

**PROFESSIONAL SERVICES AGREEMENT
FOR
WATER TREATMENT PLANT EXPANSION**

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This Agreement is entered into by and between the City of Pflugerville, a Texas Municipal Corporation (“City”), acting by and through its City Manager, and Ardurra Group, Inc. (“Consultant”), both of which may be referred to herein singularly as “Party” or collectively as the “Parties.”

The Parties hereto severally and collectively agree, and by the execution hereof are bound, to the mutual obligations herein contained and to the performance and accomplishment of the tasks hereinafter described.

I. DEFINITIONS

As used in this Agreement, the following terms shall have meanings as set out below:

“City” is defined in the preamble of this Agreement and includes its successors and assigns.

“Consultant” is defined in the preamble of this Agreement and includes its successors.

“City Manager” shall mean the City Manager and/or his designee.

II. TERM

2.1 This agreement shall become effective upon execution by the City and shall remain in effect until satisfactory completion of the Scope of Work unless terminated as provided for in this Agreement.

2.2 If funding for the entire Agreement is not appropriated at the time this Agreement is entered into, City retains the right to terminate this Agreement at the expiration of each of City’s budget periods, and any subsequent contract period is subject to and contingent upon such appropriation.

III. SCOPE OF SERVICES

Consultant agrees to provide the services described in this Article III entitled Scope of Services in exchange for the compensation described in Article IV. Compensation. Scope of Services are detailed in Appendix A – Scope of Service which are incorporated by reference as if written and copied herein.

All work performed by Consultant hereunder shall be performed to the satisfaction of the City Manager. The determination made by City Manager shall be final, binding and conclusive on all Parties hereto. City shall be under no obligation to pay for any work performed by Consultant, which is not satisfactory to City Manager. City shall have the right to terminate this Agreement, in accordance with Article VII. Termination, in whole or in part, should Consultant’s work not be satisfactory to City Manager; however, City shall have no obligation to terminate and

may withhold payment for any unsatisfactory work, as stated herein, even should City elect not to terminate.

IV. COMPENSATION TO CONSULTANT

4.1 In consideration of Consultant's performance in a satisfactory and efficient manner, as determined solely by City Manager, of all services and activities set forth in this Agreement, City agrees to pay Consultant an amount not to exceed one million nine hundred forty-seven thousand five hundred and twelve dollars (\$1,947,512.00) as total compensation, to be paid to Consultant as further detailed in Appendix B – Level of Efforts Fee Estimate

4.2 No additional fees or expenses of Consultant shall be charged by Consultant nor be payable by City. The parties hereby agree that all compensable expenses of Consultant have been provided for in the total payment to Consultant as specified in section 4.1 above. Total payments to Consultant cannot exceed that amount set forth in section 4.1 above, without prior approval and agreement of all parties, evidenced in writing and approved by the City.

4.3 Final acceptance of work products and services require written approval by City. The approval official shall be the City Manager. Payment will be made to Consultant following written approval of the final work products and services by the City Manager. City shall not be obligated or liable under this Agreement to any party, other than Consultant, for the payment of any monies or the provision of any goods or services.

V. OWNERSHIP OF DOCUMENTS

5.1 Any and all writings, documents or information in whatsoever form and character produced by Consultant pursuant to the provisions of this Agreement is the exclusive property of City; and no such writing, document or information shall be the subject of any copyright or proprietary claim by Consultant.

5.2 Consultant understands and acknowledges that as the exclusive owner of any and all such writings, documents and information, City has the right to use all such writings, documents and information as City desires, without restriction. Any use of such writings, documents and information on extensions of this project or on any other project without specific adaptation by Consultant shall be at the City's sole risk and without liability to the Consultant.

VI. RECORDS RETENTION

6.1 Consultant and its subcontractors, if any, shall properly, accurately and completely maintain all documents, papers, and records, and other evidence pertaining to the services rendered hereunder (hereafter referred to as "documents"), and shall make such materials available to the City at their respective offices, at all reasonable times and as often as City may deem necessary during the Agreement period, including any extension or renewal hereof, and the record retention period established herein, for purposes of audit, inspection, examination, and making excerpts or copies of same by City and any of its authorized representatives.

6.2 Consultant shall retain any and all documents produced as a result of services provided hereunder for a period of four (4) years (hereafter referred to as "retention period") from the date of termination of the Agreement. If, at the end of the retention period, there is litigation or other questions arising from, involving or concerning this documentation or the services provided hereunder, Consultant shall retain the records until the resolution of such litigation or other such

questions. Consultant acknowledges and agrees that City shall have access to any and all such documents at any and all times, as deemed necessary by City, during said retention period. City may, at its election, require Consultant to return said documents to City prior to or at the conclusion of said retention.

6.3 Consultant shall notify City, immediately, in the event Consultant receives any requests for information from a third party, which pertain to the documentation and records referenced herein. Consultant understands and agrees that City will process and handle all such requests.

VII. TERMINATION

7.1 For purposes of this Agreement, "termination" of this Agreement shall mean termination by expiration of the Agreement term as stated in Article II. Term, or earlier termination pursuant to any of the provisions hereof.

7.2 *Termination Without Cause.* This Agreement may be terminated by either Party upon 15 calendar days' written notice, which notice shall be provided in accordance with Article VIII. Notice.

7.3 *Termination For Cause.* Upon written notice, which notice shall be provided in accordance with Article VIII. Notice, City may terminate this Agreement as of the date provided in the notice, in whole or in part, upon the occurrence of one (1) or more of the following events, each of which shall constitute an Event for Cause under this Agreement:

7.3.1 The sale, transfer, pledge, conveyance or assignment of this Agreement without prior approval, as provided in Article XII. Assignment and Subcontracting.

7.4 *Defaults With Opportunity for Cure.* Should Consultant default in the performance of this Agreement in a manner stated in this section 7.4 below, same shall be considered an event of default. City shall deliver written notice of said default specifying such matter(s) in default. Consultant shall have fifteen (15) calendar days after receipt of the written notice, in accordance with Article VIII. Notice, to cure such default. If Consultant fails to cure the default within such fifteen-day cure period, City shall have the right, without further notice, to terminate this Agreement in whole or in part as City deems appropriate, and to contract with another consultant to complete the work required in this Agreement. City shall also have the right to offset the cost of said new Agreement with a new consultant against Consultant's future or unpaid invoice(s), subject to the duty on the part of City to mitigate its losses to the extent required by law.

7.4.1 Bankruptcy or selling substantially all of company's assets

7.4.2 Failing to perform or failing to comply with any covenant herein required

7.4.3 Performing unsatisfactorily

7.5 *Termination By Law.* If any state or federal law or regulation is enacted or promulgated which prohibits the performance of any of the duties herein, or, if any law is interpreted to prohibit such performance, this Agreement shall automatically terminate as of the effective date of such prohibition.

7.6 Regardless of how this Agreement is terminated, Consultant shall affect an orderly transfer to City or to such person(s) or firm(s) as the City may designate, at no additional cost to City, all completed or partially completed documents, papers, records, charts, reports, and any

other materials or information produced as a result of or pertaining to the services rendered by Consultant, or provided to Consultant, hereunder, regardless of storage medium, if so requested by City, or shall otherwise be retained by Consultant in accordance with Article VI. Records Retention. Any record transfer shall be completed within thirty (30) calendar days of a written request by City and shall be completed at Consultant's sole cost and expense. Payment of compensation due or to become due to Consultant is conditioned upon delivery of all such documents, if requested.

7.7 Within forty-five (45) calendar days of the effective date of completion, or termination or expiration of this Agreement, Consultant shall submit to City its claims, in detail, for the monies owed by City for services performed under this Agreement through the effective date of termination. Failure by Consultant to submit its claims within said forty-five (45) calendar days shall negate any liability on the part of City and constitute a **Waiver** by Consultant of any and all right or claims to collect monies that Consultant may rightfully be otherwise entitled to for services performed pursuant to this Agreement.

7.8 Upon the effective date of expiration or termination of this Agreement, Consultant shall cease all operations of work being performed by Consultant or any of its subcontractors pursuant to this Agreement.

7.9 *Termination not sole remedy.* In no event shall City's action of terminating this Agreement, whether for cause or otherwise, be deemed an election of City's remedies, nor shall such termination limit, in any way, at law or at equity, City's right to seek damages from or otherwise pursue Consultant for any default hereunder or other action.

VIII. NOTICE

Except where the terms of this Agreement expressly provide otherwise, any election, notice or communication required or permitted to be given under this Agreement shall be in writing and deemed to have been duly given if and when delivered personally (with receipt acknowledged), or three (3) days after depositing same in the U.S. mail, first class, with proper postage prepaid, or upon receipt if sending the same by certified mail, return receipt requested, or upon receipt when sent by a commercial courier service (such as Federal Express or DHL Worldwide Express) for expedited delivery to be confirmed in writing by such courier, at the addresses set forth below or to such other address as either Party may from time to time designate in writing.

If intended for City, to:	City of Pflugerville Attn: Patricia Davis, P.E. City Engineer P.O. Box 589 Pflugerville, Texas 78691
If intended for Consultant, to:	Ardurra Group, Inc. Attn: Yue Sun, PE, BCEE Project Manager 7500 Rialto Blvd., Bldg 1, Ste 240 Austin, TX 78734

IX. INSURANCE

9.1 Prior to the commencement of any work under this Agreement, Consultant shall furnish copies of all required endorsements and an original completed Certificate(s) of Insurance to the City, which shall be clearly labeled “*City of Pflugerville Water Treatment Plant Expansion*” in the Description of Operations block of the Certificate. The original Certificate(s) shall be completed by an agent and signed by a person authorized by that insurer to bind coverage on its behalf. The City will not accept Memorandum of Insurance or Binders as proof of insurance. The original certificate(s) or form must have the agent’s original signature, including the signer’s company affiliation, title and phone number, and be mailed, with copies of all applicable endorsements, directly from the insurer’s authorized representative to the City. The City shall have no duty to pay or perform under this Agreement until such certificate and endorsements have been received and approved by the City. No officer or employee, other than the City Attorney, shall have authority to waive this requirement.

9.2 The City reserves the right to review the insurance requirements of this Article during the effective period of this Agreement and any extension or renewal hereof and to modify insurance coverages and their limits when deemed necessary and prudent by City Attorney based upon changes in statutory law, court decisions, or circumstances surrounding this Agreement. In no instance will City allow modification whereupon City may incur increased risk.

9.3 A Consultant’s financial integrity is of interest to the City; therefore, subject to Consultant’s right to maintain reasonable deductibles in such amounts as are approved by the City, Consultant shall obtain and maintain in full force and effect for the duration of this Agreement, and any extension hereof, at Consultant’s sole expense, insurance coverage written on an occurrence basis, by companies authorized and admitted to do business in the State of Texas and with an A.M Best’s rating of no less than A- (VII), in the following types and for an amount not less than the amount listed below:

City of Pflugerville

Insurance Requirements

Consultant performing work on City property or public right-of-way for the City of Pflugerville shall provide the City a certificate of insurance evidencing the coverage provisions identified herein. Consultant shall provide the City evidence that all subcontractors performing work on the project have the same types and amounts of coverage as required herein or that the subcontractors are included under the contractor’s policy. The City, at its own discretion, may require a certified copy of the policy.

All insurance companies and coverage must be authorized by the Texas Department of Insurance to transact business in the State of Texas and must be acceptable to the City of Pflugerville.

Listed below are the types and amounts of insurance required. The City reserves the right to amend or require additional types and amounts of coverage or provisions depending on the nature of the work.

Type of Insurance	Amount of Insurance	Provisions
Commercial General (Public) Liability to include Premises/Operations	1,000,000 per occurrence, 2,000,000 general aggregate coverage for: Or	City to be listed as additional insured and provide 30 days' notice of cancellation or material change in coverage
Products/ Completed Operations	2,000,000 combined single coverage limit	City to be provided a waiver of subrogation
Independent Contractors		City prefers that insurer be rated B+V1 or higher by A.M. Best or A or higher by Standard & Poors
Personal Injury		
Contractual Liability		
Business Auto Liability	1,000,000 combined single limit	City to be provided a waiver of subrogation
Workers' Compensation & Employers Liability	Statutory Limits 1,000,000 each accident	City to be provided a waiver of subrogation
Professional Liability	1,000,000	

Questions regarding this insurance should be directed to the City of Pflugerville (512) 990-6100. A contract will not be issued without evidence of Insurance. City will only accept the ACORD 25 or ISO certificate of insurance forms.

9.4 The City shall be entitled, upon request and without expense, to receive copies of the policies, declaration page and all endorsements thereto as they apply to the limits required by the City, and may require the deletion, revision, or modification of particular policy terms, conditions, limitations or exclusions (except where policy provisions are established by law or regulation binding upon either of the Parties hereto or the underwriter of any such policies). Consultant shall be required to comply with any such requests and shall submit a copy of the replacement certificate of insurance to City at the address provided below within 10 days of the requested change. Consultant shall pay any costs incurred resulting from said changes.

City of Pflugerville
Capital Improvement Program
P.O. Box 589
Pflugerville, Texas 78691-0589

9.5 Consultant agrees that with respect to the above required insurance, all insurance policies are to contain or be endorsed to contain the following provisions:

- Name the City, its officers, officials, employees, volunteers, and elected representatives as ***additional insured by endorsement under terms satisfactory to the City***, as respects operations and activities of, or on behalf of, the named insured performed under contract with the City, with the exception of the workers' compensation and professional liability policies;

- Provide for an endorsement that the “other insurance” clause shall not apply to the City of Pflugerville where the City is an additional insured shown on the policy;
- Workers’ compensation and employers’ liability policies will provide a waiver of subrogation in favor of the City.
- Provide thirty (30) calendar days advance written notice directly to City of any suspension, cancellation, non-renewal or material change in coverage, and not less than ten (10) calendar days advance notice for nonpayment of premium.

9.6 Within five (5) calendar days of a suspension, cancellation or non-renewal of coverage, Consultant shall provide a replacement Certificate of Insurance and applicable endorsements to City. City shall have the option to suspend Consultant’s performance should there be a lapse in coverage at any time during this Agreement. Failure to provide and to maintain the required insurance shall constitute a material breach of this Agreement.

9.7 In addition to any other remedies the City may have upon Consultant’s failure to provide and maintain any insurance or policy endorsements to the extent and within the time herein required, the City shall have the right to order Consultant to stop work hereunder, and/or withhold any payment(s) which become due to Consultant hereunder until Consultant demonstrates compliance with the requirements hereof.

9.8 Nothing herein contained shall be construed as limiting in any way the extent to which Consultant may be held responsible for payments of damages to persons or property resulting from Consultant’s or its subcontractors’ performance of the work covered under this Agreement.

9.9 It is agreed that, excepting Professional Liability, Consultant’s insurance shall be deemed primary and non-contributory with respect to any insurance or self-insurance carried by the City of Pflugerville for liability arising out of operations under this Agreement.

9.10 It is understood and agreed that the insurance required is in addition to and separate from any other obligation contained in this Agreement.

9.11 Consultant and any of its Subcontractors are responsible for all damage to their own equipment and/or property.

X. INDEMNIFICATION

10.1 CONSULTANT covenants and agrees to INDEMNIFY and HOLD HARMLESS, the CITY and the elected officials, employees, officers, directors, volunteers and representatives of the CITY, individually and collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, or liability for damages caused by or resulting from an act of negligence, intentional tort, intellectual property infringement, or failure to pay a subcontractor or supplier committed by the CONSULTANT or the CONSULTANT’s agent, CONSULTANT under contract, or another entity over which the CONSULTANT exercises control. Such acts may include personal or bodily injury, death and property damage, made upon the CITY directly or indirectly arising out of, resulting from or related to CONSULTANT’S activities under this Agreement, including any negligent or intentional acts or omissions of CONSULTANT, any agent, officer, director, representative, employee,

consultant or subcontractor of CONSULTANT, and their respective officers, agents employees, directors and representatives while in the exercise of the rights or performance of the duties under this Agreement. The indemnity provided for in this paragraph shall not apply to any liability resulting from the negligence of CITY, its elected officials, employees, officers, directors, volunteers and representatives, in instances where such negligence causes personal injury, death, or property damage. In no event shall the indemnification obligation extend beyond the date with when the institution of legal or equitable proceedings for the professional negligence would be barred by any applicable statute of repose or statute of limitations.

10.2 The provisions of this INDEMNITY are solely for the benefit of the Parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity. CONSULTANT shall advise the CITY in writing within 24 hours of any claim or demand against the CITY or CONSULTANT known to CONSULTANT related to or arising out of CONSULTANT's activities under this AGREEMENT.

10.3 Duty to Defend – Consultant covenants and agrees to hold a DUTY TO DEFEND the CITY and the elected officials, employees, officers, directors, volunteers and representatives of the CITY, individually and collectively, from and against any and all claims, liens, proceedings, actions or causes of action, other than claims based wholly or partly on the negligence of, fault of, or breach of contract by the CITY, the CITY’S agent, the CITY’S employee or other entity, excluding the CONSULTANT or the CONSULTANT’S agent, employee or sub-consultant, over which the CITY exercises control. CONSULTANT is required under this provision and fully satisfies this provision by naming the CITY and those representatives listed above as additional insured under the CONSULTANT’S general liability insurance policy and providing any defense provided by the policy upon demand by CITY.

10.4 CONSULTANT is required to perform services to the City under the standard of care provided for in Texas Local Government Code § 271.904 (d)(1-2).

10.5 Employee Litigation – In any and all claims against any Party indemnified hereunder by any employee of CONSULTANT, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation herein provided shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONSULTANT or any subcontractor under worker’s compensation or other employee benefit acts.

10.6 Force Majeure - City agrees that the CONSULTANT is not responsible for damages arising from any circumstances such as strikes or other labor disputes; severe weather disruptions, natural disasters, fire or other acts of God; riots, war or other emergencies; or failure of any third party governmental agency to act in timely manner not caused or contributed to by CONSULTANT.

XI. ASSIGNMENT AND SUBCONTRACTING

11.1 Consultant shall supply qualified personnel as may be necessary to complete the work to be performed under this Agreement. Persons retained to perform work pursuant to this Agreement shall be the employees or subcontractors of Consultant. Consultant, its employees or its subcontractors shall perform all necessary work.

11.2 It is City's understanding and this Agreement is made in reliance thereon, that Consultant intends to use the following subcontractors in the performance of this Agreement: AACE, Gupta & Associates, K Friese, Mbroh Engineering Inc., and HVJ. Any deviation from this subcontractor list, whether in the form of deletions, additions or substitutions shall be approved by City prior to the provision of any services by said subcontractor.

11.3 Any work or services approved for subcontracting hereunder shall be subcontracted only by written contract and, unless specific waiver is granted in writing by the City, shall be subject by its terms to each and every provision of this Agreement. Compliance by subcontractors with this Agreement shall be the responsibility of Consultant. City shall in no event be obligated to any third party, including any subcontractor of Consultant, for performance of services or payment of fees. Any references in this Agreement to an assignee, transferee, or subcontractor, indicate only such an entity as has been approved by the City.

11.4 Except as otherwise stated herein, Consultant may not sell, assign, pledge, transfer or convey any interest in this Agreement, nor delegate the performance of any duties hereunder, by transfer, by subcontracting or any other means, without the consent of the City Council, as evidenced by passage of an ordinance. As a condition of such consent, if such consent is granted, Consultant shall remain liable for completion of the services outlined in this Agreement in the event of default by the successor Consultant, assignee, transferee or subcontractor.

11.5 Any attempt to transfer, pledge or otherwise assign this Agreement without said written approval, shall be void ab initio and shall confer no rights upon any third person. Should Consultant assign, transfer, convey, delegate, or otherwise dispose of any part of all or any part of its right, title or interest in this Agreement, City may, at its option, cancel this Agreement and all rights, titles and interest of Consultant shall thereupon cease and terminate, in accordance with Article VII. Termination, notwithstanding any other remedy available to City under this Agreement. The violation of this provision by Consultant shall in no event release Consultant from any obligation under the terms of this Agreement, nor shall it relieve or release Consultant from the payment of any damages to City, which City sustains as a result of such violation.

XII. INDEPENDENT CONTRACTOR

Consultant covenants and agrees that he or she is an independent contractor and not an officer, agent, servant or employee of City; that Consultant shall have exclusive control of and exclusive right to control the details of the work performed hereunder and all persons performing same, and shall be responsible for the acts and omissions of its officers, agents, employees, contractors, subcontractors and consultants; that the doctrine of respondent superior shall not apply as between City and Consultant, its officers, agents, employees, contractors, subcontractors and consultants, and nothing herein shall be construed as creating the relationship of employer-employee, principal-agent, partners or joint ventures between City and Consultant. The Parties hereto understand and agree that the City shall not be liable for any claims which may be asserted by any third party occurring in connection with the services to be performed by the Consultant under this Agreement and that the Consultant has no authority to bind the City.

XIII. CONFLICT OF INTEREST

13.1 Consultant acknowledges that it is informed that the Charter of the City of Pflugerville and its Ethics Code prohibit a City officer or employee, as those terms are defined in Section 11.06 of the Ethics Code, from having a financial interest in any contract with the City or any City agency such as city owned utilities. An officer or employee has a “prohibited financial interest” in a contract with the City or in the sale to the City of land, materials, supplies or service, if any of the following individual(s) or entities is a Party to the contract or sale: a City officer or employee; his parent, child or spouse; a business entity in which the officer or employee, or his parent, child or spouse owns ten (10) percent or more of the voting stock or shares of the business entity, or ten (10) percent or more of the fair market value of the business entity; a business entity in which any individual or entity above listed is a subcontractor on a City contract, a partner or a parent or subsidiary business entity.

13.2 Pursuant to the subsection above, Consultant warrants and certifies, and this Agreement is made in reliance thereon, that it, its officers, employees and agents are neither officers nor employees of the City. Consultant further warrants and certifies that it will comply with the City’s Ethics Code.

13.3 Certificate of Interested Parties (TEC Form 1295). For contracts needing City Council approval, or any subsequent changes thereto requiring City Council approval, the City may not accept or enter into a contract until it has received from the Consultant a completed, and signed, TEC Form 1295 complete with a certificate number assigned by the Texas Ethics Commission (“TEC”), pursuant to Texas Government Code § 2252.908 and the rules promulgated thereunder by the TEC. The Consultant understands that failure to provide said form complete with a certificate number assigned by the TEC may prohibit the City from entering into this Agreement. Pursuant to the rules prescribed by the TEC, the TEC Form 1295 must be completed online through the TEC’s website, assigned a certificate number, printed, signed and provided to the City. The TEC Form 1295 must be provided to the City prior to the award of the contract. The City does not have the ability to verify the information included in a TEC Form 1295, and does not have an obligation or undertake responsibility for advising Consultant with respect to the proper completion of the TEC Form 1295.

XIV. AMENDMENTS

Except where the terms of this Agreement expressly provide otherwise, any alterations, additions, or deletions to the terms hereof, shall be effected by amendment, in writing, executed by both City and Consultant, and, if applicable, subject to formal approval by the City Council.

XV. SEVERABILITY

If any clause or provision of this Agreement is held invalid, illegal or unenforceable under present or future federal, state or local laws, including but not limited to the City Charter, City Code, or ordinances of the City of Pflugerville, Texas, then and in that event it is the intention of the Parties hereto that such invalidity, illegality or unenforceability shall not affect any other clause or provision hereof and that the remainder of this Agreement shall be construed as if such invalid, illegal or unenforceable clause or provision was never contained herein; it is also the intention of the Parties hereto that in lieu of each clause or provision of this Agreement that is invalid, illegal, or unenforceable, there be added as a part of the Agreement a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provision as may be possible, legal, valid and enforceable.

XVI. LICENSES/CERTIFICATIONS

Consultant warrants and certifies that Consultant and any other person designated to provide services hereunder has the requisite training, license and/or certification to provide said services, and meets all competence standards promulgated by all other authoritative bodies, as applicable to the services provided herein.

XVII. COMPLIANCE

Consultant shall provide and perform all services required under this Agreement in compliance with all applicable federal, state and local laws, rules and regulations.

XVIII. NONWAIVER OF PERFORMANCE

Unless otherwise specifically provided for in this Agreement, a waiver by either Party of a breach of any of the terms, conditions, covenants or guarantees of this Agreement shall not be construed or held to be a waiver of any succeeding or preceding breach of the same or any other term, condition, covenant or guarantee herein contained. Further, any failure of either Party to insist in any one or more cases upon the strict performance of any of the covenants of this Agreement, or to exercise any option herein contained, shall in no event be construed as a waiver or relinquishment for the future of such covenant or option. In fact, no waiver, change, modification or discharge by either Party hereto of any provision of this Agreement shall be deemed to have been made or shall be effective unless expressed in writing and signed by the Party to be charged. In case of City, such changes must be approved by the City Council, as described in Article XVI. Amendments. No act or omission by a Party shall in any manner impair or prejudice any right, power, privilege, or remedy available to that Party hereunder or by law or in equity, such rights, powers, privileges, or remedies to be always specifically preserved hereby.

XIX. LAW APPLICABLE

19.1 THIS AGREEMENT SHALL BE CONSTRUED UNDER AND IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND ALL OBLIGATIONS OF THE PARTIES CREATED HEREUNDER ARE PERFORMABLE IN TRAVIS COUNTY, TEXAS.

19.2 Venue for any legal action or proceeding brought or maintained, directly or indirectly, as a result of this Agreement shall be heard and determined in a court of competent jurisdiction in Travis County, Texas.

XX. LEGAL AUTHORITY

The signer of this Agreement for Consultant represents, warrants, assures and guarantees that he has full legal authority to execute this Agreement on behalf of Consultant and to bind Consultant to all of the terms, conditions, provisions and obligations herein contained.

XXI. PARTIES BOUND

This Agreement shall be binding on and inure to the benefit of the Parties hereto and their respective heirs, executors, administrators, legal representatives, and successors and assigns, except as otherwise expressly provided for herein.

XXII. CAPTIONS

The captions contained in this Agreement are for convenience of reference only, and in no way limit or enlarge the terms and/or conditions of this Agreement.

XXIII. INCORPORATION OF EXHIBITS

Each of the Exhibits listed below is an essential part of the Agreement, which governs the rights and duties of the Parties, and shall be incorporated herein for all purposes:

Appendix “A” - Scope of Services, including Project Description/Scope of Services.

Appendix “B” - Fee Summary for Professional Services, Level of Efforts Fee Estimate, and Subconsultant Proposals.

Appendix “C” – Proposed Project Schedule.

XXIV. ENTIRE AGREEMENT

This Agreement, together with its authorizing ordinance and its exhibits, if any, constitute the final and entire agreement between the Parties hereto and contain all of the terms and conditions agreed upon. No other agreements, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind the Parties hereto, unless same be in writing, dated subsequent to the date hereto, and duly executed by the Parties, in accordance with Article XIV. Amendments.

XXV. MISCELLANEOUS CITY CODE PROVISIONS

25.1 Representations and Warranties by Consultant. If Consultant is a corporation, partnership or a limited liability company, Consultant warrants, represents, covenants, and agrees that it is duly organized, validly existing and in good standing under the laws of the state of its incorporation or organization and is duly authorized and in good standing to conduct business in the State of Texas.

25.2 Franchise Tax Certification. A corporate or limited liability company Consultant certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Chapter 171 of the *Texas Tax Code*, or that the corporation or limited liability company is exempt from the payment of such taxes, or that the corporation or limited liability company is an out-of-state corporation or limited liability company that is not subject to the Texas Franchise Tax, whichever is applicable.

25.3 Eligibility Certification. Consultant certifies that the individual or business entity named in the Agreement is not ineligible to receive payments under the Agreement and acknowledges that the Agreement may be terminated and payment withheld if this certification is inaccurate.

25.4 Payment of Debt or Delinquency to the State or Political Subdivision of the State. Pursuant to Chapter 38, *City of Pflugerville Code of Ordinances*, Consultant agrees that any payments owing to Consultant under the Agreement may be applied directly toward any debt or delinquency that Consultant owes the City of Pflugerville, State of Texas or any political subdivision of the State of Texas regardless of when it arises, until such debt or delinquency is paid in full.

25.5 Texas Family Code Child Support Certification. Consultant certifies that they are not delinquent in child support obligations and therefore is not ineligible to receive payments under the Agreement and acknowledges that the Agreement may be terminated and payment may be withheld if this certification is inaccurate.

25.6 Texas Government Code Mandatory Provision. The City of Pflugerville may not enter into a contract with a company for goods and services unless the contract contains a written verification from the company that it; (i) does not boycott Israel; and (ii) will not boycott Israel during the term of the contract. (Texas Government Code, Chapter 2270.002) by accepting this rider, the Consultant hereby verifies that it does not boycott Israel, and agrees that, during the term of this agreement, will not boycott Israel as that term is defined in the Texas Government Code, Section 808.001, as amended. Further, the Consultant hereby certifies that it is not a company identified under Texas Government Code, Section 2252.152 as a company engaged in business with Iran, Sudan, or Foreign Terrorist Organization.

EXECUTED and AGREED to as of the dates indicated below.

**CITY OF
PFLUGERVILLE**


Ardurra Group, Inc.

(Signature)

Printed Name: Sereniah Breland

Title: City Manager

Date: _____



(Signature)

Printed Name: Chris Canonico, P.E.

Title: Principal

Date: 11.25.2020

APPROVED AS TO FORM:



Charles E. Zech

City Attorney

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**SCOPE OF SERVICES
FOR
CITY OF PFLUGERVILLE
WATER TREATMENT PLANT EXPANSION
PRELIMINARY ENGINEERING DESIGN PHASE**

GENERAL

The City of Pflugerville (City) operates a nominal 17 million gallon per day (MGD) Water Treatment Plant (WTP). This project is to provide a comprehensive expansion of the WTP to 30 MGD, incorporating other active CIP projects currently underway, to meet current and future water demands. This project will also construct improvements required by the WTP facility to meet and maintain regulatory compliance, safety, technology improvements, process innovation and renew aging infrastructure.

The following scope of work clarifies and describes the project tasks to be performed and completed by the Engineer. Work includes engineering services associated with development of a Preliminary Engineering Report & 30% Design to expand the City's WTP to 30 MGD. A supplemental agreement is anticipated to expand the Scope of Services to include final design, bidding and construction services.

The general scope of work includes preliminary engineering design of the following components based on a site visit and scoping meeting conducted on November 5, 2020:

- **Expansion of existing Lake Intake Pump Station**
 - Evaluate the hydraulic capacity of the existing pipe network from the Lake pump station to the proposed pretreatment unit, including a hydraulic evaluation of the existing pumps and discharge piping.
 - Evaluate options for the replacement of the butterfly valves with REXA actuators with a new control valve, such as a Cla-Val or similar valve.
 - Evaluate and confirm adding two additional vertical turbine pumps and connect to the existing suction header and discharge header. The new pumps will be constant speed with soft starts as the existing pumps have VFDs.
 - Evaluate a copper ion generator system for zebra mussel control.
- **Pretreatment Train (Rapid Mix, Flocculation Basins, Plate Settlers)**
 - Coordinate with Owner's Representative (OR) for design criteria recommendations (coagulant selection, recommended dosage, plate setter surface overflow rate, etc.) based on the bench scale and pilot testing performed by OR.
 - Evaluate hydraulic condition to gravity flow from pretreatment to membrane system.
 - Evaluate options of flocculators and sludge collectors.

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- **Membrane Filtration**
 - Evaluate retrofitting existing membrane system with new submersible membrane system including all ancillary components such as strainers, permeate pumps, backwash pumps, air scour blowers, and clean-in-place/neutralization system, etc. The new membrane equipment and associated components will be housed inside the existing Membrane Building.
 - Develop preliminary construction sequence plan for membrane retrofit.
- **Clearwell**
 - Add baffle walls inside the 3-MG clearwell.
- **High Service Pump Station**
 - Evaluate the hydraulic capacity of the existing pipe network from the Clearwell to the HSPS to accommodate the 30 MGD capacity.
 - Evaluate the conversion of the existing HSP discharge header WYE connections to TEE connections for its impact on pump station hydraulics and functionality.
 - Evaluate and confirm adding two additional vertical turbine pumps, with VFDs, and connect to the existing suction header. Connection of individual pump discharge pipes to the discharge header will be made via a tee in lieu of a WYE.
 - Evaluate options to dedicate new pumps to serve both the existing 960-foot pressure zone and a new proposed 800-foot pressure zone and modifications needed for a parallel discharge header that connects the two discharge pressure planes.
 - Evaluate control options for pump control valves.
 - Evaluate options to receive the 685,000 gpd groundwater source for treatment and repumping.
- **Chemical Storage and Feed Facility**
 - Demolish existing chemical system including coagulant, liquid ammonium sulfate, onsite hypochlorite generation; evaluate the possibility of repurposing the existing chemical storage tanks and the optimal use for the space made available by their removal/relocation (i.e., office space, membrane cleaning chemicals, etc.).
 - Demolish abandoned PAC equipment inside the PAC room; potentially repurpose this room for other uses.
 - A new chemical bulk storage and feed facility to house bulk delivered sodium hypochlorite, liquid ammonium sulfate, coagulant, and chemicals for pH adjustment (pending recommendations from the coagulant optimization bench scale test by OR).
- **New sludge Thickeners and Thickened Sludge Pump Station**
 - Evaluate options for pumping thickened sludge or discharging by gravity flow to city's WWTP facility.

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- Expansion of Backwash Waste Clarifier and Return Flow Pump Station. Provide operational flexibility to send decant from the backwash clarifiers either to the lake or the head of the plant.
- Miscellaneous Improvements
 - Evaluate options for plant fencing system improvements.
 - Plant Entrance Gate – No anticipated addition for this expansion.
 - On-site Sanitary Lift Station – No anticipated upgrade for this expansion.
 - Control Room/Offices – No anticipated upgrade for this expansion.
 - Maintenance Building – No anticipated upgrade for this expansion.
 - Plant Security System – No anticipated upgrade for this expansion.
 - Electrical Service/Standby Power – Currently being handled in a separate project and the Engineer will coordinate with this package by Others.
- Installation of a new 800-foot pressure zone on-site transmission line connecting the proposed elevated storage tank (by others) to the proposed off-site transmission line in ROW (by others), routed through the WTP site. It is assumed that the new 24-inch water line will be routed within the current plant boundaries.
- Installation of a new 42-inch high service pump station discharge header routed within the current plant boundaries. This new line will be connected to the proposed 42-inch water line near the fence line (by others).

Upon receipt of notice to proceed, Engineer shall conduct an evaluation and perform preliminary design services.

Preparation of final design construction contract documents, assistance during bidding and construction, development of O&M manual, commissioning and startup services, and application engineering services, for the WTP Expansion will be included in future contracts.

Stakeholders for this contract include:

- Ardurra and its teaming partners as “Engineer”
- City of Pflugerville as “City”
- Garver as “Owner’s Representative (OR)”

SCOPE OF WORK

The scope of work presented below describes the base level of services for this project by project task. Unless noted otherwise, all deliverables will be electronic PDF.

Task 1.0 – PROJECT MANAGEMENT AND QUALITY ASSURANCE

1.1. Project Work Plan

Engineer will prepare a written project work plan that outlines the project scope and establishes procedures and protocol for executing the project. The project work plan will include: the scope of work; schedule; organizational structure; communications plan; document management

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procedures; and quality management procedures. The project work plan will be dynamic in nature and therefore periodically updated as required; action items and decisions will be tracked in an Action Item List and Decision Log.

Deliverables: Project Work Plan

1.2. Project Progress Meetings

Engineer will conduct an initial kickoff meeting with the City to introduce project team members, establish protocol and lines of communication, review project goals and objectives, gather all available documents pertinent to the project, and review the scope of work, and schedule.

Monthly progress meetings will be held during the course of the project with the City staff to discuss aspects of the project tasks presently underway, review progress, project schedule, and upcoming issues. These meetings will generally be about two hours in duration. The appropriate Engineering team members shall attend the meetings to discuss pertinent issues. Up to four (4) progress meetings are planned for this Preliminary Engineering Phase of the project. Engineer will prepare draft meeting minutes within seven business days to submit to the City/OR for review and approval. Final minutes will be issued after incorporating review comments.

Deliverables: Meeting agenda and minutes

1.3. Project Team Coordination

Engineer will conduct regular coordination meetings with design team and subconsultants to coordinate design tasks, review all project elements, to facilitate development of preliminary engineering design. Up to four internal team coordination meetings are planned for the Preliminary Engineering Phase of the project.

1.4. Quality Assurance/Quality Control

Engineer will perform quality assurance/quality control procedures during the project phase. These procedures will include a technical review of interim deliverables by senior technical advisors who are not directly involved with the project. The technical review will provide comments and suggestions concerning the various project deliverables for incorporation prior to submitting to the City. A half-day internal review meeting will be conducted for the Draft Preliminary Engineering Report to discuss technical review comments.

Deliverables: Internal documentation of technical reviews and response logs

1.5. Project Monthly Progress Report and Invoices

Engineer will track and update the budget, schedule, progress of work, and potential changes to the scope of work. Engineer will provide a project status report and submit with monthly invoice. The project status report will include summary of work completed to date, work planned for upcoming month, and schedule update as needed.

Deliverables: Project status reports and monthly invoices

TASK 2.0 – PRELIMINARY ENGINEERING DESIGN

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The Engineer shall perform the following tasks as part of the preliminary engineering design of the project. It consists of: evaluating the existing system to identify improvements/modifications recommended for the plant expansion; preliminary engineering design of proposed improvements; preparation of a Preliminary Engineering Report (PER); constructability review; and development of opinion of probable construction costs. Each subtask is discussed in detail below.

2.1. Data Collection and Review

Engineer will obtain and review available historical water quality data, plant operation data, operation reports, and other pertinent records, including but not limited to:

- Plant flows for last 5 years
- Available water quality data throughout treatment processes for last 5 years
- Chemical dosage for last 5 years and MSDS data sheets
- Plant disinfection CT study
- Electrical power billing record for last 5 years
- Any improvement projects and study reports since the commission of the plant

Engineer will prepare a data request list and review with the City at the Kick-off meeting. It is assumed data requested will be provided to the Engineer in an electronic format. Upon receiving the data, the Engineer will review, analyze, and perform a water balance analysis to develop the basis of design (flows and solids loading throughout treatment processes) for the expansion. A Basis of Design Draft Technical Memo will be prepared and submitted to City/OR for review. Review comments will be incorporated in the Draft PER. During the course of the project Engineer may identify other pertinent documents such as existing equipment O&M manuals and will make a request to the City.

Deliverables: TM 1 Basis of Design Draft Technical Memo

2.2. Specific Workshops

Engineer will conduct three workshops during the Preliminary Engineering Design phases with City staff and OR to develop project direction for various items related to the WTP Expansion.

Engineer will provide a summary document following each of the workshops, documenting the outcome and presenting action items to be completed.

2.2.1 Plant SCADA System Development. Presently plant control is accomplished through the SUEZ/ZENON membrane system HMI screen. This integration of the plant control system within the membrane system is not desired for operation of a plant that has multiple treatment processes/systems that require monitoring and control. This task will evaluate a new central SCADA system that is separate from the existing SUEZ/ZENON control system. The evaluation will assess the project I&C and SCADA aspects for the plant expansion, proposed system architecture, process instrumentation diagram, communications network, hardware, software, standard equipment, and system integration. Engineer will prepare preliminary system architectural drawings for the proposed plant central SCADA system and conduct a workshop presenting the recommendations. This workshop is anticipated to be no more than four hours in length.

Deliverables: Workshop Agenda and Minutes

2.2.2 Master Site Plan Development. This phase of the project is to expand the WTP to 30 MGD, with subsequent expansion in 15-MGD increments to 75 MGD ultimately in the future. The Site Plan Development Workshop will develop locations for proposed structures, buildings, roadways, electrical facilities, and other features for the current expansion, as well as potential future expansion. The master site plan will include requirements regarding the site fencing and access to the proposed Parkway project immediately adjacent to the site. Engineer will use the workshop results to develop a Site Build Out Plan. Engineer will prepare a site drawing with the site build out plan and include the results of the site planning effort in the Preliminary Engineering Design Report. This workshop is anticipated to be four hours in length.

A Site Buildout Optimization Draft Technical Memo will be prepared and submitted to City/OR for review. Review comments will be incorporated in the Draft PER.

Deliverables: Site Build Out Plan Drawing, Workshop Agenda and Minutes, TM 4 Site Buildout Optimization Draft Technical Memo

2.2.3 City PER Review Workshop. A review workshop with City staff will be conducted for the Preliminary Engineering Design phase. This workshop will be held approximately two weeks following submittal of the draft Preliminary Engineering Design deliverable to provide time for City and OR review, and comment collection & compiling. Following their review, City/OR staff will provide written comments to the Engineer. Engineer will then provide a written response to these comments and incorporate revision in the final PER. The review workshop will be approximately 4 hours.

Deliverables: Workshop Agenda and Review Comment & Response Log

2.3. Preliminary Engineering Design

The Preliminary Engineering Design Phase of the WTP Expansion will provide a 30% complete design of the project. It will include the Preliminary Engineering Report and 30% complete level drawings. The work under this phase will include the following items:

- Develop and finalize design criteria
- Develop facility sizing and produce equipment data
- Evaluate geotechnical findings relative to the expanded facilities
- Perform process hydraulic analyses
- Conduct building code analysis
- Develop expanded plant power loads and produce electrical one-line diagram
- Develop plant SCADA system architecture
- Develop preliminary specifications table of contents
- Develop preliminary design, including the following discipline level
 - Process and Instrumentation Diagrams (P&IDs) to 60%
 - Process Mechanical to 50%
 - Site Civil, including site, yard piping, grading, and paving plans, to 30%
 - Structural to 20%

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- Architectural to 20%
- HVAC/Plumbing/Fire Protection to 20%
- Electrical to 20%
- AACE Class 3 Level Opinion of Probable Construction Cost
- Preliminary Project Construction Schedule

The following subtasks will be performed in developing the Preliminary Engineering Report (PER) to determine the scope for the WTP Expansion to move into the Final Design. Appropriate graphics, charts, diagrams, tables, and drawings will supplement the text to provide a complete working summary document.

2.3.1 Unit Process Evaluations and 30% Drawing Development. Engineer will evaluate the various treatment processes and other facilities to be incorporated into the WTP Expansion. These evaluations will result in recommended number and size of unit processes, standby equipment requirements, types of equipment to be used, and facility costs. Engineer will develop preliminary design drawings for the expansion in accordance with the discipline level as defined above.

Expansion of the WTP will be designed in compliance with the requirements of applicable laws, codes, and regulations, including the City of Pflugerville Building Code and applicable design manuals.

2.3.2 Plant Hydraulics. Engineer will evaluate the plant hydraulics for the proposed WTP Expansion such that the impact of various flows can be evaluated and structures and piping properly sized. Hydraulic grade line drawings will be prepared.

The following Technical Memoranda will be developed to present design evaluation and improvement recommendations. The Draft Technical Memo will be submitted to City/OR for review and comments will be incorporated in the Draft PER.

Deliverables: TM 2 Process Evaluation and Plant Hydraulics Draft Technical Memo, TM 3 Membrane Retrofit Construction Phasing Plan Draft Technical Memo

2.3.3 Coordination Meetings with OR and Other Consultants

- Engineer will coordinate with OR to review findings and recommendations from the coagulant bench scale and plate settle pilot testing to confirm process treatment performance, recommended design criteria (coagulant selection, dosage, plate settler surface overflow rate, etc.). It is assumed one virtual meeting will be held. Each meeting will be no more than two (2) hours in length. Other miscellaneous coordination will be handled via email correspondence or as part of progress meetings.
- Engineer will coordinate with the City and any identified separate water hydraulic model consultant to obtain inputs for pump control valve design for the high service pump station. Engineer will identify several transient surge analysis scenarios for the City or City identified consultant to perform the analyses. The analysis will determine

recommended pump control valve open and closing time, required surge protection devices for the pump station, piping headers, etc. It is assumed up to two (2) virtual meetings will be held with the City's identified modeling consultant. Each meeting will be no more than two (2) hours in length.

- Depending upon final coagulant selection for the plant expansion, compatibility of the sludge from the WTP with the WWTP treatment process should be evaluated. Engineer will identify sludge flow from this expansion and coordinate such information to the OR. Sludge characteristics should be obtained from the pilot testing by the OR. Evaluation of the impact on the WWTP will be conducted by others as identified by the City.

2.3.4 WTP Expansion Discipline Support Activities. As a portion of the Preliminary Engineering Report, the following items will be evaluated and included in the overall report preparation. In general, discipline design considerations for the plant expansion will follow the same design philosophy that was established in the original design, unless otherwise directed by the City:

- Civil and Site Work, SWPPP and Environmental Permitting – PER will address grading, paving, drainage, stormwater mitigation, SWPPP and environmental permitting requirements during construction.
- Structural Design – PER will identify building codes that will apply to the design and develop structural design for various process structures.
- Architectural Design– PER will address the architectural design of the WTP Building expansion and modifications required. Plan views and representative sections for the facilities will be included in the PER. Anticipated new buildings/building expansion/building modifications include Lake Pump Station expansion with an integral electrical room, pretreatment train electrical room and plate settler canopy, membrane building chemical bulk tank area modifications, high service pump station expansion with an integral electrical room, and new chemical building.
- HVAC, Plumbing, and Fire Protection – PER will address the HVAC, plumbing and fire protection requirements for various buildings on site. Anticipated new buildings/building expansion/building modifications include Lake Pump Station expansion with an integral electrical room, pretreatment train electrical room and plate settler canopy, membrane building chemical bulk tank area modifications, high service pump station expansion with an integral electrical room, and new chemical building.
- Electrical Design – PER will discuss the power requirements for the WTP Expansion, develop electrical load list and one-line diagrams.
- Instrumentation, Control, and SCADA Design – PER will present instrumentation and control philosophy for the WTP Expansion and develop the preliminary process and instrumentation diagrams and SCADA system architecture. Evaluate SCADA HMI for expansion. Existing SCADA HMI servers and workstations will remain for reuse.

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2.3.5 Preliminary Cost Estimates. Engineer will prepare a quantity take-off and develop preliminary opinions of probable construction costs (OPCC) for construction in accordance with AACE Class 3. The cost estimating assumptions and cost summaries will be included in the PER.

2.3.6 Constructability Review and Overall Construction Schedule. Engineer will identify potential construction constraints and develop a construction sequencing and staging plan in order to maintain plant operation during the expansion. Engineer will address constructability concerns and determine the overall construction schedule for the plant expansion.

2.3.7 Preliminary Engineering Report. Engineer will prepare a PER for the WTP Expansion that will incorporate the above items evaluated in the Preliminary Engineering Design Phase and present the proposed plans in the PER. The PER will include plant design criteria and the proposed list of major equipment, preliminary layouts of facilities, structures and buildings, P&IDs, site plan and yard piping layouts, driveways, and electrical facilities.

A draft Table of Contents for this deliverable is as follows:

- Executive Summary
- Section 1 – Introduction and Project Background
- Section 2 – Historical Data Review
- Section 3 – Water Balance, Design Flow, and Plant Hydraulics
- Section 4 – Lake Pump Station
- Section 5 - Pretreatment
- Section 6 – Low Pressure Membrane Filtration
- Section 7 – Clearwell
- Section 8 – High Service Pump Station
- Section 9– Solids Handling Processes (Raw Sludge Thickener, Thickened Sludge Pump Station)
- Section 10 – Backwash Clarifier and Return Flow Pump Station
- Section 11 - Chemical Storage and Feed Facilities
- Section 12 – Miscellaneous Process Areas
- Section 13 – Disinfection CT Analysis
- Section 14 - Civil and Site Work, SWPPP and Environmental Permitting
- Section 15 – Structural Design Considerations
- Section 16 – Architectural Design Considerations
- Section 17 – HVAC, Plumbing, and Fire Protection
- Section 18 – Electrical Design Considerations
- Section 19 – Instrumentation, Control and SCADA Design
- Section 20 –Construction Schedule and OPCC
- Section 21 – Master Plan Site Development and Considerations

Deliverables: Electronic submittal of Electronic submittal of draft and final Preliminary Engineering Reports, and 30% Level Drawings

Task 3.0 – SITE TOPOGRAPHIC SURVEY

- 3.1. Topographic surveying shall include obtaining elevations and locations of existing structures, paving, improvements, driveways, natural ground, ditches, irregularities

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in the natural ground and other features within and adjacent to the project. It is assumed that topographic surveying for the new 24-inch water line and 42-inc line routed outside the current plant boundaries has been performed by others and the topographic survey information will be provided to Ardurra for design of the new 24-inch water line.

- 3.2. Utilities within and adjoining the site shall be located and tied based on visual evidence and available plans and maps.
- 3.3. The flow line elevations and pipe sizes shall be obtained on existing storm sewer lines, sanitary sewer lines and culverts.
- 3.4. The top and flow line elevations will be obtained on existing inlets, manholes, and drainage structures.
- 3.5. Topographic surveys shall be performed as follows:
 - 3.5.1 Obtain elevations on approximate 50 ft. grid intervals in uniform areas and obtain elevations on irregularities in the natural ground.
 - 3.5.2 Identify and locate hardwood trees with trunk diameters 8 inches and above.
 - 3.5.3 Make a second mobilization to pick up and locate geotechnical borings taken on site to include on the project drawings.
- 3.6. Project will be based on existing City monumentation. A minimum of three temporary benchmarks (TBM's) will be established for use during construction. Elevations shall be relative the North American Vertical Datum of 1988 (NAVD 88) 2001 Adjustment.

Deliverables: Site Survey Drawings

Task 4.0 – GEOTECHNICAL INVESTIGATION

Perform geotechnical investigation to explore the subsurface conditions at the site and develop geotechnical recommendations pertinent to the design and construction of the proposed structures.

- 4.1. Investigating the subsurface conditions of the currently proposed structures and provide design and construction recommendations for these structures. This objective will be accomplished by drilling and sampling seventeen (17) borings to various depths as located on the plan. Depths of the seven borings in the proposed process structure areas are proposed to 60 feet each. Depths of the ten borings for water lines and pavement areas are proposed to 15 feet each. Total drilling footage will be approximately 570 ft. Convert one boring into a piezometer for steady state long term water level measurements.
- 4.2. The rock core will be photographed prior to storage in core boxes. Core photographs will be

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included in the draft report with each respective boring log.

- 4.3. Drilling will be accomplished with a standard, truck-mounted drilling rig and support vehicle. Soil and/or rock sampling will be performed continuously to 10 feet and at five-foot intervals thereafter until coring operations begin. The soil samples will be obtained using shelly tubes and/or split-spoon samplers. Rock will be cored continuously using an NQ core barrel to the termination depth. Field-testing of soil samples will include pocket penetrometer in the cohesive soils and Standard Penetration Test (SPT) in the cohesionless soils. In rock, Rock Quality Designation (RQD) and percent recovery will be determined in the field. The boreholes will be backfilled with bentonite chips.
- 4.4. The laboratory testing program will include classification tests consisting of moisture content, liquid limit, plastic limit, settlement analysis, corrosion potential for piping, and particle size analysis. In addition, unconfined compression tests, including unit dry weights, will be performed on select soil and rock samples to estimate the compressive strengths. All tests will be performed in accordance with relevant standards.
- 4.5. Prepare a geotechnical report including:
 - Site vicinity map,
 - Geology map,
 - Plan of borings,
 - Boring logs,
 - Laboratory test results summary,
 - Generalized subsurface conditions,
 - Groundwater conditions encountered during drilling operations at the bore locations,
 - Identification of foundation alternatives including design recommendations,
 - Preliminary estimates of lateral earth pressures for below grade structures,
 - Generalized discussion of construction issues including any potential groundwater concerns
 - Structural fill requirements and general earthwork recommendations
- 4.6. Submit Draft Geotechnical Report to the City/OR for review. Address comments for incorporating in the final report.

Deliverables: Draft and Final Geotechnical Report

Task 5.0 – TWDB DWSRF FUNDING APPLICATION SUPPORT SERVICES

Engineer will perform the following tasks in support of the DWSRF funding application. It is our understanding that the OR will be responsible for preparing, coordinating, and submitting the Texas Water Development Board (TWDB) funding application(s) for this project.

5.1. Environmental Review Services

Engineer will prepare necessary environmental documents required in support of the DWSRF application, in accordance with National Environmental Policy Act (NEPA) regulations and applicable TWDB guidance. The Environmental Information Document (EID) will be prepared using TWDB-0801 form. The EID will include the project area within the current plant boundaries and an area outside the current fence line where the new 24-inch water line will be route through.

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Engineer will coordinate with regulatory agencies, including but not limited to the US Army Corps of Engineering, US Fish & Wildlife Service, Texas Historical Commission, Texas Parks and Wildlife Department, and Department of Agriculture etc. The draft document will be submitted to the City/OR for review and comment. Engineer will incorporate the comments in the final document and provide to the OR for submission to TWDB.

Engineer will coordinate with the City/OR and conduct a Public Meeting as part of the TWDB EID requirements. Engineer will prepare a Public Meeting Notice for the City to use and publish in local newspaper 30 days in advance of the meeting. Engineer will prepare meeting materials including sign-in sheet, PowerPoint presentation, and meeting hand-outs. City/OR will be responsible for publishing the Notice in local newspaper and providing a local source for public to view the EID document prior to the meeting.

Upon completion of the Public Meeting, Engineer will include public participation documentation such as publisher's affidavit and a copy of the meeting notice, statement signed by the city, meeting sign-in sheet, meeting summary, and comments received and responses in the final EID.

Engineer will coordinate and address TWDB comments received to obtain final approval.

Deliverables: Draft and Final EID
Public Meeting Notice
Public Meeting Materials including sign-in sheet, handout (up to 10 copies),
and PowerPoint Presentation
Public Meeting Participation Documentation

5.2. Engineering Feasibility Report

Engineer will prepare an Engineering Feasibility Report (EFR) and provide to the OR for submission to TWDB for funding application support. The report will be prepared in accordance with TWDB Guidance Document TWDB-0555 and include the following information: project general description, alternatives, project site conditions, treatment processes and design criteria, alternative methods for project delivery (if applicable), project cost and implement schedule, etc. The EFR will include the project components related to the plant 30-mgd expansion, the new 42-inch high service pump station discharge header, and the new 24-inch water line connecting the new EST(by others) to the proposed transmission line in ROW (by others).

Engineer will use the Preliminary Engineering Report as a basis in conjunction with *Pflugerville Water Supply Alternatives Evaluation Technical Memorandum* and *Water Treatment Plant Expansion Evaluation of Treatment Alternatives* prepared by Garver (Owner's Representative) to develop the EFR. Engineer will submit the draft EFR to the City/OR for review and incorporate review comments in the final report.

Engineer will coordinate with TWDB and address TWDB's review comments for final approval.

Deliverables: Draft and Final EFR

5.3. Other Supporting Documents and Deliverables

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The Engineer will prepare other supporting documents and deliverables necessary for the completion of the TWDB funding applications by the City.

Task 6.0 – CONSTRUCTION DELIVERY METHODS

6.1. Construction Delivery Workshop

Engineer will conduct a workshop with the City/OR to review available construction delivery methods (Conventional Design Bid Build, Competitive Sealed Proposal (CSP), and Construction Management at Risk (CMAR)), timelines, schedules, and potential construction work package break-down etc. The workshop is anticipated to be two (2) hours in length.

Deliverables: Workshop Agenda and Meeting Minutes

6.2. Construction Delivery Meetings

In discussion with the City/OR, Engineer will identify two agencies that have recently utilized CMAR alternative delivery method for project delivery. Engineer will arrange virtual meetings with these municipalities to gather feedbacks and inputs on their experience with the CMAR process, and lessons learned. Each meeting is anticipated to be two (2) hours in length. Engineer will prepare meeting agenda and facilitate the discussion.

Deliverables: Meeting agenda and minutes

7.0 – REGULATORY AGENCY COORDINATION WITH TCEQ AND TWDB

7.1. TCEQ/TWDB Joint Meeting

Engineer will coordinate with the City/OR and conduct a joint virtual meeting with Texas Commission on Environmental Quality (TCEQ)/TWDB to discuss the project. Potential topics to cover may include process design criteria, the potential for obtaining exceptions, key regulatory review components, and review workflow process for the WTP expansion.

Deliverables: Meeting Agenda and Minutes

7.2. Regulatory Review and Permit Checklist

Engineer will conduct a preliminary assessment to identify project related code and permit requirements, develop a regulatory and permit review checklist to outline deliverable milestones, regulatory and permit review timeline, and proposed schedule for compliance. The project Regulatory and Permit Review Checklist will be included in the PER.

Deliverables: Regulatory and Permit Review Checklist

7.3. PER TCEQ Submission

Engineer will coordinate external regulatory review with TCEQ to ensure compliance with TCEQ rules and regulations. Engineer will submit Preliminary Engineering Report to TCEQ for review. Upon receipt of review comments, Engineer will address and incorporate in the Final PER.

Deliverables: PER and TCEQ Comments and Response Log

7.4. TWDB Coordination (on an as-needed cost basis, see Rate in Appendix B)

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As requested by the City/OR, Engineer will coordinate and provide information to the City/OR for TWDB submittals and requests. Engineer will attend no more than two (2) virtual meetings with the City, OR, and TWDB regarding the project. Each meeting is anticipated to be one hour in length.

Deliverables: Meeting agenda and minutes

7.5. TCEQ Coordination (on an as-needed cost basis, see Rate in Appendix B)

As requested by the City/OR, Engineer will coordinate and attend up to two (2) virtual meetings with the City, OR, and TCEQ regarding the project. Each meeting is anticipated to be one hour in length.

Deliverables: Meeting agenda and minutes

8.0 – WTP BACKGROUND DRAWING DEVELOPMENT

Engineer will develop plant background drawings in AutoCAD using the available PDF Record Drawings provided by the City, in conjunction with high definition 3D laser scanning (Terrestrial LiDAR).

Engineer will perform detailed as-built survey of the interior of the Membrane building using Trimble 3D Laser scanning systems. Horizontal (NAD83) and Vertical (NAVD88) control will be established and transferred into the building. The High Definition Survey will capture data with sub-centimeter level accuracy and detail to create a 3D point cloud replicating the as-built conditions. The 3D point cloud will be processed and exported to 2D CAD environment to create a complete CAD drawing of the building's interior infrastructure.

Deliverable: 2D AutoCAD Background Drawings

9.0 – OTHER SERVICE TASKS

Other service tasks will be negotiated with the City as needed, including additional studies and investigation as required to support recommended solution and/or as required to address system which may become affected as a result of the proposed work but not originally envisioned or as added by the City. These other services may include the following and will be authorized by the City in writing for an additional fee as agreed upon by the City and the Engineer:

1. Any additional meetings, outside of those listed herein
2. Pilot testing and treatability studies
3. Hydraulic transient analysis
4. Any off-site survey work outside the plant fence line
5. Subsurface utility engineering (anticipated for the final design phase)
6. Any additional geotechnical borings and laboratory testing beyond what's listed herein
7. Phase 1 and Phase 2 environmental site assessment (ESA) (anticipated for the final design phase, pending TWDB agency review of the EID)
8. USACE Permitting

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9. Archeological investigation Services
10. ACI-ADI review for ADA compliance (anticipated for the final design phase)
11. Computational fluid dynamics (CFD) modeling (anticipated for the final design phase, if necessary)
12. Electrical studies such as short circuit, coordination, motor starting, and arc flash studies (anticipated for the final design phase)
13. Plant security system design
14. FAA permitting (anticipated for the final design phase)

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TABLE A-1
City of Pflugerville WTP Expansion Anticipated Deliverables

Task No.	Project Task	Deliverable(s)	
1	Project Management and Quality Assurance	1	Project Work Plan, Action Items and Decision Log
		2	Progress Meeting Agenda and Minutes
		3	Project Status Reports and Schedule Update
2	Preliminary Engineering Design	4	TM 1 Basis of Design
		5	TM 2 Process Evaluation and Plant Hydraulics
		6	TM 3 Membrane Retrofit Construction Phasing Plan
		7	TM 4 Site Buildout Optimization
		8	Plant SCADA System Workshop Agenda and Minutes
		9	Master Site Plan Workshop Agenda and Minutes
		10	PER Review Workshop Agenda and Minutes
		11	PER City/OR Review Comment and Response Log
		12	Preliminary Engineering Report and 30% Drawing Set
3	Site Topographic Survey	13	Site Survey Drawings
4	Geotechnical Investigation	14	Geotechnical Report
5	TWDB DWSRF Application Support Services	15	Environmental Information Document (EID)
		16	Public Meeting Notice
		17	Public Meeting Agenda, Handout (up to 10 copies) and PowerPoint Presentation
		18	Public Meeting Participation Documentation
		19	Engineering Feasibility Report (EFR)
6	Construction Delivery Methods	20	Construction Delivery Method Workshop Agenda and Minutes
7	Regulatory Agency Coordination with TCEQ/TWDB	21	TCEQ/TWDB Joint Meeting Agenda and Minutes
		22	Regulatory and Permit Review Checklist
		23	PER TCEQ Review Comments and Response Log
		24	TWDB Coordination meeting agenda and minutes (as needed)
		25	WDB Coordination meeting agenda and minutes (as needed)
8	WTP Background Drawing Development	26	WTP Background Drawing in AutoCAD

Appendix A / Detailed Scope of Engineering Services

TABLE A-2
City of Pflugerville WTP Expansion
Anticipated Meetings/Workshops

Task No.	Project Task	Meetings/Workshops	
1	Project Management and Quality Assurance	1	Kick-off and Four (4) Progress Meetings with City/OR
2	Preliminary Engineering Design	2	Plant SCADA System Workshop
		3	Master Site Plan Workshop
		4	PER Review Workshop
		5	Coordination Meeting with OR to Review Bench-scale and Pilot Testing Results
		6	Two Coordination Meetings with OR and Water Hydraulic Model Consultant
3	Site Topographic Survey	7	None
4	Geotechnical Investigation	8	None
5	TWDB DWSRF Application Support Services	9	Public Meeting
6	Construction Delivery Methods	10	Construction Delivery Method Workshop
		11	Two Meetings with City/OR and Agencies identified
7	Regulatory Agency Coordination with TCEQ/TWDB	12	TCEQ/TWDB Joint Meeting
		13	Two Coordination Meetings with TWDB, City/OR
		14	Two Coordination Meetings with TCEQ, City/OR
8	WTP Background Drawing Development	15	None

Appendix A / Detailed Scope of Engineering Services

TABLE A-3
City of Pflugerville WTP Expansion
Anticipated Meetings/Workshops Schedule and Potential Topics

Task No.	Meetings/Workshops	Anticipated Date	Potential Topics
1.2	Kick-off Meeting	December, 2021	Project Scope, Schedule, Budget
			Data Request and Gap
			Project Communication Protocol, Site Visit Coordination, Project Document Control
			Onsite Work Schedule (Survey, Laser Scanning)
2.3.3	Coordination Meeting with OR to Review Bench-scale and Pilot Testing Results	December, 2021	Review Bench-Scale and Pilot Testing Progress, Results
1.2	Monthly Progress Meeting #1	January, 2021	Plant Data Review (flows, water quality, chemical dose, etc.)
			Water Balance, Design Flows, and Solids Loadings
			Treatment Process Validation
1.2	Monthly Progress Meeting #2	February, 2021	Unit Process Evaluation, Alternatives, and Design Criteria
2.2.1	Plant SCADA System Workshop	March, 2021	System network architecture, general control philosophy, PLC integration etc. (Section 2.2.1 of Scope of Services Document)
2.2.3	Coordination Meeting #1 with OR and Water Hydraulic Model Consultant	February, 2021	Discuss operation scenarios for transient analysis
7.1	TCEQ/TWDB Joint Meeting	February, 2021	Project overview, potential exception requests, review responsibilities and coordination
1.2	Monthly Progress Meeting #3	March, 2021	Unit Process Evaluation, Alternatives, and Design Criteria
			Preliminary Site Plan
			Plant Hydraulics
			Constructability Review & Membrane Retrofit Construction Staging
2.2.3	Coordination Meeting #2 with OR and Water Hydraulic Model Consultant	April, 2021	Discuss transient analysis results and PCV recommendations

Appendix A / Detailed Scope of Engineering Services

Task No.	Meetings/Workshops	Anticipated Date	Potential Topics
6.1	Construction Delivery Method Workshop	March, 2021	Construction delivery method options
6.2	Two Meetings with City/OR and Agencies identified	March, 2021	Alternative construction delivery experience and lessons learned
1.2	Monthly Progress Meeting #4	April, 2021	Geotech/Foundation Design
			Equipment Selection
			Design and Site Plan Refinement
			Regulatory and Permit Checklist
2.2.2	Master Site Plan Workshop (in conjunction with Monthly Progress Meeting #4)	April, 2021	Site build out Plan
5.1	EID Public Meeting	May, 2021	See Section 5.1 of Scope of Services Document
2.2.3	PER Review Workshop	June, 2021	Review PER, OPCC, and Comments
7.4	Two Coordination Meetings with TWDB, City/OR	TBD	At the request of the City/OR
7.5	Two Coordination Meetings with TCEQ, City/OR	TBD	At the request of the City/OR

Note: Assume NTP is received the end of December 2020.

Appendix A / Detailed Scope of Engineering Services

TABLE A-4
Summary of Services and Fees

TASK NO.	TASK DESCRIPTION	AMOUNT
1.0	General Project Management and Quality Control (LS)	\$167,512.00
2.0	Preliminary Engineering Design (LS)	\$1,294,982.00
3.0	Site Topographic Survey (LS)	\$29,410.00
4.0	Geotechnical Investigation (LS)	\$102,370.00
5.0	TWDB DWSRF Funding Application Support Services (LS)	\$126,682.00
6.0	Construction Delivery Methods (LS)	\$38,120.00
7.0	Regulatory Agency Coordination with TCEQ/TWDB	\$89,598.00
	7.1-7.3 Regulatory Agency Coordination with TCEQ/TWDB (LS)	\$53,678.00
	7.4 TWDB Coordination (As needed See Table A-5 for Hourly Rate, HNE)	\$17,960.00
	7.5 TCEQ Coordination (As needed See Table A-5 for Hourly Rate, HNE)	\$17,960.00
8.0	WTP Background Drawing Development (LS)	\$65,320.00
	Project Expenses including reproduction, deliveries, travel lodging, meal, and mileage expenses, equipment rental for 3D scanning and any other direct costs as authorized by the City, Reimbursable Not to Exceed)	\$33,509.00
TOTAL		\$1,947,512.00

LS – Lump Sum

HNE – Hourly Not to Exceed

Appendix A / Detailed Scope of Engineering Services

TABLE A-5
HOURLY LABOR RATES

LABOR CATEGORY	Hourly Rate
Project Principal/ Sr. Project Manager	\$275
Sr. Tech Specialist (QA/QC)	\$275
Senior Project Engineer (Process Mech)	\$225
Project Engineer (Process Mech)	\$165
EIT	\$128
Senior Project Manager (Structural/Architectural)	\$240
Project Engineer (Structural/Architectural)	\$205
Senior Environmental Scientist	\$215
Environmental Scientist	\$125
CAD Designer	\$150
CAD Technician	\$100
Word Processor	\$120
Contract Admin	\$90

APPENDIX B
City of Pflugerville WTP Expansion
Preliminary Engineering Design Phase
Fee Summary

Task		Total Fee	Ardurra	Subconsultants				
				KFriele (Site Civil, Process Mechanical Support)	Mbroh (I&C, SCADA)	Gupta (Electrical)	AACE (MEP/HPF)	HVJ (Geotech)
		(\$)	(\$)		(\$)	(\$)	(\$)	(\$)
1.0	General Project Management and Quality Control (LS)	\$ 167,521.00	\$ 136,501.90	\$ 19,360.00	\$ 4,595.00	\$ 4,334.00	\$ 2,730.00	\$ -
2.0	Preliminary Engineering Design (LS)	\$ 1,294,982.00	\$ 893,327.40	\$ 191,905.00	\$ 67,430.00	\$ 117,338.00	\$ 24,981.00	\$ -
3.0	Site Topographic Survey (LS)	\$ 29,410.00	\$ 29,410.00	\$ -	\$ -	\$ -	\$ -	\$ -
4.0	Geotechnical Investigation (LS)	\$ 102,370.00	\$ 22,470.00	\$ -	\$ -	\$ -	\$ -	\$ 79,900.00
5.0	TWDB DWSRF Funding Application Support Services (LS)	\$ 126,682.00	\$ 126,682.00	\$ -	\$ -	\$ -	\$ -	\$ -
6.0	Construction Delivery Methods (LS)	\$ 38,120.00	\$ 38,120.00	\$ -	\$ -	\$ -	\$ -	\$ -
7.0	Regulatory Agency Coordination with TCEQ/TWDB	\$ 89,598.00	\$ 87,418.00	\$ 2,180.00	\$ -	\$ -	\$ -	\$ -
	7.1-7.3 Regulatory Agency Coordination with TCEQ/TWDB (LS)	\$ 53,678.00						
	7.4 TWDB Coordination (As needed, Hourly Not to Exceed)	\$ 17,960.00						
	7.5 TCEQ Coordination (As needed, Hourly Not to Exceed)	\$ 17,960.00						
8.0	WTP Background Drawing Development (LS)	\$ 65,320.00	\$ 65,320.00	\$ -	\$ -	\$ -	\$ -	\$ -
	Project Expenses including reproduction, deliveries, travel lodging, meal, and mileage expenses, equipment rental for 3D scanning and any other direct costs as authorized by the City (Reimbursable Not to Exceed)	\$ 33,509.00	\$ 23,819.00	\$ 5,080.00	\$ 1,600.00	\$ 3,010.00	\$ -	\$ -
	TOTAL	\$1,947,512.00	\$1,423,068.30	\$218,525.00	\$73,625.00	\$124,682.00	\$27,711.00	\$79,900.00
			73.07%	11.22%	3.78%	6.40%	1.42%	4.10%
			Non HUB	HUB	HUB	HUB	HUB	HUB
	Non HUB Subtotal	73.07%						
	HUB Subtotal	26.93%						

APPENDIX B
City of Pflugerville WTP Expansion
Preliminary Engineering Design Phase
Level of Efforts Fee Estimate

			Ardurra Estimated Man-hours																		Subconsultants						Subconsultant Total	Ardurra Sub Mark-up (10%)	Total Cost (Ardurra + Subs)				
			Project Principal	QA/QC /Technical Specialist/ TWDB Specialist	Sr. PM	Sr. Proj. Eng. (Process Mech)	Proj Eng. (Process Mech)	EIT (Process Mech)	Sr. Proj. Mgr (Structural /Arch)	Proj Eng. (Structural /Arch)	EIT (Structural/ Arch)	Sr. Env Scientist	Env. Scientist	RPLS	Survey Field Coordinator	Field Crew (2- Man Crew)	CAD Designer	CAD Technician	Word Processor	Contract Admin	Ardurra - Total Hours (Hrs)	Ardurra Subtotal Labor Cost (\$)	ODCs (\$)	Ardurra Subtotal (\$)	K Friese (Site Civil, Process Mechanical Support)	Mbroh (I&C, SCADA)				Gupta (Electrical)	AACE (MEP/HPF)	HVI (Geotech)	
Task	Subtask	Task Description	Position Rate	\$ 275.00	\$ 275.00	\$ 275.00	\$ 225.00	\$ 165.00	\$ 128.00	\$ 240.00	\$ 205.00	\$ 128.00	\$ 215.00	\$ 125.00	\$ 225.00	\$ 115.00	\$ 190.00	\$ 150.00	\$ 100.00	\$ 120.00	\$ 90.00												
Task 1.0 - GENERAL PROJECT MANAGEMENT AND QUALITY CONTROL																																	
	1.1	Project Work Plan		4	16	8		24												8		60	\$ 12,620.00		\$ 12,620.00					\$0.00	\$ -	\$ 12,620.00	
	1.2	Project Meetings (kick-off and 4 progress meetings)		10	12	24		32		4	6									12		100	\$ 21,560.00		\$ 21,560.00					\$0.00	\$ -	\$ 21,560.00	
	1.3	Project Team Coordination		24		48	48	24	40	24	24									12		244	\$ 51,800.00		\$ 51,800.00					\$0.00	\$ -	\$ 51,800.00	
	1.4	Quality Assurance/Quality Control and Internal Technical Review		16	72	24				24										12		148	\$ 38,000.00		\$ 38,000.00					\$0.00	\$ -	\$ 38,000.00	
	1.5	Project monthly progress report and invoicing				12		24													24	60	\$ 9,420.00		\$ 9,420.00	\$19,360.00	\$4,595.00	\$4,334.00	\$2,730.00		\$31,019.00	\$ 3,101.90	\$ 43,540.90
Task 1.0 - GENERAL PROJECT MANAGEMENT AND QUALITY CONTROL				54	100	116	48	104	40	52	30	0	0	0	0	0	0	0	0	44	24	612	\$ 133,400.00		\$ 133,400.00	\$19,360.00	\$4,595.00	\$4,334.00	\$2,730.00	\$0.00	\$31,019.00	\$ 3,101.90	\$ 167,521.00
Task 2.0 - PRELIMINARY ENGINEERING DESIGN																																	
	2.1	Data Collection and review			8	32		40	64	4	12	16						24				200	\$ 34,860.00		\$ 34,860.00	\$18,115.00					\$18,115.00	\$ 1,811.50	\$ 54,786.50
		Develop TM 1 Basis of Design			4	12		24												4		44	\$ 8,840.00		\$ 8,840.00						\$0.00	\$ -	\$ 8,840.00
	2.2	Specific Workshops																															
	2.2.1	Plant SCADA System Development workshop preparation, engineering analysis and evaluation, PowerPoint presentation development, agenda, meeting minutes		2		4		12												8	6	32	\$ 5,130.00		\$ 5,130.00		\$16,870.00				\$16,870.00	\$ 1,687.00	\$ 23,687.00
		Plant SCADA System Development workshop		4		4		4														12	\$ 2,860.00		\$ 2,860.00						\$0.00	\$ -	\$ 2,860.00
	2.2.2	Master Site Plan Development preparation, engineering analysis and evaluation, PowerPoint presentation development, agenda, meeting minutes		4	16	20	20	28									24		8	6	126	\$ 25,220.00		\$ 25,220.00						\$0.00	\$ -	\$ 25,220.00	
		Master Site Plan Development workshop		4		4	4	4													16	\$ 3,760.00		\$ 3,760.00						\$0.00	\$ -	\$ 3,760.00	
		Develop TM 4 Site Buildout Plan Optimization		4	4	8		24											4		44	\$ 8,840.00		\$ 8,840.00						\$0.00	\$ -	\$ 8,840.00	
	2.2.3	City PER Review workshop preparation, meeting agenda, PowerPoint presentation development meeting minutes		4	8	12	8	8		12	16								8	6	82	\$ 17,380.00		\$ 17,380.00	\$3,120.00					\$3,120.00	\$ 312.00	\$ 20,812.00	
		City PER Review workshop		4	8	4	8	8													32	\$ 7,520.00		\$ 7,520.00						\$0.00	\$ -	\$ 7,520.00	
	2.3	Preliminary Engineering Design																															
	2.3.1	Unit Process Evaluation and Plans Development																															
		Lake Pump Station			4	12	8	16	32								20					92	\$ 15,936.00		\$ 15,936.00	\$49,880.00					\$49,880.00	\$ 4,988.00	\$ 70,804.00
		Pretreatment Train				12	16	16	64								60					168	\$ 26,732.00		\$ 26,732.00						\$0.00	\$ -	\$ 26,732.00
		Membrane Filtration			16	24	28	72	40								60					240	\$ 43,300.00		\$ 43,300.00						\$0.00	\$ -	\$ 43,300.00
		Clearwell				12	16	20	40								24					112	\$ 18,920.00		\$ 18,920.00						\$0.00	\$ -	\$ 18,920.00
		High Service Pump Station			8	16	24	20									16					84	\$ 17,700.00		\$ 17,700.00	\$50,570.00					\$50,570.00	\$ 5,057.00	\$ 73,327.00
		Chemical Storage and Feed Facility				12	24	20	64								60					180	\$ 29,192.00		\$ 29,192.00						\$0.00	\$ -	\$ 29,192.00
		Sludge Thickener				10	16	20	32								32					110	\$ 18,546.00		\$ 18,546.00						\$0.00	\$ -	\$ 18,546.00
		Thickened Sludge Pump Station		2	2	12	16	20	24								24					100	\$ 17,972.00		\$ 17,972.00						\$0.00	\$ -	\$ 17,972.00
		Backwash Clarifier				12	16	20	32								32					112	\$ 19,096.00		\$ 19,096.00						\$0.00	\$ -	\$ 19,096.00
		Recycle Pump Station				12	16	20	24								24					96	\$ 16,872.00		\$ 16,872.00						\$0.00	\$ -	\$ 16,872.00
		Off-Site Sludge Piping				8	16	20									8					52	\$ 10,300.00		\$ 10,300.00	\$29,720.00					\$29,720.00	\$ 2,972.00	\$ 42,992.00
		Yard Piping & Site Plan			12	12	24	32	64								80					224	\$ 37,472.00		\$ 37,472.00						\$0.00	\$ -	\$ 37,472.00
		Misc. (Expansion Process flow diagram, sample and analyzer schematic, etc.)				12	16	24	72								24	40				188	\$ 27,676.00		\$ 27,676.00						\$0.00	\$ -	\$ 27,676.00
		New 42" Discharge pipeline				8		16									32					56	\$ 9,640.00		\$ 9,640.00						\$0.00	\$ -	\$ 9,640.00
		New 24" EST pipeline				8		24									40					72	\$ 12,160.00		\$ 12,160.00						\$0.00	\$ -	\$ 12,160.00
		Develop TM 2A Process Evaluation			4	16		24											8			52	\$ 10,420.00		\$ 10,420.00						\$0.00	\$ -	\$ 10,420.00
	2.3.2	Develop TM 3 Membrane Retrofit Construction Phasing Plan		4	12		24												8			48	\$ 9,320.00		\$ 9,320.00						\$0.00	\$ -	\$ 9,320.00
		Plant Hydraulics		4	8	16	24	60									8	32				152	\$ 22,940.00		\$ 22,940.00						\$0.00	\$ -	\$ 22,940.00
		Develop TM 2B Plant Hydraulics		2	12		24												8			46	\$ 8,770.00		\$ 8,770.00						\$0.00	\$ -	\$ 8,770.00
	2.3.3	Coordination Meetings with OR/Other Consultants																															
		Coordination Meetings with OR		2	2	2		4											2			12	\$ 2,550.00		\$ 2,550.00						\$0.00	\$ -	\$ 2,550.00
		Coordination Meetings (up to 2) with Water Hydraulic Model Consultant		4	4	4		8											4			24	\$ 5,100.00		\$ 5,100.00	\$5,340.00					\$5,340.00	\$ 534.00	\$ 10,974.00
		Coordination with OR/WWTP Consultant		2	2	2		4												2		12	\$ 2,550.00		\$ 2,550.00						\$0.00	\$ -	\$ 2,550.00
	2.3.4	WTP Discipline Support Activities		</																													

APPENDIX B
City of Pflugerville WTP Expansion
Preliminary Engineering Design Phase
Level of Efforts Fee Estimate

			Ardurra Estimated Man-hours																		Subconsultants							Subconsultant Total	Ardurra Sub Mark- up (10%)	Total Cost (Ardurra + Subs)			
			Project Principal	QA/QC /Technical Specialist/ TWDB Specialist	Sr. PM	Sr. Proj. Eng. (Process Mech)	Proj Eng. (Process Mech)	EIT (Process Mech)	Sr. Proj. Mgr (Structural /Arch)	Proj Eng. (Structural /Arch)	EIT (Structural/ Arch)	Sr. Env Scientist	Env. Scientist	RPLS	Survey Field Coordinator	Field Crew (2- Man Crew)	CAD Designer	CAD Technician	Word Processor	Contract Admin	Ardurra - Total Hours (Hrs)	Ardurra Subtotal Labor Cost (\$)	ODCs (\$)	Ardurra Subtotal (\$)	K Frieze (Site Civil, Process Mechanical Support)	Mbroh (I&C, SCADA) (\$)	Gupta (Electrical) (\$)				AACE (MEP/HPF) (\$)	HVI (Geotech) (\$)	
Task	Subtask	Task Description	Position Rate	\$ 275.00	\$ 275.00	\$ 275.00	\$ 225.00	\$ 165.00	\$ 128.00	\$ 240.00	\$ 205.00	\$ 128.00	\$ 215.00	\$ 125.00	\$ 225.00	\$ 115.00	\$ 190.00	\$ 150.00	\$ 100.00	\$ 120.00	\$ 90.00												
Task 3.0 - SITE TOPOGROAHC SURVEY																																	
	3.1 -3.6	Site Survey				8		16							16		75	40			8	163	\$ 29,410.00		\$ 29,410.00						\$0.00	\$ -	\$ 29,410.00
Task 3.0 - SITE TOPOGROAHC SURVEY			0	0	8	0	16	0	0	0	0	0	0	0	16	0	75	40	0	0	8	163	\$ 29,410.00	\$ -	\$ 29,410.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$ -	\$ 29,410.00
Task 4.0 - GEOTECHNICAL INVESTIGATION																																	
	4.1-4.6	Geotechnical Investigation		8	8	24	24													8	72	\$ 14,480.00		\$ 14,480.00						\$79,900.00	\$79,900.00	\$ 7,990.00	\$ 102,370.00
Task 4.0 - GEOTECHNICAL INVESTIGATION			0	8	8	24	24	0	0	0	0	0	0	0	0	0	0	0	0	8	72	\$ 14,480.00	\$ -	\$ 14,480.00	\$0.00	\$0.00	\$0.00	\$0.00	\$79,900.00	\$79,900.00	\$ 7,990.00	\$ 102,370.00	
Task 5.0 - TWDB DWSRF FUNDING APPLICATION SUPPORT SERVICES																																	
	5.1	Environmental Review Services				16			44				100	210				48			418	\$ 62,582.00		\$ 62,582.00						\$0.00	\$ -	\$ 62,582.00	
	5.2	Engineering Feasibility Report			12	24	32	48	80								32		16		244	\$ 41,980.00		\$ 41,980.00						\$0.00	\$ -	\$ 41,980.00	
	5.3	Other Supporting Documents/Deliverables			16	16	24	48													104	\$ 22,120.00		\$ 22,120.00						\$0.00	\$ -	\$ 22,120.00	
Task 5.0 - TWDB DWSRF FUNDING APPLICATION SUPPORT SERVICES			0	28	56	56	96	124	0	0	0	100	210	0	0	0	32	48	16	0	766	\$ 126,682.00	\$ -	\$ 126,682.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$ -	\$ 126,682.00	
Task 6.0 - CONSTRUCTION DELIVERY METHODS																																	
	6.1	Construction Delivery Workshop preparation, PowerPoint presentation development, agenda, meeting minutes	4	12	12		32												4	8	72	\$ 14,180.00		\$ 14,180.00							\$0.00	\$ -	\$ 14,180.00
		Construction Delivery Workshop	4	4	4		8												4		24	\$ 5,100.00		\$ 5,100.00							\$0.00	\$ -	\$ 5,100.00
	6.2	Construction Delivery Meetings coordination, PowerPoint presentation development, agenda, meeting minutes	4	20	12		16											4	8	64	\$ 13,740.00		\$ 13,740.00							\$0.00	\$ -	\$ 13,740.00	
		Construction Delivery Meetings	4	4	4		8											4		24	\$ 5,100.00		\$ 5,100.00							\$0.00	\$ -	\$ 5,100.00	
Task 6.0 - CONSTRUCTION DELIVERY METHODS			16	40	32	0	64	0	0	0	0	0	0	0	0	0	0	0	16	16	184	\$ 38,120.00	\$ -	\$ 38,120.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$ -	\$ 38,120.00	
Task 7.0 - REGULATORY AGENCY COORDINATION WITH TCEQ/TWDB																																	
	7.1	TCEQ/TWDB Joint Meeting	4	16	16	16	24											8	8	92	\$ 19,140.00		\$ 19,140.00							\$0.00	\$ -	\$ 19,140.00	
	7.2	Regulatory Review and Permit Checklist	4	8	12	16	24											8	8	80	\$ 15,840.00		\$ 15,840.00	\$2,180.00					\$2,180.00	\$ 218.00	\$ 18,238.00		
	7.3	PER TCEQ Submission and Comment Response		16	4	16	32											16		84	\$ 16,300.00		\$ 16,300.00						\$0.00	\$ -	\$ 16,300.00		
	7.4	TWDB Coordination (as needed)	8	16	16		32											8	8	88	\$ 17,960.00		\$ 17,960.00						\$0.00	\$ -	\$ 17,960.00		
	7.5	TCEQ Coordination (as needed)	8	16	16		32											8	8	88	\$ 17,960.00		\$ 17,960.00						\$0.00	\$ -	\$ 17,960.00		
Task 7.0 - REGULATORY AGENCY COORDINATION WITH TCEQ/TWDB			24	72	64	48	144	0	0	0	0	0	0	0	0	0	0	0	8	32	432	\$ 87,200.00	\$ -	\$ 87,200.00	\$2,180.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,180.00	\$ 218.00	\$ 89,598.00	
Task 8.0 - WTP BACKGROUND DRAWING DEVELOPMENT																																	
	8.1	Background Drawing Development				8		16	40	2	4	40					88	80			278	\$ 37,580.00		\$ 37,580.00						\$0.00	\$ -	\$ 37,580.00	
	8.2	Field 3D Scanning												8	56	50		100			214	\$ 27,740.00		\$ 27,740.00						\$0.00	\$ -	\$ 27,740.00	
Task 8.0 - WTP BACKGROUND DRAWING DEVELOPMENT			0	0	8	0	16	40	2	4	40	0	0	8	56	50	88	180	0	0	492	\$ 65,320.00	\$ -	\$ 65,320.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$ -	\$ 65,320.00	
Project Expenses including reproduction, deliveries, travel lodging, meal, and mileage expenses, equipment rental for 3D scanning and any other direct costs as authorized by the City (Reimbursable Not to Exceed)																																	
		Project Expenses including reproduction, deliveries, travel lodging, meal, and mileage expenses, equipment rental for 3D scanning and any other direct costs as authorized by the City (Reimbursable Not to Exceed)																					\$ 22,850.00	\$ 22,850.00	\$5,080.00	\$1,600.00	\$3,010.00			\$9,690.00	\$ 969.00	\$ 33,509.00	
TOTAL				154	382	762	530	1340	1036	230	418	282	100	210	24	56	125	1120	488	242	130	7629	\$1,347,774.00	\$22,850.00	\$1,370,624.00	\$218,525.00	\$73,625.00	\$124,682.00	\$27,711.00	\$79,900.00	\$524,443.00	\$52,444.30	\$1,947,512.00

Estimated Project Expense Breakdown

Item	Unit Rate		Units	total
Internal Reproduction				
Working Documents Printing and Copies				
copies B&W	\$ 0.10	per page	10000	\$ 1,000.00
copies color	\$ 0.75	per page	500	\$ 375.00
Full size drawing reproduction	\$ 6.00	per page	100	\$ 600.00
Half size drawings reproduction	\$ 0.50	per page	2250	\$ 1,125.00
Report Documents (Total internal)				
Deliverables (Draft)	\$ 400.00	per report	10	\$ 4,000.00
Deliverables (Final)	\$ 400.00	per report	10	\$ 4,000.00
TCEQ and TWDB Deliverables	\$ 400.00	ea	6	\$ 2,400.00
Deliveries	\$ 100.00	ea	6	\$ 600.00
Trip Expense				
Site Visit - Dallas (membrane)	\$ 500.00	per trip	2	\$ 1,000.00
Site Visit - Pearland (CMAR)	\$ 500.00	per trip	2	\$ 1,000.00
WTP Site Visits	\$ 50.00	per trip	25	\$ 1,250.00
TWBD Meetings	\$ 250.00	per trip	2	\$ 500.00
TCEQ Meetings	\$ 250.00	per trip	2	\$ 500.00
3D Field Scanning Tool Rental	\$ 4,500.00		1	\$ 4,500.00
			Total	\$22,850.00

2020-Nov-12
REVISED 2020-Nov-25

Yue Sun, PE, BCEE
Project Manager
Ardurra, Inc.
2032 Buffalo Terrace
Houston, TX 77019

RE: **AACE Scope and Cost Proposal for Professional Mechanical/HVAC, Plumbing and Fire Protection Engineering Services for the Pflugerville WTP Expansion (PROJECT) for the City of Pflugerville, TX**

Dear Yue:

AACE is pleased to submit its Scope and Cost Proposal for providing Mechanical/HVAC, Plumbing and Fire Protection Professional Engineering Services for the Pflugerville WTP Expansion (PROJECT) for the city of Pflugerville (CITY), the Owner. AACE's role for the PROJECT shall be as a Sub-Consultant to Ardurra Group (ARDURRA), who is the Prime Engineering Consultant to the CITY. Attached please find our proposed Basic Services Scope, Additional Services, Compensation Fee and Schedule.

I. GENERAL

- A. CITY has an existing 17 MGD WTP that it wishes to expand to 30 MGD to meet future water demands.
- B. CITY has contracted with ARDRURRA to assist it with expanding the WTP, and ARDRURRA has enlisted AACE as one of its subconsultants to handle the associated HVAC, plumbing and fire protection components of the PROJECT.
- C. The PROJECT scope at this time only includes preliminary engineering design phase services. Detailed design, bid and construction phase services shall be done separately under a separate scope.
- D. The Project Delivery method is unknown at this time, and may be performed under CMAR basis.

II. BASIC PROFESSIONAL ENGINEERING SERVICES SCOPE includes:

A. Preliminary Engineering Design/Report (PER) Phase:

- 1) AACE shall provide preliminary engineering services related to HVAC, plumbing and fire protection/fire alarm (HPF) improvements for the PROJECT.
- 2) Participate in the project kickoff with ARDRURRA and CITY via MS Teams.
- 3) Participate in weekly or bi-weekly coordination meetings (1-hour duration) via teleconference for internal project team coordination.
- 4) Produce work in accordance with the most current building codes adopted for the areas where the work will be performed.

- 5) If permitted by City, meet with local Building Officials to confirm Engineer's preliminary code assessment.
- 6) Site visits to the PROJECT site as needed so AACE can collect necessary field information in order to complete its PER work scope.
- 7) Prepare a Preliminary Engineering Report (PER) documenting AACE's findings, design concepts, code review and recommendations of the HPF components related to the PROJECT. PER shall be prepared in accordance with ARDURRA's PER Template format.
- 8) Prepare and issue preliminary 20% level HPF drawings showing the locations of major HPF equipment and major HPF ductwork and piping.
- 9) Issue the PER to ARDURRA for review and comment.
- 10) Participate in, and attend, the PER Review Workshop with ARDURRA and CITY.
- 11) Respond to and incorporate ARDURRA and CITY review comments into the Final PER document.
- 12) Internal QAQC of AACE prepared PER and drawings.
- 13) Provide one (1) Final PER Document in electronic format to ARDURRA.

Basis of PER Scope

1. Review Record Drawings, current O&M Manuals, HVAC TAB Reports and other applicable design basis studies, reports, or assessments pertaining to the PROJECT.
2. Verify existing conditions at the Intake Pump Station, Membrane Building and High Service Pump Station. Identify deficiencies, performance issues, etc. with existing HPF systems at the three facilities noted above.
3. Develop HPF design concepts for new building facilities: expanded intake lake Pump Station; new Chemical Facility; expanded High Service Pump Station. Specifically this is anticipated to include:
 - a) Expanded Intake Lake Pump Station - New HVAC ventilation (no a/c) and heating for the expanded pump station; new plumbing floor drainage to the expanded pump station; and new HVAC air-conditioning for new electrical room.
 - b) New Pretreatment Flocculation Basins - If canopy will be provided with partial walls, provide HVAC recirculation air fans around personnel platforms and other people accessible areas. New HVAC air-conditioning for new electrical building.
 - c) Existing Membrane Building - repurpose or modify existing HVAC and plumbing serving abandoned chemical areas for new uses. New HVAC ventilation for relocated air compressor.
 - d) Expanded High Service Pump Station - New HVAC ventilation (no a/c) and heating for the expanded pump station; new plumbing floor drainage to the expanded pump station; and new HVAC air-conditioning for new electrical room.
 - e) New Chemical Facility - New HVAC ventilation (no a/c) and heating for chemical feed rooms. New Fire Alarm. New fire protection (if required by code but not anticipated to be required since bulk storage tanks will be outside). New plumbing emergency safety showers and tepid water system, as required by code. Floor drainage and wash water.
4. Confirm equipment redundancy requirements and incorporate into PER.
5. Conceptual 20% level drawings limited to showing locations of major HPF equipment, ductwork and piping.
6. Review CITY applicable design standards or design preferences and incorporate into PROJECT PER.

PER Phase Deliverables

1. Preliminary 20% level drawings
2. Preliminary Engineering Report (PER)
 - a) Findings
 - b) Design Criteria
 - c) Listing of Applicable Codes, and Code Review
 - d) Calculations
 - e) OPCC
 - f) Recommendations

g) *Manufacturer cutsheets of major, proposed, HPF equipment*

B. SERVICES NOT INCLUDED IN AACE'S SCOPE:

- 1) Detail design, bid and construction phase services.
- 2) Improvements to maintenance building, lab and office areas.
- 3) As-building existing conditions.
- 4) Attending regular monthly project progress meetings with ARDURRA and CITY. AACE designated staff will be made available to participate via teleconference as required.
- 5) Leadership in Energy and Environmental Design (LEED) services.
- 6) Generation of three-dimensional (3-D) drawings.

C. ASSUMPTIONS/CLARIFICATIONS:

- 1) CITY or ARDURRA shall provide RECORD DRAWINGS, SPECIFICATIONS, and O&M Manuals containing equipment cutsheets and TAB Reports, reflecting existing as-built conditions for the facilities in the PROJECT Scope.
- 2) ARDURRA and CITY shall provide all criteria and full information as to its requirements for the Services, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations; and copies of all design and construction standards which ARDURRA and CITY will require to be included in AACE's PER.
- 3) ARDURRA or CITY will provide scanned electronic images (.pdf format) or AutoCAD files of the Plant's existing drawings for AACE to utilize in the development of preliminary Drawings for the PROJECT.
- 4) CITY will make available plant personnel at each plant site to assist the AACE Project Team during its site assessment and data collection efforts.
- 5) AACE's Rough Order of Magnitude Construction Cost estimates are engineering estimates and are not warranted.

III. COMPENSATION FOR BASIC SERVICES

- A. Compensation for labor of AACE Basic Services shall be on a Lump Sum basis and shall not exceed **\$27,711** without ARDURRA's prior written approval.

IV. COMPENSATION FOR ADDITIONAL SERVICES

- A. ENGINEER shall provide AACE with a written request for the Special Services, if such services become necessary. Written authorization must be obtained from ENGINEER prior to proceeding with Special Services required to support the activities in Basic Services.

V. TIME SCHEDULE

The time periods and rates for the performance of this work shall be valid from December 2020 to December 2021.

We appreciate you considering AACE for the opportunity to support you and the rest of the ARDURRA Team on this project. If you find this proposal acceptable to you, please indicate your approval by signing two copies of this proposal and returning one copy to my attention for my records. If you have any questions or comments, feel free to contact me.

Regards,

Ricardo J. Azcarate, P.E.
President
AACE, LLC

Level of Effort Fee Estimate

Project: Pflugerville, TX WTP Expansion - PER Phase
 Consultant: AACE, LLC
 Date: 11/25/2020



			AACE Estimated Man-hours												AACE - Total Hours (Hrs)	AACE Subtotal Labor Cost (\$)	ODCs (\$)	AACE Subtotal (\$)
			Principal \$ 203.00	QA/QC/Techn ical Specialist \$ 164.00	Sr. PM \$ 133.00	Sr. Eng. 8 \$ 171.00	Mid. Eng. 4/5 \$ 133.00	EIT Eng. 1 \$ 80.00	Sr. Designer 7 \$ 108.00	Mid. Designer 4 \$ 72.00	Designer 1 \$ 41.00	Sr. Drafter 5 \$ 108.00	Drafter 1 \$ 30.00	Admin 2 \$ 39.00				
Task	Subtask	Task Description	Position Rate															
PART 1 - BASIC SERVICES																		
A1.01. GENERAL PROJECT MANAGEMENT AND COORDINATION																		
	1	Project Kick-off Meeting (online)	1		1										2	\$ 336.00	\$ 336.00	
	2	Project Progress Meetings, Agenda and Meeting Minutes (none for AACE)													0	\$ -	\$ -	
	3	Internal Project Team Coordination and Meetings (assume bi-weekly 16 total @ 1/2 Hr to 1 Hr each)			6			6							12	\$ 1,278.00	\$ 1,278.00	
	4	Participate in (2) internal discipline coordination meetings (assume virtually at 1 Hr Ea)			2			2						1	5	\$ 465.00	\$ 465.00	
	5	Meeting with City Plan Review and Fire Marshall	4											1	5	\$ 851.00	\$ 851.00	
	6	Attend (1) Owner Meeting			8										8	\$ 1,064.00	\$ 1,064.00	
	7	QA/QC and Technical Review (PER and Drawings)	1	4										1	6	\$ 898.00	\$ 898.00	
	8	PER Technical Review Workshop			8										8	\$ 1,064.00	\$ 1,064.00	
	9	City Review and Submittal Comments Incorporation, Comments-Response Log Preparation	1		1			4						1	7	\$ 695.00	\$ 695.00	
	10	Project Schedule, Filing, Invoicing, Progress Report & Contract Administration (Final Design Phase)	10												20	\$ 2,730.00	\$ 2,730.00	
		Project Task Expenses														\$ -	\$ -	
A1.01. GENERAL PROJECT MANAGEMENT AND COORDINATION			17	4	26	0	0	12	0	0	0	0	0	4	10	73	\$ 9,381.00	\$ - \$ 9,381.00
A1.02. PRELIMINARY DESIGN PHASE																		
	1	Follow-up Site Visits			8										8	\$ 1,064.00	\$ 1,064.00	
	2	Review Record Drawings and other Project Data	1		8									1	10	\$ 1,306.00	\$ 1,306.00	
	2	Code Review	1		8									1	10	\$ 1,306.00	\$ 1,306.00	
	2	Calculations and Equipment Sizing	1		16			16						1	34	\$ 3,650.00	\$ 3,650.00	
	2	Drawing Development and Preparation (includes download CAD files from ProjectWise or equal, setting up CAD files and	1				10	20		20				4	55	\$ 4,729.00	\$ 4,729.00	
	2	OPCC Preparation	1				4							4	9	\$ 891.00	\$ 891.00	
	2	Preliminary Engineering Report Preparation	4				20	20						8	52	\$ 5,384.00	\$ 5,384.00	
		Project Task Expenses														\$ -	\$ -	
A1.02. PRELIMINARY DESIGN PHASE			9	0	40	0	34	56	0	20	0	0	0	19	0	178	\$ 18,330.00	\$ - \$ 18,330.00
TOTAL			26	4	66	0	34	68	0	20	0	0	23	10	251	\$ 27,711.00	\$ - \$ 27,711.00	

City of Pflugerville Surface Water Treatment Plant
Expansion Project
Electrical Engineering Project Scope

1. Overview and Understanding:

This project will accommodate various facilities upgrades or new process (Project) for the City of Pflugerville (Owner) Surface Water Treatment Plant (WTP). Gupta & Associates, Inc. (GAI) will perform the electrical distribution and controls (ED&C) design as a subconsultant to Ardurra Group (Ardurra).

1.1. Project Description – Basic Services

1.1.1. General

1. This project includes planning/preliminary design, design, bid, and construction phase services for the expansion of the existing Pflugerville WTP and Lake Pump Station to a capacity of 30 MGD.
2. This proposal is for the preliminary engineering report (PER) and 30% design. Future amendments will address subsequent phases of design and construction.
3. GAI will provide design for the overall site area lighting, complying with City Ordinance ORD-0427 – Subchapter 13 where applicable.
4. GAI will incorporate the City of Pflugerville Engineering Design Manual and Construction Standards where applicable.
5. GAI will coordinate with the Generator Project to include capacity in the WTP main switchgear to provide the following circuits:
 - a. Existing HSPS
 - b. New HSPS
 - c. Existing Membrane Building MCC
 - d. New Membrane Building MCC
 - e. New Sludge Pump Station

1.1.2. Lake Pump Station

1. There are currently three 125 HP, 460 V pumps on variable frequency drives (VFDs).
2. The new WTP expansion will install three new 125 HP, 460 V pumps. The project will include an expansion to this existing building which will include a new electrical room that will house reduced voltage soft starters (RVSSs) for the new pumps.
 - a. This electrical room will require environmental conditioning (HVAC).
 - b. The PLC cabinet for this building may go in this same electrical room, a separate control room, or the points may be incorporated into the existing PLC cabinet.

1.1.3. Pretreatment

1. This is a new process to be added as part of this expansion. The process will include a new flocculation basin and plate settlers.
2. These structures will be served from a new 480 V MCC in the new Sludge Thickening Building.

1.1.4. Membrane

1. The existing Membrane Filter Building includes a 480 V motor control center (MCC) in an electrical room, on the ground level mezzanine. There is no provision to add additional loads to this MCC and there is no space in this room to expand the existing MCC.
2. The 5 trains will be replaced with new membrane cassettes to meet increased capacity. This construction will be sequenced to maintain operation of the WTP.
3. There is another room (the PAC Feed Room) that may serve as a new electrical room. This space would have to be emptied and will require HVAC.
4. The existing electrical room could continue to house the low voltage load panels.

1.1.5. Ground Storage Tank

1. This is an existing tank and no electrical work is anticipated for it.
2. Space is being allocated for a future elevated storage tank, but no electrical work is anticipated for it.

1.1.6. High Service Pump Station

1. There are currently three 600 HP, 4000 V pumps on RVSS.

City of Pflugerville Surface Water Treatment Plant
Expansion Project
Electrical Engineering Project Scope

2. A current expansion project is under design to add a fourth 600 HP, 4000 V pump on RVSS.
3. The new WTP expansion will include a new HSPS building with several 4000 V pumps. This building will require 4160 V, 480 V, as well as 120 V.
4. This new building will include an electrical room that will house VFDs for the new pumps.
 - a. This electrical room will require HVAC.
 - b. The PLC cabinet for this building may go in this same electrical room or a separate control room.

1.1.7. Sludge Thickening

1. This is a new process to be added as part of this expansion. The process will include gravity thickeners for sludge thickening and a new sludge pump station.
2. This pump station will include a new electrical room that will house a 480 V MCC that will serve these facilities as well as the Pretreatment Flocculation and Sedimentation and the Chemical Storage Facility.
 - a. This electrical room will require HVAC.
 - b. The PLC cabinet for this building may go in this same electrical room or a separate control room.

1.1.8. Backwash Clarifier

1. This will be a new structure added to the existing clarifier.
2. There is an existing pump station that will be evaluated and improved as needed. However, no new building is expected here, and any electrical equipment installed will be installed outdoors.
3. The electrical service to the existing structure will be evaluated to determine how best to upgrade it to accommodate the new structures.

1.1.9. Chemical Storage

1. This will be a new structure.
 - a. It should require 120 V for lighting, instrumentation and controls, and power to metering pumps, tank mixers, etc.
 - b. It would also require 480 V for HVAC and ventilation fans.
 - c. GAI will provide the design for any local audible/visual alarm indication for gas/chemical leaks, but the instrumentation design will be by others.
2. There should be an electrical room that will house load panels and a PLC cabinet.
3. This building will be served from a new MCC in the new Sludge Thickening Building.

1.1. Work Definition

1.1.1. Administrative

This work will include the following administrative services:

1. GAI will provide various submittals for Owner's review of the design process. These submittals are expected to be:
 - a. Draft Preliminary Engineering Report/30% Design for Owner's review
 - b. Final Preliminary Engineering Report for record purposes
2. GAI will provide monthly invoicing for this work to Ardurra. The duration of this Project is expected to be:
 - a. Preliminary Engineering Report Phase: 5 months
3. GAI will conduct site surveys after notice to proceed is received as needed.
4. GAI will participate in a project initiation conference call.
5. GAI will participate in various design team coordinating conference calls and workshops to review design progress. These include:
 - a. Report Phase Coordination Conference Calls: 5
6. GAI will participate in various design review meetings and workshops with the Owner. These include:
 - a. Owner Progress Review Meetings/Workshops: 1
 - b. Owner Design Review Meetings (Draft PER) 1
7. Opinions of Probable Construction Costs (OPCC) will be provided for each submittal.

City of Pflugerville Surface Water Treatment Plant
Expansion Project
Electrical Engineering Project Scope

1.1.2. Preliminary Engineering Report

1. GAI will develop the ED&C section of the Preliminary Design Report (PDR).
2. GAI will provide a draft report for review and final report submittal.

2. Fee:

GAI will perform these services on a fixed fee basis, based upon the following:

Area	Fee
Project Management	\$4,423
Preliminary Engineering Report	\$56,371
30% Drawings	\$63,889
Total	\$124,683

3. Clarifications:

The following items apply to this proposal:

1. This proposal is valid for 30 days.
2. Opinions of Probable Construction Costs are engineering estimates and are not warranted.
3. GAI has not included any software licenses or hardware in this proposal.
4. GAI has not included any power system modeling in this proposal. A preliminary power system model will be developed during the design phase to ascertain short circuit requirements.
5. GAI requires an equipment list, CAD files for reference drawings (e.g. site plans and floor plans), and control strategy to be provided by Ardurra prior to beginning design.
6. Instrumentation and controls (I&C) design to be by others.
 - a. GAI will incorporate conduit/wire routing for power and controls into duct bank sections and panel schedules based upon the design to be provided by others.
 - b. GAI will coordinate with the I&C designer for wire specifications to be incorporated into the wire specification to be provided by GAI.
7. HVAC to be done by others.
 - a. GAI will coordinate with the mechanical designer to define heating loads.
 - b. GAI will coordinate with the mechanical designer to define wiring schematics for motor starters for ventilation fans, etc., to be provided by GAI.
8. Security system, including security cameras, door badge readers, etc., design to be by others. GAI will incorporate conduit routing for these devices based upon the design to be provided by others.
9. A preliminary listing of the plan sheets to be included with the PER/30% design is attached.

City of Pflugerville Surface Water Treatment Plant
Expansion Project
Electrical Engineering Project Scope

Sheet No.	Sheet Title
	General Sheets
00-E-01	Legend & Symbols - I
00-E-02	Legend & Symbols - II
00-E-03	General Notes
00-E-04	Existing Electrical Site Plan
00-E-05	Proposed Electrical Site Plan-1
00-E-06	Proposed Electrical Site Plan-2
00-E-07	Overall Electrical Riser Diagram
00-E-08	One Line Diagram Main Switchgear (4160 V) - 1
00-E-09	One Line Diagram Main Switchgear (4160 V) - 2
00-E-10	One-Line Diagram 480V Switchboard
00-E-11	Site Lighting Plan
	Lake Pump Station
10-E-01	Partial Electrical Site Plan
10-E-02	One-Line Diagram - Existing
10-E-03	One-Line Diagram - Proposed
10-E-04	Electrical Room Floor Plan
10-E-05	Pump Station Electrical Plan
	Pretreatment (Floc & Sed)
20-E-01	One-Line Diagram
20-E-02	Site Plan - Flocculation
20-E-03	Site Plan - Sedimentation
	Membrane
30-E-01	Site Plan - Partial Existing
30-E-02	One Line-Diagram - Existing MCC Demolition - 1
30-E-03	One Line-Diagram - Existing MCC Demolition - 2
30-E-04	Floor Plan - Existing Electrical Room Demolition
30-E-05	Floor Plan - Filter Area Demolition - 1
30-E-06	Floor Plan - Filter Area Demolition - 2
30-E-07	Demolition Pictures
30-E-08	One-Line Diagram - Proposed MCC - 1
30-E-09	One-Line Diagram - Proposed MCC - 2
30-E-10	Floor Plan - Proposed MCC Room
	Ground Storage Tank
	High Service Pump Station
50-E-01	One-Line Diagram - Medium Voltage Switchgear
50-E-02	One-Line Diagram - Medium Voltage MCC
50-E-03	One-Line Diagram - 480 V MCC
50-E-04	Floor Plan - Electrical Room
50-E-05	Site Plan - Detail

City of Pflugerville Surface Water Treatment Plant
Expansion Project
Electrical Engineering Project Scope

Sheet No.	Sheet Title
	Sludge Thickening
60-E-01	One-Line Diagram - 1
60-E-02	One-Line Diagram - 2
60-E-03	Floor Plan - Electrical Room
60-E-04	Site Plan - Sludge Pump Station - 1
	Backwash Clarifier
70-E-01	One-Line Diagram - Demolition
70-E-02	One-Line Diagram - Demolition
70-E-03	Site Plan - Clarifier (Existing)
70-E-04	Site Plan - Clarifier (Proposed)
	Chemical Storage
80-E-01	Site Plan - Partial
80-E-02	One-Line Diagram - 480V MCC - 1
80-E-03	One-Line Diagram - 480V MCC - 2
80-E-04	Floor Plan - Electrical Room
80-E-05	Floor Plan - Chemical Storage Building

Pflugerville Surface Water Treatment Plant Expansion - Preliminary Engineering Report																																			
Gupta & Associates, Inc.		Principal		Project Manager		Engineer - Senior		Engineer		Project Engineer		Designer - Senior		Designer		CAD Tech - Senior		CAD Tech		Admin		Subtotal		ODCs	SUBs	Markup	TOTAL								
		Rate:	\$	232	Rate:	\$	216	Rate:	\$	186	Rate:	\$	139	Rate:	\$	108	Rate:	\$	145	Rate:	\$	96	Rate:			\$	93	Rate:	\$	72	Rate:	\$	75		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost			Hours	Cost	5%	Cost						
TASK SUMMARY - BASIC SERVICES																																			
1.0	Project Management/Administration	0	\$ -	10	\$ 2,160	5	\$ 930	2	\$ 278	2	\$ 216	0	\$ -	0	\$ -	0	\$ -	0	\$ -	10	\$ 750	29	\$ 4,334	\$89	\$0	\$0	\$ 4,423								
	1.1 :Project Management/Administration		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.2 :Invoice Processing		\$ -		\$ -	3	\$ 558		\$ -		\$ -	0	\$ -		\$ -		\$ -		\$ -	10	\$ 750	13	\$ 1,308	\$28	\$0	\$0	\$ 1,336								
	1.3 :		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.4 :Meetings		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.5 :Pre-Design Kickoff Meeting		\$ -	2	\$ 432	2	\$ 372	2	\$ 278	2	\$ 216		\$ -		\$ -		\$ -		\$ -		\$ -	8	\$ 1,298	\$26	\$0	\$0	\$ 1,324								
	1.6 :Design Progress Meetings (1 with Owner)		\$ -	8	\$ 1,728		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	8	\$ 1,728	\$35	\$0	\$0	\$ 1,763								
	1.7 :Pre-Construction Meeting		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.8 :		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.9 :		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
	1.10 :		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0	\$0	\$0	\$ -								
2.0	Preliminary Engineering Report	0	\$ -	29	\$ 6,264	140	\$ 26,040	305	\$ 42,395	229	\$ 24,732	0	\$ -	0	\$ -	47	\$ 4,371	188	\$ 13,536	0	\$ -	938	\$ 117,338	\$2,922	\$0	\$0	\$ 120,260								
	ED&C		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0		\$0	\$ -								
	2.1 :Initial Site Visit and Investigation		\$ -	8	\$ 1,728	8	\$ 1,488	8	\$ 1,112		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	24	\$ 4,328	\$662		\$0	\$ 4,990								
	2.2 :Prepare Draft Tech Memo	0	\$ -	0	\$ -	64	\$ 11,904	94	\$ 13,066	200	\$ 21,600		\$ -		\$ -		\$ -		\$ -	0	\$ -	358	\$ 46,570	\$931		\$0	\$ 47,501								
	3.2 :Prepare 30% Drawings		\$ -		\$ -	47	\$ 8,742	188	\$ 26,132		\$ -		\$ -		\$ -	47	\$ 4,371	188	\$ 13,536		\$ -	470	\$ 52,781	\$1,056		\$0	\$ 53,837								
	2.3 :Submit Draft Tech Memo	0	\$ -	4	\$ 864	8	\$ 1,488	0	\$ -	0	\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	12	\$ 2,352	\$47		\$0	\$ 2,399								
	2.4 :Tech Memo Review Meeting		\$ -	8	\$ 1,728		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	8	\$ 1,728	\$35		\$0	\$ 1,763								
	2.5 :Prepare Final Tech Memo	0	\$ -	0	\$ -	0	\$ -	10	\$ 1,390	24	\$ 2,592		\$ -		\$ -		\$ -		\$ -	0	\$ -	34	\$ 3,982	\$80		\$0	\$ 4,062								
	2.6 :Submit Final Tech Memo	0	\$ -	4	\$ 864	8	\$ 1,488	0	\$ -	0	\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	12	\$ 2,352	\$47		\$0	\$ 2,399								
	2.7 :Monthly Design Team Coor Meetings (Report		\$ -	5	\$ 1,080	5	\$ 930	5	\$ 695	5	\$ 540		\$ -		\$ -		\$ -		\$ -		\$ -	20	\$ 3,245	\$65		\$0	\$ 3,310								
			\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	0	\$ -	\$0		\$0	\$ -								
		0	\$0	39	\$8,424	145	\$26,970	307	\$42,673	231	\$24,948	0	\$0	0	\$0	47	\$4,371	188	\$13,536	10	\$750	967	\$121,672	\$3,010	\$0	\$0	\$ 124,682								

Scope of Services

Water Treatment Plant Expansion Project

Background

The City of Pflugerville (Client) solicited qualification for professional engineering services for the Water Treatment Plant Expansion Project (Project). The Client owns and operates a water treatment plant (WTP) with a capacity of 17.7 million gallon per day (MGD). Master planning documents have projected the Client's water service area growth, at ultimate buildout, will support a 75.0 MGD water treatment plant at the existing site. This capacity will be gradually achieved over time with a phased implementation strategy beginning with an expansion to 30.0 MGD. A treatment alternatives evaluation was completed in 2020 outlining the methods of proposed expansion of the process treatment train at the plant to 30.0 MGD with consideration given to the proposed 75.0 MGD full buildout site layout

The Project includes expanding the WTP capacity to 30.0 MGD and the expansion of the City's Lake Raw Water Pump Station (LRWPS) and the High Service Pump Station (HSPSP) to reach the 30.0 MGD target. The City also plans to develop an 800-foot pressure plane, which will be served by the expanded HSPS. Ardurra successfully pursued the Project with K. Friese & Associates, Inc. (KFA) as a team member. The Project scope generally includes the following:

- Review and confirm TCEQ requirements for water treatment plant expansions and capacities of treatment processes.
- Review and confirm recommendations included within the Pflugerville WTP Treatment Alternatives Evaluation.
- Complete a hydraulic evaluation of the proposed LRWPS improvements to verify the appropriateness of the design specifications as well as the capacity of the suction and discharge pipelines.
- Complete a HSPS evaluation to determine location and capacity of required pumping for the existing 30.0 MGD expansion and the proposed new 800' Pressure Zone. Confirm high service pumping total dynamic head (TDH) requirement through evaluation of the existing water hydraulic model.
- Complete an evaluation of solids handling alternatives to determine most cost-effective option for solids handling at the plant. If dewatering is determined to be the most cost-effective option, include an evaluation of dewatering technologies. Include an evaluation on water characteristics to determine the potential for creating a concentrated total organic carbon (TOC) stream through recycling of decant from any proposed solids handling processes.
- Complete an evaluation of the plant's existing disinfection zones and CT credits, including clearwell storage, to obtain credits at 30.0 MGD.
- Prepare and submit an Environmental Information Document (EID) that allows the Texas Water Development Board (TWDB) to make determinations about the degree of impacts that can reasonably be expected to occur as a result of construction of a proposed project. Projects seeking funding through the Clean Water State Revolving Fund (CWSRF) or the Drinking Water State Revolving Fund (DWSRF) are subject to National Environmental Policy Act requirements and require the EID.
- Developing a Preliminary Engineering Report (PER) for the expansion to 30.0 MGD.
- Developing an engineer's opinion of probable construction cost for the recommended alternatives.

Scope of Services

Water Treatment Plant Expansion Project

KFA's Scope of Services

KFA will provide engineering services for the evaluations and preparation of PER sections for the site pavement and site drainage and process mechanical components of the LRWPS and HSPS. KFA will also evaluate routing options for the offsite conveyance of the solids residuals to a Client owned WWTP.

KFA's Scope of Services generally includes the following:

- **Project Management and Quality Control**
 - **Project Management:** KFA will track and update the budget, schedule, progress of work, and potential changes to the scope of work. KFA will provide a project status report and submit with monthly invoice. The project status report will include summary of work completed to date, work planned for upcoming month, and schedule update as needed.
 - **Quality Control:** KFA will perform quality assurance/quality control procedures during the project phase. These procedures will include a technical review of interim deliverables by senior technical advisors who are not directly involved with the project. The technical review will provide comments and suggestions concerning the various project deliverables for incorporation prior to submitting to the Client. A one-day internal review meeting will be conducted for the Draft Preliminary Engineering Report to discuss technical review comments.
 - KFA will attend regular coordination meetings with design team to coordinate design tasks, review all project elements, to facilitate development of preliminary engineering design. A kick-off meeting, up to four internal team coordination meetings and a PER comment review meeting are planned for the Preliminary Engineering Phase of the project.
- **Preliminary Engineering Design**

KFA shall perform the following tasks as part of the preliminary engineering design of the project. It consists of: evaluating the existing system to identify improvements/modifications recommended for the plant expansion; preliminary engineering design of proposed improvements; preparation of a Preliminary Engineering Report (PER); constructability review; and development of opinion of probable construction costs. Each scope item is discussed in detail below.

 - **Lake Raw Water Pump Station (LRWPS)**
 - KFA will evaluate the hydraulic ability of the Lake Intake to accommodate the 30 MGD capacity.
 - KFA will evaluate and summarize options for the replacement of the existing butterfly valves with Rexa actuators with a new control valve, such as a Cla-Val or similar valve.
 - KFA will conduct a hydraulic evaluation of the existing pumps and discharge piping.
 - KFA will evaluate and summarize modifications needed to add two additional vertical turbine pumps and connect to the existing suction header and discharge header.
 - KFA will evaluate and summarize site pavement and drainage modifications required to accommodate the expanded pump station.

Scope of Services
Water Treatment Plant Expansion Project

- High Service Pump Station (HSPS)
 - KFA will coordinate with Ardurra and the Client and any identified separate water hydraulic model consultant to obtain inputs for pump control valve design for the high service pump station. KFA will identify several transient surge analysis scenarios for the Client or Client identified consultant to perform the analyses. The analysis will determine recommended pump control valve open and closing time, required surge protection devices for the pump station, piping headers, etc. It is assumed up to two virtual meetings will be held. Each meeting will be no more than two hours in length.
 - KFA will evaluate the hydraulic capacity of the exiting pipe network from the final ground storage tank to the HSPS to accommodate the 30 MGD capacity.
 - KFA will evaluate and summarize options for the realignment of the existing pumps and replacement of the discharge header.
 - KFA will evaluate and summarize options for the replacement of the discharge header.
 - KFA will summarize modifications needed to add two additional vertical turbine pumps and connect to the existing suction header.
 - KFA will summarize modifications needed for a parallel discharge header that connects the two discharge pressure planes.
- Site Pavement and Drainage
 - KFA will summarize design criteria for pavement improvements. Pavement design requirements will be based on guidance provided in the subsurface geotechnical investigation.
 - KFA will incorporate site pavement improvements in the proposed site plan.
 - KFA will summarize design criteria for site drainage improvements.
 - KFA will incorporate site drainage improvements in the proposed site plan.
- Offsite Residuals Disposal to Wastewater Treatment Plant
 - KFA will evaluate and summarize options for conveying residual solids from the WTP to a Client owned wastewater treatment plant (WWTP). Options of continuing to pump thickened sludge to Central WWTP or diverting by gravity to the 36-inch interceptor approximately 3,600 feet east of the site that discharges to the Carmel-Sorrento Lift Station will be reviewed.
- Drawings
 - KFA will develop 30% design level drawings for the site pavement, site drainage, LRWPS, and HSPS improvements. A total of 12 drawings are estimated for the scope.
 - KFA will develop 10% design level alignment exhibits for the offsite sludge disposal route study. The alignment exhibits will use an aerial background.
 - The scope assumes the existing site plan and proposed site plans will be prepared by Ardurra.

Scope of Services
Water Treatment Plant Expansion Project

- Engineer's Opinion of Probable Construction Cost (EOPCC)
 - KFA will prepare an EOPCC for the recommended plant components evaluated by KFA.
 - The EOPCC will be comparable to a Class 3 estimate as defined by the Association for the Advancement of Cost Engineering.
- Permitting Requirements
 - KFA will review and summarize the building permitting approvals required for the Project.
- Preliminary Engineering Report
 - KFA will prepare PER sections that will include a written description of the evaluations conducted, recommendations and EOPCC.
 - Deliverables to Ardurra will be in electronic format. Ardurra will assemble and submit to Client and applicable permitting agencies.
 - Work conducted by KFA will be signed and sealed by an engineer registered in the State of Texas.

Scope Assumptions

The Scope of Services and Fee are based on the following assumptions.

- The current scope is limited to the Preliminary Engineering Phases. A separate proposal and scope of services will be provided when the Project continues to Final Design.
- KFA will provide professional engineering services for the process mechanical design of the items listed in the Scope of Services. Other design disciplines, such as architectural, electrical, instrumentation, structural, geotechnical, environmental, survey, plumbing, and HVAC (Disciplines) will be conducted by Ardurra or a subconsultant contracted by Ardurra.
- The LRWPS will include a zebra mussel control system (ZMCS) such as copper ion generation or chemical addition. The alternatives and preliminary design of the ZMCS will be conducted by Ardurra.
- Chemical storage and feed components evaluations required at the LRWPS or HSPS will be conducted by Ardurra or a subconsultant contracted by Ardurra.
- Hydraulic evaluations from the LRWPS to the final ground storage tank will be conducted by Ardurra or a subconsultant contracted by Ardurra.
- KFA will coordinate with other design Disciplines as required.
- Drawings will be developed in 2D versions of computer aided design and drafting.
- Specifications are not required for the Concept or Preliminary Engineering phases.
- The schedule will be appropriate for the Scope of Services, 90-120 days.

Fee

KFA will conduct the Scope of Services in accordance with the Scope Assumptions for a lump sum fee of \$218,525.

**KFA FEE SCHEDULE
PRELIMINARY ENGINEERING
ARDURRA
PFLUGERVILLE WATER TREATMENT PLANT EXPANSION PROJECT**

Task	Technical Advisor /						Total Labor	KFA Total Labor Cost	Expenses	Total Cost
	Quality Consultant	Project Manager	Technical Lead	Senior Engineer	Graduate Engineer Hours	General Office Clerk Hours				
	\$ 285.00	\$ 260.00	\$ 260.00	\$ 200.00	\$ 115.00	\$ 70.00				
Preliminary Engineering Phase	24	87	175	227	751	96	1360	\$213,445	\$5,080	\$218,525
1.0 Project Management & Quality Control	24	87	29	3	9	28	180	\$40,595	\$1,620	\$42,215
Quality Assurance / Quality Control	24		8			4	36	\$9,200	\$460	\$9,660
Project Management & Controls		68				24	92	\$19,360	\$970	\$20,330
Kick-off Meeting		4	6				10	\$2,600	\$50	\$2,650
Virtual Meetings - 3		3	3	3	3		12	\$2,505		\$2,505
Coordination Team Meetings - 2		6	6		6		18	\$3,810	\$80	\$3,890
PER Comment Review Meeting		6	6				12	\$3,120	\$60	\$3,180
2.0 Preliminary Engineering and Design	0	0	146	224	742	68	1180	\$172,850	\$3,460	\$176,310
Lake Raw Water Pump Station										
Hydraulic Evaluation			6	16	28		50	\$7,980		\$7,980
Draft Preliminary Engineering Report			12	18	48	12	90	\$13,080	\$650	\$13,730
Final Preliminary Engineering Report			4	6	12	6	28	\$4,040	\$200	\$4,240
Drawings										
LRWPS Demo Plan			2	4	28		34	\$4,540		\$4,540
LRWPS Plan View			4	4	28		36	\$5,060		\$5,060
LRWPS Section View			4	4	28		36	\$5,060		\$5,060
LRWPS Expansion Plan View			4	4	28		36	\$5,060		\$5,060
LRWPS Expansion Section View			4	4	28		36	\$5,060		\$5,060
High Service Pump Station										
Hydraulic Evaluation			8	16	32		56	\$8,960		\$8,960
Suge Analysis Coordination			6	12	12		30	\$5,340		\$5,340
Draft Preliminary Engineering Report			12	20	48	12	92	\$13,480	\$670	\$14,150
Final Preliminary Engineering Report			4	6	12	6	28	\$4,040	\$200	\$4,240
Drawings							0			
HSPS Demo Plan			2	4	22		28	\$3,850		\$3,850
Existing HSPS Plan View			4	4	28		36	\$5,060		\$5,060
Existing HSPS Section View			4	4	28		36	\$5,060		\$5,060
Proposed HSPS Plan View			4	4	28		36	\$5,060		\$5,060
HSPS Section View			4	4	28		36	\$5,060		\$5,060
Site Pavement and Drainage										
Master Site Plan Workshop			6		6		12	\$2,250	\$50	\$2,300
Draft Preliminary Engineering Report			6	12	32	8	58	\$8,200	\$410	\$8,610
Final Preliminary Engineering Report			2	2	6	4	14	\$1,890	\$90	\$1,980
Drawings							0			
LRWPS Site Pavement Plan			2	4	20		26	\$3,620	\$70	\$3,690
WTP Site Pavement Plan			4	4	22		30	\$4,370	\$90	\$4,460
Site Drainage Plan			4	4	26		34	\$4,830		\$4,830
Offsite Residuals Disposal to WWTP										
Draft Preliminary Engineering Report			12	32	64	16	124	\$18,000	\$900	\$18,900
Final Preliminary Engineering Report			2	4	8	4	18	\$2,520	\$130	\$2,650
Drawings							0			
Alignment Exhibit I			4	4	24		32	\$4,600		\$4,600
Alignment Exhibit II			4	4	24		32	\$4,600		\$4,600
Permitting Requirements				4	12		16	\$2,180		\$2,180
Engineer's Opinion of Probable Construction Cost			12	16	32		60	\$10,000		\$10,000
							0	\$0		\$0
							0	\$0		\$0
Base Services Totals	24	87	175	227	751	96	1360	\$213,445	\$5,080	\$218,525



13601 Preston Road., Suite 900W | Dallas, TX 75240 | tel 972.364.9090 | fax 972.364.9091 | www.mbroh.com

December 11, 2020

Yue Sun, P.E.
Project Manager
Ardurra
2032 Buffalo Terrace
Houston, TX. 77019

RE: City of Pflugerville – Water Treatment Plant (WTP) Expansion

Dear Ms. Sun:

Thank you for the opportunity to provide our Scope of Work and Level of Effort (LOE) for the City of Pflugerville WTP Expansion Project.

The task below describes the SCADA Engineering Services to be provided by Mbroh Engineering, Inc. for the preliminary engineering effort:

Task 1: Project Management

Task 2: Investigation/Study:

- HMI Review
- Membrane PLC Review
- Lab PLC Review
- High Service PS PLC Review
- Raw Water PS PLC Review
- Process Area PLC Review (Pretreatment, Chemical, Sludge Thickeners, etc.)

Task 3: Preliminary Engineering Report

- Legend Sheet
- Existing SCADA System Architecture Sheet
- Proposed SCADA System Architecture Sheet
- Membrane System P&ID Sheet
- High Service PS P&ID Sheet
- Raw Water PS P&ID Sheet
- Pretreatment P&ID Sheet
- Chemical System P&ID Sheet
- Sludge Thickeners P&ID Sheet
- Miscellaneous P&ID Sheet
- Preliminary Engineering Report Write-up with OPCC



13601 Preston Road., Suite 900W | Dallas, TX 75240 | tel 972.364.9090 | fax 972.364.9091 | www.mbroh.com

Please find the attached the LOE Spreadsheet for the proposed Professional Services fee of **\$73,625.00**.

If you should have questions, please feel contact me at (972) 364-9090.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tony Mbroh", with a long, sweeping horizontal line extending to the right.

Anthony Mbroh, P.E.
President

City of Pflugerville		Labor Classifications							Non-Labor Fee			
Water Treatment Plant Expansion		Hours							Non-Labor			
Level Of Effort Spreadsheet		\$200	\$185	\$120	\$75							1.00
		PM	Sr	Sr	Sr							
		Principal	I&C	CAD	Adm	Total	Infl	Labor				Sub-
Task Description						Hours	Fact	Fee	Repro	Trav	Deliver	Total
Phase 1 - Investigation/Study and Design Report						0	0.0%	0				0
1.0	Project Management					0		0				0
1.0.1	Project Execution Plan and Kick-off Meeting	2	2			4		770				0
1.0.2	Site Visits (2)	16	16			32		6,160		800		800
1.0.3	Monthly Progress Report (5)	5	5			10		1,925				0
1.0.4	Coordination Meetings (6)	6	12			18		3,420				0
1.0.5	Monthly Progress Report/Invoices	5			12	17		1,900				0
	<i>Subtotal</i>	34	35	0	12	81	0	14,175	0	800	0	800
1.1	Investigation/Study					0		0				0
1.1.1	HMI Review	1	8			9		1,680				0
1.1.2	Membrane PLC Review	1	12			13		2,420				0
1.1.3	Lab PLC Review	1	8			9		1,680				0
1.1.4	High Service Pump Station PLC Review	1	6			7		1,310				0
1.1.5	Raw Water Pump Station PLC Review	1	6			7		1,310				0
1.1.6	Process Area PLC Review (Pretreatment, Chemical, Sludge Thickeners)	2	16			18		3,360				0
1.1.7	SCADA Workshop & Prep/Minutes	10	16		2	28		5,110				0
	<i>Subtotal</i>	17	72	0	2	91	0	16,870	0	0	0	0
						0		0				0
1.2	Preliminary Engineering Report					0		0				0
1.2.1	System Architecture Drawings (2 - Sheet)	2	16	16		34		5,280				0
1.2.2	P&ID Development (10 - Sheets)	12	60	80		152		23,100				0
1.2.3	Draft PER	8	24		24	56		7,840				0
1.2.4	Final PER	1	4		8	13		1,540				0
1.2.5	OPCC	1	8			9		1,680				0
1.2.6	PER Review Workshop	4	4			8		1,540		800		800
	<i>Subtotal</i>	28	116	96	32	272	0	40,980	0	800	0	800
	Phase 1 Total	79	223	96	46	444	0	72,025	0	1,600	0	1,600

City of Pflugerville			Labor Classifications						Non-Labor Fee				
Water Treatment Plant Expansion			Hours						Non-Labor				
Level Of Effort Spreadsheet			\$200	\$185	\$120	\$75						1.00	
			PM	Sr	Sr	Sr							
			Principal	I&C	CAD	Adm	Total	Infl	Labor			Sub-	
Task Description							Hours	Fact	Fee	Repro	Trav	Deliver	Total
Sub Total			79	223	96	46	444		72,025				1,600
Total			\$ 73,625.00										



4201 Freidrich Lane, Suite 110

Austin, Texas 78744

512.447.9081 Ph

512.443.3442 Fax

www.hvj.com

November 11, 2020 (*Revised November 25, 2020*)

Ms. Yue Sun, PE
Ardurra
2032 Buffalo Terrace
Houston, TX 77019

Re: City of Pflugerville Water Treatment Plant Expansion
Geotechnical Investigation Report
Owner: City of Pflugerville
HVJ Proposal No. AG 20 10412

Dear Ms. Sun:

HVJ South Central Texas, M&J, Inc. (HVJ SCTx) is pleased to submit this proposal to provide a geotechnical investigation for the above referenced project to Ardurra (Client).

Project Background

HVJ SCTx understands The City of Pflugerville (City) operates a nominal 17 million gallon per day (MGD) Water Treatment Plant (WTP). This project is to expand the WTP to 30 MGD to meet current and future water demands. This project will also construct improvements required by the WTP facility to meet and maintain regulatory compliance, safety, technology improvements, process innovation and renew aging infrastructure. At this time, HVJ SCTx understands information from the geotechnical investigation will be obtained to aid in the preparation of the Preliminary Engineering Report (PER).

The general scope of work includes preliminary engineering design of the following components:

- Expansion of existing lake intake pump station
- Pretreatment Train (rapid mix, flocculation basins, plate settlers)
- Membrane Filtration
- Clearwell
- High service pump station
- Chemical storage and feed facility
- New sludge thickeners and thickened sludge pump station
- Miscellaneous improvements

Scope of Work

We understand 7 deep borings have been requested for this project to investigate the subsurface conditions to provide design and construction recommendations for the proposed structure facilities. In addition, 10 borings (4 of which will be water line-pavement dual purpose, 4 will be for pavement and 2 will be for the water line) be performed to aid in the design and construction of 24 and 42-inch water lines and area pavements. We understand the invert depth of the water lines will be less than 10 feet below existing grade. The structure borings will be drilled to depths of 60 feet while the pavement and water line borings will be drilled to depths of 15 feet, for a total

drilling footage of 570 feet. The borings will be completed with a truck-mounted rig, equipped with flight augers and sampling tools. Soil samples in particular will be collected using Shelby tubes and/or split-spoon samplers continuously to 10 feet and at 5 feet intervals thereafter. Field-testing of soil samples will include pocket penetrometer readings in the cohesive soils and Standard Penetration Tests (SPT) in cohesionless soils. Bedrock will be continuously cored and Rock Quality Designation (RQD) and percent recovery will be determined in the field. We understand one boring will be converted to a piezometer for steady state long term water level measurements. At completion of drilling, the boreholes will be backfilled with bentonite.

Laboratory index tests will be performed on select soil samples recovered from the test borings. The index tests will include Atterberg limits, percent passing the minus 200 sieve, sieve analysis, moisture content, and unconfined compression tests. We understand corrosivity potential for pipe testing is desired; therefore, the corrosivity testing suite that consists of pH, sulfates, chlorides and resistivity tests will also be performed on select borings. Advanced testing will consist of consolidation tests to aid in settlement analysis, California Bearing Ratio (CBR) and Texas triaxial testing will be performed for pavement analysis. All tests will be performed in accordance with ASTM and or TxDOT standards.

Engineering Report Deliverables

Results of the field data and laboratory data will be used to develop design and construction recommendations for the proposed structures and pavement. A report of HVJ SCTx's study will be prepared by an engineer specializing in soil mechanics after reviewing available design, boring and laboratory data. In general, the following items will be included in the geotechnical investigation report:

- Site vicinity map,
- Geology map,
- Plan of borings,
- Boring logs,
- Field and Laboratory test results summary,
- A log of core photos will be presented in the report,
- Generalized subsurface conditions,
- Convert one boring to piezometer,
- Groundwater conditions encountered during drilling operations of borings,
- Recommendations for open-cut installation of the utility lines,
- Pipe bedding and backfill recommendations,
- Foundation recommendations and alternatives for proposed structures,
- Recommendations for below grade structures including lateral earth pressures,
- Generalized discussion of construction issues including any potential groundwater concerns,
- General earthwork and select fill recommendations.
- Pavement Design Recommendations

Ms. Yue Sun, PE
November 11, 2020 (*Revised November 25, 2020*)
AG 20 10412

Assumptions

The following assumptions were made in developing the scope and fee estimate for this project:

- No site clearing will be required to access the borehole locations.
- Boring locations will be mutually agreed upon by the Client and HVJ SCTx .
- Right of Entry Permits will be provided by the Client.
- Client shall provide HVJ SCTx with an electronic site map.
- Professional surveying of the boring locations will be done by others, if required. HVJ will provide hand-held GPS coordinates and elevations.

Fee

Based on the scope of work outlined, the combined fee for our services will not exceed \$79,900.00. The cost breakdown is included in this proposal along with a proposal provided by HVJ Associates, Inc. for pavement design services. If anomalous soil conditions are encountered, or if the project configuration changes significantly, additional work may be required. HVJ SCTx will recommend such additional work when and if it is deemed necessary.

Schedule

We propose to initiate project scheduling and coordination, immediately upon receiving notice-to-proceed. We subsequently expect to complete the test borings approximately 3 weeks after receiving NTP and right-of-entries. Laboratory testing, evaluation of test results, engineering analyses and report preparation will take approximately 3-4 weeks after completion of the fieldwork.

Sample Retainage

Soil samples will be retained in our laboratory for 30 days after the geotechnical investigation.

Insurance

Insurance certificates verifying HVJ SCTx's general liability, auto, workers' compensation, and errors and omissions insurance coverage, listing Ardurra as a certificate holder, will be provided upon request.

Invoices

Invoices will be submitted at the end of each month based on the time spent on the work and items completed by the last Saturday of each month, or based on an invoice schedule provided by owner.

Ms. Yue Sun, PE
November 11, 2020 (*Revised November 25, 2020*)
AG 20 10412

If this proposal meets with your approval, please sign and complete the indicated spaces below and forward a copy of the proposal to us. Thank you for this opportunity. We appreciate your business.

Sincerely,

HVJ SOUTH CENTRAL TEXAS – M&J INC

A handwritten signature in black ink, appearing to read "Leo Ruiz", with a stylized flourish at the end.

Leo Ruiz, PE
Project Manager

LR/js

Attachment: Cost Breakdown Table

Agreed to this _____ day of _____, 2020 _____

By: _____

Title: _____

Firm: _____

Telephone: _____

Date to Start Work: _____

Ms. Yue Sun, PE
November 11, 2020 (*Revised November 25, 2020*)
AG 20 10412

Geotechnical Investigation					
City of Pflugerville WTP Expansion					
Ardurra					
HVJ SCTx Proposal No. AG 20 10412					
Geotechnical Field Investigation - Drilling and Soil Sampling					
Mobilization/Demobilization - Austin	1	@	\$450.00	per mobilization	\$450.00
Drilling & Sampling- Soils	360	@	\$18.00	per foot	\$6,480.00
Drilling & Sampling- Rock	210	@	\$28.00	per foot	\$5,880.00
Shelby Tube (Thin Wall)	96	@	\$20.00	each	\$1,920.00
Standard Penetration Tests (SPT)	24	@	\$20.00	each	\$480.00
Backfilling Soils- Bentonite	570	@	\$8.00	per foot	\$4,560.00
Logging EIT	90	@	\$95.00	per hour	\$8,550.00
Utility Clearance and drilling Coordination-EIT	18	@	\$95.00	per hour	\$1,710.00
Vehicle Trip	10	@	\$50.00	each	\$500.00
				Sub Total	\$30,530.00
Geotechnical Field Investigation - Piezometer Installation and Groundwater Monitoring					
Standpipe Surface Mount (supplies, equipment, well reports, etc.)	1	@	\$2,000.00	each	\$2,000.00
Groundwater Monitoring (One Measurement per month for one year) -	48	hr @	\$95.00	per hour	\$4,560.00
Decommissioning peizometer at a future date	1	@	\$1,500.00	each	\$1,500.00
				TOTAL	\$8,060.00
Laboratory Testing - Standard					
Moisture Content	36	@	\$20.00	each	\$720.00
Atterberg Limits	36	@	\$70.00	each	\$2,520.00
Sieve Analysis	21	@	\$65.00	each	\$1,365.00
Percent passing No. 200 Sieve	22	@	\$50.00	each	\$1,100.00
Unconfined Compressive Strength Tests Soil	18	@	\$65.00	each	\$1,170.00
Unconfined Compressive Strength Tests Rock	14	@	\$75.00	each	\$1,050.00
Consolidation Test	2	@	\$500.00	each	\$1,000.00
Sulfate Test (pavement)	4	@	\$70.00	each	\$280.00
Triaxial Test	1	@	\$1,750.00	each	\$1,750.00
CBR Test	1	@	\$300.00	each	\$300.00
Proctor Test	2	@	\$270.00	each	\$540.00
Corrosivity Testing (pH, Sulfate, Chloride and Resistvity)	3	@	\$400.00	each	\$1,200.00
				Sub Total	\$12,995.00
Geotechnical Engineering & Reporting					
Principal, PE	2	@	\$220.00	hr	\$440.00
Senior Engineer, PE	20	@	\$155.00	hr	\$3,100.00
Project Engineer, PE	56	@	\$130.00	hr	\$7,280.00
Staff Engineer II, EIT	104	@	\$95.00	hr	\$9,880.00
Scientist In Training I	56	@	\$60.00	hr	\$3,360.00
Project Administrator	12	@	\$55.00	hr	\$660.00
				Sub-Total	\$24,720.00
Pavement Design					
					\$3,595.00
				TOTAL	\$79,900.00



1701 Directors Boulevard,
Suite 910
Austin, TX 78744
737.222.5151 Phone
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November 25, 2020

Mr. Leo Ruiz, PE
Project Manager
HVJ South Central Texas – M&J, Inc.
4201 Freidrich Lane, Ste. 110
Austin, TX 78744-1045

Reference: Proposal for Pavement Engineering Services
City of Pflugerville Water Treatment Plant (WTP) Upgrades
Owner: City of Pflugerville, Texas
HVJ Project No. AG2010412-P

Dear Mr. Ruiz,

HVJ Associates, Inc. is pleased to submit this proposal to HVJ South Central Texas – M&J, Inc. to provide a pavement design for the above referenced project. It outlines our understanding of the project scope of work, a fee estimate, and a proposed schedule for providing the requested pavement design services for this project.

Project Description

The City of Pflugerville is expanding the existing water treatment plant (WTP) and HVJ South Central Texas – M&J, Inc (HVJ-SCTx) is providing geotechnical services to Ardurra and has been requested to add pavement engineering to their scope of work. The pavements are internal to the plant and will include construction traffic and future phases of solids management. The soils in the area are typically fat clay (CH) over claystone as reported by HVJ-SCTx who will provide all the geotechnical field investigations and laboratory testing for HVJ to use for the pavement design.

Scope of Work

HVJ SCTx – M&J Inc. will be completing and providing the geotechnical study and all laboratory testing results to HVJ Associates to use for the pavement design. As part of this project, HVJ will complete the following tasks:

1. Review HVJ SCTx – M&J Inc. report and USDA soils map,
2. Review HVJ geotechnical data from W/WW transmission main project on Weiss Lane,
3. Review any geotechnical data that LNV might have for the East Pflugerville Parkway expansion from Weiss Lane to Cameron Rd. which is adjacent to the plant and HVJ SCTx will request this data from Ardurra and LNV,
4. Develop pavement design inputs based on geotechnical information and assumed traffic loads provided by Ardurra and City of Pflugerville, and
5. Provide pavement design memorandum to HVJ-SCTx.

Mr. Leo Ruiz, PE
AG2010412-P
November 25, 2020

Based on the current scope, pavement thicknesses designs are needed for flexible base surfaced and HMAC surfaced pavements. It is assumed that two options will be developed based on use of either a HMAC base or a flexible crushed stone base. No Portland cement concrete pavement designs are included. The primary basis of pavement thickness design will be the soils data and heavy truck loads converted into 18-kip Equivalent Single Axle Wheel Loads (ESALs). Subgrade stabilization is expected to be necessary and HVJ-SCTx will supply the necessary recommendations for this design.

Schedule

HVJ will complete and submit draft recommendations within 3 weeks of receipt of the draft HVJ SCTx – M&J Inc. geotechnical report.

Fees

Based on the outlined scope of work, our estimated not to exceed fee for our services is \$3,595. A detailed cost breakdown is attached. Should the project configuration change significantly, additional work may be required. HVJ Associates, Inc. will recommend such additional work when and if it is deemed necessary.

Insurance

Insurance certificates verifying HVJ's general liability, automobile, worker's compensation, and errors and omissions insurance coverage, listing HVJ-SCTx as the certificate holder, will be provided upon request.

Invoices

Invoices will be submitted at the end of each month based on the time spent on the work and items completed, or based on an invoice schedule provided by HVJ-SCTx. HVJ understands that payment will be made after HVJ-SCTx receives payment from Ardurra.

Conditions

The following conditions were assumed in developing the project scope and fee estimate:

- Traffic data will be provided to HVJ by HVJ-SCTx, Ardurra, and the City of Pflugerville to develop the 18k ESAL design traffic for the pavement design.
- No field work is anticipated.
- No onsite project meetings are included.
- Bid and award phase services to respond to contractor questions are included in HVJ's scope
- No construction phase services are included in this proposal. They may be provided on an additional time and materials basis, if desired.
- No AutoCAD drawings are included.
- HVJ will include the recommended materials specifications based on Standard COA Construction Specifications.
- Draft pavement design will be submitted via email and upon approval, the final pavement design will be submitted as a design memorandum.

Mr. Leo Ruiz, PE
AG2010412-P
November 25, 2020

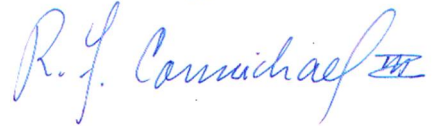
If this proposal meets with your approval, please send HVJ a subcontract agreement or work order for our execution. HVJ will require a written notice to proceed prior to starting work.

Thank you for this opportunity to provide engineering services to HVJ-SCTx. Please contact us if you have any questions or require additional information.

Sincerely,

HVJ ASSOCIATES, INC.

Texas Firm Registration No. F-000646



R. F. (Frank) Carmichael III, PE
Senior Project Manager

FC: fc

Agreed to this _____ day of _____, 2020 _____

By: _____

Title: _____

Firm: _____

Phone No: _____ 512-447-9081 _____

Date to start work: _____

Mr. Leo Ruiz, PE
AG2010412-P
November 25, 2020

Pavement Design					
Water Treatment Plan					
City of Pflugerville, Texas					
HVJ Proposal No. AG2010412					
Pavement Engineering	Units		Rate		Total
Senior Pavement Engineer, PE	5	@	\$175.00	hr	\$875.00
Project Pavement Engineer, PE	9	@	\$125.00	hr	\$1,125.00
Staff Engineer, EIT	14	@	\$100.00	hr	\$1,400.00
Eng Tech	0	@	\$40.00	hr	\$0.00
Admin	2	@	\$60.00	hr	\$120.00
				Subtotal	\$3,520.00
Direct Expenses					
Site Visit Mileage	100	@	\$0.75		\$75.00
				Subtotal	\$75.00
				Total	\$3,595.00

CITY OF PFLUGERVILLE
WATER TREATMENT PLANT EXPANSION
PRELIMINARY ENGINEERING PHASE

Task Name	Duration	Start	Finish
1 Preliminary Engineering Design	204 days	Thu 12/10/20	Thu 7/1/21
2 Notice to Proceed	2 days	Thu 12/10/20	Fri 12/11/20
3 Kick-Off Meeting with Andorra and City (To be confirmed)	1 day	Mon 12/14/20	Mon 12/14/20
4 Task 1.0 Project Management and Quality Assurance	92 days	Thu 1/28/21	Thu 4/29/21
5 Progress Meeting No. 1 (To be confirmed)	1 day	Thu 1/28/21	Thu 1/28/21
6 Progress Meeting No. 2 (To be confirmed)	1 day	Thu 2/25/21	Thu 2/25/21
7 Progress Meeting No. 3 (To be confirmed)	1 day	Thu 3/25/21	Thu 3/25/21
8 Progress Meeting No. 4 (To be confirmed)	1 day	Thu 4/29/21	Thu 4/29/21
9 Task 2.0 Preliminary Engineering Design	203 days	Thu 12/10/20	Wed 6/30/21
10 2.1 Data Collection, Review, and Analysis	30 days	Thu 12/10/20	Fri 1/8/21
11 Draft TM 1 Basis of design	10 days	Wed 1/13/21	Sat 1/23/21
12 Internal Review and QA/QC & Comments incorporation	7 days	Sat 1/23/21	Fri 1/29/21
13 TM 1 Basis of design	1 day	Fri 1/29/21	Fri 1/29/21
14 City/OR Review	14 days	Sat 1/30/21	Fri 2/12/21
15 2.2 Specific Workshops	112 days	Thu 3/4/21	Wed 6/23/21
16 2.2.1 Plant SCADA System Development	1 day	Thu 3/4/21	Thu 3/4/21
17 2.2.2 Master Site Plan Optimization	1 day	Thu 4/29/21	Thu 4/29/21
18 2.2.3 City PER Review Workshop	1 day	Wed 6/23/21	Wed 6/23/21
19 2.3 Preliminary Engineering Design	124 days	Mon 1/11/21	Fri 5/14/21
20 2.3.1 Unit Process Evaluations and Preliminary Design Drawings	109 days	Mon 1/11/21	Thu 4/29/21
21 2.3.2 Plan Hydraulics	70 days	Mon 1/11/21	Sun 3/21/21
22 Draft TM 2 Process evaluation and plant hydraulics	21 days	Wed 2/24/21	Wed 3/17/21
23 Internal Review and QA/QC & Comments incorporation	10 days	Wed 3/17/21	Fri 3/26/21
24 TM 2 Process evaluation and plant hydraulics	1 day	Fri 3/26/21	Fri 3/26/21
25 City/OR Review	14 days	Sat 3/27/21	Fri 4/9/21
26 Draft TM 3 Membrane retrofit construction phasing plan	10 days	Wed 3/10/21	Sat 3/20/21
27 Internal Review and QA/QC & Comments incorporation	7 days	Sat 3/20/21	Fri 3/26/21
28 TM 3 Membrane retrofit construction phasing plan	1 day	Fri 3/26/21	Fri 3/26/21
29 City/OR Review	14 days	Sat 3/27/21	Fri 4/9/21
30 Draft TM 4 Site Buildout Optimization	12 days	Mon 4/12/21	Sat 4/24/21
31 Internal Review and QA/QC & Comments incorporation	7 days	Sat 4/24/21	Fri 4/30/21
32 TM 4 Site Buildout Optimization	1 day	Fri 4/30/21	Fri 4/30/21
33 City/OR Review	14 days	Sat 5/1/21	Fri 5/14/21
34 2.3.3 Coordination Meetings with OR/Other Consultants	106 days	Tue 12/22/20	Tue 4/6/21
35 Coordination Meeting with OR (Bench-scale and Pilot Testing Review)	2 days	Tue 12/22/20	Wed 12/23/20
36 Coordination Meeting #1 with Water Hydraulic Model Consultants/OR	1 day	Fri 2/26/21	Fri 2/26/21
37 Coordination Meeting #2 with Water Hydraulic Model Consultants/OR	1 day	Tue 4/6/21	Tue 4/6/21
38 2.3.4 WTP Expansion Discipline Design Support	123 days	Sat 1/9/21	Tue 5/11/21
39 2.3.5 Preliminary Cost Estimate	15 days	Fri 4/30/21	Fri 5/14/21
40 2.3.6 Constructability Review and Overall Construction Schedule	15 days	Fri 4/30/21	Fri 5/14/21
41 2.3.7 Preliminary Engineering Report	14 days	Sat 5/15/21	Fri 5/28/21
42 Internal Review and QA/QC	8 days	Mon 5/31/21	Mon 6/7/21
43 Submit Draft PER and 30% Plan Set	1 day	Tue 6/8/21	Tue 6/8/21
44 Draft PER/ 30% Plan Set City/OR Review	14 days	Wed 6/9/21	Tue 6/22/21
45 Comments Incorporation	7 days	Wed 6/23/21	Tue 6/29/21
46 Submit Final PER/30% Plan Set	1 day	Wed 6/30/21	Wed 6/30/21
47 Anticipated Final Design Start Date	1 day	Wed 6/9/21	Wed 6/9/21
48 Task 3.0 Site Topographic Survey	29 days	Tue 12/15/20	Tue 1/12/21
49 Task 4.0 Geotechnical Investigation	68 days	Sat 1/9/21	Wed 3/17/21
50 Geotechnical Field Work, lab testing, and Draft Report	60 days	Sat 1/9/21	Tue 3/9/21
51 Internal Review and QA/QC & Comments incorporation	7 days	Wed 3/10/21	Tue 3/16/21
52 Submit Final Geotech Report	1 day	Wed 3/17/21	Wed 3/17/21
53 Task 5.0 TWDB DWSRF Funding Application Support Services	171 days	Mon 1/11/21	Wed 6/30/21
54 Submit Project Information Form (PIF) by OR	1 day	Wed 3/31/21	Wed 3/31/21
55 Draft Intended Use Plan (IUP) by OR	1 day	Wed 6/30/21	Wed 6/30/21
56 5.1 Environmental Review Services	91 days	Mon 1/11/21	Sun 4/11/21
57 Internal Review and QA/QC & Comments incorporation	7 days	Mon 4/12/21	Sun 4/18/21
58 Submit Draft EID	1 day	Mon 4/19/21	Mon 4/19/21
59 Draft EID City/OR Review	7 days	Tue 4/20/21	Mon 4/26/21
60 Comments Incorporation and Final EID for Public Viewing	7 days	Tue 4/27/21	Mon 5/3/21
61 EID Public Meeting	1 day	Thu 6/3/21	Thu 6/3/21
62 Public Meeting Documentation and Submit Final EID to TWDB	5 days	Fri 6/4/21	Tue 6/8/21
63 5.2 Engineering Feasibility Report	30 days	Mon 4/12/21	Tue 5/11/21
64 Internal Review and QA/QC & Comments incorporation	7 days	Wed 5/12/21	Tue 5/18/21
65 Submit Draft EFR	1 day	Wed 5/19/21	Wed 5/19/21
66 Draft EFR City/OR Review	7 days	Thu 5/20/21	Wed 5/26/21
67 Comments Incorporation and Submit Final EFR to TWDB	5 days	Thu 5/27/21	Mon 5/31/21
68 Task 6.0 Construction Delivery Methods	14 days	Thu 3/18/21	Wed 3/31/21
69 6.1 Construction Delivery Workshop (preparation and workshop)	7 days	Thu 3/18/21	Wed 3/24/21
70 6.2 Construction Delivery Meetings (preparation and workshop)	7 days	Thu 3/25/21	Wed 3/31/21
71 Task 7.0 Regulatory Coordination with TCEQ/TWDB	172 days	Mon 1/11/21	Thu 7/1/21
72 7.1 TCEQ/TWDB Joint Meeting	1 day	Thu 2/18/21	Thu 2/18/21
73 7.2 Regulatory Review and Permit Checklist	47 days	Thu 2/25/21	Mon 4/12/21
74 7.3 PER TCEQ Submission	1 day	Wed 6/30/21	Wed 6/30/21
75 7.4 TWDB Coordination	172 days	Mon 1/11/21	Thu 7/1/21
76 7.5 TCEQ Coordination	172 days	Mon 1/11/21	Thu 7/1/21
77 Task 8.0 WTP Background Drawing Development	46 days	Tue 12/15/20	Fri 1/29/21
78 8.1 Background Development	32 days	Tue 12/15/20	Fri 1/15/21
79 8.2 Field 3D Scanning	46 days	Tue 12/15/20	Fri 1/29/21