



Meeting Date: December 18, 2018

AGENDA MEMORANDUM

To: Honorable Mayor and Members of Town Council

From: Mark Marlowe, P.E., Director of Castle Rock Water
Jeanne Stevens, P.E., Engineering Manager

Title: Resolution Approving a First Amendment to Plum Creek Water Purification Facility (PCWPF) Advanced Treatment Project Construction Agreement with Garney Companies, Inc. for Work Package One

Executive Summary

Castle Rock Water (CRW) is seeking Town Council approval of a resolution (**Attachment A**) awarding a First Amendment to the Plum Creek Water Purification Facility (PCWPF) Advanced Treatment Project Construction Agreement (**Exhibit 1**) with Garney Companies, Inc. (Garney). The amount of the contract amendment is \$10,249,971 and represents Work Package #1 (WP#1) the portion of construction consisting of a one million gallon raw water blending tank, associated site and infrastructure work, and purchasing equipment packages for the advanced treatment systems. Advanced treatment equipment being purchased with WP#1 includes the ozone generation and destruct systems, liquid oxygen system, side stream ozone injection system, polymer blending and feed equipment, activated carbon adsorption filters, closed-vessel ultraviolet treatment system, and solids handling dewatering centrifuges. A second work package will be bid in January 2019 for the balance of the work to be included with a Second Amendment for Work Package #2 (final work package).

As previously presented to Town Council, the PCWPF Advanced Treatment construction contract will be a Guaranteed Maximum Price Construction Management (GMPCM) arrangement. Construction work is to be awarded in two separate work packages. Garney was selected as the Construction Manager and General Contractor (CM/GC) through a competitive process and has a proven track record in the water and wastewater industry. Burns & McDonnell Engineering Company prepared plans and specifications for WP#1 and Garney publicly advertised the work in the Daily Journal. Bids were received from multiple equipment suppliers and for two different structural methods to construct the one million gallon raw water blending tank. Castle Rock Water, with assistance from B&McD, selected equipment and tank construction based on cost and best overall value to the project. Upon authorization to award WP#1, Garney plans to begin site mobilization in January 2019 and an 18-month construction period (including startup of new facility) is anticipated. This would deliver the project in time to meet the Town's needs for the high demand season in 2020.

The Initial Guaranteed Maximum Price (IGMP) for WP#1 based on 30% design documents, including General Conditions (GCs) and other fees, developed by the Town

and the design consultant in cooperation with Garney, was \$8,972,432. -The Final GMP (FGMP) for WP#1 is \$10,249,971, an increase due to changes in scope, adding a \$175,000 allowance to pre-purchase buried piping to be installed with WP#2, and price increases with material and equipment packages. Staff recommends executing an Amendment to the contract with Garney for WP#1 to construct the associated components of the Project.

History of Past Town Council, Boards & Commissions, or Other Discussions

Project updates were presented at Town Council meetings in June and September, 2018. A Construction Agreement in the amount of \$158,840 was awarded to Garney for Pre-Construction services on August 9, 2018. These services are ongoing and include construction cost estimating, constructability reviews, construction scheduling, work sequence planning, value analysis, review of alternate systems, permit assistance, and planning for procurement of long-lead items.

Staff presented the specifics of this current proposed WP#1 construction project to the Castle Rock Water Commission at their scheduled meeting held on November 28, 2018. The presentation highlighted the scope and complexity of this capital improvement project. These types of renewable water projects support the Town's long-term water goal of providing a 75% renewable water supply for the community at build-out. The commission

Discussion

A need for a sustainable long-term water supply was identified in the Town's Water Resources Strategic Master Plan (WRSMP). One of the major goals of that plan is to establish a renewable, sustainable water supply that accounts for 75% of the annual demand for water in Castle Rock. Renewable water sources include alluvial wells, surface water using existing Town Water Rights, and imported surface water from outside of the Plum Creek Basin.

The PCWPF Advanced Treatment project consists of treating collected renewable surface water sources from East Plum Creek (EPC). Changes in raw water quality and quantity to the PCWPF are anticipated from the new source waters. CRW is planning to pump surface water from the Town owned Plum Creek Reservoir in Sedalia to the PCWPF. This reservoir is a new source of supply and is located downstream from the Plum Creek Water Reclamation Authority. A pump station, pipeline and other facilities required to convey new source water to the PCWPF will be completed under separate contract and are not included with these construction phase services.

Council awarded a design services contract to Burns & McDonnell Engineering in December 2017. The PCWPF Advanced Treatment Project will be designed to match the current facility water treatment capacity of 6 million gallons per day (MGD) (not increasing treatment capacity), and be expandable to 12 MGD with a future expansion project. A Basis of Design Report (BDR) was completed that identified a potential multiple barrier treatment approach including pre-ozone, biologically active carbon filtration, ozone disinfection, granular activated carbon adsorption, and UV disinfection. B&McD has designed the multiple barrier approach to treat the new source water for

removal of pathogens, organics, regulated drinking water contaminants, and nonregulated contaminants of emerging concern (CECs). A pilot test facility was operated at the Plum Creek Diversion for a six month period earlier this year. Treatment technologies tested were ozone, flocculation, sedimentation and biological filtration. Pilot testing results showed good removal rates associated with the regulated and nonregulated contaminants. B&McD has incorporated the results and operational lessons learned from the pilot testing with final designs for this advanced treatment project. The primary goal of the PCWPF Advanced Treatment Project is to meet or exceed requirements of the US EPA Safe Drinking Water Act, as well as additional requirements from the Colorado Department of Public Health and Environment (CDPHE).

Castle Rock Water staff recommended using GMPCM project delivery method for design and construction of the PCWPF Advanced Treatment Project. The GMPCM method involves hiring a construction manager/general contractor (CM/GC) to perform contract administration and to guarantee a maximum price for the complete project. The owner and CM/GC agree on the price before the construction phase begins and all work is awarded through a competitive subcontractor bidding process.

The Owner, CM/GC and Engineer work collaboratively to design a project that fits a given budget and adjustments to the project design and/or budget are made during the design phase to ensure a successful project that meets the Owner's expectations regarding cost, quality and schedule. The CM/GC's expertise in construction, contracting, and estimating can influence decisions made by the design consultant to keep project costs to a minimum in a manner consistent with the owner's objectives for quality and functionality. With this end in mind, CRW selected a contractor through the process described below.

CRW advertised for contractors in The Daily Journal, a construction industry publication with regional circulation, in March 2018. Four contractors responded by submitting Statements of Qualifications (SOQs). The SOQs were reviewed by CRW staff and two contractors were shortlisted. The shortlisted contractors included:

- Garney Companies, Inc.
- Moltz Construction, Inc.

A Request for Proposal (RFP) was issued on April 25, 2018 to the short-listed contractors and a mandatory pre-proposal meeting was conducted. Proposals were received on May 23, 2018 from the two contractors. A selection committee comprised of CRW staff and 2 outside consultants reviewed the proposals and conducted interviews with both contracting firms. The firms were ranked and Garney was unanimously ranked as the top firm (and awarded a pre-construction services agreement in amount of \$158,840). Garney also presented the lowest proposal cost, which varied by only two percent from the Moltz proposal cost.

CRW then worked with Garney and Burns & McDonnell to refine the proposal cost estimate and finalize the Initial Guaranteed Maximum Price (IGMP). Garney's budgetary cost estimate in their proposal was \$25,207,740. After working with the contractor and designer, an IGMP was established at \$26,912,068. This cost includes GCs, overhead

and profit and the cost to do the work. The cost estimate went up as more details were developed between the RFP and reconciliation of the budgetary GMP. This IGMP represents the most we can expect to pay for construction of the PCWPF Advanced Treatment project, barring any changes in scope or unforeseen occurrences. Note that no allowances were included in the IGMP for steel materials that may be impacted by the Section 232 Tariffs (includes a 25% rate increase on imported steel – Presidential order signed in March, 2018). The IGMP was developed with best costing information available at the time. Any actual tariff related project cost increases will be identified and justified in development of the Final GMP.

A value engineering phase was completed as costs continued to be updated based on development of additional project detail. One implemented value engineering idea that saved on construction cost with similar durability and quality was to allow bidding by pre-stressed concrete water storage tank constructors as opposed to the post-tensioned design included with the IGMP. Scope changes from the IGMP to the WP#1 FGMP included changes to the Carbon Filter system (added flow meters, modulating valves, operator control panel, and more stringent specifications for activated carbon media), the UV system (added safety system), the Ozone system (modified design based on pilot results – more injection skids, CRW to purchase required oxygen tanks, added pipe loop reactor to supplier's scope), and the solids handling centrifuge system (designed for single source responsibility, added process tank, increased conveyor sizing and power based on pilot data, and added mixers to allow for additional operating range).

Garney publicly advertised in the Daily Journal soliciting bids for construction of WP#1 work items (construction of a concrete One Million Gallon Raw Water Blending Tank and purchasing of advanced treatment equipment packages).

The following table lists the total contract amount for WP#1 with CM/GC fees (see Exhibit A with Agreement for detail of CM/GC fees). Adding the allowance to purchase buried pipeline to be installed with WP#2 helps the project schedule and locks in current pipeline pricing.

Total Cost WP#1 with CM/GC Fees	
Garney WP#1 Direct Work	\$ 916,105
Concrete 1 MG Tank	\$1,624,303
Advanced Treatment Equipment	\$6,464,789
CM/GC Fees	\$1,069,777
Allowance for buried pipeline	\$ 175,000
Total WP#1 Cost	\$ 10,249,971

Beginning WP#1 this winter allows the contractor to maximize earthwork and concrete activities with as many good weather days as possible. Work Package #2 (WP#2) will also be advertised publicly by Garney and includes the remaining work needed to complete the facility (including construction of a new building to house the advanced treatment equipment). Garney will award WP#2 with multiple subcontracts broken out

into specialties, for example electrical, masonry, and heating ventilation and air conditioning.

The schedule for constructing the facility proposed by Garney fits within the Town's expectations and requirements. Assuming mobilization and construction activities begin in January 2019, the project would be substantially complete by second quarter 2020. This completion schedule will be on time for when water from the facility will be needed to meet the summer demands of 2020.

Budget Impact

Current known and estimated costs are shown below:

B&McD Engineering	Design	\$ 1,528,086
Intuitech, Inc.	Six-month pilot testing	\$ 174,428
CWCB Grant	For 1 MG Tank Construction	\$ (200,000)
Garney Companies	Pre-construction services	\$ 158,840
Garney Companies	Construction costs	\$27,775,841
Burns & McDonnell	Construction Engineering Services	<u>\$ 1,340,115</u>
TOTAL		\$30,777,310

There is a balance remaining in account 211-4375-443-7775 of \$18,031,626, and approximately \$13.8 million requested in the 2019 budget to award Work Package #2 for a total project budget of approximately \$31,831,626.

Funding for this project was budgeted in the 2018 budget line item "Advanced Oxidation Facility" (account no. 211-4375-443-77-75) with additional funding budgeted in 2019.

Staff Recommendation

Staff recommends Town Council approval of the resolution (***Attachment A***) approving a First Amendment to PCWPF Advanced Treatment Project Construction Agreement with Garney Companies, Inc. for Work Package One in the amount of \$10,249,971.

Proposed Motion

"I move to approve the Resolution as introduced by title."

Attachments

Attachment A: Resolution
Exhibit 1: Agreement