LOWER PLATTE SOUTH
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## Memorandum

**Date:** April 13, 2023

**To:** Board of Directors

**From:** Mike Murren Projects Coordinator MM

**Subject:** Water Resources Subcommittee meeting minutes

The Water Resource Subcommittee will be meeting on Tuesday April 11, 2023, at NRD office, at 5:30 pm. Subcommittee members present included Larry Ruth, Melissia Baker, Luke Peterson, Don Jacobson, Gary Hellerich, and Bob Andersen. Others present were Paul Zillig, Dave Potter, Dick Ehrman, Drew Ratkovec, Maclane Scott, Chris Witthuhn, Mike Sousek, and Mike Murren all with the LPSNRD. Jon Mohr from LRE and Jason Lenkau with the Village of Malcolm were also in attendance. There were five agenda items the Subcommittee acted on and heard five reports.

**9A. Water Well Permit Study Assistance Program**

This topic has been discussed at the previous meetings. Director Hellerich has decided to place his request on hold.

**9B. NDEE/319 Drinking Water Specialist Position Agreement (Attachment) (Document pages 4-31)**

Dick Ehrman gave an update on the agreement with NDEE. This agreement will commit $205,000 for a three-year grant cycle to hire a drinking water specialist to work with the City of Waverly and other communities within our district. **It was moved by Andersen, seconded by Jacobson to recommend the Board of Directors authorize the General Manager to sign the finalized Inter-Governmental Agreement between the Nebraska Department of Environment and Energy and LPSNRD for implementation of the Waverly Wellhead Protection Project/Drinking Water Protection Specialist position, pending legal counsel review. All present voting Aye**

**9C. Consideration of the First Amendment to the Lower Platte River Basin Sub-Regional Groundwater Modeling Interlocal Cooperation Agreement (attachment) (Document Pages 32-34)**

The first amendment to this agreement is a result of a WSF (Water Sustainability Fund) grant application. All three sponsors will have an increase of $8,225.00 from the original agreement, which brings the three-year total commitment of $71,091.67 per NRD. This grant will help develop

the baseline sub regional groundwater flow model of the Lower Platte River Basin. **It was moved by Hellerich, seconded by Jacobson to recommend the Board of Directors approve the First Amendment to the Lower Platte River Basin Sub-Regional Groundwater Monitoring Interlocal Cooperation Agreement. All present voting Aye.**

**9D. Report on Upper Salt 1-A &76-A easement encroachment, will be submitted to the Executive Subcommittee - Paul Zillig (attachment) (Document pages 35-40)**

There are two dam locations where the property owner has encroached upon our easement. Zillig was present to explain each case. Zillig told the subcommittee that this matter will be taken up by the Executive subcommittee.

**9E. Discussion and possible action to increase the cost share on the LPSNRD Well Decommissioning Program (attachment) (Document Page 41).**

Staff has reviewed the well decommissioning cost share program. Maclane Scott reported that costs for labor and equipment costs have grown in the past few years and needs to be updated. **It was moved by Andersen, seconded by Baker to recommend the Board of Directors authorize a rate increase for the water well decommissioning program "well casing/pit removal" cost-share amount from $195 to $500. All present voting Aye.**

**9F. Update on Lincoln's 2nd Water Source (permitting & regional interest) Zillig (attachment) (Document page 42-44.**

Zillig gave an update the on the status of Lincoln's second water source. The map provided showed the route and approximate location of the new well field. Ehrman provided the subcommittee state statute 46-655.01 that outlines the process of approval of the permits.

**9G.Dwight-Valparaiso-Brainard Special Management Area (DVB SMA) allocation pumping report Ehrman (attachment) (Document Page 45).**

Dick Ehrman gave an update on the 2022 pumping report in the DVB SMA. The report showed the average pumped on forty-two wells in the West Block was 5.48 inches with only 3.12 inches of rainfall reported. The East Block had an average of 4.44 pumped on twenty-four wells with the same rainfall. Ehrman was very pleased with the irrigators in the DVB SMA and how they have adapted to the water allocations that are in place.

**9H. PFAS Update- Water Strategies memo report (Attachment) (Document Page 46-47)**

Ehrman reviewed the memo from Water Strategies LLC regarding PFAS, which is a class of about three hundred chemicals used for such things as fire suppression foam, anti-stick compounds like Teflon, Gore-Tex, etc. These compounds are extremely persistent and so are commonly referred to as "forever chemicals." He overviewed some of the concerns regarding sampling and analysis of

the compounds (a single analysis is about $200; detections are typically quantified in parts per trillion). Zillig noted that these compounds, though pervasive and persistent, may not be able to be classified as nonpoint source contaminants, which would mean that NRDs would have little or no authority over them. This issue will continue to develop in the future and the Board will be updated periodically.

**9I. Malcohn Aquifer Analysis -Action (attachment) (Document Page 48-51)**

Jon Mohr from LRE Water and Jason Lemkau from Village of Malcolm was present to request assistance of $6,500.00 to develop their wellhead protection plan. The Village is looking at the possibility of future development and want to take a proactive approach to the water needs for the area. The Village of Malcolm is submitting a grant to NDEE Source Water Protection Program Grant to assist with their project **It was moved by Jacobson, seconded by Peterson to recommend the Board of Directors authorize cost-share up to $6,500 of LPSNRD funds to support the Malcohn Aquifer Analysis Project, specifically development and implementation of Malcohn's Wellhead Protection Plan. All present voting aye.**

**9J. Representative from WRS to serve on the Salt Creek Flood Resiliency Subcommittee**

At the April special board meeting Chair Landis had asked for one representative from the WRS to be on the Salt Creek Flood Resiliency committee. Ruth opened the floor to who is interested on serving on this subcommittee. Director Hellerich and Luke Peterson expressed interest, and each gave their reasons. Peterson pointed out he is on the F&P subcommittee and would have an opportunity to serve from that subcommittee. Andersen also pointed out it would be good to have some agricultural background on the subcommittee. **It was moved by Andersen, seconded by Peterson to elect Hellerich to represent the WRS on the Salt Creek Flood Resiliency Subcommittee. All present voting aye with Hellerich abstaining.**

With no further business the meeting was adjourned at 6:45pm.

Enc.

Cc: Steve Seglin

Corey Wasserburger

Dave Landis

**INTER-GOVERNMENTAL AGREEMENT**
**Between the**
**Nebraska Department of Environment and Energy**
**and**
**Lower Platte South Natural Resources District**
**regarding the implementation of the project titled**

# Waverly Wellhead Protection Area Implementation

NDEE Reference Number: 20XX-XXXXXXXXX

THIS AGREEMENT is made and entered into by and between the Nebraska Department of Environment and Energy (NDEE) and Lower Platte South Natural Resources District (Sponsor) in accordance with Nebr. Rev. Stat. Sec. 81-1504 Nebraska Environmental Protection Act;

WHEREAS, the Sponsor made a request to the NDEE for Section 319 grant funds (CFDA #66.460), pursuant to the Federal Clean Water Act and the Nebraska Nonpoint Source (NPS) Management Program, which have been made available to NDEE through the Region VII Office of the U.S. Environmental Protection Agency (USEPA); and

WHEREAS, the Sponsor agrees to comply with all provisions of the Federal Clean Water Act as amended by the Water Quality Act of 1987, 33 U.S.C. §1251 et seq. and intends to use the funds as set out in this Agreement;

NOW, THEREFORE, the parties do hereby agree to the terms and requirements of this Agreement as follows:

## I. TERM OF THE AGREEMENT

This Agreement will begin on April 15, 2023 or when both parties have signed, whichever occurs later, and will remain in effect until all identified tasks are completed for this Section 319 Project unless terminated under §IV-C-12 of this agreement, but will not remain in effect past April 30, 2026.

## II. WORK DESCRIPTION AND SCHEDULE

This project shall complete objectives and work items as described in the approved project implementation plan (PIP). The PIP is hereby incorporated into this document in its entirety (Attachment A).

## III. FINANCIAL REQUIREMENTS

**A.** Grant funds in the amount up to $300,000 are to be used to implement this Section 319 NPS project.

**B.** Sponsor agrees to contribute 40% of total funds spent up to $200,000 in nonfederal match as cash and/or services in-kind for implementation of project activities.

**C. Statement of Costs**

The Sponsor will submit, no more often than monthly, a properly documented statement of costs for which reimbursement is sought AND properly documented nonfederal match as claimed pursuant to the terms of this Agreement and the approved PIP. The statement of costs shall be signed by the Sponsor's authorized representative. For purposes of this agreement, reimbursable costs and nonfederal match claims shall be related to budget items as described in the approved PIP. Documentation of costs and match shall consist of paid receipts, signed time records, and/or similar verification of expenditures. A description of the activities performed, list of personnel and documentation of time worked, in relation to reported match dollars, shall be included.

**D. Disbursements**

1. All requests for reimbursement of costs incurred by the Sponsor shall be reviewed pursuant to the provisions of the Nebraska Prompt Payment Act.
2. Reimbursements will be contingent on receipt of required reports.
3. NDEE shall withhold 10% of the total award but not less than $10,000.00, of grant funds pending receipt and approval of the final project report.
4. The total amount of payments under this Agreement shall not exceed $300,000.
5. The Sponsor agrees to contribute 40% of total funds spent or up to $200,000 in nonfederal match as cash and/or services in-kind for implementation of project activities.

## IV. GRANT REQUIREMENTS

**A. Program Requirements**

1. The Sponsor agrees to follow the approved Project Implementation Plan (PIP) outlining the project schedule, budget categories and amounts, and specific work items to be undertaken during the course of the project.
2. A Quality Assurance Project Plan (QAPP) must be approved by NDEE prior to any collection of environmental data and subsequent reimbursement request from Section 319 grant funds for monitoring activities. All environmental data collected under this agreement shall be provided to NDEE.
3. The Sponsor agrees to submit progress reports to the NDEE by March 20 and September 20 each year for the duration of the project agreement. These reports shall contain the following components:
   a. Progress to date;
   b. Significant findings or events;
   c. Corrective actions taken to resolve any problems that are encountered;
   d. Activities planned for the next reporting period.

4. The Sponsor agrees to MBE/WBE reports to the NDEE by September 20 each year for the duration of the project agreement and a final MBE/WBE report by April 30, 2026.

5. A final project report must be submitted to NDEE within 60 days after completion of project tasks, but no later than June 30, 2026. This report shall contain the following components in addition to those outlined in the 319 Project Final Report Guidelines to be provided by NDEE:
   a. Significant findings or events;
   b. Corrective actions taken to resolve any problems that were encountered;
   c. Final budget with actual amounts of expenditures and matching listed as well as the source(s) of matching identified.

6. The Sponsor agrees that if indirect costs are authorized, as specified in the approved PIP, they will be charged at the approved indirect rate.

7. The Sponsor agrees that any contract, inter-governmental agreement, sub-agreement and/or procurement of equipment under this grant must receive NDEE approval prior to expenditure of funds associated with those transactions. Copies of all sub-agreements and inter-governmental agreements will be provided to the NDEE.

8. All equipment purchased with Section 319 grant funds must be approved by the NDEE. Any such purchased equipment shall be retained by the NDEE upon completion of the project unless otherwise authorized in writing by the NDEE.

9. The Sponsor agrees that all water quality data collected under this grant shall be provided to the NDEE.

10. The Sponsor agrees to recognize the contributions and/or involvement of the Federal Nonpoint Source Management Program (authorized by Section 319 of the Clean Water Act and administered by USEPA and NDEE) in project publicity, reports, newsletters, and other materials. The Sponsor shall work with the NDEE to ensure that all necessary peer review requirements are met prior to publication. A minimum of three (3) copies of outreach material (printed or other media) produced under this grant shall be provided to the NDEE unless otherwise specified.

11. The Sponsor agrees to ensure that persons receiving cost-share assistance from Section 319(h) funds shall, where relevant, practice nutrient and best management on those portions of their operations that fall in the critical area of the project.

12. The Sponsor agrees to maintain all practices or structural Best Management Practices (BMPs) developed or constructed under Section 319, consistent with the operation and maintenance requirements for structures or practices as

described in standard engineering design or as identified in the Natural Resources Conservation Service's Field Office Technical Guides or other appropriate federal/state/local standards.

## B. Federal Requirements

### 1. General Terms and Conditions

The recipient agrees to comply with the current EPA general terms and conditions. These terms and conditions are in addition to the assurances and certifications made as part of the award and the terms, conditions or restrictions cited throughout the award. The EPA repository for the general terms and conditions by year (Grant Conditions) can be found at: http://www.epa.gov/ogd/tc.htm

### 2. Federal Tax Liability

With signature on this Agreement, the sponsor certifies that they: (1) are not subject to any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, and (2) have not been convicted (or had an officer or agent acting on its behalf convicted) of a felony criminal conviction under any Federal law within 24 months preceding the award, unless EPA has considered suspension or debarment of the corporation, or such officer or agent, based on these tax liabilities or convictions and determined that such action is not necessary to protect the Government's interests.

### 3. Subaward Policy

If there will be contractual services provided in association with this agreement for $3,000 or more, the Sponsor is required to get three written bids. If there will be contractual services provided in association with this agreement exceeding $150,000, the Sponsor is required to conduct a sealed bid Request for Proposals.

### 4. Civil Rights Statutes and EPA Regulations

This term and condition incorporates by reference the signed assurance provided by the recipient's authorized representative on: 1) EPA Form 4700-4, "Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance"; and 2) Standard Form 424B or Standard Form 424D, as applicable. The assurances and this term and condition obligate the recipient to comply fully with applicable civil rights statutes and implementing EPA regulations.

## C. State Requirements

### 1. Amendments

This agreement may be amended in writing at any time by mutual agreement of the parties, except insofar as any proposed amendments are in any way contrary to applicable law or requirements of the USEPA or NDEE.

### 2. Forfeiture, Repayment, and Delays in Disbursement of Funds

Violation of any of the requirements of this Agreement by the Sponsor or failure of the Sponsor to complete and maintain the project in the manner described in the project implementation plan, including any amendments thereto which have been properly approved, shall result in the forfeiture of any funds not disbursed. In addition, if for any reason the project is not completed as described in the project PIP, including any amendments thereto that have been or are hereafter approved by the NDEE, the NDEE may recover from the Sponsor any or all funds disbursed.

### 3. Remedies Not Exclusive

The use by either the Sponsor or the NDEE of any remedy specified herein for the enforcement of this Agreement is not exclusive and shall not deprive the party from using such remedy, or limit the application of any other remedy provided by law.

### 4. Assignment

No assignment or transfer of this agreement or any part hereof, rights hereunder, or interest herein by the Sponsor shall be valid unless and until it is approved by the NDEE and made subject to such reasonable terms and conditions as the NDEE may impose.

### 5. Waiver of Rights

The Sponsor or NDEE may from time to time waive any of their rights under this Agreement; however, any waiver of rights with respect to a default of any condition of this Agreement shall not be deemed to be a waiver with respect to any other default.

### 6. Applicable Rules and Regulations

Both parties shall abide by all applicable rules and regulations of the NDEE including any that may be adopted subsequent to the effective date of this Agreement except those that would invalidate or be inconsistent with the provisions of this Agreement.

### 7. Inspection of Books, Records, and Reports

The duly authorized representative of either party shall have the right to inspect and make copies of any books, records, or reports of the other party pertaining to this Agreement or related matters during regular office hours. Each party shall maintain and make available for such inspection accurate records of all its costs, disbursements, and receipts with respect to its activities under this Agreement. A single audit is required if $750,000 or more is provided by the federal funding in any one-year period. Verification of completion of the single audit report shall be sent to NDEE.

**8. Independent Contractor**

The Sponsor is and shall perform this Agreement as an independent contractor and as such shall have and maintain exclusive control over all of its employees, agents, and operations. Neither the Sponsor nor any person employed by the Sponsor shall act, propose to act, or be deemed the NDEE's agent, representative, or employee. The Sponsor assumes full and exclusive responsibility for the payment of all premiums, contributions, payroll taxes and other taxes now or hereafter required by any law or regulation and agrees to comply with all applicable laws, regulations, and orders relating to social security, unemployment compensation, OSHA, affirmative action, equal employment opportunity, and other laws, regulations, and orders of like nature. For any work hereunder subject to the Veterans Readjustment Assistance Act of 1974, or the Rehabilitation Act of 1973, the parties hereto shall comply with all provisions thereof, together with all applicable rules, regulations and orders of the Department of Labor, and the notices required pursuant to 41 CFR 60-1.4, 60-250.4 and 60-741.4, which are hereby incorporated by reference into this Agreement.

**9. Nondiscrimination**

The Nebraska Fair Employment Practice Act prohibits contractors to the State of Nebraska and their subcontractors from discriminating against any employee, or applicant for employment in the performance of such contracts, with respect to hire, tenure, terms, conditions or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin. The Sponsor's signature is a guarantee of compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of this Agreement. The Sponsor shall insert a similar provision in all subcontracts for services to be covered by any contract resulting from this Agreement.

**10. Drug Free Workplace**

The Sponsor by executing this Agreement certifies and assures that it operates a drug free workplace as addressed in the State of Nebraska Drug Free Workplace Policy of July 7, 1989.

**11. Publication**

All parties shall have publication and reproduction rights for all reports and materials, which are produced as a result of this Agreement.

**12. Termination**

This agreement may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this Agreement through no fault of the terminating party provided that no termination may be effected unless the other party is given:

a. Not less than thirty (30) calendar days' written notice (delivered by certified mail, return receipt requested) of intent to terminate, and
b. An opportunity for consultation with the terminating party prior to termination.
c. If an emergency situation occurs, the effective date of termination will be negotiated.

**13. New Employee Work Eligibility**

The Sponsor is required and hereby agrees to use, and require sub-contractors to use, a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Sponsor or Contractor is an individual or sole proprietorship, the following applies:

The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at:

https://sos.nebraska.gov/business-services/explanation-us-citizen-attestation-form

If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.

The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if

such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

## V. PROJECT MANAGERS

The Project Manager for each party to this agreement shall be as follows. The Project Manager may be changed by any agency upon written notification.

**Nebraska Department of Environment and Energy (NDEE)**

**Brandon Beethe**
Environmental Specialist
Water Planning Section
P.O. Box 98922
Lincoln, NE 68521
**Phone: (402) 471-4249**
brandon.beethe@nebraska.gov

**Lower Platte South Natural Resources District**

**Dick Ehrman**
Water Resources Coordinator

3125 Portia Street
Lincoln, NE 68521
Phone: (402) 476-2729
dehrman@lpsnrd.org

## VI. SIGNATORIES TO THIS INTER-GOVERNMENTAL AGREEMENT

**NEBRASKA DEPARTMENT OF ENVIRONMENT AND ENERGY**

**BY: Kevin Stoner** **TITLE: Deputy Director**

**DATE:** _____

_____

**SPONSOR**

**BY: Paul Zillig** **TITLE: General Manager**

*(Please Print)*

**DATE:** _____

_____

*(Signature)*

**UEI #:**

_____

**ATTACHMENT A**

# NDEE NPS 319 Project Implementation Plan
# Lower Platte South Natural Resources District
# Waverly Wellhead Protection Area Implementation
# NDEE Project # 56-2287

**Project Sponsor:**

Lower Platte South Natural Resources District
Project Manager: Dick Ehrman
3125 Portia Street
Lincoln, NE 68521
(402)-476-2729
dehrman@lpsnrd.org

**Project Partners:**

Lower Platte South Natural Resources District: Provide project funding. Serve as local project lead on hiring a Drinking Water Protection Specialist. Provide technical assistance and funding to stakeholders to install BMPs.

City of Waverly: Provide project funding. Provide use of farm ground for BMP demonstration. Assist with stakeholder involvement.

Additional Communities/Public Water Suppliers: Cooperate in public outreach. Assist with stakeholder involvement.

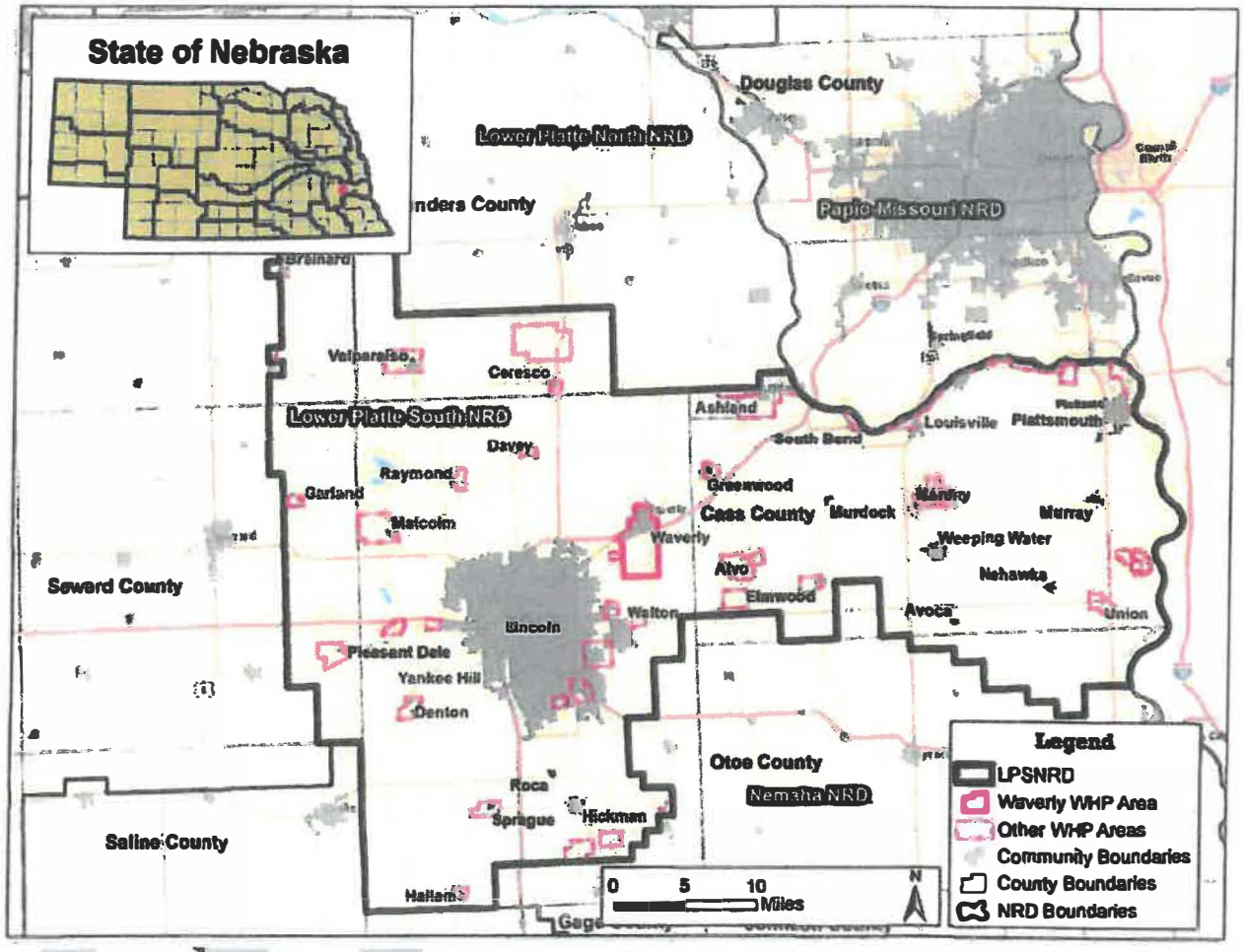
Nebraska Department of Environment and Energy: Funding through the EPA Section 319 to fund a Drinking Water Protection Specialist. Assist with outreach and education to the public, landowners, and producers. Provide funding to implement BMPs and collect project monitoring data.

Natural Resources Conservation Service: Provide technical assistance, BMP implementation administration, and technical advice.

University of Nebraska-Lincoln: Assist with landowner and producer outreach, field days, education, and BMP demonstration.

| | |
|---|---|
| **319 Project Funds:** | $300,000 |
| **Non-Federal Match:** | $205,000 |
| **Other Non-Federal:** | $40,000 |
| **Other Federal:** | $20,000 |
| **Project Duration:** | April 2023 – April 2026 (3 years) |
| **Project Area:** | The Waverly, Nebraska Wellhead Protection Area<br>Approximately 6,800 acres<br>Additional Wellhead Protection Areas in Lower Platte South NRD<br>Lower Platte River (10200202), Salt Creek (10200203), & Keg-Weeping Water Creek (10240001) Subbasins |

## Location Map




## Introduction/Background

The Lower Platte South Natural Resources District (LPSNRD) is located in southeast Nebraska and contains over 977,000 acres, including nearly all of Lancaster and Cass Counties, and parts of Butler, Otoe, Saunders, and Seward Counties (**Error! Reference source not found.**). The LPSNRD serves diverse rural and urban interests, with a population of over 300,000 people. The majority of the land in the LPSNRD is rural (85%), but the majority of the population is urban (89%). The LPSNRD must balance water quality issues stemming both from urban runoff and agricultural lands.

Wellhead Protection (WHP) areas were identified as special priority areas for implementation in the LPSNRD District Wide Water Quality Management Plan (WQMP), approved by EPA May 2019. Many communities in the LPSNRD are facing growing concerns about drinking water quality as nitrate concentrations trend upwards in municipal wells. The LPSNRD provides groundwater monitoring and quality sampling to each of the 34 designated WHP areas in the LPSNRD. As nitrate concentrations continue to increase, many communities, including Waverly

(Error! Reference source not found.), are facing expensive remediation options to continue providing safe drinking water.

Wellhead Protection Areas are identified through NDEE's Wellhead Protection Program. This voluntary program helps community water systems protect groundwater through a series of steps including delineation and mapping of the WHP Areas. The LPSNRD District-Wide WQMP recognized these areas as special priority areas due to the influence a WHP Area has on the management needs of source water aquifers and associated public drinking water systems. In the LPSNRD, WHP areas are also referred to as Community Water System Protection Areas (CWSPAs)

Pollutant management in WHP areas typically focuses on nitrate-nitrogen (nitrate) contamination of groundwater. High nitrate concentrations in drinking water are known to cause a disease called methaemoglobinaemia (or "blue baby syndrome") with infants. Carcinogenic compounds have also been known to become more prevalent when there are high levels of nitrates in drinking water. While low nitrate concentrations in groundwater can occur naturally, the major source of nitrate in agriculturally dominated areas, is nitrogen fertilizer. Implementation of BMPs which target groundwater quality were identified in the WQMP. These would include but are not limited to: fertilization at agronomic rates, nutrient management, irrigation water management, and cover crops.

Waverly's WHP Area was recently updated in August of 2019, and the city is currently working with NDEE and LPSNRD on the development of a joint Drinking Water Protection Management Plan (DWPMP) and WHP Plan. The recent WHP area update included the development of MODFLOW groundwater model to delineate the 50-year time-of-travel. The groundwater model utilized airborne electromagnetic (AEM) data collected by LPSNRD over the past several years. The AEM data allows for more detailed assessment of geologic and aquifer materials in the model and greatly complements existing geologic data for this effort. These planning efforts, which will be complete by the end of 2022, have helped to assist in the development of this project.

During the development of the DWPMP, the City of Waverly, LPSNRD, UNL, and other partners began work on a BMP Demonstration Farm on city-owned property. The city owns approximately 60 acres of farmland surrounding three of its wells and has partnered with UNL Extension to utilize this land as a demonstration farming area. The demonstration area helped demonstrate the utility of possible agricultural BMPs that local producers can implement while still maintaining agricultural production and profitability. Soil sampling, crop canopy sensors, crop yield analysis, vadose zone assessments, varied fertilizer application timing and rates, and other practices can show how certain BMPs allow for good yields and profitability, improve soil health, decrease soil erosion, and improve water holding capacity, all while fulfilling the primary goal of decreasing nitrate leaching and contamination. The city plans to continue utilizing this land for education and outreach purposes throughout this project and into the future.

The purpose of this project is to protect local drinking water aquifers from nitrate contamination, originating from nonpoint source pollutants. The focus of this project will be within the Waverly WHP Area, but benefits will also be realized at other WHP Areas within LPSNRD. In Waverly, nitrate concentrations have exceeded the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 10 mg/L several times in the last five years in one municipal well. Other municipal wells have shown increasing nitrate concentrations, with two wells exceeding 9 mg/L in 2019, and several of the existing monitoring wells exceeding 10 mg/L in the past few years.

Efforts to reduce nitrate contamination of groundwater are based on the voluntary adoption of agricultural best management practices (BMPs) by area landowners and producers. Public education and outreach, along with stakeholder engagement, will be used to help increase adoption of BMPs. Where available, financial cost-share will be promoted to help with BMP adoption. The best available science will guide efforts with ongoing monitoring, studies, and data collection.

With the assistance of a new Drinking Water Protection (DWP) Specialist position, the LPSNRD will be able to lead and focus public outreach and education on BMPs. Additionally, the DWP Specialist will assist producers in accessing funding or technical assistance to adopt BMPs. Through these engagement efforts, the DWP Specialist will identify barriers to adoption and develop strategies to overcome these. This work will allow sponsors to better identify what level of incentives (technical and funding assistance) will be needed for landowners and operators in the Waverly WHP area to implement these BMPs, better positioning the LPSNRD for future budgetary planning work within the WQMP.

## Pollutants and Pollutant Sources

The primary sources of nitrogen in the Waverly and other WHP areas are agricultural production, animal waste/manure, leaching from human septic systems, and runoff from developed urban areas. The largest contributor of nitrogen is commercial fertilizer infiltration from row crop farming, followed by unconfined animal feeding operations. Water within the WHP Area that infiltrates down into the aquifer carries pollutants along with it, and eventually migrates to the municipal supply wells.

## Pollutant Load Reduction

The nitrate reduction goal for the Waverly WHP Area is driven by the LPSNRD Phase II Groundwater Management designation trigger, which is a concentration of 5.0 mg/L. Based on recent nitrate sampling in Waverly's municipal wells, the anthropogenic nitrate concentration in the WHP Area needs to be reduced by 63% to maintain the natural and anthropogenic nitrate concentration at or below the Phase II trigger of 5.0 mg/L. Meeting the reduction goal of 63% will require significant BMP implementation throughout the WHP Area.

During the three-year project period, the goal will be to establish additional BMPs on approximately 3,000 acres within the Waverly and other WHP Areas. Implementation of this project is expected to reduce the load of nitrogen leached into the subsurface by approximately 26,080 pounds over the three-year project, or about 8,693 pounds per year. Although this project is primarily aimed at reducing pollutant loads to groundwater, it is anticipated that this project will also provide surface water benefits over the three years, including 17,000 tons of sediment (5,667 tons per year), 5,560 pounds of nitrogen (1,853 pounds per year), and 12,665 pounds of phosphorous (4,221 pounds per year; see Appendix for calculations).

## Project Description

### Introduction

The LPSNRD District-Wide WQMP has identified WHP Areas as priority areas to address nonpoint source contamination of drinking water. The City of Waverly WHP Area will be the first prioritized target area for public outreach and BMP implementation, and the other WHP Areas within the LPSNRD will be addressed as the project progresses (see Figure 1 for WHP Area locations). The current WQMP outlines recommended BMPs to reduce

nitrate pollutant loading within the WHP Area. The LPSNRD will utilize 319 funding to employ a Drinking Water Protection (DWP) Specialist that will be primarily focused on increasing the adoption of BMPs within WHP Areas.

The strategy of developing a new DWP Specialist position was identified as the most critical element for increasing adoption of BMPs and improving water quality, during the development of the WQMP and DWPMP. The DWP Specialist will gather feedback from producers/landowners, identify barriers to adoption, and develop strategies that a project sponsor can use to help producers overcome those barriers. This DWP Specialist will host education and outreach activities, assist producers in implementing BMPs, provide technical assistance in BMP selection, collect public feedback, and provide recommendations to the LPSNRD and other project partners to improve BMP implementation programs.

## Project Goals and Objectives

The following goals directly match those listed in the LPSNRD District-Wide WQMP to illustrate how this project works towards meeting those goals. Objectives and action items are based on those found in the WQMP and have been modified to reflect specific project activities. Goals and objectives of the LPSNRD District-Wide WQMP directly match those of the Nebraska NPS State Plan (Lower Platte South NRD Water Quality Management Plan, May, 2019).

**Goal 1: The surface and groundwater resources within the LPSNRD target areas, or special priority areas, will be enhanced through a comprehensive and collaborative program that efficiently and effectively implements tasks to restore and protect natural resources from degradation and impairment.**

**Objective 1:** Strong working partnerships and collaboration among appropriate local, state, and federal agencies; and non-governmental organizations, will be established and maintained regarding management of natural resources.

**Task 1.1.1:** The LPSNRD will create a new DWP Specialist position. The intent of this position will be on outreach and education to the public, landowners, and producers within WHPAs across the district, with a special focus on the Waverly WHP area.
**Task 1.1.2:** The DWP Specialist will collaborate with UNL and other collaborators to identify opportunities for demonstrating BMPs within the Waverly and other WHP areas.

**Goal 2: Resource managers, public officials, community leaders, and private citizens will be informed about the effects of human activities on water quality and change their behavior in order support actions to restore and protect water resources from impairment by nonpoint source pollution.**

**Objective 1:** Work with project partners to provide focused information and education to stakeholders within the project area to help them understand the resource concerns and benefits of implementing BMPs.

**Task 2.1.1:** The DWP Specialist will identify, develop, and maintain potential partnerships where education, technical, and financial resources could be leveraged.
**Task 2.1.2:** The DWP Specialist will engage with and educate crop consultants, agri-chemical dealers, and other agricultural service providers about water quality issues and programs available to producers.

**Task 2.1.3:** The DWP Specialist will collaborate with partners to target stakeholder education regarding water quality and conservation practices. An annual public meeting/BMP workshop, field tours, and other meetings will be held with producers. If necessary, a facilitator will be utilized as part of public meetings.
**Task 2.1.4:** The DWP Specialist will provide targeted education materials to farmers and land managing companies discussing the benefits of nutrient management and the practices they can take to enhance it.
**Task 2.1.5:** The DWP Specialist will develop and distribute signage to post on participating properties, showing the source of funding and the project partners.
**Task 2.1.6:** The DWP Specialist will assist the City of Waverly in discussions with the tenant farmer to implement and maintain BMPs on Waverly's land surrounding its wellfield.

**Goal 3: The water, land, and biological resources utilized for beneficial uses in the LPSNRD WQMP target areas will be healthy, productive, and sustainable through actions of the LPSNRD, communities, and other resource agencies.**

**Objective 1:** Promote cost-share to landowners and producers to increase the adoption or installation of priority BMPs within the project area to reduce nitrate pollutant loads to the groundwater.

**Task 3.1.1:** The DWP Specialist will enroll new lands in BMP cost-share programs and increase the total number of acres in the WHP areas with BMPs installed.
**Task 3.1.2:** The DWP Specialist will connect landowners and producers to existing BMP cost-share programs through NRCS, LPSNRD, or other partners.

**Objective 2:** Provide technical assistance to landowners and producers in the project area to help them implement and maintain BMPs.

**Task 4.2.1:** The DWP Specialist will collaborate with NRCS to provide technical assistance to participants in selecting, installing, and maintaining BMPs.
**Task 4.2.2:** The DWP Specialist will regularly solicit feedback from landowners to identify barriers to further adoption and ultimately improve the assistance they receive as part of this project.

## Proposed Management Practices

Currently, financial assistance for BMPs is available through the NRCS's Environmental Quality Incentives Program (EQIP) and the LPSNRD's Groundwater and Land Treatment Programs. This project will increase the utilization of these programs within WHP Areas, leading to increased rates of BMP adoption. The DWP Specialist will act as a catalyst towards these efforts.

The DWP Specialist will gather feedback from residents of the Waverly WHP area concerning which proposed BMPs are most desirable. The DWP Specialist, with support from the City of Waverly, will identify barriers to BMP implementation and then overcome them by developing tailored programming to fill potential educational, technical, and monetary gaps. This will include in-person meetings with all farmers/landowners and land management companies in the WHP Area to explore potential management options, tracking the types and

locations of BMPs that are installed, and monitoring changes in nitrate concentrations over time to document BMP impacts.

The DWP Specialist will focus efforts on BMPS that are identified within the WQMP that reduce nitrate loading. Priority BMPs were selected through review of scientific literature, discussions with experts at the University of Nebraska-Lincoln (UNL), and feedback from stakeholder groups in the LPSNRD.

The proposed BMPs include, but are not limited to:

- Agricultural BMPs
  - Cover crops
    Cover crops are an important tool for promoting healthy soils and trapping pollutants. They are designed to naturally absorb excess nutrients after crop harvest and to prevent erosion when the field would otherwise be fallow, therefore improving water quality by reducing nutrient and sediment in runoff water. Cover crops also improve soil porosity and water and nutrient retention, further reducing contaminant loads in runoff water.
  - Nutrient/fertilizer management (4Rs of nutrient management)
    Supplying needed nutrients for crop production involves attention to four major fertilization factors (the 4Rs): right rate, right source, right placement, and right timing. Attention to these factors will provide adequate nutrition for crop production while minimizing the risk of loss of nutrients to the environment. This practice applies to commercial and organic nutrient management.
  - Soil sampling
    Proper nutrient management rests in part on knowing what residual amounts of nutrients are available in the soil. Regularly sampling the soil in cropped fields will provide farmers with valuable information to properly select fertilizer application amounts and timing.
  - Irrigation water management
    Although the Lower Platte South NRD has comparatively few irrigated acres in its jurisdiction, there are parts of the Waverly WHP Area as well as other areas where irrigation, especially from groundwater, is fairly common. Most importantly, water quality can be protected by matching the application of irrigation water to crop water needs. Careful attention to irrigation water applications not only helps conserve groundwater resources, but also minimizes leaching of water and nutrients below the crop rooting zone as well as preventing runoff and soil erosion.
- Locating and decommissioning abandoned wells
  Abandoned wells are a fairly common occurrence throughout the LPSNRD and Nebraska. These abandoned structures can provide a direct conduit for contaminants at the land surface down to groundwater. This project will work to identify abandoned wells in the Waverly and other WHP areas and provide cost-share under existing LPSNRD programs to properly decommission such wells.
- Public education, information, and outreach
  - Public open houses, workshops, field days, and demonstrations
    The DWP Specialist will be directly responsible for public outreach and promotion of the project to farmers, landowners, public water suppliers, businesses, and residents in the Waverly and other WHP areas.

- Social media posts, newsletters and articles
  The DWP Specialist will work with LPSNRD I/E staff to provide thorough coverage of the project using social media as well as more traditional means of communication.
- Project signage and promotion
  Cooperators will be recognized with signage in highly visible areas.

**Table 1. Quantity and Cost of Proposed Practices**

| PRACTICE | # OF UNITS | UNITS | COST/UNIT | TOTAL COST |
|---|---|---|---|---|
| Cover Crops | 1,700 | Ac | $40 | $68,000 |
| Nutrient Management | 750 | Ac | $40 | $30,000 |
| Soil Sampling | 10 | ea | $1,000 | $10,000 |
| Irrigation Management | 1 | ea | $10,000 | $10,000 |
| Decommission Abandoned Wells | 15 | ea | $2,000 | $30,000 |
| **TOTAL** | | | | **$148,000** |

**Table 2. Estimated Pollutant Load Reductions from Proposed Practices Over Three Years**

| | | Load Reductions | | | |
|---|---|---|---|---|---|
| | | Groundwater | Surface Water | | |
| BMP | Acres Implemented | Nitrogen (lb N) | Sediment (ton) | Nitrogen (lb N) | Phosphorous (lb P) |
| Cover Crops | 1,700 | 17,240 | 17,000 | 4,570 | 8,185 |
| Nutrient Management | 750 | 7,605 | 0 | 720 | 2,990 |
| Soil Sampling | 300 | 1,015 | 0 | 115 | 850 |
| Irrigation Management | 160 | 220 | 0 | 155 | 640 |
| | | | | | |
| **Total** | **3,000** | **26,080** | **17,000** | **5,560** | **12,665** |

## Information and Education

Communication efforts began during the development of the WQMP, which included meetings with technical staff, stakeholders, and the general public. Additionally, more targeted communication efforts occurred during the development of the Waverly DWPMP, which included the formation of a stakeholder group and holding a

BMP Workshop in Waverly. These activities generated information on the values and general concerns of stakeholders, residents, landowners, and producers within the Waverly WHP Area. Successful implementation of the WQMP will depend on the continued participation of willing landowners.

The strategy of developing a new DWP Specialist position was identified as the most critical element for implementing BMPs and improving water quality, during the development of the WQMP and DWPMP.

The DWP Specialist will be a central point of contact for all agencies, partners, stakeholder, landowners, and public. Because of the proximity to the WHP area and available meeting facilities, The City of Waverly will serve as a central meeting location.

The DWP Specialist will become extremely familiar with landowners and producers in the region, as well as project partners such as UNL, to successfully promote BMP implementation. Communication will include face-to-face meetings with all interested landowners/producers, hosting and presenting at public open houses or workshops, organizing field days and demonstrations at the BMP demonstration farm, regularly distributing newsletters or other informational materials, and being able to answer any questions about the project.

The WQMP identified the following target audiences for communication efforts:

- Residents of Waverly and other municipalities, who rely on the safe drinking water;
- Land managers, tenants, and property owners within WHP Areas; and
- Agricultural producers with existing BMPs who may be interested in implementing additional practices.

Specific educational efforts of this project will include the following, which the DWP Specialist will lead the development of, while coordinating with other stakeholders, such as: City of Waverly, other municipalities, LPSNRD, area schools, FFA groups, NRCS, UNL, and others:

- Site visits with landowners and producers
- Targeted coffee shop meetings, tailgate sessions, and other informal/casual informational exchanges
- Website and social media posts
- Distribution of flyers, pamphlets, brochures, or other products describing BMPs and/or the project
- Postcard mailings utilizing GIS database
- Installation of signage at BMP demonstration sites, key WHP Area entrances or landmarks, and other highly visible areas
- WHP Area tours with all stakeholders to see existing BMPs
- Annual BMP workshops or townhall meetings
- Surveys and questionnaires
- Other peer-to-peer outreach and meetings
- Media releases, informational brochures, and newsletter articles
- Activities with area high schools or FFA programs (e.g., citizen science, test your well nights)

## Schedule

Table 3 outlines the anticipated project schedule.

**Table 3: Project Schedule**

| Activities | 2023 | | | | 2024 | | | | 2025 | | | | 2026 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| **Communication Activities** | | | | | | | | | | | | | | |
| Create Drinking Water Specialist Position | | | | | | | | | | | | | | |
| Identify Partnerships for leveraging resources | | | | | | | | | | | | | | |
| Targeted educational programming for ag service providers | | | | | | | | | | | | | | |
| Host BMP Workshop/Public Meeting | | | | | | | | | | | | | | |
| Hold Field Tours | | | | | | | | | | | | | | |
| Develop educational materials for farmers | | | | | | | | | | | | | | |
| Develop WHP signage /BMP signage | | | | | | | | | | | | | | |
| Install BMP signage throughout WHP | | | | | | | | | | | | | | |
| **BMP Implementation Activities** | | | | | | | | | | | | | | |
| Enroll new land and assist all participants in BMP cost-share programs | | | | | | | | | | | | | | |
| Connect land owners to partner cost-share programs | | | | | | | | | | | | | | |
| DWP Specialist will collaborate with NRCS to provide technical assistance for BMP use. | | | | | | | | | | | | | | |
| Collect feedback from participants to identify barriers to further BMP adoption. | | | | | | | | | | | | | | |

## Milestones

**Table 4: Percent Completion of Project Tasks**

| Activities | 2023 | | | | 2024 | | | | 2025 | | | | 2026 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 |
| **Communication Activities** | | | | | | | | | | | | | |
| Create Drinking Water Specialist Position | | 100 | | | | | | | | | | | |
| Identify Partnerships for leveraging resources | | | 5 | | 25 | | 50 | | 75 | | 85 | | 100 |
| Targeted educational programming for ag service providers | | | | | | | 50 | | | | 100 | | |
| Host BMP Workshop/Public Meeting | | | | 30 | | | | 60 | | | | 100 | |
| Hold Field Tours | | | | | | 50 | | | | 100 | | | |
| Develop educational materials for farmers | | | | | | | 50 | | | | 100 | | |
| Develop WHP signage /BMP signage | | | | 100 | | | | | | | | | |
| Install BMP signage throughout WHP areas | | | | | | | 50 | | | | 100 | | |
| **BMP Implementation Activities** | | | | | | | | | | | | | |
| Enroll new land and assist all participants in BMP cost-share programs | | | | | | | | 50 | | | | | 100 |
| Connect land owners to partner cost-share programs | | | | | | | | 50 | | | | | 100 |
| DWP Specialist will collaborate with NRCS to provide technical assistance for BMP use.. | | | | | | | | 50 | | | | | 100 |
| Collect feedback from participants to identify barriers to further BMP adoption. | | | | | | | 30 | | | | | 100 | |

## Evaluation Criteria

- The DWP Specialist will record and report on the names and numbers of contacts made with landowners, farmers, community/water suppliers, and other interested parties.
- The DWP Specialist will record amounts and types of BMPs implemented as established/installed, including those supported by LPSNRD cost-share programs as well as other sources (e.g. NRCS).
- Public events (workshops, field days/trips, training, meetings, etc.) will be reported as completed.
- Pre- and post-program surveys (written, one-on-one or other methods) will be conducted to evaluate if educational goals are met and behavioral changes made. This will include attendance numbers and target audience. These surveys/interviews will include identification of barriers to BMP adoption and suggest possible methods of overcoming those barriers.
- Public outreach will be tracked and will include website use, printed material amounts, requests/inquiries, social media contacts, signage, etc.
- All the above information will be included in the semi-annual reports.
- The Project Manager will perform an annual performance review of the DWP Specialist's activities, evaluating if they are meeting all the expressed duties that were expressed in the position prior to hiring.

## Water Quality Monitoring

No monitoring will be included in this grant project. However, data collected through ongoing efforts of the LPSNRD, City of Waverly and other communities to monitor groundwater and associated factors will be used to assess the impact of the project.

Monitoring of the vadose zone (the zone between the crop rooting zone and the water table) can provide important information as to the effectiveness of BMPs as well as the likelihood of future groundwater contamination. LPSNRD has an ongoing vadose zone monitoring program, and although this data collection is not specifically a part of this project, the DWP Specialist will utilize this information to further the goals of the project.

## Budget

The total cost of this project is estimated to be $565,000 over three years, and a detailed breakdown in federal and non-federal contributions are shown in Table . The primary activity funded through this project is the newly created DWP Specialist. The project will be accomplished through funding from Section 319, LPSNRD, the City of Waverly, additional communities, and USDA as available.

BMP financial assistance relies on existing BMP land treatment programs from LPSNRD. Additional funding from existing USDA, NRCS, or FSA financial assistance programs, such as EQIP, will be utilized where possible to achieve the maximum levels of BMP adoption. These federal funds, however, are not eligible as match toward Section 319 funds, and the LPSNRD does not assume a defined level of participation from these programs.

Section 319 funds are being matched by non-federal funds (percentages approximate):

- Section 319: 55%
- Non-federal: 45%

**Table 5: Project Budget**

| Activity | Section 319 (federal) | LPSNRD (non-federal) | City of Waverly/Other Communities (non-federal) | Landowner (non-federal) | USDA, NRCS, FSA (other federal) | Total |
|---|---|---|---|---|---|---|
| **BMP Implementation** | | | | | | |
| BMP cost-share | | $148,000[1] | | $40,000[2] | $20,000[3] | $208,000 |
| **Personnel** | | | | | | |
| Salary & benefits | $300,000[4] | $15,000 | | | | $315,000 |
| **Travel** | | | | | | |
| Mileage[5] | | $6,000 | | | | $6,000 |
| **Education** | | | | | | |
| Educational activities[6] | | $10,000 | $5,000 | | | $15,000 |
| **Supplies[7]** | | | | | | |
| Printing, mailing, etc. | | $9,000 | $1,000 | | | $10,000 |
| Signage | | $10,000 | $1,000 | | | $11,000 |
| **Contractual** | | | | | | |
| None anticipated at this time | | | | | | $0 |
| **Total** | **$300,000** | **$198,000** | **$7,000** | **$40,000** | **$20,000** | **$565,000** |

*LPSNRD acknowledges that EQIP funding may be available for certain BMPs and will work with successful applicants to that program. EQIP cost-share is not included in the project budget at this time.
**Water quality test kits to be used for citizen science/public education & outreach purposes only
***Additional contractual costs may accrue in the course of project implementation. LPSNRD has not developed an estimate for these costs at this time.

## Budget Narrative

1. $148,000 of BMP match will be provided through LPS NRD cost share programs.
2. $40,000 of other non-federal funds will be provided by landowners in the implementation of BMPs.
3. $20,000 of other federal funds are expected to be provided through NRCS EQIP programs.
4. Costs for one Drinking Water Protection Specialist position for three years (2023-2026) was calculated at $75,000 base salary plus benefits at 40% ($30,000) per year, for a total cost of $105,00 per year or $315,000 for the three year project.
5. Mileage was calculated at 10,000 miles over 3 years at a cost of $0.60/mile.
6. Educational activities will include, but not be limited to those included in the information and education section of this document.
7. Educational and informational signage for demo sites and printing costs are estimated from prior similar activities.

# APPENDIX
# Load Reduction Justification

# Load Reduction Justification

2023 Waverly and other WHP areas

**Table 1. Overall Load Reductions for Waverly and other WHP areas**

| | | Load Reductions | | | |
|---|---|---|---|---|---|
| | | Groundwater | Surface Water | | |
| BMP | Acres Implemented | Nitrogen (lb N/yr) | Sediment (ton) | Nitrogen (lb N) | Phosphorous (lb P) |
| Cover Crops | 1,700 | 17,240 | 17,000 | 4,570 | 8,185 |
| Nutrient Management | 750 | 7,605 | 0 | 720 | 2,990 |
| Soil Sampling | 300 | 1,015 | 0 | 115 | 850 |
| Irrigation Management | 160 | 220 | 0 | 155 | 640 |
| | | | | | |
| Total | 3,000 | 26,080 | 17,000 | 5,560 | 12,665 |

## Surface Load Reduction Justification:

Average loadings for Nebraska cropland are as follows:

**Table 2. Average Loadings from Nebraska Cropland**

| Sediment (tons/ac) | Nitrogen (lbs/ac) | Phosphorus (lbs/ac) | *E. coli* (cfu/ac) |
|---|---|---|---|
| 20 | 9.6 | 16.6 | 5 |

Load reduction efficiencies for each pollutant are shown in the table below with the reference given for each practice are shown below, by pollutant:

**Table 3. Load Reduction Efficiencies**

| | Sediment (%) | Nitrogen (%) | Phosphorus (%) | *E. coli* (%) | Reference |
|---|---|---|---|---|---|
| Cover Crops | 50 | 28 | 29 | N/A | Iowa Strategy, KWRAPS |
| Nutrient Management | 0 | 10 | 24 | N/A | Iowa Strategy |
| Soil sampling | | 4 | 17 | | Iowa Strategy |
| Irrigation Management | 0 | 10 | 24 | N/A | Iowa Strategy |

- Based on the Iowa Strategy to Reduce Nutrient Loss https://www.iowadnr.gov/Portals/idnr/uploads/water/wse/isu_reducingnutrientloss.pdf ,

- Cover crops will yield a Nitrogen reduction of 28 -31%, and a phosphorus reduction of 29%. This project assumes the conservative reduction of 29% for nitrogen.
- Nutrient management will reduce nitrogen loadings by 10% and phosphorus of 24 – 46%. This project assumes the conservative reduction of 24% for phosphorus.
- Soil sampling will reduce nitrogen by 4% when done in coordination with split N application. Phosphorus will be reduced by 17% if the producer does not add phosphorus amendments until the soil P drops to the optimal number.

- Sediment reduction for cover crops is estimated by KWRAPs as 50%.
- To calculate load reductions, average loadings from Nebraska cropland were multiplied by load reduction efficiencies and the estimated number of acres implemented. For example, 2,000 acres of cover crops X 20 tons/ac of sediment runoff X 50% reduction in sediment loss = 2,000 X 20 X 0.5 = 20,000 tons/yr.
- Nitrate Leachate: See Leaching Load Reduction Justification 2023 Waverly and other WHP areas

## Groundwater Leaching Load Reduction

**Table 4. Load Reductions for Waverly and other WHP areas**

| | Acres Applied (ac) | Estimated Leaching Prior to BMP installation (lb/ac/yr) | Estimated Reduction (%) | Leachate Loading Reduction (lb/ac/yr) |
|---|---|---|---|---|
| Cover crops | 1,700 | 57,460 | 30% | 17,238 |
| Nutrient Management | 750 | 29,350 | 26% | 7,605 |
| Soil Sampling | 300 | 10,140 | 10% | 1,014 |
| Irrigation Management | 160 | 5408 | 4% | 216 |

Narrative:

1. Three studies (Randall & Iragavarapu, 1995; Sexton et al. 1996; Masarik et al. 2014) show anywhere from 18% to 36% of fertilizer N leaches into the ground after application—soil type, precipitation, irrigation practices, and depth to groundwater account for the wide leaching range.
2. In the Waverly and other Lower Platte South NRD WHP areas, tight soils may imply a lower leaching rate. Multiplying the range of leaching rates (18% to 36% documented in the three above studies) by the average chemical fertilizer application rate of (188 lbs N/ac) yields the N leached from chemical fertilizer—33.8 to 67.7 lbs/ac/yr (Miller et al, 2019). For the purposes of analysis, we will use the conservative number of 33.8 lb/ac/yr.

Amount Leached (lb/yr) = 33.8 lb/ac/yr x Acres Applied (ac)
Leachate Loading Reduction = Acres Applied (ac) x Estimated Reduction %

Estimated Percent Reduction References

1. 30% N reduction for **Cover Crops** in leaching is generally the consensus although reduction up to 80% has been reported. A 26-51% N reduction was documented in Iowa, Minnesota and Illinois. R. Christianson, et al, 2018 available at: https://www.sciencedirect.com/science/article/pii/S0301479717311271

2. 26% N reduction for Nitrogen Management practices that change the timing and rate of N application: R. Christianson, et al, 2018 available at: https://www.sciencedirect.com/science/article/pii/S0301479717311271
3. 10% reduction in soil sampling is estimated based on the Iowa Nutrient Strategy.
4. 4% reduction in irrigation management is estimated based on the Iowa Nutrient Strategy.

Other References

5. Randall & Iragavarapu. 1995. Impact of long-term tillage systems for continuous corn on nitrate leaching to tile drainage. Journal of Environmental Quality 24:360-366.
6. Sexton et al. 1996. Optimizing nitrogen and irrigation inputs for corn based on nitrate leaching an yield on a course-textured soil. Journal of Environmental Quality 25:982-992.
7. Masarik et al. 2014. Long-term drainage and nitrate leaching below well drained continuous corn agroecosystems and a prairie. Journal of Environmental Protection 5:240-254.
8. Miller, Dan; Snow, Dan; Krienke, Brian. 2019. How can nitrogen budgeting estimate nitrate-N loading to groundwater? Water Column Newsletter. Available At: https://water.unl.edu/article/groundwater/how-can-nitrogen-budgeting-estimate-nitrate-n-loading-groundwater

**FIRST AMENDMENT TO THE**
**LOWER PLATTE RIVER BASIN SUB-REGIONAL GROUNDWATER MODELING**
**INTERLOCAL COOPERATION AGREEMENT**

This First Amendment to the Lower Platte River Basin Sub-Regional Groundwater Modeling Interlocal Cooperation Agreement ("Amendment") is entered into by and between the Nebraska Department of Natural Resources ("Department"); Lower Platte South Natural Resources District ("LPSNRD"); Lower Platte North Natural Resources District ("LPNNRD"); and Papio-Missouri River Natural Resources District ("PMRNRD"); all of which are an agency or political subdivisions of the State of Nebraska, each sometimes hereinafter individually referred to as "Party" or collectively referred to as "Parties."

WHEREAS, the Parties entered into an Interlocal Agreement, pursuant to the Interlocal Cooperation Act Neb. Rev. Stat. §§ 13-801 to 13-827, to contribute financially, provide the necessary data, technical support, and administer contracts necessary to develop the baseline sub-regional groundwater flow model of the Lower Platte River Basin (the "Agreement").

WHEREAS, the Parties through the Agreement created the Lower Platte River Groundwater Modeling Collective ("Collective") to carry out the purposes set forth in Section 5 of the Agreement.

WHEREAS, the Collective submitted an application to the Nebraska Water Sustainability Fund ("WSF") to receive a grant for the amount of $282,900, which was not awarded.

WHEREAS, the Collective desires to submit a new application to the Nebraska WSF for a grant of a lesser amount.

WHEREAS, the Parties of the Collective desire the modify the Agreement, pursuant to Section 10.05 of the Agreement, through this Amendment to reallocate the financing obligations of the Parties.

NOW, THEREFORE, in consideration of the mutual covenants and promises of the Parties, it is agreed by and among the Parties hereto as follows:

1) That the following numbered paragraph of the Agreement should be modified as follows:

Section 6.01.1 of the Agreement shall be deleted in its entirety and replaced with the following:

6.01.1 The Collective will be financed by the Parties and a contribution from the Nebraska Natural Resources Commission through a grant from the Water Sustainability Fund ("WSF") as follows:

Department: $196,725.00

WSF: $250,000.00
LPSNRD: $71,091.67 ($23,697.22 to be paid annually for three years)
LPNNRD: $71,091.67 ($23,697.22 to be paid annually for three years)
PMRNRD: $71,091.67 ($23,697.22 to be paid annually for three years)

There are no other financial obligations of the Parties except those set forth above, unless otherwise consented to by the Parties.

2) Except as it is expressly amended by this Amendment, the terms of the Agreement shall remain in effect and binding upon the Parties.

3) This Amendment shall become effective upon complete execution of counterparts of this Amendment by the Parties.

**[SIGNATURE PAGE TO FOLLOW]**

IN WITNESS WHEREOF, the Parties have signed and executed this Agreement on the dates shown next to their respective signatures:

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

BY:_____

DATE:_____

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

BY:_____

DATE:_____

LOWER PLATTE NORTH NATURAL RESOURCES DISTRICT

BY:_____

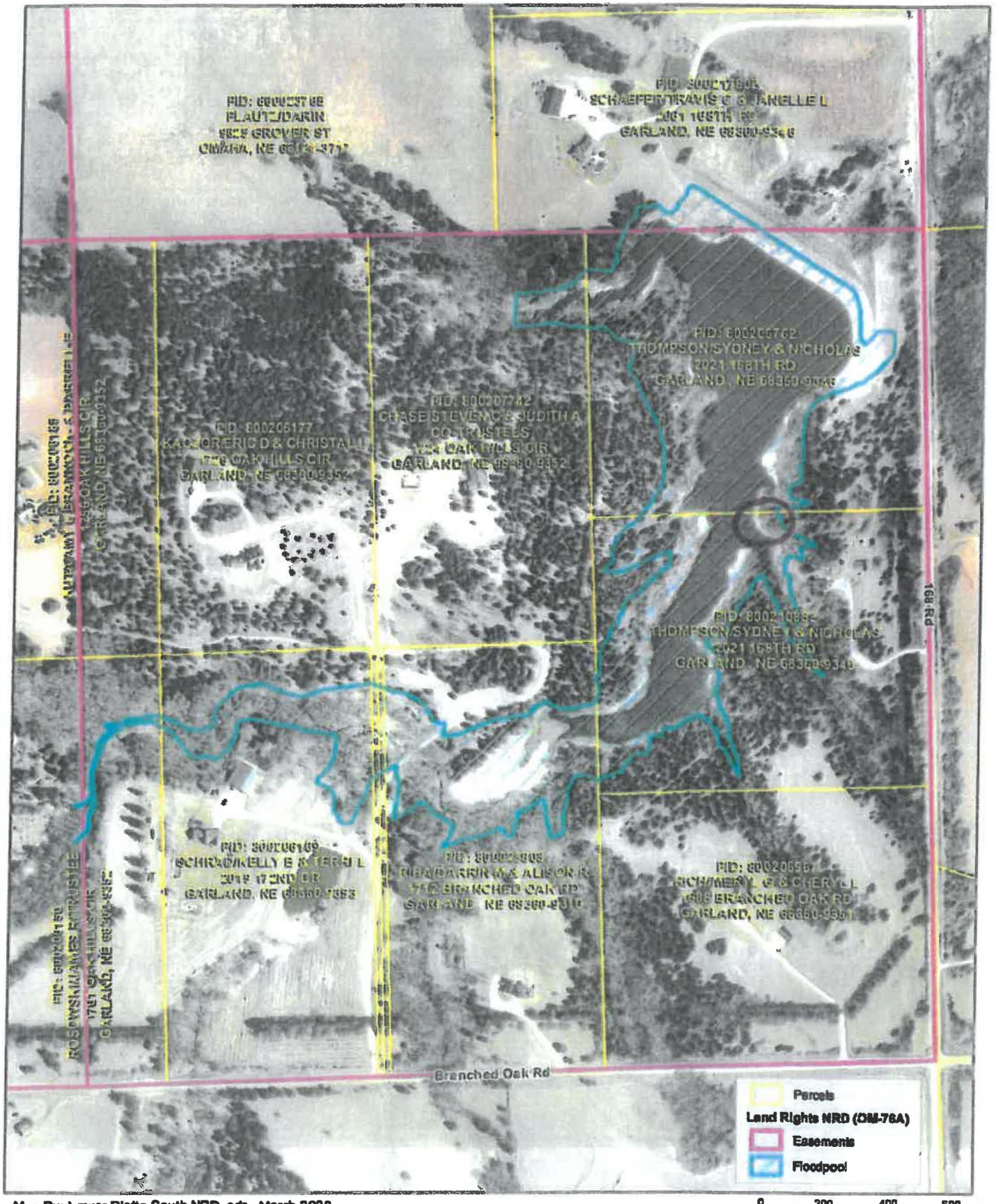
DATE:_____

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT

BY:_____

DATE:_____

# Oak Middle 76-A, Seward County
## Floodpool and Parcels in Sec 27, T12N-R4E




Map By: Lower Platte South NRD, adr - March 2023

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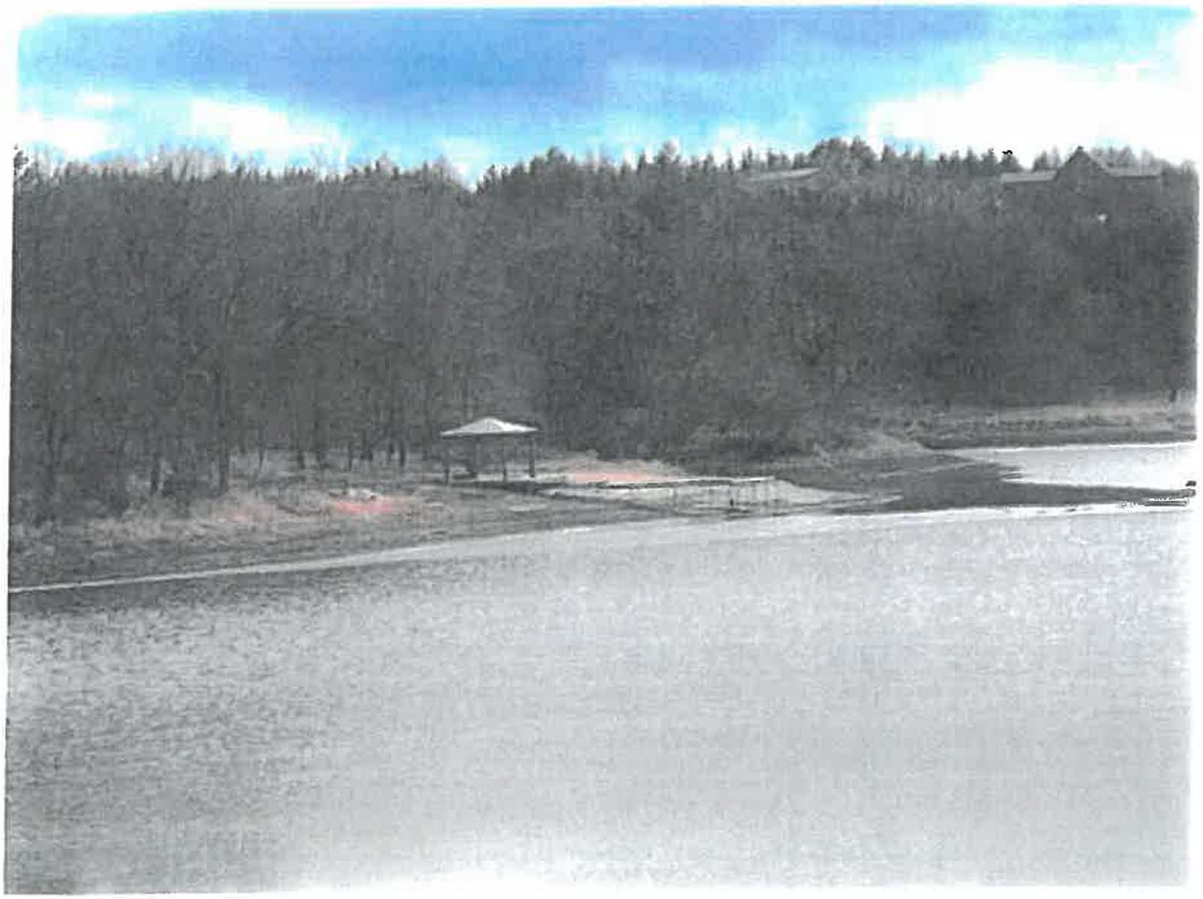
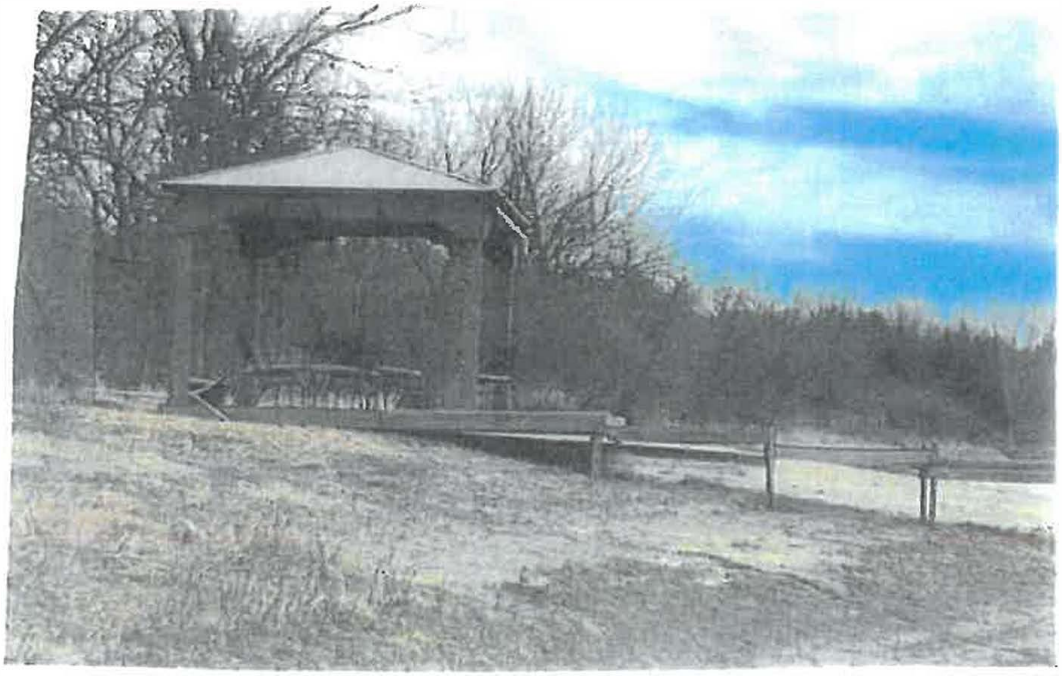
Feet



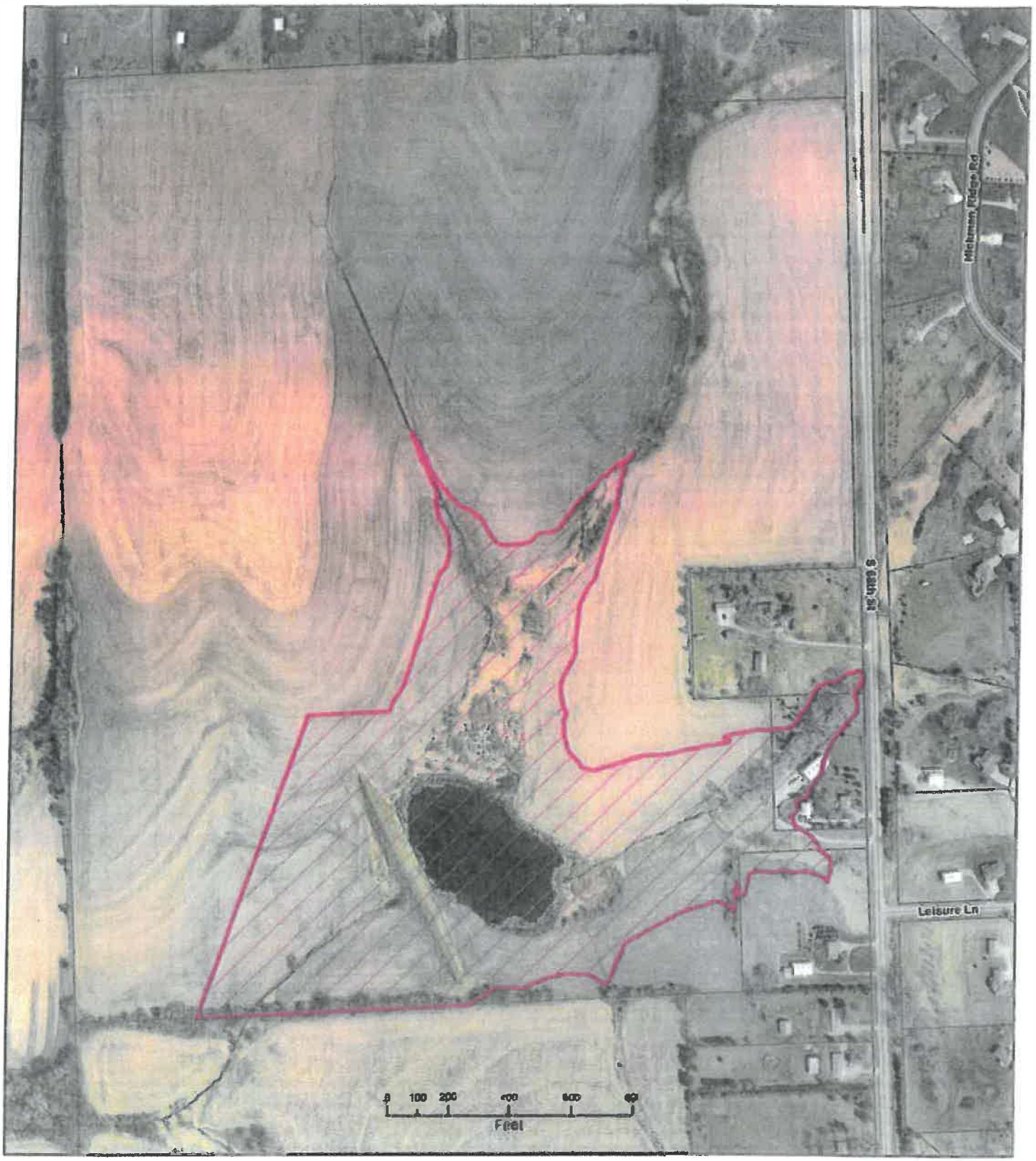


*** * * NOTICE * * ***

**This diagram is not filed with the easement at the Register of Deeds. The NRD has generated this diagram to show the location based on the legal description provided in the easement document.**

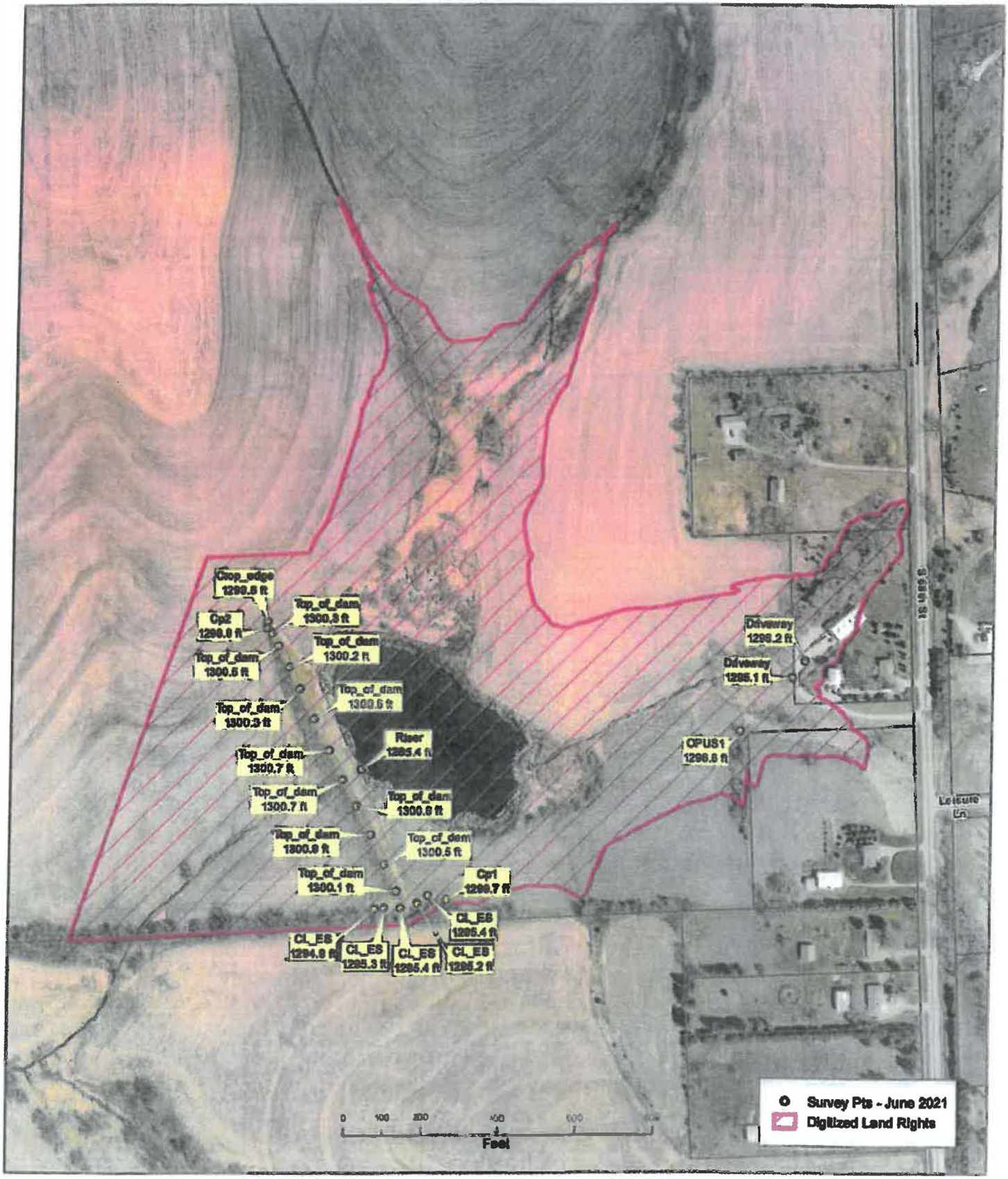
# Upper Salt 1-A Easement (E210807.001, 1953) + Amendment (E210807.003, 1994)

## located in the S1/2 NE + N1/2 SE Sec 21, T8N-R7E, Lancaster Co.

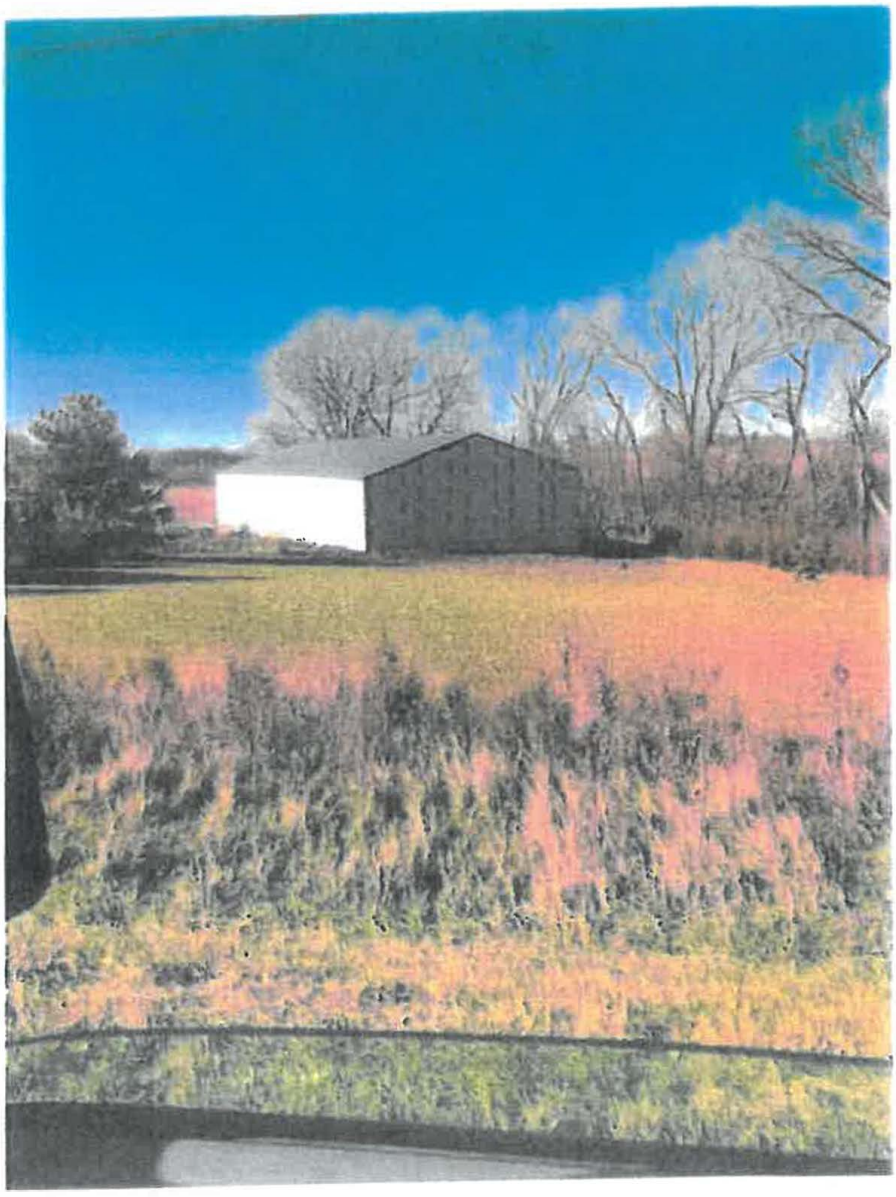



**Map Updated: May 2021 - By: Lower Platte South NRD, sdr**

**Upper Salt 1-A Easement (E210807.001, 1953) + Amendment (E210807.003, 1994)**
**located in the S1/2 NE + N1/2 SE Sec 21, T8N-R7E, Lancaster Co.**
**Survey Points - NRCS June 2021**




**Map Created: June 2021 - By: Lower Paitte South NRD, sdr**



# MEMO

TO: Water Resources Subcommittee

RE: Well Decommission Program Rate Increase

FROM: Maclane Scott, Water Resources Technician

Date: April 6, 2023

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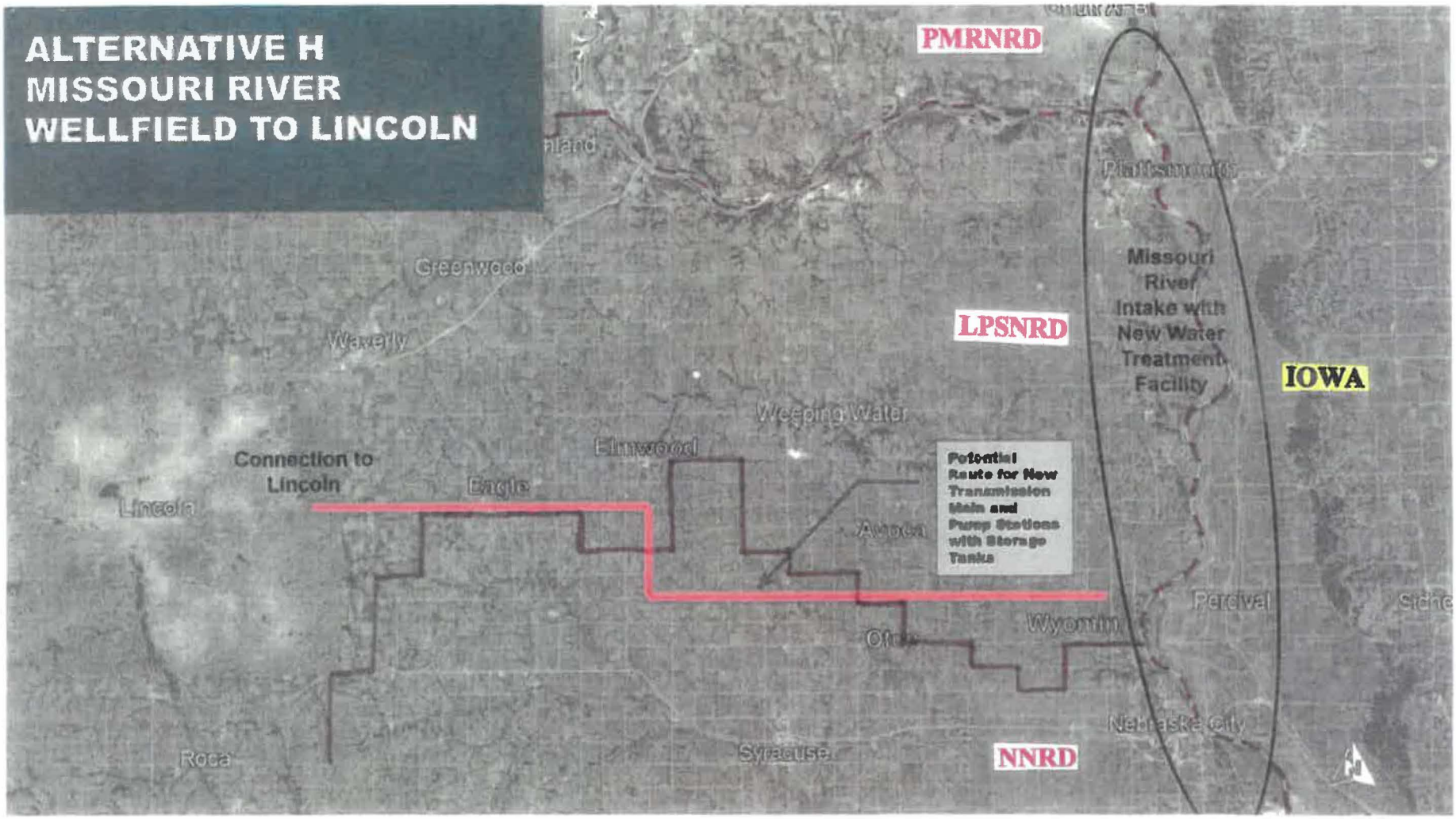
- Well decommissioning cost share program is an effort to get abandoned wells sealed up to prevent groundwater pollution. The district provides cost share assistance to well owners to help facilitate this process. The amount of assistance depends on several factors such as materials used and amount of pipe removed. Every application is given $195 for "well casing/pit removal" to help defray costs associated with labor charges.
- Costs for labor and equipment charges have grown over the past few years. In 2019, the average cost was $345. At the peak in 2021, the average cost was $733. The current rate of $195 falls short of the average cost in each of the last four years.
- Materials and pump pulling charges have stayed on par with our cost share rates.

**STAFF RECOMMENDED MOTION: The Water Resources Subcommittee recommends that the Board of Directors authorize a rate increase for the well decommissioning program "well casing/pit removal" cost share amount from $195 to $500.**


ALTERNATIVE H
MISSOURI RIVER
WELLFIELD TO LINCOLN
PMRNRD
LPSNRD
NNRD
IOWA
Missouri River Intake with New Water Treatment Facility
Connection to Lincoln
Potential Route for New Transmission Main and Pump Stations with Storage Tanks
Greenwood
Waverly
Weeping Water
Elmwood
Eagle
Lincoln
Avoca
Wyoming
Percival
Nebraska City
Syracuse
Roca

**46-655.01. Public water supplier; notice of intent to consider wellfield; contents; effect; termination.**

(1) A public water supplier as defined in section 46-638 may obtain protection for a public water supply wellfield from encroachment from other water wells by filing with the Department of Natural Resources a notice of intent to consider a wellfield. The notice of intent shall include:

(a) The legal description of the land being considered as a public water supply wellfield; and

(b) Written consent of the owner of the land considered for a public water supply wellfield, allowing the public water supplier to conduct an evaluation as to whether such land is suitable for a public water supply wellfield.

(2) A notice of intent filed under this section shall be limited to a contiguous tract of land. No public water supplier shall have more than three notices of intent under this section on file with the department at any one time.

(3) A notice of intent filed under this section shall expire one year after the date of filing and may be renewed for one additional year by filing with the department a notice of renewal of the original notice of intent filed under this section before expiration of the original notice of intent.

(4) At the time a notice of intent or a notice of renewal is filed with the department, the public water supplier shall:

(a) Provide a copy of the notice of intent or notice of renewal to the owners of land falling within the spacing protection provided by subdivision (5)(a) of this section pursuant to the notice;

(b) Provide a copy of the notice to the natural resources district or districts within which the land being considered for a wellfield is located; and

(c) Publish a copy of the notice in a newspaper of general circulation in the area in which the wellfield is being considered.

(5)(a) Except as provided in subdivisions (b) and (c) of this subsection, during the time that a notice of intent under this section is in effect, no person may drill or construct a water well, as defined in section 46-601.01, within the following number of feet of the boundaries of the land described in the notice of intent, whichever is greater:

(i) One thousand feet; or

(ii) The maximum number of feet specified in any applicable regulations of a natural resources district that a well of a public water supplier must be spaced from another well.

(b) Any person who, at least one hundred eighty days prior to filing a notice of intent, obtained a valid permit from a natural resources district to drill or construct a water well within the area subject to the protection provided by this section is not prohibited from drilling or constructing a water well.

(c) The public water supplier may waive the protection provided by this section and allow a person to drill or construct a new or replacement water well within the area subject to the protection provided by this section.

(6) Within thirty days after the public water supplier reaches a determination that the land described in a particular notice of intent is not suitable for a public water supply wellfield, the public water supplier shall notify the Department of Natural Resources, all affected natural resources districts, the owner of the land described in the notice of intent, and the owners of all land falling within the spacing protection provided by subdivision (5)(a) of this section pursuant to the notice of intent of such determination. Upon receipt by the department of the notice of such determination, the notice of intent that contains the description of such tract of land shall terminate immediately, notwithstanding any other provision of this section.

**Source:** Laws 2004, LB 962, § 40; Laws 2006, LB 1226, § 16.

# WATER USE SPREADSHEET

## West Block (Under allocation)

| No Allocation | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Year** | Rainfall | Total Wells Pumped | < 3 inches | 3-5 inches | 5-7 inches | 7-9 inches | > 9 inches | Average Pumped (in.) |
| **2012** | 0.63 | 49 | 5 | 4 | 6 | 13 | 21 (4 gravity, 17 pivots) | 7.38 |
| **2013** | 2.11 | 63 | 2 | 7 | 21 | 17 | 16 (6 gravity, 10 pivots) | 6.93 |
| **2014 DVB Special Management Area Rules take effect (3-Year Allocation)** | | | | | | | | |
| **Year** | Rainfall | Total Wells Pumped | < 3 inches | 3-5 inches | 5-7 inches | 7-9 inches | > 9 inches (Gravity) | Average Pumped (in.) |
| **2014** | 8.05 | 64 | 22 | 38 | 2 | 1 | 1 | 3.18 |
| **2015** | 6.71 | 64 | 43 | 18 | 2 | 0 | 1 | 2.39 |
| **2016** | 8.50 | 66 | 33 | 22 | 10 | 0 | 1 | 3.08 |
| **January 1, 2017 Revised DVB SMA Rules (46 irrigation wells (34 pivots, 12 gravity) subject to another 3-Year Allocation)** | | | | | | | | |
| **Year** | Rainfall | Total Wells Pumped | < 3 inches | 3-5 inches | 5-7 inches | 7-9 inches | > 9 inches (Gravity) | Average Pumped (in.) |
| **2017** | 9.37 | 41 | 19 | 21 | 6 | 0 | 0 | 3.02 |
| **2018** | 5.70 | 35 | 29 | 5 | 1 | 0 | 0 | 1.36 |
| **2019** | 6.87 | 36 | 26 | 9 | 0 | 1 | 0 | 1.87 |
| **January 15, 2020 Revised DVB SMA Rules (46 irrigation wells (34 pivots, 12 gravity) rolling 21 inch 3-Year Allocation for all wells)** | | | | | | | | |
| **Year** | Rainfall | Total Wells Pumped | < 3 inches | 3-5 inches | 5-7 inches | 7-9 inches | > 9 inches (Violation) | Average Pumped (in.) |
| **2020** | 7.00 | 38 | 4 | 15 | 13 | 5 | 1 | 4.30 |
| **2021** | 5.06 | 40 | 25 | 15 | 0 | 0 | 0 | 2.23 |
| **2022** | 3.12 | 42 | 2 | 9 | 17 | 13 | 1 | 5.48 |

## East Block (No allocation)

| Removed Required Allocation for 25 Irrigaiton wells (23 pivots, 2 gravity systems) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Year** | Rainfall | Total Wells Pumped | < 3 inches | 3-5 inches | 5-7 inches | 7-9 inches | > 9 inches | Average Pumped (in.) |
| **2017** | 9.37 | 23 | 15 | 8 | 2 | 0 | 0 | 2.58 |
| **2018** | 5.70 | 18 | 17 | 1 | 0 | 0 | 0 | 0.92 |
| **2019** | 6.87 | 22 | 16 | 5 | 1 | 0 | 0 | 2.20 |
| **2020** | 7.00 | 24 | 9 | 11 | 2 | 1 | 1 | 3.57 |
| **2021** | 5.06 | 23 | 17 | 3 | 3 | 0 | 0 | 2.38 |
| **2022** | 3.12 | 24 | 6 | 8 | 6 | 4 | 0 | 4.44 |

WATER STRATEGIES LLC
4 E Street SE, Washington, DC 20003 • (202) 698-0690 phone • (202) 698-0694 fax

**DATE:** March 17, 2023

**MEMORANDUM**

**TO:** Paul Zillig, Lower Platte South Natural Resources District
**FROM:** Water Strategies, LLC
**SUBJECT:** PFAS Update

## Background

Per- and polyfluoroalkyl substances (PFAS) are a group of manufactured chemicals (previously known as PFCs) that have been used in products since the mid-20th century due to their enhanced water, grease, and stain-resistant properties. Perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorohexane sulfonate (PFHxS) belong to this group of chemicals. Commonly referred to as "forever chemicals", they are very stable and have an extremely long environmental half-life.

Following the establishment of the Environmental Protection Agency's (EPA) PFOA Stewardship Program, certain PFASs are no longer manufactured in the U.S. after eight major chemical manufacturers agreed to eliminate the use of PFOA and PFOA-related chemicals in their products and emissions. Although they are no longer manufactured in the U.S., they are still produced internationally and are imported into the U.S. in products such as carpet, clothing, fabrics, paper food packaging, cookware, coatings, rubber, and plastics.

Beginning in 2009, the EPA first published provisional health advisories for PFOA and PFOS. In November 2016, the EPA published a non-enforceable fact sheet entitled "PFOA and PFOS Drinking Water Health Advisories" to provide technical information on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. Then in June 2022, the EPA issued interim updated drinking water health advisories to replace the 2016 fact sheet which significantly lowered their safe threshold levels for drinking water.

In March 2021, the EPA announced that it would develop national drinking regulations for PFOA and PFOS. Then on December 27, 2021, the EPA published a final rule which requires certain public water systems to conduct monitoring for 29 PFAS compounds. The regulation became effective on January 26, 2022.

## EPA's Proposed Regulation

On March 14, 2023, the EPA announced that it is proposing a National Primary Drinking Water Regulation (NPDWR) that, if finalized, would regulate PFOA and PFOS as individual contaminants and would regulate four other PFASs – PFNA, PFHxS, PFBS, and GenX Chemicals – as a mixture. Specifically, the NPDWR proposal would regulate PFOA and PFOS at a level they can be reliably measured at 4 parts per trillion and would limit any mixture containing one or more PFNA, PFHxS, PFBS, and GenX Chemicals.

If finalized, the proposed regulation would require public water systems to monitor for these chemicals and require them to notify the public and take measures to reduce PFAS contamination if levels exceed the proposed regulatory standards.

Drinking water systems will have three years to comply once the rule is finalized. Once the proposed rule is published in the Federal Register, there will be a 60-day public comment period.

The proposed NPDWR is available here:

https://www.epa.gov/system/files/documents/2023-03/Pre-Publication%20Federal%20Register%20Notice_PFAS%20NPDWR_NPRM_Final_3.13.23.pdf

The EPA is requesting input from stakeholders on the proposed NPDWR. Comments can be submitted through the public docket EPA-HQ-OW-2022-0114 which available here:

https://www.regulations.gov/docket/EPA-HQ-OW-2022-0114

Additionally, the EPA's Office of Enforcement and Compliance Assurance (OCEA) is holding a public listening session on the enforcement policy to receive individual input related to concerns about potential liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The input received will be reviewed and considered by EPA in drafting a CERCLA per PFAS enforcement discretion and settlement policy to the extent that PFAS cleanup enforcement efforts occur under CERCLA.

The listening session will take place on Thursday, March 23, 2023, from 10:00 AM to 12:00 PM ET. Registration will be required to attend and can be completed through the following link:

https://www.eventbrite.com/e/cercla-pfas-enforcement-listening-session-march-23-2023-tickets-547891507247

To share remarks during the listening session, participants must pre-register to speak by 5:00 PM on Thursday, March 20, 2023. Written remarks can be submitted until March 31, 2023, through the following link:

https://www.epa.gov/enforcement/forms/contact-us-about-cercla-pfas-enforcement-listening-sessions

*Should you have any questions or want additional information, please feel free to contact our office by phoning (202) 698-0690 or Kris Polly directly at (703) 517-3962. We can also be contacted by e-mail at kris.polly@waterstrategies.com.*

# *Village of Malcolm*

137 East 2nd Street
PO Box 228
Malcolm, Nebraska 68402
(402) 796-2250


April 5th, 2023

Mr. Paul Zillig
General Manager, Lower Platte South NRD
3125 Portia St
Lincoln, NE 68521

RE: Malcolm Aquifer Analysis - 2023
Source Water Protection Project Cost-share Request

Mr. Zillig:
Groundwater quantity concerns around Malcolm and northwest Lancaster County have been present for some time but recently became more of a concern when the Nebraska Rural Water Association and Nebraska Department of Environmental Quality (NDEQ) assisted in updating the Village of Malcolm's (Village) Wellhead Protection Area. During the update in 2018, the NDEQ expressed concern with the ability of the aquifer that supplies the Village's wells to support future growth in the community. Citizens have continuously expressed concerns about the availability of groundwater in the aquifer, especially as development has been proposed. This project is not tied to the actual wells, or any infrastructure in the community.

In response, the Village plans to complete the Malcolm Aquifer Analysis (Analysis). The goal would be to define the extent and supply of the aquifer currently providing water to the Village by completing an aquifer pump test, aquifer analysis report, and establishing a Wellhead Protection Plan, to be approved by the Nebraska Department of Environment and Energy's (NDEE). Other project elements include well decommissioning and offering water conservation tools to the public. The Analysis will leverage information from Lower Platte South Natural Resources District's (LPSNRD) 3D AEM and Hydrogeologic Framework, after its completion in 2023.

The Village is submitting a grant application to the NDEE's Source Water Protection Program by June 1, 2023, seeking $56,600, and plans to contribute $6,500 in cash as a match. On behalf of the Village Board of Trustees, I am requesting a match of our cash share in the same amount from LPSNRD. We look forward to working with LPSNRD and will share all beneficial hydrogeologic data obtained with your staff to benefit your future groundwater projects. If you have any questions, please contact the Village Office at 402-796-2250 or email clerk@malcolm.ne.gov.

Sincerely,

Jerad Little
Village Board Chairman

# MALCOLM AQUIFER ANALYSIS PROJECT & GRANT OVERVIEW

**Lower Platte South NRD – Water Resources Subcommittee**
**April 11th, 2023, 5:00PM**

## PROJECT UNDERSTANDING

- The goal would be to:
  - Define the extent and supply of the aquifer currently providing water to the Village
  - Leverage data from Lower Platte South Natural Resources District's (LPSNRD) Hydrogeologic Framework to benefit local water management decisions
  - Evaluate the risk to the aquifer from drought
  - Verify the Wellhead Protection (WHP) Area and write a state approved WHP Plan
  - Decommission abandoned wells
  - Provide water conservation tools and education to the public

## PROJECT TASKS & PRELIMINARY COST

### Task 1 – Project Management & Meetings

- Regular project management, kickoff meeting (1), Advisory Group meetings (2), public hearing (1) for approval of the WHP Plan.
- Assist the Village with grant reporting, coordination with NDEE, and public outreach.

### Task 2 – Aquifer Pump Test

- Pumping one municipal well for up to 48 hours, while recording changes in water levels in all three municipal wells.
- Provide a report on the aquifer pump test and define aquifer boundaries and forecast changes in the aquifer with additional pumping to meet future projected demands.
- Share pump test data with LPSNRD to benefit future groundwater modeling projects.

### Task 3 – Aquifer Analysis Report

- Would utilize LPSNRD's Hydrogeologic Framework and the pump test to map productivity of the regional aquifer (~two miles surrounding Malcolm).
- Provide a detailed report to Malcolm and LPSNRD.

### Task 4 – Wellhead Protection Plan

- Establishment of a state approved, WHP Plan that includes:
  - Utilizing of the recently updated Wellhead Protection Area
  - Potential Contaminant Source Inventory
  - Contaminant Source Management
  - Emergency, Contingency, and Long-Term Planning
  - Public Education and Participation

## GRANT PROCESS

- NDEE is accepting Source Water Protection grant applications, due June 1, 2023.
- Village Board to provide a letter of request to LPSNRD after the 4/5/2023 meeting
- Attend the NRD's Water Committee meeting April 11th at 5PM, if approved, proceed with grant submittal.
- LRE Water to work with Miller & Associations (Village Engineer)

# MALCOLM AQUIFER ANALYSIS PROJECT & GRANT OVERVIEW

**Lower Platte South NRD – Water Resources Subcommittee**
**April 11th, 2023, 5:00PM**

**Table 1: Funding Breakdown**
**MALCOLM SOURCE WATER BUDGET 2023**

| ACTIVITY | ESTIMATED COST | GRANT FUNDS | MATCH AMOUNT | MATCH SOURCE |
|---|---|---|---|---|
| | | | | |
| **PERSONNEL** | | | | |
| Village Labor | $ - | $ - | $ - | N/A |
| NRD Labor | $ - | $ - | $ - | N/A |
| Total Personnel | $ - | | $ - | N/A |
| | | | | |
| **IMPLEMENTATION** | | | | |
| Low Flow Shower Heads (20, $20 ea.) | $400 | $400 | | |
| Dye Tablets (100, $10 for 20 tablets) | $100 | $100 | | |
| Rain Gauge (30, $20 ea.) | $600 | $600 | | |
| Handheld Outdoor Nozzles (25 total, $25 ea.) | $500 | $500 | | |
| Well Decommissioning (6, $3,000 ea.) | $12,000 | $3,000 | $9,000 | NRD Program |
| **Implementation Total** | **$13,600** | $4,600 | $9,000 | |
| | | | | |
| **CONTRACTUAL** | | | | |
| PM/Meetings | $13,000 | $11,000 | $2,000 | Village |
| Aquifer Pump Test | $20,000 | $18,000 | $2,000 | Village |
| Aquifer Analysis | $15,000 | $12,500 | $2,500 | Village |
| Wellhead Protection Plan | $17,000 | $10,500 | $6,500 | NRD Cash |
| **Total Contractual** | **$65,000** | $52,000 | $13,000 | |
| | | | | |
| **TOTAL PROJECT** | **$78,600** | $56,600 | $22,000 | |
| PERCENT OF TOTAL | | 72% | 28% | |

# MALCOLM AQUIFER ANALYSIS PROJECT & GRANT OVERVIEW

**Lower Platte South NRD – Water Resources Subcommittee**

**April 11th, 2023, 5:00PM**