## AGREEMENT #12192 FOR ENGINEERING SERVICES

This AGREEMENT is entered into by and between Lake County (County) and RJN Group, 200 West Front Street, Wheaton, IL 60187 (hereafter "Engineer").

## RECITALS

WHEREAS, Lake County is seeking an Engineer to provide Engineering services for

PW#2012.013 Southeast Lake Sewer Assessment

WHEREAS A Statement of Interest # 12046 for Professional Civil Engineering Services was published and sealed proposals were received on February 29, 2012.

WHEREAS, the Engineer is a professional provider of Engineering services; and

**NOW, THEREFORE, Lake County and the Engineer AGREE AS FOLLOWS:**

**SECTION 1. AGREEMENT DOCUMENTS**
This AGREEMENT constitutes the entire agreement between the County and the Engineer.

A. This Agreement and all Terms and Conditions
B. RJN's proposal dated 9/19/2012 Exhibit A
C. RJN's response to SOI 12046 Exhibit B

**SECTION 2. SCOPE OF SERVICES**
The Engineer shall provide engineering services described in Exhibit A dated 9/19/2012

**SECTION 3. DURATION**
The works shall be completed within 514 days after execution of this Agreement.

**SECTION 4. INDEMNIFICATION**
The Engineer agrees to indemnify, save harmless and defend the County, their agents, servants, and employees, and each of them against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses and expenses, including court costs and attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to property, which may arise or which may be alleged to have arisen out of Engineer's negligent acts in connection with the services covered by this Agreement. The foregoing indemnity shall apply except if such injury, death or damage is caused directly by the willful and wanton conduct of the County, their agents, servants, or employees or any other person indemnified hereunder.

**SECTION 5. INSURANCE**
The Engineer must obtain, for the Contract term and any extension of it, insurance issued by a company or companies qualified to do business in the State of Illinois and provide

the County with evidence of insurance. Insurance in the following types and amounts is necessary:

- **Worker's Compensation Insurance** covering all liability of the Engineer arising under the Worker's Compensation Act and Worker's Occupational Disease Act at statutory limits.
- **Professional Liability** to include, but not be limited to, coverage for Errors and Omissions to respond to claims for loss there from.
    - **General Aggregate Limit $3,000,000**
    - **Each Occurrence Limit $1,000,000**
- **Automobile Liability:**
    - **Bodily Injury, Property Damage (Each Occurrence Limit) $1,000,000**

Engineer agrees that with respect to the above required Automobile Liability insurance, Lake County shall:

- Be named as additional insured by endorsement to the extent of the negligence of the Engineer;
- Be provided with thirty (30) days notice, in writing, of cancellation of material change;
- Be provided with Certificates of Insurance evidencing the above required insurance, prior to commencement of this Contract and thereafter with certificates evidencing renewals or replacements of said policies of insurance at least fifteen (15) days prior to the expiration of cancellation of any such policies. Forward Notices and Certificates of Insurance to: Lake County Central Services, 18 N. County St, Waukegan, IL 60085-4350.

**SECTION 6. AGREEMENT PRICE**
Lake County will pay to the Engineer the amount not to exceed $348,947

**SECTION 7. INVOICES & PAYMENT**
Invoices may be submitted for work performed on a monthly basis based upon the percent of work completed in the amount not-to-exceed in Section 6. Submit invoice(s) detailing the services provided. Payments shall be made in accordance with the Local Government Prompt Payment Act.

Engineer will address Invoices to:
Lake County Department of Public Works
650 Winchester Road
Libertyville, IL 60048-1391
Attn: Russ Rietveld

County will make Payments to:
RJN Group
200 W. Front Street
Wheaton, IL 60187
Attn: Accounts Receivable

**SECTION 8. STATEMENT OF OWNERSHIP**
The drawings, specifications and other documents prepared by the Engineer for this Project are the property of the County, and Engineer may not use the drawings and specifications for any purpose not relating to the Project without the County's consent, except for the Engineer's services related to this Project. All such documents shall be the property of the County who may use them without Engineer's permission for any current or future Lake County project; provided, however, any use except for the specific purpose intended by this Agreement will be at the County's sole risk and without liability or legal exposure to the Engineer.

The Engineer shall retain its copyright and ownership rights in its design, drawing details, specifications, data bases, computer software, and other proprietary property. Intellectual property developed, utilized, or modified in the performance of the services shall remain the property of the Engineer.

**SECTION 9. TERMINATION**
The County reserves the right to terminate this Agreement, or any part of this Agreement, upon thirty(30) days written notice. In case of such termination, the Engineer shall be entitled to receive payment from the County for work completed to date in accordance with terms and conditions of this Agreement. In the event that this Agreement is terminated due to Engineer's default, the County shall be entitled to contract for consulting services elsewhere and charge the Engineer with any or all losses incurred, including attorney's fees and expenses.

**SECTION 10. JURISDICTION, VENUE, CHOICE OF LAW**
This Agreement shall be governed by and construed according to the laws of the State of Illinois. Jurisdiction and venue shall be exclusively found in the 19th Judicial Circuit Court, State of Illinois.

**SECTION 11. INDEPENDENT CONTRACTOR**
The Engineer is an independent contractor and no employee or agent of the Engineer shall be deemed for any reason to be an employee or agent of the County.

**SECTION 12. WARRANTS**
The Engineer represents and warrants to the County that none of the work included in this contract will in any way infringe upon the property rights of others. The Engineer shall defend all suits or claims for Engineer's infringement of any patent, copyright or trademark rights and shall hold the County harmless from loss on account thereof.

**SECTION 13. ASSIGNMENT**
Neither the Engineer nor the County shall assign any duties of performance under this Agreement without the express prior written consent of the other.

**SECTION 14. MODIFICATION**
This Agreement may be amended or supplemented only by an instrument in writing executed by the party against whom enforcement is sought.

**SECTION 15. DISPUTE RESOLUTION**
All issues, claims, or disputes arising out of this Agreement shall be resolved in accordance with the Appeals and Remedies Provisions in Article 9 of the Lake County Purchasing Ordinance.

**SECTION 16. NO IMPLIED WAIVERS**
The failure of either party at any time to require performance by the other party of any provision of this Agreement shall not affect in any way the full right to require such performance at any time thereafter. Nor shall the waiver by either party of a breach of any provision of this Agreement be taken or held to be a waiver of the provision itself.

**SECTION 17. SEVERABILITY**
If any part of this Agreement shall be held to be invalid for any reason, the remainder of this Agreement shall be valid to the fullest extent permitted by law.

**SECTION 18. CHANGE IN STATUS**
The Engineer shall notify the County promptly of any change in its status resulting from any of the following: (a) vendor is acquired by another party; (b) vendor becomes insolvent; (c) vendor, voluntary or by operation law, becomes subject to the provisions of any chapter of the Bankruptcy Act; (d) vendor ceases to conduct its operations in normal course of business. The County shall have the option to terminate this Agreement with the Engineer immediately on written notice based on any such change in status.

**SECTION 19. DELIVERABLES**
The Engineer shall provide deliverables as identified in Exhibit A.

IN WITNESS HEREOF, the undersigned have caused this Agreement to be executed in their respective names on the dates hereinafter enumerated.

| | |
|---|---|
| Lake County: | RJN Group: |
| _____ | _____ |
| RuthAnne Hall<br>Purchasing Agent | Alan Hollenbeck<br>President/CEO |
| Date:_____ | Date:_____ |

September 19, 2012

Mr. Russell Rietveld, P.E.
Senior Civil Engineer
Lake County Department of Public Works
650 West Winchester Road
Libertyville, Illinois 60048

SUBJECT: PROPOSAL FOR PROFESSIONAL ENGINEERING SERVICES
SOUTHEAST LAKE FPA FLOW MONITORING

Dear Mr. Rietveld:

RJN Group, Inc. (RJN) is pleased to submit this proposal to the Lake County Department of Public Works (County) for flow monitoring in the Southeast Lake Facility Planning Area (FPA) sanitary sewer system.

## PROJECT UNDERSTANDING

The County is interested in gaining a better understanding of the sanitary flows that are entering their wastewater collection system throughout the FPA. During major rain events, significant excess flows are received at the Des Plaines River Water Reclamation Facility (WRF). The main purpose of the flow monitoring is to isolate the main sources of this excess flow.

The County owns and maintains many of the major interceptors that convey flow to the WRF. The County also owns and maintains some of the local sewers. However, most of the local sewers are owned and maintained by the municipality where they are located.

Through the Request for Qualification (RFQ) process, the County selected RJN Group to provide the flow monitoring services. The County is planning to implement a long-term flow monitoring program in the Southeast Lake FPA and other FPAs in the County. Therefore, as part of this proposal, the County will be purchasing the flow meters and rain gauges that will be utilized on the project.

## PROJECT APPROACH

RJN has coordinated with County staff and sixteen meter locations have been selected. These locations may move slightly depending on their suitability for measuring flow rates as determined through site investigations (see below). The meters will be installed and remain in service for at least 365 days. After the flow monitoring period has ended, RJN will coordinate with County staff on the meters that will remain long term and develop a strategy to continue maintaining and servicing them.

The proposed meter locations are shown on the attached exhibit and are summarized as follows:

**Meter 1 - East Interceptor @ Plant:** Monitor flows entering through the east interceptor to the plant.

**Meter 2 - West Interceptor @ Plant:** Monitor flows entering through the west interceptor to the plant.

**Meter 3 - McHenry Road and Arlington Heights Road:** Monitor the County's McHenry Road interceptor upstream of the Village of Buffalo Grove.

**Meters 4 and 5 - Weiland Road and Newtown Drive (2 Meters):** Together the two meters monitor east central Buffalo Grove upstream of the outlet to the McHenry Road interceptor.

**Meter 6 - Deerfield Parkway and McHenry Road (IL-83):** Monitor west central Buffalo Grove upstream of the outlet to the McHenry Road interceptor.

**Meters 7 and 8 - Barrington Drive at McHenry Road Interceptor (2 Meters):** Together the two meters monitor southwest Buffalo Grove upstream of the outlet to the McHenry Road interceptor.

**Meter 9 - Kemper Lake:** Monitor north portion of the Village of Kildeer.

**Meter 10 - Krueger Road and IL-22:** Monitor south portion of the Village of Kildeer.

**Meter 11 - Downstream of Quentin Lift Station:** Monitor all of Lake Zurich close to the WRF.

**Meter 12 - Downstream of Lincolnshire Lift Station:** Monitor the majority of the Village of Lincolnshire close to the WRF.

**Meters 13 and 14 – Upstream of Route 22 Lift Station (2 meters):** Monitor eastern Long Grove with one meter north of Route 22 and one meter south of Route 22.

**Meter 15 - Upstream of Saunders Road Lift Station (Bannockburn):** Monitor west Bannockburn (portion tributary to the County system).

**Meter 16 - Upstream of Deerfield Road Lift Station:** Monitor the majority of the Village of Riverwoods.

The County has a system of rain gauges throughout the study area that collect hourly rainfall data. It is also important to acquire shorter duration rain intensities for use in an inflow and infiltration (I/I) analysis. As such, RJN will supplement this network by providing three rain gauges (also on telemetry) in the general locations shown on the exhibit. The exact locations will be coordinated with County staff. A combination of the County data and the RJN data will be used for I/I analyses.

**Purchase, Installation, & Calibration**

RJN is recommending the purchase of the FlowShark TRITON flow meter, manufactured by ADS Environmental Services. This meter includes an in-flow sensor that measures continuous wave peak velocity, uplooking ultrasonic depth, and pressure depth. It also includes a non-intrusive ultrasonic level sensor for flow depth calculations, a wireless modem and an antenna package for wireless transmission of data.

The recommended rain gauge is a Texas Electronics, Inc. TR-525I Rainfall Sensor. It is a remote tipping bucket style rain gauge. A Telog RG-32 recorder with an antenna package will also be provided for wireless transmission of data.

RJN field technicians will visit the targeted meter locations. Meter site investigations are necessary to evaluate hydraulic flow characteristics and sensor stability to ensure that conditions are suitable for measuring flow rates. The field crew will also review each site for access, traffic control, and site safety considerations. Site investigation results will then be used to determine the appropriate flow metering technology and site set-up.

Site investigation reports containing the site information and images will be prepared for the County's approval prior to the installation of the equipment.

Field crew are certified in confined space entry procedures and will fill out confined space reports at each site visit throughout the project.

At the time of installation, manual depth and velocity readings are taken by the field technicians to confirm that the meter is reading to manufacturer's operating standards. In addition to the initial calibration, RJN will return within two weeks of installation and at least twice more in the first three months to obtain a sufficient number of calibrations for comparison to the meter results.

**Ongoing Monthly Meter & Data Maintenance**

Following the third month, RJN field technicians will continue to maintain the meters and rain gauges, as necessary. This includes replacing probes, batteries, desiccant and other equipment.

Manual depth and velocity readings will be taken once every three months as a check on the meter calibration and accuracy.

RJN will maintain the data link required for remotely uploading the data from the meters. Experienced data analysts will collect, consolidate, process, and perform a cursory review for data continuity and quality. Data will be corrected and adjusted according to calibrations and flow balances among connecting sites. The data is then made available online to the County for viewing, downloading, and further use.

**Data Handling**

RJN Group will utilize a host software support application program for remote wireless flow meter and rain gauge data collection. On a daily basis, all data recorded and stored in the meter will be collected by the host system. RJN will install, operate, and maintain the telemetry.

RJN Group will use a system employing a client/server architecture to store all project flow and rainfall data. On a daily basis, flow meter measurements, battery voltages and other data entities will be forwarded to the Server and immediately posted to the web site for viewing by authorized parties.

The Web Module software will allow any networked computer (with the appropriate access rights) access to the data stored using a common web browser (e.g. Microsoft Internet Explorer). The web module will enable the user to view the data and download the data in Microsoft Excel format. Web module users will not have access to modify the database or any operational system configurations.

**Data Analysis**

RJN will review the flow monitoring and rainfall data at least twice a week during the "settling in" period and then once per week thereafter, for sites that produce stable and reliable results. During the "settling in" period, crews will obtain necessary calibrations and make efforts to prevent sensor failure, minimize equipment issues, avoid excessive siltation and configure the monitoring equipment to capture hydraulic variations or anomalies. The analysis of the data includes the identification of data gaps, hydraulic anomalies and monitor performance issues.

Any equipment service needs will be immediately conveyed to the field service crews. The data will be processed and edited in accordance with the field confirmations to produce final data sets for each site. The final data will also be posted when completed.

After the flow monitoring period is complete, the data will evaluated and finalized for use in developing the I/I analyses. In addition to addressing the results of the flow monitoring, the report will also include recommendations for reducing the excess flow.

## PROPOSED SCOPE OF SERVICES

Our proposed scope of services is as follows:

1. Procure sixteen complete flow meters and three complete rain gauges with data telemetry capability.

2. Investigate targeted sites for flow meter and rain gauge installation. Determine the meter sites that are hydraulically suitable for flow monitoring. Prepare Investigation Site Reports for approval by the County.

3. Prepare flow meters and rain gauges for installation. Install sixteen flow meters and three rain gauges at approved locations.

4. During installation, calibrate each flow meter by taking manual depth and velocity measurements and comparing with meter readings.

5. Provide standard traffic control measures (portable signs and cones) at each site in or near a roadway. If a higher level of traffic control is required, traffic control assistance will be provided by County staff.

6. Prepare the host system for handling the flow and rain gauge data and posting the data for viewing and access by County staff. Review the data at least twice per week during the "settling in" period, once per week, thereafter, and immediately report any equipment service needs to the field crews.

7. Calibrate each meter a second time within two weeks of installation. Utilize the calibrations to adjust the data and prepare final data sets.

8. Provide meter and rain gauge maintenance as necessary to keep meters and rain gauges in proper operation for the duration of the monitoring period. Calibrate each meter at least two additional times within the first three months of operation and at least quarterly, thereafter.

9. Procure spare and replacement equipment, such as batteries, probes and desiccant, as needed to keep meters and rain gauges within operating standards.

10. In June 2013, conduct a full day maintenance training session with County staff. After this training, all scheduled field visits will be coordinated with County staff to allow County staff to participate in these activities.

11. Conduct a full day training session with County staff on handling and processing the flow data.

12. This proposal does not include removal or relocation of the flow meters after the flow monitoring period has ended,

13. Process the collected raw data. Analyze the processed data for wet- and dry-weather flow patterns. Create hydrographs for each meter and determine peaking factors of each basin.

14. Perform an inflow analysis, a peak infiltration analysis and look for evidence of downstream control and surcharging.

15. Prepare and submit five copies of a draft report to the County outlining Flow Monitoring results and recommendations.

16. Include the following in the report:
    - Details on each meter and rain gauge location;
    - Summary of the flow and rainfall data collected;
    - Conclusions from the flow metering, including evidence of downstream control, hydraulic bottlenecks, and levels of infiltration and inflow (I/I);
    - Adequacy of the existing system to handle existing flows; and
    - Recommendations for reduction in I/I

17. Incorporate the County's comments and submit up to 15 copies of the final report to the County. This includes copies for the municipalities. Provide a pdf of the final report.

18. Provide project management services for the duration of the project. Attend up to four meetings with County staff. Attend up to two County scheduled meetings with the local municipalities.

## ITEMS REQUESTED FROM THE COUNTY

We request the following items from the County:

a. Assistance with traffic control where needed in high traffic locations.

b. Water consumption data from major users in the FPA as needed by RJN. This may include prior year data and actual usage data during the flow monitoring period.

c. Available lift station data during the flow monitoring period. This includes wet well level logs, pump run times, wet well and pump capacities, and any other applicable data.

d. This proposal does not include providing additional equipment to allow the meters to be directly connected to the County's SCADA system beyond the standard items that come

with the meter. The County will be responsible for procuring necessary computer hardware and data analysis or SCADA integration software separately.

## SCHEDULE

This schedule is based on the proposal being approved at the October 9, 2012 County Board meeting. The key schedule parameters are as follows:

- The flow meters will be purchased within one week of a notice to proceed and kickoff meeting.
- The site investigations will begin within two weeks of a notice to proceed and kickoff meeting.
- It is anticipated that the meters and rain gauges will be installed in early November
- The flow monitoring period will begin when the last meter has been successfully installed and will last 365 days
- The draft report will be submitted to the County within two months of the end of the flow monitoring period.
- The final report will be submitted within three weeks of receipt of County comments on the draft report.

## PROPOSED FEE

This scope of services will be invoiced in a unit price/percent complete basis per the attached schedule for a not to exceed total of $348,947.

It is our pleasure to submit this proposal to the Lake County Department of Public Works. Please feel free to contact me at (630) 682-4700 x314 if you would like to discuss this proposal in detail. We are looking forward to the opportunity to begin working with the County on this important project.

Sincerely,

RJN Group, Inc.

Michael N. Young

Michael N. Young, P.E.
Branch/Project Manager

Enclosures

## LAKE COUNTY DEPARTMENT OF PUBLIC WORKS
## SOUTHEAST LAKE FPA - SANITARY FLOW MONITORING

### Summary of Engineering Services Fees

| Task No. | Task Description | Units | Quantity | Unit Cost | Total Cost |
|---|---|---|---|---|---|
| 1001 | Flow Meter Site Investigations | EA | 16 | $360 | $5,760 |
| 1002 | Flow Meter Preparation and Installation | EA | 16 | $1,020 | $16,320 |
| 1003 | Rain Gauge Site Investigation and Installation | EA | 3 | $320 | $960 |
| 1004 | Flow Meter Calibration, Maintenance and Data Analysis | Meter-Month | 192 | $765 | $146,880 |
| 1005 | Rain Gauge Calibration, Maintenance and Data Analysis | RG-Month | 36 | $150 | $5,400 |
| 1006 | Report | LS | 1 | $20,000 | $20,000 |
| 1007 | Project Management, Meetings and Training Sessions | LS | 1 | $16,000 | $16,000 |
| 1008 | Purchase Meters[1] | EA | 16 | $8,282 | $132,512 |
| 1009 | Purchase Rain Gauges[2] | EA | 3 | $1,705 | $5,115 |
| | | | | **TOTAL** | **$348,947** |

Notes:

1. Meter equipment purchase includes:
   - FlowShark Triton Wireless Monitoring System. IS Rated.
   - Sensors, Uplooking Ultrasonic, Pressure depth and Doppler Velocity
   - Quad Redundant Ultrasonic Depth Sensor
   - Banding material and installation hardware.
   - Modem - GSM Module
   - Wireless Modem Antenna, Mini Wing
   - Direct Connect Cable
   - Cellular charges - SIM (Fixed IP GPRS Service) - 12 months
   - Equipment and Sensor warranty – 12 months
   - One licensed copy of Profile meter configuration software.

2. Rain gauge equipment purchase includes:
   - TR-525I Rain Gauge
   - Heater (if needed)
   - Mounting base and installation hardware
   - RG-32 Rain Gauge Teloger with Modem and Integral Antenna
   - Cellular charges - SIM (Fixed IP GPRS Service) - 12 months
   - Equipment and Sensor warranty – 12 months

Hawthorn Woods
Ravine Drive Lift Station
Prairie Trails Lift Station
Wellington Drive Lift Station
Port Clinton Road Lift Station
Teal Lane Lift Station
Creek View Drive Lift Station
Royal Melbourne Lift Station
Old McHenry Road Lift Station
Long Grove
Forest Lake
Lake Zurich
Ela Lift Station #2
Route 22 Lift Station
Hill Top Road Lift Station
Lincolnshire
Bannockburn
Saunders Rd Lift Station
Three Lakes Drive Lift Station
Sunset Grove Lift Station
Kildeer
Deer Park
Arlington Heights Road Lift Station
Buffalo Grove
Checker Road Lift Station
Des Plaines River Water Reclamation Facility
Riverwoods
Deerfield Road Lift Station
Portwine Road Lift Station
Lake-Cook Road Lift Station

rjngroup
The Choice for Collection System Solutions

Manhole
Pump Station
TreatmentPlant
Collector
Interceptor
Force Main
Existing Lake County Rain Gauge
Proposed RJN Rain Gauge
Proposed RJN Flow Meter

N W E S

# Lake County, IL
# Sanitary System
# September 2012

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