ATTACHMENT A — STATEMENT OF WORK

INDEPENDENT TECHNICAL PEER REVIEW SERVICES
LAKE WEIR HSPF MODEL
DEVELOPMENT, DOCUMENTATION, AND LONG-TERM SIMULATION REVIEW

I. INTRODUCTION/BACKGROUND

The SJRWMD's Minimum Flows and Levels (MFLs) Program, mandated by state water policy, is a District-wide effort to establish MFLs for priority lakes, streams and rivers, wetlands, springs, and groundwater aquifers. MFLs designate the minimum hydrologic conditions that must be maintained in these water resources to prevent significant harm resulting from permitted water withdrawals.

SJRWMD has identified Lake Weir as a priority lake. Lake Weir is located in Marion County, Florida and the contributing sub-basin area includes part of Marion County, Sumter County, and Lake County.

This lake receives water from direct precipitation, surface runoff, and base flow, and loses water primarily through evaporation and seepage into the Upper Floridan Aquifer.

The purpose of establishing minimum lake levels for Lake Weir is to protect this lake from significant harm due to groundwater or surface water withdrawals. SJRWMD contracted with Dynamic Solutions, LLC (DSLLC) to develop a continuous simulation hydrological model of Lake Weir using HSPF. The model was completed in November 2016.

Because minimum levels are usually based on an event-based approach associated with return periods (e.g., the recommended minimum frequent low level should be achieved once every five years, on average), MFL assessment requires frequency analysis of lake levels. Due to the presence of short- and long-term climatic cycles (e.g. El Nino Southern and Atlantic Multidecadal Oscillations), the frequencies of lake levels could be significantly different in wet periods such as in 1960s than dry periods such as in 2000s. Thus, it is important to perform frequency analysis using long-term lake levels so that the effect of short- and long-term climatic variations on lake levels can be captured. Although observed long-term lake levels are available, the data is usually discontinuous and sometimes sparse. Thus, long-term lake levels need to be simulated using the updated HSPF model developed by DSLLC. A complete MFL analysis includes developing a long-term simulation model, simulating no-pumping (pre-withdrawal) and current-pumping condition lake levels and performing frequency analysis to assess the current and future status of the MFLs.

II. OBJECTIVES

INTERA (Contractor) shall provide the District with the services of an independent technical peer review of scientific and technical data, methodologies, and assumptions related to the development and application of the Lake Weir hydrologic evaluation model (HSPF) including long-term simulations for the determination and/or assessment of MFLs for Lake Weir.

In the event of civil or administrative litigation in which the subject matter of the model and report are relevant, Contractor agrees that he/she will make himself/herself available during the period of such litigation as an expert witness under the direction of the District's Office of General Counsel or such other counsel as the District may employ. The District may designate Contractor as a testifying or non-testifying expert and may assert the attorney work product privilege as to the research and report during the period of such litigation. This task, if required, will be completed under a separate work order or contract and shall include coordination and cooperation with the District's Office of General Counsel.

III. SCOPE

Contractor shall review and assess the appropriateness of all scientific and technical data, specific model or relationships applied, model methodologies and analyses, and model assumptions associated with the development, calibration, and long-term simulations of the HSPF model. Contractor shall conduct a thorough review of the HSPF model and the associated documentation report, to assess the following:

- Adequacy and appropriateness of the data used in model development, calibration and long-term simulations
- Validity, defensibility and appropriateness of the development, calibration, and long-term simulations of the model
- Deficiencies, errors, or areas for improvements in model development, calibration, and long-term simulations
- Validity and appropriateness of all assumptions in the development of any statistical relationships used for the determination and/or assessment of MFLs

IV. TASK IDENTIFICATION

Contractor shall perform the following tasks to accomplish the Scope of Work described above.

Task A. Attend Project Kick-off Meeting

Contractor shall participate in a kick-off teleconference meeting with the District staff to ensure Contractor understands the work assignment, the peer review process, and timeframes. Additional meetings may be required. The District's Project Manager will notify all involved parties of the dates and times by e-mail.

Deliverable: Consultant shall provide the District Project Manager with a brief summary email of the teleconference, including specific action items for model review and documentation.

Task B. Peer Review Lake Weir HSPF Model and Documentation Report

B.1. Review of Model, Long-term Simulation and Documentation: Contractor shall review all scientific and technical data, methodologies, assumptions, and recommendations related to development and calibration of the Lake Weir HSPF model, long-term simulations, and the following reports:

- Lake Weir HSPF Model Report, November 2016. DSLLC
- Long Term Simulation HSPF Model of Lake Weir Draft Report, June 2019, SJRWMD

Contractor shall participate in one teleconference meeting with the District staff to present and discuss initial comments.

Deliverable: Consultant shall provide the District Project Manager with a brief summary email describing remaining work to be completed on draft and final technical memo.

B.2 Peer Review Technical Memorandum (TM): Contractor shall prepare a draft and final TM summarizing the findings and recommendations related to the peer review of the Lake Weir HSPF model, long-term simulations and reports and submit to the District's Project Manager.

Contractor shall include the following items in the review process and provide answers to the following questions in the TM.

1) Assess the adequacy and appropriateness of the data used in model development and calibration.
    a) Was "best information available" utilized to develop and calibrate the HSPF model?
    b) Are there any deficiencies regarding data availability?
    c) Was relevant information available that was discarded without appropriate justification? Would use of discarded information significantly affect results?

2) Assess the validity, defensibility and appropriateness of the model development, and calibration.
    a) Determine if the model is appropriate, defensible, and valid, given the District's MFLs approach.
    b) Evaluate the validity and appropriateness of all assumptions used in the model development and calibration.
        - Are the assumptions reasonable and consistent given the "best information available"?
        - Is there information available that could have been used to eliminate any of the assumptions? Could the use of this additional information substantially change the models results?

    c) A review of HSPF model input and output data will be performed. The review will include an examination of:
        - Model elevations vs collected data to verify same datum used consistently
        - Flow/stage plots to look for model instabilities
        - Output file for model warnings (full flow channels, flooded nodes, etc.) and flow classification summary
        - Continuity error and convergence data
        - Runoff and infiltration volumes to check for reasonableness
        - Values assigned to model parameters to check for reasonableness
        - How groundwater data was used in model inputs
        - Methodologies used to develop input data for long-term simulations
        - Long-term simulation results to check for reasonableness

The development of an independent water budget will be included in this subtask.

Deliverable: Consultant shall prepare a draft and final TM summarizing their findings and recommendations regarding the Lake Weir HSPF model, long-term simulations and reports and submit to the District's Project Manager.

V. TIME FRAMES AND DELIVERABLES

The expiration date of this Work Order is October 31, 2019. Specific timeframes as they apply to tasks, milestones, deliverables, and teleconferences are included in Table 1.

Table 1. Schedule

Task	Deliverable	Completion Date
A.	Project Kick-off Meeting (teleconference) Summary E-mail of teleconference	August 29, 2019
B.1	Peer Review Lake Weir HSPF Model and Documentation Report Peer Review Comments Meeting (Teleconference) Summary E-mail of teleconference	September 18, 2019
B.2	Peer Review Draft Technical Memorandum Peer Review Final Technical Memorandum	September 27, 2019 October 11, 2019

Contractor shall employ an internal quality review process to ensure only high quality, complete, and correct products are provided to the District. Deliverables prepared by Contractor shall be clear, concise, thorough, and grammatically correct. Contractor shall present data for technical products in a well-organized format. Findings should be based on a logical derivation from the facts and data. Contractor shall provide written confirmation by a principal of the firm that quality assurance procedures were followed prior to release of a given deliverable upon request by the District's Project Manager. References shall be appropriately cited.

Contractor shall assure that all spelling and grammar errors (even not disclosed by the Microsoft Word spelling and grammar check functions) and all tracked edits have been addressed so none are showing in the document when the tracking features and the spelling errors and grammar check are set to show on the computer screen or in the printed document.

Contractor shall submit the complete report in editable digital format, including all graphics and tables integrated with the text of the report. The District's Project Manager, at his/her discretion, also may require up to three paper copies of the final deliverables. Contractor shall provide the following digital files:

1. A Microsoft Word file of all text and any graphics that may feasibly be incorporated into the document without creating an unwieldy large file or causing printing difficulties. Adobe Acrobat files that are not convertible to Microsoft Word are not acceptable as the sole form of submission for any part of the report except appendices.
2. Separate large files of data, graphics, Geographic Information Systems (GIS) shape files and coverages and any other graphics or other report materials that are not feasible to incorporate into a Microsoft Word document. All files must be in manipulatable formats acceptable to the District.

   The District's Project Manager may require non-Word files to be in their native formats. Adobe Acrobat files are not acceptable as the sole form of submission for any graphics, GIS products, data or other materials unless such material cannot be converted into another format.

Electronic submissions must meet the following specifications:

1. Deliverables may be submitted on Compact Disc (CD), Digital Versatile Disc (DVD), ftp site or by e-mail.
2. E-mail submissions may not consist of more than five (5) files unless otherwise approved by the District's Project Manager.
3. Each CD or DVD must have a label including contract name, number, Contractor, submittal date, version, and file names.
4. Each CD, DVD, or ftp folder must have an obvious directory structure.
5. A read-me file listing and describing the contents by file name must be included if a CD or DVD contains too many files to put on a label or if the materials are submitted on an ftp site or by e-mail.
6. The digital files for the final document (including all graphics, appendixes, tables, peer reviews, etc.) must be in their own CD, DVD, ftp folder or e-mail separate from any draft or preliminary versions or data.

All report materials produced for the District under this contract shall become property of the District and may be edited by the District in consultation with Contractor for style, writing quality, and format.

VI. BUDGET/COST SCHEDULE

This Work Order is for a lump sum fixed fee amount of $16,096. Contractor shall invoice the District monthly based on a percent complete per task (Table 2). Invoices shall include documentation (progress report) listing work completed and work planned. The cost includes all expenses associated with the Work, including travel. No additional expenses will be reimbursed.

Table 2. Budget

Task	Deliverable	Total Dollars by Task
A.	Project Kick-off Meeting (teleconference) Summary E-mail of teleconference	$1,376
B.1	Peer Review Lake Weir HSPF Model and Documentation Report Peer Review Comments Meeting (Teleconference) Summary E-mail of teleconference	$8,986
B.2	Peer Review Draft Technical Memorandum Peer Review Final Technical Memorandum	$5,733
	Total Budget	**$16,096**