Memorandum

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

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

Date: December 4, 2020

Re: PMRNRD and LPNNRD 3D AEM Hydrogeologic Framework and Assessment

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The District has been a partner of the Eastern Nebraska Water Resources Assessment (ENWRA) project for 13 years. During this time, ENRWA and the PMRNRD have collected almost 1,500 miles of Airborne Electromagnetic (AEM) survey for a total cost of roughly $1,400,000, see Figure 1. In February, the District received a new WSF grant and agreed to a contract with Aqua Geo Frameworks to collect an additional 1,532 miles of AEM survey in our NRD. Alongside ENWRA, the Lower Platte North NRD (LPNNRD) has also collected many miles of AEM survey data in their District, see Figure 2.

Before AEM resistivity data can be used directly in a groundwater flow model, the data must be converted into different geologic layers and assigned variables such as hydraulic conductivity (this tells the model how much water can flow through the layers and how fast). The Lower Elkhorn NRD (LENRD) has performed this type of hydrogeologic assessment for their AEM data and is in the process of preparing a groundwater model for their NRD. Nebraska DNR (NDNR) is participating with the LENRD in this modeling process as an update to the Lower Platte-Missouri Tributaries groundwater model (which did not incorporate any AEM data). Leonard Rice Engineering (LRE Water) along with JEO Engineering (JEO) is performing this hydrogeologic assessment and modeling for LENRD.

In July 2020, the PMRNRD and LPNNRD submitted a WSF Grant application for a project that would convert our collective AEM data into hydrogeologic layers ready for groundwater modeling. That grant was recently approved for $168,000 of the estimated $306,000 project cost, see Table 1. Additionally, NDNR is interested in working with the LPNNRD and PMRNRD to prepare groundwater model updates using our respective AEM data. DNR is willing to support each NRD with up to $13,000 toward this project.

Table 1 – Detailed Cost Breakdown

NRD	Project Total	NDNR Cash	WSF Eligible Balance	WSF	NRD
Papio	$180,000	$13,000	$167,000	$100,200	$66,800.00
LPNNRD	$126,000	$13,000	$113,000	$67,800	$45,200.00
Total	$306,000	$26,000	$280,000	$168,000	$112,000.00
% Share		8%		55%	37%

In order to carry out this project, the LPNNRD and PMRNRD would enter into an Interlocal Agreement to share this cost as shown in Table 1. Per the enclosed Interlocal Agreement, the PMRNRD will serve as the administrator for the project and will manage the WSF grant and the contract for professional services.

It is recommended that the District's consultant selection process be waived in this instance due to LRE/JEO's past experience in the LENRD in order to: 1) use a consistent methodology approved by NDNR, 2) use the same proven 3D software (Leapfrog), 3) produce consistent geologic layers across NRD boundaries, and 4) capitalize on the time and cost saving efficiency of LRE/JEO's experience. LRE/JEO is also already working directly for the LPNNRD to adapt the AEM data for groundwater quality studies in one of their groundwater management areas. LPNNRD is in favor of waiving this selection procedure.

At the PMRNRD and LPNNRD's request, the LRE/JEO team has prepared a scope of work and cost estimate (see attached) for both NRDs to: 1) Combine AEM and available borehole datasets in a 3D geologic model, 2) Define various layers and bedrock in the 3D geologic model, 3) Interpolate datasets from the 3D model to prepare layers and assign variables for use in a future groundwater flow model, 4) provide the 3D model and viewing software as a deliverable. The final cost estimate is the same as the estimate used for the WSF grant.

The final cost breakdown for the project is as follows:

Phase No.	Phase Name	PMR NRD	LPN NRD	Phase and Project Totals
1	Project Management and Meetings	$20,000	$16,000	$36,000
2	Obtain and Review Existing Geologic and AEM Data	$60,000	$60,000	$120,000
3	Create the Framework	$40,000	$40,000	$80,000
4	Deliverables	$60,000	$10,000	$70,000
	Project Totals	**$180,000**	**$126,000**	**$306,000**

a) **Management recommends that the subcommittee recommend to the Board of Directors that the District's procurement procedure Policy 15.2 be waived and the General Manager be authorized to execute a professional services agreement with LRE Water in the amount of $306,000 for the PMRNRD and LPNNRD 3D AEM Hydrogeologic Framework and Assessment project, subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.**

b) **Management recommends that the subcommittee recommend to the Board of Directors that the General Manager be authorized to execute the Interlocal Agreement with Lower Platte North NRD for the PMRNRD and LPNNRD 3D AEM Hydrogeologic Framework and Assessment project, subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.**

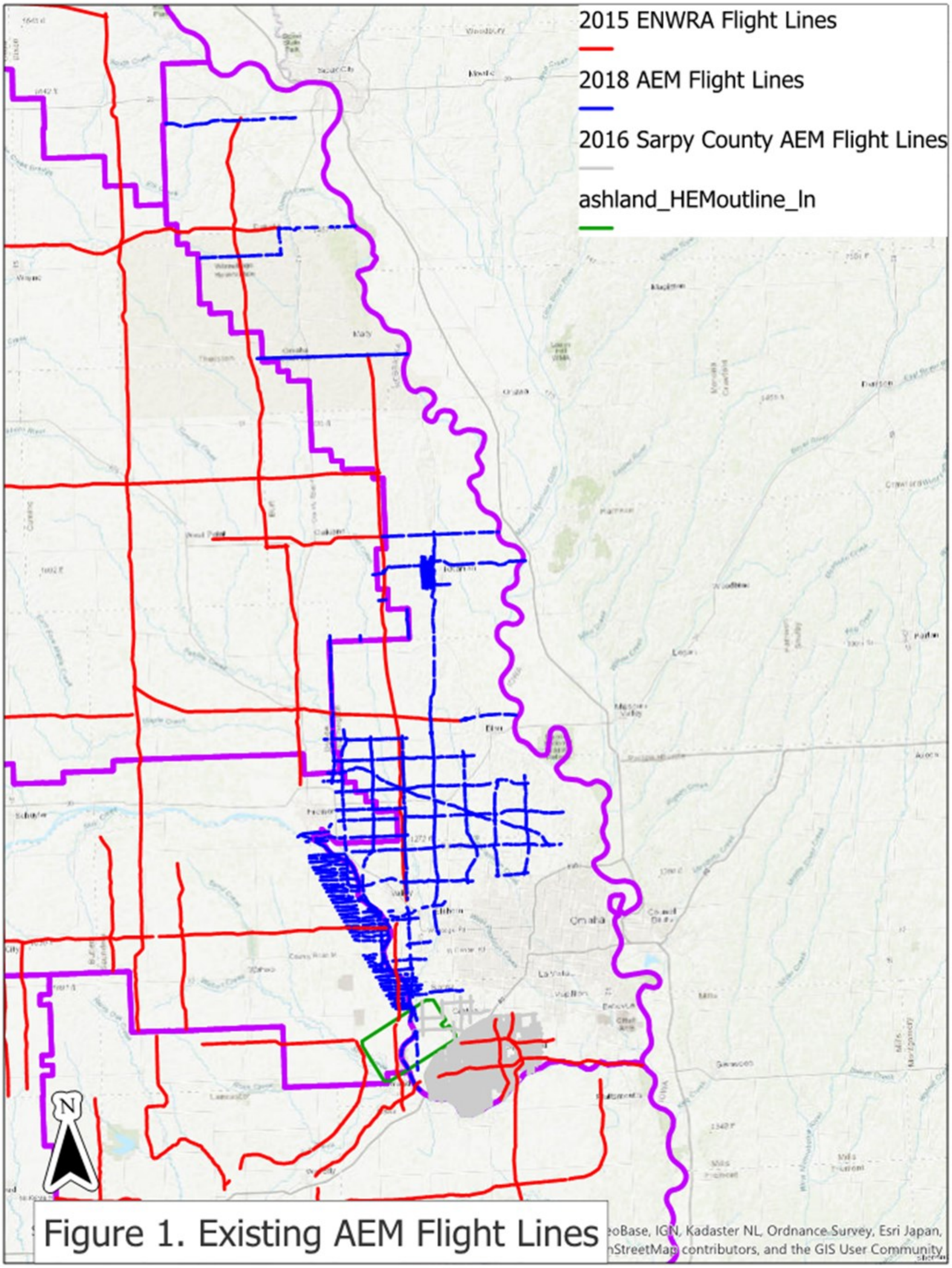

Figure 1. Existing AEM Flight Lines

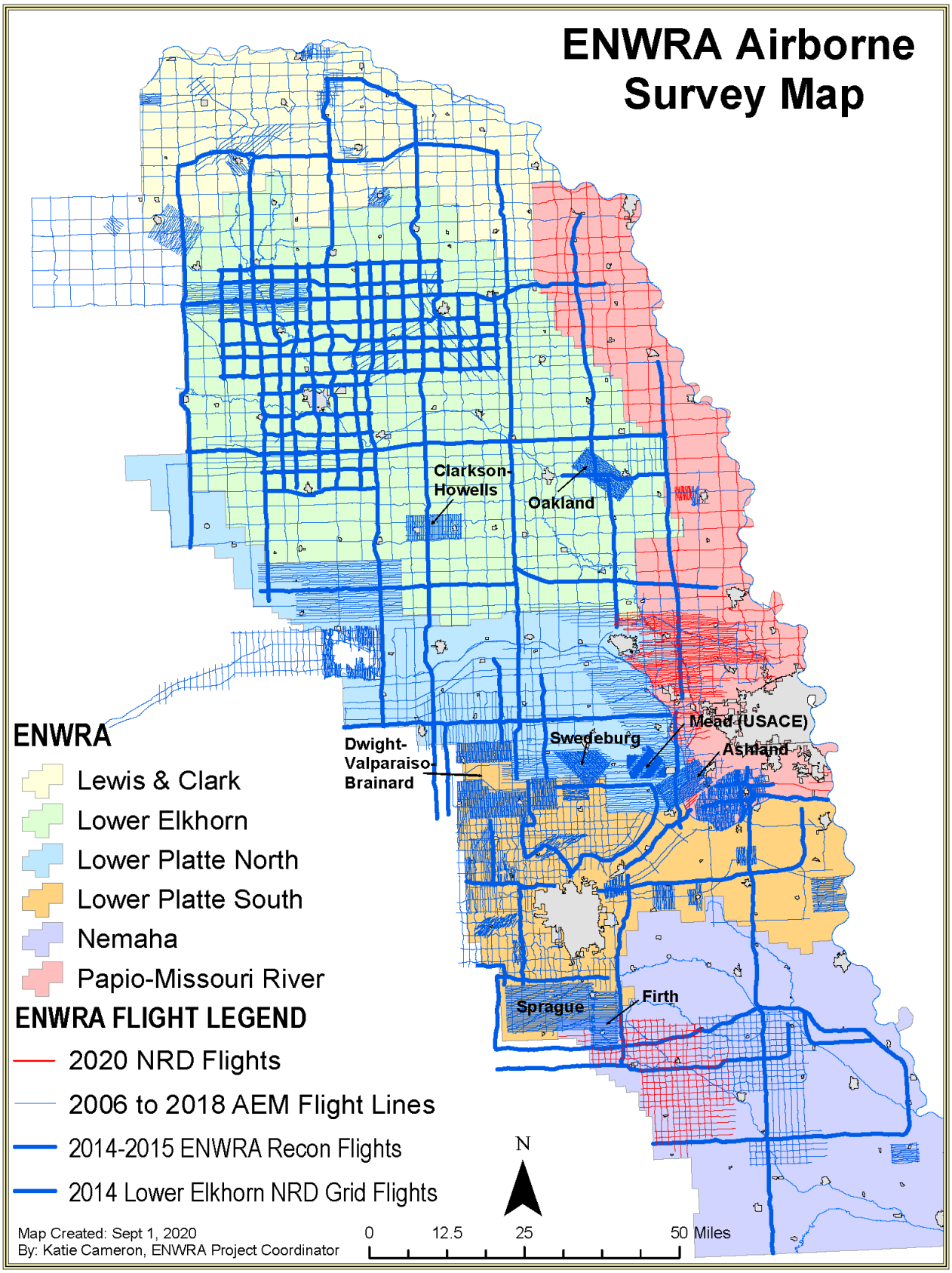

FIGURE 2. Past and 2020 ENWRA Flight Lines

INTERLOCAL COOPERATION ACT AGREEMENT
between
LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT
And
PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
For
3D AEM HYDROGEOLOGIC FRAMEWORK AND ASSESSMENT PROJECT

THIS AGREEMENT ("**THIS AGREEMENT**") is entered into by and between the **LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT** ("**LPNNRD**") and the **PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT** ("**P-MRNRD**"). The LPNNRD and the P-MRNRD are referred to collectively hereinafter as "**PARTIES**" and individually as a "**PARTY**."

WHEREAS, P-MRNRD and LPNNRD have collected many miles of Airborne Electromagnetic ("AEM") survey data within the boundaries of their respective districts;

WHEREAS, P-MRNRD and LPNNRD desire to use the AEM survey data in a groundwater flow model to better understand, assess and forecast groundwater flow within the geographical area;

WHEREAS, before the PARTIES can use the AEM survey data directly in a groundwater flow model, the data must be characterized into different geologic layers and assigned variables such as hydraulic conductivity;

WHEREAS, the PARTIES submitted an application to the Nebraska Natural Resources Commission's Water Sustainability Fund ("WSF") to receive a small grant to assist in obtaining these objectives;

WHEREAS, the P-MRNRD intends to enter into a professional service agreement with Leonard Rice Engineering ("LRE") with a scope of services to perform the following: 1) Combine AEM and available borehole datasets into a 3D geologic model, 2) Define various layers and bedrock in the 3D geologic model, 3) Interpolate datasets from the 3D model to prepare layers and assign variables for use in a future groundwater flow model, and 4) provide the 3D model and viewing software as a deliverable. (the "PROJECT"); and

WHEREAS, the LPNNRD desires to support and contribute certain funds, as set forth below in this AGREEMENT, to complete the PROJECT, in accordance with the representations made in the application for a grant to the WSF.

NOW, THEREFORE, the PARTIES do hereby agree as follows:

1. BENEFITS. The PARTIES do hereby find, determine and agree that the PROJECT will be of general benefit to the PARTIES, with only incidental special benefits.

2. PROJECT PARTICIPANTS. The PROJECT shall be undertaken by the PARTIES, as provided herein, without any separate entity being created, and the duties and responsibilities of the PARTIES with respect to the PROJECT shall be as defined by THIS AGREEMENT. The P-MRNRD shall be the lead agency and manage the PROJECT.

3. TECHNICAL REVIEW COMMITTEE. Each of the PARTIES shall be provided the opportunity to include a member or members of such PARTY'S staff to the TECHNICAL REVIEW COMMITTEE (REVIEW COMMITTEE). The REVIEW COMMITTEE shall be responsible for providing technical guidance for the PROJECT, and shall have an opportunity to review and provide comments on any draft work product from LRE.

4. MONETARY CONTRIBUTIONS BY PARTIES. LPNNRD agrees to make two payments to the P-MRNRD for reimbursement of PROJECT costs. LPNNRD's first payment shall pay the actual PROJECT costs incurred by the P-MRNRD up to, but not to exceed, $22,600 by the end of June 30, 2021. LPNNRD's second payment shall pay for additional actual PROJECT costs incurred by the P-MRNRD up to, but not to exceed, the difference between $45,200 and the first payment (total LPNNRD contribution $45,200) by February 1, 2022. The P-MRNRD will contribute $66,800 toward the PROJECT costs.

5. INVOICES. By May 15, 2021 and thereafter by January 15, 2022, the P-MRNRD will prepare and submit an annual invoice to LPNNRD for the contributions detailed in Paragraph 4 above. The LPNNRD may request from P-MRNRD and P-MRNRD shall provide records of actual expenditures related to the PROJECT.

6. NDNR CONTRIBUTION FUNDS. P-MRNRD intends to enter into an agreement with the Nebraska Department of Natural Resources ("NDNR") for the NDNR to contribute $13,000 for each natural resources district participating in the PROJECT, for a total of $26,000 ("NDNR CONTRIBUTION").

In the event, P-MRNRD does not receive the NDNR CONTRIBUTION, whether in the total amount expected or any portion of an individual contribution during a fiscal year, P-MRNRD shall have the right, in its sole and exclusive discretion, to terminate THIS AGREEMENT upon thirty days written notice to LPNNRD. Upon such termination, the P-MRNRD shall have no further obligations or duties related to THIS AGREEMENT.

7. AUTHORITY FOR APPROVALS.

a) Approvals by the LPNNRD, and other LPNNRD discretionary actions contemplated by THIS AGREEMENT, are authorized to be provided by the General Manager of the LPNNRD; and,

b) Approvals by the P-MRNRD, and other P-MRNRD discretionary actions contemplated by THIS AGREEMENT, are authorized to be provided by the General Manager of the P-MRNRD.

8. PUBLIC AVAILABILITY OF DATA AND REPORT. The PARTIES acknowledge that all data collected for this PROJECT and the resulting report shall be public records, and no party shall claim any intellectual property rights in any such documents.

9. TERM AND DURATION. THIS AGREEMENT shall be in force and effect from and after its execution by all PARTIES and shall remain in effect until the occurrence of the earliest of the following events: (1) the completion of the PROJECT; or (2) the termination of the AGREEMENT pursuant to Paragraph 6, above, and/or Paragraph 10, below.

10. ADDITIONAL FUNDING SOURCE. In addition to the NDNR CONTRIBUTION, the PARTIES have submitted an application to the WSF and were awarded a grant in the amount of $168,000 ("WSF FUNDS"). Per the terms of the application agreement, the WSF FUNDS are to be paid directly to the P-MRNRD, as the PROJECT's lead agent, to reimburse the P-MRNRD for the actual PROJECT costs.

In the event WSF FUNDS are revoked or the amount granted is less than the amounts awarded for this PROJECT, the P-MRNRD shall have the right, in its sole and exclusive discretion, to terminate THIS AGREEMENT upon thirty days written notice to the LPNNRD. Upon such termination, the P-MRNRD shall have no further obligations or duties related to THIS AGREEMENT.

11. NON-DISCRIMINATION. The PARTIES shall not, in the performance of THIS AGREEMENT, discriminate or permit discrimination in violation of federal or state

laws or local ordinances because of race, disability, color, sex, age, political or religious opinions, affiliations or national origin.

12. APPLICABLE LAW. The PARTIES shall follow all applicable federal and state statutes and regulations in carrying out the faithful performance and terms of THIS AGREEMENT. Nebraska law will govern the terms and the performance under THIS AGREEMENT.

13. SEVERABILITY. In the event any portion of THIS AGREEMENT is held invalid or unenforceable for any reason, it is agreed that any such invalidity or unenforceability shall not affect the remainder of THIS AGREEMENT and the remaining provisions shall remain in full force and effect, and any court of competent jurisdiction may so modify any objectionable provision of THIS AGREEMENT so as to render it valid, reasonable and enforceable.

14. CAPTIONS. Captions used in THIS AGREEMENT are for convenience and not for use in the construction of THIS AGREEMENT.

15. NOTICES. All notices herein required shall be in writing and shall be served on the parties at their principal offices, or at such other address as either party may hereafter designate to the other party in writing for service of notice to itself. The mailing of a notice by certified or registered mail, return receipt requested, or delivery thereof by messenger, shall be sufficient service hereunder.

16. BINDING EFFECT. The provisions of THIS AGREEMENT shall inure to the benefit of, and shall be binding upon, the successors in interest and assigns of the respective parties hereto.

17. COUNTERPARTS. THIS AGREEMENT may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument. Each PARTY hereto agrees that facsimile or other electronic signatures shall be considered legal and binding with respect to THIS AGREEMENT.

18. NON-WAIVER. No delay or failure by any PARTY hereto to exercise any right under THIS AGREEMENT, and no partial or single exercise of that right, shall constitute a waiver of that or any other right unless otherwise expressly provided herein. A valid waiver by any PARTY hereto must be in writing and executed by the waiving PARTY

19. ENTIRE AGREEMENT. Each PARTY hereto acknowledges that THIS AGREEMENT contains the entire agreement between the parties hereto, and the terms of THIS AGREEMENT are contractual in nature in all respects and not a mere recital. Each PARTY hereto further acknowledge that it has not made any representations or promises related to the subject matter of THIS AGREEMENT that have not been made part of THIS AGREEMENT.

20. INTERLOCAL COOPERATION ACT PROVISIONS. THIS AGREEMENT shall not create any separate legal or administrative entities. It shall be administered jointly by the parties, through one representative to be designated by and on behalf of each party. Each party shall separately finance and budget its own duties and functions under THIS AGREEMENT. There shall be no jointly held property as a result of THIS AGREEMENT. Upon terminations, each party shall retain ownership of the property it owns at the time of termination. THIS AGREEMENT does not authorize the levying, collecting or accounting of any tax.

[SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF

The LPNNRD has executed THIS AGREEMENT on _____, 2020, pursuant to resolution duly adopted by its Board of Directors.

LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT

By _____
Gene Ruzicka
Chairperson

Attest:
Eric Gottschalk, General Manager

_____

[ADDITIONAL SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF

The P-MRNRD has executed THIS AGREEMENT on _____, 2020, pursuant to resolution duly adopted by its Board of Directors.

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT

By _____
General Manager

ATTACHMENT 1 TO EXHIBIT A

December 1, 2020

Paul Woodward, PE
Groundwater Management Engineer
Papio-Missouri River Natural Resources District
8901S 154th 1 Street
Omaha, NE 68138

RE: Proposal - Scope of Work, Fee, and Schedule
3D AEM Hydrogeologic Framework and Assessment Report
Papio-Missouri River Natural Resources District (PMR NRD) and Lower Platte North Natural Resources District (LPN NRD), Nebraska

Dear Mr. Woodward,

LRE Water (LRE) is pleased to provide PMR NRD with the following scope of work, fee, and schedule (proposal) to complete the 3D AEM Hydrogeologic Framework (Framework) and Hydrogeologic Assessment Report (Assessment) for the PMR NRD and LPN NRD.

The proposal is based on previous discussions with you, Daryl Andersen with LPN NRD, and Jonathan Mohr with JEO Consulting Group, Inc. (JEO); LRE's work on the Lower Elkhorn Natural Resources District's (LE NRD) current Framework and Assessment project; and PMR NRD's Water Sustainability Fund (WSF) Application that was approved for funding on October 28, 2020, by to the Nebraska Natural Resources Commission.

FRAMEWORK AND ASSESSMENT OBJECTIVE

To complete the Assessment, the LRE team will implement a similar and proven approach, that has been supported and accepted by the Nebraska Department of Natural Resources (NeDNR) in 2019/2020 for the LE NRD Framework, Assessment, and groundwater flow modeling project.

Using the same methodology that was applied to develop the LE NRD's Framework will provide PMR NRD and LPN NRD with a consistent and comprehensive assessment and deliverable that will include the most recent data and make it useable between NRD boundaries. The 3D geologic model created from the AEM data will be delivered in a user-friendly platform that can be utilized by the PMR NRD and LPN NRD staff, management, and board members; regulators; producers and other high-capacity water users; public water suppliers; and, the general public for future groundwater quality and quantity evaluations, resource management, and educational purposes.

PROJECT TEAM

The Framework and Assessment team includes professional hydrogeologists from LRE including Dave Hume (NE Licensed Professional Geologist # G-0186), Mike Plante, and Roscoe Sopiwnik, who have significant work experience in eastern Nebraska over the last 10 years. The team is very familiar with the geologic and AEM datasets of eastern Nebraska, and developed the technical methodology to analyze, evaluate, and present this information so it can be used in groundwater flow models and hydrogeologic assessments. In 2019, LRE supported Aqua Geo Frameworks (AGF) with a review of the PMR NRD AEM data and final report. Additionally, LRE/JEO are currently working with LPN NRD on a Nitrate Risk Desktop Tool that includes similar work assessing AEM data, well logs, and test holes for two groundwater management areas. This work will be applied to the larger scale project, once initiated.

Included on the LRE Team is Jonathan Mohr with JEO who led the WSF grant writing with PMR NRD and LPN NRD and is currently managing the LE NRD project. Jonathan is very familiar with the Framework and Assessment Report process and how it applies to Nebraska water policy and groundwater management, in addition to planning and communication with stakeholders utilizing AEM and other geologic data for groundwater management purposes. JEO will assist with project management, data collection, stakeholder coordination, and perform QA/QC of project deliverables.

SCOPE OF WORK

To complete the Assessment, the LRE team will complete the following scope of work based upon three primary Phases. This scope will utilize available geologic logs, AEM data collected by each NRD, relevant published studies, and apply the same proven approach and techniques.

Phase 1: Project Management and Meetings

- Coordinate and communicate with PMR NRD, LPN NRD, and NeDNR staff throughout the Assessment to ensure the objectives are met.
- Schedule and attend in person and/or virtual meeting with PMR NRD, LPN NRD, and NeDNR staff and board as necessary.
- Provide project updates at critical points in the assessment and mapping process.

Phase 2: Obtain and Review Existing Geologic and AEM Data

- Obtain AEM data from the Eastern Nebraska Water Resources Assessment (ENWRA) website or directly from ENWRA personnel, or Nebraska's GeoCloud. The AEM data will be used in the robust 3D geological modeling software package (Leapfrog) in Phase 3 to define 3D solids of resistivity zones that represent the hydrostratigraphy.

- The AEM resistivity data has been correlated to ranges of hydraulic conductivity of the aquifer and non-aquifer materials based on the results provided by AGF. These 3D resistivity zones will be used to evaluate the Framework, which will then be used to construct 3D numerical groundwater flow model grids with a range of hydraulic conductivity values. Note, this scope does not include any numerical modeling (i.e., MODFLOW), only the creation of the MODFLOW grid. This grid will be available for future MODFLOW modeling, if completed.

- In addition to the AEM, all available geologic logs from the NeDNR wells database, and the University of Nebraska-Lincoln Conservation Survey Division (CSD) test hole logs database will be obtained and evaluated and also used in Phase 3 to refine the hydrostratigraphic contact between the unconsolidated materials and bedrock.

- Obtain and review other available and relevant hydrogeologic studies from the PMP NRD and LPN NRD, USGS, NeDNR, CSD, neighboring NRDs, and others.

Phase 3: Create the Framework

- The Framework will be developed using a combination of geologic logs to define the bedrock surface in ArcGIS, and interpolation of the AEM data using Leapfrog, a powerful 3D geological modeling and visualization software package from Seequent. Leapfrog is used in the mining, environmental, engineering, and hydrogeology fields to interpolate and visualize large geologic datasets in 3D, in addition to being able to integrate with numerical models, such as MODFLOW. In general, a four-step process will be used to develop the Framework for the PMP NRD and LPN NRD using Leapfrog, which is as follows:

    1) Interpolate the AEM "borehole" data (i.e., resistivity value data points) and create a 3D Numeric Model (not MODFLOW) of resistivity ranges, or zones, within the resistivity categories or bins established by AGF. The AEM data alone will be used to define the hydrostratigraphy above the bedrock surface;

    2) Create a 3D Geological Model that will result in two solid units representing 1) the unconsolidated (and Ogallala, if present) from the ground surface to the top of the uppermost bedrock surface, and 2) the bedrock (from the top of bedrock surface down to an arbitrary elevation). (Note: The Ogallala will not be defined as "bedrock" for the Framework because it is considered part of the Principal Aquifer);

    3) Create a Combined Model to represent the selected resistivity zones for each geologic unit independently (unconsolidated vs. bedrock); and,

    4) Create the USGS numerical MODFLOW grid that can be exported to Groundwater Vistas (GWV) for the future groundwater flow modeling. GWV is pre- and post-processing software package for MODFLOW. The grid will based on the Combined Model and define the resistivity zones as hydraulic conductivity zones for the unconsolidated material.

- Refine the contact between the unconsolidated and bedrock using available geologic logs from the NeDNR wells database and test hole logs database CSD as follows:

    1) Interpolate top-to-bedrock elevation data and create a gridded surface using ArcGIS for the top of the uppermost bedrock, or contact between the uppermost bedrock and the overlying unconsolidated. This surface will be used to refine the Framework by creating the two Geologic Model units described above in Leapfrog (unconsolidated and bedrock) to constrain the AEM data analysis and for future MODFLOW parameterization in the unconsolidated material;

    2) Construct a number of hydrogeologic cross sections for the PMR NRD and LPN NRD showing the lithology from well logs for a visual comparison to the AEM profiles along select flight lines. The locations of the cross sections will be discussed with the PMR NRD and LPN NRD staff before they are constructed. The cross sections will also assist in any future MODFLOW parameterization and calibration by providing another source of geologic data to review; and,

    3) Create raster surfaces of the unconsolidated material using ArcGIS Spatial Analyst for a detailed hydrogeologic Assessment deliverable being provided to PMR NRD. Note: As outlined in Phase 4, only the PMR NRD will receive the Assessment.

Phase 4: Deliverables

- The PMR NRD and LPN NRD will be provided with the following from the AEM-based data used to create the Framework:

    1) Datasets based on the analyses and interpolation of the processed AEM data and all available geologic logs;

    2) A 3D visualization geologic model of the AEM data using Leapfrog to provide the NRDs with the data files for use in a free downloadable 3D model software viewer that allows the user to use the 3D model;

    3) A select number of hydrogeologic cross sections described in Phase 3 above; and,

    4) Leapfrog datasets for input and initial discretization and layers for a future numerical groundwater flow model that would be completed under a separate scope of work;

- PMR NRD will also receive an Assessment which further evaluates the hydrogeology only using the geologic descriptions on well logs and test hole logs (sand, gravel, clay). The Assessment deliverable will include:

    1) A robust evaluation of the entire PMR NRD that includes a summary of the hydrogeologic setting, principal aquifer characteristics aquifer extents, key hydrostratigraphic surfaces

using the borehole lithology from all the test holes and wells logs; and, high-capacity well development potential (risk map);

2) Approximately 20 to 30 figures in the Assessment deliverable in addition to 20 to 30 hydrogeologic cross sections, showing the lithology of each well log in comparison to the AEM profiles along flight lines; and,

3) A final geodatabase and other mapping files delivered in an electronic and/or hard copy Assessment deliverable format. The Assessment deliverable can be used in conjunction with the Framework and 3D model software viewer to have the most up to date robust format to assist the PMR NRD with water management decisions.

FEE

Estimated billing rates for LRE staff, and the time and materials not-to-exceed fee to complete the Framework and Assessment outlined above is $ 306,000. A breakdown of the cost by phase for each NRD is provided in Table 1, and the PMR NRD and LPN NRD, NeDNR, and WSF contributions are summarized as follows:

Phase No.	Phase Name	PMR NRD	LPN NRD	Phase and Project Totals
1	Project Management and Meetings	$20,000	$16,000	$36,000
2	Obtain and Review Existing Geologic and AEM Data	$60,000	$60,000	$120,000
3	Create the Framework	$40,000	$40,000	$80,000
4	Deliverables	$60,000	$10,000	$70,000
	Project Totals	**$180,000**	**$126,000**	**$306,000**

NeDNR Contribution	$13,000	$13,000
WSF Contribution	$100,200	$67,800
PMR NRD and LPN NRD Cost (Total Project Cost less NeDNR and WSF Contributions)	**$66,800**	**$45,200**

SCHEDULE

The LRE/JEO Team can begin the Framework and Assessment project immediately after authorization, and have it completed in December of 2021 assuming a start time of January 2021. An approximate schedule is provided in Table 2. A project kickoff meeting would be held in January 2021 to refine the schedule and discuss project update meetings, which at this time are proposed quarterly.

We look forward to discussing this proposal with you and if you have any questions about the services offered in the proposal please call me at 612-805-0919.

The LRE is very excited to work with the PMR NRD and LPN NRD on the Framework and Assessment project. Thank you for the opportunity to present this proposal to PMP NRD.

Sincerely,

LRE WATER

David S. Hume, PG # G-0186
Senior Project Manager and VP Midwest Operations

Greg Roush, PE
Principal

Date: 11/30/20

Cc: Daryl Andersen – LPN NRD
Jonathan Mohr – JEO
Mike Plante – LRE
Roscoe Sopiwnik - LRE

DSH

Table 1
Estimated LRE Fee Schedule and Cost
Hydrogeologic Framework and Assessment
Papio Missouri River NRD and Lower PLatte North NRD

ATTACHMENT 2 TO EXHIBIT C

RATE TABLE	
Staff	**Staff Rate**
Hume	$225 /hr
Plante	$200 /hr
Sopwinik	$160 /hr

Task 1: Project Management and Meetings

Papio Missori NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	50	$225 /hr.	$11,250
Plante		$200 /hr.	$0
Sopwinik		$160 /hr.	$0
		Total LRE Labor	$11,250

Lower Platte North NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	50	$225 /hr.	$11,250
Plante		$200 /hr.	$0
Sopwinik		$160 /hr.	$0
		Total LRE Labor	$11,250

Subcontractor

Company	Cost
JEO	$13,500

Task 2: Obtain and Review Existing Geologic and AEM Data

Papio Missori NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	30	$225 /hr.	$6,750
Plante	85	$200 /hr.	$17,000
Sopwinik	210	$160 /hr.	$33,600
		Total LRE Labor	$57,350

Lower Platte North NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	30	$225 /hr.	$6,750
Plante	85	$200 /hr.	$17,000
Sopwinik	210	$160 /hr.	$33,600
		Total LRE Labor	$57,350

Subcontractor

Company	Cost
JEO	$5,300

Task 3: Create the Framework

Papio Missori NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	12	$225 /hr.	$2,700
Plante	110	$200 /hr.	$22,000
Sopwinik	80	$160 /hr.	$12,800
		Total LRE Labor	$37,500

Lower Platte North NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	12	$225 /hr.	$2,700
Plante	110	$200 /hr.	$22,000
Sopwinik	80	$160 /hr.	$12,800
		Total LRE Labor	$37,500

Subcontractor

Company	Cost
JEO	$5,000

Task 4: Deliverables

Papio Missori NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	30	$225 /hr.	$6,750
Plante	130	$200 /hr.	$26,000
Sopwinik	160	$160 /hr.	$25,600
		Total LRE Labor	$58,350

Lower Platte North NRD - LRE Labor

Personal	Hours	Chargeable Rate	Total Cost
Hume	8	$225 /hr.	$1,800
Plante	8	$200 /hr.	$1,600
Sopwinik	17	$160 /hr.	$2,720
		Total LRE Labor	$6,120

Subcontractor

Company	Cost
JEO	$5,530

Task	Task Name	Papio Missouri NRD LRE Services	Lower Platte North NRD LRE Services	LRE Subtotal	Subcontractor Subtotal		Grand Total
Task 1:	Project Management and Meetings	$11,250	$11,250	**$22,500**	$13,500	=	**$36,000**
Task 2:	Obtain and Review Existing Geologic and AEM Data	$57,350	$57,350	**$114,700**	$5,300	=	**$120,000**
Task 3:	Create the Framework	$37,500	$37,500	**$75,000**	$5,000	=	**$80,000**
Task 4:	Deliverables	$58,350	$6,120	**$64,470**	$5,530	=	**$70,000**
GRAND TOTALS		**$164,450**	**$112,220**	**$276,670**	**$29,330**		**$306,000**

Table 2
Schedule
Hydrogeoogic Framework and Assessment
Papio Missouri NRD and Lower Platte North NRD

Task	Task Name	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Task 1:	Project Management and Meetings	X		X			X			X			X
Task 2:	Obtain and Review Existing Geologic and AEM Data												
Task 3:	Create the Framework												
Task 4:	Deliverables			X			X			X			