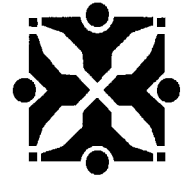


City of Columbia

701 East Broadway, Columbia, Missouri 65201



Agenda Item Number: R 182-15

Department Source: City Utilities - Water & Light

To: City Council

From: City Manager & Staff

Council Meeting Date: 11/16/2015

Re: Engineering Services Agreement with Carollo Engineers for Water Quality and Antidegradation Study of Water Treatment Residual Discharges.

Documents Included With This Agenda Item

Council memo, Resolution/Ordinance, Exhibits to the Resolution/Ordinance

Supporting documentation includes: None

Executive Summary

Staff has prepared for Council consideration of a resolution authorizing the City Manager to execute an agreement with Carollo Engineers, Inc. of Kansas City, Missouri in an amount not to exceed \$95,973.00 for professional engineering services required to supplement the preparation of a Best Professional Judgment (BPJ) Study of the potential residuals handling alternatives at the McBaine Water Treatment Plant. The purpose of this study is to identify potential permit limits that might preclude further pursuit of a Best Professional Judgment Study in light of the antidegradation requirements recently required by the Missouri Department of Natural Resources (MDNR).

Discussion

In May of 2013 Water and Light entered into an agreement with Carollo Engineers, Inc. of Kansas City, Missouri for professional engineering services required for the preparation of a Best Professional Judgment (BPJ) Study pertaining to various options for the disposal of potable water treatment residuals at the McBaine Water Treatment Plant. This study was identified as a required first step in obtaining a National Pollutant Discharge Elimination System (NPDES) permit from the Environmental Protection Agency (EPA) to allow the discharge of potable water treatment residuals directly to the Missouri River.

The current Water Treatment Plant State Operating Permit requires that the waste residuals generated from the lime softening and coagulation treatment process be land applied in an agriculturally beneficial manner. This operational condition requires the lime treatment residuals to be transported to northern and eastern Boone County where lime amendments to acidic soils are agriculturally beneficial.

Section 10 CSR 20-7 of the current state regulations allows for the solids removed from potable water withdrawn from wells located in the alluvial valleys of the Missouri and Mississippi River to be returned to the same body of water from which they were taken. The EPA has since suspended the issuance of new, or renewing existing, NPDES permits for the discharge of water treatment residuals

City of Columbia

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to the Missouri or Mississippi River for plants operating within the river alluvium, however; several Missouri water utilities continue to discharge water treatment residuals to the waters of the state. Recently, the EPA has been reconsidering issuance of new NPDES permits for discharges to the Missouri River. A requirement for the EPA to consider the issuance of a new NPDES permit is that the petitioner must perform a Best Professional Judgment Study to show that the permit would allow the petitioner to operate in the most environmentally sound, economically feasible, and sustainable manner.

The current operational costs to the water utility under the present Missouri State Operating Permit conditions for the transportation and land application of the water treatment residuals are in excess of \$500,000 annually. It is anticipated that construction of the facilities to allow for the direct discharge of the water treatment residuals to the Missouri River would cost approximately \$2,000,000. Therefore, the direct savings anticipated if this permit is approved, and construction of a discharge facility is completed, is in excess of \$500,000 annually after four years of operation.

On October 16, 2014, representatives from the Columbia Water and Light, Carollo Engineering, Geosyntec Consultants, Inc. and the Missouri Department of Natural Resources met to discuss discharge alternatives identified in the draft best professional judgement study. In that meeting, MDNR indicated that before a NPDES permit could be issued and the Missouri State Operating Permit modified to allow surface water discharge of the treatment residuals, a water quality and antidegradation review (WQAR) would be needed to demonstrate that a no-discharge scenario is not appropriate and that water quality standards will be met if there is a direct discharge to the river. Of primary concern are the potential environmental impacts associated with the discharge of treatment residuals such as pH, color, chloride, and total suspended solids.

The proposed WQAR will address the following scenarios:

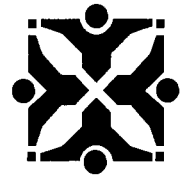
1. The co-mingling of the Waste Water Treatment Plant effluent with the proposed residuals stream from the McBaine Water Treatment Plant. This scenario will consist of discharge diffusers mounted adjacent to one another within the Missouri River at a location approved by the U.S. Army Corps of Engineers.
2. A single point of discharge for the Water Treatment Plant residuals and a separated single point of discharge for the Waste Water Treatment Plant effluent. The purpose of this is to evaluate the extent of the potential mixing zones and water quality compliance measuring points of each location.

At the time the draft Best Professional Judgement Study was prepared it was anticipated that a desktop antidegradation review would be accepted by MDNR to meet the environmental conditions of the BPJ process. However, based upon the October 16, 2014 meeting it was determined that a more detailed analysis would be required to move the permitting process forward within the current regulatory environment. As a result, an additional engineering services agreement is necessary to prepare an antidegradation review based upon both water quality data and desktop modeling.

Carollo Engineers Inc. is pre-qualified to perform engineering services with the City of Columbia and

City of Columbia

701 East Broadway, Columbia, Missouri 65201



has historically displayed their expertise in producing quality products and services for the Columbia Water and Light Department. They are currently under contract to perform the final Best Professional Judgement Study for residual discharges at the McBaine Water Treatment Plant and are highly qualified to perform the additional WQAR studies required to move forward with the BPJ process.

Fiscal Impact

Short-Term Impact: The Engineering Services Agreement with Carollo Engineers Inc. is not to exceed \$95,973.00 for the preparation of the required water quality and antidegradation review to be included with Best Professional Judgment Study submission to MDNR. Funding for this project has already been appropriated in Capital Improvement Project Number WT0234 for the construction of lime residuals discharge pipe to the Missouri River.

Long-Term Impact: If these WQAR and BPJ studies are approved for water treatment residual discharges directly to the Missouri River, annual saving are expected to exceed \$500,000 after four years of initial operation.

Vision, Strategic & Comprehensive Plan Impact

Vision Impact: Environment

Strategic Plan Impact: Infrastructure...Connecting the Community

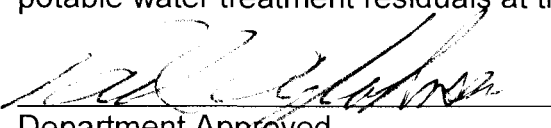
Comprehensive Plan Impact: Environmental Management, Infrastructure

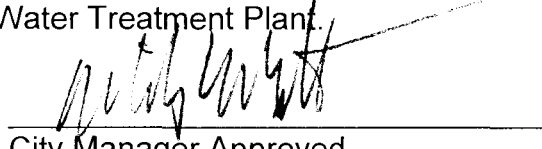
Suggested Council Action

Staff requests council approve this resolution allowing the City Manager to execute an Engineering Services Agreement with Carollo Engineers Inc. for the preparation of this Water Quality and Antidegradation Review.

Legislative History

(R88-13) A resolution authorizing an agreement for professional engineering services with Carollo Engineers, Inc. for a best professional judgment study to identify alternatives for the disposal of potable water treatment residuals at the McBaine Water Treatment Plant.


Department Approved


City Manager Approved

Introduced by _____ Council Bill No. R 182-15

A RESOLUTION

authorizing an agreement for professional engineering services with Carollo Engineers, Inc. for a water quality and antidegradation study of water treatment residual discharges at the McBaine Water Treatment Plant.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. The City Manager is hereby authorized to execute an agreement for professional engineering services with Carollo Engineers, Inc. for a water quality and antidegradation study of water treatment residual discharges at the McBaine Water Treatment Plant. The form and content of the agreement shall be substantially as set forth in "Exhibit A" attached hereto and made a part hereof.

ADOPTED this _____ day of _____, 2015.

ATTEST:

City Clerk

Mayor and Presiding Officer

APPROVED AS TO FORM:

City Counselor

AGREEMENT
For
PROFESSIONAL ENGINEERING SERVICES
Between
THE CITY OF COLUMBIA, MISSOURI
And
CAROLLO ENGINEERS, INC.

THIS AGREEMENT by and between the City of Columbia, Missouri, a municipal corporation, hereinafter called the CITY, and Carollo Engineers, Inc., a corporation organized in the State of Delaware and with authority to transact business within the state of Missouri, hereinafter called the ENGINEER, is made and entered into on the date of the last signatory noted below (hereinafter "Effective Date"). CITY and ENGINEER are each individually referred herein as a "Party" and collectively as the "Parties."

WITNESSETH, that whereas the CITY intends to make improvements as described below, hereinafter called the PROJECT, consisting of the following:

Water quality and antidegradation review as more fully described in Exhibit A, the Scope of Basic Services.

~~Attachment~~ (Description of Project)

NOW, THEREFORE, in consideration of the mutual covenants set out herein the parties agree as follows:

ENGINEER shall serve as CITY's professional engineering contractor in those assignments to which this Agreement applies, and shall give consultation and advice to CITY during the performance of the services. All services shall be performed under the direction of a professional engineer registered in the State of Missouri and qualified in the particular field.

SECTION 1 - AUTHORIZATION OF SERVICES

1.1 ENGINEER shall not undertake to begin any of the services contemplated by this agreement until directed in writing to do so by CITY. CITY may elect to authorize the PROJECT as a whole or in parts.

1.2 Authorized work may include services described hereafter as Basic Services or as Additional Services of ENGINEER.

SECTION 2 - BASIC SERVICES OF ENGINEER

2.1 General

2.1.1 Perform professional engineering services as set forth in Attachment A - "Scope of Basic Services," dated March 19, 2015.

2.1.2 ENGINEER will designate the following listed individuals as its project team with responsibilities as assigned. ENGINEER shall dedicate whatever additional resources are necessary to accomplish the PROJECT within the specified timeframe but will not remove these individuals from the assigned tasks for any reason within the control of ENGINEER without the written approval of CITY.

<u>Name and Title</u>	<u>Assignment</u>
Thomas Crowley, P.E.	Project Manager

All of the services required hereunder will be performed by ENGINEER or under its supervision and all personnel engaged in the work shall be fully qualified and authorized or permitted under state and local law to perform such services.

None of the work or services covered by this Agreement shall be subcontracted without the prior written approval of CITY and any work or services so subcontracted shall be subject to the provisions of this Agreement. ~~The Parties agree that ENGINEER shall use a subcontractor, Geosyntec Consultants, Inc., a corporation organized in the State of Florida and with authority to transact business within the State of Missouri, for some of the work on this Project.~~

2.2 ENGINEER shall furnish such periodic reports as CITY may request pertaining to the work or services undertaken pursuant to this Agreement, the costs and obligations incurred or to be incurred, and any other matters covered by this Agreement.

2.3 ENGINEER shall maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Agreement and any other records as deemed necessary by CITY to assure proper accounting for all project funds. These records must be available to CITY or its authorized representatives, for audit purposes, and must be retained for three (3) years after expiration or completion of this Agreement.

SECTION 3 - ADDITIONAL SERVICES OF ENGINEER

3.1 General

If authorized in writing by CITY, and agreed to in writing by ENGINEER, ENGINEER shall furnish or obtain from others Additional Services of the following types

which are not considered normal or customary Basic Services. The scope of Additional Services may include:

3.1.1 Financial Consultation

Consult with CITY's fiscal agents and bond attorneys and provide such engineering data as required for any bond prospectus or other financing requirements

3.1.2 Property Procurement Assistance

Provide consultation and assistance on property procurement as related to professional engineering services being performed.

3.1.3 Obtaining Services of Others

Provide through subcontract the services or data set forth in Attachment A.

3.1.4 Preliminary or final engineering design of capital facilities except as specifically identified herein.

3.1.5 Preparation of reports, data, application, etc., in connection with modifications to FEMA floodplain definition and/or mapping.

3.1.6 Extra Services

Services not specifically defined heretofore that may be authorized in writing by CITY.

SECTION 4 - RESPONSIBILITIES OF CITY

4.1 Provide full information as to CITY's requirements for the PROJECT.

4.2 Assist ENGINEER by placing at ENGINEER's disposal available information pertinent to the assignment including previous reports and other data relative thereto, including the items outlined in Attachment A - "Scope of Basic Services," dated March 19, 2015, which ENGINEER shall be entitled to use and rely upon all such information in the performance of the services required under this Agreement.

4.3 Guarantee access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform services under this Agreement.

4.4 Examine all studies, reports, sketches, estimates, Bid Documents, Drawings, proposals and other documents presented by ENGINEER and render in writing decisions pertaining thereto.

4.5 Provide such professional legal, accounting, financial and insurance counseling services as may be required for the PROJECT.

4.6 Designate David Storvick, as CITY's representative with respect to the services to be performed under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define CITY's policies and decisions with respect to materials, equipment, elements and systems to be used in the PROJECT, and other matters pertinent to the services covered by this Agreement.

4.7 Give prompt written notice to ENGINEER whenever CITY observes or otherwise becomes aware of any defect in the PROJECT.

4.8 Furnish approvals and permits from all governmental authorities having jurisdiction over the PROJECT and such approvals and consents from others as may be necessary for completion of the PROJECT.

4.9 Furnish ENGINEER data such as probings and subsurface explorations, with appropriate professional interpretations; property, boundary, easement, right-of-way, topographic and utility surveys; zoning and deed restriction; and other special data or consultations, all of which ENGINEER may rely upon in performing his services under this Agreement.

SECTION 5 - PERIOD OF SERVICE

5.1 This Agreement will become effective upon the first written notice by CITY authorizing services hereunder.

5.2 This Agreement shall be applicable to all work assignments authorized by CITY subsequent to the date of its execution and shall be effective as to all assignments authorized.

5.3 Services shall be started within 10 calendar days of Notice to Proceed and completed within seventy-two (72) weeks from the issuance of the Notice to Proceed or until Missouri Department of Natural Resources approves the final Technical Memorandum, whichever is longer. CITY shall have the right to establish performance times for individual phases or elements of the PROJECT by delivering a written schedule setting out the performance times to ENGINEER.

SECTION 6 - PAYMENTS TO ENGINEER

6.1 Amount of Payment

6.1.1 For services performed, CITY shall pay ENGINEER the sum of amounts determined as follows:

6.1.1.1 For time spent by personnel, payment at the hourly rates indicated in the "Schedule of Hourly Labor Billing Rates" (attached as Attachment B). Such rates include overhead and profit. The schedule is effective to December 31, 2015, and may be revised thereafter.

6.1.1.2 For outside expenses incurred by ENGINEER, such as authorized travel and subsistence, commercial services, and incidental expenses, the cost to ENGINEER.

6.1.1.3 For reproduction, printing, long-distance telephone calls, company vehicle usage, testing apparatus, computer services and computer-assisted drafting (CAD), amounts will be charged according to ENGINEER's standard rates in effect at the time service is provided.

6.1.1.4 For professional services rendered by others as subcontractor(s) to ENGINEER such as surveying, real property descriptions, soil borings, subsurface investigations, laboratory testing, field quality control tests, progress photos, or other activities required or requested by CITY, will be billed at the cost to ENGINEER.

6.1.1.5 For time spent by outside individual professional consultants employed by ENGINEER in providing services to CITY, the cost to ENGINEER. Expenses incurred by such outside consultants in service to CITY shall be reimbursable in accordance with 6.1.1.2 above.

6.1.2 Total payment for Scope of Services and all other expenses and costs to CITY under this agreement and described herein **shall not exceed Ninety-five Thousand Nine Hundred Seventy-three Dollars (\$95,973.00).**

6.2 Payments

6.2.1 ENGINEER shall submit an invoice for services rendered to CITY not more than once every month. Upon receipt of the invoice and progress report, CITY will, within thirty (30) days, pay ENGINEER for the services rendered, provided CITY does not contest the invoice, to the extent of ninety-five percent (95%) of the uncontested amount earned. Upon completion and acceptance of the final plans by CITY, the five percent (5%) of these services retained by CITY will be paid to ENGINEER.

SECTION 7 - GENERAL CONSIDERATIONS

7.1 Insurance

7.1.1 **ENGINEER'S INSURANCE:** ENGINEER agrees to maintain, on a primary basis and at its sole expense, at all times during the life of this contract the following insurance coverages, limits, including endorsements described herein. The requirements contained herein, as well as CITY's review or acceptance of insurance maintained by ENGINEER is not intended to and shall not in any manner limit or qualify the liabilities or obligations assumed by ENGINEER under this Agreement.

Commercial General Liability ENGINEER agrees to maintain Commercial General Liability at a limit of liability not less than **\$2,000,000** combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death. Coverage shall not contain any endorsement(s) excluding nor limiting Contractual Liability or Cross Liability. If the contract involves any underground/digging operations, the general liability certificate shall include X, C and U (Explosion, Collapse and Underground) coverage.

Professional Liability ENGINEER agrees to maintain Professional (Errors & Omissions) Liability at a limit of liability not less than **\$2,000,000** per claim and **\$2,000,000** aggregate. For policies written on a "Claims-Made" basis, ENGINEER agrees to maintain a Retroactive Date prior to or equal to the effective date of this contract. In the event the policy is canceled, non-renewed, switched to an Occurrence Form, retroactive date advanced; or any other event triggering the right to purchase a Supplemental Extended Reporting Period (SERP) during the life of this contract, ENGINEER agrees to purchase a SERP with a minimum reporting period not less than two (2) years. The requirement to purchase a SERP shall not relieve ENGINEER of the obligation to provide replacement coverage.

Business Automobile Liability ENGINEER agrees to maintain Business Automobile Liability at a limit of liability not less than **\$2,000,000** combined single limit for any one occurrence and not less than \$150,000 per individual, covering both bodily injury, including accidental death, and property damage, to protect themselves from any and all claims arising from the use of the ENGINEER's own automobiles, and trucks; hired automobiles, and trucks; and automobiles both on and off the site of work. Coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event ENGINEER does not own automobiles, ENGINEER agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation Insurance & Employers' Liability ENGINEER agrees to take out and maintain during the life of this contract, Employers' Liability and Workers' Compensation Insurance for all of their employees employed at the site of the work, and in case any work is sublet, the ENGINEER shall require the subcontractor similarly to

provide Workers' Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the ENGINEER. Workers' Compensation coverages shall meet Missouri statutory limits. Employers' Liability minimum limits shall be \$500,000 each employee, \$500,000 each accident and \$500,000 policy limit. In case any class of employees engaged in hazardous work under this contract is not protected under the Workers' Compensation Statute, ENGINEER shall provide and shall cause each subcontractor to provide Employers' Liability Insurance for the protection of their employees not otherwise protected.

Excess/Umbrella Liability The above liability limits may be satisfied by any combination of primary and excess/umbrella liability policies.

Additional Insured ENGINEER shall endorse CITY as an Additional Insured with a CG 2026 Additional Insured – Designated Person or Organization endorsement, or similar endorsement, to the Commercial General Liability. The Additional Insured shall read "City of Columbia."

Waiver of Subrogation ENGINEER agrees by entering into this contract to a Waiver of Subrogation for each required policy herein except professional liability. When required by the insurer, or should a policy condition not permit ENGINEER to enter into an pre-loss agreement to waive subrogation without an endorsement, then ENGINEER agrees to notify the insurer and request the policy be endorsed with a Waiver of Transfer of Rights of Recovery Against Others, or its equivalent. This Waiver of Subrogation requirement shall not apply to any policy, which includes a condition specifically prohibiting such an endorsement, or voids coverage should ENGINEER enter into such an agreement on a pre-loss basis.

Certificate(s) of Insurance ENGINEER agrees to provide CITY with Certificate(s) of Insurance evidencing that all coverages, limits and endorsements required herein are maintained and in full force and effect. Said Certificate(s) of Insurance shall include a minimum thirty (30) day endeavor to notify due to cancellation or non-renewal of coverage. The Certificate(s) of Insurance shall name the City as additional insured in an amount as required in this contract and contain a description of the project or work to be performed.

Right to Revise or Reject CITY reserves the right, but not the obligation, to review and revise any insurance requirement, not limited to limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work / specifications affecting the applicability of coverage. Additionally, the CITY reserves the right, but not the obligation, to review and reject any insurance policies failing to meet the criteria stated herein or any insurer providing coverage due of its poor financial condition or failure to operating legally.

7.1.2 HOLD HARMLESS AGREEMENT: To the fullest extent not prohibited by law, ENGINEER shall indemnify and hold harmless the City of Columbia, its

directors, officers, agents and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any negligent act or failure to act, or willful misconduct, of ENGINEER, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with ENGINEER or a subcontractor for part of the services), of anyone directly or indirectly employed by ENGINEER or by any subcontractor, or of anyone for whose acts the ENGINEER or its subcontractor may be liable, in connection with providing these services except as provided in this Agreement. This provision does not, however, require ENGINEER to indemnify, hold harmless or defend the City of Columbia from its own negligence, except as set out herein.

7.1.3 Professional Oversight Indemnification

ENGINEER understands and agrees that CITY has contracted with ENGINEER based upon ENGINEER's representations that ENGINEER is a skilled professional and fully able to provide the services set out in this Agreement. In addition to any other indemnification set out in this Agreement, ENGINEER agrees to defend, indemnify and hold and save harmless CITY from any and all claims, settlements and judgments whatsoever arising out of CITY's alleged negligence in hiring or failing to properly supervise ENGINEER.

The insurance required by this Agreement shall include coverage which shall meet ENGINEER's obligations to indemnify the CITY as set out above and the CITY shall be named as additional insured for such insurance.

7.2 Professional Responsibility

7.2.1 ENGINEER shall exercise reasonable skill, care, and diligence in the performance of its services and shall carry out its responsibilities in accordance with customarily accepted good professional engineering practices. If ENGINEER fails to meet the foregoing standard, ENGINEER shall perform at its own cost, and without reimbursement from CITY, the professional engineering services necessary to correct errors and omissions which are caused by ENGINEER's failure to comply with above standard, and which are reported to ENGINEER within one (1) year from the completion of ENGINEER's services for the PROJECT.

7.2.2 In addition, ENGINEER will be responsible to CITY for damages caused by its negligent conduct during its activities at the PROJECT site or in the field.

7.3 Estimates and Projections

Estimates and projections prepared by ENGINEER relating to construction costs and schedules, operation and maintenance costs, equipment characteristics and performance, and operating results are based on ENGINEER's experience, qualifications and judgment as a design professional. Since ENGINEER has no control over weather, cost and availability of labor, material and equipment, labor productivity,

construction contractor's procedures and methods, unavoidable delays, construction contractor's methods of determining prices, economic conditions, competitive bidding or market conditions and other factors affecting such estimates or projections, ENGINEER does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from estimates and projections prepared by ENGINEER.

7.4 On-Site Services

PROJECT site visits by ENGINEER during construction shall not make ENGINEER responsible for construction means, methods, techniques, sequences or procedures; for construction safety precautions or programs; or for any construction contractor(s)' failure to perform its work in accordance with the plans and specifications.

7.5 Changes

CITY shall have the right to make changes within the general scope of ENGINEER's services, with an appropriate change in compensation, upon execution of a mutually acceptable amendment or change order signed by an authorized representative of CITY and the President or any Vice President of ENGINEER.

7.6 Suspension of Services

Should CITY fail to fulfill its responsibilities as provided under Section 4 to the extent that ENGINEER is unduly hindered in his services or if CITY fails to make any payment to ENGINEER on account of its services and expenses within ninety (90) days after receipt of ENGINEER's bill therefor, ENGINEER may, after giving seven (7) days' written notice to CITY, suspend services under this Agreement until CITY has satisfied his obligations under this Agreement.

7.7 Termination

Services may be terminated by CITY at any time and for any reason, and by ENGINEER in the event of substantial failure to perform in accordance with the terms hereof by CITY through no fault of ENGINEER, by ten (10) days' notice. If so terminated, CITY shall pay ENGINEER all uncontested amounts due ENGINEER for all services properly rendered and expenses incurred to the date of receipt of notice of termination.

7.7.1 In the event of CITY's termination of the Agreement pursuant to the above section, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared under this Agreement, shall at the option of CITY become its property.

Further, ENGINEER shall not be relieved of any liability to CITY for any damages sustained by CITY by virtue of any breach of this Agreement by ENGINEER and CITY may withhold any payments due ENGINEER for the purpose of set-off until such time as the exact amount of damages to CITY, if any, is determined.

7.8 Publications

Recognizing the importance of professional development on the part of ENGINEER's employees and the importance of ENGINEER's public relations, ENGINEER may prepare publications, such as technical papers, articles for periodicals, and press releases, pertaining to ENGINEER's services for the PROJECT. Such publications will be provided to CITY in draft form for CITY's advance review. CITY will review such drafts promptly and will provide comments to ENGINEER. CITY may require deletion of proprietary data or confidential information from such publications but otherwise will not unreasonably withhold its approval. The cost of ENGINEER's activities pertaining to any such publication shall be paid entirely by ENGINEER.

7.9 Nondiscrimination

During the performance of this Agreement, ENGINEER agrees to the following:

7.9.1. ENGINEER shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, disability, or national origin. ENGINEER shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, age, disability, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. ENGINEER agrees to post notices in conspicuous places, available to employees and applicants for employment.

7.9.2 ENGINEER shall, in all solicitation or advertisements for employees placed by or on behalf of ENGINEER, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, disability, or national origin.

7.9.3 ENGINEER shall comply with all provisions of State and Federal Laws governing the regulation of Equal Employment Opportunity including Title VI of the Civil Rights Act of 1964.

7.10 Successor and Assigns

CITY and ENGINEER each binds himself and his successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement; except as above, neither CITY nor ENGINEER shall assign, sublet or transfer his interest in the Agreement without the written consent of the other.

7.11 Rights and Benefits

ENGINEER's services will be performed solely for the benefit of the CITY and not for the benefit of any other persons or entities.

7.12 Compliance with Local Laws

ENGINEER shall comply with all applicable laws, ordinances and codes of the state and city.

7.13 Law; Submission to Jurisdiction Governing.

This Agreement shall be governed by, interpreted and enforced in accordance with the laws of the State of Missouri and/or the laws of the United States, as applicable. The venue for all litigation arising out of, or relating to this Agreement, shall be Boone County, Missouri or the United States Western District of Missouri. The Parties hereto irrevocably agree to submit to the exclusive jurisdiction of such courts in the State of Missouri and waive any defense of forum non conveniens

7.14 Employment of Unauthorized Aliens Prohibited

7.14.1 ENGINEER agrees to comply with Missouri Revised Statute section 285.530 in that they shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

7.14.2 As a condition for the award of this Agreement, ENGINEER shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. ENGINEER shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

7.14.3 ENGINEER shall require each subcontractor to affirmatively state in its contract with ENGINEER that the subcontractor shall not knowingly employ, hire for employment or continue to employ an unauthorized alien to perform work within the state of Missouri. ENGINEER shall also require each subcontractor to provide ENGINEER with a sworn affidavit under the penalty of perjury attesting to the fact that the subcontractor's employees are lawfully present in the United States.

7.15 No Waiver of Immunities

In no event shall the language of this Agreement constitute or be construed as a waiver or limitation for either Party's rights or defenses with regard to each Party's applicable sovereign, governmental, or official immunities and protections as provided by federal and state constitutions or laws.

7.16 Entire Agreement

This Agreement represents the entire and integrated Agreement between ENGINEER and CITY relative to the Scope of Services herein. All previous or contemporaneous agreements, representations, promises and conditions relating to ENGINEER's services described herein are superseded.

[SIGNATURES ON FOLLOWING PAGE]

CITY OF COLUMBIA, MISSOURI

By: _____
Mike Matthes, City Manager
Date: _____

ATTEST:

By: _____
Sheela Amin, City Clerk
Date: _____

APPROVED AS TO FORM:

By: _____
Nancy Thompson, City Counselor
Date: _____

CERTIFICATION: I hereby certify that the above expenditure is within the purpose of the appropriation to which it is charged, Account No. 550-7120-881.49-90, WT0234, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

By: _____
John Blattel, Director of Finance
Date: _____

CAROLLO ENGINEERS, INC.

By: John O. Crowley Senior Vice President
(Name/Title)
Date: 09/05/2015

ATTEST:

By: _____
(Name/Title)
Date: _____

NOTICE TO VENDORS
Section 285.525 – 285.550 RSMo Effective January 1, 2009

Effective January 1, 2009 and pursuant to RSMo 285.530 (1), No business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. [RSMO 285.530 (2)]

An employer may enroll and participate in a federal work authorization program and shall verify the employment eligibility of every employee in the employer's hire whose employment commences after the employer enrolls in a federal work authorization program. The employer shall retain a copy of the dated verification report received from the federal government. Any business entity that participates in such program shall have an affirmative defense that such business entity has not violated subsection 1 of this section. [RSMO 285.530 (4)]

For vendors that are not already enrolled and participating in a federal work authorization program, E-Verify is an example of this type of program. Information regarding E-Verify is available at:
http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm.

**CITY OF COLUMBIA, MISSOURI
WORK AUTHORIZATION AFFIDAVIT
PURSUANT TO 285.530 RSMo
(FOR ALL BIDS IN EXCESS OF \$5,000.00)**

Effective 1/1/2009

County of Jackson)
) ss.
State of Missouri)

My name is Thomas O. Crowley. I am an authorized agent of _____
Carollo Engines Inc. (Bidder). This business is enrolled and participates in a federal
work authorization program for all employees working in connection with services
provided to the City of Columbia. This business does not knowingly employ any person
who is an unauthorized alien in connection with the services being provided.

**Documentation of participation in a federal work authorization program is
attached to this affidavit.**

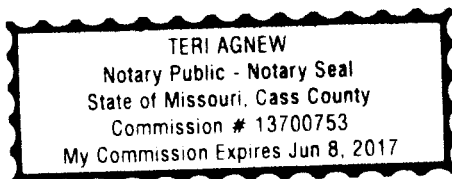
Furthermore, all subcontractors working on this contract shall affirmatively state
in writing in their contracts that they are not in violation of Section 285.530.1 RSMo and
shall not thereafter be in violation. Alternatively, a subcontractor may submit a sworn
affidavit under penalty of perjury that all employees are lawfully present in the United
States.

Thomas O. Crowley
Affiant

Thomas O. Crowley
Printed Name

Subscribed and sworn to before me this 5th day of September, 20 .

Teri Agnew
Notary Public



**Attachment A
Amendment No. 1
Scope of Basic Services
City of Columbia Water and Light Department
Water Treatment Residuals Best Professional Judgment Study**

DETAILED SCOPE:

TASK 1 - PROJECT MANAGEMENT/ PROJECT INCEPTION

1.1 Prepare Project Status Reports:

1.1.1. Monthly Progress Reports: CAROLLO/GEOSYNTEC will provide the City with monthly progress reports that identify what work has been performed during the month and an itemized listing of work that will be anticipated in the upcoming month. These reports will be delivered as part of the monthly progress payment request.

1.2 Agency Coordination:

It is estimated that the following meetings will be required with the Missouri Department of Natural Resources:

1.2.1 Review of Draft Antidegradation Sampling Plan: Following the desktop review of the available water quality data, lime discharge characterization data, the Missouri River flow data, and the preparation of a draft-sampling plan, Carollo/Geosyntec will submit the sampling plan to MDNR for review. Following this, Carollo/Geosyntec will conduct a review meeting with MDNR staff to make any final adjustments to the sampling plan.

1.2.2 Review of Draft Antidegradation Technical Memorandum: Following the submission of the Draft Antidegradation technical memorandum, the Carollo/Geosyntec team will conduct a review meeting with MDNR staff to review and discuss comments on the Draft Technical Memorandum.

1.2.3 Review of Draft Antidegradation Report: Following the submission of the Draft Antidegradation report, the Carollo/Geosyntec team will conduct a review meeting with MDNR staff to review and discuss comments on the Draft Antidegradation report.

1.2.4. Additional Meetings: The Carollo/Geosyntec team will prepare for and attend up to two additional meetings with regulatory agencies to discuss permitting or antidegradation issues and respond to comments.

1.3 Project Workshops:

CAROLLO/GEOSYNTEC will conduct project management meetings and workshops to inform the City of the progress of the study.

WS-1 - AntiDegradation Sampling Plan Review (GS)

WS-2: Draft Antidegradation Technical Memorandum: This will be conducted PRIOR TO submission of the Draft TM to the MDNR. (GS)

WS-3- Draft Antidegradation Report. This will be conducted PRIOR TO submission of the Draft TM to the MDNR.(GS)

1.4 Project Presentations

CAROLLO/GEOSYNTEC will develop and deliver presentation materials for the purpose of providing status report updates to Council, Board, and other agencies deemed appropriate by the City. It is anticipated that two such meetings/workshops will be required.

TASK 2 – Desktop Analysis: *(the following tasks were included with the Amendment No. 1 services and will be incorporated in the deliverables associated with Amendment No. 2)*

2.1 Data Needs Memorandum: The existing data needs memorandum will be supplemented to include requests for information pertaining to the anticipated nature and quantity ranges of the Columbia Wastewater Treatment Plant (WWTP) Effluent flow. This will only be necessary as it pertains to the following:

- Establishing the potential limits of the mixing zone for the WWTP effluent
- Establishing the range of dilution factors prior to discharge for Co discharge of residuals stream and WWTP effluent.

2.2. Classify Nature of the Discharge (COMPLETED in Amendment No. 1)

2.3. Establish Potential Locations for Discharge Near the Missouri River: Using GIS and LIDAR data, CAROLLO/GEOSYNTEC will create a base map of the land adjacent to the Missouri River near the McBaine Water Treatment plant. Using the base map, CAROLLO/GEOSYNTEC will establish the most likely locations for the points of discharge to the Missouri River. This will be done for the following discharge cases:

- Independent discharge of WTP residuals and WWTP Effluent
- Comingled discharge of WTP residuals and WWTP Effluent (adjacent diffusers only)

2.4. Characterize the Missouri River Near the Proposed Discharge Location.

1.4.1. General Description of the Missouri River in the location of the potential discharge.

1.4.2. Summarize available data on the mid-Missouri river including daily flow records, water quality, sediment samples, USACE environmental impact statements, US fish and wildlife and USGS report on aquatic habitat and diversity, and previous national and regional studies on the impacts of softening water treatment plant residuals on the Missouri River.

1.4.3. Bank Stabilization and Channel Maintenance in the location of the potential discharges

1.4.4. Average and Low Rates of the Missouri River:
CAROLLO/GEOSYNTEC will compile and review relevant flow data from the receiving stream (Missouri River) and calculate appropriate regulatory mixing zone flows needed to conduct modeling and derive potential effluent limits for the discharge.

2.5. Review of Lime Discharge Literature

Carollo/Geosyntec will conduct a brief review of scientific literature and regulatory documents pertaining to lime residual discharges. This review will be used to assess potential impacts and help refine potential effluent limits. For example, the literature review results may be utilized to identify potential narrative benchmarks to guide limit development.

TASK 3 - PREPARE ANTIDegradation TECHNICAL MEMORANDUM

3.1 Develop Sampling Plan

CAROLLO/GEOSYNTEC will develop a sampling plan to guide data collection and mixing zone modeling efforts. The sampling plan is **not intended** to provide the level of detail required in a quality assurance project plan (QAPP) outlined in EPA guidance (EPA QA/R-5). Should the team or MDNR indicate that a QAPP is required, a contract amendment will be provided. Specific data needs depend on the results of the potential discharge locations, but the sampling plan will address water chemistry, river geomorphology, and laboratory bench testing necessary to complete model development and effluent limit calculations for the following scenarios:

- Direct discharge of residuals to the Missouri River (two potential locations).
- Adjacent Diffusers for Residuals and WWTP effluent discharge. (two potential locations)

The sampling plan **WILL NOT** be designed to establish the requirements of the WWTP discharge but merely establish the estimated limits of the mixing zone for the comingled streams and, if necessary establish the limits of the

mixing zones to maintain separation of the effluent streams for permitting and compliance sampling purposes.

A draft sampling plan will be developed and discussed in a meeting with the project team. This task includes time to modify the plan to address comments identified in the meeting, if necessary. This task also assumes coordination and attendance of one meeting with MDNR to discuss comments on the sampling plan. Following the meeting with MDNR, Carollo/Geosyntec will revise the plan to address any outstanding questions.

3.2. Collect and Analyze Field Data

Following MDNR's approval of the sampling plan, Carollo/Geosyntec proposes to conduct a one-day field survey to collect hydrogeometry (and water quality, if necessary) data on the Missouri River in the vicinity of the proposed discharges. Data will be used to support application of the Cornell Mixing Zone Expert System (CORMIX) model. Should MDNR or the team determine that a more comprehensive model, such as a computational fluid dynamics simulation, is necessary, a contract amendment will be provided. This task assumes the evaluation of the following discharge locations:

- Two potential discharge locations for lime residuals discharge
- Two potential discharge locations for co-mingled discharge.

The scope of work does not include costs to ship or analyze the samples it is assumed that the City will pay for these expenses. It is assumed that the city will collect all samples of the WWTP effluent and WTP residuals required to inform the modeling efforts.

3.3 Develop potential Discharge Diffuser Designs: The Carollo/Geosyntec team will contact the Kansas City Section of the Corps of Engineers to determine the potential approved locations for permitting a river diffuser in the potential discharge locations and develop preliminary designs for the following diffusers in each of the locations.

- Multiple Port Discharge for Residuals
- Multiple Port Diffuser designs for comingling of WWTP and Residuals streams

3.4 Develop Model and Evaluate Potential Permit Limits

Geosyntec will develop a partially calibrated CORMIX model for the outfall locations using data collected from the review of water quality information, lime residuals discharge information, River flow data, and field sampling data.

This task includes effort to model up to two discharge alternatives (multi-port discharge, alternative design flows, etc.) for each outfall locations.. The modeling analysis will be used to calculate effluent dilutions at regulatory compliance boundaries under critical, low-flow conditions.

Final dilution estimates will be used to develop potential permit limits for the WTP. For parameters without existing water quality criteria (color, TSS), this analysis will be guided by the benchmarks developed in Task 2.9.

3.5 Develop Draft and Final Technical Memorandum

Carollo/Geosyntec will prepare a brief memorandum, which presents the results of the field sampling and modeling and outlines the most appropriate permitting approach for the discharge.

A draft memo will be developed and discussed in a meeting with the project team. This task includes time to modify the memo to address comments identified in the meeting, if necessary.

This task also assumes coordination and attendance of one meeting with MDNR to gain regulatory buy-in regarding the discharge location and integration/non-integration of discharge diffusers, and too build consensus on the permitting pathway going forward.

TASK 4 Prepare Antidegradation Review Report and Integrate into BPJ Analysis

This task will only be authorized if the initial meetings with MDNR indicate a strong potential for the project to continue moving forward.

4.1 Review Anti-backsliding Provisions of MDNR/EPA Regulations:

Carollo/Geosyntec will review the existing WTP permits, current MDNR/EPA Anti-backsliding provisions, and provide language within the antidegradation review report to address the applicability to the proposed discharge associated with the WQAR.

4.2 Prepare Draft and Final Anti-degradation Review/BPJ Report:

If MDNR agrees to an acceptable regulatory and permitting pathway following the review of the Technical Memorandum. Carollo/Geosyntec will prepare a draft Water Quality Antidegradation Review (WQAR) report for the discharge location.

The draft WQAR report will provide information for modeling results, recommended effluent limits, and anti-degradation worksheets and analyses associated with the potential discharge locations.. Following submission the Carollo/Geosyntec project team will conduct a meeting to review comments and discuss integrations with the draft BPJ report. The task assumes one revision of the draft report to address the City's comments.

Following this meeting, Carollo/Geosyntec will integrate the WQAR report into the draft BPJ report and submit to the MDNR for review and comment. Following submission, the Carollo/Geosyntec team will work with the City and MDNR to facilitate the resolution of comments and answer questions with the objective of obtaining an MDNR-approved WQAR and BPJ document.

This task assumes one revision of the draft report to address MDNR comments and one meeting to review and discuss MDNR comments and responses.

Time of Completion -

It is anticipated that the project will be conducted with the following milestones:

Milestone	Duration	Weeks Following NTP
Notice to Proceed	0	0
Submit Draft Sampling Plan	8	8
Columbia Review of Draft Sampling Plan	2	10
Submit Final Sampling Plan to MDNR	2	12
MDNR approval of Sampling Plan	4	16
Conduct Sampling & Modeling	24	40
Prepare Draft TM	8	48
Columbia Review of Draft TM	2	50
Prepare Final TM	2	52
MDNR Review of Final TM	4	56
Preparation of Draft WQAR Report and BPJ Study*	12	68*
MDNR REview of Draft Report	4	72*
Preparation of Final WQAR Report and BPJ Study	4	72*

* Subject to MDNR Approval of Final TM

Compensation

The aggregate total compensation for all Carollo/Geosyntec services under this Contract shall not exceed a total fee of \$95,973 based upon the following task breakdowns:

Task Description	Fee	Hours(est)
Task 1 – Project Management/Project Inception:		
Subtask 1.1 Project Status Reports	\$4,140	18
Subtask 1.2 Agency Coordination	\$19,527	110
Subtask 1.3 Project Workshops	\$8,650	46
Subtask 1.4 Project Presentations	\$1,500	8
Task 2 – Desktop Analysis		
Subtask 2.1 Supplement Data Needs Memo	\$0	
Subtask 2.2 Classify Nature of Discharge	\$0	
Subtask 2.3 Establish Potential Locations	\$3,500	20
Subtask 2.4 Characterize Mo River	\$9,000	55
Subtask 2.5 Characterize Environmental	\$0	
Subtask 2.6 Establish Residuals Disposal Alt	\$0	
Subtask 2.7 Evaluate Residuals Disposal Alt	\$0	
Subtask 2.8 Not Used		
Subtask 2.9 Not Used		
Subtask 2.10 Review of Lime Discharge Literature	\$0	
Task 3 – Prepare Antidegradation TM		
Subtask 3.1 Develop Sampling Plan	\$3,700	25
Subtask 3.2 Collect And Analyze Field Data	\$7,350	50
Subtask 3.3 Develop Potential Discharge Designs	\$6,300	35
Subtask 3.4 Develop Model and Evaluate Limits	\$36,500	200
Subtask 3.5 Develop Draft and Final TM	\$10,626	65
Task 4- Prepare Antideg Report and BPJ		
Subtask 4.1 Antibacksliding	\$7,350	18
Subtask 4.2 Prepare Draft and Final BPJ	\$24,500	145
SUBTOTAL	\$138,953	800
Deduct Unused Amount TO #1	\$43,000	
TOTAL Amendment	\$95,973	

**Attachment B
Fee Schedule as of September 1, 2015
Engineering Services**

**City of Columbia Water and Light Department
Water Treatment Residuals Best Professional Judgment Study**

<u>Category</u>	<u>Hourly Rate</u>
Engineers/Scientists	
Engineer II	\$135.00
Engineer III	\$158.00
Engineer IV	\$173.00
Engineer V	\$185.00
Project Manager	\$235.00
Senior Professional/Technical Advisor	\$260.00
Quality Assurance/Quality Control	\$235.00
<u>Technicians</u>	
Technician I	\$110.00
Technician II	\$125.00
Senior Technician	\$145.00
<u>Support Staff</u>	
Word Processing	\$95.00
Clerical	\$105.00
Project Equipment and Communication Expenses (PECE) Charge Per Direct Labor Hour	
	\$12.30
Other Direct Expenses	
Travel and Subsistence	at Cost
Mileage Charge Per Mile	\$0.575
Subconsultant	Cost +10%
Other Direct Costs	at Cost
Expert Witness	Rate x 2.0

This fee schedule is revised in March and September of every year. Invoice for each month will be prepared based on the fee schedule in effect during the month.