

LOGISTICS MEMORANDUM

07-30

December 13, 2007

TO: Honorable Mayor Kathleen M. Novak and City Council Members

FROM: A.J. Krieger, City Manager *SK*
Kurt Kowar, Logistics Center Manager *KK*
David Allen, Director of Water and Environmental Services *DA*
Amy Ward, Civil Engineer II *adw*

SUBJECT: CR-121-Wastewater Treatment Plant (WWTP) Headworks and Lift Station A Modifications, Addendum #2, Additional Design Services

RECOMMENDATION:

Attached to this memorandum is a Resolution which, if approved, would authorize the Mayor to execute Addendum #2 to the Professional Services Agreement between the City of Northglenn and Carollo Engineers for additional design services in the amount of \$97,943.00. Staff recommends approval of the proposed Resolution.

BACKGROUND:

On January 25, 2007, City Council approved Staff Report 07-04 to execute a Professional Services Agreement (PSA) between the City and Carollo Engineers (Carollo) to complete the design of the WWTP Headworks and Lift Station A Modifications. The original scope of the PSA was limited to the design of a headworks and modifications to Lift Station A.

Similar to the summer of 2006, the City experienced a significant increase in the number and frequency of odor complaints related to the WWTP in May 2007. In response, the City made operational changes at the WWTP and began adding sodium hydroxide (caustic soda) at Lift Station A on a weekly basis. In addition, the City hired Webster Environmental Associates, Inc. (Webster) to conduct an odor study of the City's WWTP on July 5, 2007. The study included air and water quality sampling, odor dispersion modeling and recommendations for controlling the odors on a long-term basis.

Webster concluded that high concentrations of hydrogen sulfide are being generated in the City's force main pipeline and that 89% of the hydrogen sulfide gas is coming from the first two cells of the lagoon treatment system. One of the primary recommendations from the Webster report was for the City to conduct full scale pilot studies of four different treatment chemicals to determine which chemical was best suited for the City's needs. Webster's other recommendation was related to the treatment of odors from the proposed headworks facility.

On August 17, 2007, the City conducted its first full-scale pilot study using ferric chloride (iron salt). Subsequent pilot studies using Bioxide (calcium nitrate) also were conducted in November 2007. Both of these chemicals were included in Webster's recommendation for pilot testing. However, in order to test the remaining two chemicals recommended by the Webster report, additional facility improvements must be constructed. These facility improvements include adding a chemical addition port at the WWTP with site improvements for both chemical feed equipment and chemical deliveries as well as minor site improvements at Lift Station A.

City staff is recommending a two phased approach for pilot testing the remaining chemicals. First, a semi-permanent Bioxide or ferric chloride chemical feed system will be constructed at Lift Station A. This will allow the City to have a treatment system in place before by May 2008 when the odor levels are expected to increase again. The second phase would include constructing the necessary improvements at the WWTP and at Lift Station A to pilot test the remaining treatment chemicals. These pilot tests would be conducted during the summer of 2008. At the conclusion of the outstanding pilot studies, City staff would develop a final recommendation for permanent system to control the odors at the WWTP.

Due to the urgency of the situation and the fact that Carollo is already involved with a similar project, staff felt it was in the City's best interest to have Carollo design the proposed site improvements. Following a typical request for proposal process for the design services would jeopardize the City's ability have a semi-permanent treatment system in place before the summer of 2008. The Colorado Department of Public Health and Environment has been actively involved with the City's odor situation and has expressed concerns about having a recurrence of the 2006 and 2007 odor episodes.

If approved, Addendum #2 would add additional design services for site improvements at the WWTP and at Lift Station A to accommodate a semi-permanent chemical feed and storage system, and to facilitate additional full-scale pilot studies of other treatment chemicals. The scope of services that Carollo is proposing is attached to the Addendum as Exhibit A and includes the following activities: design, bidding and construction services.

POTENTIAL OBJECTION:

City Staff is not aware of any specific opposition to the proposed Resolution.

BUDGET/TIME IMPLICATIONS:

The cost of Addendum #2 for Carollo to perform the additional design services is \$97,943.00. There are sufficient funds in the Wastewater Treatment Plant Headworks and Lift Station A Modifications project budget (account 510.69272.000.3999.908) for the additional services provided by the proposed addendum.

STAFF REFERENCE:

Please contact Amy Ward, Civil Engineer II at award@northglenn.org, or (303) 450-8837.

SPONSORED BY: COUNCIL MEMBER MONROE

COUNCILMAN'S RESOLUTION

RESOLUTION NO.

No. CR-121
Series of 2007

Series of 2007

A RESOLUTION APPROVING A SECOND ADDENDUM TO THE AGREEMENT FOR PROFESSIONAL SERVICES BETWEEN THE CITY OF NORTHGLENN AND CAROLLO ENGINEERS

WHEREAS, the City of Northglenn entered into a Professional Services Agreement dated January 25, 2007 with Carollo Engineers for civil engineering services; and

WHEREAS, the parties desire to supplement the Agreement with the attached Addendum #2 to allow for an additional scope of services for the Wastewater Treatment Plant Headworks and Lift Station A Modifications Project.

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

The Second Addendum to the Professional Services Agreement between the City of Northglenn and Carollo Engineers 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 _____, 2007.

KATHLEEN M. NOVAK
Mayor

ATTEST:

DIANA L. LENTZ, CMC
City Clerk

APPROVED AS TO FORM:

COREY Y. HOFFMANN
City Attorney

ADDENDUM #2 TO AGREEMENT FOR PROFESSIONAL SERVICES

THIS SECOND ADDENDUM TO AGREEMENT FOR PROFESSIONAL SERVICES is made and entered into this _____ day of _____, 2007, by and between the CITY OF NORTHGLENN, State of Colorado (hereinafter referred to as the "City") and Carollo Engineers, P.C. (hereinafter referred to as "Consultant").

RECITALS:

A. On January 25, 2007, 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 #2 to allow for an additional scope of services for the design services for:

Exhibit A, Wastewater Treatment Plant Headworks and Lift Station A Modifications Additional Design Services

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 \$97,943.00 for the work described in **Exhibit A** to this Addendum #2.

3. The original Agreement is in full force and effect and is hereby ratified by the City and the Consultant. The original Agreement and Addendum #1 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

Title: Mayor

ATTEST:

Diana L. Lentz, City Clerk

APPROVED AS TO FORM:

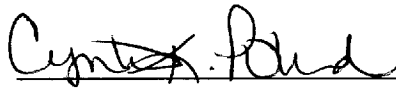
Corey Y. Hoffmann, City Attorney

CONSULTANT

By:  _____

Partner 11/30/07
Title Date

ATTEST:

 _____

Office Administrator 11/30/2007
Title Date

TASK ORDER NO. 3

City of Northglenn, Colorado
OWNER

AND

CAROLLO ENGINEERS, A Professional Corporation

This Task Order No. 3 is an amendment to the Agreement issued by the OWNER and accepted by ENGINEER pursuant to the mutual promises, covenants and conditions contained in the Agreement between the above named parties dated the 25th of January 2007 in connection with:

Northglenn Wastewater Treatment Plant Headworks and Lift Station A Modifications.
(Project)

PURPOSE

The purpose of this Task Order No. 3 is to:

- 1) Design a temporary Lift Station A Chemical Feed System to dose up to three odor control chemicals in the force main for odor control. The chemicals include: Bioxide, ferric chloride, and liquid oxygen.
- 2) Design a chemical injection system vault and site improvements for pilot testing liquid oxygen as a means of odor control on the force main within the Wastewater Treatment Plant site boundary.
- 3) Develop contract documents for bidding and construction of the above work.

The intent of this task order is to provide: 1) A means of dosing odor control chemicals at Lift Station A by late spring or early summer of 2008 and 2) A permanent chemical injection vault at the Wastewater Treatment Plant site.

ENGINEER'S SERVICES

The scope of this Task Order No. 3 includes the following main elements:

Task 1 - Predesign Analysis

ENGINEER will be perform a brief predesign analysis to determine the storage requirements, pumping systems, materials, and power supply to accommodate full scale pilot testing of up to three different chemicals for odor control at Lift Station A and liquid oxygen at the Wastewater Treatment Plant site. It is anticipated that the three chemicals for Lift Station A will include: Bioxide, ferric chloride, and liquid oxygen. The analysis will address the following items:

- Expected chemical dose ranges for each chemical
- Chemical order & delivery times, minimum volumes, and availability

- Storage criteria including: bulk concentrations, degradation rates, and safety
- Pilot and long term storage requirements for each chemical
- Chemical injection design requirements
- Sampling system, chemical feed flow, force main flow, and other instrumentation requirements for chemical dose control
- Materials selection and compatibility for multiple chemicals
- Preliminary pilot testing feed system schematics
- Injection vault and basic piping configuration for full scale use and pilot testing
- Site improvement requirements (pads, access, drainage, utilities) to support pilot testing and long term use
- Preliminary vault, site improvements, and pilot testing feed system cost estimates
- Recommendations for final chemical system design criteria

Four (4) copies of a brief predesign analysis summary will be provided for review and comment by Northglenn staff prior to commencement of preparation of drawings and specifications.

Task 2: Final Design Drawings and Specifications

ENGINEER will use recommendations from the predesign analysis to define the required site preparation at Lift Station A and the WWTP site and requirements for skid mounted chemical feed system support. ENGINEER will develop drawings and specifications for bidding and construction of a chemical feed system at Lift Station A and a chemical feed vault and basic support site improvements at the WWTP site. It is assumed that the chemical feed system at Lift Station A and the chemical feed vault at the WWTP site will be combined for bidding and construction as one project. Drawings and specifications will be prepared using Carollo drawing and specification standards. A list of anticipated drawings is attached.

The odor control system at Lift Station A is intended to be initially used as a near-term stop-gap measure while a permanent chemical injection vault is constructed at the south end of the Wastewater Treatment Plant site. Facilities at Lift Station A will be designed to accommodate skid-mounted pilot testing equipment for Bioxide, ferric chloride, and liquid oxygen (to be leased by the OWNER from chemical suppliers through the construction contract). It is assumed that: 1) chemical storage tanks and skid mounted feed equipment will be located in the yard outside of Lift Station A, 2) feed piping will be routed to the discharge side of the force main, and 3) no new structures are required at the Lift Station A site. The design will include a concrete pad for chemical feed system storage and containment, associated minor site improvements, power supply and lighting, and chemical feed piping and injector routed to the discharge side of the force main within the pump station building. Electrical, Instrumentation, and Control (EI&C) drawings will be included in the design package to show complete project concepts for CDPHE approval. Drawings will note that EI&C construction will be "performed by the OWNER".

The chemical injection vault at the WWTP site is intended to facilitate dosing of liquid oxygen into the plant influent force main. The vault will be located at the south end of the WWTP site to accommodate chemical deliveries. It is assumed that the chemical feed equipment will require a concrete pad for storage and containment, but that a separate chemical feed system building will not be required. The vault design will include chemical injection port(s), sampling taps, isolation gate valves, a spool piece for a magnetic flow meter, site improvements, a leased pilot scale liquid oxygen feed system, and support utilities. A magnetic flow meter and required

power and instrumentation will be included as a bid alternate. Construction of EI&C conduit and wiring from the activated sludge plant to the vault will be shown on drawings and indicated as "performed by the OWNER". This EI&C work will be included as a separate bid alternate. The chemical injection and metering vault is anticipated to be approximately 10 feet x 8 feet (L x W). Bypass piping is not included.

Task 2.1 - 75% Design Submittal

Four (4) copies of the 75% design submittals of drawings and specifications will be provided for review. Comments from Northglenn staff will be incorporated into the final design, as appropriate.

Task 2.2 - Quality Management Review

Senior Carollo technical advisors will review the 75% plans and specifications for quality management. Comments generated during this review will be incorporated into the final design, as appropriate.

Task 2.3 - 100% Design

Ten (10) copies of the final (100% submittal) plans and specifications, ready for distribution to potential bidders, will be submitted to Northglenn.

Task 2.4 - Permitting Assistance

ENGINEER will provide assistance with regards to obtaining site application permits required by CDPH&E prior to issuing documents for bidding. Services of up to 20 hours are assumed for this task.

Task 3: Construction Cost Estimates

ENGINEER will prepare an estimate of construction costs for both the Lift Station A and Wastewater Treatment Plant site improvements at the 75% Design Submittal stage.

Task 4: Bidding Assistance

Task 4.1 Advertisement for Bid

Following regulatory approval and concurrence from City staff on the estimated construction cost, ENGINEER will assist in advertising the project.

Task 4.2 Bidding/Technical Assistance

ENGINEER will assist with bidding and technical response during bidding. ENGINEER will answer prospective bidder's technical questions and requests for clarification.

Task 4.3 Addenda

ENGINEER will issue up to two addenda to the project plans and specifications, if necessary.

Task 4.4 Bid Opening, Summary, and Recommendations

ENGINEER will assist the OWNER during bid opening, provide a bid summary, evaluate low bidder responsiveness, investigate low bidder qualifications and experience, and provide a written recommendation to OWNER'S staff regarding award of the bid.

Task 5: Project Meetings

Task 5.1 - Predesign Meeting

The purpose of this meeting will be to review the scope and schedule for preparation of final design drawing and specifications, facilitate input from OWNER'S staff, review the predesign analysis, and make design decisions regarding the chemical feed facilities. ENGINEER will conduct the meeting including preparation of a meeting agenda, meeting minutes, and distribution of minutes to meeting participants.

Task 5.2 - 75% Design Submittal and Cost Estimate Meeting

The purpose of this meeting will be to review the 75% Design package and engineering cost estimate for both the Lift Station A Chemical Feed System and the Wastewater Treatment Plant Odor Control Chemical Injection System Vault. ENGINEER will conduct the meeting including preparation of a meeting agenda, meeting minutes, and distribution of minutes to meeting participants. ENGINEER will incorporate OWNER'S comments, as appropriate.

Task 6: Project Management

Task 6.1 Project Management Plan

ENGINEER will prepare a brief Project Management Plan including: project overview and objectives, project team directory, project scope and schedule, projections of engineering progress and expenditure, communication protocols, and sample action item and decision logs. Four (4) copies of Project Management Plan will be delivered to the OWNER.

Task 6.2 Monthly Project Status Reports

ENGINEER will prepare Monthly Project Invoices and brief Monthly Project Status Reports. Monthly Project Status Reports will indicate status of project schedule, budget and note any outstanding issues that might impact overall project cost or quality.

Task 6.3 Ongoing Communication

ENGINEER will provide ongoing communication/coordination with ENGINEER'S and OWNER'S staff as necessary to facilitate project implementation. It is assumed that this will require 6 hours per month.

TIME OF PERFORMANCE

Assuming a Notice to Proceed (NTP) on or before December 14, 2007, Task order No. 3 will be completed on or before March 1, 2008 in accordance with the following schedule:

1. Task No. 1 - Predesign Analysis: 2 weeks following NTP
2. Task No. 2.1 - 75% design submittal: 5 weeks following NTP
3. Task No. 2.3 - 100% design: 7 weeks following NTP

PAYMENT

ENGINEER will perform the Scope of Services described in this Task Order No. 3, Tasks 1 through 6, for a not-to-exceed amount of \$97,943. Refer to Attachment 1 for a detailed estimate of costs for each task. The costs per task are summarized below.

<u>Task No.</u>	<u>Task Description of Services</u>	<u>Estimated Fee</u>	<u>Estimated Hours</u>
1	Predesign Analysis	\$7,253	46
2	Final Design Drawings and Specifications	\$71,369	518
3	Construction Cost Estimates	\$3,723	26
4	Bidding Assistance	\$4,845	34
5	Project Meetings and Workshops	\$3,490	20
6	Project Management	\$7,263	46
	Total	\$97,943	690

EXHIBIT A

**CAROLLO ENGINEERS, PC
SPECIAL FEE SCHEDULE**

As of January 1, 2007

	<u>Hourly Rate</u>
Engineers/Scientists	
Assistant Professional	\$114.00
Professional	152.00
Project Professional	182.00
Lead Project Professional	198.00
Senior Professional	218.00
Technicians	
Technicians	89.00
Senior Technicians	115.00
Support Staff	
Word Processing / Clerical	80.00
Project Equipment Communication Expense (PECE) Per DL Hour	9.50
Other Direct Expenses	
Travel and Subsistence	at cost
Mileage	.445/mile
Subconsultant	cost + 10%
Other Direct Cost	cost + 10%
Expert Witness	Rate x 2.0

This fee schedule is subject to annual revisions in March due to labor adjustments.