



**BOARD OF SUPERVISORS AGENDA ITEM REPORT  
CONTRACTS / AWARDS / GRANTS**

Requested Board Meeting Date: January 19, 2016

or Procurement Director Award

**Contractor/Vendor Name (DBA):** Greeley and Hansen, LLC

**Project Title/Description:**

Struvite Recovery Facility Alternative Delivery Project.

**Purpose:**

Amendment of Award: Contract No. CT-WW-1400000000000000110. This Contract Amendment increases the contract award by \$95,000.00. The new authorized amount for this contract will be \$393,000.00.

Administering Department: Regional Wastewater Reclamation Department.

**Procurement Method:**

Pursuant to A.R.S. § 34-103 and Board of Supervisors Policy D29.1 this contract was originally awarded by the Board of Supervisors on October 8, 2013 in the amount of \$298,000.00 for a term of two years. The contract award included the option to extend contract termination for purposes of project completion and the termination date was previously extended in Contract Amendment No. 1 through June 30, 2016. The original contract contained projections of plant loading and economic impacts based on assumptions of performance of the Tres Rios WRF prior to start-up of actual treatment operations. Since review of the start-up data shows actual data to be different from the projections additional funding is requested to perform additional study of process loading and economic impacts to confirm whether continuation of this project is economically viable.

Attached Documents: Contract Amendment No. 2, with Scope of Services and Fee Schedule attachments.

**Program Goals/Predicted Outcomes:**

If economic viability is confirmed, to complete the procurement documents and advertise the project at the beginning of the 2016/2017 fiscal year.

**Public Benefit:**

Projected total savings + revenue = \$1,187,000.00 per year.

Projected total net savings + revenue = \$18 million over 20 years.

**Metrics Available to Measure Performance:**

Completion of the project within the proposed project schedule and budget.

**Retroactive:**

No

Procurement Dept - 12/23/15 PM 04:12

To COB: 1-6-16

10 pgs (1)

**Original Information**

Document Type: \_\_\_\_\_ Department Code: \_\_\_\_\_ Contract Number (i.e., 15-123): \_\_\_\_\_

Effective Date: \_\_\_\_\_ Termination Date: \_\_\_\_\_ Prior Contract Number (Synergen/CMS): \_\_\_\_\_

Expense Amount: \$ \_\_\_\_\_  Revenue Amount: \$ \_\_\_\_\_

Funding Source(s): \_\_\_\_\_

Cost to Pima County General Fund: \_\_\_\_\_

Contract is fully or partially funded with Federal Funds?  Yes  No  Not Applicable to Grant Awards

Were insurance or indemnity clauses modified?  Yes  No  Not Applicable to Grant Awards

Vendor is using a Social Security Number?  Yes  No  Not Applicable to Grant Awards

If Yes, attach the required form per Administrative Procedure 22-73.

**Amendment Information**

Document Type: CT Department Code: WW Contract Number (i.e., 15-123): 14-110

Amendment No.: Two (2) AMS Version No.: Ver. 8

Effective Date: 01/19/2016 New Termination Date: 08/30/2016

Expense  Revenue  Increase  Decrease Amount This Amendment: \$95,000.00

Funding Source(s): RWRD Obligations

Cost to Pima County General Fund: \$0.00

Contact: Keith E. Rogers [Signature] 12/17/15 MM 12-17-15

Department: Procurement [Signature] 12/17/15 Telephone: 724-3542

Department Director Signature/Date: [Signature] 12/18/15

Deputy County Administrator Signature/Date: [Signature] 12/22/15

County Administrator Signature/Date: [Signature] 12/23/15  
*(Required for Board Agenda/Addendum Items)*

**PIMA COUNTY WASTEWATER MANAGEMENT DEPARTMENT**

**PROJECT:** Struvite Recovery Facility Alternative Delivery Project

**CONSULTANT:** Greeley and Hansen, LLC  
2800 North 44<sup>th</sup> Street, Suite 650  
Phoenix, AZ 85008

**CONTRACT NO.:** CT-WW-14000000000000000110

**AMEND. NO.:** Two (2)

**FUNDING:** RWRD Obligations

**CONTRACT**

NO. CT-WW-14000000000000000110

AMENDMENT NO. 02

This number must appear on all invoices, correspondence and documents pertaining to this contract.

**CONTRACT TERM:** 10/08/13 – 09/30/15  
**TERMINATION DATE PRIOR AMENDMENT:** 06/30/16  
**TERMINATION THIS AMENDMENT:** 06/30/16

**ORIG. CONTRACT AMOUNT:** \$298,000.00  
**PRIOR AMENDMENTS:** \$ 0.00  
**AMOUNT THIS AMENDMENT:** \$ 95,000.00  
**REVISED CONTRACT AMOUNT:** \$ 393,000.00

**CONSULTING CONTRACT AMENDMENT**

WHEREAS, COUNTY and CONSULTANT entered into a Contract for services, as referenced above, dated October 8, 2013; and

WHEREAS, due to delays on the part of COUNTY, completion of the project has been delayed; and

WHEREAS, COUNTY and CONSULTANT previously agreed to extend the contract period for the purpose of project completion; and

WHEREAS, COUNTY and CONSULTANT have agreed that additional work is required to verify the economics of the project; and

WHEREAS, COUNTY and CONSULTANT have agreed to the Scope Of Services and Fee for this additional work.

NOW, THEREFORE, it is agreed as follows:

**CHANGE: ARTICLE II – SCOPE OF SERVICES,**

Add: Scope of Services Struvite Recovery Facility Alternative Delivery – Amendment No. 2 (6 pages), as an attachment to this amendment.

To: Exhibit A: Scope of Services Struvite Recovery Facility Alternative Delivery (7 pages), an attachment to the original contract.

**CHANGE: ARTICLE III – COMPENSATION AND PAYMENT,**

Add: Struvite Recovery Facility Alternative Delivery – Amendment No. 2, Level Of Effort (1 page) and Struvite Recovery Facility Alternative Delivery – Amendment No. 2, Project Fee (1 page), as attachments to this amendment.

To: Exhibit B: CONSULTANT FEE SCHEDULE (2 pages), an attachment to the original contract.

The effective date of this Amendment shall be January 19, 2016.

All other provisions of the Contract, not specifically changed by this Amendment, shall remain in effect and be binding upon the parties.

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IN WITNESS WHEREOF, the parties have affixed their signatures to this Amendment on the dates written below.

PIMA COUNTY

CONSULTANT:

\_\_\_\_\_  
Chair, Board of Supervisors

\_\_\_\_\_  
Signature

\_\_\_\_\_

*John Bush Sr. Consultant*  
\_\_\_\_\_

Date

Name and Title (Please Print)

Date: 12/22/15

ATTEST:

\_\_\_\_\_  
Clerk of the Board

APPROVED AS TO FORM:

*Charles Wesselhoft*  
\_\_\_\_\_  
Deputy County Attorney

**CHARLES WESSELHOFT**

Printed Name

Date: 12-21-15

**Scope of Services Struvite Recovery Facility Alternative Delivery**

Exhibit A

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**Scope of Services  
Struvite Recovery Facility  
Alternative Delivery –  
Amendment No. 2**

**Pima County  
Regional Wastewater Reclamation Department**

**October 9, 2015**

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**Scope of Services Struvite Recovery Facility Alternative Delivery**

Exhibit A

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**Attachments:**

- Estimated Level of Effort
- Estimated Compensation

## Scope of Services Struvite Recovery Facility Alternative Delivery

### Amendment No. 2

Exhibit A

## Introduction

Struvite Recovery Facility was identified by the Pima County Regional Wastewater Reclamation Department (RWRD) as a potential new process to manage phosphorus loads that are recycled to and within the liquid treatment process at the Tres Rios Water Reclamation Facility (WRF). After the technical and economic analyses, a Struvite Recovery with WAS Pre-Treatment Project (Project) was recommended for implementation at the Tres Rios WRF. Implementation of the Project greatly reduces the potential for Struvite scaling in the solids processing systems, struvite accumulation in digesters, and provides a useful commercial product for the agricultural market. Moreover, the system significantly reduces or eliminates ferric chloride chemical addition to bind the phosphates to prevent Struvite scaling in the solids processing systems.

To assist RWRD with the development of Project Request for Qualification documents and evaluate responsive submissions, the services of Greeley and Hansen was authorized by the Board of Supervisors on October 8, 2013 under Contract No. CT-WW-14\*\*\*\*110. The amount of the original contract is \$298,000. This Contract Amendment No. 2, requests an additional \$95,000 for additional services as described below to complete the assistance with the procurement of design and construction services for the Project. With the additional task the contract limit would increase to \$393,000.

With the startup data of the Agua Nueva Water Reclamation Facility (WRF), there was a concern by RWRD that the original payback economics may have been compromised. Therefore, an additional study of the process loadings and economic impacts on the Tres Rios WRF (Task 6) is required to confirm that the payback economics remain favorable to RWRD before the completion of the development of Request for Qualification documents for the Project. Task 6 was not included in the original phases of the Struvite Recovery Facility Alternative Delivery Project, because it was believed that the original Project economics represented current plant performance. In review of the Agua Nueva WRF startup data the plant loadings and economics need to be reexamined to determine its impact on Tres Rios WRF and the Project. Therefore, Task 6 needs to be included in Project scope.

Under Contract Amendment No. 1, the term of the contract was extended from September 30, 2015, to June 30, 2016. This was a not cost change. This amendment does not request an additional time extension.

For completeness the original tasks and the new Project task are described below.

## Scope Of Services Changes

With approval of this amendment the Project services will be comprised of the five tasks (**Tasks 1-5**) authorized in the initial contract and the **new Task 6**. The scope of services included in the first five tasks is unchanged and the tasks are summarized below. The description of the new Task 6 scope of services follows the summarized description of the original tasks.

## Scope of Services Struvite Recovery Facility Alternative Delivery

### Amendment No. 2

#### Exhibit A

#### TASK 1 Preparation of DB Documents

Develop the procurement documents for the Struvite Recovery System through a Progressive Design-Build process. The Design-Build team is to include a design professional, contractor and struvite recovery vendor. Generally, this Project is limited to the area within and around the decommissioned Energy Recovery Building.

#### TASK 2 Evaluation Assistance for DB Submittals

Evaluate the submittals from responsive and responsible Proposers. Assist RWRD in identifying strengths, weakness and deficiencies of the submissions.

#### TASK 3 Repurpose Energy Recovery Facility

For repurposing of the off-line Energy Recovery Building to install the Struvite Recovery Facility develop a description of the work in the RFQ to remove existing equipment, electrical gear and mezzanine to clear the area for the new equipment and systems. In addition, the description is to include removal of a portion of the existing roofing system and construction of a new roofing system at a higher elevation to accommodate the new Struvite Recovery System. After demolition and new roof work is complete, the Design-Build team will have the building shell ready to install new process, lighting, electrical, heating, ventilation and air conditioning systems.

#### TASK 4 WAS Pretreatment

For the RFQ describe the installation of the WAS Pretreatment System.

#### TASK 5 Centrate / Filtrate Pumping and Yard Piping Modifications

Describe of the new pump systems and yard piping to convey centrate and filtrate to the Struvite Recovery System, and a gravity sewer to transport the struvite recovery system effluent to the headworks pumping station.

#### **NEW TASK 6 Update Process Data and Economic Payback**

Confirm the system performance and economic payback based on the operation of the new Agua Nueva WRF in service. Since the Tres Rios WRF new process system was in startup mode and the Agua Nueva WRF was not commissioned, the original Struvite Recovery Facility payback was based on the design basis of the Tres Rios WRF and Agua Nueva WRF modified for current flows. The updated performance and economic payback are to be developed based

## Scope of Services Struvite Recovery Facility Alternative Delivery Amendment No. 2

Exhibit A

on actual influent flows, loadings and process removals at the plants. The loading and removal values are to be determined by laboratory testing at the Pima County Central Laboratory.

### **Activities**

- Identify locations for field sampling by County Laboratory at Tres Rios WRF and Agua Nueva WRF
- Identify constituents to be sampled at the laboratory for each location.
- Meet with Pima County laboratory and field sampling personnel to review sampling procedures and laboratory tests.
- Collect and analyze the laboratory sample data from each sample.
- Collect and analyze SCADA flow data for each sample location.
- Prepare nominal plant-wide Mass Balance based on sample data for each of the following.
  - Orthophosphate (PO<sub>4</sub>)
  - Total phosphorus (TP)
  - Soluble magnesium (SM)
  - Total magnesium (TM)
  - Soluble iron (Fe)
  - Ammonia (A)
- Develop bench-top test for WAS Pre-treatment simulation for ortho-phosphate release
- Analyze bench-top test results and adjust mass balance.
- Enter the mass balance values into the Process Model to determine the Struvite recovery potential.
- Develop the Economic Payback Analysis from chemical savings and sales of product.

### **Deliverables Summary**

- Nominal Mass Balance prepared from the onsite sampling data.
- Updated Process Model based on nominal mass balance development
- Updated Economic Payback Analysis based on updated process model and system configurations

Project schedule and budget modifications that include Task 6 are provided below.

### **Schedule**

The Project schedule was modified under Amendment No. 1 to June 30, 2016. There is no request for additional time in this amendment request.

### **Budget**

Estimated level of effort and compensation for the Project including new Task 6 has been developed and is summarized in **Table 1**. Breakdown of the costs are provided in the attachments.

**Table 1**  
**Labor and Total Costs**

**Scope of Services Struvite Recovery Facility Alternative Delivery  
Amendment No. 2**

Exhibit A

Tasks	Labor Cost	Total Cost
Procurement Documentation for Struvite Recovery Facility (Tasks 1-5)	\$296,306	\$298,000
New Task 6	\$93,777	\$95,000
TOTAL	\$390,083	\$393,000

The above costs are based on the conditions set forth under the original Contract for this Project. The above costs are inclusive of fee.

In accordance with the Contract, services will be provided on a direct labor cost basis with an indirect labor cost multiplier of 1.786 and a fee of 12 percent. No markups will be allowed on other direct costs, and travel allowance will be in accordance with Pima County guidelines for consultant services.

**ATTACHMENTS**

- Level of Effort
- Project Fee

Pima County Regional Wastewater Reclamation Department  
 Struvite Recovery Facility Alternative Delivery - Amendment No. 2  
 Level of Effort

Labor Classification										
No.	Task Description		Program Director	Project Manager	Senior Engr/Arch	Project Engr/Arch	Staff Engr/Arch	Technican/ Drafting	Admin Support	Totals
1.1	Develop Task RFPs for	1	40	40	24	0	0	8	0	113
1.2	Prepare Proposals	1	58	60	40	24	0	20	0	203
1.3	Prepare Performance	1	40	40	24	0	0	8	0	113
1.4	Monitor Site Work	1	40	40	24	0	0	8	0	113
1.5	Startup and System	1	40	40	24	0	0	8	0	113
1.6	Evaluation	1	40	40	24	0	0	8	0	113
1.7	Review Meeting	1	40	40	24	0	0	8	0	113
1.8	Workshop	1	40	40	24	0	0	8	0	113
Subtotal	8	320	320	192	48	0	0	64	0	524

2 Evaluation Resources for 2.1										
2.1	Evaluate Qualifications	1	40	40	24	0	0	8	0	113
2.1	Evaluate Proposals	1	58	60	40	24	0	20	0	203
Subtotal	2	98	100	64	24	0	28	0	0	316

3 Repurpose Energy Recovery Facility										
3.1	Prepare building demolition / salvage work description	1	16	8	24	0	0	4	0	113
3.1	Structural Assessment	0	24	8	0	0	16	4	0	52
3.2	Roofing System Development	1	8	80	40	32	64	16	0	241
3.3	Review Meetings (2)	0	16	16	0	30	0	0	0	62
Subtotal	2	64	112	64	62	140	24	0	0	468

4 WAS Pretreatment										
4.1	Prepare WAS Pretreatment Description/Plans	1	8	36	12	0	24	8	0	89
4.2	Review Mixing System Submittals	0	8	16	40	0	0	4	0	68
4.3	Review Meeting	0	8	8	8	16	0	2	0	42
Subtotal	1	24	60	60	16	24	14	0	0	199

5 Centrate /Filtrate Pumping & Yard Piping Modifications										
5.1	Prepare Pumping System Criteria	1	8	24	40	40	0	0	0	113
5.2	Prepare Yard Piping Modifications	1	8	4	8	20	80	0	0	121
5.3	Review Meetings	0	10	4	12	32	6	2	0	66
Subtotal	2	26	32	60	92	86	2	0	0	300

6.1	Develop Technical Specs	1	40	40	24	0	0	8	0	113
6.2	Prepare Process Manual	1	40	40	24	0	0	8	0	113
6.3	Prepare Commissioning	1	40	40	24	0	0	8	0	113
6.4	Final Review	1	40	40	24	0	0	8	0	113
Subtotal	4	160	160	96	0	0	32	0	0	436

<b>TOTAL LABOR EFFORT</b>		<b>12</b>	<b>408</b>	<b>521</b>	<b>310</b>	<b>140</b>	<b>14</b>	<b>64</b>	<b>0</b>	<b>1085</b>
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Pima County Regional Wastewater Reclamation Department  
 Struvite Recovery Facility Alternative Delivery - Amendment No. 2  
 Project Fee

Labor Classification									
No.	Task Description	Program Director	Project Manager	Senior Engr/Arch	Project Engr/Arch	Staff Engr/Arch	Technican/ Drafting	Admin Support	Totals
1	Preparation of DB RFQ Documents	\$523	\$51,262	\$39,188	\$10,163	\$8,369	\$3,658	\$2,740	\$115,903
2	Evaluation Assistance for DB Submittals	\$523	\$25,631	\$18,059	\$9,560	\$3,140	\$0	\$1,744	\$58,657
3	Repurpose Energy Recovery Facility	\$523	\$16,739	\$20,226	\$9,565	\$8,110	\$10,898	\$1,495	\$67,556
4	WAS Pretreatment	\$262	\$6,277	\$10,835	\$8,967	\$2,090	\$1,868	\$872	\$31,171
5	Centrate /Filtrate Pumping & Yard Piping Modifications	\$523	\$6,800	\$5,779	\$8,967	\$12,030	\$8,690	\$125	\$40,914
6	Update Process Data and Economic Payback	\$785	\$18,046	\$7,043	\$42,146	\$5,620	\$0	\$2,242	\$75,882
Total Labor		\$2,354	\$106,709	\$94,087	\$47,222	\$33,739	\$23,114	\$6,976	\$390,083
Other Direct Costs (Travel, subsistence and printing)					\$2,917				
Total					\$393,000				