

**FLOOD DIVERSION BOARD OF AUTHORITY**  
**Thursday, November 14, 2013**  
**3:30 PM**

Fargo City Commission Room  
Fargo City Hall  
200 3<sup>rd</sup> Street North

1. Call to order
2. Approve minutes from previous meeting Item 2. Action
3. Approve order of agenda Action
4. Management Information
  - a. PMC report
  - b. Corps of Engineers report
5. Technical Information/action
  - a. Design Contracts / Task Orders Item 5a.
    - i. Task Order No. 9 Amendment 9 – Hydrology and Hydraulic Modeling
    - ii. Task Order No. 13 Amendment 3 – Levee Design and Design Support
    - iii. Task Order No. 16 – Permit Submittal Preparation and Acquisition Support
  - b. Red River Basin Commission update
6. Public Outreach Information
  - a. Committee report
  - b. Business Leaders Task Force update
7. Land Management Information/action
  - a. Committee report
    - i. Decision Paper – Agricultural Impact Mitigation Plan Item 7a.
    - ii. Crop insurance study
  - b. CCJWRD update
8. Finance Information/action
  - a. Committee report
  - b. Voucher approval Item 8b.
9. Other Business
10. Next Meeting – December 12, 2013
11. Adjournment

cc: Local Media

**FLOOD DIVERSION BOARD OF AUTHORITY  
OCTOBER 10, 2013—3:30 PM**

Item 2.

**1. MEETING TO ORDER**

A meeting of the Flood Diversion Board of Authority was held Thursday, October 10, 2013, at 3:30 PM in the Fargo City Commission Room with the following members present: Cass County Commissioner Darrell Vanyo; Cass County Commissioner Vern Bennett; West Fargo City Commissioner Mike Thorstad; Fargo Mayor Dennis Walaker; Fargo City Commissioner Tim Mahoney; Fargo City Commissioner Mike Williams; Cass County Joint Water Resource District Manager Mark Brodshaug; Clay County Commissioner Jon Evert; and Moorhead City Council Member Nancy Otto. Also present was ex-officio member Gerald Van Amburg, Buffalo-Red River Watershed District.

Staff members and others present: Cass County Administrator Keith Berndt; Fargo City Administrator Pat Zavoral; Moorhead City Manager Mike Redlinger; Clay County Administrator Brian Berg; Fargo City Director of Engineering Mark Bittner; Fargo City Engineer April Walker; Cass County Engineer Jason Benson; Bruce Spiller, P.E., CH2MHill; and Brett Coleman, Project Manager, Corps of Engineers and Terry Williams, Project Manager, Corps of Engineers via conference call.

**2. MINUTES APPROVED**

*MOTION, passed*

**Mr. Thorstad moved and Mr. Williams seconded to approve minutes from the September 12, 2013, meeting with a correction on page 4 reversing the costs of two home acquisitions. Motion carried.**

**3. AGENDA ORDER**

*MOTION, passed*

**Mr. Walaker moved and Mr. Bennett seconded to approve the order of the agenda. Motion carried.**

**4. MANAGEMENT UPDATE**

Program management consultant (PMC) report

Bruce Spiller provided an update on activities over the last month including a project plan and schedule for the Oxbow/Hickson/Bakke (O/H/B) levee, including initial work on land acquisitions for levee borrow area; geotechnical and survey work for the O/H/B levee; land acquisition work for known required properties for the in-town levees; and coordination with the new city hall project and in-town levees.

Corps of Engineers report

Terry Williams provided an update of activities by Corps of Engineers staff including continued support for the Minnesota EIS (Environmental Impact Statement) process; final approval and signing of the supplemental Environmental Assessment (EA); completion of responses to comments from 33 entities and citizens received regarding the EA; continued design and soil borings work associated with the O/H/B levee; participation in weekly O/H/B levee coordination meetings and development of a conceptual recreation plan; and inventory and information gathering on cemeteries in the upstream staging area.

Ms. Williams said discussed the effects from the federal government shut down, and said there are remaining funds in the 2013 budget, so the Corps team will continue to work on the project; however, support from other Corps employees and federal coordinating agencies may be unavailable until the issue is resolved. The project continues to await federal authorization with the United States House of Representatives, and is on hold until government shut down ends.

## 5. TECHNICAL UPDATE

### Design Contracts / Task Orders

Mr. Spiller reviewed Authority Work Directives (AWD) with Houston Moore Group (HMG) as follows: AWD-00032, Permit Submittal Preparation and Acquisition Support in the amount of \$50,000; and AWD-00033, Balanced Hydrographs at Hickson in the amount of \$50,000.

### ***MOTION, passed***

**Ms. Otto moved and Mr. Williams seconded to approve AWD-00032, Permit Submittal Preparation and Acquisition Support and AWD-00033, Balanced Hydrographs at Hickson with HMG for a total cost of \$100,000. On roll call vote, the motion carried unanimously.**

### Red River Basin Commission report

Lance Yohe, Executive Director of the Red River Basin Commission, Zach Herman from Houston Engineering, and Chad Engel from Moore Engineering, were present and provided a summary of the work completed to date on the Halstad Upstream Retention (HUR) Project. The four major components discussed were the standardized snow melt progression analysis; standardized hydrologic analysis involving multiple interest groups; tributary detention planning efforts in North Dakota and Minnesota; and the three tasks associated with the HUR Project. Mr. Herman said first task of studying the on-going sensitivity analysis and Minnesota DNR modeling revisions has been completed and been submitted to the Corps of Engineers, Minnesota DNR and State Water Commission for review. The second task involving retention conditions scenario modeling for the future and third task of retention prioritization and funding concepts still need to be completed.

## 6. PUBLIC OUTREACH UPDATE

### Committee report

Rocky Schneider, serving as a diversion consultant, provided an update from the Public Outreach Committee, which met on October 9<sup>th</sup>. He discussed numerous outreach activities including: scheduling of individual meetings this fall and winter with impacted landowners in North Dakota and Minnesota; developed a comprehensive contact history database, including specific maps for property with structures within the staging area; refined data regarding impacts to cemeteries inside and outside the project alignment and discussed potential mitigation options; worked with the Corps of Engineers to coordinate efforts for public meetings and answers to public comments; and continued communications with federal congressional offices regarding authorization of the project.

## 7. LAND MANAGEMENT UPDATE

### Committee report

Mr. Walaker said the Land Management Committee met earlier this afternoon. He said the committee received updates regarding hardship and land acquisitions, development of a crop insurance policy, and management of acquired properties policy.

CCJWRD report

Mr. Brodshaug said the Cass County Joint Water Resource District (CCJWRD) distributed a land management summary, which outlines pending and completed property acquisitions and the associated budget. He said this summary will be provided to the board each month.

**8. FINANCE UPDATE**

Committee report

Kent Costin, Fargo Finance Director, said the Finance Committee met on October 9<sup>th</sup>. He said in 2013, \$6.8 million has been spent on diversion-related work bringing the total project expenditures to \$24.7 million. The committee discussed the contract with financial consultant PFM Group. The company has been on a fixed retainer over the last year, but the committee decided to use their services as needed on an hourly basis to keep the costs down due to uncertainty with project authorization at this time.

Decision Paper (DP) for management of properties after acquisition

Dirk Draper, CH2MHill, discussed a policy drafted to manage properties acquired for the project, which will streamline the approval process of land acquisitions. The policy outlined options to consider including property management, sale or disposal, property rental or lease, demolition, and flowage easements.

Mr. Vanyo said both the Land Management and Finance Committees have approved the policy.

***MOTION, passed***

**Mr. Mahoney moved and Mr. Walaker seconded to adopt the policy outlined in DP-00032 to manage properties acquired for the FM Diversion Project. On roll call vote, the motion carried unanimously.**

Voucher approval

***MOTION, passed***

**Mr. Mahoney moved and Ms. Otto seconded to approve the vouchers for September, 2013. On roll call vote, the motion carried unanimously.**

**9. NEXT MEETING DATE**

The next meeting will be held on Thursday, November 14, 2013, at 3:30 PM.

**10. ADJOURNMENT**

***MOTION, passed***

**On motion by Ms. Otto, seconded by Mr. Walaker, and all voting in favor, the meeting was adjourned at 4:45 PM.**

# Task Order Summary

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Date: November 14, 2013

Task Order Summary	Budget Estimate (\$)
HMG Task Order No. 9, Amendment 9 – Hydrology and Hydraulic Modeling <ul style="list-style-type: none"> <li>• Independent QA/QC review of unsteady HEC-RAS model</li> <li>• Update the Balanced Hydrographs at Hickson, ND</li> </ul>	\$ 166,000
HMG Task Order No. 13, Amendment 3 – Levee Design and Design Support <ul style="list-style-type: none"> <li>• Landscape Architecture and Master Planning services</li> </ul>	\$ 135,000
HMG Task Order No. 16, Amendment 0 – Permit Submittal Preparation and Acquisition Support, and Other Related Services <ul style="list-style-type: none"> <li>• Develop submittals for long lead permits for the OHB Ring Levee and the remaining Project</li> </ul>	\$ 205,000
<b>Total of Task Orders</b>	<b>\$ 506,000</b>

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## **TASK ORDER SUMMARY**

### **HMG – Task Order No. 9 – Amendment 9 Hydrology and Hydraulic Modeling**

**Increase \$ 166,000**

#### ***Description – Subtask 2.K:***

##### **Subtask 2.K – Independent QA/QC review of unsteady HEC-RAS model**

Conduct an independent QA/QC review of the unsteady HEC-RAS model. Include a review of the Phase 7.1 unsteady HEC-RAS model geometry and general assumptions, along with the Phase 8 unsteady HEC-RAS model, including the hydrology updates and other model updates completed as part of Phase 8.

#### ***Background:***

The most recent independent QA/QC review of the FM Diversion project unsteady HEC-RAS model occurred during the Phase 4 modeling (February 28, 2011). Subsequent model updates included peer reviews by modelers, but did not include a full independent review. An independent QA/QC review is recommended for the Phase 8 model update.

Cost = \$61,000

#### ***Description – Subtask 2.L:***

##### **Subtask 2.L – Update the Balanced Hydrographs at Hickson, ND:**

Development and calibrate the storage-outflow relationships using both the hydrologic and hydraulic models. Assist USACE in using the hydrologic routing model to develop updated balanced hydrographs at Hickson.

#### ***Background***

USACE continues to request additional assistance from the Diversion Authority for hydrology and hydraulic modeling. The above described work is creditable work-in-kind assistance.

Cost = \$ 105,000

#### ***Recommendation:***

PMC recommends authorization for Task Order No. 9, Amendment 9 for \$ 166,000.

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**HMG – Task Order No. 13 – Amendment 3  
Levee Design and Design Support**

**Increase \$ 135,000**

***Description – Subtask 2.B.i.1.o:***

**Subtask 2.B.i.1.o –Landscape Architecture and Master Planning services**

Provide landscape architecture services for the 2nd St. Corridor from NP Ave. to 4th Ave. Coordinate with the city of Fargo City Hall Project throughout the design phase of the City Hall Project. Provide master planning services from Mickelson to the 4th St. Levee

***Background:***

The city of Fargo City Hall Project site overlaps and is integral with the 2<sup>nd</sup> St. Corridor flood wall project. Both these projects include provisions for public space that is coordinated and aesthetically and functionally appropriate. In addition to the downtown area, landscape architecture master planning services for the Mickelson to 4<sup>th</sup> St. Levee area is need so that recreation features are integrated with local public spaces and parks.

***Recommendation:***

PMC recommends authorization for Task Order No. 13, Amendment 3 for \$ 135,000.

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**HMG – Task Order No. 16 – Amendment 0**

**ADD \$ 205,000**

**Permit Submittal Preparation and Acquisition Support, and Other Related Services**

***Description:***

Develop a schedule, prepare submittals, and provided acquisition support to acquire permits for the Oxbow/Hickson/Bakke (OHB) and Red River (In-Town) Levees along with permits for the remaining portions of the FM Diversion Project.

***Background:***

As part of Task Order No. 13, Houston-Moore Group (HMG) was contracted by the Diversion Authority to design Oxbow/Hickson/Bakke (OHB) and In-Town levees. Prior to beginning construction, a number of permits must be obtained by the Diversion Authority. Long lead time permits include the Clean Water Act 404(b) permit(s) and associated 401 Water Quality Certification(s). Permit submittal preparation and acquisition support is needed to complete the permit applications and obtain permits prior to summer 2014, the start of construction for the OHB ring levee.

***Recommendation:***

PMC recommends authorization for Task Order No. 16, Amendment 0 for \$ 205,000.

# Task Order No. 9, Amendment **89**

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In accordance with Paragraph 1.01 of the Agreement between Fargo-Moorhead Flood Diversion Authority ("Owner") and Houston-Moore Group, LLC (HMG) ("Engineer") for Professional Services – Task Order Edition, dated March 8, 2012 ("Agreement"), Owner and Engineer agree as follows:

The parties agree that in the event of a conflict between prior versions of this Task Order No. 9 and this Amendment, the terms and conditions in this Amendment shall prevail, provided however, nothing herein shall preclude ENGINEER from invoicing for work authorized under prior versions of this Task Order and performed prior to effective date of this Amendment, even to the extent such prior work was revised by this Amendment. All other terms and conditions shall remain the same and are hereby ratified and affirmed by the parties.

## 1. Specific Project Data

- A. Title: HYDROLOGY AND HYDRAULIC MODELING
- B. Description: Provide hydrology and hydrologic modeling services in order to advance design components of the Diversion Channel. Specific modeling subtasks include: modeling of Diversion inlets to determine design flows, modeling to evaluate hydraulic impacts of various Diversion Channel sizes, extending model geometry of the Rush and Lower Rush Rivers, providing technical assistance and support for the physical modeling of the Maple and Sheyenne River aqueduct structures, and on-call services as requested.

## 2. Services of Engineer

### A. HMS DIVERSION INLET MODELING:

The objective of this subtask is to develop an HMS model for each Diversion inlet subbasin using synthetic rainfall events, and to obtain parameters for an estimate of discharge-frequency using a methodology coordinated with the U.S. Army Corps of Engineers..

- I. Discharge frequency curve at Amenia.
- II. Adopted discharge frequencies at the inlet location after the initial HMS simulations.

Scope:

- I. Model Diversion inlet inflows for 1.3-, 1.5-, and 2-yr rain events. Inlets to be modeled are:
  - 1. Diversion Inlet
  - 2. Local Drain 1
  - 3. Drain 50
  - 4. Drain 21C
  - 5. Local Drain 2
  - 6. Local Drain 3
  - 7. Local Drain 4
  - 8. Drain 14 (new location)
  - 9. Original Drain 14
  - 10. Local Drain 5
  - 11. Maple River
  - 12. Lower Rush River
  - 13. Local Drain 6
  - 14. Rush River



15. Drain 30
16. Drain 29
17. Drain 13

- II. Calibrate model to match each subbasin's adopted discharge-frequency to obtain HMS hydrographs for each inlet to the Diversion.
- III. Obtain the following parameters: Clark's Tc, R, R/(Tc+R), CN, slopes, and drainage area. Parameters to be used to estimate Diversion inlet discharge-frequency using the NRCS method for small subbasins, as per the ND Hydrology Guide.

Deliverables:

- I. HMS hydrographs at each inlet to the Diversion in a separate DSSVue file.
  - II. List of parameters used or determined such as: precipitation, Clark's Tc, R, R/(Tc+R), CN, slopes, and drainage area.
  - III. Schematic showing drainage area for each inlet, with the Diversion alignment.
  - IV. Brief report describing method, assumptions, parameters used, maps, and results.
- B. UPDATES TO THE RUSH/LOWER RUSH:

The objective of this subtask is to produce working HEC-RAS models using updated HEC-HMS hydrology for local peak flows in the Rush and Lower Rush areas for use in project design.

Scope:

- I. Red River Peak Flood - Modified Rush River hydrographs from the existing conditions model will be input into the Phase 6 LPP model, which initially will be conducted for the 100-year flood event.
- II. Rush River and Red River Peak Flood - The updated hydrographs from the HEC-HMS models developed for existing conditions will be run for the Red River Peak 10 and 100-year flood events in the Phase 6 LPP model.
- III. RAS Mapper will be used to map the floodplain outside of the diversion channel for the peak tributary event on the Rush and Lower Rush Rivers.

Deliverables: Updated existing conditions and with-project HEC-RAS unsteady models.

C. EVALUATION OF CHANNEL SIZE:

The objective of this subtask is to evaluate various Diversion Channel width sizes to determine hydraulic impacts based on channel size.

Scope:

- I. Evaluate alternatives using the criteria below to assess the size of the Diversion Channel and conduct a Screening Analysis using the HEC-RAS steady state software with the objective of determining the most favorable alternatives:
  1. Bottom width of the main Diversion Channel.
  2. Channel bottom elevation of the Diversion Channel.
  3. Considerations of the water surface profile in the Diversion Channel with respect to existing ground elevations.
  4. Modification of the Hydraulic Structure at the Maple River.
  5. Other criteria can be applied at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.

6. The 100 and 500-year events for the Red River peak flood event will be analyzed.
  7. Peak discharge values from the current Phase 6 unsteady model will be used, which is also being applied to the bridge analysis (MFR-001) currently being updated by the USACE.
- II. Conduct an Impact Analysis using the HEC-RAS unsteady state software for the most favorable alternatives identified in Task 1.
    1. The 100 and 500-year events for the Red River peak flood event will be analyzed using the latest Phase 6 unsteady flow model.
    2. River impacts will focus only on the Red River upstream, downstream, and throughout Fargo-Moorhead. Impacts will be compared to those determined in Phase 4 and Phase 5, which may require that the gate operations may be modified to obtain similar impacts.
    3. Additional impacts can be further evaluated at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.
  - III. Develop a preliminary cost estimate for the most favorable alternative identified for optimizing the Diversion Channel.
    2. Quantify the cost savings based on unit-cost savings using the Feasibility Study unit prices, focusing primarily on costs associated with earth work and at the Maple River Hydraulic Structure.
    3. Additional cost detail can be further evaluated at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.
  - IV. Prepare a Technical Memorandum (TM) summarizing whether the size of the Diversion Channel warrants additional and more detailed study.

Deliverables:

- I. Draft report.
- II. Final report.

D. EXTEND RAS GEOMETRY OF THE RUSH/LOWER RUSH

The objective of this subtask is to account for break-out flows between the Rush and Lower Rush Rivers by extending the RAS model geometry of the Rush and Lower Rush Rivers upstream to the beach ridge of Glacial Lake Agassiz.

Scope:

- I. Extend existing conditions Rush River HEC-RAS model approximately 10 miles upstream from Amenia and add model detail between the Rush and Lower Rush Rivers to incorporate breakout discharges.

Deliverables:

- I. Updated existing conditions and with-project HEC-RAS unsteady models.

E. PHYSICAL MODELING ASSISTANCE:

Provide ongoing assistance to the Diversion Authority during the transition for Feasibility Study to Preliminary Engineering and Design (PED) in support of the Maple and Sheyenne River aqueduct structures.

Scope:

- I. Participate in USACE design team meetings, Local Sponsor/Local Consultants Technical Team (LSLCTT) meetings, and workshops as requested.
- II. Provide technical assistance for physical modeling of hydraulic structures.
- III. Provide hydrology information, as requested, to USACE.
- IV. Provide additional assistance as requested.

Deliverables: Meeting minutes.

F. ON-CALL SERVICES:

Respond to requests for services from PMC for tasks not identified to date. Requests will be provided by PMC in writing. Work will not be performed by Engineer without authorization by PMC or Owner.

Deliverables: On-call service deliverables as requested.

- I. EXTREME RAINFALL EVENTS – Complete the work originally authorized in AWD-00016 and deliver the final report. The scope of work specified in AWD-00016 was:
  1. Develop a Technical Memorandum (TM) that determines whether or not a meander belt width of 200 feet is sufficient to allow establish a low-flow channel that is in dynamic equilibrium, and if so, provide sufficient information and criteria for others to design the four (4) low-flow channel reaches:
    - a. Diversion Outlet to Lower Rush
    - b. Lower Rush to Drain 14
    - c. Drain 14 to Drain 21C
    - d. Drain 21C to Diversion Inlet

The focus of this meander belt width analysis is on the reach Diversion Outlet to Lower Rush. Meander belt width for other reaches will be confirmed in subsequent analyses.

The Final Feasibility Report includes a grade control feature across the entire width of the main section of the diversion channel every 5,000 feet along the length of the diversion. The use of grade control to set some constraints on the low-flow channel migration rates within the meander belt width should be considered as part of this study. The distance between grade control features can be modified if warranted. Discuss, and if appropriate, recommend other methods to limit meander belt width.

The following data will be provided by the Diversion Authority at the commencement of the work effort:

- a. Soil test data to include Atterberg limits and gradations, boring log plates, boring location diagrams, and boring profile plates
- b. Sediment grain size distribution and sediment transport (both as bedload and in suspension) data that has been collected recently by the US Geological Survey and West Consultants, including low and high flow events, for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers

- c. Current, and if available, also historical cross sections for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers
- d. Required diversion profile information along the centerline of the diversion
- e. Typical cross-sections for the low-flow channel and main section of the diversion channel for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)
- f. Current, and if available, also historical general slope and sinuosity information for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers
- g. Current, and if available, also historical digitized information (GIS format) on planform alignments for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers
- h. Stage (water depth)-discharge, flow velocity-discharge, discharge-duration and discharge-frequency information for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)
- i. Typical flood hydrographs for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)
- j. Compilation of frequency and duration of operation, typical cross sections, slopes, erosion protection measures, and sedimentation records for the two existing diversions on the Sheyenne River (Horace to West Fargo, and West Fargo)

Deliverables:

1. Prepare a first Draft Technical Memorandum to include:
  - Outline approach for meander belt width analysis
  - Brief literature review on constructed meandering channels
  - Preliminary summary of data available
  - Initial thoughts on feasibility of meander belt width concept
2. Prepare a second Draft Technical Memorandum to include:
  - Description of approach for meander belt width analysis
  - Processing of data for input in meander belt width analysis
  - Meander belt width analysis
  - Stabilization alternatives, including grade-control measures, non-structural measures (e.g., vegetation), widening of main diversion channel in certain reaches, among other considerations, to ensure low-flow channel migration occurs within prescribed meander belt width
  - Determination of need for rock toe protection along the entire length of the inner diversion toe to prevent erosion
  - Suggestions for future field investigations
  - Recommended design criteria for Final Design
3. Consult with Professor Gary Parker (University of Illinois at Urbana-Champaign) during development of the meander belt width analysis and recommendations.

4. Develop a brief, graphics-rich, PowerPoint presentation of the background and results. This presentation must be suitable for a non-technical audience.
5. Determine timing of tributary contributions to the low flow channel by reviewing and comparing the Phase 1 HEC-HMS model results for the Rush and Lower Rush Rivers, and Drains 14 and 21C for the 2-year and 5-year 24-hour rainfall events. Compare model results to low flow channel hydrology developed by USACE.
6. Prepare a Technical Memorandum presenting summarizing results.

## II. EXTREME EVENT EVALUATIONS

1. Evaluate the following for extreme (103,000 cfs and Probable Maximum Flood (PMF)) events
  - a. Adequacy of aqueduct openings
  - b. Lowering the left EMB to reduce the amount of flow in the Diversion Channel
  - c. Head differential across raised road in the staging area
  - d. For VE-13 Option D, sloping the Diversion Channel from the Wild Rice River toward the Diversion Inlet

## III. TRIBUTARY PEAK MODEL RUNS TO SUPPORT THE MAPLE RIVER AQUEDUCT PHYSICAL MODEL

Background: To provide 10-, 50-, 100-, and 500-year tributary peak hydrographs in the current version of the unsteady RAS model to obtain the best available tributary peak flow information for the Maple River physical modeling effort. These updated tributary peak model runs will aid in the effort of determining the flow combinations to be modeled during maple River physical modeling effort.

Scope: Perform model runs for the 10-, 50-, 100-, and 500-year tributary peak hydrographs to support the USACE's physical and numeric modeling of the Maple River Aqueduct Structure. Provide modeling results to USACE.

## IV. ADDITIONAL ASSISTANCE FOR THE MAPLE RIVER AQUEDUCT PHYSICAL MODEL

Scope: Additional assistance includes participating in bi-weekly conference calls, providing additional technical information and support from Feasibility Study team to USACE's physical modeling team, and attending a four-day value-based design charrette.

## V. UNSTEADY HEC-RAS MODELING OF EXISTING PMF INFLOWS

Background: The existing Probable Maximum Flood (PMF) was developed almost 30 years ago (1984) and is based on simple hydrologic routing that likely does not account for the full effects of floodplain storage and cross-basin flow that occurs upstream of Fargo-Moorhead. USACE has updated the unsteady HEC-RAS model upstream of the unsteady HEC-RAS model currently being used for the FMMFRM project so that it has the extents and connections necessary to model the PMF event. The portion of the FMMFRM unsteady HEC-RAS model from Abercrombie, ND (the upstream extents of the unsteady HEC-RAS model being used for the FMMFRM study) through Fargo-Moorhead has been added to the upstream model to create the unsteady HEC-RAS model required for this PMF analysis. To avoid confusion, the unsteady HEC-RAS model being used for the PMF analysis will be referred to as the "Upstream" model,

while the unsteady HEC-RAS model generally being used for most of the FMMFRM study will be referred to as the “FMMFRM” model.

To get an idea of how much the PMF might change, the Corps and the Project Sponsor previously decided that it would be useful to investigate routing the existing PMF inflows using the Upstream model. The Corps has set up the Upstream model with the proper inflows.

Scope:

- a) Perform a technical review of the model
- b) Address the instability issues related to running the model with very large inflows
- c) Produce final model runs using the 1984 hydrology that provide the PMF at the Fargo gage.

Deliverables:

- a) Draft unsteady HEC-RAS models.
- b) Draft technical memorandum (hard copy and electronic).
- c) Final unsteady HEC-RAS input and output files for the PMF event.
- d) Final technical memorandum.

Phase 2 - Numerical Modeling Scope:

- a) Set Up Unsteady HEC-RAS Model for New PMF Inflows  
USACE has developed a number of new inflow locations for the unsteady HEC-RAS model that are associated with HMS output hydrographs. These inflow locations have been provided separately in an HEC-RAS unsteady flow data file. Develop a draft unsteady HEC-RAS model with updated inflow locations. If requested, modify names of certain reaches and storage areas to be consistent with the final unsteady HEC-RAS model used for the PMF flow routing.

Deliverables:

- i. Draft unsteady HEC-RAS model with updated inflow locations.
- b) Unsteady HEC-RAS Modeling of New PMF Inflows  
Using the updated unsteady HEC-RAS model with the updated inflow locations, model two sets of hydrographs representing two different runoff scenarios. USACE will provide the two sets of inflow hydrographs. Evaluate the inflow locations and the magnitude and shape of the hydrographs for reasonableness and model stability. Modify as required, in consultation with USACE, to allow the model to run successfully.

Once any model instabilities have been addressed and the model runs are complete, evaluate, in consultation with USACE, the hydrographs at the Fargo gage location to determine whether additional sets of hydrographs representing other runoff scenarios are required to determine the PMF at the Fargo gage location (to be performed under subtask c).

Deliverables:

- i. Preliminary unsteady HEC-RAS models.
- ii. Draft Technical Memorandum. Prepare a Technical Memorandum that summarizes the work effort and the resulting hydrograph at the Fargo gage location.

- c) Additional Unsteady HEC-RAS Modeling of New PMF Inflows (if authorized).  
If additional sets of hydrographs need to be developed to determine the PMF at the Fargo gage location, as determined in subtask b, USACE will provide one to four additional sets of hydrographs to be modeled with HEC-RAS. Prepare update of draft Technical Memorandum prepared in subtask b.

Deliverables:

- i. Preliminary unsteady HEC-RAS.
- ii. Second draft Technical Memorandum.

- d) Final Technical Memorandum.  
Upon review of the model results and draft Technical Memorandum by USACE, finalize the HEC-RAS models and prepare a Final Technical Memorandum, addressing comments provided by USACE.

Deliverables:

- i. Final unsteady HEC-RAS input and output files for the PMF event.
- ii. Final Technical Memorandum.

VI. UPDATE HEC-RAS MODEL

- a) Update the HEC-RAS model geometry for the revised western alignment from the Maple River to the Sheyenne River and the proposed upstream staging area ring levees.
- b) Provide on-going hydrology and hydraulic modeling services as requested in order to keep HEC-RAS model consistent with project features.

VII. CONNECTING CHANNEL AND 20-YEAR EXISTING CONDITIONS

Scope:

- a) Connecting Channel Geometry: Update the HEC-RAS model geometry to incorporate the geometry of the connecting channel between the Wild Rice and Red Rivers. Complete the 10-yr, 20-yr, and 50-yr model runs to determine the proper model modifications and to determine the impacts of the updated geometry. If the modifications affect the 50-yr model results, complete the 100-yr, 500-yr, SPF, and PMF model runs to determine the impact of the updated geometry. If the modifications do not affect the 50-yr model results, the updated 100-yr, 500-yr, SPF, and PMF model runs will be made under a future authorization. Develop flooded outline polygons and depth grids for the 10-yr, 20-yr, 50-yr, 100-yr, 500-yr, SPF, and PMF events.
- b) 20-year Existing Conditions Modeling: Develop 20-year Existing Conditions models and provide floodplain mapping for the Staging Area.

Deliverables:

- a) Preliminary unsteady HEC-RAS models.
- b) Final unsteady HEC-RAS input and output files.
- c) 20-year existing conditions model results.

VIII. MAPLE RIVER AQUEDUCT FLOW ANALYSIS

- a) Conduct modeling of Maple River flows across the proposed Maple River Aqueduct and into the Risk Reduction Area.
  - i. Use the latest HEC-RAS model for the FMMFRM Project and the best available topographic data.

- ii. The study area is the area within the Risk Reduction Area that is affected by the flow coming across the Maple River Aqueduct.
  - iii. Account for coincident flows on the Sheyenne River and other local drains and ditches.
  - iv. Select Maple River design flows such that insurable structures in the Risk Reduction Area, and within the expected future 1% Maple River floodplain, are minimally affected by the Maple River design flows and the coincident flows on the Sheyenne River and the other local drains and ditches in the Risk Reduction Area.
- b) Establish Maple River design flows across the Maple River Aqueduct for the 1% and 0.2% flood events.
  - c) Recommend a maximum Maple River flow across the Maple River Aqueduct for the Standard Project Flood (SPF) event.

Deliverables:

- a) Preliminary unsteady HEC-RAS models.
- b) Final unsteady HEC-RAS input and output files.
- c) 20-year existing conditions model results.
- d) Final Technical Memorandum.

IX. UPDATE HEC-RAS MODELS – MAPLE RIVER AQUEDUCT AND REACH 6 BRIDGE

- a) Modify the unsteady-flow HEC-RAS model to reflect the lateral structure and spillway changes recommended by the Maple River aqueduct study team.
- b) Update the flow profile information (1% and 0.2% chance events, and 103,000 cfs event) needed for the bridge design effort, using the current Phase 7 unsteady-flow HEC-RAS model as the source of the geometry for the steady-flow HEC-RAS model. Continue to use the bridge design criteria provided in MFR-005 (General Bridge Re-Assessment for the Diversion from Inlet to Outlet) to determine the low-chord elevation and hydraulic opening of bridges in the Diversion Channel.

Deliverables:

- a) Draft Technical Memorandum.
- b) Final Technical Memorandum.

X. WATER MONITORING GAGE SURVEYING

- a) Prepare and provide maps and coordinates of installation locations for 10 HOBO gages to USGS installation teams.
- b) After HOBO gages are installed, survey the elevations of the installed gages and provide survey data to USGS.

Deliverables:

- a) Maps and coordinates of installation locations for 10 HOBO gages.
- b) Surveyed elevations of 10 HOBO gages.

G. BASIN-WIDE RETENTION SUPPORT

- I. Objective: Assist Owner in supporting retention projects by others in the region.
- II. Background: The Diversion Board has authorized up to \$25 million for Basin-wide Retention Projects that are compatible with, and provide benefits for, the Diversion Project. An initial study is underway by the Red River Basin Commission (RRBC).

This subtask is not creditable by USACE.



- III. Scope:
  - a. Assist Owner with developing a method of evaluating existing, planned, or potential regional retention projects' potential benefits to the Diversion Project. Scope to include up to two (2) site evaluations.
  - b. Provide technical assistance to the RRBC in its study "Halstad Upstream Retention (HUR) Modeling – Phase 1".
- IV. Deliverables
  - a. As requested.

#### H. PHASING PLAN INTERIM MODELING

- I. Objective: Incorporate the Phase 1 and Phase 2 project features into the hydraulic model, evaluate project benefits, and determine interim measures needed for a phased project.
- II. Background: The original project execution plan assumed unconstrained funding, an approximate 8 year project schedule, and project design and construction starting on the downstream (north) end of the project and progressing sequentially upstream. Currently, it is anticipated that Federal funding will be constrained and, therefore, a phased plan was developed to allow the project to proceed with limited Federal funding and provide benefits as early as practical. This results in a three phased project. Phase 1 includes the Diversion Channel from the Outlet to downstream of the Maple River and associated bridges, in-town levees, and the Oxbow-Hickson-Bakke area levee. Phase 2 includes the Red River and Wild Rice River control structures, the Staging Area embankment, overflow embankment, tie-back levee, the Diversion Inlet structure, staging area land, associated bridges and transportation improvements, and associated mitigation projects. Phase 3 includes the Diversion Channel from the Maple River to the Diversion Inlet structure, associated bridges, the Maple River Aqueduct, the Sheyenne River Aqueduct, and associated mitigation projects.

There may be a lag of several years between completion of Phases 1 and 2, and the completion of Phase 3, and, therefore, modeling and evaluation is needed to 1) determine project benefits and 2) the need for and extent of temporary measures between phases of the project.
- III. Scope: Perform 100-year and 500-year modeling evaluations of Phase 1 and Phase 2 project components, quantify interim benefits, and determine what interim measures are needed until completion of Phase 3.
- IV. Deliverables:
  - a. Draft Technical Memorandum.
  - b. Final Technical Memorandum.

#### I. PHASE 7.1 MODEL UPDATE

- I. Task 1 - Update the Red River peak flow model geometry. Complete modeling for the Red River peak flood events, including the 10-, 2-, 1-, 0.2-percent chance events and the 103kcfs and PMF flood events for both existing conditions and with-project conditions. Geometry updates include:
  - a. Update storage connections for the existing and with-project model in the area west of the diversion between the Maple River and the Sheyenne River. to better reflect floodplain impacts and diversion side inlet sizing.

- b. Revise the Wild Rice River Control Structure and embankment alignment (combine bridges).
  - c. Analyze the removal of the connecting channel between the Wild Rice River and Red River. Replace with storage areas.
  - d. Analyze Hwy 81/Hwy 75/Red River Control Structure Bridge/Culvert Sensitivity at the tie back levee.
  - e. Change the channel size from the Wild Rice River to the Diversion Inlet based on cross section volume of the southern embankment.
  - f. Account for staging area levees including the proposed Oxbow/Hickson/Bakke and Comstock levees.
  - g. Verify the eastern staging area tieback is modeled as being used in storage. Add detail to check if culverts are adequate to convey water west to the Red River Control Structure.
  - h. Revise Maple River south bank near the Maple River Aqueduct. Set elevation to 901.0.
  - i. Investigate diversion gate operations for events larger than the 0.2% chance event.
  - j. Update the Drain 14 inlet at the diversion.
  - k. Extend the Red River model from Grand Forks, ND to Drayton, ND.
- II. Task 2 – Update tributary peak flow models with geometry developed in Task 1. Complete modeling for the 10-, 2-, 1-, 0.2-percent chance flood events for both existing conditions and with-project conditions.
- III. Task 3 - Conduct a higher volume sensitivity analysis using the Red River peak flow geometry from Task 1 and the high volume hydrology developed as part of the Phase 5 unsteady modeling effort. Complete evaluations for the 1- and 0.2-percent chance flood events for both existing conditions and with-project conditions. The main objective of this task is to determine how the diversion system would operate with higher volumes and if the higher volumes would affect the staging area elevation. No mapping is required; however, calculate impacts and compare to Phase 7.0. For comparison purposes, match Phase 7.1 downstream impacts, flows through town, and diversion flows to the targeted values from Phase 7.0. The variable parameter will be the staging area elevation. Prepare a technical memorandum to summarize the sensitivity analysis.
- IV. Task 4 – QA/QC of Phase 7.1 modeling.
- V. Task 5 – Complete additional modeling and mapping tasks as part of the Phase 7.0 modeling effort. These items include details such as:
- a. Update geometry to include the City of Fargo Comprehensive Flood Protection Plan.
  - b. Additional mapping for existing and project conditions.
  - c. Development of Tributary Peak models.
  - d. Add detail to Interstate 94 near the Red River and also to Drain 27 area.
  - e. Update weir coefficients, culverts, initial elevations, and cross section duplication.
  - f. Diversion centerline alignment rectification due to Microstation and GIS formats.
  - g. Add Excavated Material Berms into project geometry.
  - h. Add designed bridges for Reaches 1 through 5 into the geometry.

VI. Deliverables:

- a. Updated phase 7.1 model for the Red River peak flood events, including the 10-, 2-, 1-, 0.2-percent chance events and the 103kcfs and PMF flood events for both existing conditions and with-project conditions.
- b. Updated phase 7.1 tributary peak flow models with geometry developed in Task 1, for the 10-, 2-, 1-, 0.2-percent chance flood events for both existing conditions and with-project conditions.
- c. Higher volume sensitivity analysis:
- d. Updated phase 7.0 model.

J. UPDATE PMF WITH REVISED DISTRIBUTION OF SNOWMELT RUNOFF:

I. Background:

- a. Initial results from the current PMF study for the USGS Gage at Fargo, ND indicate that the peak flow is about 25% higher than what was determined during the 1985 study. Comparisons with the 1985 study indicate that the Wild Rice, North Dakota basin requires further investigation. Contributing drainage area for the PMF also requires further investigation. Two HMS model runs (two storm centerings) are available from the USACE St. Paul District for each of the eight sub-basins that are included in the PMF study. The HMS models that were used in the initial PMF work were modified from the Phase 1 HMS final product by peaking unit hydrograph parameters for each subbasin, re-incorporating the entire drainage area, and extending several storage outflow relationships that were exceeded with the magnitude of discharges generated from the PMF simulations.
- b. It has been proposed that GIS can be used in conjunction with the HMS models to better estimate the amount of runoff occurring during a PMF event. The GIS/HMS effort would determine areas that contribute runoff, areas that do not contribute runoff, and areas that partially contribute runoff for the events investigated.

II. Scope:

- a. Discuss the GIS/HMS effort with USACE before proceeding with this work.
- b. Update the USACA-provided HMS model runs in conjunction with the GIS/HMS-based runoff-determination effort. Determine the order of HMS model simulations and account for the breakout flows between the various models. Coordinate between the HMS model simulations and RES-SIM with USACE. Save Reservoir inflows for Traverse and Orwell in DSS and submit to USACE for simulation. Forward the regulated flow DSS records for inclusion into the RAS Model.
- c. Upon completion of the update to the Wild Rice River basin HMS model by USACE,, perform final model runs. Perform work that can be accomplished in advance to prepare for the final HMS models runs.
- d. Use the HMS results as input for an updated unsteady HEC-RAS model run for each storm centering. Complete the existing scope of work [can we cite a Paragraph here?] for the PMF study using the updated unsteady HEC-RAS model runs.
- e. Prepare a report section documenting the GIS/HMS-based runoff-determination effort and comparing the 1985 PMF study to this current study, including input assumptions. Incorporate this draft report section into the overall current PMF study report.

III. Deliverables

- a. Updated runoff grids resulting from the GIS/HMS-based runoff-determination effort.

- b. Draft report .
- c. Updated HMS models (16 models: 2 storms centering for 8 sub-basins.)
- d. Updated unsteady HEC-RAS models (2 models, one for each storm centering).

#### K. PHASE 8 MODEL UPDATE

##### I. Background:

a. The Phase 8 modeling will incorporate higher volume hydrology developed by the USACE. It will also include the development of the 20-year event model and investigate additional model updates in the staging area based on culvert connections, connecting channel investigations, and tieback embankment alignment adjustments. The downstream model limit will be Drayton, ND.

a-b. The most recent independent QA/QC review of the FM Diversion project unsteady HEC-RAS model occurred during the Phase 4 modeling (February 28, 2011). Subsequent model updates included peer reviews by modelers, but did not include a full independent review.

##### II. Scope:

- a. Update geometry in the upstream staging area based on culvert details and the local drainage plan (currently under development).
- b. Update synthetic model hydrology for the 10-, 50-, 100-, and 500-year flood events and develop new 20-year hydrology using new higher volume hydrographs developed by the USACE for the peak Red River flood event. Local inflow development will utilize the Phase 1 HEC-HMS models.
- c. Update the existing conditions tributary peak unsteady model using updated hydrology developed by the USACE for the 10-, 50-, 100-, and 500-year flood events and new 20-year hydrology.
- d. Conduct QA/QC review of the Phase 8 Existing conditions models for the RRN and tributary peak conditions.
- e. Conduct with-project modeling for the 10-, 20-, 50-, 100-, and 500-year events for the RRN peak flood event.
- f. Conduct with-project modeling for the 10-, 20-, 50-, 100-, and 500-year events for the tributary peak flood events.
- g. Conduct QA/QC of the Phase 8 with-project model runs.
- h. Prepare floodplain mapping for the 10-, 20-, 50-, 100-, and 500-year events for existing conditions and with-project for both the RRN and tributary peak flood events.
- i. Prepare draft and final Technical Memorandums summarizing Phase 8 modeling results.

j. Conduct an independent QA/QC review of the unsteady HEC-RAS model.

i. Part 1 – Conduct an independent QA/QC review of the Phase 7.1 unsteady HEC-RAS model geometry and general assumptions. Include a kick-off review meeting, a review of the technical memorandums and previous District Quality Control (DQC) and Agency Technical Review (ATR) reviews developed for the model updates subsequent to Phase 4, and a review of geometry files through Phase 7.1 of the model. Commence review following completion of the Phase 7.1 update.

ii. Upon completion of the Phase 7.1 model review, provide recommendations for additional QC review of the Phase 8 model updates.

iii. Document the review findings and recommendations in Technical Memorandum.

III. Deliverables:

- a. Updated phase 8 model for the Red River peak flood events, including the 10-, 20-, 50-, 100-, and 500-year events for both existing conditions and with-project conditions.
- b. Updated phase 8 models for the tributary peak flood events, including the 10-, 20-, 50-, 100-, and 500-year events for both existing conditions and with-project conditions.
- c. Floodplain maps for the 10-, 20-, 50-, 100-, and 500-year events for existing conditions and with-project for both the RRN and tributary peak flood events.

d. Draft and Final Phase 8 Technical Memorandum.

d.e. Draft and Final QA/QC Technical Memorandum, Kick-off meeting minutes, and Quality Review Form (QRF) summarizing review comments for the Phase 7.1 QC review.

L. UPDATE THE BALANCED HYDROGRAPHS AT HICKSON, ND

I. Background:

a. The USACE, St. Paul District, requested assistance to update the Red River of the North (RRN) balanced hydrographs at the USGS gage at Hickson, ND. This effort is required prior to starting the Phase 8 model update, and involves working with both the hydrologic (HEC-ResSIM) and hydraulic (unsteady HEC-RAS) routing models to determine the proper ungaged inflow hydrographs and hydrologic modeling parameters such that similar results are obtained from the two methods.

II. Scope:

a. Hydrologic Model Development: Use the unsteady HEC-RAS model to determine peak flows at Hickson and Abercrombie ND and identify breakout flow locations.

b. Initial Storage Outflow Curve Development: Develop storage outflow curves for the hydrologic model reaches determined in above task, and identify bankfull discharges for each routing reach.

c. Quality Control Check on Unregulated Record Generated by Hydrologic Model: Run five test historic, unregulated events through the unsteady HEC-RAS model to check the validity of the unregulated record being developed by the hydrologic modeler.

d. Routed Synthetic-Event Unregulated Hydrographs and Report: Using information developed in previous tasks, provide the resulting unregulated hydrographs at Fargo, ND and Wahpeton, ND, which are produced in concert with the 10-yr, 50-yr, 100-yr, 200-yr, 500-yr synthetic events at Hickson, ND.

e. Fine Tune the Regulated Synthetic Event Analysis: Run the five HEC-RAS models (10-yr, 50-yr, 100-yr, 200-yr, 500-yr synthetic events) for regulated conditions using the outflow hydrographs from the reservoirs developed by USACE using the hydrologic model.

f. Final Technical Memorandum: Develop an overall Technical Memorandum summarizing the work accomplished for Tasks 1-5.

III. Deliverables:

- a. Breakout Flow and Hydrologic Routing Reach Report
- b. Upstream Input Test Hydrographs and Routed Test Hydrographs at Critical Locations
- c. Storage Outflow Curves and bankfull discharges for each routing reach
- d. Routed Historic Hydrographs
- e. Routed Synthetic-Event Regulated Hydrographs and Report
- f. Final Technical Memorandum

3. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and in Exhibit B.

4. Times for Rendering Services

<u>Subtask</u>	<u>Start Time</u>	<u>Completion Time</u>
A. HMS Diversion Inlet Model	April 1, 2012	July 31, 2012
B. Updates to Rush/Lower Rush	March 8, 2012	May 31, 2012
C. Evaluation of channel size	March 8, 2012	May 31, 2012
D. Extend RAS geometry of Rush/Lower Rush	March 8, 2012	May 31, 2012
E. Physical Modeling Assistance	April 26, 2012	September 30, 2012
F. On-Call Services	June 14, 2012	September 30, 2014
F.I. Extreme Rainfall Events	September 13, 2012	November 30, 2012
F.II. Extreme Event Evaluations	September 13, 2012	November 30, 2012
F.III. Tributary Peak HEC-RAS Model Runs	September 14, 2012	December 31, 2012
F.IV. Additional Assistance for the Maple River Aqueduct Physical Model	September 14, 2012	September 30, 2014
F.V. Unsteady HEC-RAS Modeling of Existing PMF Inflows	November 8, 2012	January 31, 2013
F.V. Phase 2 Numerical Modeling	February 14, 2013	September 30, 2013
F.VI. Update HEC-RAS Model	December 13, 2012	January 31, 2014
F.VII. Connecting Channel and 20-year Existing Conditions	December 18, 2012	September 30, 2013
F.VIII. Maple River Aqueduct Flow Analysis	March 14, 2013	September 30, 2013
F.IX. Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	April 18, 2013	September 30, 2013
F.X. Water Monitoring Gage Survey	April 9, 2013	May 31, 2013
G. Basin-Wide Retention Support	December 13, 2012	September 30, 2014
H. Phasing Plan Interim Modeling	April 24, 2013	September 30, 2014
I. Phase 7.1 Model Update	July 11, 2013	December 31, 2013

<u>Subtask</u>	<u>Start Time</u>	<u>Completion Time</u>
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	July 11, 2013	December 31, 2013
K. Phase 8 Model Update	September 12, 2013	September 30, 2014
<u>L. Update the Balanced Hydrographs at Hickson, ND</u>	<u>October 10, 2013</u>	<u>September 30, 2014</u>

5. Payments to Engineer

A. Owner shall pay Engineer for services rendered as follows:

- I. Compensation for services in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.
- II. The total compensation for services identified under the Task Order is not-to-exceed the amount as defined in the table below.
- III. Estimated budget for Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is based on an allowance.
  1. Engineer will notify Owner when eighty percent (80%) of the budget on Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is expended.
  2. Engineer will prepare and submit an amendment for additional compensation when ninety percent (90%) of budget on Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is expended.
  3. Engineer will not perform work beyond one hundred percent (100%) of the budget for Subtask F. On-Call Services, and G. Basin-Wide Retention Support, without Owner's authorization by an amendment to this Task Order.

<b>Subtask</b>	<b>Current Budget (\$)</b>	<b>Change (\$)</b>	<b>Revised Budget (\$)</b>
A. HMS Diversion Inlet Modeling	22,121	0	22,121
B. Updates to Rush/Lower Rush	16,401	0	16,401
C. Evaluation of Channel Size	27,605	0	27,605
D. Extend RAS Geometry of Rush/Lower Rush	17,714	0	17,714
E. Physical Modeling Assistance	10,500	0	10,500
F. ON-CALL SERVICES (ALLOWANCE)	94,900	0	94,900
F.I. Extreme Rainfall Events	7,500	0	7,500
F.II. Extreme Event Evaluations	26,600	0	26,600
F.III Tributary Peak Model Runs to Support the Maple River Aqueduct Physical Model	20,000	0	20,000

<b>Subtask</b>	<b>Current Budget (\$)</b>	<b>Change (\$)</b>	<b>Revised Budget (\$)</b>
F.IV Additional Assistance for the Maple River Aqueduct Physical Model	79,000	0	79,000
F.V Unsteady HEC-RAS Modeling of Existing PMF Inflows	50,000	0	50,000
F.V Phase 2 Numeric Modeling	60,000	0	60,000
F.VI Update HEC-RAS Model	36,000	0	36,000
F.VII Connecting Channel and 20-year Existing Conditions	9,000	0	9,000
F.VIII Maple River Aqueduct Flow Analysis	15,000	0	15,000
F.IX Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	15,000	0	15,000
F.X Water Monitoring Gage Survey	5,000	0	5,000
G. Basin-Wide Retention Support	55,000	0	55,000
H. Phasing Plan Interim Modeling	90,000	0	90,000
I. Phase 7.1 Model Update	140,000	0	140,000
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	80,000	0	80,000
K. Phase 8 Model Update	270,000	<u>61,000</u>	<u>331,000</u>
<u>L. Update the Balanced Hydrographs at Hickson, ND</u>	<u>0</u>	<u>105,000</u>	<u>105,000</u>
<b>TOTAL</b>	<b>1,147,341</b>	<b><u>166,000</u></b>	<b><u>1,313,341</u></b>

B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants: None
7. Other Modifications to Agreement: None
8. Attachments: None
9. Documents Incorporated By Reference: None



10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is June 14, 2012.

ENGINEER:

**Houston-Moore Group, LLC**

\_\_\_\_\_  
Signature Date

Jeffrey J. Volk

\_\_\_\_\_  
Name

President

\_\_\_\_\_  
Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

C. Gregg Thielman

\_\_\_\_\_  
Name

Sr. Project Manager

\_\_\_\_\_  
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\_\_\_\_\_  
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\_\_\_\_\_  
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OWNER:

**Fargo-Moorhead Metro Diversion Authority**

\_\_\_\_\_  
Signature Date

Darrell Vanyo

\_\_\_\_\_  
Name

Chairman, Flood Diversion Board of Authority

\_\_\_\_\_  
Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

Keith Berndt

\_\_\_\_\_  
Name

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\_\_\_\_\_  
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\_\_\_\_\_  
Fax

# Task Order No. 13, Amendment ~~32~~

In accordance with Paragraph 1.01 of the Agreement between Fargo-Moorhead Flood Diversion Authority ("Owner") and Houston-Moore Group, LLC (HMG) ("Engineer") for Professional Services – Task Order Edition, dated March 8, 2012 ("Agreement"), Owner and Engineer agree as follows:

The parties agree that in the event of a conflict between prior versions of this Task Order No. 13 and this Amendment, the terms and conditions in this Amendment shall prevail, provided however, nothing herein shall preclude ENGINEER from invoicing for work authorized under prior versions of this Task Order and performed prior to effective date of this Amendment, even to the extent such prior work was revised by this Amendment. All other terms and conditions shall remain the same and are hereby ratified and affirmed by the parties.

## 1. Specific Project Data

- A. Title: Levee Design and Design Support
- B. Description: As part of Work-in-Kind (WIK), provide assistance to USACE, in design and design support activities, for design of levees along the Red River to support increased flow through the protected area and for levees in the upstream staging area. Provide Lands, Easements, Rights-of-Way, Relocations, and Disposal areas (LERRDs) assistance to Owner to support the levee designs.
- C. Background:
  - i. Red River Levees: At the November 8, 2012 Diversion Board meeting, the Board requested the US Army Corps of Engineers (USACE) add levees along the Red River to allow increased flow through the protected area. This task order allows HMG to provide design and design support to USACE for these Red River levees.
    1. Phase 1 – Screening of alternatives and selecting final alignment scope to include: Development of Alternatives, Public Involvement, Surveying, Geotechnical Exploration and Testing, Preliminary Geotechnical Analysis, Preliminary Hydrologic and Hydraulic Analysis, Preliminary Internal Flood Control Analysis, Preliminary Utility Investigation, Preliminary Levee and Structural Design, Transportation Evaluation, Preliminary Environmental Studies, Preliminary Report and Drawings, and Project Management.
    2. Phase 2 – Detailed Plans and Specifications: Based on the alternative selected in Phase 1, conduct a Value Engineering (VE) evaluation of the proposed project and prepare plans and specifications for 65 and 95 percent submittals, and prepare a cost estimate based on the 95 percent design submittal. Notice To Proceed (NTP) will be subject to the completion and signing of the USACE Supplemental Environmental Assessment (EA).
  - ii. Upstream Staging Area Levees/Ring Dikes: At the November 8, 2012 Diversion Board meeting, the Board passed AWD-00020 Recommended Board of Authority Position for Post-Feasibility Alternatives Analysis VE-13A vs. VE-13C, which authorized HMG to begin conceptual design and site investigations of potential levees for the Oxbow.

## 2. Services of Engineer

### A. General

- i. Red River Levees. Prepare Preliminary Design Report (PDR) and drawings for the construction of levees through town. The work will be done in 2 phases: Phase 1 will include screening of alternatives, preliminary design, and selecting final alignments. Phase 2 will include detailed plans and specifications.
- ii. Support for Upstream Stage Area Levees. Provide, as requested, assistance to USACE for design of ring levees and non-structural improvements in the Upstream Staging Area.
  1. Provide detailed designs for four of the Oxbow/Hickson/Bakke ring levee Work Packages (WP-43A, WP-43C, WP-43D, and WP-43E).

### B. Scope of Work

- i. Red River Levees – Work will be done in 2 phases:
  1. Phase 1 - Screening of Alternatives, Selection of Alignment, and Preliminary Design for the area in Fargo, ND along the Red River between the existing railroad embankment near 5<sup>th</sup> Avenue North and the north end of the existing 4<sup>th</sup> Street levee (near 2<sup>nd</sup> Street South). Work will include:
    - a. Development of Alternatives – Develop up to three (3) protection alignment concepts and conceptual level cost estimates. Participate in an alignment selection meeting.
    - b. Public involvement – Meet with affected property owners (5 anticipated), participate in two (2) public meetings, and respond to calls after public meetings. Prepare visualizations of alignment alternatives(s).
    - c. Surveying – Conduct topographic survey of project corridor including elevations, utilities, landscaping, buildings, and streets.
    - d. Geotechnical Exploration and Testing – Determine location of borings, right-of-entry requests, conduct borings, field and laboratory testing, to determine surface and subsurface geological conditions.
    - e. Preliminary Geotechnical Analysis – Conduct preliminary stability analysis on alignment alternatives and report of findings.
    - f. Preliminary Hydrologic and Hydraulic Analysis - Conduct HEC-RAS modeling to complete preliminary evaluation of Red River stage impacts due to proposed project.
    - g. Preliminary Internal Flood Control Analysis – Conduct SWMM model update for existing conditions and proposed conditions with project (including consideration of interior ponding), review of historical precipitation and stream flow, simulation of low river gravity outlet condition, simulation of high river pumped outlet condition, and determine preliminary pump sizing and additional internal storage needs.
    - h. Preliminary Utility Investigation – Determine preliminary utility relocation requirements, conduct utility coordination meeting, and document utility relocation requirements and issues.

- i. Preliminary Levee Design Structural Design – Develop preliminary design of levee protection system, preliminary estimate of embankment and borrow requirements, and prepare a narrative of design criteria.
  - j. Preliminary Structural Design – Develop preliminary design for proposed floodwalls and closures, pump stations, and miscellaneous drainage structures. Prepare a narrative with descriptions of features, design considerations, and criteria assumptions.
  - k. Transportation Evaluation – Develop initial evaluation of transportation impacts, and participate in two (2) coordination meetings with City of Fargo staff and two (2) coordination meetings with railroad staff. Develop up to five (5) alternatives for the 2<sup>nd</sup> Street road alignment to accommodate flood protection alternatives.
  - l. Preliminary Environmental Studies – Complete Phase 1 Environmental Site Assessment report for six (6) properties.
  - m. Preliminary Design Report and Drawings – Prepare Preliminary Design Report (PDR) with cost estimates and preliminary project plans for selected alignment. Prepare artists renderings of selected plan.
  - n. Project Management – Document coordination and review, schedule and resource management, budgeting, and project team coordination.
  - o. Landscape Architecture/Master Planning- Provide landscape architecture and master planning services for the Red River Levees.
    - i. Provide landscape architecture services for the 2<sup>nd</sup> St. Corridor from NP Ave. to 4<sup>th</sup> Ave. Coordinate with the city of Fargo City Hall Project throughout the design phase of the City Hall Project.
    - ii. Provide master planning services from Mickelson to the 4<sup>th</sup> St. Levee.
2. Phase 2 – Detailed Plans and Specifications: Complete detailed project engineering and design and provide plans and technical specifications (Division 2 and higher) for the selected alternative from Phase 1. Include required surveying, environmental studies, permitting, removals and demolition, geotechnical and hydraulic analyses, internal flood control and pumping, levee systems, floodwalls, closures, traffic evaluations, road realignments and signal changes, public and private utility relocations, landscaping, drawings and specifications, internal QA/QC, design documentation, operation and maintenance plan, and project management and coordination. Major milestone deliverables include:
- a. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, USACE Consistency, Agency Technical Review (ATR) and USACE Independent External Peer Review (IEPR) review teams.
  - b. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and

specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

- c. Cost Estimate – prepare a cost estimate for the project based on the 95 percent submittal documents.
- d. Operation and Maintenance Plan – prepare draft O&M Plan for review by the Diversion Authority, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.
- e. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

3. Value Engineering Study (VES)

- a. Facilitate a VES in accordance with USACE guidelines (up to 3 days) with staff from the Diversion Authority, Program Management Consultant (PMC), and USACE. Prepare and distribute materials and documents, facilitate the workshop, and prepare a VES report.

ii. Upstream Staging Area Ring Levees:

- 1. Provide support as defined below and as requested in writing. Types of requests may include:
  - a. Respond to information requests by affected residences and develop information for presentations or public meetings.
  - b. Conduct a geotechnical site visit(s) of the levee site(s) to observe surface features and, if requested, conduct subsurface investigations.
  - c. Determine existing utilities and utility relocation requirements.
  - d. Begin conceptual design of the levees and/or floodwalls and floodgates, interior layout (which may include street layout, storm water sewer, storage, and lift station sizing, house relocation planning, and golf course layout), and external infrastructure (road raises for egress).
- 2. Oxbow/Hickson/Bakke – Ring Levee Evaluation:
  - a. Prepare a proposed ring levee system to reduce flood risk to Oxbow/Hickson/Bakke, ND during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for ring levee, and evaluate access during periods of Diversion operation.
  - b. The ring levee will impact the golf course and clubhouse. Provide conceptual design services for re-design of the golf course and clubhouse.
    - i. Provide an updated conceptual design of golf course and clubhouse based on update levee alignment to accommodate a total of 80 replacement residential lots.
  - c. Initial Survey and Geotechnical Activities for Levee Design:
    - i. Work with USACE to develop a geotechnical investigation plan for the alternative Levee alignments for approval.

- ii. Stake the location of approved borings and record the coordinates and elevations of the borings.
- iii. Conduct up to 20 geotechnical borings on portions of the alternative alignments that are common to all alternatives.
- iv. Obtain and comply with right of entry (ROE) and right of way (ROE) requirements for each property entered.

The construction of the Oxbow/Hickson/Bakke (O/H/B) ring levee and associated work is phased. The work has been divided into five (5) Work Packages, which include: three (3) levee design packages, an interior drainage and road raise package, and a demolition and utility relocations package. One of the levee design packages (WP-43B) will be completed by the USACE. The remaining 4 design packages (WP-43A, WP-43C, WP-43D and WP-43E) will be completed in this scope of work. See Figure 1, attached.

Assumptions for WP-43A, WP-43C, WP-43D and WP-43E include:

- No additional surveys required (included in WP- 43B).
- Soil exploration, laboratory testing, and instrumentation costs included under WP-43B. Geotechnical design of the levee is required. Groundwater evaluation is required to determine impacts to existing septic systems, sewer systems and basements.
- No staging area water hydrologic and hydraulic (H&H) modeling required (included in WP- 43B). H&H for local drainage and interior drainage is required.
- Include design of levee, vegetation free zone, and ditching (input from WP-43B and WP-43D). CR-81 road raise will be in WP-43D. Retention basin/pump station design will be in WP-43D. Utility relocation design and demolition design will be in WP-43E.
- Coordination between designers for WP-43B, WP-43C, WP-43D, and WP-43E is required, along with review of design submittals from WP-43B.
- Develop design, plans, ROW drawings, technical specs, Design Documentation Report (DDR), cost estimate, and engineering considerations.
- Preliminary Engineering Report (PER) -35% review includes internal review, Sponsor review, and USACE Consistency and ATR review.
- Draft Technical Report (DTR) -65% review includes internal review, Sponsor review, USACE Consistency, ATR, and USACE IEPR. IEPR will be accomplished by the Natural Resources Conservation Service (NRCS)
- Final Technical Report (FTR) -95% review includes internal review, Sponsor review, and USACE ATR.
- Final Technical Certification (Bid Documents). Provide final documents for closeout of remaining comments and technical signoff. There will not be a review associated with this submittal.
- Bid set will include final Plans and Specifications.

- Assume limited work effort during the bid period consisting of: responding to bidders' questions and preparing amendments.
  - Provide final contract award CD of all work items.
  - Weekly coordination meetings will be held and will include: tech lead, geotech, cost/specs, and H&H designers. Assume the meetings for WP-43A and WP-43C, WP-43D, and WP-43E will be combined into one weekly meeting.
- d. WP-43A – Levee Section from Riverbend Road to CR81 (southeast): Design approximately 7,300 lineal feet (lf) of levee, interior buffer zone, and interior drainage swale (if required – based on interior drainage developed in WP-43D), including geotechnical design, civil design, permitting, cost estimates, and preparation of drawings and technical specifications; coordinate design of interior levee buffer zone (drainage swale, snow drop area, and tree screen) and recreational features with O/H/B community and developer/golf course designer; determine affect of levee and exterior impounded water on existing septic systems, sewer systems, and basements. Coordinate with design of Retention Basin (WP-43D). Coordinate with design of road raise of CR-81 (design WP-43D). To be constructed with interior drainage stormwater pump station (WP-43D).
- i. Deliverables:
1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
  2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR & IEPR review teams.
  3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR & IEPR review teams.
  4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.
  5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

- e. WP-43C - Levee Section from CR-81 (northeast) to Riverbend Road: Design approximately 5,000 lf of levee, including geotechnical design, civil design, permitting, cost estimates, and preparation of drawings and technical specifications; coordinate design of interior levee drainage with interior drainage design as part of WP-43D; coordinate design of interior levee slope and recreational features with O/H/B community and golf course designer. Removal/demolition of existing structures and utility cut, cap and removal will be designed under WP-43E.
  - i. Deliverables:
    1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
    2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.
    3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
    4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.
    5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.
- f. WP-43D –Interior Drainage and CR-81 Road Raises: Design interior drainage system for the O/H/B communities, including both new drainage infrastructure and required rehabilitation or upgrades to existing drainage infrastructure; design stormwater retention pond and new stormwater pump station, including surveying, H&H to determine ditch cross sections and slopes, culvert sizes and slopes, geotechnical, structural, electrical, architectural, civil, permitting, cost estimates, and preparation of drawings and technical specifications. Design road raises of CR-81, including geotechnical, geology, civil, cost estimates, and preparation of drawings and technical specifications, coordinate with levee design teams.



i. Deliverables:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.
3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.
5. Operation and Maintenance Plan – prepare draft O&M Plan for review by Diversion Authority, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.
6. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

- g. WP-43E – Demolition and Utility Relocations: Develop demolition plan for WP-43C Levee area (CR-81 (northeast) to Riverbend Road, including utility identification, identification of structures to be sold or demolished in place, environmental Phase 1, permitting, and required remediation. Design utilities to be cut, capped, and removed, and utilities to be relocated (coordinate with developer of new City of Oxbow infrastructure), including cost estimates, and drawings and technical specifications. Review adequacy of existing wastewater pump station and forcemain for the 38 additional residential units.

i. Deliverables:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to

- 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.
  - 3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
  - 4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.
  - 5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.
- h. VES or Value Based Design Charrette (VBDC) – facilitate a VES or VBDC in accordance with USACE guidelines (up to 3 days) with staff from the Diversion Authority, PMC, and USACE. Prepare and distribute materials and documents, facilitate the workshop, and prepare a VES report.
- i. Coordinate and lead VES or VBDC of the five (5) O/H/B levee design packages (WP-43A through WP-43E).
3. Comstock – Ring Levee Evaluation:
- a. Prepare a proposed ring levee system to reduce flood risk to Comstock, MN during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for ring levee, and evaluate access during periods of Diversion operation.
4. Christine – Ring Levee Evaluation:
- a. Prepare a proposed ring levee system to reduce flood risk to Christine, ND during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for ring levee, and evaluate access during periods of Diversion operation.
5. Wolverton – Ring Levee Evaluation:
- a. Prepare a proposed ring levee system to reduce flood risk to Wolverton, MN during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for ring levee, and evaluate access during periods of Diversion operation.
6. Staging Area – Non-Structural Improvement Evaluation:
- a. Identify individual residential properties within the staging area and evaluate the potential benefit from non-structural improvements to reduce flood risk to residential structures during operation of the

Diversion Project and staging of water. Show the location of potential improvements and evaluate access during periods of Diversion operation.

- i. Provide mapping of residential structures and farmsteads impacted by the Staging Area for the 100-year event, and include estimated depth of impact for the structures with and without the project.
- ii. Where technically feasible, provide concept for non-structural improvements and estimate cost of improvements.
- iii. Develop database of impacted properties that includes relevant project information (such as depth of impact with and without project, etc.)
- iv. Assist in preparation, provide meeting materials, and attend one-on-one meetings with impacted landowners.

7. Assist with preparation of materials for public meetings.

iii. Deliverables

1. Red River Levees – Phase 1

- a. Project Schedule with milestone dates for key activities and monthly updates
- b. Monthly Progress Reports and meeting minutes
- c. Alignment selection TM
- d. Geotechnical TM, including:
  - Geotechnical field and laboratory findings
  - Geotechnical stability analysis
  - Survey data
  - Geotechnical field logs
- e. Hydrologic and Hydraulic analysis TM
- f. Transportation TM
- g. Phase 1 Environmental Site Assessment reports
- h. Preliminary Design Report, including:
  - Preliminary pump sizing and storage needs
  - Utility relocation requirements and issues
  - Preliminary Levee design
  - Preliminary Structural design
  - Cost Estimate
  - Preliminary Drawings
- i. Landscape concepts and plans for the 2<sup>nd</sup> St. Corridor from NP Ave. to 4<sup>th</sup> Ave.
- ±j. Master Plan from Mickelson to 4<sup>th</sup> St. Levee.

2. Red River Levees - Phase 2

- a. 65 Percent Design Submittal
- b. 95 Percent Design Submittal
- c. Cost Estimates
- d. Operation and Maintenance Plan
  - i. Draft Plan
  - ii. Final Plan

3. Red River Levees – VES reports

4. Support for Upstream Staging Area Levees

- a. Oxbow/Hickson/Bakke TM
- b. WP-43A
  - i. 35 Percent Design Submittal
  - ii. 65 Percent Design Submittal
  - iii. 95 Percent Design Submittal
  - iv. Cost Estimates
- c. WP-43C
  - i. 35 Percent Design Submittal
  - ii. 65 Percent Design Submittal
  - iii. 95 Percent Design Submittal
  - iv. Cost Estimates
- d. WP-43D
  - i. 35 Percent Design Submittal
  - ii. 65 Percent Design Submittal
  - iii. 95 Percent Design Submittal
  - iv. Cost Estimates
  - v. Operation and Maintenance Plan
    - 1. Draft Plan
    - 2. Final Plan
- e. WP-43E
  - i. 35 Percent Design Submittal
  - ii. 65 Percent Design Submittal
  - iii. 95 Percent Design Submittal
  - iv. Cost Estimates
- f. VES or VBDC reports
- g. Comstock TM
- h. Christine TM
- i. Wolverton TM
- j. Staging Area Non-Structural Improvements TM

iv. Work not included in this Scope of Services

- 1. Environmental permitting
- 2. Utility Relocation Agreements
- 3. ROW Acquisition including Appraisals, Title Searches, Title Opinions, Deeds
- 4. Bid documents and bidding services

3. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and in Exhibit B.

4. Times for Rendering Services

<u>Subtask</u>	<u>Start Time</u>	<u>Completion Time</u>
2.B.i Red River Levees – Phase 1	November 8, 2012	September 30, 2013
2.B.ii Upstream Staging Area Ring Levees	November 8, 2012	September 30, 2013
Amendment 1 all work	December 13, 2012	September 30, 2013
2.B.ii.2.d WP-43A Bid Documents	August 8, 2013	May 4, 2014
Amendment 2 other work	August 8, 2013	May 31, 2015

**Subtask****Start Time****Completion Time**Amendment 3 all workNovember 14, 2013September 30, 2013

## 5. Payments to Engineer

## A. Owner shall pay Engineer for services rendered as follows:

- i. Compensation for services identified under Subtasks 2.B.i through 2.B.ii shall be on a Time and Material basis in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.
- ii. The total compensation for services identified under the Task Order for Subtasks 2.B.i through 2.B.ii is not-to-exceed amount as defined in the table below.
- iii. Estimated budget for Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is based on an allowance.
  1. Engineer will notify Owner when eighty percent (80%) of the budget on Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is expended.
  2. Engineer will prepare and submit an amendment for additional compensation when ninety percent (90%) of budget on Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is expended.
  3. Engineer will not perform work beyond one hundred percent (100%) of the budget for Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, without Owner's authorization by an amendment to this Task Order.

Subtask	Current Budget (\$)	Change (\$)	Revised Budget (\$)
2.B.i.1 Red River Levees – Phase 1 Design	435,000	0	435,000
<u>2.B.i.1.o.i Landscape Architecture/Master Planning - 2nd St. Corridor from NP Ave. to 4th Ave.</u>	<u>0</u>	<u>35,000</u>	<u>35,000</u>
<u>2.B.i.1.o.ii Master Planning Services - Mickelson to the 4th St. Levee</u>	<u>0</u>	<u>100,000</u>	<u>100,000</u>
2.B.i.2 Red River Levees – Phase 2 Design	2,000,000	0	2,000,000
2.B.i.3 Red River Levees – VES	30,000	0	30,000
2.B.ii Upstream Staging Area Ring Levees (Allowance)	425,000	0	425,000
2.B.ii.2.d WP-43A Design	275,000	0	275,000
2.B.ii.2.e WP-43C Design	190,000	0	190,000
2.B.ii.2.f WP-43D Design	1,020,000	0	1,020,000
2.B.ii.2.g WP-43E Design	260,000	0	260,000
2.B.ii.2.h O/H/B Ring Levee – VES	30,000	0	30,000
<b>TOTAL</b>	4,665,000	<u>135,000</u>	<u>4,800,000</u>

## B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants:
  - a. Braun Intertec Corporation
  - b. Northern Technologies, Inc.
  - c. Robert Trent Jones II, LLC
7. Other Modifications to Agreement: None
8. Attachments: Figure 1
9. Documents Incorporated By Reference: None

10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is November 8, 2012.

ENGINEER:

**Houston-Moore Group, LLC**

Signature \_\_\_\_\_ Date \_\_\_\_\_

Jeffry J. Volk

Name

President

Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

C. Gregg Thielman

Name

Sr. Project Manager

Title

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Address

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E-Mail Address

(701) 237-5065

Phone

Fax

OWNER:

**Fargo-Moorhead Metro Diversion Authority**

Signature \_\_\_\_\_ Date \_\_\_\_\_

Darrell Vanyo

Name

Chairman, Flood Diversion Board of Authority

Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

Keith Berndt

Name

Cass County Administrator

Title

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E-Mail Address

(701) 241-5720

Phone

(701) 297-6020

Fax

# Task Order No. 16, Amendment 0

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In accordance with Paragraph 1.01 of the Agreement between Fargo-Moorhead Flood Diversion Authority (“Owner”) and Houston-Moore Group, LLC (HMG) (“Engineer”) for Professional Services – Task Order Edition, dated March 8, 2012 (“Agreement”), Owner and Engineer agree as follows:

## 1. Specific Project Data

### A. Title: **Permit Submittal Preparation and Other Related Services**

B. Scope of Services: The scope of work for this Task Order includes permitting for the Fargo-Moorhead Area Diversion Project (Project). The anticipated major permit submittals for the Project shall be as requested by Owner, and may include, but are not limited to:

#### B.1. Major Permits:

- B.1.a. 404 Individual Permit
  - i. WP-43 Oxbow/Hickson/Bakke Levees
  - ii. Remainder of Project for North Dakota and Minnesota
- B.1.b. 401 Certification for North Dakota and Minnesota
- B.1.c. Floodplain Permitting

#### B.2. Other Permits:

- B.2.a. Identify other permits required for Work Packages 42 and 43

#### B.3. The following items are not included in Engineer’s Scope of Services:

- B.3.a. Permit submittal fees

## 2. Services of Engineer

### A. **Subtask A - Permitting Schedule**

A.1. Develop a schedule for acquiring permits. Consult with regulatory agencies, as approved by Owner. The schedule will include a listing of activities and information needs associated with permit submittal preparation, target dates to submit permit submittals, regulatory agency review times, and anticipated permit issuance dates.

#### **Deliverables:**

- Permitting Schedule

### B. **Subtask B - Allowance for Permit Submittal Preparation and Acquisition Support**

**Objective:** The objective of this subtask is to prepare permit submittals in accordance with the associated schedule and to coordinate with regulatory agencies throughout the permit processing period from initial permit submittal through permit issuance.

B.1. **Permit Submittal Preparation:** The deliverables listed below are the permits anticipated. The following description of potential permits is assumed as the basis for Engineer’s permitting effort. The deliverables listed are subject to change. The scope of work and budget presented in this Task Order are for permit submittals listed below as required.



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B.1.a. **404 Permitting Submittal Preparation and Processing**

- B.1.a.1 Prepare the permit submittal based on the information obtained from the Final Environmental Impact Statement (FEIS), Supplemental Environmental Assessment (EA), supporting National Environmental Policy Act (NEPA) documentation, and submit to the Corps. Interaction with the Corps will continue throughout their consultation with other agencies and until the issuance of the permit.
- B.1.a.2 Meet periodically with the Omaha District Corps in Fargo, ND or at their District offices in Bismarck, ND.
- B.1.a.3 Provide meeting follow-up, responding to Corps' questions and providing additional information, as required.
- B.1.a.4 Provide follow-on coordination with the Corps prior to the date of permit submittal delivery.
- Gather and format appropriate FEIS information needed to complete the 404 Permit.
  - Gather and format information from other (non-EIS) sources for incorporation into the permit submittal, including the addresses of adjacent property owners and a listing of other certifications and required approvals.

B.1.b. **401 Water Quality Certification Submittal Preparation and Processing**

- B.1.b.1 The 401 Water Quality Certification is required for North Dakota and Minnesota approval and authorization of the Corps 404 Permit.
- B.1.b.2 Prepare the 401 Water Quality Certifications, along with associated items as requested.

B.1.c. **Floodplain Permitting**

- B.1.c.1 Coordinate with the local floodplain administrators to discuss the project and potential effects to floodplains.
- B.1.c.2 Prepare documentation associated with floodplain permitting, as required.

B.1.d. **Additional Permits**

- B.1.d.1 In general, the major requirements for agency review to acquire permits are a permit submittal and design drawings.
- B.1.d.2 Prepare the permit submittals under this Task Order.
- B.1.d.3 The development of Final Design drawings that are required to be submitted with the permit submittal will occur under other Task Orders.

**Deliverables:**

- 404 Permit Submittal
- 401 Water Quality Certification Submittal
- Floodplain Permit

B.2. **Permit Acquisition Support Services:** Provide the following general permit acquisition support services as requested by Owner.

- B.2.a. Engage in meetings, other communication, and coordination with regulatory agencies as needed to provide information or clarification required to facilitate a timely processing of permit submittal.

B.2.b. Provide responses to regulatory agency comments or questions regarding submittal.

C. **Subtask C - On-Call Services**

**Objective:** This subtask includes additional services not included in defined scopes.

C.1. **On-Call Services:**

C.1.a. Respond to requests for services from Owner for tasks not included in defined scopes.

**Deliverables:**

- On-Call Services as requested.

3. Owner's Responsibilities

A. Owner shall have those responsibilities set form in Article 2 and in Exhibit B.

4. Times for Rendering Services

<u>Subtask</u>	<u>Start Time</u>	<u>Completion Time</u>
All Work	October 10, 2013	September 30, 2014

5. Payments to Engineer

A. Owner shall pay Engineer for services rendered as follows:

A.1. Compensation for services identified under Subtasks listed below shall be on a Time and Material basis in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.

A.2. The total compensation for services identified under the Task Order for Subtasks is not to exceed the amount defined in the table below.

<b>Subtasks</b>	<b>Assumed Distribution (\$)</b>
2.A Permitting Schedules	15,000
2.B Allowance for Permit Submittal Preparation and Acquisition Support	140,000
2.C On-Call Services	50,000
<b>Total</b>	<b>205,000</b>

B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants: None

7. Other Modifications to Agreement: None

8. Attachments: None

9. Documents Incorporated by Reference: None

- 
10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is October 10, 2013.

ENGINEER:

**Houston-Moore Group, LLC**

Signature

Date

Jeffry J. Volk

Name

President

Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

C. Gregg Thielman

Name

Sr. Project Manager

Title

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West Fargo, ND 58078

Address

[cgthielman@houstoneng.com](mailto:cgthielman@houstoneng.com)

E-Mail Address

(701) 237-5065

Phone

Fax

OWNER:

**Fargo-Moorhead Metro Diversion Authority**

Signature

Date

Darrell Vanyo

Name

Chairman, Flood Diversion Board of Authority

Title

DESIGNATED REPRESENTATIVE FOR  
TASK ORDER:

Keith Berndt

Name

Cass County Administrator

Title

211 9th Street South , PO Box 2806  
Fargo, ND 58108-2806

Address

[berndtk@casscountynd.gov](mailto:berndtk@casscountynd.gov)

E-Mail Address

(701) 241-5720

Phone

(701) 297-6020

Fax

**Agricultural Impacts Mitigation Plan****DECISION PAPER NO.: DP-00033**

Date: 11/14/2013

**RECOMMENDATION FOR BOARD ACTION:**

Motion is made that the Diversion Authority Board approve the Agricultural Impacts Mitigation Plan, which includes providing flowage easements and supplemental crop insurance for lands impacted by the Project.

**SUMMARY OF DECISION TOPIC:**

A key component of the proposed FM Area Diversion Project is the upstream retention, or staging area immediately south of the southern embankment of the Project. The Project will utilize the staging area to temporarily store flood waters on agricultural land to mitigate downstream impacts. The Diversion Authority has recognized the need for the staging area as a necessary component of the Project and also recognizes the need to mitigate for impacts to agricultural lands. Federal mitigation rules require the Diversion Authority Board to obtain flowage easements following the Federal/USACE process. The Diversion Authority is reviewing options with the intent of providing supplemental crop insurance as additional mitigation to impacted agricultural lands.

**EVALUATION OF KEY FACTORS FOR DECISION MAKING:****Flowage Easements**

1. Value of a flowage easement on an individual property will follow Federal/USACE process and will be determined by a "before and after" appraisal.
2. Factors considered during the flowage easement appraisal process include depth, duration, and frequency of additional flooding and highest and best use of the property.
3. Values of flowage easement will vary depending on the location of the property, magnitude of impacts, and future risks to the property.
4. Flowage easements will be acquired following USACE policy, which defines a one-time payment made at the time that the easement is acquired.
5. Flowage easements will allow for farming to continue on properties, however development will be limited.

**Crop Insurance**

1. The Diversion Authority will study supplemental crop insurance options including a private supplemental insurance policy as well as a federal insurance product. The study of options is expected to lead to the development of a supplemental crop insurance program.
2. The Diversion Authority may contract with an independent insurance provider to administer the coverage and damage adjustment process.
3. The supplemental crop insurance policy would be expected to cover prevent plant scenarios where Project operation would prohibit planting.
4. The supplemental crop insurance policy would be expected to cover damages caused by Project operation to planted crops (summer impacts).
5. Federal crop insurance will likely apply if a crop can be planted before the established late planting dates.

**Submitted by:**

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Bruce J. Spiller, P.E.  
CH2M HILL  
Project Manager  
Fargo-Moorhead Area Diversion Project

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Date

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Brian C. Berg, Clay County Administrator  
Concur: 11/7/13 Non-Concur: \_\_\_\_\_

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Michael J. Redlinger, Moorhead City Manager  
Concur: \_\_\_\_\_ Non-Concur \_\_\_\_\_

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Keith Berndt, Cass County Administrator  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

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April Walker, Fargo City Engineer  
Concur: \_\_\_\_\_ Non-Concur \_\_\_\_\_

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Mark Bittner  
Mark Bittner, Fargo Director of Engineering  
Concur: 11/7/13 Non-Concur: \_\_\_\_\_

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Pat Zavoral, Fargo City Administrator  
Concur: \_\_\_\_\_ Non-Concur \_\_\_\_\_

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David Overbo, Clay County Engineer  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

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Robert Zimmerman, Moorhead City Engineer  
Concur: \_\_\_\_\_ Non-Concur \_\_\_\_\_

**FM Diversion Authority**  
**Fiscal Accountability Report Design Phase (Fund 790)**  
**As of 10/31/2013**

	2011	2012	2013	Cumulative Totals
<b>Revenues</b>				
City of Fargo	443,138	7,652,681	4,069,750	12,165,569
Cass County	443,138	7,652,681	4,069,750	12,165,569
City of Moorhead / Clay County	98,475	1,700,595	904,389	2,703,459
State Water Commission	-	-	18,600	18,600
Lease/Rental Payments	-	-	15,928	15,928
Miscellaneous	-	-	226	226
<b>Total Revenues</b>	<b>984,750</b>	<b>17,005,957</b>	<b>9,078,644</b>	<b>27,069,351</b>
<b>Expenditures</b>				
7905 Army Corp Payments	-	-	875,000	875,000
7910 WIK - Administration	107,301	331,321	66,547	505,169
7915 WIK - Project Design	149,632	5,366,147	1,672,897	7,188,676
7920 WIK - Project Management	679,037	7,223,650	4,081,696	11,984,383
7925 WIK - Recreation	-	163,223	-	163,223
7930 LERRDS - North Dakota	48,664	3,843,620	2,027,998	5,920,282
7931 LERRDS - Minnesota	-	27,996	284,507	312,502
7940 WIK Mitigation - North Dakota	-	-	-	-
7941 WIK Mitigation - Minnesota	-	-	-	-
7950 Construction - North Dakota	-	-	-	-
7951 Construction - Minnesota	-	-	-	-
7955 Construction Management	-	-	-	-
7990 Project Financing	-	50,000	70,000	120,000
7995 Project Eligible - Off Formula Costs	-	-	-	-
7999 Non Federal Participating Costs	116	-	-	116
<b>Total Expenditures</b>	<b>984,750</b>	<b>17,005,957</b>	<b>9,078,644</b>	<b>27,069,351</b>

FM Diversion Authority  
 FY 2014 Summary Budget Report ( In Thousands)  
 October, 2013

	FY 2014 Approved Budget	Current Month	Fiscal Year To Date	% Expended	Outstanding Encumbrances	Remaining Budget Balance
<b>Revenue Sources</b>						
City of Fargo	19,530	1,023	1,023			18,507
Cass County	19,530	1,023	1,023			18,507
City of Moorhead	4,340	227	227			4,113
State of ND - 50% Match	-	-	-			-
State of ND - 100% Match	26,600	19	19			26,581
State of Minnesota	-	-	-			-
Financing Proceeds	-	-	-			-
Sale of Assets	-	-	-			-
Property Income	-	7	7			(7)
Miscellaneous	-	-	-			-
<b>Total Revenue Sources</b>	<b>70,000</b>	<b>2,300</b>	<b>2,300</b>			<b>67,700</b>
<b>Funds Appropriated</b>						
Army Corp Local Share	-	525	525	100%	1,575	(2,100)
Management Oversight	2,300	760	760	33%	1,865	(325)
Technical Activities	7,900	374	374	5%	6,356	1,170
Land Acquisitions	37,700	641	641	2%	2,177	34,881
Construction	18,700	-	-	0%	-	18,700
Other Costs	3,400	-	-	0%	20	3,380
<b>Total Appropriations</b>	<b>70,000</b>	<b>2,300</b>	<b>2,300</b>	<b>3%</b>	<b>11,993</b>	<b>55,706</b>

**FM Diversion Authority**  
**Summary of Cash Disbursements**  
**Period October 2013**

Period/Year: 10/2013

Date: 10/31/2013

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7905-429.33-42	10/1/2013	JB10130022	ARMY CORP OF ENGINEERS	525,000.00	LOCAL SHARE Q1 FY14	V01101	Army Corp Local Share Pmt
<b>Total Local Share to USACE - Army Corp of Engineers</b>				525,000.00			
790-7910-429.33-20	10/28/2013	JB10130029	CITY OF FARGO	620.00	FISCAL SERVICES	V00102	General & Admin. WIK
<b>Total WIK - General &amp; Admin - Accounting Services</b>				620.00			
790-7910-429.33-25	10/23/2013	243900	ERIK R JOHNSON & ASSOCIATES	4,513.51	METRO FLOOD PROJECT	V00102	General & Admin. WIK
<b>Total WIK - General &amp; Admin. - Legal Services</b>				4,513.51			
790-7915-429.33-05	10/2/2013	243421	RED RIVER BASIN COMMISSION	52,188.40	HUR PROJECT	V02101	STUDY UPPER RR RETENTION
	10/2/2013	243421	RED RIVER BASIN COMMISSION	76,534.00	HUR PROJECT	V02101	STUDY UPPER RR RETENTION
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	2,299.50	8/1-31/13	V01607	RECREATION/USE MASTER PLN
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	51,777.50	8/1-31/13	V01609	HYDROLOGY/HYDRAULIC MODEL
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	124,085.71	8/1-31/13	V01613	LEVEE DESIGN & SUPPORT
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	63,701.46	8/1-31/13	V01614	TRANS/DRAINAGE MASTER PLN
	10/2/2013	243445	URS CORPORATION	1,046.75	7/13-8/9/13	V01003	CULTURAL RESOURCES INVEST
	10/2/2013	243445	URS CORPORATION	2,309.96	8/10-9/6/13	V01003	CULTURAL RESOURCES INVEST
<b>Total WIK - Project Design - Engineering Services</b>				373,943.28			
790-7920-429.33-05	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	71,057.07	8/1-31/13	V01601	HMG - PROJECT MANAGEMENT
<b>Total WIK Construction Mgmt. - Engineering Services</b>				71,057.07			
790-7920-429.33-79	10/23/2013	243882	CH2M HILL ENGINEERS INC	317,808.23	TASK ORDER 2	V00203	CH2M HILL - 10/1-6/30/13
	10/23/2013	243882	CH2M HILL ENGINEERS INC	6,091.03	TASK ORDER 2	V00203	CH2M HILL - 10/1-6/30/13
	10/23/2013	243882	CH2M HILL ENGINEERS INC	180,000.00	AUG/SEPT 2013	V00204	CH2M Hill-9.1.13-2.28.14
	10/23/2013	243882	CH2M HILL ENGINEERS INC	180,000.00	SEPT/OCT 2013	V00204	CH2M Hill-9.1.13-2.28.14
<b>Total WIK Construction Mgmt. - Project Management</b>				683,899.26			
790-7930-429.33-05	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	78,316.11	FM AREA DIVERSION/DPAC	V01202	Cass Joint Water DPAC
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	21,753.38	8/1-31/13	V01602	CR-31 BRIDGE DESIGN
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	19,174.50	8/1-31/13	V01604	CR-32 & CR-22 BRIDGE DSGN
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	400.00	8/1-31/13	V01604	CR-32 & CR-22 BRIDGE DSGN



**FM Diversion Authority  
Summary of Cash Disbursements  
Period October 2013**

Period/Year: 10/2013

Date: 10/31/2013

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	27,248.86	8/1-31/13	V01606	LAND MANAGEMENT SERVICES
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	2,904.00	8/1-31/13	V01610	UTILITIES DESIGN
	10/10/2013	243565	HOUSTON-MOORE GROUP LLC	34,905.91	8/1-31/13	V01611	REACH 6 & CR20 BRIDGE
<b>Total LERRDS - North Dakota - Engineering Services</b>				184,702.76			
790-7930-429.33-25	10/16/2013	243710	DORSEY & WHITNEY LLP	19,416.00	RED RIVER DIVERSION PROJ	V00101	Dorsey Whitney Legal
	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	38,262.45	FM AREA DIVERSION/DPAC	V01201	Cass Joint Water ROE
	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	6,176.00	FM AREA DIVERSION/DPAC	V01202	Cass Joint Water DPAC
	10/23/2013	243900	ERIK R JOHNSON & ASSOCIATES	3,317.55	METRO FLOOD PROJECT	V00103	General & Admin. LERRDS
<b>Total LERRDS - North Dakota - Legal Services</b>				67,172.00			
790-7930-429.61-50	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	4.55	FM AREA DIVERSION/DPAC	V01201	Cass Joint Water ROE
	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	13.58	FM AREA DIVERSION/DPAC	V01202	Cass Joint Water DPAC
<b>Total LERRDS - North Dakota - Postage</b>				18.13			
790-7930-429.68-10	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	143.27	FM AREA DIVERSION/DPAC	V01201	Cass Joint Water ROE
<b>Total LERRDS - North Dakota - Miscellaneous</b>				143.27			
790-7930-429.71-30	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	104,087.79	FM AREA DIVERSION/DPAC	V01701	ND LAND PURCHASES
<b>Total LERRDS - North Dakota - Land Purchases</b>				104,087.79			
790-7930-429.71-31	10/16/2013	243701	CASS COUNTY JOINT WATER RESOURCE DI	3,500.00	FM AREA DIVERSION/DPAC	V01201	Cass Joint Water ROE
<b>Total LERRDS - North Dakota - Easements</b>				3,500.00			
790-7931-429.71-30	10/30/2013	244126	KENNELLY & OKEEFFE (ACQUISITIONS)	281,554.91	FMDA HARDSHIP LAND PURCH	V02302	MN LAND PURCHASE-HARDSHIP
<b>Total LERRDS - Minnesota - Land Purchases</b>				281,554.91			
<b>Total Disbursed for Period</b>				<b>\$2,300,211.98</b>			

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Date: 10/31/2013

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V00101	790-7910-429.33-25	F12217	9367	12/31/2011	DORSEY & WHITNEY LLP	\$ 52,102.12	\$ 52,102.12	\$ -
V00101	790-7910-429.33-25	146629	9367	1/18/2012	DORSEY & WHITNEY LLP	52,679.63	52,679.63	-
V00101	790-7910-429.33-25	F12289	9367	2/21/2012	DORSEY & WHITNEY LLP	58,693.38	58,693.38	-
V00101	790-7910-429.33-25	F12293	9367	2/21/2012	DORSEY & WHITNEY LLP	1,600.00	1,600.00	-
V00101	790-7910-429.33-25	156087	9367	10/15/2012	DORSEY & WHITNEY LLP	86,960.88	86,960.88	-
V00101	790-7910-429.33-25	157021	9367	11/9/2012	DORSEY & WHITNEY LLP	27,111.94	27,111.94	-
V00101	790-7910-429.33-25	157608	9367	11/29/2012	DORSEY & WHITNEY LLP	9,138.50	9,138.50	-
V00101	790-7910-429.33-25	159215	9367	1/14/2013	DORSEY & WHITNEY LLP	15,177.50	15,177.50	-
V00101	790-7910-429.33-25	160364	9367	2/20/2013	DORSEY & WHITNEY LLP	20,559.60	20,559.60	-
V00101	790-7910-429.33-25	161130	9367	3/18/2013	DORSEY & WHITNEY LLP	10,442.50	10,442.50	-
V00101	790-7910-429.33-25	163408	9367	6/12/2013	DORSEY & WHITNEY LLP	21,936.50	21,936.50	-
V00101	790-7910-429.33-25	164302	9367	7/17/2013	DORSEY & WHITNEY LLP	35,507.00	35,507.00	-
V00101	790-7910-429.33-25	164852	9367	8/12/2013	DORSEY & WHITNEY LLP	4,353.75	4,353.75	-
V00101	790-7930-429.33-25	165352	9367	9/5/2013	DORSEY & WHITNEY LLP	21,732.00	21,732.00	-
V00101	790-7930-429.33-25	165933	9367	9/30/2013	DORSEY & WHITNEY LLP	19,416.00	19,416.00	-
V00102	790-7910-429.38-99	F11738	20660	11/15/2011	GALLAGHER BENEFIT SERVICES INC	250.00	250.00	-
V00102	790-7910-429.31-10	F11749	646	11/15/2011	FORUM COMMUNICATIONS (ADVERT)	494.24	494.24	-
V00102	790-7910-429.31-10	F11750	646	11/15/2011	FORUM COMMUNICATIONS (ADVERT)	345.97	345.97	-
V00102	790-7910-429.31-10	F11751	646	11/15/2011	FORUM COMMUNICATIONS (ADVERT)	296.56	296.56	-
V00102	790-7910-429.31-10	F11752	646	11/15/2011	FORUM COMMUNICATIONS (ADVERT)	17.05	17.05	-
V00102	790-7999-729.68-30	PCARD	18009	12/20/2011	GOOGLE LOVEINTHEOVEN	116.00	116.00	-
V00102	790-7910-429.31-10	F12082	647	12/31/2011	FORUM COMMUNICATIONS (LEGALS)	2,224.20	2,224.20	-
V00102	790-7910-429.38-69	F12079	8645	12/31/2011	SEIGEL COMMUNICATIONS SERVICE	1,490.00	1,490.00	-
V00102	790-7910-429.53-60	F12218	13981	12/31/2011	NORTH DAKOTA TELEPHONE CO	81.20	81.20	-
V00102	790-7910-429.33-20	AJ	COF	2/1/2012	CITY OF FARGO	1,300.00	1,300.00	-
V00102	790-7910-429.55-10	F12256	20829	2/14/2012	BROKERAGE PRINTING	153.85	153.85	-
V00102	790-7910-429.55-10	F12256	20829	2/14/2012	BROKERAGE PRINTING	202.10	202.10	-
V00102	790-7910-429.52-30	F12595	1772	4/16/2012	WARNER & CO	4,975.00	4,975.00	-
V00102	790-7910-429.33-20	AJ	COF	5/25/2012	CITY OF FARGO	1,850.00	1,850.00	-

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Date: 10/31/2013

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V00102	790-7910-429.33-25	151789	16872	6/15/2012	ERIK R JOHNSON & ASSOCIATES	673.20	673.20	-
V00102	790-7910-429.33-25	151876	16872	6/19/2012	ERIK R JOHNSON & ASSOCIATES	1,309.00	1,309.00	-
V00102	790-7910-429.33-20	AJ	COF	6/25/2012	CITY OF FARGO	340.00	340.00	-
V00102	790-7910-429.33-25	152528	1286	7/10/2012	OHNSTAD TWICHELL PC	1,903.50	1,903.50	-
V00102	790-7910-429.33-20	AJ	COF	7/27/2012	CITY OF FARGO	240.00	240.00	-
V00102	790-7910-429.33-25	153237	1286	7/31/2012	OHNSTAD TWICHELL PC	728.50	728.50	-
V00102	790-7910-429.38-99	153670	13981	8/9/2012	NORTH DAKOTA TELEPHONE CO	71.60	71.60	-
V00102	790-7910-429.38-99	154211	13981	8/23/2012	NORTH DAKOTA TELEPHONE CO	90.60	90.60	-
V00102	790-7910-429.33-20	AJ	COF	8/30/2012	CITY OF FARGO	280.00	280.00	-
V00102	790-7910-429.33-20	AJ	COF	9/26/2012	CITY OF FARGO	320.00	320.00	-
V00102	790-7910-429.38-99	155381	13981	9/27/2012	NORTH DAKOTA TELEPHONE CO	87.40	87.40	-
V00102	790-7910-429.33-20	AJ	COF	10/30/2012	CITY OF FARGO	410.00	410.00	-
V00102	790-7910-429.33-20	AJ	COF	11/28/2012	CITY OF FARGO	220.00	220.00	-
V00102	790-7910-429.33-25	157670	16872	11/30/2012	ERIK R JOHNSON & ASSOCIATES	16,826.60	16,826.60	-
V00102	790-7910-429.38-99	158387	13981	12/20/2012	NORTH DAKOTA TELEPHONE CO	76.20	76.20	-
V00102	790-7910-429.33-20	AJ	COF	12/27/2012	CITY OF FARGO	260.00	260.00	-
V00102	790-7910-429.33-25	159214	16872	1/14/2013	ERIK R JOHNSON & ASSOCIATES	26,922.05	26,922.05	-
V00102	790-7910-429.33-20	AJ	COF	1/29/2013	CITY OF FARGO	160.00	160.00	-
V00102	790-7910-429.33-20	AJ	COF	1/29/2013	CITY OF FARGO	180.00	180.00	-
V00102	790-7910-429.38-99	159926	12961	2/5/2013	FEDERAL EXPRESS CORPORATION	71.89	71.89	-
V00102	790-7910-429.33-25	160367	16872	2/20/2013	ERIK R JOHNSON & ASSOCIATES	7,606.58	7,606.58	-
V00102	790-7910-429.52-30	160461	1772	2/25/2013	WARNER & CO	4,975.00	4,975.00	-
V00102	790-7910-429.33-20	AJ	COF	2/27/2013	CITY OF FARGO	260.00	260.00	-
V00102	790-7910-429.33-25	161131	16872	3/18/2013	ERIK R JOHNSON & ASSOCIATES	4,769.78	4,769.78	-
V00102	790-7910-429.33-20	AJ	COF	3/27/2013	CITY OF FARGO	200.00	200.00	-
V00102	790-7910-429.33-25	161699	16872	4/8/2013	ERIK R JOHNSON & ASSOCIATES	2,366.41	2,366.41	-
V00102	790-7910-429.38-99	161972	13981	4/17/2013	NORTH DAKOTA TELEPHONE CO	49.20	49.20	-
V00102	790-7910-429.33-25	162044	14216	4/19/2013	BRIGGS & MORGAN PA	1,616.36	1,616.36	-
V00102	790-7910-429.34-55	162074	21621	4/22/2013	PFM PUBLIC FINANCIAL MANAGEMEN	140,000.00	120,000.00	20,000.00

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Date: 10/31/2013

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V00102	790-7910-429.33-20	AJ	COF	4/26/2013	CITY OF FARGO	460.00	460.00	-
V00102	790-7910-429.33-25	162703	16872	5/14/2013	ERIK R JOHNSON & ASSOCIATES	3,219.38	3,219.38	-
V00102	790-7910-429.38-99	163136	13981	5/30/2013	NORTH DAKOTA TELEPHONE CO	95.00	95.00	-
V00102	790-7910-429.33-20	AJ	COF	5/31/2013	CITY OF FARGO	340.00	340.00	-
V00102	790-7910-429.33-25	163409	16872	6/12/2013	ERIK R JOHNSON & ASSOCIATES	7,161.68	7,161.68	-
V00102	790-7910-429.33-25	163410	14216	6/12/2013	BRIGGS & MORGAN PA	11,111.20	11,111.20	-
V00102	790-7910-429.33-20	AJ	COF	6/30/2013	CITY OF FARGO	260.00	260.00	-
V00102	790-7910-429.38-99	163969	13981	7/8/2013	NORTH DAKOTA TELEPHONE CO	39.40	39.40	-
V00102	790-7910-429.33-25	164303	16872	7/17/2013	ERIK R JOHNSON & ASSOCIATES	3,498.60	3,498.60	-
V00102	790-7910-429.33-20	AJ	COF	7/29/2013	CITY OF FARGO	220.00	220.00	-
V00102	790-7910-429.55-10	164736	20829	8/7/2013	BROKERAGE PRINTING	117.38	117.38	-
V00102	790-7910-429.33-25	164853	16872	8/12/2013	ERIK R JOHNSON & ASSOCIATES	5,829.31	5,829.31	-
V00102	790-7910-429.38-99	165165	13981	8/23/2013	NORTH DAKOTA TELEPHONE CO	34.20	34.20	-
V00102	790-7910-429.33-20	AJ	COF	8/31/2013	CITY OF FARGO	1,020.00	1,020.00	-
V00102	790-7910-429.33-25	165353	16872	9/5/2013	ERIK R JOHNSON & ASSOCIATES	5,511.83	5,511.83	-
V00102	790-7910-429.33-20	AJ	COF	9/25/2013	CITY OF FARGO	400.00	400.00	-
V00102	790-7910-429.33-25	166296	16872	10/16/2013	ERIK R JOHNSON & ASSOCIATES	7,831.06	7,831.06	-
V00102	790-7910-429.33-20	AJ	COF	10/28/2013	CITY OF FARGO	620.00	620.00	-
V00201	790-7920-429.33-79	144170	20663	11/18/2011	CH2M HILL ENGINEERS INC	1,908,938.41	1,908,938.41	-
V00202	790-7920-429.33-79	148611	20663	3/15/2012	CH2M HILL ENGINEERS INC	3,422,306.58	3,422,306.58	-
V00203	790-7920-429.33-79	154940	20663	9/17/2012	CH2M HILL ENGINEERS INC	5,000,000.00	4,783,302.17	216,697.83
V00204	790-7920-429.33-79	166165	20663	10/10/2013	CH2M HILL ENGINEERS INC	1,080,000.00	360,000.00	720,000.00
V00301	790-7910-429.38-69	143936	11604	11/16/2011	ADVANCED ENGINEERING INC	50,000.00	50,000.00	-
V00401	790-7920-429.33-06	143937	165	11/16/2011	BRAUN INTERTEC CORP	54,060.00	43,620.00	10,440.00
V00501	790-7915-429.33-06	143938	165	11/16/2011	BRAUN INTERTEC CORP	36,150.00	34,009.00	2,141.00
V00601	790-7915-429.33-06	144975	20729	12/13/2011	IN SITU ENGINEERING	54,800.00	47,973.00	6,827.00
V00701	790-7915-429.33-05	144866	20723	12/9/2011	MINNESOTA DNR	346,100.00	346,100.00	-
V00801	790-7915-429.33-05	146973	801	1/27/2012	HOUSTON ENGINEERING INC	92,424.03	92,424.03	-
V00802	790-7915-429.33-05	146974	801	1/27/2012	HOUSTON ENGINEERING INC	70,742.30	70,742.30	-

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Date: 10/31/2013

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V00803	790-7915-429.33-05	146975	801	1/27/2012	HOUSTON ENGINEERING INC	47,124.46	47,124.46	-
V00804	790-7925-429.33-05	148054	801	2/29/2012	HOUSTON ENGINEERING INC	163,222.91	163,222.91	-
V00805	790-7915-429.33-05	148058	801	2/29/2012	HOUSTON ENGINEERING INC	94,786.00	94,786.00	-
V00806	790-7915-429.33-05	148078	801	2/29/2012	HOUSTON ENGINEERING INC	108,369.87	108,369.87	-
V00901	790-7915-429.33-05	146976	1118	1/27/2012	MOORE ENGINEERING INC	92,291.55	92,291.55	-
V00902	790-7915-429.33-05	146977	1118	1/27/2012	MOORE ENGINEERING INC	135,231.99	135,231.99	-
V00903	790-7915-429.33-05	146978	1118	1/27/2012	MOORE ENGINEERING INC	142,924.27	142,924.27	-
V00904	790-7930-429.33-05	148055	1118	2/29/2012	MOORE ENGINEERING INC	78,760.62	78,760.62	-
V00905	790-7930-429.33-05	148056	1118	2/29/2012	MOORE ENGINEERING INC	32,727.08	32,727.08	-
V00906	790-7915-429.33-05	148057	1118	2/29/2012	MOORE ENGINEERING INC	8,326.50	8,326.50	-
V00907	790-7915-429.33-05	148077	1118	2/29/2012	MOORE ENGINEERING INC	164,867.66	164,867.66	-
V01002	790-7915-429.33-05	148086	17791	2/29/2012	URS CORPORATION	480,488.42	417,657.75	62,830.67
V01003	790-7915-429.33-05	163308	17791	6/6/2013	URS CORPORATION	495,000.00	33,917.28	461,082.72
V01101	790-7905-429.33-42	AJ	CORP	6/19/2013	ARMY CORP OF ENGINEERS	350,000.00	350,000.00	-
V01101	790-7905-429.33-42	AJ	CORP	8/13/2013	ARMY CORP OF ENGINEERS	2,100,000.00	525,000.00	1,575,000.00
V01201	790-7930-429.33-25	F12069	19734	12/31/2011	CASS COUNTY JOINT WATER RESOUR	16,708.86	16,708.86	-
V01201	790-7930-429.34-65	F12069	19734	12/31/2011	CASS COUNTY JOINT WATER RESOUR	22,452.50	22,452.50	-
V01201	790-7930-429.33-25	149405	19734	4/10/2012	CASS COUNTY JOINT WATER RESOUR	20,652.04	\$20,652.04	-
V01201	790-7930-429.34-65	149405	19734	4/10/2012	CASS COUNTY JOINT WATER RESOUR	62,467.05	\$62,467.05	-
V01201	790-7930-429.33-05	156814	19734	11/5/2012	CASS COUNTY JOINT WATER RESOUR	48,138.28	\$48,138.28	-
V01201	790-7930-429.33-25	156814	19734	11/5/2012	CASS COUNTY JOINT WATER RESOUR	23,113.23	\$23,113.23	-
V01201	790-7930-429.34-65	156814	19734	11/5/2012	CASS COUNTY JOINT WATER RESOUR	8,250.00	\$8,250.00	-
V01201	790-7930-429.33-25	157055	19734	11/9/2012	CASS COUNTY JOINT WATER RESOUR	55,312.46	\$55,312.46	-
V01201	790-7930-429.34-65	157055	19734	11/9/2012	CASS COUNTY JOINT WATER RESOUR	26,500.00	\$26,500.00	-
V01201	790-7930-429.71-31	157055	19734	11/9/2012	CASS COUNTY JOINT WATER RESOUR	13,500.00	\$13,500.00	-
V01201	790-7930-429.61-50	160369	19734	2/20/2013	CASS COUNTY JOINT WATER RESOUR	24,990.57	24,990.57	-
V01201	790-7930-429.71-31	161700	19734	4/8/2013	CASS COUNTY JOINT WATER RESOUR	52,735.94	52,735.94	-
V01201	790-7930-429.61-50	164075	19734	7/10/2013	CASS COUNTY JOINT WATER RESOUR	65,419.85	65,419.85	-
V01201	790-7930-429.61-50	166046	19734	10/3/2013	CASS COUNTY JOINT WATER RESOUR	230,503.75	230,503.75	-

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Date: 10/31/2013

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V01301	790-7915-429.33-05	147745	1118	2/17/2012	MOORE ENGINEERING INC	5,558.50	5,558.50	-
V01301	790-7931-429.33-25	F12593	1286	4/16/2012	OHNSTAD TWICHELL PC	1,408.00	1,408.00	-
V01301	790-7931-429.33-05	149869	1118	4/23/2012	MOORE ENGINEERING INC	1,780.00	1,780.00	-
V01301	790-7931-429.33-25	150230	1286	5/3/2012	OHNSTAD TWICHELL PC	2,029.50	2,029.50	-
V01301	790-7931-429.33-25	150961	1286	5/23/2012	OHNSTAD TWICHELL PC	220.50	220.50	-
V01301	790-7931-429.33-25	151790	1122	6/15/2012	MOORHEAD, CITY OF	15,062.90	15,062.90	-
V01301	790-7931-429.33-25	152058	1286	6/27/2012	OHNSTAD TWICHELL PC	410.00	410.00	-
V01301	790-7931-429.33-25	154504	1286	9/4/2012	OHNSTAD TWICHELL PC	1,373.50	1,373.50	-
V01301	790-7931-429.33-25	154505	1286	9/4/2012	OHNSTAD TWICHELL PC	676.50	676.50	-
V01301	790-7931-429.33-25	156088	1286	10/15/2012	OHNSTAD TWICHELL PC	1,102.50	1,102.50	-
V01301	790-7931-429.34-65	157054	1286	11/9/2012	OHNSTAD TWICHELL PC	2,685.00	2,685.00	-
V01301	790-7931-429.34-65	159216	1286	1/14/2013	OHNSTAD TWICHELL PC	1,247.16	1,247.16	-
V01301	790-7931-429.34-65	160365	1286	2/20/2013	OHNSTAD TWICHELL PC	1,148.00	1,148.00	-
V01301	790-7931-429.34-65	160797	1286	3/7/2013	OHNSTAD TWICHELL PC	738.00	738.00	-
V01301	790-7931-429.34-65	161824	1286	4/11/2013	OHNSTAD TWICHELL PC	471.50	471.50	-
V01301	790-7931-429.34-65	162447	1286	5/6/2013	OHNSTAD TWICHELL PC	102.50	102.50	-
V01301	790-7931-429.34-65	163135	1286	5/30/2013	OHNSTAD TWICHELL PC	164.00	164.00	-
V01301	790-7931-429.34-65	164693	1286	8/5/2013	OHNSTAD TWICHELL PC	266.50	266.50	-
V01301	790-7931-429.34-65	165314	1286	9/3/2013	OHNSTAD TWICHELL PC	61.50	61.50	-
V01501	790-7915-429.74-10	150960	19581	5/23/2012	GEOKON INC	33,815.36	33,815.36	-
V01601	790-7920-429.33-05	151232	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	2,422,675.00	1,504,486.19	918,188.81
V01602	790-7930-429.33-05	151233	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	891,000.00	866,438.19	24,561.81
V01603	790-7915-429.33-05	151234	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	2,448,300.00	2,448,034.90	265.10
V01604	790-7930-429.33-05	151235	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	1,566,000.00	1,465,451.28	100,548.72
V01605	790-7915-429.33-05	151236	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	905,000.00	845,983.45	59,016.55
V01606	790-7930-429.33-05	151237	21007	5/31/2012	HOUSTON-MOORE GROUP LLC	538,103.00	450,784.08	87,318.92
V01607	790-7915-429.33-05	152022	21007	6/25/2012	HOUSTON-MOORE GROUP LLC	240,000.00	170,878.67	69,121.33
V01608	790-7915-429.33-05	152023	21007	6/25/2012	HOUSTON-MOORE GROUP LLC	727,330.00	490,042.65	237,287.35
V01609	790-7915-429.33-05	152024	21007	6/25/2012	HOUSTON-MOORE GROUP LLC	1,147,341.00	459,081.49	688,259.51

**FM Diversion Authority  
Outstanding Contracts  
As of October 31, 2013**

Project Number	Account Number	PO No.	Vendor No.	P.O. Date	Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance
V01610	790-7930-429.33-05	152025	21007	6/25/2012	HOUSTON-MOORE GROUP LLC	338,000.00	75,790.25	262,209.75
V01611	790-7930-429.33-05	155529	21007	10/2/2012	HOUSTON-MOORE GROUP LLC	771,000.00	195,082.83	575,917.17
V01612	790-7930-429.33-05	155530	21007	10/2/2012	HOUSTON-MOORE GROUP LLC	665,000.00	-	665,000.00
V01613	790-7915-429.33-05	157599	21007	11/29/2012	HOUSTON-MOORE GROUP LLC	4,665,000.00	697,718.73	3,967,281.27
V01614	790-7915-429.33-05	160644	21007	3/1/2013	HOUSTON-MOORE GROUP LLC	605,000.00	303,476.55	301,523.45
V01615	790-7915-429.33-05	165854	21007	9/25/2013	HOUSTON-MOORE GROUP LLC	500,000.00	-	500,000.00
V01701	790-7930-429.71-30	155627	7198	10/3/2012	NORTHERN TITLE CO	484,016.00	484,016.00	-
V01701	790-7930-429.80-17	159217	201	1/14/2013	CASS COUNTY TREASURER	84,832.36	84,832.36	-
V01702	790-7930-429.71-30	157394	20529	11/21/2012	KENNELLY & OKEEFFE	216,401.85	216,401.85	-
V01702	790-7930-429.71-30	157470	20529	11/26/2012	KENNELLY & OKEEFFE	342,601.87	342,601.87	-
V01702	790-7930-429.71-30	F13677	11046	11/26/2012	RED RIVER TITLE SERVICES INC	250.00	250.00	-
V01702	790-7930-429.71-30	F13678	11046	11/26/2012	RED RIVER TITLE SERVICES INC	170.00	170.00	-
V01702	790-7930-429.71-30	158252	21423	12/18/2012	HUBER, STEVE	1,056.43	1,056.43	-
V01702	790-7930-429.80-17	159217	201	1/14/2013	CASS COUNTY TREASURER	6,825.95	6,825.95	-
V01702	790-7930-429.71-30	164432	20529	7/24/2013	KENNELLY & OKEEFFE	375,581.20	375,581.20	-
V01702	790-7930-429.33-32	165248	21845	8/29/2013	MCKINZIE METRO APPRAISAL	3,200.00	3,200.00	-
V01801	790-7930-429.33-05	155531	1714	10/2/2012	ULTEIG ENGINEERS INC	100,000.00	-	100,000.00
V01901	790-7930-429.33-05	155469	21258	10/1/2012	PROSOURCE TECHNOLOGIES, INC	100,000.00	5,191.96	94,808.04
V02001	790-7930-429.33-91	157598	10078	11/29/2012	COLDWELL BANKER	4,346.77	4,346.77	-
V02001	790-7930-429.33-91	158046	10078	12/12/2012	COLDWELL BANKER	8,000.00	8,000.00	-
V02001	790-7930-429.33-91	160366	10078	2/20/2013	COLDWELL BANKER	2,600.00	2,600.00	-
V02001	790-7930-429.33-91	161153	10078	3/18/2013	COLDWELL BANKER	1,000.00	1,000.00	-
V02001	790-7930-429.33-91	164785	10078	8/8/2013	COLDWELL BANKER	11,000.00	11,000.00	-
V02101	790-7930-429.33-05	157607	12775	11/29/2012	RED RIVER BASIN COMMISSION	500,000.00	232,873.47	267,126.53
V02201	790-7915-429.38-99	163309	18968	6/6/2013	US GEOLOGICAL SURVEY	46,920.00	46,920.00	-
V02302	790-7931-429.71-30	166597	20529	10/30/2013	KENNELLY & OKEEFFE	281,554.91	281,554.91	-
						\$ 39,062,805.32	\$ 27,069,351.79	\$ 11,993,453.53

**FM Diversion Authority**  
**Cumulative Vendor Payments Since Inception**  
**As of October 31, 2013**

Date: 10/31/2013

Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance	Purpose
HOUSTON-MOORE GROUP LLC	\$ 18,429,749.00	\$ 9,973,249.26	\$ 8,456,499.74	Engineering Services
CH2M HILL ENGINEERS INC	11,411,244.99	10,474,547.16	936,697.83	Project Management
ARMY CORP OF ENGINEERS	2,450,000.00	875,000.00	1,575,000.00	Local Share
KENNELLY & OKEEFFE	1,216,139.83	1,216,139.83	-	Home Buyouts
URS CORPORATION	975,488.42	451,575.03	523,913.39	Engineering Services
CASS COUNTY JOINT WATER RESOUR	670,744.53	670,744.53	-	Access & DPAC and Right of Entry
MOORE ENGINEERING INC	662,468.17	662,468.17	-	Engineering Services
HOUSTON ENGINEERING INC	576,669.57	576,669.57	-	Engineering Services
RED RIVER BASIN COMMISSION	500,000.00	232,873.47	267,126.53	Engineering Services
NORTHERN TITLE CO	484,016.00	484,016.00	-	Land Purchase
DORSEY & WHITNEY LLP	437,411.30	437,411.30	-	Legal Services
MINNESOTA DNR	346,100.00	346,100.00	-	EIS Scoping
PFM PUBLIC FINANCIAL MANAGEMEN	140,000.00	120,000.00	20,000.00	Financial Advisor
PROSOURCE TECHNOLOGIES, INC	100,000.00	5,191.96	94,808.04	Engineering Services
ULTEIG ENGINEERS INC	100,000.00	-	100,000.00	Engineering Services
ERIK R JOHNSON & ASSOCIATES	93,525.48	93,525.48	-	Legal Services
CASS COUNTY TREASURER	91,658.31	91,658.31	-	Property Tax
BRAUN INTERTEC CORP	90,210.00	77,629.00	12,581.00	Quality Testing
IN SITU ENGINEERING	54,800.00	47,973.00	6,827.00	Quality Testing
ADVANCED ENGINEERING INC	50,000.00	50,000.00	-	Public Outreach
US GEOLOGICAL SURVEY	46,920.00	46,920.00	-	Stage Gages
GEOKON INC	33,815.36	33,815.36	-	Vibrating Wire Piezometer Equipment
COLDWELL BANKER	26,946.77	26,946.77	-	Property Management Services
OHNSTAD TWICHELL PC	16,736.66	16,736.66	-	ROE and Bonding Legal Fees
MOORHEAD, CITY OF	15,062.90	15,062.90	-	ROE Legal Fees
BRIGGS & MORGAN PA	12,727.56	12,727.56	-	Legal Services
WARNER & CO	9,950.00	9,950.00	-	General Liability Insurance
CITY OF FARGO	9,340.00	9,340.00	-	Accounting Services
MCKINZIE METRO APPRAISAL	3,200.00	3,200.00	-	Appraisal Services
FORUM COMMUNICATIONS (LEGALS)	2,224.20	2,224.20	-	Advertising Services
SEIGEL COMMUNICATIONS SERVICE	1,490.00	1,490.00	-	Public Outreach
FORUM COMMUNICATIONS (ADVERT)	1,153.82	1,153.82	-	Advertising Services
HUBER, STEVE	1,056.43	1,056.43	-	Home Buyouts
NORTH DAKOTA TELEPHONE CO	624.80	624.80	-	Communications
BROKERAGE PRINTING	473.33	473.33	-	Custom Printed Forms
RED RIVER TITLE SERVICES INC	420.00	420.00	-	Abstract Updates
GALLAGHER BENEFIT SERVICES INC	250.00	250.00	-	Job Description Review
GOOGLE LOVEINTHEOVEN	116.00	116.00	-	Meeting Incidentals
FEDERAL EXPRESS CORPORATION	71.89	71.89	-	Postage
<b>Grand Total</b>	<b>\$ 39,062,805.32</b>	<b>\$ 27,069,351.79</b>	<b>\$ 11,993,453.53</b>	



FM Diversion Authority  
 State Water Commission Funds Reimbursement Worksheet  
 Fargo Flood Control Project Costs

Time Period for This Request: September 1, 2013 - October 31, 2013

Drawdown Request No: 1	
Requested Amount:	\$ 18,600
Total Funds Expended This Period:	\$ 18,600
Total Funds Requested at 100% Match	18,600
<b>Total Funds Requested:</b>	<b>\$ 18,600</b>

<b>STATE AID SUMMARY:</b>	
Summary of State Funds Appropriated	
Appropriations from 2009 Legislative Session	\$ 45,000,000
Appropriations from 2011 Legislative Session	30,000,000
Appropriations from 2013 Legislative Session	100,000,000
<b>Total State Funds Appropriated</b>	<b>\$ 175,000,000</b>
Less: Payment #1 through #21 - City of Fargo	(40,442,634)
Less: Payment #1 - Cass County	(136,039)
Less: Payment #1 - FM Diversion Authority	(18,600)
<b>Total Funds Reimbursed</b>	<b>\$ (40,597,273)</b>
<b>Total State Fund Balances Remaining</b>	<b>\$ 134,402,727</b>

<b>LOCAL MATCHING FUNDS SUMMARY:</b>	
Matching Funds Expended To Date - City of Fargo	\$ 38,126,323
Matching Funds Expended To Date - Cass County	291,500
Matching Funds Expended To Date - FM Diversion Authority	85,488
<b>Total Matching Funds Expended To Date</b>	<b>\$ 38,503,311</b>
Less: Match Used on Payment #1 through #21 - City of Fargo	(30,570,612)
Less: Match used on Payment #1 - Cass County	(136,039)
Less: Match Used on Payment #1 - FM Diversion Authority	(18,600)
<b>Balance of Local Matching Funds Available</b>	<b>\$ 7,778,060</b>

## Finance Committee Bills for November 2013

	A	B	C	D
3	Dorsey & Whitney	Legal Services through September 30, 2013	\$21,699.00	
4	Erik R Johnson	Legal Services through October 25, 2013	\$5,324.40	
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10	<b>Total Bills for November 2013</b>		<b>\$27,023.40</b>	
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Office of the City Attorney

City Attorney  
Erik R. Johnson

Assistant City Attorneys  
Nancy J. Morris  
Jason T. Loos

October 29, 2013

Kent Costin  
Finance Director  
City of Fargo  
200 North Third Street  
Fargo, ND 58102

**Re: Red River Diversion Project**

Dear Kent:

I am enclosing a Summary Invoice dated October 21, 2013 from the Dorsey & Whitney Firm in Minneapolis for their professional services rendered through September 30, 2013 on the Red River Diversion Project. If you have any questions, please feel free to contact me. Please remit payment directly to Dorsey Whitney.

Sincerely,

A handwritten signature in blue ink, appearing to be "ERJ", with a long horizontal flourish extending to the right.

Erik R. Johnson

ERJ/jmf  
Enclosure  
cc: Pat Zavoral





MINNEAPOLIS OFFICE  
612-340-2600

(Tax Identification No. 41-0223337)

STATEMENT OF ACCOUNT FOR PROFESSIONAL SERVICES

Fargo-Moorhead Flood Diversion Bd of Authority  
c/o Erik R. Johnson & Associates, Ltd.  
Attn: Erik Johnson  
505 Broadway, Suite 206  
Fargo, ND 58102

October 21, 2013  
Invoice No. 1905390

RECEIVED  
BY DATE 10-23-13

Client-Matter No.: 491379-00001  
Red River Diversion Project

For Legal Services Rendered Through September 30, 2013

INVOICE TOTAL

Total For Current Legal Fees \$21,699.00

Total For Current Invoice \$21,699.00

Summary of Account

\*Prior Balance Due

~~\$19,416.00~~ pd 10/14/13

Total Amount Due

~~\$41,115.00~~

\*If payment has been submitted for prior balance due, please disregard.

For your convenience, please remit payment to the address below or we offer the option of remitting payment electronically by wire transfer. If you have any questions regarding this information, please contact the lawyer you are working with on this project or Dorsey's Accounts Receivable Department at 1-800-861-0760. Thank you.

Mailing Instructions:  
Dorsey & Whitney LLP  
P.O. Box 1680  
Minneapolis, MN 55480-1680

Wire Instructions:  
U.S. Bank National Association  
800 Nicollet Mall  
Minneapolis, MN 55402

ABA Routing Number: 09100022  
Account Number: 1602-3010-8500  
Swift Code: USBKUS44IMT

Please make reference to the invoice number

Service charges are based on rates established by Dorsey & Whitney. A schedule of those rates has been provided and is available upon request. Disbursements and service charges, which either have not been received or processed, will appear on a later statement.

ALL INVOICES ARE DUE 30 DAYS FROM DATE OF INVOICE UNLESS OTHERWISE EXPRESSLY AGREED BY DORSEY & WHITNEY

*Erik R. Johnson & Associates, Ltd*  
*Attorneys at Law*  
*Erik R. Johnson - Nancy J. Morris - Jason T. Loos*  
*505 Broadway - Suite 206*  
*Fargo, ND 58102*  
*(701) 280-1901*

City of Fargo -- Auditor's Office  
 Attn: Kent Costin  
 200 North 3rd Street  
 Fargo, ND 58102

*Invoice*

Date	10/25/2013
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Description	Qty	Rate	Amount
Legal services--Metro Flood Project--GENERAL SERVICES:	6	191.25	1,147.50
Erik Johnson--Sept 26 thru Oct 25, 2013--itemization enclosed			
Nancy J. Morris--Sept 26 thru Oct 25, 2013--itemization enclosed	14	165.75	2,320.50
<i>We appreciate your business.</i>		<b>TOTAL:</b>	<b>\$3,468.00</b>

October 25, 2013

**Client: City of Fargo**  
**Job: Metro Flood - General Legal**

Atty	DATE	DESCRIPTION	TIME
E	9/27/2013	Telephone conference with Ch2M re: appraisal process	0.6
E	9/27/2013	Telephone conference with Bob Cattnach re: diversion lawsuit	0.4
	10/1/2013	Receive and review draft motion to intervene and circulate to others	0.7
E	10/8/2013	Telephone conference with Paul Tietz re: GO bond question	1
E	10/10/2013	Conference with John Shockley and Tom O'hara; attend Board of Authority meeting and review packet; conference with Eric	2.1
E	10/14/2013	Attend meeting with Nyhoff, Pat Zavoral, Berndt, Nick G.	1.2
<b>Total Time</b>			<b>6.00</b>
<b>Hourly Rate - ERJ \$</b>			<b>191.25</b>
<b>Total Fees - ERJ \$</b>			<b>1147.50</b>
N	10/3/2013	Review motion to intervene; Administrative Advisory Meeting	1.8
N	10/10/2013	Diversion Authority Meeting	1
N	10/14/2013	Correspond w/ Bruce Spiller re: insurance & contract terms, review contract; prepare for meeting	1
N	10/15/2013	Correspond w/ Molly Hunt on contract status	0.3
N	10/17/2013	Administrative Staff Meeting; Declaration of Darrell Vanyo revisions; phone call w/ Cattnach & G. Worden; overnight Richland-Wilkin Litigation; Research PE certification; review Corps memo to Board; research assessment	4.1
N	10/18/2013	Phone call w/ Joe Wilging re: PE registration; Phone call w/ Bob Cattnach; revise Declaration and correspond w/ Darrell Vanyo, et al re: revised declaration	1.1
N	10/21/2013	Phone call w/ April, review correspondence w/ Bruce Spiller;	2.2
N	10/23/2013	Meeting w/ Bruce Spiller & phone call to Board of PE registration; Meeting w/ Erik re: PE registration & review amended complaint	2.5
<b>Total Time</b>			<b>14.00</b>
<b>Hourly Rate \$</b>			<b>165.75</b>
<b>Total Fees - NJM \$</b>			<b>2320.50</b>

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*Invoice*

Date	10/25/2013
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Description	Qty	Rate	Amount
Legal services--Metro Flood Project--LEERDS: Nancy J. Morris--Sept 26 thru Oct 25, 2013--itemization enclosed	11.2	165.75	1,856.40
<i>We appreciate your business.</i>	<b>TOTAL:</b>		<b>\$1,856.40</b>

October 25, 2013

**Client: City of Fargo**  
**Job: Metro Flood - LEERDS**

Atty	DATE	DESCRIPTION	TIME
N	10/3/2013	Correspondence re: Brandt property	0.3
N	10/4/2013	Review decision paper 32; correspond w/ Bruce Spiller	0.6
N	10/7/2013	Review correspondence re: previous correspondence re: Coldwell contract review/RFP	2
N	10/7/2013	Revise Decision Paper	2.3
N	10/9/2013	Correspondence re: acquisition disposal - DP 32/revise DP	0.6
N	10/10/2013	Attend Land Management Meeting	2
N	10/14/2013	Review correspondence re: Volk	0.2
N	10/15/2013	Correspond w/ Erik Dodds re: sales terms for Volk; correspond w/ John Shockley re: MN property interests	0.8
N	10/18/2013	Deed to DA from CCJW-Oxbow, correspondence re: JPA	0.5
N	10/21/2013	Review correspondence re: public sale & Immunity, review Erik Dodds correspondence	0.5
N	10/22/2013	Volk acquisition correspondence w/ Jim Sandau	0.4
N	10/24/2013	Correspondence re: Volk hardship purchase terms; title opinion review & HUD review	0.8
N	10/25/2013	Correspondence re: Deed	0.2
Total Time			11.20
Hourly Rate \$			165.75
Total Fees - NJM \$			1856.40