City of Carroll

112 E. 5th Street Carroll, Iowa 51401-2799 (712) 792-1000 FAX: (712) 792-0139

MEMO TO: Mike Pogge-Weaver, City Manager MJP-cw

FROM: Randall M. Krauel, Director of Public Works RMK

DATE: August 8, 2017

SUBJECT: Water Distribution Hydraulic Model
Professional Services Agreement

An Iowa Department of Natural Resources Water Supply Sanitary Survey has noted two items in the water distribution system for which they are requiring a plan of action to address. The two items noted include an area of lower water pressure and an area of lower chlorine residuals.

A plan of action to address these items has been discussed with JEO Consulting Group, Inc. (JEO). The discussions have resulted in the conclusion that a water distribution system hydraulic model is needed to accurately analyze the pressures and flows in the system. A proposed Agreement for Professional Services has been prepared with JEO. A copy of the proposed Agreement is attached.

The Scope of Services is detailed in the Agreement. It generally includes services to develop and calibrate a hydraulic model that can be used to analyze alternatives to address minimum pressure requirements and total chlorine residual.

Compensation included in the Agreement is Lump Sum as follows:

Project Management	$3,050.00
Project Meetings	$4,800.00
Data Collection and Review	$5,950.00
Water System Design Criteria	$1,450.00
Distribution Analysis	$23,300.00
Technical Memorandum	$11,050.00
Total	$49,600.00

The schedule is approximately projected as follows:

Initiate Project	September 1, 2017
60% Review	November 1, 2017
90% Review	December 1, 2017
Final Technical Memorandum	December 29, 2017

RECOMMENDATION: Mayor and City Council consideration and passage and approval of the Resolution approving the Agreement with JEO Consulting Group, Inc. for professional services for the Water Distribution Hydraulic Model project.

RMK:ds

attachments (2)

RESOLUTION NO. _____

RESOLUTION APPROVING THE AGREEMENT WITH JEO CONSULTING GROUP, INC. FOR PROFESSIONAL SERVICES FOR THE WATER DISTRIBUTION HYDRAULIC MODEL PROJECT.

WHEREAS, the City of Carroll is desirous of developing a Water Distribution Hydraulic Model project; and,

WHEREAS, a Professional Services Agreement for the development of a Water Distribution Hydraulic Model project has been prepared with JEO Consulting Group, Inc.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Carroll, Iowa, that the Professional Services Agreement with JEO Consulting Group, Inc. for a Water Distribution Hydraulic Model project is approved.

Passed and approved this 14th day of August, 2017.

CITY COUNCIL OF THE
CITY OF CARROLL, IOWA

By: _____
Eric P. Jensen, Mayor

ATTEST:

By: _____
Laura A. Schaefer, City Clerk

AGREEMENT
BETWEEN OWNER AND ENGINEER
FOR
PROFESSIONAL SERVICES

THIS IS AN AGREEMENT effective as of _____ ("Effective Date") between the City of Carroll, Iowa ("Owner") and JEO Consulting Group, Inc. ("Engineer").

Owner's project, of which Engineer's services under this Agreement are a part, is generally identified as follows: Carroll Water Distribution Hydraulic Model ("Project").

Owner and Engineer further agree as follows:

ARTICLE 1 - SERVICES OF ENGINEER

1.01 Scope

A. Engineer shall provide, or cause to be provided, the services set forth herein and in Exhibit A.

ARTICLE 2 - OWNER'S RESPONSIBILITIES

2.01 Owner Responsibilities

A. Owner responsibilities are outlined in Section 3 of Exhibit B.

ARTICLE 3 - Compensation

3.01 Compensation

A. Owner shall pay Engineer as set forth in Exhibit A and per the terms in Exhibit B.

B. The fee for the Project shall be as follows:
   a. Basic Scope of Services (Lump Sum):

i.	Task 1 - Project Management:	$ 3,050.00
ii.	Task 2 – Conduct Project Meetings/Workshops:	$ 4,800.00
iii.	Task 3 – Collect and Review Critical Data:	$ 5,950.00
iv.	Task 4 – Develop Water System Design Criteria	$ 1,450.00
v.	Task 5 – Water Distribution Analysis	$ 23,300.00
vi.	Task 6 – Compile Technical Memorandum:	$ 11,050.00
	Total:	$ 49,600.00

C. The Standard Hourly Rates Schedule (available upon request) shall be adjusted annually (as of approximately January 1st) to reflect equitable changes in the compensation payable to Engineer.

ARTICLE 4 - EXHIBITS AND SPECIAL PROVISIONS

4.01 Exhibits

Exhibit A – Scope of Services
Exhibit B – General Conditions

5.02 Total Agreement

A. This Agreement (consisting of pages 1 to 2 inclusive, together with the Exhibits identified as included above) constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

Owner: City of Carroll, Iowa

_____

By: Dr. Eric Jensen

Title: Mayor

Date Signed:_____

Address for giving notices:

City of Carroll

112 E. 5th Street

Carroll, IA 51401-2799

Engineer: JEO Consulting Group, Inc.

_____

By: Blake Birkel, PE

Title: Project Manager

Date Signed: 8/7/2017

Address for giving notices:

JEO Consulting Group, Inc.

11717 Burt Street; Suite 210

Omaha, NE 68154-1510

Exhibit A

JEO Consulting Group, Inc.
SCOPE OF SERVICES

Project Description:
As outlined in the most recent "Sanitary Survey" completed by IDNR field staff, the City of Carroll must submit a plan of action outlining what measures will be taken to meet minimum pressure requirements and maintain a minimum total chlorine residual of 1.5 mg/L throughout the City's water distribution system. JEO plans to develop and calibrate a hydraulic water distribution model that can be utilized to develop alternatives to address these and other identified deficiencies within the City's water distribution system.

Basic Scope of Services (Lump Sum):

Task 1: Project Management

Objective: Accept overall responsibility of project quality and coordination and provide project management oversight over all facets and phases of the project.

Deliverable: Deliverables from the project manager shall include meeting minutes from the kick-off meeting including identified risks, mitigations, and critical success factors. Project manager shall deliver monthly progress updates and invoices. Other deliverables shall include meeting minutes from meetings with City staff and other project stakeholders.

A. Develop an overall project work plan and project schedule that describes the sequencing and execution of the tasks within each part of the scope of service.
B. Coordinate and facilitate the kick-off meeting.
C. Coordination of project team members including facilitating communication and transfer of documents between staff to ensure a timely and efficient completion of the project.
D. Provide timely and coordinated communication to and from the City for requests for information, providing progress updates, scheduling meetings, and receiving and providing feedback.
E. Provide monthly progress reports indicating percentage of work completed and a description of the status of the work in progress.
F. Provide oversight to ensure scope of services and schedule are met.
G. Develop a quality control/quality assurance plan for the project and ensure it is implemented.
H. Review billed hours by project team and prepare invoice statements for City.
I. Serve as the main point of contact for the project team and City.

Task 2: Conduct Project Meetings and Workshops

Objective: Conduct project meetings with the City staff throughout the project to facilitate the exchange of information, discuss success and risk factors, review the project schedule and scope, discuss the critical assumptions and recommendations, and to review the results of the preliminary and final hydraulic modeling deliverables.

Deliverable: A total of three (3) meetings are anticipated. Each meeting will include an agenda along with supporting materials and key personnel in attendance. Location of meeting to be mutually decided upon

City and JEO staff; however, it is anticipated that most meetings will take place at City Hall. Meeting minutes will be provided within a reasonable timeframe following the meeting.

A. Schedule and conduct a project kick-off meeting to introduce key members of the project team, review scope, schedule, budget, critical success factors, as well as identify potential project risks and associated mitigations.
B. Conduct a review workshop with the City to review results of the EPS hydraulic analyses and recommended prioritization of short-term, mid-term, and long-term improvements. Review and present planning level costs.
C. Conduct a review workshop with the City to present the 90% draft report and obtain the City's input and comments.

Task 3: Collect and Review Critical Data

Objective: Collect and complete a detailed review of all available information and data related construction, operation and maintenance of the existing water system. This data will serve as the basis for performance evaluation and infrastructure planning.

Deliverable: JEO will include a summary of relevant findings from review of information including historical population data and projections; previous water system studies, reports and correspondence; planning documents related to other City departments (transportation, sewer) and other information related to the water system. JEO anticipates assistance from the City in gathering these documents.

A. Review previous distribution system master plan reports and studies.
B. Review all available documentation related to operations and maintenance of the water storage tanks, high service pump station and water distribution system.
C. Collect and review historic data including billing data, meter data, historic water use, and water loss information.
D. Prepare an inventory of all major infrastructure assets within the City's distribution system.
E. Obtain current and historical aerial imagery, and LiDAR data.
F. Review the population projections and compare to population growth trends based on actual customer growth.
G. Review historic water use characteristic trends and determine water use characteristic projections. Water use characteristics will be determined based on the following components: residential, non-residential, large use, and non-revenue for each of the design years. Confirm system-wide peaking factors for maximum day and maximum hour.
H. Review the water use characteristics of large industrial, commercial and institutional users and determine 24-hour diurnal demand curves.
I. Obtain customer meter data and supervisory control and data acquisition (SCADA) data.

Task 4: Develop Water System Design Criteria

Objective: In collaboration with the City staff, develop criteria to be used as the basis for the evaluation including but not limited to minimum pressure limits, high pressure limits, pipeline velocity constraints and other intangibles (such as not being able to completely fill and maintain equalization, emergency, and fire storage).

Deliverable: Document the design and performance criteria within the final report.

A. Based on the population and water use characteristic trends, develop design demand projections (hot and dry year) for the planning scenarios. Develop average day demand, maximum day demand, and maximum hourly demand in 5 year increments from year 2017 to year 2040.
B. Review existing services level and water quality goals with City staff.

Task 5: Water Distribution Analysis

Objective: Complete a detailed system analysis of all distribution system components with full scale hydraulic model and identify alternatives to meet projected demands, provide sufficient operating pressure and address water quality concerns.

Deliverable: Document the results of the evaluation, proposed recommendations, opinion of probable cost and phasing plan within the final report.

A. Develop a hydraulic model based on City provided AutoCAD data (and other maps/sources) which includes all existing distribution system facilities. Perform review of the existing facilities and ensure that the network connectivity is acceptably representative and that all model data for facilities is accurate.
B. Recreate hydraulic model elements for use in the model using a combination of: CAD data, facility drawings, details, and input from City staff.
C. Review pressure zone boundaries relative to current operations and future infrastructure planning.
D. Geocode meter data from system users to spatially allocate demand throughout the hydraulic model.
E. Calibration of model using field verification and empirical methods. It is intended to utilize a combination of sources including pump records, storage level data/set points, and other water demand information. JEO will prepare a protocol for collection of model verification data that will be based on in-system pressure readings. Adjust model as necessary to establish acceptable correlation. Any field testing required to calibrate the model further with recorded results will be provided by City staff.
F. Conduct hydraulic analysis, using 24-hour Extended Period Simulation (EPS), of distribution system as the basis for developing distribution improvement plans, including a review of future water requirements. Analysis should include average day, maximum day, peak hour, and winter day.

G. Perform distribution system hydraulic modeling of water transmission and distribution system capacities throughout the water system for design years 2020, 2030 and 2040 to identify and evaluate system improvements to address deficiencies.
H. Evaluate existing pumping and storage facilities to meet maximum day and peak hour requirements and develop a phasing plan for improvements from the results of the hydraulic evaluations to meet or improve level of service requirements.
I. Evaluate and make recommendations regarding system operational redundancy and emergency interconnections between pressure zones.
J. Evaluate distribution system water quality based on a water age analyses using the distribution system hydraulic model. Water age will be used in conjunction with available water quality monitoring data to identify areas requiring further evaluation. Identify recommended improvements to address areas of potential water quality concern.
K. Evaluate and develop alternatives to optimize system hydraulic operation, improve system pressure management, ensure system reliability, and potentially improve water quality in the distribution system. Alternatives should include opinions of probable costs and be staged based on water demand projections for the design years 2020, 2030, and 2040.
L. Review the current strategies for main replacement program and make recommendations for the future main replacement program,
M. Develop a comprehensive water distribution system phasing plan for the recommended improvements. Incorporate into the City's CIP program.

Task 6: Compile Technical Memorandum

Objective: Prepare a Technical Memorandum (TM) documenting the planning criteria, existing system evaluation, water demand projections, modeling results, future infrastructure requirements, a summary of future costs, and a prioritized implementation schedule with the fiscal year each project is estimated to be needed identified

Deliverable: Provide three (3) final hard copies and an electronic copy of the TM that is signed and sealed by a Professional Engineer in the state of Iowa.

A. Summarize findings of existing system conditions.
B. Prepare graphics and exhibits for final report and presentations.
C. Summarize recommendations for source water supply, water treatment infrastructure, pressure zone management, major distribution system improvements, pumping, and storage.
D. Summarize budgetary opinions of probable construction cost for recommended improvements.
E. Conduct QA/QC reviews at 30%, 60% and 90% draft report phases.
F. Prepare 60% TM and submit to City staff for review and comment.
G. Incorporate City comments, as appropriate, and finalize report.
H. Submit the final TM to City staff which is signed and sealed by a professional engineer in the state of Iowa.
I. Submit final TM to IDNR and assist City in response to any comments concerning their review of the TM, as necessary.

JEO Consulting Group, Inc.
SCOPE OF SERVICES

City Responsibilities and Key Project Assumptions:

A. Provide the appropriate staff to participate as part of the project team to answer questions, perform the necessary reviews, and attend the required meetings.
B. City to provide available information that may be necessary for the evaluation of City's water system including CAD base maps, as-built drawings, plans, specifications, and available operational and testing data.
C. City staff to conduct additional field work that may be necessary to calibrate the hydraulic model, such as fire hydrant flow tests and other pertinent testing.
D. City will provide the current customer billing record database for use in demand analysis. It is understood the meter data is not currently geocoded to the parcel or meter location.
E. City will provide land-use assumptions and future development plans as documented from other sources.

Additional Services Not Provided (but can be negotiated if necessary):

A. Assistance with collection of additional field water system data for model validation and calibration.
B. Condition assessment protocol to gather data for projecting remaining useful life of facilities.
C. Financial analysis and cost of service allocations.
D. Optimization of distribution system flushing program.
E. Energy use optimization via pump control/set points and WTP operational parameters.
F. Training of City staff on use of hydraulic modeling software
G. Meetings not outlined in the scope of services.

Project Schedule:

A. Kickoff Meeting .....within 2 weeks of Notice to Proceed
B. 60% TM Review.....75 days from Notice to Proceed
C. 90% TM Review.....105 days from Notice to Proceed
D. Submit Final TM.....120 days from Notice to Proceed

such claims, losses, damages, or expenses are caused by the indemnifying parties' negligent acts, errors, or omissions. In the event claims, losses, damages, or expenses are caused by the joint or concurrent negligence of JEO and the owner, they shall be borne by each party in proportion to its negligence.

11. INSURANCE: JEO shall procure and maintain the following insurance during the performance of services under this agreement:

a. Workers' Compensation: Statutory
b. Employer's Liability
  i. Each Accident: $500,000
  ii. Disease, Policy Limit: $500,000
  iii. Disease, Each Employee: $500,000
c. General Liability
  i. Each Occurrence (Bodily Injury and Property Damage): $1,000,000
  ii. General Aggregate: $2,000,000
d. Auto Liability
  i. Combined Single: $1,000,000
e. Excess or Umbrella Liability
  i. Each Occurrence: $1,000,000
  ii. General Aggregate: $1,000,000
f. Professional Liability:
  i. Each Occurrence: $1,000,000
  ii. General Aggregate: $2,000,000
g. All policies of property insurance shall contain provisions to the effect that JEO and JEO's consultants' interests are covered and that in the event of payment of any loss or damage the insurers shall have no rights of recovery against any of the insureds or additional insureds thereunder.
h. The owner shall require the contractor to purchase and maintain general liability and other insurance as specified in the Contract Documents and to cause JEO and JEO's consultants to be listed as additional insured with respect to such liability and other insurance purchased and maintained by the contractor for the project.
i. The owner shall reimburse JEO for any additional limits or coverages that the owner requires for the project.

12. TERMINATION: This agreement may be terminated by either party upon 7 days prior written notice. In the event of termination, JEO shall be compensated by owner for all services performed up to and including the termination date. The effective date of termination may be set up to thirty (30) days later than otherwise provided to allow JEO to demobilize personnel and equipment from the site, to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble project materials in orderly files.

13. GOVERNING LAW: This agreement is to be governed by the law of the state in which the project is located.

14. SUCCESSORS, ASSIGNS, AND BENEFICIARIES: The owner and JEO each is hereby bound and the partners, successors, executors, administrators and legal representatives of the owner and JEO are hereby bound to the other party to this agreement and to the partners, successors, executors, administrators and legal representatives (and said assigns) of such other party, with respect to all covenants, agreements and obligations of this agreement.

a. Neither the owner nor JEO may assign, sublet, or transfer any rights under or interest (including, but without limitation, monies that are due or may become due) in this agreement without the written consent of the other, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment shall release or discharge the assignor from any duty or responsibility under this agreement.
b. Unless expressly provided otherwise in this agreement: Nothing in this agreement shall be construed to create, impose, or give rise to any duty owed by the owner or JEO to any contractor, contractor's subcontractor, supplier, other individual or entity, or to any surety for or employee of any of them.
c. All duties and responsibilities undertaken pursuant to this agreement shall be for the sole and exclusive benefit of the owner and JEO and not for the benefit of any other party.

15. PRECEDENCE: These standards, terms, and conditions shall take precedence over any inconsistent or contradictory language contained in any proposal, contract, purchase order, requisition, notice to proceed, or like document regarding JEO's services.

16. SEVERABILITY: Any provision or part of the agreement held to be void or unenforceable shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the owner and JEO, who agree that the agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

17. NON-DISCRIMINATION CLAUSE: Pursuant to Neb. Rev. Stat. § 73-102, the parties declare, promise, and warrant that they have and will continue to comply fully with Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C.A § 1985, et seq.) and the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. § 48-1101, et seq., in that there shall be no discrimination against any employee who is employed in the performance of this agreement, or against any applicant for such employment, because of age, color, national origin, race, religion, creed, disability or sex.

18. E-VERIFY: JEO shall register with and use the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee pursuant to the Immigration Reform and Control Act of 1986, to determine the work eligibility status of new employees physically performing services within the state where the work shall be performed. Engineer shall require the same of each consultant.

Exhibit B

JEO Consulting Group, Inc.
GENERAL CONDITIONS

1. SCOPE OF SERVICES: JEO Consulting Group, Inc. (JEO) shall perform the services described in Exhibit A. JEO shall invoice the owner for these services at the fee stated in Exhibit A.

2. ADDITIONAL SERVICES: JEO can perform work beyond the scope of services, as additional services, for a negotiated fee or at fee schedule rates.

3. OWNER RESPONSIBILITIES: The owner shall provide all criteria and full information as to the owner's requirements for the project; designate and identify in writing a person to act with authority on the owner's behalf in respect to all aspects of the project; examine and respond promptly to JEO's submissions; and give prompt written notice to JEO whenever the owner observes or otherwise becomes aware of any defect in work.

Unless otherwise agreed, the owner shall furnish JEO with right-of-access to the site in order to conduct the scope of services. Unless otherwise agreed, the owner shall also secure all necessary permits, approvals, licenses, consents, and property descriptions necessary to the performance of the services hereunder. While JEO shall take reasonable precautions to minimize damage to the property, it is understood by the owner that in the normal course of work some damage may occur, the restoration of which is not a part of this agreement.

4. TIMES FOR RENDERING SERVICES: JEO's services and compensation under this agreement have been agreed to in anticipation of the orderly and continuous progress of the project through completion. Unless specific periods of time or specific dates for providing services are specified in the scope of services, JEO's obligation to render services hereunder shall be for a period which may reasonably be required for the completion of said services.

If specific periods of time for rendering services are set forth or specific dates by which services are to be completed are provided, and if such periods of time or date are changed through no fault of JEO, the rates and amounts of compensation provided for herein shall be subject to equitable adjustment. If the owner has requested changes in the scope, extent, or character of the project, the time of performance of JEO's services shall be adjusted equitably.

5. INVOICES: JEO shall submit invoices to the owner monthly for services provided to date and a final bill upon completion of services. Invoices are due and payable within 30 days of receipt. Invoices are considered past due after 30 days. Owner agrees to pay a finance charge on past due invoices at the rate of 1.0% per month, or the maximum rate of interest permitted by law.

If the owner fails to make any payment due to JEO for services and expenses within 30 days after receipt of JEO's statement, JEO may, after giving 7 days' written notice to the owner, suspend services to the owner under this agreement until JEO has been paid in full all amounts due for services, expenses, and charges.

6. STANDARD OF CARE: The standard of care for all services performed or furnished by JEO under the agreement shall be the care and skill ordinarily used by members of JEO's profession practicing under similar circumstances at the same time and in the same locality. JEO makes no warranties, express or implied, under this agreement or otherwise, in connection with JEO's services.

JEO shall be responsible for the technical accuracy of its services and documents resulting therefrom, and the owner shall not be responsible for discovering deficiencies therein. JEO shall correct such deficiencies without additional compensation except to the extent such action is directly attributable to deficiencies in owner furnished information.

7. REUSE OF DOCUMENTS: Reuse of any materials (including in part plans, specifications, drawings, reports, designs, computations, computer programs, data, estimates, surveys, other work items, etc.) by the owner on a future extension of this project, or any other project without JEO's written authorization shall be at the owner's risk and the owner agrees to indemnify and hold harmless JEO from all claims, damages, and expenses including attorney's fees arising out of such unauthorized use.

8. ELECTRONIC FILES: Copies of Documents that may be relied upon by the owner are limited to the printed copies (also known as hard copies) that are signed or sealed by JEO. Files in electronic media format of text, data, graphics, or of other types that are furnished by JEO to the owner are only for convenience of the owner. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk.

a. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it shall perform acceptance tests or procedures within 30 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 30 day acceptance period shall be corrected by the party delivering the electronic files. JEO shall not be responsible to maintain documents stored in electronic media format after acceptance by the owner.

b. When transferring documents in electronic media format, JEO makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by JEO at the beginning of the project.

c. The owner may make and retain copies of documents for information and reference in connection with use on the project by the owner.

d. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

e. Any verification or adaptation of the documents by JEO for extensions of the project or for any other project shall entitle JEO to further compensation at rates to be agreed upon by the owner and JEO.

9. SUBCONSULTANTS: JEO may employ consultants as JEO deems necessary to assist in the performance of the services. JEO shall not be required to employ any consultant unacceptable to JEO.

10. INDEMNIFICATION: To the fullest extent permitted by law, JEO and the owner shall indemnify and hold each other harmless and their respective officers, directors, partners, employees, and consultants from and against any and all claims, losses, damages, and expenses (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) to the extent