PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

Fourth Amendment to the Agreement between the Nebraska Community Foundation, Inc. and Tetra Tech, Inc., regarding the "Elm Creek Complex FSM Project"

This Fourth Amendment to the Agreement between the Nebraska Community Foundation, Inc. ("Foundation") of Lincoln, Nebraska, representing all signatories to the Platte River Recovery Implementation Program ("Program"), and Tetra Tech, Inc. ("Consultant"), a private consultant of Fort Collins, Colorado, is made and entered into effective on the date of signing below and the final date of this Amendment will be May 1, 2014.

The purpose of this amendment is to:

(1) Expand the Scope of Work to include a second round of post-runoff field monitoring in 2013. The monitoring will be conducted in accordance with the post-runoff monitoring task (701.2) in the Scope of Work for 2013 attached as **Exhibit A**. The field monitoring will commence after July 15, 2013 and be completed by September 1, 2013. The entire project will be completed by May 1, 2014.
(2) Increase the contract amount by **$60,000** for the purpose of funding the additional field monitoring. This will increase the total approved budget for this contract from $697,624 to **$757,624**. This budget increase shall be effective as of the date of this Amendment. Funds for this budget increase are available in budget line item IMRP-2. The detailed budget from Amendment 3, including post-runoff monitoring, and Consultant rate schedule, and project schedule are presented in **Exhibit B**.

Important Amendment notes:

(1) This is the Fourth Amendment to the Agreement. **Exhibit C** includes the Original Agreement and the first two amendments. The scope and budget for Amendment 3 are attached as **Exhibit A** and **Exhibit B**.
(2) The Elm Creek Complex FSM Project is conceived as a three-year modeling, monitoring, and analysis project. The Consultant will provide professional services under this Amendment for additional monitoring during the third year of the project, which extends through May 1, 2014. General work items include bathymetric and topographic mapping, vegetation monitoring, sediment sampling and data synthesis.
(3) The funds authorized by this Amendment in the amount of **$60,000** will only be utilized upon approval by the Finance Committee, and after a Notice to Proceed has been given to the Consultant by the Executive Director's Office if the amendment is approved.

All other terms of the original Agreement remain in effect as originally written in the Agreement dated April 15, 2011. The following parties agree to the terms of this Amendment and the original Agreement:

For the Consultant:

_____ _____

Robert A. Mussetter, PhD, PE Date
Discipline Lead
Tetra Tech, Inc.

For the Foundation:

_____ _____

Diane M. Wilson Date
Chief Operating Officer/Chief Financial Officer
Nebraska Community Foundation, Inc.

EXHIBIT A

TETRA TECH

Final Scope of Services
Platte River Recovery Implementation Program
Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis
Year 3 (January 2013 through December 2013)

The following tasks will be completed by Tetra Tech, Inc. in accordance with the Budget (**Exhibit B**), Hourly Rate and Reimbursable Expenses Price Schedule 2013 (**Exhibit C**) and Project Timeline (**Exhibit D**) during the third year (January 2013 through December 2013) of the Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis Project. The scope of work, budget and schedule for the remainder of the contract term will be developed in consultation with the Program during the Year 3 activities.

Scope of Work

Task 100 - Project Management

Objective: Facilitate scoping of tasks to efficiently complete the work necessary to achieve the objectives of the "Proof of Concept" experiment. Detailed project scoping and budgeting shall be completed under this task. Provide Program stakeholders information on project progress. Document project progress through monthly invoices and progress reports.

Activities:

Task 102 – Develop Final Scope of Services and Fee

- Update scope of work and budget based on telephone conference with EDO staff.

Task 103 - Project Management and Meetings:

- Coordinate work and solicit input from Program staff and participants throughout the project.

- Conduct meetings as necessary to coordinate project activities and to keep the Technical Advisory Committee (TAC) and GC informed of project progress.

    - Specific Program committee meetings required under this scope of work are described under each related task below.

    - Bi-weekly conference calls may be held with ED office staff to assess project progress, and to coordinate with the ED office regarding upcoming work in the future. During these meetings, ED Office staff will provide the Consultant with input on previous findings, and the timing

and scope of upcoming monitoring and reporting tasks. Meetings will be scheduled at the discretion of the ED office.

Deliverables:

- Draft and final scope of work, schedule, and budget.
- Meeting minutes from all Project Management meetings.
  - Draft minutes in Microsoft Word format provided to ED office for review/comment.
  - Final minutes in PDF format.
  - Copies of all formal presentation materials for Program committee meetings described throughout the remainder of this scope of work.
  - Monthly invoices to the ED office, including a summary of work completed in the current month, anticipated work for the following month, and percent complete for scope of work and budget by task.

Information/Service to be Provided by EDO Office Staff:

- Data from ongoing Program data collection efforts.
- Timely review and comments on draft scope of work, meeting minutes and related documents

Meetings/Travel:

- Bi-weekly meetings to be held by telephone conference.
- Other meetings as described below.

Task Series 200 AM Design - 2-dimensional Hydraulic and Sediment Transport Modeling

Objective: Update the 2-dimensional (2-D) hydraulic model of the approximately 4-mile Elm Creek Complex project reach that was developed and calibrated during Year 1, using the Bureau of Reclamation's SRH-2D platform. The model updates may include incorporation of revised topography based on the most recent LiDAR and monitoring data. This may also necessitate adjustments to the model mesh and the material-type polygons that define roughness zones.

Activities: **Task 201 – 2D Hydraulic and Sediment-transport Model Updates and Re-Calibration**

- Review most recent LiDAR and monitoring data, and provide recommendations to the EDO regarding the need to update the model using the new data. The recommendations will be provided verbally at one of the bi-weekly update meetings, and will be supported, as appropriate, with graphics that illustrate the basis for the recommendations.
- If agreed to by the EDO, prepare a topographic surface at suitable resolution by combining the LiDAR and field data.

- Overlay the model mesh onto the new surface, adjust the mesh configuration, as appropriate, and re-assign the mesh node elevations.
- Compare rigid boundary hydraulic model results and field data (measured water surface elevations from transducers and field survey, inundation boundaries from aerial imagery and field survey, and ADCP velocities from field survey). If necessary, make adjustments to achieve appropriate calibration.
- Prepare technical memorandum documenting the model updates and re-calibration.
- Consult with the SRH-2D model developers and others, as appropriate, to determine whether adjustments can be made to better simulate the braiding processes in the Platte River.

Deliverables:

- Updated model(s).
- Description of model adjustments and re-calibration will be included in the annual report.

Information/Service to be provided by EDO Staff:

- Data from ongoing Program data collection efforts.
- Timely review and comments on model report.

Meetings/Travel:

Three (3) conference calls with Program staff to review approach and results for model adjustments.

Task Series 300 - AM Design - Information Review

Objective: Gain an understanding of FSM-related hypotheses and concepts developed for the Program, and utilize existing information and resources to design the management experiment at the Elm Creek Complex.

Activities: This task was completed under Year 2 activities. No work is envisioned under this task for Year 3.

Deliverables:

None

Meetings/Travel:

None

Task Series 400 - AM Design - Model Application

Objective: **Identify and** model potential management experiment options with the 2-D hydraulic and sediment-transport models updated and re-calibrated under **Task Series 200** to predict the range of potential experiment outcomes.

Activities:

Task 401 – Apply the 2-D Hydraulic Model

- Identify a limited number (2 or less) of combinations of management action scenarios that incorporate potential changes in topography (island lowering), vegetation removal (roughness effects) and sediment load (associated with the Sediment Augmentation Experiment).
- Modify the baseline hydraulic model to incorporate each of the scenarios.
- Run the model for each of the physical scenarios for the range of flows in the SDHF hydrograph.

Task 402 – Evaluate Model Results to Assess Likely Response to Management Actions

- Evaluate and compare model results to assess likely response of the Elm Creek Complex to the proposed management actions and SDHF flow hydrograph. Specific issues to be considered include the following:
  - Potential ability for SDHFs to scour seedling vegetation
  - Potential ability to increase sandbar height.
- Conduct sensitivity analyses to assess the potential effects of uncertainty on management experiment outcomes, and identify design parameters that will have the greatest influence on outcomes.
- Compare model results to Program performance criteria developed for priority FSM-related physical process hypotheses to predict the ability to achieve management objectives.

Task 403 – Technical Memorandum

Prepare technical memorandum documenting management experiment scenario results and potential outcomes

Task 404 – Model Application Meeting

Participate in one informal meeting at Tetra Tech's office in Fort Collins or the ED Denver Office to discuss model application results and provide recommendations for management experiment implementation.

Deliverables:

- Draft technical memorandum.
- Final technical memorandum addressing ED office comments, to be completed following the model application meeting.

Meetings/Travel:

One informal meeting at Tetra Tech's FTC office or ED Denver Office.

Task Series 500 - AM Design - Management Experiment Statistical Design

Objective: Investigate the potential for implementing various mechanical channel action scenarios (e.g., selective macroform lowering and in-channel vegetation removal) to maximize the learning potential for the experiment. Provide statistical design of mechanical channel actions, if determined to increase learning potential of management experiment.

Activities:

Task 501 - Identify Potential Channel Manipulation Actions to Increase Learning Potential

The Year 2 Scope of Work included both selective island lowering and vegetation clearing as possible management actions to be tested in this experiment. Based on the range of island sizes and heights in the observed reach during the 2012 monitoring, selective island lowering was not considered to be a necessary or appropriate action, and only vegetation removal was recommended for 2012 management actions. Under this task, this decision will be revisited, considering the response of the reach to the 2011 and 2012 flows, and if appropriate, the experimental plan will be adjusted to maximize learning opportunities from the experiment in the final year (2013) of the management experiment.

Task 502 – Perform statistical and other design input

- Provide statistical analysis of potential management experiment outcomes.
- Provide design input on mechanical action scenarios.

Task 503 – Technical Memorandum

Prepare draft technical memorandum presenting recommendations for management actions in Year 3 and beyond, and the basis for those recommendations.

Deliverables:

- Draft technical memorandum.
- Final memorandum addressing EDO comments.
- Two (2) conference calls with Program staff.

Meetings/Travel:

None anticipated under this task.

Task Series 600 - AM Design - Performance Evaluation Decision Tree

Objective: Provide technical support for the development of a performance evaluation decision tree of potential action adjustments based on the potential range of experiment outcomes. The decision tree will be used in conjunction with model results and monitoring data to evaluate management experiment outcomes, and will provide a quantitative means for evaluating the performance of the management experiment.

Activities: **Task 601**

Provide technical support and input to ED Office staff in developing a decision tree to guide management action adjustments under a range of possible outcomes. Model outcomes and monitoring data will be linked to performance measures from FSM-related physical process priority hypotheses to develop a range of potential action adjustments under a range of potential management action scenario outcomes.

Deliverables:

Review of draft decision tree to be developed by ED Office. Technical input based on Tetra Tech's familiarity with modeled outcomes and analysis of field monitoring data from 2011 and 2012. Input to be provided in review comments and/or brief informal memorandum to ED Office.

Meetings/Travel:

One (1) conference call to discuss draft decision tree that will be developed by ED Office.

Task Series 700 - AM Monitoring and Data Analysis

Objective: Collect field monitoring data in the Elm Creek Complex with emphasis on "need to know" information that will be used to evaluate management action performance, and present the data along with appropriate interpretations to Program stakeholders and other Program consultants.

Activities: **Task 701 - Elm Creek Complex Project-scale Monitoring**

Task 701.1 Complete project-scale monitoring at the Elm Creek complex following the Program's project-scale monitoring protocol and the Elm Creek complex monitoring and data analysis plan to be provided to the Consultant by the ED office. The monitoring will include two data collection events per year (total of six monitoring events during the 3-year contract).

Task 701.2 Monitoring events will include a combination of annual baseline monitoring, followed by event-based monitoring immediately after high-flow events. It is anticipated that the first (baseline) sampling event will take place in late-April or early-May 2013. Timing of event-based monitoring will vary based on Platte River flows.

Task 702 – Data Analysis

- Analyze data from the monitoring events.
- Relate analysis results to the FSM-related physical priority hypotheses and Elm Creek performance measures and decision criteria to assess FSM hypotheses.
- Use the 2-D hydraulic model to assess flow characteristics (e.g., flow depth, velocity, and shear stress) that occurred at the Elm Creek complex between monitoring events.
- Relate flow characteristics to changes in geomorphology and in-channel vegetation to assess priority hypotheses using the performance evaluation decision tree.

- Perform additional statistical analyses of monitoring and modeling results to determine whether there is a statistically significant relationship between flow characteristics, geomorphology and in-channel vegetation.

Task 703 – Annual Monitoring and Analysis Report
Prepare annual monitoring and data analysis reports, to include methods used, statistical trends indicated by the data and suggested modifications to the monitoring plan to improve the information being collected.

Task 704 – Participation in Adaptive Management (AM) Reporting Sessions
Participate in annual AM session to present monitoring data collection and analysis results.

Deliverables:

- Draft, written annual monitoring and data analysis reports (one report during each of the three years of the contract).

- Finalized annual reports that address ED office comments.

Meetings/Travel:
Annual Program AM reporting session in Denver (three meetings over 3-year contract period).

Task Series 800 - AM Evaluation/Assessment

Objective: Perform a formal evaluation of the performance of the management experiment based on the three years of data information to help the Program move from data monitoring and analysis to management decision-making. Prepare a synthesis of the work that can be used by policy makers to assess whether action adjustments are needed for the management experiment.

Activities: **Task 801 – Final Annual Update to 2D Hydraulic**
No additional activity envisioned for this task.

Task 802 – Synthesize Annual Monitoring Data and Evaluate Management Experiment Outcomes
Compile all years of monitoring data and modeling results, and evaluate the overall outcome of the experiment relative to the Big Questions and Priority Hypotheses, considering the flow regime and the potential effects of both on- and off-site activities (e.g., Cottonwood Ranch mechanical actions, Sediment Augmentation Pilot Study).

Task 803 – Technical Memorandum
Prepare draft final chapter for the Year 3 Annual Report that summarizes the findings from Task 802.

Task 804 – TAC Meeting
Participate in one TAC meeting in Kearney to discuss the technical memorandum and related issues.

Deliverables:

- Draft technical memorandum.
- Participate in peer review process by providing additional information, if requested.
- Final technical memorandum addressing ED office and independent peer review comments that will consider the implementation design, monitoring and data analysis, and performance evaluation. Responses to peer review comments will be provided with the final memorandum.

Meetings/Travel:

Participate in TAC meeting to present results of the performance evaluation.

Task Series 900 - AM Adjustments

NOTE: All work under Task Series 900 will be performed in 2014; budget is not included for this task in 2013.

Objective: Integrate modeling and monitoring results into the performance evaluation to assess Program decisions, hypotheses, and management experiment objectives, and provide recommendations regarding adjustments to the management experiment actions.

Activities: **Task 901 – Present Performance Evaluation Criteria and Recommendations to Governance Committee**

Present results from the performance evaluation (**Task 800**) to the Governance Committee, and provide recommendations for adjusting management experiment actions. These recommendations could include management action adjustments or potentially suspension, based on application of the performance evaluation decision tree (**Task 600**).

Deliverables:

Formal presentation to the Program Governance Committee.

Meetings/Travel:

Participate in one Governance Committee meeting in Kearney.

EXHIBIT B

Cost Estimate for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 3 (January 2013 through December 2013)

Task	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Statistical Ecologist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman /Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$234.99	$181.94	$160.73	$109.80	$102.38	$97.07	$91.24	$70.55	$81.16			
100	**Project Initiation and Management**												
101	Attend Kickoff Meeting and Site Visit										$ -	$ -	$ -
102	Develop Final Scope of Services and Fee	6	2	2							$ 2,095	$ -	$ 2,096
103	Project Management and Biweekly Conf Calls	35	9	9	12					14	$ 13,763	$ -	$ 13,763
	Task 1 Totals:	**41**	**11**	**11**	**12**					**14**	**$ 15,858**	**$ -**	**$ 15,858**
200	**Model Construction and Updates**												
201	Adjust and update model, as appropriate	24			40	24		8	2		$ 13,360	$ -	$ 13,360
202	Prepare technical memorandum										$ -	$ -	$ -
	Task 2 Totals:	**24**			**40**	**24**			**2**		**$ 12,630**	**$ -**	**$ 12,630**
300	**AM Design - Information Review**												
	Task 3 Totals:										**$ -**	**$ -**	**$ -**
400	**AM Design - Model Application**												
401	Apply the 2D Hydraulic Model	8			16	16			4		$ 5,557	$ -	$ 5,557
402	Evaluate model results	12	2	4	16	8			4		$ 6,685	$ -	$ 6,685
403	Prepare technical memorandum	8	1	2	8	4			4	3	$ 4,197	$ -	$ 4,197
	Task 4 Totals:	**28**	**3**	**6**	**40**	**28**			**12**	**3**	**$ 16,439**	**$ -**	**$ 16,439**
500	**AM Design - Management Experiment Statistical Design**												
501	Identify action scenarios for analysis										$ -	$ -	$ -
502	Develop Statistical Design										$ -		$ -
503	Prepare technical memorandum										$ -		$ -
	Task 5 Totals:										**$ -**	**$ -**	**$ -**
600	**AM Design - Performance Evaluation Decision Tree**												
601	Assist Program and review decision tree	16			4					2	$ 4,361	$ -	$ 4,361
	Task 6 Totals:	**16**			**4**					**2**	**$ 4,361**	**$ -**	**$ 4,361**
700	**AM Monitoring and Data Analysis**												
701	Elm Creek Complex Project-scale Monitoring (see attached)										$ 71,735	$ 38,461	$ 110,195
702	Data Analysis	8	8	20	32	48	40	12	40		$ 22,778		$ 22,778
703	Prepare annual report	16	4	8	24	16			24	4	$ 12,065	$ -	$ 12,065
704b	Attend AM Reporting Session	12			4	4			4	2	$ 4,113	$ 94	$ 4,207
	Task 7 Totals:	**36**	**12**	**28**	**60**	**68**	**40**	**12**	**68**	**6**	**$ 110,690**	**$ 38,554**	**$ 149,244**
800	**AM Evaluation and Assessment**												
801	Update model for formal evaluation										$ -	$ -	$ -
802	Evaluate management experiment outcomes	16	16	24	8	8	8		8		$ 13,567	$ -	$ 13,567
804	Prepare chapter for Year 3 annual report	12	8	12	8	8	8		4	4	$ 9,285	$ -	$ 9,285
805	Attend TAC meeting	12	12								$ 5,003	$ 1,448	$ 6,451
	Task 8 Totals:	**40**	**36**	**36**	**16**	**16**	**16**		**12**	**4**	**$ 27,855**	**$ 1,448**	**$ 29,303**
900	**AM Adjustments**												
901	Identify adjustments										$ -	$ -	$ -
902	Formal presentation to Program GC										$ -	$ -	$ -
	Task 9 Totals:										**$ -**	**$ -**	**$ -**
	Total Hours	185	62	81	172	136	56	12	94	29			
	TOTAL COST	**$43,473**	**$11,280**	**$13,019**	**$18,886**	**$13,924**	**$5,436**	**$1,095**	**$6,632**	**$2,354**	**$ 187,833**	**$ 40,002**	**$ 227,835**

*Direct Costs includes 13.46% G&A markup

Cost Estimate for Baseline and Post-runoff Monitoring for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 3 (January 2013 through December 2013)

Task 701.1 Basline Monitoring

Subtask	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman/ Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$234.99	$181.94	$109.80	$102.38	$97.07	$91.24	$70.55	$81.16			
1	Preparation; travel to and from site	8	8		8	8	8			$ 5,661	$ 1,231	$ 6,892
2	Bathymetric and topographic surveys	8			60		60			$ 13,497	$ 7,580	$ 21,077
3	Vegetation surveys		8			60	60			$ 12,754	$ 4,029	$ 16,783
4	Bed and bar material sampling	2			10		10			$ 2,406	$ 6,054	$ 8,460
5	Discharge and velocity measurements (2 locations per event)	2			8		8			$ 2,019	$ 336	$ 2,355
6	Sediment transport measurements									$ -	$ -	$ -
	Total Hours	20	16		86	68	146					
	TOTAL COST	**$4,700**	**$2,911**	**$0**	**$8,805**	**$6,601**	**$13,321**	**$0**	**$0**	**$ 36,337**	**$ 19,230**	**$ 55,568**

Task 701.2 Post-runoff Monitoring

Subtask	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman/ Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$234.99	$181.94	$109.80	$102.38	$97.07	$91.24	$70.55	$81.16			
1	Preparation; travel to and from site	8	8		8	8	8			$ 5,661	$ 1,231	$ 6,892
2	Bathymetric and topographic surveys	6			60		60			$ 13,027	$ 7,580	$ 20,607
3	Vegetation surveys		8			60	60			$ 12,754	$ 4,029	$ 16,783
4	Bed and bar material sampling	2			10		10			$ 2,406	$ 6,054	$ 8,460
5	Discharge and velocity measurements (2 locations per event)				8		8			$ 1,549	$ 336	$ 1,885
6	Sediment transport measurements									$ -	$ -	$ -
	Total Hours	16	16		86	68	146					
	TOTAL COST	**$3,760**	**$2,911**	**$0**	**$8,805**	**$6,601**	**$13,321**	**$0**	**$0**	**$ 35,397**	**$ 19,230**	**$ 54,628**

Other Direct Costs for Baseline and Post-runoff Monitoring for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 3 (January 2013 through December 2013)

Item	Unit Cost	Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Total w/ 13.46% OH Mark-up
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	
Airline Tickets	$400		$ -		$ -	3	$ 1,200.00		$ -		$ -		$ -	$ 1,361.52
Mileage	$0.550 /mi.	700	$ 385.00	100	$ 55.00		$ -		$ -		$ -		$ -	$ 499.22
Mileage (4x4)	$1.00 /mi.	700	$ 700.00	250	$ 250.00		$ -	50	$ 50.00	50	$ 50.00		$ -	$ 1,191.33
Lodging and per diem	$123 /day		$ -	12	$ 1,476.00	12	$ 1,476.00	2	$ 246.00	2	$ 246.00		$ -	$ 3,907.56
Parking	$15 /day		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Rental Car (including gas)	$125 /day		$ -		$ -	5	$ 625.00		$ -		$ -		$ -	$ 709.13
Total Station	$10.00 /hour		$ -		$ -		$ -		$ -		$ -		$ -	$ -
GPS Survey Equipment/Sonic Sounder/ADCP	$3,925 /week		$ -	1	$ 3,925.00		$ -		$ -		$ -		$ -	$ 4,453.31
Level and Sonic Sounder	$10 /day		$ -	5	$ 50.00		$ -		$ -		$ -		$ -	$ 56.73
Boat (16-ft inflatable)	$125 /day		$ -	5	$ 625.00		$ -		$ -		$ -		$ -	$ 709.13
Jet Boat (15 feet)	$225 /day		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Inflatable Kayak	$10 /day		$ -	5	$ 50.00		$ -		$ -		$ -		$ -	$ 56.73
Current Meter	$50 /day		$ -	2	$ 100.00		$ -		$ -		$ -		$ -	$ 113.46
pH Meter	$10 /day		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Lab. Analysis of Bed and Bar Material Sediment Samples	$50 /sample		$ -		$ -		$ -	60	$ 3,000.00		$ -		$ -	$ 3,403.80
Lab. Analysis of Suspended Sediment Samples	$85 /sample		$ -		$ -		$ -	24	$ 2,040.00		$ -		$ -	$ 2,314.58
Film and Processing	$25 /roll		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Expendable Field Supplies	LS		$ -		$ 150.00		$ 250.00		$ -		$ -		$ -	$ 453.84
Xerox (8 1/2 x 11 & 11x17)	$0.10 /page		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Reproducible Prints - Plotter (Color)	$7.50 /page		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Reproducible Prints - Plotter (B&W)	$5.00 /sheet		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Color laser prints	$0.50 /sheet		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Misc. Office Supplies	LS		$ -		$ -		$ -		$ -		$ -		$ -	$ -
Misc. Communications (Telephone, fax, shipping)	LS		$ -		$ -									$ -
TOTAL DIRECT COSTS			**$ 1,085.00**		**$ 6,681.00**		**$ 3,551.00**		**$ 5,336.00**		**$ 296.00**		**$ -**	**$ 19,230.34**

RATE SCHEDULE

Year 3 (January 2013 through December 2013)

PERSONNEL:	**Hourly Rate***
Principal Engineer/Geomorphologist	$234.99
Senior Biologist	$181.94
Statistical Ecologist	$160.73
Licensed Surveyor	$123.60
Senior Engineer/Scientist	$118.29
Engineer/Scientist	$109.80
Junior Engineer/Scientist	$102.38
Staff Biology	$ 97.07
Staff Ecologist/Technician	$ 91.24
Draftsman/TechnicianII	$ 70.55
Word Processor/Clerical	$ 81.16

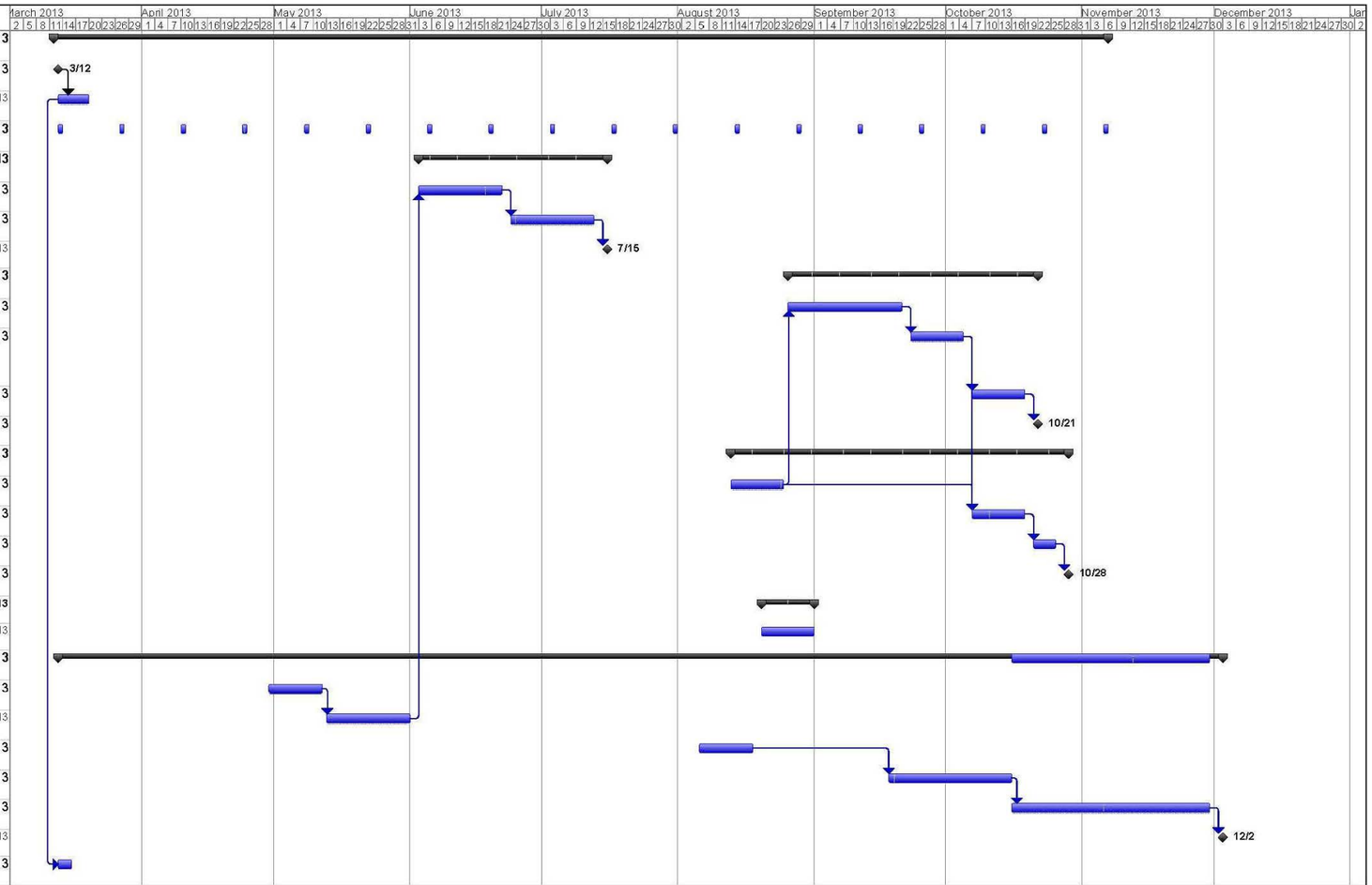
IN HOUSE EQUIPMENT:	**Rate**
Computer Use	$1.64 per labor hour
Automobile	Approved GSA Rates for Privately Owned Vehicles
Airboat	$300.00/day
Cataraft (16-ft)	$100.00/day
Cataraft (14-ft)	$100.00/day
Jet boat (18-ft)	$225.00/day
Inflatable kayak	$50.00/day
Zodiak (9-ft)	$100.00/day
RTK GPS Equipment	$1,800/week
Echosounder	$625/week
ADCP Unit	$1,500/week
ADCP with GPS Equipment	$3,000/week
ADCP with GPS Equipment and Echosounder	$3,500/week
Hypack	$60/day

IN HOUSE REPRODUCTION:	
8 ½ x 11 paper	$ 0.10/sheet
Plotter (black & white)	$5.00/sheet
Plotter (color)	$7.50/sheet

*Hourly rates for deposition and court time associated with expert witness support will be charged at 1.5 times the indicated rate. Permit fees, processing fees, bonds, etc. will be the responsibility of the client. All other direct costs including travel, lodging, meals and incidentals for personnel, special photography, postage, delivery services, express mail, out-of-area telephone calls, printing by outside vendor, laboratory analysis, and any other services performed by outside vendor will be billed at cost plus G&A of 13.46%. Subcontract services will be charged to the client with a 10% service fee. Tetra Tech (TT) is not liable for damages caused by delays in performance of the above work, which arise from events beyond our reasonable control. TT is not responsible for damages or losses incurred through the use of studies, plans, recommendations or cost estimates in excess of the fees paid to TT for these services. Monthly progress payments shall be due and payable by the Client within 30 days after submittal of the bill for such work by TT. The progress payment shall include the portion of the fee earned based upon the percentage of work performed, as determined by TT. Payment due but unpaid within 30 days after submission of the bill shall bear interest at the rate of 1½% per month until paid. If client should fail to pay within ninety (90) days after the bill is rendered, TT shall have the right, upon seven (7) days written notice to the Client, to stop work on the project until payment of the amount owed, including all interest charges, has been received.

Project Timeline

ID	ID	Text1	Task Name	Start	Finish
1	1	100	**Project Management**	**Tue 3/12/13**	**Wed 11/6/13**
2	2	100.1	Notice-to-proceed	Tue 3/12/13	Tue 3/12/13
3	3	102	Develop Final Scope of Services and Fee	Wed 3/13/13	Tue 3/19/13
4	4	103	**Project Management, Meetings & Biweekly Conf Calls**	**Wed 3/13/13**	**Wed 11/6/13**
23	23	200 AM	**Design - 2 Dimensional Hydraulic Modeling**	**Mon 6/3/13**	**Mon 7/15/13**
24	24	201	Update and re-calibrate SRH 2-D Hydraulic Model	Mon 6/3/13	Fri 6/21/13
25	25	202	Technical Memorandum	Mon 6/24/13	Fri 7/12/13
26	26	202.1	Submit Technical Memorandum	Mon 7/15/13	Mon 7/15/13
27	27	400 AM	**Design - Model Application**	**Mon 8/26/13**	**Mon 10/21/13**
28	28	401	Apply 2-D Hydraulic Model	Mon 8/26/13	Fri 9/20/13
29	29	402	Evaluate model results to access likely response to management actions	Mon 9/23/13	Fri 10/4/13
30	30	403	Prepare technical memorandum	Mon 10/7/13	Fri 10/18/13
31	31	403.1	Submit draft technical memo	Mon 10/21/13	Mon 10/21/13
32	32	500 AM	**Design - Management Experiment Statistical Design**	**Tue 8/13/13**	**Mon 10/28/13**
33	33	501	Identify potential channel manipulation actions	Tue 8/13/13	Sat 8/24/13
34	34	502	Perform statistical analysis	Mon 10/7/13	Fri 10/18/13
35	35	503	Prepare technical memorandum	Mon 10/21/13	Fri 10/25/13
36	36	503.1	Submit draft technical memo	Mon 10/28/13	Mon 10/28/13
37	37	600 AM	**Design - Performance Evaluation Decision Tree**	**Tue 8/20/13**	**Sat 8/31/13**
38	38	601	Review and input to ED Office on Decision Tree	Tue 8/20/13	Sat 8/31/13
39	39	700 AM	**Monitoring and Data Analysis**	**Wed 3/13/13**	**Mon 12/2/13**
40	40	701a	Pre-runoff Monitoring	Tue 4/30/13	Sat 5/11/13
41	41	702a	Data Analysis	Mon 5/13/13	Fri 5/31/13
42	42	701b	Post-runoff Monitoring	Tue 8/6/13	Sat 8/17/13
43	43	702b	Data Analysis	Wed 9/18/13	Tue 10/15/13
44	44	703	Prepare annual report	Wed 10/16/13	Fri 11/29/13
45	45	703.1	Submit Annual Technical Report	Mon 12/2/13	Mon 12/2/13
46	46	704	Attend AM Reporting Session	Wed 3/13/13	Fri 3/15/13



Project: Elm_Creek_FSM_Y3_Schedu
Date: Fri 11/2/12

Task | Split | Milestone | Summary | Project Summary | External Tasks | External Milestone | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | Progress | Deadline

Page 1

EXHIBIT C

Tetra Tech
3801 Automation Way
Suite 100
TIN# 97-4148514

Nebraska Community Foundation, Inc.
PO Box 83107
Lincoln, NE 68501-3107
TIN# 47-0769903

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

Contract between Nebraska Community Foundation, Inc., Platte River Recovery Implementation Program, and Tetra Tech, Inc.

Elm Creek Complex FSM Project

1. **Parties.** This Contract is made and entered into by and between the Nebraska Community Foundation, Inc. ("Foundation") of Lincoln, Nebraska, representing all signatories to the Platte River Recovery Implementation Program ("Program") and Tetra Tech, Inc. ("Consultant"). The following persons are authorized to represent the parties through this Contract: Diane Wilson of the Foundation, Dr. Jerry Kenny of the Program; and Dr. Robert Mussetter of the Consultant.

2. **Purpose of Contract.** The purpose of this Contract is to allow the Foundation, acting as the fiscal agent for the Governance Committee (GC) of the Program, to retain the services of the Consultant to render certain technical or professional services hereinafter described in connection with an undertaking to be financed by the Program, and to delegate the Executive Director's Office ("ED Office") through its Executive Director or his designee the authority to administer this Contract.

TERMS AND CONDITIONS

3. **Term of Contract and Required Approvals.** This Contract is effective when all parties have executed it and all required approvals have been granted. The term of this Contract is from May 2, 2011 through May 1, 2014. The services to be performed under this Contract will commence upon receipt of authorization to proceed. All services shall be completed during this term.

If the Consultant has been delayed and as a result will be unable, in the opinion of the Program, to complete performance fully and satisfactorily within this Contract period, the Consultant may be granted an extension of time, upon submission of evidence of the causes of delay satisfactory to the Program.

4. **Payment.**

A. **Reimbursement of Expenses.** The Program agrees to pay the Consultant an amount based on the approved budget depicted in Exhibit B and hourly rate and reimbursable

expenses price schedules depicted in Exhibit C, attached to this Contract and incorporated by reference as part of this Contract, for the services described in Exhibit A, attached to this Contract and incorporated by reference as part of this Contract. Total payment under this Contract shall not exceed two hundred fifty three thousand, five hundred forty three dollars ($253,543.00).

B. Project Budget. The Project budget for each task included in Exhibit A is as follows:

Task	Estimated Cost
Task 100 (Project Management)	$ 17,418
Task 200 (2D Hydraulic and Sediment Transport Modeling)	$ 49,884
Task 300 (Information Review)	$ 8,111
Task 400 (Model Application)	$ 40,493
Task 500 (Management Experiment Statistical Design)	$ 11,560
Task 600 (Performance Evaluation Decision Tree)	$ 7,341
Task 700 (Monitoring and Data Analysis)	$118,736
Total Project Cost	**$253,543**

The amounts for each task are estimates only, but are not to be exceeded unless authorized in writing by the Program. The Contract total amount is controlling. Payment shall be made directly to the Consultant. The Consultant shall maintain hourly records of time worked by its personnel to support any audits the Program may require. Billing reports shall be submitted no more often than monthly for activities and costs accrued since the last billing report. A brief project progress report summarizing project activities in the billing period must be submitted with each billing.

C. Billing Procedures. The Consultant shall send billing reports for services performed for the various tasks outlined in Exhibit A to the ED Office (address included below). The Program's Executive Director, upon receiving the billing report, will approve the bill and submit the bill for payment. The submittal for payment will then be reviewed by the Signatory Parties of the Program who will advise the Foundation of approval. The Foundation will make payment of these funds directly to the Consultant within 30 days of notice of approval by the Signatory Parties. Payments of bills are due within 60 days after the billing date of the Consultant.

Billing Point of Contact (Program):
Dr. Jerry F. Kenny, Executive Director
Platte River Recovery Implementation Program
Headwaters Corporation
4111 4th Avenue, Suite 6
Kearney, Nebraska 68845
Phone: (308) 237-5728
Fax: (308) 237-4651
Email: kennyj@headwaterscorp.com

D. Money Withheld. When the Program has reasonable grounds for believing that the Consultant will be unable to perform this Contract fully and satisfactorily within the time fixed for performance, then the Program may withhold payment of such portion of any amount otherwise due and payable to the Consultant reasonably deemed appropriate to protect the Program against such loss. These amounts may be withheld until the cause for the withholding is cured to the Program's satisfaction or this Contract is terminated pursuant to Section 8U. Any amount so withheld may be retained by the Program for such period as it may deem advisable to protect the Program against any loss. This provision is intended solely for the benefit of the Program and no person shall have any right against the Program by reason of the Program's failure or refusal to withhold monies. No interest shall be payable by the Program on any amounts withheld under this provision. This provision is not intended to limit or in any way prejudice any other right of the Program.

E. Withholding of Payment. If a work element has not been received by the Program by the dates established in Exhibit A, the Program may withhold all payments beginning with the month following that date until such deficiency has been corrected.

F. Final Completion and Payment. The final payment shall be made upon acceptance of the final report and receipt of the final billing.

5. Responsibilities of Consultant.

A. Scope of Services. The Consultant shall perform the specific services required under this Contract in a satisfactory and proper manner as outlined in Exhibit A. If there is any conflict between this Contract and the provisions of the specific requirements of Exhibit A, the specific requirements shall prevail.

B. Personnel. All of the services required hereunder will be performed by the Consultant or under its supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized, licensed, or permitted under state law to perform such services, if state law requires such authorization, license, or permit.

C. Subcontracts.

(i) Approval Required for Subcontracts. Any subcontractors and outside associates or consultants required by the Consultant in connection with the services, work performed or rendered under this Contract will be limited to such individuals or firms as were specifically identified in the proposal and agreed to during negotiations or are specifically authorized by the Program during the performance of this Contract. The Consultant shall submit a list of the proposed subcontractors, associates or consultants; the scope and extent of each subcontract; and the dollar amount of each subcontract prior to Contract execution to the Program for approval. During the performance of the Contract, substitutions in or additions to such subcontracts, associates, or consultants will be subject to the prior approval of the Program. The Program approval of subcontractors will not relieve the Consultant from any responsibilities outlined in this Contract. The Consultant shall be responsible for the actions of the subcontractors, associates, and subconsultants.

(ii) Billings for Subcontractors. Billings for subcontractor, associates or subconsultants services will not include any mark up. The subcontract costs will be billed to the Program at the actual costs as billed to the Consultant. Subcontract costs will be documented by attaching subcontractor billings to the Consultant's billing submittals.

(iii) Copies of Subcontracts. The Consultant shall provide to the Program copies of each subcontractor contract immediately following execution with the subcontractor. All subcontracts between the Consultant and a subcontractor shall refer to and conform to the terms of this Contract. However, nothing in this Contract shall be construed as making the Program a party of any subcontract entered between the Consultant and a subcontractor.

D. Requests from the Program. The Consultant shall be responsible and responsive to the Program and the ED Office in their requests and requirements related to the scope of this Contract.

E. Presentation of Data. The Consultant shall select and analyze all data in a systematic and meaningful manner so as to contribute directly in meeting the objectives of the Project, and shall present this information clearly and concisely, in a professional manner.

F. Draft of Final Report. The Consultant shall present the Program a draft of the final report covering all work elements of the Project including maps, charts, conclusions and recommendations prior to the publication of any final report and no later than the date specified in Exhibit A. Draft Reports will be provided to the Program in Microsoft Word format for distribution and review. The Program will respond with written comments to the Consultant as soon as possible. The Consultant will address the comments of the Program in the final report. Final Reports will be provided to the Program in Microsoft Word and PDF format.

G. Project Completion Report. A final project completion report in the form described in Exhibit A shall be submitted to the Program by the date specified in Exhibit A.

H. Reports, Maps, Plans, Models and Documents. One (1) copy of maps, plans, worksheets, logs, field notes and other reference or source documents prepared for or gathered under this Contract, and one (1) copy of each unpublished report prepared under this Contract shall be submitted to the Program. If the Consultant writes or uses a computer program or spreadsheet as a part of this project, the Consultant shall submit to the Program for approval all proposed program names and data formats prior to beginning work on that task. All data shall be submitted to Program in written and digital forms with the final report. Digital media shall be labeled by the Consultant to provide sufficient detail to access the information on the media. All user manuals shall be submitted by the Consultant to Program providing complete documentation of computer programs developed under this Contract. The user manual shall also specify the source code language and the type of computer equipment necessary to operate the program(s). Any programs or computer software generated as a part of this Contract shall be the sole property of the Program.

I. Inspection and Acceptance. All deliverables furnished by the Consultant shall be subject to rigorous review by the Program's ED Office prior to acceptance.

6. <u>Responsibilities of the Program.</u>

A. Designated Representative. The Executive Director of the Program shall act as the Program's administrative representative with respect to the Consultant's service to be performed under this Contract and shall have complete authority to transmit instructions, receive information, and interpret and define the Program's policies and decisions with respect to services covered by this Contract.

B. Data to be Furnished to the Consultant. All information, data, reports, and maps as are available to the Program and necessary for the carrying out of the Scope of Services set forth herein shall be furnished to the Consultant without charge and the ED Office shall cooperate with the Consultant in the carrying out of the project.

C. Review Reports. The ED Office shall examine all studies, reports, sketches, opinions of the construction costs, and other documents presented by the Consultant to the Program and shall promptly render in writing the Program's decisions pertaining thereto within the time periods specified in Exhibit A.

D. Provide Criteria. The ED Office shall provide all criteria and full information regarding its requirements for the project.

7. **Special Provisions.**

A. No Finder's Fees. No finder's fee, employment agency fee, or other such fee related to the procurement of this Contract shall be paid by either party.

B. Publication. It is understood that the results of this work may be available to the Consultant for publication and use in connection with related work. Use of this work for publication and related work by the Consultant must be conducted with prior authorization from the Program's Technical Point of Contact.

C. Publicity. Any publicity or media contact associated with the Consultant's services and the result of those services provided under this Contract shall be the sole responsibility of the Program. Media requests of the Consultant should be directed to the Director of Outreach and Operations in the ED Office.

D. Monitor Activities. The Program shall have the right to monitor all Contract related activities of the Consultant and all subcontractors. This shall include, but not be limited to, the right to make site inspections at any time, to bring experts and consultants on site to examine or evaluate completed work or work in progress, and to observe all Consultant personnel in every phase of performance of Contract related work.

D. Kickbacks. The Consultant certifies and warrants that no gratuities, kickbacks or contingency fees were paid in connection with this Contract, nor were any fees, commissions, gifts, or other considerations made contingent upon the award of this Contract. If the Consultant breaches or violates this warranty, the Program may, at its discretion, terminate this Contract without liability to the Program, or deduct from the Contract price or consideration, or otherwise recover, the full amount of any commission, percentage, brokerage, or contingency fee.

E. Office Space, Equipment, and Supplies. The Consultant will supply its own office space, equipment, and supplies.

8. **General Provisions.**

A. Amendments. Any changes, modifications, revisions or amendments to this Contract which are mutually agreed upon by the parties to this Contract shall be incorporated by written instrument, executed and signed by all parties to this Contract.

B. Applicable Law/Venue. The construction, interpretation and enforcement of this Contract shall be governed by the laws of the State of Nebraska. The Courts of the State of Nebraska shall have jurisdiction over this Contract and the parties.

C. Assignment/Contract Not Used as Collateral. Neither party shall assign or otherwise transfer any of the rights or delegate any of the duties set forth in this Contract without the prior written consent of the other party. The Consultant shall not use this Contract, or any portion thereof, for collateral for any financial obligation, without the prior written permission of the Program.

D. Audit/Access to Records. The Program and any of its representatives shall have access to any books, documents, papers, and records of the Consultant which are pertinent to this Contract. The Consultant shall, immediately upon receiving written instruction from the Program, provide to any independent auditor, accountant, or accounting firm, all books, documents, papers and records of the Consultant which are pertinent to this Contract. The Consultant shall cooperate fully with any such independent auditor, accountant, or accounting firm, during the entire course of any audit authorized by the Program.

E. Availability of Funds. Each payment obligation of the Program is conditioned upon the availability of funds and continuation of the Platte River Recovery Implementation Program. If funds are not allocated and available for the continuance of the services performed by the Consultant, the contract may be terminated by the Program at the end of the period for which the funds are available. The Program shall notify the Consultant at the earliest possible time of the services which will or may be affected by a shortage of funds. No penalty shall accrue to the Program in the event this provision is exercised, and the Program shall not be obligated or liable for any future payments due or for any damages as a result of termination under this section. This provision shall not be construed to permit the Program to terminate this Contract to acquire similar services from another party.

F. Award of Related Contracts. The Program may undertake or award supplemental or successor contracts for work related to this Contract. The Consultant shall cooperate fully with other contractors and the Program in all such cases.

G. Certificate of Good Standing. Consultant shall provide Certificate of Good Standing verifying compliance with the unemployment insurance and workers' compensation programs prior to performing work under this Contract.

H. Compliance with Law. The Consultant shall keep informed of and comply with all applicable federal, state and local laws and regulations in the performance of this Contract.

I. Confidentiality of Information. All documents, data compilations, reports, computer programs, photographs, and any other work provided to or produced by the Consultant in the performance of this Contract shall be kept confidential by the Consultant unless written permission is granted by the Program for its release.

J. Conflicts of Interest

(i) Consultant shall not engage in providing consultation or representation of clients, agencies or firms which may constitute a conflict of interest which results in a disadvantage to the Program or a disclosure which would adversely affect the interests of the Program. Consultant shall notify the Program of any potential or actual conflicts of interest arising during the course of the Consultant's performance under this Contract. This Contract may be terminated in the event a conflict of interest arises. Termination of the Contract will be subject to a mutual settlement of accounts. In the event the contract is terminated under this provision, the Consultant shall take steps to insure that the file, evidence, evaluation and data are provided to the Program or its designee. This does not prohibit or affect the Consultant's ability to engage in consultations, evaluations or representation under agreement with other agencies, firms, facilities, or attorneys so long as no conflict exists.

(ii) A conflict of interest warranting termination of the Contract includes, but is not necessarily limited to, representing a client in a adversarial proceeding against the Platte River Recovery Implementation Program, its signatories, boards, commissions or initiating suits in equity including injunctions, declaratory judgments, writs of prohibition or *quo warranto.*

K. Entirety of Contract. This Contract, consisting of *Fifteen* (15) pages, Exhibit A, consisting of *Eleven* (11) pages, Exhibit B, consisting of Three (3) page, Exhibit C, consisting of *One (1)* page, and Exhibit D, consisting of *One (1)* page, represents the entire and integrated Contract between the parties and supersedes all prior negotiations, representations, and agreements, whether written or oral.

L. Force Majeure. Neither party shall be liable for failure to perform under this Contract if such failure to perform arises out of causes beyond the control and without the fault or negligence of the nonperforming party. Such causes may include, but are not limited to, acts of God or the public enemy, fires, floods, epidemics, quarantine restrictions, freight embargoes, and unusually severe weather. This provision shall become effective only if the party failing to perform immediately notifies the other party of the extent and nature of the problem, limits delay in performance to that required by the event, and takes all reasonable steps to minimize delays. This provision shall not be effective unless the failure to perform is beyond the control and without the fault or negligence of the nonperforming party.

M. Indemnification. The Consultant shall indemnify and hold harmless the Foundation, the Program, the ED Office, and their officers, agents, employees, successors and assignees from any and all claims, lawsuits, losses and liability arising out of Consultant's failure to perform any of Consultant's duties and obligations hereunder or in connection with the negligent performance of Consultant's duties or obligations, including but not limited to any claims, lawsuits, losses or liability arising out of Consultant's malpractice.

N. Independent Contractor. The Consultant shall function as an

independent contractor for the purposes of this Contract, and shall not be considered an employee of the Program, Foundation or ED Office for any purpose. The Consultant shall assume sole responsibility for any debts or liabilities that may be incurred by the Consultant in fulfilling the terms of this Contract, and shall be solely responsible for the payment of all federal, state and local taxes which may accrue because of this Contract. Nothing in this Contract shall be interpreted as authorizing the Consultant or its agents and/or employees to act as an agent or representative for or on behalf of the Foundation or the Program, or to incur any obligation of any kind on the behalf of the Foundation or the Program. The Consultant agrees that no health/hospitalization benefits, workers' compensation and/or similar benefits available to Foundation or Program employees will inure to the benefit of the Consultant or the Consultant's agents and/or employees as a result of this Contract.

O. Notices. All notices arising out of, or from, the provisions of this contract shall be in writing and given to the parties at the address provided under this Contract, either by regular mail, facsimile, e-mail, or delivery in person.

P. Notice and Approval of Proposed Sale or Transfer of the Consultant. The Consultant shall provide the Program with the earliest possible advance notice of any proposed sale or transfer or any proposed merger or consolidation of the assets of the Consultant. Such notice shall be provided in accordance with the notice provision of this Contract.

Q. Ownership of Documents/Work Product/Materials. All documents, reports, records, field notes, data, samples, specimens, and materials of any kind resulting from performance of this Contract are at all times the property of the Program.

R. Patent or Copyright Protection. The Consultant recognizes that certain proprietary matters or techniques may be subject to patent, trademark, copyright, license or other similar restrictions, and warrants that no work performed by the Consultant or its subcontractors will violate any such restriction.

S. Proof of Insurance. The Consultant shall not commence work under this Contract until the Consultant has obtained the following insurance coverages and provided the corresponding certificates of insurance:

(i) Commercial General Liability Insurance. Consultant shall provide coverage during the entire term of the Contract against claims arising out of bodily injury, death, damage to or destruction of the property of others, including loss of use thereof, and including products and completed operations in an amount not less than Five Hundred Thousand Dollars ($500,000.00) per claimant and One Million Dollars ($1,000,000.00) per occurrence.

(ii) Business Automobile Liability Insurance. Consultant shall maintain, during the entire term of the Contract, automobile liability insurance in an amount not less than Five Hundred Thousand Dollars ($500,000.00) per occurrence. Coverage will include bodily injury and property damage covering all vehicles, including hired vehicles, owned and

non-owned vehicles

(iii) Workers' Compensation or Employers' Liability Insurance. The Consultant shall provide proof of workers' compensation coverage Consultant's insurance shall include "Stop Gap" coverage in an amount not less than Five Hundred Thousand Dollars ($500,000.00) per employee for each accident and disease.

(iv) Professional Liability or Errors and Omissions Liability Insurance. The Consultant shall provide proof of professional liability insurance or errors and omissions liability insurance to protect the Foundation, Program and ED Office from any and all claims arising from the Consultant's alleged or real professional errors, omissions or mistakes in the performance of professional duties in an amount not less than One Million Dollars ($1,000,000.00) per claim.

T. Taxes. The Consultant shall pay all taxes and other such amounts required by federal, state and local law, including but not limited to federal and social security taxes, workers' compensation, unemployment insurance and sales taxes.

U. Termination of Contract. This Contract may be terminated, without cause, by the Program upon fifteen (15) days written notice. This Contract may be terminated immediately for cause if the Consultant fails to perform in accordance with the terms of this Contract.

V. Third Party Beneficiary Rights. The parties do not intend to create in any other individual or entity the status of third party beneficiary, and this Contract shall not be construed so as to create such status. The rights, duties and obligations contained in this Contract shall operate only between the parties to this Contract, and shall inure solely to the benefit of the parties to this Contract. The provisions of this Contract are intended only to assist the parties in determining and performing their obligations under this Contract.

W. Time is of the Essence. Time is of the essence in all provisions of the Contract.

X. Titles Not Controlling. Titles of paragraphs are for reference only, and shall not be used to construe the language in this Contract.

Y. Waiver. The waiver of any breach of any term or condition in this Contract shall not be deemed a waiver of any prior or subsequent breach.

9. **Contacts.**

Administrative Point of Contact (Foundation):
Diane M. Wilson
Chief Financial and Administrative Officer
Nebraska Community Foundation
PO Box 83107
Lincoln, Nebraska 68501-3107
Phone: (402) 323-7330
Fax: (402) 323-7349
Email: dwilson@nebcommfound.org

Admin. Point of Contact (Program):
Dr. Jerry F. Kenny, Executive Director
Platte River Recovery Implementation Prog.
Headwaters Corporation
4111 4th Avenue, Suite 6
Kearney, Nebraska 68845
Phone: (308) 237-5728
Fax: (308) 237-4651
Email: kennyj@headwaterscorp.com

Technical Point of Contact (Program):
Steve Smith, P.E.
Platte River Recovery Implementation Prog.
Headwaters Corporation
2727 Bryant St., Suite 210
Denver, CO 80211
Phone: (720) 524-6115
Fax: (720) 524-6347
Email: smiths@headwaterscorp.com

Media Point of Contact (Program):
Dr. Bridget Barron, Director of Outreach
Platte River Recovery Implementation Prog.
Headwaters Corporation
4111 4th Avenue, Suite 6
Kearney, Nebraska 68845
Phone: (308) 237-5728
Fax: (308) 237-4651
Email: barronb@headwaterscorp.com

Administrative Point of Contact (Consultant):
Bonnie Vail
Tetra Tech, Inc.
3801 Automation Way, Suite 100
Fort Collins, CO 80525
Phone: (970) 223-9600
Fax: (970) 223-7171
Email: Bonnie.Vail@tetratech.com

Technical Point of Contact (Consultant):
Robert Mussetter, PhD, P.E.
Tetra Tech, Inc.
3801 Automation Way, Suite 100
Fort Collins, CO 80525
Phone: (970) 223-9600
Fax: (970) 223-7171
Email: Bob.Mussetter@tetratech.com

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10. **Signatures.** By signing this Contract, the parties certify that they have read and understood it, that they agree to be bound by the terms of the Contract, that they have the authority to sign it.

NEBRASKA COMMUNITY FOUNDATION

Diane M. Wilson
Chief Financial and Administrative Officer

5/11/2011
Date

TETRA TECH, INC.

Robert Mussetter, PhD, P.E.

May 5, 2011
Date

EXHIBIT "A"
SCOPE OF SERVICES

A. PROJECT DESCRIPTION

1. Location: *Platte River from Elm Creek Bridge to approximately 4.7 miles downstream of the Elm Creek Bridge*

2. Purpose: *Technical services in support of the development and implementation of an FSM "Proof of Concept" management experiment. Work includes 2-dimensional hydraulic and sediment transport model development and calibration, statistical analysis for experimental design, annual implementation and effectiveness monitoring, and synthesis and analysis of monitoring data in support of performance evaluation.*

3. History: *The Platte River Recovery Implementation Program (Program) was initiated on January 1, 2007 between Nebraska, Wyoming, Colorado, and the Department of the Interior to address endangered species issues in the central and lower Platte River basin. The Program's management objectives are to 1) improve survival of whooping cranes during migration, 2) improve least tern and piping plover production, and 3) avoid adverse impacts on pallid sturgeon in the Lower Platte River. This Elm Creek Complex FSM project will help provide information regarding one of the Program's management strategies to achieve the management objectives: the Flow-Sediment-Mechanical (FSM) management strategy. Information will be gleaned through a "proof of concept" management experiment, as part of the adaptive management process being incorporated in the Program.*

B. PROJECT REQUIREMENTS

1. Monthly Progress Reports and Billing Statements

The Consultant shall submit a brief monthly progress report outlining the study status, progress, and results to date, regardless of whether or not a billing statement is submitted, on or before the last working day of the month. The progress report will also show the percentage of the job completed by task and the percentage of budget spent. The progress report will also include a billing projection for the upcoming month for the purpose of Program reimbursement request planning.

Each billing statement must include a task-by-task report justifying the cost items contained in the billing statement. The monthly progress report may be used as the justification for the billing statement as long as all cost items covered in the billing statement are addressed in the progress report.

2. Computer Models, Statement of Assumptions, Project Work File

a. If the Consultant writes or uses a computer program or spreadsheet as a part of this project, the Consultant shall submit to the Program for approval all proposed program names and data formats prior to beginning work on that task. All data shall be submitted to the Program in written and digital forms with the final report. Digital media shall be labeled by the Consultant to provide sufficient detail to access the information on the media. User manuals shall be submitted by the Consultant to the Program providing complete documentation of computer programs developed under this project. The user manuals shall also contain the source code language and the type of computer equipment necessary to operate the program(s). The computer programs and spreadsheets (written and digital forms) are due on the same date as the final report, which contains the information generated by the programs.

b. To facilitate the Program's accurate evaluation of the Consultant's work product, computations, conclusions and recommendations, the Consultant shall:

* Include in the final report a section describing the assumptions and methodology used by the Consultant in generating the data and conclusions contained in that chapter.

* Maintain a project work file containing the materials used in project analysis. This file will be available for review by the Program and should be organized in such a way as to allow replication of the steps and procedures used by the Consultant to reach the conclusions described in the study.

* Prepare a project notebook containing a description of the assumptions and methodologies used in the project analysis. The notebook shall be organized in such a way as to allow replication of the steps, calculations, and procedures used by the Consultant to reach conclusions, described in the draft final report. The project notebook shall be submitted with the draft final report.

3. Final Report

The Consultant shall use the Contract Scope of Services as the outline for draft and final reports so that Consultant compliance with Contract provisions can be verified. If the final report contains information of an engineering nature, the cover of the final report, all plates, and the executive summary must be stamped and signed by a Professional Engineer licensed in the State of Nebraska or other state if appropriate to location of

project site. If the final report contains information of a geologic nature, the cover of the final report, all plates, and the executive summary must be stamped and signed by a Professional Geologist licensed in the State of Nebraska. If the final report contains information of both an engineering and geologic nature, the cover of the final report, all plates, and the executive summary must be stamped and signed by both a Professional Engineer and a Professional Geologist licensed in the State of Nebraska. At a minimum, the reproducible original to be submitted as part of the deliverables required herein must utilize an original seal(s) and original signature(s).

4. Final Report - Digital Format

In addition to the paper submittal described in Section C.4 above, the Consultant shall also provide the final documents and related materials in a digital format. This digital report shall, to the extent feasible, be assembled into one file rather than separate files for text, tables, graphics, etc. This digital report shall be contained on a CD(s) or DVD(s), and shall be in both Word and Adobe Acrobat format. Any plates, figures, etc. not suitable for Word shall be in AutoCAD, ArcGIS, Adobe Acrobat, or compatible format. Other formats may be used if approved in advance by the ED Office. The final documents will also be provided fully assembled into one file, in a complete "internet ready" digital format to facilitate their distribution via the Office website.

5. Project Access

The ED Office shall be responsible for obtaining access as required for project tasks.

6. Stand-By Time

The Program will not reimburse the Consultant for stand-by time charges for the Consultant's supervisory personnel.

C. SCOPE OF SERVICES

See **Exhibit A** "Final Scope of Services"

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
First Amendment to the
Agreement between the Nebraska Community Foundation, Inc. and Tetra Tech, Inc., Private Consultant

This First Amendment to the Agreement between the Nebraska Community Foundation, Inc. ("Foundation") of Lincoln, Nebraska, representing all signatories to the Platte River Recovery Implementation Program ("Program") and Tetra Tech, Inc. ("Consultant"), a private consultant of Fort Collins, Colorado is made and entered into effective on the date of signing below.

The purpose of this Amendment is to:

1. Increase the contract payment amount by a total amount of $15,136, effective as of the date of this Amendment. The original contract amount of $253,543 will be increased to $268,679 effective with the signing of this amendment.
2. The additional contract amount is a result of additional labor for collecting and reducing field data for the two monitoring events in 2011 as a result of higher than anticipated flows during monitoring events. Detail regarding the additional effort associated with this First Amendment is provided in Attachment A.

All other terms of the original agreement remain in effect as originally written in the Agreement dated April 25, 2011.

The following parties agree to the terms of this Amendment and the original Agreement.

For the Foundation:

Diane M. Wilson (Nebraska Community Foundation)
Chief Financial and Administrative Officer

11/21/2011
Date

For the Consultant:

Robert A. Mussetter, PhD, PE (Tetra Tech, Inc.)
Discipline Lead

Nov 17, 2011
Date

Attachment A

Request for Budget Adjustment for Elm Creek FSM Experiment

TETRA TECH

ATTACHMENT A

November 16, 2011

Mr. Steve Smith, PE
Platte River Recovery Implementation Program
Headwaters Corporation
2727 Bryant Street, Suite 210
Denver, Colorado 80211

Re: Request for Budget Adjustment for Elm Creek FSM Experiment

Dear Steve,

Per our recent conversations, Tetra Tech respectfully requests an increase in our Year-1 budget for Task 700 - AM Monitoring and Data Analysis for the Elm Creek FSM Project of **$15,136.** The requested budget represents an additional 10 hours of labor for each of the four field crew members for each of the two data collection efforts, plus additional time for several staff categories to reduce the data and complete the annual data report (see table, below).

Staff Category	Hourly Rate	May Data Collection	September Data Collection	Data Reduction	Total Hours	Cost
Principal Engineer/ Geomorphologist	$221.50			8	8	$1,772
Senior Biologist	$171.50			8	8	$1,372
Statistical Ecologist	$151.50			16	16	$2,424
Junior Engineer/Scientist	$96.50	10	10	8	28	$2,702
Staff Biologist	$91.50	10	10		20	$1,830
Staff Ecologist/ Technician	$86.00	20	20		40	$3,440
Draftsman/Technician	$66.50			24	24	$1,596
					Total Cost	**$ 15,136**

Our original budget included 50 hours of field time for each of the four field crew members, plus 8 hours each for a Junior Engineer and Draftsman to reduce the data. Our crews actually required well in excess of 60 hours of field time to complete the work, and the efforts required to reduce the data were significantly higher than anticipated, due primarily to the higher-than-anticipated flows during the data collection period. While the amount being requested does not fully compensate for our actual costs, we believe this is a reasonable compromise, recognizing the inherent risk to both Tetra Tech and the Program associated with field work under these conditions.

In our original budget, we assumed that most of the site would be wadeable, including the entire surface of the sandbars above the 1,200-cfs water surface, based on an assessment of the historical flows. As you know, the flows cycled between about 1,900 and 3,500 cfs during the first three days of the May field data collection period and then held relatively steady at about 3,500 cfs for the remainder of the period; while the flows during this period are typically in the

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range of 1,200 to 1,500 cfs. During the September visit, the flows were also in the 3,500-cfs range, compared to more normal conditions when the flows are typically in the 400- to 500-cfs range. As a result, it was necessary for us to use a boat-mounted depth sounder that requires considerably more time and logistical support than wading for a large portion of the site. The higher flows also made it more difficult to obtain suitable resolution data around the margins of the numerous sand bars between the 1,200-cfs water surface and the ±3,500-cfs water surface. This, in turn, increased the complexity and time required to reduce the data, particularly in developing the topography of the sand bars, because the resolution of the data that we were able to obtain in the 1,200- to 3,500-cfs zone was less than we would have been able to efficiently obtain at the lower flows by wading.

We appreciate your willingness to consider this request. Please give me a call if you have questions or would like additional information.

Sincerely,

TETRA TECH, INC.

Robert A. Mussetter, PhD, PE
Discipline Lead

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PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Second Amendment to the
Agreement between the Nebraska Community Foundation, Inc. and Tetra Tech, Inc., Private Consultant

This Second Amendment to the Agreement between the Nebraska Community Foundation, Inc. ("Foundation") of Lincoln, Nebraska, representing all signatories to the Platte River Recovery Implementation Program ("Program") and Tetra Tech, Inc. ("Consultant"), a private consultant of Fort Collins, Colorado is made and entered into effective on the date of signing below.

The purpose of this Amendment is to:

1. Increase the contract payment amount by a total amount of $201,110, effective as of the date of this Amendment. The following describes the contract payment amount over time:
   - Original contract amount of $253,543
   - Amendment 1 (November 17, 2011) increase of $15,136 to total contract amount of $268,679
   - Amendment 2 increase of $201,110 to total contract amount of $469,789
2. The additional contract amount for this Second Amendment is for the purpose of funding work to be completed in the 2nd year (Calendar Year 2012) of the 3 year contract (May 2011 through May 2014). Detail regarding the scope of services to be completed as a result of this Second Amendment is provided in Exhibit A. A detailed budget estimate is provided in Exhibit B. The Consultant's rate schedule and project timeline are provided in Exhibit C and Exhibit D, respectively.

All other terms of the original agreement remain in effect as originally written in the Agreement dated April 25, 2011.

The following parties agree to the terms of this Amendment and the original Agreement.

For the Foundation:

Diane M. Wilson (Nebraska Community Foundation) — Date: 3/05/2012
Chief Financial and Administrative Officer

For the Consultant:

Robert A. Mussetter, PhD, PE (Tetra Tech, Inc.) — Date: March 2, 2012
Discipline Lead

EXHIBIT A

Final Scope of Services
Platte River Recovery Implementation Program
Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis
Year 2 (March 2012 through December 2012)

The following tasks will be completed by Tetra Tech, Inc. in accordance with the Budget (**Exhibit B**), Hourly Rate and Reimbursable Expenses Price Schedule 2012 (**Exhibit C**) and Project Timeline (**Exhibit D**) during the second year (March 2012 through December 2012) of the Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis Project. The scope of work, budget and schedule for the remainder of the contract term will be developed in consultation with the Program during the Year 2 activities.

Scope of Work

Task 100 - Project Management

Objective: Facilitate scoping of tasks to efficiently complete the work necessary to achieve the objectives of the "Proof of Concept" experiment. Detailed project scoping and budgeting shall be completed under this task. Provide Program stakeholders information on project progress. Document project progress through monthly invoices and progress reports.

Activities:

Task 102 – Develop Final Scope of Services and Fee

- Incorporate comments from Kickoff Meeting into draft scope and fee.

Task 103 - Project Management and Meetings:

- Coordinate work and solicit input from Program staff and participants throughout the project.

- Conduct meetings as necessary to coordinate project activities and to keep the Technical Advisory Committee (TAC) and GC informed of project progress.

    - Specific Program committee meetings required under this scope of work are described under each related task below.

    - Bi-weekly conference calls may be held with ED office staff to assess project progress, and to coordinate with the ED office regarding upcoming work in the future. During these meetings, ED Office staff will provide the Consultant with input on previous

findings, and the timing and scope of upcoming monitoring and reporting tasks. Meetings will be scheduled at the discretion of the ED office.

Deliverables:

- Draft and final scope of work, schedule, and budget.
- Meeting minutes from all Project Management meetings.
    - Draft minutes in Microsoft Word format provided to ED office for review/comment.
    - Final minutes in PDF format.
    - Copies of all formal presentation materials for Program committee meetings described throughout the remainder of this scope of work.
    - Monthly invoices to the ED office, including a summary of work completed in the current month, anticipated work for the following month, and percent complete for scope of work and budget by task.

Information/Service to be Provided by EDO Office Staff:

- Data from ongoing Program data collection efforts.
- Timely review and comments on draft scope of work, meeting minutes and related documents

Meetings/Travel:

- Bi-weekly meetings to be held by telephone conferenc e.
- Other meetings as described below.

Task Series 200 AM Design - 2-dimensional Hydraulic and Sediment Transport Modeling

Objective: Update the 2-dimensional (2-D) hydraulic and sediment-transport model of the approximately 4-mile Elm Creek Complex project reach that was developed and calibrated during Year 1, using the Bureau of Reclamation's SRH-2D platform. The model updates may include incorporation of revised topography based on the most recent LiDAR and monitoring data. This may also necessitate adjustments to the model mesh and the material-type polygons that define roughness zones and sedim ent gradations.

Activities: **Task 201 – 2D Hydraulic and Sediment-transport Model Updates and Re-Calibration**

- Review most recent LiDAR and monitoring data, and provide recommendations to the EDO regarding the need to update the model using the new data. The recommendations will be provided verbally at one of the bi-weekly update meetings, and will be supported, as appropriate, with graphics that illustrate the basis for the recommendations.

- If agreed to by the EDO, prepare a topographic surface at suitable resolution by combining the LiDAR and field data.
- Overlay the model mesh onto the new surface, adjust the mesh configuration, as appropriate, and re-assign the mesh node elevations.
- Adjust the sediment-transport model based on topographic, vegetation, and bed/bar substrate data collected in the field.
- Compare rigid boundary hydraulic model results and field data (measured water surface elevations from transducers and field survey, inundation boundaries from aerial imagery and field survey, and ADCP velocities from field survey). If necessary, make adjustments to achieve appropriate calibration.
- Prepare technical memorandum documenting the model updates and re-calibration.

Deliverables:

- Updated model(s).
- Technical memorandum documenting model updates and re-calibration.

Information/Service to be provided by EDO Staff:

- Data from ongoing Program data collection efforts.
- Timely review and comments on model report.

Meetings/Travel:

- Three (3) conference calls with Program staff to review approach and results for model adjustments.

Task Series 300 - AM Design - Information Review

Objective: Gain an understanding of FSM-related hypotheses and concepts developed for the Program, and utilize existing information and resources to design the management experiment at the Elm Creek Complex.

Activities: This task was completed under Year 1 activities. No work is envisioned under this task for Year 2.

Deliverables:

- None.

Meetings/Travel:

- None.

Task Series 400 - AM Design - Model Application

Objective: **Identify and** model potential management experiment options with the 2-D hydraulic and sediment-transport models updated and re-calibrated under **Task Series 200** to predict the range of potential experiment outcomes.

Activities:

Task 401 – Apply the 2-D Hydraulic and Sediment-transport Model

- Identify a limited number (2 or less) of combinations of management action scenarios that incorporate potential changes in topography (island lowering), vegetation removal (roughness effects) and sediment load (associated with the Sediment Augmentation Experiment).
- Modify the baseline hydraulic and sediment-transport models to incorporate each of the scenarios.
- Run the models for each of the physical scenarios with the SDHF hydrograph.

Task 402 – Evaluate Model Results to Assess Likely Response to Management Actions

- Evaluate and compare model results to assess likely response of the Elm Creek Complex to the proposed management actions and SDHF flow hydrograph. Specific issues to be considered include the following:
  - Potential ability for SDHFs to scour seedling vegetation
  - Potential ability to increase sandbar height.
- Conduct sensitivity analyses to assess the potential effects of uncertainty on management experiment outcomes, and identify design parameters that will have the greatest influence on outcomes.
- Compare model results to Program performance criteria developed for priority FSM-related physical process hypotheses to predict the ability to achieve management objectives.

Task 403 – Technical Memorandum

- Prepare technical memorandum documenting management experiment scenario results and potential outcomes

Task 404 – Model Application Meeting

- Participate in one informal meeting at Tetra Tech's office in Fort Collins or the ED Denver Office to discuss model application results and provide recommendations for management experiment implementation.

Deliverables:

- Draft technical memorandum.
- Final technical memorandum addressing ED office comments, to be completed following the model application meeting.

Meetings/Travel:

- One informal meeting at Tetra Tech's Fort Collins office or ED Denver Office.

Task Series 500 - AM Design - Management Experiment Statistical Design

Objective: Investigate the potential for implementing various mechanical channel action scenarios (e.g., selective macroform lowering and in-channel vegetation removal) to maximize the learning potential for the experiment. Provide statistical design of mechanical channel actions, if determined to increase learning potential of management experiment.

Activities:

Task 501 - Identify Potential Channel Manipulation Actions to Increase Learning Potential

- The Year 1 Scope of Work included both selective island lowering and vegetation clearing as possible management actions to be tested in this experiment. Based on the range of island sizes and heights in the observed reach during the 2011 monitoring, selective island lowering was not considered to be a necessary or appropriate action, and only vegetation removal was recommended for 2012 management actions. Under this task, this decision will be revisited, considering the response of the reach to the 2011 and 2012 flows, and if appropriate, the experimental plan will be adjusted to maximize learning opportunities from the experiment in the final year (2013) of the management experiment.

Task 502 – Perform statistical and other design input

- Provide statistical analysis of potential management experiment outcomes.
- Provide design input on mechanical action scenarios.

Task 503 – Technical Memorandum

- Prepare draft technical memorandum presenting recommendations for management actions in Year 3 and beyond, and the basis for those recommendations.

Deliverables:

- Draft technical memorandum.
- Final memorandum addressing EDO comments.
- Two (2) conference calls with Program staff.

Meetings/Travel:

- None anticipated under this task.

Task Series 600 - AM Design - Performance Evaluation Decision Tree

Objective: Provide technical support for the development of a performance evaluation decision tree of potential action adjustments based on the potential range of experiment outcomes. The decision tree will be used in conjunction with model results and monitoring data to evaluate management experiment outcomes, and will provide a quantitative means for evaluating the performance of the management experiment.

Activities: **Task 601** – Provide technical support and input to ED Office staff in developing a decision tree to guide management action adjustments under a range of possible outcomes. Model outcomes and monitoring data will be linked to performance measures from FSM-related physical process priority hypotheses to develop a range of potential action adjustments under a range of potential management action scenario outcomes.

Deliverables:

- Review of draft decision tree to be developed by ED Office. Technical input based on Tetra Tech's familiarity with modeled outcomes and analysis of field monitoring data from 2011 and 2012. Input to be provided in review comments and/or brief informal memorandum to ED Office.

Meetings/Travel:

- One (1) conference call to discuss draft decision tree that will be developed by ED Office.

Task Series 700 - AM Monitoring and Data Analysis

Objective: Collect field monitoring data in the Elm Creek Complex with emphasis on "need to know" information that will be used to evaluate management action performance, and present the data along with appropriate interpretations to Program stakeholders and other Program consultants.

Activities: **Task 701 - Elm Creek Complex Project-scale Monitoring**

Task 701.1 Complete project-scale monitoring at the Elm Creek complex following the Program's project-scale monitoring protocol and the Elm Creek complex monitoring and data analysis plan to be provided to the Consultant by the ED office. The monitoring will include two data collection events per year (total of six monitoring events during the 3-year contract).

Task 701.2 Monitoring events will include a combination of annual baseline monitoring, followed by event-based monitoring immediately after high flow events. It is anticipated that the first (baseline) sampling event will take place in late-April or early-May 2011. Timing of event-based monitoring will vary based on Platte River flows.

Task 702 – Data Analysis

- Analyze data from the monitoring events.
- Relate analysis results to the FSM-related physical priority hypotheses and Elm Creek performance measures and decision criteria to assess FSM hypotheses.
- Use the 2-D hydraulic model to assess flow characteristics (e.g., flow depth, velocity, and shear stress) that occurred at the Elm Creek complex between monitoring events.
- Relate flow characteristics to changes in geomorphology and in-channel vegetation to assess priority hypotheses using the performance evaluation decision tree.

- Perform additional statistical analyses of monitoring and modeling results to determine whether there is a statistically significant relationship between flow characteristics, geomorphology and in-channel vegetation.

Task 703 – Annual Monitoring and Analysis Report

- Prepare annual monitoring and data analysis reports, to include methods used, statistical trends indicated by the data and suggested modifications to the monitoring plan to improve the information being collected.

Task 704 – Participation in Adaptive Management (AM) Reporting Sessions

- Participate in annual AM session to present monitoring data collection and analysis results.

Deliverables:

- Draft, written annual monitoring and data analysis reports (one report during each of the three years of the contract).
- Finalized annual reports that address ED office comments.

Meetings/Travel:

- Annual Program AM reporting session in Denver (three meetings over 3-year contract period).

Task Series 800 - AM Evaluation/Assessment

NOTE: **All work under Task Series 800 will be performed in 2013 and 2014. Budget for this work is not included Years 1 and 2 of the contract (Exhibit B).**

Objective: Perform a formal evaluation of the performance of the management experiment based on the three years information to help the Program move from data monitoring and analysis to management decision-making. Prepare a synthesis of the work that can be used by policy makers to assess whether action adjustments are needed for the management experiment.

Activities: **Task 801 – Final Annual Update to 2D Hydraulic and Sediment Models**

- Make final updates to the 2-D hydraulic and sediment transport model in early-2013, based on monitoring data and physical process learning from 2011 and 2012.
- Use the updated model to revise predicted management experiment outcomes under a range of conditions, including SDHF timing, magnitude, and duration.
- Use performance measures and decision criteria from the performance evaluation decision tree developed under **Task 600** to evaluate management experiment outcomes, to include comparison of anticipated outcomes simulated under the Model Application task (**Task 400**) with observed outcomes. The steps in the performance evaluation tree will be used to determine whether action adjustments are needed (**Task 900**).

- Prepare a written synthesis of the experiment.

Task 802 – Technical Memorandum

- Prepare draft technical memorandum for the TAC synthesizing the results from the experiment.

Deliverables:

- Draft technical memorandum.
- Participate in peer review process by providing additional information, if requested.
- Final technical memorandum addressing ED office and independent peer review comments that will consider the implementation design, monitoring and data analysis, and performance evaluation. Responses to peer review comments will be provided with the final memorandum.

Meetings/Travel:

- Participate in TAC meeting to present results of the performance evaluation.

Task Series 900 - AM Adjustments

NOTE: **All work under Task Series 900 will be performed in 2013 and 2014. Budget for this work is not included in Years 1 and 2 of the contract (Exhibit B).**

Objective: Integrate modeling and monitoring results into the performance evaluation to assess Program decisions, hypotheses, and management experiment objectives, and provide recommendations regarding adjustments to the management experiment actions.

Activities: **Task 901 – Present Performance Evaluation Criteria and Recommendations to Governance Committee**

- Present results from the performance evaluation (**Task 800**) to the Governance Committee, and provide recommendations for adjusting management experiment action. These recommendations could include management action adjustments or potentially suspension, based on application of the performance evaluation decision tree (**Task 600**).

Deliverables:

- Formal presentation to the Program Governance Committee.

Meetings/Travel:

- Participate in one Governance Committee meeting in Kearney.

EXHIBIT B

Cost Estimate for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 2 (Calendar Year 2012)

Task	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Statistical Ecologist	Senior Engineer/ Scientist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman/ Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$228.15	$176.65	$156.05	$114.85	$106.61	$99.40	$94.25	$88.58	$68.50	$78.80			
100	**Project Initiation and Management**													
101	Attend Kickoff Meeting and Site Visit											$ -	$ -	$ -
102	Develop Final Scope of Services and Fee	6	2	2								$ 2,034	$ -	$ 2,035
103	Project Management and Biweekly Conf Calls	35	9	9	12						14	$ 13,461	$ -	$ 13,461
	Task 1 Totals:	41	11	11	12						14	$ 15,495	$ -	$ 15,495
200	**Model Construction and Updates**													
201	Adjust and update model, as appropriate	24			38		24		8	2		$ 13,071	$ -	$ 13,071
202	Prepare technical memorandum	8			12		8			4	6	$ 4,745	$ -	$ 4,745
	Task 2 Totals:	32			50		32			6	6	$ 17,107	$ -	$ 17,107
300	**AM Design - Information Review**													
301	Review available information											$ -	$ -	$ -
302	Prepare technical memorandum											$ -	$ -	$ -
	Task 3 Totals:											$ -	$ -	$ -
400	**AM Design - Model Application**													
401	Apply the 2D Hydraulic and Sediment Transport Model	12	2	4	32		16			4		$ 9,255	$ -	$ 9,255
402	Evaluate model results	12	2	4	28		12			4		$ 8,398	$ -	$ 8,398
403	Prepare technical memorandum	8	1	2	8		4			4	3	$ 4,141	$ -	$ 4,141
	Task 4 Totals:	32	5	10	68		32			12	3	$ 21,793	$ -	$ 21,793
500	**AM Design - Management Experiment Statistical Design**													
501	Identify action scenarios for analysis	8	4	8	8							$ 4,699	$ -	$ 4,699
502	Develop Statistical Design	4	4	16	2							$ 4,346	$ -	$ 4,346
503	Prepare technical memorandum	4	1	8	2					2	2	$ 2,862	$ -	$ 2,862
	Task 5 Totals:	16	9	32	12					2	2	$ 11,906	$ -	$ 11,906
600	**AM Design - Performance Evaluation Decision Tree**													
601	Assist Program and review decision tree	16			4						2	$ 4,267	$ -	$ 4,267
	Task 6 Totals:	16			4						2	$ 4,267	$ -	$ 4,267
700	**AM Monitoring and Data Analysis**													
701	Elm Creek Complex Project-scale Monitoring (see attached)											$ 69,644	$ 38,270	$ 107,915
702	Data Analysis	4	4	16	12		24			8		$ 8,427	$ -	$ 8,427
703	Prepare annual report	8	4	8	24		16			24	4	$ 10,086	$ -	$ 10,086
704	Attend AM Reporting Session	12			4		4			4	2	$ 4,026	$ 87	$ 4,114
	Task 7 Totals:	24	8	24	40		44			36	6	$ 92,184	$ 38,357	$ 130,541
	Total Hours	161	33	77	186		108			56	33			
	TOTAL COST	**$36,731**	**$5,829**	**$12,015**	**$21,361**	**$0**	**$10,735**	**$0**	**$0**	**$3,836**	**$2,600**	**$ 162,752**	**$ 38,357**	**$ 201,110**

*Direct Costs includes 13.46% G&A markup.

EXHIBIT B (CONTINUED)

Cost Estimate for Baseline and Post-runoff Monitoring for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 2 (Calendar Year 2012)

Task 701.1 Basline Monitoring

Subtask	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman/ Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$228.15	$176.65	$106.61	$99.40	$94.25	$88.58	$68.50	$78.80			
1	Preparation; travel to and from site	8	8		8	8	8			$ 5,496	$ 1,231	$ 6,727
2	Bathymetric and topographic surveys	8			60		60			$ 13,104	$ 7,539	$ 20,643
3	Vegetation surveys		8			60	60			$ 12,383	$ 3,988	$ 16,371
4	Bed and bar material sampling	2			10		10			$ 2,336	$ 6,047	$ 8,383
5	Discharge and velocity measurements (2 locations per event)	2			8		8			$ 1,960	$ 329	$ 2,289
6	Sediment transport measurements									$ -	$ -	$ -
	Total Hours	20	16		86	68	146					
	TOTAL COST	**$4,563**	**$2,826**	**$0**	**$8,548**	**$6,409**	**$12,933**	**$0**	**$0**	**$ 35,279**	**$ 19,135**	**$ 54,414**

Task 701.2 Post-runoff Monitoring

Subtask	Description	Principal Engineer/ Geomorphologist	Senior Biologist	Engineer/ Scientist	Junior Engineer/Scientist	Staff Biologist	Staff Ecologist/ Technician	Draftsman/ Technician	Clerical	Labor Cost	Direct Costs	Total by Task
		$228.15	$176.65	$106.61	$99.40	$94.25	$88.58	$68.50	$78.80			
1	Preparation; travel to and from site	8	8		8	8	8			$ 5,496	$ 1,231	$ 6,727
2	Bathymetric and topographic surveys	6			60		60			$ 12,647	$ 7,539	$ 20,187
3	Vegetation surveys		8			60	60			$ 12,383	$ 3,988	$ 16,371
4	Bed and bar material sampling	2			10		10			$ 2,336	$ 6,047	$ 8,383
5	Discharge and velocity measurements (2 locations per event)				8		8			$ 1,504	$ 329	$ 1,833
6	Sediment transport measurements									$ -	$ -	$ -
	Total Hours	16	16		86	68	146					
	TOTAL COST	**$3,650**	**$2,826**	**$0**	**$8,548**	**$6,409**	**$12,933**	**$0**	**$0**	**$ 34,366**	**$ 19,135**	**$ 53,501**

EXHIBIT B (CONTINUED)

Other Direct Costs for Baseline and Post-runoff Monitoring for Elm Creek Flow-Sediment-Mechanical "Proof of Concept" Experiment Implementation Design Technical Support, Monitoring, and Data Analysis

Year 2 (Calendar Year 2012)

Item	Unit Cost	Task 1		Task 2		Task 3		Task 4		Task 5		Total w/ 13.46% OH Mark-up
		Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	
Airline Tickets	$400		$ -		$ -	3	$ 1,200.00		$ -		$ -	$ 1,361.52
Mileage	$0.550 /mi.	700	$ 385.00	100	$ 55.00		$ -		$ -		$ -	$ 499.22
Mileage (4x4)	$1.00 /mi.	700	$ 700.00	250	$ 250.00		$ -	50	$ 50.00	50	$ 50.00	$ 1,191.33
Lodging and per diem	$120 /day		$ -	12	$ 1,440.00	12	$ 1,440.00	2	$ 240.00	2	$ 240.00	$ 3,812.26
Rental Car (including gas)	$125 /day		$ -		$ -	5	$ 625.00		$ -		$ -	$ 709.13
GPS Survey Equipment/Sonic Sounder/ADCP	$3,925 /week		$ -	1	$ 3,925.00		$ -		$ -		$ -	$ 4,453.31
Level and Sonic Sounder	$10 /day		$ -	5	$ 50.00		$ -		$ -		$ -	$ 56.73
Boat (16-ft inflatable)	$125 /day		$ -	5	$ 625.00		$ -		$ -		$ -	$ 709.13
Inflatable Kayak	$10 /day		$ -	5	$ 50.00		$ -		$ -		$ -	$ 56.73
Current Meter	$50 /day		$ -	2	$ 100.00		$ -		$ -		$ -	$ 113.46
Lab. Analysis of Bed and Bar Material Sediment Sam	$50 /sample		$ -		$ -		$ -	60	$ 3,000.00		$ -	$ 3,403.80
Lab. Analysis of Suspended Sediment Samples	$85 /sample		$ -		$ -		$ -	24	$ 2,040.00		$ -	$ 2,314.58
Expendable Field Supplies	LS		$ -		$ 150.00		$ 250.00		$ -		$ -	$ 453.84
TOTAL DIRECT COSTS			**$ 1,085.00**		**$ 6,645.00**		**$ 3,515.00**		**$ 5,330.00**		**$ 290.00**	**$ 19,135.03**

TETRA TECH

EXHIBIT C
RATE SCHEDULE

Effective through December 2012

PERSONNEL:	**Hourly Rate***
Principal Engineer/Geomorphologist	$228.10
Senior Biologist	$176.65
Statistical Ecologist	$156.05
Senior Engineer/Scientist	$114.85
Engineer/Scientist	$106.61
Junior Engineer/Scientist	$99.40
Draftsman/Technician II	$68.50
Word Processor/Clerical	$78.80
IN HOUSE EQUIPMENT:	**Rate**
Computer charges	$1.64 per labor hour
Truck (4 x 4)	$1.00/mile
Automobile	Approved GSA Rates for Privately Owned Vehicles
Boat (16-ft inflatable)	$125.00/day
Jet boat (18-ft)	$225.00/day
Inflatable kayak	$10.00/day
Level & Sonic Sounder	$10.00/day
RTK GPS equipment	$1,800/week
Echosounder	$625/week
ADCP Unit	$1,500/week
ADCP with GPS equipment	$3,000/week
ADCP with GPS equipment and Echosounder	$3,500/week
Total Station	$10.00/hour
Current Meter	$50.00/day
Water Quality Meter	$30.00/day
IN HOUSE REPRODUCTION:	
8 ½ x 11 paper	$ 0.10/sheet
Plotter (black & white)	$5.00/sheet
Plotter (color)	$7.50/sheet

*Hourly rates for deposition and court time associated with expert witness support will be charged at 1.5 times the indicated rate. Permit fees, processing fees, bonds, etc. will be the responsibility of the client. All other direct costs including travel, lodging, meals and incidentals for personnel, special photography, postage, delivery services, express mail, out-of-area telephone calls, printing by outside vendor, laboratory analysis, and any other services performed by outside vendor will be billed at cost plus G&A of 13.46%. Subcontract services will be charged to the client with a 10% service fee.

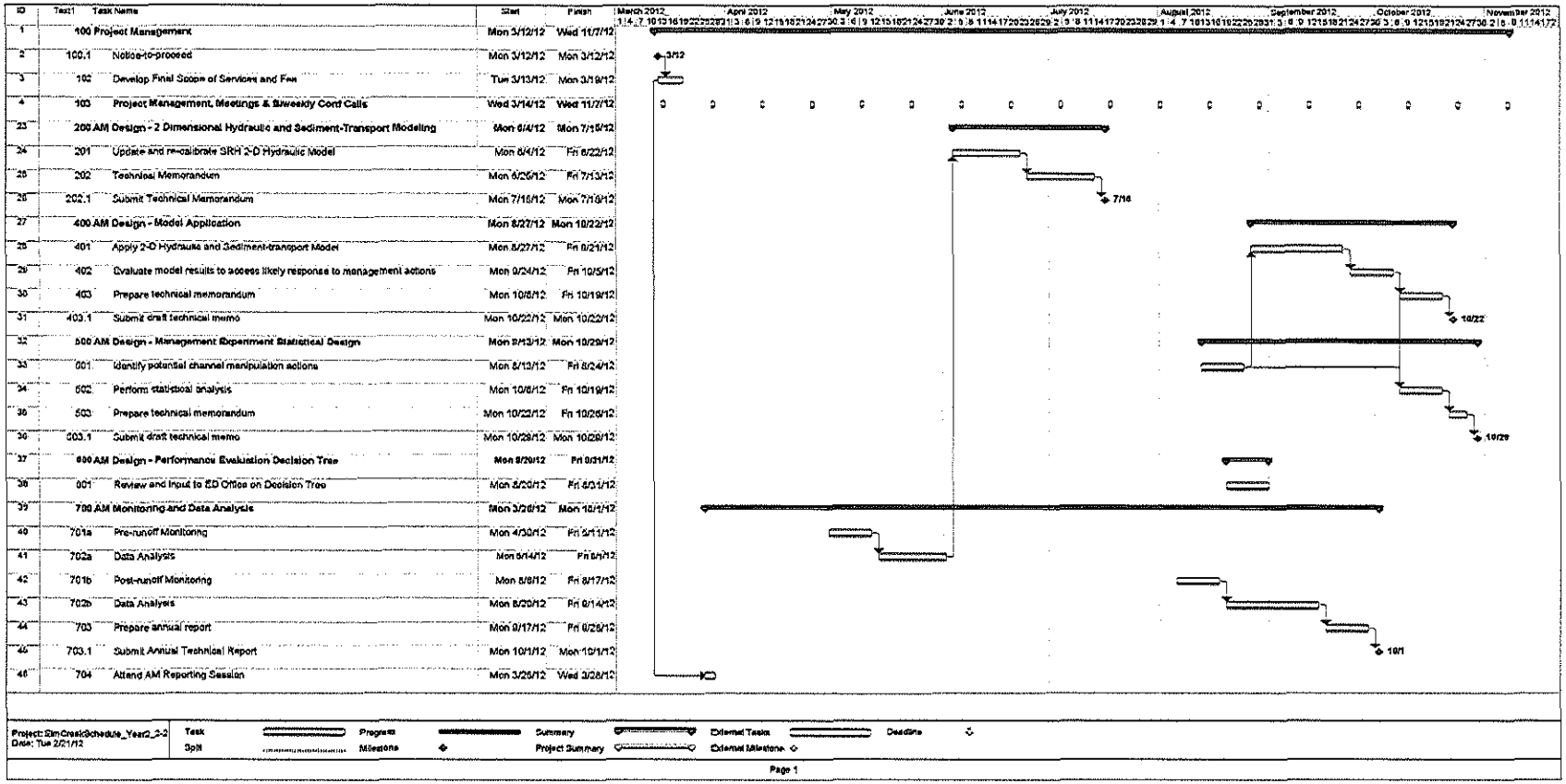
Tetra Tech (TT) is not liable for damages caused by delays in performance of the above work, which arise from events beyond our reasonable control. TT is not responsible for damages or losses incurred through the use of studies, plans, recommendations or cost estimates in excess of the fees paid to TT for these services.

Monthly progress payments shall be due and payable by the Client within 30 days after submittal of the bill for such work by TT. The progress payment shall include the portion of the fee earned based upon the percentage of work performed, as determined by TT. Payment due but unpaid within 30 days after submission of the bill shall bear interest at the rate of 1½% per month until paid. If client should fail to pay within ninety (90) days after the bill is rendered, TT shall have the right, upon seven (7) days written notice to the Client, to stop work on the project until payment of the amount owed, including all interest charges, has been received.

TETRA TECH

EXHIBIT D

Project Timeline



ID	Task Name	Start	Finish
1	100 Project Management	Mon 3/12/12	Wed 11/7/12
2	100.1 Notice-to-proceed	Mon 3/12/12	Mon 3/12/12
3	102 Develop Final Scope of Services and Fee	Tue 3/13/12	Mon 3/19/12
4	103 Project Management, Meetings & Biweekly Conf Calls	Wed 3/14/12	Wed 11/7/12
23	200 AM Design - 2 Dimensional Hydraulic and Sediment-Transport Modeling	Mon 6/4/12	Mon 7/16/12
24	201 Update and re-calibrate SRH 2-D Hydraulic Model	Mon 6/4/12	Fri 6/22/12
25	202 Technical Memorandum	Mon 6/25/12	Fri 7/13/12
26	202.1 Submit Technical Memorandum	Mon 7/16/12	Mon 7/16/12
27	400 AM Design - Model Application	Mon 8/27/12	Mon 10/22/12
28	401 Apply 2-D Hydraulic and Sediment-transport Model	Mon 8/27/12	Fri 9/21/12
29	402 Evaluate model results to access likely response to management actions	Mon 9/24/12	Fri 10/5/12
30	403 Prepare technical memorandum	Mon 10/8/12	Fri 10/19/12
31	403.1 Submit draft technical memo	Mon 10/22/12	Mon 10/22/12
32	500 AM Design - Management Experiment Statistical Design	Mon 8/13/12	Mon 10/29/12
33	501 Identify potential channel manipulation actions	Mon 8/13/12	Fri 8/24/12
34	502 Perform statistical analysis	Mon 10/8/12	Fri 10/19/12
35	503 Prepare technical memorandum	Mon 10/22/12	Fri 10/26/12
36	503.1 Submit draft technical memo	Mon 10/29/12	Mon 10/29/12
37	600 AM Design - Performance Evaluation Decision Tree	Mon 8/20/12	Fri 8/31/12
38	601 Review and Input to ED Office on Decision Tree	Mon 8/20/12	Fri 8/31/12
39	700 AM Monitoring and Data Analysis	Mon 3/26/12	Mon 10/1/12
40	701a Pre-runoff Monitoring	Mon 4/30/12	Fri 5/11/12
41	702a Data Analysis	Mon 5/14/12	Fri 6/1/12
42	701b Post-runoff Monitoring	Mon 8/6/12	Fri 8/17/12
43	702b Data Analysis	Mon 8/20/12	Fri 9/14/12
44	703 Prepare annual report	Mon 9/17/12	Fri 9/28/12
45	703.1 Submit Annual Technical Report	Mon 10/1/12	Mon 10/1/12
46	704 Attend AM Reporting Session	Mon 3/26/12	Wed 3/28/12