

April 28, 2020

Joe Stepich
Special Assessment District
Watervliet Charter Township
4959 N M 140, PO Box 384
Watervliet, MI 49098

RE: 2020 Branch & Derby/Tributary Drain Water Quality Monitoring
Scope of Services

Dear Joe,

At your request, we have compiled a cost estimate for 2020 water quality monitoring activities on a drain(s) tributary to Paw Paw Lake. Similar to previous drain monitoring plans for the Branch and Derby Intercounty Drain, 2020's plan will follow a near identical protocol in order to keep data consistent from year to year. Meaning, water quality tests will remain the same, and the number of sample events and data downloads are projected to be nearly the same as well. The Branch and Derby Intercounty Drain may be monitored during the year 2020; however, if there is desire to monitor an alternate drain(s) tributary to Paw Paw Lake, this letter agreement allows for that flexibility. Some of the field work for drain monitoring is planned on the same day as Paw Paw Lake monitoring for the sake of project efficiency. The general plan and estimated cost are outlined in the following letter.

Task 1 – Autosampler Installation

If the Branch and Derby Intercounty Drain is to be monitored during the year 2020, autosamplers will be installed in the same general locations as 2017, 2018, and 2019 so that water level data remains relatively consistent. Locations are the following:

- A1: 42.21848, - 86.26546
- A2: 42.22981, - 86.25281
- A3: 42.22954, - 86.25132

If an alternate drain is selected for water quality monitoring, three sample locations in key areas of the drain will be selected and approved by the Paw Paw Lake Improvement Board. Or, multiple drains may be selected for monitoring where up to two autosamplers may be installed on one drain. Again, samplers will be installed in key locations on the drain which provide the most valuable and relevant information. All sample sites will be reviewed and approved by the Paw Paw Lake Improvement Board. The map enclosed with this letter agreement shows drains tributary to Paw Paw Lake which may be selected for monitoring.

Autosamplers will be installed by a two-person crew. Autosampler equipment was purchased by the Lake Board in late 2016 and is intended to be used again. Equipment was inspected at the end of the 2019 monitoring season but will be inspected again prior to installation in 2020. If any equipment is not working properly, Spicer Group will notify the Lake Board prior to any equipment fixes or part purchases. The cost of equipment repair is not accounted for in the proposal.

Task 2 – Sample Events

Sample events will occur during rain events. The autosamplers will be programmed to collect samples at a designated water level threshold in order to evaluate the water quality during periods of wet weather. There are a total of 24 bottles in the autosampler's base. In order to properly program to 2017, 2018, and 2019 standards, the following metrics will be programmed into the equipment:

- Sample volume per bottle: 400 mL
- Time between samples: 20 minutes
- Samples per bottle: 1
- Number of sample bottles to be filled: 24
- Sampling will be disabled after water level drops below set trigger threshold water level

In 2017 and 2018, "beginning of storm" samples and "end of storm" samples were collected and analyzed separately in order to determine if there was a water chemistry difference between the two sets of samples. It is proposed that the same protocol is followed in 2020, and that the following tests are run on the samples:

- Total phosphorus,
- Soluble reactive phosphorus,
- Total suspended solids,
- Ammonia, and
- Nitrate-nitrite.

These tests are consistent with the suite of tests being run on Paw Paw Lake samples and may thus be compared. It is also recommended to utilize the same laboratory (Fibertec) that is analyzing Paw Paw Lake samples to analyze the drain samples. Three runoff sample events are planned with this proposal.

Task 3 – Equipment Checks

On the same day as Paw Paw Lake sample events, one Spicer personnel will inspect the three installed autosamplers to ensure that water level and sample collection lines are intact, that animals have not invaded the equipment, that there is no water damage to equipment, and that the batteries running the samplers have sufficient charge for the next programmed sample event. If there are any minor issues that may be resolved at the time, the personnel will fix the problem the day of. If there are major issues that require much more time to remediate, the individual will contact the

Lake Board and describe the problem and potential solutions. In total, there will be at least three equipment checks.

Task 4 – Maintenance

General maintenance tasks include washing of the sample bottles, download of field data, and download of weather data.

Task 5 – Autosampler Removal

Autosamplers are to be removed by a crew of two Spicer personnel. Upon removal, the equipment will be properly cleaned, inspected, and stored in a temperature-controlled building under Spicer supervision, unless otherwise notified.

Task 6 – Reporting

A small summary report will be written about the monitoring performed on the drain in 2020. The report will include a comparison to previous years' data, as well as a comparison to Paw Paw Lake's 2020 water quality conditions. Brief recommendations based off of the analysis will be provided as well.

Deliverables:

2020 Tributary Dain Monitoring Summary Report

- A. One hard copy version provided
- B. Electronic copy provided
- C. Other versions available upon request

Reimbursable Expenses:

Reimbursable expenses will be billed when they are incurred or invoiced on an hourly basis. Reimbursable expenses such as laboratory and equipment fees have been accounted for in this cost estimate. Examples of reimbursable fees include:

- A. Laboratory fees
- B. Equipment rental
- C. Deliverables beyond those included above

Additional Services:

Services not specifically listed in our scope of services are excluded from this letter agreement. We will perform additional services only after you authorize the work. Our fee for those additional services will be determined at the time they are rendered. Examples of additional services include:

- Watershed Management Plans
- Additional Deliverables
- Additional Sample Events

- EGLE Permit Compliance
- Educational Materials or Field Days

Fee Schedule:

Our proposed fee schedule follows. We will submit monthly invoices to you for our basic professional services, additional authorized services, and any reimbursable expenses. Where the fee is a lump sum, the invoice amount will be based on the proportion of work actually completed during the billing period. Where the fee is hourly, the invoice amount will be based on the actual hours spent by our staff on your project billed at the hourly rate of each staff member.

The scope of work outlined in this letter agreement is estimated to be \$26,000.00 and is based on hourly fees. Again, the general task outline for the scope of work is listed below:

Task 1 – Autosampler Installation

Task 2 – Sample Events (3 Rain event sample events)

Task 3 – Equipment Checks (3 Equipment checks)

Task 4 – Maintenance

Task 5 – Autosampler Removal and Storage

Task 6 – Reporting

2020 Tributary Drain Monitoring Project Estimated Total.....\$26,000.00

We deeply appreciate your confidence in our firm and we are looking forward to the continuation of our work with you on this project.

Sincerely,



Emily Short
Project Manager



Larry J. Protasiewicz, P.E.
Principal

SPICER GROUP, INC.
1400 Zeeb Dr.
St. Johns, MI 48879
Phone: (989) 224-2355

Above proposal accepted and approved by Owner:

PAW PAW LAKE IMPROVEMENT PROJECT

By:


Joe Stepich

Date:

May 6, 2020

Enclosures:

Paw Paw Lake Tributary Drain and Sample Site Map
Spicer Group General Conditions

cc: SGI File # 123724SG2016
SMC, Accounting

P:\proj2016\123724SG2016_2016PawPawLakeAeration\ProjectManagement

Stronger. Safer. Smarter. **Spicer.**

WWW.SPICERGROUP.COM