PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
Third Amendment to the
Agreement between the Nebraska Community Foundation, Inc. and HDR Engineering, Inc., Private Consultant

This Third 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 HDR Engineering, Inc. ("Consultant"), a private consultant of Omaha, Nebraska 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 $50,840, effective as of the date of this Amendment. Cost breakdown of the total $50,840 will be as follows:
    - $35,840 for North Platte Choke Point analysis and modeling
    - $15,000 for as-needed modeling support using the Program's existing 1D models
2. Expand the Scope of Work to include analysis and modeling of alternatives to increase the hydraulic capacity through the North Platte Choke Point; and to provide as-needed modeling support using the Program's existing 1D steady, unsteady, and/or sediment transport models. The detailed scope of work, schedule, and fee estimate are provided in Attachment A.

All other terms of the original agreement remain in effect as originally written in the Agreement dated March 19, 2010.

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

For the Foundation:

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

For the Consultant:

_____ _____
Timothy Crockett, P.E. (HDR Engineering, Inc.) Date
Sr. Vice President

Attachment A

1D Hydraulic Model Amendment 3 -
Scope, Fee Estimate, and Schedule

Platte River Recovery Implementation Program
1-D Hydraulic and Sediment Transport Model
Draft Scope of Services
Contract Amendment 3

INTRODUCTION

The Platte River Recovery Implementation Program (Program) has requested a modification (Amendment 3) to the existing 1-D Hydraulic and Sediment Transport Model contract. The existing contract is for development and calibration of a 1-D steady state model of the Platte River from the Tri-County Diversion to Lexington and Odessa to Chapman, an unsteady model from the Tri-County Diversion to Chapman, and a sediment transport model from Odessa to Chapman. Ultimately, continuous steady and unsteady flow models were developed for the reach from the Tri-County Diversion to Chapman, and a sediment transport model was developed for the reach from Lexington to Chapman. Amendment 1 was for development of a sediment transport model for the approximately 10-mile reach of the North Platte River upstream from the Tri-County Diversion, herein referred to as the choke point reach. Amendment 2 was for developing and calibrating a 1-D steady state and unsteady model from the Keystone Diversion (RM 365) to five miles upstream of Highway 83 (RM 321).

Under Amendment 3, the 1-D Hydraulic and Sediment Transport Model Final Scope of Services will be supplemented as follows:

TASK SERIES 100 – NORTH PLATTE RIVER HYDRAULIC AND SEDIMENT TRANSPORT EVALUATION AND ALTERNATIVE ANAYLSIS

Objective: Evaluate the current hydraulic, channel and carrying capacities for the 10-mile reach of the North Platte River upstream from the Tri-County Diversion. In addition, identify and evaluate potential alternatives to increase carrying capacity of the choke point reach.

Activities:

Task 101 – Literature Review and Alternative Identification

- Review existing literature and data from current and previous studies.
- Evaluate proposed Program alternatives to increase hydraulic, channel and carrying capacity of the choke point reach based on the literature and data review, including:
  - Dredging;
  - Reopen currently inactive channel(s) on north bank of North Platte River at Highway 83;
  - Increase flows in the main channel in order to increase effective discharge and associated channel geometry;
  - Increase hydraulic capacity near the UPRR and Highway 30 bridges (e.g., reopen some of the designed flow area near and under bridges).
- Identify potential additional alternatives, including those indentified by Parsons in their 2003 study to increase hydraulic, channel and carrying capacities of the choke point reach.
- The alternatives will be ranked, and the three alternatives which have the highest potential to increase hydraulic capacity will be modeled.

Task 102 – Alternative Evaluation

- Develop and incorporate suitable hydrologic record for assessing changes in hydraulic, channel and carrying capacities.
- Develop and execute a baseline simulation by incorporating the hydrologic record identified above into the existing, calibrated sediment transport (HEC-6T) model to establish baseline conditions.
- Modify existing HEC-6T model to incorporate up to three of the alternatives identified in Task 101.
- Execute alternative models and compare results to those from the baseline model simulation.

Task 103 – Technical Memorandum

- Develop technical memorandum summarizing literature and data review, and the sediment transport modeling results.

Deliverables:

- Technical memorandum summarizing the literature review and alternative evaluation.
- Model input files including flow, sediment, and geometry files.

Key Understandings:

- Existing literature and data review will consist of studies previously conducted by Parson's in 2003 for CNPPID, 2005 by J.F. Sato, Program aerial photos, ASCS historical photos acquired by Parsons, USGS and/or NDNR stream flow measurements at Highway 83, and SEH in 2008 and 2010. Streamflow measurement summaries acquired and analyzed by Parsons will be updated from 2003 to the present.
- Three alternatives will be evaluated using the sediment transport model.
- Geometry files to be provided in both RAS and HEC-6T formats.
- Increase in hydraulic capacity will be evaluated by comparing computed WSEL profiles between baseline (calibrated) and alternative conditions.
- No site visit will be conducted.
- The estimate for hydraulic modeling was developed based on evaluating three alternatives. The fee for any additional alternatives will be evaluated proportionally.
- Out of scope work will be document by HDR Team and authorized by ED office before initiating.

Information/Service Provided by Program Staff:

- Aerial photographs and presentation from 03/09/2011 GC meeting.

Meetings/Travel:

- Three conference calls with Program staff are anticipated. No additional field inspections or on-site data collection are included.

TASK SERIES 200 – AS NEEDED MODELING SUPPORT

Objective: Provide as needed modeling support to Program staff using the existing 1D steady, unsteady, and/or sediment transport models.

Activities: **Task 201 – Model Execution**

- Execute existing models as directed by Program staff. Potential runs include:
  - Steady-state modeling to assess target species habitat;
  - Unsteady modeling to assess 2011 SDHF release scenarios;
  - Sediment transport modeling to assess alternative condition sediment transport.

Deliverables:

- Deliverables will vary depending on which model runs are requested by Program staff. Potential deliverables include:
  - Steady-state modeling deliverables: water surface DEM, water surface shapefiles, and the flow depth DEM;
  - Unsteady flows at various locations between Tri-County Diversion and Chapman, NE.

Key Understandings:

- Individual task orders to be authorized by ED office before initiating work;
- Per run estimate based on three profiles. There is an economy of scale with an increase in the number of profiles;
- Steady state post processing level of effort based on a 10 mile reach for a single profile;
- Task orders will be developed to identify scope and fee of additional model runs, and pre- and post-processing;
- Scope will be commensurate with effort required to keep fee under $15,000.

Information/Service Provided by Program Staff:

- Scope and schedule for support activity.

Meetings/Travel:

- To be identified in task order document.

References:

J.F. Sato and Associates, Aug 31, 2005, "Technkcal Mamorandum – NE Channel Capacity Study," prepared for WEST, Inc.

Parsons, Jan 14, 2003, "Evaluation of Channel Capacity in the North Platte River at North Platte, Nebraska," by Gary Lewis and Eric Roerish, for the Central Nebraska Public Power and Irrigation District.

SEH, February 20, 2008, "Project Update Report, Platte River Restoration and Enhancement Project" prepared for the Platte River Recovery Implementation Program.

SEH, September 14, 2009, "Current Conclusions and Recommendations from the April 2009 Short Duration High Flows Summary Report and Follow-up Discussions", prepared for the Platte River Recovery Implementation Program.

Exhibit "B" Budget
Platte River Recovery Implementation Program
1-D Hydraulic and Sediment Transport Modeling
Amendment 3

		HDR Engineering, Inc.						TetraTech								The Flatwater Group									
	TASKS	Project Manager - Engelbert	Sr. Technical - Lewis	Project Engineer - McCoy	Project Engineer - Hunt	Project Engineer - McConville	Clerical	QA/QC - Fullerton	Sr. Technical-Mussetter	Sr. Technical-Harvey	Project Engineer - Trabant	Project Engineer - Morris	Project Engineer - Brown	Draftsman/Technician	Clerical	Sr. Technical-Riley	Project Engineer - Cermak	Envir. Scientist - Coke	Technician - Seipel	Total Hours	Total Labor Cost	Printing	Travel	Misc.	Total Expenses [1]	Est. Total Cost
TASK SERIES 100 - NORTH PLATTE RIVER HYDRAULIC AND SEDIMENT TRANSPORT EVALUATION AND ALTERNATIVE ANALYSIS																									
Task 101	Literature Review and Alternative Identification	4	16																	20	$4,860				$0	$4,860
Task 102	Alternative Evaluation	6	16						18		96	66		12						214	$27,530			$320	$320	$27,850
Task 103	Technical Memorandum	6	8																	14	$3,130				$0	$3,130
	Total Hours	**16**	**40**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**96**	**66**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**248**	**$35,520**	**$0**	**$0**	**$320**	**$320**	**$35,840**
TASK SERIES 200 - AS NEEDED MODELING SUPPORT (approximate per run)																									
Task 201	Model Execution - Steady State																			0	$0				$0	$0
	Modify Geometry					4														4	$440				$0	$440
	Optimize Flow Splits and Execute Model					4														4	$440				$0	$440
	Post proces model results (per profile)					8														8	$880				$0	$880
	Total Hours	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**$1,760**	**$0**	**$0**	**$0**	**$0**	**$1,760**
TASK SERIES 200 - AS NEEDED MODELING SUPPORT (approximate per run)																									
Task 201	Model Execution - Unsteady																			0	$0				$0	$0
	Modify Geometry or Hydrology					4														4	$440				$0	$440
	Trouble Shoot and Execute Unsteady Model					4														4	$440				$0	$440
	Compile Results					8														8	$880				$0	$880
	Total Hours	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**$1,760**	**$0**	**$0**	**$0**	**$0**	**$1,760**
TASK SERIES 200 - AS NEEDED MODELING SUPPORT (approximate per run 10 mile reach)																									
Task 201	Model Execution - Sediment Transport																			0	$0				$0	$0
	Prepare Baseline Hydrology & Model Run										4	2								6	$653				$0	$653
	Adjust Model Geometry								1		8	4								13	$1,528				$0	$1,528
	Adjust Hydrologic Input										4	4								8	$860				$0	$860
	Execute Model and Extract Results										4	4								8	$860				$0	$860
	Compare Results to Baseline Model Run								1		4	4								9	$1,082			$200	$200	$1,282
	Total Hours	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**24**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**44**	**$4,982**	**$0**	**$0**	**$200**	**$200**	**$5,182**

Exhibit "B" Budget
Platte River Recovery Implementation Program
1-D Hydraulic and Sediment Transport Modeling
Schedule

TASKS		Mar-11				Apr-11				May-11					Jun-11				Jul-11				Aug-11				Sep-11				Oct-11				Nov-11				Dec-11			
TASK SERIES 100 - NORTH PLATTE RIVER HYDRAULIC AND SEDIMENT TRANSPORT EVALUATION AND ALTERNATIVE ANALYSIS																																									
Task 101	Literature Review and Alternative Identification																																								
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