

Memorandum

To: Programs, Projects and Operations Subcommittee

Re: Amendment to Professional Services Contract with HDR Engineering, Inc. for Papio Reservoir 1 and 3C Preliminary Design/Study

Date: March 2, 2007

From: Paul Woodward, Water Resources Engineer

In December 2005, the NRD Board approved a professional services contract with HDR Engineering, Inc. (HDR) to provide a preliminary study of Papio Dam Sites 1 and 3C for a total cost of \$621,907. The scope of services under this contract called for a flood control alternatives analysis as part of the overall environmental evaluation. A preliminary evaluation of these alternatives has been completed by HDR and was presented to you at the December 2006 Board Meeting. These alternatives included floodplain buyouts, additional channel and levee improvements, small dams, regional detention reservoirs, and different scenarios for Dam Sites 1 and 3C.

Based on these preliminary findings, regional detention reservoirs in Washington County are fairly comparable economically to several Dam Site 1 and 3C scenarios. However, this alternatives analysis is based on several assumptions and no detailed plan has been prepared to locate and size all the regional detention reservoirs that would be needed to provide equal flood control benefits as Dam Site 1 and 3C. This has generated interest from both the Project Steering Committee and the Board to further investigate these regional detention reservoirs.

In response to this interest, HDR has proposed the enclosed amendment to the existing contract to provide engineering services to preliminarily locate, size, and estimate more detailed costs (construction, land rights, and infrastructure impacts) for 11 to 14 Regional Detention Reservoirs. The findings of this additional work will result in concept plans and maps for each site similar to those in the 2004 Multi-Reservoir Analysis. The total fee estimate for these tasks is \$98,687.

In conclusion, District staff is presenting the enclosed Amendment No. 1 to the Papillion Creek Watershed Reservoir Site 1 and 3C Preliminary Study for consideration by the subcommittee. The maximum fee of \$98,687 under this amendment would increase the overall maximum project fee to \$720,594.

Management recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute the proposed Amendment No. 1 to the professional services contract with HDR Engineering, Inc. for the Papio Reservoir Sites 1 and 3C Preliminary Design/Study, increasing the maximum contract fee to \$720,594.



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March 2, 2007

John Winkler
General Manager
Papio-Missouri River Natural Resources District
8901 S. 154th Street
Omaha, NE 68138-3621

RE: Preliminary Evaluations and Design of Reservoir Sites 1 and 3C
HDR Job Number: 35008
Contract Amendment No. 1

Dear John:

Enclosed is Amendment No. 1 that outlines the additional professional services to be performed in connection with the evaluation of Reservoir Sites 1 and 3C. This amendment is for the development of a regional detention facility alternative to Sites 1 and 3C. The amended agreement is not to exceed \$720,594, which is the sum of \$621,907 from the original agreement dated January 31, 2006, plus an additional \$98,687 from Amendment No. 1.

Please sign and date both copies of the Agreement. Retain one copy for your records and return the other signed copy for our files.

If you have any questions, please contact me at 926-7110 at your convenience.

Very truly yours,

HDR ENGINEERING, INC.

John J. Engel, P.E.
Project Manager

Enclosure

HDR Engineering, Inc.

8404 Indian Hills Drive
Omaha, NE 68114-4095

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AMENDMENT NO. 1
AMENDMENT TO AGREEMENT
FOR
ENGINEERING SERVICES

WHEREAS:

HDR ENGINEERING, INC. ("HDR") entered into an Agreement on January 31, 2006 to perform engineering services to prepare preliminary evaluations and preliminary design for Dam Sites 1 and 3C ("Project");

Papio-Missouri River Natural Resources District ("P-MRNRD") desires to amend this Agreement in order for HDR to perform services beyond those previously contemplated;

HDR is willing to amend the agreement and perform the additional engineering services.

NOW, THEREFORE, HDR and P-MRNRD do hereby agree:

The Agreement and the terms and conditions therein shall remain unchanged other than those sections and exhibits listed below;

Exhibit A, "Engineer's Services" shall be amended to include the scope of services presented in Exhibit A1.

Exhibit C, "Payments to Engineer for Services and Reimbursable Expenses" shall be amended to include the fee estimate presented in Exhibit C1.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the day and year written below:

HDR ENGINEERING, INC. ("HDR")

PAPIO-MISSOURI RIVER NATURAL
RESOURCES DISTRICT ("P-MRNRD")

By: _____

By: _____

Its: _____

Its: _____

Date: _____

Date: _____

EXHIBIT A1

**Papio-Missouri River Natural Resources District
Development of Regional Detention Facility Alternative to Reservoir
Sites 1 and 3C in Washington County, NE
Amendment No. 1**



BACKGROUND AND BASIS OF PROPOSAL

The purpose of this amendment is to evaluate in further detail a regional detention facility alternative for the Big Papillion Creek Watershed in Washington County that would provide flood control equivalent to that provided by Reservoir Sites 1 and 3C.

SCOPE OF SERVICES

The basic objectives of this Project are to locate potential regional detention sites, conduct preliminary hydrologic and hydraulic analysis to define principal spillway, auxiliary spillway and top of dam elevations, determine an opinion of probable construction costs, and evaluate potential impacts at the reconnaissance level of detail to infrastructure, wetlands, and cultural resources.

The HDR Team proposes to provide the following professional services concurrent with the services provided for the Study of Reservoirs 1 and 3C and to include the regional facility plan in the final report. While every effort will be made to complete the regional facility plan without schedule impacts, the maximum schedule impact that could occur would be to delay the final report 1 month to June 2007.

TASK SERIES 100 – PROJECT MANAGEMENT

Task Objective: Confirm that Project elements are being completed.

HDR Activities: **Task 110 Project Management.** Conduct additional administrative activities including additional project team coordination.

Task 120 Coordination Meetings. Coordination meetings will be conducted with the P-MRNRD and other invited representatives to review and discuss Project elements. An agenda will be prepared prior to the meeting and meeting minutes prepared after the meeting. A total of 2 additional meetings are planned.

Task Deliverables:

- Meetings agenda and minutes

Key Understandings:

- The duration of the regional facility plan is concurrent with the Study of Reservoirs 1 and 3C and will be completed no later than June 2007.
- Meeting will be held at the offices of the HDR and attended by 3 HDR professionals.
- No other meetings with agencies or jurisdictions are planned.

TASK SERIES 200– REGIONAL DETENTION FACILITY PLAN

Task Objective: Develop a regional detention facility drainage plan identifying the location of regional detention structures.

HDR Activities:

Task 210 Data Preparation. Prepare base maps and identify most probable detention structures (approximately 11 sites assumed, with no more than 14 sites will be included in the plan) on latest aerial photos and topography. Use aerial photography to create a general location map showing each dam site to be evaluated in 11" x 17" format, as well as an overall map of the upper Big Papillion Basin that incorporate proposed sites, roadways, sections lines, etc.

Task 220 Field Reconnaissance. Conduct a 1-day field reconnaissance for identification of potential detention structure locations with 3 HDR professionals and P-MRNRD representatives. Document findings. Site photographs will be taken. Vehicular traffic will be restricted to public roadways.

Task 230 Data Collection. This task provides the information necessary to perform the evaluation. All reasonable efforts shall be made to avoid duplication of work by using valid existing information. No field surveys will be conducted.

- Create Site Location Map and overall basin map.
- National Wetland Inventory (NWI) data.
- Utility and roadway data.
- Land values from recent property transactions (consistent with data obtained for original Sites 1 and 3 Preliminary Study).

TASK SERIES 300– HYDROLOGIC ANALYSIS

Task Objective:

Evaluate regional detention facilities in Upper Papillion Creek Watershed.

Task 310 HEC-HMS Modeling. Model future full build-out land use conditions in accordance with current jurisdictional comprehensive land use plans using HEC-HMS model developed for the study of Sites 1 and 3C. Use multiple storm centerings (approximately 10) according to USACE and FEMA methodology to accurately determine peak discharges along Big Papillion Creek from Nebraska Highway 36 to the confluence with Little Papillion Creek with regional detention structures for the 10-, 25-, 50-, and 100-year storm events.

Task 320 Develop Stage-Storage Data. Determine the stage-storage relationship for each proposed regional detention structure using the 2005 topographic mapping.

Task 330 Dam Features Definition. Size principal and auxiliary spillways and evaluate reservoir operations for one dry dam and one wet dam alternative at a selected alignment according to TR-60 criteria for High Hazard Class dams. Develop a stage-discharge rating for a proposed typical principal/auxiliary spillway configuration. Compute the 100-year, principal spillway (PSH), 500-year, auxiliary spillway (ASH), and freeboard (FBH) hydrographs. It is noted that for High Hazard Class dams, the PSH, in accordance with P-MRNRD criteria is equivalent to the 500-year event.

Task 340 Perform Reservoir Routing. HEC-HMS model will be used to route design hydrographs through regional detention structures for one dry dam and one wet dam alternative at each potential site. Auxiliary spillway and top of dam elevations will be determined through these routings based on TR-60 criteria. Create GIS shape files showing relevant flood pool elevations.

TASK SERIES 400– IMPACTS AND COST ANALYSIS

Task Objective: Determine potential impacts of dry and wet regional detention structures. Impact analysis will include infrastructure, reconnaissance level environmental and riparian habitat identification, and land acquisition.

Task 410 Potential Infrastructure Impacts. Identify potential infrastructure impacts and associated costs, based on field reconnaissance and desktop analysis, of proposed regional detention structures. Identification will include roadways, drainage structures, structures, utilities, and other prominent infrastructure elements.

Task 420 Potential Environmental Impacts. Identify potential wetland and riparian habitat impacts, based on desktop analysis, of the proposed regional detention structures. National Wetland Inventory (NWI) data and lengths of stream/riparian corridor will be assessed. Conduct reconnaissance level analysis for cultural resources impacts at potential sites consisting of literature and records review. Pedestrian cultural resources survey of potential sites is not included in this effort.

Task 430 Potential Land Acquisition Impacts. Identify potential land acquisition limits and associated costs that may be required for the regional detention structures. Auxiliary spillway plus 1 ft criteria will be used in analysis, consistent with evaluation of 1 and 3C.

Task 440 Develop Estimate of Probable Construction Costs. Compute construction quantities and define conceptual level construction cost estimates for the selected detention structure alignment at each site.

TASK SERIES 500– TECHNICAL MEMORANDUM PREPARATION

Task Objective: Prepare technical memorandum (TM) describing the methodology and results of the regional detention structure evaluation. Documents will be also be incorporated into the original Sites 1 and 3C Study report.

Task 510 Draft Technical Memorandum. Prepare a TM documenting the findings of the evaluation. Submit to P-MRNRD staff for review and comment.

Task 520 Present Finding to Steering Committee. Present findings to the Steering Committee and address comments.

Task 530 Final TM. Incorporate P-MRNRD comments and prepare final TM.

Task 540 Report Incorporation. Incorporate final TM into Sites 1 and 3C Study report.

Task Deliverables:

- Plan layout of potential detention structures showing dam features and key pool elevations.
- Draft and Final TMs

Key Understandings:

- Maximum of 14 sites is assumed – sites will be located in an attempt to minimize impacts to the extent possible.

- As this is an evaluation phase, coordination with property owners is not included.
- Survey is not included.
- Segmenting type of pools by property ownership is not included.
- One proposed dam alignment will be defined during the field reconnaissance for each regional detention facility.
- The dams are assumed to be classified as High Hazard.
- Alternative will provide equivalent flood control to Sites 1 and 3C.
- One dry dam and one wet dam alternative will be analyzed at each detention site.
- The hydrologic analysis will assume that the upstream subbasins are fully developed according to current jurisdictional comprehensive development plans.
- Stage-storage information will be based on the 2005 topographic mapping for Washington County.
- Recreational benefits will not be included in this analysis
- No sediment storage requirements will be evaluated.
- No environmental, cultural/historical, water quality, or social/economic impacts will be addressed beyond reconnaissance level. No wetland field delineation will be conducted.
- Agency coordination will not be included.
- It is anticipated that the evaluation of the regional facility plan will occur concurrent with the study of Reservoir Sites 1 and 3C and be completed by June 2007.

EXHIBIT C1

Article 2 of the Agreement is amended and supplemented to include the following agreement of the parties:

C2.01 Compensation for Basic Services – Direct Labor Costs Times a Factor Method of Payment.

A.1. An amount equal to Engineer's Direct Labor Costs times a factor of 3.15 for the services of Engineer's employees engaged on the Project, plus Reimbursable Expenses, provided however, and notwithstanding anything to the contrary contained in this Agreement, the total amount of money due to ENGINEER for such services and for Reimbursable Expenses and Engineer's Consultant's charges shall not exceed the amount of \$720,594, which is computed as the sum of (\$621,907) from the original Agreement, plus an additional (\$98,687) from this Amendment No. 1, unless an additional payment for the services, expenses or charges being furnished, expended, or incurred, the amount of \$720,594, which is computed as the sum of (\$621,907) from the original Agreement, plus an additional (\$98,687) from this Amendment No. 1, being intended by the parties as the maximum amount of money be due to the Engineer under this Agreement.

A.2. The fee schedule is attached to this Exhibit C1 as Attachment A.

ATTACHMENT "A"
PAPILLION MISSOURI RIVER NATURAL RESOURCES DISTRICT
PRELIMINARY DESIGN OF RESERVOIR SITES 1 AND 3C
REGIONAL FACILITY PLAN EVALUATION AMENDMENT No. 1 - FEE ESTIMATE

TASKS	HDR Engineering, Inc. Estimated Hours/Costs										Expenses					Sub-Consultant Estimated Costs				Est. Total Cost		
	Project Principal	Project Manager	Senior Specialist	Senior Engineer	Mid-Senior	Mid-Level	Tech Support	Clerical	Total Hours	Total Labor Cost	Tech. Fee	Printing	Travel	Misc.	Total Expense (1)	Total HDR	LPA	Big Muddy	R. Donovan		Ayers Kahler	Total Sub-Consult.
TASK SERIES 148 - PROJECT MANAGEMENT																						
Task 110	2	24		8		8		4	30	\$4,316	\$123				\$115	\$4,439					\$0	\$4,439
Task 120	2	32		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 130	2	32		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 140	2	32		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
TASK SERIES 200 - REGIONAL FACILITY PLAN																						
Task 210	4	48		8		8		4	44	\$4,848	\$150				\$150	\$5,098					\$0	\$5,098
Task 220	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 230	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 240	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
TASK SERIES 300 - HYDROLOGIC ANALYSIS																						
Task 310	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 320	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 330	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 340	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
TASK SERIES 400 - IMPACTS AND COST ANALYSIS																						
Task 410	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 420	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 430	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 440	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
TASK SERIES 500 - TECHNICAL MEMORANDUM PREPARATION																						
Task 510	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 520	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 530	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
Task 540	2	24		8		8		4	28	\$3,688	\$115				\$115	\$3,803					\$0	\$3,803
TOTAL COST (ROUNDED)	484	\$13,800	\$0	\$16,244	\$1,192	\$7,240	\$2,832	\$0	\$40,740	\$48,872	\$5,385	\$460	\$200	\$0	\$1,050	\$50,827	\$98,647	\$0	\$0	\$0	\$0	\$98,647

(1) Includes administrative fee for sub-consultants and expenses (except techn. fee) @ 10%