

# Memorandum

**To:** Papio-Missouri River Natural Resources District  
Programs Projects and Operations Subcommittee

**From:** Paul W. Woodward PE, Groundwater Management Engineer

**Date:** February 8, 2019

**Re:** Phase V Amendment to Missouri River R-613/R-616 Federal Levee Certification Professional Services

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FYRA Engineering is currently under contract with the District to provide professional engineering services for the FEMA accreditation of the Missouri River Levee System Units R-613 and R-616 (Levees). The current hourly, not to exceed amount of the existing contract is \$3,671,484. Prior phases of professional services provided for this project are:

Phase and Description	Effective Date	Contract or Amendment Fee
Phase I – Investigative Phase (Tetra Tech Contract)	Nov. 12, 2009	\$330,878
Phase II – Alternatives Analysis (Tetra Tech Addendum 1)	Sept. 9, 2010	\$696,376
Phase II Amendment – Mo River Flooding and Platte and Papio H&H (Tetra Tech Amendment 1)	March 2, 2012	\$207,567
Phase III – Design and Permitting (FYRA contract)	July 12, 2012	\$1,835,898
Phase IV – Final Design and Permitting (FYRA Amendment I)	July 17, 2015	\$1,835,586

Previous correspondence from Mike Sotak of FYRA Engineering was provided as an attachment to the General Manager's Reports in April of 2017 (<https://www.papionrd.org/wp-content/uploads/2017/03/Agenda-Item-13.-GM-Report-2.pdf>). This documentation detailed delays in the project and additional services required to obtain the Section 408 approval and 404 permit from the U.S. Army Corps of Engineers (USACE). Ultimately, the cost of these additional services has utilized all the funds available in the existing contract.

During the 408 review and approval process, FYRA and District staff worked diligently to satisfy the engineering standards required by USACE without simply agreeing to all the changes or conservative recommendations by USACE. Although this may have increased the time and cost associated with receiving 408 approval, it is estimated that over \$7.34 million was saved in increased construction costs.

In order to complete the remaining services needed during the construction of the levees and FEMA certification, FYRA Engineering has prepared a written scope, fee estimate, and contract amendment for these additional services and they are attached. A summary of the tasks included in this amendment and their respective fee estimates are summarized in the following table. The total cost of this proposed Phase V (FYRA Amendment 2) is \$1,838,054, making the total not to exceed amount of the FYRA Engineering contract \$5,509,538.

Item	Proposed Amendment Fee
Design Completion	\$131,900
Project Management During Design and Permitting	\$69,380
Bid Phase Services	\$72,958
Construction Phase Services	\$1,495,494
Final FEMA Levee Certification Package	\$73,794
<b>TOTAL</b>	<b>\$1,843,526</b>

**Management recommends that the subcommittee recommend to the Board of Directors that the General Manager be authorized to execute the proposed amendment to the Professional Services Contract with FYRA Engineering, Inc. for the P-MRNRD Missouri River R-613/R-616 Federal Levee Certification Project, making the maximum not to exceed contract amount \$5,509,538, subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.**



14 February 2019

Mr. John Winkler  
Papio-Missouri River NRD  
**via email**

Re: Federal Levee Systems R-613/R-616-613 Fee Status

Mr. Winkler:

This letter is an update to the contracted fee for the above-referenced project contract with FYRA Engineering and offers an opportunity to document scope items that have changed since the start of the most recent Phase III contract executed in April of 2017.

As you are aware, there have been numerous delays in the project attributable to refining of USACE processes and regulations/guidelines regarding levee improvements, associated permitting, and land rights that were continually being modified. Since the last contract status update (having been communicated periodically in your monthly General Manager's minutes), our effort has been focused on a variety of items detailed in the attached Additional Services List. In that list, we both grouped the services into categories and highlighted the larger efforts shown. The largest items include;

- The final submittals of the 408 permitting process which included continued back and forth with the USACE technical reviewers related to **Geotechnical Engineering**. The end results of this was an approved project that varies almost unnoticeably from our original design presented over five years ago.
- Continued back and forth with the USACE and Missouri River left bank levee districts about **Project Performance**, which is the assessment of induced damages on the left bank protected areas that may occur as a result of the modifications/raises planned for this project. The process had not been completed by any consultant outside of the USACE, so the new process was defined through repeated iterations with FYRA and USACE staff members. The end result differed very little from our initial assessment as we refined the modeling and modeling protocol in this very unique situation, with differences in expected impacts in the 1/10,000<sup>th</sup> of a foot range. In the end our model was accepted with very little differences from the original model which was prepared three years prior. The USACE concurred with our original assessment that induced damages to the left bank system were non-significant.
- The P-MRNRD was notified of changes in **Land Rights Requirements** related to the existing long berms that were implemented with the original project for seepage mitigation after the 100% design was submitted to the USACE for review. This resulted in land rights and all



associated documents being re-done including the surveys, assessments, easement preparations, and land rights negotiations.

- There still exists a lack of understanding within the USACE on the relationship and timing of the **408 and 404 Permitting Processes**. This caused numerous delays and discussions with Missouri River left bank interests, stakeholder agencies and both the Regulatory and Planning offices of the USACE. This also required combining both systems into one Environmental Assessment and a full 404(b)1 Alternatives Analysis for both systems.
- The **Plan Sets and Specifications** have been changed to reflect last minute changes from the USACE 408 approval process, BNSF railroads, Project Performance, NDOT US Hwy 75 Projects, utility modifications to the Papillion Creek Waste Water Treatment Plant and integrating the Rumsey West Mitigation Site into the final design documents. Adjustments to construction plans and specifications late in the design process (after 100% and post-100% submittals to the USACE) become very time-consuming.
- In addition to the major impacts above, normal **project management** and team coordination duties have been extended over a period of an additional two plus years.

Most importantly to the P-MRNRD, besides the additional, unforeseen efforts described above to obtain the permits required to construct the project, much of the effort was in refuting/challenging requests by USACE 408 reviewers that suggested overly conservative design change requests. The attached memo dated 6 March 2017 details our analysis of just one round of 408 review comments where, had we blindly accepted the design changes suggested (vs. providing technical backup of why we didn't feel they were necessary or were overly conservative), would have increased the project construction cost by millions of dollars. This happened multiple times and at every milestone submission date. This diligence in defending the original design, AND what we feel ended up being a very high quality set of plans and specifications, can be justified by the excellent bid prices received for the project at the 30 January bid opening.

### **Contract Status**

The tasks remaining to complete the project are shown in the attached spreadsheet and include the remaining/unbilled design phase services, bid phase services, construction observation services, preparation of new Operation and Maintenance manuals for both systems, and submittal of a levee certification package to FEMA. We are hopeful and confident that what remains is now within our control, which is extremely different than the project path to date, and therefore do not anticipate any future surprises.

As always, please feel free to contact me if you have any questions regarding this summary.



Sincerely,

A handwritten signature in black ink, appearing to read "Michael K. Sotak". The signature is fluid and cursive, with a prominent initial "M" and a long, sweeping tail.

Michael K. Sotak, PE

SUGGESTED FORMAT  
(for use with E-500, 2002 Edition)

This is **EXHIBIT K**, consisting of 2 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated 12 July, 2012.

**AMENDMENT TO OWNER-ENGINEER AGREEMENT**

1. Background Data:

- a. **Effective Date of Owner-Engineer Agreement:** 12 July 2012
- b. **Owner:** Papio-Missouri River Natural Resources District
- c. **Engineer** FYRA Engineering
- d. **Project:** P-MRNRD Missouri River R-613/R-616 Federal Levee Certification

2. Nature of Amendment

- Additional Services to be performed by Engineer
- Modifications to Services of Engineer
- Modifications to Responsibilities of Owner
- Modifications to Payment to Engineer
- Modifications to Time(s) for rendering Services
- Modifications to other terms and conditions of the Agreement

3. Description of Modifications

**Attachment 1, "Modifications" includes additional services related to the remaining design completion, bidding, construction and FEMA Certification submittal. Exhibits A and B to Attachment 1, detail the additional services to be performed by Engineer and the fee estimate for those tasks.**

**Owner and Engineer hereby agree to modify the above-referenced Agreement as set forth in this Amendment. All provisions of the Agreement not modified by this or previous Amendments remain in effect. The Effective Date of this Amendment is 15 February 2019.**

OWNER:  
Papio-Missouri River NRD

ENGINEER:  
FYRA Engineering



By: John Winkler

By: Michael K. Sotak, P.E.

Title: General Manager

Title: Owner/Principal Engineer

Date Signed: \_\_\_\_\_

Date Signed: 15 February 2019

## **Modifications**

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1. Engineer shall perform the following Additional Services:

**Exhibit A, attached hereto and incorporated herein, entitled “Task Descriptions – Design Completion, Bidding, Construction Services and FEMA Certification Submittal,” details the Additional Services to be performed by Engineer.**

**Exhibit B, attached hereto and incorporated herein, entitled “Task List and Fee Estimate,” details the Additional Services to be performed by Engineer and the estimated fees associated with those Additional Services.**

2. The Scope of Services currently authorized to be performed by Engineer in accordance with the Agreement and previous amendments, if any, is modified as follows:

**Exhibit A and Exhibit B, referred to above, details the additional services to be performed by Engineer.**

3. The responsibilities of Owner are modified as follows:

**n/a**

4. For the Additional Services or the modifications to services set forth above, Owner shall pay Engineer the following additional compensation:

**A maximum not to exceed total fee of \$1,843,526 representing time actually expended and invoiced by Engineer and Consultants as estimated on Exhibit B, the “Task List and Fee Estimate.”**

5. The schedule for rendering services is modified as follows:

**March 2019 to May 2019: Completion of design services (land rights, closure section design, shoring design for railroad components.**

**Jan 2019 to May 2021: Bidding and Construction**

**March 2021 to Aug 2021: FEMA Certification Submittal**

6. Other portions of the Agreement (including previous amendments, if any) are modified as follows:

**NA**



**Exhibit A - Task Descriptions – Plan and Permitting Completion, Bidding, and Construction Services**

The following tasks comprise the Additional Services to be performed by Engineer and/or Consultant:

**Task 1 - Design Completion of R-613 and R-616-613 Levee Systems**

For each firm, actual design team above and beyond final invoice for previous contract.

**Task 2 - Project Management During Design and Permitting Services**

2.1 Coordination and Project Update Meetings – Meetings and communication between consultant team project manager and client representative(s) to review progress and work ahead for the coming weeks. May also include representation at desired stakeholder meetings by client.

2.2 Monthly Invoice/Schedule Update – Monthly preparation of consultant invoice including incorporation of internal and subconsultant invoices, description of services rendered and update of project schedule.

2.3 Agency Coordination – Continued coordination with stakeholder agencies throughout all phases of the project as required. This task is intended to include any coordination not covered by other tasks.

**Task 3 - Bid Phase Services**

3.1 Contractor Coordination During Bidding – Contractor coordination and responses to questions from Contractors during bid advertisement up to bid opening. This includes sending electronic files, and some re-work of plans and specifications due to unforeseen construction feasibility issues. This time is actual time logged during this phase.

3.2 Pre-Bid Meeting – Preparation for and attendance at a pre-bid meeting to discuss the project with interested contractors, and preparation of meeting minutes.

3.3 Bid Opening/Review of Bidding Documents/Bid Tabulations – Preparation for and attendance at bid opening. Preparation of bid tabulations and coordination with contractors to determine qualifications, insurance requirements and other pertinent information.

3.4 Bid Recommendation and Contract Execution – Review contractor bids for responsiveness. Work with apparent low responsible contractor to ensure all bid requirements are met and make recommendation to Owner’s management for award. Preparation of all supporting documents for contract between NRD and Contractor including all required bonds, assurances, schedules, etc. as detailed in the project specifications.

#### **Task 4 Construction Phase Services R-613 and R-616-613**

4.1 Construction Kickoff Meeting – Preparation for and attendance of construction services kickoff meeting with NRD, Contractor, Utilities and other stakeholders, and preparation and distribution of minutes.

4.2 Weekly Construction Administrative Services – RPR duties as specifically defined in Exhibit D to the Agreement including on-site observation, preparation of reports, processing of submittals, pay requests, change orders and any other required correspondence.

4.3 Shop Drawing Review – In-office review of all submittals (all imported materials needed for construction and any design methods left to Contractor) during construction phase services to make sure that they conform with construction documents.

4.4 Layout of Control Points and Wetland Staking – Initial surveying of control for all projects from which the Contractor will make detailed surveys. Staking/flagging of wetland areas that should be avoided during construction

4.5 Final Walk-Through and Project Closeout – Final inspection of project with affected project stakeholders, likely to occur at multiple times (wetland project, WWTF utility relocates, each levee system).

4.6 Geotechnical Site Testing – Construction and soil testing necessary to identify soil properties and determine that moisture/density of placed embankment meet the requirements of the specifications.

4.7 Geologist On-Site for Relief Well Drilling – As per USACE requirement, having professional/registered geologist on site during drilling of pilot holes and relief wells and preparation of required reporting.

4.8 Constructability Shoring Design Near Railroad – As required by BNSF and UPRR, structural design of structural construction shoring for the Hwy 370 R-616 closure section and the construction of several gate wells adjacent to UPRR lines.

4.9 As-Built Survey – Survey of all post-project construction for the purpose of preparing as-built drawings. This does not include the top of levee as-built survey (performed by a registered land surveyor) that is included in the construction contract and required for FEMA certification.

4.10 Video Review and Reporting on Stormwater Penetrations – Review of post-construction videos (to be completed by the NRD) and creating baseline reports of the penetrations as required by USACE.

4.11 Preparation of As-Builts – Modification of construction drawings and specifications to include all changes and details as noted in the field during construction observation duties.

4.12 O&M Manual Updates for R-613 and R-616-613 – Modification of two project OMR&R Manuals to reflect all specifics of construction materials, as-built drawings, emergency procedures, and the required future maintenance for improvements.

**Task 5 - Final FEMA Levee Certification Package**

5.1 Coordination with FEMA STARR Team – Continued correspondence with FEMA and FEMA STARR Team contractor to ensure all requirements for FEMA accreditation are being met.

5.2 H&H Documentation for FEMA Submittal – Completion of all FEMA-specific forms and models for levee certification submittal.

5.3 Levee Certification Report for R-613 and R-616-613 – Organization of all technical info, emergency action plan and operating and maintenance information and for submittal to FEMA for levee accreditation.

