Legislation Details (With Text)

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File created:	2/6/2019			**In control:**	Board of Directors
On agenda:	2/27/2019			**Final action:**	2/27/2019
Title:	Proposed Amendment No. 1 CS-1656 Professional Engineering Services for Water Plant Production Flow Measurement and Related Facility Improvements (CIP# 114003)				
Sponsors:	Cheryl Porter				
Indexes:	Water Operations				
Code sections:					
Attachments:					

Date	Ver.	Action By	Action	Result
2/27/2019	1	Board of Directors	Approved	Pass
2/13/2019	1	Operations and Resources Committee	Recommended for Approval	Pass

Proposed Amendment No. 1

CS-1656

Professional Engineering Services for Water Plant Production Flow Measurement and Related Facility Improvements

(CIP# 114003)

Agenda of: February 27, 2019
Item No.: **2019-047**

Amount:		
	Original Contract	$ 970,158.00
	Amendment No. 1	525,301.00
	Total Contract Amount	$1,495,459.00

TO: The Honorable
Board of Directors
Great Lakes Water Authority

FROM: Sue F. McCormick
Chief Executive Officer
Great Lakes Water Authority

DATE: February 6, 2019

RE: Proposed Amendment No. 1

Contract No. CS-1656
Professional Engineering Services for Water Plant Production Flow Measurement and Related Facility Improvements
Vendor: Applied Science, Inc.

MOTION

Upon recommendation of Cheryl Porter, Chief Operating Officer - Water and Field Services, the Board of Directors (Board) of the Great Lakes Water Authority (GLWA), authorizes the Chief Executive Officer (CEO) to **enter into Contract No. CS-1656 Amendment No.1 "Professional Engineering Services for Water Plant Production Flow Measurement and Related Facility Improvements" with Applied Science, Inc., to add $525,301.00 to the Contract Amount for a total Contract Amount not to exceed $1,495,459.00 and to add 469 days to the Contract Time for a total contract duration of 1,199 days;** and authorizes the CEO to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

Contract No. CS-1656 is a professional engineering services contract that involves the design and construction administration services related to construction capital improvements being made at the Southwest (SW), Northeast (NE) and Springwells (SP) Water Treatment Plants (WTP) under construction Contract No. GLWA-CON-133 "Water Plant Production Flow Measurement and Related Facility Improvements". The professional engineering firm providing services under CS-1656 is Applied Science, Inc. (ASI). The capital improvements being implemented involve rehabilitation of venturi flow meters that measure the finished water flows pumped into the transmission system from GLWA's NEWTP, SWWTP and SPWTP.

CS-1656 was awarded to ASI on August 26, 2015 and the notice to proceed was issued on October 13, 2015. The contract is currently set to end on April 19, 2019. The associated construction contract GLWA-CON-133 started on July 31, 2017 and ends on July 31, 2019. Based solely on the alignment of the two contracts, CS-1656 needs to be extended by at least 104 days. Additionally, differing and concealed site conditions at work conducted at the NEWTP and SWWTP have caused about 6 months of delay in construction beyond the GLWA-CON-133 end date of July 31, 2019. We are anticipating extending CON-133 because of unexpected complexities which is coming at a future Board meeting. This Amendment No. 1 to CS-1656 will extend the Contract Time by 469 days with new contract end date for CS-1656 being July 31, 2020. The additional time will allow the engineering contract to extend beyond the anticipated completion of the GLWA-CON-133 construction contract and afford enough time for closeout activities under CS-1656.

JUSTIFICATION

Conditions outside the control of the CS-1656 vendor are requiring more time and effort to administer this construction project. The additional work performed to date has been funded within the current contract time and budget of CS-1656. Additional contract time will be needed; however, to complete the remaining contract work, especially at the Springwells Water Treatment Plant. Likewise, additional contract budget will be required to cover the additional effort associated with the additional time needed to complete the work of this project. Work on GLWA-CON-133 involves rehabilitation of nine (9) underground venturi meter vaults including sixteen (16) venturi meters in three water treatment plants; SWWTP, NEWTP and SPWTP and sequential isolation/shutdown of several transmission mains. During the progress of the GLWA-CON-133 construction work, several delays were encountered due to broken actuator valves, leaky transmission mains and availability of GLWA valve crew to operate valves to isolate transmission mains. The reasons for these delays are listed below:

1. At Southwest Water Treatment Plant (SWWTP), the first isolation for Venturi Meters (VM) VM-4 and VM-5 took

additional time and effort because the yard butterfly valves were not sealing. The valves in the High Lift discharge gallery are also butterfly valves. It was necessary to identify and close additional valves beyond the specified isolation area to isolate the venturi meters. Additionally, a major water main break at 14 Mile Road in the city of Farmington forced the GLWA valve crew to abandon their efforts on GLWA-CON-133 for about a month and concentrate on the water main break repairs. As a result of the above, the GLWA-CON-133 interim Substantial Completion Date for Work at SWWTP was extended from May 2, 2018 to July 2, 2018 in Construction Change Directive (CCD) No. 2.

2. At SWWTP, a section of the existing transmission main feeding Meter Pit L was discovered leaking and required replacement. The work was placed on hold while an investigation was conducted, and replacement/repair of the transmission line was designed and detailed. Subsequently, costs for the repair were negotiated with the Contractor and included in CCD No. 3. Also, the CCD extended the GLWA-CON-133 interim Substantial Completion Date for the work at SWWTP from July 2, 2018 to November 16, 2018.

3. At SWWTP, when VM-4 and VM-5 were placed back in service after the second isolation at SWWTP, a leak was discovered in the sleeve-type coupling in the underground vault for valve No. V-6. The leak had to be repaired before work could continue at SWWTP. Costs for the repair were negotiated with the Contractor and included in CCD No. 4. Also, due to this leak repair the CCD extended the GLWA-CON-133 interim Substantial Completion Date for the work at SWWTP from November 16, 2018 to November 26, 2018.

4. At SWWTP, the first attempt to isolate VM-1 and VM-2 was unsuccessful due to the discovery of a broken actuator on valve No. V-60 at the intersection of Moran Street and Old Goddard Street. Leaks were also discovered in the piping inside the east and west walls of the vault. Repair of these leaks delayed work on GLWA-CON-133 for several weeks. Once the above repairs were completed, a second attempt was made to isolate VM-1 and VM-2 at SWWTP. Transmission Main No. 2 was successfully isolated, but Transmission Main No. 1 was not. It was necessary to identify and close additional valves beyond the specified isolation area to achieve isolation with a manageable amount of leakage. Approximately two weeks was expended to locate the vault, uncover the access hatch and valve boxes, pump it out and close valve No. V-64. Isolation of Transmission Main No. 1 is on-going.

5. At Northeast Water Treatment Plant (NEWTP), the first isolation took longer than anticipated due to an open pump discharge valve in the High Lift pipe gallery; the valve's actuator falsely indicated the valve was closed. Troubleshooting took approximately one week before isolation was achieved. Also, a valve on 8-Mile Road had to be repaired to help in the isolation process and that took about two weeks to complete.

6. At Springwells Water Treatment Plant (SPWTP), it took GLWA crews about one week longer to drain the transmission main for Venturi Meter VM-7 due to the profile of the transmission main. Also, about a month of delay was encountered in the repeated inspections required on VM-7 because the interior as-built state of this meter is different than planned.

7. At SPWTP, isolation of Transmission Mains No. 1 and No. 3 have proven to be challenging due to the age, condition and operability of the existing yard valves and the availability of the GLWA valve crews. Isolation efforts began on December 10, 2018 and isolation has still not been achieved to date despite the best efforts of the

GLWA crews, the Contractor and ASI. We anticipate there will be similar difficulties with the remaining shutdowns at SPWTP.

8. The remaining work to be completed by the construction Contractor at NEWTP includes providing final O&M manuals, training, and field acceptance test results.

9. At SPWTP, thickness testing of the existing pipes inside the meter vaults has revealed considerable reduction in the thickness of the steel pipe; particularly at Venturi Meters VM-3 and VM-4. It is possible that additional delays will be encountered due to pipe rehabilitation measures that will be taken when the time comes that are more extensive than anticipated and specified by the Contract Documents. In addition, the contract time for CS-1656 needs to be extended so that it is beyond the associated GLWA-CON-133 construction contract end date.

PROJECT MANAGEMENT STATUS

Original Contract Time	730 days
Amendment No. 1	469 days
New Contract Time	1,199 days

PROJECT ESTIMATE

Original Contract Price	$ 970,158.00
Amendment No. 1	525,301.00
New Contract Total	$1,495,459.00

FINANCIAL PLAN IMPACT

Summary: Sufficient funds are provided in the financial plan for this project.

Funding Source: Water Construction Bond

Cost Center: Water Engineering

Expense Type: Construction (5519-882111.000-617950-114003)

Estimated Cost by Year and Related Estimating Variance: See table below.

Based on 2020-2024 CIP Preliminary Draft# 2:

Pre-FY2018 Budget	$ 277,000.00
FY2018 Budget	211,000.00
FY2019 Budget	307,000.00
FY2020 Budget	175,000.00
Financial Plan Estimate	$ 970,000.00

New Contract Value Inclusive of Proposed Amendment	1,495,459.00
Negative Estimating Variance	$ (525,459.00)

Original budget was an allocation from the Water Plant Allowance (CIP 170100). The award of this amendment to the vendor creates a negative estimating variance of $525,459.00. This variance will be funded from capital reserves.

COMMITTEE REVIEW

This item was presented to the Operations and Resources Committee at its meeting on February 13, 2019. The Operations and Resources Committee unanimously recommended that the GLWA Board adopt the resolution as presented.

SHARED SERVICES IMPACT

This item does not impact the shared services agreement between GLWA and DWSD.