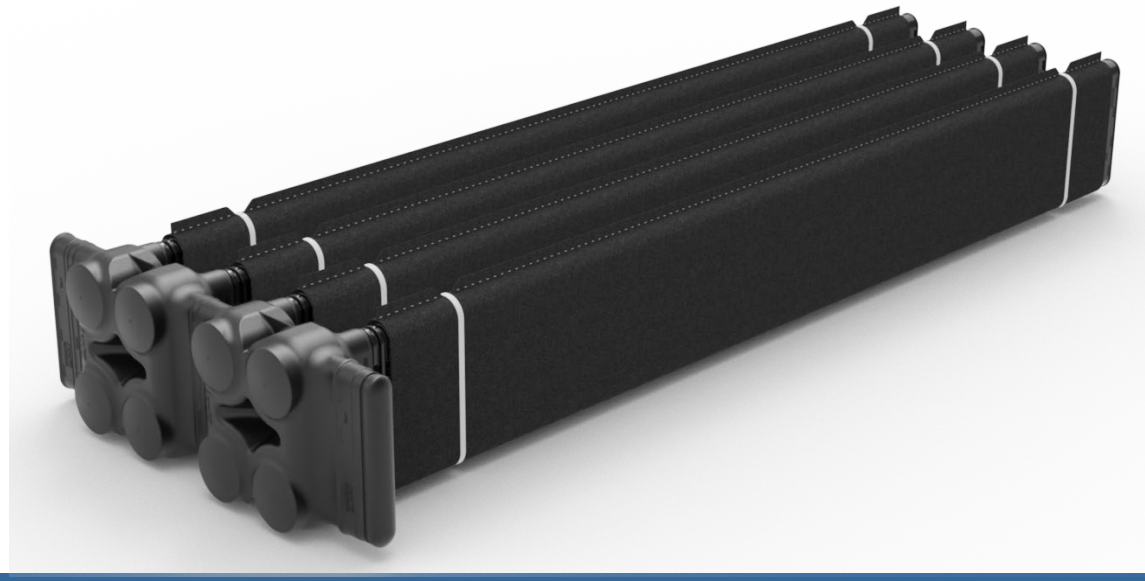
1st Simple Septic (SS)

Next Gen Enviro-Septic (ES)

Then Advanced Enviro-Septic (AES)

2nd Advanced Treatment Leachfield (ATL)

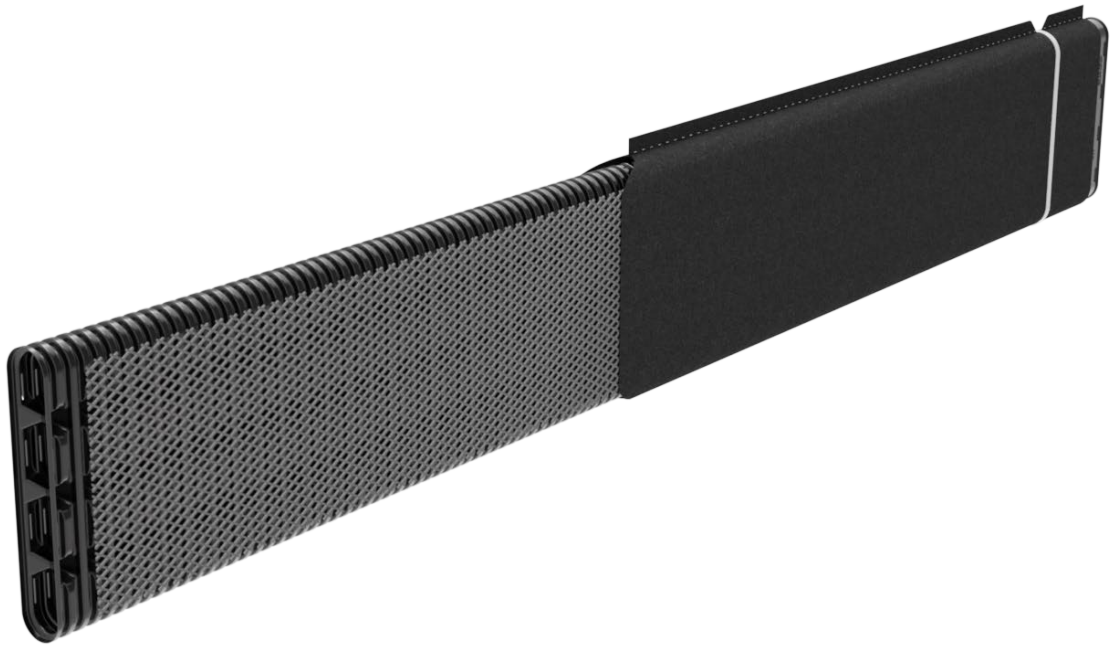
3rd Enviro-Fin (EF)



AeroFin Components

Conduit

- 12.75 inches tall
- 2.25 inches wide
- Sandwiched between geonet mesh
- Wrapped in geotextile fabric



AeroFin Components

Manifold System

- Connected in series
- Integrated snap-lock feature
- Provides equalized flow
- Each manifold accommodates up to 2 rows
- Can be used for serial distribution connections
- Can be used for system venting (not required).

AeroFin Components

Endcaps

- Used at end of conduit rows
- Used on unused outlets of manifold

AeroFin Components

System Sand: The sand material that is used along the sides of and under the AeroFin System Conduits to provide treatment of effluent.

- 6 inches below the AeroFin Conduit
- Minimum 6 inches between and around the perimeter of the conduit rows.

- Meets ASTM C33 Specifications
- Same sand that is used in other Wisconsin approved CTD systems and Mounds

Pending Request

1. Seeking review and approval of AeroFin as a Wastewater Treatment Device

   - Requesting Tier 3 – downsizing and vertical separation credit for system designed with 12 inches of sand below the conduit.

2. Seeking a variance from pressure distribution of mounds.
3. Seeking review and approval of the ***AeroFin SYSTEM WISCONSIN MOUND COMPONENT MANUAL*** dated January 2024
4. Seeking review and approval of the ***AeroFin SYSTEM WISCONSIN INGROUND COMPONENT MANUAL*** dated January 2024.

System Testing

Tier 3 – downsizing and vertical separation credit for system designed with 12 inches of sand below the conduit.

- System testing conducted at the Massachusetts Alternative Septic System Test Center (MASSTC).
  - Tested under NSF/ANSI 40 protocols
  - NSF/ANSI 40 certification and listing through Golf Coast Testing, LLC

System Testing - Requirements

- **NSF/ANSI 40**
  - CBOD5 30-day average ≤ 25 mg/L
  - TSS 30-day average ≤ 30 mg/L
  - pH average between 6.0 - 9.0

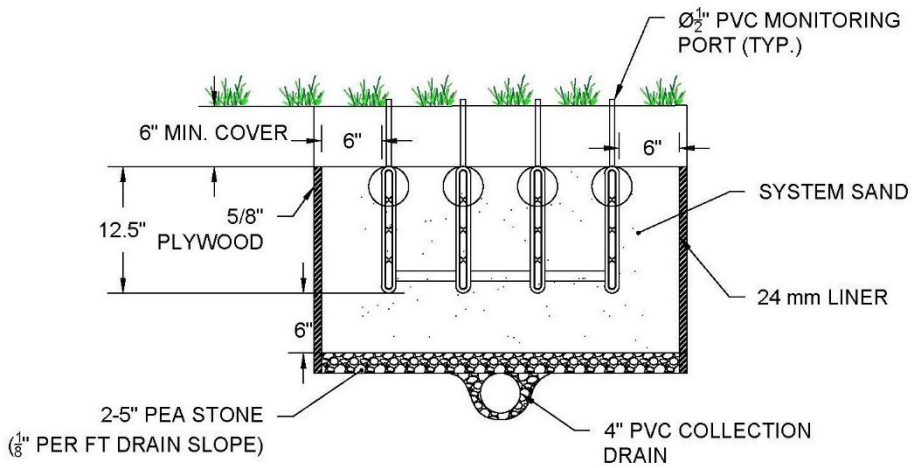
- **Fecal Reduction**
  - Per SPS 383 Fecal average less than 10^4

NSF/ANSI 40 - Results

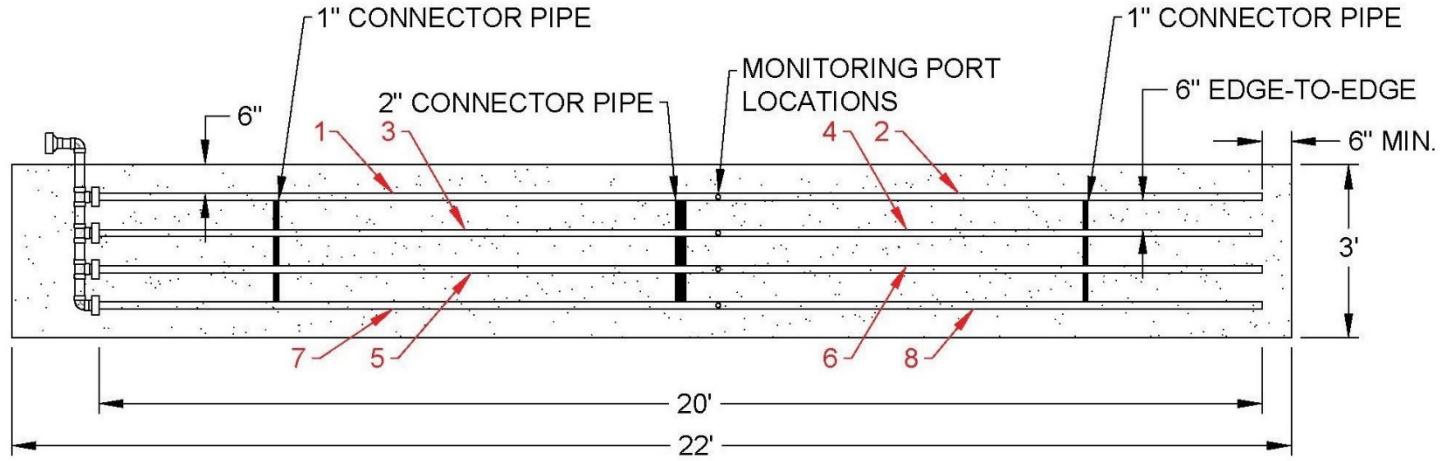
Parameter	30-day Average	AeroFin Range	AeroFin Average
CBOD5	≤ 25 mg/L	2 – 14 mg/L	3.6
TSS	≤ 30 mg/L	2 – 8.8 mg/L	3.8
pH	6.0 – 9.0	6.04 – 7.36	6.05

Fecal Testing

- System loaded at 2.0 gpd per linear (same as NSF 40 tested system).



CROSS SECTION



PLAN VIEW

Fecal Results

Sample Date	Total Coliform (CFU/100 mL) - values below reporting limit are numerically represented as half of reporting limit
2023-02-28	10
2023-02-27	10
2023-02-24	10
2023-02-23	40
2023-02-22	20
2023-02-21	5
2023-02-17	5
2023-02-16	30
2023-02-15	5
2023-02-14	260
2023-02-13	45
2023-02-10	50
2023-02-09	610
2023-02-08	440
2023-02-07	770
2023-02-06	1600
2023-02-03	5
2023-02-01	73
2023-01-31	91
2023-01-30	82

Geometric Mean = 45.703

WI Approved CTD Technologies:

- Advanced Enviro-Septic (AES)
- Advanced Treatment Leachfield (ATL)
- GSF A42 & B43

Request for Variance

Requesting a variance allowing pretreated effluent to disperse via gravity distribution and utilizing effluent #2 soil application rate.

- Multiple states allow AeroFin in a mound application without the use of pressure distribution.
  - Approved for use in New Hampshire, Maine, Idaho, Hawaii, Arizona, Michigan by County, California by County, Additional requests for approval pending.
- Meets NSF/ANSI 40 testing criteria without the use of pressure distribution.
- Influent will pass through 36 inches or more of soil including the system sand.

Component Manuals

- Developed using WI In-Ground and Mound Component manuals as model.
- Requirements modeled after other approved CTD technologies for consistency
- Up to 12 inches of sand below the product even though system was tested and meets NSF/ANSI 40 with 6.

INFILTRATOR
water technologies




Presented by:
Jeanne Allen
Infiltrator Water Technologies
jallen@infiltratorwater.com
Cell: 603-631-4897

Thank you!

Questions?

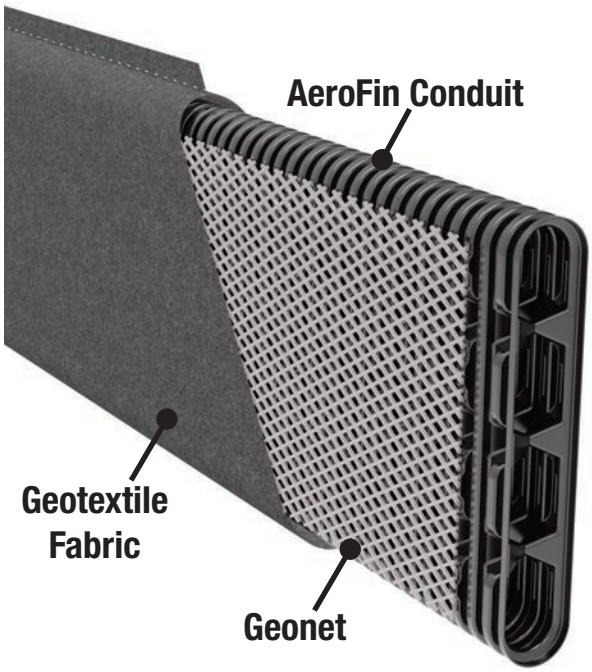
System Testing

Parameter	Location	Average	Median	Minimum	Maximum
DO	Effluent	3.81	3.72	1.80	6.62
pH, SU	Influent	6.89	6.95	6.04	7.36
	Effluent	6.05	6.04	5.47	6.67
BOD_5, mg/L	Influent	172	170	87	360
$CBOD_5$ mg/L	Effluent	4	3	2	14
TSS mg/L	Influent	122	120	52	250
	Effluent	4	4	2	9

AeroFin

PASSIVE ONSITE WASTEWATER TREATMENT SYSTEM

Maximum Treatment Minimal Footprint



NSF Testing Parameters	AeroFin Test Results
BOD <25 mg/L	**4.7 mg/L**
TSS <30 mg/L	**4.7 mg/L**

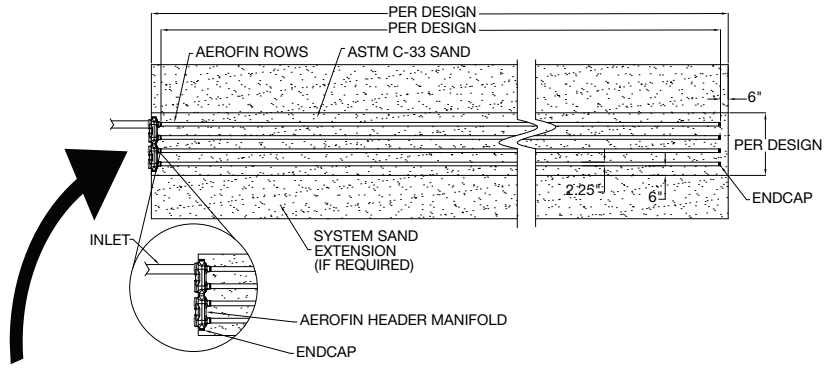
Features & Benefits

- For residential applications
- Treats and disperses wastewater in the same footprint
- No electricity, replacement media or additional maintenance required
- Flexible configurations for sloped or curved sites
- Testing in accordance with NSF/ANSI 40 has determined that the AeroFin system is capable of treating domestic strength wastewater to Class I levels
- Each unit is 8 feet long and an outside dimension of 12.75 inches
- Snap-lock couplings and PVC piping are used for system assembly

Combined Treatment and Dispersal

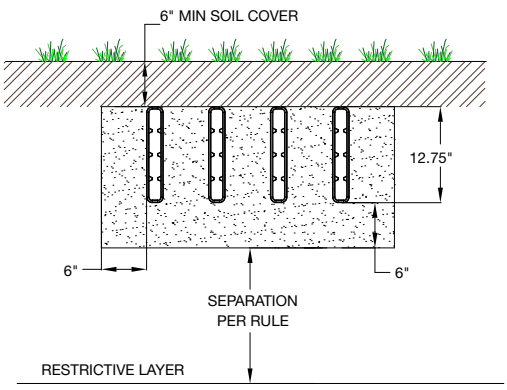
AeroFin creates a biological ecosystem that digests the organic matter in wastewater on a continuous basis. Occupying minimal space, the vertically elongated pipe configuration increases the surface area efficiency. The AeroFin acts as an effective solution for compact lots and sites with footprint constraints, and it has been demonstrated to the removal of up to 99% of wastewater impurities without the need for electricity or replacement media.

Plan View



AeroFin Header Manifold

Cross Section



INFILTRATOR water technologies

4 Business Park Road
P.O. Box 768
Old Saybrook, CT 06475
860-577-7000 • Fax 860-577-7001
1-800-221-4436
www.infiltratorwater.com
info@infiltratorwater.com

AF01 0323

Contact Infiltrator Water Technologies' Technical Services Department for assistance at 1-800-221-4436