PIMA COUNTY
REGIONAL WASTEWATER RECLAMATION DEPARTMENT
201 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1207

JACKSON JENKINS
DIRECTOR

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November 2, 2011

TO: C.H. Huckelberry, County Administrator

THRU: George Widugiris, C.P.M., Director, Procurement Dept

FROM: Jackson Jenkins, Director - RWRD

SUBJECT: **Ina Road WRF Upgrade Project: CH2M Hill Amendment No. 10 Construction Services Allowance**

NOV 09 '11 PM 04:29 PC CLK OF BD

The Regional Wastewater Reclamation Department requests Amendment #10 to Contract #0316-03-C-140877-0208, "Design Services for the Ina Road WPCF Capacity and Effluent Quality Upgrade Project", be placed on the addendum for the November 15th Board of Supervisors meeting.

This Amendment will provide additional funding to supplement the current contract allowance for Engineering Services During Construction. The original Contract included an allowance of $3,405,394. Amendment No. 8 added the final scope of Engineering Services During Construction, at that time the Design Professional provided a cost estimate of $10.4M for these services which includes the allowance of $3,405,394. The use of the allowance was authorized, with no additional funding added to the task in Amendment No. 8. The initial allowance is now nearly exhausted.

The final level of effort for these services is still not fully defined as additional construction efforts remain under design and the project construction is approximately 42 percent complete at this time. However, based on expenditures rates to date for the work under construction, a sum of $5,500,000 is requested to be added to the allowance at this time. This will increase the Engineering Services During Construction authorization to $8,905,394. This amendment increases the contract value by $5,500,000.

This Amendment will also provide an extension of the Contract termination date from February 4, 2012 to December 4, 2014. This termination date extension allows the completion of Ina Road WRF Capacity and Effluent Quality Upgrade Project design, which is scheduled to be completed in mid 2012, and the completion of design services during construction. The RWRD Department is also adjusting the termination date of this contract to align with the CMAR and PM/CI contract, both of which are set to end on December 2014.

The proposed amendment will increase the "Design Services for the Ina Road WPCF Capacity and Effluent Quality Upgrade Project" contract, 0316-03-C-140877-0208, in the amount of $5,500,000.

Your approval of this request is appreciated. If you should have any questions or need additional information, please feel free to contact us.

CONCUR:

L. A. Widugirs 11/8/11
George Widugirs, C.P.M., Director, Procurement Dept — Date

APPROVED:

C. Huckelberry 11/8/11
C.H. Huckelberry, P.E., County Administrator — Date

Attachments

cc: John M. Bernal, P.E., Deputy County Administrator - PWA
Eric Wieduwilt, P.E., Deputy Director - Planning and Engineering - RWRD

BOARD OF SUPERVISORS AGENDAITEM SUMMARY

Requested Board Meeting Date: November 15, 2011

ITEM SUMMARY, JUSTIFICATION and/or SPECIAL CONSIDERATIONS

Amendment #10 contract #CT-WW-08050412-P, CH2M Hill, Inc. to provide Design Engineering Services for the Ina Road WPCF Capacity and Effluent Quality Upgrade Project. This amendment increases funding for engineering services during construction and extends the contract term to align with anticipated construction completion. Funding source: RWRD Obligations. Administering Department: Regional Wastewater Reclamation Department

A final copy of the amendment for execution by the Chairman will be provided when the signed copy is returned by the consultant.

Effective Date:	November 15, 2011
Termination Date:	December 4, 2014
Original Contract Amount:	$18,000,000.00
Previous Amendment(s):	$3,813,903.00
Previous Contract Amount:	$21,813,903.00
This Amount this Amendment:	$5,500,000.00
Revised Contract Amount:	$27,313,903.00

Cont # : CT-WW-08050412-P-10
Effective: 11-15-2011
Term : 12-04-2014
Cost : $5,500,000.00
Rev : 0
Tot : $5,500,000.00
NTE : $27,313,903.00
Timex : Yes
Renewal : 09-01-2014
Term : 12-04-2014

Project Manager: Jaime Rivera

Contract Officer: Jerome Rizzo, 740-3245
Procurement Department

Vendor is using a Social Security Number: No

PimaCore CT# CT-WW-08050412-P

16-03-C-140877-0208

Please return to Harry Lewis.

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ITEM NO. _____

To: CHH- 11-8-11 By Dept
COB - 11-9-11
Agenda 11-15-11
Addendum (1)

Procure Dept 11/09/11 PM04:12

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BOARD OF SUPERVISORS AGENDA ITEM SUMMARY

Requested Board Meeting Date: November 15, 2011

Contract No.: 16-03-C-140877-0208

Design Services for the Ina Road WPCF
Capacity and Effluent Quality Upgrade Project

CONTRACT RECAP

Original Contract Term: February 5, 2008 to February 4, 2010
Original Contract Amount: $ 18,000,000.00
Present Termination Date: February 4, 2012

Current Contract Amount: $ 21,813,903.00
Amount of this Amendment: $ 5,500,000.00
Revised Contract Amount: $ 27,313,903.00
Termination Date of this Amendment: December 31, 2014

Synergen BC#/PO#: 08050412
Advantage CT #: 08050412-P
Funding Source: 2004 Sewer Revenue Bonds, Obligations

Consultant: CH2M Hill, Inc.

Amendment No. 1. This Amendment provided for a change in the Consultants Name from CH2M Hill to CH2M Hill, Inc. The amendment also changes the overhead rate from the 2007 audited overhead rate to the 2006 audited overhead rate. This was a no cost amendment.

Amendment No. 2. This Amendment provided for the incorporation of an additional cost estimate at the 10% design milestone. Funds were transferred between tasks to accommodate this scope. This was a no cost amendment.

Amendment No. 3. This Amendment provided for the incorporation of the Roles and Responsibilities matrix to the Contract Documents. This was a no cost amendment.

Amendment No. 4. This Amendment provided a revised Appendix B, Compensation Schedule. This revised compensation schedule corrected a discrepancy between the original compensation schedule and the Board of Supervisors approved contract amount. This was a no cost amendment.

Amendment No. 5. This Amendment provided for the incorporation of additional Headworks equipment and Odor Control Design, New Switchgear Building Design for the Ina Road WRF Power Distribution Center, and additional laboratory testing to support the design effort. The amendment increased the contract value by $599,499.00.

Amendment No. 6. This Amendment provided an extension of the Contract termination date from February 4, 2010 to February 4, 2012. This termination date extension allows the completion of Ina Road WRF Capacity and Effluent Quality Upgrade Project design, which is schedule to be completed in mid 2010, and the commencement of design services during construction. This is a no cost amendment.

Amendment No. 7. This Amendment provided for the incorporation of the following additional features to the project:

- Aqueous Ammonia System – The original plant design included an enhanced chlorination system in accordance with the ROMP design guidelines. Proposed regulatory changes will reduce the acceptable trihalomethane (THM) levels in the plant effluent. To consistently achieve the proposed regulatory requirements the addition of an aqueous ammonia feed system is required.
- Electric Sluice and Slide Gate Actuators – The existing plant includes a number of manually operated sluice and slide gates. In an effort to automate the plant operations, several process gates were determined to need automation by addition of electric actuators.
- Site Security Improvements – The Regional Wastewater Reclamation Department recently completed a security master plan. As part of this security master plan, significant security upgrades to the Ina Road WRF were recommended.
- 46 kV Substation – The Ina Road WRF is currently served by a 13.8 kV feeder from Tucson Electric Power (TEP). Due to the increase in the electrical load for the Ina Road WRF Upgrade Project, TEP concluded that the existing feeder was inadequate to serve the Ina Road WRF following the Upgrade Project Completion. TEP identified a 46 kV feeder that has adequate capacity and redundancy to provide power to the Ina Road WRF. However, the 46 kV power source will require the installation of a substation with a step-down transformer to serve the plant.

This amendment increased the value of the contract by $703,571.00.

Amendment No. 8. This Amendment provided for the incorporation of the following additional features to the project:

- Existing Process Improvements – In assessing the condition of the existing Ina Road WRF, several areas were identified that required upgrades to allow the existing plant process to reliably function through the 2030 design period. These included replacement of several electrical unit substations and motor control centers that are near the end of their useful life. The improvements also incorporate additional features to lesson the facilities impact on the surrounding community.
- Miscellaneous Plant Improvements – Existing buildings must be upgraded and new structures must be added to accommodate plant operations and maintenance for the design life of the expanded plant.
- Thermal Energy Facility – The Energy Master Plan recommends the existing powerhouse be removed from service and a new thermal Energy Facility be constructed to provide the facility heating and cooling water requirements. This change is directly related to not proceeding with the new Power Production facility as originally planned in the ROMP Program.
- An additional $100,000 was added to owner's contingency to allow for the Consultant to provide direct payment of the permit review costs.

This amendment increased the contract value by $2,510,833.00.

Amendment No. 9. This Amendment provided for the reallocation of the existing funds between design task line items. Due to minor changes in the work and changes to the original budgeted tasks level of effort it is necessary to move remaining contract funds between the existing design tasks to properly account for the current effort. This is a no cost amendment.

Amendment No. 10. This Amendment will provide additional funding to supplement the current contract allowance for Engineering Services During Construction. The original Contract included an allowance of $3,405,394. Amendment 8 added the final scope of Engineering Services During Construction, at that time the Design Professional provided a cost estimate of $10.4M for these services which includes the allowance of $3,405,394. The use of the allowance was authorized, with no additional funding added to the task in Amendment No. 8. The initial allowance is now nearly exhausted. The final level of effort for these services is still not fully defined as additional construction efforts remain under design and the project construction is approximately 42 percent complete at this time. However, based on expenditures rates to date for the work under construction, a sum of $5,500,000 is requested to be added to the allowance at this time. This will increase the Engineering Services During Construction authorization to $8,905,394. This amendment increases the contract value by $5,500,000. This Amendment will also provide an extension of the Contract termination date from February 4, 2012 to December 4, 2014. This termination date extension allows the completion of Ina Road WRF Capacity and Effluent Quality Upgrade Project design, which is schedule to be completed in mid 2012, and the completion of design services during construction. The RWRD Department is also adjusting the termination date of this contract to align with the CMAR and PM/CI contract, both of which are set to end on December 2014.

RWRD Project Representative: Jaime Rivera

Project Manager: Mike DiNapoli, Jacobs

Contract Officer: Jerome Rizzo, 740-3245
Procurement Department

CLERK OF THE BOARD USE ONLY: BOS MTG. _____

ITEM NO. _____

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT **PROJECT:** **DESIGN ENGINEERING SERVICES FOR THE INA ROAD WPCF CAPACITY AND EFFLUENT QUALITY UPGRADE** **CONSULTANT:** **CH2M HILL, Inc.** **2625 South Plaza Drive, Suite 300** **Tempe, AZ 85282** **CONTRACT NO.: CT-WW-08050412-P** **AMENDMENT NO.: Ten(10)** **FUNDING: RWRD Obligations**	CONTRACT NO. CT-WW-08050412-P AMENDMENT NO. 10 This number must appear on all invoices, correspondence and documents pertaining to this contract.

CONTRACT TERM: 02/05/08 - 02/04/10	**ORIGINAL CONTRACT AMOUNT:**	$	18,000,000.00
TERMINATION PRIOR AMENDMENT: 02/04/12	**PRIOR AMENDMENT(S):**	$	3,813,903.00
TERMINATION THIS AMENDMENT: 12/04/14	**AMOUNT THIS AMENDMENT:**	$	5,500,000.00
	REVISED CONTRACT AMOUNT:	$	27,313,903.00

CONTRACT AMENDMENT

WHEREAS, COUNTY and CONSULTANT have entered into the above referenced contract for professional engineering design services for the Ina Road WPCF Capacity and Effluent Quality Upgrade project (Project); and

WHEREAS, under contract Amendment No.8 the scope of the engineering services during construction was identified and added to the contract services; and

WHEREAS, at the time of Amendment No. 8 an initial allowance for engineering services during construction was in existence; and

WHEREAS, this initial allowance was less than the estimated amount for these services; and

WHEREAS, as construction proceeds these services required of the CONSULTANT continue to evolve; and

WHEREAS, the construction of the project has now advanced to the point where this initial allowance for engineering services during construction has been exhausted, and

WHEREAS, engineering services during construction are required and are continuing; and

WHEREAS, the parties now agree to increase the funding for continued engineering services during construction; and,

WHEREAS, the parties agree to extend the contract term to align with anticipated construction completion.

NOW, THEREFORE, it is agreed as follows:

CHANGE: ARTICLE IV – PAYMENT, third paragraph,

From: "The total of all payments to DP for services provided under this Contract shall not exceed Twenty One Million Eight Hundred Thirteen Thousand Nine Hundred Three Dollars ($21,813,903.00) unless otherwise agreed to by OWNER."

To: "The total of all payments to DP for services provided under this Contract shall not exceed Twenty Seven Million Three Hundred Thirteen Thousand Nine Hundred Three Dollars ($27,313,903.00) unless otherwise agreed to by OWNER."

REPLACE: in EXHIBIT "A" – SCOPE OF WORK, that portion of EXHIBIT "A" titled "Services During Construction" dated July 16, 2010 (including Attachment 1 Fee Proposal (13 pages total) with "Services During Construction" Revised October 24, 2011 (including Attachment 1 Fee Proposal Rev. 11/15/11) (13 pages total).

REPLACE: APPENDIX "B" REVISION 08/22/11 COMPENSATION SCHEDULE – COST PLUS FIXED FEE, NOT TO EXCEED, with APPENDIX "B" REVISION 11/15/11 COMPENSATION SCHEDULE – COST PLUS FIXED FEE, NOT TO EXCEED (4 pages attached).

This Amendment shall be effective on November 15, 2011.

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

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

PIMA COUNTY:

Ramón Valadez

Chair, Board of Supervisors

NOV 15 2011

Date

CONSULTANT:

Signature

Name and Title (Please Print)

Date

ATTEST:

Robin Brigode

Clerk of the Board

NOV 15 2011

Date

APPROVED AS TO FORM:

CHARLES WESSELHOFT

Deputy County Attorney

Printed Name

11-9-11

Date

Pima County Regional Wastewater Reclamation Department

Ina Road WRF Capacity and Effluent Quality Upgrade Project
Services During Construction
Revised October 24, 2011

Introduction

The Design Professional (DP) agrees to furnish the following construction phase services for the Ina Road Wastewater Reclamation Facility (WRF) Capacity and Effluent Quality Upgrade Project (the Project). The DP shall commence work upon receipt of Notice to Proceed for this phase of services from the Pima County Regional Wastewater Reclamation Department (PCRWRD). The services to be provided during the construction phase are intended to assist the PCRWRD in administering the Construction Manager At Risk (CMAR) Contract for construction, providing engineering services during construction (SDC), verifying that the CMAR's work is in substantial compliance with the Contract Documents design intent, and assisting the PCRWRD in responding to events that occur during the construction. The following key assumptions were made in the compilation of this Scope of Work and in estimating level of effort:

- The Project will be constructed under different CMAR Guaranteed Maximum Price (GMP) contracts for construction. The SDC services for the following GMPs are included in this scope of work.
    - GMP 2, 3 - Gravity Belt Thickener for Digested Sludge
    - GMP 5 - Interim Biosolids - Digester Complex
    - GMP 6 - Plant Upgrade
    - GMP 7 - Plant Improvements
    - GMP 8 - Electrical Upgrade
- The DP's services are based upon a construction duration of 42 months (July 2010 to December 2013). The estimated number of submittals was originally based on 1.25 submittals per design drawing. The number of submittals received to date has been 3 submittals per design drawing for GMP 2/3 and 1.9 submittals per design drawing for GMP 5. Based on these averages, the estimate for GMPs 6, 7 and 8 has been revised to 1.9 submittals per design drawing to reflect the historical data for the project. The DP's submittal review will include a 50 percent resubmission rate, with a review time of 50 percent less for a resubmission. The number of Requests for Information (RFIs) is based on 1.4 RFIs per design drawing. Deviations from the anticipated schedule or duration of construction, or increased numbers of submittals and RFIs will materially affect the scope of these services and the DP's compensation, and will constitute additional services.

- PCRWRD will contract directly with the CMAR and will be actively involved in the construction process to make decisions, provide approvals, and perform other actions necessary for the completion of construction.
- PCRWRD will contract directly with a Project Manager (PM) and Construction Inspection (CI) services firm (PM/CI). During the construction phase of the Project, the DP will report to the PM/CI. It is the intent of PCRWRD that the CMAR provide Construction Management, daily on-site inspection and quality control of the work on the Project.
- The DP will not be responsible for the means, methods, techniques, sequences or procedures of the CMAR, nor shall the DP be responsible for the CMAR's failure to perform in accordance with Contract Documents.
- The DP will not be responsible for the monitoring or review of the CMAR's cost and schedule performance during construction. However, PCRWRD can add these services to the DP's contract as an additional service.
- The Program Manager will establish the document management system for managing, tracking and storing relevant documents between the CMAR, PM/CI, DP and PCRWRD.
- The DP will not be responsible for site coordination including conducting the Pre-Construction Conference, partnering sessions, Project site meetings, issuance of field instructions, monthly progress reporting and mobilizing the site team. These services will be provided by Others.
- The DP will not be responsible for providing construction contract administration including processing of monthly payment requests from the CMAR, CMAR schedule revisions and analysis, providing correspondence to the CMAR, receiving correspondence from the CMAR and maintaining correspondence files. These services will be provided by Others. It is anticipated that the DP will provide input into the communications with the CMAR.
- The DP will not be responsible for receiving claims and disputes from the CMAR and providing resolution. These services will be provided by Others. It is anticipated that the DP will provide input into the claims and disputes with the CMAR.
- The DP will be promptly notified of any development that affects the scope or timing of the DP's services, or of any defect in the work of DP or the CMAR.
- Any labor and expenses required to address non-DP design based construction claims, unforeseen subsurface considerations or additional construction requested by the CMAR or the PCRWRD will constitute additional services.
- Any claims resolution or litigation assistance requested of the DP by the PCRWRD will constitute additional services.
- The DP will coordinate its design with the PCRWRD SCADA Integrator and review the SCADA Integrator's product for compatibility and interpretation of the DP's control strategy and loop diagrams.

- J2 Engineering and McCarthy Architecture will provide assistance with review of submittals and RFIs.

Health and Safety

DP will manage the health, safety and environmental activities of its staff and the staff of its sub-DPs to achieve compliance with applicable health and safety laws and regulations.

DP will coordinate its health, safety and environmental program with the responsibilities for health, safety and environmental compliance specified in the Contract for Construction between PCRWRD and the CMAR. DP will coordinate with responsible parties to correct conditions when observed that do not meet applicable federal, state and local occupational safety and health laws and regulations, when such conditions expose DP staff or sub-DP staff to unsafe conditions.

DP will notify affected personnel of any site conditions posing an imminent danger to its staff which DP observes.

DP is not responsible for health or safety precautions of CMAR or its employees. DP is not responsible for the Contractor's compliance with the health and safety requirements in the contract for construction, or with federal, state, and local occupational safety and health laws and regulations.

Task 1 Project Management

The DP will provide Project Management for SDC as defined below:

Task 1.01 – Project Administration

The DP will provide a construction phase services Project Execution Plan to include work planning, staff scheduling, budget control, records management, communication protocols and related functions for management of the DP 's Project Team for the 42 month construction period. The DP will prepare monthly invoices and provide required information for the PM/CI's Project Monthly Status Report.

Task 1.02 – Communications

The DP will provide routine communications with the PM/CI. Formal communications will be documented and the PM/CI will be provided a copy of the communication documentation. The DP will attend the weekly construction progress meetings during the 42 month construction period and estimated six (6) public relations/regulatory meetings.

Task 1.03 – Coordination

The DP will mobilize a team on-site for the duration of the construction to provide site coordination between the DP, CMAR, PM/CI and PCRWRD. As requested by the PM/CI, the DP will coordinate periodic site-visits by members of the design team to review construction progress and general quality of the work and evaluate construction relative to compliance with the design intent. The DP will coordinate the activities of its sub-DP.

Task 1.04 – Pre-construction Conference

The DP will attend the Capacity and Effluent Quality Upgrade Project pre-construction conference with the Program Manager, CMAR, PM/CI and PCRWRD. The purpose of the

meeting will be to review the roles and responsibilities, procedures, communication plan, conflict resolution plan, record keeping requirements, and other information pertinent to the execution and completion of the work. It is anticipated that the PM/CI will lead the meeting, prepare the required materials, and prepare and distribute meeting minutes. It is assumed that there will be 6 attendees from the DP for the Pre-Construction Conference Meetings, at 4 hours per meeting.

Task 1.05 – Partnering

The DP shall attend partnering sessions with the Program Manager, CMAR, PM/CI and PCRWRD which after the initial session will consist of follow up sessions every three (3) months or as mutually agreed to ensure that the commitments made are updated and being followed by all parties. It is assumed that there will be 3 attendees from the DP, one initial partnering meeting and 12 subsequent partnering meetings for the remainder of the Project with each meeting lasting 4 hours.

Tasks 2, 5, 6, 7, and 8 - Submittal Review, Requests for Information (RFIs), Clarifications, and Modifications

The following sections apply to the Capacity and Effluent Quality Upgrade Project.

Submittal Review

The DP will review the CMAR's shop drawings, samples, and other submittals for general conformance with the design intent and the requirements of the Contract Documents. Such review shall not relieve the CMAR from its responsibility for performance in accordance with the contract for construction, nor is such review a guarantee that the work covered by the shop drawings, samples and submittals is free of errors, inconsistencies or omissions. The DP's services are based on an estimated number of submittals shown in the table below by GMP, with a review time of 5.7 hours per submittal. The DP's submittal review efforts will include a maximum resubmission rate of 50 percent, with a review time of 2.9 hours per resubmittal.

BASIS OF EFFORT

GMP	Drawing Count	Number of Submittals	Number of Resubmittals
GMP 2/3 – GBT	42	53	26
GMP 5 – IBS - Digester Complex	151	189	94
GMP 6 – Plant Upgrade	1,289	2,417	1,209
GMP 7 – Plant Improvements	311	583	292
GMP 8 – Electrical Upgrade	111	208	104

Should additional reviews be required, the DP shall track these costs in order to be entitled to additional compensation consistent with the provisions of the Contract Documents. The DP will utilize Adobe Acrobat, Version 7.0, and electronic signatures for processing Web based submittals. All submittals are to be in electronic format only.

RFIs and Clarifications

The DP will review and respond to the CMAR's requests for information (RFIs) and/or contract clarification information requests (CCIRs). The DP's services are based on an estimated number of RFIs shown in the table below by GMP, with a review time of 3.9 hours per RFI.

BASIS OF EFFORT

GMP	Number of Drawings	Number of RFIs
GMP 2/3 – GBT	42	59
GMP 5 – IBS - Digester Complex	151	211
GMP 6 – Plant Upgrade	1,289	1,805
GMP 7 – Plant Improvements	311	435
GMP 8 – Electrical Upgrade	111	155

Should additional reviews be required, the DP shall track these costs in order to be entitled to additional compensation consistent with the provisions of the Contract Documents. The DP will coordinate such reviews with the design team and with the PM/CI as appropriate. The DP will coordinate and issue responses to the requests.

Modifications

The DP will assist the PM/CI and PCRWRD in reviewing and responding to any CMAR request for substitution of materials and equipment. DP will review such requests and will advise the PM/CI and PCRWRD as to the acceptability of such substitutions.

The DP will assist PCRWRD in review and issuance of PCRWRD initiated changes. Design and engineering services to prepare drawings, specifications and other information for the change shall be considered as a Supplemental Service, and shall entitle the DP to additional compensation.

The DP will assist the PM/CI and PCRWRD in reviewing CMAR initiated changes to the Construction Contract. The DP will make recommendations to the PM/CI and PCRWRD regarding the acceptability of the CMAR's request and assist PCRWRD, in negotiating the requested change. Upon agreement and approval, the DP will assist the PM/CI in preparing documentation for the change order. The preparation of CMAR initiated change order drawings and specifications for issuance to the CMAR shall be considered a Supplemental Service, entitling the DP to additional compensation. PCRWRD will prepare all actual change orders to the Construction Contract.

Document Tracking

The DP will receive, distribute, track and return shop drawings, other submittals and documents from the PM/CI . Submissions of RFIs, CCIRs or other correspondence by the CMAR to the DP or by the CMAR through the PM/CI shall be acted on and returned to the CMAR within seven (7) working days of receipt by the DP. Shop drawing submittals shall be acted upon and returned to the CMAR within fourteen (14) days of receipt by the DP for single-discipline submittals and twenty-one (21) days of receipt by the DP for multi-discipline submittals.

Submittal review, RFIs and clarifications, modifications and document tracking will be delineated in Tasks 2, 5, 6, 7 and 8 for GMPs 2/3, 5, 6, 7 and 8 as follows:

Task 2 – Gravity Belt Thickener (GMPs 2 and 3)

Task 2.01 - Submittal Review

Task 2.02 - RFIs and Clarifications

Task 2.03 - Modifications

Task 2.04 - Document Tracking

Task 3 – Not Used

Task 4 – Not Used

Task 5 – Interim Biosolids – Digester Complex (GMP 5)

Task 5.01 - Submittal Review

Task 5.02 - RFIs and Clarifications

Task 5.03 - Modifications

Task 5.04 - Document Tracking

Task 6 – Capacity and Effluent Quality Upgrade (GMP 6)

Task 6.01 - Submittal Review

Task 6.02 - RFIs and Clarifications

Task 6.03 - Modifications

Task 6.04 - Document Tracking

Task 7 – Plant Improvements (GMP 7)

Task 7.01 - Submittal Review

Task 7.02 - RFIs and Clarifications

Task 7.03 - Modifications

Task 7.04 - Document Tracking

Task 8 – Electrical Upgrade (GMP 8)

Task 8.01 - Submittal Review

Task 8.02 - RFIs and Clarifications

Task 8.03 - Modifications

Task 8.04 - Document Tracking

Task 9 – Not Used

Task 10 – On-Site DP Services

Task 10.01 - Owner Requested Site Visits

The DP will provide PM/CI requested members of the design team to make periodic site visits covering work such as electrical, mechanical equipment placement, structures, architectural, HVAC, I&C, site civil and other technical disciplines as may be requested by PM/CI related to key design issues.

The DP will witness the factory testing of major mechanical, electrical, and I&C equipment. Specifically for the I&C, the DP will participate in the factory test, operational readiness test, and performance acceptance testing. For each site visit, the DP will prepare a site visit report that documents the purpose of the site visit, the outcome and results of the site visit and ultimately a recommendation as to the pass/failure of the system/equipment based on the criteria outlined during the site visit.

The DP will participate in the company of the PM/CI and CMAR in a site visit for the purposes of determining Substantial Completion of the Project in accordance with the Contract Documents. When ready, the CMAR will request the substantial completion site visit. The PM/CI will prepare a list of items to be completed or corrected. The DP will review the list for concurrence. This will also include the instrumentation and control system start-up punch lists based on observations during on-site testing. It is a requirement that the DP agree that the Project has reached substantial completion status before the DP's process guarantee is valid.

For estimating purposes, the assumptions in the following table were used to estimate hours for site visits, factory tests, factory acceptance tests and substantial completion visits.

BASIS OF EFFORT

Activity	Staff	Duration	Visits	Hr / Visit

BASIS OF EFFORT

Activity	Staff	Duration	Visits	Hr / Visit
Site Visits / Factory Tests				
GMPs 2/3, 5, 6	4	36 months	1 x month	12 hours
GMP 7	3	6 months	1 x month	12 hours
GMP 8	3	6 months	1 x month	12 hours
Factory Acceptance Tests				
GMP 2/3	1	5 days	1	40 hours
GMP 5	1	5 days	1	40 hours
GMP 6	1	5 days	3	40 hours
GMP 6	1	10 days	3	80 hours
GMP 8	1	5 days	1	40 hours
Substantial Completion Visits				
GMP 2/3	3	-	1	12 hours
GMP 5	3	-	1	12 hours
GMP 6	3	-	7	12 hours
GMP 7	3	-	2	12 hours
GMP 8	3	-	1	12 hours

Additional factory tests or site visits, as requested by the PM/CI, will be performed as Supplemental Services, entitling the DP to additional compensation.

Task 10.02 – Resident Engineer

The DP will provide an on-site resident engineer to facilitate CMAR submittal and RFI coordination with the DP's design center as well as other communications between the DP and CMAR, PM/CI and PCRWRD.

The DP resident engineer will attend weekly construction progress meetings with the PM/CI, CMAR, and PCRWRD. The DP will also attend "other meetings" as may be required to review particular issues. The basis for this "other meeting" effort is 2 meetings per month, 6 hours per meeting for 36 months with two DP staff members in attendance.

Task 11 Closeout Phase Services

DP will assist the PCRWRD in closing out the Contract for Construction and commencement of the PCRWRD's use of the completed Work. The DP's services will include the following.

Task 11.01 – Startup Services

The DP will assist the CMAR and PCRWRD in the startup of the new facilities, while the PCRWRD Operations Staff will operate the new facilities during startup. The services under this task will include review and preparation of start-up procedures, assistance in trouble shooting, and fine-tuning operation. The PCRWRD Operations Staff will operate the new facilities during startup. It is possible that startup will occur at the individual process unit

level and not at the facility level. For estimating purposes, it is assumed that there will be nine (9) different facilities/processes that will be started up, as delineated by the following facilities/processes:

1. Interim Biosolids – Gravity Belt Thickener (1 unit)
2. Interim Biosolids – Digester Complex
3. Headworks
4. Bardenpho Liquid Stream – New East Plant
5. Bardenpho Liquid Stream – New West Plant
6. Bardenpho Liquid Stream – Modified BNRAS Facility
7. Centrifuges – Digested Sludge Storage and Dewatering
8. Gravity Belt Thickener (2 units) – WAS Storage and Thickening
9. Odor Control

It is anticipated that the CMAR will develop and distribute the startup schedule several months ahead of the anticipated time for startup. The DP will closely coordinate this activity with the CMAR.

Task 11.02 – Training

The DP will provide supplemental instruction to PCRWRD's staff in the operation, maintenance, and testing of the equipment provided under this Project. This instruction shall cover both the basic operational concept and actual operation of the systems and components under both normal and abnormal operations that are likely to occur. The DP will prepare a training syllabus and training materials to leave with the PCRWRD staff. Training materials will be delivered to PCRWRD as an electronic copy and in one (1) hard copy format.

For estimating purposes, it is assumed that there will be nine (9) different facilities/processes that will be started up thus requiring up to nine (9) training sessions, as delineated by the following facilities/processes:

1. Interim Biosolids – Gravity Belt Thickener (1 unit)
2. Interim Biosolids – Digester Complex
3. Headworks
4. Bardenpho Liquid Stream – New East Plant
5. Bardenpho Liquid Stream – New West Plant
6. Bardenpho Liquid Stream – Modified BNRAS Facility
7. Centrifuges
8. Gravity Belt Thickener (2 units)

9. Odor Control

One training session will be provided for each of the nine (9) different facility groups. If multiple sessions are required, this shall be considered a Supplemental Service, entitling the DP to additional compensation. Each training session will be videotaped by Others.

Task 11.03 – Operations and Maintenance Manual

The DP will develop a web-based Process Operations and Maintenance (O&M) manual describing the operation of the individual unit processes at the Ina Road WRF. It is anticipated that the manual will be comprehensive and complete and similar to other manuals prepared for a facility with both liquids and solids treatment of similar size to the Ina Road WRF. PCRWRD has requested that the Process Operations and Maintenance Manual include existing facilities as well.

The O&M manual will generally explain the various primary modes of operation that may be used, including normal operation, peak flow conditions, and emergency operation procedures. The manual will explain the purpose and basic concept of the various processes that are incorporated into the overall plant. Where appropriate, reference will be made to the manufacturer's detailed O&M submittals. The manual will be suitable for use as an operational tool and to facilitate operator training. The manual will be produced in an electronic format that is consistent with the PCRWRD's most recent guide. Sections of the O&M currently identified include:

1. Preliminary Treatment
2. Intermediate Pumping
3. Primary Treatment
4. Primary Sludge Thickening
5. Bioreactors
6. Secondary Clarifiers
7. WAS Thickening and Storage
8. Anaerobic Digestion
9. Digested Sludge Thickening/Dewatering/Storage
10. Biosolids Storage and Loadout
11. Instrumentation and Control (SCADA)
12. Chemical Storage and Feed Systems
13. Odor Control System
14. Disinfection
15. Support Systems (i.e. HVAC, electrical, plant air, service water, etc.)

Other components of the web-based O&M will include links to drawings and photos. The DP will create the web-based infrastructure, including graphical interfaces (using graphics produced by others) and navigation links. Screens used for the web-based interface will be produced by others (not DP).

One server containing the final web-based O&M Manual, 6 hard copies of the draft O&M Manual, and 6 hard copies of the Final O&M Manual will be provided to PCRWRD. The server hardware shall conform to the PCRWRD Information Technology (IT) Standards.

Task 11.04 – Final Completion

The DP will participate in a final completion site visit along with the PM/CI, CMAR, and other PCRWRD staff as appropriate for the purposes of determining that the completed Project has met the requirements of the Contract Documents regarding Final Completion. The DP will assist the PM/CI in preparing a list of particulars in which this site visit reveals that the Work is incomplete or defective and will make recommendations to PCRWRD concerning acceptance when items on the final punch list have been completed or corrected.

Task 11.05 – Closeout File and Records

The DP will provide the PCRWRD with an organized indexed set of Project documents and records. The organization and indexing of the documents and records shall be prior approved by PCRWRD.

Task 11.06 – Closeout Workshop

The DP shall participate in a closeout workshop. The PM/CI will lead the meeting, prepare the required materials, and prepare and distribute meeting minutes.

Task 11.07 – Record Drawings

The DP will revise the original design drawings to reflect record information provided by the CMAR, PM/CI and equipment suppliers. The DP's services are based on an estimated 2 hours per drawing. One electronic file in the most current version of AutoCAD, one PDF file, and two hard copies (one full-size set and one half-size set) will be provided to PCRWRD.

Task 12 – Post Construction Phase Service

Task 12.01 - On-Call Operational Assistance

The DP will provide on-call operational assistance if requested.

Task 12.02 - Final Arc Flash Evaluation

A field investigation will be performed to obtain data on the overcurrent protective devices (manufacturer's data and settings) for the equipment that will remain in service after completion of the Upgrade Project.

The final arc flash study will be conducted using SKM's software, Power Tools for Windows (PTW). The software conforms to arc flash calculation requirements of IEEE 1584 and NFPA 70E.

The final arrangement of the plant distribution system will be used to calculate arc flash potentials. This includes the "normal" and "alternate" supply from Tucson Electric Power (TEP) (West Ina Circuit Nos. WI-13 and WI-42). TEP has provided the characteristics of their feeders. It is assumed that the 5kV switchgear at Facility 14 will be removed from the system.

A report will be prepared to present the results of the arc flash calculations along with conclusions and recommendations. The PTW arc flash study report output provides data on:

- Fault current levels (bolted and arcing faults)

- Protective device delay time and opening time
- Arc flash boundary distance
- Working distance
- Incident energy
- Required protective clothing category

The report will identify the "as-found" arc flash characteristics of the equipment under study. It will also present recommendations for equipment changes that may be made to reduce the incident fault energy levels from faults. This, in turn, can reduce the required protective clothing category.

Compensation

The budget for this work is included as Attachment No. 1. This work will be completed on a time and materials reimbursable basis, with a 10% fee applied to actual labor costs. No fee shall be included on direct costs.

Attachment 1 Fee Proposal Rev.11/15/11

	Description	Estimated CH2M HILL Labor Hours								Estimated Task Total Labor Aug 2011 PRICER $	Other Direct Costs	Subconsultants	Total
		Senior Consultant	Project Manager	Senior Eng/Prof	Staff Eng	Junior Eng	Staff Tech	Office/ Acctg	Estimated Task Labor Hours				
Task 1	Project Management	52	3,094	60	4,213			1,885	9,304	$1,600,099	$150,000		$1,750,099
1.01	Project Administration		1,342		789			1,885	4,016	$579,433			
1.02	Communications		580		1,952				2,532	$464,402			
1.03	Coordination		1,112		1,464				2,576	$513,098			
1.04	Preconstruction Conference		8	8	8				24	$4,990			
1.05	Partnering	52	52	52					156	$38,176			
Task 2	Gravity Belt Thickener			322	322			120	764	$112,895.00			$112,895
2.01	Submittal review			187	187				374	$60,055.00			
2.02	RFIs and clarifications			115	115				230	$37,072.00			
2.03	Modifications			20	20				40	$6,442.00			
2.04	Document tracking							120	120	$9,326.00			
Task 5	IBS - Digester Complex			1,205	1,205			450	2,860	$428,995.00			$428,995
5.01	Submittal review			673	673				1,346	$220,057.00			
5.02	RFIs and clarifications			412	412				824	$134,737.00			
5.03	Modifications			120	120				240	$39,226.00			
5.04	Document tracking							450	450	$34,973.00			
Task 6	Capacity and Effluent Quality Upgrade			10,736	11,411			3,516	25,663	$3,933,301		$16,770	$3,950,071
6.01	Submittal review			6,089	6,764				12,853	$2,121,572			
6.02	RFIs and clarifications			3,922	3,922				7,844	$1,273,900			
6.03	Modifications			725	725				1,450	$235,638			
6.04	Document tracking							3,516	3,516	$302,191			
Task 7	Plant Improvements			1,926	2,866	80	320	684	5,876	$859,588	$65,474	$130,000	$1,055,062
7.01	Submittal review			1,150	1,930	0	240		3,320	$510,445			
7.02	RFIs and clarifications			689	849	80	80		1,698	$262,274			
7.03	Modifications			87	87				174	$28,269			
7.04	Document tracking							684	684	$58,600			
Task 8	Power and Distribution			857	1,063			248	2,168	$330,054			$330,054
8.01	Submittal review			478	684				1,162	$185,402			
8.02	RFIs and clarifications			317	317				633	$103,131			
8.03	Modifications			62	62				124	$20,163			
8.04	Document tracking							248	248	$21,358			
Task 10	On-Site DP Services		152	8,326	3,366			2,828	14,672	$2,445,625	$150,000	$19,430	$2,615,055
10.01	Site visits/factory tests			912	2,376				3,288	$507,665		$19,430	
10.02	Resident engineer		152	7,414	990			2,828	11,384	$1,937,960			
Task 11	Closeout Phase Services	54	10	1,087	4,292	1,719	3,087	685	10,934	$1,315,601	$135,000	$120,000	$1,570,601
11.01	Startup				1,600				1,600	$215,152			
11.02	Training			256	256				512	$83,134			
11.03	O&M Manual			687	678	1,719	687	615	4,386	$499,003		$120,000	
11.04	Final completion inspection	24		144					168	$35,965			
11.05	Closeout file and records	20			40			60	120	$15,266			
11.06	Closeout workshop	10	10		10			10	40	$6,981			
11.07	Record drawings				1,708		2,400		4,108	$460,100			
Task 12	Post Construction Phase Services			228	220			12	460	$78,712	$3,500		$82,212
12.01	PC oncall operations assistance				80				80	$10,955			
12.02	PC final arc flash			228	140			12	380	$67,757			
	Total Hours	106	3,256	24,747	28,958	1,799	3,407	10,428	72,701				
	Total									$11,104,869	$503,974	$286,200	$11,895,043
												July 16, 2010 Authorization	$3,395,573
												Requested Amendment	$8,499,470

APPENDIX "B" REVISION 11/15/11

I. COMPENSATION SCHEDULE – COST PLUS FIXED FEE, NOT TO EXCEED

TASK			Budget
Phase 1 - Preliminary Engineering Services			**$5,533,836.00**
Task 1 Project Management		$562,575.00	
Task 2 Permitting Assistance		$139,197.00	
Task 3 Interim Biosolids		$1,753,168.00	
Preliminary Design, Field & Pilot Test, Schematic Design	$628,562.00		
Design Development, Contract Documents, Final Documents	$1,124,606.00		
Task 4 Preliminary Design		$843,578.00	
Task 5 Field Investigation		$84,512.00	
Task 6 Schematic Design		$1,413,039.00	
Other Direct Costs		$427,767.00	
Subconsultants		$310,000.00	
Phase 2 - Final Design Services			**$7,823,151.72**
Task 1 Project Management		$708,603.00	
Task 2 Permitting Assistance		$417,590.00	
Task 7 Design Development		$2,299,650.00	
Task 8 Contract Documents		$2,638,792.00	
Task 9 Final Documents		$987,004.00	
Other Direct Costs		$448,874.00	
SubConsultants		$0.00	
Amendment 9 - Adjustment		$322,638.72	
Phase 3 - Construction Phase Services (Allowance)			**$8,905,394.00**
Amendment # 5			**$214,561.16**
CO # 6 – Additional Headworks Replacement and Odor Control DES		$216,200.00	
Amendment #9 - CO # 6 – Additional Headworks Replacement and Odor Control DES Adjustment		($128,834.00)	
CO # 9 – New Switchgear Building DES		$300,099.00	
Amendment #9 - CO # 9 – New Switchgear Building DES Adjustment		($193,803.84)	
WET Testing and Disinfection By Product Formation Bench Testing		$20,900.00	
Amendment # 7			**$651,741.00**
Aqueous Ammonia Feed System		$156,619.00	
Electric Sluice and Slide Gate Actuators		$18,960.00	
Site Security Improvements		$324,951.00	
46 kV Substation Design		$151,211.00	
Amendment # 8			**$2,174,428.00**
Existing Process Improvements		$372,255.00	
Miscellaneous Plant Improvements		$1,410,077.00	

	Thermal Energy Facility	$392,096.00	
DP Fixed Fee (Phases 1 & 2)			**$1,540,111.00**
Monthly Fixed Fee			
Phase 1	Preliminary Engineering Services – Monthly Fixed Fee Allocation	$34,575.00	
Phase 2	Final Design Services – Monthly fixed Fee Allocation	$50,929.00	
Deliverable Fixed Fee			
Phase 1			
1.9	30% Cost Estimate - Interim Biosolids	$4,620	
1.9	60% Cost Estimate - Interim Biosolids	$7,520	
1.9	95% Cost Estimate - Interim Biosolids	$8,630	
1.9	100% Cost Estimate - Interim Biosolids	$3,228	
1.9	10% Cost Estimate	$1,050.00	
2	Permit Applications Complete and Submitted to Agency - Biosolids	$6,031	
3.4	30% Schematic Design Report - Biosolids	$27,238	
3.5	60% Design Development Documents - Biosolids	$18,913	
3.6	95% Construction Documents - Biosolids	$21,702	
3.7	100% Contract Documents - Biosolids	$8,117	
4.7	Final Preliminary Design Report	$36,555	
5	Field Investigations Complete	$3,662	
6.13	Final Schematic Design Report	$61,232	
Phase 2			
1.9	60% Cost Estimate	$11,916	
1.9	95% Cost Estimate	$13,674	
1.9	100% Cost Estimate	$5,115	
2	Permit Applications Complete and Submitted to Agency	$18,095	
7	Design Development Documents	$99,650	
8	Contract Documents	$114,345	
9	Final Contract Documents	$42,770	
Amendment #5 DP Fixed Fee			**$62,300.00**
Amendment #7 DP Fixed Fee			**$51,830.00**
Amendment #8 DP Fixed Fee			**$236,405.00**
Total Compensation (Not to Exceed)			**$27,183,936.88**
Owners Contingency			**$129,967.00**
Total Contract Amount			**$27,313,903.88**

APPENDIX "B", CONTINUED

II. COMPENSATION

A. Task Budgets

The Compensation Schedule shall contain the negotiated cost allocations for each individual task. The compensation schedule shall be used to monitor cost expenditures. Once each individual task budget is agreed to it may not be changed except as noted in paragraph II.B below.

B. Cost Adjustments

The compensation schedule presented above is an estimate of the level of effort required to complete each task within each Phase. It is acknowledged that as such, the actual level of effort for each task within each Phase may change. If, for valid reason(s), the DP notifies the PM/CI and Owner that the compensation schedule needs to be adjusted Owner, will consider modifying task cost allocations as may be requested by the DP. After Owner approval the PM/CI and the Owner will work with the DP to process and approve adjustments in a reasonable time and in a reasonable manner. No adjustment of costs between tasks may be made without Owner's written authorization. The total not to exceed compensation for this Contract may be increased only by formal amendment to this Contract.

It is understood, however, that the actual work scope of Phase 2 - Final Design is dependent upon the work effort results of Phase 1 - Preliminary Design and thus the actual cost for Phase 2 can not be completely defined until the Project to be actually designed is agreed to by the OWNER as a result of the DP's Phase 1 work effort.

For the purposes of estimating the cost of Phase 2 and based upon the Preliminary Engineering Information contained in Attachment A to the OWNER's Solicitation for Qualifications Number #0801125, the DP has estimated that it will take 1212 construction contract drawings to adequately describe the Project for CMAR construction. Should the scope of the Project, as a result of Phase 1 Preliminary Design work effort, result in a design work effort requiring more than 1235 or less than 1185 drawings being required to describe the Project for the CMAR to construct, the OWNER and DP agree to negotiate in good faith an equitable adjustment to the cost and fee for Phase 2. Any adjustment to the cost and fee shall be agreed to by Owner and DP prior to DP commencing any work under Phase 2 – Final Design.

C. Fixed Fee

The monthly allocation of the fixed fee, as shown in the compensation schedule, shall be paid each month contingent upon the DP having provided all scheduled deliverables due prior to the invoice date identified in the Scope of Work or Baseline Project Schedule. If the Scope of Work and Baseline Project Schedule do not have any deliverables for the month in which the costs are incurred and all previous months deliverables have been delivered, the DP will invoice for the fixed fee and be paid the fixed fee in accordance to the Compensation Schedule in Section I of this appendix.

The deliverables portion of the fixed fee, as shown in the compensation schedule, shall be paid upon successful completion of each task deliverable listed.

III. INVOICING

A. Invoice Transmittal

Invoices shall be submitted monthly, prior to the Monthly Progress Meeting, to the PM/CI, with appropriate supporting data and documentation and in a format as prescribed by the Owner. (Acceptance of the invoice at this meeting is not mandatory. The PM/CI may delay approval for up to 5 work days to review the Progress Report and invoice.) The invoice shall tabulate the costs associated with each individual task. Any invoice which lists a requested payment for any individual task beyond the current approved task budget will be rejected. All Task (deliverables) and Subcontracted Service costs shall be appropriately documented. The PM/CI shall review and check the invoice to determine if it is complete and acceptable; if it is determined to be complete and acceptable, the PM/CI will approve the invoice and forward it to Owner for processing and payment.

B. Fee Schedule

Invoicing fees will be in accordance with the Compensation Schedule and Fee schedule in Section I of this appendix. Any changes in the compensation schedule or fee schedule will have prior written approval of Owner.

C. Invoice Summary

Due to this Contract including work under several separate Owner projects, DP shall include a summary page which shows amount expended each month for each project. The summary page shall be in the format similar to the one shown below and include the listed projects.