



CASE STUDY

Dylan Tissue



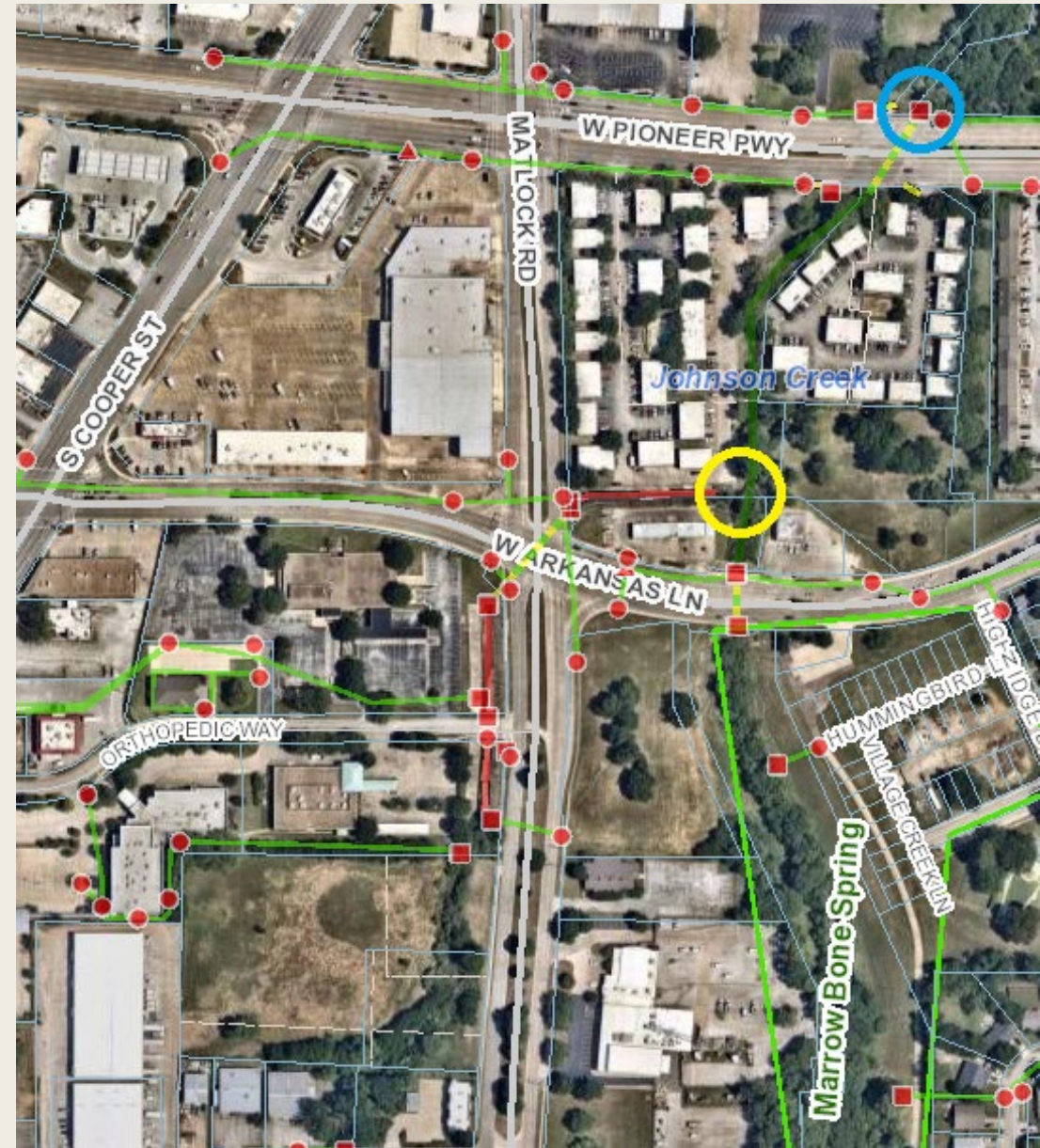
Discovery

- Observations in Johnson Creek during sampling for the Clean Rivers Program:
 - *Foul odor.*
 - *Slightly murky water.*
 - *Ammonia reading 1.02 ppm.*



Investigation

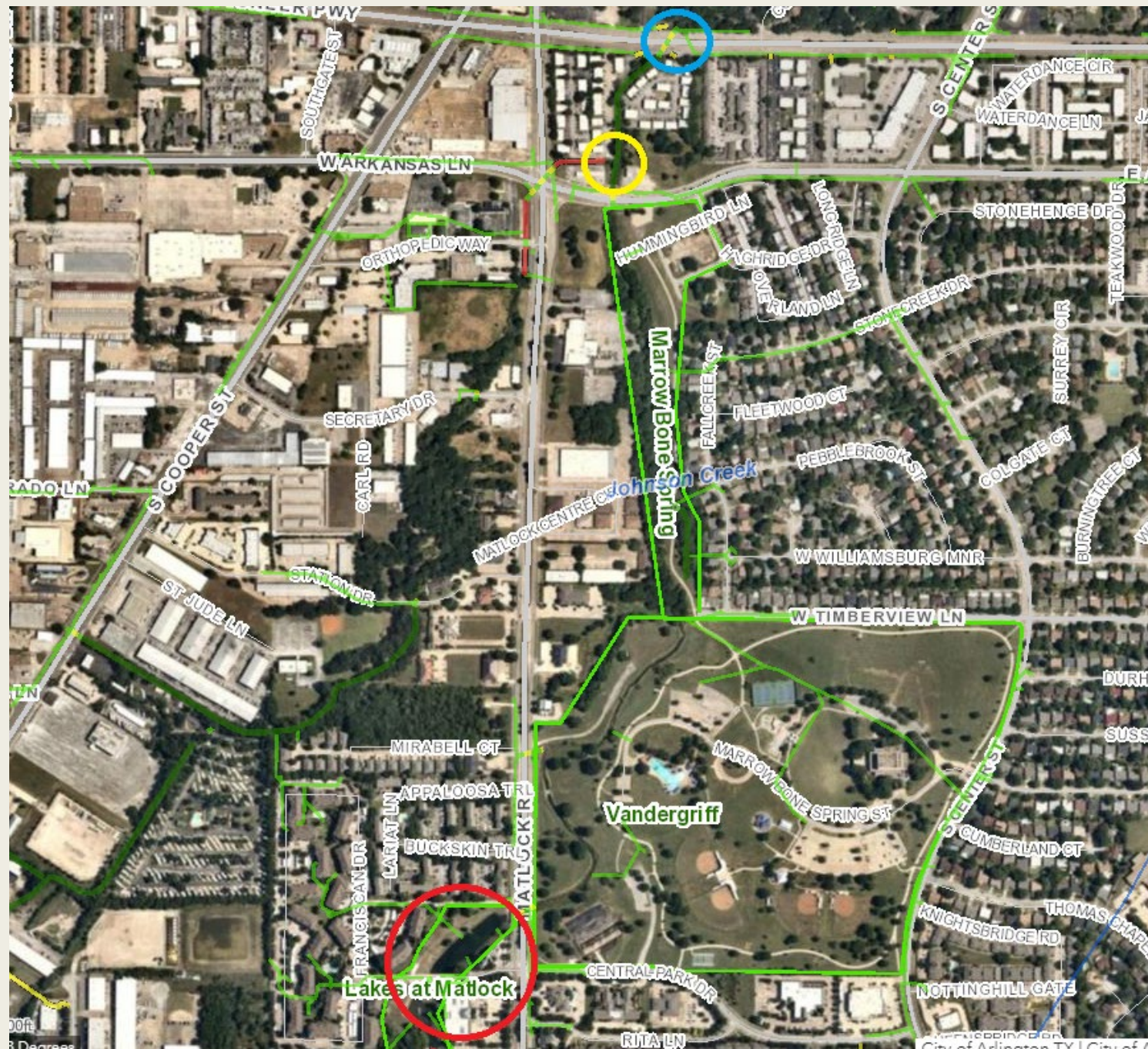
- The stream forks upstream.
- Ammonia concentration was higher in the longer fork.
- The slightly murky water could be seen flowing from the longer fork.



Investigation

- Ammonia concentrations were stronger further downstream until we reached an in-stream pond being dredged.
- Ammonia concentrations were at normal levels downstream of the pond.
- The water from the return pipe for the dredging project tested overrange for ammonia.





Investigation

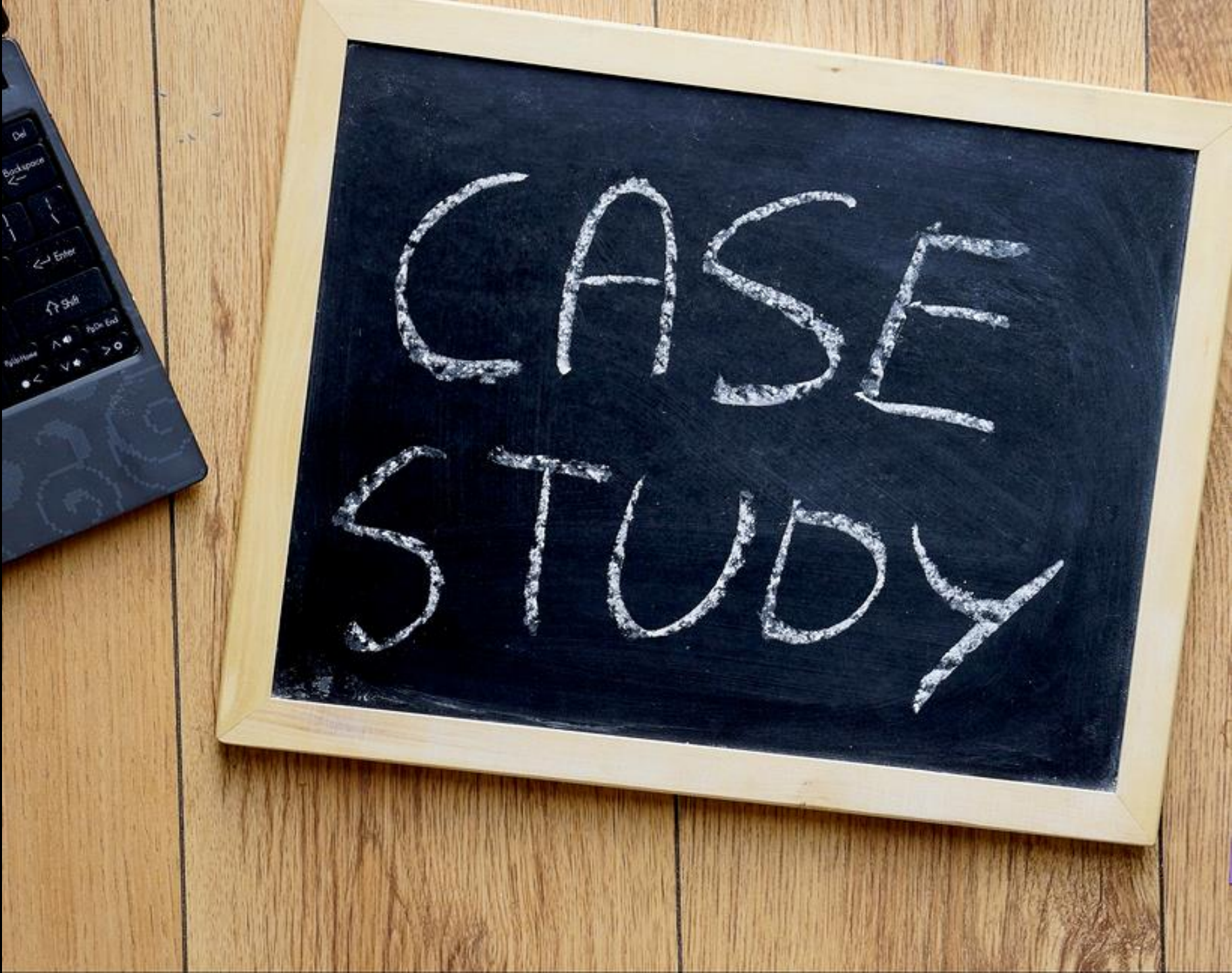


Enforcement

- The dredging project was issued a Stop Work Order.
- The contractor was required to alter their operations to mitigate the ammonia in their return water.
- The Stop Work Order was lifted, and routine sampling was performed to ensure the project did not discharge high levels of ammonia into Johnson Creek.

Hurricane Harbor

Sarah Mendoza



CASE
STUDY

June 2018



- Outfall verification.
- Strong Chlorine odor detected.
- Initial indication of a problem.
- Observed a heavy amount of flow from the outfall.

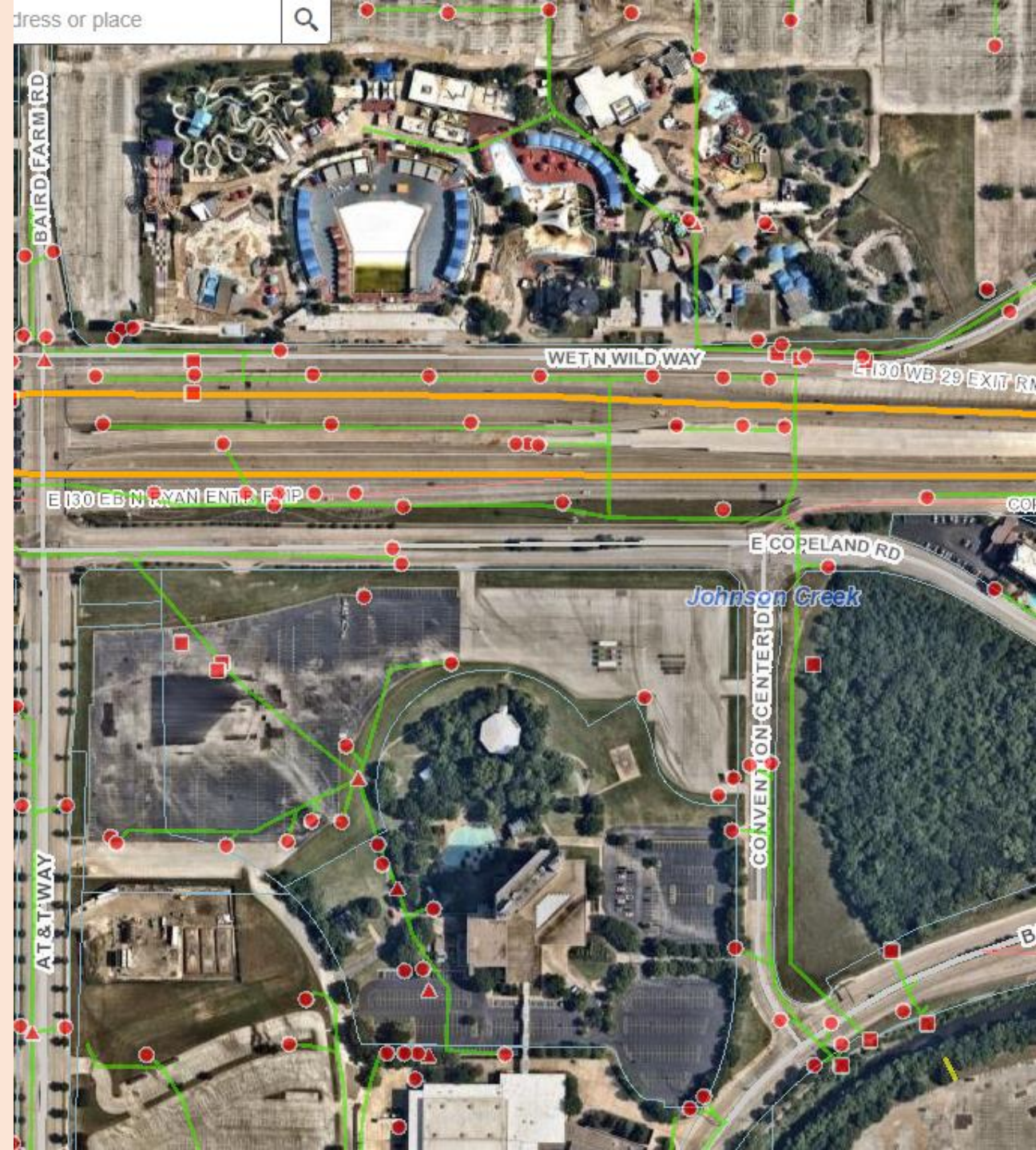
Observed Flow



Pulled up GIS maps to determine location of inlets that are connected to the outfall.

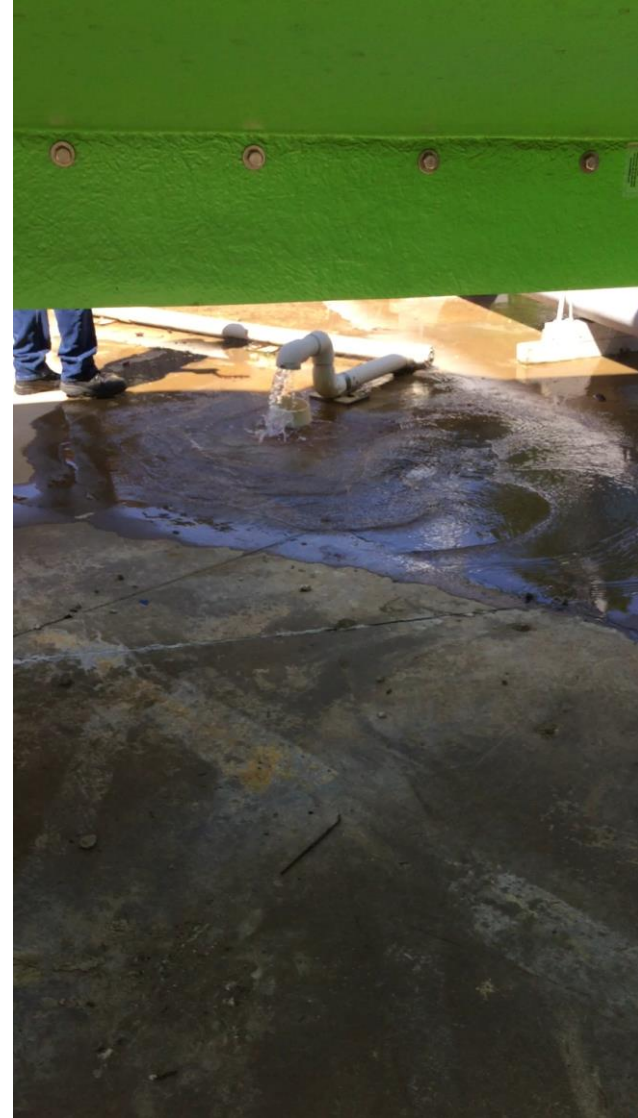
Environmental Management observed two possible inlets in Hurricane Harbor.

EM triggered to go to Hurricane Harbor and investigate.



Hurricane Harbor Walk Through

- Discovered discharge from a PVC pipe.
- Pipe not bolted down.
- Caused chlorinated water to discharge in grate storm inlet.
- Triggered to perform dye testing.



Grate Inlet



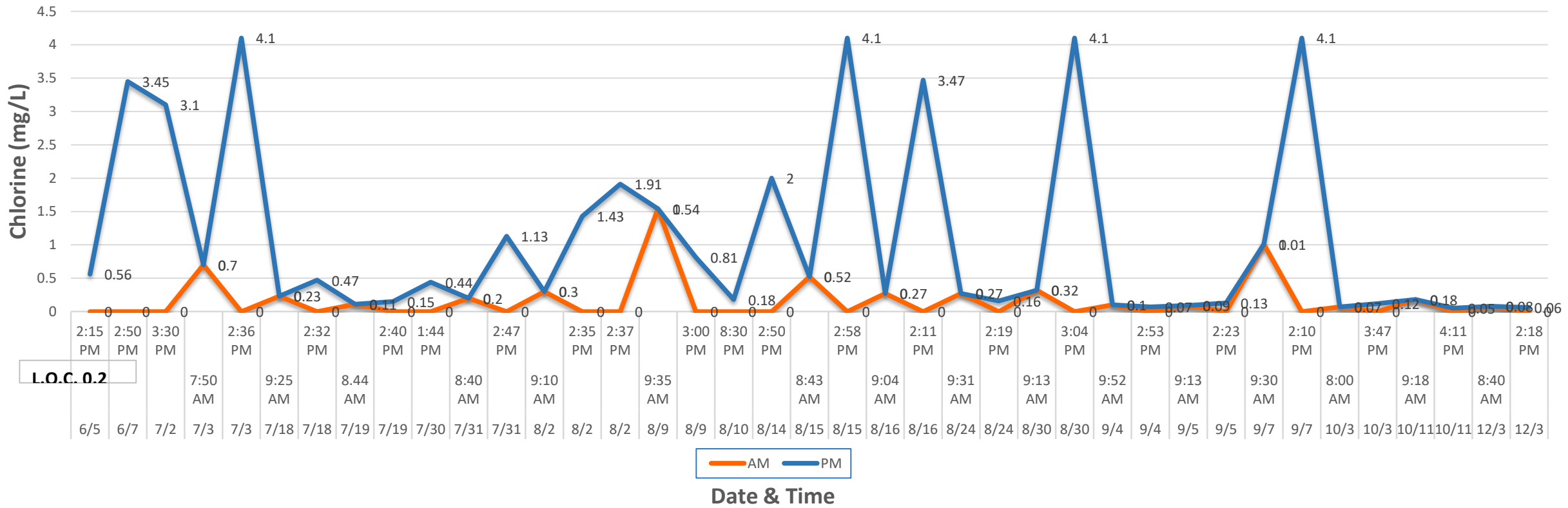
Dye Test

- Performed by an Environmental Specialist the next day.
- One Specialist performed the dye testing and another specialist waited at the outfall.
- With a short amount of time, Dye appeared at outfall.



Park had closed, but monitoring remained due to continuous discharge.

Hurricane Harbor Chlorine Readings



April
2019



Discharge was anonymously reported to State environmental regulatory agencies.



While monitoring, EM came across TCEQ.



TCEQ requests EM's data.

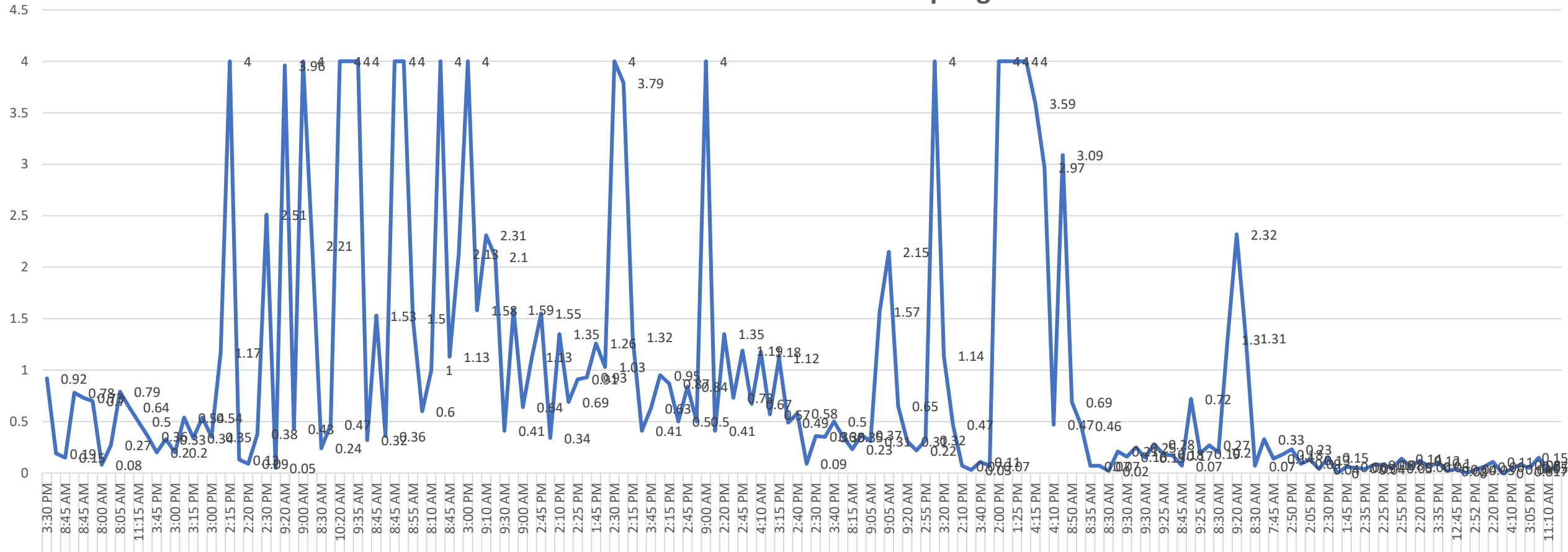


For Environmental Management records, we continued to monitor the outfall.

April 2019-October 2019

- stopped in October due to Park being closed.

2019 Hurricane Harbor Sampling



2020

- Could not monitor Hurricane Harbor due to COVID-19.
- In April, an anonymous complaint was forwarded to EM.
- Noticed a heavy flow of water coming from outfall and triggered monitoring of Hurricane Harbor.
- Hurricane Harbor was not open during this time.
- Hurricane Harbor aims to open mid-June.

Environmental Management continued to record data of outfall samples.
Two days a week and twice each day.

In June, EM decided to report Hurricane Harbor to TCEQ.

Hurricane Harbor 2020

Colorimeter
4.0 ppm = Overage
L.O.C: 0.2 mg/L

