



Legislation Details (With Text)

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Title: Proposed Change Order No. 1
Contract No. GLWA-CON-252
Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Improvements
CIP #114011 / BCE Score: 77.0

Sponsors: Cheryl Porter

Indexes: Water Operations

Code sections:

Attachments:

Date	Ver.	Action By	Action	Result
7/27/2022	1	Board of Directors	Approved	Pass
7/13/2022	1	Operations and Resources Committee	Recommended for Approval	Pass

Proposed Change Order No. 1

Contract No. GLWA-CON-252

Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Improvements

CIP #114011 / BCE Score: 77.0

Agenda of: July 27, 2022

Item No.: **2022-274**

Amount:	Original Contract	\$23,601,341.69
	Proposed Change Order No. 1	2,318,534.00
	Total Revised Contract	\$25,919,875.69

TO: The Honorable
Board of Directors
Great Lakes Water Authority

FROM: Suzanne R. Coffey, P.E.
Chief Executive Officer
Great Lakes Water Authority

DATE: July 1, 2022

RE: Proposed Change Order No. 1
Contract No. GLWA-CON-252
Springwells Water Treatment Plant Steam, Condensate Return, and
Compressed Air Improvements
Vendor: Clark Construction Company

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. GLWA-CON-252 Proposed Change Order No. 1 “Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Improvements” with Clark Construction Company, at an increased cost of \$2,318,534.00 for a total cost not to exceed \$25,919,875.69 and an increased duration of 463 days for a total duration of 1,740 days;** and authorizes the CEO to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

Contract No. GLWA CON-252 was executed on February 1, 2019, with a total value of \$23,601,341.69 with Clark Construction Company. The scope included demolition and replacement of over 60,000 linear feet of steam, condensate, compressed air, and natural gas piping systems at the Springwells Water Treatment Plant. The steam and condensate piping improvements were restricted to be performed during the non-heating season and was split into three phases to complete the scope (summer of 2019, 2020 and 2021). The last phase of the steam and condensate piping improvements by GLWA-CON-252 was successfully completed in November 2021. Project substantial completion was achieved on May 1, 2022. With this Proposed Change Order No. 1, Final Completion would be extended from August 1, 2022, to November 7, 2023.

Springwells Water Treatment Plant uses three steam generators within the Turbine House to supply heat plant wide. The three steam generators were put into service in 1998 and includes two 300 horsepower steam generators (#1 and #2) and one 500 horsepower steam generator (#3). During the heating season, it is typical to heat the facility with one 500 HP steam generator or two 300 horsepower steam generators. The scope of GLWA-CON-252 omitted steam generator replacement since the steam generators were working with minimal maintenance while the scope was designed through a Professional Services Contract No. CS-1671 with METCO Services, Inc. where the design was completed in April 2018. Since the design was completed, maintenance on the steam generators has been at an increasing frequency and required replacement of the coils for two of the steam generators in 2019 and 2020. The last heating season that concluded in late April 2022 uncovered multiple steam generator issues that are damaging recently installed equipment and piping through GLWA-CON-252 that was not present in previous years. Uniform layers of magnetite (black) iron oxide were found within new steam traps in the distribution piping due to carryover from the steam generator. In some cases, new steam traps were excessively fouled within 30 days, failed, and required maintenance. The areas that are supplied by steam lines immediately downstream of the steam generators had steam trap failure rates at much higher rates (e.g., Turbine House basement failure rates above 50% for the area with 32 failed traps out of 49, versus the pump house that was <2% for the area with 1 failed trap out of 77). Steam treatment chemicals that should be constrained within the steam generator were found out in the distribution system through GLWA sampling that could only be present from poor quality steam. This condition will damage and prevent proper operation of the steam and condensate system from erosion of piping and steam hammer due to excessive condensate loads, degradation of components not rated for chemical compatibility leading and build-up of iron deposits. Furthermore, the steam generators have had an increasing frequency of spurious stops which causes additional startup cycles that leave the plant without heat.

GLWA CON-252 included a Provisional Allowance of \$1,000,000.00 and Trailer Complex Allowance of \$200,000.00.

The last Construction Change Directive No. 12 showed a remaining budget of \$20,441.10 in the Provisional Allowance and no remaining budget in the Trailer Complex Allowance. The largest allowance releases to date were \$630,000.00 for trailer city improvements and \$496,000.00 for unforeseen asbestos abatement.

The scope of this Change Order includes demolition and replacement of the steam generators and partially replenishes the provisional allowance.

JUSTIFICATION

The existing steam generators that have been in service for 24 years, no longer provide quality steam, and are beyond their useful service life. Low quality steam will damage newly installed piping, valves, traps, and pumps through GLWA-CON-252 that will worsen with time. Replacing the steam generators will allow for proper and reliable system operation that will protect recent improvements to the system.

PROJECT MANAGEMENT STATUS

Original Contract Time	1,277 days	(02/01/2019 - 08/01/2022)
Proposed Change Order No. 1	463 days	(08/02/2022 - 11/07/2023)
New Contract Time	1,740 days	(02/01/2019 - 11/07/2023)

PROJECT ESTIMATE

Original Contract Price	\$23,601,341.69
Proposed Change Order No. 1	2,318,534.00
New Contract Total	\$25,919,875.69

FINANCIAL PLAN IMPACT

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

Funding Source: Water Construction Fund

Cost Center: Water Engineering

Expense Type: Construction (5519-882111.000-6169000-114011)

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

Original Contract Price	\$ 23,601,341.69
Proposed Change Order No. 1	<u>2,318,534.00</u>
New Contract Total	25,919,875.69
Financial Plan Estimate	<u>24,205,000.00</u>
Estimating Variance	\$ (1,714,875.69)

This negative estimating variance will be funded from Capital Reserves.

COMMITTEE REVIEW

This item was presented to the Operations and Resources Committee at its meeting on July 13, 2022. 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.