

**PROFESSIONAL SERVICES AGREEMENT  
STUDY AND DESIGN SERVICES  
CHOLLA WATER TREATMENT PLANT IMPROVEMENTS - PHASE I  
City Project No. 131418**

This Professional Services Agreement ("Agreement") is entered into and effective between CITY OF GLENDALE, an Arizona municipal corporation ("City") and BLACK & VEATCH CORPORATION, a Delaware corporation authorized to do business in Arizona, ("Consultant") as of the 13 day of January, ~~2014~~ 2015. ("Effective Date").

**RECITALS**

- A. City intends to undertake a project for the benefit of the public and with public funds that is more fully set forth in **Exhibit A**, Project (the "Project");
- B. City desires to retain the professional services of Consultant to perform certain specific duties and produce the specific work as set forth in the attached **Exhibit B**, Project Scope of Work ("Scope");
- C. Consultant desires to provide City with professional services ("Services") consistent with best consulting or architectural practices and the standards set forth in this Agreement, in order to complete the Project; and
- D. City and Consultant desire to memorialize their agreement with this document.

**AGREEMENT**

The parties hereby agree as follows:

**1. Key Personnel; Other Consultants and Subcontractors.**

- 1.1 Professional Services. Consultant will provide all Services necessary to assure the Project is completed timely and efficiently consistent within Project requirements, including, but not limited to, working in close interaction and interfacing with City and its designated employees, and working closely with others, including other consultants or contractors, retained by City.
- 1.2 Project Team.
  - a. Project Manager.
    - (1) Consultant will designate an employee as Project Manager with sufficient training, knowledge, and experience to, in the City's opinion, complete the project and handle all aspects of the Project such that the work produced by Consultant is consistent with applicable standards as detailed in this Agreement; and
    - (2) The City must approve the designated Project Manager.
  - b. Project Team.
    - (1) The Project Manager and all other employees assigned to the Project by Consultant will comprise the "Project Team."
    - (2) Project Manager will have responsibility for and will supervise all other employees assigned to the Project by Consultant.
  - c. Discharge, Reassign, Replacement.
    - (1) Consultant acknowledges the Project Team is comprised of the same persons and roles for each as may have been identified in **Exhibit A**.
    - (2) Consultant will not discharge, reassign, replace or diminish the responsibilities of any of the employees assigned to the Project who have been approved by City

without City's prior written consent unless that person leaves the employment of Consultant, in which event the substitute must first be approved in writing by City.

- (3) Consultant will change any of the members of the Project Team at the City's request if an employee's performance does not equal or exceed the level of competence that the City may reasonably expect of a person performing those duties, or if the acts or omissions of that person are detrimental to the development of the Project.

d. Subcontractors.

- (1) Consultant may engage specific technical contractors (each a "Subcontractor") to furnish certain service functions.
- (2) Consultant will remain fully responsible for Subcontractor's services.
- (3) Subcontractors must be approved by the City.
- (4) Consultant will certify by letter that all contracts with Subcontractors have been executed incorporating requirements and standards as set forth in this Agreement.

2. **Schedule.** The Services will be undertaken in a manner that ensures the Project is completed timely and efficiently in accordance with the Project.

3. **Consultant's Work.**

3.1 **Standard.** Consultant must perform Services in accordance with the standards of due diligence, care, and quality prevailing among consultants having substantial experience with the successful furnishing of Services for projects that are equivalent in size, scope, quality, and other criteria under the Project and identified in this Agreement.

3.2 **Licensing.** Consultant warrants that:

- a. Consultant and its Subconsultants or Subcontractors will hold all appropriate and required licenses, registrations and other approvals necessary for the lawful furnishing of Services ("Approvals"); and
- b. Neither Consultant nor any Subconsultant or Subcontractor has been debarred or otherwise legally excluded from contracting with any federal, state, or local governmental entity ("Debarment").
  - (1) City is under no obligation to ascertain or confirm the existence or issuance of any Approvals or Debarments, or to examine Consultant's contracting ability.
  - (2) Consultant must notify City immediately if any Approvals or Debarment changes during the Agreement's duration. The failure of the Consultant to notify City as required will constitute a material default under the Agreement.

3.3 **Compliance.** Services will be furnished in compliance with applicable federal, state, county and local statutes, rules, regulations, ordinances, building codes, life safety codes, and other standards and criteria designated by City.

3.4 **Coordination; Interaction.**

- a. For projects that the City believes requires the coordination of various professional services, Consultant will work in close consultation with City to proactively interact with any other professionals retained by City on the Project ("Coordinating Project Professionals").
- b. Consultant will meet to review the Project, Schedule and in-progress work with Coordinating Project Professionals and City as often and for durations as City reasonably considers necessary in order to ensure the timely work delivery and Project completion.

- c. For projects not involving Coordinating Project Professionals, Consultant will proactively interact with any other contractors when directed by City to obtain or disseminate timely information for the proper execution of the Project.

3.5 Work Product.

- a. Ownership. Upon receipt of payment for Services furnished, Consultant grants to City, and will cause its Subconsultants or Subcontractors to grant to the City, the exclusive ownership of and all copyrights, if any, to evaluations, reports, drawings, specifications, project manuals, surveys, estimates, reviews, minutes, all "architectural work" as defined in the United States Copyright Act, 17 U.S.C § 101, *et seq.*, and other intellectual work product as may be applicable ("Work Product").
  - (1) This grant is effective whether the Work Product is on paper (e.g., a "hard copy"), in electronic format, or in some other form.
  - (2) Consultant warrants, and agrees to indemnify, hold harmless and defend City for, from and against any claim that any Work Product infringes on third-party proprietary interests.
- b. Delivery. Consultant will deliver to City copies of the preliminary and completed Work Product promptly as they are prepared.
- c. City Use.
  - (1) City may reuse the Work Product at its sole discretion.
  - (2) In the event the Work Product is used for another project without further consultations with Consultant, the City agrees to indemnify and hold Consultant harmless from any claim arising out of the Work Product.
  - (3) In such case, City will also remove any seal and title block from the Work Product.

4. Compensation for the Project.

- 4.1 Compensation. Consultant's compensation for the Project, including those furnished by its Subconsultants or Subcontractors will not exceed \$491,960 as specifically detailed in **Exhibit D** ("Compensation").
- 4.2 Change in Scope of Project. The Compensation may be equitably adjusted if the originally contemplated Scope as outlined in the Project is significantly modified.
  - a. Adjustments to Compensation require a written amendment to this Agreement and may require City Council approval.
  - b. Additional services which are outside the Scope of the Project contained in this Agreement may not be performed by the Consultant without prior written authorization from the City.
  - c. Notwithstanding the incorporation of the Exhibits to this Agreement by reference, should any conflict arise between the provisions of this Agreement and the provisions found in the Exhibits and accompanying attachments, the provisions of this Agreement shall take priority and govern the conduct of the parties.
- 4.3 Allowances. An "Allowance" may be identified in **Exhibit D** only for work that is required by the Scope and the value of which cannot reasonably be quantified at the time of this Agreement.
  - a. As stated in Sec. 4.1 above, the Compensation must incorporate all Allowance amounts identified in **Exhibit D** and any unused allowance at the completion of the Project will remain with City.
  - b. Consultant may not add any mark-up for work identified as an Allowance and which is to be performed by a Subconsultant.

- c. Consultant will not use any portion of an Allowance without prior written authorization from the City.
- d. Examples of Allowance items include, but are not limited to, subsurface pothole investigations, survey, geotechnical investigations, public participation, radio path studies and material testing.

4.4 Expenses. City will reimburse Consultant for certain out-of-pocket expenses necessarily incurred by Consultant in connection with this Agreement, without mark-up (the "Reimbursable Expenses"), including, but not limited to, document reproduction, materials for book preparation, postage, courier and overnight delivery costs incurred with Federal Express or similar carriers, travel and car mileage, subject to the following:

- a. Mileage, airfare, lodging and other travel expenses will be reimbursable only to the extent these would, if incurred, be reimbursed to City of Glendale personnel under its policies and procedures for business travel expense reimbursement made available to Consultant for review prior to the Agreement's execution, and which policies and procedures will be furnished to Consultant;
- b. The Reimbursable Expenses in this section are approved in advance by City in writing; and
- c. The total of all Reimbursable Expenses paid to Consultant in connection with this Agreement will not exceed the "not to exceed" amount identified for Reimbursable Services in the Compensation.

## 5. **Billings and Payment.**

### 5.1 Applications.

- a. Consultant will submit monthly invoices (each, a "Payment Application") to City's Project Manager and City will remit payments based upon the Payment Application as stated below.
- b. The period covered by each Payment Application will be one calendar month ending on the last day of the month.

### 5.2 Payment.

- a. After a full and complete Payment Application is received, City will process and remit payment within 30 days.
- b. Payment may be subject to or conditioned upon City's receipt of:
  - (1) Completed work generated by Consultant and its Subconsultants and Subcontractors; and
  - (2) Unconditional waivers and releases on final payment from all Subconsultants and Subcontractors as City may reasonably request to assure the Project will be free of claims arising from required performances under this Agreement.

5.3 Review and Withholding. City's Project Manager will timely review and certify Payment Applications.

- a. If the Payment Application is rejected, the Project Manager will issue a written listing of the items not approved for payment.
- b. City may withhold an amount sufficient to pay expenses that City reasonably expects to incur in correcting the deficiency or deficiencies rejected for payment.

## 6. **Termination.**

6.1 For Convenience. City may terminate this Agreement for convenience, without cause, by delivering a written termination notice stating the effective termination date, which may not be less than 15 days following the date of delivery.

- a. Consultant will be equitably compensated for Services furnished prior to receipt of the termination notice and for reasonable costs incurred.
- b. Consultant will also be similarly compensated for any approved effort expended, and approved costs incurred, that are directly associated with Project closeout and delivery of the required items to the City.

6.2 For Cause. City may terminate this Agreement for cause if Consultant fails to cure any breach of this Agreement within seven days after receipt of written notice specifying the breach.

- a. Consultant will not be entitled to further payment until after City has determined its damages. If City's damages resulting from the breach, as determined by City, are less than the equitable amount due but not paid Consultant for Services furnished, City will pay the amount due to Consultant, less City's damages, in accordance with the provision of Sec. 5.
- b. If City's direct damages exceed amounts otherwise due to Consultant, Consultant must pay the difference to City immediately upon demand; however, Consultant will not be subject to consequential damages more than \$1,000,000 or the amount of this Agreement, whichever is greater.

7. **Conflict.** Consultant acknowledges this Agreement is subject to A.R.S. § 38-511, which allows for cancellation of this Agreement in the event any person who is significantly involved in initiating, negotiating, securing, drafting, or creating the Agreement on City's behalf is also an employee, agent, or consultant of any other party to this Agreement.

8. **Insurance.**

8.1 Requirements. Consultant must obtain and maintain the following insurance ("Required Insurance"):

- a. Consultant and Subconsultants and Subcontractors. Consultant, and each Subconsultant or Subcontractor performing work or providing materials related to this Agreement must procure and maintain the insurance coverages described below (collectively referred to herein as the "Consultant's Policies"), until each Party's obligations under this Agreement are completed.
- b. General Liability.
  - (1) Consultant must at all times relevant hereto carry a commercial general liability policy with a combined single limit of at least \$1,000,000 per occurrence and \$2,000,000 annual aggregate limit.
  - (2) Subconsultants and Subcontractors must at all times relevant hereto carry a general commercial liability policy with a combined single limit of at least \$1,000,000 per occurrence.
  - (3) This commercial general liability insurance must include independent contractors' liability, contractual liability, broad form property coverage, XCU hazards if requested by the City, and a separation of insurance provision.
  - (4) These limits may be met through a combination of primary and excess liability coverage.
- c. Professional Liability. Consultant must maintain a professional errors and omissions liability policy providing a minimum limit of \$1,000,000 for each claim and a \$2,000,000 annual aggregate limit.
- d. Auto. A business auto policy providing a liability limit of at least \$1,000,000 per accident for Consultant and \$1,000,000 per accident for Subconsultants and Subcontractors and covering owned, non-owned and hired automobiles.

- e. *Workers' Compensation and Employer's Liability.* Consultant must also maintain a workers' compensation and employer's liability policy providing at least the minimum benefits required by Arizona law.
- f. *Notice of Changes.* Consultant's Policies must provide for not less than 30 days' advance written notice to City Representative of:
  - (1) Cancellation or termination of Consultant's Policies;
  - (2) Reduction of the coverage limits of any of Consultant's Policies; and
  - (3) Any other material modification of Consultant's Policies related to this Agreement.
- g. *Certificates of Insurance.*
  - (1) Within 10 business days after the execution of the Agreement, Consultant must deliver to City Representative certificates of insurance for each of Consultant's Policies, which will confirm the existence or issuance of Consultant's Policies in accordance with the provisions of this section, and copies of the endorsements of Consultant's Policies in accordance with the provisions of this section.
  - (2) City is and will be under no obligation either to ascertain or confirm the existence or issuance of Consultant's Policies, or to examine Consultant's Policies, or to inform Consultant, Subconsultant, or Subcontractor in the event that any coverage does not comply with the requirements of this section.
  - (3) Consultant's failure to secure and maintain Consultant's Policies and to assure Consultant's Policies as required will constitute a material default under the Agreement.
- h. *Other Contractors or Vendors.*
  - (1) Other contractors or vendors that may be contracted with in connection with the Project must procure and maintain insurance coverage as is appropriate to their particular contract.
  - (2) This insurance coverage must comply with the requirements set forth above for Consultant's Policies (e.g., the requirements pertaining to endorsements to name the parties as additional insured parties and certificates of insurance).
- i. *Policies.* Except with respect to workers' compensation and Consultant's professional liability coverages, City must be named and properly endorsed as additional insureds on all liability policies required by this section.
  - (1) The coverage extended to additional insureds must be primary and must not contribute with any insurance or self insurance policies or programs maintained by the additional insureds.
  - (2) All insurance policies obtained pursuant to this section must be with companies legally authorized to do business in the State of Arizona and reasonably acceptable to all parties.

8.2 Subconsultants and Subcontractors.

- a. Consultant must also cause its Subconsultants and Subcontractors to obtain and maintain the Required Insurance.
- b. City may consider waiving these insurance requirements for a specific Subconsultant or Subcontractor if City is satisfied the amounts required are not commercially available to the Subconsultant or Subcontractor and the insurance the Subconsultant or Subcontractor does have is appropriate for the Subconsultant or Subcontractor's work under this Agreement.

- c. Consultant and Subcontractors must provide to the City proof of the Required Insurance whenever requested.

### 8.3 Indemnification.

- a. To the fullest extent permitted by law, Consultant must defend, indemnify, and hold harmless City and its elected officials, officers, employees and agents (each, an "Indemnified Party," collectively, the "Indemnified Parties") for, from, and against any and all claims, demands, actions, damages, judgments, settlements, personal injury (including sickness, disease, death, and bodily harm), property damage (including loss of use), infringement, governmental action and all other losses and expenses, including attorneys' fees and litigation expenses (each, a "Demand or Expense" collectively "Demands or Expenses") asserted by a third-party (i.e. a person or entity other than City or Consultant) and that arises out of or results from the breach of this Agreement by the Consultant or the Consultant's negligent actions, errors or omissions (including any Subconsultant or Subcontractor or other person or firm employed by Consultant), whether sustained before or after completion of the Project.
- b. This indemnity and hold harmless provision applies even if a Demand or Expense is in part due to the Indemnified Party's negligence or breach of a responsibility under this Agreement, but in that event, Consultant will be liable only to the extent the Demand or Expense results from the negligence or breach of a responsibility of Consultant or of any person or entity for whom Consultant is responsible.
- c. Consultant is not required to indemnify any Indemnified Parties for, from, or against any Demand or Expense resulting from the Indemnified Party's sole negligence or other fault solely attributable to the Indemnified Party.

## 9. **Immigration Law Compliance.**

- 9.1 Consultant, and on behalf of any Subconsultant or Subcontractor, warrants, to the extent applicable under A.R.S. § 41-4401, compliance with all federal immigration laws and regulations that relate to their employees as well as compliance with A.R.S. § 23-214(A) which requires registration and participation with the E-Verify Program.
- 9.2 Any breach of warranty under this section is considered a material breach of this Agreement and is subject to penalties up to and including termination of this Agreement.
- 9.3 City retains the legal right to inspect the papers of any Consultant, Subconsultant, or Subcontractor employee who performs work under this Agreement to ensure that the Consultant, Subconsultant or any Subcontractor is compliant with the warranty under this section.
- 9.4 City may conduct random inspections, and upon request of City, Consultant will provide copies of papers and records of Consultant demonstrating continued compliance with the warranty under this section. Consultant agrees to keep papers and records available for inspection by the City during normal business hours and will cooperate with City in exercise of its statutory duties and not deny access to its business premises or applicable papers or records for the purposes of enforcement of this section.
- 9.5 Consultant agrees to incorporate into any subcontracts under this Agreement the same obligations imposed upon Consultant and expressly accrue those obligations directly to the benefit of the City. Consultant also agrees to require any Subconsultant or Subcontractor to incorporate into each of its own subcontracts under this Agreement the same obligations above and expressly accrue those obligations to the benefit of the City.
- 9.6 Consultant's warranty and obligations under this section to the City is continuing throughout the term of this Agreement or until such time as the City determines, in its sole discretion, that Arizona law has been modified in that compliance with this section is no longer a requirement.

9.7 The "E-Verify Program" above means the employment verification program administered by the United States Department of Homeland Security, the Social Security Administration, or any successor program.

10. Notices.

- 10.1 A notice, request or other communication that is required or permitted under this Agreement (each a "Notice") will be effective only if:
- a. The Notice is in writing; and
  - b. Delivered in person or by overnight courier service (delivery charges prepaid), certified or registered mail (return receipt requested).
  - c. Notice will be deemed to have been delivered to the person to whom it is addressed as of the date of receipt, if:
    - (1) Received on a business day before 5:00 p.m. at the address for Notices identified for the Party in this Agreement by U.S. Mail, hand delivery, or overnight courier service; or
    - (2) As of the next business day after receipt, if received after 5:00 p.m.
  - d. The burden of proof of the place and time of delivery is upon the Party giving the Notice.
  - e. Digitalized signatures and copies of signatures will have the same effect as original signatures.

10.2 Representatives.

- a. Consultant. Consultant's representative (the "Consultant's Representative") authorized to act on Consultant's behalf with respect to the Project, and his or her address for Notice delivery is:

Dan Meyer, P.E.  
Black & Veatch Corporation  
3133 East Camelback Road, Suite 210  
Phoenix, AZ 85016

- b. City. City's representative ("City's Representative") authorized to act on City's behalf, and his or her address for Notice delivery is:

City of Glendale  
c/o Tom Kacmarowski  
Senior Civil Engineer  
Engineering Department  
5850 West Glendale Avenue  
Glendale, Arizona 85301

With required copy to:

City Manager  
City of Glendale  
5850 West Glendale Avenue  
Glendale, Arizona 85301

City Attorney  
City of Glendale  
5850 West Glendale Avenue  
Glendale, Arizona 85301

- c. Concurrent Notices.

- (1) All notices to City's representative must be given concurrently to City Manager and City Attorney.
- (2) A notice will not be deemed to have been received by City's representative until the time that it has also been received by the City Manager and the City Attorney.

(3) City may appoint one or more designees for the purpose of receiving notice by delivery of a written notice to Consultant identifying the designee(s) and their respective addresses for notices.

d. Changes. Consultant or City may change its representative or information on Notice, by giving Notice of the change in accordance with this section at least ten days prior to the change.

11. **Financing Assignment.** City may assign this Agreement to any City-affiliated entity, including a non-profit corporation or other entity whose primary purpose is to own or manage the Project.

12. **Entire Agreement; Survival; Counterparts; Signatures.**

12.1 Integration. This Agreement contains, except as stated below, the entire agreement between City and Consultant and supersedes all prior conversations and negotiations between the parties regarding the Project or this Agreement.

- a. Neither Party has made any representations, warranties or agreements as to any matters concerning the Agreement's subject matter.
- b. Representations, statements, conditions, or warranties not contained in this Agreement will not be binding on the parties.
- c. Inconsistencies between the solicitation, any addenda attached to the solicitation, the response or any excerpts attached as **Exhibit A**, and this Agreement, will be resolved by the terms and conditions stated in this Agreement.

12.2 Interpretation.

- a. The parties fairly negotiated the Agreement's provisions to the extent they believed necessary and with the legal representation they deemed appropriate.
- b. The parties are of equal bargaining position and this Agreement must be construed equally between the parties without consideration of which of the parties may have drafted this Agreement.
- c. The Agreement will be interpreted in accordance with the laws of the State of Arizona.

12.3 Survival. Except as specifically provided otherwise in this Agreement, each warranty, representation, indemnification and hold harmless provision, insurance requirement, and every other right, remedy and responsibility of a Party, will survive completion of the Project, or the earlier termination of this Agreement.

12.4 Amendment. No amendment to this Agreement will be binding unless in writing and executed by the parties. Electronic signature blocks do not constitute execution for purposes of this Agreement. Any amendment may be subject to City Council approval.

12.5 Remedies. All rights and remedies provided in this Agreement are cumulative and the exercise of any one or more right or remedy will not affect any other rights or remedies under this Agreement or applicable law.

12.6 Severability. If any provision of this Agreement is voided or found unenforceable, that determination will not affect the validity of the other provisions, and the voided or unenforceable provision will be reformed to conform with applicable law.

12.7 Counterparts. This Agreement may be executed in counterparts, and all counterparts will together comprise one instrument.

13. **Term.** The term of this Agreement commences upon the Effective Date and continues for a three (3) years initial period. The City may, at its option and with the approval of the Consultant, extend the term of this Agreement an additional two (2) years, renewable on an annual basis. Consultant will be notified in writing by the City of its intent to extend the Agreement period at least thirty (30) calendar days prior to the

expiration of the original or any renewal Agreement period. There are no automatic renewals of this Agreement.

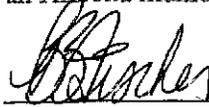
14. **Dispute Resolution.** Each claim, controversy and dispute (each a "Dispute") between Consultant and City will be resolved in accordance with **Exhibit E**. The final determination will be made by the City.
15. **Exhibits.** The following exhibits, with reference to the term in which they are first referenced, are incorporated by this reference.

Exhibit A	Project
Exhibit B	Scope of Work
Exhibit C	Schedule
Exhibit D	Compensation
Exhibit E	Dispute Resolution

(Signatures appear on the following page.)

The parties enter into this Agreement effective as of the date shown above.

City of Glendale,  
an Arizona municipal corporation

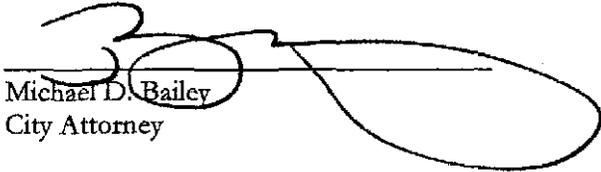


By: Brenda S. Fischer  
Its: City Manager

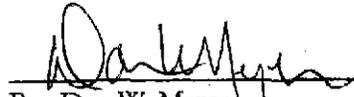
ATTEST:

  
Pamela Hanna (SEAL)  
City Clerk

APPROVED AS TO FORM:

  
Michael D. Bailey  
City Attorney

BLACK & VEATCH CORPORATION,  
a Delaware Corporation

  
By: Dan W. Meyer  
Its: Vice President

**EXHIBIT A**  
**Professional Services Agreement**

PROJECT

(Cover Page)

**EXHIBIT A**  
**Professional Services Agreement**

**CHOLLA WATER TREATMENT PLANT**  
**PROCESS IMPROVEMENTS**  
**Study Services – Phase I**  
**Project No. 131418**

**PROJECT**

**DESCRIPTION OF PROJECT:**

The Cholla Water Treatment Plant began operations in 1978, treats Salt River Project (SRP) water from the Arizona Canal, and has a current design capacity of 30 million gallons per day (mgd) after having undergone multiple expansion and modification projects.

Phase I of the project includes water treatment plant's (WTP) existing condition evaluation and recommendations for improvement. Phase II includes design of the selected *recommended* improvements. Phase III includes construction administration services for the improvements. The Scope of Services for Phases II through III will be finalized at a later date.

Requested services could include assisting City staff with Council presentations, public meetings, and other related public involvement activities. The City may or may not utilize the services of a Construction Manager at Risk (CMAR). This optional delivery method will be decided at a later time. The engineering firm (Consultant) will be a member of a project team that includes, but is not limited to, city staff and possibly a construction manager at risk contractor.

**EXHIBIT B**  
**Professional Services Agreement**

**SCOPE OF WORK**

(Cover Page)

**EXHIBIT B**  
**Professional Services Agreement**

**CHOLLA WATER TREATMENT PLANT**  
**PROCESS IMPROVEMENTS**  
**Study Services – Phase I**  
**Project No. 131418**

**SCOPE OF WORK**

**Background**

The City of Glendale's (City's) Cholla Water Treatment Plant (CWTP) was built in 1978 after the Cholla 1 finished water reservoir and booster station were built in 1972. Various minor modification projects have been implemented since then, including the recent addition of two filters and relocation of the filter backwash pump station in 2006. Other improvements included an off-site finished water reservoir and solids handling facility. Some of the original plant's equipment is still in operation and may be approaching the end of its useful life. Therefore an assessment of the facility is desired with recommendations for appropriate system optimizations, improvements, rehabilitation or replacement.

**SCOPE OF WORK**

The work will be performed by Black & Veatch (Consultant) in three phases. Phase I includes an evaluation of the facility's existing conditions and recommendations for improvements. Phase II includes design of recommended improvements and other miscellaneous improvements as directed by the City. Phase III includes construction administration services for the improvements. The Scope of Services and compensation for Phases II and III will be performed under a separate contract or amendment to this contract at a later date.

**Phase I Evaluation of Existing Conditions and Improvement Recommendations**

The Phase I scope of work includes an evaluation of the Cholla Water Treatment Plant (CWTP) to improve and optimize treatment processes' efficiency, critical water treatment plant components and improvements needed to several water treatment plant areas related to increasing WTP resiliency and redundancy. Consultant will assess deficiencies and recommend improvements.

**Task Group 100 – Project Management**

**Task 110: General Management and Administration**

The Consultant will provide general coordination of the project with the City staff including Water Services, Engineering, Plant Operations and other departments as necessary to facilitate the project.

Consultant will develop the Phase I project schedule, and perform other administrative functions including, maintaining project data files, tracking project progress and invoicing throughout Phase I.

Phase I project management documentation consists of monthly progress reports and schedule updates. The monthly project reports will summarize the work progress, project issues, and project schedule status. Consultant will also submit quarterly cash flow schedule and quarterly updates regarding future funds needed to complete the project.

**Task 120: Conduct Project Kickoff Meeting and Monthly Progress Meetings**

At the project kickoff meeting, Consultant will present the scope of the initial assessment planning and the preliminary schedule. The meeting will include Consultant, and City Water Services and Engineering staff and is intended to develop a common understanding of the background, issues affecting the plant's operations, Phase I evaluation project goals and objectives, lines of communication, and issues that may affect Phase I execution including coordination with City operations to facilitate the assessments.

Kickoff meeting topics will include the following:

- Confirmation of existing data and information
- Confirmation of project components
- Coordination with ongoing work by the City at the CWTP
- Short and long term needs
- Budget constraints

For the Phase I progress meetings, the Consultant will prepare meeting documentation and conduct meetings to discuss the progress, direction and technical aspects of the project. Project documentation will consist of preparing and distributing meeting agendas and minutes. Meeting minutes will summarize key discussions, comments, decisions, and any action items required. Five other progress project meetings are anticipated with other workshops being anticipated as part of the work scope tasks. Consultant will provide draft meeting minutes to the City for review and final minutes incorporating comments from the City on the draft minutes, as required.

**Group 100 Deliverables:**

- Project Schedule
- Meeting Agenda and Minutes, with Action Items
- Monthly Progress Reports and Schedule Updates
- Document and Data Request Log
- Action Items and Decision Log
- Quarterly cash flow projections

**Task Group 200 – Process Evaluation**

Treatment processes will be evaluated to improve and optimize treatment system efficiency. Process evaluations include the following.

**Task 201: Challenging Water Quality Identification**

Consultant will summarize past water quality and treatment data reviewed in Task 301 and identify potential challenging water quality ranges that have impacted plant operations in removing TOC and reducing TTHM's. The Consultant will summarize the raw water quality ranges for the upper end challenging water quality for City review, and present ranges at a progress meeting to gather input and develop consensus for the ranges.

#### Task 202: Unit Process Performance Objectives

For the agreed upon raw water quality ranges, production quantities and performance objectives will be developed for each of the critical unit processes responsible for reliable treatment. These challenging water quality performance objectives will include operating conditions, chemical usages, and effluent water quality from the unit processes. A two hour workshop will be held with City Engineering and Water Services Department key staff to present and discuss these performance objectives to ensure that the performance objectives are realistic. The workshop will include a PowerPoint presentation summarizing suggested performance objectives. The agreed upon performance objectives will be used as the guiding criteria to define CWTP production quantity and quality requirements during challenging raw water quality events.

#### Task 203: Evaluate City's Pre-Sedimentation Performance

The consultant will use the data collected in Task 301 to create up to two individual design water quality conditions (i.e. Salt River and Verde River source water) and associated desired settled water quality for temperature, pH, TOC, and alkalinity. Once agreed upon, Consultant will utilize the U.S. EPA Water Treatment Plant Model to assess chemical dosage requirements up and downstream of pre-sedimentation for TOC removal and disinfection by-product formation. Consultant will provide findings and recommendations to the City based on the review and assessment.

#### Task 204: Develop Standard Operating Procedures

This task will combine the outcome of the efforts described in Tasks 201 and 203 above into developing Standard Operating Procedures (SOP) for optimizing TOC removal / TTHM control / chemical consumption associated with challenging raw water quality and production quantity conditions. These SOPs will include chemical dosing schemes, protocol for testing / verifying the chemical dosing scheme, raw water quality monitoring, and the utilization of available and potential treatment, monitoring and control infrastructure to handle treatment of challenging waters.

#### Task 205: TM 1 - Process Evaluations and Treatment Improvements Technical Memorandum

Technical Memorandum 1 will be prepared describing the bench testing completed, recommended on-line real-time monitoring and SOPs with guidelines for improved identification and assessing best treatment for challenging water treatment guidelines will be completed. It is anticipated the guidelines will be in spreadsheet and /or graphic format to allow operators easy access to the information for informed decisions. After receipt of City comments on the Technical Memorandum 1, the Consultant will incorporate comments and subsequently issue the Final Technical Memorandum 1 within 10 business days after receiving all of the City's comments.

#### Task Group 200 Deliverables:

- Draft Process Evaluations and Treatment Improvements Technical Memorandum
  - Five (5) hard copies and two (2) electronic copy provided

- Final Process Evaluations and Treatment Improvements Technical Memorandum
  - Ten (10) hard copies and two (2) electronic copy provided

### **Task Group 300 – Assessment of Existing Facilities**

The following major systems and specific sub-system items will be assessed relative to condition, criticality to treatment plant operations for current and future operations' resilience and redundancy. Description of specific assessment, evaluation and recommendations are detailed in the below Task descriptions:

- A. Mechanical / Chemical Systems and equipment
  - 1. Raw water venturi flow meter
  - 2. Carbon dioxide carrier water
  - 3. Raw water pumps
  - 4. Flocculation / Sedimentation equipment
  - 5. Flocculation / Sedimentation equipment coatings / cathodic protection systems
  - 6. Low-lift Area & Backwash Supply cathodic protection systems
  - 7. Filter valves (effluent, waste isolation, etc.)
  - 8. Filter surface wash / air scour system
  - 9. Backwash supply / access
  - 10. Booster station 1B blowback
  - 11. Lime feed system recommissioning
  - 12. Chemical feed pump review for the following chemicals:
    - Aluminum sulfate
    - Coagulant aid polymer
    - Hydrofluorosilicic acid
    - Sodium hydroxide
    - Carbon dioxide
- B. Reservoir Water Quality
- C. Disinfection System Conversion Feasibility
- D. Cholla 1 Reservoir Liner
- E. Solids Handling Facility
  - Solids removal
  - Polymer feed
- F. Existing Fence & Main Entrance Gate
- G. Electrical / Control equipment
  - 1. Main electrical switchgear
  - 2. Standby generator capacity
  - 3. Plant control system conversion to Ethernet
  - 4. PLCs at Zone 1B, Chemical Feed Room, Low-lift Area, Ammonia, & Pressed Basin Shed
  - 5. UPSs associated with plant PLCs

6. Power monitoring
7. Chlorination Facility lighting

#### Task 301: Review Available Documentation

The following information and plant facility records will be reviewed:

- As-Built drawings for all construction phases, including latest control system network diagrams
- Previous basis of design reports and other relevant documents available
- Past hydraulic studies
- Previous treatment evaluations and WTP equipment evaluations (including Reservoir 1 liner)
- WTP operational records including:
  - Three years of digital data (Excel or other database) for the following parameters:
    - Cholla 1 and 2 Reservoir level
    - Cholla 1 and 2 Reservoir water temperature
    - Chlorine residual pre- and post- Cholla 1 and 2 Reservoirs
    - DBP levels pre- and post- Cholla 1 and 2 Reservoirs
    - Distribution system DBP formation
    - Production flows (Cholla, Pyramid, Oasis, direct-connect wells)
    - Raw water turbidity, TOC
    - Presedimentation Basin Settled water turbidity, TOC
    - Settled water turbidity, TOC
    - Filter run times
    - Filter effluent turbidity, TOC, DBP
    - Chemical feed rates
    - WTP flows
    - Solids removal
  - Cholla 1 and 2 Reservoir baffling factors
  - Plant equipment maintenance records and staff interviews
  - GAC media replacement change-out history per filter; percentage virgin / regenerated
  - Plant SOPs
  - Current asset database

#### Task 302: Site Investigations

Up to three site investigation visits will be completed to review those system identified in Task Group 300 and compare actual installed conditions with conformed to construction record drawings and O&M documents. Visual observations of the equipment and systems included in Task Group 300 description will be documented using digital photography, where feasible while maintaining WTP operations. This task is for the purpose of completing the system evaluations and does not include making modifications to the City's conformed to construction record drawings.

### Task 303: Equipment Systems and Needs Assessment

For Task Group 300 Items, Consultant will complete preliminary assessments on the main components of each system identified in Task Group 300 by gathering the following information:

- Installation date
- Last rehabilitation or replacement date
- Condition (visual assessment on 1 to 5 scale)
- Impact on plant's ability to produce water at current 30 million gallons per day (mgd) rated capacity under normal raw water quality conditions
- Impact on plant's ability to meet all water quality standards and regulatory requirements
- Redundancy

The preliminary results from the needs assessment will be presented and comments obtained from the City regarding the findings will be documented. Some assessments relative to the flocculation / sedimentation basin equipment, coating and cathodic protection systems may be dependent on timing of those processes being offline.

### Task 304: Develop and Evaluate Alternatives and Recommend Improvements

Based on the results from Task 303 Needs Assessment, the Consultant will provide budgetary equipment replacement costs and recommendations as detailed below:

#### A. Mechanical / Chemical Systems and equipment

1. Raw water venturi flow meter – Assess flow meter condition, and provide up to two options for re-configuration / replacement that is easier to access for maintenance / calibration (alternate meter versus alternate vault).
2. Carbon dioxide carrier water – Assess current condition and maintenance schedule, and provide up to two options for reduction in required maintenance (alternate strainer or alternate carrier water source).
3. Raw water pumps – Assess raw water pumps' turndown capacity. If it does not match with desired minimum plant flow rate, consider up to two options to meet desired operation.
4. Flocculation / Sedimentation equipment – Assess existing equipment and provide recommended improvements.
5. Flocculation / Sedimentation equipment coatings / cathodic protection systems – Assess existing condition and provide recommended improvements.
6. Low Lift Area and Backwash Supply cathodic protection systems – Assess existing condition and provide recommended improvements.
7. Filter valves (effluent, waste isolation, etc.) – Assess the condition of the valves for tight shutoff and provide recommended improvements.
8. Filter surface wash / air scour system – Assess necessary improvements needed to install new air scour system and removal of surface wash piping and equipment (location of blower between filters 4 and 5 & improvements required; create opening in gallery wall, electrical, I&C, etc.).

9. Backwash supply – Assess backwash system capacity, pressure, etc. and determine if improvements are warranted. Assess need for permanent ladder.
  10. Distribution System blowback and pressure relief – Assess existing blowback systems, capacity, frequency of use, control and monitoring and provide recommended improvements.
  11. Lime feed system recommissioning - Assess existing system, including storage, pump and pipe sizing for intermittent use and maintenance.
  12. Chemical feed pump review – Assess current maintenance practices, chemical feed system range (if lower plant capacity is desired) for the following chemicals:
    - Aluminum sulfate
    - Coagulant aid polymer
    - Hydrofluorosilicic acid
    - Sodium hydroxide
    - Carbon dioxide
- B. Reservoir Water Quality – Obtain the existing Cholla 1 baffling factor, historical pre- and post-chlorination and DBP formation data from the Cholla 1 and 2 Reservoirs to create a DBP model of each reservoir. Using an agreed upon increased Cholla 1 baffling factor (simulating additional baffling) and the corresponding decrease of required chlorine residual, Cholla 1 reservoir effluent DBP formation will be modeled and compared with existing DBP formation under summer conditions.
- C. Disinfection System Conversion Feasibility – Assess the feasibility to replace the existing gaseous chlorination feed system with an on-site hypochlorite generation system. Feasibility will include two options for installation of on-site hypochlorite generation system:
1. Utilization of existing Chlorination Building, including:
    - Required temporary facilities during interim period when existing system is demolished and new system is being installed / tested.
  2. Concept for new Chlorination Building
- Both options will include discussion of required mechanical equipment (i.e. blowers, chillers, metering pumps, etc.), chemical storage (i.e. hypochlorite and salt/brine), piping material requirements. Budgetary capital and O&M cost estimates will be developed for the existing system versus on-site hypochlorite generation as described in Task 305.
- D. Cholla 1 Reservoir Liner – Assessment of liner condition for the Cholla 1 Reservoir will be split into a multi-stage approach. If needed, Stages II and III would be finalized under a separate contract at a later date.
1. Stage I – Review reports from recent inspections and repairs. Consult with up to three liner manufacturers for recommended useful life and establish common criteria for signs of needed replacement. Select up to two of three means of inspection while the reservoir is in operation: 1) visual inspection from available inspection ports, 2) remote operated submersible robotic equipment, or 3) divers. Inspection options 2 and 3 will be accommodated under an allowance to be authorized by the City.
  2. Stage II – Develop plan to dewater Cholla 1 reservoir for visual inspection. Perform inspection upon after execution of the plan.

3. Stage III – If determined necessary, develop plan for liner replacement. If additional baffling determined from the water quality analysis, perform up to 15 computational fluid dynamic (CFD) modeling scenarios with various baffling configurations to achieve the desired level of baffling. Assess use of up to three types of baffle materials of construction and provide recommendation.
- E. Solids Handling – Review and assess the existing equipment, operation, historical performance, and polymer feed system to identify potential opportunities to improve/optimize operations.
- F. Existing Fence & Main Entrance Gate – Evaluate the existing condition of the main entrance gate and associated chain link fence. Provide recommended improvements and cost estimate.
- G. Electrical / Control Equipment
  1. Main electrical switchgear – Assess existing outdoor switchgear equipment for signs of aging. Assessment will be done when equipment is de-energized.
  2. Standby generator capacity – Assuming plant operations must be maintained during possible utility outage, City to provide required equipment operation and outage duration. Consultant to assess generator sizing requirements to maintain plant operations and electrical gear requirements.
  3. Plant control system conversion to Ethernet – Assess where plant staff is in the current conversion process, identify / prioritize needs, determine how communication “hubs” are used and whether additional redundancy is needed / desired.
  4. PLCs – Assess non-Ethernet compatible PLCs and evaluate available platforms to provide long-term product support.
  5. UPSs – Assess existing Uninterruptible Power Systems and provide recommended improvements.
  6. Power Monitoring – Assess existing power monitoring system(s) and provide recommended improvements.
  7. Chlorination Facility Lighting – Assess existing facility indoor and outdoor lighting and provide recommended improvements.

Descriptions, explanatory sketches or schematics of recommended equipment system improvements will be prepared if needed. It is anticipated equipment system improvements alternatives will be presented at two workshops so comments from the City can be gathered and addressed prior to subsequent work. It is anticipated the first workshop will focus on mechanical-related equipment and the remaining Cholla 1 reservoir liner, reservoir water quality, and electrical / control-related equipment in the second workshop.

#### Task 305: Recommended Improvements Cost Estimates & Prioritization

Based on the selected alternatives from Task 304 budgetary cost estimates to ACEI Class 5 (Low: -20% to -50% and High: +30% to +100%) will be prepared and presented during subsequent monthly meetings. Prioritization of each recommended improvement will be provided with City input.

#### Task 306: TM 2: Existing Equipment Systems Needs Assessment and Improvements Recommendations

A draft Technical memorandum describing the equipment systems needs assessment, recommended improvements, budgetary costs prepared, and prioritization discussed. After receipt of City comments on the Technical Memorandum within ten (10) business days after it is provided to the City, Consultant

will incorporate comments and issue the final Technical Memorandum within 10 business days after receiving all of the City's comments.

Task Group 300 Deliverables:

- Draft Existing Equipment Systems Needs Assessment and Improvements Recommendations Technical Memorandum
  - Five (5) hard copies and two (2) electronic copy provided
- Final Existing Equipment Systems Needs Assessment and Improvements Recommendations Technical Memorandum
  - Ten (10) hard copies and two (2) electronic copy provided

**ALLOWANCE:**

**Allowance A – Cholla 1 Reservoir Inspection**

At the City's option, inspection of the Cholla 1 Reservoir while in operation as described in Task 304.C is part of an allowance that will not be performed until authorized by the City.

**Allowance B – Challenging Water Bench Testing**

At the City's option as an allowance, Consultant will conduct a series of jar tests using City-collected samples during challenging water event(s) in clean carboys. Jar testing results will demonstrate the effect of this water on the required coagulant and coagulant aid doses and assist with the initial creation of a coagulation mechanism map to identify the acceptable general operating range of the facility under these challenging water quality conditions. The coagulant tested will be the one used in Task 203. It is assumed five days of bench testing will be spent. If additional testing is desired by the City, testing can be performed under a renewal of this allowance. It is assumed the City will provide treatment chemicals and allow Consultant to use the City's bench testing equipment and operator's laboratory analytical equipment for the bench scale testing. City will perform additional analytical tests if desired (TOC, THMFP, etc.) and pay for tests if outside laboratory services are required. The allowance task will not be performed until authorized by the City.

**Allowance C – Initial Process Optimization**

As part of the allowance, the Consultant will meet with the City regarding use of smart data analytics to optimize operations and streamline monitoring and reporting. Possible tasks to be performed will include determining Key Result Areas (KRAs) with Key Performance Indicators (KPIs) that provide trending and data analytics to approved individuals through a web-interface that is viewable on desktops and portable devices; providing training to City employees to show them how the platform can be used; preparing a Performance Summary Report documenting results of the full-scale demonstration, or other related tasks. The allowance task will not be performed until authorized by the City.

**Allowance D – Owner's Allowance**

The Owner's allowance can be utilized for other tasks at the City's discretion and only performed until authorized by the City.

**EXHIBIT C**  
**Professional Services Agreement**

**SCHEDULE**

(Cover Page)



**EXHIBIT D**  
**Professional Services Agreement**

COMPENSATION

**METHOD AND AMOUNT OF COMPENSATION**

Compensation shall be hourly rates plus allowable reimbursable expenses as set forth in Section 4 of the agreement.

**NOT-TO-EXCEED AMOUNT**

The total amount of compensation paid to Consultant for full completion of all work required by the Project during the entire term of the Project must not exceed \$491,960.

**DETAILED PROJECT COMPENSATION**

See Attached.

**EXHIBIT D**  
**Professional Services Agreement**

**CHOLLA WATER TREATMENT PLANT**  
**PROCESS IMPROVEMENTS**  
**Study Services – Phase I**  
**Project No. 131418**

**COMPENSATION**

**METHOD AND AMOUNT OF COMPENSATION**

Compensation shall be hourly rates plus allowable reimbursable expenses as set forth in Section 4 of the agreement.

**NOT-TO-EXCEED AMOUNT**

The total amount of compensation paid to Black & Veatch, Corp., for full completion of all work required by the Project during the entire term of the Project must not exceed \$491,960.00.

**DETAILED PROJECT COMPENSATION**

<b>Cholla Water Treatment Process Improvements Study Services – Phase I Fee Schedule</b>	
TASK	COST
Task 100 – Project Management	\$36,770.00
Task 200 - Process Evaluations	\$72,260.00
Task 300 – Assessment of Existing Facilities	\$243,930.00
Rimbursable Expenses	\$4,000.00
Allowances:	
Cholla 1 Reservoir Liner	\$10,000.00
Challenging Water Bench Testing	\$25,000.00
Initial Process Optimization	\$50,000.00
Subtotal	\$41,960.00
Owner's Contingency Allowance (per Section 4.3)	\$50,000.00
<b>TOTAL PROJECT COST:</b>	<b>\$491,960.00</b>

**EXHIBIT E**  
**Professional Services Agreement**

**DISPUTE RESOLUTION**

**1. Disputes.**

- 1.1 Commitment. The parties commit to resolving all disputes promptly, equitably, and in a good-faith, cost-effective manner.
- 1.2 Application. The provisions of this Exhibit will be used by the parties to resolve all controversies, claims, or disputes ("Dispute") arising out of or related to this Agreement-including Disputes regarding any alleged breaches of this Agreement.
- 1.3 Initiation. A party may initiate a Dispute by delivery of written notice of the Dispute, including the specifics of the Dispute, to the Representative of the other party as required in this Agreement.
- 1.4 Informal Resolution. When a Dispute notice is given, the parties will designate a member of their senior management who will be authorized to expeditiously resolve the Dispute.
- a. The parties will provide each other with reasonable access during normal business hours to any and all non-privileged records, information and data pertaining to any Dispute in order to assist in resolving the Dispute as expeditiously and cost effectively as possible;
  - b. The parties' senior managers will meet within 10 business days to discuss and attempt to resolve the Dispute promptly, equitably, and in a good faith manner, and
  - c. The Senior Managers will agree to subsequent meetings if both parties agree that further meetings are necessary to reach a resolution of the Dispute.

**2. Arbitration.**

- 2.1 Rules. If the parties are unable to resolve the Dispute by negotiation within 30 days from the Dispute notice, and unless otherwise informal discussions are extended by the mutual agreement, the Dispute will be decided by binding arbitration in accordance with Construction Industry Rules of the AAA, as amended herein. Although the arbitration will be conducted in accordance with AAA Rules, it will not be administered by the AAA, but will be heard independently.
- a. The parties will exercise best efforts to select an arbitrator within five business days after agreement for arbitration. If the parties have not agreed upon an arbitrator within this period, the parties will submit the selection of the arbitrator to one of the principals of the mediation firm of Scott & Skelly, LLC, who will then select the arbitrator. The parties will equally share the fees and costs incurred in the selection of the arbitrator.
  - b. The arbitrator selected must be an attorney with at least 15 years' experience with commercial construction legal matters in Maricopa County, Arizona, be independent, impartial, and not have engaged in any business for or adverse to either Party for at least 10 years.
- 2.2 Discovery. The extent and the time set for discovery will be as determined by the arbitrator. Each Party must, however, within 10 days of selection of an arbitrator deliver to the other Party copies of all documents in the delivering party's possession that are relevant to the dispute.

- 2.3 Hearing. The arbitration hearing will be held within 90 days of the appointment of the arbitrator. The arbitration hearing, all proceedings, and all discovery will be conducted in Glendale, Arizona unless otherwise agreed by the parties or required as a result of witness location. Telephonic hearings and other reasonable arrangements may be used to minimize costs.
  - 2.4 Award. At the arbitration hearing, each Party will submit its position to the arbitrator, evidence to support that position, and the exact award sought in this matter with specificity. The arbitrator must select the award sought by one of the parties as the final judgment and may not independently alter or modify the awards sought by the parties, fashion any remedy, or make any equitable order. The arbitrator has no authority to consider or award punitive damages.
  - 2.5 Final Decision. The Arbitrator's decision should be rendered within 15 days after the arbitration hearing is concluded. This decision will be final and binding on the Parties.
  - 2.6 Costs. The prevailing party may enter the arbitration in any court having jurisdiction in order to convert it to a judgment. The non-prevailing party will pay all of the prevailing party's arbitration costs and expenses, including reasonable attorney's fees and costs.
3. **Services to Continue Pending Dispute.** Unless otherwise agreed to in writing, Consultant must continue to perform and maintain progress of required Services during any Dispute resolution or arbitration proceedings, and City will continue to make payment to Consultant in accordance with this Agreement.
  4. **Exceptions.**
    - 4.1 Third Party Claims. City and Consultant are not required to arbitrate any third-party claim, cross-claim, counter claim, or other claim or defense of a third party who is not obligated by contract to arbitrate disputes with City and Consultant.
    - 4.2 Liens. City or Consultant may commence and prosecute a civil action to contest a lien or stop notice, or enforce any lien or stop notice, but only to the extent the lien or stop notice the Party seeks to enforce is enforceable under Arizona Law, including, without limitation, an action under A.R.S. § 33-420, without the necessity of initiating or exhausting the procedures of this Exhibit.
    - 4.3 Governmental Actions. This Exhibit does not apply to, and must not be construed to require arbitration of, any claims, actions or other process filed or issued by City of Glendale Building Safety Department or any other agency of City acting in its governmental permitting or other regulatory capacity.