

TASK ORDER

Project: Stormwater Capital Planning Services
Stormwater Flow Monitoring

Task Order No: 5

Issued To: Wessler Engineering, Inc.

All work shall be performed in accordance with the Agreement between the Board of Public Works and Safety, City of West Lafayette, Indiana and Wessler Engineering executed March 4, 2014.

I. Project Description

The ENGINEER is providing hydraulic modeling services for OWNER under Task Order No. 4. OWNER requires flow metering of existing storm and combined sewers in order for ENGINEER to complete calibration of the new hydraulic model.

II. Scope of Services – Temporary Sewer Flow Monitoring

- A. Coordinate with a flow monitoring subconsultant to provide temporary flow meters in the combined sewer system at five (5) locations for a period up to three (3) months.
 - 1. Engineer to utilize ADS Environmental Services as flow monitoring subconsultant in accordance with Attachment A to this Amendment.
 - 2. Base Period for flow monitoring shall be two (2) months. If at completion of the Base Period Engineer determines sufficient data has been obtained, flow monitoring will cease. If Engineer determines additional data is needed then an Additional Period for flow monitoring of one (1) month will be provided.
- B. Review and evaluate data and information obtained from flow monitoring.
- C. Deliverables shall be as described in Attachment A under “Final Report”.

III. Probable Project Schedule

Basic Services defined in Article II shall be complete within 90 days of a signed Task Order. Engineer will provide weekly progress updates to Owner via email.

IV. Compensation

Compensation for Basic Services as defined in Article II shall be on the basis of a Lump Sum Fee in the amount as follows:

<u>Service</u>	<u>Lump Sum Fee</u>
<u>Temporary Sewer Flow Monitoring</u>	
Base Period - 2 months	\$18,500.00
Additional Period (if required) - 1 month	\$ <u>3,400.00</u>
TOTAL	\$21,900.00

Accepted By:

WESSLER ENGINEERING, INC.



Brent A Siebenthal, P.E.
President

Authorized By:

BOARD OF PUBLIC WORKS & SAFETY
CITY OF WEST LAFAYETTE, INDIANA

Date: _____ April 26, 2016

Date: _____, 2016

ADDRESS FOR GIVING NOTICE:

Wessler Engineering
6219 S. East Street
Indianapolis, IN 46227

ADDRESS FOR GIVING NOTICE:

City of West Lafayette
609 West Navajo Street
West Lafayette, Indiana 47906



April 22, 2016

Mr. Bill J. Leber, P.E. LEED AP
Project Manager
Wessler Engineering
6219 S. East Street
Indianapolis, IN 46227

Subject: Temporary Flow Monitoring Services

Dear Mr. Leber:

ADS Environmental Services (ADS) is pleased to provide you with this proposal to install (5) temporary flow monitors and to perform temporary flow metering services for sixty (60) days to assist with hydraulic modeling and to gain a better understanding of section of collection system under study. ADS will perform the temporary flow-monitoring project in coordination with the Wessler, as discussed and outlined below. If needed, ADS can extend the monitoring period monthly, at the outlined rate below.

The flow monitoring project will be managed by Mr. Eric Hehmann, Project Manager, and staffed by ADS personnel from our Indianapolis, area offices. Mr. Hehmann is currently performing other flow metering projects in the region and has the personnel and equipment necessary in order to mobilize quickly, as requested.

We hope this proposal meets your approval, and we would be willing to discuss any other aspects of this project with you at your convenience. Please contact me at (708) 341-9701 if we can be of further assistance or you require additional information. We look forward to the opportunity to work with Wessler Engineering on this project.

Sincerely,

ADS Environmental Services

A handwritten signature in black ink that reads "Chris Skehan".

Chris Skehan
Business Development Manager
(708)341-9701
cskehan@idexcorp.com

Project Approach and Understanding

For this project, ADS recommends the following methodology be established to meet the overall goals of this flow monitoring services:

- ✓ **Site Reconnaissance** – ADS will perform a detailed site reconnaissance on each of the 4 selected monitoring locations, to determine the overall site safety, create a general traffic control plan (for low/light traffic areas), overall installation access, metering hydraulics, and other installation detail notes. If a site is not suitable for installation, or any other unfavorable conditions are determined during these recons, alternative site locations upstream/downstream will be investigated. If the required/selected installation location requires relocation, ADS will discuss this with the owner/consultant prior to performing any installations.
- ✓ **Professional Installation** – Once the candidate manhole has been identified and a site recon performed, ADS will begin installation of the flow monitoring equipment. ADS certified field crews and fleet vehicles are equipped with all of the necessary safety and installation tools required for installation of ADS monitor systems.
- ✓ **Initial Site Calibrations** – After Installation, ADS will perform an initial site calibration to verify the working order and accuracy of the installed equipment. This typically includes a manual depth reading and manual velocity reading, which is then compared to the actual monitoring readings, in real-time. ADS metering systems are robust and offer many advanced features to help ensure the initial installations are calibrated to capture the best possible results. However, further calibration may be required during the course of the monitoring study period.
- ✓ **Data Collection and System Maintenance** – ADS will assign a data analyst to collect and review the data for these monitoring sites, twice weekly. The analyst will be responsible for ensuring the data collected appears to be reasonable with the expected flow conditions at the monitoring location, and will assign work orders to field crews for any required maintenance, troubleshooting, or additional calibrations during the course of this project. A local ADS field crew will be responsible for responding to any issued work orders from the data analyst or project manager, and will ensure the equipment is in working order for the duration of the project.
- ✓ **Project Deliverables** – ADS will provide monthly data deliverable via Microsoft excel of the raw and QAQC, Finalized data monitoring during this project. A Final report will also be submitted, within 30 days of the end of the project, with a summary of the project, associated graphics, site reports, and final data.

Proposed Scope of Work

ADS Environmental Services (“ADS”) will perform a temporary flow-monitoring project in coordination with Wessler Engineering using four (4) ADS Flow Metering Systems. This scope of work is described as follows:

Phase I – Mobilization

- 1) Preliminary Meeting: Phase I will begin with a preliminary meeting/conference call with the project team. The purpose of the kick-off meeting is to discuss project scope, establish lines of communication, set milestones, and set the project schedule.
- 2) Site Locations: Client in cooperation with ADS will identify/verify location of monitor locations.
- 3) Site Investigations: Once the sites are identified, ADS field crews will begin site investigations. The proposed flow monitoring locations will be located and descended and verified for hydraulic suitability. ADS will also check for debris in the manhole that could impact data quality; ADS will notify CLIENT of any cleaning requirements. ADS field crews will look for evidence and signs of erratic flow patterns.
- 4) Site Reports: Upon completion of the investigations, the ADS field crew will complete a site report for each location. The site reports will include a sketch of the general location, physical characteristics and diameters of the proposed monitoring locations, manhole depths, flow measurements, and other comments pertinent to the location such as any special traffic or safety issues. As requested, ADS will also indicate the location, and note how far upstream or downstream the meter is located from manhole.
- 5) Equipment: ADS will utilize the appropriate ADS Model flow monitor during the course of this project. A typical monitor installation will include an ultrasonic depth sensor that will be mounted at the crown of the pipe; a redundant pressure depth sensor mounted at the invert; and a Doppler velocity sensor also mounted at or near the invert. This equipment has been included into the overall cost of this project.
- 6) Monitor Activation: Once installed, the monitor will be activated and set to take readings at 5-minute intervals. Field crews will take manual depth readings with a ruler and velocity readings with a portable, instantaneous velocity meter in order to confirm the monitor is collecting accurate data based on the actual existing hydraulic conditions at each location.

Phase II – Flow Monitoring

- 1) Flow Monitoring: Once the flow monitors, and rain gauges are installed and confirmed, ADS will monitor the flows for an initial period of **2 months** (“monitoring period”). This initial period can extend beyond the original duration per the prices set forth in the table below.
- 2) Preventative Maintenance: ADS is an ISO 9001 certified company and has proprietary internal quality procedures for all fieldwork. During the course of the project and as part of ADS’ quality control program, the field manager will visit each location and reconfirm that the monitor is in proper working condition. This includes cleaning depth and velocity sensors, confirmations as

needed, and checking an installation to make sure that the ring is secure in the pipe. The ADS data analyst will also review the data on a regular basis throughout the monitoring period.

- 3) **Maintenance Services:** Service for the flow monitors involves troubleshooting the common faults that are repairable in the field. More complex problems are left to trained electronic technicians, and off-site technicians. Common service problems are sensor scrubs to clear any debris, sensor replacements, battery changes, and internal board replacements.
 - a. **Schedule:** The field service maintenance shall accommodate normal operating hours of 8:00 a.m. to 5:00 p.m. Monday through Friday
 - b. **Response Time:** ADS will investigate, troubleshoot, and attempt to repair any perceived malfunction or monitor or communication equipment within three (3) business days of discovery of the malfunction. Depending on the condition of the problem or access to the location, this response time may vary.
 - c. **Traffic Control Assistance:** ADS may require local traffic control for some of the required installation locations outlined. As such, ADS will work with the OWNER/CLIENT to assist with traffic control and site safety if necessary.
- 4) **Data Collection:** Once activated and confirmed to be working properly, field crews will visit the monitored locations on a routine basis or as scheduled by an analyst who will be reviewing the data. Each monitor will be collected twice weekly by the analyst, using the equipment's wireless modem. Depth and velocity data will be collected and reviewed and flow will be calculated by the data analyst.
- 5) **Demobilization:** ADS will continue weekly data collections, confirmations (as necessary), and necessary maintenance until the end of the monitoring period. Once authorized by the client, crews will remove the flow monitors and deliver final data to the data analyst.

Phase III – Data Analysis and Reporting

- 1) **Data Analysis:** During and upon completion of the monitoring period, a trained ADS data analyst will analyze all of the data. The data analyst will directly calculate flow using the continuity equation from recorded depth and average velocity data. If required, ADS may utilize the Manning's Equation or a Flume/Wier equation to calculate the flow. All flow quantities as determined by the selected equation will be plotted. The analyst will also utilize scattergraphs (depth vs. velocity readings) to verify monitor accuracy. Within thirty days (30) days of the end of the monitoring period, ADS will provide all QA/QC'd data via the ADS FlowView reporting system. The analyst will also be responsible for creating any maintenance work orders for this project.

- 2) Final Report: ADS will provide the Engineer's management team and client with a final report of the flow meter data collected for this project. This includes:
- Weekly and monthly hydrographs of depth, velocity, flow, and rain for each site;
 - Scattergraphs for each site;
 - Tabular depth, velocity, and flow data in both monthly summary form and native interval form;
 - Detailed site reports,
 - Finalized QAQC Data via Microsoft Excel
 - A Summary of the Monitoring Results

Owner Activities: Owner (and consultants) agrees to perform the following functions in connection with this project. Certain activities must be acknowledged prior to ADS having an obligation to perform services enumerated herein.

- The Owner will be responsible for coordinating the required site locations for this project, using maps, atlas pages, or GIS mapping files.
- The Owner will be responsible for coordinating any necessary cleaning in required locations, where debris may be present.
- Owner will designate a project manager or primary point of contact to coordinate ADS's work and to act as the Owner's representative with respect to the work performed under this Agreement.
- Owner will provide access to and assist ADS to enter upon public and private lands as required for ADS to perform work under this Agreement; this excludes any regards to traffic control, which will be handled between ADS and a local sub-consultant.
- Owner will not make repairs or perform maintenance or attempt to do so on the equipment covered under this Agreement unless authorized by ADS. This shall include removal, repair, relocation or installation of monitoring equipment.
- Owner will assist ADS in obtaining any specialized City Permits to perform this work (if applicable).

Fee for Services

The following table provides our fee for these services in conjunction with this project.

Task	Qty	Units	Unit Cost	Total Cost
Flow Monitor Site Investigation and Installation	5	Each	\$1,500.00	\$7,500.00
Flow Monitor Equipment Lease, Data Collects, Maintenance, Data QAQC	10	Per meter /month	\$950.00	\$9,500.00
Final Report & Final Data Delivery	1	Lump Sum	\$1,500.00	\$1,500.00
Reinstallations		Each	\$1150.00	
Project Total				\$18,500.00
30 Day Extension Cost (if required) to continue monitoring program as described above			\$3,400.00	

Pricing Assumptions:

The pricing provided in the attached table is based on the following assumptions:

- No local taxes included – Tax Exempt Municipality;
- Report Deliverables are via PDF and Excel Data Deliverables;
- ADS Terms and Conditions are preferred