Attachment A
Scope of Services
for
Town of Belleair, FL
RO Water Treatment Plant Preliminary Engineering Report – Phase II
December 6, 2019

PROJECT DESCRIPTION

The Town of Belleair (Town) is in the process of evaluating alternatives for long-term potable water supplies needed for Town utility customers. The alternatives include the continued use of the existing wellfield with modifications to the existing water treatment plant (WTP) needed to reduce chlorides present in the Town's groundwater supply wells and to address ongoing maintenance and safety concerns at WTP. The Town is considering moving forward with a new reverse osmosis (RO) membrane treatment process to reduce chlorides and has identified the need for a preliminary engineering report (PER) that will include considerations for a phased-approach for the proposed RO facility. Phase I of the PER was completed as part of a separate project and this Phase II PER will provide the Town with capital and operational/maintenance costs using a phased implementation approach and will have a special focus on cost savings by using the existing infrastructure to the extent possible. Also, the existing piping layout from the plant heading east to the previous elevated storage tank and then north to Ponce DeLeon Blvd. will be evaluated to address ongoing operational issues.

The Town is additionally in need of an evaluation of the groundwater supply wells and an updated water system rate study to support the Town's ongoing evaluation of potable water supply alternatives.

SCOPE OF SERVICES

This Scope of Service to be completed by McKim & Creed, Inc. includes tasks required to complete Phase II of the PER as follows:

PHASE IIA – PRELIMINARY ENGINEERING REPORT

TASK 1: PROJECT ADMINISTRATION

A. Project Administration

McKim & Creed will develop project setup, perform general project management and administration, provide monthly status reports and invoicing.

TASK 2: PRELIMINARY ENGINEERING REPORT

A. Civil, Mechanical and RO Process Preliminary Engineering

McKim & Creed will develop conceptual configurations for up to three (3) project phases related to the RO WTP. Work included with this task includes the following:

a) Conduct preliminary membrane modeling to assist with RO membrane selection, and to determine pressure, chemical feed system, and post-stabilization requirements.
b) Prepare design computations and preliminary sizing of the proposed treatment facilities. Consideration will be given to maximizing the use of the existing facility features that may include existing systems such as the sodium hypochlorite system, clearwell, ground storage tanks, etc.
c) Prepare preliminary site layout of the proposed RO facility components to include phasing considerations.
d) Prepare preliminary yard piping modification drawings that will consider system hydraulics between the existing clearwell and ground storage tanks.
e) Identify preliminary treatment requirements needed to reduce fouling potential and maximize life expectancy of membrane systems. Post treatment chemical and mechanical treatment will also be identified.
f) Develop preliminary design concepts for feed water booster pumping, bypass treatment and permeate blending.
g) Chemical storage and feed system conceptual designs will be identified based on projected raw water quality and target finished water quality.
h) Develop RO building layout to house RO and related process, electrical and instrumentation systems using a phased implementation approach.
i) Develop conceptual RO concentrate piping configuration from the RO process area to the proposed deep injection well.

B. Electrical/Instrumentation Preliminary Engineering

Based on process equipment, chemical feed systems, and process flow preliminary design, McKim & Creed will prepare conceptual designs for power supply and system reliability (emergency power systems) for the operation of the water treatment and finished water delivery systems at the site. This will include a cursory review of existing electrical systems serving the existing plant and integrating the proposed plant components with existing system, where applicable. Additionally, we will develop control system architecture concepts and develop the requirements for the instrumentation and control systems for plant components from raw water supply to finished water delivery, including the concentrate disposal system.

C. Structural Preliminary Engineering

We will review the existing structures and uses at the WTP with consideration for potential re-use of existing structures and tankage as part of the new process treatment systems proposed. Develop conceptual design and requirements for new structures require to house and/or support the new process equipment where existing structures cannot be utilized.

D. Develop Engineer's Opinion of Probable Construction Costs

McKim & Creed will develop a construction cost opinion for up to three (3) phasing options. The cost estimates will be in accordance with the recommendations of the Association of Advancement of Cost Engineering (AACE International), with Class 4 estimate and having an accuracy range of -30% to +50%.

E. Draft Preliminary Engineering Report

McKim & Creed will develop a draft PER using information obtained from previous tasks and will submit five (5) copies of the draft PER to the town along with an electronic (PDF) copy of the report via email.

F. Draft Report Review Meeting

McKim & Creed will attend and conduct a meeting with the Town to review the draft PER and address Town question. Meeting minutes will be developed and distributed to attendees via e-mail.

G. Final Report

McKim & Creed will incorporate agreed upon comments from the review meeting into the final PER and will submit five (5) signed and sealed copies of the report to the City along with an electronical (PDF) version via e-mail.

PHASE IIB – GROUNDWATER WELL EVALUATIONS

A. Below-Grade Physical Well Evaluations

McKim & Creed will coordinate with our subconsultant, Applied Drilling, Inc. to perform below-grade physical well evaluations for the Town's seven (7) existing production wells that will include the following:

- Mobilization
- Conduct a pumping test using the Town's existing well pump
- Pull the well pump

- Run static and dynamic logs (pump provided by Applied Drilling
- Run a downhole video
- Reset existing pump
- Chlorinate well (bacteriological testing to be done by the Town)
- Demobilization

B. Above-Grade Physical Well Evaluations

McKim & Creed will coordinate with Town staff to visit each of the seven (7) well sites to perform a preliminary review of existing equipment. The main purpose of this task is to develop conceptual cost estimates for wells that may need substantial rehabilitation or modifications.

C. Summary Memorandum and Recommendations

Findings from the physical evaluations will be summarized and a brief summary memorandum will be prepared to include evaluations and recommendations that will consider the following information:

- Physical condition of the well casings, boreholes and pump equipment
- Local hydrogeologic conditions
- Production capability and producing zone profile
- Water quality characteristics

McKim & Creed will prepare a brief summary memorandum with the findings, recommendations and estimated costs for the recommended well improvements.

PHASE IIC – WATER SYSTEM RATE STUDY

McKim & Creed will coordinate with our subconsultant, Raftelis Financial Consultants, Inc. (Raftelis) to develop a financial forecast and revenue sufficiency analysis and corresponding financial model (Rate Study) on behalf of the Town's water utility enterprise (System) to calculate the rates to be charged to fully recover the estimated cost of providing service and maintaining a strong fiscal position for the System. The Rate Study will include development of a financial forecast to project the estimated System financial operations over a proposed five-year period beginning with the fiscal year ending September 30, 2020 and ending September 30, 2025 (Forecast Period). The activities associated with the Rate Study are summarized as follows:

A. Data Compilation and Review

McKim and Creed will coordinate with Raftelis to request and review compiled data provided by the Town relative to the Rate Study. Information may include, but not be limited to, customer statistical data, recent historical financial reports and information, Fiscal Year 2020 Budgets and information, employee data, capital improvement plans, finished water production, and specific service provisions to be recognized in the evaluation.

B. Historical Customer Statistics Evaluation and Bill Frequency Analysis

McKim and Creed will coordinate with Raftelis and will request from the Town up to five (5) fiscal years of annual customer and water sales information by customer class and rate code to identify usage and relevant trends to determine non-revenue water relationships. This information will also be relied upon in the development of the customer and sales forecast.

Since the Town employs a water conservation block rate structure and to validate rate revenues earned by the System, this task will also include the development of a billing usage frequency analysis based on available information as provided by the Town. The billing frequency will evaluate the monthly usage by customer account for the most recent 12-month (preferably the Fiscal Year 2019) to determine how water is used by the customers and to assist in the development of a rate revenue model. A revenue reconciliation analysis will be performed to the reported actual rate revenues for reasonableness.

C. Prepare Customer and Sales Forecast and Rate Revenue Model

Based on the results of the historical customer and sales information and the bill frequency analysis, we will prepare a customer and sales forecast flow and rate revenue forecast to project the revenue collection of the Town during the Forecast Period.

D. Operating Expense Forecast

McKim and Creed will coordinate with Raftelis and will review the Fiscal Year 2020 budgeted and recent year-to-date actual costs and prepare a forecast of the operating expenses for the Forecast Period, which will consider the nature of the expense, potential contractual agreements with third parties, identified escalation factors, implementation of the capital plan, and other factors.

E. Capital Improvement and Funding Analysis

This task involves a review of the Town's capital improvement program and other related documents over the Forecast Period. A funding analysis to identify available sources of funds for financing the capital improvement program and the estimated impact on utility rate revenues associated with the capital funding program for the Forecast Period will be completed and include a "by- fund / account" analysis of available cash balances and corresponding interest income on such balances. Additionally, the evaluation of additional senior or subordinate lien bonds will be considered and modeled. This task will also include the development of a reasonable capital re-investment plan from rates to fund ongoing renewals, replacements and improvements to the System.

F. Rate Comparison

A customer impact analysis will be prepared for the typical residential customer to present the net effects of any proposed rate adjustment. A rate comparison will be prepared for the typical residential customer with other neighboring public utilities to present rate comparability and to aid in the development of the proposed rates for the Town.

G. Cash Flow Analysis and Management Dashboard

This task involves a detailed review of the Town's current financial position in each of the Town's respective funds maintained for the System; this may include the recommendation of additional accounts or the segregation of funds for strategic planning purposes. This analysis will be performed to identify available funds to use in system operating and capital funding, potential liabilities and funds that should be considered restricted and excluded from available funds.

This task will also include the development of a Management Dashboard to i) present the projected fiscal position of the System assuming certain performance targets based on best management practices; ii) evaluate compliance with rate covenants per bond documents, adopted financial policies and best management practices; and iii) allow for the interactive use of the model to immediately identify results based on changes in primary assumptions.

H. Report Preparation

Prepare report that will document the analyses, assumptions used, allocations, and results based on the performance of the tasks described above. The purpose of the report is to document the results of the study for use by the Town in the evaluation of the financial forecast.

I. Presentation

McKim and Creed will prepare a presentation to present the results, recommendations, and risks identified in the Rate Study to the Town.

OTHER INFORMATION

1. It is anticipated that engineering services that may be needed to address previously documented safety concerns at the WTP will be performed by McKim & Creed as part of a separate agreement with the Town and are not included in this scope.
2. Booster pumps and other cost items that may be needed for the deep injection well are not included with this scope.
3. The documents produced from the Rate Study and the Well Evaluations will be included as Appendices in the PER.
4. A pilot study is recommended to support the PER process. Pilot study costs and services are not included in this scope. These services, with fees commensurate, can be added if authorized by the Town.
5. Water quality projections developed in the previous *Preliminary Engineering Report* (Cardno, 2015) will be utilized for this project.

SCHEDULE

The tasks identified herein will be completed within 120 calendar days of receiving written authorization from the Town.

COMPENSATION

McKim & Creed will perform the scope of services for the lump sum amount of $324,223.00

A Fee Matrix showing the tasks and budgeted hours is attached as Exhibit A.

PREPARED BY:	**APPROVED BY:**
_____	_____
Phillip J. Locke	**JP Murphy**
Senior Project Manager	**Town Manager**
McKim & Creed	**Town of Belleair**
_____	_____
Date	**Date**

Exhibit A

Town of Belleair - RO Water Treatment Plant Preliminary Engineering Report - Phase II

McKim & Creed, Inc.

Task		Description	Labor	ODCs	Subconsult.	Total	Project Principal	Project Manager II	Project Engineer III	Project Engineer II	Designer IV	Engineer Intern (Proc)	Engineer Intern (E&I)	Designer II	Project Administrator	Total Hours	Subconsult.	ODCs
							$ 290.00	$ 195.00	$ 195.00	$ 157.00	$ 152.00	$ 130.00	$ 130.00	$ 123.00	$ 86.00			
		PHASE IIA - PRELIMINARY ENGINEERING REPORT																
1		**Project Administration**																
	A.	Project Administration	$ 979.00	$ 10.00	$ -	$ 989.00		2		1		1	1		2	7		$ 10.00
		Task Subtotal	$ 979.00	$ 10.00	$ -	$ 989.00	0	2	0	1	0	1	1	0	2	7		$ 10.00
2		**Preliminary Engineering Report**																
	A.	Civil, Mechanical and RO Process Preliminary Engineering	$ 18,180.00	$ 5.00	$ -	$ 18,185.00		12	4	12	8	80	12			128		$ 5.00
	B.	Electrical/Instrumentation Preliminary Engineering	$ 5,979.00	$ 25.00	$ -	$ 6,004.00		2	3	12			24			41		$ 25.00
	C.	Structural Preliminary Engineering	$ 7,380.00	$ 35.00	$ -	$ 7,415.00		4			40	4				48		$ 35.00
	D.	Develop Engineer's Opinion of Probable Construction Costs	$ 7,132.00	$ 5.00	$ -	$ 7,137.00		3	1	4	12	24	6			50		$ 5.00
	E.	Draft Preliminary Engineering Report	$ 24,040.00	$ 150.00	$ -	$ 24,190.00	2	16	2	10	16	80	16	24	6	172		$ 150.00
	F.	Draft Report Review Meeting	$ 1,321.00	$ 25.00	$ -	$ 1,346.00		3			2	2			2	9		$ 25.00
	G.	Final Report	$ 7,498.00	$ 175.00	$ -	$ 7,673.00	1	5		3	4	24	6	6	6	55		$ 175.00
		Task Subtotal	$ 71,530.00	$ 420.00	$ -	$ 71,950.00	3	45	10	41	82	214	64	30	14	503		$ 420.00
		PHASE IIA TOTAL	**$ 72,509.00**	**$ 430.00**	**$ -**	**$ 72,939.00**	**3**	**47**	**10**	**42**	**82**	**215**	**65**	**30**	**16**	**510**	**$ -**	**$ 430.00**
		PHASE IIB - GROUNDWATER WELL EVALUATIONS																
	A.	Below-grade Physical Well Evaluations	$ 3,353.00	$ 375.00	$ 191,322.00	$ 195,050.00		3				16			8	27	$ 191,322.00	$ 375.00
	B.	Above-grade Physical Well Evaluations	$ 6,951.00	$ 30.00	$ -	$ 6,981.00		5	4			18	18		6	51		$ 30.00
	C.	Summary Memorandum and Recommendations	$ 2,366.00	$ 150.00	$ 15,400.00	$ 17,916.00	1	4				6			6	17	$ 15,400.00	$ 150.00
		PHASE IIB TOTAL	**$ 12,670.00**	**$ 555.00**	**$ 206,722.00**	**$ 219,947.00**	**1**	**12**	**4**	**0**	**0**	**40**	**18**	**0**	**20**	**95**	**$ 206,722.00**	**$ 555.00**
		PHASE IIC - WATER SYSTEM RATE STUDY																
	A.	Data Compilation and Review	$ 367.00	$ 25.00	$ 800.00	$ 1,192.00		1							2	3	$ 800.00	$ 25.00
	B.	Historical Customer Statistics Evaluation and Bill Frequency Analysis	$ 585.00	$ 25.00	$ 3,950.00	$ 4,560.00		3							-	3	$ 3,950.00	$ 25.00
	C.	Prepare Customer and Sales Forecast and Rate Revenue Model	$ 195.00	$ 15.00	$ 1,475.00	$ 1,685.00		1							-	1	$ 1,475.00	$ 15.00
	D.	Operating Expense Forecast	$ 390.00	$ 10.00	$ 2,625.00	$ 3,025.00		2							-	2	$ 2,625.00	$ 10.00
	E.	Capital Improvement and Funding Analysis	$ 390.00	$ 15.00	$ 1,950.00	$ 2,355.00		2							-	2	$ 1,950.00	$ 15.00
	F.	Rate Comparison	$ 195.00	$ 10.00	$ 485.00	$ 690.00		1							-	1	$ 485.00	$ 10.00
	G.	Cash Flow Analysis and Management Dashboard	$ 390.00	$ 5.00	$ 2,200.00	$ 2,595.00		2							-	2	$ 2,200.00	$ 5.00
	H.	Report Preparation	$ 2,805.00	$ 175.00	$ 9,453.00	$ 12,433.00	2	7							10	19	$ 9,453.00	$ 175.00
	I.	Presentation	$ 852.00	$ 200.00	$ 1,750.00	$ 2,802.00	1	2							2	5	$ 1,750.00	$ 200.00
		PHASE IIC TOTAL	**$ 6,169.00**	**$ 480.00**	**$ 24,688.00**	**$ 31,337.00**	**3**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**38**	**$ 24,688.00**	**$ 480.00**
		PROJECT TOTAL	**$ 91,348.00**	**$ 1,465.00**	**$ 231,410.00**	**$ 324,223.00**	**7**	**80**	**14**	**42**	**82**	**255**	**83**	**30**	**50**	**643**	**$ 231,410.00**	**$ 1,465.00**