

**AMENDMENT 2 TO WORK ORDER 5**

**GROUNDWATER MODELING AND IMPACT EVALUATION IN SUPPORT OF  
MODIFICATION OF WATER USE PERMIT NUMBER 10524**

This Amendment 2 to Work Order Number 5 is entered into as of this 8th day of June, 2021, pursuant to that certain Continuing Contract Agreement, dated April 17, 2018, renewed and amended as of May 18, 2021 (collectively referred to as the "Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and CDM Smith ("Consultant").

- 1. The COUNTY has selected the Consultant to perform the professional services set forth in existing Work Order Number 5, effective date December 3, 2019.
- 2. The COUNTY and the Consultant desire to amend this Work Order as set forth on Exhibit A (Scope of Work) attached to this Amendment and made part hereof by this reference. The professional services will be performed by the Consultant for the fee schedule set forth in Exhibit B-1 and Exhibit B-2 (Fee Schedules), all in accordance with the terms and provisions set forth in the Agreement.
- 3. From and after the Effective Date of this Amendment, the above-referenced Work Order is amended as set forth in this Amendment. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

**CONSULTANT:**

**BOARD OF COUNTY COMMISSIONERS  
OF INDIAN RIVER COUNTY**

**By:** \_\_\_\_\_  
**Print Name:** Eric J. Grotke, PE, BCEE  
**Title:** Vice President

**By:** \_\_\_\_\_  
**Joseph E. Flescher, Chairman**

**BCC Approved Date:** \_\_\_\_\_

**Attest: Jeffrey R. Smith, Clerk of Court and Comptroller**

**By:** \_\_\_\_\_  
**Deputy Clerk**

**Approved:** \_\_\_\_\_  
**Jason E. Brown, County Administrator**

**Approved as to form and legal sufficiency:** \_\_\_\_\_  
**Dylan T. Reingold, County Attorney**

## EXHIBIT A

### CCNA-2018 WO NO. 5 AMENDMENT NO. 2

#### FOR

#### INDIAN RIVER COUNTY UTILITIES

#### ADDITIONAL GROUNDWATER MODELING SIMULATIONS IN SUPPORT OF MODIFICATION OF WATER USE PERMIT NUMBER 10524

This Amendment, when executed, shall be incorporated in and become part of the Agreement for Professional Services (Contract #2018008) between Indian River County (OWNER), and CDM Smith Inc. (CONSULTANT), dated April 17, 2018, extended and amended May 18, 2021, hereafter referred to as the Agreement.

#### **PROJECT BACKGROUND**

The OWNER operates two Water Treatment Plants (WTPs), the South County WTP and North County WTP. The South County WTP withdraws groundwater from seven existing Upper Floridan Aquifer (UFA) production wells, while the North County WTP relies on groundwater from nine existing UFA production wells. OWNER'S existing Consumptive Use Permit (CUP) (10524) currently allows for a total combined groundwater withdrawal allocation of 12.838 million gallons per day [mgd], with 6.438 mgd from the North County wellfield and 6.40 mgd from the South County wellfield.

The current CUP expires on October 11, 2031. OWNER has experienced an increase in demand due to population growth and domestic self-supply users switching over to OWNER'S water supply. OWNER began a draft application requesting modification of the existing CUP to the St. Johns River Water Management District (SJRWMD) in 2016. Groundwater modeling was performed to determine if there would be impacts on the water resources, environment, or other permitted users due to the anticipated increases in OWNER withdrawals from the UFA. CONSULTANT used a modified version of the South Florida Water Management District (SFWMD) East Coast Floridan Aquifer Model (ECFM) to perform the impact analysis for the UFA. Since the ECFM did not include the Surficial Aquifer System (SAS), the SJRWMD Coupled Aquifer (COUAQ) model was used to determine the drawdown if any in the Surficial Aquifer System (SAS) due to increased pumping and groundwater level drawdown in the UFA. The groundwater modeling results and analysis were summarized in a report that along with the model input and output files were submitted to the SJRWMD in support of the draft CUP application. SJRWMD staff previously approved the model as the best tool available for UFA uses in the area and the results of the modeling and impact evaluations.

Due to the resurgence of development, the OWNER must now modify the permit to account for the new and future demand projections. Based on actual groundwater withdrawals and an approximate 2 percent increase in demands over time (including an expanded service area), the 2050 demand was calculated to be 23.18 mgd. This is an increase from the existing EOP withdrawal of 12.838 mgd, which was used in the draft 2016 CUP application and the associated groundwater modeling and impact analysis.

After the CONSULTANT received notice-to-proceed for WO No.5, the OWNER requested that three additional modeling simulations be conducted to determine the withdrawal flow split between the north and south wellfields. Also, the OWNER requested approval from the SJRWMD to use the existing calibrated groundwater models developed by the CONSULTANT in 2016 for the 2020 CUP modification. On January 13, 2020, SJRWMD provided approval for the use of the model but requested that a revised/updated groundwater modeling plan be submitted to the District for review and approval. Amendment 1 was issued to provide the three additional modeling simulations and revision of the 2016 groundwater modeling plan.

In addition to North County and South County wellfields, the OWNER is now considering three other groundwater withdrawal alternatives. The first alternative is to move the additional requested allocation to a potential new UFA wellfield on County-owned property in the western part of the County to distribute the pumping, reduce groundwater level drawdown and reduce the potential impacts to existing legal users of the UFA. The second alternative is to move a portion of the requested allocation to the Avon Park Permeable Zone (APPZ) located below the UFA at both the north and south wellfields. The third alternative will consider pumping from the County's existing wellfield at an interim allocation based on short-term projected demand. The OWNERs withdrawal allocation under their exiting CUP is 12.84 mgd from 2021-2031 and does not provide for any growth in demand over this time period. This alternative would provide County time to analyze the first two alternatives and finalize the one to satisfy County's long-term water supply needs. Additional modeling simulations are therefore necessary to determine whether these three new wellfield alternatives will cause any adverse impacts to water resources, environmental resources, and other existing legal users.

This Amendment has been developed to provide the additional groundwater modeling services requested by the OWNER.

## **SCOPE OF WORK**

The following is a description of the work to be provided under this Amendment.

### **TASK 1 - ADDITIONAL GROUNDWATER MODELING SIMULATIONS**

The CONSULTANT will perform three additional groundwater model simulations with the modified ECFM to determine if the three new wellfield alternatives will cause any adverse impacts to water resources, environmental resources, and other legal users. The modified ECFM model was used during previous permit modification attempt in 2016 and has been approved by SJRWMD for use in support of the current CUP modification.

The three groundwater modeling simulations will be performed using the End-of-Permit (EOP) withdrawals for all permitted users and OWNER wells pumping at the requested allocation increase. A detailed description of these three simulations is listed below:

1. Simulation 7 (SIM7) – Existing North County and South County wellfield wells will be pumping at their current permitted allocation of 12.84 mgd. The requested additional allocation of 10.34 mgd to will be withdrawn from the proposed West County wellfield. The combined withdrawals from the existing and proposed wellfields will be 23.18 mgd. Other legal user wells within the model domain pumping at their current EOP withdrawal rate, except for the agricultural use wells whose EOP allocations will be adjusted to 5 in 10-year factors provided by SJRWMD.

2. Simulation 8 (SIM8) – Existing North County and South County wellfield wells will be pumping at their current permitted allocation of 12.84 mgd. The requested additional allocation of 10.34 mgd will be evenly split between the two proposed APPZ wellfields, one located near the North County Wellfield and the other located near the South County Wellfield. The combined withdrawals from the existing and proposed wellfields will be 23.18 mgd. Other existing legal user wells within the model domain pumping at their current EOP withdrawal rate, except for the agricultural use wells whose EOP allocations will be adjusted to 5 in 10-year factors provided by SJRWMD.
3. Simulation 9 (SIM9) - Existing North County and South County wellfield wells will be pumped at a combined pumping rate that affects the smallest number of other existing legal users. This pumping rate will be obtained by an iterative process of increasing the pumping rate from 12.84 mgd until arriving at a pumping rate that produces impacts to the smallest number of other existing legal users. Other existing legal user wells within the model domain pumping at their current EOP withdrawal rate, except for the agricultural use wells whose EOP allocations will be adjusted to 5 and 10-year factors provided by SJRWMD.

Simulations 7, 8, and 9 will be used by the CONSULTANT and OWNER in determining the groundwater level drawdown due to the total proposed OWNER EOP withdrawal occurring from each wellfield. The deliverable for this task will be maps showing the cone of depression (groundwater level drawdown) for each wellfield pumping scenario and contours of cumulative groundwater level drawdown due to pumping. The results of these simulations are for OWNER internal purposes only and will not be submitted to SJRWMD in the groundwater modeling and impact evaluation.

## **TASK 2 - PROJECT AND QUALITY MANAGEMENT**

Activities performed under this task consist of those general functions required to maintain the project on schedule, within budget, and that the quality of the work products defined within this Work Order is consistent with CONSULTANT's standards and the OWNER's requirements. Specific activities included are identified below:

### **Subtask 2.1 - Project Quality Management**

CONSULTANT maintains a Quality Management System (QMS) on all projects. In accordance with the QMS, a project planning and scope review meeting will be conducted at the start of the project. In addition, the CONSULTANT's Technical Specialists will perform a quality review of the maps identified in Task 1.

### **Subtask 2.2 - Project Status Reports**

CONSULTANT's project manager will prepare and submit monthly written status reports with each invoice for an anticipated project duration of 1 month.

## **OTHER SERVICES NOT INCLUDED IN THIS WORK ORDER**

This Work Order does not include the following items:

- Identifying potential wellfield or well locations in the western part of Indian River County;
- Identifying potential wellfield or well locations near the South County and North County Wellfields for the proposed APPZ wellfields; and

- Identifying 10-year future demand based on population projections and historic demand and water use.

**OWNER’S RESPONSIBILITIES**

The OWNER will provide all available data requested by the CONSULTANT for the purpose of completing the aforementioned tasks. The data necessary for this project are, but not limited to the following:

- To identify potential locations for an UFA wellfield in the western part of Indian River County.
- To identify potential locations for two new APPZ wellfields and wells. One of the new APPZ wellfields will be located near the existing North County Wellfield and another will be located near the existing South County Wellfield.
- To provide historic pumping data from North County and South County wellfields.
- To provide future demand based on population projections and desired withdrawal split between North County and South County wellfields.

The OWNER will also provide a timely review of all work products.

**SCHEDULE**

It is anticipated that this Amendment 2 will extend the project schedule by 1 month, starting within two weeks of receipt of a formal notice to proceed (NTP) of this Amendment and receipt of all data requested by the CONSULTANT. The schedule is dependent on the OWNER providing the modeling inputs described in this Amendment. CONSULTANT will prepare an updated detailed schedule within the first 10 calendar days after Notice-to-Proceed of Amendment 2.

**COMPENSATION AND PAYMENT**

Compensation for the work described in this Amendment shall be made on the basis of a lump sum fee. The lump sum fee for Tasks 1, and 2, inclusive, is \$42,180 as shown in **Exhibits B-1 and B-2**. The amended Work Order No. 5 lump sum amount is **\$130,270** CONSULTANT will invoice OWNER on a monthly basis based on percent complete. For invoice purposes only, the value of each task is as shown in the **Table 1**.

**Table 1 Estimated Budget for Amendment 2 to Work Order No. 5**

TASK VALUE FOR INVOICE PURPOSES		
TASK	DESCRIPTION	VALUE
1	Additional Groundwater Modeling Simulations	\$38,725
2	Project and Quality Management	\$3,455
<b>TOTAL WORK ORDER NO. 5 AMMENDMENT 2- LUMP SUM</b>		<b>\$42,180</b>

EXHIBIT B-1

INDIAN RIVER COUNTY UTILITIES

Amendment No. 2 - ADDITIONAL GROUNDWATER MODELING SIMULATIONS IN SUPPORT OF MODIFICATION OF WATER USE PERMIT NUMBER 10524

2018 Rates: \$245 \$240 \$220 \$180 \$135 \$100 \$95

Task	Senior Officer	Senior Technical Expert	Associate	Senior Professional	Senior Support	Staff Support Services	Document Control Specialist	Totals			
								Other Direct Costs	Hours	Labor	Labor + ODC
<b>Task 1 – Additional Groundwater Modeling Simulations</b>	1	44	0	144		18	0	\$200	207	\$38,525.00	\$38,725.00
<i>Subtotal</i>	<b>1</b>	<b>44</b>	<b>0</b>	<b>144</b>	<b>0</b>	<b>18</b>	<b>0</b>		<b>207</b>		
<i>Subtotal Amount</i>	<b>\$245</b>	<b>\$10,560</b>	<b>\$0</b>	<b>\$25,920</b>	<b>\$0</b>	<b>\$1,800</b>	<b>\$0</b>	<b>\$200</b>		<b>\$38,525.00</b>	<b>\$38,725.00</b>
<b>Task 2 – Project and Quality Management</b>											
Subtask 2.1 - Project Quality Management	1	0	4	5	3	0	2		15	\$2,620.00	\$2,620.00
Subtask 2.2 - Project Status Reports	0	0		2	1	0	2	\$150.00	5	\$685.00	\$835.00
<i>Subtotal Hours</i>	<b>1</b>	<b>0</b>	<b>4</b>	<b>7</b>	<b>4</b>	<b>0</b>	<b>4</b>		<b>20</b>		
<i>Subtotal Amount</i>	<b>\$245</b>	<b>\$0</b>	<b>\$880</b>	<b>\$1,260</b>	<b>\$540</b>	<b>\$0</b>	<b>\$380</b>	<b>\$150</b>		<b>\$3,305.00</b>	<b>\$3,455.00</b>
<b>TOTAL HOURS</b>	<b>2</b>	<b>44</b>	<b>4</b>	<b>151</b>	<b>4</b>	<b>18</b>	<b>4</b>		<b>227</b>		
<b>TOTAL AMOUNT</b>	<b>\$490.00</b>	<b>\$10,560.00</b>	<b>\$880.00</b>	<b>\$27,180.00</b>	<b>\$540.00</b>	<b>\$1,800.00</b>	<b>\$380.00</b>	<b>\$350.00</b>	<b>\$0.00</b>	<b>\$41,830.00</b>	<b>\$42,180.00</b>

**EXHIBIT B-2**

**BUDGET**

**INDIAN RIVER COUNTY UTILITIES**

**Amendment No. 2 - ADDITIONAL GROUNDWATER MODELING SIMULATIONS IN  
SUPPORT OF MODIFICATION OF WATER USE PERMIT NUMBER 10524**

Description: As Outlined in the Scope of Services,  
Exhibit A

Reference: Agreement Between Indian River County  
Utilities and CDM Smith Inc.

<u>Labor Category</u>	<u>Hours</u>	<u>Rate</u>	<u>Labor</u>
Senior Officer	2	\$245	\$490
Senior Technical Expert	44	\$240	\$10,560
Associate	4	\$220	\$880
Senior Professional	151	\$180	\$27,180
Senior Support Services	4	\$135	\$540
Staff Support Services	18	\$100	\$1,800
Document Control Specialist	4	\$95	\$380
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TOTAL HOURS	227		
TOTAL LABOR COST			<u>\$41,830</u>
OTHER DIRECT COSTS			<u>\$350</u>
TOTAL WORK ORDER AMOUNT			<u>\$42,180</u>