

**RESOLUTION AUTHORIZING CONTRACT MODIFICATION 2022-06 TO  
OPERATIONS MANAGEMENT INTERNATIONAL/JACOBS**

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**MOTIONED BY:** Assadourian

**SECONDED BY:** Friedrich

**WHEREAS**, the North Hudson Sewerage Authority (hereinafter "Authority") is a public body, duly formed under the Sewerage Authorities law, constituting Chapter 138 of the Laws of New Jersey of 1946, as amended (Chapter 14A of Title 40 of the New Jersey Statutes Annotated) and possesses the powers set forth therein; and

**WHEREAS**, the Authority has contracted with Operations Management International, Inc., Denver, CO. under resolution 13-027 in the amount of \$10,516,133.39 for the operation, maintenance and management of the Authority's sewerage collection and treatment facilities pursuant to the provisions of the Wastewater Treatment Privatization Act, N.J.S.A. 58:27-1 et seq.; and

**WHEREAS**, this out of scope contract modification includes the procurement and installation of a new Program Logic Controller (PLC) in the Sludge Blending Building at Adams Street. The existing PLC is no longer being supported or manufactured, and is being replaced as part of the SCADA master plan. Additional PLC and SCADA programming is being performed in the Effluent Pump Station controls, as well as the River Road Recirculation Pump Controls and Sodium Bisulfite Pump Controls. All work is being performed by OMI regional SCADA support staff; and

**WHEREAS**, the Facilities Review Board has reviewed the proposal and recommends the approval of the requested contract modification.


**NOW, THEREFORE, BE IT RESOLVED** that the Authority hereby authorizes the execution and implementation of said contract modification 2022-06 in an amount not to exceed \$37,941.30.

**DATED: NOVEMBER 17, 2022**

**RECORD OF COMMISSIONERS' VOTE**

	<b>YES</b>	<b>NO</b>	<b>ABSTAIN</b>
Commissioner Kappock	x		
Commissioner Marotta	x		
Commissioner Gardiner	x		
Commissioner Friedrich	x		
Commissioner Guzman	x		
Commissioner Velazquez	x		
Commissioner Barrera	x		
Commissioner Zucconi	x		
Commissioner Assadourian	x		

**THIS IS TO CERTIFY THAT THIS RESOLUTION WAS DULY ADOPTED BY THE  
NORTH HUDSON BOARD OF COMMISSIONERS ON NOVEMBER 17, 2022.**




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**SECRETARY**



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Mr. Fredric J. Pocci, P.E.  
Authority Engineer  
North Hudson Sewerage Authority  
1600 Adams Street  
Hoboken, New Jersey 07030

November 24, 2022

Subject: Proposed Out of Scope Project: OMI  
Adams Street and River Road SCADA Improvements

Dear Mr. Pocci,

Operations Management International, Inc. ("JACOBS OMI") is pleased to provide North Hudson Sewerage Authority ("Authority") a proposal to add additional SCADA and PLC programming components for Adams Street and River Road facilities. Specific areas of improvement include the following locations:

- Adams Street Effluent Pump Station
- Sludge Blending Building
- River Road Recirculation Pumps
- River Road Sodium Bisulfite Pump controls

**Overview:**

This proposal is to provide new additions to SCADA and PLC programs for both Adams Street and River Road facilities. The purpose is to improve system monitoring and enhance additional areas of plant process, functionality, and performance.

At Adams Street, the objective is to enhance pump controls for the effluent pump station, and add equipment feedback and communication for assets in the sludge blending building. At River Road, additional feedback will upgrade the recirculation pump program and the sodium bisulfite dechlorination system. Details for each upgrade are outlined in the Scope of Services.

Enhanced PLC programming for the Effluent Pump Station will increase the lifespan of the pumps and drives. JACOBS will design and implement an automatic rotation based on starts/stops for the four effluent pumps (H20, H21, H22, H23). Establishing a specified rotation for the lead and lag sequence ensures the equipment receives equal run time. We will design a new PLC program based on the pump and drive manufacturer's recommendations, which will increase reliability and lifespan of the equipment through reduction of repetitive starts and stops, and minimize excessive hours of continuous operation, ultimately improving pump station functionality.

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The Sludge Blending Building and MCC improvements focus on upgrading the communications by replacing the failing data highway to a new standard ethernet connection. Establishing a new communication system and increasing the number of outputs from sludge blending allows operations and maintenance to effectively monitor the primary clarification process (flights and cross collector equipment status), dewatering pump status, recirculation pumps, and primary and secondary sludge pump operation.

At River Road, one objective is to improve monitoring of the Recirculation Pump system. Through development of additional inputs and outputs, we can provide an extra layer of control to integrate pump feedback into the PID loop to effectively monitor pump health and performance through SCADA. We will also integrate pump speed feedback into the SCADA monitoring system so operations can visually monitor pump status and verify flows and trends.

The River Road Sodium Bisulfite system requires additional input controls and PLC programming to for the dechlorination process to ensure that our system is always dechlorinating plant effluent. Currently, the system will only automatically switch a pump if a pump completely fails and stops running. However, if a leak is detected, or flow rate decreases, the alarmed pump will continue to run and not automatically switch to the standby unit because the system recognizes that the pump is still operational. New additional proposed controls will automatically switch pumps if leaks are detected, chemical flow rate drops, or if a pump fails, ensuring that a pump will always be online and ready to operate.

Lastly, managers and operators will review all SCADA components and programming upgrades to verify functionality and proof of operation.

## **Scope of Services and Specifics:**

JACOBS Regional support, in coordination with facility operations, will upgrade and improve the SCADA logic, PLC components, and graphics for each individual plant process. At Adams Street, the upgrades will consist of improvements to the logic and graphics for the Effluent Pump Station and the Sludge Blending Building. For River Road, the team will upgrade and improve system monitoring for the Recirculation Pumps and the Sodium Bisulfite Dechlorination system.

## **Adams Street Improvement:**

- A. Upgrade the logic and graphics for the Effluent Pump Station.
  - 1. The new logic will include an automatic pump rotation that counts the number of starts per drive for all (4) H Pumps; (H20, H21, H22, H23).
  - 2. If a drive exceeds these starts the drive will be skipped, it will be added back into the rotation once the number of starts is again even amongst the drives.
  - 3. The graphics will change to reflect the logic changes. A menu to increase or decrease the maximum number of starts will be added.
  - 4. The Lead/Lag/Lag1/Lag2 rotation will be replaced with a preferred pump rotation selection.
  - 5. Complete new control wiring and feedback from soft start.
  - 6. All logic will be tested and approved by the site operators and managers.
  
- B. Sludge Blending comms, PLC, logic, and graphics
  - 1. Install new CompactLogix PLC.

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2. Install new 120VAC and 24VDC power source and power distribution.
3. Pre-wire PLC to new I/O distribution terminals and power sources.
4. Install new Network switch to add to SCADA network.
5. Download converted program to the new PLC.
6. Import tags into FTVIEW Server.
7. Complete a converted control page for the Sludge Blending Building that replaces the old tag names with the updated tag names in SCADA.
8. Add in new graphics for remote/manual control of the Primary Clarifier MOV's.
9. Add in new graphics for remote/manual control of the Primary Sludge Pumps and Grinder.
10. Transfer field wiring from the old PLC to the new PLC.
11. Rework the field wiring conduit for PC #3 to land in the new PLC main cabinet.
12. Land the field wiring for PC#3 and PC#2.
13. Test the field wiring against the PLC status's
14. Add graphics for PC#2 and PC#3 run status and trip status's
15. Finalize all logic and graphics and test with site operators and managers.

## **River Road Upgrades:**

- A. WNY Recirculation Pumps
  1. Rework the existing wiring and terminals to free up space to add a 1762-IF4 analog input card and 3 loop isolators.
  2. Run 3 18-2 shielded cables to the north side of the gear in the generator room and tie to each of the recirculation pump VFD feedbacks.
  3. Rework the SCADA graphics to show the VFD feedback signals
- B. WNY Sodium Bisulfite Pump Logic
  1. Add in wiring for extra fault and run statuses.
  2. Add in logic to enhance the automatic switch during a pump failure.
  3. Add new tag values to graphics and alarm manager.
  4. Test statuses and alarms and test with site operators and managers.

## **Finalize SCADA**

1. Replicate all SCADA graphics to redundant servers and clients.
2. Complete new back up of all programs and Logic programs.
  - a. New FTVIEW Archive files
  - b. New NAS Backups
  - c. New One Drive Backups
  - d. New copies added to the JACOBS NHSA support files

## **Schedule:**

We anticipate the tasks laid out above to take 1 technician roughly 4 weeks or 200-man hours. This will include 5 x 10-hour days per week. We are anticipating lead times for the materials to be roughly 1.5 weeks. Upon acceptance of all deliveries the job will commence with approval of the site managers.

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**Cost:**

OMI's proposed cost estimate is \$37,941.30 (dollars). This amount is based on the estimated direct costs for equipment and includes 15% markup to cover general and administrative costs, overhead, and profit. OMI will invoice on a lump sum basis upon delivery of the equipment.

The out-of-scope project costs are in addition to the Agreement's base fee and any other Agreement budget amounts.

<b>PROJECT COSTS - SUMMARY TABLE</b>		<b>COST (\$)</b>
<b>1</b>	Equipment Costs	\$ 12,201.30
<b>2</b>	JACOBS Labor	\$ 20,048.80
<b>3</b>	JACOBS OMI (15% OH&P)	\$ 5,691.20
<b>TOTAL COST</b>		<b>\$ 37,941.30</b>

**TOTAL ESTIMATED COST: \$ 37,941.30**

If you are in agreement with this letter, please provide NHSA Board approval in the form of a signed resolution. JACOBS OMI will proceed with the out-of-scope services in accordance with the above schedule.

JACOBS OMI appreciates the opportunity to provide these services. If you need additional information or have any questions regarding this letter, please feel free to contact me by phone at 201.795.1411 or by e-mail at Mark.Berube@jacobs.com.

Thank you for your consideration regarding this proposed out of scope project.

Regards,



Mark Berube  
Project Director

Cc: Richard Wolff, NHSA Executive Director  
Kevin Dahl, Jacobs OM  
Phil Reeve, Jacobs OM