



CONTRACT NO. WRS/211026

**AMENDMENT NUMBER 4 TO AN AGREEMENT
BETWEEN KIMLEY-HORN AND ASSOCIATES, INC.
AND CITY OF OCALA**

AMENDMENT NUMBER 4 DATED May 14, 2025, to an Agreement between City of Ocala ("the Client") and Kimley-Horn and Associates, Inc., ("Kimley-Horn or Consultant") dated December 27, 2022 ("Agreement") concerning Professional Design Services – Water Treatment Plant #2 (the "Project").

Kimley-Horn has entered into an Agreement with the Client for the furnishing of professional services, and the parties now desire to amend the Agreement.

Therefore, it is mutually agreed that Agreement is amended for a time extension of 365 days following the original contract expiration date to complete the project. The parties ratify the terms and conditions of the Agreement not inconsistent with this Amendment, all of which are incorporated by reference.

ACCEPTED:
CITY OF OCALA

DocuSigned by:
BY: Peter Lee
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TITLE: City Manager

DATE: 6/12/2025

KIMLEY-HORN AND ASSOCIATES, INC.

BY: Richard V. Busche
Richard V. Busche, P.E.

TITLE: Senior Vice President

DATE: May 14, 2025

Project Understanding

On December 27, 2022, Kimley-Horn was retained by the City to provide investigative technology services to evaluate electrocoagulation treatment technologies for the enhanced efficiency of the City's Water Treatment Plant (WTP). The effort includes investigative testing on raw water from the upper Floridan Aquifer and finished water at WTP #2. Testing of the raw water and finished water offers an alternative technology to the existing lime softening treatment process in use at WTP #1 and potential to bridge the gap between the ongoing design efforts with WTP #2 with the capability to destruct PFAS which the designed treatment process consolidates into a concentrate stream. Electrocoagulation (EC) shows potential to serve as a bridge to membrane treatment process and/or provide removal and destruction of the PFAS contaminants in the concentrate stream following nanofiltration of the Floridan Aquifer water.

Given the capacity demands from the City, it is warranted to test both the Lower Floridan and Upper Floridan Aquifer supplies at WTP #2. As demands increase, these aquifer supplies are likely to be needed to supply water into the distribution system from the WTP #2 facility. The EC process offers a potential to remove existing contaminants in the water that are currently found in both the aquifer supplies. EC is an alternative technology being utilized to investigate treatment of each supply water to drinking water standards and can also support existing or proposed treatment processes.

Each of these applications may offer significant advantage to the City in improving the efficiency of operation as well as maintaining regulatory compliance with oncoming PFAS legislation.

The City and Kimley-Horn are prepared to modify the IPO to include additional scope as described below.

Approach:

Kimley-Horn's phased approach to testing the efficacy of an electrocoagulation (EC), ceramic ultrafilter (CUF) system has been vetted through past research projects and full-scale designs. Our approach will test various configurations of the EC + CUF system by evaluating EC configurations such as hydraulic residence time, amp density, blade configuration, blade material and addition of a chemical catalyst. Additionally, we will evaluate various flux rates, trans membrane pressures, permeabilities, back pulse flow rates and volumes and air scour durations for the CUF system. We will test field parameters, such as pH, ORP, conductivity and total hardness, and use them as a surrogate for treatment efficacy so we can evaluate the best performing configuration to collect for lab analysis. Results of the testing will be presented in a final deliverable presentation as described in detail below.

Scope of Services**Task 1 – Project Management and Administration**

- A. Kimley-Horn will develop a bench test plan and field data matrix that will be reviewed internally and approved by the City prior to moving forward with bench testing. The bench test plan will give a brief background of the testing, establish testing goals, and describe the unit processes in an EC treatment train. As a part of the bench test plan, we will outline the various proposed EC + CUF testing configurations, testing protocols, material / ancillary equipment needs list and establish a list of proposed water quality parameters and sample sets that can be analyzed in the lab as a surrogate for treatment efficacy for target contaminants. The bench test field data matrix is anticipated to reveal the shortlisted bench testing configurations identified in the testing plan and the field data parameters that will be recorded for each configuration. Kimley-Horn will compare the field collected data parameters against water quality laboratory results to determine if there are noticeable correlations.

Task 2 – Data Collection and Analysis

- A. Kimley-Horn will coordinate with the City for the collection and shipping of the desired sample volumes for the treatment technology analysis. Kimley-Horn will collect and ship the samples according to the Kimley-Horn provided schedule and protocols. Once received, Kimley-Horn will perform laboratory bench testing of the two water samples: raw Upper Floridan aquifer water at WTP #2; and Lower Floridan aquifer water at WTP #2.
- B. The bench test unit, and ancillary support equipment required for particle separation, like the ceramic ultra-filter, will be furnished by Kimley-Horn under this scope of work. Approximately eight different configurations of the bench test will be performed on the water samples listed above. This testing will occur over a three-day field-testing period – to be completed at Red Rocks Community College's Water Quality Technology Lab in Lakewood, CO, by Kimley-Horn's advanced treatment research team. Kimley-Horn will coordinate collection and shipment of the respective water samples to our Denver Tech Center office. Kimley-Horn's technical team will adjust various testing parameters as described in Task 1. All samples will be filtered through the 0.1-micron ceramic ultra-filter at the manufacturer recommended flux and TMP threshold. A 20-gallon sample of each water source will be needed to accommodate all the testing.
- C. It is recommended that solids generated from the test runs submitted for a full lab analysis on the filtrate, also undergo Toxicity Characteristic Leaching Procedure Tests to help determine the quality of residuals (settled solids) generated from the best performing test configuration. The solids testing services, while recommended, is not currently included and can be added on to this effort via an amendment or separate authorization.
- D. PFAS sampling is recommended for the Upper Floridan aquifer samples both pre and post treatment. It is recommended that an EPA 1633, 1623 and 1621, be ran in an EPA approved lab. Additional to PFAS samples, it is recommended that a full suite of the primary and secondary EPA drinking water MCLs be analyzed. Water quality analysis costs outside of handheld testing (conductivity, pH, turbidity) during the testing process will be expensed directly to the City as direct expenses to the project. An allowance for PFAS sampling and testing is included in this scope of services and includes three sets of PFAS sampling per Upper Floridan source (total of nine PFAS samples to be analyzed).
- E. Kimley-Horn will receive, review, and analyze the data requested in the project kick-off meeting for trends and documentation to support the design calculations, connections and integration into the existing potable distribution system.

Task 3 – Preliminary Design Report

- A. Kimley-Horn will develop a summary presentation to present the findings of the testing and an interpretation of any trends that may have been noticed as it relates to removal efficacy of target contaminants. Pertinent raw water and treated water constituent removal graphs for the various configurations will be presented, along with the completed field-testing matrix. The summary presentation will be given virtually for the City. If desired, an in-person presentation can be delivered at the City's facilities.

Additional Services If Required

Services requested that are not specifically included will be provided under a new and separate IPO agreement or can be performed on an hourly basis upon written authorization.



Fee and Billing

Kimley-Horn will perform the Scope of Services in Tasks 1 - 3 for a lump sum fee of \$22,399.80. All permitting, application, and similar project fees will be paid directly by the City. A breakdown of the fee per task is provided in the attached Table A.

SHEET: 1 of 1
DATE: 5/14/2025

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plee@ocalafl.org		Viewed: 6/12/2025 4:15:20 PM
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Status	Timestamps
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