

SERVICES AGREEMENT

CALGON CARBON CORPORATION

Granular-Activated Carbon Removal and Replacement at the Palmyrita Water Treatment Facility (Bid No. 8193)

On this ____ day of _____, 20__, the CITY OF RIVERSIDE, a California charter city and municipal corporation (“City”), and CALGON CARBON CORPORATION, a Delaware corporation authorized to do business in California (“Contractor”), mutually agree as follows:

1. **Scope of Services.** Contractor shall furnish all labor, materials and equipment for and perform the work of Granular-Activated Carbon Removal and Replacement at the Palmyrita Water Treatment Facility (Bid No. 8193) (“Services”). Contractor shall perform the Services in accordance with the provisions and requirements of the Scope of Services attached hereto as Exhibit “A” and incorporated herein by reference.

2. **Term.** This Agreement shall be in effect from January 1, 2026, through December 31, 2028, unless otherwise terminated pursuant to the provisions herein.

3. **Compensation.** City shall pay Contractor for the performance of the Services during the initial term of this Agreement a Contract Price not to exceed One Million Eight Hundred Thirty-Six Thousand Two Hundred Seventy Dollars (\$1,836,270.00), unless an increase is agreed to by the parties. City shall pay Contractor for Services performed to City’s satisfaction on a monthly basis in accordance with the provisions of the Compensation Schedule attached hereto as Exhibit “B” and incorporated herein by this reference. If the term of the Agreement is extended, Contractor’s compensation for the extended term shall be mutually agreed upon in writing by the parties.

4. **General Compliance with Laws.** Contractor shall keep fully informed of federal, state and local laws and ordinances and regulations which in any manner affect those employed by Contractor, or in any way affect the performance of Services by Contractor pursuant to this Agreement. Contractor shall at all times observe and comply with all such laws, ordinances and regulations, and shall be solely responsible for any failure to comply with all applicable laws, ordinances and regulations.

5. **Business Tax Certificate.** As a condition of this Agreement, Contractor shall secure a business tax certificate to operate in the City of Riverside pursuant to Chapter 5.04 of the Riverside Municipal Code, and shall also secure any other licenses or permits which may be required.

6. **Business Tax and Penalties.** Contractor acknowledges and agrees that with respect to any business tax or penalties thereon, utility charges, invoiced fee or other debt which is owed, or which becomes owed, by Contractor to City, City reserves the right to withhold and offset said amounts from any payments, refunds or reimbursements owed by City to Contractor under the

Agreement. Notice of such withholding and offset shall promptly be given to Contractor by City in writing. In the event of a dispute as to the amount owed or whether such amount is owed to City, City will hold such disputed amount until either the appropriate appeal process has been completed or until the dispute has been resolved.

7. **Personnel.** Contractor shall furnish all personnel necessary to perform the Services and shall be responsible for their performance and compensation. The key personnel are listed in Exhibit "C," attached hereto and incorporated herein by reference. Contractor shall furnish qualified personnel to perform the Services.

8. **Assignment and Subcontracting.** Neither party shall assign any right, interest, or obligation in or under this Agreement to any other entity without prior written consent of the other party. In any event, no assignment shall be made unless the assignee expressly assumes the obligations of assignor under this Agreement, in a writing satisfactory to the parties. Contractor acknowledges that any assignment may, at the City's sole discretion, require City Manager and/or City Council approval. Contractor shall not subcontract any portion of the work required by this Agreement without prior written approval by the responsible City Contract Administrator. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement, including without limitation, the insurance obligations set forth in Section 11. The Contractor acknowledges and agrees that the City is an intended beneficiary of any work performed by any subcontractor for purposes of establishing a duty of care between any subcontractor and the City.

9. **Independent Contractor.** In the performance of this Agreement, Contractor, and Contractor's employees, subcontractors and agents, shall act in an independent capacity as independent contractors, and not as officers or employees of the City of Riverside. Contractor acknowledges and agrees that the City has no obligation to pay or withhold state or federal taxes or to provide workers' compensation or unemployment insurance to Contractor, or to Contractor's employees, subcontractors and agents. Contractor, as an independent contractor, shall be responsible for any and all taxes that apply to Contractor as an employer.

10. **Indemnification.** Except as to the sole negligence or willful misconduct of the City, Contractor shall indemnify and hold harmless the City, and the City's employees, officers, managers, agents and council members from any liability, claim, damage or action whatsoever, to the extent it is based or asserted upon any wrongful act or omission of Contractor, its officers, employees, subcontractors, agents or representatives, or arises out of or in any way relates to this agreement including but not limited to property damage, bodily injury, or death. Contractor shall defend, at its sole cost and expense, including but not limited to attorney fees, cost of investigation, defense and settlement or awards, the City and the City's employees, officers, managers, agents and council members in any such action or claim. With respect to any action or claim subject to indemnification herein by Contractor, Contractor shall, at its sole cost, have the right to use counsel of its own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of City; provided, however, that any such adjustment, settlement or compromise in no manner whatsoever limits or circumscribes Contractor's indemnification of City. Contractor's obligations hereunder shall be satisfied when Contractor has provided to City the appropriate form of dismissal (or similar document) relieving the City from any liability for the action or claim

involved. The specified insurance limits required in this Agreement shall in no way limit or circumscribe Contractor's obligations to indemnify and hold harmless the City.

11. Insurance.

11.1 General Provisions. Prior to the City's execution of this Agreement, Contractor shall provide satisfactory evidence of, and shall thereafter maintain during the term of this Agreement, such insurance policies and coverages in the types, limits, forms and ratings required herein. The rating and required insurance policies and coverages may be modified in writing by the City's Risk Manager or City Attorney, or a designee, unless such modification is prohibited by law.

11.1.1 Limitations. These minimum amounts of coverage shall not constitute any limitation or cap on Contractor's indemnification obligations under Section 10 hereof.

11.1.2 Ratings. Any insurance policy or coverage provided by Contractor or subcontractors as required by this Agreement shall be deemed inadequate and a material breach of this Agreement, unless such policy or coverage is issued by insurance companies authorized to transact insurance business in the State of California with a policy holder's rating of A or higher and a Financial Class of VII or higher.

11.1.3 Cancellation. The policies shall not be canceled unless thirty (30) days' prior written notification of intended cancellation has been given to City by certified or registered mail, postage prepaid.

11.1.4 Adequacy. The City, its officers, employees and agents make no representation that the types or limits of insurance specified to be carried by Contractor pursuant to this Agreement are adequate to protect Contractor. If Contractor believes that any required insurance coverage is inadequate, Contractor will obtain such additional insurance coverage as Contractor deems adequate, at Contractor's sole expense.

11.2 Workers' Compensation Insurance. By executing this Agreement, Contractor certifies that Contractor is aware of and will comply with Section 3700 of the Labor Code of the State of California requiring every employer to be insured against liability for workers' compensation, or to undertake self-insurance before commencing any of the work. Contractor shall carry the insurance or provide for self-insurance required by California law to protect said Contractor from claims under the Workers' Compensation Act. Prior to City's execution of this Agreement, Contractor shall file with City either 1) a certificate of insurance showing that such insurance is in effect, or that Contractor is self-insured for such coverage, or 2) a certified statement that Contractor has no employees, and acknowledging that if Contractor does employ any person, the necessary certificate of insurance will immediately be filed with City. Any certificate filed with City shall provide that City will be given ten (10) days' prior written notice before modification or cancellation thereof.

11.3 Commercial General Liability and Automobile Insurance. Prior to City's execution of this Agreement, Contractor shall obtain, and shall thereafter maintain during the term of this Agreement, commercial general liability insurance and automobile liability insurance as

required to insure Contractor against damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from or which may concern operations by anyone directly or indirectly employed by, connected with, or acting for or on behalf of Contractor. The City, and its officers, employees and agents, shall be named as additional insureds under the Contractor's insurance policies.

11.3.1 Contractor's commercial general liability insurance policy shall cover both bodily injury (including death) and property damage (including, but not limited to, premises operations liability, products-completed operations liability, independent contractor's liability, personal injury liability, and contractual liability) in an amount not less than \$1,000,000 per occurrence and a general aggregate limit in the amount of not less than \$2,000,000.

11.3.2 Contractor's automobile liability policy shall cover both bodily injury and property damage in an amount not less than \$1,000,000 per occurrence and an aggregate limit of not less than \$1,000,000. All of Contractor's automobile and/or commercial general liability insurance policies shall cover all vehicles used in connection with Contractor's performance of this Agreement, which vehicles shall include, but are not limited to, Contractor owned vehicles, Contractor leased vehicles, Contractor's employee vehicles, non-Contractor owned vehicles and hired vehicles.

11.3.3 Prior to City's execution of this Agreement, copies of insurance policies or original certificates along with additional insured endorsements acceptable to the City evidencing the coverage required by this Agreement, for both commercial general and automobile liability insurance, shall be filed with City and shall include the City and its officers, employees and agents, as additional insureds. Said policies shall be in the usual form of commercial general and automobile liability insurance policies, but shall include the following provisions:

It is agreed that the City of Riverside, and its officers, employees and agents, are added as additional insureds under this policy, solely for work done by and on behalf of the named insured for the City of Riverside.

11.3.4 The insurance policy or policies shall also comply with the following provisions:

a. If the policy is written on a claims made basis, the certificate should so specify and the policy must continue in force for one year after completion of the services. The retroactive date of coverage must also be listed.

b. The policy shall specify that the insurance provided by Contractor will be considered primary and not contributory to any other insurance available to the City and Endorsement No. CG 20010413 shall be provided to the City.

12. **Termination.** City shall have the right to terminate any or all of Contractor's Services and work covered by this Agreement at any time upon thirty (30) calendar days' written notice to Contractor. In the event of such termination, Contractor shall submit Contractor's final written statement of the amount of services provided as of the date of such termination for payment by the City.

Notwithstanding the foregoing, the City may terminate Contractor's performance of this Agreement upon five (5) calendar days' written notice if:

- (1) Contractor fails to promptly begin performance of the Services;
- (2) Contractor fails to perform the Services;
- (3) Contractor discontinues performance of the Services;
- (4) Contractor fails to make payment to employees in accordance with applicable law;
- (5) Contractor disregards laws, ordinances, or rules, regulations, or orders of a public authority having jurisdiction;
- (6) Contractor otherwise is guilty of breach of a provision of this Agreement;
- (7) Contractor becomes insolvent, is adjudicated bankrupt, or makes a general assignment for the benefit of creditors and fails to provide City with adequate assurances of Contractor's ability to satisfy its contractual obligations.
- (8) A receiver, trustee, or other judicial officer shall not have any right, title, or interest in or to this Agreement. Upon that person's appointment, City has, at its option and sole discretion, the right to immediately cancel the Agreement and declare it null and void.

13. **Non-Discrimination.** During Contractor's performance of this Agreement, Contractor shall not discriminate on the grounds of race, religious creed, color, national origin, ancestry, age, physical disability, mental disability, medical condition including the medical condition of Acquired Immune Deficiency Syndrome (AIDS) or any condition related thereto, marital status, gender, gender identity, genetic information, gender expression, sex or sexual orientation, military and veteran status, in the selection and retention of employees and subcontractors and the procurement of materials and equipment, except as provided in Section 12940 of the California Government Code. Further, Contractor agrees to conform to the requirements of the Americans with Disabilities Act in the performance of this Agreement.

14. **City's Right to Employ Other Consultants/Contractors.** City reserves the right to employ other Contractors in connection with the Services. If the City is required to employ another contractor to complete Contractor's work, due to the failure of the Contractor to perform,

or due to the breach of any of the provisions of this Agreement, the City reserves the right to seek reimbursement from Contractor.

15. **Conflict of Interest.** Contractor, for itself and on behalf of the individuals listed in Exhibit “C”, represents and warrants that by the execution of this Agreement, they have no interest, present or contemplated, affected by the above-described Services. Contractor further warrants that neither Contractor, nor the individuals listed in Exhibit “C” have any real property, business interests or income interests that will be affected by this project or, alternatively, that Contractor will file with the City an affidavit disclosing any such interest.

16. **Solicitation.** Contractor warrants that Contractor has not employed or retained any person or agency to solicit or secure this Agreement, nor has it entered into any agreement or understanding for a commission, percentage, brokerage, or contingent fee to be paid to secure this Agreement. For breach of this warranty, City shall have the right to terminate this Agreement without liability and pay Contractor only for the value of work Contractor has actually performed, or, in its sole discretion, to deduct from the Agreement price or otherwise recover from Contractor the full amount of such commission, percentage, brokerage or commission fee. The remedies specified in this section shall be in addition to and not in lieu of those remedies otherwise specified in this Agreement.

17. **Prevailing Wage.** If applicable, pursuant to Section 1771 of the California Labor Code, Contractors are required to pay the general prevailing rates of per diem wages, overtime and holiday wages as determined by the Director of the Department of Industrial Relations and implemented by Resolution No. 13346 of the City Council of the City of Riverside. The Director’s determination of prevailing wage rates is available on-line at www.dir.ca.gov/dlsr/DPreWageDetermination.htm, and is referred to and made a part hereof as though fully set forth herein. Contractor is aware of and stipulates that Contractor will also comply with California Labor Code Sections 1725.5 and 1771.1 requiring all general contractors and subcontractors to be registered with DIR, when applicable. Registration can be accomplished through the DIR website by using this link: <http://www.dir.ca.gov/PublicWorks/PublicWorks.html>.

18. **Notices.** Service of any notices, bills, invoices or other documents required or permitted under this Agreement shall be sufficient if sent by one party to the other by United States mail, postage prepaid and addressed as follows:

To City

Riverside Public Utilities
City of Riverside
Attn: Mike Roberts
3750 University Avenue
Riverside, CA 92501

To Contractor

Calgon Carbon Corporation
Attn: Jeremy Jones
3000 GSK Drive
Moon Township, PA 15108

19. **Venue.** Any action at law or in equity brought by either of the parties hereto for the purpose of enforcing a right or rights provided for by this Agreement shall be tried in the

Superior Court of California, County of Riverside and the parties hereby waive all provisions of law providing for a change of venue in such proceedings to any other county.

20. **Waiver.** No action or failure to act by the City shall constitute a waiver of any right or duty afforded City under this Agreement, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically provided in this Agreement or as may be agreed in writing.

21. **Severability.** Each provision, term, condition, covenant and/or restriction, in whole and in part, in this Agreement shall be considered severable. In the event any provision, term, condition, covenant and/or restriction, in whole and/or in part, in this Agreement is declared invalid, unconstitutional, or void for any reason, such provision or part thereof shall be severed from this Agreement and shall not affect any other provision, term, condition, covenant and/or restriction of this Agreement and the remainder of the Agreement shall continue in full force and effect.

22. **Amendments.** This Agreement may be modified or amended only by a written agreement and/or change order executed by the Contractor and City.

23. **Authority.** The individuals executing this Agreement and the instruments referenced herein on behalf of Contractor each represent and warrant that they have the legal power, right and actual authority to bind Contractor to the terms and conditions hereof and thereof.

24. **Entire Agreement.** This Agreement constitutes the final, complete, and exclusive statement of the terms of the agreement between the parties pertaining to the subject matter of this Agreement, and supersedes all prior and contemporaneous understandings or agreements of the parties. Neither party has been induced to enter into this Agreement by, and neither party is relying on, any representation or warranty outside those expressly set forth in this Agreement.

25. **Digital and Counterpart Signatures.** Each party to this Agreement intends and agrees to the use of digital signatures that meet the requirements of the California Uniform Electronic Transactions Act (Civil Code §§ 1633.1, et seq.), California Government Code § 16.5, and California Code of Regulations Title 2 Division 7 Chapter 10, to execute this Agreement. The parties further agree that the digital signatures of the parties included in this Agreement are intended to authenticate this writing and to have the same force and effect as manual signatures for purposes of validity, enforceability, and admissibility. For purposes of this section, a “digital signature” is defined in subdivision (d) of Section 16.5 of the Government Code and is a type of “electronic signature” as defined in subdivision (h) of Section 1633.2 of the Civil Code. This Agreement may be executed in any number of counterparts, each of which will be an original, but all of which together will constitute one instrument. Each certified or authenticated electronic copy of an encrypted digital signature shall be deemed a duplicate original, constituting one and the same instrument and shall be binding on the parties hereto.

26. **Interpretation.** City and Contractor acknowledge and agree that this Agreement is the product of mutual arms-length negotiations and accordingly, the rule of construction, which

provides that the ambiguities in a document shall be construed against the drafter of that document, shall have no application to the interpretation and enforcement of this Agreement.

26.1 Titles and captions are for convenience of reference only and do not define, describe or limit the scope or the intent of the Agreement or any of its terms. Reference to section numbers, are to sections in the Agreement unless expressly stated otherwise.

26.2 This Agreement shall be governed by and construed in accordance with the laws of the State of California in effect at the time of the execution of this Agreement.

26.3 In the event of a conflict between the body of this Agreement and Exhibit “A” - Scope of Services hereto, the terms contained in Exhibit “A” shall be controlling.

27. **Exhibits.** The following exhibits attached hereto are incorporated herein to this Agreement by this reference:

Exhibit “A” - Scope of Services

Exhibit “B” - Compensation

Exhibit “C” - Key Personnel

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed the day and year first above written.

CITY OF RIVERSIDE,
a California charter city and municipal
corporation

CALGON CARBON CORPORATION,
a Delaware corporation authorized to do
business in California

By: _____
City Manager

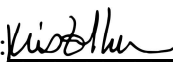
By:  _____
Print Name: Jeremy J. Jones
Title: DWS Project Manager

Attest: _____
City Clerk

and

Certified as to Availability of Funds:

By:  _____
Print Name: Patrick Madl
Title: DWS Project Manager

By:  _____
Chief Financial Officer

Approved as to Form:

By:  _____
Assistant City Attorney

EXHIBIT “A”

SCOPE OF SERVICES

SECTION 1100 - GENERAL

1100-1 SCOPE OF WORK.

This section covers the furnishing and installation requirements for the granular activated carbon (GAC) for 20,000 lb. GAC vessels. The GAC will be used to remove 1,2-dibromo-3-chloropropane (DBCP) and other various volatile organic compounds (VOCs) detected in potable water supply wells. Each change-out shall include an inspection of the GAC vessel and a chlorine disinfection of the vessel before installation of new GAC. Each installation may include a caustic wash treatment if bacteriological testing of the installation results in a failure.

The GAC to be supplied and installed shall be suitable for use as an adsorptive media in a potable water treatment plant and be effective in the removal of DBCP and other VOCs associated with contaminated groundwater supplies. The carbon shall be virgin or custom reactivated, durable GAC free of pathogenic material, capable of being used as specified below.

1100-2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS.

All work specified herein shall conform to or exceed the requirements of the applicable sections of the following documents to the extent that the requirements therein are not in conflict with the provisions of this section. Where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such code or ordinance shall take precedence.

The provisions of AWWA B604, NSF 61, ASTM (latest editions) shall also apply as herein specified.

1100-3 SITE CONDITIONS.

The GAC system at Palmyrita Water Treatment Facility consists of seven (7) sets of two parallel pressure vessels and one single vessel (fifteen total) each containing 20,000 pounds of GAC. Each pressure vessel is a down flow-type ASME code steel adsorber with an underdrain system. Raw groundwater conveyed to the GAC system enters the top of a vessel, flows over the GAC where DBCP is removed. A collector system collects the treated water and retains the GAC media in the bed. The treated water is discharged from the GAC system through the effluent piping. A GAC backwash system allows backwashing of each pressure vessel.

SECTION 1101 – MATERIALS

1101-1 GENERAL.

The granular activated carbon supplier(s) shall have the ability to supply, deliver, load, and unload the activated carbon using equipment dedicated to food grade materials. All GAC shall be supplied by a single supplier.

Granular activated carbon for use as an adsorption media in the treatment of VOCs for municipal water supplies shall conform to the requirements of most recent edition of AWWA B-604. The GAC shall conform to NSF 61 standard. The activated carbon shall have the minimum standards and performance criteria regarding material specifications and physical properties. These performance criteria shall be evaluated based on representative samples of the proposed material which are submitted to the Engineer, lab reports and the Engineer's onsite tests of the delivered material. Failure of samples to meet the performance criteria shall result in rejection of the activated carbon and, in the case of jobsite samples, in the removal and replacement of any installed materials, at no cost to the Owner.

1101-2 SUBMITTALS.

Detailed specifications and material quality and testing results shall be approved prior to final acceptance of the activated carbon. Complete manufacturer's descriptive data and specifications for the granular activated carbon shall be submitted for review prior to shipment, in accordance with Part 1, Section 2. All manufacturer's tests report shall include the following information for each type of carbon supplied.

1. Manufacturer's name.
2. Material source and manufacturer plant location.
3. Date of sampling.
4. Lot or stockpile.
5. The activated carbon test results for the required specifications and physical properties.

The supplier shall provide an affidavit of compliance stating that the activated carbon furnished complies with the applicable provisions of AWWA B-604 and these specifications.

1101 GRANULATED ACTIVATED CARBON.

1101-3.1 General.

The GAC shall be virgin, granular, and manufactured from bituminous coal based reagglomerated activated combined with suitable binders as required. Custom reactivated carbon should be used thereafter. Custom reactivated carbon must be processed and stored separate from other reactivated GAC and may only be returned to the same treatment facility within RPU per SWRCB-DDW permit regulations. The reactivation facility(ies) shall be NSF certified reactivation facilities producing NSF/ANSI 61 certified products. The material shall be visually free of clay, dirt and deleterious material and shall be free of pathogenic contamination as measured by coliform tests

of GAC filtrate. Lignite, peat or wood-based granular activated carbon media are not acceptable for this application.

1101-3.2 Properties.

The granulated activated carbon to be furnished shall meet the following specifications and physical properties:

Parameter	Spec	Standard
Iodine Number (mg/g), min.	1000	ASTM D4607
Moisture, weight %, max.	2	ASTM D2867
Effective size, mm	0.55 – 0.75	ASTM D2862
Uniformity Coefficient, max.	1.9	ASTM D2862
Abrasion No., min.	75	AWWA B604
Trace Capacity Number, (mg/cc), min.	10	TM-79, TM-85 (converted to TCN)
Screen Size (US Sieve), weight %		
* Larger than No. 12, max.	5	ASTM D2862
* Smaller than No. 40, max.	4	ASTM D2862
Ash, Max.	10%	ASTM D2866
Typical Property	Value	
Apparent Density, g/cc, min.	0.54	ASTM D2854
Water Extractables	<1%	AWWA B604
Non-Wettable	<1%	AWWA B604

In addition to these standards, the GAC shall satisfy the requirements of the Food Chemicals Codex and NSF 61. The GAC may be of either domestic or international origin.

All tests required shall be performed by an independent, State-certified testing laboratory approved by the Owner prior to performance of the initial test(s).

A minimum of three (3) weeks prior to the first anticipated delivery, the Contractor shall submit a 10-pound representative sample of each of the granular activated carbon to be used for this project. Samples shall be packaged in clean, waterproof, vapor proof containers that are identified as to the contents. A duplicate sample shall be tested by the manufacturer and a certified test report shall be submitted to the Owner along with the 10- pound sample. The manufacturer's test report shall indicate compliance with the specification requirements, along with a statement certifying that the material for shipment will be manufactured from comparable raw materials via the same manufacturing process as the sample submitted for testing. All tests shall be conducted in accordance with the standards and procedures indicated herein.

The Owner may authorize delivery on the basis of the manufacturer's test results and the certification of quality. The Owner may also test the reference sample(s) submitted to confirm compliance before delivery is authorized. Authorization to deliver material will not constitute acceptance of the activated carbon(s).

The Owner will accept or reject the granular activated carbon(s) delivered to the work site based on tests performed by the Owner on representative samples of the delivered material. After receipt of shipment, samples for testing will be collected in accordance with the procedures outlined in AWWA B604, 3.1. Material delivered to the work site will be subjected to a minimum of three (3) tests (for each) by the Owner prior to acceptance. Samples shall be stored in airtight, sealed glass containers after thorough mixing.

If the test of the material received at the work site using the first sealed sample reveals that it does not comply with the specifications, the Owner shall so notify the Contractor within twelve (12) calendar days after receipt of shipment. The results of the Owner's test shall prevail unless the Contractor notifies the Owner within five (5) working days of the notice that it desires a retest, which shall be completed within ten (10) calendar days. In the event that the results obtained by the Contractor, upon re-testing, using the second sealed sample, do not agree with the results obtained by the Owner, the third sealed sample shall be forwarded, unopened, to a laboratory agreed upon by both parties for analysis. The results of this third analysis shall be accepted as final.

The cost of the third analysis shall be paid for by the Contractor if the analysis shows that the material does not meet specifications and by the Owner if it does meet specifications.

If the material does not meet all of the requirements of the specifications, the material will be rejected and shall be removed and replaced with acceptable material at no cost to the Owner.

SECTION 1102 – EXECUTION

1102-1 PACKING AND SHIPPING

Shipment of GAC material shall be bulk truck shipments. Shipments of GAC in bulk shall be in clean trucks with tight closures to avoid loss and contamination of material in transit. Shipments in open-top trucks will not be acceptable. The type of truck shall be approved by the Engineer prior to shipment.

Shipments shall be accompanied by weight certificates of certified weighers. An independent certified weigher shall be used by the Contractor, at his/her own expense, for each shipment. The weighing procedures and the independent certified weigher to be used shall be submitted to the Owner for approval.

All shipments of GAC shall include certification that the trucks and GAC material are free of organic, radioactive, or any other contaminants. The batch of GAC delivered shall be accompanied with a Certificate of Analysis.

The Contractor shall provide 48-hour notification prior to delivery. Weight tickets shall be provided at the time of delivery. The GAC shall be delivered after 8:00 a.m., Monday through Friday, holidays excepted and shall be delivered early enough to permit the change-out of two vessels by 3:30 p.m.

1102-2 UNLOAD SPENT GAC AND INSPECTION

Spent GAC shall be transferred into DOT containers and be transported to a reactivation facility. The spent carbon shall be processed and a certificate of reactivation is issued for the batch of carbon. The certificate of reactivation shall be submitted with the invoice for payment of carbon removal. No payment will be processed for "Removal and disposal of spent carbon" without the certificate of reactivation.

Inspection of each GAC vessel shall be performed after unloading spent GAC. Contractor shall provide the services of qualified technical representative to inspect the internal of the GAC vessel. At minimum, exterior, internal upper chamber, internal lower chamber of the vessel and the vessel laterals, valves, seals, and coating shall be inspected for corrosion, wear, and leaks. The instrumentation on the vessel shall be inspected for proper operation. Conditions of the vessel shall be documented a report to be submitted to the Engineer. The report shall contain the professional evaluation and recommended resolution. Owner has the option to perform the repairs at extra cost. At such time, the loading of GAC will be suspended until repairs are completed. Owner shall not incur any extra cost for the delay.

At the closing of the vessel, gaskets and other minor maintenance parts shall be replaced as needed with a new one. Owner will provide the parts. Contractor will installed at no extra cost.

1102-3 INSTALLATION AND DISINFECTION BY CONTRACTOR.

Unless the requirement is waived by the Owner, in writing, the activated carbon manufacturer(s) shall provide the services of qualified technical representatives as necessary to review all procedures required for disinfecting a GAC vessel and placement of the activated carbon into the GAC pressure adsorbers. Onsite technical direction shall be provided by the activated carbon manufacturer as required to ensure that materials are processed, handled, and installed in a manner meeting the manufacturer's recommendations.

After completing the internal inspection of the vessel and prior to loading the GAC media, the vessel shall be disinfected according to AWWA Standard C653.

1102-3.1 Pathogenic Growth Testing.

After each vessel is loaded with the new GAC media, pathogenic growth shall be conducted as follows:

- a) Backwash the vessels to remove carbon fine. RPU is responsible for the backwash.
- b) Soak the GAC in each vessel for a minimum of 24 hours.
- c) Downward flush continuously until the vessel is online.

- d) Supplier shall take bacteriological samples for two consecutive days, and will make provision for the City to take bacteriological samples in conjunction with the Contractor's test as verification procedure. If the two consecutive samples show that the total coliform is negative AND the HPC <200 cfu/100 mL, then the carbon will be accepted.
- e) If the bacteriological samples show fecal coliform positive, total coliform positive, or the HPC $\geq$ 200 cfu/100ml, Contractor shall immediately initiate remedial action, at Contractor's expenses, such as caustic wash/caustic rinse. If a caustic wash is performed, it shall follow the protocol described in section 1102-4.

1102-4 CAUSTIC WASH TREATMENT.

1102-4.1 General.

When a GAC vessel fails the pathogenic growth test, it shall then receive a caustic wash treatment as described below. After treatment, the vessel shall be re-tested for pathogenic growth. If the tests indicate that the vessel is contaminated, the vessel shall receive another caustic wash treatment followed by additional testing for contamination. This process shall be continued until testing indicates that the vessel does not have any contamination.

1102-4.2 Caustic Wash Procedure.

The newly installed Carbon shall be disinfected using a caustic wash using the following procedure:

- Remove any free water or remove sufficient water to introduce needed quantity of chemical.
- If necessary, pump ~1000 gallons of clean water through the effluent line to fill tank.
- Begin circulating water through vessel.
- Pump sufficient 50% NaOH (or equivalent) into the adsorber through the effluent line.
- Fill the Adsorber with clean water through the effluent line at a rate not exceed 5 gpm/ft².
- After the filling process is complete, monitor the pH of the water to ensure it attains, at least a pH of 12.
- Establish a recirculation water flow through the adsorber using the effluent header and the 4" GAC fill line and a suitable transfer pump. The caustic/water flow should be down flow through the vessel.
- Continue recirculation for 1½ - 3 hours to ensure exposure of all surfaces and the GAC to the caustic solution. Monitor pH to assure it is a minimum of 12.
- Stop the recirculation and let vessel remain in a soaking mode for 4 -12 hours.
- After completing the soak mode, resume recirculation for an additional 45 minutes.
- Neutralize pH to 7.0 using a sufficient amount of HCl (37%) introduced through the effluent line of the adsorber.
- Add clean water through the effluent line until the adsorber overflows.
- Soak for at least one hour and check the pH for neutralization effect.
- Once the water has reach acceptable pH range (6.6 – 8.0), discharge the water.

- Backwash the adsorber until the discharge water meets the pH criteria.

1102-4.3 Payment for Caustic Wash.

The price to do a caustic wash, including labor and materials, after the installation of GAC shall be incurred by Contractor. Contractor shall pay for costs due to vessel contamination, including the costs for additional caustic wash treatments as well as the costs for additional testing. Only one caustic wash is allowed per year for all 15 vessels. If a GAC vessel fails the pathogenic growth test and no caustic wash allotment is available, the contaminated GAC must be replaced Section 1100 within one week at no cost to the City.

1102-4.3 Optional Caustic Wash.

At its option, the City may request the Contractor to perform a caustic wash on a vessel. In this case, the Contractor shall be paid by the City at the rate shown on Schedule A of the Proposal.

EXHIBIT B

COMPENSATION

No.	Item	Unit of Measure	Quantity	Unit Price (\$)	Line Total (\$)
Item 1	Unit prices shall include all cost to deliver and install the work indicated herein, including, but not limited to all sales and use taxes, permits, fees, licenses, equipment, plant, materials (other than specifically indicated as being supplied by	N/A	0	\$0.00	\$0.00
Item 2	Removal and disposal of spent carbon, approximately 20,000 lbs.	Vessel	50	\$7,000.00	\$350,000.00¹
Item 3	Supply and installation of virgin NSF approved carbon, approximately 20,000 lbs.	Vessel	30	\$35,453.00	\$1,063,590.00²
Item 4	Supply and installation of reagglomerated NSF approved carbon, approximately 20,000 lbs.	Vessel	20	\$19,634.00	\$392,680.00
Item 5	Caustic Wash Treatment (if required)	Vessel	3	\$10,000.00	\$30,000.00
Item 6	Inspection of each vessel after unloading spent GAC as specified in Scope of Work of the proposal.	Vessel	50	\$0.00	\$0.00³
Item 7	Optional Caustic Wash	EA	3	\$0.00	\$0.00

TOTAL \$ AMOUNT	\$1,836,270.00
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¹ All necessary chemicals provided by Calgon Corporation.

² Price includes taxes on virgin GAC, and virgin GAC make-up only.

³ Inspection included.

EXHIBIT “C”

KEY PERSONNEL

None specified.