

MEMORANDUM

TO: Crystal Dyches, City Manager
FROM: Nick Russo, Public Works Director 
SUBJECT: Direct Selection for WRF Study
DATE: March 9, 2020

As part of the City's adopted Capital Improvement Program, the Public Works department has a wastewater facility design project scheduled for FY21. This project will provide a design for plant expansion, when necessary, per County regulations. Prior to executing this project, the Public Works department would like to undergo a preliminary study of the flows at the wastewater plant in addition to the current processes. The goal of this study is to provide a roadmap of options for the planned CIP design project in FY21.

The purpose of this memo is to recommend the direct selection of Wood Engineering for this study pursuant to City Code § 30.25. The total cost of this study is \$29,980 and has been budgeted as a sewer fund expenditure in FY20. Wood Engineering has extensive experience and has provided studies, planning, and recommendations to identical wastewater facilities in the west valley and direct selection would be in the best interest of the City.



January 16, 2020
Wood Proposal No.: PW18-10-03B Rev 3

Wood Environment & Infrastructure Solutions, Inc.
4600 East Washington Street, Suite 600
Phoenix, Arizona 85034
T: (602) 733-6000
F: (602) 733-6100
www.woodplc.com

City of El Mirage
10355 N. 121st Avenue
El Mirage, AZ 85335

**RE: El Mirage Water Reclamation Facility Expansion Evaluation
Scope and Fee Proposal**

Dear Mr. Swartwout:

Attached is our scope of work and fee proposal for providing engineering design services associated with the treatment capacity and expansion evaluation of the City of El Mirage's Water Reclamation Facility (WRF). Our scope will focus on evaluation of the plant capacity and expansion, including evaluation of the plant flows from additional developments, analysis of the diurnal data to determine peaking factors and evaluate the equalization basin sizing, and a preliminary review of alternatives for expansion. Please contact Mr. Hamrick at (602) 733-6053 or at brian.hamrick@woodplc.com with any comments or questions.

We look forward to the opportunity to working with the City of El Mirage on this project.

Respectfully submitted,

Wood Environment & Infrastructure Solutions, Inc.

Reviewed by:

Ed Latimer, PhD, PE
Infrastructure Operations Manager - Arizona

Andrea L Kagie-Hay, PE
Project Manager



TABLE OF CONTENTS

	Page
1.0 Introduction	1
1.1 Background	1
2.0 Detailed Task Descriptions.....	1
2.1 Task 1 – Project Management.....	2
Task 1100 – Project Management	2
Task 1200 – Project Meetings.....	2
2.2 Task 2 – Plant Expansion Technical Memorandum	2
Task 2100 – Background Information	2
Task 2200 – Flow Analysis and EQ Basin Evaluation.....	2
Task 2300 – Preliminary Treatment Plant Expansion Alternatives Evaluation	2
Task 2400 – Technical Memorandum.....	3
3.0 Schedule and Fee.....	3
3.1 Preliminary Project Schedule	3
3.2 Fee Proposal	3



1.0 Introduction

The City of El Mirage (City) has asked Wood Environment and Infrastructure Solutions, Inc. (Wood) to develop a proposal to provide an evaluation and recommendations for expansion of their water reclamation facility (WRF) located on Peoria Avenue east of El Mirage Road. The scope of work for this project is to evaluate the ability to increase the capacity of the plant to meet the additional future flow from several planned new developments. The City estimates that the increase could be as much as 0.5 million gallons per day (mgd) over the current 2.5-mgd rated capacity. This evaluation will review the flow data, including diurnal data, evaluate the equalization basin (EQ) sizing, and provide preliminary review of alternatives for expansion. This document provides details of the proposed scope of services and schedule.

1.1 Background

The City of El Mirage currently owns and operates the City WRF that was constructed to treat up to 3.6 million gallons per day (mgd) of wastewater. This facility utilizes a sequential batch reactor (SBR) treatment technology and is presently rated for a treatment capacity of 2.5 mgd. Although the original design capacity of the plant was 3.6 mgd, after several years of operation, the plant was de-rated to 2.5 mgd by the local regulating agency. The facility originally operated as a Hybrid SBR treatment system that incorporated a mixed liquor recycle flow to the anoxic basins located upstream of the SBRs. However, due to difficulties achieving treatment objectives, the facility has been converted to operate as a traditional SBR system, removing the recycle flows, and utilizing the anoxic basin as an equalization basin.

While the service area for the plant is largely built out, there are small pockets of land that remain to be developed. A large data center is also planned as a potential new development in the near future. The data center is expected to add up to 100,000 gpd flow for a short period, until EPCOR Water completes their acquisition of that portion of the service area. The City stated that there are 3-5 new residential developments in the late stages of planning that will add to the plant flow. El Mirage estimates that an expansion of the plant by 0.5 mgd would be sufficient for the flows from potential future development.

The City has asked Wood to provide an evaluation of the ability to expand the plant mainly through implementation of modifications to their existing infrastructure. This could include increasing the size of the EQ basin, retrofitting the SBR basins, or adding new technologies. Wood will develop and present a technical memorandum detailing the evaluation and recommendations that result from the analysis. The following sections describe the proposed tasks required to meet the objectives of this project.

The information resulting from this project can be utilized by the City to select one or more preferred options to expand the plant capacity for a more detailed analysis. A future project would be needed to fully analyze preferred options in respect to overall construction costs, future operation and maintenance costs, and impact to the operation of the existing plant.

2.0 Detailed Task Descriptions

The scope of services and fee proposal provided in this proposal is based on a phone call held with Wood and Shane Swartwout of the City on January 14, 2020. The following sections review the detailed scope of services as they are broken down into tasks and sub-tasks.



wood.

Attachment A

Fee Table



**City of El Mirage
El Mirage WRF Plant Expansion Study**

FEE PROPOSAL

PW 18-10-03B Rev3

Task No.	Description	PRIN	QA/QC	PM	PE	EIT	ADM	Total	Total
RATES		\$200	\$180	\$155	\$125	\$85	\$70	Hours	Total
Task 1 - Project Management									
1100	Project Management			8			2	10	\$1,380
1200	Project Meetings (2 total)	1	4	4	6			15	\$2,290
TOTAL HOURS AND COSTS		1	4	12	6	0	2	25	\$3,670
Task 2 - Plant Expansion Technical Memorandum									
2100	Background Investigation			2	8	20		30	\$3,010
2200	Flow Analysis and EQ Basin Evaluation		1	16		40		57	\$6,060
2300	Treatment Plant Expansion Alternatives	1	4	20	30	30		85	\$10,320
2400	Technical Memo Development	1	4	6	24	20	1	56	\$6,620
TOTAL HOURS AND COSTS		2	9	44	62	110	1	228	\$26,010
TOTAL PROJECT HOURS AND COSTS		3	13	56	68	110	3	253	\$29,680
OTHER DIRECT COSTS									
1	Mileage and Printing								\$300
TOTAL OTHER DIRECT COSTS									\$300
TOTAL PROJECT COST									\$29,980

