

**PUBLIC WORKS AND UTILITIES
MEMORANDUM #09-09**

DATE: February 26, 2009
TO: Honorable Mayor Kathleen M. Novak and City Council Members
FROM: William A. Simmons, City Manager *WAS*
Raymond Reling, Acting Director of Utilities *RR*
SUBJECT: CR-31 – Addendum #3 to Design Services Contract for Bull Reservoir
Outlet and Liner Emergency Repairs
CR-32 – Addendum #1 to Construction Management Services Contract
for Bull Reservoir Outlet and Liner Emergency Repairs

RECOMMENDATION:

Attached to this memorandum are two Resolutions which, if approved, would authorize the Mayor to execute the following documents on behalf of the City:

- 1) An Addendum to the Professional Services Agreement between the City of Northglenn and URS Corporation, Inc. to provide design services in the amount of \$25,000 and to authorize a contingency of \$2,500.
- 2) An Addendum to the Professional Services Agreement between the City of Northglenn and J&T Consulting, Inc. to provide construction management services in the amount of \$33,844 and to authorize a contingency of \$3,384.

In addition, each resolution would authorize the City Manager to approve minor changes in the scope of work and execute relevant change orders up to the contingent amount. Staff recommends approval of the proposed Resolutions.

BACKGROUND:

On February 12, 2009, staff provided an update to City Council regarding the progress of the Bull Reservoir Repairs. Due to changes in the existing conditions, the project has seen significant alteration in the scope of construction resulting in the need to modify design and construction management services. Addendum Number 3 for URS includes the cost to design a new bypass, dewatering piping plan as well as the design of the temporary coffer dam. Addendum Number 1 for J&T's contract includes assistance with the rebidding process and covering the expense from the survey. Below are two tables outlining the previous addendums, the current expenditures and the total contract amounts for both URS and J&T.

	Description	Amount	Contingency	Total
URS Agreement	Design	\$44,100	\$0	\$44,100
Addendum #1	Design support services	\$62,900	\$12,580	\$75,480
Addendum #2	On site soils testing	\$8,400	\$0	\$8,400
J&T Agreement	Construction management	\$49,180	\$9,836	\$59,016

CR-31 & CR-32 – Addendums Design Services to & Construction Management Services
Contract for Bull Reservoir Outlet and Liner Emergency Repairs
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	Expended (Year to Date)	Total Contract Amount	Contingency	Total	Remaining
URS	\$93,203.35	\$140,400	\$15,080	\$155,480	\$62,276.65
J&T	\$33,184.94	\$83,024	\$13,220	\$96,224	\$63,059.06

BUDGET/TIME IMPLICATIONS:

There is no impact to the General Fund. Funds from the 2009 Capital Improvements Fund would be used to fund both addendums.

Staff anticipates presenting a contract for construction at the April 9, 2009 Council meeting. Additionally, a supplemental budget appropriation amendment will be brought forward to fund the construction portion of the project.

STAFF REFERENCE:

If Council Members have any comments or questions, they may contact Raymond Reling at (303) 450-4049 or rreling@northglenn.org.

SPONSORED BY: MAYOR NOVAK

COUNCILMAN'S RESOLUTION

RESOLUTION NO.

No. CR-31
Series of 2009

Series of 2009

A RESOLUTION APPROVING A THIRD ADDENDUM TO THE PROFESSIONAL SERVICES AGREEMENT BETWEEN THE CITY OF NORTHGLENN AND URS CORPORATION FOR THE BULL RESERVOIR OUTLET AND LINER EMERGENCY REPAIRS DESIGN PROJECT

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTHGLENN, COLORADO, THAT:

Section 1. The Third Addendum to Professional Services Agreement between the City of Northglenn and URS Corporation, attached hereto, in the amount of \$25,000.00 with a ten percent (10%) contingency of \$2,500.00 for a total amount not to exceed \$27,500.00 for design services for the Bull Reservoir Outlet and Liner Emergency Repairs Project is hereby approved and the Mayor is authorized to execute same on behalf of the City of Northglenn.

DATED at Northglenn, Colorado, this ____ day of _____, 2009.

KATHLEEN M. NOVAK
Mayor

ATTEST:

JOHANNA SMALL, CMC
City Clerk

APPROVED AS TO FORM:

COREY Y. HOFFMANN
City Attorney

ADDENDUM #3 TO AGREEMENT FOR PROFESSIONAL SERVICES

THIS THIRD ADDENDUM TO AGREEMENT FOR PROFESSIONAL SERVICES is made and entered into this ____ day of _____, 2009, by and between the CITY OF NORTHGLENN, State of Colorado (hereinafter referred to as the "City") and URS Corporation Inc. (hereinafter referred to as "Consultant").

RECITALS:

A. On July 10, 2008, the City and Consultant entered into an Agreement for Professional Services for civil engineering services (the "Agreement").

B. The parties desire to supplement the Agreement with this Addendum #3 to allow for an additional scope of services for the design services for:

Exhibit A, Additional Design Services for Bull Reservoir Outlet and Liner Emergency Repairs

AGREEMENT

NOW, THEREFORE, it is hereby agreed that for the consideration hereinafter set forth, that Consultant shall provide to the City, professional engineering services as needed in the manner provided in the Agreement.

1. The Scope of Services in the Agreement is hereby supplemented to include the scope of services for the design services attached hereto as **Exhibit A**, and incorporated herein by this reference (the "Additional Scope of Services"). Consultant shall commence work on the Additional Scope of Services within ten (10) days of the issuance of a Notice to Proceed.

2. Subparagraph A. of Article IV entitled "Compensation" is hereby amended to provide as follows:

A. Compensation shall not exceed \$25,000 for the work described in **Exhibit A** to this Addendum #3.

3. The original Agreement is in full force and effect and is hereby ratified by the City and the Consultant. The original Agreement and this Addendum constitute all of the agreements between the City and the Consultant.

IN WITNESS WHEREOF, the parties hereto each herewith subscribe to the same in duplicate.

CITY OF NORTHGLENN, COLORADO

By: _____
Kathleen M. Novak, Mayor

Date: _____

ATTEST:

Johanna Small, City Clerk

Date: _____

APPROVED AS TO FORM:

Corey Y. Hoffmann, City Attorney

Date: _____

CONSULTANT

By: 

Vice President 2/18/09
Title Date

ATTEST:



Project Manager 2/18/09
Title Date



February 18, 2009

Mr. Cory Peterson
City of Northglenn
Water and Environmental Services
11701 Community Center Drive
Northglenn, CO 80233

Subject: Letter Proposal – Revised Design, Bull Reservoir Emergency Repairs

Dear Cory:

In response to your Request for Proposal (RFP) sent by email to Mr. Ed Villano (URS Corporation) on January 27, 2009, this letter presents our proposal to revise our original design for the failed effluent outlet structure at Bull Reservoir. Our original design was approved by the Colorado State Office of the Engineer (SEO) on October 14, 2008. Emergency repairs were scheduled to be constructed in the fall of 2008, but were postponed until April 2009 for reasons discussed below. Our revised design pertains to the emergency repairs planned to be constructed starting in April 2009.

The City has specifically requested that URS' proposal address the following three items:

1. Updating the design drawings to reflect new survey data.
2. Temporary earthfill cofferdam design.
3. Temporary effluent bypass piping modification and de-watering pumping/piping for the south cell of reservoir.

BACKGROUND

During a pre-construction site visit by J&T Consulting, Inc. (J&T) and the City of Northglenn (City) in October 2008, observations were made indicating that the reservoir bottom downslope from the effluent outlet structure could be at a significantly different elevation than as shown on the as-built drawings. URS based our original design on the as-built elevations. A bathymetric survey subsequently performed by J&T indicated that the reservoir bottom was 8 to 10 feet higher than as-built elevations. During a field investigation performed by URS on February 17-18, 2009, the upstream toe drainage trench was located, generally confirming J&T's bathymetric survey results.

URS Corporation
8181 East Tufts Avenue
Denver, CO 80237
Tel: 303.694.2770
Fax: 303.694.3946
www.urscorp.com

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To meet discharge requirements to the Farmer's Reservoir & Irrigation Company (FRICO), the City and J&T have selected the cofferdam location to be at the existing divider dike. The cofferdam will separate the north cell of the reservoir from the south cell. The location of the cofferdam under the original design was in the toe area of the effluent outlet structure. The cofferdam relocation requires modification of the existing temporary bypass piping to route effluent from the existing permanent pipeline on the downstream slope of the south embankment to the north cell of the reservoir; and dewatering of the south cell of the reservoir during construction.

WORK TASKS

Our cost proposal to perform the revised design is divided into seven tasks:

Task 1 – Site Visit / Meetings / Coordination

- Initial site visit – URS engineers (Chad Gillan, structural engineer and Joe Kopec, water/wastewater engineer) visited the site on February 17, 2009 and met with Jason Murray of J&T to discuss preliminary pipeline design concepts.
- Additional site visit to obtain detailed measurements, evaluate construction logistics, and perform any other observations necessary for design. Consideration will be given to construction vehicle access, safety of the pipeline during construction and normal operations, hydraulic issues, and pipeline stability.
- Coordination with the City, J&T, and the SEO, as necessary.

Task 2 – Cofferdam Design

- Estimation of existing divider dike dimensions, foundation profile, and configuration of cofferdam to tie into existing divider dike.
- Fill volume estimation.
- Slope stability and permeability evaluations.

Task 3 – Temporary Bypass Piping Modification and Dewatering System Design

- Evaluation of data provided by City (see Assumptions and Limitations)
- Evaluation/selection of alternative pipeline materials (HDPE, PVC and Ductile Iron pipe).
- Evaluation/selection of pipeline discharge location to prevent scour in the bottom of the northern cell.



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- Optimization of pipe/pump size and configuration based on anticipated peak effluent discharge rates, dewatering rates, pipeline protection from construction traffic, crest access width considerations, and cost.
- Structural design that includes: (a) casing pipe sleeve or concrete barriers to protect pipeline from vehicular traffic, (b) joint restraints to prevent joint displacement and separation due to thrust forces, (c) design of ramp over pipeline on east and/or west embankment crests to provide construction vehicle access.
- Evaluation /selection of dewatering pump size to meet dewatering requirements.

Task 4 – Drawings

- Modification of existing drawings (5 sheets) to reflect new survey data.
- Three new drawing sheets – (1) cofferdam plan and section, (2) temporary bypass and dewatering pumping/piping plan, and (3) temporary pipe details.

Task 5 – Specifications and Bid Schedule

- Modification of “Section 02315 Excavation, Backfill, and Compaction for Structures” to incorporate cofferdam specifications and any necessary crest widening for construction vehicle access.
- One new specification section for the temporary effluent bypass piping modification, and dewatering pumping/piping.
- Revising the bid schedule with updated quantities based on the revisions to the design.

Task 6 – Revised Design Report

- Revision of Design Report required by the SEO.

Task 7 – Project Management

- Project setup, tracking, and closeout.

COST

The estimated cost for this work is \$25,000. A detailed cost breakdown is provided on Table 1.



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SCHEDULE

Based on discussions with you regarding the City’s schedule for construction, the following schedule is proposed for our design work, assuming notice to proceed is issued the day after the City Council Meeting on February 26, 2009.

<u>Milestone</u>	<u>Start Date</u>	<u>Finish Date</u>
City Council Meeting	2/26/09	2/26/09
Notice To Proceed	2/27/09	2/27/09
Draft Design	2/27/09	3/9/09
SEO Review & Approval	3/9/09	3/10/09
Final Design	3/10/09	3/11/09
City RFP for Construction	3/11/09	3/11/09

ASSUMPTIONS AND LIMITATIONS

1. URS’ revised design is based on survey data from J&T’s bathymetric survey, as well as field investigations performed by URS on February 17-18, 2009. While the drainage trench was located during URS’ field investigation, there is some uncertainty regarding its exact elevation and dimensions, as the drainage trench was only partially exposed during the investigation. The actual elevation and dimensions should be verified during construction, and may possibly require a construction modification if they differ significantly from URS’ estimated elevation and dimensions.
2. During an investigation performed by URS on February 17-18, 2009, the drainage trench was found along the toe of the upstream slope in the vicinity of the failure area, but the drainage pipe was not found. Based on pumping water on top of the drainage trench at a rate of about 22 gpm, no ponding was observed on top of the drainage trench. Although this permeability test was only conducted in one location, it indicated that the drainage material is relatively free draining. If the drainage pipe can be found during construction, a construction modification may be required to flush accumulated sediment from the pipe and/or repair the trench/pipe that may have been potentially damaged by the slope failure. URS’ design is based on a fully-functional drainage trench/pipe.
3. The dimensions of the submerged portion of the divide dike, as well as the cofferdam foundation profile (submerged) are unknown. Any differences in dimensions and foundation profile from what URS assumes for this design, discovered after final design, may necessitate a design and/or construction contract modification.
4. It is assumed that the City will provide the following data for design: (a) existing effluent pump performance curves, (b) historical and future anticipated effluent diurnal and peak



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flow rates pumped into the reservoir, (c) volume of water currently in the southern cell and the volume anticipated at the time of construction dewatering, and (d) existing treatment plant effluent discharge pipeline plan and profile and any system head loss data.

5. As requested by the City, no revised construction cost estimate will be prepared.

We appreciate the opportunity to provide additional services for this project. If you have any questions, please do not hesitate to call (303-740-3800).

Sincerely yours,

Ed Villano, PE
Project Manager

Ed Toms, PE
Vice President