STATE OF TENNESSEE
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
COOKEVILLE ENVIRONMENTAL FIELD OFFICE
1221 South Willow Avenue
Cookeville, Tennessee 38506
Phone 931-520-6688 Statewide 1-888-891-8332 Fax 931-432-6952

April 12, 2023

Certified Mail Return Receipt Requested
91 7199 9991 7032 7998 2786

The Honorable Russell Bradshaw
Mayor - Town of Alexandria
e-copy: Mayor.Bradshaw@townofalexandria.us
102 High Street
Alexandria, Tennessee 37243

RE: Alexandria Sewer Treatment Plant (STP), Compliance Evaluation Inspection (CEI), Notice of Violation (NOV), Compliance Review Meeting (CRM)
DeKalb County; NPDES # TN0021539
Permit Expiration: July 31, 2027

Dear Mayor Bradshaw:

Division of Water Resources staff wishes to thank you, Mr. Rich Potter, Mr. Brian Grisham, and Mr. Chris Jarrett for your generous time and courtesy during the recent sewer treatment plant Compliance Evaluation Inspection (CEI) at the Town of Alexandria STP.

The sewer treatment plant was visited and reviewed on Thursday, March 30, 2023. A current copy of the permit was available electronically. The facility is as described in the permit. The facility discharges to Hickman Creek which is 303(d) listed for several issues including municipal point source discharge.

Record Keeping and Reporting

Related reporting records were being maintained for over five years on site. Operators are entering data into the netDMR system. Chain of Custody records for nutrient analyses are maintained electronically. The contract lab for Mr. Potter provides the chain of Custody materials electronically. Electronic files were reviewed at the Smith County Utility District.

Laboratory and Quality Assurance

The laboratory was reviewed. A private contract lab performs ammonia, total nitrogen and total phosphorous. Site personnel need to improve quality assurance methods for the analyses performed in the Alexandria lab, “duplicates” are to be ran at a performance rate greater than or equal to ten (10) percent. Additional blanks and spiked samples are recommended along with blanks submitted to the contact laboratory. The Chief Operator will start documenting the Operator in Training’s “Demonstration of Capability” or DOC. The facility is to perform

CBOD5 analyses for this facility. Due to the use of the nitrification inhibitor, CBOD5s are to be seeded. Glucose Glutamic Acid or GGA is to be utilized for operator demonstration of capability. Bench documents for all analyses are to be updated with all pertinent information. The laboratory standard operating procedure (SOP) is to be completed. The dissolved oxygen meter was out for repair during the inspection. The influent composite sampler was not capable of collecting a flow composite sample. A representative flow composite sample at the influent was not being collected. It was discussed that the lab will be reviewed again in approximately six (6) months. It is advisable that personnel performing laboratory analyses attend laboratory training classes at the Fleming Training Center in Murfreesboro.

Facility Site Review

Standby power is available. The grit screen was operational. The facility was only operating on one of the two sequencing batch reactors (SBRs). The left reactor has been offline due to airline (dissolved oxygen supply) issues. This condition greatly reduces the treatment capacity of the facility and is considered a bypass of treatment. The influent flume is deep in the ground. It is adjacent to the on-site influent pump station. Recent actions taken by the operators to reduce the submergence of influent flow measuring devices have been observed by personnel as successful. The Influent automated sampler was not capable of collecting a flow composite sample. The influent flow meter is working but has not been connected to the ISCO sampler. Influent and Effluent refrigerated sampler units were operational. The effluent flume (Palmer-Bowlus) and secondary measuring device were operational; however, they needed cleaning. The effluent discharge from the facility fence to the stream was observed to be slightly dark in color. The dark color was likely due to the suspended solids observed in the Ultra-Violet (U.V.) unit. The rectangular basin (final basin) was being aerated and solids were stirred in the basin causing an elevated release of suspended solids. The Ultra-Violet disinfection system was operational. Rain gauges have been added within the STP and areas of the collection system.

Collection System

The collection system's single pump station was reviewed. It was found to be operational. The operators report that flushable wipes often cause frequent clogging issues. Pumps in the station are becoming increasingly more difficult to repair. A hinge on the manhole entry hatch needs maintenance. Water was standing in the bottom of the pump station. The current sump pump can no longer reach all the water that infiltrates into the sewer pump containment tube/entrance. The town should meet with their engineer to review and discuss the future of this pump station. Operators have completely welded manhole cover entries that are in stream and subject to flooding. They believe that this has reduced inflow and infiltration at the sewer plant, reducing the submergence of the influent flow measuring devices.

Biosolids

The facility has now obtained a permit for the application of "Class B" biosolids. The Sludge -Mate is still maintained on site. The sludge-Mate will likely become obsolete. The digester for the site's biosolids storage is in good condition.

Summary

Mr. Rich Potter (operator) and others from the Smith County Utility District are overseeing the facility. Mr. Potter is very experienced regarding the construction and maintenance of wastewater facilities. Mr. Brian Grisham and Mr. Chris Jarret work for Mr. Rich Potter. Mr. Grisham and Mr. Jarret also consult with City of Gordonsville Operator Mr. Drew Gentry. The IDEXX unit is maintained at the Smith U.D. water plant and was reviewed. It was noted that a comparator for the IDEXX is needed. The purchase of a Luminescent Dissolved Oxygen (LDO) meter was discussed. The current D.O. meter which was out for repair during the inspection could be used as a back-up meter. Improvements in the laboratory are needed. The sequencing batch reactor needs to be repaired. Maintenance activities in the collection system have been implemented to reduce Inflow and Infiltration. Operators noted improvements by an observed reduction in flows. Alexandria is now prepared to land apply "Class B" biosolids for beneficial use.

Justification for the Notice of Violation

The Sequencing Batch Reactor (SBR) was not working as designed. One of the SBR units has been shut down for an extended period. This is a bypass of treatment. Solids were visible in the effluent discharge. The influent sampler was not capable of collecting a flow composite sample. The single dissolved oxygen meter was out for repair. Only two manual influent samples were reported as being collected daily. The two manual samples are not representative of 24 hour (daily) influent flow.

Town of Alexandria NPDES permit; Page 16

2.1.3. Proper Operation and Maintenance

a) The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances, including but not limited to collection and conveyance systems) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

2.3.5. Bypass; Page 2

a) Bypasses (see subpart 4.1) are prohibited unless all the following conditions are met: i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage; ii. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and a. For anticipated bypass, the permittee submits prior notice, if possible at least ten days before the date of the bypass, or b. For unanticipated bypass, the permittee submits notice of an unanticipated bypass within 24 hours from the time that the permittee becomes aware of the bypass.

4.1 definitions; Page 30

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Provide a Corrective Action Plan (CAP):

- ✓ Present the Corrective Action Plan (CAP) at the upcoming Compliance Review Meeting.
- ✓ Include the repair/implementation information and available results for the SBR unit(s).
- ✓ Include the completion repair plan of the process controls for the collection of representative Influent flow composite samples.
- ✓ Include the development of additional quality control techniques in the laboratory, e.g., blanks and spiked samples. The Chief Operator is to document the capabilities of the personnel performing laboratory work. Complete the development of Alexandria's Laboratory Standard Operating Procedure (Lab SOP). Follow the SOP.

Recommendations

- ✓ Continue to investigate and repair any failing sewer collection system lines. Smoke testing or video surveillance of the lines will provide useful data which could help to quickly repair large leaks in lines and prevent clean stormwater from entering the collection system.
- ✓ Meet with your engineering consultant to discuss the replacement/upgrade of the sewer collection system pump station.
- ✓ Provide laboratory training for personnel performing permit required lab analyses.
- ✓ Consider the purchase of a luminescent dissolved oxygen (LDO) meter. This will provide for a back-up D.O. meter during periods of required instrument maintenance.

Compliance Review Meeting (CRM) on Thursday, May 25, 2023, at 10:00 AM CST

The Division of Water Resources wishes to arrange the aforementioned Compliance Review Meeting (CRM). To reiterate, the meeting is currently set for Thursday, May 25, 2023, at 10:00 AM. The location will be at the Cookeville Environmental Field Office, 2nd floor conference room. Please invite your current operators and if you wish, your current consulting engineer. Please respond to this notice by May 5, 2023, notifying Cookeville EFO staff that the current location, date, and time for the CRM is acceptable.

The Division of Water Resources would again like to thank you, Mr. Rich Potter, Mr. Brian Grisham, and Mr. Chris Jarrett for your time and courtesy during this Compliance Evaluation Inspection.

If you have any questions, you may contact Oakley Hall in Cookeville by way of telephone at (931) 520-6677 or toll free at 1-(888)-891-8332. You may also use electronic mail at: Oakley.Hall@tn.gov.

Sincerely,

Mr. Brad Ulmer
Environmental Field Office Manager
Division of Water Resources
Cookeville Environmental Field Office

Enclosure: Site Photos Recorded 3.30.2023 by Oakley Hall

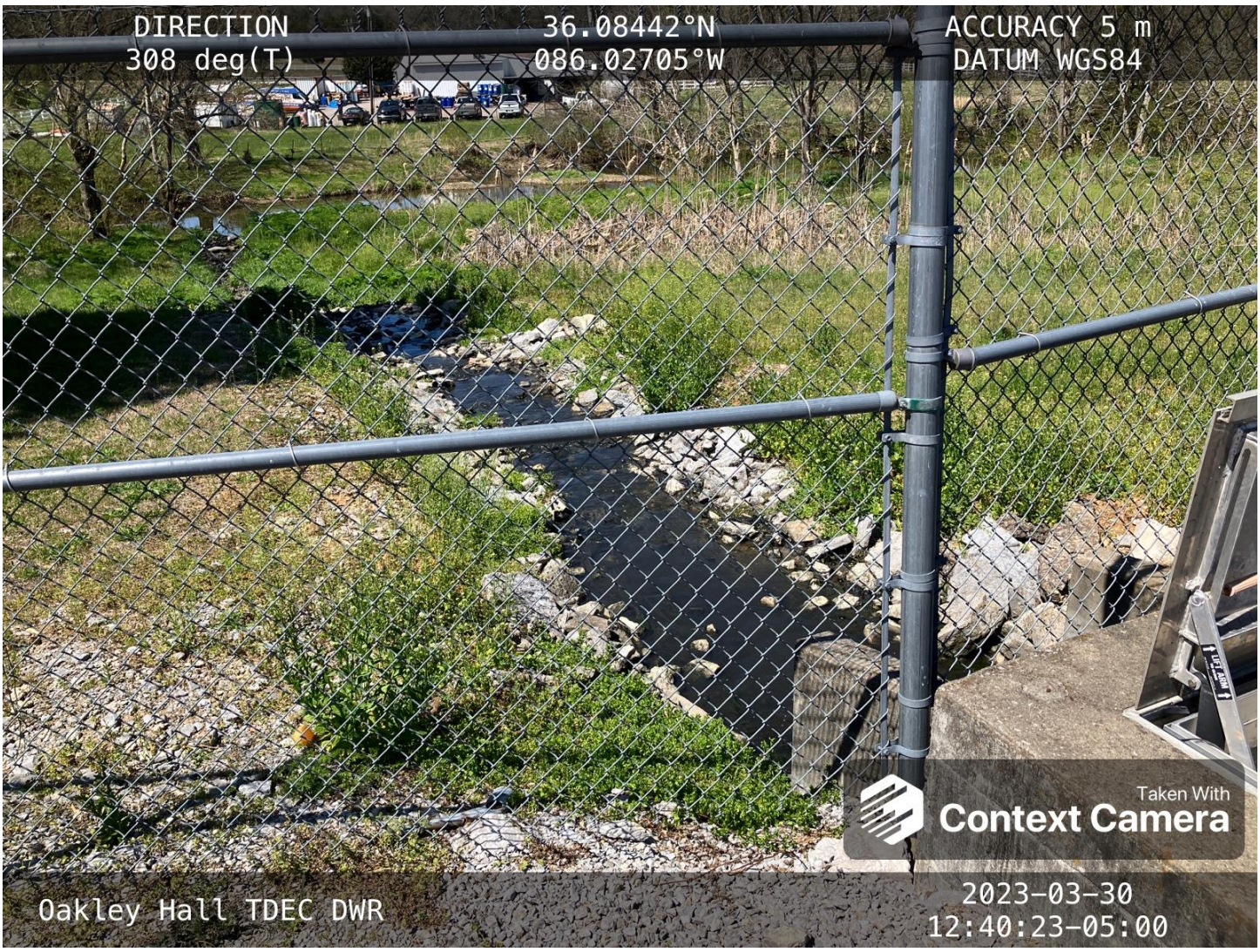
cc: Jessica Murphy Water Resources Enforcement and Compliance; Jessica.Murphy@tn.gov
Robert Becker TDEC Regional Director of External Affairs; Robert.Becker@tn.gov
Jerry Warren, Warren and Associates Engineering, PLLC; jbwarren@warrenandassociates.net
EFO-CK, DeKalb County DWR File TN0021539

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
COOKEVILLE ENVIRONMENTAL FIELD OFFICE
1221 South Willow Avenue
Cookeville, Tennessee 38506
Phone 931-520-6688 Statewide 1-888-891-8332 Fax 931-432-6952

Town of Alexandria Sewage Treatment Plant (TN0021539) Compliance Evaluation Inspection, DeKalb County.

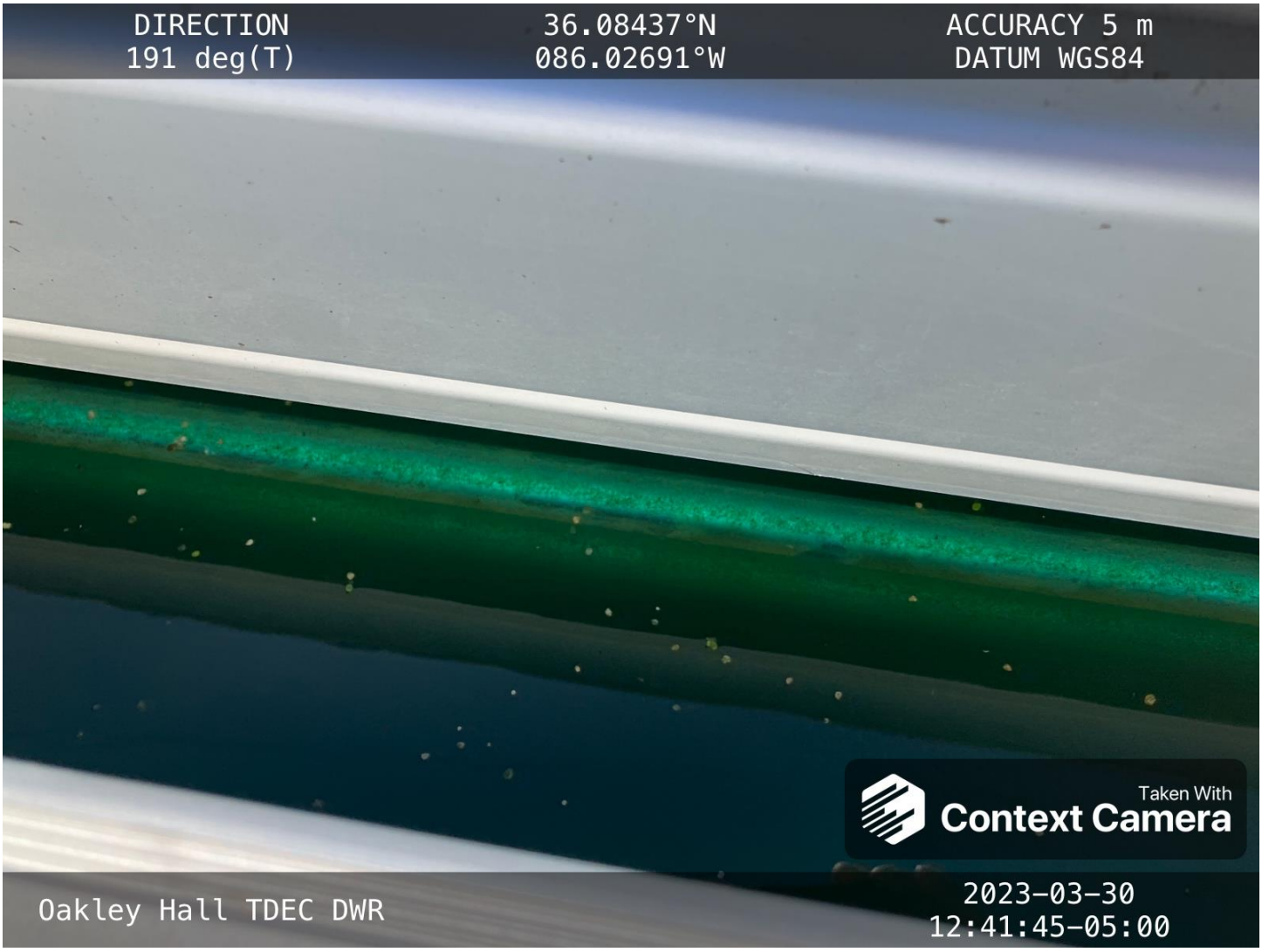
The final polishing basin is pictured. Floating plastic materials have been placed on the water surface to reduce the amount of Duck Weed on the surface. Historically, the Duck Weed has contributed to a higher total suspended solids (TSS) discharge. Prior to the inspection the operator turned on the aeration which is stirring the rectangular basin. This was done to increase Dissolved Oxygen levels. During the inspection, it was observed that solids were being stirred up and lost to the effluent discharge. This was observed in the U.V. disinfection channel.

The influent screen is operational. Solids are raked and bagged. They are disposed of in the landfill.



The effluent discharge to Hickman Creek was observed to be dark in color.

At the Ultra Violet (U.V.) system discharge, it was observed that suspended solids were present.



Particles from the rectangular basin are in the effluent water column and collecting on the U.V. bulbs. Operators reported that they have recently cleaned the U.V. bulbs.

This effluent flume (Palmer-Bowlus) is pictured. The effluent discharge flowing through the flume was dark due to the suspended solids in the discharge.

The influent sampler is pictured. It is not connected to the flow meter. The work to connect the flow meter to the sampler is in process. Currently, an automated flow proportional sample cannot be collected. The flow meter is operational. Historically the flow transducer in the manhole would be submerged during rain events. Operators report that recent work in the collection system has reduced inflow and infiltration, and this has reduced the submersion of the influent flow measuring devices in this relatively deep manhole. The refrigeration unit was operational. The hose into the manhole needs to be replaced.

The in-plant pump station was in operation.

The wet well for the pumpstation was reviewed. Grease was not present in the wet well.

The Town of Alexandria is now permitted to haul biosolids to a local farm. The pictured Sludge Mate is currently not in use. It was used to thicken biosolids prior to their disposal at a landfill. The town has a large digester.

The sewer plant is a Sequencing Batch Reactor (SBR) system. One of the reactors was not operational and had not been for several months. It was shut off due to a clogged aeration line. The operator felt that it was causing a decrease in dissolved oxygen. The air lines in this basin need to be repaired and this reactor placed back on-line. The sewer treatment plant is not operating as designed.

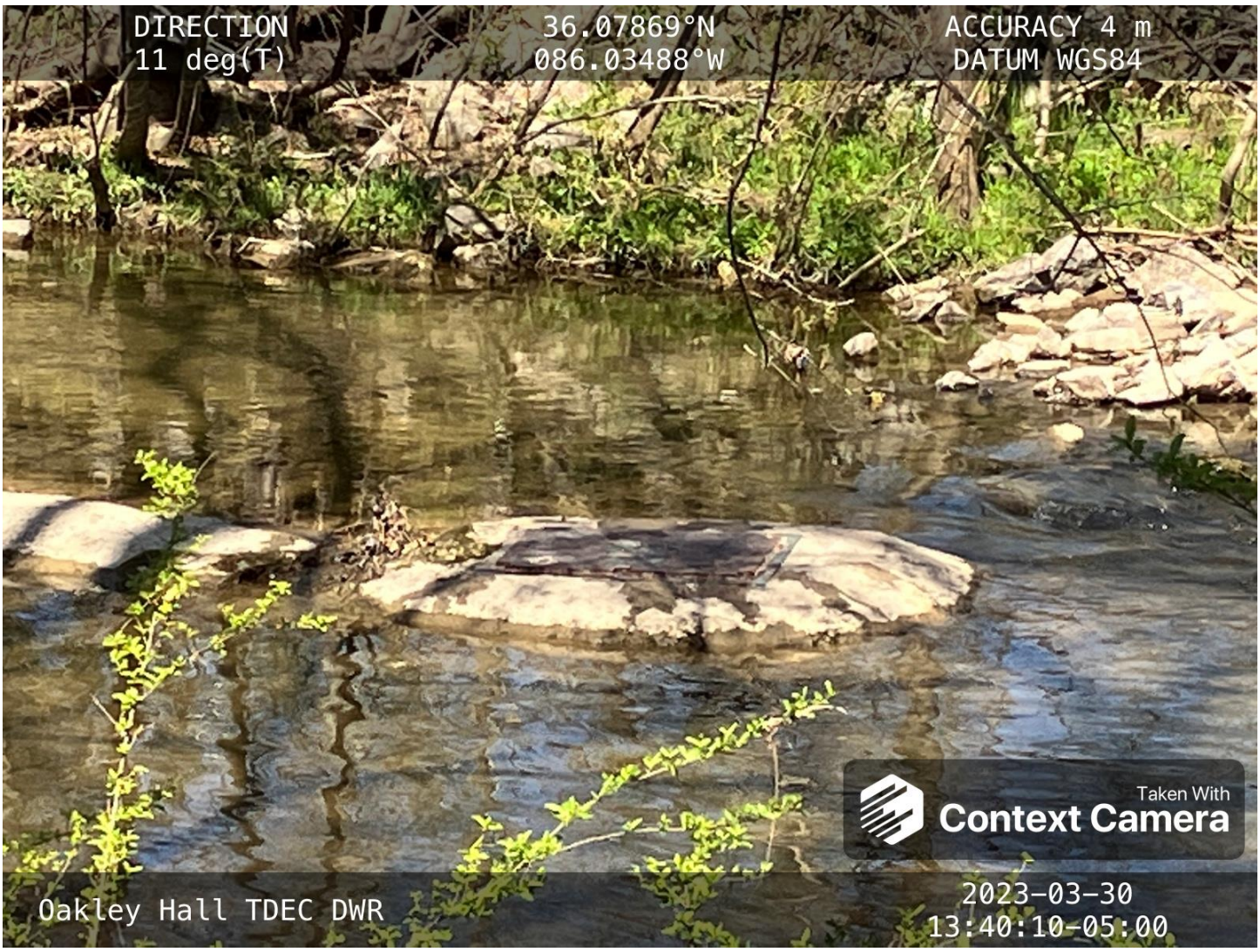
The other reactor was operational. It may be hydraulically overloaded, especially during the wetter seasons of the year. The wastewater SBR system is not being operated as designed because the sequencing of the reactors (allowing optimal treatment) cannot be maintained. This constitutes a bypass of treatment.

The inoperable reactor is dormant. Seals and other equipment may need further work.

The single pump station in the collection system is pictured. The hinge on the manhole entry door is in need repair. The pump station has recently had a warning light installed in case of high-water levels. Flushable wipes within the pump station have been a problem. The pumps will often clog. The pumps in this station are reportedly becoming more difficult to repair. The pump station may need a major overhaul or upgrade.

The sump in the pump station can no longer sit low enough to remove all the ground water in the floor of the pump station. Water was observed standing on the floor. The moisture may damage components in the pump station. It could be dangerous during repairs.

The pump station wet well was observed. The well was clean with a minimal amount of grease.



A series of manholes are located in-stream. Operators have recently sealed the manhole covers (complete welds) to reduce inflow and infiltration from the stream(s). The operators believe it has helped significantly.