

EXHIBIT #A

South Oslo Rd Water Treatment Plant Improvements

PROJECT UNDERSTANDING

The existing membrane system and associated equipment at the Oslo Road water treatment plant was evaluated and is need of rehabilitation and replacement. A condition assessment was conducted under work authorization #5 to assess reliability of the existing mechanical equipment, including the membrane booster pumps, RO trains, feedwater, permeate, and concentrate piping; pipe trenches; membrane skids; small piping systems; and high service pump distribution piping systems. Based on this assessment, the following improvements were identified and prioritized according to importance, consisting of;

- Replace existing 1.5 MGD RO Trains (upgrade to 1.8 MGD)
- Replace/upgrade associated RO train remote PLC and instrumentation
- Replace process piping to stainless steel
- Modify feedwater pump configuration to dedicated operation
- Upgrade finish water supply piping to provide redundancy/resiliency
- Replace/upgrade high service pump piping and finish flow meter
- Replace/upgrade main plant PLC and associated PLC/HMI programming
- Rehabilitate and upgrade cleaning system
- Rehabilitation of lab space and equipment
- Generator upgrades and restoration of load shedding capability with FPL

SCOPE OF SERVICES

The following design, permitting, and bidding scope consists of improvements identified above for the South Oslo Rd water treatment plant.

Task 1 – Preliminary Evaluation

Consultant will utilize available raw water data collected from the well rehabilitation projects to define and update the design raw water quality to be used for membrane projections. A design list of raw water quality parameters, using historical trending and recent water quality results from the rehabilitation project, will be used for membrane projections, similar to what was prepared under work order #5.

Consultant will evaluate increase in RO train capacity from 1.5 to 1.8 MGD per RO train, with an evaluation of increasing up to a maximum full-size capacity of 2.0 MGD. The evaluation will consist of capacity review and potential impacts to raw water supply, pre-treatment, feed water pumping capacity and electrical requirements, post-treatment and concentrate disposal.

Consultant will conduct membrane projections using membrane suppliers' software, with

up to three (3) different membrane element manufacturer's, and evaluate the membrane system with respect to recovery, array, and other operating parameters that are warranted to improve operating efficiency and lower operating pressures. Consultant will review impacts on concentrate water quality and quantity as it relates to the Osprey Marsh IW Facility Permit.

Consultant will review replacement of existing end suction style pumps in kind, and replacement with vertical turbine can-style pumps. Review of pump replacement will identify advantages/disadvantages with alternate pump styles, and outline impacts associated with pump changeout.

Consultant will develop a phasing plan for these improvements and how these elements can be constructed with minimal impact to operations. Consultant will review base bid and additive alternate bid options for each of the major items and prepare design documents to include these options.

Consultant will prepare a list of suggested manufacturers to be included in the project for each of the systems and components listed herein.

Consultant will evaluate the impacts (electrical, pipe sizes, equipment layout) of increasing the high service pump capacities to meet peak hour flows in lieu of their existing capacity to provide only maximum daily flows. No design documents will be prepared for any upgrade in size.

Task 2 – Preparation of Design Documents

Consultant will prepare a basis of design report (BODR) summarizing the design elements and proposed standards for the design components. The BODR will be used to establish design criteria for the final design. Consultant will submit draft BODR for Owner review, and Consultant will attend review meeting to discuss comments. consultant will prepare and submit six (6) copies of the draft BODR, and submit six (6) copies of an updated final version of the BODR.

Consultant will prepare drawings and specifications for the above listed items, consisting of the following system components:

Consultant will prepare design drawings for feedwater piping modifications. The existing feedwater piping is manifolded within the feedwater pump room. Modifications to the feedwater piping will dedicate one (1) feedwater pump to one (1) RO train, with a backup feedwater pump and piping to each of the four (4) dedicated feedwater pipes. The backup pump will have motor actuated valves to supply each of the four (4) RO trains when a pump is taken offline for maintenance. Consultant will size the feedwater piping to accommodate potential future increase in RO train capacity from 1.8 MGD to 2.0 MGD permeate production at 80% recovery.

Consultant will design upgrades to the existing soft start/stops for three of the existing

feedwater pumps to variable frequency drives (VFD's), in order to allow variable speeds for each of the feedwater pumps married up with the dedicated RO trains. All feedwater pumps will have VFD's.

Consultant will prepare design drawings and specifications for upgrades to the existing RO trains. Design documents will include membrane element replacement for the four (4) existing RO trains. Consultant will design necessary changes to RO train array to optimize RO train performance. Consultant will design the pressure vessel replacement, modifications to the train process piping, sample and status panel modifications/upgrades, and process valve replacement based on findings from the condition assessment. Process piping will be upgraded from PVC to 316 stainless steel.

Consultant will prepare demolition plans for the existing RO trains, including phasing of piping connections and associated equipment.

Consultant will prepare design drawings and specifications for replacement and upgrades to the existing clean-in-place (CIP) system. The drawings will propose demolition of the existing CIP system and construction of a new CIP system located within the existing scale inhibitor room. The CIP system will include two batching tanks, heater, mixers, cleaning pump, cartridge filter, supply and return piping. Design will include new process piping trench from the scale inhibitor room to the existing trench located in the process room. Modifications to the CIP piping connections at each RO train will be proposed to create an air gap under normal operation. Consultant will evaluate and design electrical upgrades associated with CIP system improvements.

Consultant will review and prepare drawings and specifications for small piping replacement. Piping replacement will be limited to instrument air, sulfuric acid, scale inhibitor, and CO₂ solution feed piping within the process building. Materials of construction for each respective system will be as follows:

- Instrument air piping – replace existing black iron piping to be 316 stainless steel
- Sulfuric acid piping – Replace existing PVC/CPVC to Halar/PVDF to the feedwater
- Investigate the use of CO₂ solution feed to raw water blend in lieu of sulfuric acid
- Scale inhibitor – Replace existing PVC to be HDPE
- Investigate the addition of CO₂ solution to scrubber blowdown

Consultant will design dual discharge piping headers for the high service pumps, with the intention of replacing the existing deteriorated header piping in the trench and routing a new parallel discharge header on the floor between high service pumps.

Consultant will design modifications to the existing finished water flow meter and vault to re-route the piping above grade and include a new flow meter. The second discharge main to be provided for redundancy will be designed to include a flow meter that is above ground. Work will be phased to maintain operation of the WTP and high service pump operations.

Consultant will include design drawings for duplicate and redundant yard piping for the transfer piping from the clearwell to the storage tanks, and suction piping from the storage tank outlet to the high service pumps.

Consultant will review the existing process trench and identify areas that require structural repair and rehabilitation. Consultant will prepare construction drawings and details for areas requiring rehabilitation.

Consultant will prepare design documents for replacement of process piping within the building floor trench. The documents will detail limits of replacement, materials of construction, and phasing to maintain treatment operations.

Consultant will evaluate methods of reducing scaling at the scrubber blowdown pump station, consisting of alternate scale inhibitor addition, alternate makeup water source to include reduced hardness of makeup water, and addition of CO₂ solution feed to scrubber blowdown.

Consultant will prepare drawings and specifications for upgrades to the laboratory room, consisting of cabinet and countertop upgrades. Laboratory equipment replacement will be specified by IRCU and be limited to replacement of similar type equipment. Major renovation (plumbing & electrical change) of the room and cabinets is not included.

Consultant will prepare process and instrumentation diagrams (P&IDs) for the proposed improvements.

Consultant will prepare electrical drawings and specifications, consisting of single line diagrams, network drawings, electrical schematics and details. C&W Engineering will provide the electrical design services.

Consultant will prepare an updated network diagram for the PLC and SCADA system improvements. Control Systems Design, Inc. will provide these professional services.

It is estimated that approximately 80 - 104 drawings will be required as part of this project. Consultant will prepare drawings for the following:

- Cover sheet (1 sheet)
- Legend, abbreviations, and general notes (3 sheets)
- RO Train modifications (8-10 sheets)
- Skid piping modifications and feedwater pump room (4-6 sheets)
- Trench piping (2-4 sheets)
- Trench repairs or flowable fill/structural slab (1-3 sheet)
- Chemical piping listed herein (3-4 sheets)
- Yard piping – transfer piping, tank supply piping, distribution piping (2-3 sheets)
- Post-treatment scrubber blowdown (1-2 sheets)
- Laboratory room upgrades (4 – 6 sheets)

- Cleaning system (2-3 sheets)
- Dual high service pump discharge piping and replacement piping (2-4 sheets)
- Process and instrumentation diagrams (10-12 sheets)
- Construction details (9-10 sheets)
- Electrical drawings (24-30 sheets)
- Network Diagrams (3-5 sheets)

The documents will be prepared and be used in advertising for bids. Consultant will utilize base drawings and sketches prepared in 2012 of RO trains depicting the scope of work on each of the membrane treatment trains and process room.

Consultant will prepare design drawings, specifications, and opinion of probable construction costs (OPCC) at the 60%, 90%, and bidding phase design intervals. Consultant will attend review meetings with IRCU staff, and incorporate agreed upon comments into subsequent progress drawings and specifications. Specifications will be provided in the 16-division format as defined by the Construction Specifications Institute (CSI).

Consultant will prepare limited use topographic survey of the water plant site that encompasses the piping from the storage tanks to the treatment building, and from the building west to the finish water main. It is assumed all work will be constructed on the water plant site and County owned land. The survey scope for the plant sites consists of the following items:

- Obtain existing elevations within a 100-ft radius
- Location of the existing above ground structures and equipment, and soft-dig locations at the water treatment plant site.
- County established bench marks will be used for elevation reference.
- The vertical datum elevations will be referenced to NAVD 88 datum.
- Horizontal datum to be NAD 83/90

Consultant will coordinate and provide up to ten (10) subsurface investigations using soft-dig technique for anticipated U/G conflicts near the U/G piping as described herein.

Consultant will provide a topographic survey of the project site in electronic form (PDF) and six (6) copies 24x36 size drawings.

Consultant will provide up to 10 soft-digs for underground piping locations.

Task 3 – Permitting

Consultant will prepare a FDEP permit application FDEP Form 62-555.900(1), Application for a Specific Permit to Construct PWS Components for a minor modification to the RO water plant without an increase in rated plant capacity. IRCU will submit \$1,000 permit application fee directly to FDEP.

Consultant will prepare supporting documents, consisting of drawings, specifications, projections, and calculations supporting the permit application.

Consultant will prepare four (4) signed and sealed copies of permit application package and submit to FDEP Southeast District.

Consultant will respond to one round of reasonable requests for additional information from FDEP permitting agency requests for clarification.

Task 4 – Bidding Phase

Consultant will prepare electronic copy of bid documents, including drawings and specifications for IRC purchasing department to be utilized for bidding purposes. Front-end documents will be prepared by Indian River County purchasing.

IRC purchasing department will advertise and administer the procurement of the bidding and respond to potential bidder questions. Consultant will attend a mandatory pre-bid meeting, respond to OEM, contractor, or membrane supplier questions and prepare addendum(s), if required, which will be distributed to all the contract document holders by IRC purchasing department.

Consultant will review bids, provide a summary of comments, and a letter that recommends the most responsive and responsible bidder.

TIME SCHEDULE

Consultant will conduct Task 1 within 3 - 5 weeks and Task 2 within 6 – 8 months from notice to proceed. Task 3 is scheduled to be 3 – 5 weeks after task 2 is complete. Bidding phase is assumed to take up to 4 – 6 weeks after task 1 through 3 are complete.

FEE SCHEDULE

We will provide these services in accordance with our Agreement for Professional Services for Water Plant and Water Resources Engineering Services – RFQ 2019070, dated November 5, 2019, by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida (“COUNTY”) and Kimley-Horn and Associates, Inc., (“Consultant”).

The Consultant will provide professional services for Task 1 through Task 4 on a lump sum fee basis as follows:

Task No.	Task	Task Fee
Task 1	Preliminary Evaluation	\$ 46,224
Task 2	Preparation of Design Documents	\$ 491,644
Task 3	Permitting	\$ 11,206
Task 4	Bidding Phase	\$ 19,175
	Total Lump Sum Fee =	\$ 568,249

ADDITIONAL SERVICES

The following services are not included in the Scope of Services for this project, but may be required depending on circumstances that may arise during the execution of this project. Additional services include, but may not be limited to the following:

- Membrane pilot testing is not included under this scope
- Site planning is not included and not anticipated for this project.
- Review of contract front-end documents
- \$1,000 permit application fee required for minor modifications with no change in treatment capacity
- Construction phase services not included under this task order, but will be prepared as a separate work authorization

ESTIMATE FOR ENGINEERING SERVICES										
PROJECT: South WTP R&R - Oslo WTP									11.25.19	
CLIENT: Indian River County Utilities										
ESTIMATOR: MDM										
DESCRIPTION:		DIRECT LABOR (MAN-HOURS)								
	Water Plant treatment		SEN	REG					LINE	
	Preparation of Drawings,	PRINC	PFOF	PROF	DES	PROF	CLK	EXP	Dir	
		mdm	fh	nb	(SS)	(eg/dc/g		SUB	Exp	
NO.	TASK									
	Labor/hr	\$238.00	\$220.00	\$158.00	\$152.00	\$128.00	\$79.00			
1	PRELIM EVALUATION									
	Update design raw water quality	6	6	8		8	2		\$5,194.00	
	Evaluate impacts of 2.0 MGD	6	4	6			4		\$3,572.00	
	Membrane projections	6	4	12		12	6		\$6,214.00	
	Evaluate feedwater pumps	6	8	12		4	6		\$6,070.00	
	Prepare list of preferred	6	8	12		4	6		\$6,070.00	
	Develop phasing plan for	6	8	12		4	6		\$6,070.00	
	Evaluate HSP pump capacities -	6	8	12		4	6		\$6,070.00	
	Electrical (C&W)	4	4	4				\$4,500.00	\$6,964.00	
	Sub-Total =	46	50	78	0	36	36	\$0	\$4,500	\$46,224.00
2	PREPARE DOCUMENTS									
	Prepare Draft & Final BODR	6	24	30			30	\$500.00	\$14,318.00	
	Prepare PID's (10-12)	6	14	75	60	165	8		\$47,230.00	
	RO train design, dwgs, specs (8-	4	8	63	50	138	8		\$38,562.00	
	Feedwater pumps/piping design	6	8	38	30	83	8		\$25,008.00	
	Trench piping/repairs dwgs (4-6)	10	8	38	30	83	8		\$25,960.00	
	Chemical piping design dwgs,	6	8	25	20	55	8		\$17,850.00	
	Yard piping design dwgs (4-8)	6	24	50	40	110	8		\$35,400.00	
	Scrubber blowdown (1-2)	6	16	13	10	28	8		\$12,738.00	
	Cleaning system upgrades	6	12	19	15	41	24		\$16,494.00	
	HSP Piping modifications (2-4)	6	16	25	20	55	8		\$19,610.00	
	Mech details (9-10)	6	10	63	50	138	8		\$39,478.00	
	Network dwgs (3-5)		4	31	25	69	8		\$19,042.00	
	Review & progress meetings	18	18	18			12	\$500.00	\$12,536.00	
	Electrical (CW - 34-36)	8	12	12	12		16	\$70,000.00	\$79,528.00	
	SCADA (CSD)		10	10	10		6	\$25,000.00	\$30,774.00	
	Laboratory improvements	6	12	24	10		6		\$9,854.00	
	Submit review sets	12	24	36			24	\$1,500.00	\$17,220.00	
	Survey (Zentz)		6	8	8		8	\$6,500.00	\$10,932.00	
	Softdigs (10)		6	8			8	\$3,500.00	\$6,716.00	
	Prepare specs	12	18	24			24	\$500.00	\$13,004.00	
	Sub-Total =	124	258	610	390	965	238	\$3,000.00	\$105,000.00	\$492,254.00
3	PERMITTING									
	Prepare application		4		8		6		\$2,570.00	
	Supporting docs				6		8		\$1,544.00	
	Submit permit package &		4		6		2	\$500.00	\$2,450.00	
	Electrical (CW)		2	2	2		6	\$1,000.00	\$2,534.00	
	Respond to RAI		4		6		4		\$2,108.00	
	Sub-Total =	0	14	2	28	0	26	\$500.00	\$1,000.00	\$11,206.00
4	BIDDING PHASE									
	Finalize bid docs	4		4	8		8	\$500.00	\$3,932.00	
	Coordination with purchasing	4		12	8		8		\$4,696.00	
	Electrical (CW)			4	4		7	\$3,000.00	\$4,793.00	
	Answer questions	4		12	16		6		\$5,754.00	
	Sub-Total =	12	0	32	36	0	29	\$500.00	\$3,000.00	\$19,175.00