RECLAMATION

Managing Water in the West

FONSI-NK-2013-01

Medicine Creek Shoreline Stabilization Project

Final Environmental Assessment and Finding of No Significant Impact

U.S. Department of the Interior
Bureau of Reclamation

August 29, 2013

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION
NEBRASKA-KANSAS AREA OFFICE
McCOOK, NEBRASKA

FINDING OF NO SIGNIFICANT IMPACT

FOR

MEDICINE CREEK SHORELINE STABILIZATION PROJECT

FONSI-NK-2013-01

Recommended: _____ Date: 8/29/2013
Preparer
Nebraska-Kansas Area Office

Concur: _____ Date: 8/29/2013
Supervisory Programs Manager
Nebraska-Kansas Area Office

Approved: _____ Date: 8/30/2013
Area Manager
Nebraska-Kansas Area Office

Decision Notice
And
Finding of No Significant Impact

Medicine Creek Shoreline Stabilization Project
Pick Sloan Missouri Basin Program Project, Frenchman-Cambridge Division, Nebraska
Frontier County

FONSI-NK-2013-01

Introduction

The Bureau of Reclamation (Reclamation) has independently reviewed the Environmental Assessment of the Medicine Creek Shoreline Stabilization Project, Frontier County, Nebraska (August 2013), prepared by the Nebraska Game and Parks Commission (NGPC), and has determined that the document meets agency quality and accuracy standards for an Environmental Assessment under 40 CFR 1508.9. Pursuant to Interior's NEPA Regulations under 43 CFR 46.320, Reclamation has adopted the Environmental Assessment of the Medicine Creek Shoreline Stabilization Project, Frontier County, Nebraska (August 2013), for purposes of a finding of no significant impact for the agency decision to approve NGPC's proposal to implement shoreline stabilization measures at six locations at Medicine Creek Reservoir.

Finding

Based on the analysis of the environmental impacts as described in the Environmental Assessment (EA), Reclamation finds that all potentially significant issues and resource impacts have been identified, evaluated, addressed, and resolved. In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Council on Environmental Quality's Regulation for Implementing the Procedural Provisions of the NEPA (40 CFR Parts 1500-1508), Reclamation has determined that the Proposed Action will not have a significant impact on the quality of the human environment and that an Environmental Impact Statement is not required.

Decision

Reclamation has decided to approve the implementation of the Proposed Action Alternative as described in the Final EA. Under this alternative, the purpose and need of the action will be met and the Medicine Creek Shoreline Stabilization Project will be implemented. Implementation of this action may proceed following approval of this environmental document.

Summary of Environmental Impacts

Reclamation has analyzed the effects of the Proposed Action Alternative in the final EA. The effects of the Proposed Action Alternative are summarized below:

Climate

The Proposed Action includes the operation of several large pieces of construction equipment to excavate sediment, form sediment into breakwater cores, and cover these breakwaters with rip rap. These activities would likely result in a slight increase in emissions during construction, although these emissions would be minor and below levels which require reporting. No significant impacts to climate are expected as a result of the Proposed Action.

Air Quality

The Proposed Action would result in a temporary increase in suspended dust and vehicular exhaust during construction. Impacts will be minimal and equipment associated with the Proposed Action does not require permitting through the Nebraska Department of Environmental Quality. No significant impacts to air quality are expected as a result of the Proposed Action.

Water Resources

The Proposed Action includes construction of shoreline stabilization structures designed to reduce shoreline erosion. Reduced shoreline erosion will result in less suspended sediment entering Medicine Creek Reservoir. Thus, the Proposed Action would have a locally positive effect on water clarity (reduced turbidity) once the project is completed. During the construction of these shoreline stabilization features, discharges of dredged or fill material into waters of the U.S. will be carried out in compliance with provisions of Section 404 of the Clean Water Act, the permit requirements of the Corps of Engineers, and Section 401 water quality certification as administered by the Nebraska Department of Environmental Quality (DEQ). In addition, land grading and clearing activities associated with this project will be conducted in accordance with provisions of Section 402 of the Clean Water Act and the requirements of the Nebraska DEQ National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit that will be obtained by the Contractor. No significant impacts to water resources are expected as a result of the Proposed Action.

Prime Farmlands

The Proposed Action will occur on and near Reclamation land that is classified as prime farmland but is not currently cultivated. This action would not significantly alter these prime farmland areas or render them unsuitable for future farming activities. No significant impacts to prime farmlands are expected as a result of the Proposed Action.

Federal- and State-listed Species

Nebraska Game and Parks Commission (NGPC) has determined that no suitable habitat exists for any Federal- or State- listed species within the project area, with the exception of the spring and fall migration of the whooping crane (Federal endangered, State endangered). NGPC will require the Contractor to conduct daily whooping crane surveys for work occurring during the fall whooping crane migration (September 16 to November 16), with the requirement that work will not proceed if whooping cranes are present within 0.5 miles of the construction site(s). It is

also possible, but unlikely, that least terns may use Medicine Creek as a stopover during their fall migration. In the event of least tern (Federal endangered, State endangered) stopover on or near the project site, least tern surveys would be implemented with the whooping crane surveys, and work would be suspended until terns have left the construction area. With the implementation of these mitigation measures, the Proposed Action is not likely to adversely affect any Federal- or State-listed species or their critical habitat. The USFWS Ecological Services Nebraska Field Office and the Nebraska Game and Parks Commission (NGPC) Environmental Services Division both provided written concurrence with this determination on January 10, 2013, and February 7, 2013, respectively. No significant impacts to Federally-listed species are expected as a result of the Proposed Action.

Hazardous Materials

The Contractor will be required to implement typical best management practices to prevent hazardous materials from contaminating land or water during the course of the Proposed Action. No significant hazardous materials impacts are expected as a result of the Proposed Action.

Vegetation, Fish, and Wildlife

Minimal amounts of vegetation will be disturbed and/or cleared during construction, stockpiling, and staging activities. These temporary impacts to vegetation could disturb potential wildlife habitat during the construction period. Temporary air quality and noise disturbances may also result in the temporary displacement of wildlife species. All construction and vegetation-disturbing activities will be timed to avoid the primary nesting season for migratory birds (April 1 – July 15). Work will also be timed to avoid construction and earth moving activities during native fish spawning periods (May 15 – July 31). Once the project has been completed, the contractor will be responsible for restoring all disturbed areas to the pre-construction condition, including replanting these areas with native vegetation. Localized fish habitat improvements are expected in shoreline stabilization locations once this project has been completed. The Proposed Action is in compliance with Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds). No significant impacts to vegetation, fish, and wildlife resources are expected as a result of the Proposed Action.

Invasive Species and Noxious Weeds

The best management practices that will be incorporated during the construction and site restoration activities of the Proposed Action are in compliance with Executive Order 13112. No significant invasive species or noxious weed impacts are expected as a result of the Proposed Action.

Soil Erosion

The Proposed Action has been designed to produce long-term localized improvements in the shoreline erosion issue at Medicine Creek Reservoir. During the course of this construction project, the Contractor will plan and implement comprehensive and effective erosion and sediment controls in accordance with the NPDES permit that will be obtained through Nebraska DEQ. No significant soil erosion impacts are expected as a result of the Proposed Action.

Historic and Cultural Resources

An archeological pedestrian survey of the Proposed Action area was completed by Bill Chada, NKAO Archaeologist, on July 11, 2012, with a conclusion of "no historic properties affected." Terry Steinacher and L. Robert Puschendorf of the Nebraska State Historical Society provided written concurrence with this determination on August 14, 2012. The NKAO Archaeologist or a designated Reclamation representative will be present on-site during the construction of the access road for Bid Sites A & B. If any cultural or archeological resources are encountered during construction activities, work will stop and the NKAO Archaeologist will be immediately notified. No significant impacts to historic and cultural resources are expected as a result of the Proposed Action.

Visual Resources, Noise, and Recreational Use

The construction activities analyzed under the Proposed Action alternative are anticipated to result in temporary increases in noise and vehicular traffic. In addition, construction, staging, and stockpiling activities are anticipated to create temporary visual impacts, and localized site closures will be instituted for public safety. These temporary construction impacts are anticipated to cause minimal disruption to recreation. Once completed, the shoreline stabilization features will blend into the natural setting and will enhance recreation access at Medicine Creek Reservoir. No significant impacts to visual resources, noise, or recreational use are expected as a result of the Proposed Action.

Indian Trust Assets

No Indian Trust Assets are known to exist in the project area. No significant impacts are expected to Indian Trust Assets as a result of the Proposed Action.

Socioeconomics

Implementation of the Proposed Action may result in the creation of a small number of jobs for contractors during construction activities, which may take up to four months to complete. This may have a temporary beneficial effect on the local economy. No significant socioeconomic impacts are expected as a result of the Proposed Action.

Wetlands

Two work locations under the Proposed Action are located near freshwater forested/shrub wetlands. The Contractor will be required to avoid these areas, which will be identified by on-site staking and plans/specifications provided to the Contractor by NGPC. The Proposed Action is in compliance with Executive Order 11990 (Protection of Wetlands). No significant impacts to wetlands are expected as a result of the Proposed Action.

Floodplain management

Activities under the Proposed Action alternative will occur on lands within or adjacent to the floodplain. These activities will not lead to occupation of the floodplain, or alter the natural and beneficial values of the floodplain areas. The Proposed Action is in compliance with Executive Order 11988 (Floodplain Management). No significant floodplain management impacts are expected as a result of the Proposed Action.

Executive Orders
The Proposed Action is in compliance with Executive Orders 13007 (Indian Sacred Sites) and 12898 (Environmental Justice). No significant impacts are expected to the resources covered in each.

Cumulative Impacts
No significant cumulative impacts are expected as a result of this action.

Environmental Commitments

- Contractor shall follow standard construction industry measures to minimize fugitive dust emissions created during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.
- Equipment used for this project shall be maintained to factory or better specifications to minimize emissions and noise.
- Contractor shall perform work in accordance with the terms and conditions of the Department of the Army Regional General Permit (RGP) No. 98-05 Amendment #2. Contractor shall comply with all special and general conditions of this permit. Upon completion of this project, a completed Compliance Certification shall be submitted to the U.S. Army Corps of Engineers Nebraska Regulatory Office – Kearney.
- Contractor shall obtain a Nebraska DEQ National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit, and shall perform work in accordance with the terms and conditions of this permit. Contractor shall develop and implement comprehensive and effective erosion and sediment controls for all disturbed areas in accordance with this permit.
- Contractor shall be trained to identify whooping cranes and will conduct daily whooping crane surveys at all work sites before initiating work each day during the fall migration period (September 16 to November 16). The contractor shall follow the established protocol for these surveys, provided in the Final EA. These surveys shall be documented, and documentation provided to NGPC and Reclamation in a timely manner. Contractor shall stop work and contact NPGC immediately if whooping cranes are observed within 0.5 miles of the work site(s). In the unanticipated event that a threatened or endangered species other than the whooping crane is identified and encountered during construction, construction activities in the immediate area will be stopped immediately until NGPC can consult with the U.S. Fish & Wildlife Service to determine appropriate steps to avoid impacting the species.
- Contractor shall inspect equipment and vehicles for the presence of petroleum leaks and take corrective actions if inspections identify potential risks of contamination. Additionally, contractor shall develop and implement a hazardous materials safety protocol to prevent contamination of land or water with petroleum products, other fuels, or chemicals present on the project site.
- Contractor shall follow recognized best management practices to reduce and prevent the spread of noxious weeds and invasive species.
    - Clearing of vegetation shall be restricted to the absolute minimum required to accomplish the work.

- Contractor's travel shall be restricted to existing roads and access routes as much as possible.
- All disturbed areas shall be re-contoured and replanted with weed-free native vegetation. Planting will be conducted in a timely manner to minimize invasion of noxious or undesirable weed species. Revegetation efforts will be monitored for success and supplemented as needed until these areas are restored.
- Contractor shall locate and use weed-free staging areas and avoid travel through infested areas whenever feasible.
- All equipment and vehicles brought to the project site should arrive clean. If equipment and/or vehicles do not arrive on the project site in a clean condition, mud, dirt, and plant parts should be removed (preferably with a 2,000-PSI pressure washer) at a designated cleaning area before moving equipment/vehicles onto the project site. Seeds and plant parts should be collected and incinerated if possible.
- All equipment and vehicles should be cleaned at a designated cleaning area before leaving the project site.

- All construction and vegetation-disturbing activities will occur outside of the primary nesting season for migratory birds (April 1-July 15). If necessary, a breeding bird survey will be conducted on behalf of NGPC and Reclamation. Construction and earth moving activities will also occur outside of native fish spawning periods (May 15 – July 31).
- NGPC will coordinate with Reclamation to have the NKAO Archaeologist or a designated Reclamation representative present on-site during the stockpiling of riprap materials at the two stockpile locations and construction of the access road for Bid Sites A & B.
- If any historic or cultural resources are encountered during construction activities, work will stop and the NKAO Archaeologist and any other appropriate authorities will be notified immediately. Work in the area will resume only when compliance has been achieved.
- Contractor shall close work areas to the public using flagging and signage, or other appropriate means, to ensure public safety for the duration of this project.
- Contractor shall avoid wetland areas, which will be identified by on-site staking and plans/specifications provided to the Contractor by NGPC.

Environmental Assessment

Medicine Creek Shoreline Stabilization Project, Frontier County, Nebraska

August 2013

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Chapter 1: Proposed Action, Purpose and Need

1.1 Introduction

The Nebraska Game and Parks Commission (NGPC) is proposing to implement shoreline protection and aquatic habitat improvement measures at Medicine Creek State Recreation Area (SRA) Reservoir (Harry Strunk Lake) with the purpose of enhancing recreational fishing and boating access, reducing sedimentation and shoreline erosion, and improving water quality. This project is proposed to begin in late summer or early fall of 2013, while lake levels are low due to irrigation draw-down. The proposed project includes seven breakwaters and one fishing pier at a total of six locations. These locations include multiple areas at the southern end of the lake and one area near Trail 12, a popular camping area toward the northern end of the lake. Funding for the proposed Medicine Creek SRA Restoration Project (Project), with an estimated cost of $513,375, will be provided through NGPC's cash funds and Aquatic Habitat Program, and the Nebraska Environmental Trust Fund (NETF). The Project will involve aquatic habitat rehabilitation in the reservoir basin and will include stabilizing eroding shorelines, excavating accumulated sediment in shallow areas and constructing fishing access facilities. This environmental assessment will compare and evaluate the environmental impacts of the proposed action and the no action alternative, as required by the National Environmental Policy Act of 1969 (NEPA).

1.2 Proposed Action

The proposed action is to implement shoreline stabilization measures with the goal of improving water quality, reducing sedimentation and shoreline erosion, and enhancing aquatic habitat. The proposed project activities are located at various locations on Medicine Creek, which includes areas that are high-use recreational locations. Work will be done near existing camping facilities, as well as popular boating access points. Approximately 5,530 cubic yards of sediment will be removed from the lakebed. This sediment will be reused to form the earthen core of the breakwaters. Shoreline protection in the form of rock armored jetties and offshore breakwaters will occur, along with the planting of Willow cuttings to further stabilize the shoreline. Besides the shoreline stabilization, there will be one fishing access point created for angler use. NGPC proposes to hire a contractor, through a competitive bid process, to perform the following work in accordance with the specifications of the project:

- Hauling of material and stockpiling
- Excavation of locations to form earthen cores of breakwater areas
- Construction of 7 breakwaters and 1 rock jetty
- Placement of geotextile fabric
- Tied concrete mat placement
- Placement of erosion control matting and silt fencing
- Seeding and Mulching
- Placement of fishing pier system

In addition, NGPC staff will complete willow staking once the construction is completed.

1.2.1 Background, General Description, and Location

Medicine Creek dam is located in Frontier County approximately 7 miles northwest of the town of Cambridge, Nebraska in Sections 2, 11, 12, 13, 14, 23, and 24, Township 5 North, Range 26 West (Figure 1). The dam is one of the features of Reclamation's Pick-Sloan Missouri River Basin Program, Frenchman-Cambridge Division, and provides flood control, recreational opportunities, and fish and wildlife conservation along the Republican River and its tributaries. Construction of the dam was completed in December of 1949. The Dam is an earthen fill structure with a height of 115 feet above the bed of Medicine Creek and a total length of 5,665 feet (Resource Management Plan (RMP) Medicine Creek Reservoir Harry Strunk Lake, September 2001, pg. 3-4).

Harry Strunk Lake, the reservoir created as a result of water impounded by Medicine Creek Dam, is also located in Frontier County, Nebraska. The project areas include Sections 12, 23, and 24, Township 5 North, Range 26 West. When filled to normal operating capacity, the Lake is approximately 66 feet deep at the dam and 7 miles long, with a shoreline of approximately 29 miles and a water surface of 1,850 acres. The total reservoir capacity of Harry Strunk Lake is 89,300 acre-ft and provides water supply for irrigation of approximately 16,630 acres of land within the Cambridge Unit of the Frenchman-Cambridge Division. A complete map of the project area is located in Figure 1. The project sites involved in the proposed project are located on the south end of the lake by Trail #1 (3 locations), the south end of the lake by Trail #4 (2 locations) and the north end by Trail #12 (Figure 2).

Reclamation owns and operates Medicine Creek Dam and Harry Strunk Lake. Reclamation and the NGPC have entered into long-term Lease Agreement Contract No. 14-06-700-3816-A (Lease), which provides for the management, development, operation, maintenance, and administration of lands, waters, and wildlife habitat areas on Reclamation's project areas in Nebraska. The Lease agreement was executed on May 1, 1995, for an initial term of 25 years, and an additional 25 year extension, and includes the management of approximately 58,000 acres of Reclamation lands and waters. In accordance with this Lease, NGPC administers and maintains recreation facilities at Harry Strunk Lake, which is officially designated as a State Recreation Area (SRA). In addition, the Fisheries Division manages the lake's fishery and the Wildlife Division manages the wildlife lands as a Wildlife Management Area (WMA). The reservoir and surrounding lands are heavily utilized by the public and thus are an important ecological, recreational, and educational resource.

The 2001 Resource Management Plan (RMP) for Medicine Creek states that, "The Commission is responsible for the control of shoreline erosion near recreation use areas which may threaten public safety" (RMP, pg. 53). According to the RMP, the shoreline erosion occurring around the reservoir is extensive in some areas but consistent with erosion patterns experienced at artificial impoundments. Some areas have eroded to a point where they are now stable and covered with

vegetation. According to a recent site visit in April 2013, other areas have eroded back substantially forming vertical banks, some in excess of 30 feet high.

As described in the 2001 RMP, the NGPC has developed the parkland and water recreation facilities surrounding Medicine Creek reservoir by maintaining boat docks and ramps, restroom facilities, picnic grounds, trails, and several campgrounds and cabins. The primary uses of the reservoir and park include camping, windsurfing, walking/jogging, hunting, fishing, picnicking, bicycling, and boating. Medicine Creek has four boat ramps, which can accommodate a variety of watercraft including sailboats, power boats, canoes, and kayaks. The estimated number of park visitors in 2012 exceeded 50,000.

As the lake has aged, water quality degradation has occurred due to excessive sediment and nutrient inflows from the constant wave action on exposed shoreline, especially naturally-occurring rock outcroppings. The sediment and nutrient depositions from the shoreline erosion have negatively impacted the water quality and lake fishery by reducing lake volume, water depth, dissolved oxygen, and habitat diversity, as well as contributing to a loss of aquatic vegetation and bottom structure. In addition, wetlands adjacent to and above the active conservation pool have been degraded. Access to recreational boating structures including ramps, docks, and mooring facilities is hampered by the littoral drift that results from shoreline erosion.

Major contributors of sediment accumulation have been upstream erosion due to runoff events and shoreline degradation. The sediment tends to reduce the depth of the reservoir and thus shrink the usable volume of the lake. Much of the shoreline is subject to bank erosion caused by wind/wave action and ice. This is especially true where the banks are steep and there is a relatively long wind fetch. Some portions of the shorelines have already been armored with riprap to reduce and prevent erosion.

1.2.2 Purpose and Need for the Proposed Action

The purpose of the Medicine Creek SRA shoreline protection and aquatic habitat restoration project is to implement a series of structural measures to restore and maintain the recreational fishery in the lake and protect existing shoreline by improving water quality, depth diversity, and quality of littoral (shoreline) and wetland areas by constructing a series of breakwater jetties.

The overall project objective is to begin the process of restoring and stabilizing the ecosystem within the Medicine Creek reservoir, which is currently threatened by numerous erosion-related impacts, including sediment and nutrient deposition, loss of habitat diversity, degraded wetland quality, and a continually degrading fishery. The fluctuating water levels historically are a norm for this reservoir due to the use of the reservoir for irrigation. Preventative structures will be beneficial to the longevity of the reservoir.

Internal scoping for this project included the Fisheries Division's development of an Aquatic Habitat Plan for this water body, a shoreline analysis site visit that included Engineering,

Fisheries, and Parks staff, consultation of all NGPC divisions that have management responsibilities at Medicine Creek, and a scoping meeting that included all NGPC staff and Reclamation resource staff. One concern that emerged from the scoping included the extent of shoreline erosion identified from the shoreline analysis site visit. Another major concern was the extent of cultural resources at the stabilization sites and what actions will be needed to protect these resources. Over $3 million in shoreline restoration and renovation needs have been identified in the Aquatic Habitat Plan for Medicine Creek, so incremental work will need to take place to accomplish all of these projects.

There are six different locations included in the proposed action. Five of these locations are located at the southern end of the reservoir – three on the west side, and two on the east side. The final location is located at a busy campground where fishing access will be included as part of the proposed action. Over 5,530 cubic yards of sediment will be moved and used within the lake to create the earthen cores of the breakwaters that will be constructed. There is not a specific depth of the lake that is trying to be achieved.

The aquatic habitat improvements will include improvement in near-shore water quality by decreasing the linear area of destabilized shorelines and reducing lateral erosion that closes off fish access to cove habitats. Various techniques will be used to evaluate the success of the aquatic habitat restoration. Standardized fish surveys are currently taking place and those fish surveys will continue after the shoreline restoration occurs. Data will be compared to see if there is significant change in abundance or condition of fish. Fish populations are sampled each fall at Medicine Creek Reservoir using gill nets, a method commonly used to sample fish found in open water, such as walleye, white bass, channel catfish, and hybrid striped bass (wiper). Gill nets are set on approximately the same dates and locations each year to reduce variability and allow for trend comparisons of species abundance and size distributions (Medicine Creek 2012 Survey Summary, pg. 1).

Additional evaluation can be achieved by measuring changes in water quality or sediment and nutrient loading. Past aquatic habitat rehabilitation projects have routinely received one or more bathymetric surveys using a sophisticated lake mapping system housed within the Fisheries Division of NGPC (Nebraska's Second Aquatic Habitat Plan; Providing New Life for More Aging Waters, pg. 13). One final way NGPC can measure the improvement is to conduct a photo documentation of the shoreline erosion rates before and after the project.

1.2.3 Regulatory Compliance

National Environment Policy Act

NEPA requires that the action agency use a public disclosure process to determine whether or not there are any environmental impacts associated with proposed Federal actions.

Endangered Species Act

The Endangered Species Act (ESA) requires all Federal agencies ensure that their actions do not jeopardize the continued existence of listed species, destroy, or adversely modify their critical habitat. As part of the ESA's Section 7 process, an agency must request information from the U.S. Fish and Wildlife Service (USFWS) on whether any threatened and endangered species occur within or near the action area. The agency then must evaluate impacts to those species. If the action may affect any listed species, the agency must consult with the USFWS.

Clean Water Act

The Clean Water Act (CWA) provides for protection of water quality including, but not limited to, the construction or operations of facilities, which may result in any discharge into the navigable waters.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended, requires that Federal agencies consider the effects that their projects have on properties eligible for or on the National Register of Historic Places. The 36 CFR 800 regulations provide procedures that Federal agencies must follow to comply with the NHPA. For any undertaking, Federal agencies must determine if there are properties of National Register quality in the project area, the effects of the project on those properties, and the appropriate mitigation for adverse effects. In making these determinations, Federal agencies are required to consult with the State Historic Preservation Office (SHPO), Native American tribes with a traditional or culturally-significant religious interest in the study area, the interested public, and in certain cases, the Advisory Council on Historic Preservation (ACHP).

Executive Order 11990 Protection of Wetlands

Executive Order 11990, dated May 24, 1977, mandates Federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Wetlands mean those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Executive Order 11988 Floodplain Management

Executive Order 11988, dated May 24, 1977 instructs federal agency to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Each agency must determine if any project is in a floodplain and determine if it significantly affects the human environment.

Executive Order 13186 Protection of Migratory Birds

Executive Order 13186, dated January 10, 2001 determined that migratory birds are of great ecological and economic value to the United States and other countries. Federal agency shall promote the conservation of migratory bird populations and create a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service to establish protocols to support the responsibility of conserving Migratory birds and their habitat.

Executive Order 13007 Indian Sacred Sites

Executive Order 13007, dated May 24, 1996, instructs Federal agencies to promote accommodation of access to and protect the physical integrity of American Indian sacred sites. A "sacred site" is a specific, discrete, and narrowly delineated location on Federal land. An Indian tribe or an Indian individual determined to be an appropriately authoritative representative of an Indian religion must identify a site as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion. However, this is provided that the tribe or authoritative representative has informed the agency of the existence of such a site.

Executive Order 12898 Environmental Justice

Executive Order 12898, dated February 11, 1994, instructs Federal agencies, to the greatest extent practicable and permitted by law, make achieving environmental justice part of its mission by addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations and low income populations. Environmental justice means the fair treatment of people of all races, income, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative environmental impacts resulting from the execution of environmental programs.

1.2.4 Project Permitting

The proposed project will be undertaken pursuant to Section 404 of the Clean Water Act (33 U.S.C. 403). The project qualifies for a Nebraska General Permit (GP) 98-05 issued for lake rehabilitation projects. GP 98-05 authorizes dredging or excavating accumulated sediment in manmade lakes or ponds in Nebraska created through impoundment or excavation (See Appendix J for copy of permit).

The project will also require a National Pollutant Discharge Elimination System (NPDES) permit for disturbance of greater than one acre of land. This permit will be forwarded to Reclamation for their files prior to construction.

Figure 1: Location Map

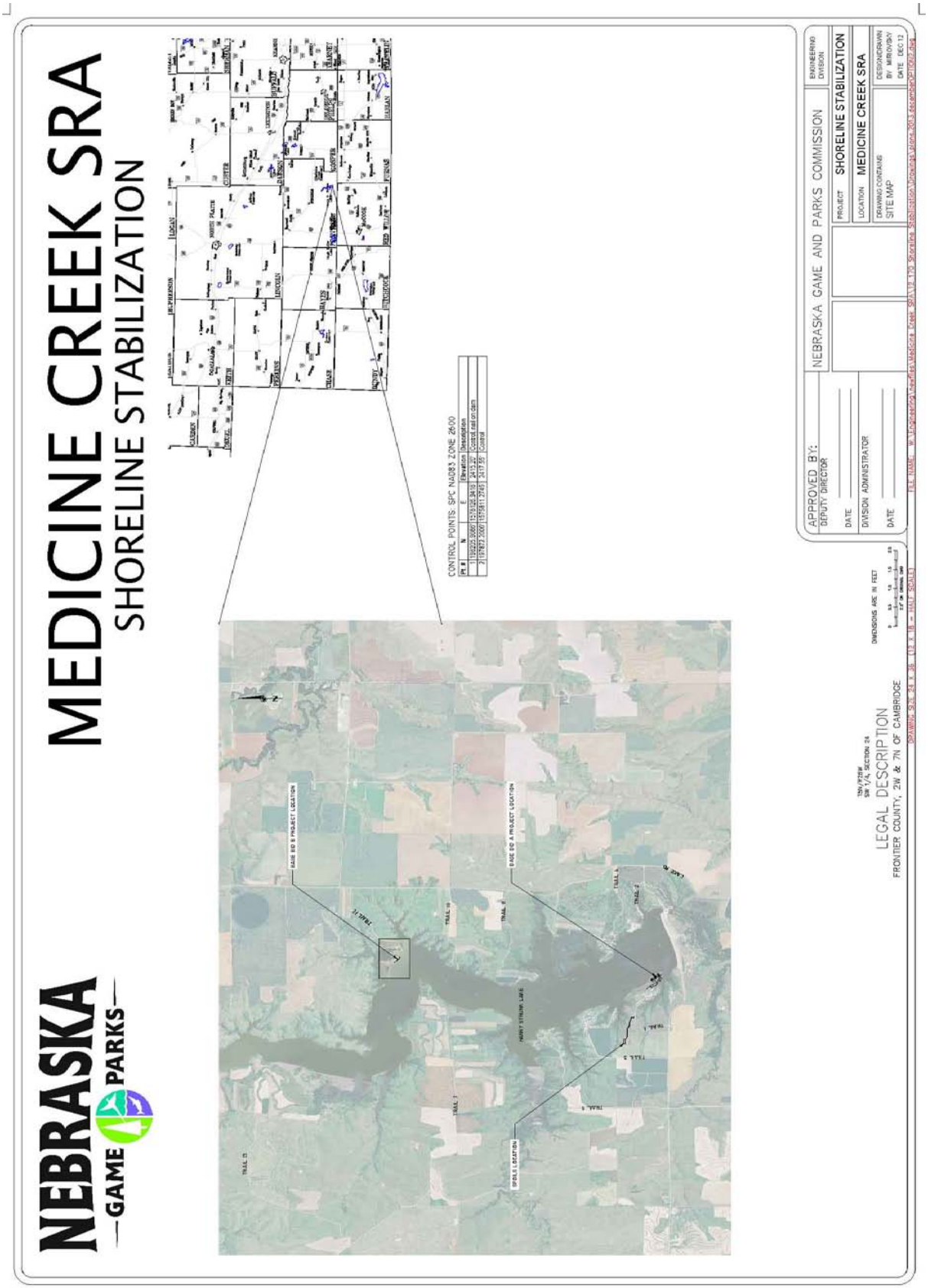


Figure 2.A: Project Map

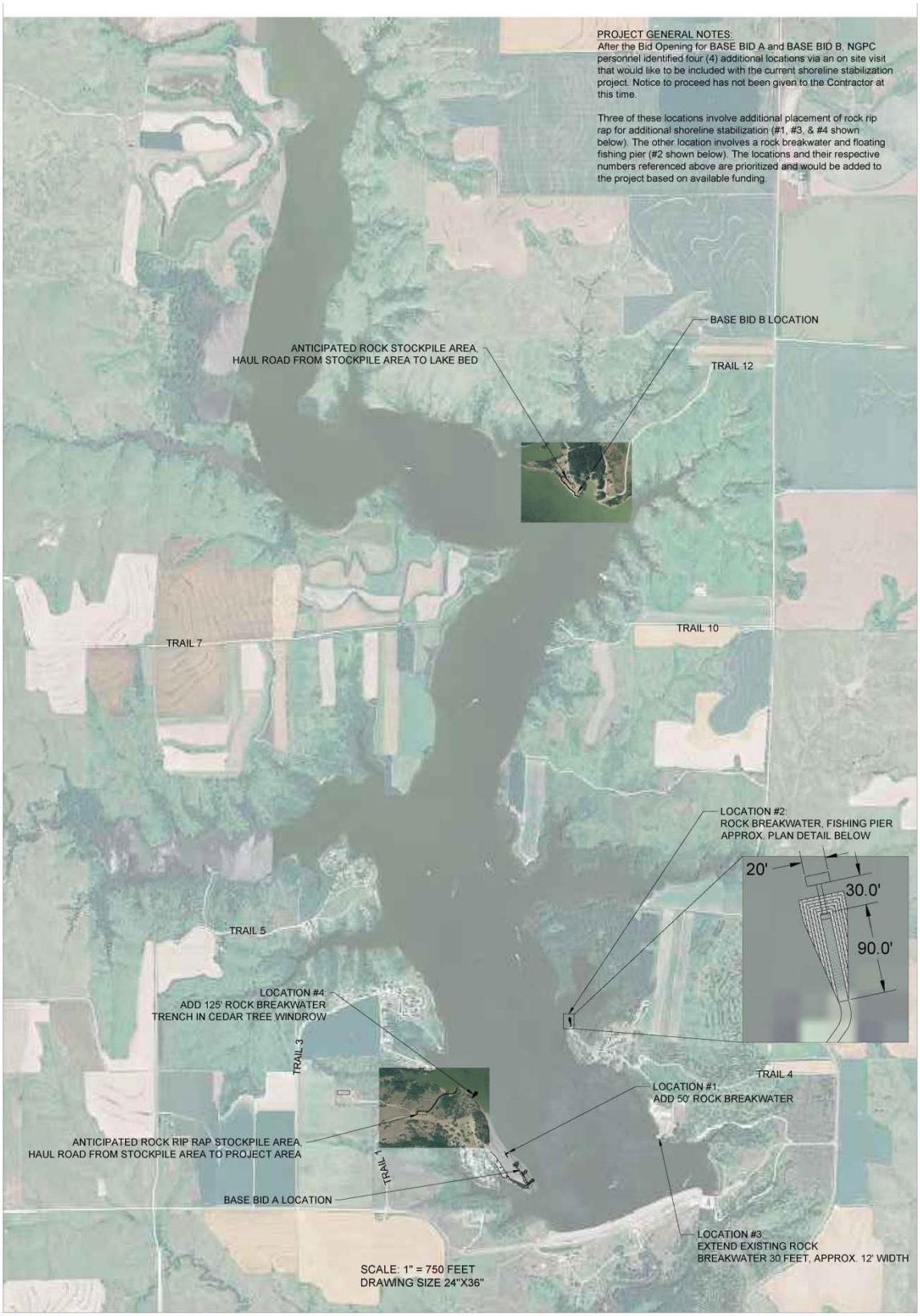


Figure 2.B: Base Bid B

Figure 2.C: Location #2

SCALE: 1" = 250 FEET
DRAWING SIZE 8.5"X11"

Figure 2.D: Location #3

SCALE: 1" = 250 FEET
DRAWING SIZE 8.5"X11"

Figure 2.E: Base Bid A, Location #1 and Location #4

Chapter 2: Alternatives

2.1 Introduction

This section describes reasonable alternatives developed to meet the purpose and need described in the previous section. The alternatives that were considered in this EA are:

- No action alternative
- Preferred alternative (shoreline stabilization)

No other alternatives were considered for this project.

2.2 Alternative A: No Action Alternative (Continue Present Operations)

Under the No Action alternative, no improvements to Medicine Creek would occur. The results of this alternative would be that the shoreline would continue to erode and recreational access would lessen. The deeper water habitat and underwater habitat structure related to the lakebed topography would be diminished, thus adversely impacting the fish population in the water body. Wetlands areas would also decline in quality and quantity with no action.

Two of the six locations identified in the proposed action (see below) have been riprapped in the past, but they are not up to the standard desired for the area. None of the areas have been dredged in the past. NGPC will continue to seed with grasses the exposed shoreline when funding is available, as outlined in the 2001 RMP (pg. 33), but this would not stop the ongoing erosion issue at Medicine Creek.

Currently, the lake is managed primarily for walleye, white bass, channel catfish, and wipers. The species are surveyed in the fall using both small mesh and experimental gill nets following state protocols. Surveys have been done for catfish in the drainage during the 2011 and 2012 to assess the possibility of a fish barrier to the channel catfish movement. Age data is collected on walleye, white bass, and wipers annually and catfish every two to three years. Stocking of fish occurs annually for walleye and wipers. Other stockings of fish occur, depending on supply and need for other fish species. In addition to regular management and monitoring activities, the University's Cooperative Research Unit has conducted extensive research addressing questions about white bass and walleye reproduction in Medicine Creek Reservoir. See Appendix A on Medicine Creek's 2012 Fish Survey Summary.

As required by the National Environmental Policy Act (NEPA), this alternative was carried forward for further detailed evaluation.

2.3 Alternative B: Proposed Action (Shoreline Stabilization at Medicine Creek)

The preferred alternative is a project included in Nebraska's Second Aquatic Habitat Plan; Providing New Life for More Aging Waters, January 2008. The plan components were

developed and refined through an iterative process that included on-site evaluations to identify critical areas for protection and development of proposed project components that will protect existing shoreline, improve water quality, create fishery habitat, and be compatible with existing reservoir uses.

Appendix B provides a review of Medicine Creek SRA and the erosion issues at Harry Strunk Lake. This document provides information on the techniques and management practices of NGPC when it comes to reduction of wave energy at the near-shore and shoreline interfaces. The practices consider water regimes and soil types so focus can be placed on benefits for fish, wildlife, and recreation. Within this EA, NGPC has identified six locations that are priorities at this time. However, Appendix B documents additional locations and techniques for the remaining areas that are in need of attention in the future. This alternative includes two main components. The first component is sediment removal to form the earthen core of seven different breakwaters, which will increase lake depth, create depth diversity, and increase the reservoir life span. The equipment that will be used includes semis with side dump trailers to deposit the rock, a bulldozer, payloader, large excavator, and front end loader. Additionally, small trucks may be used to move rock to the locations. The sediment will be removed and reshaped into the breakwaters. The total amount of sediment removed from the reservoir and used in the breakwaters is estimated to be 5,530 cubic yards. The second component of the project is to construct an in-lake jetty structure in one location to restore and protect reservoir shoreline and create aquatic habitat, to include the planting of willow cuttings to further stabilize the shoreline. The use of black willow, *Salix nigra*, or sandbar willow, *Salix interior*, for shoreline stabilization will be used if sufficient cuttings of those species can be obtained or collected. If cuttings of those species are not available in adequate quantities NGPC may use laurel willow, *Salix pentandra*.

Past water level data records for Harry Strunk Lake indicate that the construction window for work to occur within the lake bed could begin as early as the third week in July and extend through the month of November. If the construction window happens to be four months long in 2013, there is a very good chance of getting the work done at all six locations identified in Figure 2. These dates, however, are dependent on a variety of factors and could change. Overall, precipitation in the Medicine Creek watershed will dictate the construction window. Precipitation affects the water level of the lake, as well as the amount and timing of irrigation releases for the agricultural lands that Harry Strunk Lake supplies. Irrigation typically drives the lake drawdown in the late summer months. The construction window could also be affected by how inflows and outflows are handled in regards to Republican River Compact compliance. Work will be completed in six different locations. In addition, there will be two locations used for stockpiling of rock throughout the project (Figure 2A & 2B). The rock will be placed at these locations without any surface disturbance. A haul road will also need to be created to deliver rock in one area (Figure 2A). The haul road will be built from the rock rip rap stockpile area (Figure 2A & 2B) down to the lake bed in the Base Bid A & B locations for equipment to access during

construction. The area of the planned haul road is currently grass; however, it is acknowledged that it is a popular recreational use site, and thus disturbance will be limited as much as possible. The grass will be driven over, and the area will be slightly compacted by the heavy equipment traversing the road during construction. Minor grading and clearing of trees and brush near the lake bed will be needed in approximately a 16’ wide gap for the haul road. Fill and/or cuts will be used as appropriate where grading is needed, with a preference for fill when possible. The main portion of the road will be approximately 12’ wide. Clearing and grubbing on the main portion of the haul road, which is above the lake bed, will be avoided. Once the project has been completed, the contractor will be responsible for restoring disturbed areas to the pre-construction condition, including restoration to the previous grade in the haul road area. Flagging and signage will be used to close work areas to the public. There should not be a significant disruption to recreation in the area while the work is being completed, as the project will be occurring outside of the primary recreation season.

The first location (Base bid B; Figure 2B) consists of one jetty in the Trail #12 area that will be approximately 370 linear feet. Approximately 910 square yards of geotextile fabric will be laid within the water and then 520 tons of rock rip rap (type B/C mixture) will be placed over the fabric within the water. An additional 250 square yards of erosion control blanket will be placed in the location and 0.5 acres of seeding and mulching will occur.

Looking north at Base Bid B location.

The second location on the east side of the lake, adjacent to the Trail #4 camping area, will include a rock jetty/fishing pier as part of the project (Location #2 on Figure 2C). The project will include 400 cubic yards of compacted earth fill that will be removed at this location from the water to form the breakwater. Then 500 square yards of Geotextile fabric will be placed over the earth fill. After the Geotextile fabric is placed over the fill, 350 tons

Approximate location of proposed rock jetty/fishing pier at Location #2 on Figure 2.C.

of rock rip rap (type B/C mixture) will be placed. At the end of the breakwater, there will be a floating accessible fishing pier system put in place for recreational angler use. This location will also include 250 square feet of accessible reinforced concrete walk to ensure access from the camping area to the fishing pier. The accessible fishing pier can accommodate approximately 10-15 persons at any given time.

At the third location (Figure 2D), located north of location #2, an existing rock breakwater will be extended by 30 feet. This location includes 650 ton of rock rip rap (type B/C mixture), which will be added to the existing breakwater to extend the length. There will be 3 tons of crushed limestone surface material added to this area as well.

Existing breakwater to be extended 30', referenced as location #2.

The fourth location (Base Bid A, Figure 2E) is located on the southwest side of the lake in the Trail 1 area and consists of three breakwaters. This area will be excavated and the 4,335 cubic yards of fill will then be used to form the earthen cores for the three breakwaters. The project will include 2,450 square yards of Geotextile fabric to be placed over the earthen cores. Then 2,660 ton of rock rip rap (Type C) will be placed over the fabric. An additional 2,730 square feet of tied concrete block mat will also be used in the location.

Base Bid A location looking northwest.

Approximately 1,500 square yards of erosion control blanket will be placed, along with 2 acres of seeding and mulching. At this location, NGPC will do 470 linear feet of willow staking. An 800 linear foot silt fence will also be placed in this location for seeding purposes.

The fifth location (Location #1 on Figure 2E) is a small 50 foot breakwater that is north of Base Bid A in the Trail 1 area. There will be approximately 225 cubic yards of earth excavated and reused to form the earthen core of this breakwater. There will then be 500 square yards of Geotextile fabric placed on the earthen core. It will then be completed by adding 420 tons of rock rip rap (type B/C mixture).

Location of additional 50’ breakwater, referenced as Location #1.

Finally, the sixth location (called location #4 on Figure 2E), located between Trail #1 and Trail #3, consists of one breakwater that is 125 feet in length. The contractor will excavate approximately 570 cubic yards of earth to re-use as the earthen core of the breakwater. Then approximately 800 square yards of Geotextile fabric will be placed on the earthen core. Rock rip rap (Type B/C mixture), in the quantity of an estimated 625 tons,

Proposed 125’ breakwater, referenced as Location #4.

placed on the geotextile fabric. At this location, there will also be 500 linear feet of cedar tree trenched windrow put into place.

Chapter 3: Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment and evaluates the environmental consequences of the No Action Alternative (Alternative A) versus the Preferred Alternative (Alternative B). Cumulative effects and environmental commitments are also presented in this chapter.

3.2 General Description of Project Area

3.2.1 Climate

The climate in Frontier County is a semi-arid climate. The nearest National Weather Service monitoring station is located in North Platte, Nebraska, which is approximately 80 miles northwest of Medicine Creek. The mean annual temperature is 50.7° F. July is normally the warmest month with average daily highs of 91° F. January is generally the coldest month with average daily highs of 10°F. Average annual precipitation is approximately 21 inches, with the majority of this precipitation occurring during April to September (Frontier County Comprehensive Plan, 1999-2009; (http://www.co.frontier.ne.us/content/Zoning/compplanfour.pdf).

Wind and wave action is a main cause of shoreline erosion at Medicine Creek. The wind prevails out of the north in the winter and the south in the summer. Strong winds cause wave action that erodes the shoreline, which causes destabilized areas that can decrease water clarity and quality, and can choke off important cove habitats for aquatic species.

Environmental Consequences

Alternative A- No Action

The No Action Alternative will not impact the local or regional climate.

Alternative B- Proposed Action

The Proposed Action includes the operation of several large pieces of construction equipment to excavate sediment, form sediment into breakwater cores, and cover these breakwaters with rip rap. These activities would likely result in a slight increase in emissions during construction, although these emissions would be minor and below levels which require reporting. No significant impacts to climate are expected as a result of the Proposed Action.

3.2.2 Air Quality

Under the 1990 Clean Air Act, limits are set on the quantities of particular pollutions that can be in the air anywhere in the United States. This law is meant to ensure that all Americans have the same basic health and environmental protections. Individual states are allowed to have more

restrictive air standards, but they are not allowed to have less stringent standards than those set by the Environmental Protection Agency. Ambient monitoring has periodically been conducted and all indications are that the air quality at Medicine Creek Reservoir is well within the limits established by the National Ambient Air Quality Standards. There have been no violations in Frontier County according the Nebraska Department of Environmental Quality. Currently, the State of Nebraska is attainment status.

Affected Environment

The project area is in attainment status.

Environmental Consequences

Alternative A- No Action

The No Action Alternative will not impact the local or regional air quality.

Alternative B- Proposed Action

The Proposed Action would result in a temporary increase in suspended dust and vehicular exhaust during construction. Impacts will be minimal and equipment associated with the Proposed Action does not require permitting through the Nebraska Department of Environmental Quality. The level of temporary construction activity is below the threshold for quantities of pollutants in one area. No significant impacts to air quality are expected as a result of the Proposed Action.

3.2.3 Water Resources

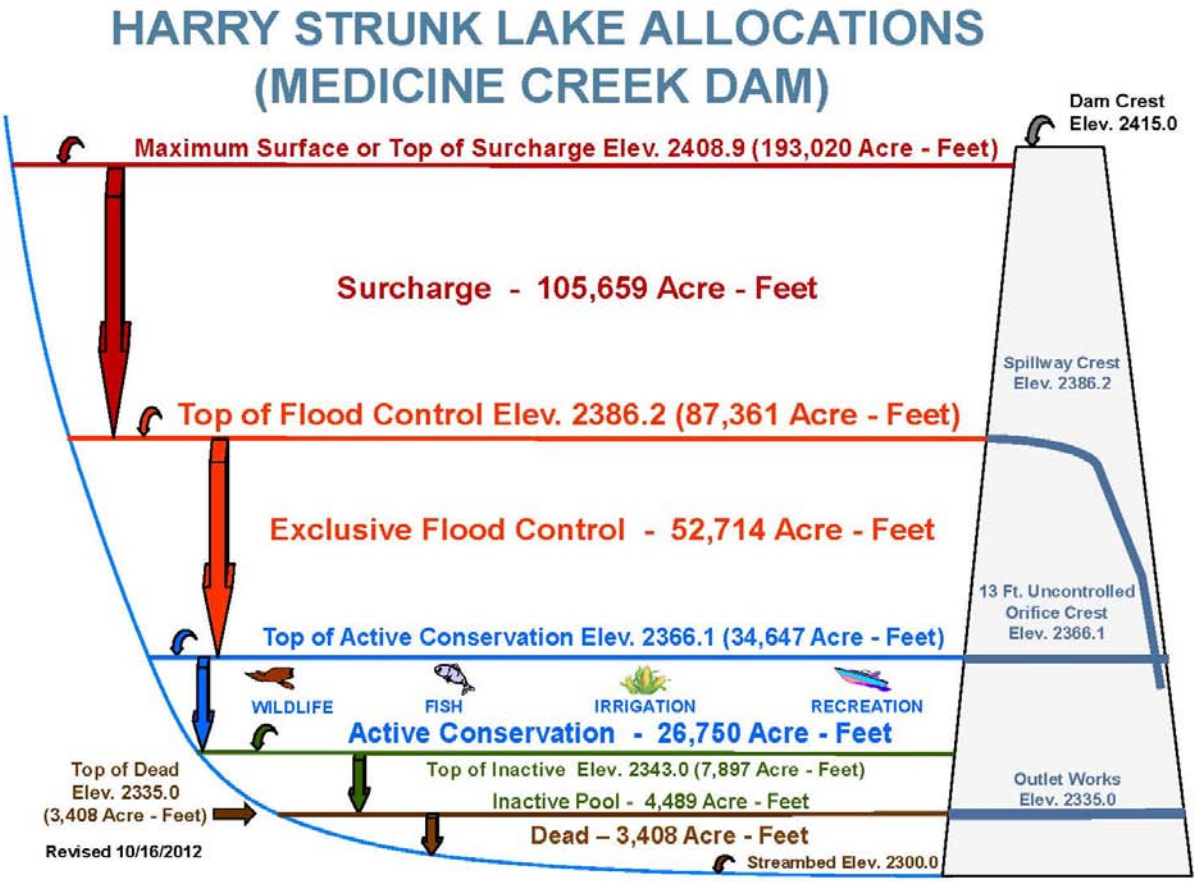
Medicine Creek Dam impounds the water from Medicine and Mitchell Creeks to form Medicine Creek Reservoir/Harry Strunk Lake. The authorized purposes for Medicine Creek Reservoir/Harry Strunk Lake are irrigation and flood control. In addition to the benefits resulting from the primary purposes of flood control and irrigation storage, the project provides incidental benefits for recreation and fish and wildlife (RMP, pg. 59). The Nebraska Surface Water Quality Standards (Title 117) assigns “beneficial use” to all surface waters within or bordering the State of Nebraska. Beneficial use is defined as the productive use of surface waters for which water quality is protected, and includes but is not limited to agricultural, industrial, and public water supplies; support and propagation of fish and other aquatic life; recreation in and on the water; and aesthetics (NE Department of Environmental Quality, Title 117, pg. 1-1).

Affected Environment

Surface Water Quality and Quantity

The Republican River Basin consists of about 25,018 square miles of eastern Colorado, southern Nebraska, and northern Kansas. Principal tributaries that influence flows into the reservoir are Mitchell and Medicine Creeks. Medicine Creek has an approximate drainage area of 740 miles. Intermittent streams drain much of the reservoir area and during wet periods contributes largely

to the wide fluctuations of stream flow. Elevations of the drainage area range from about 1,300 feet at the northern limit to 2,302 feet in the stream channel at the dam. Medicine Creek and one of its principle tributaries, Mitchell Creek, flow through Frontier County in a southeasterly direction and eventually empty into the Republican River. Water can fluctuate approximately 16-20 feet in any given year, depending upon the time of year and how much of the lake is allowed to be released for irrigation provides the Reservoir Capacity Allocations that were outlined in the RMP. The graphic below provides the Reservoir Capacity Allocations.



Source: http://www.usbr.gov/gp/aop/resaloc/harry_strunk_lake.pdf

Sediment/Turbidity

In water bodies such as lakes, rivers and reservoirs, high turbidity levels can reduce the amount of light reaching lower depths, which can inhibit growth of submerged aquatic plants and consequently affect species which are dependent on them, such as fish. High turbidity levels can also affect the ability of fish gills to absorb dissolved oxygen. At this point, the locations that have had erosion occur along the banks have demonstrated increased turbidity (decreased water clarity).

Sediment continues to impair water quality of this reservoir, affecting its beneficial uses. Some of the sediment is caused by upstream erosion from the watershed's agricultural activities. The project locations of the proposal will not be dealing with these sediment sources, which are more difficult to address.

Chemical Contaminants/Nutrients

At this time, there has not been a complete analysis done on chemical contamination nor nutrients for Medicine Creek. According to Greg Michl of Nebraska Department of Environmental Quality (DEQ), Harry Strunk is not currently under a fish consumption advisory (Personal communication, 5/15/13).

Environmental Consequences

Alternative A- No Action

Under the No Action Alternative, the shoreline would continue to erode in all areas that are currently experiencing erosion. Limited amounts of shoreline seeding would be accomplished by NGPC during low-water periods, but this action has very little affect on the ongoing erosion issues at Medicine Creek Reservoir. This ongoing erosion has contributed to higher turbidity levels in these eroded areas, which would be expected to continue under the No Action Alternative. Thus, the No Action Alternative could be expected to result in continued degradation of water clarity, and thus reduced water quality for aquatic habitat.

Alternative B- Proposed Action

The Proposed Action includes construction of shoreline stabilization structures designed to reduce shoreline erosion. Reduced shoreline erosion will result in less suspended sediment entering Medicine Creek Reservoir. Thus, the Proposed Action would have a locally positive effect on water clarity (reduced turbidity) once the project is completed. During the construction of these shoreline stabilization features, discharges of dredged or fill material into waters of the U.S. will be carried out in compliance with provisions of Section 404 of the Clean Water Act, the permit requirements of the Corps of Engineers, and Section 401 water quality certification as administered by the Nebraska Department of Environmental Quality (DEQ). In addition, land grading and clearing activities associated with this project will be conducted in accordance with provisions of Section 402 of the Clean Water Act and the requirements of the Nebraska DEQ National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit that will be obtained by the Contractor. No significant impacts to water resources are expected as a result of the Proposed Action.

3.2.4 Prime and Unique Farmlands

Prime farmland does exist around Medicine Creek Reservoir. The Natural Resources Conservation Service has provided NGPC a map of the area that includes the prime farmland (See Appendix C). The potential areas include the following soil types: McCook silt loam, Holdrege silt loam, Uly silt loam, Cozad silt loam, and Hall silt loam.

Affected Environment

In the area directly adjacent to Medicine Creek Reservoir, there are some areas of prime farmland. NGPC took the map in Appendix C and overlaid the project locations to determine if there would be any effect on these soils.

Environmental Consequences

Alternative A- No Action

The No Action alternative will not affect any of the prime farmland areas.

Alternative B- Proposed Action

There is prime farmland adjacent to the project locations; however the work will be done within the waterway so the land will not be affected. It should be noted that the land in question adjacent to the project locations are not farmed. The Proposed Action alternative will not affect any of the prime farmland areas.

3.2.5 Threatened and Endangered Species

The results of the threatened and endangered species section in this EA are taken from USFWS review on federally threatened and endangered species, dated January 10, 2013 (See Appendix D) and the Natural Heritage Program of Nebraska review on state threatened and endangered species, dated February 7, 2013 (See Appendix D).

Affected Environment

In Frontier County, there are five species that are listed as endangered and one that is listed as threatened. These include the American Burying Beetle (both federally and state endangered), Swift Fox (state endangered), Whooping Crane (both federally and state endangered), Least Tern (both federally and state endangered), and Black-footed ferret (both federally and state endangered). One threatened species, the Piping Plover (federally and state threatened), is also possibly present in Frontier County. Based on the reviews, it is not foreseeable that any of the species listed above will occur within the project area during the time of construction.

American burying beetle is the largest carrion-frequenting insect in North America reaching a length of 1 ½ inches. Adult beetles are nocturnal and search widely for carrion. Beetle reproduction is closely tied to carrion with larvae being housed within and fed by the carrion. The American burying beetle is unique among insects outside of the social bees, wasps, and ants in that it cares for and feeds its young. This insect is known to occur in Rhode Island, Arkansas, Oklahoma, and Nebraska and is thought to inhabit level areas in grasslands and open woodlands (RMP, pg. 24). Appendix C shows the current range of the American Burying Beetle in Nebraska. It should be noted that the range in Frontier County is in northern Frontier County and Medicine Creek is located in southern Frontier County.

The **Swift fox** is a prairie-dwelling canid that was historically distributed throughout the contiguous short to midgrass prairie from the south-central Prairie Provinces in Canada to the southern portions of the western Great Plains. Swift fox habitat consists of level to gently sloping topography containing an open view of the surrounding landscape, abundant prey, and lack of predators and competitors. The swift fox was last recorded in counties nearby in 1985 and 1986 (RMP, pg. 26). There have been no current sightings of swift foxes reported in Frontier County.

The **Whooping Crane** is one of the rarest North American birds. The whooping crane is the tallest North American bird at approximately five feet when standing erect with a wingspan approaching eight feet. Whooping cranes are known to migrate through central Kansas and use portions of the Platte River between Kearney and Grand Island in March during their spring migration to northern Canada. The whooping crane is a regular spring (March-April) and fall (September-November) migrant through the Republican River basin and associated reservoirs in Nebraska where they may use wetlands, open agricultural fields, and grasslands which provide open views of the surrounding terrain and are isolated from human disturbance. Whooping cranes have been reported at Medicine Creek. These visits are normally short-lived and likely represent layovers before reaching the Rainwater Basin or Platte River to the north (RMP, pg. 23).

The **Least Tern** is the smallest member of the tern family and may occur in the Republican River basin and associated reservoirs as a spring and fall migrant. Breeding least terns are normally associated with unvegetated shorelines, sandbars, and mudflats of rivers and sand and gravel pits. The occurrence of breeding terns is localized and is highly dependent upon the presence of dry, exposed sand and gravel bars and favorable river flows that support a forage base and isolate the bars from the banks. Nebraska supports one of the largest populations of terns in the interior United States with distribution scattered throughout the main stem Missouri, Platte, Loup, Niobrara, and Elkhorn rivers. The tern likely occurs throughout the Republican River basin in both Nebraska and Kansas during migrations (RMP, pg. 22).

The **Black-Footed Ferret** is a small carnivore about the size of a mink and is considered to be the most endangered mammal in North America. The range of the black-footed ferret coincides with that of the three species of prairie dogs upon which it depends for food and shelter and rearing young and includes the short and mid-grass prairies of the Great Plains. Although the black-footed ferret is thought to have been extirpated from the Republican River basin, because they are nocturnal, secretive and associated with areas having low human densities, they may exist in large, isolated prairie dog towns/complexes within the basin. The last confirmed observation in Nebraska is a road-kill specimen from Dawson County in 1949 (RMP, pg. 23-24). Dawson County is approximately 35 miles north of Frontier County. There are no known prairie dog complexes located within Medicine Creek SRA or WMA.

The **Piping Plover** is a migratory shorebird that breeds along prairie rivers, alkali lakes and ponds of the northern Great Plains, on sandy beaches along the Great Lakes, and on the beaches

of the Atlantic coast. Its primary food is aquatic invertebrates. Piping plovers can still be found nesting with colonies of least terns on naturally occurring sandbars along the lower Niobrara, the lower Platte River, the Loup River, and at a few sites along the Middle Loup River. There have been no reports of piping plover nesting in the Republican River basin or Medicine Creek reservoir in Nebraska. This species is listed as a state threatened species (RMP, pg. 22-23).

Environmental Consequences

Alternative A- No Action

There would be no change to the existing conditions and no effects to federally or state-listed species under the No Action alternative.

Alternative B- Proposed Action

No suitable or potentially suitable habitat exists for any State or Federally listed species within the project area, with the exception of the spring/fall migration for the Whooping Crane. Fall whooping crane migration occurs from September 16 to November 16, and daily whooping crane surveys will be conducted during this time period following the protocol below (protocol based upon Whooping Crane Survey Protocol guidance from NGPC Environmental Services Division):

1. Contractor will be trained by a NGPC Wildlife Biologist in whooping crane identification and the whooping crane survey method.
2. Contractor will conduct whooping crane surveys at the day's work location(s) within one hour of the start of the workday, with at least one survey done no later than 10 am. Start and stop times will be recorded by the contractor.
3. The contractor will stand at the location(s) that will be worked on for the day and look up and down the lake as far as can be seen using binoculars or a spotting scope. Contractor will watch for a total of 15 minutes to look for bird movements, paying special attention to vegetation and sandhill crane groups that may be present in the area. If visibility is reduced to less than 0.5 miles due to weather conditions, the contractor will allow time for visibility to improve, and will extend the survey duration to ensure a thorough survey.
4. All surveys will be documented by the Contractor. This documentation will be provided to NGPC and Reclamation staff on a monthly basis.
5. The Contractor will be required to contact NGPC for additional guidance if whooping cranes are observed within 0.5 miles of the construction site during the morning survey, or during the duration of the workday. Work will cease if whooping cranes are seen any other time than the morning survey. The contractor will be able to begin or resume work if the birds move off; the sighting will be recorded, the bird departure time will be recorded, and the work start time will also be recorded. All of this documentation will be provided to NGPC and Reclamation staff within three days of recording.

In the event that least terns stop over at Medicine Creek during the fall migration, mitigation measures will occur, which would include bird surveying and if terns were found, construction

would not take place while the species were at Medicine Creek. Construction cannot occur in the spring due to water levels. There would be no change to the existing conditions and no effects to federally or state-listed species under the Proposed Action alternative.

3.2.6 Hazardous Materials

Hazardous materials can be defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment. Information was gleaned from the Nebraska Department of Environmental Quality's (NDEQ) On-line Database to determine potential locations where hazardous materials could be present. The search parameters included all programs that the NDEQ has oversight and permitting approval on.

Affected Environment

In the near vicinity of Medicine Creek SRA, there are three locations that were identified as having permits from NDEQ, which could cause hazardous materials to occur on the property. There are two private entities involved as well as Medicine Creek SRA. See Appendix E for map of the area. Table 1 provides an overview of the information. An on-site survey of NGPC's Engineering Division and Fisheries Division did not reveal any hazardous materials in the vicinity of the project areas. See Appendix E for a map on Hazardous Materials Areas.

TABLE 1: NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY HAZARDOUS MATERIALS AREAS

Name	Public or Private	NDEQ Program Acronym	Acronym definition	Project Description	Program Status
Bob Butz Cabin	Private	OWT	On Site Wastewater Treatment	Wastewater Treatment	Active
Bab Grabenstein Cabin	Private	OWT	On Site Wastewater Treatment	Wastewater Treatment	Active
Medicine Creek SRA	Public	IWM	Integrated Waste Management	Resource Conservation Recovery	Inactive
Medicine Creek SRA	Public	UIC	Underground Injection Control	Drainfield Septic 5W32 (7 locations)	Active
Medicine Creek SRA	Public	OWT	Onsite Wastewater Treatment	Registered OWT System	Active
Medicine Creek SRA	Public	OWT	Onsite Wastewater Treatment	Incomplete Registration	Active
Medicine Creek SRA	Public	OWT	Onsite Wastewater Treatment	Registered OWT System	Active
Medicine Creek SRA	Public	PCS	NPDES: Permits & Compliance	Construction Site < 5 acres	Active

Source: Nebraska Department of Environmental Quality, 2013

Environmental Consequences

Alternative A- No Action

There will be no adverse effects regarding hazardous materials under the No Action alternative.

Alternative B- Proposed Action

The Contractor will develop and implement a hazardous materials safety protocol. All temporary storage facilities for petroleum products, other fuels, and chemicals must be located and protected to prevent accidental spills from entering streams within the project area. Any fill materials brought in will be clean, uncontaminated materials to avoid introducing toxic materials onto Reclamation property. There will be no adverse effects regarding hazardous materials under the Proposed Action alternative.

3.2.7 Vegetation, Fish and Wildlife

Affected Environment

The area surrounding Medicine Creek SRA is agricultural in development. The natural area that the SRA encompasses is a short grass and mixed grass prairie community along with some woodland vegetation in the riparian area along Medicine Creek. Trees common to the area include cottonwood, willow, ash, box elder, and elm. There are also prairie woodland thickets composed of wildrose, hawthorne, snowberry, silverberry, wild plum, and chokecherry. Common shelterbelt species include cottonwood, green ash, elm, ponderosa pine, Russian olive, and Eastern red cedar (RMP, pg. 5).

Common wildlife in the area include white-tailed deer, mule deer, turkey, pheasant, mourning dove, bobwhite quail, cottontail rabbit, squirrel, coyote, weasels, striped and spotted skunks, jackrabbit, ground squirrels, shrews, moles, and mice. Beaver and muskrats occur in the perennial streams and the willow-covered overflow areas (RMP, pg. 5-6). Areas designated as WMA provide habitat for migratory and local wildlife species in a region where intensive farming has eliminated most available habitat. These lands were established to mitigate for the loss of upland and riparian woodland habitat resulting from the construction of the Medicine Creek dam.

Terrestrial cover includes woodlands and grassland habitat. These habitats are conducive for migrating shorebirds and waterfowl, as well as hawks, pheasants, beavers, cottontail rabbit, fox squirrel, and deer that reside permanently or temporarily at the reservoir. In addition, wetland vegetation occurring along the shoreline fringe provides food, water, and shelter for beaver, frogs, deer, and raccoon, and is essential habitat for many types of ducks, geese, herons, shorebirds, turtles, snakes, and other animals that live around or frequent the reservoir.

The reservoir is located in the Central Flyway for waterfowl and shorebirds. Large numbers of water and shorebirds use the area during the spring and fall migrations. Very little, if any, waterfowl reproduction occurs at the lake. NGPC staff have identified mallard, blue-winged teal, Canada goose, double-crested cormorant, pied-billed grebe, and great blue heron in the main body of the lake, to mention a few.

Aquatic species include walleye, white bass, channel catfish, hybrid bass (wipers), and crappie. Populations of gizzard shad, carp, white bass, black and white crappie, bullhead, and other game and forage fish can be found in varying numbers (RMP, pg. 6). Several issues are influencing the reservoir's fisheries management potential. First and foremost, the control of water levels is essential to adequately maintain successful fisheries; however, the management capability at Harry Strunk Lake is restricted due to the annual downstream releases for irrigation. Also, due to the reservoir's sedimentation problem and eroding shorelines, conditions do not favor habitat in which these fish species could be optimally successful. In addition, large flood inflows and long periods of fluctuating water levels are limiting factors to certain types of habitat.

Environmental Consequences

Alternative A- No Action

There will be no adverse effect on vegetation or wildlife under the No Action alternative. However, there will be an impact on fish habitat if the shoreline continues to erode.

Alternative B- Proposed Action

Some vegetation, including grass, brush, and trees, will need to be cleared during the construction of the haul road to access Base Bid A & B locations. In addition, some vegetation (grass) is expected to be damaged in the footprint of the two rock stockpile areas. These temporary impacts to vegetation could disturb potential habitat for birds, small mammals, reptiles, and possibly amphibians during the construction period. However, the contractor will be responsible for restoring all disturbed areas to the pre-construction condition, including replanting these areas with native vegetation. Revegetation will be monitored for success and supplemented as needed until areas are restored. Thus, there may be minor short-term impacts during the course of the construction project, but these impacts will be addressed with mitigation measures following completion of the construction on this project.

Temporary air quality and noise disturbances may also result in the temporary displacement of wildlife species. All construction and vegetation-disturbing activities will occur after July 15, so there will be no effect on nesting birds during the primary nesting season (April 1-July 15). This project will be timed to avoid earth moving activities and/or fill/bank armoring during native fish spawning periods (May 15 - July 31). Finally, there will be localized improvements of fish habitat in shoreline stabilization locations once this project is completed.

3.2.8 Noxious Weeds

Noxious weeds are non-native plants that have been introduced to Nebraska through human actions. Because of aggressive nature, these species are highly destructive, competitive, and can be extremely hard to control. The area of the proposed project has been cultivated and disturbed; therefore, the potential exists for the intrusion and establishment of noxious weeds. The possible noxious weeds that may be found in the area associated with the proposed shoreline stabilization are listed in Table 3.

Because this project involves working near and in a water body of the State, precautions will need to be taken to ensure harmful aquatic invasive species are not introduced or spread. On January 1, 2013, new regulations became effective in Nebraska (under NGPC jurisdiction, Chapter 2, section 12) that “it is unlawful for any person to possess, import, export, purchase, sell, transport or release into the waters of the State any Aquatic Invasive Species except when Commission personnel or the owner of a conveyance, or a person authorized by such owner, is removing an Aquatic Invasive Species from a conveyance to be killed or immediately disposed of in a manner as determined by the Commission or allowed to possess, sell or transport by

regulations listed in Chapter 2, Sections 003 and 006. It is also unlawful to leave a water body with water in any compartments (livewell, bilge, etc.).

Affected Environment

The following list was developed by the Nebraska Invasive Species Council that identifies plants that could potentially be located at the site. There are many other invasive species within the area that should be considered prior to project initiation (See Appendix F). Table 2 provides a listing of Noxious Weeds that could affect Medicine Creek SRA.

TABLE 2: NOXIOUS WEEDS THAT COULD AFFECT MEDICINE CREEK SRA

Scientific Name	**Common Name**
Carduus acanthoides	Plumeless thistle
Carduus nutans	Musk thistle
Centaurea diffusa	Diffuse knapweed
Centaurea stoebe ssp. *micranthos*	Spotted knapweekd
Cirsium arvense	Canada thistle
Euphorbia esula	Leafy spurge
Phragmites australis ssp. *australis*	Eurasian common reed (Aquatic Invasive Species)
Tamarix ramosissima and hybrids	Salt cedar (Aquatic Invasive Species)
Lythrum salicaria	Purple loosestrife (Aquatic Invasive Species)
Fallopia japonica and hybrids	Japanese knotweed
Lespedeza cuneata	Sericea lespedeza

Source: Nebraska Invasive Species Council, 2012

Table 3 provides a listing of Aquatic Invasive Species that could affect Medicine Creek SRA. Part of the list includes a category (Category 1) of potential aquatic invasive species that have not yet been sampled in Nebraska but are considered a high threat. Another category (Category 2) within the table are species that are currently present in Nebraska but with limited distribution but are considered highly unwanted species. Finally, Category 3 provides a list of established species and local removal and control is the best way to approach these species.

TABLE 3: AQUATIC INVASIVE SPECIES IN NEBRASKA

Scientific Name	Common Name	Category
Apollonia melanostoma	Round Goby	1
Channa sp.	Snakehead	1
Mylopharyngodon piceus	Black Carp	1
Dreissena rostriformis bugensis	Quagga Mussel	1
Potamophyrgus antipodarum	New Zealand Mudsnail	1
Arundo donax	Giant Reed	1
Egeria densa	Brazilian Waterweed, Elodea	1
Eichhornia sp.	Water Hyacinth	1
Hydrilla verticillata	Hydrilla	1
Myriphyllum aquaticum	Parrot Feather	1
Najas minor	Brittle Naiad	1
Salvinia molesta	Giant Salvinia	1
Didymosphenia germinate	Didymo, Rock Snot	1
Hyopophthamichthys molitrix	Silver Carp	2
Hyopophthamichthys nobilis	Bighead Carp	2
Morone americana	White Perch	2
Roccus mississippiensis	Yellow Bass	2
Corbicula fluminea	Asian Clam	2
Dreissena polymorpha	Zebra Mussel	2
Daphnia lumholtzii	Waterflea	2
Orconectes rusticus	Rusty Crayfish	2
Potomogeton crispus	Curly-leaf Pondweed	2
Butomus umbellatus	Flowering Rush	2
Myriophyllum spicatum	Eurasian Watermilfoil	2
Nymphoides peltat	Yellow Floating Heart	2
Cyprinus carpio	Common Carp	3
Scardinius erythrophthalmus	European Rudd	3
Cipangopaludina chinensis	Chinese Mystery Snail	3
Cipangopaludina japonica	Japanese Mystery Snail	3
Nasturium officinale	Common Watercress	3
Phalaris arundinacea	Reed Canary Grass	3
Typha angustifolia and hybrids	Narrow-leaf Cattail	3

Source: Nebraska Invasive Species Council, 2012

Environmental Consequences

Alternative A- No Action

The No Action alternative will not have an adverse effect on noxious weeds or aquatic invasive species.

Alternative B- Proposed Action

The Proposed Action alternative will have no adverse effect on noxious weeds and aquatic invasive species as long as some mitigation measures are put into place for the contractor. When

seeding the area, contractor will use native vegetation. The contractor, when staging will locate and use weed-free staging areas and will avoid travel through infested areas whenever feasible. All equipment and vehicles brought to the project site should arrive clean. If equipment and/or vehicles do not arrive on the project site in a clean condition, mud, dirt, and plant parts should be removed (preferably with a 2,000-PSI pressure washer) at a designated cleaning area before moving equipment/vehicles onto the project site. Seeds and plant parts should be collected and incinerated if possible. In addition, all equipment and vehicles should be cleaned at a designated cleaning area before leaving the project site. NGPC will provide the contractor the Nebraska Invasive Plan Prevention Protocol: Guidelines for Land Management from the Nebraska Invasive Species Council for guidance.

The contractor completing this work will restrict the clearing of vegetation to the absolute minimum required to accomplish the work. Clearing, grading, and replanting will be planned and timed so that only the smallest area necessary is in a disturbed, unstable, or unvegetated condition during construction. All disturbed areas that were previously vegetated will be replanted with weed-free seed or sod.

3.2.9 Soil Erosion

Any activities that reduce or eliminate vegetation have the potential to result in soil erosion until vegetation is re-established. The project area has been disturbed due to the natural erosion that has occurred within the water body. Soil erosion has been observed during recent site visits to the project areas.

Affected Environment

The soils of Frontier County formed in several kinds of parent material such as loess, eolian sand, colluvium, and alluvium. The soils around Medicine Creek Reservoir are medium textured, alluvial deposits, predominately characterized by deep, strongly sloping to very steep, well-drained to excessively drained silty soils on narrow divides and canyons of loess uplands. To a lesser extent, other soils represented include deep, nearly level to gently sloping, well-drained silty soils on broad divides of loess uplands and deep, nearly level to gently sloping, well-drained silty soils on bottomland, stream terraces, and foot slopes (RMP, pg. 6).

Of the six locations outlined on Figure 2, almost all of them have minor to significant erosion issues.

Environmental Consequences

Alternative A- No Action

The No Action alternative will adversely affect the soil erosion rate at Medicine Creek SRA.

Alternative B- Proposed Action

This shoreline stabilization project uses appropriate bioengineering solutions. The Contractor will plan and implement comprehensive and effective erosion and sediment controls in accordance with the NPDES permit that will be obtained through Nebraska DEQ. These methods will be implemented and maintained for the duration of the project to prevent sediment from entering Medicine Creek Reservoir. These controls will remain in place until work areas become revegetated and stable. The Contractor will monitor these controls daily during construction to ensure effectiveness, particularly after storm events, and only the most effective techniques will be utilized. Eroded surfaces will not be left exposed for greater than one day. If rain is predicted, no construction will commence unless eroded surfaces are immediately treated with geotextile fabric, mulch, seeding, or other techniques that would stabilize the bank or exposed areas from eroding (USFWS Guidance, pg. 63). Thus, under the Proposed Action alternative, the Contractor will make every attempt to control short-term erosion impacts under this NPDES permit. The Proposed Action alternative will produce long-term localized improvements in the soil erosion issue at Medicine Creek Reservoir.

3.2.10 Historic and Cultural Resources

Affected Environment

In December 1980, Reclamation requested a site-file check from the Nebraska State Historical Society (NSHS) for cultural resources within the Medicine Creek Reservoir area. Thirty-five (35) prehistoric archaeological sites were recorded within, or in close proximity to, the reservoir boundary. Site types include village sites, individual family campsites, lithic scatters, and butcher sites.

Two historic sites were recorded by previous surveys. One was a log cabin built in 1872, which was destroyed by the reservoir's construction. The second historic site was a pioneer cemetery which lays at the edge of the irrigation pool.

Environmental Consequences

Alternative A- No Action

There will be no adverse effects on the historic or cultural resources of the area with the No Action alternative.

Alternative B- Proposed Action

Reclamation staff conducted an Archeological Pedestrian Survey in July of 2012 of the area when requested by NGPC for the purpose of determining the effect of completing shoreline stabilization in this area. The report was submitted by Bill Chada of Reclamation to Bob Puschendorf of NSHS in accordance with Section 106 of the National Historic Preservation Act

for review and concurrence. In a letter dated August 14, 2012, both Bob Puschendorf and Terry Steinacher (NSHS Archeologist) concurred with the findings. The survey and assessment determined a finding of "no historic properties affected" by this project. This information is included within Appendix G.

Prior to construction, stockpiling will begin and a haul road will be constructed. During that time, NGPC will coordinate with Reclamation to have Reclamation staff at the location to oversee the activity in case any activity unearths items of historic or cultural interest. If any cultural or archeological resources are encountered during construction activities, work will stop and a Reclamation archeologist will be notified immediately. There will be no adverse effects on the historic or cultural resources of the area with the Proposed Action alternative.

3.2.11 Visual Resources, Noise, and Recreational Use

Medicine Creek is a visually attractive recreation facility in an agricultural area. The landscape of the surrounding area contains features which are fairly common to Frontier County. Occasional noise from motorized boats, camping generators, and adjacent agricultural practices (including the movement of farming equipment) occurs at this location. The reservoir provides numerous recreation opportunities, including boating, camping, picnicking, windsurfing, walking/jogging, hunting, fishing, and bicycling. At the more site-specific level, construction sites for this project will be located along the reservoir shoreline, near camping facilities, existing jetties (used for fishing), boat docks, and access roads.

Environmental Consequences

Alternative A- No Action

There would be no effects to visual resources or noise under the No Action alternative. Continuing shoreline erosion, along with lateral movement of eroded sediment, may impact recreational use under the No Action alternative.

Alternative B-Proposed Action

Impacts of the Proposed Action alternative include temporary construction effects: dust, noise, increased vehicular traffic to and from the site, and visual impacts of the construction materials and equipment. In addition, flagging and signage will be used to close work areas to the public. However, these limited construction area closures will not cause a significant disruption to recreation in the area while the work is being completed. Once completed, the shoreline stabilization features will blend into the natural setting and assist in enhancing access to the main recreation and visual resource - the reservoir.

3.2.12 Indian Trust Assets and Indian Sacred Sites

Indian Trust Assets (ITA) are legal interests in property held in trust by the United States for Indian tribes or individuals, or property that the United States is otherwise charged by law to protect. The Indian Self-Determination and Education Assistance Act, 24 CFR Part 900.6,

defines a *trust resource* as "an interest in land, water, minerals, funds, or other assets or property which is held by the United States in trust for an Indian tribe or an individual Indian or which is held by an Indian tribe or Indian subject to a restriction on alienation imposed by the United States." It is the Policy of Reclamation to carry out its activities in a manner which protects ITAs and avoids adverse impacts when possible.

Affected Environment

There are no ITAs or Indian Sacred Sites within the proposed project area.

Environmental Consequences

Alternative A- No Action

The No Action Alternative will not affect any ITAs or Indian Sacred Sites because there are none in the area.

Alternative B- Proposed Action

The Proposed Action Alternative will not affect any ITAs or Indian Sacred Sites because there are none in the area.

3.2.13 Socioeconomics

The U.S. Census Bureau does not have specific information for Medicine Creek Reservoir; therefore, the following information is for Frontier County. According to the most recent data from the U.S. Census Bureau, the total population of Frontier County is 2,756 and the town of Cambridge has 1,160 residents. The average age is 43.1 years. The breakdown of residents includes 98.4% Caucasian, 0.3% American Indian and Alaska Native, 0.1% Asian, 0.1% Korean, 0.1% Vietnamese and 0.4% some other race in the year 2010. The average household size is 2.26 persons. The average household income was $47,552 (American Fact Finder; State and County Quick Facts: 2007-2011 in Frontier County, Nebraska).

Environmental Consequences

Alternative A- No Action

There would be no effects to socioeconomics under the No Action Alternative.

Alternative B- Proposed Action

Implementation of the Proposed Action Alternative could result in the creation of a small number of jobs for contractors during site construction. Construction activities could take up to four months to complete. There could be a positive effect on the local economy.

3.2.14 Environmental Justice

Federal agencies need to ensure that no disproportionate impacts on low income or minority populations occur as a result of the action or not taking the action.

Environmental Consequences

Alternative A- No Action

The No Action alternative will have no adverse effects to low-income or minority populations.

Alternative B- Proposed Action

No adverse effects to low-income or minority populations are anticipated under the Proposed Action alternative.

3.2.15 Wetlands

Federal agencies shall avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.

Affected Environment

Within the shallow water along the shore (littoral zone), aquatic emergent (partly above water), aquatic submergent (underwater), and other littoral vegetation species are limited, and the shoreline supports little to no woody vegetation mostly due to the inconsistent water levels brought about by the annual operation of the reservoir as a source of water for agricultural irrigation. Currently, wetland vegetation along the shoreline is limited at Harry Strunk Lake. Small patches of cattails and river bulrush can be found growing among the riprap along the shoreline in a few isolated areas along the main body of the lake. According to the National Wetlands Inventory, there are areas of wetlands around the lake (See Appendix H).

Environmental Consequences

Alternative A- No Action

The No Action alternative could cause additional erosion of shoreline and wetland habitat area could decrease.

Alternative B- Proposed Action

NGPC consulted with Ted LaGrange, NGPC Wetland Program Manager, regarding potential effects the proposed action could have on wetlands in the area. The only locations that have potential wetlands near the area of work are locations #2 and #4 (See Appendix H), which have freshwater forested/shrub wetlands. These areas will be identified by staking, and will be identified within the plans and specifications provided to the Contractor. The Contractor will not be allowed to conduct staging or stockpiling activities in these areas. The work in the proposed areas will not adversely affect any wetlands and therefore complies with Executive Order 11990.

3.2.16 Floodplain Management

Federal agencies shall avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to minimize the impact of

floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out the agency's responsibilities.

Affected Environment

Due to the fact that Medicine Creek's main purposes are flood control and irrigation, this area is located within the floodplain (See Appendix I).

Environmental Consequences

Alternative A- No Action

The No Action alternative was determined to have no effect on floodplains or floodplain management and complies with Executive Order 11988.

Alternative B- Proposed Action

Activities under the Proposed Action alternative will occur on lands within or adjacent to the floodplain. These activities will have no effect on floodplains or floodplain management due to the fact that construction will not lead to occupation of the floodplain, or alter the natural and beneficial values of the floodplain areas. Thus, the Proposed Action will comply with Executive Order 11988.

3.2.17 Migratory Birds

The United States has ratified international, bilateral conventions for the conservation of migratory birds. These international migratory bird conventions impose obligations for the conservation of migratory birds and their habitats. Table 5 provides the potential migratory birds in Frontier County.

TABLE 5: POTENTIAL MIGRATORY BIRD SPECIES AT MEDICINE CREEK

Species Name	Latin Name	Abundance	Seasonal Migration
Greater White-fronted Goose	*Anser albifrons*	Uncommon	Spring & Fall Migrant
Snow Goose	*Chen caerulescens*	Uncommon	Spring & Fall Migrant
Ross's Goose	*Chen rossii*	Occasional	Spring & Fall Migrant
Gadwall	*Anas Americana*	Uncommon	Spring & Fall Migrant
Canvasback	*Aythya valisineria*	Uncommon	Spring & Fall Migrant
Redhead	*Aythya Americana*	Uncommon	Spring & Fall Migrant
Ring-necked Duck	*Aythya collaris*	Uncommon	Spring & Fall Migrant
Bufflehead	*Bucephala albeola*	Uncommon	Spring & Fall Migrant
Common Goldeneye	*Bucephala clangula*	Uncommon	Spring & Fall Migrant
Common Merganser	*Mergus merganser*	Uncommon	Spring & Fall Migrant
Ruddy Duck	*Oxyura jamaicensis*	Uncommon	Spring & Fall Migrant
Western Grebe	*Aechmophorus occidentalis*	Uncommon	Spring & Fall Migrant
Clark's Grebe	*Aechmophorus clarkia*	Rare or Local	Spring & Fall Migrant
American White Pelican	*Pelecanus erythrorhynchos*	Uncommon	Spring & Fall Migrant
Bald Eagle	*Haliaeetus leucocephalus*	Uncommon	Winter Migrant
Sharp-shinned Hawk	*Accipiter striatus*	Rare or Local	Winter Migrant
Rough-legged Hawk	*Buteo lagopus*	Uncommon	Winter Migrant
American Coot	*Fulica Americana*	Uncommon	Spring & Fall Migrant
Sandhill Crane	*Grus Canadensis*	Common	Spring & Fall Migrant
American Avocet	*Recurvirostra Americana*	Uncommon	Spring & Fall Migrant
Solitary Sandpiper	*Tringa solitaria*	Uncommon	Spring & Fall Migrant
Semipalmated Sandpiper	*Calidris pusilla*	Uncommon	Spring & Fall Migrant
White-rumped Sandpiper	*Calidris fusciollis*	Uncommon	Spring & Fall Migrant
Baird's Sandpiper	*Calidris bairdii*	Uncommon	Spring & Fall Migrant
Wilson's Phalarope	*Phalaropus tricolor*	Uncommon	Spring & Fall Migrant
Foster's Tern	*Sterna forsteri*	Uncommon	Spring & Fall Migrant
Black Tern	*Chlidonias niger*	Uncommon	Spring & Fall Migrant
Red-breasted Nuthatch	*Sitta Canadensis*	Uncommon	Winter Migrant
Orange-crowed Warbler	*Vermivora celata*	Uncommon	Spring & Fall Migrant
American Tree Sparrow	*Spizella arborea*	Uncommon	Spring & Fall Migrant
Clay-colored Sparrow	*Spizella pallida*	Uncommon	Spring & Fall Migrant
Lincoln's Sparrow	*Melospiza lincolnii*	Uncommon	Spring & Fall Migrant
White-throated Sparrow	*Zonotrichia albicollis*	Uncommon	Winter Migrant
Harris's Sparrow	*Zonotrichia querula*	Uncommon	Winter Migrant
Dark-eyed Junco	*Junco hyemalis*	Uncommon	Winter Migrant
Lapland Longspur	*Calcarius lapponicus*	Uncommon	Winter Migrant

Source: www.nebraskabirdingtrails.com; 5/28/13

Environmental Consequences

Alternative A- No Action

The No Action alternative will not cause an adverse effect to any migratory birds within the area.

Alternative B- Proposed Alternative

All construction and vegetation-disturbing activities will occur after July 15, so there will be no effect on nesting birds during the primary nesting season (April 1-July 15). The Contractor will

be trained to identify the white-crowned sparrow and the pine siskin during winter months and, if necessary, a bird survey will be conducted on behalf of NGPC and Reclamation. Provided the timing restrictions are followed, the proposed action alternative will have no adverse effect on migratory birds.

3.2.18 Cumulative Impacts

The combined incremental effects of human activity are referred to as cumulative impacts (40CFR 1508.7). While these incremental effects may be insignificant on their own, accumulated over time and from various sources, they can result in serious degradation to the environment. The cumulative impact analysis must consider past, present, and reasonably foreseeable actions in the study area. The analysis also must include consideration of actions outside of that proposed by NGPC, to include other state and Federal agencies. As required by NEPA, NGPC has prepared the following assessment of cumulative impacts related to the alternatives being considered in this EA.

Historically, the principal uses of Harry Strunk Lake have been for irrigation of the adjacent farmland, flood control, fish and wildlife, as well as recreation. Current activities include continued irrigation, flood control, fish, wildlife, and recreation. Resources that typically are affected by shoreline stabilization include, but are not limited to, wetlands, native vegetation, water quality, and fish and wildlife habitat. Tourism is also a significant local activity due to the lake's recreational resources available.

Environmental Consequences

Alternative A- No Action

The No Action alternative is not expected to have significant cumulative impacts.

Alternative B- Proposed Alternative

No cumulative impacts from the proposed project are anticipated. This project would not be expected to result in any long-term adverse cumulative effects to identified resources.

3.2.19 Environmental Commitments

The EA identifies a number of best management practices and mitigation measures that will avoid, reduce, or eliminate adverse environmental effects which may otherwise result from construction and operation of the proposed action. These commitments will be included in any project-related construction contracts issued by NGPC. For most cases, any construction, operation, maintenance, or replacement activities that are not specifically addressed in this EA would require additional NEPA and NHPA compliance prior to implementation. Below are the listed commitments for the project:

- Contractor shall follow standard construction industry measures to minimize fugitive dust emissions created during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.

- Equipment used for this project shall be maintained to factory or better specifications to minimize emissions and noise.
- Contractor shall perform work in accordance with the terms and conditions of the Department of the Army Regional General Permit (RGP) No. 98-05 Amendment #2. Contractor shall comply with all special and general conditions of this permit. Upon completion of this project, a completed Compliance Certification shall be submitted to the U.S. Army Corps of Engineers Nebraska Regulatory Office-Kearney.
- Contractor shall obtain a Nebraska DEQ National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit, and shall perform work in accordance with the terms and conditions of this permit. Contractor shall develop and implement comprehensive and effective erosion and sediment controls for all disturbed areas in accordance with this permit.
- Contractor shall be trained to identify whooping cranes and will conduct daily whooping crane surveys at all work sites before initiating work each day during the fall migration period (September 16 to November 16). The contractor shall follow the established protocol for these surveys, provided in the EA above. These surveys shall be documented, and documentation provided to NGPC and Reclamation in a timely manner. Contractor shall stop work immediately if whooping cranes are observed within 0.5 miles of the work site(s). In the unanticipated event that a threatened or endangered species other than the whooping crane is identified and encountered during construction, construction activities in the immediate area will be stopped immediately until NGPC can consult with the U.S. Fish and Wildlife Service to determine appropriate steps to avoid impacting the species.
- Contractor shall inspect equipment and vehicles for the presence of petroleum leaks and take corrective actions if inspections identify potential risks of contamination. Additionally, contractor shall develop and implement a hazardous materials safety protocol to prevent contamination of land or water with petroleum products, other fuels, or chemicals present on the project site.
- Contractor shall follow recognized best management practices to reduce and prevent the spread of noxious weeds and invasive species.
    - Clearing of vegetation shall be restricted to the absolute minimum required to accomplish the work.
    - Contractor's travel shall be restricted to existing roads and access routes as much as possible.
    - All disturbed areas shall be re-contoured and replanted with weed-free native vegetation. Planting will be conducted in a timely manner to minimize invasion of noxious or undesirable weed species. Revegetation efforts will be monitored for success and supplemented as needed until these areas are restored.
    - Contractor shall locate and use weed-free staging areas and avoid travel through infested areas whenever feasible.

    - All equipment and vehicles brought to the project site should arrive clean. If equipment and/or vehicles do not arrive on the project site in a clean condition, mud, dirt, and plant parts should be removed (preferably with a 2,000-PSI pressure washer) at a designated cleaning area before moving equipment/vehicles onto the project site. Seeds and plant parts should be collected and incinerated if possible.
    - All equipment and vehicles should be cleaned at a designated cleaning area before leaving the project site.
- All construction and vegetation-disturbing activities will occur outside of the primary nesting season for migratory birds (April 1-July 15). The contractor will be trained to identify the white-crowned sparrow and pine siskin during winter months. If necessary, a breeding bird survey will be conducted on behalf of NGPC and Reclamation. Construction and earth moving activities will also occur outside of native fish spawning periods (May 15 – July 31).
- NGPC will coordinate with Reclamation to have the NKAO Archaeologist or a designated Reclamation representative present on-site during the stockpiling of riprap materials at the two stockpile locations and construction of the access road for Bid Sites A & B.
- If any historic or cultural resources are encountered during construction activities, work will stop and the NKAO Archaeologist and any other appropriate authorities will be notified immediately. Work in the area will resume only when compliance has been achieved.
- Contractor shall close work areas to the public using flagging and signage, or other appropriate means, to ensure public safety for the duration of this project.
- Contractor shall avoid wetland areas, which will be identified by on-site staking and plans/specifications provided to the Contractor by NGPC.
- When seeding the area, contractor will use native vegetation.

Chapter 4: List of Preparers

This document was prepared by the Nebraska Game and Parks Commission and reviewed by the Bureau of Reclamation's Nebraska-Kansas Area Office.

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Chapter 5: Public and Agency Involvement

5.1 Agency Coordination

The following persons and agencies were consulted as part of developing this EA:

- Bob Puschendorf, State Deputy Director, Nebraska State Historical Society
- Terry Steinacher, Archaeologist, Nebraska State Historical Society
- Greg Michl, Nebraska Department of Environmental Quality
- John Cochnar, Deputy Field Supervisor, U.S. Fish and Wildlife Service
- Bob Harms, Fish & Wildlife Biologist, U.S. Fish and Wildlife Service
- Michelle Koch, Environmental Analyst Supervisor, Nebraska Game and Parks Commission
- Karie Decker, Assistant Division Administrator (Wildlife-Research Division), Nebraska Game and Parks Commission
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- Ted LaGrange, Wetland Program Manager, Nebraska Game and Parks Commission
- Mike Groenewold, Horticulturalist, Nebraska Game and Parks Commission
- Jake Miriovsky, Engineer, Nebraska Game and Parks Commission
- Caleb Huber, Fish & Wildlife Biologist, Nebraska Game and Parks Commission
- Wayne Vanek, NRI/SSURGO Coordinator, Natural Resources Conservation Services
- Barb Friskopp, Project Manager, U.S. Army Corps of Engineers

5.2 Public Involvement

Public notices were advertised in the Omaha World Herald, a statewide paper, and the Cambridge newspaper, a local paper, on February 7, 2013 requesting public comments regarding the proposed shoreline protection and aquatic habitat improvement project at Medicine Creek SRA. The comment period was open for 30 days until March 7, 2013. No comments were received.

Public notice that the draft EA was available for public comment was published on the Bureau of Reclamation's Schedule of Proposed NEPA Actions website (http://www.usbr.gov/gp/nepa/sopa.html) on February 7, 2013. Public notice indicated the draft EA was available for public comment February 5 to March 7, 2013. No comments were received.

Chapter 6: References

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Appendix A: 2012 Fish Survey Summary

Medicine Creek
2012 Survey Summary

Nebraska Game and Parks Commission Caleb Huber, Fisheries Biologist

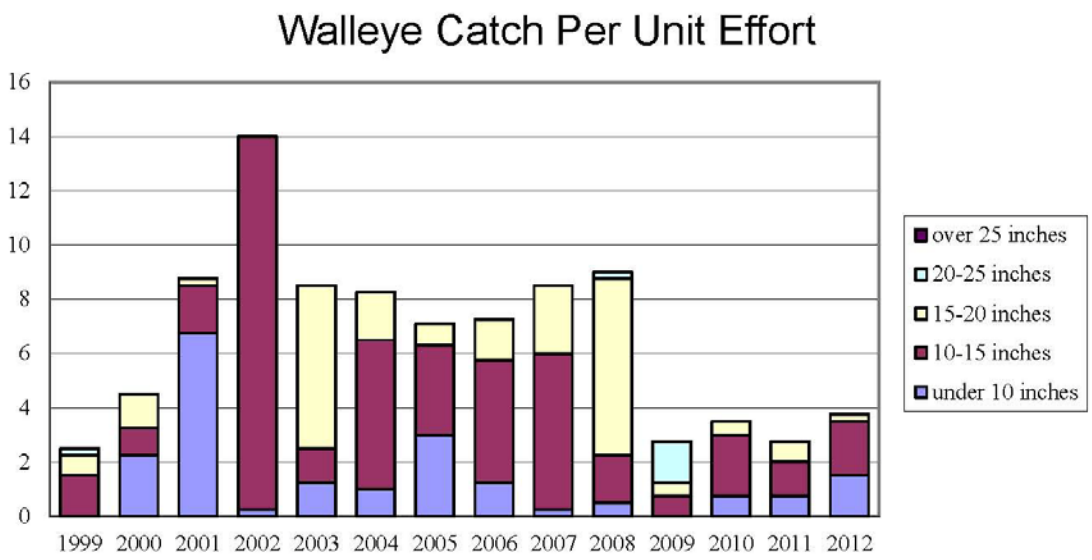
Fish populations are sampled each fall at Medicine Creek Reservoir using gill nets, a method commonly used to sample fish found in open water, such as walleye, white bass, channel catfish and hybrid striped bass. Gill nets are set on approximately the same dates and locations each year to reduce variability and allow for trend comparisons of species abundance and size distributions. However, environmental factors can play a strong role in catch rate and composition.

Walleye numbers took a sharp decline in 2009 due to a lack of recruitment. This lack of recruitment may have been due to a change in stocking strategy, using walleye fry rather than walleye fingerling. Walleye fry have been very successful at other Southwest reservoirs but never performed well at Medicine Creek which could be due to lack of water clarity, increased flow, or high shad abundance compared to other reservoirs. In any case, biologists returned to fingerling stockings in 2010 and things seem to be improving. There has not been a strong increase in numbers, but catch rates are the highest they have been since 2009 even though the reservoir was dropped to a record low in 2012 due to extreme drought conditions. There are also a few small walleye showing up in annual surveys which indicate that they are recruiting to the population.

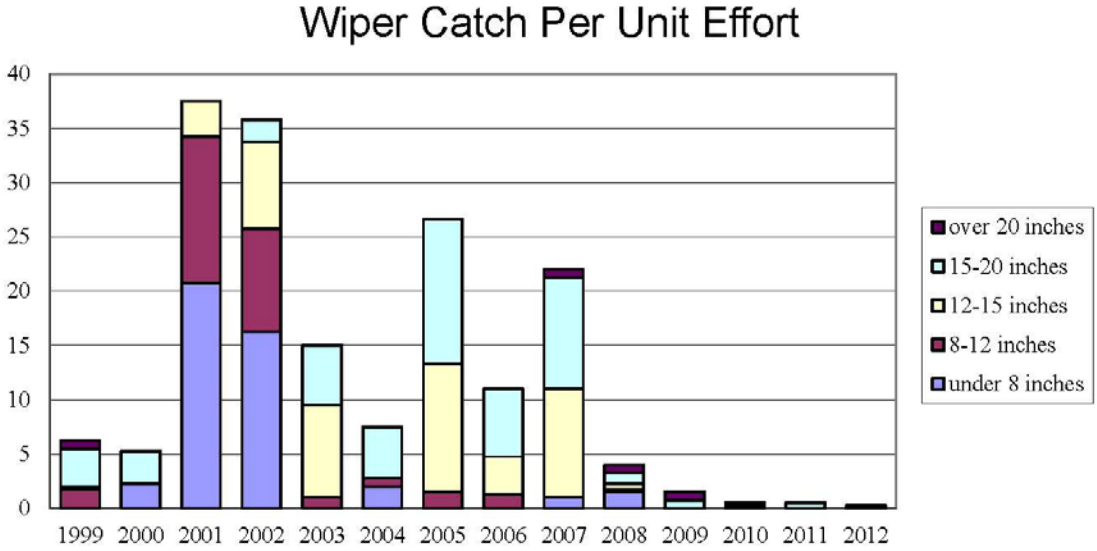
The channel catfish survey was outstanding in 2012. Biologists surveyed 10 fish per net and half of those fish were greater than 24 inches in length. There were also a few trophy fish greater than 28 inches long. Medicine Creek is always a good place for catfish anglers but the 2012 survey is one of the best samples in over 10 years. White bass numbers are also increasing at Medicine creek. Biologists sampled 20 fish per net which is twice the number of fish sampled in 2010. The downside to the white bass survey is the lack of trophy sized fish. Three fourths of the fish sampled were 9-12 inches long which are great for the frying pan but definitely not a trophy white bass to most anglers. Overall, there is a lot of improvement at Medicine Creek compared to recent survey data.

In addition to survey data, angler use data is included in this year's survey summary. Overall, angler use and harvest is up across the board in 2012. There were a total of 6,795 anglers that fished an estimated 31,512 hours which is up from 5,658 anglers and 23,680 hours in 2011.

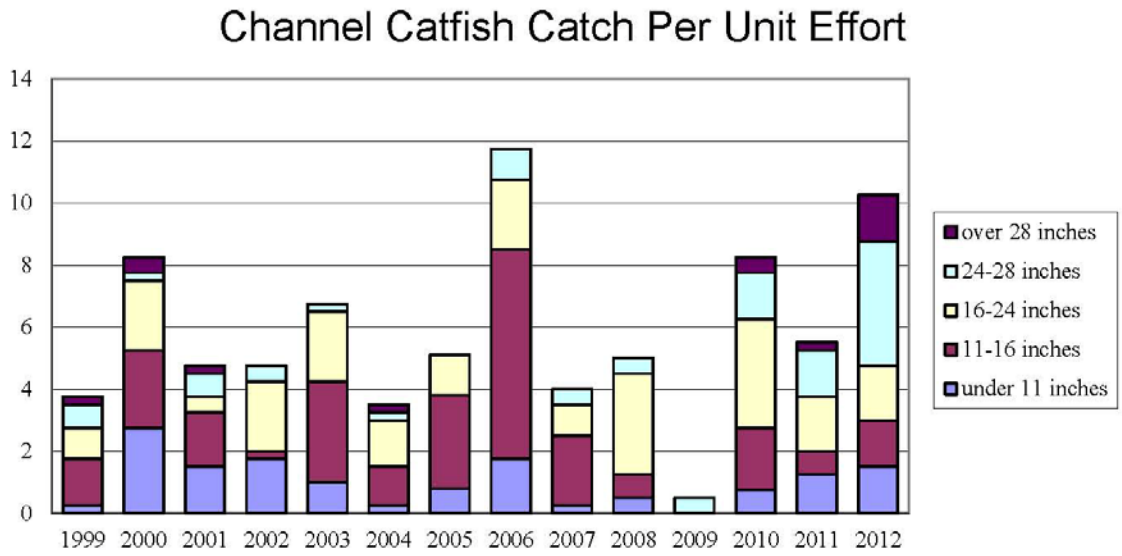
The following graphs show the average number of fish caught per net and the relative abundance of fish within several length categories. The text provides a brief explanation of the information shown in the graphs. Also included is a table of recent angler use survey data from 2011 and 2012. This data is the result of angler interviews taken by creel clerks during their contacts with local anglers



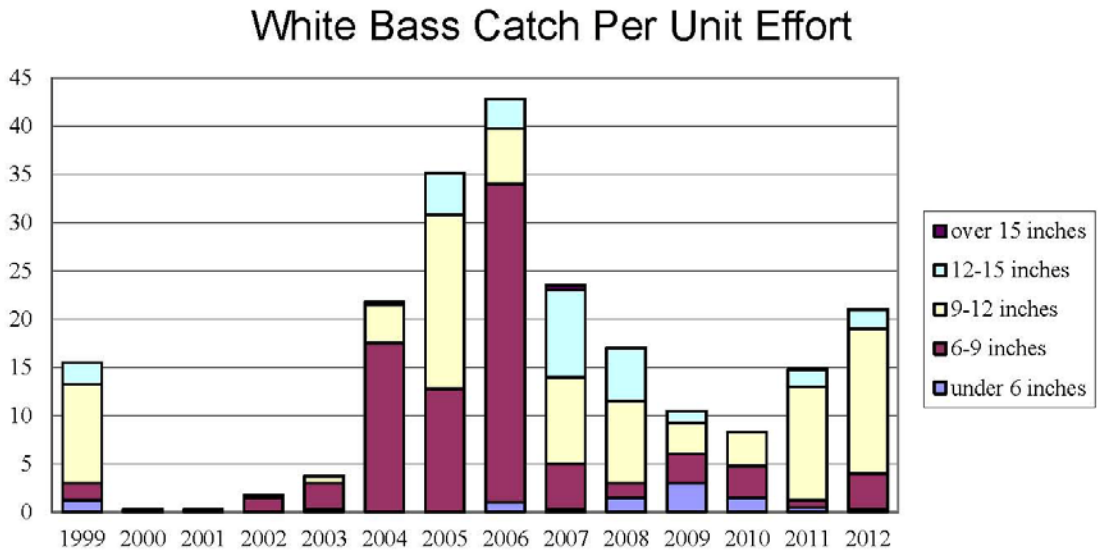
Walleye numbers have been down at Medicine Creek since 2009 and that overall trend continues with the 2012 survey data. Biologists have changed the stocking strategy in an attempt to increase walleye numbers. 131,081 fingerling walleye were stocked in 2012 and the number has been increased to 138,000 requested for 2013. Populations are beginning to increase and should continue to improves as more fish are introduced to the system.



Wiper numbers are down again at Medicine Creek with approximately 1 fish per net. Wiper stockings were suspended in the past in an effort to increase the number of white bass and based on the lack of interest by anglers. However, 13,800 fingerling wipers have been requested for 2013 and will be requested annually until angling opportunities improve.



Channel Catfish numbers are pretty consistent at Medicine Creek with the exception of the 2009 sample year. During the 2012 survey biologist caught 10 fish per net, and half of those fish sampled were greater than 24 inches in length. This was an outstanding catfish sample especially considering the number of trophy fish surveyed

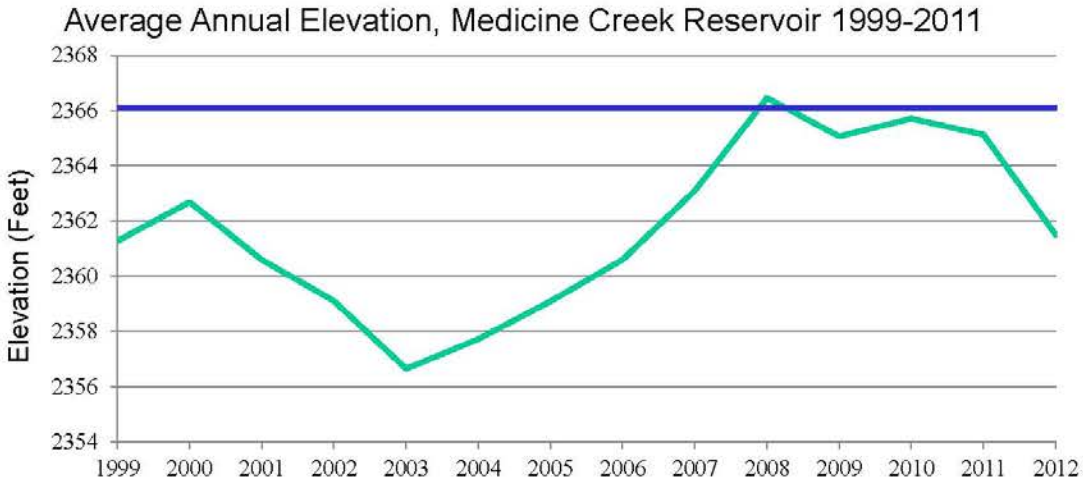


White bass numbers have been steadily increasing since 2010. Biologists surveyed 21 fish per net in 2012. However, most of those fish were under 12 inches. There should be plenty of fish available in 2012 but there won't be huge number of large fish for those seeking a trophy white bass.

2012 Angler Use Summary

Species	Year	Total Catch	Harvest Number	Total Catch/hr	Harvest/ hr	Release/ hr
Channel catfish	2012	5419	3810	0.4923	0.3778	0.1145
	2011	1683	818	0.2226	0.1183	0.1043
Wiper	2012	28	20	0.0000	0.0000	0.0000
	2011	35	34	0.0010	0.0010	0
Walleye	2012	1607	501	0.0675	0.0214	0.0462
	2011	196	41	0.0083	0.0026	0.0057
White Bass	2012	12307	7199	0.7855	0.4859	0.2996
	2011	7106	2,403	0.9354	0.4873	0.4481

An angler survey was conducted at Medicine Creek in 2012. The survey was conducted from April through October and estimated a total of 31512 angling hours and 6795 anglers during that period. Of those surveyed, 19% sought channel catfish, 54% sought walleye, 12% white bass, and 0% sought wipers. The data from 2012 showed a substantial increase in the number of channel catfish, walleye and white bass caught compared to 2011 survey data.



Medicine Creek is the only Southwest reservoir that irrigates annually but also refills due to higher inflows. Medicine Creek fills each year and the shape of the curve above is related to the amount of irrigation water delivered and the rate of refill. The dark blue line indicates the top of the active conservation elevation.

Appendix B: Nebraska's Aquatic Habitat Program- Medicine Creek

Medicine Creek Reservoir Shoreline Stabilization Analysis and Proposed Rehabilitation

Healthy shoreline vegetation community Stabilizing reservoir shorelines is now commonplace in Nebraska following the establishment of the Aquatic Habitat Program (AHP). Pre-AHP attempts to stabilize eroded shorelines consisted of planting aquatic vegetation or simply dumping rock over the bank. Both failed consistently, and demonstrated that the key to preventing shoreline erosion and re-establishing aquatic vegetation was a significant reduction of wave energy at the near-shore and shoreline interfaces.

Effective and efficient shoreline stabilization techniques now require additional knowledge of water regimes, soil types and engineering, and still focusing on benefits for fish, wildlife and recreation. Large changes in seasonal and annual water levels shift the focus of shoreline stabilization away from establishing stable littoral zones with abundant aquatic vegetation, to preventing eroded bank impacts to water quality and protection of valuable fish habitats. In both situations, the aim is to ameliorate wave energy or "break" the waters energy before it impacts the shoreline and near-shore areas.

A "breakwater" structure built exactly perpendicular to both the shoreline and dominant wind direction can be expected to protect a length of adjacent shoreline approximately 4 to 5 times the length of the breakwater on its downwind side. Design considerations include soil types, near-shore bathymetry, water levels by season and position of the shoreline relative to prevailing wind directions. Each breakwater is custom designed for its location and purpose, which can lead to unique configurations such as the breakwaters constructed at Willow Creek Reservoir in NE Nebraska (see above) which included perpendicular breakwaters with "doglegs".

Multiple benefits emerge from protecting shorelines. Engineered structures prevent shoreline erosion and subsequent lateral drift of sediment which can cut-off important cove habitats from main reservoir habitats (photo at right is Harlan County Reservoir). Coves provide important habitats for fish, waterfowl and numerous invertebrates. Closing off cove habitats prevents fish passage and water exchanges with the main body of the reservoir.

Furthermore, stabilized shorelines arrest wave energy preventing disturbance of bottom materials and liberation of terrestrial sediments into the near-shore area. Reducing near-shore wave energy results in clear water conditions important for both vertebrate and invertebrate communities' as well as providing for safe recreational conditions.

The engineered structures below are examples of different methods we commonly use in Nebraska's reservoirs, and those we intend to use (alone or in-combination) for specific locations at Medicine Creek Reservoir shown to have significantly de-stabilized shorelines (map of locations identified in red on last page).

In addition to the traditional placement of rip-rap to armor a shoreline, several new structure designs to reduce wave energy impacts to shorelines have been developed over the years in Nebraska's reservoirs. Rip-rap will still be included as a stabilization technique but not described in any detail here. Appropriate application is based on the type of impairment, location within a reservoir and its intended function. Size is often relative to designed area of protection and constructability for various water level regimes.

Breakwaters

Construction materials are similar for the different types of breakwaters, built either entirely of large angular rock or earthen core and wrapped in rip-rap (armored earthen structures). Breakwater length often denotes it terminology; with *breakwaters* referring to any length and configuration while *groynes* generally are linear and less than 25'long, and *nodes* are generally smaller shoreline "bumps".

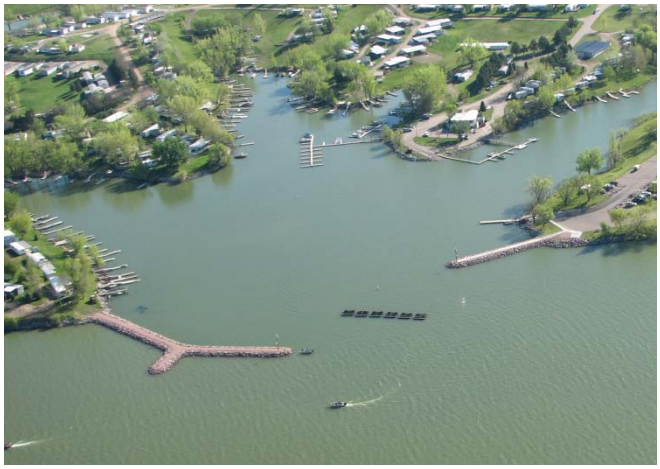
Breakwaters, groynes and nodes if properly constructed and placed can arrest bank erosion by intercepting wave energy. Depending on the shoreline configuration, observed wind fetch or source of wave energy can determine the location and size of constructed breakwaters. Breakwaters are all designed to intercept wind fetch and protect a certain distance of adjacent shoreline.

At Summit Reservoir (above) a series of structures (perpendicular breakwater, perpendicular breakwater with dogleg, and groynes) were built in specific combination to provide fetch protection along the entire shoreline of the reservoir throughout its normal operation pool elevations. Also included in the uppermost part of the above photo is a sediment retention structure, which also served a "breakwater" function for northerly winds.

Of course, breakwater construction becomes more complex and costly when dramatic water level fluctuations occur, such as one might find in an irrigation reservoir.

Many breakwaters also provide benefits in addition to shoreline stabilization, like fishing access and harbor protection for boating.

Perpendicular breakwaters and shoreline armoring will be needed at certain locations in Medicine Creek Reservoir, especially those required to prevent lateral shoreline erosion from closing off important cove habitats.



Offshore breakwaters

Building off-shore and parallel to the shoreline can provide shallow water and moist soil conditions behind the structures. These areas are important for aquatic vegetation and serve as valuable fish nurseries. These structures have high wildlife value. Constructability is often dependent on near-shore bathymetry and range of operating water levels. Sherman Reservoir (irrigation operations) is shown at right, while Yankee Hill Reservoir (flood control purposed) is shown below.

Off-shore breakwaters are ideally suited for locations where; 1) operating water-level ranges are small, 2) near-shore bathymetry approaches beaching slopes (>10:1), and 3) basin soils are compactable. Substantial cost savings are achieved when earth moving costs are low and rock availability is good. Suitability for use at Medicine Creek will be site and funding dependent.

Sloping breakwaters

Reservoirs with wide ranges of operating water-levels, have steeply sloped near-shore bathymetry and poor shoreline access for heavy equipment will often be best suited for sloping

breakwaters, especially if there is a large area requiring protection. Sloping refers to this perpendicular style of breakwater where the structures top height decreases with increasing distance from shore. Often placed in "fields" which consists of individual windrows 2-4 feet tall and 10-15 feet wide (photo below is at Enders Reservoir), with spacing determined by fetch angles. Spacing required between sloping breakwaters is a function of slope steepness, but often less than needed between perpendicular breakwaters requiring more structures for similar protection. However, the reduction in rock required to build a sloping versus a perpendicular breakwater is often substantial and therefore a very cost effective options.

This style of breakwater may be well suited for some locations in Medicine Creek Reservoir. Additionally, the underwater portion of a sloping breakwater provides quality fish habitat.

Toe caps

Toe caps are bands of rock placed on geotextile fabric designed to armor at a certain water elevation, as opposed to entire shore and bank lines. "Toe" refers to the base of an eroded bank or of a structure which indicates a significant change in angle or substrate. Special attention is

needed when designing breakwaters to prevent undermining of the toe of a structure when the water is drawn to its lowest elevations (for this reason, breakwaters are generally designed and constructed to have rock protection to >3 feet below normal low water levels). Toe caps are appropriate in certain situations, 1) when reshaping a bank is not desired or feasible, 2) the near-shore bathymetry approaches a beaching slope therefore most wave energy is already dissipated, and 3) a specific elevation is targeted for protection. To the right is a recent example from Burchard Reservoir.

Medicine Creek has numerous areas (photo at left, and map on following page) where the use of toe caps may be appropriate and cost effective. Toe caps placed at the base of these eroding banks would reduce the amount of sediment entrained from the continually sloughing bank and allow the eventual vegetative colonization and healing of the bank.

Toe caps are inexpensive to construct, and are minimally invasive to the surrounding landscape.

However, one significant limitation must be noted. Protection from erosion, lateral movement of sediments and improvements to near-shore water clarity are limited to certain elevations where the top caps are placed. Therefore, we recommend placing them directly at the toes of already banks, or the normal high water operating levels.


Harry Strunk Lake
Lake Rd
© 2013 Google
Imagery Date: 3/31/2012 40°2

Appendix C: Prime and Unique Farmland


Prime and Unique Farmland
Loc: B
Loc: 2
Loc: 4
Loc: 3
Loc: 1
Loc: A
Soil Map Units
All areas are prime farmland
Not prime farmland
Prime farmland if drained

Appendix D: Threatened and Endangered Species List

Scientific Name	Common Name	State Status	Federal Status
Grus americana	Whooping Crane	Endangered	Endangered
Sterna antillarum	Least Tern	Endangered	Endangered
Charadrius melodus	Piping Plover	Threatened	Threatened
Nicrophorus americanus	American Burying Beetle	Endangered	Endangered
Mustela nigripes	Black-Footed Ferret	Endangered	Endangered
Vulpes velox	Swift Fox	Endangered	

Source: USFWS, NGPC response letters (see below)

NEBRASKA
—GAME PARKS—

Nebraska Game and Parks Commission
2200 N. 33rd St. • P.O. Box 30370 • Lincoln, NE 68503-0370 • Phone: 402-471-0641 • Fax: 402-471-5528

January 7, 2013

John Cochnar
Assistant Nebraska Field Supervisor
U.S. Fish and Wildlife Service
203 West 2nd Street
Grand Island, NE 68801

RE: Threatened and Endangered Species Review for Medicine Creek SRA Shoreline Stabilization Project

Dear Mr. Cochnar:

We would like to officially request the U.S. Fish and Wildlife Service review the Medicine Creek SRA Shoreline Stabilization project for a threatened and endangered species review. This property is owned by the Bureau of Reclamation, but Game and Parks has a lease to maintain and operate the area. The project has been approved for funding through the Nebraska Environmental Trust.

The project will address the shoreline erosion that has been filling the bay area with sediment at Medicine Creek SRA Trail #1 access point. The project will protect the area from additional sedimentation, decrease the rate of erosion, provide fish habitat and spawning substrate and most importantly ensure shoreline stabilization and equilibrium. With the water levels at an all-time low, we believe there will be little to no vegetation removal for an access point to the breakwater locations. Attached are a set of plans for your review for additional information.

If you have questions or need additional information, please do not hesitate to contact me at (402) 471-5425 or email me at michelle.stryker@nebraska.gov. Thank you in advance for taking time out of your busy schedule to do this review. If action needs to be taken due to the findings of your review, we will be sure to keep you involved in what occurs.

Sincerely,

Michelle Stryker

Michelle Stryker
Acting Trails Grant Administrator

Enclosures.

cc: Brooke Stansberry, USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Nebraska Field Office
203 West Second Street
Grand Island, Nebraska 68801

January 10, 2013

FWS-NE: 2013-175

Ms. Michelle Stryker
Nebraska Game and Parks Commission
2200 N. 33rd Street
P.O. Box 30370
Lincoln, NE 68503-0370

RE: Technical Assistance, Medicine Creek SRA Shoreline Stabilization Project, Frontier County, Nebraska

Dear Ms. Stryker:

This responds to your January 7, 2013 request for comments and concurrence from the U.S. Fish and Wildlife Service (Service) regarding the subject project. The Service has responsibility for conservation and management of fish and wildlife resources for the benefit of the American public under the following authorities: 1) Endangered Species Act of 1973 (ESA), 2) Fish and Wildlife Coordination Act (FWCA), 3) Bald and Golden Eagle Protection Act (Eagle Act), and 4) Migratory Bird Treaty Act (MBTA). The National Environmental Policy Act (NEPA) requires compliance with all of these statutes and regulations. The project proponent and lead federal agency is responsible for compliance with these federal laws.

The Service has special concerns for endangered and threatened species, migratory birds, and other fish and wildlife and their habitats. Habitats frequently used by fish and wildlife species are wetlands, streams, riparian (streamside) woodlands, and grasslands. Special attention is given to proposed developments that include modification of wetlands, stream alteration, loss of riparian habitat, or contamination of habitats. When this occurs, the Service recommends ways to avoid, minimize, or compensate for adverse affects to fish and wildlife and their habitats.

ENDANGERED SPECIES ACT (ESA)

Pursuant to section 7(a)(2) of the Endangered Species Act, every federal agency, shall in consultation with the Service, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. If a proposed project may affect federally listed species or designated critical habitat, section 7 consultation is required with the Service. It is the responsibility of the federal action agency to fully evaluate all potential effects (direct and indirect) that may occur to a listed species and critical habitat in the action area. The federal agency provides their effects determination to us for concurrence. If federally listed species and/or designated/proposed critical habitat would be adversely affected by implementation of the project, the federal agency will need to formally request further section 7 consultation with the Service prior to making any irretrievable or irreversible commitment of federal funds (section

7(d) of ESA), or issuing any federal permits or licenses. As this project will likely involve a discharge of dredged material into waters of the U.S., a permit will likely be required from the U.S. Army Corps of Engineers. The Corps would be the lead federal agency in the absence of additional federal funding or sponsorship and would be responsible for consultation under ESA.

Based on the information you have provided and due to the project type, size, and location, we do not anticipate any impacts on federally listed species, or their critical habitats. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

All federally listed species under ESA are also State-listed under the Nebraska Nongame and Endangered Species Conservation Act. However, there are also State-listed species that are not federally listed. To determine if the proposed project may affect State-listed species, the Service recommends that the project proponent contact Michelle Koch, Nebraska Game and Parks Commission, 2200 N. 33rd Street, Lincoln, NE 68503-0370.

REVIEW, COMMENTS, AND RECOMMENDATIONS ON THE PROPOSED PROJECT ACTION UNDER OTHER FISH AND WILDLIFE STATUTES

Fish and Wildlife Coordination Act (FWCA)

1. Water Resources

The FWCA requires consultation with the Service and State fish and wildlife agency for the purpose of giving equal consideration to fish and wildlife resources in the planning, implementation, and operation of federal and federally funded, permitted, or licensed water resource development projects. The FWCA requires that federal agencies take into consideration the effect that water related projects may have on fish and wildlife resources, to take action to avoid impact to these resources, and to provide for the enhancement of these resources.

2. Wetlands, Streams, and Riparian Habitats

If wetlands or streams will be impacted by the proposed project, a Department of the Army permit from the U.S. Army Corps of Engineers may be needed. The Service will provide FWCA comments pursuant to a permit application. The Service recommends that impacts to wetlands, streams, and riparian areas be avoided or minimized, in accordance with the Section 404(B)(1) Guidelines of the Clean Water Act. For projects that do not require access or proximity to, or location within aquatic environments (i.e., non-water dependent project) to fulfill its basic project purpose, it is assumed that practicable alternatives exist that would cause less damage to aquatic resources than projects that are located in aquatic ecosystems. In addition to determining the least environmentally damaging practicable alternative, 40 CFR Part 230.10(a) of the Guidelines also states, no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."

If after an alternatives analysis has been completed in accordance with the Guidelines and unavoidable impacts are to occur to aquatic habitats, the Service recommends that compensation (i.e., restoration of a degraded wetland or creation) occur.

3. Animal Passage and Aquatic Biota

Culverts should be constructed at elevations so as to not impede animal/fish movement (e.g., either new culvert installation or culverts used in a temporary crossing). The Service further recommends that the project proponent not alter or install culverts in any way that would result in reductions in current channel width. We have also enclosed recommended best management practices to minimize potential impacts to native fish and other aquatic resources, including spawning timeframes for Nebraska fish species.

Additionally, the Service has enclosed recommended best management practices to minimize potential impacts to native fish and other aquatic resources, including spawning timeframes for Nebraska fish species.

To determine if the proposed project may affect fish and wildlife resources of the State of Nebraska under the FWCA, the Service recommends that the project proponent contact Carey Grell, Nebraska Game and Parks Commission, 2200 N. 33rd Street, Lincoln, NE 68503-0370.

Bald and Golden Eagle Protection Act (Eagle Act)

The Bald and Golden Eagle Protection Act provides for the protection of the bald eagle *(Haliaeetus leucocephalus)* and golden eagle (*Aquila chrysaetos*). The golden eagle is found in arid, open country with grassland for foraging in western Nebraska and usually near buttes or canyons which serve as nesting sites. Golden eagles are often a permanent resident in the Pine Ridge area of Nebraska. Bald eagles utilize mature, forested riparian areas near rivers, streams, lakes, and wetlands and occur along all the major river systems in Nebraska. The bald eagle southward migration begins as early as October and the wintering period extends from December-March. Additionally, many eagles nest in Nebraska from mid-February through mid-July. Disturbances within 0.5-mile of an active nest or within line-of-sight of the nest could cause adult eagles to discontinue nest building or to abandon eggs. Both bald and golden eagles frequent river systems in Nebraska during the winter where open water and forested corridors provide feeding, perching, and roosting habitats, respectively. The frequency and duration of eagle use of these habitats in the winter depends upon ice and weather conditions. Human disturbances and loss of wintering habitat can cause undue stress leading to cessation of feeding and failure to meet winter thermoregulatory requirements. These affects can reduce the carrying capacity of preferred wintering habitat and reproductive success for the species. To comply with the Eagle Act, it is recommended that the project proponent determine whether the proposed project would impact bald or golden eagles. If it is determined that either species could be affected by the proposed project, the Service recommends that the project proponent notify this office as well as the Nebraska Game and Parks Commission (Commission) for recommendations to avoid adverse impacts to bald and golden eagles.

Migratory Bird Treaty Act (MBTA)

Under the Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 *as amended*) construction activities in grassland, roadsides, wetland, riparian (stream), shrubland and woodland habitats, and those that occur on bridges or culverts (e.g., which may affect swallow nests on bridge girders) that would otherwise result in the taking of migratory birds, eggs, young, and/or active nests should be **avoided.** Although the provisions of MBTA are applicable year-round, most migratory bird nesting activity in Nebraska occurs during the period of April 1 to July 15. However, some migratory birds are known to nest outside of the aforementioned primary nesting season period. For example, raptors can be expected to nest in woodland habitats during February 1 through July 15, whereas American goldfinch, which occurs in a variety of shrubby habitats, normally nests from July to September.

The Service recommends that the project proponent avoid removal or impacts to vegetation during primary nesting season of breeding birds. In the event that construction work cannot be avoided during peak breeding season, the Service recommends that the project manager (or construction contractor) arrange to have a qualified biologist conduct an avian pre-construction risk assessment of the affected habitats (grassed drainages, streamside vegetation) to determine the absence or presence of breeding birds and their nests. Surveys must be conducted during the nesting season. Breeding bird and nesting surveys should use *appropriate* and *defensible* sampling designs and survey methods to assist the proponent in avoiding the unnecessary take of migratory birds. The Service further recommends that field surveys for nesting birds, along with information regarding the qualifications of the biologist(s) performing the surveys, be thoroughly documented and that such documentation be maintained on file by the project proponent (and/or construction contractor) until such time as construction on the proposed project has been completed.

The Service requests that the following be provided to this office prior to the initiation of the proposed project if the above conditions occur.

a) A copy of any survey(s) for migratory birds done in conjunction with this proposed project, if any. The survey should provide detail in regard to survey methods, date and time of survey, species observed/heard, and location of species observed relative to the proposed project site.

b) Written description of specific work activity that will take place in all proposed project areas.

c) Written description of any avoidance measures that can be implemented at the proposed project site to avoid the take of migratory birds.

The Service appreciates the opportunity to provide comments on this proposed project. Should you have any questions regarding these comments, please contact Ms. Brooke Stansberry within our office at Brooke_Stansberry@fws.gov or at (308) 382-6468, extension 16.

Sincerely,

Michael D. George
Nebraska Field Supervisor

Enclosure

cc: NGPC; Lincoln, NE (Attn: Michelle Koch)
NGPC; Lincoln, NE (Attn: Carey Grell)
NDEQ; Lincoln, NE (Attn: Jason Garber)
USACE; Omaha NE (Attn: John Moeschen)

ENCLOSURE

Recommended Best Management Practices for Proposed Construction Activities Associated with Streams/Rivers

- Avoid earth moving activities or fill/bank armoring during native fish spawning periods from May 15 – July 31, construct stream crossings or other associated temporary embankments during low flow periods (usually August – October).

- Minimize work area at stream locations. The majority of the work (including heavy equipment and storage sites) should occur above the high bank line. Avoid driving equipment through the streambed.

- Implement comprehensive and effective erosion and sediment controls. These methods should be implemented and maintained for the duration of the project and considered at all stages of the project planning and design. Close attention is warranted for the placement and maintenance of temporary erosion control measures at the construction site to minimize sediment loading. These erosion/sediment control techniques should keep sediments from entering the stream and remain in place until work areas become re-vegetated and stable. Such erosion control measures may include properly placed sediment/silt screens or curtains and hay bales. Proper techniques are important to the placement of these types of structures and include trenching, staking and backfilling as well as using the appropriate number of bales. These techniques are best used in combination with each other rather than separately.

- Erosion and sediment controls should be monitored daily during construction to ensure effectiveness, particularly after storm events, and only the most effect techniques should be utilized. Clean, repair and replace structures as necessary.

- Exposed stream banks must be stabilized immediately after construction activity. Eroded surfaces should not be left exposed for greater than one day. If rain is predicted, no construction should commence unless eroded surfaces are immediately treated with geotextile fabric, mulch, seeding or some techniques that would stabilize the bank or exposed areas from eroding.

- Erosion repair and stream bank restoration should use appropriate bioengineering solutions.

- Develop and implement a hazardous materials safety protocol. This would include that all temporary storage facilities for petroleum products, other fuels and chemicals must be located and protected to prevent accidental spills from entering streams within the project area.

FISRWG. 1998. Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (FISRWG) (15 Federal agencies of the U. S. Government). GPO item No. 0120–A; SuDocs No. A 57.6/2:EN 3/PT.653. ISBN-0-934213-59-3.

NEBRASKA GAME PARKS

TO:	Michelle Koch, Environmental Analyst Supervisor
FROM:	Michelle Stryker, Outdoor Recreation Planner
RE:	State Threatened and Endangered Species Review for Medicine Creek Shoreline Stabilization Project
DATE:	January 7, 2013

We would like to officially request the NGPC review the following project for a State threatened and endangered species review. Attached to this memo are a set of plans for the Medicine Creek SRA Shoreline Stabilization Project. This project has been approved for funding through the Nebraska Environmental Trust. This office requested a review from USFWS on January 7, 2013.

The project will address the shoreline erosion that has been filling the bay area with sediment at Medicine Creek SRA Trail #1 access point. The project will protect the bay area from additional sedimentation, decrease the rate of erosion, provide fish habitat and spawning substrate and most importantly ensure shoreline stabilization and equilibrium. With the water levels at an all-time low, we believe there will be little to no vegetation removal for an access point to the breakwater locations. Please see the plans attached for additional information.

If you have questions or need additional information, please do not hesitate to contact me at (402) 471-5425 or email me at michelle.stryker@nebraska.gov. Thank you in advance for taking time out of your busy schedule to do this review.

NEBRASKA
GAME PARKS

Nebraska Game and Parks Commission
2200 N. 33rd St. • P.O. Box 30370 • Lincoln, NE 68503-0370 • Phone: 402-471-0641 • Fax: 402-471-5528

February 7, 2013

Michelle Stryker
Nebraska Game and Parks Commission
2200 N. 33rd St.
Lincoln, NE 68503

Re: Medicine Creek SRA Shoreline Stabilization, Frontier County, Nebraska

Dear Ms. Stryker:

Please make reference to your letter dated January 7, 2013. This letter is in response to your request for a review of this project's potential impacts to endangered and threatened species in Frontier County, Nebraska. As we understand it, the project involves shoreline stabilization and construction of three breakwaters. We have completed our review of the proposed sites under Neb. Rev. Stat. § 37-807 (3) of the Nongame and Endangered Species Conservation Act and we offer the following comments.

Due to the size, scope, and location of the project in addition to the existing site conditions, we have determined that the proposed project will have "No Effect" on state-listed endangered or threatened species. We made this determination based on a review of the material you sent, aerial photographs, topographic maps and our Nebraska Natural Heritage Database.

Based upon the submitted information, we have no objection to the proposal as currently planned. If the proposed project is changed or new information regarding endangered or threatened species becomes available, then this determination is no longer valid and further consultation with the Nebraska Game and Parks Commission will be necessary.

All federally listed endangered or threatened species are also state listed. For an assessment of potential impacts on federally listed, candidate or proposed endangered or threatened species, please contact John Cochnar, Nebraska Field Office, U.S. Fish and Wildlife Service, 203 W. Second St., Grand Island, NE 68801.

Thank you for the opportunity to comment. If you have any questions or need additional information, please feel free to contact me at (402) 471-5438 or michelle.koch@nebraska.gov.

Sincerely,

Michelle R Koch

Michelle R. Koch
Environmental Analyst Supervisor
Environmental Services Division

ec: USFWS (John Cochnar, Brooke Stansberry)

See You Out There
www.OutdoorNebraska.org

NEBRASKA ENDANGERED AND THREATENED SPECIES

Common Name	Scientific Name	State Status	Federal Status
BIRDS - 5 Species			
Eskimo Curlew	Numenius borealis	Endangered	Endangered
Whooping Crane	Grus americana	Endangered	Endangered
Interior Least Tern	Sterna antillarum athalassos	Endangered	Endangered
Piping Plover	Charadrius melodus	Threatened	Threatened
Mountain Plover	Charadrius montanus	Threatened	
MAMMALS - 4 Species			
Black-footed Ferret	Mustela nigripes	Endangered	Endangered
Swift Fox	Vulpes velox	Endangered	
River Otter	Lutra canadensis	Threatened	
Southern Flying Squirrel	Glaucomys volans	Threatened	
FISH - 7 Species			
Pallid Sturgeon	Scaphirhyncus albus	Endangered	Endangered
Topeka Shiner	Notropis topeka	Endangered	Endangered
Sturgeon Chub	Macrhybopsis gelida	Endangered	
Blacknose Shiner	Notropis heterolepis	Endangered	
Lake Sturgeon	Acipenser fulvescens	Threatened	
Northern Redbelly Dace	Phoxinus eos	Threatened	
Finescale Dace	Phoxinus neogaeus	Threatened	
INSECTS - 2 Species			
American Burying Beetle	Nicrophorus americanus	Endangered	Endangered
Salt Creek Tiger Beetle	Cincidela nevadica lincolniana	Endangered	Endangered
REPTILES - 1 Species			
Massasauga	Sistrurus catenatus	Threatened	Eastern subspecies Endangered
MUSSELS 1 Species			
Scaleshell Mussel	Leptodea leptodon	Endangered	Endangered*
PLANTS -7 Species			
Hayden's (Blowout) Penstemon	Penstemon haydenii	Endangered	Endangered
Colorado Butterfly Plant	Gaura neomexicana ssp. coloradensis	Endangered	Threatened
Saltwort	Salicornia rubra	Endangered	
Western Prairie Fringed Orchid	Platanthera praeclara	Threatened	Threatened
Ute Lady's Tresses	Spiranthes diluvialis	Threatened	Threatened
Ginseng	Panax quinquefolium	Threatened	
Small White Lady's Slipper	Cypripedium candidum	Threatened	

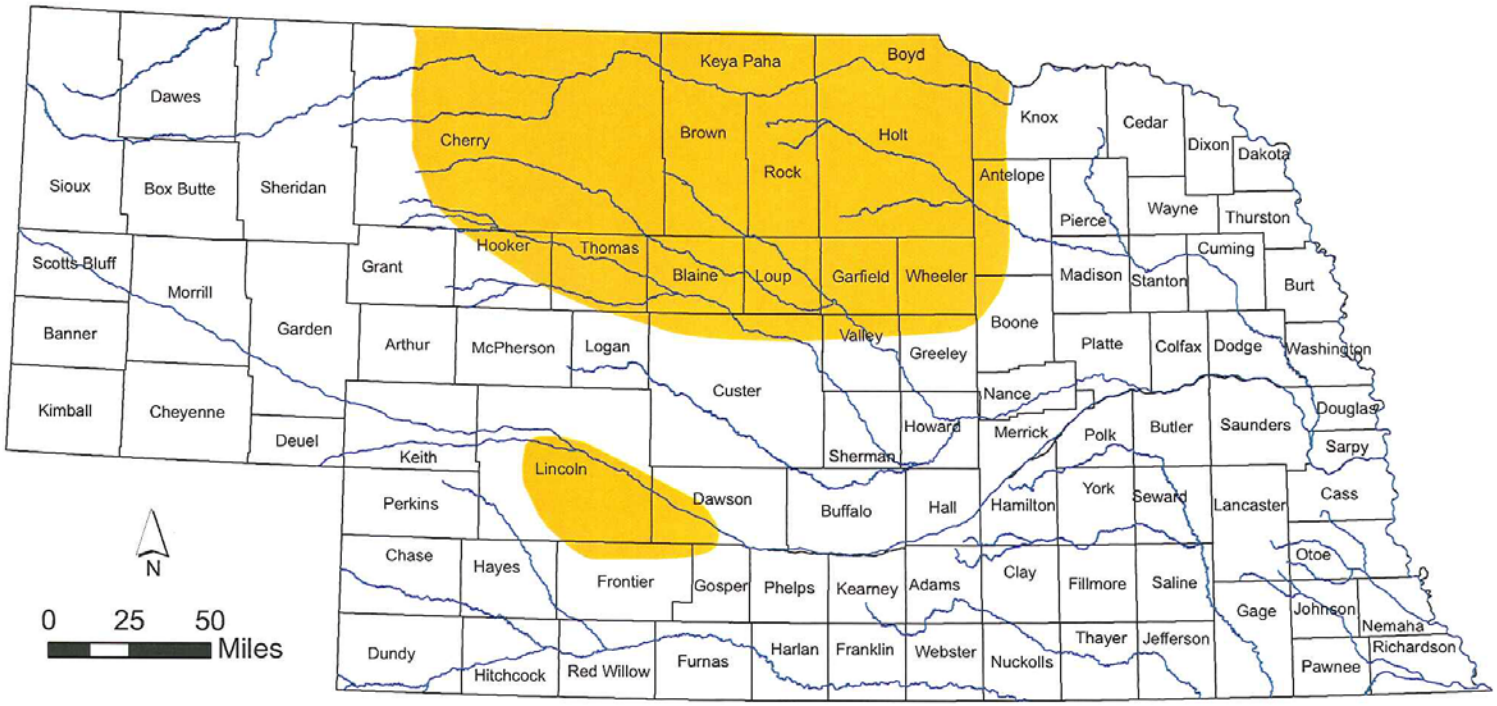
CANDIDATE SPECIES FOR FEDERAL LISTING
None

15 State Endangered Species
10 Species State and Federal Endangered
1 Species State Endangered /Federal Threatened
4 Species State Endangered

12 State Threatened Species
3 Species State and Federal Threatened
9 Species State Threatened

*Species recorded for state but Nebraska is not included in distribution in federal listing. NGPC 5/2009

Estimated Current Range of American Burying Beetle (*Nicrophorus americanus*)



NEBRASKA GAME PARKS

NEBRASKA Natural Heritage Program

Nebraska Natural Heritage Program,
Nebraska Game and Parks Commission
September 2011

Whooping Crane Fact Sheet

Whooping Cranes in Flight

Foraging Whooping Cranes

Adult with juvenile

The Whooping Crane (*Grus americana*) is a federal and state listed endangered migratory species. The Whooping Crane was federally listed as endangered in 1967. Major river systems used by whooping cranes in Nebraska include the Platte, Loup, Republican, and Niobrara rivers. Additionally, a 3-mile-wide, 56-mile-long reach of the Platte River between Lexington and Denman, Nebraska, has been federally designated as critical habitat for whooping cranes. (Information from U.S. Fish and Wildlife Service)

Whooping Crane (*Grus americana*)
Order: *Gruiformes*
Family: *Gruidae*
Status: State and Federally Endangered. **Description:** L 52"(132 cm) W 87"(221 cm). Sexes similar but males are larger. White body with red and black facial markings. Yellow bill and long dark legs. Immature is white with tawny head and neck, and reddish-brown mottling on rest of body. **Habitat:** In Nebraska is found along the Platte Valley, with its wide slow moving river and associated sandbars and islands. Nearby wet meadows, croplands, and marshlands are important for foraging. **Status/Range:** Occasional spring and fall migrant along Platte Valley. 90% of sightings within 30 miles of Platte River, and 80% occurred between Lexington and Grand Island. **Call:** Shrill "*ker-loo-ker-lee-loo*" trumpet. **Comments:** Endangered. Management and protection programs slowly succeeding.

Similar: Sandhill Crane, Snow Geese, and especially American White Pelicans in flight: (Information from Nebraska Game and Parks Commission website)

The Whooping Crane is one of the rarest birds in North America and also one of the largest. Whooping cranes are vulnerable to accidents during migration. Each spring they travel north from their wintering grounds around Aransas National Wildlife Refuge in Texas to their breeding grounds in Wood Buffalo National Park in central Canada (2,400 miles). Each fall this route is reversed. Their journey traverses eastern Montana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and Texas. In Nebraska, they stop to rest and feed on the Platte, North and Middle Loup and Niobrara Rivers. (Information taken from the USFWS Draft Revised International Whooping Crane Recovery Plan Jan 2005)

Whooping Crane Survey Protocol

Whooping Cranes can be disturbed by sight (human figures, equipment within sight) and sound (loud equipment, banging, etc.) that are abnormal (roadway traffic is normal), therefore surveys are needed to ensure disturbance is minimized.

Dates of Survey:

- Spring Migration – March 23 – May 10
- Fall Migration – September 16 – November 16
- Surveys should be conducted daily during these two time frames.

Bridge Projects (Roosting Survey)

Time of Survey:

- Prior to sunrise (published clock time) to make use of the beginning daylight hours, record start and stop time
- *Optional* evening survey (after 4:00 pm) to check for birds potentially coming into roost
- Do east side of bridge first to reduce glare from sun.

Method of Survey:

- Stand at the four corners of the bridge – look at all up and down stream channels as far as you can see
- Use binoculars or spotting scope
- Watch for at least 15 minutes overall
  - Look for bird movements – possibly moving within channel among vegetation
  - Look for Whooping Cranes among Sandhill Crane groups
- If cloudy, overcast or foggy and visibility is reduced to below 0.5 miles, allow time for clearing– take additional time to ensure the best survey possible

Linear Projects (Foraging Survey)-not crossing a major river

Time of Survey:

- Survey project within one hour of start of workday, with at least one survey done no later than 10 am. Record start and stop time.
- Survey using binoculars or spotting scope area within 0.5 miles of project.

For projects which are a combination of bridge and linear work use both methods.

If Whooping Cranes are not seen during the morning survey, work may begin after completion of the survey.

If Whooping Cranes are spotted within 0.5 miles of the active construction:

- Do not start work. Contact the Commission or the USFWS for further instruction.
- Stop work if seen at times other than the morning survey.
- Work can begin or resume if birds move off; record sighting, bird departure time, and work start time on survey form.

Appendix E: Hazardous Materials Areas


Official Nebraska Government Website
Official Nebraska Government Website
Nebraska Department of Environmental Quality
Find Facilities
Map Navigation
T06N R26W S09
T06N R26W S10
T06N R26W S16
T05N R26W S15
T05N R26W S14
T05N R26W S13
T05N R25W S18
T05N R25W S17
Middle Republican
T06N R26W S21
T05N R26W S22
T05N R26W S23
T05N R26W S24
T05N R25W S19
Map
2012
2010
2006
2003
Aerial
Table Of Contents
T06N R26W S28
T05N R26W S27
T05N R26W S26
T05N R26W S25
T05N R25W S30
T05N R25W S29

Appendix F: Invasive Species

Scientific Name	Common Name
Category 1: Proposed Future Invasive Species	
Arundo donax L.	Giant reed
Celastrus orbiculatus	Oriental bittersweet
Eichhornia crassipes	Water hyancith
Hydrilla verticillata	Hydrilla
Najas minor	Brittle naiad
Salvinia molesta	Giant Salvinia
Category 2: Priority Species	
Acer ginnala	Amur maple
Acroptilon repens	Russian knapweed
Allaria petiolata	Garlic mustard
Caucasian bluestem (Bothriochloa/Andropogon bladhii)	Australian beardgrass (Caucasian bluestem)
Cutleaf teasel (Dipsacus laciniatus)	Cutleaf teasel
European alder-buckthorn (Frangula alnus)	European alder-buckthorn
Lonicera japonica, morrowii, x tatarica	Japanese honeysuckle (Morrow, Showy Fly)
Myriophyllum spicatum	Eurasian water-milfoil
Potentilla recta L	Sulphur Cinquefoil
Category 3: Established Invasive	
Agropyron cristatum and hybrids	Crested wheatgrass
Agrostis gigantean	Redtop
Ailanthus altissima	Tree-of-heaven
Alliaria petiolata	Garlic mustard
Alopecurus arundinaceus	Garrison creeping foxtail
Artemisia absinthium	Absinthe wormwood
Bromus inermis	Smooth brome
Bromus japonicas	Japanese brome
Bromus tectorum	Downy brome
Elaeagnus angustifolia	Russian olive
Elymus hispidus	Intermediate wheatgrass
Elymus repens	Quackgrass
Hypericum perforatum	Common St. John's-wort
Lepidium draba ssp (Cardaria draba, appelianum, chalepense)	Globe-pod, lens-pod, heart-pod Hoary Cress
Leucanthemum vulgare	Ox-eye daisy
Lonicera tatarica and hybrids	Tatarian honeysuckle
Maclura pomifera	Osage-orange
Medicago lupulina	Black Medick
Melilotus albus	White sweetclover
Melilotus officinalis	Yellow sweetclover
Morus alba	White mulberry
Nasturtium officinale	Common watercress
Phalaris arundinacea	Reed canary-grass
Poa pratensis	Kentucky bluegrass
Rhamnus cathartica and *davurica*	Common (European) and Dahurian buckthorn

Robinia pseudoacacia	Black locust
Rosa multiflora	Multiflora rose
Schedonorus arundinaceus	Tall fescue
Securigera varia	Crown vetch
Sonchus arvensis var. glabrescens	Field sow-thistle
Thinopyrum ponticum/Elymus elongatus var ponticus (Agropyron elongatum)	Tall wheatgrass
Typha angustifolia and hybrids	Narrow-leaf cattail
Ulmus pumila	Siberian elm
Vicia villosa	Hairy Vetch
Listed as Noxious	
Carduus acanthoides	Plumeless thistle
Carduus nutans	Musk thistle
Centaurea diffusa	Diffuse knapweed
Centaurea stoebe ssp. micranthos	Spotted knapweed
Cirsium arvense	Canada thistle
Euphorbia esula	Leafy spurge
Phragmites australis ssp. australis	Eurasian common reed
Tamarix ramosissima and hybrids	Salt cedar
Lythrum salicaria	Purple loosestrife
Fallopia japonica and hybrids	Japanese knotweed
Lespedeza cuneata	Sericea lespedeza

Appendix G: Historic and Cultural Correspondence

United States Department of the Interior

BUREAU OF RECLAMATION
Great Plains Region
Nebraska-Kansas Area Office
1706 West 3rd Street
McCook, NE 69001-2159

IN REPLY REFER TO:
NK-310
ENV-3.00 FRC

AUG 0 3 2012

Mr. L. Robert Puschendorf
State Historic Preservation Office
Nebraska State Historical Society
P. O. Box 82554
Lincoln, NE 68501

Subject: Results of an Archeological Pedestrian Survey of 2.90 Acres of Federally-Owned Lands at Medicine Creek Reservoir/Harry Strunk Lake Considered for a Shoreline Stabilization Project, Frontier County, Cambridge Unit, Frenchman-Cambridge Division, Pick-Sloan Missouri Basin Program, Nebraska

Dear Mr. Puschendorf:

On July 11, 2012, an archeologist with the Nebraska-Kansas Area Office (NKAO) of the Bureau of Reclamation conducted a pedestrian survey looking for cultural resources on federally-owned lands considered for a shoreline stabilization project at Medicine Creek Reservoir/Harry Strunk Lake, Frontier County, Cambridge Unit, Frenchman-Cambridge Division, Pick-Sloan Missouri Basin Program, Nebraska. The Nebraska Game and Parks Commission in cooperation with the Nebraska Environmental Trust is planning to construct a series of perpendicular breakwater and groin structures, introduce willow and cottonwood stakes in the area, and excavate sediments at the Trail #1 boat ramp in an effort to reduce shoreline erosion. Construction calls for the removal of sediments at the end of the boat ramp, which has built up over the years, the construction of an estimated six (6) breakwater structures extending into the lake, and the placement of riprap along a portion of the existing shoreline. The project area is located on federal land, all of which has been heavily disturbed by the construction of an existing boat ramp and parking area and the extensive erosion of the shoreline. The current project location and acreage is listed below (see enclosed map for precise location):

T	R	Sec	Legals	Acres	USGS Map	Area	Figure
5N	26W	24	SW¼	2.90	Medicine Creek Dam, Nebr.	1	Figure # 1
Total Acres within Project Area				2.90			

A file search of the Nebraska-Kansas Area Office files and the Nebraska State Historical Society disclosed two archeological sites (25FT70 and 25FT190) and several archeological surveys in the general project area at Medicine Creek Reservoir. Early

archeological surveys through the project area began in 1946 with the River Basin Surveys. Additional surveys through the project area were conducted since 1948 for various recreational developments.

Archeological site 25FT70 consists of a Plains Woodland component and two separate Upper Republican villages excavated in 1948 by Marvin Kivett. Site 25FT70 was one of the sites at Medicine Creek Reservoir that Kivett and Metcalf experimented in mechanized archeology. Even though the site may no longer exist as a result of the experiment, it is believed that site 25FT70 is potentially eligible for the National Register of Historic Places under Criterion D for the information the site has yielded.

Archeological site 25FT190 consists of a scatter of lithic debris and faunal remains located in secondary deposition along the shoreline near the project area. The source for the archeological material was not identified when the site was originally recorded in 1989. However, based on an archeological survey with the current project, it is suspected that the material is eroding from the hilltop site of 25FT70. The hilltop has eroded to a depth of 10 to 40 feet below original ground surface to create the current shoreline. Any archeological features have long since eroded away leaving only a few pieces of lithic material.

The project area, 2.90 acres in total, received a 100% cultural resource survey as part of a Section 110 project conducted by Donald Blakeslee and the Wichita State University. The Section 110 project found no additional archeological sites in the immediate area of the current project. A report on that Section 110 work is currently being drafted. Because of the time that has passed since Blakeslee began his project, it was determined that another survey was needed and was completed. A light scatter of lithic material in secondary deposition is all that was found along the shoreline. No additional *in situ* cultural resources were identified in the immediate project area by Blakeslee's survey or the current survey. Therefore, a finding of **no historic properties affected** has been determined for the current project. It is recommended that no further cultural resources survey or testing be required and that the proposed project continue as planned provided that all ground disturbing activities through the site areas be strictly monitored by an archeologist even though those areas have already been heavily disturbed and/or destroyed by previous construction and archeological activities.

If you have any questions or comments, please contact me at the **NEW address above**, or phone 308-389-5320. Thank you.

Sincerely,

Bill R Chada

Bill R. Chada
Archeologist

Enclosure

Nebraska
STATE HISTORICAL SOCIETY

RECEIVED
BUREAU OF RECLAMATION
2012 AUG 24 PM 12: 36
NKAO McCOOK FIELD OFFICE
McCOOK, NEBRASKA

McCook Official File Copy			
Route To	Initial	Date	Action
Chada			
Remarks			
Classification: ENV-3.00			
Project: 3756 FAC			
Control No: 12054785			
Folder ID: 1214617			

14 August 2012

Bill R. Chada
Archeologist
Bureau of Reclamation
1706 West 3rd Street
McCook, NE 69001-2159

Re: Shoreline Stabilization
Medicine Creek Reservoir
Frontier Co.
H.P. #1208-013-01

Dear Mr. Chada:

The cultural resources survey report (Chada 2012) on the above referenced project has been reviewed by this office. We concur with the findings of the report that no archaeological, architectural, or historic context property resources will be affected by the proposed project. This review does not constitute the opinions of any Native American Tribes that may have an interest in Traditional Cultural Properties potentially affected by this project.

Sincerely,

Terry Steinacher
H.P. Archaeologist

Concurrence:

L. Robert Puschendorf
Deputy NeSHPO

1500 R Street
PO Box 82554
Lincoln, NE 68501-2554
p: (800) 833-6747
(402) 471-3270
f: (402) 471-3100
www.nebraskahistory.org

Appendix H: Wetlands

Nelson, Kirk

From: Stryker, michelle
Sent: Thursday, January 31, 2013 12:03 PM
To: Nelson, Kirk
Subject: FW: Federal Aid Wetland Review for the Medicine Creek SRA shoreline project

Here is Ted's review.

Michelle Stryker
Outdoor Recreation Planner
Acting Trails Grant Administrator
(402) 471-5425
michelle.stryker@nebraska.gov

From: LaGrange, Ted
Sent: Tuesday, January 29, 2013 2:27 PM
To: Stryker, michelle
Subject: Federal Aid Wetland Review for the Medicine Creek SRA shoreline project

Michelle,

I have completed a federal aid wetland review of the project to protect and stabilize the shoreline at Medicine Creek SRA. Based on the information provided, it is my opinion that this project will not negatively impact wetlands. As you are likely aware, a 404 permit may be needed from the U.S. Army Corps of Engineers for this project. Also, you will need to ensure that any sediment removed and not used for the breakwater will not be placed in a wetland. If you need additional input or review, please let me know. Thanks!

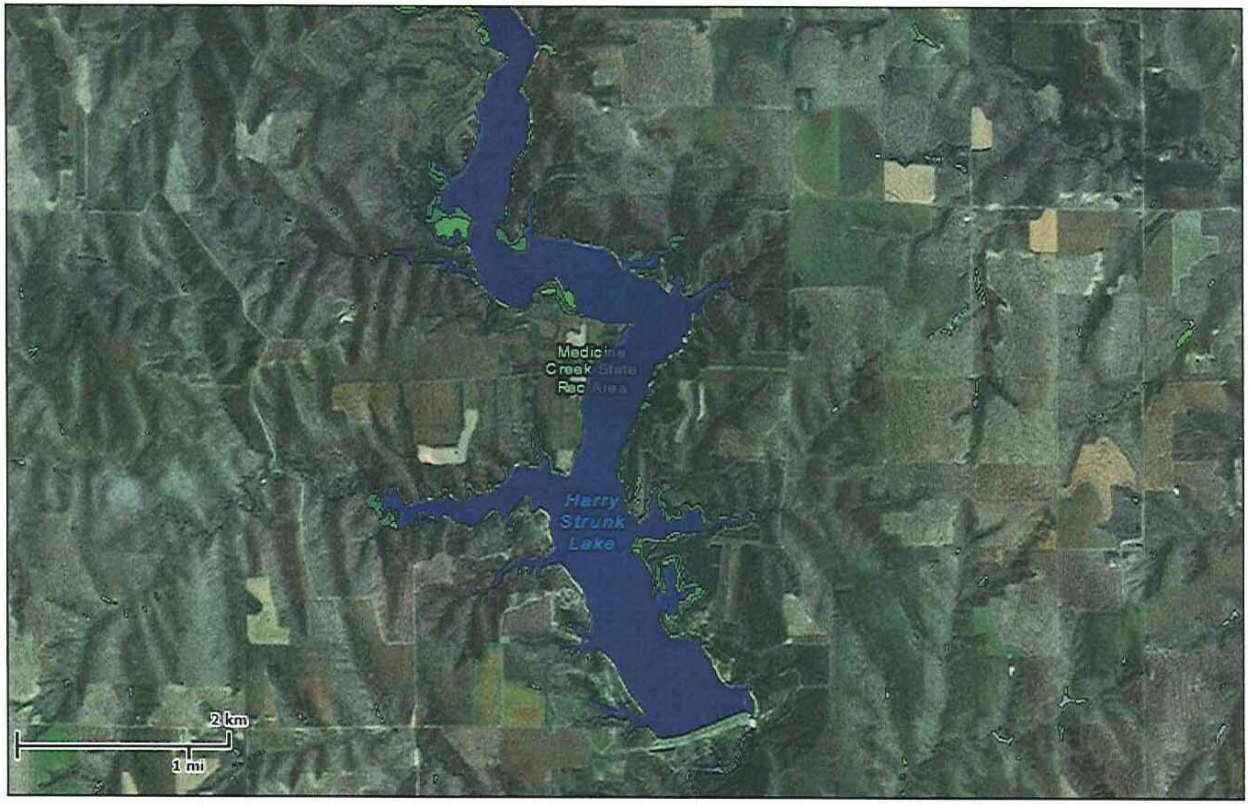
Ted LaGrange
Wetland Program Manager
Nebraska Game and Parks Commission
P.O. Box 30370
Lincoln, NE 68503
Phone: (402) 471-5436
Fax: (402) 471-4992
ted.lagrange@nebraska.gov

Visit us on the web at www.NebraskaWetlands.com

U.S. Fish and Wildlife Service
National Wetlands Inventory

Medicine Creek SRA

Jun 12, 2013



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

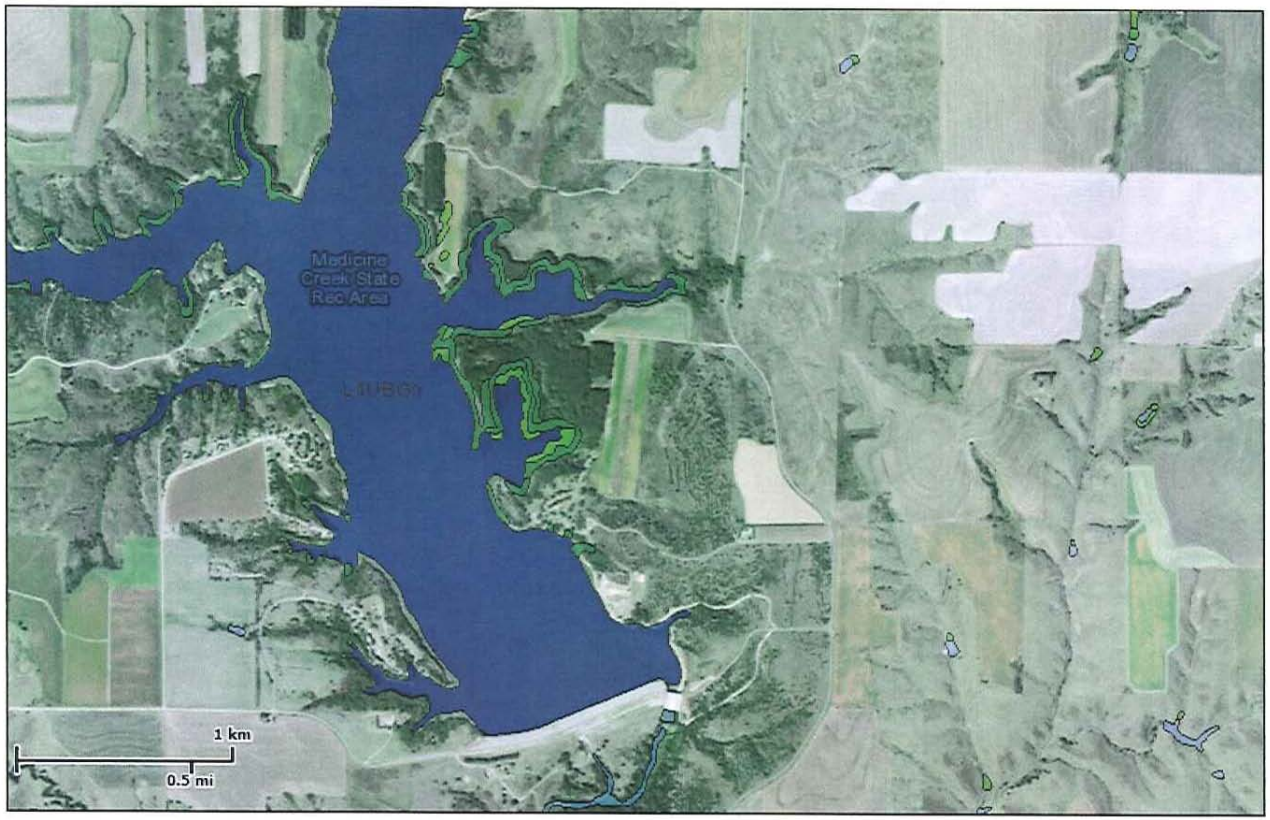
User Remarks:

Shoreline Stabilization-Wetlands

U.S. Fish and Wildlife Service
National Wetlands Inventory

Medicine Creek SRA

Jun 12, 2013



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

User Remarks:

Locations #1, 2, 3, 4 and Base Bid A

U.S. Fish and Wildlife Service
National Wetlands Inventory

Medicine Creek SRA

Jun 12, 2013

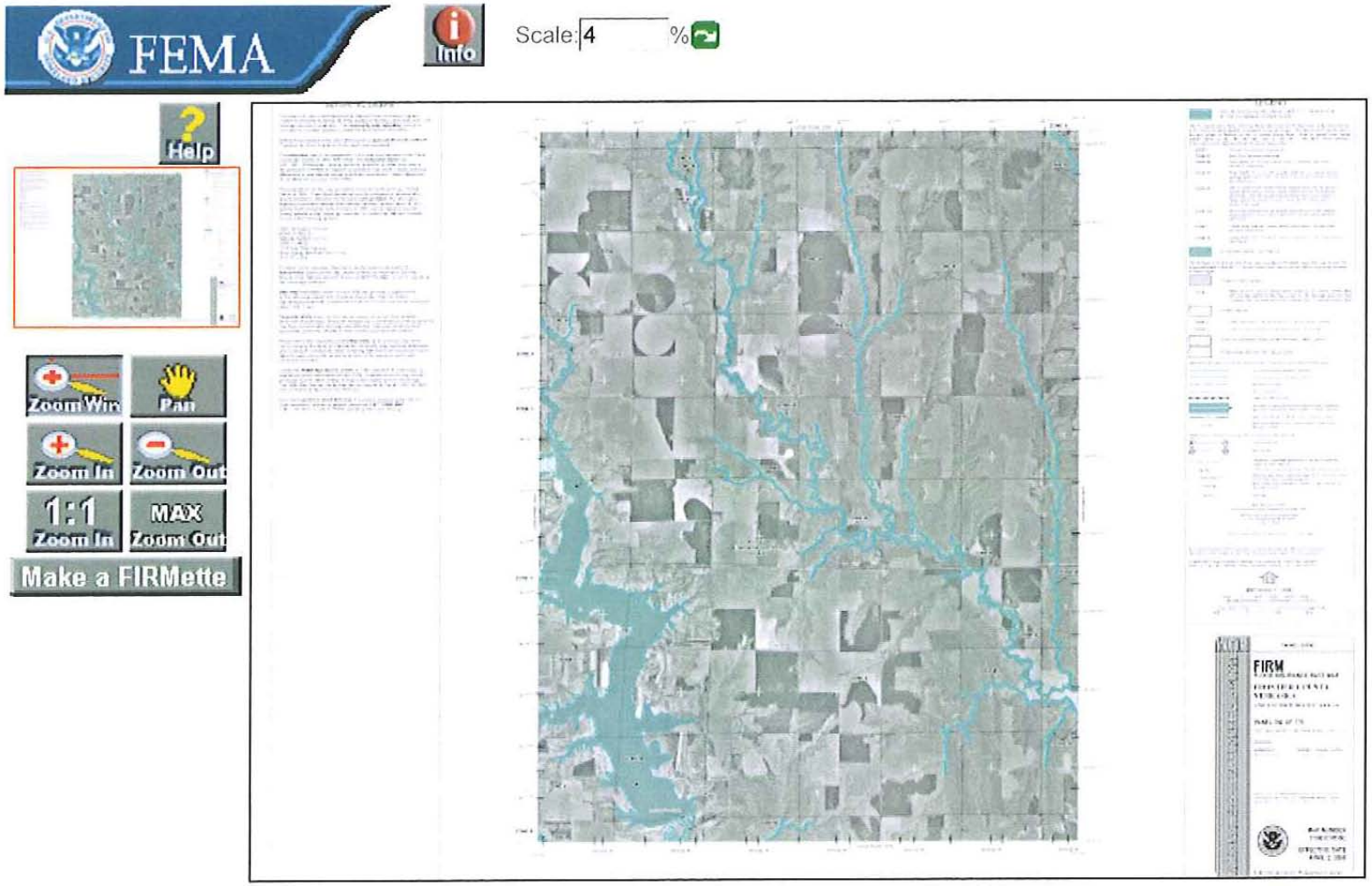
Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

User Remarks:

Project Location:Base Bid B

Appendix I: Floodplain


FEMA
Info
Scale: 4 %
Help
Zoom Win
Pan
Zoom In
Zoom Out
1:1 Zoom In
MAX Zoom Out
Make a FIRMette
FIRM

Appendix J: USACE 404 Permit

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NEBRASKA REGULATORY OFFICE – KEARNEY
2214 2ND AVENUE
KEARNEY, NEBRASKA 68847-5315

http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Nebraska.aspx

February 12, 2013

DEPARTMENT OF THE ARMY REGIONAL GENERAL PERMIT VERIFICATION

Permittee:
NE Game & Parks Commission
Mr. Jake Miriovsky
PO Box 30370
Lincoln, Nebraska 68503

Permit No: 2010-01670-KEA

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions of Department of the Army of Department of the Army Regional General Permit (RGP) No. **98-05 Amendment #2.** You must comply with all special and general conditions attached herein.

Project Waterway and Location:
Harry Strunk Lake
Site A/Trail #1: SW¼ Section 24, Township 5 North, Range 26 West
40.380612°N, -100.227057°W WGS
Site B/Trail #12: NW¼ Section 12, Township 5 North, Range 26 West
40.415915°N, -100.223876°W WGS
Frontier County, Nebraska

Project Description:
Date of Receipt: December 19, 2012
Project Description:
All work will be done when the lake is low to minimize additional sedimentation in the lake bed.

Site A/Trail #1: Currently, as the lake "flows" towards the dam, sediment is deposited in the mouth of this cove.

The 470-foot bank line is nearly vertical; therefore, soil will be hauled in to create a shelf into which the breakwater jetty structures will be tied. The shelf will not exceed 12 feet wide (from bank toe waterward) and four feet above normal pool elevation. This area will be seeded and staked with willows after construction is complete.

Three breakwater jetties will be built just above the cove's mouth to intercept the sediment and protect 470 feet of eroding bank line. Sediment will be excavated from the mouth of the cove to be used as the core of each structure which will then be overlain with geotextile fabric and three feet of rock riprap as wave protection. Additional material will be obtained from a nearby upland site, if needed.

Structure dimensions:
Length: South - 155 feet, Middle - 110 feet, North - 80 feet
Top width: the top will zero-out
Bottom width: approximately 17 feet
Height: about four feet above the normal pool elevation

A concrete block mat will be placed around the root area of each jetty structure to further protect it from erosion. The mat is designed so that sediment will settle into the joints to encourage re-vegetation.
Impact: Approximately .67 acre (includes excavation of cove mouth and fill area).

Site B/Trail #12: A 370-foot long structure similar to a stone toe revetment will be constructed approximately 5-10 feet from the toe of the vertical bank. The structure will have a 17-foot bottom width, zeroing out at the top. The top elevation will be approximately four feet above normal pool level. The area between the structure and the bank will be planted to willow stakes.
Impact = approximately .15 acre

Special Conditions:
None

General Conditions:
See attached GP 98-05.

Further Information:
1. We have prepared a preliminary jurisdictional determination (JD) for the site which is a written indication that waterways within your project area may be a water of the U.S. Such waters have been treated as jurisdictional waters of the U.S. for purposes of computation of impacts and compensatory mitigation requirements. If you concur with the findings of the enclosed preliminary JD, please sign it and return it to the above address within two weeks.

2. If you believe the preliminary JD is inaccurate, you may request this office complete an approved JD prior to your commencement of any work in a water of the U.S. An approved JD is an official determination regarding the presence or absence of waters of the U.S. Completion of an approved JD may require coordination with the U.S. Environmental Protection Agency.

3. Upon completion of the authorized work and any required mitigation, please sign and return the attached Compliance Certification form to the address listed.

4. Although an individual Department of the Army permit will not be required for the project, this does not eliminate the requirement that you obtain any other applicable Federal, state, tribal or local permits as required. Please note that deviations from the original plans and specifications of your project could require additional authorization from this office.

5. You are responsible for all work accomplished in accordance with the terms and conditions of the General Permit. If a contractor or other authorized representative will be accomplishing the work authorized by the General Permit in your behalf, it is strongly recommended that they be provided a copy of this letter and the attached conditions so that they are aware of the limitations of the applicable General Permit. Any activity that fails to comply with all of the terms and conditions of the General Permit will be considered unauthorized and subject to appropriate enforcement action.

6. The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://per2.nwp.usace.army.mil/survey.html. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

7. If you have any questions concerning this verification or jurisdictional determination, please feel free to contact Mrs. Barb Friskopp at the above address or call (308) 234-1403 or e-mail barbara.j.friskopp@usace.army.mil and refer to file number **2010-01670-KEA.**

Signed Dale Vaoss
for John L. Moeschen
Nebraska State Program Manager

Enclosure

Copy Furnished:

DEQ (Garber)

DEPARTMENT OF THE ARMY PERMIT

Permittee: **General Public, Government Agencies**

Permit No: **NE 98-20005, Amendment 2**

Issuing Office: **Omaha District, Corps of Engineers**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Dredge or excavate accumulated sediment in manmade lakes or ponds created through impoundment or excavation. Dredging or excavation will not exceed elevations and contours at the time of pond/lake creation. Dredged/excavated material that is discharged into upland disposal sites will allow sufficient settling time before water returns to the lake or pond. Discharges into the lake or pond are allowed for the creation, enhancement, or restoration of fish or wildlife habitat, construction of sediment control facilities, shoreline stabilization, or fishing piers.

Project Location:

Manmade lakes and ponds in the State of Nebraska that meet waters of the United States criteria

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **January 31, 2014**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:
See page 4.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the River and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, tribal, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) *(DATE)* 2/14/13

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

DAVID C. PRESS
COLONEL, CORPS OF ENGINEERS
(DISTRICT ENGINEER) *(DATE)*

By: Martha Chieply
Chief, Regulatory Branch

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

*U.S. GPO: 1988-520-324

Special Conditions

1. Written concurrence for the use of this general permit will be required from the National Park Service for any projects located within the boundaries of any river or creek in the Wild and Scenic River system.

2. Compensatory mitigation will be required for the elimination of wetlands created or restored to provide compensatory mitigation for another Department of the Army permit.

3. Compensatory mitigation will be required for the elimination of wetlands that were constructed with Section 319 Clean Water Act funds.

4. Compensatory mitigation will be required for the elimination of wetlands that existed prior to lake construction or a lacustrine fringe wetland that formed following lake construction.

5. The return water from an upland dredge disposal site will meet Section 401 Clean Water Act standards.

6. Dredging or excavation will be timed and/or located to avoid adverse impacts on spawning or migration seasons.

7. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

8. No activity may adversely affect species listed as threatened or endangered or proposed for such designation under the Federal Endangered Species Act. The Corps of Engineers will consult with the U.S. Fish and Wildlife Service in making a determination of adverse impact.

9. No individual action under this GP shall be allowed if it jeopardizes the continued existence, or results in the take, of state-listed threatened or endangered species described as Key Species in Title 117-Nebraska Surface Water Quality Standards.

10. Care will be taken to prevent any petroleum products, chemicals, or other deleterious materials from entering the water. For all equipment operating in the water, the permittee shall require all contractors to conduct daily inspections for any fuel, lube oil, hydraulic, or antifreeze leaks. If leaks are found, the permittee shall require the contractor to immediately remove the equipment from service and repair or replace it.

11. Shoreline stabilization will be limited to areas of erosion that are devoid of a wetland fringe along the shoreline and without a vegetated bank.

12. Any riprap used in project construction will be covered with soil and seeded to native grasses if determined by the Corps of Engineers to be necessary for safety.

13. Prior to any construction work (including tree removal) occurring within the nesting season, the permittee will inspect the site for active nests of migratory birds. If active nests of migratory birds are observed within areas to be disturbed, construction work cannot commence in those areas. Contact the Corps of Engineers in such cases. The Corps of Engineers will consult with the U.S. Fish and Wildlife Service. Construction cannot proceed until the permittee is notified by the Corps of Engineers.

14. Concurrent with construction, silt curtains or other sediment control measures will be employed as needed to protect waters of the U.S. Upon completion of the project, upland seeding of areas adjacent to the lake will be completed by September 15 of the year of construction. Native plant species will be used for permanent cover. A temporary cover crop of non-native species may be used in the establishment of permanent cover. Smooth brome and reed canary grass are excluded. If seeding cannot be accomplished by this date, then properly installed erosion control best management practices with permanent seeding (e.g., erosion control blankets, hydroseed/hydromulch) will be carried out.

15. Steps will be taken to prevent materials spilled or stored on site from washing into the streams as a result of cleanup activities, natural runoff, or flooding, and that, during construction, any materials, which are accidentally spilled into these areas, will be retrieved.

16. All construction debris will be disposed of on land in such a manner that it cannot enter the streams.

17. All trees and shrubbery which are not specifically required to be cleared or removed for construction or operations purposes shall be preserved and shall be protected from any damage by construction operations and equipment.

Application Procedure

Applications will be submitted to the U.S. Army Corps of Engineers, 8901 South 154th Street, Omaha, Nebraska 68138 and must include the following information: (1) name, address, and telephone numbers of the applicant and agent (if applicable), (b) plan view and cross-section view scale drawings, (c) project purpose, (d) description of project, including cubic yards of dredged/excavated material, methods of dredging or excavating, disposal site, creation, enhancement, or restoration of fish and wildlife habitat (if applicable), sediment control facilities (if applicable), shoreline stabilization (if applicable), fishing piers (if applicable). The plan view drawings will show the boundaries of the dredging area(s), dredge disposal site(s), habitat creation sites, sediment control facilities, and wetlands. Wetlands that formed as a result of sedimentation following lake construction will be labeled and distinguished from wetlands that existed prior to lake construction or fringe wetlands that formed after lake construction. One or more cross-section view drawings of the lake or pond bed will be required, showing existing vs. proposed elevations and contours. The number of required cross-section drawings will be determined by the variability of dredging depths and contours. Additional plan view and cross-section view drawings may be necessary for sediment control facilities.

The Corps of Engineers will solicit comments from the following agencies: U.S. Fish and Wildlife Service, Environmental Protection Agency, Nebraska Game and Parks Commission, Nebraska State Historical Society. The agencies will be given 15 calendar days to respond. Notification of agencies will include the above information plus the area of wetlands to be eliminated by the project. Impacted wetlands will be identified on a plan view scale drawing and labeled according to dominant plant species.

COMPLIANCE CERTIFICATION
KEARNEY REGULATORY OFFICE

Permit Number:	2010-01670-KEA
County:	Frontier
Name of Permittee:	NE Game & Parks Commission Jake Miriovsky
Date of Issuance:	February 4, 2013
Project Manager:	Barb Friskopp

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U. S. Army Corps of Engineers
Nebraska Regulatory Office - Kearney
2214 2nd Avenue
Kearney, NE 68847

Please note that the permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with permit conditions, the permit may be subject to suspension, modification or revocation.

CERTIFICATION:

I hereby certify that the authorized work was done in accordance with the Nationwide Permit authorization, including any general, regional or activity-specific conditions.

I hereby certify that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions.

Signature of Permittee Date