

**Des Plaines River  
Watershed Workgroup**

**Des Plaines River Watershed Workgroup**

**Monitoring/WQ Improvements Committee Meeting**

**1/18/2018 1:00 – 2:30 pm**

**Lake County Stormwater Management Commission Medium Conference Room**

**500 W. Winchester Road, Libertyville IL 60048**

**Agenda**

1. Call the meeting to order
2. Roll Call
3. Approve Previous Meeting minutes (12/21/17)
4. Public Comment
5. Monitoring Strategy Report – should it be updated?
6. 2018 Contracts/Budget
7. IPS Model
8. Annual Accomplishments and Annual Report
9. Chlorides Policy/Fact Sheets
10. Education/Outreach
11. Old Business
12. Other Business
13. Next Monitoring Committee Meeting March 15, 2018 at Lake County Central Permit Facility
14. Adjourn



**Des Plaines River Watershed Workgroup**  
**Joint Monitoring/WQ Improvements and Lakes Committees**

**12/21/2017**

**1:00 PM – 2:30 PM**

**Lake County Stormwater Management Commission, Second Floor**

**500 W. Winchester Road, Libertyville IL 60048**

**Meeting Minutes**

1. Call the meeting to order: Joe Robinson called the meeting to order
2. Roll Call (Joe Robinson, Mike Adam, Al Giertych, Austin McFarlane, Steve Vella present. Jim Anderson arrived at 2:00 pm; Jim Bland was not present)
3. Approve previous Meeting minutes:  
Mike Adam made motion to approve 10/19/17 minutes, Austin M seconded the motion, motion passed unanimously.
4. Public Comment: None
5. Continuous Monitoring Program. Mike Adam gave the report – LCHD has 7 conductivity monitors and NSWRD has 2 monitors that have already been placed in the watershed, mostly on the main stem of the Des Plaines River. They are continuous conductivity/DO monitors and will stay out through the winter. There was some discussion and Don H shared that Northwestern University is studying the riffle and pharmaceuticals – Kimberly Gray is the professor leading the study.
6. Finalize 2018 Laboratory Contract – Joe R handed out a packet of papers with cost estimates for the original plan with Suburban Labs (SL) and an Option A and an Option B. Joe stated he prefers Option A which would move all Tier 4 sites into Tier 3 and remove dissolved, reactive phosphorus (DRP), DO, temp, TOC and sulfate from the parameter list. None of these parameters were detected during the baseline sampling. It would also reduce the number of sampling events to 5 per year @ 71 sites for water quality. Joe would like to have a final contract to submit to the Executive Board by the January 18<sup>th</sup> meeting. Sampling will occur in Jan, June, July, Sept and Nov. Joe may add some pesticides to the analysis list.
7. Membership Dues for 2018 – no increase expected.
8. Annual Monitoring Report – Report is submitted to IL EPA in March, 2018.
9. Chlorides Policy/Fact Sheets – Beth A wanted to know if the Committee wanted her to pursue researching a chlorides policy, fact sheets and a postcard to give to organizations that have not attended the De-icing Workshop yet. The Committee agreed to let her research and create post cards.
10. Old Business
11. Other Business – Mike W announced that the County is moving forward with hiring an MS4 coordinator, a part-time FTE that will sit in the SMC office and work with the DRWW technical coordinator.
12. Next Monitoring Committee Meeting **December 21, 2017** at LCSMC
13. Adjourn: Mike Adam made a motion to adjourn, Al Giertych seconded the motion.

**Committee Members Present**

Joe Robinson, DRWW Monitoring/WQ Improvements Committee Chair, NSWRD

Mike Adam, LCHD

Al Giertych, LCDOT

Steve Vella, Village of Libertyville

Austin McFarlane (LCPW)

Jim Anderson, LCFPD

**Other attendees:**

Rob Flood, NSWRD

Kathleen Paap, WRI

Donald Hey, WRI

Beth Adler, DRWW Technical Coordinator

Brian Dorn, NSWRD

Mike Warner, LCSMC

**TECHNICAL SERVICES AGREEMENT** between the  
**DES PLAINES RIVER WATERSHED WORKGROUP**  
and  
**MIDWEST BIODIVERSITY INSTITUTE** for  
**IPS MODELING AND STATISTICAL ANALYSIS**

This is an agreement (Agreement) by and between the DES PLAINES RIVER WATERSHED WORKGROUP, 500 West Winchester Road, Libertyville, Illinois 60048 (DRWW) and MIDWEST BIODIVERSITY INSTITUTE P.O. Box 21567, Columbus, OH 43221-0561 (CONTRACTOR).

**PURPOSE**

The DRWW wishes to engage the Contractor to provide technical services to assist the DRWW in conducting the development of an Integrated Prioritization System (IPS) and supporting tools. IPS development includes an in-depth analysis of all chemical, physical, and biological data collected in the preceding watershed assessments and for the purpose of providing a library of data analysis tools and prioritization mechanisms in the Des Plaines River watershed located in central Lake County, Illinois.

**SERVICES**

The Contractor will develop an IPS and supporting tools, including an in-depth analysis of all chemical, physical, and biological data collected in the baseline watershed assessment and for the purpose of providing a library of data analysis tools and prioritization mechanisms. The items listed below provide additional details for each task:

**Task 1:** Project Management – Consists of project management including task supervision, communication and reporting, and budget monitoring.

**Timeline:** ongoing through contract term (December 31, 2018)

**Task 2:** Stressor:Response - Includes gathering existing and new data and performing the requisite exploratory analyses beyond the initial identification of impairments and stressors by the watershed assessment reports including the examination of landscape factors via GIS. The goal of this task is to update the extant stress:response relationships in the Upper Des Plaines watersheds and their quantitative relationships as key variables in the IPS.

**Timeline:** February 1-May 31, 2018

**Task 3:** Development and Testing of the DRWW IPS - The IPS yields relative ratings of restorability for impaired sites and threat and susceptibility for attaining sites based on key attributes that relate to the stressors identified in task 2. Relative rankings for restorability and threat and susceptibility will be provided at the site, reach, and Huc 12 watershed scales. The attendant stressors that contribute to a restorability or threat/susceptibility are detailed at the same scales and can serve as an initial screen for stressors that will need to be addressed via restoration or protection. The development of a web based tool is also part of this task and is envisioned to include a visual depiction of the restorability and threat/susceptibility factors and the underlying chemical, physical, and biological variables. Lastly, this task will include a testing and

exploration of the IPS by DRWW. The implementation of the IPS is inherently iterative requiring an adherence to an adaptive management strategy.

**Timeline:** June 1-October 31, 2018

**Task 4:** Draft and Final IPS Documentation Report – this will document the development of the details and underlying data relationships that underpin the IPS and all data layers.

**Timeline:** October 1-November 30, 2018 [Draft]; December 1-31, 2018 [Final]

The DRWW IPS development and testing will be firmly integrated with the recently initiated update of the DRSCWG IPS that was initiated in mid-2017. The integration of the datasets from both the DRSCWG and DRWW will enhance many aspects of the IPS including the broadening of the biological quality and stress:response gradients across the two in common subregions in Northeastern Illinois (Figure 1).

In-kind contributions from DRWW are requested and include support in accessing GIS layers as variables for the IPS stress:response analyses and also with the development of a web-based presentation of the IPS products, tools, and underlying data. The in-kind contributions will also need to be closely coordinated with the same provided by the DRSCWG.

The final report will include the following sections:

*Executive Summary*

A brief synopsis of the findings of the watershed monitoring including a quantitative description of impairments, major causes and sources of impairment, opportunities for restoration and protection, and recommendations for future monitoring.

*Section 1 – Introduction*

This will describe the purposes of the monitoring and the goals and objectives of the DRWW for using monitoring data to support water quality decision-making.

*Section 2 – Study Area Description*

A detailed description of the study area including maps and lists of sites, major pollution sources, dams, and other features that relate to the watershed biological assessment. This will benefit from DRWW input upfront in the process.

*Section 3 – Methods*

A description and summary of all chemical, physical, and biological methods used to collect the data, data management, and data analysis including the delineation of impairments, a description of the process used to assign causes and sources, and an approach for conducting use attainability analyses.

*Section 4 – Results*

A comprehensive reporting of chemical, physical, and biological quality using tables and graphs to report the results. This will include an assessment of POTW pollutant loadings, chemical water quality criteria exceedances, exceedances of biologically relevant thresholds,

sediment chemical threshold exceedances, analysis of habitat attributes, and reporting fish and macroinvertebrate IBI and metrics results.

*Section 5 – Synthesis of Results*

This section will report the results of the data analyses and causal assessment conducted under task 6C. This where the conclusions about causes and sources are explained including any patterns observed in the study area such as the differences in results observed between POTW influenced and nonpoint source influenced sites and reaches.

**Deliverables:** draft and final report

**Timeline:** July 15, 2019 (draft) and Aug. 30, 2019 (final)

**COMPENSATION**

The Contractor agrees to perform the Scope of Services and furnish the items included in the Scope of Services for a fee (Agreement Amount) not to exceed \$60,000.

The DRWW agrees to pay the Contractor for a total project cost not to exceed \$60,000. The final ten percent of the Agreement Amount shall be retained by the DRWW until the project is successfully completed and all deliverables have been received and approved.

The Contractor shall furnish the DRWW with an itemized invoice no more frequently than on a monthly basis. Invoices shall describe the work completed; show the actual number hours worked by team member; amount of budget remaining; and actual travel and other expenses that have occurred. Payments by the DRWW shall be made within 60 days of receipt of the invoice from the Contractor.

**TERMS and CONDITIONS**

1. The DRWW may, by written Order, make changes in the scope of work if such changes are within the general scope of the Agreement. If such changes cause an increase or decrease in the Contractor's cost or the time required to complete the project, the parties hereto shall agree to an adjustment in the Agreement Amount, prior to issuance of the Change Order. Adjustment of the Agreement Amount shall be based on the estimated change in the number of staff hours required plus any changes in the Contractor's expense. The Contractor will not be compensated for additional services performed without an approved Change Order.
2. The DRWW may at any time terminate this Agreement in whole or in part by ten day written or telegraphic notice or verbal notice confirmed in writing. Upon termination for convenience of the DRWW, the DRWW will assume responsibility for services rendered and costs incurred prior to notification. Any and all services, property, publications or materials provided during or resulting from the Contractor shall be the property of the DRWW.
3. This Agreement shall be governed by and construed according to the laws of the State of Illinois.
4. Certificates of insurance shall be provided with the Des Plaines River Watershed Workgroup, Lake County Department of Transportation, Lake County Forest Preserve District, and Lake County Stormwater Management Commission named as Certificate Holders.

- 5. This Agreement supersedes any and all other agreements, oral or written, between the parties hereto with respect to the subject matter hereof.
- 6. This agreement shall not be assigned, altered or modified without the express written consent of both parties except as provided in paragraph one above. The Contractor shall not reject any reasonable change proposed in the best interest of the project by DRWW.

**NOTICES AND COMMUNICATION**

All notices and communications given to either party by the other relative to this agreement shall be addressed to the respective parties as follows:

**To the DRWW:** Des Plaines River Watershed Workgroup  
 500 West Winchester Road  
 Libertyville, Illinois 60048  
 ATTENTION: Mike Warner, Administrative Agent  
[mwarner@lakecountyil.gov](mailto:mwarner@lakecountyil.gov)  
 Electronic deliverables cc: [Badler@lakecountyil.gov](mailto:Badler@lakecountyil.gov)

**To the Contractor:** Midwest Biodiversity Institute  
 P.O. Box 21561  
 Columbus, OH 43221-0561  
 ATTENTION: Chris Yoder, Project Manager  
[cyoder@mwbinst.com](mailto:cyoder@mwbinst.com)

**For the DRWW:**

**Attest:**

\_\_\_\_\_  
 Brian Dorn, President  
 DRWW

\_\_\_\_\_  
 DRWW

Date: \_\_\_\_\_

**For the Contractor:**

**Attest:**

\_\_\_\_\_  
 Pete Precario, Executive Director  
 Midwest Biodiversity Institute

\_\_\_\_\_  
 Midwest Biodiversity Institute

Date: \_\_\_\_\_

**ATTACHMENT A**

**Scope of Work for Development of IPS 2018**

**Prepared by MBI**



**Development of an Integrated Prioritization System (IPS) and Supporting Tools  
for the Upper Des Plaines River Watershed**

**Scope of Work for 2018**

Des Plaines River Watershed Workgroup (DRWW)  
Lake County Stormwater Management  
500 W. Winchester Rd.  
Suite 201  
Libertyville, IL 60048

January 9, 2018

Submitted by:

Midwest Biodiversity Institute  
P.O. Box 21561  
Columbus, OH 43221-0561  
[www.midwestbiodiversity.org](http://www.midwestbiodiversity.org)

## Development of an Integrated Prioritization System (IPS) and Supporting Tools for the Upper Des Plaines River Watershed

Midwest Biodiversity Institute  
P.O. Box 21561  
Columbus, OH 43221-0561  
[www.midwestbiodiversity.org](http://www.midwestbiodiversity.org)  
Chris O. Yoder, Project Manager

The Midwest Biodiversity Institute (MBI) was selected by the Des Plaines River Watershed Workgroup (DRWW) to perform tasks in support of a biological and water quality assessment of the Desplaines River watershed in Lake Co., IL in 2016. One full assessment of the watershed took place in 2016-17 and field work for Year 1 of a three-year follow up rotation was completed in 2017. A follow on project in other watersheds assessed in a similar manner by MBI has included the development of an Integrated Prioritization System (IPS) and supporting tools. Generally known as “the IPS”, its development includes an in-depth analysis of all chemical, physical, and biological data collected in the preceding watershed assessments and for the purpose of providing a library of data analysis tools and prioritization mechanisms. Thus far two clients have used their IPS frameworks and tools to determine priorities for restoration of impaired sites, reaches, and subwatersheds. The DuPage River Salt Creek Working Group (DRSCWG) has made the most extensive use of the first IPS developed by MBI. In addition to using the IPS products to determine restoration priorities and projects, the resources and tools developed within the IPS framework have also been used to determine protective riparian buffers and to negotiate NPDES permit terms and conditions for major municipal WWTPs. The IPS developed for the Metropolitan Sewer District of Greater Cincinnati (MSDGC) was originally intended to provide for a prioritization scheme for MSDGC’s response to a CSO (Combined Sewer Overflow) Consent Decree. While IPS implementation for that purpose is currently in development, the IPS toolset has been used to determine instream water quality targets for new stormwater outfalls produced by sewer separation projects designed to eliminate CSOs. IN addition, the IPS targets have served to determine and refine causes of impairments identified by the rotating watershed assessments, which in turn directly affect future TMDL development.

The DRWW IPS development project includes four principal tasks:

**Task 1: Project Management** – Consists of project management including task supervision, communication and reporting, and budget monitoring.

**Timeline:** ongoing through contract term (December 31, 2018)

**Task 2: Stressor:Response** - Includes gathering existing and new data and performing the requisite exploratory analyses beyond the initial identification of impairments and stressors by the watershed assessment reports including the examination of landscape factors via GIS. The goal of this task is to update the

extant stress:response relationships in the Upper Des Plaines watersheds and their quantitative relationships as key variables in the IPS.

**Timeline:** February 1-May 31, 2018

**Task 3:** Development and Testing of the DRWW IPS - The IPS yields relative ratings of restorability for impaired sites and threat and susceptibility for attaining sites based on key attributes that relate to the stressors identified in task 2. Relative rankings for restorability and threat and susceptibility will be provided at the site, reach, and Huc 12 watershed scales. The attendant stressors that contribute to a restorability or threat/susceptibility are detailed at the same scales and can serve as an initial screen for stressors that will need to be addressed via restoration or protection. The development of a web based tool is also part of this task and is envisioned to include a visual depiction of the restorability and threat/susceptibility factors and the underlying chemical, physical, and biological variables. Lastly, this task will include a testing and exploration of the IPS by DRWW. The implementation of the IPS is inherently iterative requiring an adherence to an adaptive management strategy.

**Timeline:** June 1-October 31, 2018

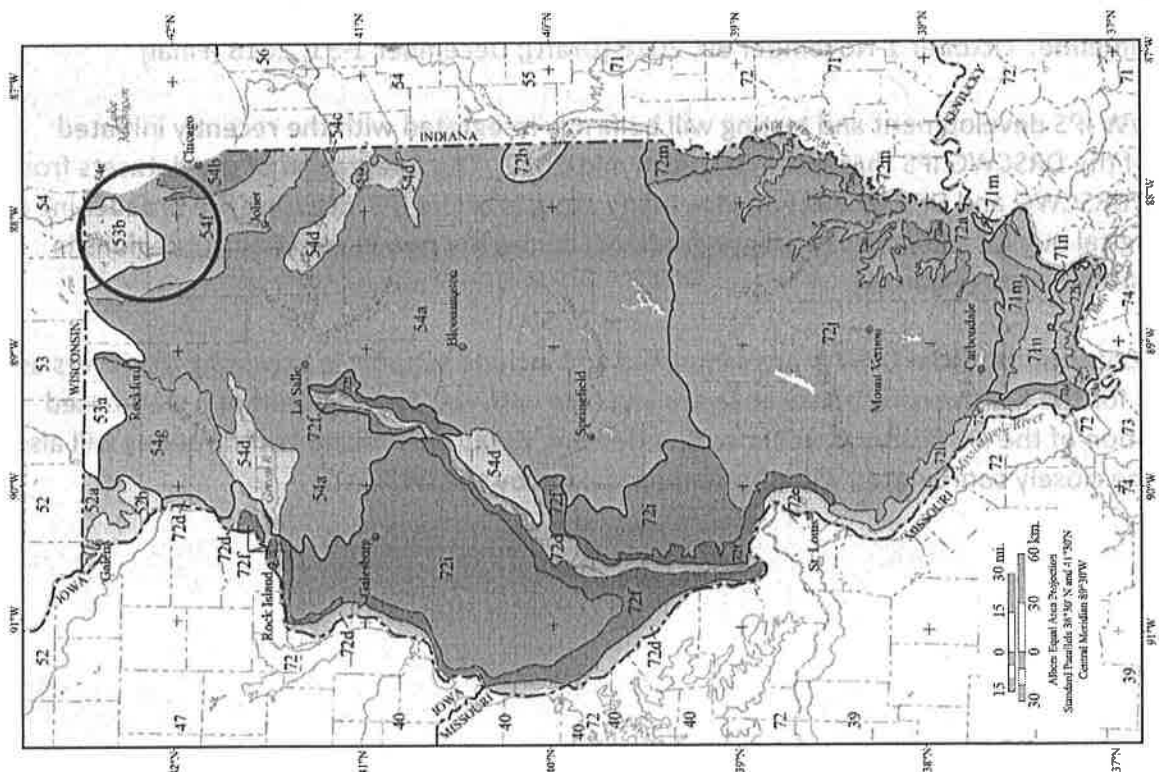
**Task 4:** Draft and Final IPS Documentation Report – this will document the development of the details and underlying data relationships that underpin the IPS and all data layers.

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The DRWW IPS development and testing will be firmly integrated with the recently initiated update of the DRSCWG IPS that was initiated in mid-2017. The integration of the datasets from both the DRSCWG and DRWW will enhance many aspects of the IPS including the broadening of the biological quality and stress:response gradients across the two in common subregions in Northeastern Illinois (Figure 1).

In-kind contributions from DRWW are requested and include support in accessing GIS layers as variables for the IPS stress:response analyses and also with the development of a web-based presentation of the IPS products, tools, and underlying data. The in-kind contributions will also need to be closely coordinated with the same provided by the DRSCWG.

ILLINOIS LEVEL III AND LEVEL IV ECOREGIONS



NE Illinois IPS

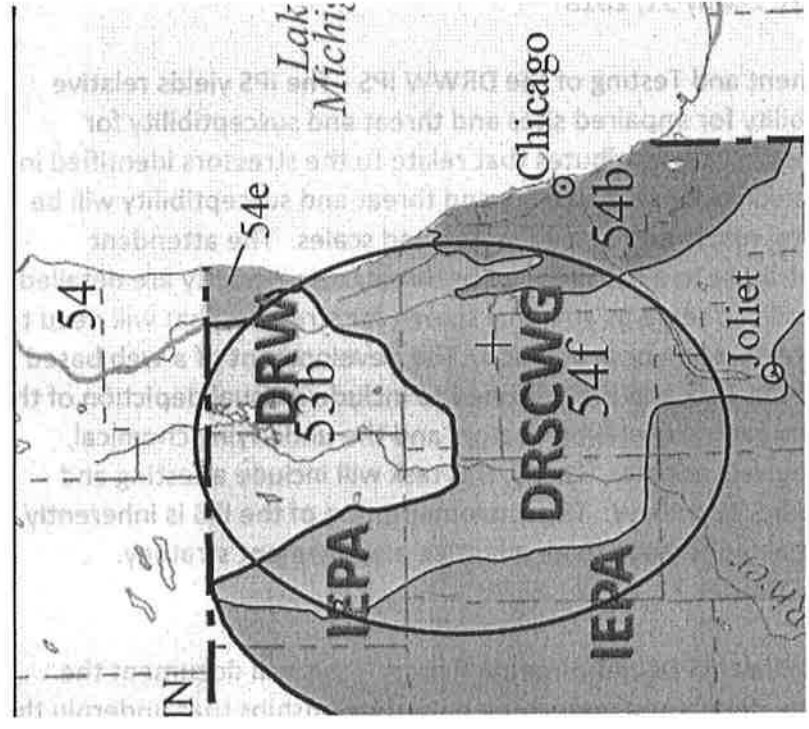


Figure 1. General geographic area for including data to support the development of an Integrated Prioritization Tool applicable to streams and rivers in northeastern Illinois within the Kettle Moraines (53b) and the Valparaiso-Wheaton Morainai Complex (54f) subregions.

**Appendix A. 2018 DRWW IPS Budget Summary**

<b>Task</b>	<b>Description</b>	<b>Quote</b>
<b>1 - Project Management</b>	<ul style="list-style-type: none"> <li>• Project oversight &amp; reporting</li> <li>• Budget management &amp; tracking</li> <li>• 25 hours</li> </ul>	<b>\$2,500.00</b>
<b>2 – Stressor:Response</b>	<ul style="list-style-type: none"> <li>• Data acquisition &amp; vetting</li> <li>• Define stressor variables</li> <li>• Exploratory analyses</li> <li>• Biological effect thresholds</li> <li>• 200 hours</li> </ul>	<b>\$20,000.00</b>
<b>3 – IPS Development &amp; Testing</b>	<ul style="list-style-type: none"> <li>• Develop restorability factors</li> <li>• Develop threat/susceptibility factors</li> <li>• Develop IPS Dashboard of Tools</li> <li>• Prioritize sites, reaches, Huc 12s</li> <li>• Web-based IPS development</li> <li>• Test uses of IPS with DRWW</li> <li>• 300 hours</li> </ul>	<b>\$30,000.00</b>
<b>4 – Draft &amp; Final IPS Report</b>	<ul style="list-style-type: none"> <li>• Draft Report for DRWW review</li> <li>• Final IPS documentation report</li> <li>• 75 hours</li> </ul>	<b>\$7,500.00</b>
<b>TOTAL</b>	<ul style="list-style-type: none"> <li>• 600 hours LOE</li> </ul>	<b>\$60,000.00</b>

**TECHNICAL SERVICES AGREEMENT** between the  
**DES PLAINES RIVER WATERSHED WORKGROUP**  
and  
**MIDWEST BIODIVERSITY INSTITUTE** for  
**BIOASSESSMENT MONITORING**

This is an agreement (Agreement) by and between the DES PLAINES RIVER WATERSHED WORKGROUP, 500 West Winchester Road, Libertyville, Illinois 60048 (DRWW) and MIDWEST BIODIVERSITY INSTITUTE P.O. Box 21567, Columbus, OH 43221-0561 (CONTRACTOR).

**PURPOSE**

The DRWW wishes to engage the Contractor to provide technical services to assist the DRWW in conducting the monitoring program herein called the bioassessment in the Des Plaines River watershed located in central Lake County, Illinois. The bioassessment program will satisfactorily implement a biological assessment program, evaluating whether the Des Plaines River watershed within the DRWW service area meets biological criteria that support water quality management goals.

**SERVICES**

The Contractor will implement the bioassessment program consisting of the collection and assessment of fish, macroinvertebrates, habitat, sediment and chlorophyll-a. In addition, 7 datasondes will be installed on 14 sites on the main stem of the Des Plaines River. The items listed below provide additional details for each task:

- 1. Bioassessment Sampling:** The Contractor will collect, process, and analyze biological samples including fish, macroinvertebrates, and habitat in accordance with the Illinois EPA approved QAPP from 18 sites (Tier 1,2,3,4) identified in the EXCEL master spreadsheet.  
**Deliverables:** compiled data in Illinois EPA's preferred format and final report  
**Timeline:** July 1, 2018 – October 15, 2018
- 2. Sediment Chemistry Sampling:** The Contractor will collect sediment samples from 16 sites identified in the EXCEL master spreadsheet (Tier 1,2,3) in accordance with the Illinois EPA approved QAPP for chemical analysis by others. The results of the sediment collection and analysis will be included in the final report.  
**Deliverables:** sediment samples for processing at local laboratory, analysis and discussion in final report  
**Timeline:** October 15, 2018
- 3. Chlorophyll-a Sampling:** The Contractor will collect chlorophyll-a samples from 14 sites coinciding with the datasonde deployment in accordance with MBI's SOP (Task 2A). Laboratory analysis will be provided by others. The results of the chlorophyll-a analysis will be included in the final report.  
**Deliverables:** chlorophyll-a samples for processing at laboratory chosen by DRWW, analysis and discussion in final report.  
**Timeline:** July – August, 2018
- 4. Datasonde Deployment:** The Contractor will deploy 7 datasonde units at 14 locations total in the Des Plaines River mainstem for 4-5 day periods during low river flow and maximum

summer ambient temperatures. Continuously recorded parameters will include dissolved oxygen, pH, temperature, and specific conductance.

**Deliverables:** electronic data in EXCEL spreadsheet.

**Timeline:** July-August, 2018

5. **Project Management and Data Analysis:** Annually, all data shall be provided electronically to the DRWW and ultimately appended to the project database. This report will be provided electronically and as a hard copy, with chain-of-custody forms and laboratory reports attached.

Project management reports for 2018 will consist of monthly progress reports highlighting work accomplished, work planned for the upcoming month, budget remaining, and any issues and proposed resolution. The Contractor will attend up to two meetings with the DRWW at locations within the project area during the course of the project.

**Deliverables:** electronic data in format specified by DRWW, monthly progress reports

**Timeline:** June 15, 2018 – September 30, 2018

### COMPENSATION

The Contractor agrees to perform the Scope of Services and furnish the items included in the Scope of Services for a fee (Agreement Amount) not to exceed \$45,600.

The DRWW agrees to pay the Contractor for a total project cost not to exceed \$45,600

The Contractor shall furnish the DRWW with an itemized invoice no more frequently than on a monthly basis. Invoices shall describe the work completed; show the actual number hours worked by team member; amount of budget remaining; and actual travel and other expenses that have occurred. Payments by the DRWW shall be made within 60 days of receipt of the invoice from the Contractor.

### TERMS and CONDITIONS

1. The DRWW may, by written Order, make changes in the scope of work if such changes are within the general scope of the Agreement. If such changes cause an increase or decrease in the Contractor's cost or the time required to complete the project, the parties hereto shall agree to an adjustment in the Agreement Amount, prior to issuance of the Change Order. Adjustment of the Agreement Amount shall be based on the estimated change in the number of staff hours required plus any changes in the Contractor's expense. The Contractor will not be compensated for additional services performed without an approved Change Order.
2. The DRWW may at any time terminate this Agreement in whole or in part by ten day written or telegraphic notice or verbal notice confirmed in writing. Upon termination for convenience of the DRWW, the DRWW will assume responsibility for services rendered and costs incurred prior to notification. Any and all services, property, publications or materials provided during or resulting from the Contractor shall be the property of the DRWW.
3. This Agreement shall be governed by and construed according to the laws of the State of Illinois.

- 4. Certificates of insurance shall be provided with the Des Plaines River Watershed Workgroup, Lake County Department of Transportation, Lake County Forest Preserve District, and Lake County Stormwater Management Commission named as Certificate Holders.
- 5. This Agreement supersedes any and all other agreements, oral or written, between the parties hereto with respect to the subject matter hereof.
- 6. This agreement shall not be assigned, altered or modified without the express written consent of both parties except as provided in paragraph one above. The Contractor shall not reject any reasonable change proposed in the best interest of the project by DRWW.

**NOTICES AND COMMUNICATION**

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**To the DRWW:** Des Plaines River Watershed Workgroup  
 500 West Winchester Road  
 Libertyville, Illinois 60048  
 ATTENTION: Mike Warner, Administrative Agent  
[mwarner@lakecountyil.gov](mailto:mwarner@lakecountyil.gov)  
 Electronic deliverables cc: [Badler@lakecountyil.gov](mailto:Badler@lakecountyil.gov)

**To the Contractor:** Midwest Biodiversity Institute  
 P.O. Box 21561  
 Columbus, OH 43221-0561  
 ATTENTION: Chris Yoder, Project Manager  
[cyoder@mwbinst.com](mailto:cyoder@mwbinst.com)

**For the DRWW:**  
 \_\_\_\_\_  
 Brian Dorn, President  
 DRWW

**Attest:**  
 \_\_\_\_\_  
 DRWW

Date: \_\_\_\_\_

**For the Contractor:**  
 \_\_\_\_\_  
 Pete Precario, Executive Director  
 Midwest Biodiversity Institute

**Attest:**  
 \_\_\_\_\_  
 Midwest Biodiversity Institute

Date: \_\_\_\_\_



## **ATTACHMENT A**

### **Scope of Work for 2018-2019**

**Note: This contract only includes Tasks 1 and 2 from this Scope of Work. Tasks 3, 4 and 5 will be completed under a separate contract in 2019.**

**Prepared by MBI**

## **Des Plaines River Watershed Bioassessment Monitoring**

### **Scope of Work for 2018-19**

Des Plaines River Watershed Workgroup (DRWW)  
Lake County Stormwater Management  
500 W. Winchester Rd.  
Suite 201  
Libertyville, IL 60048

January 9, 2018

Submitted by:

Midwest Biodiversity Institute  
P.O. Box 21561  
Columbus, OH 43221-0561  
[www.midwestbiodiversity.org](http://www.midwestbiodiversity.org)

## Des Plaines River Watershed Bioassessment Monitoring Scope of Work for 2018-19

Midwest Biodiversity Institute  
P.O. Box 21561  
Columbus, OH 43221-0561  
[www.midwestbiodiversity.org](http://www.midwestbiodiversity.org)  
Chris O. Yoder, Project Manager

The Midwest Biodiversity Institute (MBI) was selected by the Des Plaines River Watershed Workgroup (DRWW) to perform tasks in support of a biological and water quality assessment of the Desplaines River watershed in Lake Co., IL in 2016. The 2018-19 Scope of Work (SOW) is based on meeting a schedule of tasks within a project period of May 15, 2018-December 31, 2019 and within a budget (Appendix A) that supports Year 1 of the rotating monitoring plan<sup>1</sup> (Appendix B).

### A. Project Scope of Work (SOW)

The SOW includes tasks and subtasks and adheres to the description of the project as depicted in Figure 1. There are five major tasks to be accomplished in 2018-19 as follows:

#### Task 1 – Mobilization & Planning

This task involves mobilizing and planning for the 2018 bioassessment in accordance with the DRWW 2017-19 monitoring rotation that was developed in January 2017 (Appendix B). The 2018 sampling is for Year 1 of 3 and focuses on the Des Plaines River mainstem and selected direct tributaries for a total of 23 sites.

#### Task 2 – Field Sampling

This task includes all of the activities focused on the collection and processing of the field collected samples and includes three subtasks – 2A Datasonde deployment; 2B – Fish, Habitat, and Sediment Sampling; and 2C – Macroinvertebrate Sampling. All sites will be sampled for biota and habitat, 15 sites for sediment, and 14 sites for Datasonde deployment (Figure 1). Each subtask is described as follows:

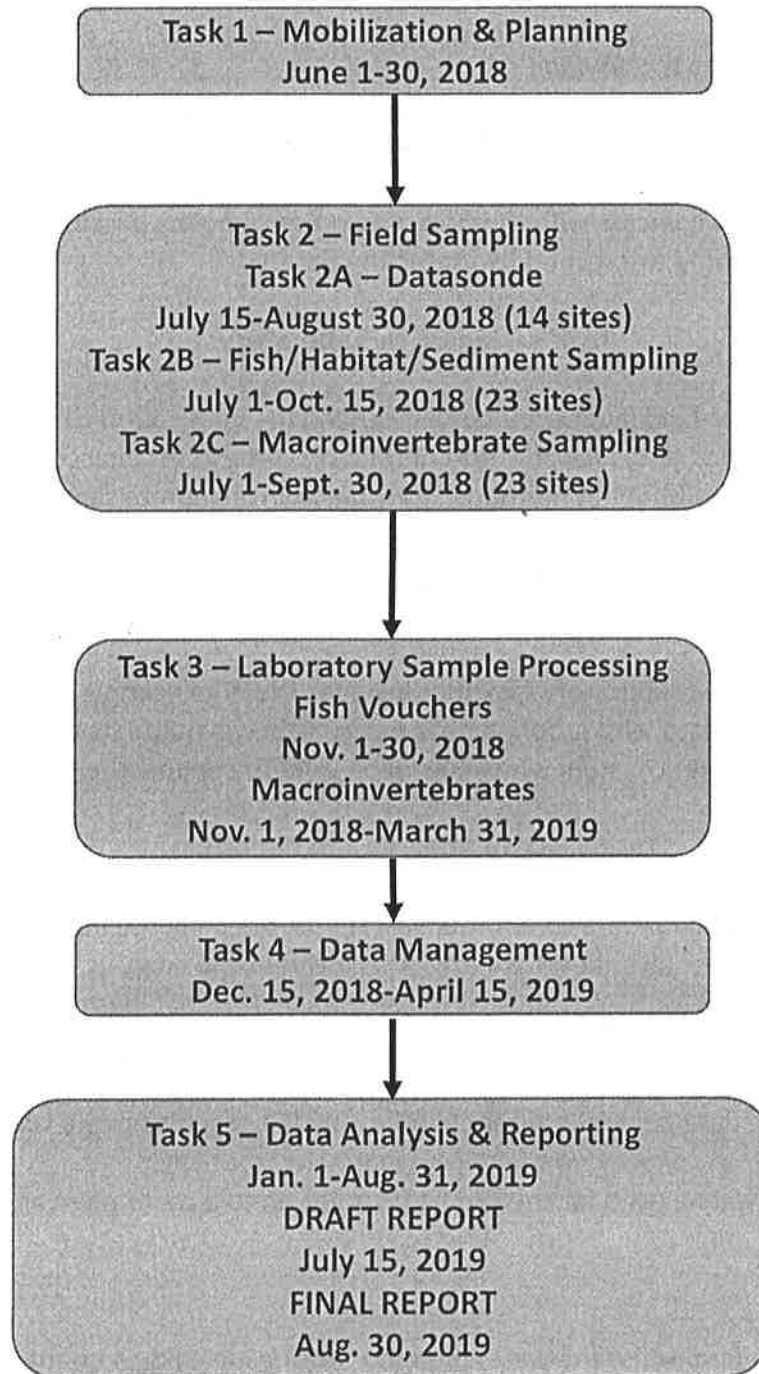
##### ***Task 2A – Datasonde Deployment***

Datasonde units will be deployed at 14 locations in the Des Plaines River mainstem for 4-5 day periods during low river flow and maximum summer ambient temperatures. Continuously recorded parameters include dissolved oxygen (D.O.), pH, temperature, and specific conductance. Benthic chlorophyll  $\alpha$  samples will also be collected at these same locations:

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<sup>1</sup> Due to the persistence of extremely high flows in 2017 the Year 1 monitoring for the Des Plaines River mainstem was postponed to 2018; the Year 2 watersheds were sampled in 2017.

**MBI Des Plaines River Watershed  
Bioassessment Monitoring Tasks & Schedule:  
2018-19**



*Figure 1. Flow chart of the schedule and sequence of tasks and subtasks for the Des Plaines River Bioassessment 2018-19.*

**Task 2B – Fish/Habitat Sampling**

This includes the sampling of the fish assemblage in accordance with the QAPP and within a seasonal index period of July 1-October 15 at 23 sites. Habitat will be assessed at the same sites and using the QHEI. Sediment samples for chemical analysis will be collected at 15 mainstem sites following methods prescribed by the DRWW QAPP. The collections will be made at the end of the second fish sampling pass in October.

**Task 2C – Macroinvertebrate Sampling**

Macroinvertebrate sampling will likewise be conducted under the specifications of the DRWW QAPP and within a seasonal index period of July 1-September 30. A site description that documents the details of the Illinois EPA multihabitat method will be recorded at each of the 23 sites. The collections will coincide with the first of two fish sampling passes in July or August with two repeat sites during the second fish sampling pass.

**Task 3 – Biological Laboratory**

This task includes all post-field laboratory tasks including the verification of fish identifications and the processing, sorting, and identification of macroinvertebrates in accordance with the DRWW QAPP and IEPA multihabitat methods. Raw macroinvertebrate samples will be reduced to a 300 organism subsample and identified to the lowest taxonomic level that is practicable.

**Task 4 – Data Management**

This is a post-field and post-laboratory task that includes the organization and logging of field and lab sheets, entering data, and proofing data entry. MBI will utilize its own version of the Ohio ECOS data management system which has been used to support the prior DRWW surveys.

**Task 5 – Data Analysis and Reporting**

The final task is the production of a comprehensive report detailing the data and the conclusions based on the analyses of that data. This includes the analysis of all field collected data including the analysis of the chemical/physical data, POTW loadings data, calculation of the Illinois fish and macroinvertebrate IBI scores and metrics, and the assignment of causes and sources to any documented biological impairments. The SOW allocates all of the data analysis to 2019 after all of the data becomes available following lab processing and data management.

The following outline will be used for the report (in addition to a cover page and table of contents):

***Executive Summary***

A brief synopsis of the findings of the watershed monitoring including a quantitative description of impairments, major causes and sources of impairment, opportunities for restoration and protection, and recommendations for future monitoring.

***Section 1 – Introduction***

This will describe the purposes of the monitoring and the goals and objectives of the DRWW for using monitoring data to support water quality decision-making.

***Section 2 – Study Area Description***

A detailed description of the study area including maps and lists of sites, major pollution sources, dams, and other features that relate to the watershed biological assessment. This will benefit from DRWW input upfront in the process.

***Section 3 – Methods***

A description and summary of all chemical, physical, and biological methods used to collect the data, data management, and data analysis including the delineation of impairments, a description of the process used to assign causes and sources, and an approach for conducting use attainability analyses.

***Section 4 – Results***

A comprehensive reporting of chemical, physical, and biological quality using tables and graphs to report the results. This will include an assessment of POTW pollutant loadings, chemical water quality criteria exceedances, exceedances of biologically relevant thresholds, sediment chemical threshold exceedances, analysis of habitat attributes, and reporting fish and macroinvertebrate IBI and metrics results.

***Section 5 – Synthesis of Results***

This section will report the results of the data analyses and causal assessment conducted under task 5. This where the conclusions about causes and sources are explained including any patterns observed in the study area such as the differences in results observed between POTW influenced and nonpoint source influenced sites and reaches.

The major project products consist of a draft report for DRWW review (August 31, 2019) and a final report (September 30, 2019).

**Appendix A. 2018-19 DRWW Bioassessment Budget Summary**

<b>Task</b>	<b>Description</b>	<b>Quote</b>
<b>1 - Mobilization &amp; Planning</b>	<ul style="list-style-type: none"> <li>• Pre-field planning</li> <li>• Mobilize crews</li> </ul>	<b>\$3,781.77</b>
<b>2 – Field Sampling</b>	<ul style="list-style-type: none"> <li>• Datasonde deployment</li> <li>• Benthic chlorophyll α</li> <li>• Fish/habitat sampling</li> <li>• Macroinvertebrate sampling</li> </ul>	<b>\$41,767.96</b>
<b>3 – Biological Laboratory</b>	<ul style="list-style-type: none"> <li>• Fish vouchers</li> <li>• Macroinvertebrate sample sorting</li> <li>• Macroinvertebrate identifications</li> </ul>	<b>\$23,720.01</b>
<b>4 – Data Management</b>	<ul style="list-style-type: none"> <li>• Data entry &amp; retrieval, QA/QC</li> </ul>	<b>\$3,954.79</b>
<b>5 – Data Analysis &amp; Report</b>	<ul style="list-style-type: none"> <li>• Analysis of chemical, biological, and habitat data.</li> <li>• Draft &amp; Final Reports</li> </ul>	<b>\$6,403.05</b>
<b>TOTAL</b>		<b>\$79,627.58</b>

## **Appendix B: Rotating Monitoring Design for the Upper Desplaines River Watershed**

DRWW requested an allocation of sites in the Upper Desplaines River watershed within Lake Co., IL for bioassessment and water quality monitoring in 2017-19. The goal was to allocate roughly one-third of the 2016 total of 69 sites (~23-25 sites) to monitoring planned for 2017, 2018, and 2019. This comprises a three-year rotation through the Upper Desplaines study area that represents a reasonable return interval in support of DRWW goals and objectives.

The allocation of sites to each year needs to meet a target range of sites and also represent a logical spatial aggregation of subwatersheds at the same time. The following describes an aggregation of sites and subwatersheds into a three year rotation:

### **Year 1 (2017)**

The Upper Desplaines mainstem (18 sites) plus small direct tributaries to the lower one-half of the mainstem (5 sites). This will also allow for two fish sampling passes on the mainstem which is the normal protocol for non-wadeable fish sampling methods. Planned sampling in 2017 was postponed due to persistent elevated flows throughout the 2017 index period.

### **Year 2 (2018)**

Mill Creek and Bull Creek subwatersheds plus direct tributaries to Desplaines River adjacent those two subwatersheds and nested between the mainstem and the subwatershed boundaries (30 Sites). Because of high flows in the Des Plaines mainstem in 2017 this year was moved up to 2017.

### **Year 3 (2019)**

Indian Creek, Aptaksic Creek, and Buffalo Creek subwatersheds plus direct tributaries to Desplaines River adjacent those subwatersheds and nested between the mainstem and the subwatershed boundaries (23 sites).

This allocation will allow for the addition of 4-5 sites within each survey year to account for unsampled streams and to match up with ongoing and new restoration projects. Detailed study planning will take place in June of each year in advance of the field sampling so as to allocate the effort in accordance with the annual budgets for 2017-19.



**ATTACHMENT B**

**Excel Master Spreadsheet**

**Attachment #2**  
**Des Plaines River Watershed Workgroup**  
 Sample Site Data Table  
 (Updated 1/11/2018)

DRWW ID	NewDRMAREA	Year	Lat	Long	River/Stream Name	Subwatershed	Tier 1	Tier 2	Tier 3	Tier 4	Location	Comment
10-1	31.90	2019	42.4248	-87.9973	North Mill	North Mill Creek			3		Millbourne Road	
10-2	29.38	2019	42.4442	-88.0007	North Mill	North Mill Creek			3		Kelly Road	Dam removal site - dam is notched
10-3	20.79	2019	42.4661	-88.0090	North Mill Creek	North Mill Creek		2			Route 173	
10-4	5.64	2019	42.4479	-88.0247	North Mill	North Mill Creek		2			Hastings Creek @ Miller Rd	
10-5	3.91	2019	42.4308	-88.0343	North Mill	North Mill Creek		3			Hastings Creek @ Grass Lake Rd	
10-6	0.99	2019	42.4215	-88.0045	Unnamed Trib to North Mill Creek	North Mill Creek		4			Ust. (W) of Route 45 - need better parking access	
11-1	63.80	2019	42.4183	-87.9451	Mill Creek	Mill Creek		1			Dilliey's Road	sample at POTW call Austin 847-377-7134
11-2	59.88	2019	42.4154	-87.9690	Mill Creek	Mill Creek		2			Hunt Club Road	
11-3	21.34	2019	42.3989	-87.9824	Mill Creek	Mill Creek		3			Stems School Road	
11-4	18.33	2019	42.3833	-88.0041	Mill Creek	Mill Creek		3			Route 45	
11-5	9.35	2019	42.3605	-88.0151	Mill Creek	Mill Creek		3			Washington St	
11-6	4.32	2019	42.3350	-88.0397	Mill Creek	Mill Creek		3			Wick Street	
12-1	7.35	2019	42.4835	-87.9128	Newport Drainage Ditch	Newport Drainage Ditch		3			Newport Drainage Ditch @ Kilbourne Ave	
12-2	2.82	2019	42.4581	-87.8968	Newport Drainage Ditch	Newport Drainage Ditch		3			W. 21st Street along Union Pacific RR	
13-1	22.03	2018	42.3438	-87.9411	Des Plaines River	Upper Des Plaines River		1			Hwy 120	
13-10	4.02	2019	42.4042	-87.9061	Suburban Country Club Trib	Upper Des Plaines River		3			Suburban Country Club Trib @ Shirley Dr	
13-11	2.37	2019	42.4444	-87.9527	Slocum Corners Creek	Upper Des Plaines River		3			N. Mill Creek Rd.; E. of I-94	
13-12	2.35	2019	42.4023	-87.8949	Suburban Country Club Trib	Upper Des Plaines River		3			E. of Northwestern Ave.	
13-13	1.06	2019	42.3654	-87.9014	Unnamed trib. - Greenleaf Creek	Upper Des Plaines River		4			Swanson Trleg Conservation Area - 42.3700 -87.9085	
13-14	1.10	2019	42.3480	-87.9570	Unnamed trib. - Greenleaf Creek	Upper Des Plaines River		4			Leonard Dr.	
13-15	1.92	2019	42.3259	-87.9784	Bull's Brook	Upper Des Plaines River		4			Almond Rd.	
13-16	253.75	2018	42.3051	-87.9542	Des Plaines River	Upper Des Plaines River		4			Dct. Buckley Rd.	Need to access via Desplaines Trail [Sed. Analyses]
13-17	0.84	2019	42.3002	-87.9390	Unnamed Trib to Des Plaines River	Upper Des Plaines River		4			Behind pump station off of Sprucewood Lane	
13-18	214.84	2018	42.3975	-87.9245	Des Plaines River	Upper Des Plaines River		4			40' Above Riffis Structure	Access through Wetlands Research property [Sed. Analyses]
13-2	225.36	2018	42.3691	-87.9176	Des Plaines River	Upper Des Plaines River		1			McClure Ave	Canoe launch
13-3	220.39	2018	42.3808	-87.9140	Des Plaines River	Upper Des Plaines River		2			Above Hwy 41	
13-4	145.54	2018	42.4288	-87.9304	Des Plaines River	Upper Des Plaines River		2			Wadsworth Road	
13-5	137.29	2018	42.4653	-87.9428	Des Plaines River	Upper Des Plaines River		2			Hwy 173	
13-6	123.67	2018	42.4892	-87.9258	Des Plaines River	Upper Des Plaines River		1			Russel Road	
13-7	2.69	2019	42.3184	-87.9617	Bull's Brook @ Rt 21	Upper Des Plaines River		3			N. Milwaukee Ave.	
13-8	3.71	2019	42.3427	-87.9454	Belvidere Rd Tributary	Upper Des Plaines River		3			Belvidere Rd Tributary @ Highway 21 and 120	
13-9	4.08	2019	42.3528	-87.9367	Stone Roller @ Lake Carina	Upper Des Plaines River		3			Stone roller @ Lake Carina	
14-1	11.87	2019	42.3119	-87.9637	Bull Creek	Bull Creek		2			Hwy 21	
14-2	2.87	2019	42.3061	-87.9690	Bull Creek	Bull Creek		3			Route 137	
14-3	0.99	2019	42.3101	-87.9906	Bull Creek	Bull Creek		3			N. Countryside Drive	
14-4	5.08	2019	42.3025	-88.0008	W. Branch Bull Creek	Bull Creek		3			Northwind Blvd. - access 1600 behind warehouse	
14-5	1.33	2019	42.2793	-88.0028	Bull Creek	Bull Creek		3			Adj. University Drive	
14-6	2.39	2019	42.2877	-88.0229	Bull Creek	Bull Creek		3			Hazelnut Xing	call Clay K 847-312-3657
15-1	36.43	2017	42.1981	-87.9731	Indian Creek	Indian Creek		2			Marriot Inn parking lot - adj. Cranes Landing GC	
15-10	2.22	2017	42.2301	-88.0376	West Branch Indian Creek	Indian Creek		4			Gilmer Rd.	
15-11	1.70	2017	42.2196	-88.0256	Forest Lake Drain	Indian Creek		4			Hawthorne Grove Rd.	
15-12	2.06	2017	42.1969	-88.0399	Kildeer Creek	Indian Creek		4			IL Rt. 22	
15-13	3.43	2017	42.1937	-88.0012	Kildeer Creek	Indian Creek		4			Willowbrook Rd. S. of Half Day Rd.	
15-2	35.02	2017	42.2065	-87.9616	Indian Creek	Indian Creek		2			Sullivan Woods Preserve, North of Creekview Dr.	
15-3	5.07	2017	42.2627	-87.9655	Indian Creek	Indian Creek		3			Gregg's Parkway	
15-4	6.78	2017	42.2044	-87.9750	Indian Creek	Indian Creek		3			Port Clinton Rd at Kildeer Creek	
15-5	17.26	2017	42.2105	-87.9876	Indian Creek	Indian Creek		3			Oakwood Rd.	
15-6	3.66	2017	42.2394	-88.0231	Indian Creek	Indian Creek		3			Washitav Ave	
15-7	2.85	2017	42.1943	-88.0300	Indian Creek	Indian Creek		3			Salem Lake Drive S. of Rt 22	
15-8	9.36	2017	42.2149	-87.9662	Seavey Drainage Ditch	Indian Creek		3			Near Vernon Hills GC	
15-9	2.68	2017	42.2446	-88.0356	Indian Creek	Indian Creek		3			N. Midlothian Rd.	
16-1	358.85	2018	42.1094	-87.8878	Des Plaines River	Lower Des Plaines River		1			Palatine Frontage Rd.	
16-10	2.00	2018	42.2505	-87.9255	Wierhans Lake Drain	Lower Des Plaines River		4			St. Marys Rd.	
16-2	323.96	2018	42.1531	-87.9102	Des Plaines River	Lower Des Plaines River		1			E. Lake Cook Rd.	
16-3	314.68	2018	42.1676	-87.9134	Des Plaines River	Lower Des Plaines River		1			Deerfield Rd.	
16-4	273.21	2018	42.2004	-87.9185	Des Plaines River	Lower Des Plaines River		1			Half Day Rd.	
16-5	268.06	2018	42.2405	-87.9392	Des Plaines River	Lower Des Plaines River		1			Illinois Route 60 - Town Line Rd.	
16-6	260.11	2018	42.2767	-87.9391	Des Plaines River	Lower Des Plaines River		1			Rockland Rd.	
16-7	266.48	2018	42.2490	-87.9426	Des Plaines River	Lower Des Plaines River		4			Hollister Dam site - adj. to Hollister Intl.	Sediment Analyses



**2018 TECHNICAL SERVICES AGREEMENT between the  
DES PLAINES RIVER WATERSHED WORKGROUP  
and  
SUBURBAN LABORATORIES, INC. for  
WATER CHEMISTRY MONITORING**

This is an agreement (Agreement) by and between the DES PLAINES RIVER WATERSHED WORKGROUP, 500 West Winchester Road, Libertyville, Illinois 60048 (DRWW) and SUBURBAN LABORATORIES 1950 S Batavia Avenue, Geneva, IL 60134 (Subcontractor).

**PURPOSE**

The DRWW wishes to engage the Subcontractor to provide technical services to assist the DRWW in conducting water chemistry monitoring in the Des Plaines River watershed located in Lake County, Illinois. The water chemistry monitoring will satisfactorily collect and process water column chemistry monitoring samples within the watershed. The DRWW has selected 71 sampling locations within the Des Plaines River watershed in Lake County, Illinois.

**SERVICES**

The Subcontractor will conduct water column chemistry sampling by collecting samples, analyzing the samples collected, and providing the data to the DRWW based on the approved DRWW Quality Assurance Project Plan. The Scope of Services to be provided by the Subcontractor to accomplish the DRWW's objectives for the water column chemistry monitoring is set forth in Attachment A, DRWW Water Column and Sediment Chemistry Monitoring, SCOPE OF SERVICES.

**COMPENSATION**

1. The Subcontractor agrees to perform the Scope of Services and furnish the items included in the Scope of Services for a fee (Agreement Amount) not to exceed \$69,117 for water column sampling and analysis and \$14,059 for sediment analysis, for a total of \$83,176 according to the rates in the Project Budget Attachment B.
2. The DRWW agrees to pay the Subcontractor for a total project cost not to exceed \$83,176 using the compensation schedule identified in Attachment B. The final ten percent of the Agreement Amount shall be retained by the DRWW until the project is successfully completed and all deliverables have been received and approved.
3. The Subcontractor shall furnish the DRWW with an itemized invoice. Invoices shall describe the work completed; show the actual number hours worked by team member; and actual travel and other expenses that have occurred. Payments by the DRWW shall be made in accordance with the Illinois Local Prompt Payment Act (50 ILCS 505/1 et seq.).

## **SCHEDULE AND DELIVERABLES**

All sampling, reporting and invoicing shall be completed by November 30, 2018. Generally, sampling will be conducted at all sites within one week per month and approximately the same week every month.

### Sampling Schedule

- January, 2018
- May 2018
- July 2018
- August 2018
- October, 2018

### Project Deliverables:

- Electronic data deliverables (EDDs) and the sample results in an editable Microsoft Excel file, as specified by the DRWW in May, 2017.
- A final report consisting of a pdf file of all analytical results, analytical methods, chain(s) of custody, and a field log. Any sampling or testing observations which may have affected accuracy will be noted in the report narrative. Any applicable data qualifiers (e.g., matrix spike failure) will also be noted in the project specific comments portion of the report narrative page.

## **TERMS and CONDITIONS**

1. The DRWW may, by written Order, make changes in the scope of work if such changes are within the general scope of the Agreement. If such changes cause an increase or decrease in the Subcontractor's cost or the time required to complete the project, the parties hereto shall agree to an adjustment in the Agreement Amount, prior to issuance of the Change Order. Adjustment of the Agreement Amount shall be based on the estimated change in the number of staff hours required plus any changes in the Subcontractor's expense. The Subcontractor will not be compensated for additional services performed without an approved Change Order.
2. The DRWW may at any time terminate this Agreement in whole or in part by ten day written or telegraphic notice or verbal notice confirmed in writing. Upon termination for convenience of the DRWW, the DRWW will assume responsibility for services rendered and costs incurred prior to notification. Any and all services, property, publications or materials provided during or resulting from the Subcontractor shall be the property of the DRWW.
3. This Agreement shall be governed by and construed according to the laws of the State of Illinois.
4. This Agreement shall not be assigned, altered or modified without the express written consent of both parties. The Subcontractor shall not reject any reasonable change proposed in the best interest of the project by DRWW.

**NOTICES AND COMMUNICATION**

All notices and communications given to either party by the other relative to this Agreement shall be addressed to the respective parties as follows:

**To the DRWW:** Des Plaines River Watershed Workgroup  
500 West Winchester Road  
Libertyville, Illinois 60048  
ATTENTION: Mike Warner, Administrative Agent  
mwarner@lakecountyil.gov

**To the Subcontractor:** Suburban Laboratories, Inc.  
1950 S Batavia Avenue, Suite 150  
Geneva, IL 60134  
ATTENTION: Patrick Liberg, Project Manager  
patl@suburbanlabs.com

**For the DRWW:**

**Attest:**

\_\_\_\_\_  
Brian Dorn, President  
DRWW

\_\_\_\_\_  
DRWW

Date: \_\_\_\_\_

**For the Subcontractor:**

**Attest:**

\_\_\_\_\_  
Dan Galeher, Vice President of Sales and Service  
Suburban Laboratories, Inc.

\_\_\_\_\_  
Suburban Laboratories, Inc.

Date: \_\_\_\_\_

## ATTACHMENT A

### DRWW Water Column and Sediment Chemistry Monitoring SCOPE OF SERVICES

#### 1. Sampling Schedule

##### 1.1 Tier 1, 2, 3, 4 Water Sampling and Analysis

Water sampling for Tier 1, 2, 3 and 4 will begin immediately after contract approval. Suburban Labs will sample the 71 sites during the course of one week. The weekly sampling will continue throughout the following months: January, May, July, August and October, 2018. These collected samples will be tested for the water quality monitoring parameters listed in Table 1. Suburban Laboratory's Standard Operating Procedures (SOPs) for analyzing the samples follows Table 1. The reporting limits and the laboratory method detection limits (MDLs) are listed in Table 2 (Test Methods and Reporting Limits).

##### 1.2 Field QA/QC samples

For every 20 samples collected, Suburban will also collect a blank and duplicate samples. The blank will be made up in the field by pouring deionized water into the same type of sample containers that are used for the surface water. The deionized water will be laboratory grade water from Suburban Laboratories Geneva location. This water will be placed inside a pre-cleaned and certified container.

##### 1.3 Field Parameters

Suburban Laboratories is equipped with an YSI field meter. This meter will be utilized for the following analyses in the field:

- Conductivity
- pH
- ~~Temperature~~
- ~~Dissolved Oxygen~~

The results of these parameters will be reported after each sampling event and on the final report along with the results of the analyses performed in the laboratory. This meter is calibrated each day prior to sampling.

## **2. Field Reporting**

### **2.1 Field Log**

A field log will be kept each day that samples are collected. The field log will include:

- Name and signature of the field services technician;
- Location of sampling site
- Weather and water conditions (if unordinary condition apply);
- Dates and times of sample collection;
- GPS location of sampling (in latitude/longitude and state plane) for first event on each site;
- Preservatives;
- Field measurements
- Descriptions of any unusual conditions at the sample locations
- Chains of Custody
- Indication of duplicate sample location

## **3. Sample Custody and Handling**

### **3.1 Labeling and Storage**

All samples will be placed in non-contaminated containers provided by Suburban Laboratories. All containers will be properly labeled. The duplicate sample will be labeled with the sample location and identified as "duplicate". When preservation is required, pre-preserved bottles will be used. Samples will be placed inside a cooler with wet ice until they reach the laboratory.

### **3.2 Chain of custody**

Proper chain of custody documentation will accompany the collected samples. The chain of custody will contain the sample IDs, analyses to be performed, date and time of collection, type and number of containers, preservatives added, date and time of transfers, and the signature of each person involved in custody transfer. The chain of custody will be placed in a water-resistant plastic bag inside each cooler. Indelible ink will be used on the container labels and chain of custody records. Upon receipt at the laboratory, sample temperature will be recorded on the chain of custody form. A copy of the chain of custody form will be included with the final report.

### **3.3 Sample preservation**

Preservatives will be added to sample bottles prior to sample collection. Sample containers must only be purchased from reputable suppliers and cannot be re-used.



#### **4.Sediment Analysis for Tier 1,2,3**

Sediment samples for Tier 1, 2, and 3 will be analyzed one time per year for the parameters listed in Table 1: Water Quality and Sediment Sampling Parameters. The reporting limits and the laboratory method detection limits (MDLs) are listed in Table 2 (Test Methods and Reporting Limits). Suburban Labs will analyze 16 sediment samples in 2018. Sediment will not be analyzed for VOCs.

#### **A. Project Deliverables**

##### **Final Report**

The final report will consist of a PDF file of all analytical results, analytical methods, chain(s) of custody and a field log. Any sampling or testing observations which may have affected accuracy will be noted in the report narrative. Any applicable data qualifiers (e.g., matrix spike failure) will also be noted in the project specific comments portion of the report narrative page.

##### **Electronic Data Deliverable**

An electronic data deliverable (EDD) which includes the sample results in an editable Microsoft Excel file will be included for every report, in the format DRWW specified in May 2017.

##### **Turnaround Time**

The results for all analytical analyses will be provided no later than 10 business days following the date of collection.

TABLE 1: Water Quality and Sediment Sampling Parameters

Parameter	DRWW Frequency	Tier 1	Tier 2	Tier 3	Tier 4
<b>Demand</b>		<b>Number of Sample Events</b>			
Chloride	Jan, May, July, Aug, Oct	5	5	5	5
Conductivity	Jan, May, July, August, Oct	5	5	5	5
pH	Jan, May, July, Aug, Oct	5	5	5	5
TOC	monthly June-Sept	0	0	0	0
Sulfate	monthly June-Sept	0	0	0	0
TSS	Jan, May, July, Aug, Oct	5	5	0	0
Volatile Suspended Solids	Jan, May, July, Aug, Oct	5	5	0	0
DO	monthly June-Sept	0	0	0	0
Temperature	monthly June-Sept	0	0	0	0
Turbidity	Jan, May, July, Aug, Oct	5	5	5	5
<b>Metals</b>					
Total Hardness	annually under low flow conditions	1	1	0	0
Iron	annually under low flow conditions	1	0	0	0
Sodium	annually under low flow conditions	1	0	0	0
Arsenic	annually under low flow conditions	1	0	0	0
Manganese	annually under low flow conditions	1	1	0	0
Mercury - <b>LOW LEVEL DETECTION LIMIT</b>	annually under low flow conditions	1	0	0	0
Copper	annually under low flow conditions	1	0	0	0
Nickel	annually under low flow conditions	1	0	0	0
Zinc	annually under low flow conditions	1	0	0	0
<b>Nutrients</b>					
Ammonia	Jan, May, July, Aug, Oct	5	5	0	0
Total Nitrates (NO <sub>2</sub> + NO <sub>3</sub> )	Jan, May, July, Aug, Oct	5	5	5	5
TKN	Jan, May, July, Aug, Oct	5	5	0	0
Total phosphorus	Jan, May, July, Aug, Oct	5	5	5	5
Dissolved reactive phosphorus	monthly June-Sept	0	0	0	0
<b>Bacteria</b>					
E. coli	Jan, May, July, Aug, Oct	5	5	5	5
<b>Water Organics</b>					
PCBs	annually under low flow conditions	1	0	0	0
Pesticides	annually under low flow conditions	1	0	0	0
Methoxychlor	annually under low flow conditions	1	0	0	0
PNAs	annually under low flow conditions	1	0	0	0
VOCs	annually under low flow conditions	1	0	0	0
<b>Sediment Metals</b>					
Aluminum	concurrent w/ bioassessment	1	1	1	0
Arsenic	concurrent w/ bioassessment	1	1	1	0
Barium	concurrent w/ bioassessment	1	1	1	0
Beryllium	concurrent w/ bioassessment	1	1	1	0
Boron	concurrent w/ bioassessment	1	1	1	0
Cadmium	concurrent w/ bioassessment	1	1	1	0
Chromium	concurrent w/ bioassessment	1	1	1	0
Cobalt	concurrent w/ bioassessment	1	1	1	0

TABLE 1 (cont.): Water Quality and Sediment Sampling Parameters

2018 Technical Services Agreement Suburban Laboratories, Inc.

Parameter	DRWW Frequency	Tier 1	Tier 2	Tier 3	Tier
<b>Sediment Metals</b>		Number of Sample Events			
Copper	concurrent w/ bioassessment	1	1	1	0
Fluoride	concurrent w/ bioassessment	1	1	1	0
Iron	concurrent w/ bioassessment	1	1	1	0
Lead	concurrent w/ bioassessment	1	1	1	0
Manganese	concurrent w/ bioassessment	1	1	1	0
Mercury	concurrent w/ bioassessment	1	1	1	0
Nickel	concurrent w/ bioassessment	1	1	1	0
Potassium	concurrent w/ bioassessment	1	1	1	0
Silver	concurrent w/ bioassessment	1	1	1	0
Sodium	concurrent w/ bioassessment	1	1	1	0
Strontium	concurrent w/ bioassessment	1	1	1	0
Vanadium	concurrent w/ bioassessment	1	1	1	0
Zinc	concurrent w/ bioassessment	1	1	1	0
<b>Sediment Organics</b>					
PCBs	concurrent w/ bioassessment	1	1	1	0
Pesticides	concurrent w/ bioassessment	1	1	1	0
Methoxychlor	concurrent w/ bioassessment	1	1	1	0
PNAs	concurrent w/ bioassessment	1	1	1	0
TKN	concurrent w/ bioassessment	1	1	1	0
Phosphorus	concurrent w/ bioassessment	1	1	1	0
Cyanide	concurrent w/ bioassessment	1	1	1	0
Herbicides (2, 4, D, 2,4,5 TP)	concurrent w/ bioassessment	1	1	1	0
Phenols	concurrent w/ bioassessment	1	1	1	0

# STANDARD OPERATING PROCEDURES

## COLLECTION OF STREAM WATER SAMPLES

These methods allow for the collection of grab samples utilizing a high density polyethylene (HDPE) bucket or wide mouth HDPE or glass bottle. This standard operating procedure document (SOP) has been developed to maintain consistent data collection procedures and to ensure the quality of the data collected.

### 1.0 FIELD EQUIPMENT

The following equipment listed is necessary for sampling procedures.

1. 1-gallon HDPE bucket, nylon rope
2. Distilled or reagent-grade deionized water
3. Sample bottles:
  - a. One 1000 mL HDPE with  $H_2SO_4$  preservative for  $NH_3-N$ , TKN and Total Nitrates
  - b. One 1000 mL HDPE unpreserved bottle for BOD, TSS, TDS, Chloride, Sulfate
  - c. One 1000 mL HDPE bottle with  $HNO_3$  preservative for Metals, (including Phosphorous and Mercury)
  - d. Two 1000 mL amber glass bottles unpreserved for Pesticides, PCBs and PNAs
  - e. Three 40 mL VOA vials with HCl preservative for VOCs
4. Disposable gloves
5. Cooler and ice
6. Antibacterial soap
7. Sharpie markers and labels
8. Field books/log sheets/chain of custody

9. Portable pH meter

10. Sampling pole

## **2.0 PREPARATION**

Before samples are collected, sample bottles should be labeled correctly with sampling point, sampling I.D. number, the sampler's initials, and a space for the date and time to be filled in later. Sample bottle lids should also be labeled to prevent contamination between samples.

Coolers and samples bottles should be inspected before samples are collected. If dirt, residual chemicals, or any other types of contaminants are present, the sample bottle should be discarded. The coolers should be washed with mild soap and wiped down if any contaminants are present.

Sampling buckets shall be scrubbed with a solution of soap and water. Make sure the cleaning detergent is free of phosphates (orthophosphate sample).

The sampler's hands should be washed with antibacterial soap prior to sampling events. Disposable gloves will be worn during sample collection, and special care should be taken to avoid touching the inner surface of sample lids or bottles.

## **3.0 PROCEDURE**

Sample bottles should be kept closed until they are filled. At each sample collection site, the sampler will wear a new pair of gloves for decontamination and a new pair for sample collection.

If samples are taken from a bridge, collect the sample from the upstream side of the structure unless otherwise noted in site description maps.

When sample during precipitation events, the sample bucket shall be covered at all times with a lid.

A log-sheet/chain of custody should be maintained during sampling and should include the following information:

- a. Date and time of sample
- b. Signature of collector and transporter
- c. Signature of person who relinquished the sample to lab
- d. Weather conditions during sampling (i.e., air temperature; cloudy, rain, snow)

- e. Time
- f. Sample storage temperature upon receipt in lab
- g. Visual observation of sample
- h. Field measurements such as pH

### 3.1 Sample Collection HDPE Bucket or Wide Mouth Bottle

The bucket shall be inspected to ensure that it is in good condition. The nylon rope attached should not be frayed or torn.

#### 3.1.1 Decontamination

The bucket and wide mouth bottle must be cleaned before samples are collected and between sampling sites. The equipment shall be cleaned with phosphate-free detergent and blank water. Blank water should be deionized water. The equipment should be scrubbed with detergent and deionized water before the rinsing steps below are followed. Alternatively, a new bottle may be used for each sample.

##### *Step 1 – Blank Water Rinse*

- Rinse the inside of the bucket or wide mouth bottle by swirling with blank water.
- Discard the remaining blank water.
- Repeat Step 1.

### 3.2 Sample Collection Procedure

The stream depth will determine the equipment to be used to collect the sample. To reduce the chance of disturbing the substrate/sediment the following protocols will be followed. Samples may be collected from the bridge with a bucket if the depth is at least twice the height of the bucket. At shallower depths the field technician will use a sampling pole with a wide mouth bottle at the end. As a last resort, the field technician will wade into stream and collect the sample, standing downstream of the collection point so as not to collect kicked up sediment.

##### *Step 1a – River Rinse and Field Measurements from Bucket*

- Lower the bucket into the stream and fill.
- Discard the contents.

##### *Step 1b – River Rinse Wide Mouth Bottle*

- River rinse by filling the bottle with river water.

- Discard the remaining contents.

*Step 2 – Sample Collection - Bucket*

- Lower the bucket to mid-depth at center of flow, do not disturb bottom sediment.

*Step 2b – Sample Collection - Pole*

- Lower the sample bottle attached to the sampling pole to mid-depth at center of flow, do not disturb bottom sediment.

*Step 3 – Fill Sample Bottles*

Fill each sample bottle. Over filling of sample bottles with preservative should be avoided to prevent loss of preservative.

3.3 Field Measurements

Sample pH must be measured on site within 15 minutes of collection. Follow the laboratory and manufacturer's instructions for calibrating, cleaning and using the pH meter. The pH results shall be recorded on the log-sheet/chain of custody.

#### **4.0 SAMPLE HANDLING, TRANSPORTATION, QUALITY ASSURANCE, AND BLANKS**

All samples are placed in a cooler with ice after labeling. Samples are to be transported to the laboratory within the prescribed holding times. All samples will be taken to Suburban Laboratory, Inc.

4.1 Quality Assurance

Field blank and duplicates shall be collected. The laboratory shall adhere to their Quality Assurance Plan Revision 8 for samples received in the lab. Quality control limits and frequency of field quality control samples is specified at the end of this SOP.

4.2 Duplicate Samples

Duplicate samples are to be filled from the same round of stream water. Duplicate samples will be taken for all parameters once per month.

4.3 Field Blank

Sample bottles should be filled with blank water from unopened blank water containers. One field blank should be performed for VOCs and Metals including Phosphorous and Mercury once per year.

## **5.0 CHAIN OF CUSTODY**

Chain of Custody forms must be filled out and accompany all samples to their laboratory. An example is below.





TABLE 2: Test Methods and Reporting Limits

	Method	MDL/Reporting Limit
<b>Demand</b>		
Chloride	325.2, EPA	0.5 mg/L
Conductivity	2510B, SM18th Ed.	2 µmhos/cm
pH	4500-H B, SM18th Ed.	N/A
TOC	6310B	1 mg/L
Sulfate	375.4, EPA	1 mg/L
TSS	2540D, SM18th Ed.	0.2 mg/L
VSS	2540E	0.2 mg/L
DO	4500 YSI field meter	0.1 mg/L
Temperature	170.1	°C
Turbidity	180.1	0.1 mg/L
<b>Metals</b>		
Total Hardness	2340B, SM18th Ed.	0.05 mg/L
Iron	200.7, EPA	0.005 mg/L
Sodium	200.7	0.1 mg/L
Arsenic	200.8	0.0008 mg/L
Manganese	200.8	0.002 mg/L
Mercury * (LOW LEVEL DETECTION LIMIT)	245.1, EPA or *1631 low det	0.0002 mg/L or 0.5 Ng/L
Copper	200.8, EPA	0.0005 mg/L
Nickel	200.8	0.0004 mg/L
Zinc	200.8, EPA	0.007 mg/L
<b>Nutrients</b>		
Ammonia	4500 NH3 D, SM18th Ed.	0.1 mg/L
Total Nitrates (NO2 + NO3)	352.1, EPA	0.05 mg/L
TKN	4500 NH3 C, SM18th Ed.	0.124 mg/L
Phosphorous	200.8, EPA	0.02 mg/L
Dissolved reactive Phosphorus	SM4500P-E	0.026 mg/L
<b>Bacteria</b>		
E-coli	9213D	1 CFU/100ml
<b>Water Organics</b>		
PCBs	8082, EPA	0.1 ug/L
Pesticides	8081, EPA	0.025 ug/L
Methoxychlor	8081 EPA	0.25 ug/L
PNAs	8270, EPA	0.1 ug/L
VOCs	8260, EPA	1.0 ug/L
<b>Sediment Organics</b>		
PCBs	8082, EPA	16.7 ug/Kg
Pesticides	8081, EPA	0.833 ug/Kg
Methoxychlor	8081 EPA	0.833 ug/Kg
PNAs	8270, EPA	40 ug/Kg
Herbicides (2,4,D & 2,4,5 TP)	8321	0.004 ug/Kg
<b>Sediment inorganics</b>		
TKN	4500 NH3E	100 mg/Kg
Phosphorus	6010B, EPA	2.3 mg/Kg
Cyanide	9014	0.005 mg/Kg
Phenols	420.1	0.005 mg/Kg

TABLE 2: (cont.) Methods and Reporting Limits

	Method	MDL/Reporting Limit
<b>Sediment Metals</b>		
Aluminum	6010B, EPA	2.50 mg/Kg
Arsenic	6010B, EPA	1.15 mg/Kg
Barium	6010B, EPA	0.125 mg/Kg
Beryllium	6010B, EPA	0.0025 mg/Kg
Boron	6010B, EPA	0.05 mg/Kg
Cadmium	6010B, EPA	0.075 mg/Kg
Chromium	6010B, EPA	0.0600 mg/Kg
Cobalt	6010B, EPA	0.625 mg/Kg
Copper	6101B EPA	0.150 mg/Kg
Iron	6010B, EPA	0.625 mg/Kg
Lead	6010B, EPA	0.6 mg/Kg
Manganese	6010B, EPA	0.625 mg/Kg
Mercury	245.1	0.02 mg/Kg
Nickel	6010B, EPA	0.235 mg/Kg
Potassium	6010B, EPA	2.5 mg/Kg
Silver	6010B, EPA	0.06 mg/Kg
Sodium	6010B EPA	1.25 mg/Kg
Strontium	6010B, EPA	0.120 mg/Kg
Vanadium	6101B EPA	0.150 mg/Kg
Zinc	6010B, EPA	0.075 mg/Kg
Fluoride	4500	0.05 mg/Kg

- Low level Hg method 1631, detection limit for that method is 0.5 Ng/L

**ATTACHMENT B**

**Project Budget – Water Chemistry**

**2018 PRICE QUOTATION**

Demand	Quoted Price		Proposed Quantity		Total Tier 1		Total Tier 2		Total Tier 3		
	Price	Quantity	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	
Chloride	\$ 14.00	60	\$ 840.00	55	\$ 770.00	265	\$ 3,710.00	265	\$ 3,710.00	265	\$ 3,710.00
Conductivity*	\$ 5.00	60	\$ 300.00	55	\$ 275.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
pH*	\$ 5.00	60	\$ 300.00	55	\$ 275.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
TOC	\$ 25.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Sulfate	\$ 20.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
TSS	\$ 8.00	60	\$ 480.00	55	\$ 440.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
Volatile Suspended Solids	\$ 8.00	60	\$ 480.00	55	\$ 440.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
DO*	\$ 5.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Temperature*	\$ 5.00	60	\$ 300.00	55	\$ 275.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
Turbidity	\$ 5.00	60	\$ 300.00	55	\$ 275.00	265	\$ 1,325.00	265	\$ 1,325.00	265	\$ 1,325.00
<b>Metals</b>		<b>Total</b>	<b>\$ 3,000.00</b>	<b>Total</b>	<b>\$ 2,750.00</b>	<b>Total</b>	<b>\$ 9,010.00</b>	<b>Total</b>	<b>\$ 9,010.00</b>	<b>Total</b>	<b>\$ 9,010.00</b>
Total Hardness	\$ 14.00	13	\$ 182.00	12	\$ 168.00	0	\$ -	0	\$ -	0	\$ -
Metals (Fe, Na, As, Mn, Cu, Ni, Zn)	\$ 49.00	13	\$ 637.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Low Level Hg	\$ 120.00	13	\$ 1,560.00	12	\$ 1,440.00	0	\$ -	0	\$ -	0	\$ -
<b>Nutrients</b>		<b>Total</b>	<b>\$ 2,379.00</b>	<b>Total</b>	<b>\$ 1,608.00</b>	<b>Total</b>	<b>\$ 5,300.00</b>	<b>Total</b>	<b>\$ 5,300.00</b>	<b>Total</b>	<b>\$ 5,300.00</b>
Ammonia	\$ 15.00	60	\$ 900.00	55	\$ 825.00	0	\$ -	0	\$ -	0	\$ -
Total Nitrates (NO2+NO3)	\$ 20.00	60	\$ 1,200.00	55	\$ 1,100.00	265	\$ 5,300.00	265	\$ 5,300.00	265	\$ 5,300.00
TKN	\$ 28.00	60	\$ 1,680.00	55	\$ 1,540.00	0	\$ -	0	\$ -	0	\$ -
Total Phosphorus	\$ 15.00	60	\$ 900.00	55	\$ 825.00	265	\$ 3,975.00	265	\$ 3,975.00	265	\$ 3,975.00
Dissolved Reactive Phosphorus	\$ 30.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Bacteria</b>		<b>Total</b>	<b>\$ 4,680.00</b>	<b>Total</b>	<b>\$ 4,290.00</b>	<b>Total</b>	<b>\$ 9,275.00</b>	<b>Total</b>	<b>\$ 9,275.00</b>	<b>Total</b>	<b>\$ 9,275.00</b>
E. Coli	\$ 25.00	60	\$ 1,500.00	55	\$ 1,375.00	265	\$ 6,625.00	265	\$ 6,625.00	265	\$ 6,625.00
<b>Water/Organics</b>		<b>Total</b>	<b>\$ 1,500.00</b>	<b>Total</b>	<b>\$ 1,375.00</b>	<b>Total</b>	<b>\$ 6,625.00</b>	<b>Total</b>	<b>\$ 6,625.00</b>	<b>Total</b>	<b>\$ 6,625.00</b>
PCBs/Pesticides	\$ 105.00	13	\$ 1,365.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Methoxychlor	\$ 100.00	13	\$ 1,300.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
PNAs	\$ 80.00	13	\$ 1,040.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
VOCs	\$ 90.00	13	\$ 1,170.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Subtotals</b>		<b>Total</b>	<b>\$ 4,875.00</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>
Sampling Charge	\$ -		\$ 2,750.00	Sampling Charge	\$ 2,500.00	Sampling Charge	\$ 12,500.00	Sampling Charge	\$ 12,500.00	Sampling Charge	\$ 12,500.00
Analysis Subtotal	\$ -		\$ 16,434.00	Analysis Subtotal	\$ 10,023.00	Analysis Subtotal	\$ 24,910.00	Analysis Subtotal	\$ 24,910.00	Analysis Subtotal	\$ 24,910.00
<b>Grand Total</b>		<b>Total</b>	<b>\$ 19,184.00</b>	<b>Grand Total</b>	<b>\$ 12,523.00</b>	<b>Grand Total</b>	<b>\$ 37,410.00</b>	<b>Grand Total</b>	<b>\$ 37,410.00</b>	<b>Grand Total</b>	<b>\$ 37,410.00</b>

\* denotes field measurement  
 Note 1: Quantity of samples is estimated  
 Note 2: Field QC & Duplicate samples are billed at half the price  
 Note 3: If Chlorophyll A is needed, add \$85/sample

Grand Total for January 2018 through Oct 2018 = \$69,117

Quotation Accepted By: \_\_\_\_\_

Signature \_\_\_\_\_ Title \_\_\_\_\_

Name (Print) \_\_\_\_\_

Date \_\_\_\_\_

**Project Budget – Sediment**

**2018 YEAR SEDIMENT PRICE QUOTATION**

	Quoted Price	Proposed Quantity	Total Tier 1	Proposed Quantity	Total Tier 2	Proposed Quantity	Total Tier 3	Proposed Quantity	Total Tier 4
<b>Sediment/Metals</b>									
Metals (19)									
Mercury	\$ 152.00	17	\$ 2,584.00	0	\$ -	0	\$ -	0	\$ -
Fluoride	\$ 20.00	17	\$ 340.00	0	\$ -	0	\$ -	0	\$ -
	\$ 15.00	17	\$ 255.00	0	\$ -	0	\$ -	0	\$ -
		<b>Total</b>	<b>\$ 3,179.00</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>
<b>Sediment/Organics</b>									
PCBs/Pesticides									
Methoxychlor	\$ 105.00	17	\$ 1,785.00	0	\$ -	0	\$ -	0	\$ -
PNAs	\$ 100.00	17	\$ 1,700.00	0	\$ -	0	\$ -	0	\$ -
VOCs	\$ 80.00	17	\$ 1,360.00	0	\$ -	0	\$ -	0	\$ -
TKN	\$ 90.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Phosphorus	\$ 28.00	17	\$ 476.00	0	\$ -	0	\$ -	0	\$ -
Cyanide (low)	\$ 15.00	17	\$ 255.00	0	\$ -	0	\$ -	0	\$ -
Herbicides (2,4,D, 2,4,5 TP)	\$ 32.00	17	\$ 544.00	0	\$ -	0	\$ -	0	\$ -
Phenols	\$ 250.00	17	\$ 4,250.00	0	\$ -	0	\$ -	0	\$ -
	\$ 30.00	17	\$ 510.00	0	\$ -	0	\$ -	0	\$ -
		<b>Total</b>	<b>\$ 10,880.00</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>	<b>Total</b>	<b>\$ -</b>
		<b>Analysis Subtotal</b>	<b>\$ 14,059.00</b>	<b>Analysis Subtotal</b>	<b>\$ -</b>	<b>Analysis Subtotal</b>	<b>\$ -</b>	<b>Analysis Subtotal</b>	<b>\$ -</b>
		<b>Grand Total</b>	<b>\$ 14,059.00</b>	<b>Grand Total</b>	<b>\$ -</b>	<b>Grand Total</b>	<b>\$ -</b>	<b>Grand Total</b>	<b>\$ -</b>

\* denotes field measurement  
 Note 1: Quantity of samples is estimated  
 Note 2: Field QC & Duplicate sample billed at half price  
 Note 3: If Low Level Hg (1631) is needed \$120/sample

Quotation Accepted By: \_\_\_\_\_

Signature \_\_\_\_\_ Title \_\_\_\_\_

Name (Print) \_\_\_\_\_ Date \_\_\_\_\_

Grand Total for 2018 Year Sediment = \$14,059

Des Plaines River Watershed Workgroup BUDGET (December 1st thru November 30th)		Account #	FY2016 Actual	FY2017 Actual	Projected FY2018	Projected FY2019	Projected FY2020
<b>REVENUE/Description</b>							
Dues/Membership dues		775-4220010-46010	\$ 227,381	\$ 249,437	\$ 235,000	\$ 235,000	\$ 235,000
Expendable Carryover Addition		775-4220010-46010	\$ 172,523	\$ 192,559	\$ 126,275	\$ 18,094	\$ 13,044
Other State Funds/Illinois EPA 319 Grant		775-4220010-45350	\$ -	\$ 47,500	\$ -	\$ -	\$ -
Other (FPD/LCDDT)			\$ 47,707	\$ -	\$ -	\$ -	\$ -
<b>Total Revenue</b>			\$ 447,611	\$ 489,496	\$ 361,275	\$ 253,094	\$ 248,044
<b>EXPENSES/Description</b>							
Consultants/Technical Coordinator (GeoSyntec thru 4/30/16) PO 154955		775-4220010-71150	\$ 71,522	\$ 6,317	\$ -	\$ -	\$ -
Consultants/Tech Coordinator (Beth Adler) PO 166092		775-4220010-71150	\$ 5,950	\$ 54,874	\$ -	\$ -	\$ -
Monitoring Strategy and QAPP Refinement (IEPA Reimbursable)		775-4220010-71170	\$ 8,624	\$ -	\$ -	\$ -	\$ -
WQ-Sediment Analysis - (Suburban Labs - July 2016 - April 2017) PO 162822		775-4220010-71310	\$ 33,252	\$ 111,977	\$ -	\$ -	\$ -
Suburban Laboratory's Fees/Water Chemistry Monitoring (July 2016 - March 2017)		775-4220010-71310	\$ 60,343	\$ -	\$ -	\$ -	\$ -
SubLabs - Chem All/yr; 1/3 Sediment/yr		775-4220010-71310	\$ -	\$ -	\$ -	\$ -	\$ -
Pollutant Load Initial Flow Analysis - (Burns and McDonnell)		775-4220010-71310	\$ 12,531	\$ 41,795	\$ -	\$ -	\$ -
MBI - Initial Bioassessment/Sediment Sample-Analysis-Reporting (to 12/31/17) PO 164167 - FINAL REPORT PENDING		775-4220010-71310	\$ 62,830	\$ 117,979	\$ -	\$ -	\$ -
MBI - Year 1 - 1/3 Watershed Sampling		775-4220010-71310	\$ -	\$ 30,280	\$ -	\$ -	\$ -
<b>2018 Tech Coordinator (Beth Adler)</b>		<b>775-4220010-71150</b>		\$ 57,560	\$ -	\$ -	\$ -
<b>2018 Contract 10% Retainage Payout - Burns and McDonnell 2017 Flow Analysis</b>				\$ 6,583	\$ -	\$ -	\$ -
<b>2018 SubLabs - Chem All/yr; 1/3 Sediment/yr - Work starts in Jan/June/July/Sept/Nov</b>		<b>775-4220010-71310</b>	\$ -	\$ 83,176	\$ -	\$ -	\$ -
<b>MBI - Initial Bioassessment/Sediment Sample-Analysis-Reporting (to 12/31/17) PO 164167 - FINAL REPORT PENDING</b>		<b>775-4220010-71310</b>	\$ -	\$ 14,542	\$ -	\$ -	\$ -
<b>MBI - Year 1 - 1/3 Watershed Sampling Remainder Work</b>		<b>775-4220010-71310</b>	\$ -	\$ 47,720	\$ -	\$ -	\$ -
<b>2018 MBI - Year 2 - 1/3 WATERSHED SAMPLING - Work Starts in June</b>		<b>775-4220010-71310</b>	\$ -	\$ 45,600	\$ -	\$ -	\$ -
<b>2018 MBI IPS Modelling Monitoring Statistics and Project Prioritization</b>		<b>775-4220010-71150</b>	\$ -	\$ 60,000	\$ -	\$ -	\$ -
<b>2018 Lakes Committee - WQ Sampling - Work starts spring</b>		<b>775-4220010-71310</b>	\$ -	\$ 20,000	\$ -	\$ -	\$ -
<b>2018 SMC Administrative Services (June 1st thru November 30th)</b>		<b>775-4220010-71150</b>	\$ -	\$ 6,000	\$ -	\$ -	\$ -
<b>2018 public education (e.g.: printing, workshops, ) - Work starts in Jan</b>		<b>775-4220010-71150</b>	\$ -	\$ 2,000	\$ -	\$ -	\$ -
<b>2019 Tech Coordinator (Beth Adler)</b>		<b>775-4220010-71150</b>		\$ -	\$ 59,300	\$ -	\$ -
<b>2019 MBI - 1/3 WATERSHED SAMPLING</b>		<b>775-4220010-71310</b>	\$ -	\$ 82,750	\$ -	\$ -	\$ -
<b>2019 SubLabs - Chem All/yr; 1/3 Sediment/yr</b>		<b>775-4220010-71310</b>	\$ -	\$ 66,000	\$ -	\$ -	\$ -
<b>2019 Lakes Committee - WQ Sampling</b>		<b>775-4220010-71310</b>	\$ -	\$ 20,000	\$ -	\$ -	\$ -
<b>2019 SMC Administrative Services</b>		<b>775-4220010-71150</b>	\$ -	\$ 12,000	\$ -	\$ -	\$ -
<b>2020 Tech Coordinator (Beth Adler)</b>		<b>775-4220010-71150</b>		\$ -	\$ -	\$ 61,100	\$ -
<b>2020 MBI - 1/3 WATERSHED SAMPLING</b>		<b>775-4220010-71310</b>	\$ -	\$ -	\$ 82,750	\$ -	\$ -
<b>2020 SubLabs - Chem All/yr; 1/3 Sediment/yr</b>		<b>775-4220010-71310</b>	\$ -	\$ -	\$ 65,000	\$ -	\$ -
<b>2020 SMC Administrative Services</b>		<b>775-4220010-71150</b>	\$ -	\$ -	\$ 12,000	\$ -	\$ -
<b>2020 Lakes Committee - WQ Sampling</b>		<b>775-4220010-71310</b>	\$ -	\$ -	\$ 20,000	\$ -	\$ -
<b>Projected Expenses</b>			\$ 255,052	\$ 363,221	\$ 343,181	\$ 240,050	\$ 241,850
<b>Projected Unexpended Carryover</b>			\$ 192,559	\$ 126,275	\$ 18,094	\$ 13,044	\$ 6,194