PROFESSIONAL SERVICES AGREEMENT
FOR
CITY OF PFLUGERVILLE WATER TREATMENT PLANT ENGINEERING SERVICES

WORK AUTHORIZATION NO. 2020-5

This WORK AUTHORIZATION is made pursuant to the terms and conditions of the Professional Services Agreement executed the 20th day of January, 2015 by and between the City of Pflugerville and DCS Engineering, LLC., hereinafter referred to as the Agreement.

The Consultant will perform the professional services as shown in Attachment A, Scope of Services, which will include the tasks to be performed, the deliverables to be provided by the Consultant, and the milestone schedule for completing the tasks and the deliverables.

Compensation to the Consultant for the services provided pursuant to this work authorization shall be in accordance with Article 4 of the Professional Services Agreement, as further detailed in Attachment A to this Work Authorization. Attachment A shall include the method and basis for determining the compensation for this work authorization. The maximum amount payable under this Work Authorization is $253,305.80 unless amended by a Supplemental Work Authorization.

This Work Authorization does not waive any of the parties' responsibilities and obligations provided under the Professional Services Agreement.

This Work Authorization is hereby accepted, acknowledged, and is effective when fully executed below.

CITY OF PFLUGERVILLE

BY: _____

DATE: _____

CONSULTANT
DCS Engineering, LLC

BY: Dawn Slingerland

TITLE: Principal

DATE: 3/4/2020

City of Pflugerville Water Treatment Plant Engineering Services
Work Authorization No. 2020-5
High Service Pump Station Expansion from 17.14 mgd to 25.71 mgd
Attachment A

In accordance with the Professional Services Agreement for Water Treatment Plant Engineering Services between City and Engineer ("Agreement") dated January 20, 2015, City and Engineer agree that additional work shall be added to the Professional Services Agreement as follows:

1. **Specific Project Data**
   A. Title: High Service Pump Station Expansion from 17.14 mgd to 25.71 mgd
   B. DCS Project No.: 20101429
   C. Description:
   This project includes the design of a new floating slab with drilled piers, a 600 HP Vertical Turbine Pump, 600 HP soft starter, electrical conduit, SCADA, discharge and suction piping, pump control valve with control panel, and roof hatches on the existing pump station building. The project will increase the capacity of the City's High Service Pumping Station to a capacity of 25.71 mgd (i.e. three pumps in operation) via the addition of one new pump. The proposed roof hatches will be located over the existing pumps to allow crane access from outside of the building to remove the pumps. Pump controls, ancillary SCADA programming related to the plant's treatment processes and/or Manville WSC interconnect, and surge relief settings will be adjusted as part of this project to accommodate the addition of the 4th pump and its associated capacity.

   The High Service Pump Station pumps water from the City's Surface Water Treatment Plant to the City's distribution system. The existing pump station is programmed to maintain the water level in the North Standpipe in a very narrow band of about 10 feet of water which yields about 40,000 gallons of storage. At the moment, the small active volume available in the standpipe results in approximately 4,000 pump starts and stops per year. The City is currently entering design under a separate project for a new elevated storage tank nearby the existing North Standpipe and/or on the SWTP site in order to increase the active elevated volume by 4.5 million gallons and improve pressure control in the area. At the conclusion of both of these projects, the High Service Pump Station will be programmed to maintain the level in the new North elevated storage tank. We understand that the City will have both of these new elevated storage tanks in service within approximately two years from now.

   It should be noted here that the three existing pumps are prematurely wearing out motors and discharge control valves due to the high number of pump start/stop cycles. Installation of a variable frequency drive on the new 600 Hp pump; installation of a smaller 300 Hp pump with variable frequency drive; planning for future high service pumping capacity expansion(s); or installation of emergency power generation to serve one high service pump have all been specifically excluded from this scope of work. Moreover, hydraulic analysis of the distribution system using the City's water model to evaluate any potential impacts to its operation or ability to convey this increased volume of water is specifically excluded from this scope of work since the City recently completed its Water Master Plan Update.

   Design (civil, structural, and electrical), bidding, and construction administration are included in the attached scope of services. The engineer's opinion of most probable construction cost for the facilities reflects current market conditions and the conceptual design's scope of construction work required to implement the project. The High Service Pump Station Expansion Project engineer's opinion of most probable construction cost including 15% contingency but excluding professional engineering fees equals $1,986,000.

2. **Services of Engineer**

ITEM 1.0 - PROJECT MANAGEMENT

1.1 Management Plan
The ENGINEER shall prepare a Management Plan, which shall include the project Scope of Work, organization responsibilities, communications procedures, schedule, budget, quality control process, and billing.

1.2 Subconsultant Management
The ENGINEER shall provide management of Subconsultants including coordination of their project services. The list of sub-consultants is included under Section 4.

1.3 Project Meetings
The ENGINEER shall conduct project meetings to obtain input and decisions from City staff. ENGINEER shall be responsible for developing meeting agendas and shall prepare the material as needed to achieve the meeting objectives. ENGINEER shall prepare meeting minutes and submit them electronically to the City Engineer. Specific meetings planned for project management purposes are as follows:

1.3.1 Project Kickoff Meeting: The ENGINEER shall conduct a project kickoff meeting at the City offices to introduce the project team members, review project goals and objectives, discuss project elements and responsibilities, delineate communications procedures, and review the project schedule. ENGINEER shall identify any information needed from City staff to complete the work.

1.3.2 Preliminary Design Workshop/30 Percent Design Review: The ENGINEER shall conduct a workshop at the City office during the preliminary design phase. Items to be discussed during the workshop may include, but not be limited to, pumping station layouts, utility conflicts, technical issues, decisions needed from City staff, etc.

1.3.3 60 Percent Design Review: The ENGINEER shall conduct a 60 Percent design review at the City office after submittal and City review of the 60 percent plans. The purpose of this meeting is to collect and discuss city comments on the 60 percent design plans, identify any decisions needed from City staff, etc.

1.3.4 90 Percent Design Review: The ENGINEER shall conduct a 90 percent design review at the City office after submittal and City review of the 90 percent plans and specifications. The purpose of this meeting is to collect and discuss city comments on the 90 percent design plans, identify any decisions needed from City staff, etc.

1.3.5 Status Meetings: The ENGINEER shall conduct two status meetings at the City office during the course of the work in addition to the meetings listed above. Items to be discussed during the meeting may include, but not be limited to, progress reports, technical issues, policy interpretations, anticipated challenges, decisions needed from City staff, goals, invoices, etc. The City Engineer shall schedule the meetings and may cancel or call for additional meetings as needed.

1.4 Quality Assurance/Quality Control
The ENGINEER shall provide Quality Assurance/Quality Control by having a senior representative of the ENGINEER review the final plans and specifications with their comments addressed prior to submitting the final review plans and specifications to the City.

1.5 Project Schedule
The ENGINEER shall prepare a Project Schedule in order to identify the critical path(s) and challenges within the implementation of the Project.

1.6 Engineer's Opinion of Most Probable Cost
The ENGINEER will prepare an "Opinion of Most Probable Cost" which shall include the estimated construction cost for the project at the conclusion of the Preliminary Design, 90% Plan Submittal, and Final Submittal of work. Engineer will submit these cost estimates to City as a deliverable.

ITEM 2.0 - FINAL DESIGN SERVICES

2.1 Floodplain Delineation is excluded from the scope of work since the site is beyond the limits of adjacent floodplain limits

2.2 Water Flows

2.2.1 The pumping station design will endeavor to use the least amount of space and to keep options open for future expandability for the increased demand from the service area during the lifetime of the facility, associated stubout/spare pump slots, and spare

electrical room for future MCCs. The existing and proposed suction header, discharge header, suction yard piping, discharge yard piping, and valving/isolation/redundancy will be evaluated against Hydraulic Institute standards of design to identify critical points to assure adequate short-term and long-term capacities.

2.3 Pumping Station Site

2.3.1 The ENGINEER will prepare a site plan using record drawings of previous infrastructure projects and the existing Clearwell No. 2 survey performed by others. Performing a new survey is specifically excluded from this scope of work. Based on this work, the ENGINEER will define proposed pumping station facilities for the site.

2.3.2 The ENGINEER shall coordinate the pumping station design through the City for the plans and specifications, designs completed or underway by others (i.e. Proposed North Elevated Tank and Proposed SWTP Elevated Tank) that is in the vicinity that may impact the facility. City shall provide ENGINEER with one copy of the plans and specifications for any project identified as impactful. DCS will provide information on the pumping station design to City as required for the design of the elevated tanks.

2.4 Pumping Station Activation Plan

2.4.1 ENGINEER shall incorporate into the Final Design the measures required to serve existing or proposed water demands which require uninterrupted service as part of the completion of the pump station expansion. The timing and sequencing of pump station shut downs will be included in this work. Infrastructure, phasing, and a sequence of construction plan to accommodate the selected scenario will be identified in the construction sequence in the plans and/or scope of work specification. The plan will also identify activation time frames for new systems to come on-line and begin operating; and identify specific details requiring attention for a smooth transition.

2.5 Geotechnical Investigation

2.5.1 The ENGINEER will utilize the existing geotechnical bores and report that were obtained for the original construction of the Water Treatment Plant. The ENGINEER will use this existing data to generate recommendations for constructing the proposed pump pad, pump can, and underground utilities.

2.6 Coordination with Regulatory Agencies and Utility Companies

2.6.1 Regulatory Agencies

The ENGINEER shall identify the regulatory agencies (i.e. TCEQ) for which approval of construction activities will be required and coordinate with these agencies for compliance and final design. The ENGINEER will prepare and submit applications with summary information or reports required by outside agencies. The Engineer shall be responsible for any fees and signatures as necessary for processing with TCEQ. Per the City's request, Engineer shall provide a technical memorandum summarizing the regulatory agencies, incorporating any potential fees associated with coordination or applications/permits; agency coordination time; date of proposed submission; determine total number of permits; and coordinate agency meetings and permits with City staff. Electronic copies of permits as submitted shall be provided to the City.

2.6.2 Utility Company will be coordinated with to confirm that sufficient power supply is presently installed to serve the additional 4160 volt, 600 Hp motor load to the facility without creating issues in the power supply system when three or four pumps are operating at the same time. The ENGINEER shall review the preliminary plans with private utility to clearly set forth the project objectives and to determine if the utility has any concerns or objections. Effort will be expended to resolve any potential conflicts as well as to absolve the concerns and/or objections.

2.7 Pumping Station Design
- 2.7.1 Utilizing the criteria set forth in City Design Standards and compliant with the TCEQ's Chapter 290, "Public Drinking Water," the ENGINEER will verify required pumping station criteria and protective measures for the facility are met including site security and/or monitoring.
- 2.7.2 The ENGINEER shall perform calculations to determine the pipe stiffness(es) and restraint systems recommended for pipe material(s) based upon bury depth, above grade pipe geometry, trench configuration, and embedment method.
- 2.7.3 The ENGINEER shall evaluate testing methods and acceptance criteria used to establish recommendations to be incorporated into the "Technical Specifications."
- 2.7.4 The ENGINEER shall prepare an outline of the "Technical Specifications" and prepare a summary/briefing of the specifications recommended for the Project.
- 2.7.5 Structural and Electrical engineering design required for the plans and specifications is included in this task.

2.8 Preliminary pumping station plans, site plans, demolition plans, preliminary details, preliminary technical specifications, and a preliminary Engineer's Opinion of Probable Cost will be provided for the Project to the City.

2.9 Prepare plans and specifications (contract documents) for construction of facilities enumerated above and as authorized by the City. Half size drawings (i.e. 11" x 17" drawings) and project manual (i.e. specification book) will be produced for this project. Plans and specifications shall be per the City's regulations (latest edition) and Engineering Design Guidelines & Construction Standards (latest edition) and all updates of these standards up to the time of the beginning of the bidding phase.

2.10 Submit required information and/or plans and specifications to obtain approval or permits from TCEQ (water department) and Travis County for the proposed pumping station.

2.11 Contract documents will include civil, process, structural, electrical, and SCADA plans and specifications required to construct the proposed pump station expansion.

2.12 Deliverables:
- 2.12.1 60 Percent Design Submittal: The 60 Percent design submittal will include plans only.
- 2.12.2 90 Percent Design Submittal: The 90 Percent design submittal will include plans, specifications, and 90% Engineer's Opinion of Probable Construction Cost.
- 2.12.3 Final Submittal: The final submittal will include final plans, specifications, and Engineer's Opinion of Probable Construction Cost.

ITEM 3.0 – BIDDING AND AWARD SERVICES

3.1 Assist the City in receiving bids from General Contractors for this project. Work will include conducting a prebid meeting with the Contractors to review the scope of work as presented on the contract documents described above. Addenda to the bid documents shall be generated as required to address Contractor comments or questions. Costs for advertising are not included in this fee proposal and will be billed separately, if required.

3.2 The bid documents will be structured to have one bid for the Project.

3.3 DCS will provide PDF copies of the plans and specification book to the City and the City will post these documents on Civcast for the Contractor's use. Civcast will be utilized to maintain the plan holder and distribution lists. Civcast will provide bid packages to the Contractors at no cost.

3.4 Assist the City in the opening and tabulation of bids for construction of the Project, and consult with the City as to the proper action to be taken, based on the engineering considerations involved.

3.5 Assist in the preparation of formal Contract Documents, perform the bid tabulation, and letter of recommendation of award for Contractor.

ITEM 4.0 - CONSTRUCTION MANAGEMENT & CONSTRUCTION ADMINISTRATION SERVICES

4.1 Coordinate and oversee the participation in a Pre-construction conference for the Project to be held at the beginning of construction at the City Engineer's office.

4.2 Review samples, catalog data, schedules, shop drawings, laboratory, shop and mill tests of material and equipment and other data which the contractor submits. This review is for the benefit of the City and covers only general conformance with the information given by the Contract Documents. The contractor is to review and stamp his approval on submittals prior to submitting to Engineer, and review by the Engineer does not relieve the contractor of any responsibility such as dimensions to be confirmed and correlated at the job site, appropriate safety measures to protect workers and the public, or the necessity to construct a complete and workable facility in accordance with Contract Documents.

4.3 Administer monthly construction status meetings and conduct site visit on the same day. Review and recommend for approval Contractor pay request applications. Perform construction management duties for overall project that normally arise during daily construction activities.

4.4 Conduct, in company with the City, a substantial completion punchlist, SCADA programming and instrumentation punchlist to confirm all control logic has been properly implemented and functioning correctly in the field, and final completion punchlist for all civil/mechanical/structural/electrical/etc. work of the Project for compliance with the Contract Documents, and submit recommendations concerning project status, as it may affect City's final payment to the contractors.

4.5 Prepare full size record drawings utilizing hand marked changes to the construction plans. Furnish one electronic PDF copy on CD and two 11 x 17 copies of the record drawings to the City.

4.6 Resident Project Representative Services are specifically excluded from this scope of work. Therefore, daily or weekly inspection of the work will not be conducted by DCS. In accordance with City requirements, the City of Pflugerville's Resident Project Representatives will be performing these duties on this project on the pumping station.

4.7 DCS shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by the Contractor or the safety precautions and programs incident to the work of the Contractor. DCS shall not guarantee the performance of the Contractor nor be responsible for the acts, errors, omissions or the failure of the Contractor to perform the construction work in accordance with the Contract Documents.

4.8 Construction Staking – Temporary and permanent easement limits will not be staked in the field as part of this work. Construction layout, cut sheets, and staking for line and grade are specifically excluded from this scope of work and shall be provided and paid for by the construction contractor.

4.9 Construction Materials Testing - Construction materials testing is included in this scope of work. Testing shall be conducted on soils and concrete by Arias & Associates under a subconsultant agreement with the Engineer. The bid packages shall specify that the Owner will pay the Geotechnical Engineering company/lab through DCS's subconsultant agreement for all passing tests that are required by the bid package. All failing tests or tests taken for the Contractor's benefit shall be paid by the Contractor.

3. **Owner's Responsibilities**

A. Owner shall provide the geotechnical report from the original Surface Water Treatment Plant design.

4. **Times for Rendering Services**

A. Consultant shall have those responsibilities set forth in Article II of the Professional Services Agreement.

B. The timeline is based on receiving the notice to proceed by February 26, 2020. The Pumping Station and overall project's final completion date will be May 16, 2021 which includes the average number of rain days per month experienced in Central Texas. Substantial completion will be defined in the bid documents to the Contractor as the new pumping system being capable of safely, reliably, and consistently conveying water for their design condition into the City's water system.

The services for the final design (six months), client review (two weeks), and DCS response to comments (two weeks), bidding and award (two months), and construction (six months) will be performed over a total of 15 months with completion dates as noted below. The period of service will be the through construction project completion and project closeout.

• Notice to Proceed	Issued by March 16, 2020
• Final Design – 30% Design Submittal	June 9, 2020
• Final Design – 90% Design Submittal	August 26, 2020
• TCEQ Submittal	August 26, 2020
• Client 90% Design Review	Comments to DCS by September 14, 2020
• Final Design – 100% Design Submittal	Complete by September 28, 2020
• First Advertisement	September 28, 2020
• TCEQ Approval	October 26, 2020
• Bid Opening	October 28, 2020
• Award	November 10, 2020
• Contractor's Notice to Proceed	November 16, 2020
• Substantial Construction Completion	April 16, 2021
• Final Construction Completion/Close-out	May 16, 2021

5. **Deliverables:**
   A. DCS shall prepare all necessary documents to the City and TCEQ for implementation of the project. These include but are not limited to submitting and obtaining approval of construction plans and/or specifications from TCEQ with associated engineering report to accompany the plans and supporting documentation.
   B. Coordination with Alterman to obtain a written quote for SCADA modifications required as part of the project for inclusion as a bid item allowance for Alterman to perform for the Contractor awarded the work.
   C. Engineer shall develop and provide City with a commissioning plan under the Sequence of Construction for the project. Contractor will be required to supply a detailed plan enumerating any deviations from this sequence.
   D. Engineer shall develop and provide City with the proposed SCADA programming, noting specific items to be modified and cause for modification. Engineer shall prepare a SCADA Checklist (i.e. the Control Logic Descriptions) to be used for review during Final Walkthrough and commissioning.
   E. Engineer shall develop and provide a list of programming requirements for City staff review via the Control Logic specification.
   F. Engineer shall include a list of proposed O&M Manuals to be provided by the Contractor in the specifications.
   G. Engineer shall develop and provide appropriate training requirements for city staff prior to project close-out in the specifications.
   H. Engineer shall develop and provide a list of inspection items to be utilized by the City Inspectors as part of DCS's Construction Administration Services. DCS shall review this list with the City Inspectors prior to the City Inspectors using the list.

6. **Payments to Engineer**
   A. City shall pay Engineer for services rendered as follows:
   DCS Engineering, LLC will invoice monthly for services rendered the preceding month based on

the percentage of services completed. City shall pay DCS Engineering, LLC within 30 days for the services rendered and invoiced. DCS invoices will include subconsultant invoicing. DCS will pay subconsultant invoices per the fee table shown below for services completed to date on a monthly basis upon receipt of payment from City.

B. Lump Sum Fee: We propose to provide the services described above on a lump sum fee basis as detailed in the below Fee Schedule. Out-of-pocket expenses, including plotting, reproduction, deliveries, automobile mileage, equipment rental, and travel expenses are included in the below fee. Our proposed fees for the above scope of work are shown by task in the below table. The above referenced services will be performed within the duration discussed in Attachment A.

C. The terms of payment are set forth in Article IV of the Professional Services Agreement and Work Authorization No. 2020-5 – Attachment A.

Fee Schedule

Task	Description	Fee
500	Final Design – Civil, Process, Architectural	$95,200.00
510	Final Design - Structural	$40,000.00
800	Final Design – Electrical (JRSA)	$22,000.00
600	Bidding	$18,000.00
810	Bidding – Electrical (JRSA)	$1,680.00
700	Construction Administration & Management	$62,510.00
820	Construction Administration – Electrical (JRSA)	$7,000.00
830	Geotechnical Material Testing - Time and Material (Arias)	$6,915.80
	Lump Sum Fee =	**$253,305.80**

7. **SubConsultants:**
   A. Electrical Engineering – JRSA Engineering, Inc.
   B. Geotechnical Materials Testing - Arias & Associates

8. **Other Modifications to Agreement:**
   None