



New Bremen, OH Sludge  
Sample Sonar Profile Report  
September 23, 2020

*[Abbreviated Sample Report]*

WaterSolve LLC

5031 68<sup>th</sup> Street - Caledonia, MI 49316

Ph. (616) 575-8693

Fax (616) 575-9031

Web - [www.gowatersolve.com](http://www.gowatersolve.com)

Email – [mikeb@gowatersolve.com](mailto:mikeb@gowatersolve.com)

## Facility Evaluation:

On September 23, 2020, WaterSolve LLC, conducted a sludge survey at the New Bremen waste water facility's four lagoons. Data was collected with a remote-controlled boat retrofitted with a sonar device that gathers a depth data point every second (four to six feet apart), and is saved to an onboard SD Memory Card. WaterSolve physically confirmed the sonar data information via a small two-man boat and a sludge judge device to compare the sludge depths and total depth of the lagoon. The precision of the data results from the sonar software, along with the measurement of the lagoons, is paramount for an accurate survey.

The data collected from the SD Card is downloaded into the proprietary sonar software program that generates the average water depth and sludge/solids depths. The program provides total volume of the water and the sludge/solids of each lagoon. The purpose of the survey is to explore and document the accumulation of the sludge/solids deposited in the lagoon system for a management plan or any changes/upgrades to the facility.

## Sonar Analysis:

For the purposes of trimming this report down, it should be understood that a total of four separate lagoons were surveyed. The different colors mapping the graph indicate where the water depth is to the top of the sludge; everything below the color indications is the sludge down to the bottom total depth.

Cell 1A solids were approximately 40% of the total volume with heavy amounts next to the curtain dividing the cells.

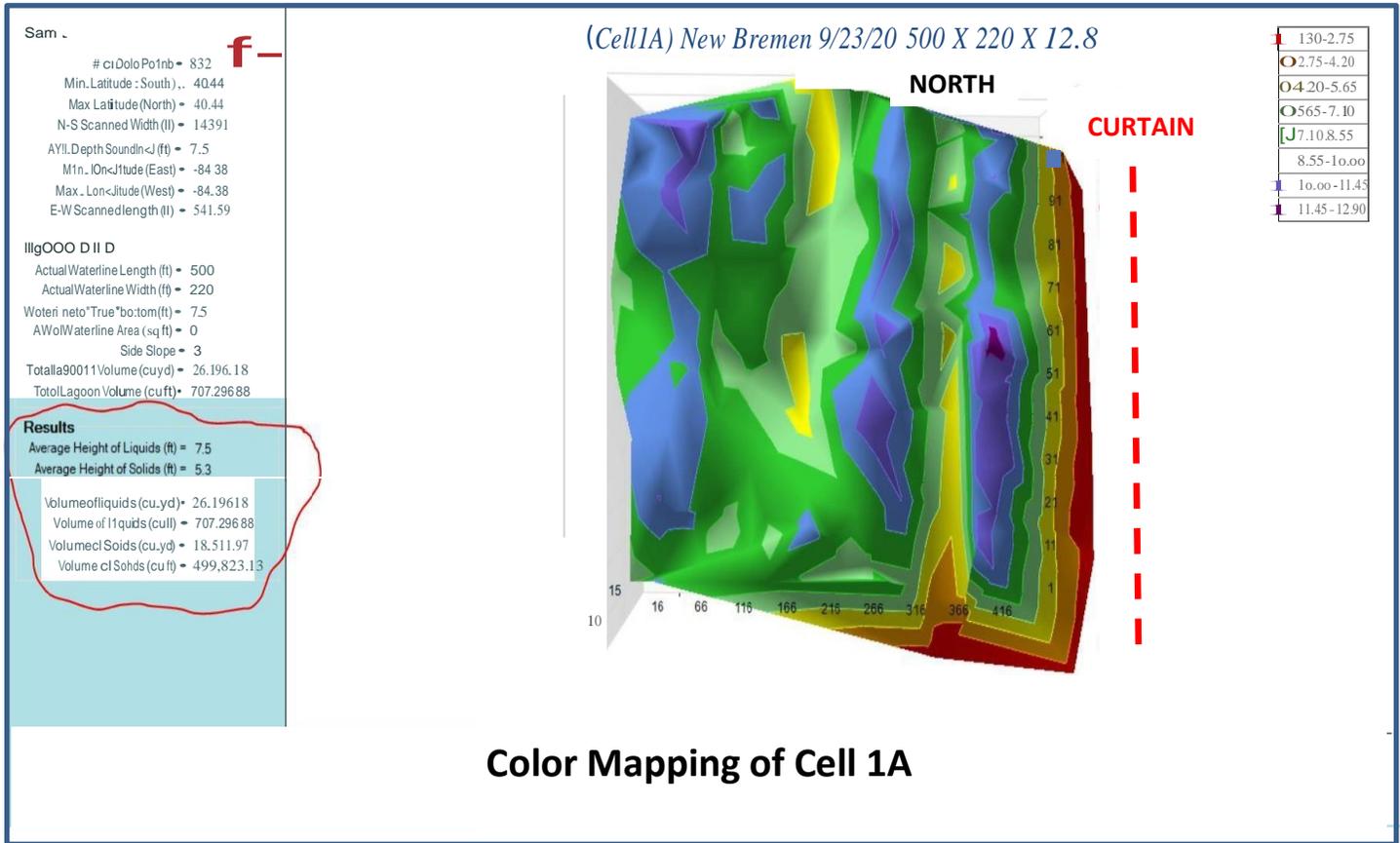
Cell 1B solids were also approximately 40% of the total volume.

Cell 2A solids were approximately 20% of the total volume.

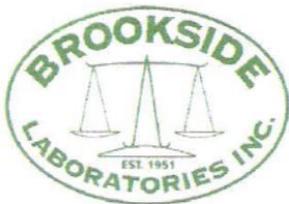
Cell 2B solids were 35% of the total volume.

<b>RESULTS</b>	<b>CELL 1A</b>	<b>CELL 1B</b>	<b>CELL 2A</b>	<b>CELL 2B</b>
<b>TOTAL DEPTH</b>	12.8 ft.	12.8 ft.	12.2 ft.	12.5 ft.
<b>DATA POINTS</b>	832	375	422	405
<b>AVG LIQUIDS</b>	7.5 ft.	7.81 ft.	9.86 ft.	7.95 ft.
<b>AVG. SOLIDS</b>	5.3 ft.	4.99 ft.	2.34 ft.	4.55 ft.
<b>CU. FT. LIQUIDS</b>	707,296	378,537	454,377	393,873
<b>CU. FT. SOLIDS</b>	499,823	241,856	107,833	225,424
<b>SOLIDS GAL.</b>	3,738,676	1,809,082	806,590	1,686,171

# Sonar Technology 30 Imagery



## Lab Report Total Solids and Volatile Solids in Cell 1A



**Brookside Laboratories, Inc.**  
**Analysis Report**

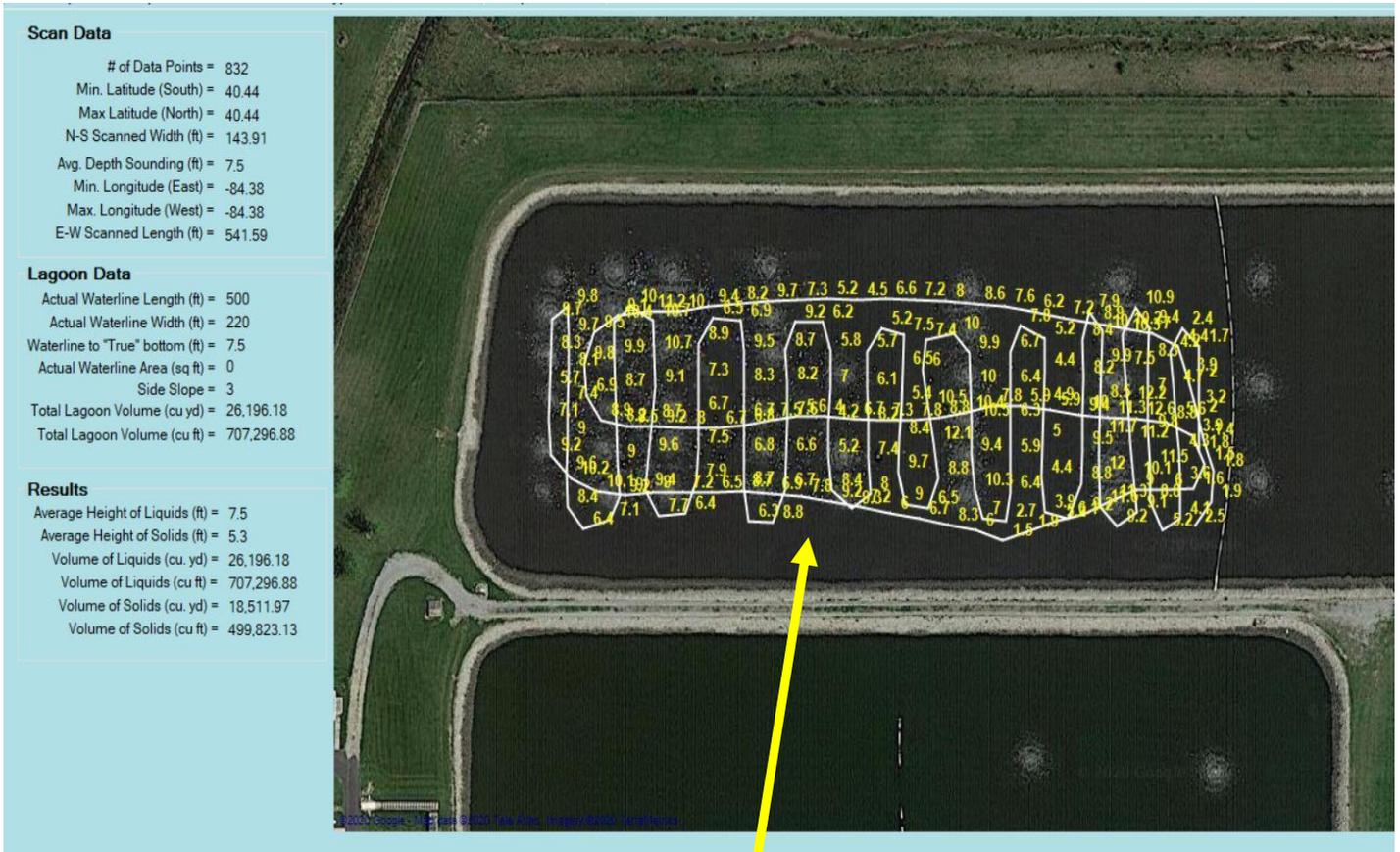
200 White Mountain Drive  
New Bremen, OH 45869  
Phone: (419) 977-2766  
Fax: (419) 977-2767

Client Number: 60067  
Client Name: Village of New Bremen  
Consultant Name: Home Office  
Date Collected: 09/23/2020  
Date Received: 09/24/2020

Lab Number: VE0924007  
Location: 0910-1A  
Description:  
Sub Description:

	<u>% Dry Basis</u>	<u>% Wet Basis</u>	<u>lbs/Ton Dry</u>	<u>lbs/Ton Wet</u>	<u>lbs/ 1000 gal</u>
TOTAL SOLIDS	100	4.623	2000	92	
TOTAL VOLATILE SOLIDS (TVS)	38.352	1.773	767.0400	35.4603	

## Cell One Sonar Boat Path NORTH



Sonar boat travel path in Cell 1A

In conclusion,

Thanks for reading the entire packet. Throughout WaterSolve’s journey of removing sludge from lagoons across the United States, we realize there’s a need for accurate surveys to reveal a snapshot of the volume of sludge and the health of your lagoon system. Often, we find sludge that is still high in volatile solids that are poorly digested. We also find crisis situations when the regulators demand the sludge be removed immediately because the detention time is too short for the water to get clean. WaterSolve’s goal is to offer you this survey at an affordable price that provides factual information to prepare and make good decisions. Mike Broering lives in Western Ohio and is the organizer of the surveys. He would be happy to discuss your situation and answers any questions you might have.

Mike can be reached at 616 881 3431 or email him at [mikeb@gowatersolve.com](mailto:mikeb@gowatersolve.com).

Best Regards,

Mike Broering - WaterSolve LLC