



Chandler • Arizona  
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**PURCHASING ITEM  
FOR  
COUNCIL AGENDA  
Memo No. CP13-108**

**1. Agenda Item Number:**  
**22**  
**2. Council Meeting Date:**  
January 24, 2013

**TO: MAYOR & COUNCIL**

**3. Date Prepared:** January 7, 2013

**THROUGH: CITY MANAGER**

**4. Requesting Department:** Municipal Utilities

**5. SUBJECT:** Lone Butte Process Piping Improvements

**6. RECOMMENDATION:** Staff recommends Council award a Project Agreement to the Annual Contract, EN1003-102, to Dibble Engineering for Lone Butte Process Piping Improvements, Project No. WW1305-201, in an amount not to exceed \$133,076.

**7. BACKGROUND/DISCUSSION:** City staff has determined the need for a filter backwash pump station to improve performance of the Lone Butte Wastewater Treatment Facility. The filter backwash pump system will minimize the deposit of sediment in the lower sections of the basin. The system will include a new sediment collection structure and piping to convey filter backwash water from the existing traveling bridge filter and continuous backwash filter to the facilities' headworks.

**8. EVALUATION:** On May 10, 2012, Council approved a contract extension for the first option year of the annual permitting, study, and design for water and wastewater facilities Contract EN1003-102 with Dibble Engineering, in an amount not to exceed \$750,000.

**9. FINANCIAL IMPLICATIONS:**

Cost: \$133,076  
Savings: N/A  
Long Term Costs: N/A  
Fund Source:

<u>Acct. No.:</u>	<u>Fund Name:</u>	<u>Program Name:</u>	<u>CIP Funded:</u>	<u>Amount:</u>
611.3910.6814.6WW621	Wastewater Bonds	Ocotillo Water Reclamation Facility Rehabilitation	Yes	\$133,076

**10. PROPOSED MOTION:** Move Council award a Project Agreement to the Annual Contract, EN1003-102, to Dibble Engineering for Lone Butte Process Piping Improvements, Project No. WW1305-201, in an amount not to exceed \$133,076, and authorize the Mayor to sign the contract documents.

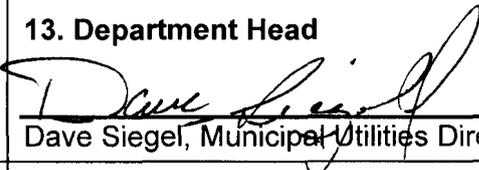
**ATTACHMENTS:** Location Map, Project Agreement

**APPROVALS**

**11. Requesting Department**

  
Kim Neff, Utility Operations Manager

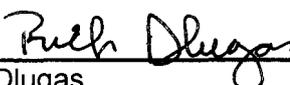
**13. Department Head**

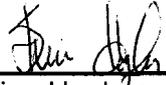
  
Dave Siegel, Municipal Utilities Director

**12. Transportation & Development**

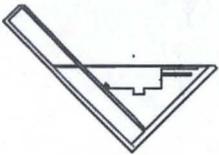
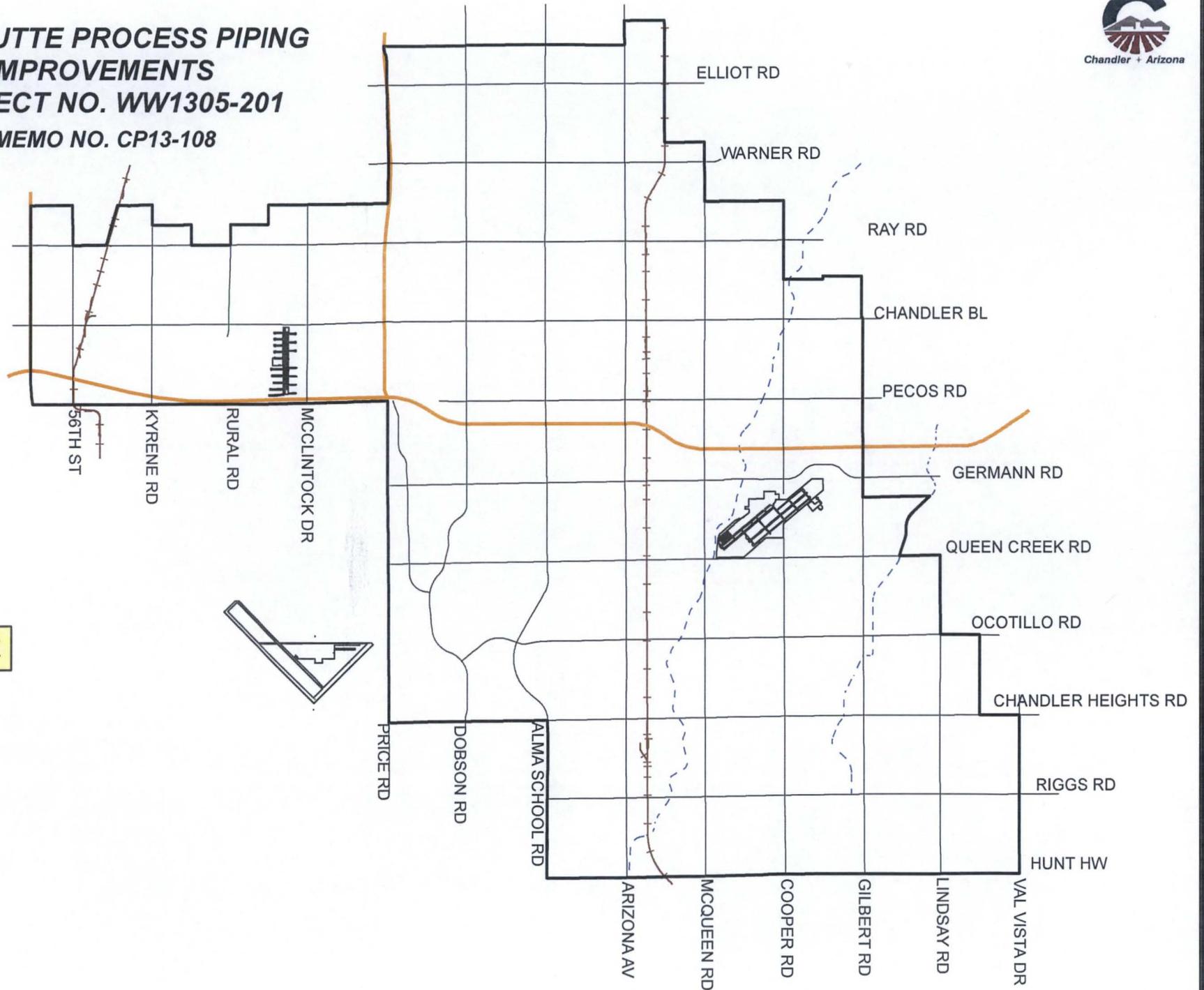
  
Bob Fortier, Capital Projects Manager

**14. City Manager**

  
Rich Dlugas

  
Sheina Hughes, City Engineer

**LONE BUTTE PROCESS PIPING  
IMPROVEMENTS  
PROJECT NO. WW1305-201  
MEMO NO. CP13-108**



PROJECT SITE



**PROJECT AGREEMENT  
PURSUANT TO ANNUAL CONTRACT NO. EN1003-102**

**AGREEMENT NO: WW1305-201**

This AGREEMENT is made this            day of            201            , by and between the City of Chandler, a municipal corporation (hereinafter referred to as "CITY") and Dibble Engineering, (hereinafter referred to as "Annual Consultant") and is a project agreement entered into pursuant to Annual Contract No. EN1003-102.

CITY and Dibble Engineering, in consideration of the mutual covenants herein set forth, agree as follows:

**ARTICLE 1 - DESCRIPTION OF WORK:**

This project is Lone Butte Process Piping Improvements, Project Number WW1305-201. The scope of work consists of Lone Butte process piping improvements design, all as more particularly set forth in Exhibit A attached hereto and incorporated herein by reference.

The Annual Consultant shall not accept any change of scope, or change in contract provisions, unless issued in writing, as a contract amendment and signed by the Contract Administrator.

**ARTICLE 2 - CONTRACT PRICE:**

CITY shall pay Annual Consultant for completion of the Work in accordance with the Contract Documents a fee not to exceed One Hundred Thirty Three Thousand Seventy Six Dollars (\$133,076) determined and payable as set forth in Annual Contract EN1003-102 and Exhibit B attached hereto and made a part hereof by reference.

**ARTICLE 3 - CONTRACT TIME:**

The contract time is Two Hundred Thirty Eight days and Annual Consultant agrees to complete all work within Two Hundred Thirty Eight (238) days of the date CITY issues a Notice to Proceed.

**ARTICLE 4 - GENERAL:**

This Project Agreement is entered into pursuant to Annual Contract No. EN1003-102 and the terms and conditions contained therein are incorporated herein by reference as if set forth in full.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first written above.

This Agreement will be effective on this \_\_\_\_\_ day of \_\_\_\_\_, 201

CITY OF CHANDLER

FOR THE ANNUAL:

\_\_\_\_\_  
MAYOR DATE:

By: Steve E. Rex  
Title: COO

ADDRESS FOR NOTICE  
City of Chandler  
P.O. Box 4008, Mail Stop 407  
Chandler, AZ 85244-4008  
480-782-3307

ADDRESS FOR NOTICE  
Mr. Steve Rex  
Dibble Engineering  
7500 N. Dreamy Draw Dr., Ste. 200  
Phoenix, AZ 85020

APPROVED AS TO FORM:

Phone: 602-957-1155  
Fax: 602-957-2838

\_\_\_\_\_  
City Attorney By: [Signature]  
ATTEST:

\_\_\_\_\_  
City Clerk

## **EXHIBIT A SCOPE OF WORK**

### **A. PROJECT DESCRIPTION**

The City of Chandler (City) proposes to design and construct a pumping system to convey filter backwash water from the existing traveling bridge filter and continuous backwash filter to the plant headworks. The goal of the project is to improve plant performance by minimizing the deposit of sediment in the lower reaches of the basin. This will be accomplished by pumping filter backwash water to the plant headworks by a new pump station. Filter media that may be present in the backwash stream will be captured in a new sediment collection structure located upstream of the pump station.

ANNUAL CONSULTANT will provide comprehensive design, analysis, and construction document preparation for the design of the new sediment collection structure, filter backwash return pump station, and accompanying forcemain.

#### **Design Assumptions**

Based on ANNUAL CONSULTANT's understanding of the system, the following assumptions are made about the design configuration of the system:

- The sediment collection structure is anticipated to be a precast concrete structure located upstream of the pump system wet well. The system is anticipated to provide reduced flow velocity allowing large diameter/density particles to settle into the collection chamber. The system will rely on manual pump out by operators (using a Vactor truck or similar technology) to periodically remove collected sediment. The volume of collected sediment and rate of sediment collection is unknown, and therefore the period between sediment pump out operations cannot be determined
- The pumping system is assumed to be a submersible pumping system contained within a single precast concrete wet well structure. Pumps are assumed to operate as a constant speed system based on level in the wet well. The selected pumps will be similar to sanitary sewage pumps, capable of handling solids concentrations typical of municipal sewage. The system will have firm capacity to meet the design pumping rate, with sufficient redundancy to accommodate the largest pumping unit out of service.
- Pumps will have start/stop control based on water level in the wet well. Start/stop and alarms will be controlled with floats. Pump will operate in a lead/lag configuration with alternating operation.
- Pump station control will be localized, and no SCADA communication or control is anticipated. High and low level alarms will be provided, with notification via alarm beacon located on the pump control panel.
- Discharge piping will be located above grade or within a valve vault structure. A magnetic flow meter will be provided to record instantaneous and totalized flow rate.
- The forcemain will be polyvinyl chloride (AWWA C900), with an approximate length of 2,600 linear feet. The forcemain will terminate and discharge at either the plant headworks, downstream of the Parshall flume or in the return flow discharge structure (west of the headworks), depending on pipeline alignment and connection feasibility.
- This project will be constructed under a Design-Bid-Build Contract.

#### **Design Standards**

This project will be designed in accordance with the following standards listed in order of precedence:

- City of Chandler, Water & Wastewater System Design - Technical Design Manuals 1 & 2, February 2012
- City of Chandler Standard Specifications and Details, Revisions through 2013
- City of Chandler Supplement to Maricopa Association of Governments Uniform Standard Details and Specifications, Revisions through February 2012.
- Maricopa Association of Governments, Uniform Standard Specifications for Public Works Construction, Revisions through 2013.
- Maricopa Association of Governments, Uniform Standard Details for Public Works Construction, Revisions through 2013.
- For all standards, the version in effect at the time of project bidding shall be considered the current version and shall be applied to the contract documents.

## **B. SCOPE OF WORK**

### **Task 1: Data Collection and Research**

ANNUAL CONSULTANT will collect and review readily available record data relevant to the project design. Relevant data may include but not be limited to the following: facility record drawings and process diagrams, master plans, studies, design reports, hydraulic model results, and infrastructure plans affecting the project design. ANNUAL CONSULTANT will conduct a site visit with appropriate members of the project team, including City representatives.

### **Task 2: Design Flow Determination**

ANNUAL CONSULTANT will research manufacturer literature and design documentation for the existing traveling bridge and continuous backwash filter systems to determine the design backwash flow rate for each system. The backwash flow rate will be used to determine the design flow for the backwash return pump station. Design flow conditions will consider flow from each filtration system independently as well as combined filter backwash flow.

### **Task 3: Design Concept Development / Design Concept Report (DCR)**

ANNUAL CONSULTANT will develop a conceptual design for the pump station system and sediment collection structure. Concept development will include identification of proposed firm and peak pumping capacity, wetwell and pumping system configuration, conceptual forcemain alignment, and sediment collection structure. The results of the design concept development will be presented in a Design Concept Report.

**Task 3.1: Preliminary DCR:** The preliminary results of the design concept development will be presented in the form of a Design Concept Report. The DCR will provide design documentation of the basis of design, design concept, conceptual layout drawings and hydraulic profile.

**Task 3.2: Final DCR:** Following review by the City, the DCR will be revised to incorporate City comments and requested revisions to the design concept and DCR. The final DCR will be sealed by a Registered Professional Engineer.

### **Task 4: Survey and Base Map Development**

ANNUAL CONSULTANT will collect survey control data and topographic survey data in the vicinity of the proposed pump station and sediment collection structure. Survey work will include the following tasks:

1. **Survey Control** - Using Global Position System (GPS) methods, ANNUAL CONSULTANT will locate any existing local horizontal survey control within the Lone Butte WWTP. GPS control data is published and collected based on National Geodetic Survey (NGS) grid coordinates. Collected monument data will be scaled from grid coordinates to ground coordinates using an agreed upon scale factor. ANNUAL

CONSULTANT will not set or reset any lost or obliterated section corners, quarter corners, City of Chandler Benchmarks or NGS monuments. Vertical control will locate and reference the plant benchmark, ensuring that the project remains on consistent vertical datum with the other improvements at the plant.

2. **Topographic Survey** - ANNUAL CONSULTANT will provide topographic survey utilizing GPS survey data collection procedures at the location of the proposed pump station and sediment collection structure. Topographic survey data will be collected along the route of the proposed forcemain, with 100 foot wide cross sections collected at project appropriate intervals. Topographic survey data will be used to generate a Dynamic Terrain Model (DTM) surface for use in base mapping and design.
3. **Base Mapping** - ANNUAL CONSULTANT will create a comprehensive base map from the information gathered during the field survey and utility investigation (Task 5). Base mapping will be created in AutoDesk Civil 3D (AutoCAD) 2011 format in conformance with ANNUAL CONSULTANT's CAD standards.

#### **Task 5: Utility Investigations**

ANNUAL CONSULTANT will incorporate all existing utilities shown on plant as-built drawings and located during field survey (Task 4) into the project base map. Since all work will be completed on-site, plans will not be sent to outside utility companies for verification and/or clearance. An ALLOWANCE is provided for utility potholing and investigations.

#### **Task 6: Construction Documents**

ANNUAL CONSULTANT will prepare construction plans, technical specifications, bid schedule and opinions of probable construction costs for the proposed improvements. The City will provide electronic (AutoCAD) formats for desired standard plan sheet format and drafting standards. The construction plans will include plan view sheets (1" = 20' horizontal scale) plan and profile (1" = 20' horizontal scale, 1" = 4' vertical scale) and detail sheets as necessary to provide a complete, clear and concise set of construction plans (see Estimated Plan Sheet Index).

ANNUAL CONSULTANT will prepare technical special provisions for all proposed project improvements. Technical special provisions may reference standard specifications listed in this scope of work. Technical special provisions will be prepared using CSI format. The City will be responsible for preparing contract general conditions and contract documents, and assembling the integrated bid package.

ANNUAL CONSULTANT will prepare Engineer's Opinions of Probable Construction Cost (EOPCC) for all proposed improvements. EOPCC will be prepared utilizing standardized proposed bid items for all construction work. EOPCC represents the ANNUAL CONSULTANT's best judgment of the cost of construction based on current equipment and material price quotes as well as historic bid results. It is not a guarantee of the cost of construction for the improvements.

The following progress submittals will be made:

**Task 6.1 – Preliminary (60%) Engineering Submittal:** ANNUAL CONSULTANT will prepare Preliminary (60%) engineering documents, including site plan, equipment layout, equipment sizing and conceptual pipeline plan and profile. Design will be a refinement of the concept design provided in the Design Concept Report (Task 3), incorporating City review comments. Final system layout and configuration will be developed for the pump system, sediment collection structure, and forcemain. Preliminary construction details will be developed and included. Preliminary technical specifications will be prepared.

**Task 6.2 – Prefinal (90%) Engineering Submittal:** ANNUAL CONSULTANT will prepare Prefinal (90%) engineering documents, including all design elements in the Preliminary Engineering Submittal, incorporating City review comments. All design features will be fully developed and detailed as required to prepare a complete set of construction drawings. Pre-final technical specifications will be prepared. The Prefinal Engineering Submittal will be sealed by a Registered Professional Engineer and be suitable for permitting

**Task 6.3 – Construction Document Submittal:** ANNUAL CONSULTANT will prepare Construction Documents incorporating all City and permit review comments to the Prefinal Engineering Submittal. Construction documents will be sealed by a Registered Professional ANNUAL CONSULTANT and be suitable for bidding and construction.

**Estimated Plan Sheet Index**

**No. of Sheets & Sheet Title**

- 1 Cover Sheet
- 1 General Notes
- 1 Legend, Abbreviations
- 1 Key Map
- 1 Survey Control
- 1 Process Flow Schematic
- 1 Site Plan
- 1 Pump Station Plan
- 2 Piping Plan and Sections
- 2 Sediment Structure Plan and Details
- 5 Forcemain Plan and Profile
- 3 Civil Details
- 1 Electrical Legend, Notes & Abbreviations
- 1 Electrical Site Plan
- 1 Electrical Pump Station Plan
- 1 Electrical Single Line Diagram
- 1 Electrical Conduit Block Diagram and Pump Control Schematic
- 1 Electrical Details and Equipment Elevation
- 26 Total**

ANNUAL CONSULTANT will provide each progress submittal to the City's designated Project Manager. Following each submittal, ANNUAL CONSULTANT will review the City's comments and complete a comment resolution form. ANNUAL CONSULTANT will incorporate all comments unless otherwise directed by the City.

**Task 7: Permitting**

ANNUAL CONSULTANT will submit Prefinal (90%) construction plans to the following agencies for permit or courtesy review:

- City of Chandler Building and Civil permit
- Gila River Indian Community (Courtesy review, assumed no permit approval or fee required)
- Maricopa County Environmental Services Department (Courtesy review, assumed no permit approval or fee required)
- ANNUAL CONSULTANT will meet with each identified permit review agency (Task 8) to review project and coordinate courtesy review. No permit applications, review comments or review fees are anticipated as part of courtesy reviews.

**Task 8: Project Management & Meetings**

ANNUAL CONSULTANT will attend project meetings noted in this Scope of Work and will prepare and distribute agenda and meeting minutes to all participants. After receipt of notice to proceed, ANNUAL CONSULTANT will contact the City's project manager to arrange a kick-off meeting to discuss project schedule and coordinate anticipated City participation efforts. Four (4) submittal review meetings will be held following progress design milestones. The City's project manager will be responsible for inviting City staff as required.

ANNUAL CONSULTANT will coordinate and attend two (2) permit review meetings with courtesy review agencies identified in Task 7. ANNUAL CONSULTANT assumes two (2) additional coordination meetings with City staff will be required during design.

ANNUAL CONSULTANT will be responsible for comprehensive project management which will include: plans, bid documents, opinion of probable construction costs, utility coordination, correspondence management, schedule maintenance, and meeting minutes.

**Task 9: Bidding Phase Services**

This project will be constructed under a Design-Bid-Build Contract. The City will be responsible for preparing contract bidding documents, advertising for public bidding, plan reproduction for bidding, distribution of contract documents to potential bidders, distributing addenda to plan holders, and opening bids.

ANNUAL CONSULTANT shall provide the following bidding phase services:

- Attend the pre-bid meeting and site visit.
- Respond to bidder's questions as directed.
- Prepare one (1) addendum, if necessary, to clarify construction contract documents.

**ESTIMATED DESIGN SCHEDULE**

The following schedule estimates project milestone submittal timeframes relative to the Notice to Proceed (NTP). Submittal schedule is contingent upon an anticipated four (4) week review time by the City. A final schedule will be provided for review and approval at the project kickoff meeting. Preliminary DCR: NTP + 4 weeks.

- Final DCR Submittal NTP + 11 weeks
- Preliminary Engineering Submittal NTP + 19 weeks
- Prefinal Engineering Submittal NTP + 27 weeks
- Final Engineering Submittal NTP + 34 weeks

**DELIVERABLES**

Task No.	Description	Quantity	Deliverable
3.1	Preliminary DCR	4	Hard Copy (bound)
		4	Engineers Opinion of Probable Construction Cost
		1	Electronic Copy of all documents (PDF)
3.2	Final DCR	4	Hard Copy (bound)
		4	Engineers Opinion of Probable Construction Cost
		1	Comment Resolution Form
		1	Electronic Copy of all documents (PDF)
6.1	Preliminary Engineering Submittal (60%)	8	Full size (22x34 bond) plan sets
		4	Half size (11x17 bond) plan sets
		4	Technical Special Provisions Table of Contents
		2	Preliminary Geotechnical Engineer's Report
		4	Engineers Opinion of Probable Construction Cost
		1	Comment Resolution Form

		1	Electronic Copy of all documents (PDF)
6.2	Prefinal (90%) Engineering Submittal	8	Full size (22x34 bond) plan sets
		4	Half size (11x17 bond) plan sets
		4	Technical Special Provisions (bound)
		2	Final Geotechnical engineer's Report
		4	Engineers Opinion of Probable Construction Cost
		1	Comment Resolution Form
		1	Electronic Copy of all documents (PDF)
		6.3	Construction Document Submittal
10	Full size (22x34 bond) plan sets		
4	Technical Special Provisions (bound)		
4	Engineers Opinion of Probable Construction Cost		
1	Comment Resolution Form		
1	Electronic Copy of all documents (PDF)		
1	Electronic Copy of all documents (PDF)		

### SUB-CONSULTANTS

ANNUAL CONSULTANT will utilize the following sub-consultants for specialized design and construction phase services.

**Electrical Engineering:** DARcor and Associates will provide electrical engineering professional services including the following tasks:

- Task 1 Design Concept Report (DCR)
- Task 2 Design
- Task 3 Bidding Assistance

**Geotechnical Engineering and Investigations:** Ricker, Atkinson, McBee, Morman & Associates will provide geotechnical engineering and investigation services for this project including test boring, laboratory analysis of representative samples, field and laboratory data, and an Engineering report.

### ALLOWANCES

The following ALLOWANCE items may utilized with written authorization from the City:

- Supplemental Utility Investigations: An allowance is provided for additional utility locating and investigations. Allowance may be used for utility potholing and/or on-site private utility locating services. The scope and associated fee for this allowance will be determined based on written direction from the City's Project Manager.
- Closed Circuit Television Inspection: An allowance is provided to perform a closed circuit television inspection of the existing 30-inch return pipeline (currently not in service) in the bank between the two wastewater basins. This investigation will document the existing condition of the pipeline and potential for use either as a basin bypass or as a conduit for the proposed forcemain. This allowance will be utilized at the City's discretion and based on written direction from the City's Project Manager.
- Quality Assurance Material Testing: An allowance is provided to perform quality assurance testing of materials and compaction during construction. Contractor will be required to provide quality control testing in accordance with project specifications. Allowance for quality assurance testing shall be utilized at the City's discretion and based on written direction from the City's Project Manager.
- Owner's Allowance: An allowance is provided for additional services requested by the City. This allowance will be utilized at the City's discretion and based on written direction from the City's Project Manager.

- Direct Cost Reimbursement: Reimbursements shall be made by the City for direct costs incurred for mileage, printing, document reproduction, plotting, Mylar.

**EXCLUSIONS**

- Permitting: ANNUAL CONSULTANT assumes that construction within the Lone Butte Wastewater Treatment Facility is addressed in the existing agreement between the City and the Gila River Indian Community (GRIC) and is not subject to regulatory jurisdiction of the Arizona Department of Environmental Quality (ADEQ) or the Maricopa County Environmental Services Department (MCESD). Submittal, review, permitting and/or approval by the GRIC, ADEQ or MCESD is limited to the courtesy review described in this scope of work.
- Evaluation and/or modification to the existing wastewater treatment process or other infrastructure on the project site beyond the work specifically listed in this scope of work is excluded.

**EXHIBIT B  
FEE SCHEDULE**

<b>Task No.</b>	<b>Task</b>	<b>Total</b>
1	Data Collection and Research	\$ 1,616
2	Design Flow Determination	\$ 1,432
3	Design Concept Development / DCR	\$ 6,672
3.1	Preliminary DCR	\$ 7,094
3.2	Final DCR	\$ 3,236
4	Survey and Base Map Development	\$ 4,876
5	Utility Investigations	\$ 1,087
6.1	Preliminary (60%) Engineering Submittal	\$ 20,396
6.2	Prefinal (90%) Engineering Submittal	\$ 14,480
6.3	Construction Document Submittal	\$ 9,334
7	Permitting	\$ 1,671
8	Project Management and Meetings	\$ 9,064
9	Bidding Phase Services	\$ 2,308
<b>Total Direct Labor By Task:</b>		<b>\$ 83,266</b>
<b>Sub-Consultants</b>		
Electrical Engineering Design – DARcor		\$ 15,160
Geotechnical Engineering – Ricker Atkinson McBee Morman & Associates, Inc.		\$ 3,450
<b>Total Sub-Consultants:</b>		<b>\$ 18,610</b>
<b>Allowances</b>		
Supplemental Utility Investigations		\$ 10,000
Closed Circuit Television Inspection		\$ 1,200
Owner's Allowance		\$ 15,000
Direct Expenses		\$ 5,000
<b>Total Allowances:</b>		<b>\$ 31,200</b>
<b>Project Total</b>		<b>\$ 133,076</b>