

UPPER BIG BLUE NATURAL RESOURCES DISTRICT
REQUEST FOR PROPOSALS (RFP 2026-007)
BRUCE L. ANDERSON RECREATION AREA – RECHARGE LAKE
SEDIMENT RETENTION SYSTEM DESIGN

Contents

1. INTRODUCTION
2. EXAMINATION OF REQUEST FOR PROPOSAL DOCUMENTS AND EXPLANATION TO OFFEROR
3. LIST OF EXHIBITS INCLUDED IN RFP 2026-006
4. AMENDMENTS TO REQUEST FOR PROPOSAL
5. PREPARATION COST
6. PRICING CONDITIONS
7. PAYMENT TERMS
8. RIGHT OF ACCEPTANCE
9. PROPOSAL EVALUTION CRITERIA
10. SUBMITTAL OF PROPOSAL
11. AWARD OF SUBCONTRACT
12. NOTICE OF SUCCESSFUL OFFEROR
13. NOTICE TO UNSUCCESSFUL OFFEROR



Bruce L. Anderson Recreation Area (Recharge Lake)

Sediment Retention System Design

1. INTRODUCTION

This Request for Proposal (RFP) is issued by the Upper Big Blue Natural Resources District, CONTRACTOR; to solicit proposals for developing design construction specifications with an engineering estimate for a sediment retention system at the upper end of Recharge Lake, which is located approximately 1 mile west of York in York County, Nebraska.

Proposal is based on a June 2024 Water Quality Improvement Study for Bruce A. Anderson Recreation Area – Recharge Lake.

Recharge Lake is located in the Southeast Quarter Section 34 and the Southwest Quarter Section 35, of Township 1 North, Range 13 West, and the Northeast Quarter of Section 3, Township 10 North, Range 3 West, North Half of Section 2, Township 10 North, Range 3 West of the 6th p.m. in York County, Nebraska. The area is located approximately 1 mile west of York, Nebraska (address is 1114 Recharge Road, York, Nebraska). (See Exhibits C-1, C-2, C-3, and C-4).

Recharge Dam was constructed on a tributary of Beaver Creek in 1990. The project was designed to provide flood control, aquifer recharge, wildlife habitat, and recreation opportunities. The project features a 44-surface acre lake that can store 310 acre feet of water, with room for an additional 656 acre feet of flood storage. The lake's water source is supplied by rainfall from a 7,616 acre drainage area.

The crest of the dam is 14.0 feet wide with a crest elevation of 1626.4 feet. The dam has a 75 foot wide concrete spillway with a crest elevation of 1618.0 feet located near the center of the dam. The dam also has a 250 foot wide grass auxiliary spillway located at the east end of the dam with a control section elevation of 1623.0.

Existing facilities at Bruce L. Anderson Trails Recreation Area include a boat ramp with dock, an ADA accessible fishing dock, an amphitheater overlooking the lake, picnic shelters, a flush restroom, two vault restrooms, a RV camping area, a dump station, a tent camping area, grills, a playground, and a hiking trail around the lake. A 14-acre archery range is located at the west end of the recreation area.

The NRCS performed a bathymetric survey of Recharge Lake in 2018. The Flatwater Group performed a bathymetric and sediment depth survey in March of 2024. Sediment depths of 0.2 to 2.3 feet were measured in the upper limits of the reservoir and in the sediment basin upstream of Road K. Comparisons of this 2024 and 2018 surveys estimated roughly 21,400 cy of accumulation of 6 years, which equates to 4,200 tons/year of sediment loading.



As estimate of the volume of sediment accumulated in the reservoir since construction in 1990 found that roughly 134,000 cy of sediment has accumulated over 34 years. This equates to approximately 4, 650 tons/year. The WQMP estimated the amount of accumulated sediment of 6,040 tons/year.

The Near Lake Detention Ponds concept resulted in the highest predicted reductions of total phosphorus (17,549 lbs/yr), reduction of total nitrogen (13,128 lbs/year) and sediment (3,762 tons/year).

This RFP is to complete design construction specifications along with an engineering cost estimate for portions of Alternative 2, The Flatwater Group Concept, which includes the Near Lake Detention Ponds and the In-Lake Wetlands.

The design life of alternative 2 near lake detention ponds before maintenance was estimated based on sediment accumulation versus available capacity. Available capacity is 16 ac-ft for Alternative 2. The amount of time anticipated before first maintenance was estimate as 18 years for Alternative 2, which accounts for accumulation in both the detention ponds and in-lake wetlands. Subsequent maintenance periods are every 12 years for alternative 2. Sediment accumulation amounts will fluctuate from year to year, depending on annual precipitation.

2. EXAMINATION OF REQUEST FOR PROPOSAL DOCUMENTS AND EXPLANATION TO OFFEROR

Should the OFFEROR find discrepancies in, or omissions from the RFP, or should the intent or meaning appear unclear or ambiguous, or should any other questions arise relative to the RFP, the OFFEROR shall notify CONTRACTOR by December 26, 2025, via e-mail to dtenbensel@upperbigblue.org. The OFFEROR making such a request solely will be responsible for its timely receipt by the CONTRACTOR. Replies to such notices will be addressed within 2 working days of receipt by the CONTRACTOR. If the request(s) require changes to the original RFP, then an amendment to the RFP will be issued to all prospective OFFERORs and shared via <https://www.upperbigblue.org/about/bid-proposals>. As reviewed by the CONTRACTOR, if a request(s) is deemed significant, the CONTRACTOR at their discretion may extend the closing date of the RFP.

3. EXHIBITS INCLUDED IN RFP 2026-0007

Exhibit A – Schedule of Events

Exhibit B – Project Background, Scope of Work

Exhibit C – Bruce L. Anderson Recreation Area – Location Maps

C-1 York County

C-2 Bruce Anderson Recreation Area

Exhibit D – Recharge Lake Water Quality Improvement Study

Exhibit D-1 – Recharge Lake Water Quality Improvement Study - Cover

Exhibit D-2 – Recharge Lake WQ Improvement Study – Alternatives

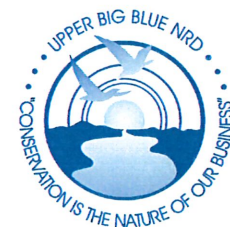


Exhibit D-3 – Recharge Lake WQ Improvement Study – Alternatives Cost Estimates

Exhibit D-4 – Recharge Lake WQ Improvement Study – Water Depth Map

Exhibit D-5 – Recharge Lake WQ Improvement Study – Topography Map

Exhibit D-6 – Recharge Lake WQ Improvement Study – Sediment Depth Map

Exhibit D-7 – Recharge Lake WQ Improvement Study – Concept Design Map

Exhibit E – Listing of Links to Study Materials & Photos

Exhibit F – Recharge Lake – Sediment System Retention Design - Contractor's Quote - Schedule of Values

4. AMENDMENTS TO REQUEST FOR PROPOSAL

If this RFP is amended, all terms and conditions that are not modified remain unchanged. The term "RFP" includes all exhibits and amendments provided by the OFFEROR as part of this RFP.

5. PREPARATION COST

The preparation of the proposal shall be by, and at the expense of, the OFFEROR.

6. PRICE CONDITIONS

The quoted price must include all costs to the CONTRACTOR for all supervision, labor, tools, supplies, materials, equipment, transportation, testing, and any other miscellaneous for full and complete performance of the work as set forth herein.

Pricing will be guaranteed for 90 days from submission of proposal. All pricing information requested in this RFP must be provided. Costing/Pricing by details must be broken down by labor, materials, etc. CONTRACTOR reserves the right to require the OFFEROR to furnish an accounting breakdown of all contract prices.

7. PAYMENT TERMS

CONTRACTOR payment terms are net 30 days upon receipt of invoice, subject to approval by the Upper Big Blue Natural Resources District Board of Directors.

8. RIGHT OF ACCEPTANCE

CONTRACTOR reserves the right to:

- Accept or reject any proposal in whole or in part.
- Reject all proposals, with or without, notice or reason.
- Enter into discussions or negotiations with OFFEROR prior to award. Negotiations do not constitute an acceptance of the proposal, nor rejection of the proposal, nor a counteroffer by the CONTRACTOR.
- Abandon the work or have the work performed in such a manner as CONTRACTOR may elect, if no proposal is accepted.
- Reduce the amount of sediment to be removed based on bid item and available funding.
- Adjust/increase the amount of sediment to be removed based on bid item and available funding, if agreed to be the selected OFFEROR.



9. PROPOSAL EVALUATION CRITERIA

While the CONTRACTOR intends to engage in the purchase of services, this event shall not guarantee that the participating OFFEROR will be awarded a Subcontract.

Any award resulting from this request will be made to the OFFEROR whose proposal provides the best value to CONTRACTOR. The best value determination will be at the sole discretion of CONTRACTOR and could result in an award to someone other than the lowest price proposal. Any resulting purchase award will be set forth in writing between the CONTRACTOR and the successful OFFEROR at some date after the close of the request. CONTRACTOR reserves the option to cancel this RFP process at a time and/or to elect not to engage in a Subcontract.

The OFFEROR must provide all data required in order to be considered an acceptable OFFEROR. All data must be executed completely, correctly, and accurately by the OFFEROR. Should the OFFEROR not complete all forms and documents, the OFFEROR will be deemed non-responsive.

This RFP will be evaluated based on the following criteria. OFFERORs are reminded the Subcontract will be awarded for best value with technical ability having 50% of the weighted percentage.

Criteria	Weighted Percentage (%)
Technical Ability Experience Project Plan Schedule	50%
Cost	50%
Total	100%

10. SUBMITTAL OF PROPOSAL

OFFEROR's proposal must be submitted with

- Past similar project experience,
- Project Lead and Project Team
- Estimated project schedule (**Project completion by June 12, 2026**).
(See Exhibit A – Schedule of Events)
- Detailed cost estimate: Please utilize the attached Schedule of Values.
(see Exhibit F – Recharge Lake – Sediment System Retention Design – Contractor's Quote – Schedule of Values)
- Listing of Subcontractors if applicable.
- **Proposals must be received by the CONTRACTOR by 3:00 p.m. CST. on Tuesday, January 6, 2025.**
- Proposals should be submitted via hand delivery, USPS, or E-mail to:

Upper Big Blue Natural Resources District
Attn: Drew ten Bensel
319 East 25th Street
York, NE 68467



Or emailed to:

dtenbensel@upperbigblue.org

11. AWARD OF SUBCONTRACT

CONTRACTOR contemplates award of a Subcontract in accordance with the requirements and conditions set forth or incorporated by reference in this RFP.

Proposals for other than the total work defined may be rejected. The Award may not be made to any OFFEROR who has not responded to all instructions and representations indicated in the RFP.

CONTRACTOR may reject any or all proposals if such action is in the best interest of CONTRACTOR and their PARTNERS and/or waive informalities and minor irregularities in offers received.

CONTRACTOR and their PARTNERS may evaluate proposals and the CONTRACTOR award a Subcontract without discussions with OFFEROR. Therefore, each initial proposal should contain the OFFEROR's best terms.

CONTRACTOR reserves the right to conduct discussions, if later determined to be necessary by CONTRACTOR's Subcontract Administrator and Project Lead.

The OFFEROR agrees, if the proposal is accepted within the number of days allowed, to furnish all items upon which prices are offered, at the set price opposite each item, at the designated point(s) within the time specified in the schedule.

12. NOTICE TO SUCCESSFUL OFFEROR – W-9 Verification, Certificate of Liability Insurance

CONTRACTOR will require any successful OFFEROR to supply a W-9 form (Request for Taxpayer Identification Number and Certification and a Certificate of Liability Insurance.

13. NOTICE OF UNSUCCESSFUL OFFEROR

The OFFEROR will be informed whether the proposal was successful using a method deemed adequate by the CONTRACTOR.



Exhibit A
SCHEDULE OF EVENTS

Event	Date
Opening Date	December 15, 2025
Omissions and/or Questions	December 26, 2025
Closing Date	January 6, 2026
Evaluation Period	January 6-8, 2026
Anticipated Subcontract Award	January 16, 2026
Notice to Proceed	January 16, 2026
Project Completion, Final Report	June 12, 2026



Exhibit B

BACKGROUND & SCOPE OF WORK

Project Background

Recharge Lake is located in the Southeast Quarter Section 34 and the Southwest Quarter Section 35, of Township 1 North, Range 13 West, and the Northeast Quarter of Section 3, Township 10 North, Range 3 West, North Half of Section 2, Township 10 North, Range 3 West of the 6th p.m. in York County, Nebraska. The area is located approximately 1 mile west of York, Nebraska (address is 1114 Recharge Road, York, Nebraska). (See Exhibits C-1 and C-2).

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Existing facilities at Bruce L. Anderson Trails Recreation Area include a boat ramp with dock, an ADA accessible fishing dock, an amphitheater overlooking the lake, picnic shelters, a flush restroom, two vault restrooms, a RV camping area, a dump station, a tent camping area, grills, a playground, and a hiking trail around the lake. A 14-acre archery range is located at the west end of the recreation area.

Water Quality Management Plan

In March of 2020, with technical assistance from the Nebraska Department of Environmental Quality (now the Nebraska Department of Environment and Energy (NDEE)), the Upper Big Blue NRD completed a District-Wide Water Quality Management Plan (WQMP) to address issues and present solutions regarding nonpoint source pollution within the UBBNRD. This WQMP was prepared by JEO Consulting Group, Inc.

Through this NRD Wide WQMP, targeted implementation efforts to address sediment, nutrients, bacteria, and atrazine areas were selected. The targeted area selected was the Beaver Creek Watershed, with an emphasis on the Recharge Lake Watershed. The first implementation efforts were focused on improvements to the watershed above Recharge Lake, in-stream practices, and in-lake practices.



Detailed implementation plans were prepared to address the atrazine impairment on Beaver Creek and the nutrient impairment on Recharge Lake.

Load reduction for the targeted areas of Recharge Lake and Beaver Creek were Sediment, Phosphorus, Nitrogen, and Atrazine.

Bruce L. Anderson Recreation Area – Recharge Lake – Wate Quality Improvement Study

In June of 2024, the NRD contracted with The Flatwater Group (TFG) to conduct a water quality improvement study for the Bruce L. Anderson Recreation Area (Recharge Lake) to further evaluate Best Management Practices (BMPs) as identified in the 2020 WQMP and to provide a concept level construction cost opinion for implementation. Due to low participation in the upstream watershed BMP alternatives, in-lake treatment options outlined in the WQMP were evaluated in greater detail to address nutrient loading and sedimentation impairments.

In-lake treatments identified in the WQMP included

- Near-Lake Wet Detention Ponds
- In-Lake Wetlands
- Reservoir Deepening
- Island Stabilization

Additional in-lake BMPs identified by TFG in the improvement study were

- Floating Treatment Wetlands
- Jetties and Shoreline Stabilization
- Underwater Aquatic Habitat Structures
- North Tributary Sediment Basin

Scope of Work

This RFP is focused on completing design construction specifications along with an engineering cost estimate for two of the in-lake treatment alternatives identified in Alternative 1 (WQMP Concept) of the WQMP and further defined in Alternative 2 (TFG Concept) of the Recharge Lake Water Quality Improvement Study.

- Near-Lake Wet Detention Ponds
- In-Lake Wetlands

The suggested scope of work is below, and prospective consultants should suggest any proposed alterations to this scope of work.

The tasks and specific steps for this study include the following:

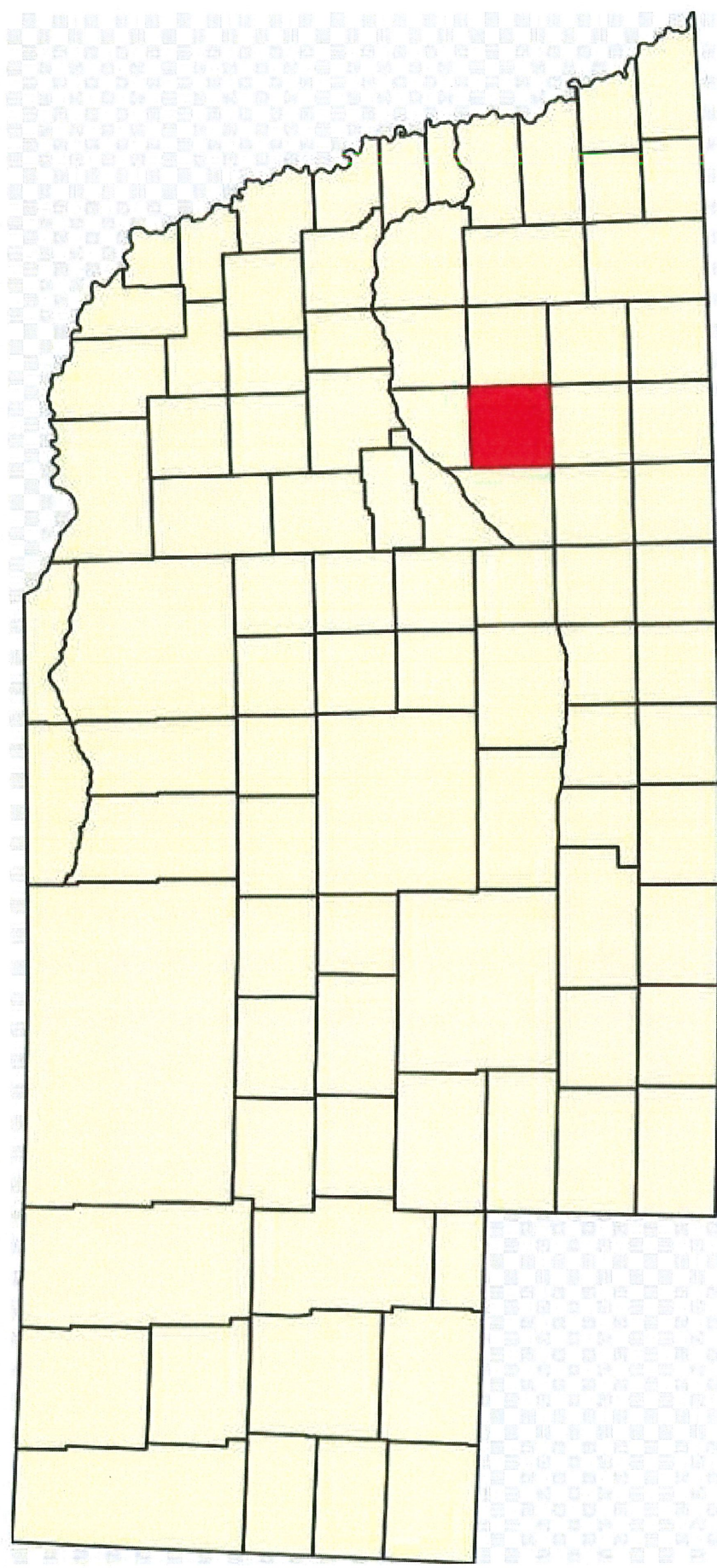
1. The OFFERER will evaluate and develop design construction specifications along with an engineering cost estimate to fit Alternative 2, the TFG Concept, from the UBBNRD Recharge Lake WQ Improvement Study (See Exhibits D-2, D-3, D-7)



2. Design shall include items as listed in the **Near-Lake Sediment Basin** Concept – designed to trap sediment and retain nutrient runoff from the watershed
 - a. Design should include earthen baffle structures (5) including new structures and enhancement of existing baffle structures, which will force water to flow over a longer distance, resulting in improved sediment and nutrient trapping performance.
 - b. Targeted excavation areas (8) to facilitate future maintenance
 - c. Weir overflow structure (1) constructed of rock riprap and/or articulated concrete block matting
3. Utilizing Alternative 2 as a guide, the OFFERER will design a wet pond in the upper limits of Recharge Lake, upstream and downstream of Road K. This design should enhance the existing basic footprint to enhance water quality benefits.
4. Alternative 1 of the WQMP identified a constructed wet pond basin of 6 acres dedicated for primary sediment storage. Alternative 2 increased this complex to 8 acres based on site conditions, optimal placement of the overflow weir, and water quality improvement goals.
5. Alternative 1 Includes targeted excavation areas (4 feet deep) to facilitate future maintenance. Alternative 2 increases the operating depth to 0 to 8 feet.
6. **NOTE: The Floating treatment wetlands option should NOT be included in the Near-Lake Sediment Basin design included with this RFP.**
7. Design shall include items as listed in the **In-Lake Treatment Wetlands** Concept – located downstream of the Near-Lake Sediment Basin - designed to trap sediment becoming shallower over time to promote establishment of emergent wetland vegetation which will provide aquatic habitat and filter sediment and nutrient runoff. (See Exhibits D-2, D-3, and D-7)
8. Design should include expansion of the dedicated primary sediment storage of Alternative 1 of the WQMP which identified an In-Lake Wetland complex of 4.5 acres. Alternative 2 increases this complex to 8 acres based on site conditions, optimal placement of the overflow weir, and water quality improvement goals.
 - a. Includes a system of new and enhancement of existing earthen baffle structures (4) which force water to flow over a long distance, which improves sediment and nutrient trapping performance
 - b. Includes a weir overflow structure (1) constructed of rock riprap and/or articulated concrete block matting which will control the flow through this system.
 - c. No excavation is planned for the in-lake treatment wetlands area. Operating depths are 0 to 4 feet.
9. The OFFERER will provide a weekly update on the project progress to the UBBNRD.
10. **The OFFERER shall complete the work by close of business on June 12, 2026.**

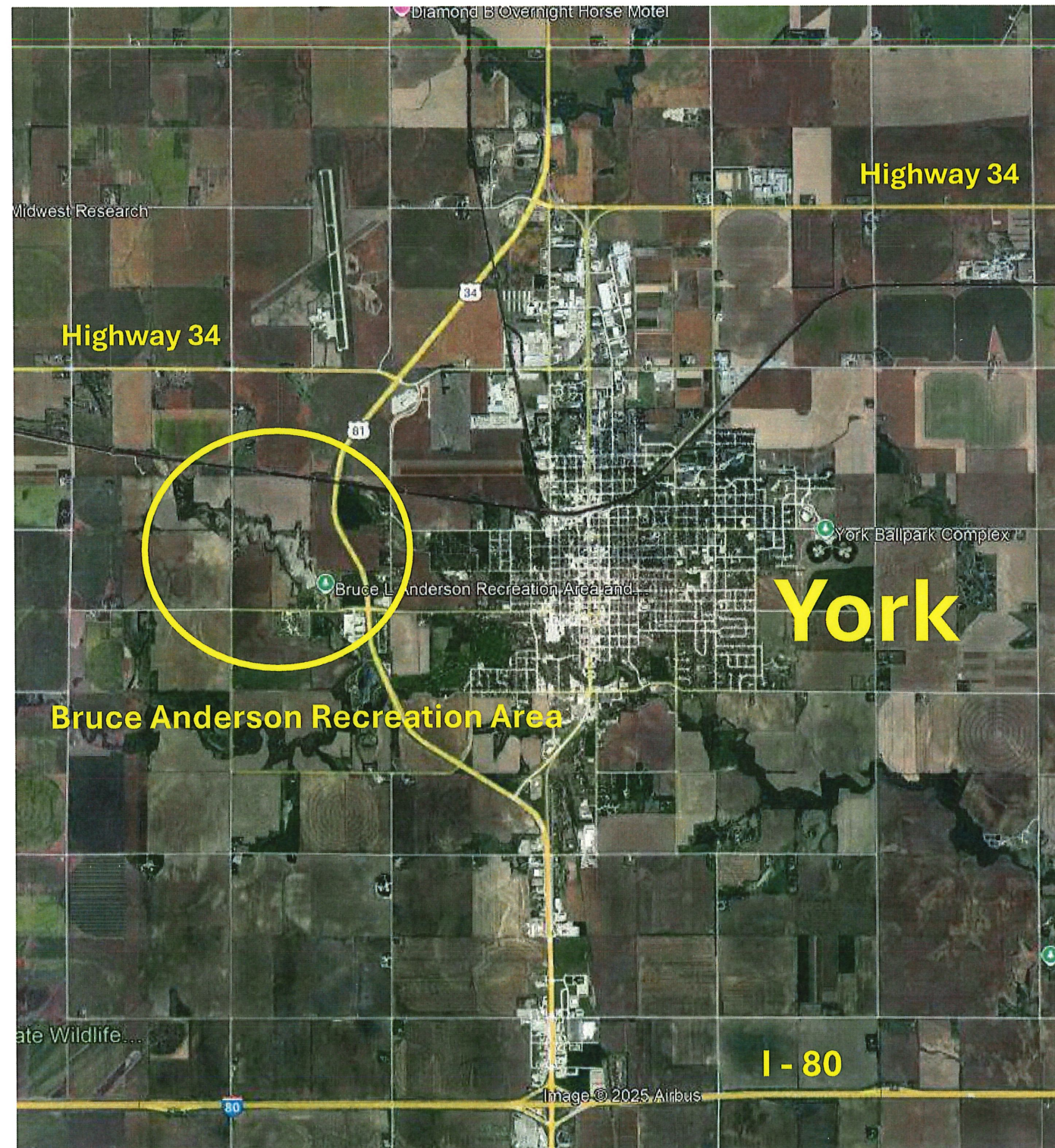


Exhibit C-1



York County, Nebraska

Exhibit C-2



**BRUCE A. ANDERSON
RECREATION AREA
RECHARGE LAKE**

WATER QUALITY IMPROVEMENT STUDY



7 JUNE 2024

PREPARED FOR:



**UPPER BIG BLUE
Natural Resources District**

PREPARED BY:



**THE
FLATWATER
GROUP INC.**

BMP Alternatives Evaluation

The BMPs identified by the WQMP and through this study were evaluated for their effectiveness to improve water quality in Recharge Lake. Two Alternatives were considered for this analysis. Alternative 1 utilizes the general BMPs and areas from the WQMP, as shown in Figure 2. Alternative 2, as shown in attached Exhibit 4, was developed for this study to meet water quality goals stated in the WQMP and through this study.

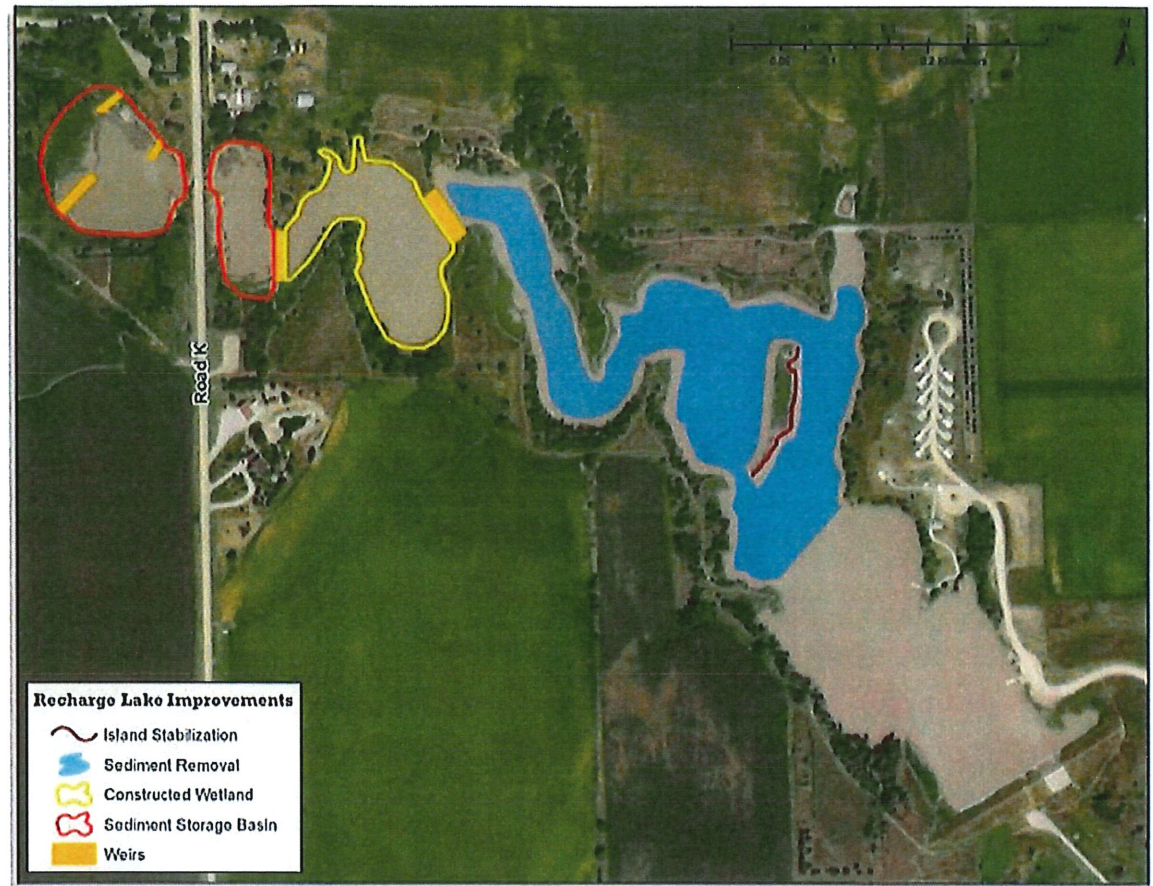


Figure 2. Conceptual In-Lake BMPs (Source: UBBNRD 2020 WQMP)

Near-Lake Wet Detention Pond – Step 1 of the Water Quality “Treatment Train”

- A wet pond removes sediment and nutrients through particle settling, and nutrient uptake can occur through biological activity (Figure 3). The WQMP BMPs propose the construction of a wet pond in the upper limits of Recharge Lake, upstream and downstream of Road K. The basic footprint already exists but would need to be enhanced to provide water quality benefits.
- The WQMP, Alternative 1, identified a constructed wet pond basin with 6 acres dedicated for primary sediment storage. Alternative 2 increased this complex to 8 acres based on site conditions, optimal placement of the overflow weir, and water quality improvement goals.

- BMP includes targeted excavation areas (4ft deep) to facilitate future maintenance. This excavation increases the operating depth to 0 to 8 ft.
- Earthen baffle structures force water to flow over a long distance, which improves sediment and nutrient trapping performance.
- Flow through the BMP is controlled by a weir overflow structure constructed of rock riprap and/or articulated concrete block matting.

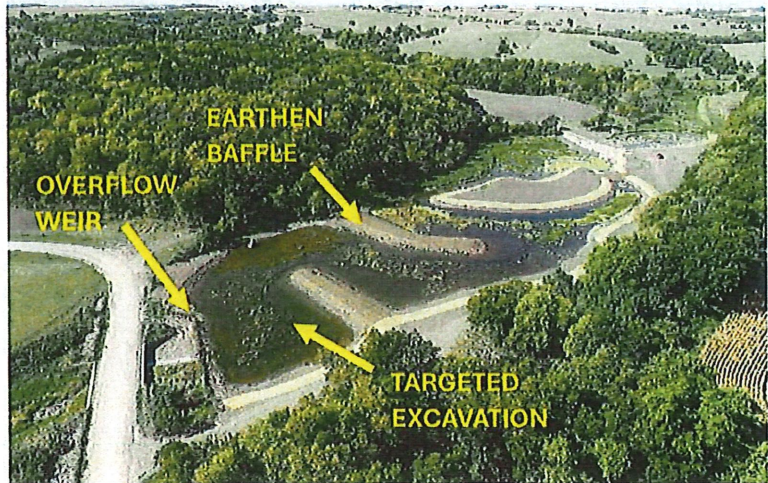


Figure 3.
Near-Lake Wet Detention Pond at
Summit Lake near Tekamah NE

Floating Treatment Wetlands – Step 2 of the Water Quality Treatment Train

- Floating treatment wetlands (FTW) could be implemented as an intermediate strategy to reduce nutrient loading and provide aquatic habitat for fish and insects.
- This BMP was not identified in the WQMP. Alternative 2 shows FTWs with a combined area of 13,000 sq-ft.
- FTWs could be employed immediately after the restoration project to establish emergent wetland vegetation, and then discontinued as the In-Lake Wetlands BMP (described below) becomes established.
- FTWs are typically 400 to 1,000 sq-ft in area and consist of a frame, matting material to hold plants, and about 1,000 plants (Figure 4). Plant roots are suspended in the water column below the FTW and absorb nutrients from the water body. The suspension allows FTWs to adapt to fluctuating water body depths.



Figure 4.
UNL Students assembling a floating treatment
wetland at Cooper YMCA in Lincoln NE

In-Lake Treatment Wetlands – Step 3 of the Water Quality “Treatment Train”

- The proposed In-Lake Wetland would be created downstream of the Near-Lake Detention Wet Pond. Emergent wetland vegetation would provide aquatic habitat and filter sediment and nutrient runoff (Figure 5).
- The WQMP, Alternative 1 identified an In-Lake Wetland complex of 4.5 acres. Alternative 2 increased this complex to 8 acres based on site conditions, optimal placement of the overflow weir, and water quality improvement goals.
- Flow through the BMP is controlled by a weir overflow structure constructed of rock riprap and/or articulated concrete block matting.
- Designed to trap sediment becoming shallower over time to promote establishment of emergent wetland vegetation - no excavation is planned for this area. Operating depths are 0 to 4 ft.
- Underwater baffles with native wetland vegetation plantings increase hydraulic retention times and promote recruitment of desired species to other areas as conditions allow.

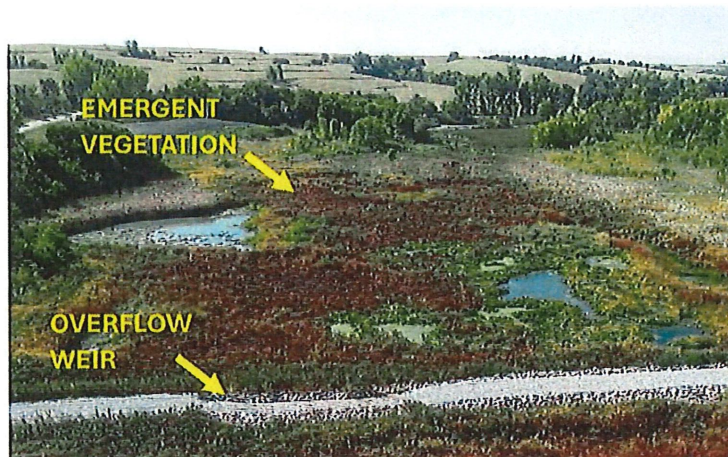


Figure 5.
In-Lake Treatment Wetland
at Summit Lake near Tekamah NE

Reservoir Deepening – Step 4 of the Water Quality “Treatment Train”

- As stated in the WQMP, sediment removal from Recharge Lake will reduce re-suspension, revive the lake’s capacity to attenuate nutrients, and reduce in-lake phosphorus that is attached to sediment particles. Excavation to increase the storage capacity by 20%. This goal was identified in UBBNRDs 2018 plan for the recreation area.
- The WQMP, Alternative 1 identified an excavation volume of 62 ac-ft to achieve the 20% goal. Alternative 2 meets the 20% goal with a reduced volume of 55 ac-ft. The upstream BMPs in Alternative 2 reduce the open water surface area by 5.5 acres, which has the added benefit of increasing the average depth in Recharge Lake with less excavation.
- The BMP includes excavation to achieve a depth of >12ft in 25% of the reservoir, which improves the fishery through better over-winter survivability and water quality.
- Deep water excavation areas (6ft) are targeted in areas with highest sediment thickness.
- Shallow water excavation areas (4ft) target sediment accumulation in the upper reservoir.

Exhibit D-3

Planning Level Cost Estimates

Opinions of construction cost were developed for Alternatives 1 and 2 for planning purposes. Table 5 provides a summary of the costs for each BMP component. For comparison, the total phosphorus, nitrogen and sediment reductions are included to evaluate the potential benefits of each BMP.

Table 5. Relative Cost Comparison of BMP implementation for Alternatives 1 and 2. Total phosphorus (TP), nitrogen (TN), and sediment treatment reductions for BMPs are included.

BMP Component	Alternative 1 WQMP Concept				Alternative 2 TFG Concept			
	Cost	TP	TN	Sediment	Cost	TP	TN	Sediment
		lbs/yr	lbs/yr	tons/yr		lbs/yr	lbs/yr	tons/yr
Near Lake Detention Ponds	\$869,000	(15,491)	(10,062)	(3,321)	\$1,079,000	(17,549)	(13,128)	(3,762)
Floating Treatment Wetlands	-	-	-	-	\$244,000	(585)	(1,950)	-
In-Lake Wetlands	\$309,000	(4,042)	(8,748)	(656)	\$309,000	(4,468)	(14,055)	(584)
Reservoir Deepening	\$2,053,000	(3,248)	-	-	\$1,821,000	(3,248)	-	-
Island Restoration ¹	\$149,000				\$149,000			
Shore-line Protection ²	-				\$648,000			
Aquatic Habitat Structures ³	-				\$65,000			
General Costs ⁴	\$338,000				\$432,000			
Construction Cost Total	\$3,718,000	(22,781)	(18,810)	(88,746)	\$4,747,000	(25,266)	(27,184)	(79,544)
30% Contingency	\$1,115,000				\$1,424,000			
Total + Contingency ⁵	\$4,833,000				\$6,171,000			

- 1) Island Restoration line-item cost is limited to shore-line protection only. Earthwork and seeding costs are accounted for under near lake detention ponds and reservoir deepening line items.
- 2) Shore-line Protection line item includes jetties and rock riprap shore-line armoring with a chip trail for angler access.
- 3) Aquatic Habitat Structure line item based on gravel / rock beds. Log structures and rubble piles generally use waste materials and have lower associated costs.
- 4) General Construction Costs include mobilization, erosion and sediment control, general site work, and haul road construction.
- 5) Typical engineering design cost is 10-12% and construction administration/observation is 5-7%.

Alternative 2 represents the high-end cost estimate to achieve water quality goals, improve aquatic habitat, and enhance angler access. To meet project budgets based on available funding, this alternative can be scaled back. Table 5 is intended to help guide project budget planning by showing each BMPs impact on nutrient reductions. Below are additional planning considerations:

- Cost for reservoir deepening is scalable based on volume of sediment removed.
 - Excavation volume is 62 ac-ft for Alternative 1 and 55 ac-ft for Alternative 2.
- The design life of the near lake detention ponds before maintenance was estimated based on sediment accumulation versus available capacity.
 - Available capacity is 12 ac-ft for Alternative 1 and 16 ac-ft for Alternative 2.

- The amount of time anticipated before first maintenance was estimated as 10 years for Alternative 1 and 18 years for Alternative 2, which accounts for accumulation in both the detention ponds and in-lake wetlands.
- Subsequent maintenance periods are every 7 years for Alternative 1 and 12 years for Alternative 2.
- Sediment accumulation amounts will fluctuate from year to year. Years with more precipitation will accumulate more sediment, while dry years will have less.

Water Level Management Recommendation

In discussions with UBBNRD staff, a higher quality fishery and better water clarity were observed when the reservoir conservation pool was managed at a higher elevation. Below are some potential benefits associated with groundwater pumping to maintain a higher conservation pool:

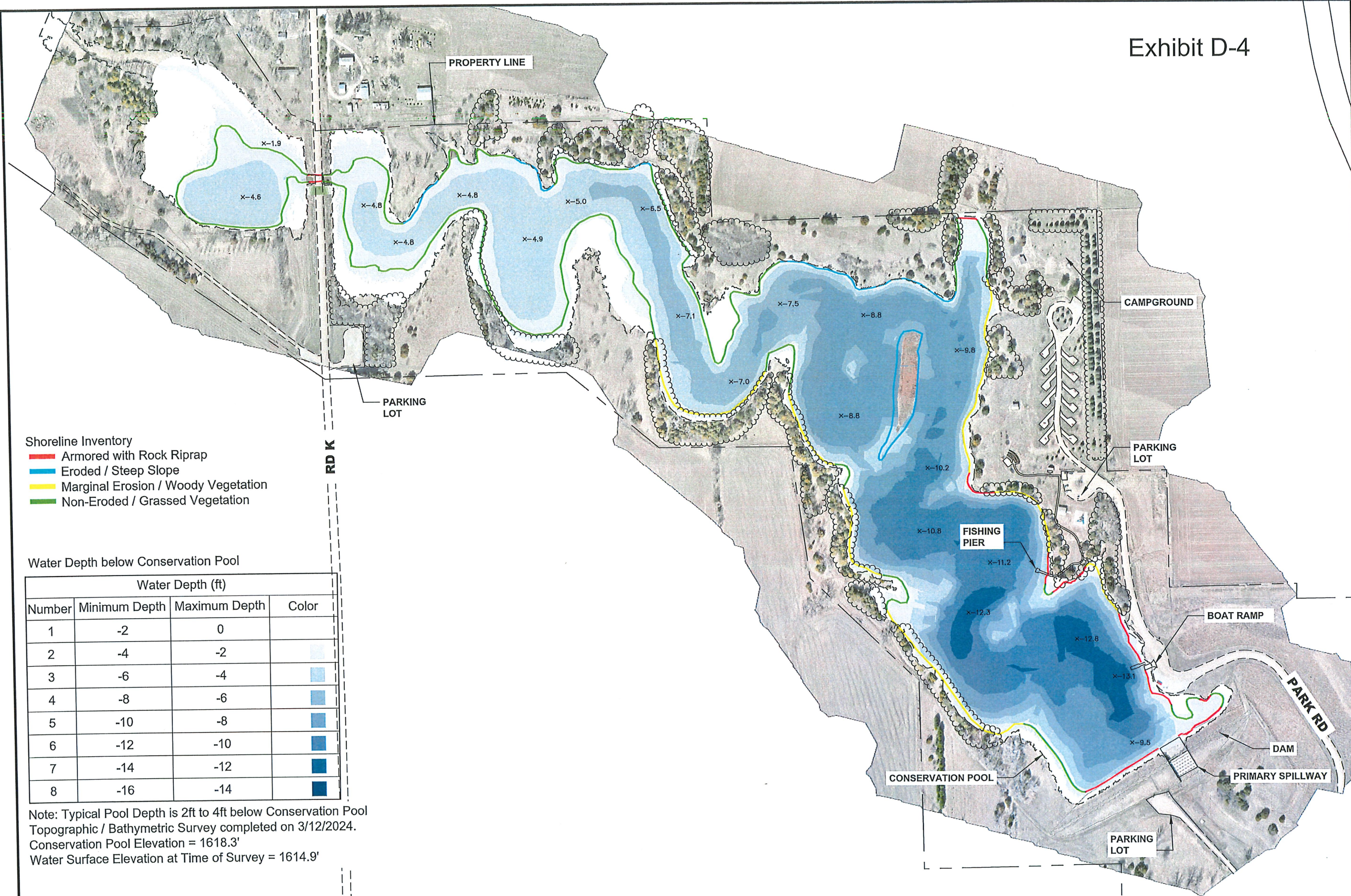
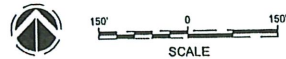
- Potential to reduce TSS and turbidity
- Added depth results in less turnover from wind
- Better aquatic habitat with deeper water

Exhibit D-4

- Shoreline Inventory
- Armored with Rock Riprap
 - Eroded / Steep Slope
 - Marginal Erosion / Woody Vegetation
 - Non-Eroded / Grassed Vegetation

Water Depth below Conservation Pool			
Water Depth (ft)			
Number	Minimum Depth	Maximum Depth	Color
1	-2	0	
2	-4	-2	
3	-6	-4	
4	-8	-6	
5	-10	-8	
6	-12	-10	
7	-14	-12	
8	-16	-14	

Note: Typical Pool Depth is 2ft to 4ft below Conservation Pool
Topographic / Bathymetric Survey completed on 3/12/2024.
Conservation Pool Elevation = 1618.3'
Water Surface Elevation at Time of Survey = 1614.9'



REVISIONS		DESCRIPTION
NO.	DATE	BY

SEAL

CONCEPT DESIGN

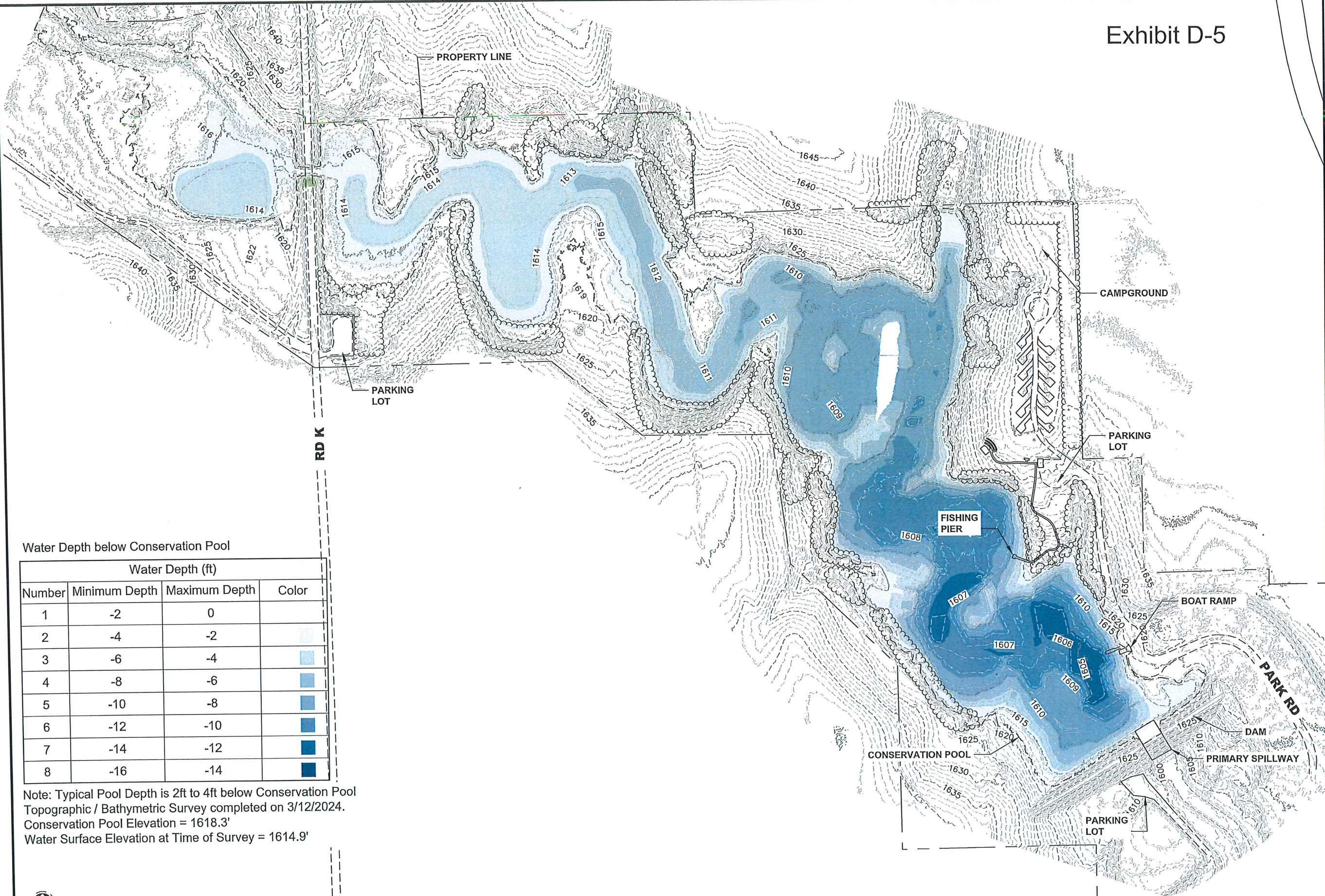
SEAL

UPPER BIG BLUE NRD
RECHARGE LAKE
WATER QUALITY IMPROVEMENT STUDY
YORK, YORK COUNTY, NEBRASKA

WATER DEPTH MAP

The FLATWATER GROUP INC.
8200 Cody Drive, Suite A
Lincoln, NE 68512
402-435-8441
CA-1145

DATE	MAY 2024
DESIGNED BY	JDC
DRAWN BY	STAFF
CHECKED BY	###
PROJECT NUMBER	UBBNRD-2023-01
SCALE	1" = 150'
SHEET NUMBER	1 OF 4



Water Depth below Conservation Pool

Number	Minimum Depth	Maximum Depth	Color
1	-2	0	
2	-4	-2	
3	-6	-4	
4	-8	-6	
5	-10	-8	
6	-12	-10	
7	-14	-12	
8	-16	-14	

Note: Typical Pool Depth is 2ft to 4ft below Conservation Pool
Topographic / Bathymetric Survey completed on 3/12/2024.
Conservation Pool Elevation = 1618.3'
Water Surface Elevation at Time of Survey = 1614.9'


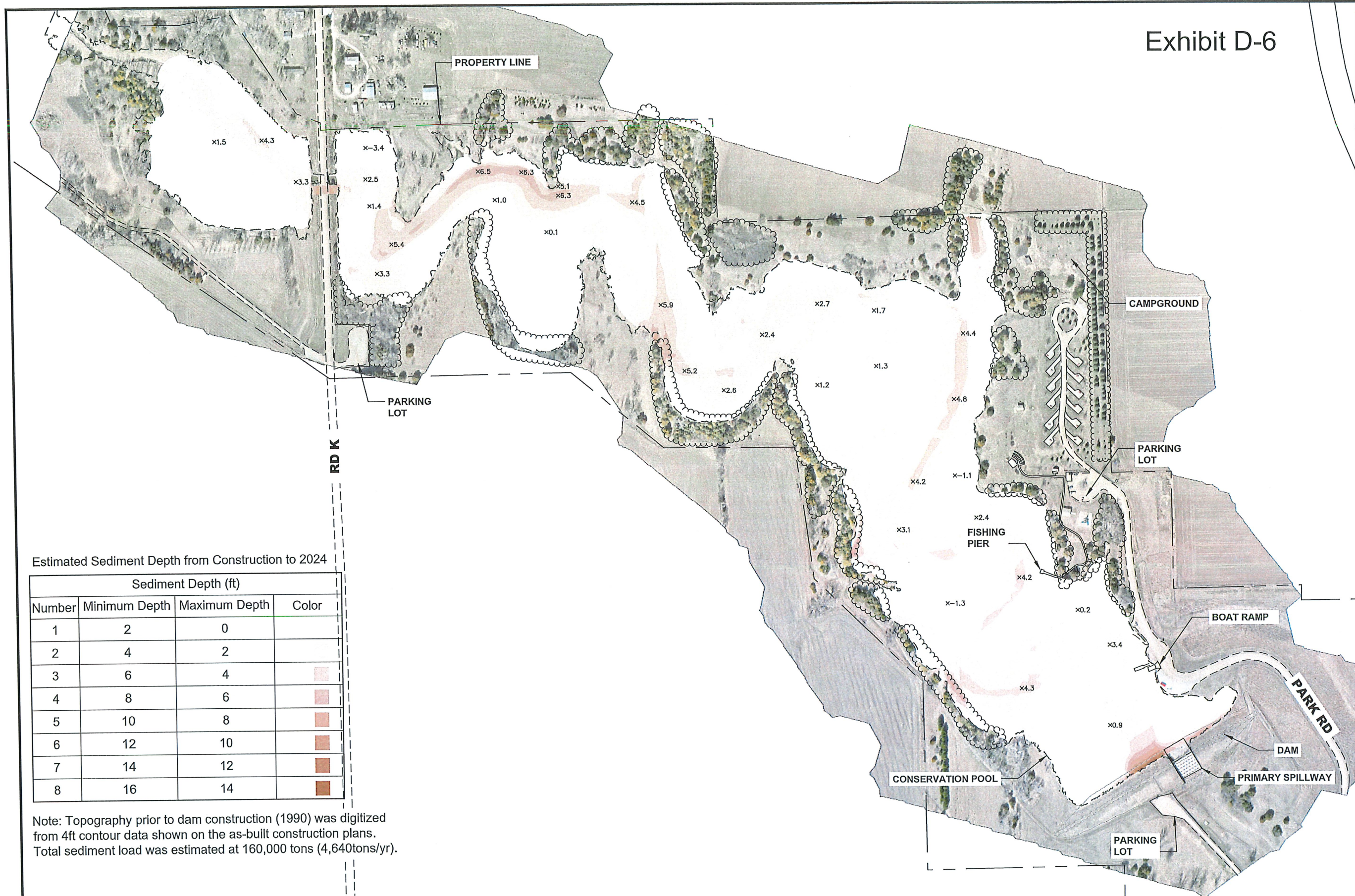






REVISIONS		DESCRIPTION
NO.	DATE	BY
CONCEPT DESIGN		
UPPER BIG BLUE NRD RECHARGE LAKE WATER QUALITY IMPROVEMENT STUDY YORK, YORK COUNTY, NEBRASKA		
TOPOGRAPHY / BATHYMETRY MAP		
		
The FLATWATER GROUP Inc. 8200 Cody Drive, Suite A Lincoln, NE 68512 402-435-5441 CA-1145		
DATE	MAY 2024	
DESIGNED BY	JDC	
DRAWN BY	STAFF	
CHECKED BY	###	
PROJECT NUMBER	UBBNRD-2023-01	
SCALE	1" = 150'	
SHEET NUMBER	2 OF 4	

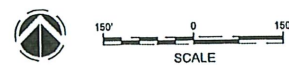
Exhibit D-6





Estimated Sediment Depth from Construction to 2024

Sediment Depth (ft)			
Number	Minimum Depth	Maximum Depth	Color
1	2	0	
2	4	2	
3	6	4	
4	8	6	
5	10	8	
6	12	10	
7	14	12	
8	16	14	

Note: Topography prior to dam construction (1990) was digitized from 4ft contour data shown on the as-built construction plans. Total sediment load was estimated at 160,000 tons (4,640tons/yr).



<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">UPPER BIG BLUE NRD RECHARGE LAKE</p> <p style="text-align: center;">WATER QUALITY IMPROVEMENT STUDY YORK, YORK COUNTY, NEBRASKA</p> </div> <div style="width: 50%;"> <p style="text-align: center;">SEDIMENT DEPTH MAP</p> </div> </div>		<div style="text-align: center;">  <p>CONCEPT DESIGN</p> </div>		<div style="display: flex; justify-content: space-between;"> <div> <p>NO.</p> </div> <div> <p>DATE</p> </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> <p>BY</p> </div> <div> <p>REVISIONS</p> </div> </div>	
				<div style="display: flex; justify-content: space-between;"> <div> <p>NO.</p> </div> <div> <p>DATE</p> </div> </div>		<div style="display: flex; justify-content: space-between;"> <div> <p>BY</p> </div> <div> <p>REVISIONS</p> </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>THE FLATWATER GROUP INC.</p>  <p>The FLATWATER GROUP Inc. 8200 Cody Drive, Suite A Lincoln, NE 68512 402-435-5441 CA-1145</p> </div> <div style="width: 70%;"> <p>DATE: MAY 2024</p> <p>DESIGNED BY: JDC</p> <p>DRAWN BY: STAFF</p> <p>CHECKED BY: ###</p> <p>PROJECT NUMBER: UBBNRD-2023-01</p> <p>SCALE: 1" = 150'</p> <p>SHEET NUMBER: 3 OF 4</p> </div> </div>							

Listing of Links to Study Material & Photos

Upper Big Blue NRD, District Wide Water Quality Management Plan, March 2020, JEO Consulting Group Inc.

https://www.upperbigblue.org/sites/default/files/resource-files/wqmp_with_appendicies_compressed2_part1.pdf

WQMP - Technical Advisory Committee Minutes, Stakeholder Advisory Committee Minutes, JEO Consulting Group Inc.

https://www.upperbigblue.org/sites/default/files/resource-files/wqmp_with_appendicies_compressed2_part2.pdf

WQMP – Technical Memos – Notes – JEO Consulting Group Inc.

https://www.upperbigblue.org/sites/default/files/resource-files/wqmp_with_appendicies_compressed2_part3.pdf

Bruce Anderson Recreation Area – Recharge Lake – Water Quality Improvement Study, June 2024, The Flatwater Group Inc.

https://www.upperbigblue.org/sites/default/files/resource-files/RechargeLakeWQStudy_Final_7June2024.pdf

Recharge Lake Water Quality Study – Final Exhibits, May 2024, The Flatwater Group Inc.

https://www.upperbigblue.org/sites/default/files/resource-files/RechargeLakeWQStudy_FinalExhibits_9May2024.pdf

Bruce Andeson Recreation Area – Recharge Lake - Videos and Photos - Lower Lake Levels

Recharge Lake – Lower Water Level - Upper End Video

<https://www.youtube.com/watch?v=l64eBmmb7lg>

Recharge Lake – Lower Water Level - Lower End Video

<https://www.youtube.com/watch?v=GP7OG6H4spc>

Lower Water Level Photos – Part 1

https://www.upperbigblue.org/sites/default/files/resource-files/all_photos_recharge_2025%20-%20Copy_Part1.pdf

Lower Water Level Photos – Part 2

https://www.upperbigblue.org/sites/default/files/resource-files/all_photos_recharge_2025%20-%20Copy_Part2.pdf

Lower Water Level Photos – Part 3

https://www.upperbigblue.org/sites/default/files/resource-files/all_photos_recharge_2025%20-%20Copy_Part3.pdf

CONTRACTOR’S QUOTE

CONTRACTOR’S SCHEDULE OF VALUES FOR THE RECHARGE LAKE SEDIMENTATION RETENTION SYSTEM DESIGN					
Item #	Description	Quantity	Unit	Unit Price (\$)	Amount (\$)
1	Design Construction Specifications and Engineering Cost Estimate for Bruce Anderson Recreation Area – Recharge Lake – Near Lake Sediment Basin Concept – As listed in the Sediment Retention System Design Scope of Work and in the Water Quality Improvement Study	1	LS		
2	Design Construction Specifications and Engineering Cost Estimate for Bruce Anderson Recreation Area – Recharge Lake – In-Lake Treatment Wetlands Concept – As listed in the Sediment Retention System Design Scope of Work and the Water Quality Improvement Study	1	LS		
3	Reporting Provide written monthly updates of progress	1	LS		
4	Mid – Report Presentation Provide a mid-report presentation to the Upper Big Blue Natural Resources District Board of Directors.	1	LS		
5	Final Report Presentation Provide a final report presentation to the Upper Big Blue Natural Resources District Board of Directors.	1	LS		
TOTAL =					

NOTES

- 1. All necessary labor and materials needed to complete the items shall be considered subsidiary to the items of the work.
- 2. Work must be completed and ready for payment by the end of the day, Friday, June 12, 2026.
- 3. Quotes must be received in the Upper Big Blue NRD Office by 3:00 p.m., Tuesday, January 6, 2026.
- 4. Quotes can be emailed to dtenbensel@upperbigblue.org or mailed to the Upper Big Blue Natural Resources District, 319 East 25th Street, York, NE 68467.

AS SUBMITTED BY:

Business Name (typed or printed): _____

Prepared By: (typed or printed Signature Name) _____

Signature: _____

Title _____ Date _____