PAPIO-MISSOURI RIVER
NATURAL
RESOURCES
DISTRICT
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Programs, Projects & Operations
Subcommittee Meeting
November 8, 2005
8:00 p.m.
Agenda

Programs, Projects & Operations:
John Conley, Chairman
Rich Tesar, Vice-Chairman
Fred Conley
Rick Kolowski
Joe Neary

Alternate Members: Dorothy Lanphier
Jim Thompson

Staff Liaison: Gerry Bowen
Martin Cleveland
Ralph Puls
Dick Sklenar *
Paul Woodward

1. Meeting Called to Order – Chairperson John Conley
2. Quorum Call
3. Adoption of Agenda
4. Proof of Publication of Meeting Notice
5. Final Report on Biological Surveys and Site Master Plan for Rumsey Station – Jack Phillips and Jerry Toll, Consulting Arborist Group; and Jim Becic
6. Update on USGS Water Quality Samplings – Virginia McGuire, USGS; and Gerry Bowen
7. Request from Village of Arlington for Water Quality Grant of $350,000 – Steve Oltmans and Representative from City of Arlington
8. Review and Recommendation on Silver Creek Sites 23, 24 and 25 Bids – Terry Schumacher
9. Review and Recommendation on 2006 Long Range Implementation Plan – Gerry Bowen
10. Review and Recommendation on Flood Mitigation Planning and Mapping Assistance Agreement with Village of Homer (Omaha Creek, Dakota County) – Paul Woodward
11. Review and Recommendation on Elkhorn River Easement – Changes to Allbery Tract Easement – Gerry Bowen
12. Adjourn

Memorandum

To: Programs, Projects and Operations Subcommittee

From: Jim Becic

Date: 8 November, 2005

Re: Rumsey Station Biological Surveys and Master Plan Report.

The NRD has recognized the uniqueness of the 50 plus acre Rumsey Station Wetland for a number of years. The site was acquired by the NRD over a decade ago as a part of the West Branch Papillion Creek Channel Project. It is located approximately ½ mile north of Highway 370 in Sarpy County between ~ 54th street to ~ 60th street. The site – while still rather remote and somewhat hidden - is quickly becoming urbanized and will undoubtedly receive more and more pressure for public access for hunting, hiking, biking , environmental education/ teaching opportunities or even simple nature viewing by the encroaching population base.

If public access is allowed without a comprehensive understanding of the site's ecology, even the best intentioned, yet flawed management decisions could destroy the site's uniqueness in a relatively short time.

In order to better understand and quantify Rumsey Station's existing biological and environmental attributes, a team of consultants was hired in 2004, to conduct a comprehensive, four season survey of the area's flora and fauna and to make management recommendations for future uses.

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BIOLOGICAL SURVEYS & SITE MASTER PLAN
RUMSEY STATION

Phase II
Final Report 2004-2005

Submitted to: **Papio-Missouri River Natural Resources District**

Prepared by: **Consulting Arborist Group LLC**
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402.571.7460
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Principals: Jack Phillips, certified consulting arborist
Jerry Toll, avian specialist
Associates: Neal Ratzlaff, botany consultant
Roland Barth, botany consultant
Keith Lucas, animal tracker

Purpose of study.

- Provide baseline data for future biological management of site.
- Provide recommendations for the enhancement of biological diversity at Rumsey Station.
- Delineate areas within Rumsey Station that should be protected from future development.
- Propose ways that will help to conserve the property and be compatible with encroaching suburban development.

Submitted September 7, 2005

Table of Contents

Overview 3.

Description of the Biological Communities of Rumsey Station 4.

- Woodland Complex 5.
- Grassy Knoll Complex 5.
- Spring Seep Complex 6.
- Mitigated Wetlands 6.
  1. Wetland # 1
  2. Wetland # 2
  3. Wetland # 3

Biological Surveys 8.

- Herbaceous Survey 8.
- Tree Survey 10.
- Avian Survey 12.

Recommendations 17.

- Part I Management of the Land-Management Plan 17.
  1. Woodland Management 17.
  2. Wetland Management 19.
  3. Additional Recommendations 21.

- Part II Making Preservation Compatible with Future Human Use 21.

References 22.

Appendix A Flora of Rumsey Station 23.
Appendix B Trees of Rumsey Station 29.
Appendix C Incidental Sightings of Non-avian Fauna 30.
Appendix D Birds of Rumsey Station 31.
Exhibit Aerial Photo of Rumsey Station 34.

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Overview

Rumsey Station, a property owned and managed by the Papio-Missouri River NRD, is located in Sarpy County. It is adjacent to the Papio Creek and lies between the cities of Bellevue and Papillion. This 64+acre site is roughly linear in nature, with the eastern boundary being more than twice as wide as the western boundary. A retired rail bed right-of-way is the primary southern border. The northern border is the Papio Creek. Agricultural land abuts the property on both the eastern and western borders. Suburban development is north of Rumsey across the Papio Creek and to the south, a series of wooded acreages are adjacent. High-tension power lines criss-cross the property.

During the summer of 2004, Consulting Arborist Group LLC was approached to conduct a biological survey focusing primarily on the flora and avian fauna of Rumsey Station and to provide recommendations for a comprehensive management plan. A year-long study was proposed beginning 1 September 2004 to document the entire growing season of the flora and the entire seasonal variation of the bird community. The objective was to obtain an inclusive list of the biological community as was possible during the allotted year. A management plan begins with a working knowledge of the flora present and its interaction with the physical geology and hydrology. The more that is known about the plant community, the more comprehensive the plan. The bird community is a relatively easy way to measure the quality and diversity of the habitat available. The avian community indicates how the habitat is being used. Providing this baseline of information will enable managers to focus on practices that will conserve, protect and enhance the biological community at Rumsey Station. Fifty-four visits were made during the study period.

Description of The Biological Communities of Rumsey Station

Presented here is an integrated description of the biological communities based on information gathered from the three separate studies, avian fauna, herbaceous flora and woody flora. Additional findings will be discussed under each survey heading.

Overview It is unclear whether the ecosystem that existed here before European settlement was deciduous woodland or prairie. The Midwest Oak Ecosystem has been documented at Fontenelle Forest, on the bluff of the Missouri River. It consisted of a bur oak savannah in the uplands with a thickening of the woods and a change to flood tolerant cottonwood and willow in the bottomlands of the Missouri. West of Fontenelle Forest, toward Rumsey Station, was considered a continuation of Tallgrass Prairie Ecosystem that dominated the area. The bottomland woodland of the Missouri River could well have continued unabated up the Papio Creek valley to Rumsey Station but it is equally likely that the tall grass prairie continued unabated from the bluffs of the Missouri westward with perhaps only a scattering of cottonwoods and bur oaks near creeks.

The trees at Rumsey are native to this region; however, this may be due to fire suppression initiated by Europeans. There are a number of mature bur oaks at Rumsey Station that may be older than European settlement. One magnificent bur oak, in particular, is in need of protection.

Rumsey Station consists of the base of a hill and a portion of the Papio Creek former floodplain. It has been greatly altered from its natural topography. A retired rail bed transect was cut along the hill and parallels the Papio Creek. Also parallel to the creek and adjacent to the channel is a flood control levy. This report does not include the Papio Creek side of the levy. Two small permanent creeks and a number of springs are found on the property. Their hydrology has been greatly affected by these two structures.

The upland is primarily woodland with the exception of a grassy knoll of about 2 acres. The floodplain consists three mitigated wetlands, a series of spring fed sloughs and riparian woodland between the flood control levy and the upland.

We have delineated Rumsey Station into six biological communities. (See exhibit).

- Woodland complex
- Grassy knoll complex
- Spring Seep complex
- Mitigated Wetlands (3) including associated sloughs and riparian woodlands. (See map for designation.)
  1. Wetland #1
  2. Wetland #2
  3. Wetland #3

Woodland Complex The woodland complex consists of non-floodplain upland surrounding the rail bed and a narrow 6.4-acre strip of floodplain west of the mitigated

wetlands. There is some additional riparian woodland associated closely with the mitigated wetlands and is included in those complexes. There are three habitat subtypes in the woodland complex.

- On the eastern border, there is a small 1-2 acre creek valley dominated by a canopy of willow *Salix spp.* and hackberry *Celtis occidentalis* with a groundcover dominated by reed canary grass *Phalaris arundinacea.*
- The largest subtype is comprised of the upland slopes adjacent to the retired rail bed. The greatest diversity of flora and fauna was found in this habitat at Rumsey. Mowing has inhibited tree growth and kept the rail bed open to sunlight. This has created an edge where plants not usually associated with woodland can be found. A variety of mature trees dominate the canopy, including a notable single bur oak that probably predates European settlement. In some areas the honey locust is the dominant tree, particularly surrounding the Grassy Knoll. A healthy understory mix of various aged trees suggests that the deer population is having minimal influence on tree regeneration. By mid-summer, grasses dominate the groundcover due to the openness of the canopy. Buckbrush *Symphoricarpis orbiculatus* out competes the grasses in some areas where the slope is not too great. The rail bed is a linear strip of woodland and therefore highly dependent on adjacent similar habitat. Rumsey's rail bed woodland is actually a continuation of the woodland complex that is south of the rail bed and off the property.
- The third subtype of woodland habitat is the floodplain portion at the west end of Rumsey. Mature trees dominate the canopy restricting the amount of light able to reach the soil. Consequently, there are fewer sub-canopy trees and less grass groundcover. The soil remains moist and shade-tolerant species like nettles, *Urtica spp.*, thrive. Invertebrates are more numerous. Strong windstorms in July snapped trees in half and broke large limbs particularly at the western edge of this section. This has opened the canopy somewhat and will result in more mesic (dryer) conditions which will alter the plant community.

A deer herd that fluctuates in size is of major management concern and will be discussed in the recommendations. Skunk, fox, woodchuck, and raccoon are common. A track in the snow last winter strongly suggested a bobcat had visited the property. Of the 136 species of birds recorded at Rumsey Station, 99 of those occurred in the woodland at least part of the year.

Grassy Knoll Complex It consists of a single 1-2 acre upland site located in the eastern portion of Rumsey Station, and for the purposes of this report, is referred to as the Grassy Knoll. It is the only open grassland area at Rumsey and it is encircled by woodland. It is adjacent to the rail bed on its south. A portion of the north border is a cliff face down to the floodplain. The western border is honey locust savannah. The honey locust probably encroached upon the grassland about twenty years ago, judging by the age of the similar sized trees. Smooth brome predominates the Grassy Knoll. Its small size, isolation from similar habitat, predominance of smooth brome, and lack of plant diversity make this the most depauperate complex at Rumsey. Only two individual birds were observed here. Deer crossed it but show little sign of using it.

Spring Seep Complex This approximately 4+ acre area was probably formed when groundwater was restricted from reaching the floodplain by the construction of the railroad line. This raised the water table, generating springs. Saturated soil conditions prevail throughout much of the complex. Spring surface water continues to flow to the floodplain but is constricted to a single culvert. This somewhat semicircular valley is surrounded by wooded hillsides with the rail bed to the north. Two active springs produce surface water on the west side of the seep. One is slightly off the property. As the stream forms, it joins with the spring water from the other spring close by which is on the property. Water flows year around from these springs.

On the south end, ground water erupts to the surface in a pan rather than a single point as in a spring. In springtime, surface water flows slowly across the area for about 50 feet before again subsiding below surface. The soil in this area remains saturated year round.

A few water tolerant trees grow in the seep, mostly willows *Salix spp.* and cottonwood *Populus deltoides.* and some green ash *Fraxinus pennsylvanica.* Thickets of dogwood *Cornus drummondii* are found in drier portions of the seep. Most of the herbaceous vegetation seems to form colonies and is tied to their tolerance of the hydrology. Watercress *Nasturtium officianale* and duckweed *Lemna spp.* inhabits the streams. Reed canary grass *Phalaris arundinaceae*, arrowroot *Sagittaria latifolia* and jewelweed *Impatiens spp.* surround the streams. Scouring rush *Equisetum spp.* is found throughout. Extensive colonies of spearmint *Menta spicata* and golden glow *Rudbeckia laciniata* are in the eastern portion of this complex. One patch of cat-tail *Typha spp.* is found in the northwest corner.

Birds and mammals use the seep extensively. It shares habitat characteristics with both the wetlands and the woodlands making it attractive to birds and mammals. Carolina wrens and spring warblers used the Spring Seep extensively and this was the place to find juncos in the winter. This is a somewhat uncommon habitat in eastern Nebraska and is worth noting. There is a similar but larger wetland in Fontenelle Forest also created by a rail bed blocking the natural flow of springs.

Mitigated Wetland #1 This basin holds water in the entire basin year around. It is classified as a semipermanent basin by its vegetation, which is primarily cat-tails *Typha spp.* The inflow source is unclear. There is a spring to its south, which seems inadequate to maintain the wetland. Cat-tails comprise about 40% of the surface area of the wetland. The balance is open water. It has a large population of frogs. Wood Duck and Blue-winged Teal nest here, as do Canada Geese. A seasonally flooded slough is south of the wetland separated in part by riparian woodland.

Mitigated Wetland #2 This wetland remains dry most of the year with only a small portion of this basin flooding during the spring of 2005. The flooded portion stimulated the growth of willow and cottonwood saplings. The plant community is typical of that found in disturbed ground but is mostly native annuals and clump grasses. Immediately adjacent to the western edge of the basin is a 10-15 meter wide band of prairie grasses

and forbs. (It is assumed that it was planted as part of the basin construction but has persisted very well.) Big bluestem *Andropogon gerardii* and switchgrass *Panicum virgatum* are the dominant grasses and goldenrod *Solidago spp.* and fleabanes *Erigeron spp.* are some of the forbs. Adjacent to the band of prairie is a thin line of mixed riparian trees, mostly elms *Ulmus spp.*, mulberries *Morus spp.* and eastern red cedars *Juniperus viginiana*. These trees, during the warm seasons, always contained numerous birds. Adjacent to the riparian trees is a reversed "S"-shaped slough that begins near Wetland #1 and then parallels the west and south edges of wetland #2. Although it held water during spring, it soon became choked with reed canary grass *Phalaris arundinaceae* in the growing season. The slough connects to a small, presumably spring fed, kidney-shaped wetland southeast of wetland #2. The spring-fed pool remained open throughout the winter and was occupied by a beaver for about a month in spring. The mitigation basin was largely unused by wildlife until the growing season progressed. The surrounding habitat was used much more readily throughout the year.

Mitigated Wetland #3 This wetland is the most biologically diverse of the three. It is roughly saddlebag shaped. The western saddlebag stays wet. There is an open pool of water by the control structure. It is about one-third cat-tail marsh; the remaining portion dries during warm weather and supports the encroachment of cottonwood, willows and related seasonally flooded plants. It supports small fish, waterfowl, wading birds, and numerous frogs and muskrat.

The eastern saddlebag remains dry throughout most of the year. Spring rains flooded about 40% of this portion of the wetland. When the water level rose sufficiently in the western portion of the basin, it flowed across the neck separating the two areas. Standing water remained for two weeks until hot windy weather dried it. While it was wet, it attracted shorebirds and breeding woodhouse toads *Bufo woodhouseii*. This summer, the same seasonally flooded area became a stand of willow and cottonwood saplings. The eastern portion that remained dry supported downy chess *Bromus tectorum*, musk thistle *Carduus nutans*, smartweed *Polygonum spp.*, and dock *Rumex spp.* and other weedy annuals.

A three-foot levy surrounds the basin seeded to smooth brome *Bromus inermus*. Little additional riparian habitat adjoins the basin. The western saddlebag is adjacent to the upland woodland. The eastern saddlebag has a narrow band of grass at the base of the upland cliff. It has a number of tiny seasonal pools and is dominated by reed canary grass.

BIOLOGICAL SURVEYS

The Herbaceous Flora of Rumsey Station.

Survey and Identification Methods The survey methods used were similar to those used for the tree study. Twenty-eight visits were made to Rumsey Station from 26 March until 30 August 2005 for purposes of identification of herbaceous plants. Each of the biological communities were visited at least twice monthly during the period. This was necessary to be present during the flowering period of the various plants that is fundamental to identification. Sampling techniques using transects or grid works were proposed but were found to be inadequate. Rumsey Station's relatively small size (60+ acres) made a comprehensive survey possible. Every section of each of the communities was inspected during the course of each month during the growing period. In July, during the height of the growing season, sampling transects were again tried. They did not reflect the diversity of the community nor were any plants detected that would not have been identified otherwise. All plants were identified using available field guides where possible, and cross-referenced to reference books and web pages when clarity was needed. **The complete list of Flora of Rumsey Station can be found in Appendix A.**

Additional Comments Two hundred-thirteen (213) species in sixty-four families were found to occur at Rumsey Station. Not surprisingly, the asters and grasses were the most diverse families with twenty-eight and twenty-four species respectively. Well represented were the Mint, Rose, Parsley, Mustard, and Bean families. Each family ranged between eight to twelve species. Forty-four of the remaining fifty-seven families had two or less species representing that family. This is a reflection of the diverse flora that is found at Rumsey Station. However, this is not a reflection on the frequency of occurrence of each species. For instance, one of the more abundant plants found was stickseed *Hackelia virginiana*. It is the only representative species in the Borage Family.

Mitgated Wetland flora At the time of construction, seven species of grass were seeded to the wetlands. Of them only four persist.

western wheatgrass	*Agropogon smithii*	switchgrass	*Panicum sp.*
big bluestem	*Andropogon gerardii*	reed canarygrass	*Phalaris arundinacea*

The wetland basin flora has diversified from 35 species, when surveyed by EA Engineering (1996), to the 78 species that are now present. However, since Wetland #2 remains dry most of the year, much of the flora found by this survey is mesic and would not be present if it were a functioning basin. Much of the plant community is annuals that pioneer in disturbed areas resulting in greater diversity. Only 21 of the original 35 species surveyed were found.

Woodland Flora one hundred-thirteen species (113), excluding the trees, shrubs, and vines were found in the woodlands. The greatest diversity was found at the edges, particularly the rail bed, where sunlight permeates the shade and allows a stronger undergrowth response. Some species found are more closely associated with grasslands

such as the goldenrods, and sunflowers and are undoubtedly due to the edge affect created by the rail bed.

Spring Seep Flora Forty-three (43) species of plants, excluding eight woody plants were found in the Spring Seep. Twelve of those species were not found elsewhere at Rumsey. The spring seep is only 4+acres. This suggests a diverse habitat. Pale jewelweed *Impatiens pallida* were represented by a small colony amid the thousands of its close cousin, spotted jewelweed *Impatiens capensis.*

There are 12 abundant plant species in the spring seep. Dominant species are emboldened.

Sagittaria latifolia **arrowhead**
Rudbeckia laciniata **golden glow**
Carex albicans A sedge, no common name.
Cyperus odoratus rusty-flat sedge
Equisetum hyemale **scouring rush**
Phalaris arundinacea **reed canary grass**
Impatiens capensis **spotted jewelweed**
Nasturtium officinale watercress
Carex hystericina bottle-brush sedge
Equisetum arvense **field horsetail**
Medicago lupulina black medic
Galium aparine catchweed bedstraw

RUMSEY STATION
SURVEY OF TREES AND FINDINGS

Survey and Identification Methods The tree survey was conducted from September 15 to November 20, 2004. The site was visited two to three times each week. Aerial and topographical maps provided by the NRD helped identify the basic habitat types and to situate Rumsey within the larger watershed ecosystem and to locate specific types of habitat. Rumsey's small size made a survey of trees possible without geometric division or the establishment of a grid. The survey was conducted following the natural delineation of woodland and wetland. With the exception of pre-existing wetlands associated with spring seep, this is a mesic woodland habitat. The trees found in the constructed wetlands are woodland species with the exception of willows *Salix spp.* and cottonwood *populus deltoides*. The species list of trees can be found in **Appendix B The Trees of Rumsey Station.** The species list of the tree survey has also been integrated into Appendix A The Flora of Rumsey Station.

Additional Comments Most of the species documented were probably common in the Papio floodplain and adjacent woodlands before development and flood control measures began. These trees occur frequently in preserves in Eastern Nebraska and Western Iowa, with some notable exceptions. Kentucky coffee-tree *Gymnocladus dioica* is native to this area, but was never widespread or abundant except in localized populations. This can be said of service-berry *Amelanchier arborea* and bladdernut *Staphyla trifolia* as well, which are present in Rumsey in small numbers.

A single prickly ash tree *Zanthoxylum americanum* was found in the Spring Seep community. On its branch was the cocoon of a cecropia moth *Hyalophora cecropia*, the largest species of moth in North America.

Another uncommon tree found here is red mulberry *Morus rubra*, which hybridizes freely with white mulberry, a naturalized Asiatic species frequently occurring in Rumsey. One specimen was identified, which has characteristics of each species and is probably a hybrid. White mulberries, though exotic, should not be cause for concern at this time as they are not overly competitive and have wildlife value.

Mesic woodland (with soils that are neither permanently wet nor dry) and wetlands (either natural or constructed) are the habitats of Rumsey. It should be noted that the tree species growing in these constructed wetlands existed in these locations before the wetlands were created. The only tree species in Rumsey endemic to habitats with permanently wet soils are found in the natural wetlands. These are the willows of the genus *Salix.*

Diversity of species, age of individual trees, and relatively small numbers of invasive and exotic plants are primary indicators of forest health. The lack of development due to

Rumsey's proximity to the railroad and floodplain has preserved this diversity. In our opinion, every effort should be made to preserve and enhance this ecosystem.

The Avian Fauna of Rumsey Station

Survey and Identification Methods Forty-one visits to Rumsey Station were made for the purpose of surveying birds during the course of the study period (1 September 2004-30 August 2005). Most visits were started within one hour of sunrise when birds are most active. Each visit lasted from 2-6 hours depending on the seasonal activity levels. Avian surveys are usually conducted using sampling techniques i.e. transects or grids, but Rumsey's relatively small size enabled us to survey the entire property on most visits. A loop was walked starting at the east gate. The trail then goes around the grassy knoll and then follows the rail bed westward to the Spring Seep area. The Spring Seep was usually walked. The trail then looped through the West Arm to the western border before turning east again and proceeding to the mitigated wetlands. Each wetland basin was encircled before returning to the starting point. All birds seen and heard within the study area were counted and assigned to the appropriate habitat. Birds seen flying over were not counted unless seen using the study area. This protocol was followed most of the time, however some of the visits were dedicated to specific habitats.

A complete list of the Birds of Rumsey Station can be found in Appendix D. They are organized by both seasonality and habitat of occurrence.

Overview The avian community at Rumsey Station is reflective of the health of the faunal community. Birds are found in most habitats, are readily apparent without any specialized equipment, are statistically reliable, and can be documented easily. Some species are generalists, others are specialized to a specific habitat and therefore reflect the habitat in which they occur.

Prior to European settlement, the grasslands of the Great Plains were considered the great biological divide between eastern deciduous forest birds and forest birds of the western montane. Eastern Nebraska, and in particular the Missouri River woodland and environs, is now considered in the range of many eastern woodland birds. Migrating eastern woodland birds, on their way to the boreal forest, have also shifted westward into our region because of the availability of habitat.

Human activity has had another effect on the birds that use Rumsey Station. The loss of wetlands in eastern Nebraska and the subsequent decline of associated species of birds that use them, in particular, are extensive. The presence of wetlands at Rumsey provides critical habitat to migrating shorebirds and rails.

Findings

One hundred thirty-six (136) total species of birds occurred at Rumsey Station during the one-year study period.

- Spring 120 species
- Breeding season (summer) 67 species
- Fall 69 species
- Winter 34 species

Spring is the season in which the greatest diversity of species can be detected at Rumsey Station. Fifty-six species were recorded on two days in May (5th and 14th). Most species of birds are driven by the need to attain their breeding grounds on a timetable and therefore are somewhat predictable in migration. Generally speaking, foraging habitat requirements and distance needed to travel from wintering grounds to breeding grounds determines the timing of presence at Rumsey Station. During spring migration, the most important habitat resource available to birds at Rumsey is the wetland component. The loss of wetlands across the United States and specifically along the Missouri River flyway has been extensive. For those species that depend on wetlands for a stopover during migration, the lack of habitat and/or quality of habitat creates added stress during migration. They must travel further to available wetlands and strongly compete for a diminished resource that may not even be present due to the drought. The woodland component at Rumsey Station provides habitat for the richest diversity and numbers of birds. Many species can be found present in woodlands even though their primary habitat may be different.

One hundred and twenty (127) species of birds were recorded using Rumsey Station between 26 March and 1 June. In any given year, during spring, there is the likelihood that two hundred thirty-two species could be found in all of Sarpy County. Thus one hundred and twenty species is a respectable number considering the limited size of the study area, the limited types of habitat available on site, and the quality of the bird habitat surrounding Rumsey. Of those one hundred and twenty-seven species, diversity is well represented. Of the fifty-two families of birds found in Nebraska, thirty-seven families were represented at Rumsey. Of the remaining fifteen families not represented at Rumsey, eight would not be expected to be present due to lack of suitable habitat. The woodland aspect attracted the greatest diversity of species. Ninety-eight out of the one hundred and twenty species used the woodlands all or part of the time. The woodlands were, at times, alive with migrating warblers and other passerines. Migrating sparrows were found foraging at Rumsey sometimes in large numbers. On May 5th, fifty-two White-throated Sparrows were in one thicket in the Spring Seep area.

The area to the north is a residential area. The lands to the east and west are in agricultural production. The land to the south is woodland and **C**onservation **R**eserve **P**rogram prairie with housing further south and west. Because Rumsey is surrounded on three sides by inhospitable habitat for birds, the woodland to the south is essential to the survival of avian diversity and population size found within the Station's woodland. The woodland component at Rumsey is basically linear in aspect, surrounding the retired rail bed. Bird diversity and populations do best when large blocks of habitat are available which has a low edge-of-habitat to land-area ratio. As the size of the habitat decreases, particularly in smaller plots, the number of species and individuals also rapidly decreases. Should the woodland to the south disappear, Rumsey would provide only minimal habitat to a select few species that do well on woodland edges.

Fifty-three species used the three mitigated wetland areas of which twenty-two species used them exclusively. This number is somewhat skewed by the dry portions of two of the wetlands. Two species, Dickcissel and Vesper Sparrow, were each represented by a single individual in those dry areas and are not typically considered associated with wetlands. The number of individuals per species who used the wetlands was very low, with a few notable exceptions. The mitigated wetland basins were at their highest levels and therefore were used by migrating waterfowl, shorebirds and secretive rails. Seventy-two Blue-winged Teal were on wetland #3 on April 14th. Twelve Red-winged Blackbirds were nesting in the cattails. The remaining species were represented by less than five individuals, and many of those species by only one or two. Only five of the likely seventeen shorebird species that visit wetlands in our area made it to the Rumsey wetlands. Only eleven individuals represented them. The disappointing number of wetland-associated species can perhaps be explained by only intermittent shallow water, i.e. one to four inches deep, and extensive vegetation in the basins. The few heavy rainfalls during the study period created temporary pools in the central and eastern basins and can be credited for the shorebird sightings. These pools never exceeded 30% of the available surface area of the basins.

A few anecdotal sightings are worthy of note. The Grassy Knoll, a less than two acre plot of non-native smooth brome near the east end, is the habitat least used by birds at Rumsey Station. Spring was the only time two individual birds were observed using the Grassy Knoll. On 4 May, a Western Meadowlark was seen singing on the plot and on 14 May an Eastern Kingbird was found foraging there as well. On 8 May, a pair of Great Horned Owls successfully fledged two young from the nest in the West Arm. The presence of Great Horned Owls and the successful fledging of two young suggest a healthy rodent population at Rumsey Station. On 12 May, a nonbreeding adult Little Blue Heron was seen foraging on minnows on the edge of the central mitigated wetland basin. This species is considered an uncommon regular migrant, probably from a small colony breeding in eastern South Dakota (Sharpe et al. 2001). On 13 May, a Connecticut Warbler was heard singing in the riparian area adjacent to the central mitigated basin, close to where the Little Blue Heron was seen. This species is considered a rare spring migrant (Sharpe et al. 2001) and was the only sighting of this species in Nebraska this spring (Silcock, personal comm. 2005).

Summer. Fifty-five of the sixty-seven (67) species found at Rumsey during the summer likely nest at Rumsey Station. An emboldened **B** designates breeding birds in Appendix B.

The majority of breeders were woodland nest builders.

Six species nested in or immediately adjacent to the wetlands.

Green Heron	Wood Duck	Canada Goose
Killdeer	Song Sparrow	Red-winged Blackbird

Two pair of Canada Geese tried nesting in June and both nests failed (eggs predated). They did not renest at Rumsey. The best count of nesting Red-winged Blackbirds in the

cattails was four males at wetland # 3 and six males at wetland # 1. Each male can have a harem of from 2-6 females.

A pair of Belted Kingfishers nested in the cliff overlooking wetland # 3

Four species more associated with grasslands nested in the smooth brome of the levies.

Grasshopper Sparrow	Dickcissel
Western Meadowlark	Eastern Kingbird

Twelve species foraged at Rumsey Station but were considered highly unlikely to nest. Either they were known to nest elsewhere, or the habitat required to nest is not present at Rumsey, or in the case of a Cooper's Hawk it was a nonbreeding juvenile.

Direct evidence of nesting was observed for 21 species.

Wood Duck	Wild Turkey	Mourning Dove
Great Horned Owl	Red-headed Woodpecker	Red-bellied Woodpecker
Downy Woodpecker	Western Kingbird	Blue Jay
Black-capped Chickadee	Carolina Wren	House Wren
Eastern Bluebird	American Robin	Gray Catbird
Brown Thrasher	European Starling	Song Sparrow
Dickcissel	Red-winged Blackbird	Brown-headed Cowbird

The **Fall** study period is designed to qualify the use of Rumsey Station habitat by migrating birds. Typically, the fall survey produces fewer observable migrants in our region than the spring survey. Timing of fall migration varies greatly between families of species. Adult shorebirds begin passing through the region in mid-July. Thus, their migration season greatly overlaps with the breeding season of most of the birds that otherwise use Rumsey Station in the summer months. Additionally, the wetlands are drier and less attractive to migrants. Migrating waterfowl were not observed using Rumsey Station until the October 29th visit. Seven visits were made to the study area at roughly one-week intervals.

The fall migration got off to a slow start. The 21st of August initiates the perching bird migration with the passage of the early warbler species. This fall, the warbler migration largely by-passed our region. This was evident by monitoring the Nebraska birding communities postings on the web. Rumsey Station had weak numbers of warblers, probably atypical in number and diversity normally present in an average year. Almost a month later than is typical, September 26 and October 3 were the most productive days. They were found mostly in the Spring Seep area and the sloughs adjacent to the mitigated wetlands, foraging in the willow and mulberry. Flocking American Robins were abundant, gorging on hackberries until the berries were gone. Native sparrows arrived in a timely manner and posted strong numbers and diversity. They were found most frequently in the dry, weedy central mitigated wetland until it was mowed. They then relocated to the adjacent riparian areas and the easternmost mitigated wetland. The

easternmost mitigated wetland also attracted the wetland related sparrows and the only shorebird of the fall survey, a Wilson's Snipe.

Sometimes an island of dissimilar habitat will attract a seemingly disproportionate diversity of bird species. Rumsey Station has at least one of these. An island of dissimilar habitat exists between the central and eastern mitigated wetlands. It is roughly 1/10 of an acre. It is a small oval pool of open water with a half circle of trees less than ten meters tall on one side whose roots extend down into the pool. Dense grasses grow at the base of the trees. Twenty-nine species or 42% of the species found at Rumsey Station during the fall were found using the island. One species was found at no other time at Rumsey, a Winter Wren. This island is attractive to birds in large part because of the surrounding habitat.

Winter is the time of extreme hardship for nonmigratory birds. The woodland component of Rumsey Station is by far the most used habitat by birds in the wintertime. Six species of birds, Red-bellied Woodpecker, Downy Woodpecker, Black-capped Chickadee, White-breasted Nuthatch, Dark-eyed Junco, and Northern Cardinal were regularly seen on each visit to Rumsey Station. These six are the keystone species that would be expected in winter in any woodland in this region. Hairy Woodpecker, Northern Flicker, Blue Jay, Brown Creeper, and Carolina Wren, and American Goldfinch were also regular winter visitors. Carolina Wren is noteworthy. Its presence is an indicator of climatic change. During harsh winters in eastern Nebraska, they are largely killed off. If they remain present during late winter it indicates a mild winter. If they are present in strong numbers, which they are at Rumsey this winter, it indicates a succession of mild winters.

Eight of those species mentioned are insectivores and tree cavity roosters. They forage on insects damaging to trees but also create cavities that encourage decay. During some visits, particularly those later in the winter, the Spring Seep area attracted the most birds at Rumsey Station. By numbers but not diversity of species, they seemed to be attracted on sunny, cold days because the springs remained open all winter. The south-facing slope of the railroad bed provided shelter from wind and was the first to melt the snow cover opening the ground to foraging.

The mitigated wetland pools received little use during the winter study period. The basins that contained open water attracted some waterfowl until it froze in mid-December. They were Mallards and a lone Green-winged Teal. Canada Geese were seen flying over Rumsey on practically every visit but did not land on the property. The five pairs of Mallards seen on 12 February were on one of the larger spring pools that remained open all winter and contained duckweed. Mallards used wetland #1 alternately with wetland #3 while the water remained open. Wetland #2 was mowed in the fall. If it had not been mowed, it would have provided seed-laden asters and other plant seeds for seed-eating passerines. Birds heavily used it in the fall until it was mowed. No birds were observed in wetland #2 this winter. Birds used wetland #3 extensively during the early part of the winter. Ducks used the open water by the control structure. Water associated passerines, Song Sparrow and Swamp Sparrow, used the flooded weedy area in the western portion.

Recommendations

Part I Management of the Land

Consulting Arborist Group was contracted to conduct base-study surveys and to provide recommendations based on these studies. Our recommendations are predicated on commonly accepted preservation and habitat enhancement principles, while keeping in mind that human access to Rumsey Station will likely occur sometime in the future. We think these recommendations will enhance the flora and fauna of the property as well as lessen the Papio-Missouri River NRD's operational and maintenance costs.

Develop a long-term management plan. The recommendations are to help with the development of a plan.

1. Decide what your management goals are.
2. Prioritize the changes that you wish to pursue that will accomplish the goals.
3. Determine the effects of the management changes, and monitor the changes.
4. Adjust to reach goals.

Woodland Management

White-tailed deer *Odocoileus virginianus* **population control** is a critical part of any management plan in our region. When the deer population exceeds the carrying capacity of the woodlands, trees no longer regenerate due to heavy browsing of saplings. Signs of deer overpopulation is a browse line in the forest i.e. no branches growing lower than the height a deer can reach. Rumsey Station has a deer overpopulation problem, but it is not critical. Forest regeneration is taking place, but it is primarily honey locust and red cedar that deer will not browse. There is very little sign of a browse-line.

Hunters are putting heavy pressures on the herd but it is inadequate to insure bur oak regeneration, the preferred canopy tree. During hunting season, Rumsey Station is closed to hunters, as it is year around. Hunters were in the woods to the south of Rumsey during most visits by surveyors and were found trespassing at Rumsey on a number of occasions. Deer take refuge at Rumsey but it did not deter some hunters from pursuing them onto Rumsey. Four deer carcasses were found by winters end. It was noted that Rumsey was not adequately posted at the beginning of the season. That changed as the season progressed but trespassing hunters were still found pursuing wounded deer onto the property. It appears that the illegal hunters lessen the deer population but create safety and liability issues by their presence. A controlled hunt combined with an increased presence is a possible solution.

Control Invasive Plants. Preservation of habitat is essential to any resource management. A major problem confronting land managers is invasive plants that out-compete the desirable native flora. Control measures are necessary to preserve the

biodiversity of Rumsey Station. Given the opportunity, these plants will displace the flora diversity, lessening the quality of habitat for wildlife and detracting from the scientific and educational value.

The following invasive plants were identified that are in need of control measures.

- garlic mustard *Alliaria petiolata*
- eastern red cedar *Juniperus virginiana*
- Siberian elm *ulmus pumila*
- multiflora rose *Rosa multiflora*

- **Garlic mustard** is just now getting a firm foothold at Rumsey Station. This biennial sprouts early in spring in the first year and forms a mat of groundcover. The second year, it emerges in March, sends up a stem to 5 feet tall, and produces prodigious numbers of seed by mid June. Its life cycle is completed before taller species can out-compete it for sunlight. Deer will not eat this plant. Where it is well established, it shuts out light to the soil, prohibiting germination of later plants. This spring at DeSoto NWR, large tracts of woodlands were observed where nothing was growing except garlic mustard. Manual and chemical controls are effective but labor intensive. Ceutohynchus species of weevils and other garlic mustard biological controllers are being tested by the USDA for approval but are not yet available.

- Another invasive and competitive tree that is a cause for concern is native. **Eastern red cedar** poses a woodland management problem throughout our region. Rumsey is no exception. The presence of cedar here was no doubt encouraged by its popularity in windbreak plantings. Cedar waxwings eat the berries and spread them. Although it has wildlife value, the absence of control measures will prove detrimental to other desirable plant species. It is on the verge of becoming well established at Rumsey. Control measures now will be require less labor than in the future. The land adjacent to the south of Rumsey is, in part, extensively red cedar. Red cedar is easily controlled. Trees can be cut off below the lowest branch and not resprout. A small working crew, cutting preferably after frost, will severely curtail the spread.

- Siberian elm control. An Asiatic species that is of concern is Siberian elm *Ulmus pumila*. Unlike the two native elms found in Rumsey, slippery elm *Ulmus rubra* and American elm *Ulmus americana*, Siberian elm is resistant to Dutch elm disease. This resistance and its natural fecundity, in addition to its ability to grow in shade, allow this species to dominate a variety of habitats. Fortunately, Siberian elm is not common or widespread in Rumsey at this time, but may become so in the future if not controlled.

- **Multiflora rose** *Rosa multiflora*, a nonnative, has an extensive population at Rumsey Station. It is considered extremely prolific and can form dense thickets that exclude native plants. After the fall frost, numerous small rose plants were noted throughout the Station. It is a thorny perennial shrub. Birds disperse rose hips and the seeds can remain viable for up to twenty years in the soil.

Suggestions on mechanical and chemical control can be found in the reference section at the end of this report.

Woodland buffer and protection of watershed. Rumsey Station woodland is rich in habitat and wildlife, and with proper appreciation and management can have increased ecological value. The Rumsey Station woodland is part of the larger woodland to its south on which it is highly dependent. Rumsey Station is actually a thin linear strip at the base of that larger woodland. Housing development to the south of the woodland buffer is already present. If the woodland buffer were converted to housing, which seems likely in the next decade, the biological diversity at Rumsey would drop precipitously. This woodland buffer is also the watershed for the Spring Seep and the mitigated wetlands. The hydrology of the wetlands could be adversely affected by its development and merits further study. Potential siltation of the Spring Seep by future development, which is surrounded on three sides by the woodland, is another concern. Conservation easements or outright purchases would insure future protection.

The **Mother Bur Oak** *Quercus macrocarpa* is referenced on the aerial map. This is one of the oldest living trees at Rumsey and probably was growing before European settlement. It suffers from lower limb damage due to compaction of the soil around its base. The access trail to the grassy knoll runs under its limbs. The traffic is compacting the soil. A tree protection zone should be established under its entire canopy where vehicle traffic is restricted. Its location is indicated on the site map.

Additional recommendations for woodland management. The greatest plant diversity was found on the rail bed proper. Restricting mowing to a single path down the center large enough only for maintenance vehicles is advised. Clearing of fallen timber should also be restricted to an as-needed basis. Keeping the rail bed open and mowed encouraged trespassers on ATVs and horses. When mowing and clearing of tree branches ceased, the ATV activity stopped.

Other remaining tracts of undeveloped or uncultivated land in this floodplain corridor should be considered part of the larger Papio Creek Complex, and also warrant study and evaluation. Biological surveys would be useful for understanding their local plant communities and habitat value. This is especially true of those parcels owned or managed by public entities.

Wetland Management

The **Spring Seep Complex** appears to be healthy. It does have an infestation of reed canarygrass adjacent to the outflow of the springs. This is not extensive and seems to be checked by competing hydric plants. Hand removal of *Phalaris* would have some impact but this habitat is so fragile that care must be taken that the cure is not worse than the problem. The infestation should be monitored. Of greater concern is the preservation of the hydrology of the Spring Seep Complex. As mentioned in the woodland recommendations, it is surrounded on three sides by, and vulnerable to, the neighbor's stewardship of the adjacent upland woodland.

The **wetland hydrology of Wetland # 2**, which remained dry throughout much of the study period, and the partial flooding of Wetland # 3 are primary concerns at Rumsey Station. These concerns are beyond the scope of this study, however, the following recommendations would mitigate these conditions and enhance the existing basins.

There is a possible **source of surface water** for the east arm of wetland #3 that could be exploited. A small creek runs through a culvert under the rail bed and flows through a valley on the east border before leaving the property and running in a ditch on the owners (Charlie Trumble) side of the property-line to the Papio Creek. There is room between the base of the hill and the property line to divert the stream into the east arm of # 3. This stream ran throughout the winter season, carried considerable water in the spring and was reduced to a trickle in the summer but continued to run.

Control of Invasive Species in the Wetlands

- Reed canary grass control.
- Woody infestation of wetlands.

- **Reed Canary Grass** *Phalaris arundinacea* has formed a monoculture in all the seasonally saturated sloughs and waterways associated with Wetlands #1 and #2 but not in the basins. It was included in the 1996 planting of the floodplain and since then has virtually eliminated the seedstock of other plants where it is growing. It grows vigorously by spreading rhizomes. It has little wildlife value since few species will eat it. Waterfowl and mammal do not use it for cover because of its dense growth. It produces prodigious amounts of pollen that aggravates allergies. Suggestions for controlling Phalaris by herbicidal or mechanical means can be found in the reference source section at the end of this paper.

- **Woody infestation** This spring, Wetland # 2 and # 3 both had portions of the basin briefly flooded with shallow water, creating an ideal habitat for the germination of seed of the family Saliaceae (willows and cottonwoods). Flooding exceeding six weeks would likely prohibit germination. These conditions do not exist in these wetlands at this time. A prescribed burn of basin # 3 is recommended this fall after frost if fuel loads are adequate and the basin is not flooded. If this is not possible, mechanical removal of all vegetation, except cat-tails, is advised to encourage migrant waterfowl and shorebirds use when flooded next spring. Wetland # 2, until it carries water and functions as a wetland, should not be managed in the same manner as the other wetlands. It is functioning more as a fallow area that provides excellent forage for birds year around but especially in winter. The willows and cottonwoods should be controlled in this basin in anticipation of its designated function but disturbance of surrounding habitat should be kept to a minimum.

Making the Wetlands Work for Wildlife. Assuming that at some future time there will be adequate instream flows, it is recommended that control structures be used to

manipulate water levels making the wetlands simulate the natural ebb and flow of natural wetlands. Use by birds in migration and during nesting, and utilization by other wildlife, would increase if the wetlands followed a more natural seasonal regiment.

Additional Management Recommendations

Mowing and Wildlife Management. In areas such as Rumsey Station that are set aside for wildlife, mowing should be used judiciously as a management tool. Wildlife requires both cover and forage provided by the vegetation. Generally, mowing removes cover and promotes the growth of grasses while inhibiting the growth of forbs. Mowing is an effective tool for noxious weed control but is less effective if done after the set of weed seed. Additionally, disturbed areas, where pioneer plant species take root before grasses eventually fill in, provide excellent forage and cover for migrating and wintering birds. As an example, in the of fall of 2004, the basin of wetland #2 was mowed clean. This dry wetland functions as a disturbed area where seasonal flooding conditions inhibit perennial grasses. It was being used extensively by migrating native sparrows until it was mowed. It could have provided forage and cover for wintering birds.

Conversion of Smooth Brome to Native Grasses. The dominance of smooth brome grass *Bromus inermus* on the Grassy Knoll Complex afforded minimal usage by wildlife. Likewise, the levies surrounding the mitigated wetlands and the entire length of the levies of the Papio Creek are planted to smooth brome. Replanting these areas within Rumsey Station to a mixture of native grasses rich in forbs, would add a strong grassland component to the habitat structure at Rumsey. (It is understood that the Papio Creek side of the levy and the levy crowns, which must be mowed for maintenance access, should not be converted.) Once the grasses are well established, mowing, or preferably prescribed burning, would be necessary only every three to four years, thus lowering operational costs.

Part II Making Preservation Compatible with Future Human Use

Rumsey Station is situated in an area that is seeing rapid residential development. Housing is encroaching from all sides. It seems likely that within a decade or two it will become an island of wildlife habitat surrounded by suburbia. However, the Papio Creek will remain a wildlife corridor connecting Rumsey to other undeveloped places. As the surrounding human population increases, usage by people will continue to rise. A method will be needed to effectively control access to Rumsey while preserving the habitat. During the study, trespassers were often encountered. Hunters, ATV riders, and horseback riders have a high negative impact on Rumsey because they do not stay on the trails. Joggers and dog walkers primarily stayed on the Papio levy and seem to have minimal impact. The primary concern now includes that of liability as well as degradation of habitat. Hunters may be helping to preserve Rumsey by controlling the deer population despite the perplexing liability issue.

In the future, when Rumsey Station is opened to use, people will need to be restricted to a trail system that does not impact the fragile wetlands. Because of its small size, its habitat

could quickly be degraded if access is not limited to footpaths only. A conservation organization with a presence of limited impact would be a desirable ally. An educational component as part of the usage would be ideal, but again limiting the size of the groups that visit and the frequency. An impact study should be conducted before opening Rumsey to the public.

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Appendix A Flora of Rumsey Station 2004-5

A complete listing of the trees and herbaceous plants found to occur at Rumsey Station is presented here. Two hundred and thirteen (213) species in sixty-four (64) families are represented. Most plants were keyed to species, those few who were not are keyed to genus. Notes on each species are included. If only the habitat is noted then they were fairly common and easy to locate in flowering season. Trees are noted as only common or uncommon. Species who are under represented are noted as such. The scientific name is given first, followed by one of the common names if available.

Aceraceae Maple Family
Acer negundo, boxelder Common.
Alismataceae Water Plaintain Family
Sagittaria latifolia, arrowhead Spring Seep, Wetland # 3.
Echinodorus berteroi or *rostratus,* burhead Wetland # 3.
Anacardiaceae Cashew Family
Toxicodendron rydbergii and/or *radicans* (intergrades), poison ivy
Rhus glabra, smooth sumac Common.
Apiaceae Parsley Family
Conium maculatum, poison hemlock Well represented.
Chaerophyllum procumbens, wild chervil Rail bed.
Zizia aurea, golden alexanders Rail bed only.
Osmorhiza claytoni. sweet ciceley Woodland.
Sanicula gregaria, black snakeroot Woodland.
Sanicula Canadensis, black snakeroot Woodland.
Osmorhiza longistylis, anise root Woodland.
Pastinaca sativa, wild parsnips A few on rail bed.
Cryptotaenia Canadensis, honewort West arm.
Apocynaceae Dogbane Family
Apocynum cannabinum, dogbane Wet riparian.
Asclepiadaceae Milkweed Family
Asclepias incarnata, swamp milkweed Spring Seep, Wetland #1&3.
Asclepias syriaca, common milkweed Woodland edges, uncommon.
Asteraceae Sunflower Family
Taraxacum officinale, dandelion All habitats.
Tragopogon dubius, goat's beard Rail bed.
Erigeron philadelphicus, philadelphia fleabane Waste areas.
Erigeron annuus, annual fleabane Wetland #2.
Erigeron strigosus, daisy fleabane Rail bed, wetland #2, woodlands.
Carduus nutans, musk thistle All habitats but few specimens.
Cirsium vulgare, bull thistle Rail bed, wetland #2.
Xanthium strumarium. cocklebur Wetland #3.
Erechtites heiracifolia, fireweed #2 wetland.
Ratiba pinnata, gray-headed coneflower Rail bed.
Rudbeckia laciniata, golden glow Large colonies in spring seep, also wetland #2.
Solidago gigantean, late goldenrod Rail bed.
Lactuca tatarica or *L. oblongifolia*, blue lettuce Wetland # 2.
Eupatorium rugosum or *Ageratina altissima*, white snakeroot, east valley.
Cirsium altissimum, tall thistle Rail bed.
Ambrosia artemisiifolia, common ragweed Abundant in disturbed areas.
Vernonia baldwinii, western ironweed Wetland #2.

Lactuca serriola, prickly lettuce Wetland #2.
Sonchus asper, spiny sow thistle Wetland #2.
Solidago missouriensis, prairie goldenrod Wetland #2 and #3, and spring seep.
Solidago Canadensis, canada goldenrod Wetland #3.
Arctium minus, common burdock Seep area.
Helianthus hirsutus, hairy sunflower Rail bed.
Conyza Canadensis, horseweed Abundant in waste areas.
Heliopsis helianthoides, false sunflower Rail bed, few examples.
Bidens cernua, bur marigold Seep area.
Verbesina alternifolia, wingstem Seep area, very few specimens.
Lactuca floridana, florida lettuce Rail bed.
Balsaminaceae Touch-Me-Not Family
Impatiens capensis, spotted jewelweed Wetland #3 and spring seep.
Impatiens pallida, pale jewelweed Seep area. Only a few specimens.
Betulaceae Birch Family
Ostyra virginiana, hop-hornbeam Common.
Boraginaceae Borage Family
Hackelia virginiana, virginian stickseed Abundant.
Brassicaceae Mustard Family
Nasturtium officinale, watercress Waterways.
Alliaria petiolata, garlic mustard **Pervasive in woodlands!** Control measures needed.
Thlaspi arvense, pennycress Rail bed.
Capsella bursa-pastoris, shepherd's purse Rail bed.
Lepidium densiflorum. pepperplant Rail bed.
Hesperis matronalis, dames rocket Rail bed.
Sisymbrium loeselli, tall hedge mustard Woodlands.
Rorippa palustris subsp. hispida extremely var., yellow cress Wetland #2.
Caesalpinaceae Caesalpinia Family
Chamaecrista fasciculate, partridge pea #3 wetland.
Gleditsia triacanthos, honey locust Abundant.
Gymnocladus dioica, kentucky coffee-tree Common.
Campanulaceae Bellflower Family
Campanula americana, american bellflower Woodlands.
Cannabaceae Hemp Family
Cannabis sativa, marijuana East and west woodland borders.
Humulus lupulus, common hops Rail bed, one example.
Caprifoliaceae Honeysuckle Family
Symphoricarpos orbiculatus, buckbrush Wooded hillsides. Abundant.
Sambucus Canadensis, elderberry Spring seep, east valley, few specimens.
Caryophyllaceae Pink Family
Silene stellata, starry campion Rail bed bank, northside and elsewhere (10).
Celastraceae Staff Tree Family
Celastrus scandens, american bittersweet
Ceratophyllaceae Hornwort Family
Ceratophyllum demersum, hornwort Open water of wetland #3.
Chenopodiaceae Goosefoot Family
Chenopodium album, lamb's quarters Rail bed.
Convolvulaceae Morning Glory Family
Calystegia sepium, hedge bindweed Woodland.
Convolvulus arvensis, field bindweed Woodland.

Cornaceae Dogwood Family
Cornus drummondii, rough-leaved dogwood Woodland, spring seep, wetlands #1 & 2.
Crassulaceae Stonecrop Family
Penthorum sedoides, ditch stonecrop Wet # 3.
Cucurbitaceae Stickleaf Family
Sicyos angulatus, bur cucumber Rail bed. One example found.
Cupressaceae Cypress Family
Juniperus virginiana, eastern red cedar **Invasive**, control measures needed.
Cyperaceae Sedge Family
Carex albicans, (no common name) Spring seep.
Carex vulpinoidea, (no common name) Upland.
Carex comosa, (no common name) Upland
Carex hystericina, bottle-brush sedge Wet # 1and #3, Seep area.
Cyperus esculentus, yellow nut grass Wetland #3.
Scirpus atrovirens, green bulrush Wetland #3.
Cyperus odoratus, rusty flat sedge Spring seep.
Equisetaceae Horsetail Family
Equisetum arvense, field horsetail Spring seep.
Equisetum hyemale, common scouring rush Spring seep.
Euphorbiaceae Spurge Family
Euphorbia maculata, spotted spurge Wetland #2.
Euphorbia cyathophora, fire-on-the-mountain Rail bed.
Euphorbia nutans, eyebane Wetland #2.
Fabaceae Bean Family
Trifolium repens, white clover Wetland #3, rail bed.
Coronilla varia, crown-vetch Papio creek levy.
Melilotus alba, white sweet clover Railbed.
Melilotus officinalis, yellow sweet clover Rail bed, few specimens.
Trifolium pretense, red clover All habitats.
Medicago lupulina, black medic Abundant.
Lotus corniculatis, bird's-foot trefoil Papio creek levy.
Medicago sativa, alfalfa Side of Papio creek dike.
Fagaceae Oak Family
Quecus macrocarpa, bur oak
Quercus rubra, northern red oak
Fumariaceae Fumitory Family
Dicentra cueullaria, dutchman's britches Moist woodlands.
Corydalis micrantha, slender fumewort East valley woodland.
Grossulariaceae Currant Family
Ribes missouriense, missouri gooseberry Primarily rail bed.
Hydrophyllaceae Waterleaf Family
Hydrophyllum virginiaum, virginia waterleaf Woodland.
Juglandaceae Walnut Family
Carya cordiformis, bitternut hickory Rail bed.
Juglans nigra, black walnut
Lamiaceae Mint Family
Glecoma hederacea, ground ivy Woodland.
Leonurus cardiaca, motherwort Rail bed.
Teucrium canadense, germander Well represented throughout woodlands.
Nepeta cataria. catnip Rail bed, spring seep.
Prunella vulgaris, self-heal Rail bed, spring seep.

Scutellaria galericulata, marsh skullcap wetland #3.
Monarda fistulosa, wild bergamot Rail bed.
Lycopus species (highly variable prob.*ameicanus*), american bugleweed Spring seep.
*Mentha spicata, s*pearmint Well represented in seep area.
Stachys pilosa, hedge nettle East valley.
Lycopus species (prob.*virginicus*), Virginia bugleweed Wetland #3 and #2.
Agastache nepetoides, giant hyssop Seep area.
Lemnaceae Duckweed Family
Lemna minor, lesser duckweed Common in all water.
Spirodela polyrrhiza, greater duckweed Uncommon in waterways.
Liliaceae Lily Family
Erythronium albidum, white fawn-lily Rail bed.
Polygonatum biflorum, solomon's seal Woodland.
Allium canadense, wild onion West arm woodland.
Allium stellatum, wild onion Rail bed.
Malvaceae Mallow Family
Abutilon theophrasti, velvet leaf Wetland # 2.
Menispermaceae Moonseed Family
Meisperum canadense, moonseed Vining on rail bed trees.
Moraceae Mulberry Family
Morus alba, white mulberry
Morus albaXrubra, red mulberry (hybrid)
Oleaceae Olive Family
Fraxinus pennsylvanica, green ash Common.
Onagraceae Evening Primrose Family
Circaea lutetiana ssp.Canadensis, enchanter's nightshade Dry hillside east end.
Oenothera biennis, common evening primrose Seep area.
Oxalidaceae Wood Sorrel Family
Oxalis stricta, yellow wood sorrel All woodlands.
Plantaginaceae Plaintain Family
Plantago rugelii, rugel's plaintain Rail bed.
Poaceae Grass Family
Echinochloa crusgalli, barnyard grass Wetland #2&3.
Andropogon gerardii, big bluestem grass Crescent of prairie on westside of #2 wetland.
Phleum pratense, timothy grass Rail bed above seep.
Leersia oryzoides, rice cutgrass East valley, dry hillside, shady.
Hordeum pusillum, little barley #3 wetland.
Panicum virgatum, switch grass Wetland #2&3.
Calamagrostis Canadensis, blue joint Flood plain.
Bromus tectorum, downy chess Abundant on rail bed and wetlands #2&3.
Festuca subverticillata, nodding fescue Wet woodlands and spring seep.
Agropyron smithii, western wheatgrass Wetland #2.
Spartina pectinata, prairie cordgrass Wetland #2.
Bromus inermis, smooth brome Dominant grass on levys and berms.
Schedonorus phoenix, tall fescue Shaded areas.
Elymus villosus, slender wildrye Shady canopy, east valley.
Poa annua, annual bluegrass Rail bed.
Agrostis gigantean, redtop Spring seep, small clump.
Sporobolus heterolepsis, prairie dropseed Wetland #2.
Setaria viridis, green foxtail Waste areas.
Hordeum jubatum, squirrel-tail barley Wetland # 2&3, Abundant.

Phalaris arundinacea, reed canary grass **Dominant in sloughs and spring seep.**
Hystrix patula, bottlebrush grass North slope of rail bed.
Eragrostris cilianensis, stinkgrass Wet #3 Dry area.
Muhlenbergia species probably *cuspidata*, plains muhly Rail bed.
Digitaria sanguinalis, hairy crabgrass Waste areas, surprisingly few examples.
Phytolaccaceae Pokeweed Family
Phytolacca americana, pokeweed Woodland edges.
Polygonaceae Buckwheat Family
Rumex altissimus, pale dock Wetland #2&3.
Rumex crispus, *curly dock Wetland #2&3.*
Polygonum punctatum, *water smartweed Wetlands.*
Polygonum persicaria, *lady's thumb Wetland #2, spring seep.*
Polygonum coccineum *also* pamphibium, *scarlet smartweed #2 wetland.*
Polygonum lapathifolium, pale smartweed Wetland # 2, spring seep.
Polygonum scandens, false climbing buckwheat Rail bed.
Polemoniaceae Phlox Family
Phlox divaricata, *timber phlox Rail bed.*
***Polypodiaceae* True Fern Family**
Cystopteris protusa, *lowland fragile fern East valley, very few specimens,*
Rannunculaceae Buttercup
Ranunculus abortivus, *small-flowered crowfoot Woodlands.*
Ranunculus sceleratus, celery-leaved crowfoot Woodlands.
Aquilegia Canadensis, columbine Rail bed.
Anemone viginiana, tall anemone One specimen on rail bed.
Thalictrum dascycarpum, meadow rue Rail bed.
Rosaceae Rose Family
Prunus serotina, black cherry Uncommon.
Amelanchier arborea, shadblow serviceberry Uncommon
Prunus Americana, american plum Uncommon
Rosa multiflora, multiflora rose **Invasive,** Control measures needed.
Potentilla recta, rough-fruited cinquefoil Wetland #2.
Potentilla norvegica, norwegian cinquefoil Rail bed.
Geum Canadensis, white avens Rail bed.
Geum aleppicum, yellow avens East valley by vine thicket.
Duchesnea indica, india strawberry Rail bed.
Rubus occidentalis, black raspberry Rail bed primarily.
Rubiaceae Madder Family
Galium aparine, catchweed bedstraw Common in woodlands, spring seep.
Galium obtusum, bluntleaf bedstraw Only one small colony found in Spring Seep.
Galium circaezans, cross cleavers Moist woodland.
Rutaceae Citrus Family
Zanthoxylum americanum, prickly ash One individual in the Spring Seep.
Salicaceae Willow Family
Populus deltoides, eastern cottonwood Common on the floodplain.**Control saplings in wetlands.**
Salix nigra, black willow Spring seep, east valley. **Control of Salix needed in wetlands.**
Salix eriocephala, missouri willow Spring seep, mitigated wetlands #2&3.
Scrophulariaceae Figwort Family
Verbascum thapsus, woolly mullein Rail bed.
Mimulus ringens, allegheny monkeyflower Wetland #3.
Scrophularia marilandica, figwort Upland.

Similacaceae Catbrier Family
Smilax hispida, bristly greenbrier Woodlands.
Solanaceae Nightshade Family
Solanum carolinense, horse nettle Wetland #3.
Physalis longifolia, common ground cherry Wetland #3.
Staphyleaceae Bladdernut Family
Staphyla trifolia, bladdernut One small colony on the north slope of rail bed.
Tiliaceae Linden Family
Tilia americanum, american linden Common.
Typhaceae Cat-tail Family
Typha latifolia, broad-leaved cat-tail Wetlands #1,3 and seep area.
Typha angustifolia, narrow-leaved cat-tail Wetlands #1,3
Ulmaceae Elm Family
Celtis occidentalis, hackberry Common
Ulmus americana, american elm Common.
Ulmus rubra, slippery elm Common.
Ulmus pumila, Siberian elm Common.
Urticaceae Nettle Family
Pilea pumila, clearweed East valley at edge of Reed canary Grass.
Urtica dioica, stinging nettle West arm, abundant.
Laportea Canadensis, wood nettle West arm, uncommon.
Boehmeria cylindrical, false nettle West arm, common.
Parietaria pensylvanica, pennsylvania pellitory Rail bed.
Verbenaceae Vervain Family
Phyrma leptostachya, lopseed Shaded woodlands, spring seep.
Verbena stricta, hoary vervain Wetland #3, rail bed.
Verbena urticifolia, nettle-leaved vervain #2 wetland, spring seep.
Verbena hastate, blue vervain #2 wetland.
Lippia lanceolata, fogfruit Spring seep.
Violaceae Violet Family
Viola sororia, downy blue violet Woodlands.
Viola pubescens, downy yellow violet East valley.
Vitaceae Grape Family
Vitis aestivalis, pigeon grape Woodland.
*Parthenocissus quinquefolia, v*irginia creeper Woodlands, spring seep.

Appendix B The Trees of Rumsey Station

Overstory Trees:
(C= common; U= uncommon)
Acer negundo, boxelder C
Carya cordiformis, bitternut hickory C
Celtis occidentalis, hackberry C
Fraxinus pennsylvanica, green ash C
Gleditsia triacanthos, honey locust C
Gymnocladus dioica, kentucky coffee-tree C
Juglans nigra, black walnut C
Juniperus virginiana, eastern red cedar C
Morus alba, white mulberry C
*M. alba.*x *rubra,* red mulberry (hybrid) U
Populus deltoides, eastern cottonwood C
Prunus serotina, black cherry U
Quercus macrocarpa, bur oak C
Q. rubra, northern red oak C
Salix nigra, black willow C
S. eriocephala, missouri willow C
Tilia americana, american linden C
Ulmus americana, american elm C
U. rubra, slippery elm C
U. pumila, siberian elm C

Understory Trees:
Amelanchier arborea, shadblow service-berry U
Cornus drummondii, rough-leaved dogwood C
Ostyra virginiana, hop-hornbeam C
Prunus americana, american plum U
Rhus glabra, smooth sumac C
Staphyla trifolia, bladdernut U

Vines:
Celastrus scandens, bittersweet U
Parthenocissus quinquefolia, virginia creeper C
Smilax hispida, bristly greenbrier C
Toxicodendron radicans, poison ivy C
Vitis spp., wild grape C

Appendix C
Incidental Sightings of Non-avian Animal Species

Class Odonata Dragonflies and Damselflies Courtesy Babs and Loren Padelford

Great spreadwing damselfly
Common Green Darner *Anax junius*
Widow Skimmer *Libellula luctuosa*
Blue Dasher *Pachydiplax longipennis*
Black Saddlebags *Tramea lacerata*
Saffron-winged Meadowhawk *Sympetrum costiferum*
Eastern Forktail *Ischnura verticalis*
Eastern Pondhawk *Erythemis simplicicollis*
Twelve-spotted Skimmer *Libellula pulchella*
Variegated Meadowhawk *Sympetrum corruptum*
Red Saddlebags *Tramea onusta*

Class Lepidoptera Butterflies and Moths

Checkered skipper *Pyrgus communis*
Monarch *Danaus plexippus*
Silver-spotted Skipper *Epargyreus clarus*
Tiger swallowtail *Pterourus glaucus*
Red Admiral *Vanessa atlalanta*
Meadow Fritillary *Clossiana bellona*
Question Mark *Polygonia interrogationis*
Little Wood Satyr *Megisto cymela*
Monarch *Danaus plexippus*
Painted Lady *Vanessa Cardui*
Cecropia moth (cocoon) *Hyalophora cecropia*
Eastern tailed blue *Everes comyntas*
Spring Azure *Celastrina argiolus*
Giant Swallowtail *Heraclides cresphontes*
Red Spotted Purple *Basilarchia arthemis*
Sachem *Atalopedes campestris*
Mourning Cloak *Nymphalis antiopa*
Wood Nymph *Cercyonis pegala*
Hackberry Butterfly *Asterocampa celtis*
Clouded Sulphur *Colias philodice*
Cabbage Butterfly *Artogeia rapae*

Class Amphibia Amphibians

Leopard Frog *Rana pipiens*
Bull Frog *Rana catesbiana*
Gray Tree Frog *Hyla versicolor*
Chorus Frog *Pseudacris nigrita*
Blanchards Cricket Frog *Acris crepitans*
Woodhouse Toad *Bufo woodhouseii*

Class Reptilia Reptiles

Plains Garter Snake *Thamnophis radix*
Painted Turtle *Chrysemys picta*

Class Osteichthyes Bony Fish

Gizzard Shad *Dorsoma cepedianum*
Bluegill *Lepomis macrochirus*
Large-mouth Bass *Micropterus salmoides*

Class Mammalia Mammals

Visually Observed

Muskrat *Ondatra zibethicus*
Woodchuck *Marmota monax*
Red Fox *Vulpes vulpes*
White-tailed Deer *Odocoileus virginianus*
Striped Skunk *Mephitis mephities*
Beaver *Castor canadensis*
Raccoon *Procyon lotor*
Eastern Cottontail *Sylvilagus floridanus*
Fox Squirrel *Sciurus niger*
Feral house cat (3) *Felis cattus*

Sign of presence

Spotted Skunk *Spilogale putorius*
Bobcat *Felis rufus*
Badger *Taxidea taxus*

SPRING	SUMMER	FALL	WINTER	BIRD SPECIES	HABITAT OCCURRENCE
U	U			Great Blue Heron	1, 3
R				Great Egret	2
R				Little Blue Heron	2
C	B			Green Heron	W, 1
C	B	R		Canada Goose	1, 2, 3
	U			Turkey Vulture	W
C	B	C		Wood Duck	1, 3
C	C	R	C	Mallard	1, 3
C	C			Blue-winged Teal	1, 3
U				Northern Shoveler	3
U			R	Green-winged Teal	3
U		R	R	Sharp-shinned Hawk	W, S, 2
	R			Cooper's Hawk	W
R				Broadwing Hawk	W
R				Swainson's Hawk	W
C	C	C	C	Red-tailed Hawk	W, S, 3
	U	R	R	American Kestrel	
U				Ring-necked Pheasant	W, 2
C	B	U		Wild Turkey	W
U	U			Northern Bobwhite	W
U				Virginia Rail	3
U				Sora	3
U				American Coot	3
C	B	R		Killdeer	W, 2, 3
U				Lesser Yellowlegs	3
U				Solitary Sandpiper	2, 3
U				Spotted Sandpiper	2, 3
U				Baird's Sandpiper	3
U		R		Wilson's Snipe	3
		U		Rock Pigeon	
			R	Eurasian Collared-Dove	
C	B	C	R	Mourning Dove	W
U	B			Yellow-billed Cuckoo	W
C	B	C	C	Great Horned Owl	W
			R	Barred Owl	W
C	B	U		Chimney Swift	W, 2, 3
C	B	R		Belted Kingfisher	W, 1, 3
C	B			Red-headed Woodpecker	W, 2
C	B	C	C	Red-bellied Woodpecker	W, S, 1
U				Yellow-bellied Sapsucker	W
C	B	C	C	Downy Woodpecker	W, S
U	B	U	U	Hairy Woodpecker	W, S
C	B	C	C	Northern Flicker	W, S
C	B	R		E. Wood Peewee	W
U				Willow Flycatcher	W
R				Alder Flycatcher	W
C	B	R		Eastern Phoebe	W, S, 2
C				Least Flycatcher	W, 2, S
C	B	R		Great-crested Flycatcher	W, S
	B			Western Kingbird	1
C	B			Eastern Kingbird	W, K, S, 2, 3
R				Bell's Vireo	W, S
U	B			Yellow-throated Vireo	W

U		U		Blue-headed Vireo	W, S
C	B	R		Warbling Vireo	W, S
C	B	U		Red-eyed Vireo	W, S
C	B	C	C	Blue Jay	W, S
C	B	R		American Crow	W
C	C			Purple Martin	W, 2
C	B			Tree Swallow	W, 3
U				Rough-winged Swallow	W, 3
U				Bank Swallow	3
C	C			Cliff Swallow	2, 3
C	C			Barn Swallow	W, 3
C	B	C	C	Black-capped Chickadee	W, S
		R	R	Tufted Titmouse	W
C	B	C	C	White-breasted Nuthatch	W, S
		U	C	Brown Creeper	W
C	B	C	C	Carolina Wren	W, S, 2
C	B	C		House Wren	W, S, 2
		R		Winter Wren	3
R				Sedge Wren	3
U		R		Marsh Wren	3
			U	Golden-crowned Kinglet	W
C		U		Ruby-crowned Kinglet	W, S, 2
U	B			Blue-gray Gnatcatcher	W
C	B	U	R	Eastern Bluebird	W, 3
U				Gray-cheeked Thrush	W, S
C		R		Swainson's Thrush	W, S
U		R		Hermit Thrush	W
U				Wood Thrush	W
A	B	A	C	American Robin	W, 2, S
C	B	U		Gray Catbird	W, 2
C	B	C		Brown Thrasher	W, 2
A	B	A	A	European Starling	W, S, 2, 3
C	B	R	U	Cedar Waxwing	W
U				Blue-winged Warbler	W
C		R		Tennessee Warbler	W, S
C		U		Orange-crowned Warbler	W, S
U		U		Nashville Warbler	W, S
C				Yellow Warbler	W, S
C		C		Yellow-rumped Warbler	W, S
		R		Palm Warbler	2
C				Blackpoll Warbler	W
U				Black and White Warbler	W
C	B	R		American Redstart	W, S
U				Ovenbird	W
U				Northern Waterthrush	W, S
R				Connecticut Warbler	W
R				Mourning Warbler	W
C	B	R		Common Yellowthroat	W, S, 2, 3
U				Wilson's Warbler	W
R				Summer Tanager	W
R				Scarlet Tanager	W, S
		R		Spotted Towhee	W
C	B			Eastern Towhee	W, 1, 3
		R	C	American Tree Sparrow	W, 2, 3
C	B	R		Chipping Sparrow	W, 1

C		U		Clay-colored Sparrow	W, 2
U		R		Field Sparrow	W, 2
U				Vesper Sparrow	3
C				Lark Sparrow	W
		U		Savannah Sparrow	2, 3
U	B			Grasshopper Sparrow	W, 2
U		R		Fox Sparrow	W, S
C	B	C	U	Song Sparrow	W, S, 1, 2, 3
C		C		Lincoln Sparrow	W, S, 2, 3
C		C	C	Swamp Sparrow	W, S, 3
C		C		White-throated Sparrow	W, S, 1
C		C	R	Harris Sparrow	W, S, 3
U				White-crowned Sparrow	W
C			C	Dark-eyed Junco	W, S, 1
C	B	C	C	Northern Cardinal	W, S, 3
C	B			Rose-breasted Grosbeak	W, S, 3
C	B	U		Indigo Bunting	W, S, 2
U	B			Dickcissel	3
A	B	A	R	Redwing Blackbird	W, S, 1, 2, 3
U	B			Western Meadowlark	W, K, 2, 3
C	B	C		Common Grackle	W, S, 2, 3
C	B	R		Brown-headed Cowbird	W, 3
C	B			Orchard Oriole	W, 2
C	B			Baltimore Oriole	W, S, 2
			R	Purple Finch	
C	B	C	R	House Finch	W, S
C	B	C	C	American Goldfinch	W, S, 1, 2, 3
R	R	R		House Sparrow	W

This list is of all the birds that were observed at Rumsey Station during the study period from 1 September 2004 until 30 August 2005. The list is in a format that can be used to produce a pamphlet of the birds at Rumsey Station at a future time. There are two legends.

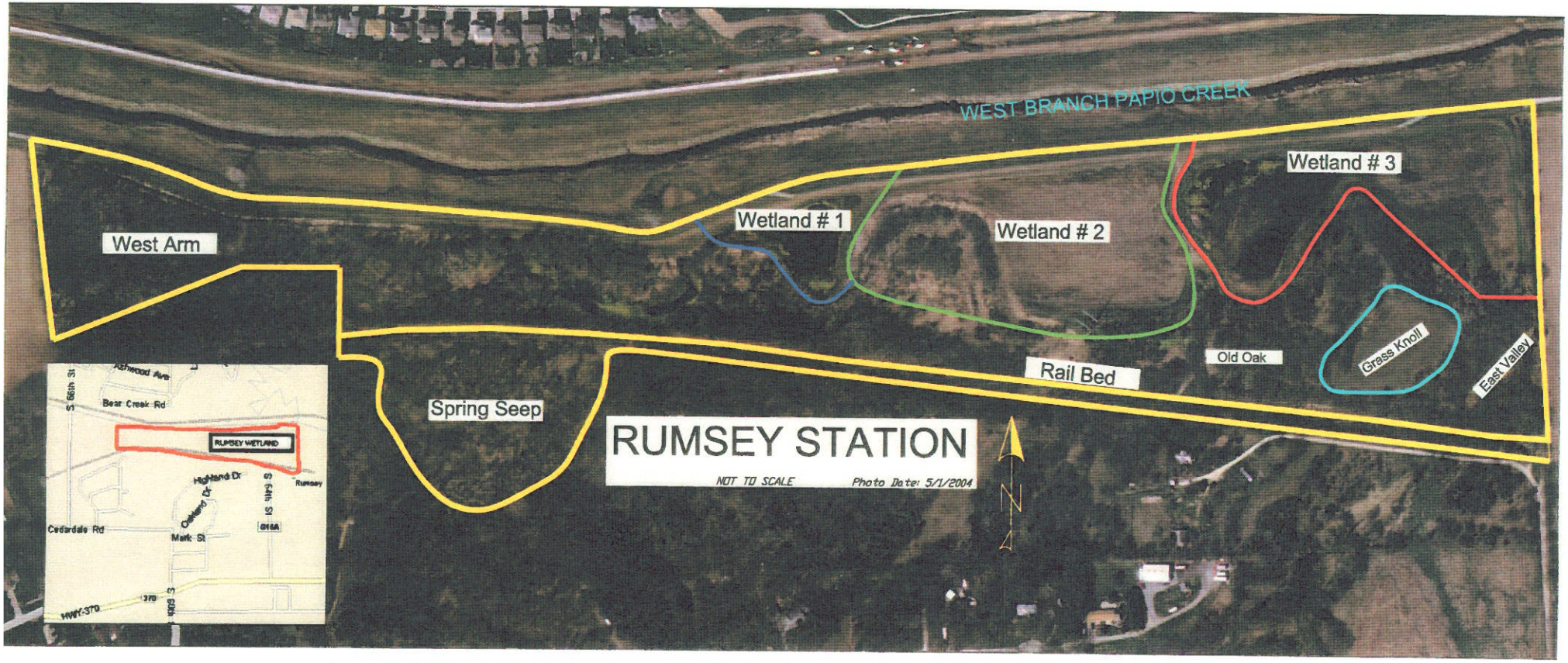
The column left of the species indicates seasonal occurrence. The legend indicates how frequently the species occurred during the season.

Breeding
Abundant
Common
Uncommon
Rare

The column right of the species indicates the habitat where the the birds occurred.

Woodlands
Spring Seep
Wetland #**1**
#**2**
#**3**
Grassy **K**noll

EXHIBIT - Aerial Photograph of Rumsey Station



Memo to the Programs, Projects, and Operations Subcommittee

Subject: US Geological Survey (USGS) Water Quality Monitoring

Date: October 31, 2005

From: Gerry Bowen

As part of the District's Groundwater Management Plan (GWMP), routine monitoring of wells has occurred since 1992. It was determined at that time that the District did not possess enough data to make decisions regarding groundwater management. It was decided to initiate an irrigation well monitoring effort to build a database to help manage groundwater in the District. In 1999, the District established a series of well nests throughout the District to further define groundwater quality. Both programs are described below.

Irrigation Well Monitoring:
In 1992 and with guidance from USGS, the District identified ninety-four (94) irrigation (primarily) wells in five different groundwater areas for monitoring water quality. The groundwater areas are Missouri River, Platte River, Elkhorn River, Upland, and Dakota. Each well is sampled for nitrates (mainly as an indicator) every four years. In addition, some of the wells are tested for a wide variety of parameters. The data is maintained for each well, used for comparison with other wells, and to determine if a water quality problem exists. If a problem is identified, we follow the procedures outlined in the GWMP. USGS also measures the water level in each well as an indicator to see if recharge is keeping up with usage. The network was established in 1992 and sampling has proceeded annually thereafter.

Well Nest Monitoring:
Again to build a data base of water quality and quantity in the District, we established 9 well nests in the groundwater areas listed above (one nest in the Dakota, and two each in the other areas). Each well nest contains two or three wells screened at different levels (shallow, medium, or deep) so that a complete picture of the aquifer can be drawn. Shallow wells sample the upper five feet, medium measures the middle five feet, and deep wells sample the lowest five of the aquifer. This sampling has been occurring for the past six years. Each sample is analyzed for a wide array of parameters on a semi-monthly pattern between April and November.

The sampling and analysis is done by USGS personnel and the costs are shared equally via a cooperative agreement. The NRD share of the costs comes primarily from the Natural Resources Enhancement Fund, which originally was collected by the state from a fee on fertilizer sales.

Ms. Virginia McGuire with USGS will give a brief presentation at the Subcommittee summarizing the 2005 sampling results, as well as a brief summary of the monitoring effort over the past thirteen years.

U.S. Geological Survey's Ground-Water Quality Monitoring Study, Papio-Missouri River Natural Resources District, 2005

There are five aquifers in the Papio-Missouri River Natural Resources District (PMRNRD)—the Elkhorn River, Missouri River, and Platte River alluvial aquifers, the Upland aquifer, and the Dakota aquifer. The U.S. Geological Survey monitors water quality in the aquifers using nine nests of 26 wells and a network of about 92 commercial, domestic, irrigation, and municipal wells.

The well nests typically consist of 3 wells, which generally are screened at the water table, middle of the aquifer, near the base of the aquifer. The wells screened at the water table have 10 foot screens; the remaining wells have 5 foot screens. The schedule for sampling the well nests have varied over time from monthly to bimonthly to biannually. In 2006, we will sample the Springfield, Tekamah, and Venice nests bimonthly and the remaining nests biannually. Samples from the nests have been analyzed for nitrate and nitrite, nutrients, major ions, pesticides, stable isotopes (hydrogen, nitrogen and oxygen), and dissolved gases.

The 92 network wells are classified by aquifer and generally are sampled on a 3-year rotating schedule; additional wells can be sampled at the discretion of the PMNRD staff. In 2004, wells screened in the Missouri River alluvial aquifer and a new set of wells screened Platte River alluvial aquifer were sampled. In 2005, wells screened in the Dakota and Upland aquifer and a set of wells screened in the Platte River alluvial aquifer

were sampled. In 2006, we will sample wells screened in the Elkhorn and Platte River alluvial aquifers. Samples from the network wells are analyzed for nitrate, nutrients, and pesticides.

The nitrate concentrations since 1992 in all the nests and network wells are generally low (less than 5 milligrams per liter). However, there are some areas in the PMRNRD with higher nitrates concentrations (greater than 5 milligrams per liter); in these areas, when possible, additional wells have been added to the network and the additional wells have been sampled to try to determine the areal extent of the elevated concentration. Three areas with higher nitrates concentrations are in the Dakota aquifer near Tekamah, Nebraska; the Elkhorn River alluvial aquifer in northwest Douglas County; and the Platte River alluvial aquifer near Springfield, Nebraska. Near Tekamah, higher nitrates have been detected in the upper part of the aquifer. In the Elkhorn River alluvial aquifer in northwest Douglas County, higher nitrate concentration have been detected in several wells in the area. In the Platte River alluvial aquifer near Springfield, Nebraska, higher nitrates have been detected in the lower part of the aquifer.

MEMORANDUM

TO: Programs, Projects and Operations Subcommittee

SUBJECT: Village of Arlington Wastewater Treatment Facilities

DATE: November 1, 2005

FROM: Steve Oltmans, General Manager

Last month the Board of Directors was briefed by me and DEQ officials regarding the significant challenge facing the Village of Arlington, NE, for updating their sewage treatment facilities. The current plant is 35 years old and located in the Bell Creek Watershed floodway. In recent years, the sewage treatment facility in recent years has had difficulty meeting water quality discharge standards.

The $350,000 grant request (see attached letter of September, 2005) from the P-MRNRD would help in off-setting the estimated additional cost to regionalize the system by pumping the Village of Arlington sewage to Fremont for treatment rather than rehabilitating the existing treatment plant.

Pumping the Arlington sewage to Fremont would:

1. Remove the existing plant from the floodway.
2. Remove the sewage out fall line from the Elkhorn River.
3. Eliminate the operation and maintenance cost of a treatment plant.
4. Eliminate the cost of training and keeping a certified plant operator.
5. Eliminate major capital cost in 20 years to replace or rehab plant.
6. Provide regionalization of a utility, providing long-range savings to our constituents.

It is the recommendation of the GM that the Subcommittee recommend to the Board that a grant of $350,000 (FY 07 monies) be awarded to the Village of Arlington for construction of a regional sewage line to the City of Fremont and that the GM and Legal Counsel be directed to develop an Interlocal Agreement for said grant.

/pt/SO/2005/memo-Arlington

Village of Arlington
245 North 2nd Street
PO Box 370
Arlington, NE 68002
402-478-4212

September 2005

Mr. Richard Jansen, Chairperson
Papio-Missouri River Natural Resources District
8901 South 154th Street
Omaha, NE 68138-3621

Re: Village of Arlington Wastewater Treatment

Dear Mr. Jansen,

As you may know, the Village of Arlington needs to upgrade its wastewater treatment facility to meet current treatment standards and to protect the facility from flooding from either Bell Creek or the Elkhorn River. While the Nebraska Department of Environmental Quality (NDEQ) has not mandated an immediate upgrade of our facility, the facility renovation needs to occur in the near future. With that in mind, we hired Gilmore and Associates of Columbus, Nebraska to prepare an analysis of the various alternatives available to the Village.

Alternatives include upgrading the existing facility, building a new facility (either a lagoon or an activated sludge treatment plant), or a regionalization approach (pump the wastewater to the City of Fremont's Wastewater Treatment Plant). The analysis included capital improvements costs, operations and maintenance costs of the facility, and future wastewater treatment costs to our citizens under each alternative. At that time, the least expensive alternative was to upgrade our existing facility.

Since 2003, several factors have changed, which may make the regionalization approach more economically feasible. The City of Valley recently constructed a wastewater transmission line from Valley to the Fremont facility. The line has enough capacity to accommodate the projected wastewater needs of Arlington now and into the future. Further, we have had our consultant evaluate the alternatives over a longer period of time (from twenty years in the 2003 report to forty years). This provides a fair comparison on the regionalization alternative which, in effect, is a permanent solution to Arlington's wastewater treatment needs.

The regionalization approach would relieve the Village of operation and maintenance costs of the treatment facility, the cost of training and keeping a certified plant operator and would, more than likely, improve water quality in Bell Creek and the Elkhorn River.

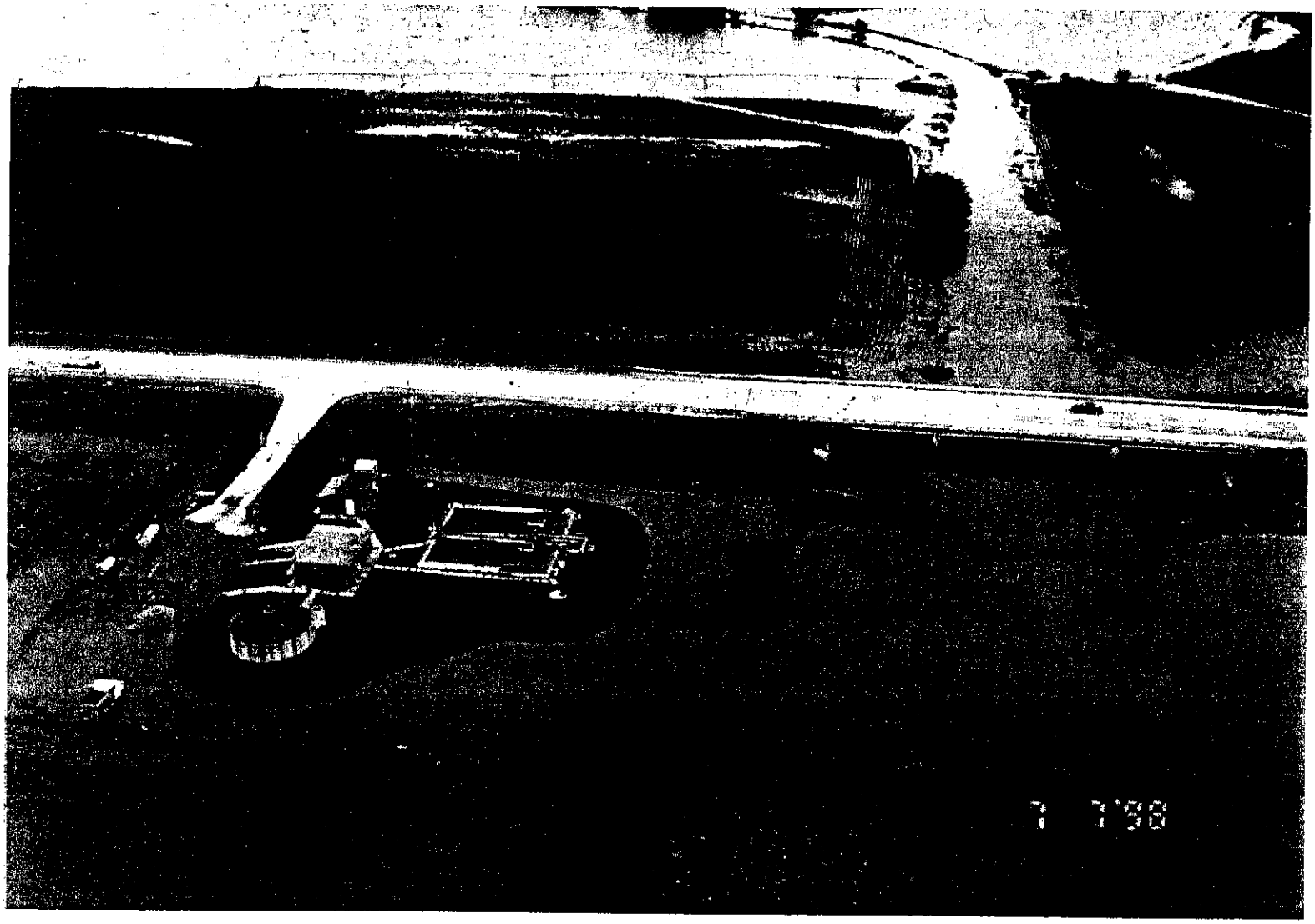
In January 2005, the Village received a loan from NDEQ's Revolving Loan Fund for wastewater treatment facility improvements. However, due to the recent developments, we are investigating renegotiating that loan and applying for USDA Rural Development funds for capital improvements, including the regionalization approach. A water quality grant from the Papio-Missouri River NRD would help make the regionlization approach more feasible. Therefore, we hereby request a water quality grant from the NRD in the amount of $350,000.

In summary, we believe that transporting our wastewater to Fremont could be in the best interest of our citizens and for the water quality in the area. We ask for the opportunity to present our request to the NRD Board at your earliest convenience. If you have any questions, feel free to contact me at 402-478-4155.

Sincerely,

Tom Brown, Board Chair
Village of Arlington Board of Trustees

cc: Rick Bay, Brett Anderson, NDEQ
Paul Mullen, MAPA
David Gilmore, Gilmore & Associates


7 '98

GILMORE
& ASSOCIATES INC.
Engineers · Architects · Surveyors

August 10, 2005 Ref: 118.011

Honorable Chairperson and Village Board
Village of Arlington
P.O. Box 370
Arlington, NE 68002-0370

Wastewater Treatment Facility Modifications - Arlington, Nebraska

As you are aware, on July 6, 2005, at the request of the NDEQ and the Papio-Missouri River Natural Resources District, I met with their representatives to discuss your project. Both of these agencies appear to be interested in the village pursuing a regionalization approach for your wastewater treatment needs rather than upgrading the existing treatment plant. As you know, the facility plan evaluated pumping your wastewater to the City of Fremont; however, this alternative was the highest cost and would have resulted in the highest sewer user rates in the absence of any grant dollars being awarded to the village.

Since the time the facility plan was completed, several factors have changed, most notably being that HDR's flood plain analysis showed that the printed flood profile plot from the 1980 FIS was in error and that the actual 100-year flood plain elevation is several feet higher than what is indicated in the FIS profile. As a result, the existing treatment structures, the top of which were previously thought to be a foot above the 100-year flood plain elevation, are actually located one foot below.

Rather than the village pursuing flood protection alternatives for the plant, the agencies are interested in removing the facility out of the flood plain. Regionalization with the City of Fremont, in their opinion, would enhance water quality of the area and of the Elkhorn River. During the meeting on July 6th , Mr. Steven Oltmans of the Papio-Missouri River NRD suggested that a possibility might exist for grant funds to be available to serve this purpose.

At his request, I met with Mr. Oltmans again on August 5, 2005, to again discuss the regional treatment approach for Arlington and the estimated project cost contained in the facility plan for this alternative. Since the time the facility plan was prepared, the City of Valley began, and is nearing completion of, a force main from their city to the City of Fremont. Mr. Oltmans has been in contact with the City of Valley, and it may be possible that, if Arlington was to pursue the regional concept, the village could connect to Valley's force main, reducing the cost of this alternative. Approximately 8,800 lineal feet of the more than 31,000 feet of force main required would not need to be constructed in this fashion. Mr. Oltmans also stated that Valley, by allowing the contractor a flexible construction schedule, was able to eliminate the need for a substantial amount of dewatering cost to construct their force main and this may work for Arlington as well.

Based on my discussions with Mr. Oltmans and the information he has provided to me, and per his request, I am sending you a revised project cost estimate for the regionalization alternative which incorporates the previously discussed cost savings. Since the bids on the sewer extension project already have been received, I have updated the total project cost for the treatment plant upgrade and the regional alternative to reflect the current known costs. Whether or not the regional approach will be cost effective will depend greatly on what amount of grant funds, if any, would become available. To date,

there have been no discussions as to how much financial support for the regional approach might be available. I assume Mr. Oltmans will provide us all with some indication of this at your scheduled meeting of August 15th.

Also enclosed is an updated comparison of monthly sewer user rates for the treatment plant upgrade based on the latest cost estimate of June 2004, in conjunction with the sewer extension project and the revised total project cost estimate for the regional approach. The comparison table provides you an indication of how much grant money would be needed for the regional approach to make monthly sewer user rates comparable.

If you have questions on this matter, please feel free to contact me. I am planning on attending the meeting on August 15th at 6:30 p.m.

Sincerely,

David B. Gilmore, P.E.
GILMORE & ASSOCIATES, INC.

DBG:tjp

Enclosures

pc: Ms. Dorothy Gaeth, Clerk
Mr. Steven Oltmans, Papio-Missouri River NRD (Fax: 402/895-6543)

Arlington, NE.
Proposed project - Facility Plan
Wastewater Treatment Facility Improvements
And Sewer Extension Project

1.	Modify existing lift station and screening facilities	$152,400
2.	Aeration tanks and final clarifier modifications	235,000
3.	Waste activated sludge, pumping modifications	48,000
4.	New sludge loadout pumping station, decant pipes, and valves for existing sludge holding tank	47,000
5.	Electrical work	50,000
6.	U.V. disinfection system	72,500
	Subtotal Estimated Construction Cost (June, 2004) Wastewater treatment plant improvements (Items 1 through 6 per June, 2004 cost estimate)	$604,900
	Contingencies (15%)	90,700
	Flood plain analysis study (HDR contract)	16,853
	Legal and publishing, interest during Construction, misc. project cost	26,100
	Subtotal estimated project cost (June, 2004) Wastewater treatment plant improvements Not including engineering cost	$738,553
7.	Sewer extension project (bid cost)	197,414
8.	Total engineering fees (current contract).	105,050
9.	Legal and publishing, easements, interest during construction, misc. project cost for sewer extension project (estimate)	7,500
	TOTAL ESTIMATED PROJECT COST	**$1,048,517**

Arlington, NE.
Regionalization Concept - Wastewater Pumped to Fremont, NE. for Treatment with Current Sewer Extension Project Costs

1.	Modify existing lift station and screening facilities	$208,600
2.	Railroad crossing, including casing and carrier pipe	22,700
3.	Elkhorn River crossing by directional boring	30,000
4.	County road crossings including casing and carrier pipe (5 total)	35,000
5.	8" DIP restrained joint pipe for minor creek crossings (200 L.F.)	9,000
6.	**8" PVC, SDR 18, sewer force main (21,600 L.F.)**	**388,800**
7.	**Dewatering of force main trenches (6,500 L.F. assumed)***	**78,000**
8.	**Fittings, valves, and air release manholes**	**66,900**
9.	Gravel replacement, finished grading, reseeding, and miscellaneous costs	45,000
10.	Abandon existing treatment facility	10,000
11.	**City of Valley, NE. cost reimbursement**	**90,000**
	Subtotal Estimated Construction Cost (August, 2005) Regionalizaton Concept	**$984,000**
	Contingencies (15%)	**147,600**
	Engineering design and construction	**126,000**
	Legal and publishing, interest during Construction, misc. project cost	**42,000**
	Permanent and temporary construction	35,000
	Subtotal estimated project cost (August, 2005) Regionalizaton Concept	**$1,334,600**
12.	Sewer extension project (bid cost)	197,414
13.	Flood plain analysis study (HDR contract)	16,853
14.	Total engineering fees currently expended	25,485
15.	Remaining engineering fees on construction phase of sewer extension project (estimate)	7,000
16.	Legal and publishing, easements, interest during construction, misc. project cost for sewer extension project (estimate)	7,500
	TOTAL ESTIMATED PROJECT COST	**$1,588,852**

*Extent of dewatering required for construction of the force main may be significantly more or less depending upon time of construction and seasonal groundwater fluctuations.

Bold type indicates change from estimate in facility plan

Arlington, NE.
Comparison of Monthly Sewer User Rates
(August, 2005)

	Upgrade existing Plant (June, 04 costs) w/ as bid sewer extension Project	Regionalization No grant w/ as bid sewer extension project	Regionalization $1,000,000 grant w/ as bid sewer extension project	Regionalization $900,000 grant w/ as bid sewer extension project
Annual O&M costs	74,675	25,690	25,690	25,690
NDEQ Loan amount	1,048,517	1,588,852	588,852	688,852
Annual NDEQ SRF loan payments	83,731	126,880	47,023	55,009
Fremont sewer use fees	0	90,885	90,885	90,885
Total annual costs	**158,406**	**243,455**	**163,598**	**171,584**
Estimated average monthly sewer use fee	**26.78**	**41.15**	**27.65**	**29.00**

Fremont Sewer use fees based on $2.00 per 1,000 gallons
Monthly sewer use fees based on 493 sewer connections
Cost of upgrading existing treatment plant does not include flood protection and related costs
Monthly sewer user rates increase $1.35 per month for each $100,000 financed through NDEQ loans
NDEQ loan - 3.5% + 1% administrative fee

Valley sewer line is just weeks away from debut

By Chris Olson
WORLD-HERALD STAFF WRITER

Barring any tricks, Valley will be ready to open the valve by Halloween on a sewage pipeline to Fremont that will treat its residents to a savings of $6 million over the next 40 years.

City Engineer Jim Olmsted told the Valley City Council on Tuesday night that the final installation and testing on the 10½-mile underground pipe are reaching completion.

"Workers were doing the final borings under the highway as I was coming to the meeting tonight," Olmsted said. "All of the pipes should be installed by the end of the week."

The pipeline will allow Valley to retire its 27-year-old wastewater treatment plant about seven years after it should have been replaced.

Under an agreement made with Fremont in 2004, Valley built three pumping stations and the underground pipeline to Fremont at a cost of $5.2 million — some $4 million less than the cost of building a new treatment plant.

Valley expects to save an additional $2 million over the next 40 years by paying Fremont to take its sewage, rather than operating its own plant.

Fremont, which spent $21 million a few years ago improving its sewage treatment plant, will use the revenue from Valley to recover some of its expenses. Valley will pay the same wastewater treatment fees charged to Fremont residents.

Valley's initial costs for the pipeline and pumping stations will be paid from bonds or a revolving loan program through the Department of Environmental Quality, which encourages such cooperation between cities.

Valley will repay the loan costs for the pipeline and pumping stations with sewer bills that will more than double next month.

The $12-a-month flat rate that Valley residents now pay for sewer service will jump to a base rate of $25 a month. The new rate will cover 2,000 gallons of wastewater, but residents will be charged an additional $3.81 for each 1,000 gallons after that.

The fee will be $50 a month for institutional users and $100 for heavy industrial and commercial users.

The council agreed Tuesday night to prepare an agreement so that residents of the nearby Ginger Woods development can continue to receive sewer service from Valley under the new arrangement with Fremont.

MEMORANDUM TO: Programs, Projects and Operations Sub-Committee

SUBJECT: Silver Creek Watershed Dam Sites 23, 24 & 25 Construction Bids

DATE: October 31, 2005

BY: Terry Schumacher, Field Representative, Blair FO

On October 26, 2005, District staff opened bids that were submitted for a contract to construct Silver Creek Watershed Dam Sites 23, 24 & 25; the thirteenth, fourteenth and fifteenth of the twenty-four planned erosion control dams in this watershed.

Attached for the Sub-Committee's review is a summary of bids received. Also attached is a map of the watershed showing these 3 dam sites as well as others already built and those to be built in subsequent years.

Specifications for the construction of these three dams require approximately 40,000 cubic yards of earthen fill. The contractor will have until June 30, 2006 to substantially complete the contract.

Based on bids received, Taylor Excavating's bid of $283,879.26 is the apparent low bid. District staff and Olsson Associates have reviewed the bids submitted and believe that Taylor Excavating is the lowest and best bidder. The engineer's estimate for this project is $292,299.34. The engineer's estimate does not include items that have been in past bids of these structures, i.e. mobilization, sediment and erosion control. These items are not included in the county cost share docket for EQIP cost share.

These dams are being built with federal funds from the Environmental Quality Incentives Program (EQIP) and the P-MRNRD Special Watershed section of the Conservation Assistance Program budget. The original plan called for P-MRNRD to pay 100% of the project. The EQIP cost-share funding for these projects is $106,919.73. The P-MRNRD will contribute $176,959.53.

It is the staff's recommendation that the Sub-Committee recommends to the Board of Directors that Taylor Excavating's bid of $283,879.26 be accepted and that the General Manager is authorized to execute the necessary contract documents.

OLSSON ASSOCIATES
ENGINEERS • PLANNERS • SCIENTISTS • SURVEYORS

31 October 2005

Mr. Terry Shumacher
Papio-Missouri River NRD
1245 Lincoln Street
Blair, NE 68008

Re: Silver Creek Watershed Project
Dam Sites #23, #24, and #25
OA Project No. 2004-1269

Dear Terry:

We have reviewed the bids provided on 26 October 2005 by W. Theisen Grading & Equipment Co., Pruss Excavation, Taylor Excavating of Nebraska, Inc., Camden Excavating Co., and Japp Brothers Grading for the above-referenced project. Based on the five bids that were submitted Taylor Excavating of Nebraska, Inc. is the apparent low bidder of $283,879.26. There was a discrepancy found in tabulating the bid submitted by Taylor Excavating. The discrepancy was between the indicated total for bid item "Water (if conditions require)" and the correct total for "Water (if conditions require)". The discrepancy appeared in Bid Sections "A", "B", "C", and "D". As stated in paragraph 14.01 of the Instructions to Bidders, "Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum." After resolving the discrepancy, the bid submitted by Taylor Excavating of Nebraska, Inc. appears to be reasonable and complete. In addition, Taylor Excavating has been notified of the discrepancy and honors the corrected bid amount.

At this time, we would like to formally recommend that the above-referenced project be awarded to Taylor Excavating of Nebraska, Inc.. We have verbally communicated with Taylor Excavating about their current workload and the equipment they have available for constructing the project. In addition, we have contacted several references provided by Taylor Excavating. We believe they are capable of completing the project in a satisfactory and timely manner. However, based on a list of past projects completed, it appears that the majority of Taylor Excavating's past experience has been in development and grading projects, and not dam construction.

The information we received from Taylor Excavating of Nebraska, Inc. is enclosed, along with the complete bid tabulation of all five bids. Please advise if you have any questions or concerns. Thank You.

Sincerely,

Jason Mead

Jason Mead

Enclosures

2120 South 72nd Street, Suite 1400 • Omaha, Nebraska 68124 • (402) 341-1116 • FAX (402) 341-5895
LINCOLN, NE • GRAND ISLAND, NE • HOLDREGE, NE • SOUTH SIOUX CITY, NE • SCOTTSBLUFF, NE
KANSAS CITY, MO • PHOENIX, AZ • DENVER, CO

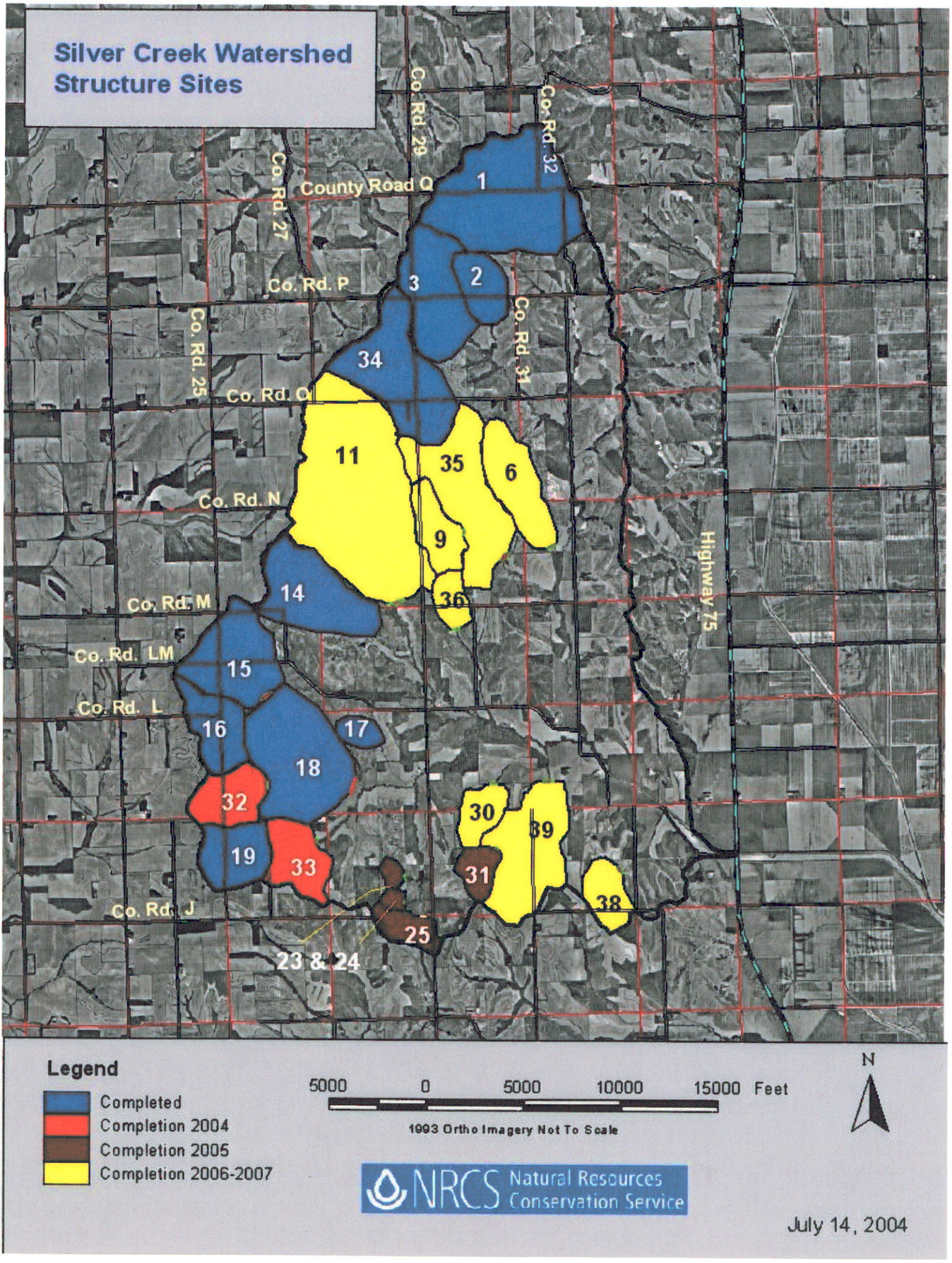
Silver Creek Watershed Project Dam Sites #23, #24, & #25
Papio-Missouri River Natural Resources District

Bid Tabulation

26-Oct-05 OA #2004-1269
2:00 P.M. Page 1 of 1

CONTRACTOR			W. Theisen Grading & Equip. Norfolk, NE		Pruss Excavation Dodge, NE		Taylor Excavating Omaha, NE		Camden Excavating Co. Blair, NE		Japp Brothers Grading Kearney, NE	
Bid Section 'A' - Dam Site 23												
Item No.	**ITEM**	**UNIT**	**QTY.**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**
1	Mobilization (No Bid Subsidiary to Total Bid Price)												
2	Water for Compaction (if conditions require)	1000/Gal	20.00	43.75	875.00	20.00	400.00	0.13	2.60 **	0.50	10.00 **	0.01	0.20
3	Clearing and Grubbing	AC	5.00	1,174.00	5,870.00	1,600.00	8,000.00	1,000.00	5,000.00	3,500.00	17,500.00	2,700.00	13,500.00
4	Excavation	CY	4,950.00	2.90	14,355.00	6.00	29,700.00	1.19	5,890.50	3.25	16,087.50	2.62	12,969.00
5	Earth Fill	CY	11,210.00	3.32	37,217.20	2.50	28,025.00	1.19	13,339.90	1.65	18,496.50	1.83	20,514.30
6	Corrugated Metal Pipe & Appurtenances (24" Dia., 14 Ga.)	LF	140.00	66.25	9,275.00	72.93	10,210.20	95.56	13,378.40	76.15	10,661.00	75.52	10,572.80
7	Drain Fill	CY	212.00	52.80	11,193.60	62.15	13,175.80	41.99	8,901.88	86.00	18,232.00	54.16	11,481.92
8	Concrete , Class 4000, Formed	CY	1.10	810.00	891.00	600.00	660.00	78.70	86.57	400.00	440.00	318.18	350.00
9	Reinforcing Steel	LB	25.70	19.72	506.80	5.00	128.50	2.25	57.83	1.50	38.55	3.00	77.10
10	Metal Fabrication & Installation (Trash Rack and Pipe Support)	LB	524.10	4.48	2,347.97	5.16	2,704.36	5.49	2,877.31	7.32	3,836.41	7.52	3,941.23
11	Rock Riprap - Drain Outlet	CY	8.00	92.80	742.40	59.70	477.60	82.50	660.00	100.00	800.00	44.78	358.24
12	Seeding and Mulching	AC	10.80	1,500.00	16,200.00	2,127.50	22,977.00	2,035.00	21,978.00	780.83	8,432.96	716.00	7,732.80
13	Fencing	LF	1,490.00	2.70	4,023.00	2.45	3,650.50 *	2.57	3,829.30	2.92	4,350.80	2.68	3,993.20
14	Sediment and Erosion Control	LS	1.00	2,192.00	2,192.00	3,692.00	3,692.00	2,726.73	2,726.73	1,800.00	1,800.00	2,000.00	2,000.00
	Total Unit Bid Price Bid Section 'A' - Dam Site 23				**105,688.97**		**123,800.96**		**78,729.01**		**100,685.73**		**87,490.79**
Bid Section 'B' - Dam Site 24													
Item No.	**ITEM**	**UNIT**	**QTY.**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**
1	Mobilization (No Bid Subsidiary to Total Bid Price)												
2	Water (if conditions require)	1000/Gal	20.00	71.25	1,425.00	20.00	400.00	0.13	2.60 **	0.50	10.00 **	0.01	0.20
3	Clearing and Grubbing	AC	5.10	1,535.00	7,828.50	1,600.00	8,160.00	1,000.00	5,100.00	3,500.00	17,850.00	900.00	4,590.00
4	Excavation	CY	6,459.00	2.57	16,599.63	6.00	38,754.00	1.19	7,686.21	3.00	19,377.00	2.80	18,085.20
5	Earth Fill	CY	11,982.00	3.10	37,144.20	2.50	29,955.00	1.19	14,258.58	1.60	19,171.20	1.83	21,927.06
6	Corrugated Metal Pipe & Appurtenances (24" Dia., 14 Ga.)	LF	162.00	67.20	10,886.40	71.99	11,662.38	102.95	16,677.90	81.42	13,190.04	70.17	11,367.54
7	Drain Fill	CY	190.00	49.96	9,492.40	62.15	11,808.50	41.99	7,978.10	86.00	16,340.00	54.16	10,290.40
8	Concrete , Class 4000, Formed	CY	1.10	1,407.00	1,547.70	600.00	660.00	78.70	86.57	400.00	440.00	100.00	110.00
9	Reinforcing Steel	LB	25.70	14.20	364.94	5.00	128.50	2.25	57.83	1.50	38.55	3.00	77.10
10	Metal Fabrication & Installation (Trash Rack and Pipe Support)	LB	538.30	4.08	2,196.26	5.10	2,745.33	5.34	2,874.52 *	7.12	3,832.70	7.78	4,187.97
11	Rock Riprap - Drain Outlet	CY	8.00	94.15	753.20	59.70	477.60	82.50	660.00	100.00	800.00	44.78	358.24
12	Seeding and Mulching	AC	7.10	1,500.00	10,650.00	2,127.50	15,105.25	2,035.00	14,448.50	769.86	5,466.01	705.70	5,010.47
13	Fencing	LF	1,160.00	2.70	3,132.00	2.45	2,842.00	2.93	3,398.80	3.34	3,874.40	3.10	3,596.00
14	Sediment and Erosion Control	LS	1.00	1,572.00	1,572.00	3,977.00	3,977.00	2,940.19	2,940.19	1,300.00	1,300.00	1,800.00	1,800.00
	Total Unit Bid Price Bid Section 'B' - Dam Site 24				**103,592.23**		**126,675.56**		**76,169.80**		**101,689.89**		**81,400.18**
Bid Section 'C' - Dam Site 25													
Item No.	**ITEM**	**UNIT**	**QTY.**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**
1	Mobilization (No Bid Subsidiary to Total Bid Price)												
2	Water (if conditions require)	1000/Gal	20.00	71.25	1,425.00	20.00	400.00	0.14	2.80 **	0.50	10.00 **	0.01	0.20
3	Clearing and Grubbing	AC	9.00	1,152.70	10,374.30	1,650.00	14,850.00	1,000.00	9,000.00	4,100.00	36,900.00	1,000.00	9,000.00
4	Excavation	CY	8,249.00	2.95	24,334.55	6.00	49,494.00	1.20	9,898.80	3.50	28,871.50	2.88	23,757.12
5	Earth Fill	CY	14,628.00	3.06	44,761.68	2.50	36,570.00	1.20	17,553.60	1.65	24,136.20	1.83	26,769.24
6	Corrugated Metal Pipe & Appurtenances Riser (42" Dia., 14 Ga.)	EA	1.00	2,298.20	2,298.20	2,069.96	2,069.96	2,333.04	2,333.04	2,592.26	2,592.26	1,365.00	1,365.00
7	Corrugated Metal Pipe & Appurtenances (30" Dia., 14 Ga.)	LF	112.00	78.74	8,818.88	86.33	9,668.96	67.15	7,520.80	90.77	10,166.24	96.79	10,840.48

Item No.	ITEM	UNIT	QTY.	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
8	Corrugated Metal Pipe & Appurtenances (10" Dia., 16 Ga.)	LF	30.00	31.90	957.00	21.88	656.40	32.38	971.40	17.74	532.20	26.92	807.60
9	Drain Fill	CY	168.00	45.80	7,694.40	62.15	10,441.20	41.99	7,054.32	86.00	14,448.00	74.63	12,537.84
10	Concrete, Class 4000, Formed	CY	1.70	477.80	812.26	600.00	1,020.00	78.70	133.79	400.00	680.00	100.00	170.00
11	Reinforcing Steel	LB	65.80	7.30	480.34	5.00	329.00	2.25	148.05	1.50	98.70	3.00	197.40
12	Metal Fabrication & Installation (Trash Rack and Pipe Support)	LB	672.10	3.40	2,285.14	5.03	3,380.66	4.92	3,306.73	5.85	3,931.79	7.72	5,188.61
13	Rock Riprap - Drain Outlet	CY	8.00	98.00	784.00	59.70	477.60	82.50	660.00	100.00	800.00	44.78	358.24
14	Grouted Rock Riprap - Riser	CY	10.00	99.00	990.00	90.00	900.00	78.70	787.00	120.00	1,200.00	70.00	700.00
15	Seeding and Mulching	AC	10.50	1,500.00	15,750.00	2,127.50	22,338.75	2,035.00	21,367.50	827.65	8,690.33	737.01	7,738.61
16	Fencing	LF	1,540.00	2.70	4,158.00	2.95	4,543.00 *	2.27	3,495.80	2.59	3,988.60	2.34	3,603.60
17	Sediment and Erosion Control	LS	1.00	2,083.90	2,083.90	4,124.00	4,124.00	2,574.43	2,574.43	1,300.00	1,300.00	1,800.00	1,800.00
	Total Unit Bid Price Bid Section 'C' - Dam Site 25				**128,007.65**		**161,263.53**		**86,808.06**		**138,345.81**		**104,833.94**
Bid Section 'D' - Site 25 Road Structure													
Item No.	**ITEM**	**UNIT**	**QTY.**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**	**Unit Price**	**Extension**
1	Mobilization (No Bid Subsidiary to Total Bid Price)												
2	Water (if conditions require)	1000/Gal	5.00	87.50	437.50	20.00	100.00	0.22	1.10 **	0.50	2.50 **	0.01	0.05
3	Clearing and Grubbing	AC	0.90	8,004.80	7,204.32	1,600.00	1,440.00	1,000.00	900.00	3,500.00	3,150.00	3,333.00	2,999.70
4	Excavation	CY	2,440.00	2.46	6,002.40	6.00	14,640.00 *	1.18	2,879.20 *	2.75	6,710.00 *	9.84	24,009.60
5	Earth Fill	CY	3,725.00	3.00	11,175.00	2.50	9,312.50	1.54	5,736.50	1.65	6,146.25	1.83	6,816.75
6	Corrugated Metal Pipe & Appurtenances (48" Dia., 12 Ga.)	LF	120.00	262.00	31,440.00	89.40	10,728.00	150.47	18,056.40	151.65	18,198.00	111.95	13,434.00
7	Corrugated Metal Pipe & Appurtenances (48" Dia., 12 Ga. Slotted Flume)	LF	32.00	152.50	4,880.00	160.39	5,132.48	341.47	10,927.04	147.65	4,724.80	140.48	4,495.36
8	Concrete, Class 4000, Formed	CY	0.67	978.10	655.33	600.00	402.00	78.70	52.73	400.00	268.00	447.76	300.00
9	Reinforcing Steel	LB	33.10	12.22	404.48	5.00	165.50	2.25	74.48	1.50	49.65	3.00	99.30
10	Metal Fabrication & Installation (Pipe Support)	LB	390.70	1.64	640.75	4.93	1,926.15	4.20	1,640.94	4.67	1,824.57	3.84	1,500.29
11	Road Surfacing (Supplied and Installed by Burt County Road Department)												
12	Seeding and Mulching (Supplied and Installed by Burt County Road Department)												
13	Fencing	LF	850.00	2.70	2,295.00	2.45	2,082.50 *	2.24	1,904.00	2.56	2,176.00	2.40	2,040.00
14	Signage (Supplied and Installed by Burt County Road Department)												
	Total Unit Bid Price Bid Section 'D' - Site 25 Road Structure				**65,134.78**		**45,929.13**		**42,172.38**		**43,249.77**		**55,695.05**
	TOTAL BID				**402,423.63**		**457,669.18**		**283,879.26**		**383,971.20**		**329,419.96**
	Substantially Complete By:			June 30, 2006		June 30, 2006		June 30, 2006		June 30, 2006		June 30, 2006	
	Complete and Ready for Final Payment By:			July 28, 2006		July 28, 2006		July 28, 2006		July 28, 2006		July 28, 2006	
	Addenda Received:			1		1		1		1		1	
	Bid Guarantee:			5% Bid Bond		5% Bid Bond		5% Bid Bond		5% Bid Bond		5% Bid Bond	
	Remarks:					*Discrepancy with Sum of Bid Items		*Discrepancy with Sum of Bid Items; **Discrepancy on Bid Form between Unit Prices & Sums - Resolved per IB 00100-6 14.01.C.		*Discrepancy with Sum of Bid Items; **Discrepancy on Bid Form between Unit Prices & Sums - Resolved per IB 00100-6 14.01.C.			


Silver Creek Watershed
Structure Sites
Co. Rd. 29
Co. Rd. 32
Co. Rd. 27
County Road Q
1
Co. Rd. P
3
2
Co. Rd. 31
Co. Rd. 25
34
Co. Rd. Q
11
35
6
Co. Rd. N
9
Highway 75
14
36
Co. Rd. M
Co. Rd. LM
15
Co. Rd. L
16
17
18
32
30
39
19
33
31
38
Co. Rd. J
25
23 & 24
Legend
Completed
Completion 2004
Completion 2005
Completion 2006-2007
5000 0 5000 10000 15000 Feet
1993 Ortho Imagery Not To Scale
N
NRCS Natural Resources Conservation Service
July 14, 2004

Memo to the Programs, Projects and Operations Subcommittee

Subject: Fiscal Year 2006 Long Range Implementation Plan

Date: October 27, 2005

From: Gerry Bowen

State statutes (see below) require NRDs to prepare and submit a "Long Range Implementation Plan" (LRIP) each year.

> "**2-3277 - Districts; long-range implementation plans; prepare and adopt; contents; review; filing; department; develop guidelines.** Each district shall also prepare and adopt a long-range implementation plan which shall summarize planned district activities and include projections of financial, personnel, and land rights needs of the district for at least the next five years and specific needs assessment upon which the current budget is based. Such long-range implementation plan shall be reviewed and updated annually. A copy of the long-range implementation plan and all revisions and updates thereto as adopted shall be filed with the department, the Governor's Policy Research Office, and the Game and Parks Commission on or before October 1 of each year. The department shall develop and make available to the districts suggested guidelines regarding the general content of such long-range implementation plans.
>
> **Source:** Laws 1978, LB 783, §3; Laws 1979, LB 412, §3; Laws 2000, LB 900 §61. Operative date July 1, 2000."

The LRIP (see attached) is intended to summarize the current year's budget (revenues and expenditures) in terms of the various programs and projects and the intended accomplishments during the fiscal year. It also projects the financial and personnel needs for these projects and programs for the next five fiscal years. The tables in the back of the document (pages 38-57) summarize these projections.

Management recommends that the Subcommittee recommend to the Board that the Fiscal Year 2006 Long Range Implementation Plan be approved.

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT

LONG RANGE IMPLEMENTATION PLAN

FISCAL YEAR 2006

Papio-Missouri River Natural Resources District
8901 South 154th Street
Omaha, Nebraska 68138-3621

Phone: 402-444-6222
Fax: 402-895-6543

Web Site: www.papionrd.org

Approved by the Board of Directors: November 10, 2005

TABLE OF CONTENTS

I. INTRODUCTION 4
II. DESCRIPTION OF THE DISTRICT 6
1. Board of Directors 6
2. District Staff 10
III. PROGRAMS AND PROJECTS 14
1. Channel Maintenance Program 14
2. West Branch Papio Project 14
3. Missouri River Levee, Unit R-613 14
4. Missouri River Levee, Unit R-616 15
5. Union Dike 15
6. Papillion Creek and Tributaries Project 15
7. Papio Reservoir Sites 16
8. Little Papillion Creek Channel Project 17
9. Floodplain Management Program 17
10. Floodway Purchase Program 18
11. Flood Mitigation Planning and Mapping Assistance Program 18
12. Western Sarpy Dike Project 18
13. Pigeon/Elk Creek Project 19
14. Small Flood Control Structure Program 19
15. Urban Stormwater Program 19
16. Bellevue/Offutt Drainageway Project 20
17. Urban Drainageway Program 20
18. Elkhorn River Breakout Improvement Project Area 20
19. Emergency Operations 20
20. Conservation Assistance Program 21
21. Nebraska Soil and Water Conservation Program 22
22. NRCS Assistance 22
23. Urban Conservation Programs 23
24. Public Law 566 Watersheds 23
25. Buffalo Creek Watershed 23
26. County Road Structure Program 24
27. Elkhorn River Project 24
28. Elkhorn River Improvement Project Area 24
29. Native Grass Program 24
30. Erosion and Sediment Control Program 24
31. Streambed Stabilization Program 25
32. Groundwater Management Program 25
33. Chemigation Certification Program 25
34. Well Abandonment Program 26
35. Clean Lakes Program 26
36. Lower Platte River Corridor Alliance 27
37. Chalco Hills Recreation Area 27
38. Walnut Creek Recreation Area 28

39. Elkhorn Crossing Recreation Area 28
40. Platte River Landing Recreation Area 28
41. Prairie View Recreation Area 28
42. Elkhorn River Access 29
43. Missouri River Corridor Project 29
44. Back to the River Project 30
45. Rumsey Station Wetland 31
46. Heron Haven Wetland 31
47. Wetlands Mitigation Bank 31
48. Conservation Easement Program 32
49. Papio Trails Project 32
50. Trails Assistance Program 33
51. Recreation Area Development Program 33
52. Nebraska WILD Program 33
53. Mentored Youth Hunting 33
54. Tree Planting Program 33
55. Branching Out Program 34
56. Washington County Rural Water Supply Project #1 34
57. Washington County Rural Water Supply Project #2 34
58. Dakota County Rural Water Supply Project 34
59. Thurston County Rural Water Supply Project 34
60. Solid Waste and Recycling Program 35
61. Information and Education Programs 35
IV. ASSESSMENT OF CURRENT NEEDS 38
Table 1: FY 2006 Land Rights Needs. 40
Table 2: FY 2006 Personnel Needs 41
Table 3: FY 2006 Financial Needs 43
V. PROJECTED NEEDS 46
Table 4: Projected Land Rights Needs – FY 2007-2011. 47
Table 5: Projected Personnel Needs – FY 2006-2011. 49
Table 6: Projected Financial Needs – FY 2006-2011. 52
Table 7: Projected Revenue Needs – FY 2006-2011. 55

I. INTRODUCTION

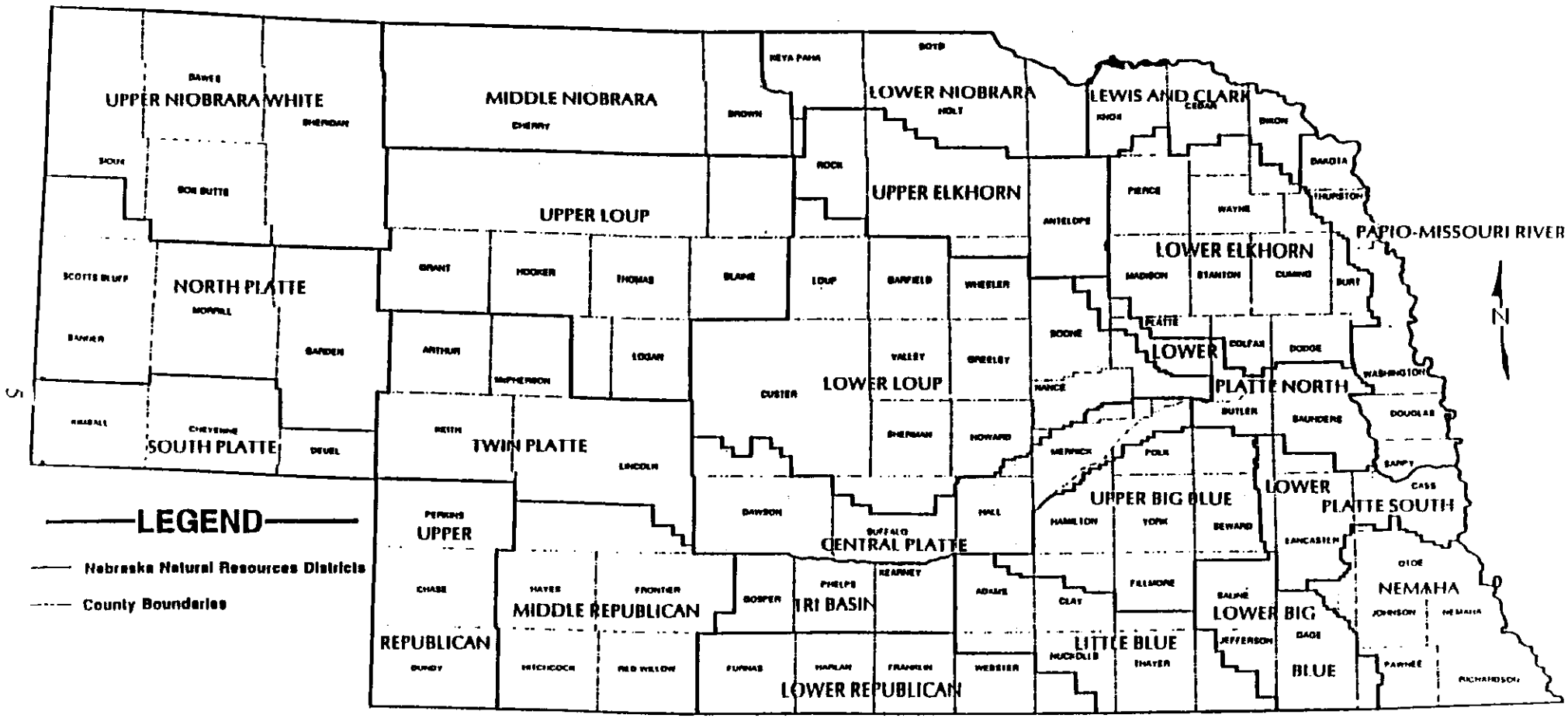
In recognition of the need to orderly develop and manage the State's natural resources, the 80th session of the Nebraska Legislature enacted LB 1357 creating natural resources districts (NRD). On July 1, 1972, over 150 special purpose districts were combined to form 24 NRDs covering the entire state (see Figure 1). These districts, bounded predominantly along hydrologic lines, are empowered to provide for effective planning, development, and management of natural resources.

The Papio-Missouri River NRD was created on January 5, 1989 when the Papio and Middle Missouri Tribs NRDs merged, leaving 23 NRDs in the state.

This Long Range Implementation Plan has been prepared according to state statutes (see below) to explain the District's programs and projects, activities planned for FY 2006, and activities planned for the next five fiscal years.

> **"2-3277 Districts; long-range implementation plans; prepare and adopt; contents; review; filing; department; develop guidelines.** Each district shall also prepare and adopt a long-range implementation plan which shall summarize planned district activities and include projections of financial, personnel, and land rights needs of the district for at least the next five years and specific needs assessment upon which the current budget is based. Such long-range implementation plan shall be reviewed and updated annually. A copy of the long-range implementation plan and all revisions and updates thereto as adopted shall be filed with the department, the Governor's Policy Research Office, and the Game and Parks Commission on or before October 1 of each year. The department shall develop and make available to the districts suggested guidelines regarding the general content of such long-range implementation plans.
>
> **Source:** Laws 1978, LB 783, §3; Laws 1979, LB 412, §3; Laws 2000, LB 900 §61. Operative date July 1, 2000."

Figure 1



NEBRASKA NATURAL RESOURCES DISTRICT BOUNDARIES

Nebraska Natural Resources Commission January 1989

II. DESCRIPTION OF THE DISTRICT

Located in eastern Nebraska, the Papio-Missouri River Natural Resources District consists of all of Washington, Douglas, Sarpy, and Dakota Counties, the eastern two-thirds of Burt and Thurston Counties, and a small portion of southeastern Dodge County (see Figure 2).

The District is bounded on the east by the Missouri River, and by the Platte River on the south and a portion of the West. Three major river basins (Missouri, Platte, and Elkhorn) are represented.

1. Board of Directors

The District is governed by an elected Board of Directors. There are currently 11 members on the Board representing 11 subdistricts (see Figure 3) each containing approximately the same number of people.

Current Board Members are:

a. Rich Jansen, Chairperson	Subdistrict 10
b. James Thompson, Vice Chaiperson	Subdistrict 6
c. Richard Tesar, Secretary	Subdistrict 5
d. John Conley, Treasurer	Subdistrict 4
e. Fred Conley	Subdistrict 2
f. Richard Connealy	Subdistrict 1
g. Tim Fowler	Subdistrict 8
h. Rich Kolowski	Subdistrict 9
i. Dorothy Lanphier	Subdistrict 7
j. Joseph Neary	Subdistrict 3
k. Jon Schwope	Subdistrict 11

Figure 2

Papio-Missouri River Natural Resources District

Base Map

Source: Conservation & Survey Division, University of Nebraska - Lincoln

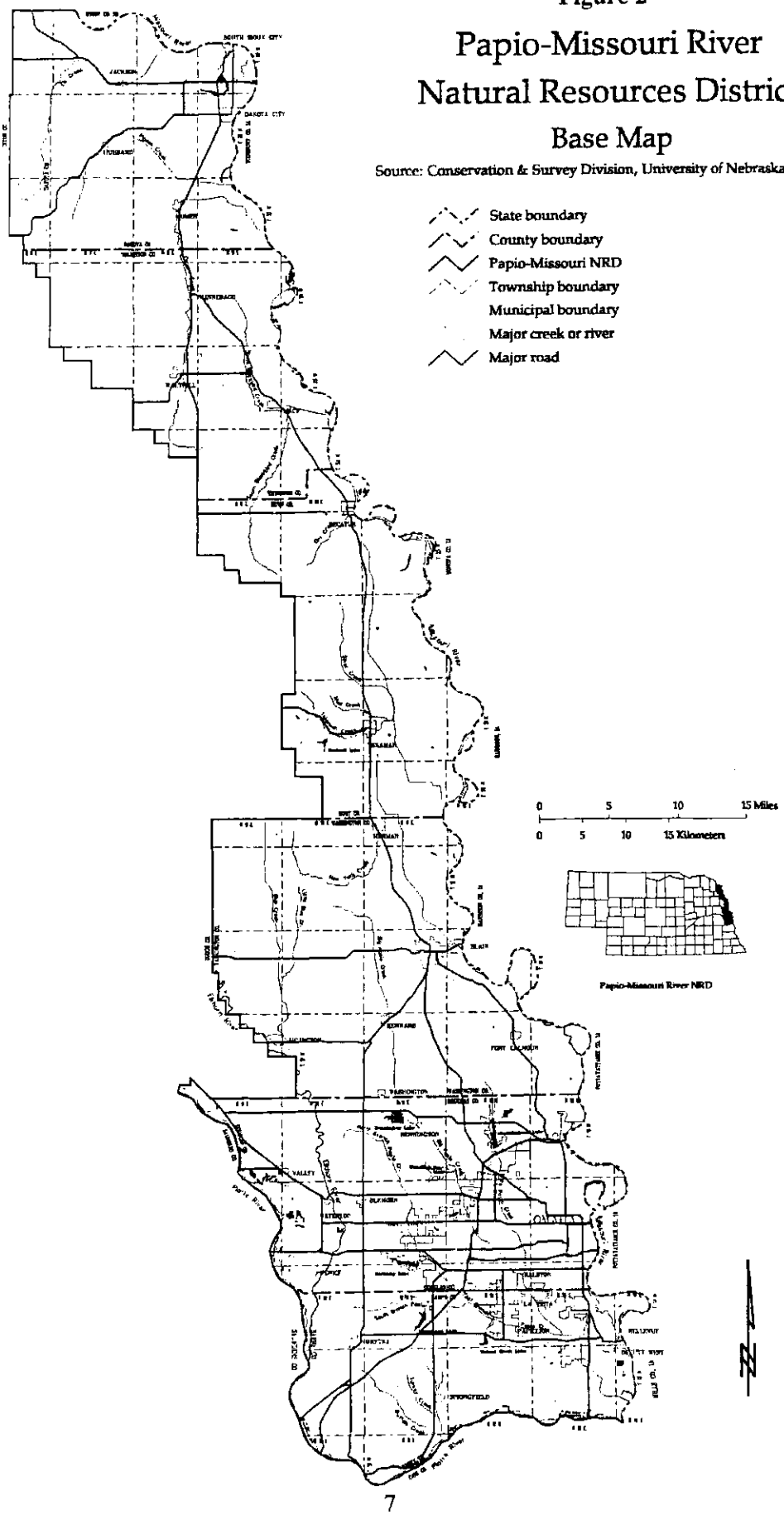


Figure # 2
September, 1999
P-MRNRD Master Plan

Figure 3a – Papio-Missouri River Natural Resource District Election Subdistricts

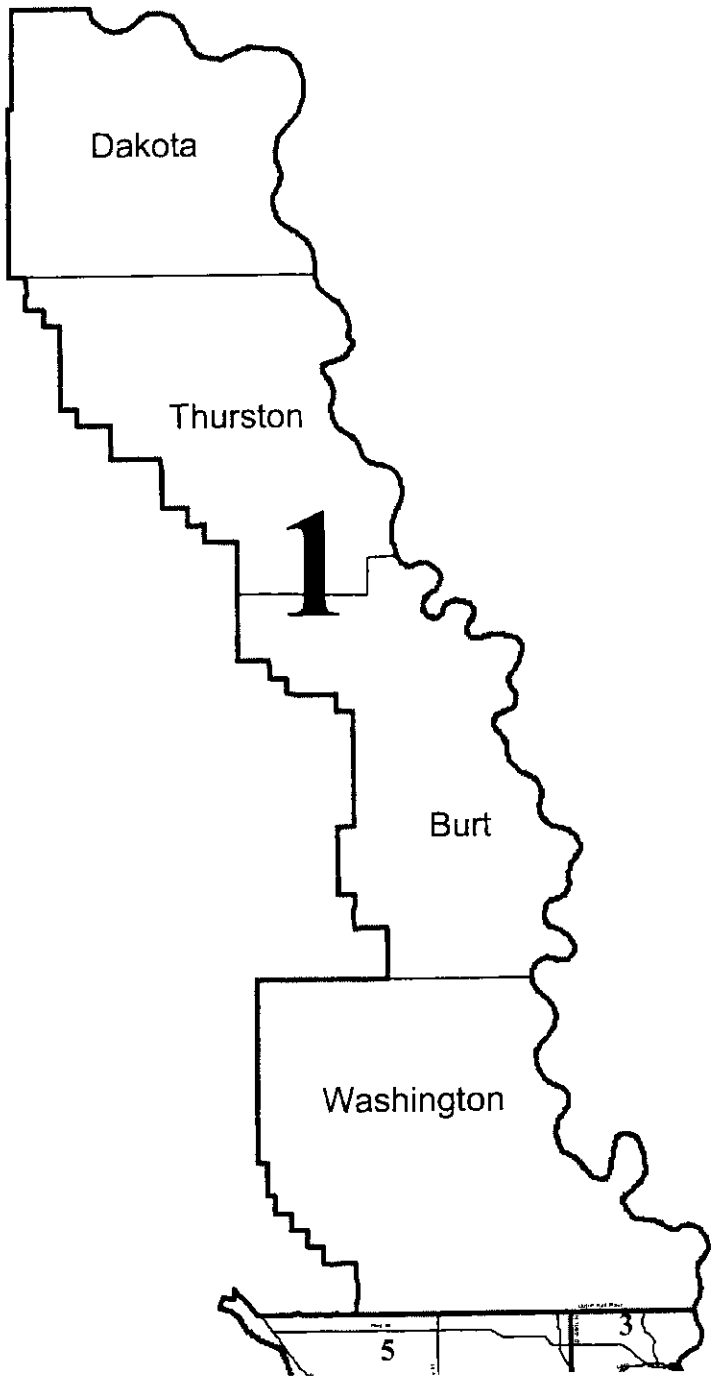
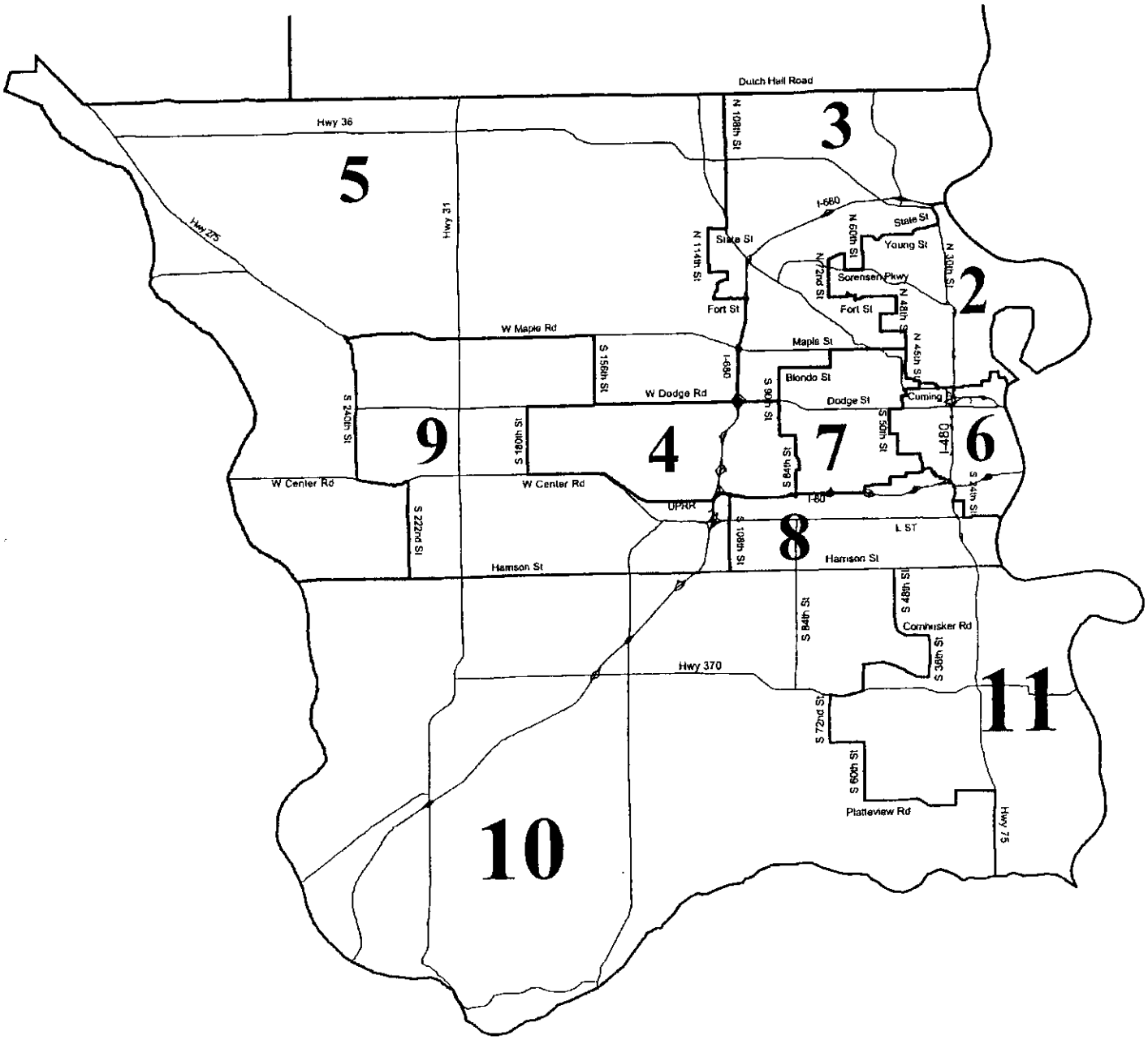


Figure 3b – Papio-Missouri River Natural Resource District Election Subdistricts



2. District Staff

A permanent staff is maintained to implement the District's various programs and projects (see Figure 4).

Administrative Services:

Steve Oltmans	General Manager
Patricia Teer	Administrative Coordinator
Penny Burch	District Office Secretary
Jean Tait	Purchasing Agent/LAN Administrator
Bernadet Taylor	Receptionist/Secretary
Jack Lawless	Accountant
Jolene Kohout	Accounting Assistant
Trent Heiser	Information Technology Specialist

Program and Project Services:

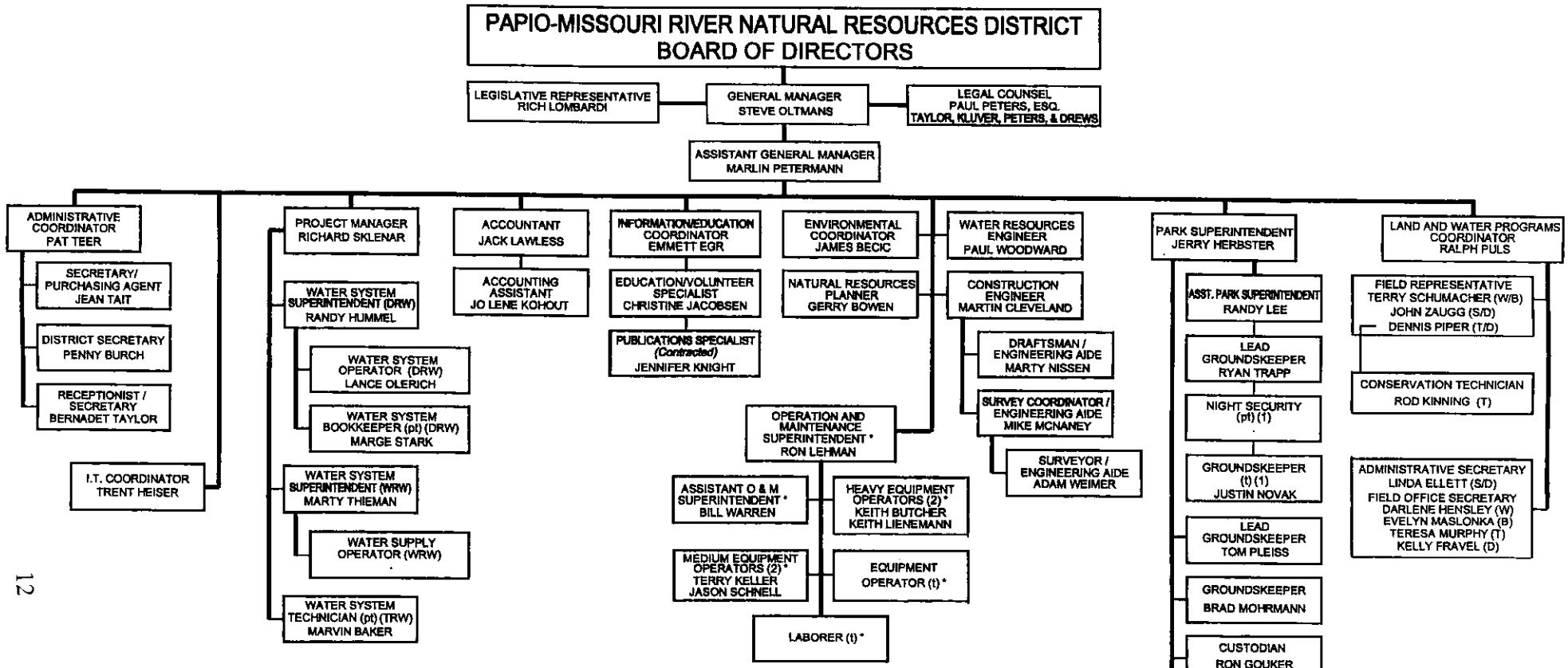
Marlin Petermann	Assistant General Manager
Jim Becic	Environmental Coordinator
Gerry Bowen	Natural Resources Planner
Martin Cleveland	Construction Engineer
Mike McNaney	Engineering Aide/Party Chief
Adam Weimer	Engineering Aide/Surveyor
Marty Nissen	Engineering Aide/Drafter
Jerry Herbster	Park Superintendent
Randy Lee	Assistant Park Superintendent
Tom Pleiss	Lead Groundskeeper (Chalco Hills)
Ryan Trapp	Lead Groundskeeper (Walnut Creek)
Brad Mohrmann	Groundskeeper
Ron Gouker	Custodian
Paul Woodward	Water Resources Engineer
Ralph Puls	Land and Water Programs Coordinator
Terry Schumacher	Field Representative (Blair)
Dennis Piper	Field Representative (Walthill)
John Zaugg	Field Representative (Omaha)
Rod Kinning	Conservation Technician (Walthill)
Linda Ellett	Administrative Secretary (Omaha)
Darlene Hensley	Field Office Secretary (Blair)
Evelyn Maslonka	Field Office Secretary (Lyons)
Teresa Murphy	Field Office Secretary (Walthill)
Kelly Fravel	Field Office Secretary (South Sioux City)
Richard Sklenar	Special Projects Coordinator
Marty Thieman	Water System Superintendent (Blair)
Randy Hummel	Water System Superintendent (Dakota City)
Marge Stark	Water System Bookkeeper (Dakota City)

Lance Olerich	Water System Operator (Dakota City)
Marvin Baker	Water System Operator (Pender)
Ronnie Lehman	Operation and Maintenance Superintendent
William Warren	Assistant Operation and Maintenance Superintendent
Keith Butcher	Heavy Equipment Operator
Jason Schnell	Medium Equipment Operator
Terry Keller	Medium Equipment Operator
Keith Lienemann	Heavy Equipment Operator

Information and Education Services:

Emmett Egr	Information/Education Coordinator
Christy Jacobsen	Education/Volunteer Specialist

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
BOARD OF DIRECTORS



pl .....Part Time
t .....Temporary
( ) .....Number of Employees in this Position
* .....P-MRNRD Operation and Maintenance
(S/D) .....Natural Resources Conservation Service - Sarpy /Douglas Co. Office (Omaha)
(W) .....Natural Resources Conservation Service - Washington Co. Office (Blair)
(B) .....Natural Resources Conservation Service - Burt Co. Office (Lyons)
(T) .....Natural Resources Conservation Service - Thurston Co. (Walthill)
(D) .....Natural Resources Conservation Service - Dakota Co. (South Sioux City)
(DRW) .....Dakota County Rural Water (Dakota City)
(TRW) .....Thurston County Rural Water (Pender)
(WRW) .....Washington County Rural Water (Blair)

NOTE: **Organizational Chart implemented by Steven G. Oltmans General Manager on November 1, 1986**

Updated: JULY, 2006

PAPIO–MISSOURI RIVER NATURAL RESOURCES DISTRICT
8901 S. 154th St.
Omaha, NE 68138-3621
fax 402-895-6543 Office 402-444-6222
www.paplonrd.org

3. Authorities and Responsibilities

Authority for the District's activities is found in Chapter 2-3229 of the Revised Statutes of Nebraska. It states:

> "The purpose of natural resources districts shall be to develop and execute, through the exercise of powers and authorities contained in this act, plans, facilities, works and programs relating to,
>
> 1) erosion prevention and control,
> 2) prevention of damages from flood water and sediment,
> 3) flood prevention and control,
> 4) soil conservation,
> 5) water supply for any beneficial uses,
> 6) development, management, utilization and conservation of groundwater and surface water,
> 7) pollution control,
> 8) solid waste disposal and sanitary drainage,
> 9) drainage improvement and channel rectification,
> 10) development and management of fish and wildlife habitat,
> 11) development and management of recreational and park facilities, and
> 12) forestry and range management..."

The Papio-Missouri River Natural Resources District has consolidated these authorities into seven resource management needs. By priority for FY 2006, these include the need to:

1. Reduce flood damages.
2. Maintain water quality and quantity.
3. Reduce soil erosion and sedimentation damages.
4. Provide outdoor recreation facilities
5. Provide domestic water supply.
6. Develop and improve fish and wildlife habitat, and forest resources.
7. Participate in solid waste management and pollution control.

III. PROGRAMS AND PROJECTS

This plan reviews the current status of the District's programs and projects which have been implemented to address the resource management needs previously outlined. It reports District accomplishments during the past year, but more importantly, explains activities to be undertaken in the next year, and anticipated activities during the next five year periods.

The projected personnel and financial resources needed for each of these programs and projects are summarized in Tables 2 and 3 of Section IV of this plan.

FLOOD CONTROL

1. Channel Maintenance Program

Prior to July 1, 1972, channel improvements to the Papillion Creek were accomplished through the cooperation of the Papio Watershed Board, Sarpy and Douglas Counties, and the Sarpy and Douglas County Soil and Water Conservation Districts. When natural resources districts were created, channel maintenance and improvement became the responsibility of the District.

Operation and maintenance on these channel improvements will continue.

2. West Branch Papio Project

In 1987, the Board authorized a channel improvement and flood control project on the West Branch Papillion Creek. In 1991, the District and Sarpy County funded a project to construct channel improvements and levees on the West Branch between 66th and 75th Streets.

Construction was initiated on the segment between 48th and 66th Streets in 1995, and completed in 1999. In 1996, West Branch channel improvements were completed through the City of Papillion between 72nd and 90th Streets.

In 1998, preliminary survey and design, and land rights acquisition was completed on the segment between 30th and 48th Streets. Construction of the segment between 30th and 48th Streets was completed in 2001. Operation and maintenance of this project will continue into the future.

Within the next four years, additional segments of the creek will be improved upstream of Papillion between 86th Street and Giles Road.

3. Missouri River Levee, Unit R-613

Missouri River Levee System Unit R-613, a component of the Missouri River Levee System Project, was authorized as part of the Pick-Sloan Plan (Flood Control Act of 1944). The completed levee is located in southeastern Sarpy County adjacent to the Platte River, Missouri River, and Papillion Creek. The District has assumed operation and maintenance responsibility of

the approximately thirteen miles of levees and appurtenant structures. Continued operation and maintenance of the project will be provided.

4. Missouri River Levee, Unit R-616

Part of the Missouri River Levee System, authorized by the Pick-Sloan Flood Control Act of 1944, Unit R-616 is the right bank levee along the Missouri River from the mouth of the Papillion Creek north to Highway 370 in Bellevue. This 4.5-mile levee provides flood protection from high flows on the Missouri River and Papillion Creek for the area east and south of Bellevue. Continued operation and maintenance will be provided.

5. Union Dike

In 1976, the District assumed operation and maintenance of the completed Union Dike and Drainage District levee, which extends 9.5 miles along the left bank (east) of the Platte River from Fremont to west of Valley, Nebraska. The Lower Platte North NRD and the District agreed to a boundary change to provide that the entire area protected by Union Dike would be wholly within the District's jurisdiction.

In 1991, construction was completed on a $1.9 million dike improvement project. The District paid 10% of the costs with the remainder assessed to benefited properties. The project also created 24 acres of wetland habitat.

As a continuation of this project, the District improved an existing dike (No-Name Dike) along the Platte River between County Road 33 and the UPRR in Western Douglas County (approximately two miles in length). Construction was completed in 1993.

6. Papillion Creek and Tributaries Project

On July 1, 1972, the District assumed responsibility for local coordination of the Papillion Creek and Tributaries Flood Control Project. Prior to that time, the Papio Watershed Advisory Board carried out this responsibility for the three county boards (Sarpy, Douglas, and Washington Counties).

Seven of twenty-one federally authorized flood control structures conceived in the late 1960's have been constructed; Site 16 (Standing Bear Lake), Site 11 (Cunningham Lake), Site 17 (Candlewood Lake), Site 18 (Zorinsky Lake), Site 20 (Wehrspann Lake), Site 21 (Walnut Creek Lake), and Site 6 (Newport Landing). After sites 16, 11, 17, 18 and 20 were completed, the large dam construction program was de-authorized by the federal government in the early 1980's. Since then, the District has pursued construction of large dams without federal funding , including Dam Site 21 (Walnut Creek) and Dam Site 6 (Newport Landing).

A reevaluation study of flood control needs in the Papillion Creek basin was completed in 1985. The study, conducted by the Corps, resulted in the replacement of the remaining structures in the project with an improved channel on the Big Papillion Creek between L Street and West Center

Road. Construction of the channel improvements was completed in 1996. The District will provide operation and maintenance on the improved channel into the future.

In 2001, construction of channel improvements on the Big Papillion Creek between Center and Blondo was completed by the NRD. The District will operate and maintain this facility, except for a recreational trail, which will be maintained by the City of Omaha.

Maintenance of the flood control structures is provided by the Corps of Engineers, except for Candlewood Lake (built by private interests and maintained by by the District), Walnut Creek Lake (built and maintained by the District), and Site 6 (built by private interests and maintained by the District).

Recreation facilities are completed at Sites 11, 16, 18, 20 and 21. The City of Omaha is the sponsor of recreation operations at Sites 11, 16, and 18, while the District has this responsibility at Sites 20 (see Chalco Hills Recreation Area) and 21 (see Walnut Creek Recreation Area).

An automated flood warning system was also installed throughout the Papillion Creek basin as part of the channel improvement from L to Center Street. This system includes nineteen rain, and eighteen stream stage gauges.

7. Papio Reservoir Sites

In 2004, the District reevaluated the remaining dam sites in the Papio Watershed to determine the potential for construction in the future. Conclusions from this study recommended the construction of 10 of the remaining 14 dam sites.

In 2004, the District entered into an agreement with a private developer to secure a portion of the property needed for the dam site 13 and reservoir. In this agreement, the District would pay for the construction of the dam at about $2.4 million and needed right-of-way ($3.5 million) in return for a contribution from the developer of $1.4 million. In addition, the District agreed to acquire property from Lyman Richey Corporation needed for the lake and future regional park in FY 05 for about $1.3 million. The total result of this $6.1 million public project is flood protection from an uncontrolled tributary into the West Papillion Creek.

On a bit smaller scale, the NRD also entered into an agreement with private developers to cost-share on the construction of 2 flood and grade control structures on Midland and South Midland Creek south of Papillion. The upper most grade control structure on Midland Creek is the previous proposed location of PL 566 S-30. The District will provide 100% funding for this structure at an estimated design and construction cost of $1.2 million, all of which is anticipated to be reimbursed by NRCS. The downstream structure known as Shadow Lake will provide flood storage from 2.3 square miles of drainage and the NRD will contribute 75% of the design and construction expenses, or about $2.2 million.

Although the District is actively pursuing all of the remaining 9 dam sites recommended in the 2004 study, it is anticipated that only a few of these will be completed within the period of

performance of this plan. Of these, it is expected that Dam Sites 7 or 8A near Bennington may be one of the first to receive cost share through public-private partnerships. Other dams including sites 15A and 19 have also been previously discussed as upcoming potential sites. These sites have no specific priority except that they will be considered as opportunities for implementation become available. Dam Sites 10, 12, and 9 in Douglas County are not currently in the anticipated development zone and may not be considered for another couple years.

In addition to developing these sites as public-private partnerships, it is anticipated that additional funding from general obligation bonds or state funding will be needed to supplement NRD funding. This is especially true for the larger Dam Sites 1 and 3C located primarily in Washington County. The development of these sites will likely require more funds for preliminary planning and design. To this end, the District will expend approximately $600,000 in FY 06 to address environmental, transportation, right-of-way, and funding issues associated with Dam Sites 1 and 3C.

8. Little Papillion Creek Channel Project

The Little Papillion Creek Channel Project was constructed by the Corps between Pratt Street and the confluence with the Big Papillion Creek north of Q Street. Douglas County was the local sponsor of the project until 1996, when the District assumed operation and maintenance responsibilities for the project.

9. Floodplain Management Program

Primary responsibility for implementing floodplain management programs rests with cities and counties having regulatory jurisdiction over floodplain lands. To assist in this regard, the District provides technical advice to entities of government on floodplain management efforts upon request. This includes comments on rezoning applications, building permits, and new developments.

In addition, the District assists with the implementation of flood insurance programs by providing information to agencies and individuals needing to know if a specific property is located within a designated floodplain or floodway area. Information on the 100-year flood elevation and flood insurance zones is also provided upon request.

The District continues to work with local, state, and federal authorities to update and revise flood hazard studies for the District, on an as-needed basis, to permit cities and counties to utilize this information in their ongoing floodplain management program. In 2003, the District became a cooperating technical partner with FEMA to provide leadership to update existing flood insurance studies in the District. The initial project will be an update of the flood insurance study for the West Branch Papillion Creek Watershed.

10. Floodway Purchase Program

The Floodway Purchase Program was established in 1993 and is designed to reduce flood damages through purchase of land and improvements in the designated floodway. It is intended to help remove obstructions in the floodway that were in place prior to the adoption of the federal flood insurance program.

Due to the extensive flooding along the Missouri River in 1993, federal funds through FEMA and the Nebraska Department of Economic Development (DED) became available. These funds enabled the District to implement this program in the Holub's Place and Elbow Bend areas of eastern Sarpy County. This voluntary program removed approximately 102 structures from the floodway. This project was completed in 1998.

The District continues to buyout structures in floodways including some of the remaining properties in Elbow Bend located in the Missouri River floodway in eastern Sarpy County, and other selected properties in cooperation with other units of governments in the District.

Within the next five years, the District will work with Douglas County to develop a flood mitigation plan in the King Lake area along the Elkhorn River.

11. Flood Mitigation Planning and Mapping Assistance Program

In 2003, the District adopted the Flood Mitigation Planning and Mapping Assistance Program to assist National Flood Insurance Program communities, both technically and financially, to develop flood mitigation plans, and to update flood insurance studies. In FY 2004, the District cooperated with the City of Tekamah to update flood hazard information for their community.

In 2005, the District plans to cooperate with the Cities of Blair, Valley, and Homer on flood mitigation plans and/or floodplain maps. Additionally, the District has secured a grant from the Nebraska Emergency Management Agency (NEMA) to fund an All-Hazards Mitigation Plan for the entire District. The Corps of Engineers will prepare the flood mitigation portion of the study, while the Nebraska Department of Natural Resources (NDNR) will complete the remainder.

12. Western Sarpy Dike Project

The Western Sarpy Drainage District was organized in 1909 to address drainage and flooding problems in southwest Sarpy County. The drainage district encompasses approximately 7,540 acres of land along the Platte River from the mouth of the Elkhorn River to Interstate 80. The drainage district operates a series of drainage ditches and a flood control levee. In 1993, severe flooding along the Platte River damaged many of the district's facilities, which were subsequently repaired.

In 1999, the Western Sarpy Drainage District merged with the District, with the NRD taking over operation and maintenance of the project. Right-of-way acquisition was initiated in 2003. It is

anticipated that major renovation and improvement of the dike will begin in 2006. The drainage ditches currently in place will be maintained by means of an improvement project area, where operation and maintenance costs will be assessed against benefited lands in the drainage district.

13. Pigeon/Elk Creek Project

On January 8, 1999, the Papio-Missouri River NRD and Drainage District #5 (Dakota County) merged. The area encompassed by the drainage district included the downstream portions of Pigeon and Elk Creek Watersheds. In FY 2005, and beyond, it is anticipated that improvements to the Pigeon Creek and Elk Creek levees will continue. The first of two grade stabilization structures was constructed in the Elk Creek channel in 2004. The second structure is planned for construction in 2005.

The District will operate and maintain the project in the future. Benefiting landowners in the area are assessed an annual operation and maintenance fee for the project.

14. Small Flood Control Structure Program

In 2000, the District authorized the establishment of a small flood control structure program to provide technical and financial assistance to landowners for the installation of small flood control structures within the Papillion Creek Watershed. The initial structure under this program was the Sachs-Palmer Dam that would control approximately 500 acres on a tributary to the North Branch West Branch Papillion Creek. Construction was completed on this structure in 2002.

The District will continue to evaluate additional sites for construction under this program.

15. Urban Stormwater Program

This program was established in 1982 and was designed to encourage the regulation and wise management of stormwater systems in urbanized and developing areas. It is administered in conjunction with the Floodplain Management, Urban Stormwater, and Urban Conservation Programs. Accomplishments under this program include an inventory and prioritization of all open drainageways in the City of Omaha and surrounding areas of Douglas County, watershed master planning, and assistance with the City of Omaha's NPDES Stormwater Permit application.

In 1997, the District and the Corps of Engineers entered into a cooperative agreement to conduct a study of the effects of urbanization on the West Branch Papillion Creek Watershed. Phase 2 of the study was recently completed and assesses the impact of regional storage reservoirs, and channel improvement projects.

The District is currently working with cities and counties within the Papillion Creek Watershed to setup a basin-wide plan for the Papillion Creek system. In 2004, the Papillion Creek Watershed Partnership (PCWP) consisting of nine communities, two counties, and the District executed a new interlocal agreement to continue the efforts of the partnership. The PCWP will

address water quality and quantity issues, sediment and erosion control, and regulatory issues in efforts to implement NPDES (National Pollution Discharge Elimination System) Phase 2 permits in the watershed. A comprehensive stormwater study of the basin was initiated in 2002 and a basin-wide watershed master plan is anticipated by 2006.

16. Bellevue/Offutt Drainageway Project

In 1998 and 1999, the City of Bellevue, Offutt Air Force Base, and the District undertook a project to improve the Bellevue/Offutt Drain from Modification Road eastward to Missouri River Levee R-616. The District will operate and maintain the project into the future.

17. Urban Drainageway Program

Initiated in 1987, this cost-share program was developed to address erosion and flooding problems on major urban drainageways.

In 2005, funds were used for projects in Omaha, Elkhorn and LaVista. In FY 2006, funds have been budgeted for projects in Omaha, LaVista, Papillion, and Macy.

It is anticipated that this program will continue into the future.

18. Elkhorn River Breakout Improvement Project Area

In 1997 and 1998, the District cooperated with the Lower Platte North NRD (LPNNRD) in a flood control project on the Elkhorn River in Dodge County. The project was located in the LPNNRD, but benefits of the project extended into Douglas County. The District is cooperating by collecting operation and maintenance funds from benefited landowners in the District. Operation and maintenance will be provided by the LPNRND.

19. Emergency Operations

The District's flood control projects are monitored during actual and potential high water or high rainfall occurrences that may affect public safety and welfare. Local civil defense authorities are contacted if conditions warrant. Several programs relate to this function of the District.

The Emergency Flood Warning System was developed to assist emergency management agencies and the National Weather Service in providing the general public with advance warning prior to potential flood events, to provide hydrologic and hydraulic data for future use, and to provide assistance to District personnel during periods of flooding.

In 1995, the Corps of Engineers installed an automated flood warning system in the Papillion Creek Watershed in conjunction with the Big Papio Channel Project. The District is responsible for ongoing operation and maintenance of the 22 gauging stations (rainfall and/or stream) in the system. Douglas, Sarpy, and Washington County Emergency Management Agencies provide funding to help offset maintenance costs.

The Stream Staff Gauge Program places and maintains gauges at various locations along the Platte and Elkhorn Rivers, and the Papillion and Bell Creeks to aid in determining stream flows and flood stage elevations. During intense storm events, District staff and other emergency management professionals make visual observations of these gauges to document stream stages and assist in flood forecasting. The system will continue to be upgraded.

The Rain Gauge Network is maintained by the District to develop a long term rainfall database and assist in flash flood warnings in the Papillion Creek Basin. Twenty-eight (28) cooperators have been supplied with rain gauges and data report forms. During periods of intense rainfall, the National Weather Service can contact cooperators and receive rainfall information. This network allows the District to evaluate emergency operation needs while providing hydrologic data for future use. The network will continue to be upgraded.

The Emergency Bank and Dike Protection Program becomes operational during local flooding situations. It provides for temporary, emergency flood protection of public facilities. Also included is assistance in the reconstruction of levees and other damaged flood control structures. The District will continue to act as local sponsor of federal programs to provide timely assistance to local groups and individuals.

The Ice Jam Removal Program is operational each winter and spring as ice melts on the Platte and Elkhorn Rivers creating the possibility of ice jams. The District executed an agreement with the Lower Platte South NRD, Lower Platte North NRD, and Saunders, Sarpy, Cass, and Douglas Counties that allows for the removal of ice jams by any appropriate means, including explosives. The cost of the program is shared between the sponsoring agencies. In addition, the sponsoring agencies cooperate with NEMA and the National Weather Service to monitor ice conditions on the lower Platte and Elkhorn Rivers.

EROSION CONTROL

20. Conservation Assistance Program

This program is administered by the District and was established to provide financial assistance to landowners in the construction of soil and water conservation practices. These practices help to prevent soil erosion, control gullies, reduce downstream sedimentation, and help to control non-point pollution. Technical assistance for the design and construction inspection of projects is provided by the Natural Resources Conservation Service (NRCS).

SPORT (Special Project for Omaha's Recreation of Tomorrow) provided special assistance in the watersheds of Cunningham, Standing Bear, Zorinsky, Wehrspann, and Candlewood Lakes from 1987 to 1993. This assistance helped to establish best management practices and reduce sedimentation to these lakes. At the conclusion of the program, erosion protection was accomplished on 73% of the land in the watersheds.

Assistance under SPORT continues in the watersheds of the Papio Lakes to further improve water quality in the lakes.

Special assistance was also provided in the New York Creek Watershed in northern Washington County to establish best management practices. At the conclusion of the effort, an increase from 30% to 50% of the watershed was adequately protected from erosion.

The Hanson's Lake Special Project is located in Sarpy County and was initiated to improve water quality and reduce sedimentation in the lake. Funds were initially expended to establish best management practices in the watershed, and concluded in 2001, with the installation of a large sediment basin.

The Silver Creek Watershed Project was established in 1994 to reduce erosion and sedimentation rates in this Burt County watershed. Plans call for the installation of 24 grade stabilization structures, of which, twelve have been completed. In addition, terraces and other best management practices will provide significant off-site benefits through sediment reduction in the Burt-Washington Drainage District. Construction will continue until all structures identified in the work plan are installed.

The Pigeon-Jones Creek Watershed Project was approved in 2001. The District and NRCS developed a work plan to reduce sedimentation in this Dakota County watershed. The work plan includes the construction of twenty (20) flood control and grade stabilization structures. The first structure was completed in 2003. Three sites were completed in 2005, and plans for a larger multi-purpose reservoir were initiated.

Additional sites, as identified in the work plan will be constructed in the future.

21. Nebraska Soil and Water Conservation Program

In cooperation with the Nebraska Department of Natural Resources, financial assistance is also available from the state to encourage installation of best management practices. Funds are apportioned to NRDs, which administer the program on a local basis. Technical assistance is provided by NRCS.

The District will continue to utilize this funding source to provide cost share assistance to landowners applying conservation practices.

22. NRCS Assistance

Public Law 46 established the Soil Conservation Service in 1935 (renamed the Natural Resources Conservation Service in 1996) to provide technical assistance to landowners through local conservation districts to help solve natural resources conservation problems. The District assists with this effort by providing personnel to NRCS to assist with their activities and to help administer District programs.

23. Urban Conservation Programs

This program provides technical assistance to landowners and developers on conservation related concerns in urban areas. An important aspect of this program involves the review and comment on proposed subdivisions and rezonings for various units of government in the District.

District personnel will continue to work with city and county officials to incorporate appropriate sediment control measures in all new subdivisions, and to provide technical assistance to individual landowners on natural resources related issues.

The District also administers the Urban Conservation Assistance Program, which provides cost share assistance to units of government to solve erosion and flooding problems. In FY 2006, projects are planned with the Cities of Papillion and Bellevue.

24. Public Law 566 Watersheds

a. Papillion Creek - This project was established to address grade stabilization problems in the Papillion Creek Watershed in Douglas, Sarpy, and Washington Counties. 28 of 52 structures identified in the work plan have been completed and are operational. The District will continue to provide maintenance of completed structures.

   In 2005, Structures S-27, S-31, and S-32 were evaluated by the Natural Resources Conservation Service (NRCS) for potential rehabilitation. The design of the improvements is planned for FY 2006.

b. Tekamah-Mud Creek - All 15 of the structures identified in the work plan of this Burt County watershed have been installed and are operational. The largest of the structures created Summit Lake, which is operated by the Game and Parks Commission as a state recreation area. The District will continue to maintain completed structures.

c. Turtle Creek - The Turtle Creek Watershed Project is located in south central Sarpy County. Both structures identified in the work plan have built. The District operates and maintains the project. Turtle Creek #2 will be evaluated by NRCS in FY 2006 for possible rehabilitation.

25. Buffalo Creek Watershed

Buffalo Creek Watershed, located in southwest Sarpy County, experienced flooding, sediment, and erosion damage throughout the entire watershed. 10 grade stabilization structures were identified in the work plan, with all 10 having been built. Funding assistance was received from the NNRC through the Resources Development Fund (RDF). Maintenance of these structures will be performed as necessary.

26. County Road Structure Program

This program was developed to address grade stabilization, flood control, and sedimentation problems in channels as they cross county roads. Funds are budgeted to cost share with counties to build conservation road structures.

27. Elkhorn River Project

The District cooperated with NRCS, Sarpy County, and Allbery Farms, Inc. to control streambank erosion on the Elkhorn River south of Harrison Street. The project utilized quarry rock to build hard points and windrow revetment along approximately 3,500 feet of streambank. The District will provide maintenance on the project into the future.

28. Elkhorn River Improvement Project Area

Severe streambank erosion along the Elkhorn River throughout the District prompted landowners to petition the District for assistance in solving the problem. An application for RDF assistance was prepared and submitted to NNRC for their consideration. RDF funding levels forced limiting the project to a seven-mile stretch of the Elkhorn River from Highway 36 downstream to King Lake in western Douglas County.

NNRC approved 75% cost sharing on the lesser project. The District paid 15% of the costs with the remaining 10% assessed to benefited landowners. In addition, operation and maintenance costs are assessed to benefited landowners. Construction was completed in 1989, with maintenance performed as needed.

29. Native Grass Program

To encourage the establishment of permanent vegetation, the District owns and maintains grass drills that are available on a rental basis to landowners and at no charge to other units of government. These drills are designed to plant native grass seed, but will also accommodate other grasses and legumes.

30. Erosion and Sediment Control Program

The Nebraska Erosion and Sediment Control Act of 1986 (LB 474) provides for a complaint system whereby landowners whose land is damaged by sediment from soil erosion from adjacent lands can get this erosion controlled. NRDs in the state have been assigned responsibility to administer this act.

The District adopted rules and regulations for the program in 1987. In the event that a complaint results in mandatory installation of permanent conservation measures, public cost share funds must be made available.

In 1995, the rules were revised to include urban developments greater than two acres in size. These areas were specifically excluded from the original act.

31. Streambed Stabilization Program

This program was established in 1998 to cost share with units of government to solve grade stabilization problems in stream channels. This program is ongoing, however, no projects are planned for FY 2006.

WATER QUALITY AND QUANTITY

32. Groundwater Management Program

In 1984, the Nebraska Legislature enacted the Groundwater Management and Protection Act (GWMPA) which required each NRD to prepare a groundwater management plan. The plan was to provide a description of the groundwater reservoir, establish a reservoir life goal, and list District policies and programs designed to achieve this goal. The District's GWMP was approved in 1986 by the Department of Water Resources (now the Department of Natural Resources).

The plan was revised in 1993 so that quality and quantity issues received equal emphasis. The District's revised plan was approved in 1994.

An important part of the plan is the groundwater monitoring program. The District has been monitoring groundwater levels in wells since 1978 to get an indication of the quantity of groundwater. This program will be continually upgraded.

Water quality monitoring, begun in 1993, is accomplished through a cooperative effort with the USGS. 100 wells were identified and sampled by USGS covering the entire District and the five distinct groundwater areas (Missouri Valley, Platte Valley, Elkhorn Valley, Upland, and Dakota). Each well is tested once every four years. The information will provide the benchmark for determining changes in quality, and as the basis for management decisions in the future.

In 1996, the Legislature created the Natural Resources Water Quality Fund. These funds are to be used by NRDs for water quality purposes. The District's share of this fund will be used to offset the costs of the water quality monitoring effort.

In 1999, the District cooperated with USGS in establishing ten "well nests" throughout the District to further aid in the water quality monitoring effort.

33. Chemigation Certification Program

In 1986, the Nebraska Legislature passed legislation to require irrigators who apply agricultural chemicals and fertilizers through their center pivot irrigation systems to acquire a permit from the

local NRD. To obtain a permit, the irrigator must demonstrate that the required safety equipment has been installed and is operational.

In 2005, permits for 36 chemigation systems were issued.

34. Well Abandonment Program

This program was established in 1996 and provides cost share assistance to landowners to properly decommission wells no longer in use. Potential groundwater contaminants, such as pesticides, fertilizers, and other contaminants can flow directly into the groundwater through these old wells threatening private or public water supplies.

In 2005, 41 wells were abandoned, nearly half were dug wells. To date, over 700 wells have been properly abandoned under this program.

35. Clean Lakes Program

In 1992, the District received a grant from the Nebraska Department of Environmental Quality (DEQ) to conduct a diagnostic feasibility study of Cunningham, Standing Bear, Zorinsky, Wehrspann, and Summit Lakes. The Corps of Engineers and the City of Omaha cooperated on the study that was completed in 1993. The study identified water quality problems in the lakes and potential solutions.

a. Wehrspann Lake - In 1999, the District continued the information and education program in the watershed to help producers control erosion and reduce sedimentation to the lake. In 2000, a wetland was constructed in the upstream reaches of the lake and will function as a sediment and nutrient trap preventing pollutants from entering the lake. The District cooperated with the Corps of Engineers on the construction of the wetland through their 1135 program. In addition, the District received a grant from the Nebraska Environmental Trust for the project. This project will complete the District's structural implementation in the watershed. Information and education efforts will continue.
b. Zorinsky Lake - The District cooperated with the City of Omaha in developing a watershed management plan for Zorinsky Lake. The City has received a federal non-point pollution grant (Section 319) to develop and eventually implement the plan. The District cooperated with the City of Omaha and a private developer to install a regional sediment basin during FY 2003. In addition, the District prepared a hydraulic analysis for another regional sediment basin in the watershed. In FY 2004, another regional basin will be evaluated. It is anticipated that the District will provide technical and financial assistance to the City on future implementation of the watershed management plan.
c. Standing Bear Lake - The District is cooperating with the City of Omaha in developing a watershed management plan for Standing Bear Lake. The City received for a federal non-point pollution grant (Section 319) to develop the plan that was completed in 2000. It is anticipated that the District will provide technical and financial assistance

d. Walnut Creek Lake (Site 21) - In 1999, the District completed a watershed management plan for Walnut Creek Lake. A federal, non-point pollution grant (Section 319) has been received to help develop the plan. One key element of the plan was the adoption of a sediment control ordinance in the watershed by the City of Papillion. The plan includes the installation of several water quality basins in the watershed to further prevent sediment and nutrients from entering the lake. In FY 2006, the District will cooperate with a private developer to rehabilitate a sediment basin in the Savannah Shores development.

In 2005, the District assisted the City of Omaha with developing a watershed management plan for the Cunningham Lake watershed.

36. Lower Platte River Corridor Alliance

In 1996, the Lower Platte River Corridor Alliance was formed between the District and the Lower Platte South NRD, Lower Platte North NRD, DWR, NNRC, Nebraska Game and Parks Commission (NGPC), DEQ, and the Nebraska Department of Health (DOH). The Alliance will attempt to coordinate the development of land and water resources in the Lower Platte River Basin (downstream of Columbus).

Commencing in 1998 and continuing through 2000, the Alliance and the District will cooperate with the Corps of Engineers who will conduct the Lower Platte River and Tributaries Feasibility Study. This study will investigate flood control, environmental restoration, water quality, and numerous planning and zoning issues.

In FY 2006, the Lower Platte North NRD, Lower Platte South NRD, and the District will fund a project to remove pilings from an abandoned railroad bridge near Highway 50, and an old highway bridge near Camp Ashland.

OUTDOOR RECREATION

37. Chalco Hills Recreation Area

In 1973, the District contracted with the Corps of Engineers to assume recreation sponsorship at Site 20 (Wehrspann Lake). The recreation master plan for the site was adopted in 1985. Recreation facilities were completed in 1987, and Chalco Hills Recreation Area was opened. Recent additions to the recreation area include a handicapped accessible fishing pier, a linear arboretum, reconstruction of the trails system, and the addition of a nature trail adjacent to the wetland south of Highway 370 in the wildlife area.

The District will continue operation and maintenance of the recreation facilities.

38. Walnut Creek Recreation Area

Papio Site 21 was originally proposed by the Corps under the Papillion Creek and Tributaries Project. It was to be built on Walnut Creek upstream of Highway 370 southwest of Papillion. The renewed interest in this structure resulted from the District's desire to provide additional flood control for the City of Papillion, additional water-based recreation for the entire Omaha metro area, and a potential cost savings to the Department of Roads in rebuilding Highway 370.

The District received approval from the Natural Resources Commission for 75% cost sharing on the $6.3 million flood control structure and recreation area. In addition, a federal aid grant was received from the Game and Parks Commission for the development of a fishing pier, boat ramp, parking lot, and shoreline improvements.

Construction of the dam was completed in 1996 and is being maintained by the District. Recreational improvements were competed in 1999 and the recreation area opened. Facilities include a campground, fishing pier, picnic shelters, and a hiking/biking trail. An equestrian trail was added in 2000. In 2002, trail connections were completed under Highway 370 to the City of Papillion, and to the new Papillion-LaVista South High School campus.

The Walnut Creek Recreation Area, will initially be maintained by the District, but will be transferred to the City of Papillion in 2007.

39. Elkhorn Crossing Recreation Area

In 1989, the District opened a 23-acre recreation area along the Elkhorn River in northern Douglas County. The area was built in conjunction with the Elkhorn River Bank Stabilization Project. The area is open from April 1st to October 30th each year. The District will continue to operate and maintain the site.

40. Platte River Landing Recreation Area

In 1992, the District opened the Platte River Landing Recreation Area on the south side of Highway 64 on the east side of the Platte River. The site will be operated and maintained by the District in the future.

41. Prairie View Recreation Area

The District developed an 80-acre site upstream of Dam Site 6 surrounding a water quality basin. The first phase of developing recreation facilities was completed in 2000. Phase 2 development was completed in 2002. The water quality basin was stocked with fish in 2000. This site opened in 2002.

42. Elkhorn River Access

In 2004, the District conducted a study of the Elkhorn River throughout the District to identify and evaluate potential sites for canoe access to the river. The first site will be constructed adjacent to Highway 64 (Maple Street) in cooperation with the Village of Waterloo, with construction anticipated to begin in late 2005. Additional feasible sites will be constructed over the next several years.

43. Missouri River Corridor Project

The Missouri River Corridor Project is a multi-objective endeavor to:

1. renovate the decreasingly viable oxbow lakes and wetlands along the Missouri River for fish and wildlife habitat from South Sioux City (river mile 732) to the confluence with the Platte River (river mile 595),
2. identify and establish cultural and historical interpretation centers along the route (i.e. Lewis and Clark, Audubon, Native Americans, etc.),
3. provide, where appropriate, river and lake access and development for recreation.

Sites and priorities have been identified and initial engineering and design has been accomplished at several locations by the Corps of Engineers (COE) through Section 22 of PL 93-251 (Water Resources Development Act of 1974). This report was completed in October, 1989. Detailed designs, land rights and funding for specific sites may necessitate a cooperative effort with the District and the COE, NGPC, and other federal, state, local and/or private entities. Twelve (12) of the forty (40) sites investigated were given priority status for feasibility studies and possible implementation. Those sites were (in no particular order):

1. Blackbird Scenic Overview (Burt County)
2. Golden Spring (Burt County)
3. Boyer Chute (Washington County)
4. Lower Bullard Bend (Burt County, Nebraska and Harrison County, Iowa)
5. Glovers Point (Thurston County)
6. Hidden Lake Complex (Sarpy County)
7. California Bend (Washington County)
8. Hole-in-the-Rock (Thurston County)
9. Lower Decatur Bend (Burt County)
10. Missouri River Trails (District wide)
11. Omadi Bend (Dakota County)
12. Sandy Point (Washington County)

In 1992, the Blackbird Scenic Overview was completed and opened to the public. A maintenance agreement has been executed with the Omaha Tribe.

Construction of Boyer Chute was completed by the COE and the District in 1993 utilizing Section 1135 funding. Construction of public access facilities was completed by the District in 1995. The site was opened in 1996 and is now owned and operated by the U.S. Fish and Wildlife

Service as the Boyer Chute National Wildlife Refuge. Handicap fishing piers were completed in 1997 by the District with funding support received from the Game and Parks Commission. FWS is working towards expanding the area to 10,000 acres from the original 2,000 acres.

The restoration of Hidden Lake/Great Marsh area near Bellevue by the COE, the Fontenelle Forest Association, and the District was completed in 1997. Funding assistance has been received from the Nebraska Environmental Trust Fund.

In 2002, land acquisition was completed on the 215 acre California Bend Project located north of Blair, Nebraska. Construction of the project has been completed. A grant from the Nebraska Environmental Trust was used to fund the District's share of the construction costs.

It is anticipated that land acquisition will be completed, and construction bids received, in FY 2006 for the 750 acre Lower Decatur Bend restoration project. This site is approximately three miles southeast of Decatur, Nebraska. This Corps of Engineers' Section 1135 environmental restoration project has received significant funding from the Nebraska Environmental Trust.

44. Back to the River Project

This initiative on the Missouri River examines the potential for recreation, fish and wildlife habitat restoration, and economic development on both sides of the river from the Burt/Washington County line south to the Platte River. The project is a cooperative effort between the Cities of Omaha, Council Bluffs, Blair and Bellevue, Douglas County, the Fontenelle Nature Association, the National Park Service, the U.S. Fish and Wildlife Service, the Environmental Protection Agency, and the District. In 1994, a feasibility study was conducted for this initiative. The District will continue to coordinate local efforts to implement this project.

A major component of Back to the River is a trail system along both sides of the Missouri River in Iowa and Nebraska. The trail system will complement the Missouri River Corridor Project, but currently is limited to Washington, Douglas, and Sarpy Counties. A comprehensive plan and preliminary design for the system was completed in FY 2000. The trail segment from NP Dodge Park to OPPD was completed in 2004. The next phase will extend the trail from OPPD south the Heartland of America Park and is scheduled for construction in 2004.

In 2005, the District anticipates designing the trail segment from N.P. Dodge Park north to the Douglas-Washington County line where it will connect to a trail to Boyer Chute National Wildlife Refuge that was included in the Washington County Road CR51 paving project. The Washington County road and trail project was completed in 2004.

Another significant component is the construction of a signature, pedestrian bridge crossing the Missouri River into Council Bluffs, Iowa. The bridge will be a two-pier, cable stay bridge with a twenty-foot deck. It will be the longest pedestrian-only bridge in the country. Design of the bridge is anticipated to be complete in late 2006, and bids accepted in April, 2007. It is anticipated that the construction of the bridge will occur over the following two years.

Also, a strategic plan was developed to define the future organizational structure and financial sustainability of the Back to the River effort. This plan culminated in the formation of the tax exempt, non-profit "Back to the River, Inc."

45. Rumsey Station Wetland

In the process of acquiring right-of-way for the West Branch Papio Project, a wetland site was identified. The Board authorized purchase of the site, located between 54th and 66th Streets on the south side of the creek near Rumsey Road, in 1994. The former West Branch channel will be preserved as a wetland for wildlife habitat. In 1995, additional lands were purchased utilizing Environmental Trust Funds. A concept plan for the entire site was completed in 1994. A biological survey and site master plan will be completed by the end of FY 2006.

46. Heron Haven Wetland

In 1992, the District entered into a cooperative agreement with the Omaha Chapter of the National Audubon Society to purchase and develop the Heron Haven Wetland located near 117th and West Maple Road. The District retained title to the land and the Audubon Society developed, operated, and maintained the site.

In 1996, an additional 1.4 acres of land was jointly acquired on the northeast corner of the site. Funds have been obtained from Section 319 and the Nebraska Environmental Trust Fund to assist the Audubon Society in developing the site. In 1997, the District completed topographic mapping of the site. In 1998, a wetland trail and boardwalk was completed.

In 2000, funds from the Nebraska Department of Environmental Quality were used to remove debris that had been dumped at the site in the past. Also, the area was regraded and reseeded.

In 2005, the Friends of Heron Haven, a non-profit group, assumed operation and maintenance of the site from the Audubon Society.

In 2006, the Corps of Engineers will be completing a preliminary restoration plan for the wetland. It is anticipated that the Corps will utilize Section 206 funds to improve the wetlands.

47. Wetlands Mitigation Bank

Commencing in 1996, the District investigated the establishment of a wetlands mitigation bank. A major partner in the development of the bank is the COE Regulatory Branch who will determine debits and credits available.

In 2003, the District increased the size of the wetlands at Rumsey Station for use as a mitigation bank. A policy was developed governing the sale of credits in the bank. Monitoring of the wetland will continue for at least the next three years.

In the future, additional wetland sites will be evaluated and developed for inclusion in the bank.

48. Conservation Easement Program

In 2001, the District established the Conservation Easement Program that provided the framework necessary for the acquisition of conservation easements on privately owned land exhibiting unique natural features.

49. Papio Trails Project

In 1989, the District approved a plan to construct recreational trails on flood control levees maintained by the District. In addition, trails would be included on all future levee construction projects.

In 1990-96, the District cost shared with the City of Omaha in the construction of Phases 1-4 of the Keystone Trail. The twelve mile trail is located along the east side of the Little and Big Papillion Creeks from Fort Street to Cornhusker Road. Funding for Phase 4 was received from the DOR through the ISTEA (Intermodal Surface Transportation Efficiency Act), which pays up to 80% of the costs of trail construction. Phase 5 of the Keystone was completed in 1998.

In 1991, Phase 1 of the Bellevue Loop Trail was completed between Haworth Park in Bellevue and Harlan Lewis Road. In 1992, Phase 2 of the trail was completed from Harlan Lewis Road to the Kennedy Freeway, making the total length of the trail approximately nine miles. In 1999, Phase 3, which connected the Keystone and Bellevue Loop Trails was constructed, completing the longest (27 miles) trail in the metro area.

In 2001, construction was completed on the Chalco Hills Connector and Field Club Phase 2 Trails projects, and initiated on the Platte River Connection (between Highways 31 and 66 utilizing the former Rock Island Railroad Bridge).

In 2002, construction of the Platte River Connection Project was completed, and initiated on the Big Papio (Center to Blondo) Trail Projects. The Big Papio Trail project was completed in 2003.

In 2004, the construction of the portions of the West Papio Trail between Papillion and Bellevue, between Oakbrook Meadows Park and Millard Avenue, and on the MoPac Trail (Springfield to the Platte River).

In 2006, construction is anticipated on the trail segments between Springfield and Highway 370, and between Highway 50 and the Lied Bridge in Sarpy County.

In 2005, federal funds were secured to construct a series of trails in Western Douglas County. The Cities of Valley and Elkhorn, the Village of Waterloo, Douglas County, and the District are cooperating on the project. Construction of the trails is anticipated to occur over the next six years.

50. Trails Assistance Program

In 2005, the District adopted the Trails Assistance Program to cost-share with communities on Transportation Enhancement Projects within the District. The local portion of the costs of trails construction is equally split between the community and the District.

In FY 2006, trails in the Cities of Bennington, Arlington, Dakota City, Springfield, and Winnebago will be funded.

51. Recreation Area Development Program

This program, initiated in 1990, cost shares with units of government in the establishment and improvement of recreation sites in the District.

In FY 2005, projects in Bellevue, Bennington, Arlington, Gretna, Blair, Omaha, and South Sioux City were completed.

In 2005-2008, the District will also be cost-sharing with the City of Omaha with its Neighborhood Parks Renovation Program.

FISH AND WILDLIFE HABITAT

52. Nebraska WILD Program

The NGPC and NRDs throughout the state cooperate to create and improve wildlife habitat on private lands. The program provides for a portion of the revenue generated from the sale of habitat stamps to be used for payments to cooperating landowners that create or improve wildlife habitat areas.

53. Mentored Youth Hunting

In 2004, the District entered into an agreement with the Nebraska Game and Parks Commission to allow mentored youth hunting on the Glasshoff Tract on Vencil's Island. The District acquired the property for conservation purposes under the Western Sarpy/Clear Creek Flood Reduction Project (See Item #12).

54. Tree Planting Program

To encourage tree planting, the District maintains three tree planters, two of which are made available with a planting crew on a scheduled basis during the spring. The other planter is available to landowners on a rental basis.

Plantings were made to establish or improve windbreaks and shelterbelts, provide wildlife habitat, or to establish Christmas tree plantations.

55. Branching Out Program

This program, a cooperative effort between the Omaha World-Herald, Douglas County, Omaha television station KMTV, the Nebraska Forest Service, the City of Omaha, the District, and many other public and private partners, was established in 1997 to replace trees lost an October snow storm that devastated trees in eastern Nebraska, and to encourage additional tree planting on public and private property. It provides funds for tree planting projects in the metropolitan Omaha area.

In 1998 - 2000, nearly 500,000 trees were planted under this program with the help of a $1 million grant from the World-Herald Foundation.

WATER SUPPLY

56. Washington County Rural Water Supply Project #1

The District operates the system to provide a dependable supply of quality water to 440 rural households and the City of Fort Calhoun. Treated water is purchased from the Metropolitan Utilities District in Omaha.

57. Washington County Rural Water Supply Project #2

In 2002, the District was petitioned by landowners in southeast Washington County to investigate alternative water supplies for the area. A subsequent feasibility study indicated that a portion of the area was economically feasible. Construction of this new water distribution system will be completed in late 2005. Treated water will be purchased from the City of Blair and re-sold to approximately 265 rural households and properties in southeast Washington County.

58. Dakota County Rural Water Supply Project

The District delivers high quality water to 720 rural households in Dakota County. The system includes over 125 miles of pipeline that is maintained by the project. Treated water is purchased from Dakota City.

59. Thurston County Rural Water Supply Project

145 rural households of Thurston County are supplied with high quality water by this project. The system is located between the towns of Pender and Walthill, with treated water being purchased from the Town of Pender.

SOLID WASTE MANAGEMENT

60. Solid Waste and Recycling Program

The District is cooperating with the Nebraska State Recycling Association and MAPA (paint swap, etc) on developing markets for recycled products and alternative means to solid waste disposal. The District also participates with the Cooperative Extension to recycle plastic pesticide containers.

A major cooperative project is now underway to establish a household hazardous waste regional collection facility to serve residents of Douglas and Sarpy Counties. Construction of this facility was initiated in 2003, with completion scheduled for 2004.

PUBLIC INFORMATION

61. Information and Education Programs

In addition to the programs and projects described on the previous pages, the District also conducts a number of support activities as part of its Information and Education program. This is done to provide the public with accurate information on projects and programs and to develop an awareness and concern for natural resources conservation and management.

Major support activities include:

a. Program Brochures - Informative brochures on Conservation Education, Walnut Creek Lake and Recreation Area, Back to the River, Conservation Cost-Sharing Programs, Chalco Hills, NRD Overview, Papio Trails, Wehrspann Lake Fishing, River Access, the Chalco Hills Nature Trail Guide, and the Chalco Hill Arboretum Guide have been published. These brochures will be updated and distributed as necessary.

b. Newsletters - Publication of the SPECTRUM newsletter continues to be one of the District's main lines of communication. Over 8,500 copies are mailed to our partners.

   The District also publishes the CONSERVNEWS as needed in cooperation with the NRCS. Approximately 6,000 households receive the newsletter which highlights programs available for owners and operators of farmland.

   WATERLINE, a newsletter to customers of the District's rural water systems, and CULTIVATION, a newsletter for schoolteachers and administrators, are also published.

c. Education Programs - The District is currently working with local teachers, environmental education specialists, and school administrators on the development of outdoor education curricula and field trips for school-age children at the Chalco Hills

Recreation Area. Approximately 4,000 youth visit Chalco Hills, or take advantage of other NRD-sponsored education programs each year. The District is also a major supporter of Earth Day celebrations.

The District is involved with numerous youth education programs, including Water Works for students in Douglas and Sarpy Counties, Conservation Field Days at Summit Lake, Aquafest for students in Dakota and Thurston Counties, and the Nebraska Envirothon, an environmental competition for high school students.

d. Teacher/School Grants - Three $200 scholarships are awarded annually to area teachers who wish to continue their education in conservation related subjects. Grants are also given to develop outdoor classrooms at elementary and secondary schools in the District.

e. Speakers Bureau - In response to requests from teachers and various civic groups, presentations are made concerning resource management. Thirty-five to forty presentations are made annually.

f. Media Relations - Information is provided to the public, through the local media, by the District's media relations program. During the past year, articles appeared in the Omaha World-Herald and in local weekly papers. Also, contacts to radio and television stations resulted in coverage through those media.

g. Web Site – Information about District programs and projects is also provided through an internet web site (www.papionrd.org)

FY 2005 Highlights:

- An annual report highlighting District activities was published in a Sunday edition of the Omaha World-Herald.
- The District's traveling display was set up and staffed at county fairs, Triumph of Agriculture, volunteer and educational conferences, and numerous outdoor recreation shows.
- Numerous outdoor recreation-related special events were held and co-sponsored by the District at Chalco Hills.
- "Adopt-a-school" partner Benson West Elementary School received special attention with environmental fairs, contests, and presentations.
- Co-sponsored the regional Envirothon Competition and participated in the state contest.
- The District distributed over 10,000 tree seedlings and 35,000 wildflower seed packets to students and other groups.
- Operation PAYBAC partner, Anderson Middle School, received special attention with environmental programs, contests, and outdoor education.

Activities Planned for Fiscal Year 2006: FY 2005 will see the continuation of all of the activities mentioned above. New activities for FY 2005 include expansion of the volunteer program, updating Visitor Center exhibits, and the enhancement of the District's Internet Web Site (www.papionrd.org)

Activities Planned for Fiscal Year 2007 and Beyond: The District's Information and Education Program will continue to focus on previously established elements as well as establishing new efforts. Information programs will focus on better informing the public about District activities through media contacts and on-line information. Education programs will focus on teacher training on environmental conservation and the expanding programs at Chalco Hills through the use of volunteer naturalists.

IV. ASSESSMENT OF CURRENT NEEDS

To implement the FY 2006 objectives explained on the previous pages, the District has budgeted to provide the necessary financial and personnel resources. Tables 1 through 3 have been prepared to present this information in a simple manner.

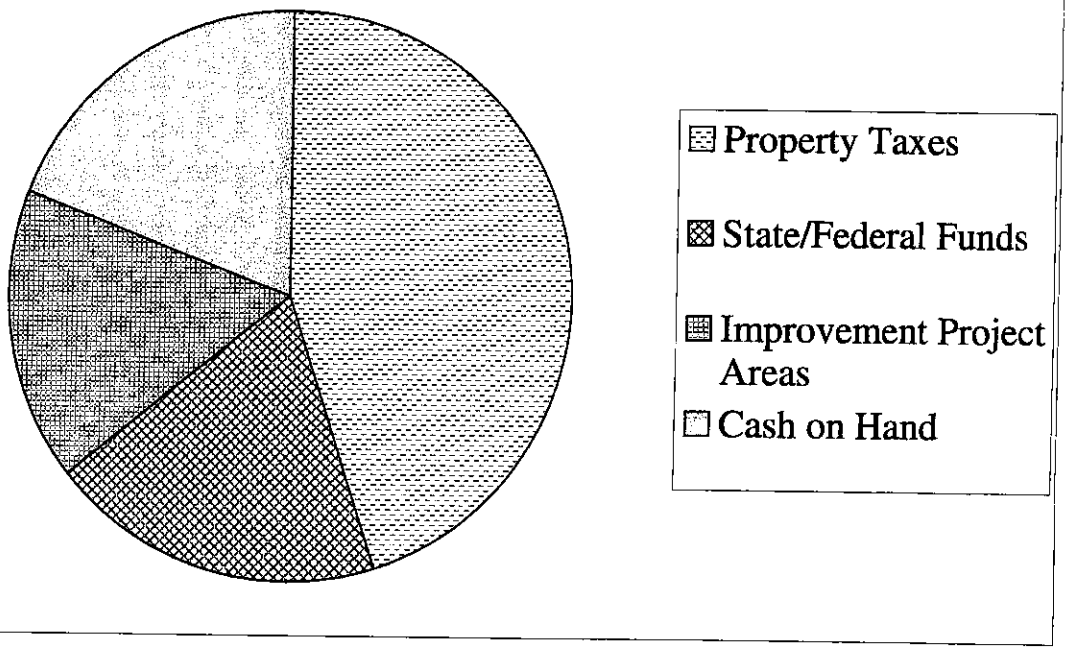
Land rights needs for FY 2006 are presented in Table 1. It identifies each project requiring land rights and the type of right to be acquired. Easements are acquired by negotiated donation, with the budgeted amount used for associated expenses (title searches, recording fees, filing fees, etc.).

Personnel needs have been estimated for FY 2006 based upon previous records and are shown in Table 2. Time requirements are projected in work-months. Although not specifically designated as "Program/Project Areas", two additional headings, "Information and Education" and "General Administration", have also been included to incorporate staff time not directly assigned to a specific program or project.

Table 3 reflects all expenditures contained in the FY 2006 Budget. Projected revenues are shown in Table 7.

The pie charts on the next page reflect a breakdown of the FY 2006 budgeted expenditures according to resources need categories, and FY 2006 budgeted revenues according to source.

FY 2006 Revenues



FY 2006 Expenditures

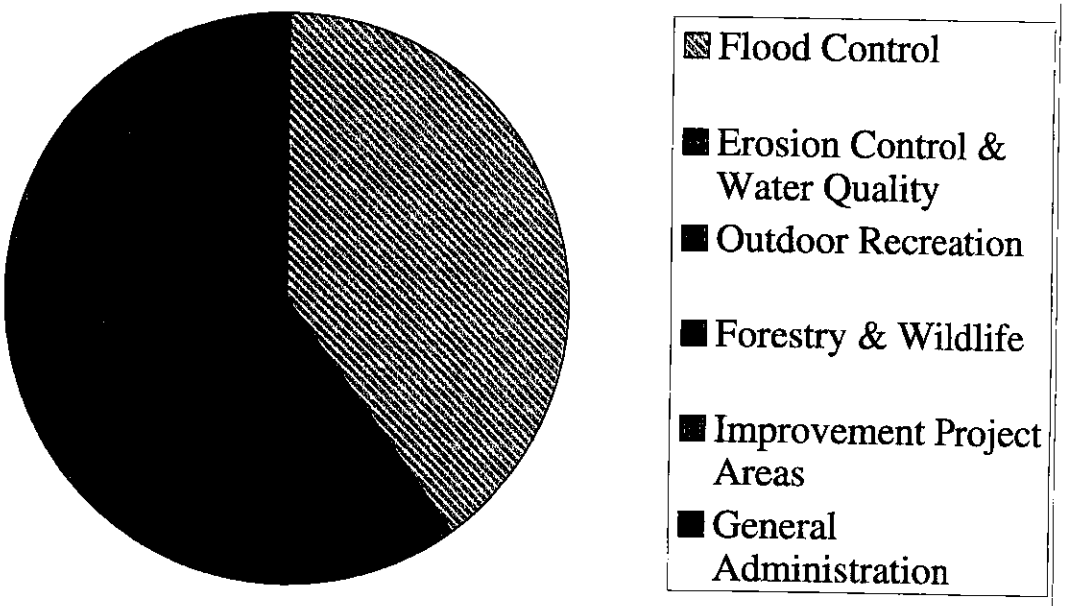


Table 1: FY 2006 Land Rights Needs.

Project	Type	Estimated Cost
1. Papio Trails	Fee Title/Easement	$100,000
2. West Branch Channel Project	Fee Title	$160,000
3. Papio Reservoir Sites	Fee Title	$2,400,000
4. Missouri River Corridor Project	Fee Title	$50,000
5. Channel Maintenance Program	Easement	$3,000
6. Floodway Purchase Program	Fee Title	$666,000
7. Western Sarpy Dike Project	Fee Title/Easement	$1,350,000
8. Wetlands Mitigation Bank	Fee Title	$90,000
9. Silver Creek Watershed	Easement	Nominal
10. Pigeon Jones Creek Watershed	Easement	Nominal
11. Nebraska WILD Program	As Contracted	$7,500

Table 2. Fiscal Year 2006 - Personnel Needs (work months)

	Program/Project	FY 2006 Time Allocation
1.	Channel & Levee Maintenance Program	11.0
2.	West Branch Channel Project	19.5
3.	R-613 Levee	5.5
4.	R-616 Levee	1.5
5.	Union/No Name Dike	6.0
6.	Big Papio Channel Project	0.5
7.	Papio Reservoirs	5.5
8.	Little Papillion Channel Project	3.7
9.	Floodplain Management Program	6.0
10.	Floodway Purchase Program	2.0
11.	Flood Mitigation Planning Program	0.5
12.	Western Sarpy Dike Project	8.5
	a. Western Sarpy Improvement Project Area	0.2
13.	Pigeon/Elk Creek Drainage	1.5
	a. Pigeon/Elk Creek Improvement Project Area	0.1
14.	Small Flood Control Structure Program	0.5
15.	Urban Stormwater Program	5.0
16.	Offutt Drain	0.5
17.	Urban Drainageway Program	0.5
18.	Elkhorn Breakout IPA	0.1
19.	Emergency Flood Operations	6.0
20.	Conservation Assistance Program	18.0
21.	Buffer Strip Program	0.6
22.	Nebraska Soil & Water Conservation Program	1.0
23.	NRCS Assistance	55.5
24.	Urban Conservation Program	3.0
25.	a. Papillion Creek PL 566 Watershed	3.0
	b. Tekamah-Mud Creeks PL 566 Watershed	3.0
	c. Turtle Creek PL 566 Watershed	0.1
26.	Buffalo Creek Watershed	0.1
27.	County Road Structure Program	0.1
28.	Elkhorn River	0.1
29.	Elkhorn River IPA	1.0
30.	Native Grass Program	2.3
31.	Erosion & Sediment Control Program	0.3
32.	Streambed Stabilization Program	0.1
33.	Groundwater Management Program	8.0
34.	Chemigation Certification Program	0.5

Table 2. Fiscal Year 2006 - Personnel Needs (work months)

	Program/Project	FY 2006 Time Allocation
35.	Well Abandonment Program	1.5
36.	Clean Lakes Projects	0.8
37.	Lower Platte River Corridor Alliance	2.0
	a. Sarpy Water/Wastewater Study	1.0
38.	Chalco Hills Recreation Area	62.0
39.	Walnut Creek Lake & Recreation Area	40.0
40.	Elkhorn Crossing Recreation Area	1.0
41.	Platte River Landing Recreation Area	1.0
42.	Prairie View Recreation Area	4.0
43.	Elkhorn River Canoe Access Study	1.0
44.	Missouri River Corridor Project	3.0
45.	Back to the River	6.0
46.	Rumsey Station Wetland	1.0
47.	Heron Haven Wetland	1.0
48.	Wetlands Mitigation Bank	0.5
49.	Conservation Easement Program	0.3
50.	Papio Trails Project	5.8
51.	Trails assistance Program	0.2
52.	Recreation Area Development Program	0.4
53.	Nebraska WILD Program	2.0
54.	Mentored Youth Hunting	0.2
55.	Tree Planting Program	12.0
56.	Washington County Rural Water #1	11.0
57.	Washington County Rural Water #2	7.0
58.	Dakota County Rural Water	32.0
59.	Thurston County Rural Water	6.0
60.	Solid Waste/Recycling Program	1.0
61.	Information/Education Programs	26.0
62	General Administration	159.5
	Totals	570.5

Table 3. Fiscal Year 2006 Projected Expenditures by Program or Project (x $1,000).

	Program/Project	Personnel Costs	Operating Costs	Professional Services	Land Rights	Construction	Totals
1.	Channel & Levee Maintenance Program	$60.2		$22.0	$3.0	$271.0	$356.2
2.	West Branch Channel Project	$106.8		$218.0	$160.0	$668.0	$1,152.8
3.	R-613 Levee	$30.1	$8.0			$25.0	$63.1
4.	R-616 Levee	$8.2					$8.2
5.	Union/No Name Dike	$32.9					$32.9
6.	Big Papio Channel Project	$2.7					$2.7
7.	Papio Reservoirs	$11.0		$1,125.0	$2,400.0	$3,540.0	$7,076.0
8.	Little Papillion Channel Project	$20.3				$25.0	$45.3
9.	Floodplain Management Program	$32.9					$32.9
10.	Floodway Purchase Program	$11.0		$502.0	$666.0	$25.0	$1,204.0
11.	Flood Mitigation Planning Program	$2.7					$2.7
12.	Western Sarpy Dike Project	$46.5		$196.6	$1,350.0	$307.0	$1,900.1
	a. Improvement Project Area	$1.1	$124.1				$125.2
13.	Pigeon/Elk Creek Drainage	$8.2				$120.0	$128.2
	a. Improvement Project Area	$0.5				$266.4	$266.9
14.	Small Flood Control Structure Program	$2.7		$22.0			$24.7
15.	Urban Stormwater Program	$27.4		$600.1			$627.5
16.	Offutt Drain	$2.7					$2.7
17.	Urban Drainageway Program	$2.7				$462.8	$465.5
18.	Elkhorn River Breakout IPA	$0.5	$5.4				$5.9
19.	Emergency Flood Operations	$32.9		$165.0			$197.9
20.	Conservation Assistance Program	$98.6				$1,453.8	$1,552.4
21.	Buffer Strip Program	$3.3				$20.0	$23.3
22.	Nebraska Soil & Water Conservation Prog.	$5.5					$5.5
23.	NRCS Assistance	$303.9					$303.9
24.	Urban Conservation Program	$16.4				$46.3	$62.7

Table 3. Fiscal Year 2006 Projected Expenditures by Program or Project (x $1,000).

	Program/Project	Personnel Costs	Operating Costs	Professional Services	Land Rights	Construction	Totals
25.	a. Papillion Creek PL 566 Watershed	$16.4	$15.0	$5.0			$36.4
	b. Tekamah-Mud Creek PL 566 Watershed	$16.4	$5.0				$21.4
	c. Turtle Creek PL 566 Watershed	$0.5					$0.5
26.	Buffalo Creek Watershed	$0.5					$0.5
27.	County Road Structure Program	$0.5					$0.5
28.	Elkhorn River	$0.5					$0.5
29.	Elkhorn River IPA	$5.5	$81.9				$87.4
30.	Native Grass Program	$12.6					$12.6
31.	Erosion & Sediment Control Program	$1.6					$1.6
32.	Streambed Stabilization Program	$0.5					$0.5
33.	Groundwater Management Program	$43.8		$62.7			$106.5
34.	Chemigation Certification Program	$2.7	$0.2				$2.9
35.	Well Abandonment Program	$8.2				$35.0	$43.2
36.	Clean Lakes Projects	$9.9				$100.0	$109.9
37.	Lower Platte River Corridor Alliance	$11.0		$97.5			$108.5
	a. Sarpy Water/Wastewater Study	$5.5					$5.5
38.	Chalco Hills Recreation Area	$339.5	$174.5	$12.0			$526.0
39.	Walnut Creek Lake & Recreation Area	$219.0	$94.0				$313.0
40.	Elkhorn Crossing Recreation Area	$5.5	$5.5				$11.0
41.	Platte River Landing Recreation Area	$5.5	$5.5				$11.0
42.	Prairie View Recreation Area	$21.9	$6.0				$27.9
43.	Elkhorn River Access Study	$5.5		$10.0		$240.0	$255.5
44.	Missouri River Corridor Project	$16.4		$254.6	$50.0	$1,566.0	$1,887.0
45.	Back to the River	$32.9		$5.0		$832.7	$870.6
46.	Rumsey Station Wetland	$5.5		$6.5		$10.0	$22.0
47.	Heron Haven Wetland	$5.5		$3.0		$0.5	$9.0

Table 3. Fiscal Year 2006 Projected Expenditures by Program or Project (x $1,000).

	Program/Project	Personnel Costs	Operating Costs	Professional Services	Land Rights	Construction	Totals
48.	Wetlands Mitigation Bank	$16.4		$55.0	$90.0	$55.0	$216.4
49.	Conservation Easement Program	$1.6					$1.6
50.	Papio Trails Project	$31.8		$273.0	$100.0	$1,100.1	$1,504.9
51.	Trails Assistance Program	$1.1				$305.6	$306.7
52.	Recreation Area Development Program	$2.2				$418.8	$421.0
53.	Nebraska WILD Program	$11.0			$7.5		$18.5
54.	Mentored Youth Hunting	$1.1					$1.1
55.	Tree Planting Program	$65.7	$13.0				$78.7
56.	Washington County Rural Water #1	$60.2	$873.8				$934.0
57.	Washington County Rural Water #2	$38.3	$2,553.6				$2,591.9
58.	Dakota County Rural Water	$175.2	$847.4				$1,022.6
59.	Thurston County Rural Water	$32.9	$234.6				$267.5
60.	Solid Waste/Recycling Program	$5.5		$34.5			$40.0
61.	Information/Education Programs	$142.4	$167.5				$309.9
62.	General Administration	$873.2	$2,142.7	$257.0			$3,272.9
	Totals	$3,123.6	$7,357.7	$3,926.5	$4,826.5	$11,894.0	$31,128.3

V. PROJECTED NEEDS

Projections of land rights (Table 4), personnel (Table 5), and financial needs (Tables 6 and 7) for the next five fiscal years are included.

This material has been developed in an attempt to project activities of the District over the coming years. Undoubtedly, many new program ideas will be presented in this time frame through specific requests to the Board, new state or federal cost sharing programs, or other methods, which will result in new activities not presently anticipated.

The information presented in these tables does not reflect budgetary obligations of the District. It is presented as a means to quantify District involvement with various programs and projects.

As shown in Table 7, it is anticipated that general property tax will continue to be the primary source of revenues for District programs and projects. It is projected that property tax revenues will increase each year reflective of changes in property values in the District.

Tables 5, 6, and 7 include projections for new flood control, erosion control, and recreation/wildlife projects. The new flood control project is anticipated to be Site 15 in the Pigeon-Jones Watershed in Dakota County.

The new erosion control project is anticipated to be the Pigeon/Jones Creek Watershed in Dakota County. This project would include grade stabilization structures similar to Buffalo Creek Watershed in Sarpy County. Again, the Resources Development Fund is the anticipated revenue source.

A new recreation/wildlife project is also included. It is anticipated that the NRD will assist the City of Omaha with the implementation of the Cunningham Lake Watershed Master Plan It is anticipated that the Environmental Trust Fund would be a major source of funds.

Table 4: Projected Land Rights Needs – FY 2007-2011.

Table 4a. Projected Land Rights Needs for Fiscal Year 2007

Project	Type	Estimated Cost
1. Papillion Creek PL 566 Project	Easement	$350,000
2. Papio Trails Project	Fee Title	$195,000
3. Missouri River Corridor Project	Fee Title	$250,000
4. Big Papio Channel Project	Fee Title	$500,000
5. Floodway Purchase Program	Fee Title	$600,000
6. Papio Reservoir Sites	Fee Title	$6,000,000
7. Channel Maintenance Program	Easement	$15,000
8. Western Sarpy Dike Project	Easement	$40,000
9. Elkhorn River Canoe Access	Title	$20,000

Table 4b. Projected Land Rights Needs for Fiscal Year 2008

Project	Type	Estimated Cost
1. Papillion Creek PL 566 Project	Easement	$75,000
2. Papio Trails Project	Fee Title	$195,000
3. Missouri River Corridor Project	Fee Title	$250,000
4. Back to the River Project	Easement	$250,000
5. Big Papio Channel Project	Fee Title	$200,000
6. Floodway Purchase Program	Fee Title	$2,500,000
7. Channel Maintenance Program	Easement	$15,000
8. Western Sarpy Dike Project	Easement	$20,000
9. Elkhorn River Canoe Access	Title	$20,000
10. Papio Reservoir Sites	Fee Title	$7,000,000

Table 4c. Projected Land Rights Needs for Fiscal Year 2009

Project	Type	Estimated Cost
1. Papillion Creek PL 566 Project	Easement	$75,000
2. Papio Trails Project	Fee Title	$195,000
3. Missouri River Corridor Project	Fee Title	$250,000
4. Back to the River Project	Easement	$250,000
5. Big Papio Channel Project	Fee Title	$200,000
6. Floodway Purchase Program	Fee Title	$2,500,000
7. Channel Maintenance Program	Easement	$15,000
8. Western Sarpy Dike Project	Easement	$10,000
9. Elkhorn River Canoe Access	Title	$20,000
10. Papio Reservoir Sites	Fee Title	$6,000,000

Table 4d. Projected Land Rights Needs for Fiscal Year 2010.

Project	Type	Estimated Cost
1. Papillion Creek PL 566 Project	Easement	$75,000
2. Papio Trails Project	Fee Title	$150,000
3. Missouri River Corridor Project	Fee Title	$250,000
4. Back to the River Project	Easement	$250,000
5. Big Papio Channel Project	Fee Title	$200,000
6. Floodway Purchase Program	Fee Title	$2,500,000
7. Papio Reservoir Sites	Fee Title	$6,000,000
8. Channel Maintenance Program	Easement	$15,000

Table 4e. Projected Land Rights Needs for Fiscal Year 2011

Project	Type	Estimated Cost
1. Papillion Creek PL 566 Project	Easement	$75,000
2. Papio Trails Project	Fee Title	$150,000
3. Missouri River Corridor Project	Fee Title	$250,000
4. Back to the River Project	Easement	$250,000
5. Big Papio Channel Project	Fee Title	$200,000
6. Floodway Purchase Program	Fee Title	$2,500,000
7. Papio Dam Sites	Fee Title	$6,000,000
8. Channel Maintenance Program	Easement	$15,000

Table 5. Projected Personnel Needs for Fiscal Years 2006-2011 (work months).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.	Channel & Levee Maintenance Program	11.0	11.0	11.0	11.0	11.0	11.0
2.	West Branch Channel Project	19.5	30.0	10.0	5.0	5.0	5.0
3.	R-613 Levee	5.5	5.5	5.5	5.5	5.5	5.5
4.	R-616 Levee	1.5	1.5	1.5	1.5	1.5	1.5
5.	Union Dike	6.0	6.0	6.0	6.0	6.0	6.0
6.	Big Papio Channel Project	0.5	0.5	0.5	0.5	0.5	0.5
7.	Papio Reservoirs	5.5	6.0	6.0	6.0	6.0	6.0
8.	Little Papillion Channel Project	3.7	3.7	3.7	3.7	3.7	3.7
9.	Floodplain Management Program	6.0	6.0	6.0	6.0	6.0	6.0
10.	Floodway Purchase Program	2.0	2.0	2.0	2.0	2.0	2.0
11.	Flood Mitigation Planning Program	0.5	0.5	0.5	0.5	0.5	0.5
12.	Western Sarpy Dike Project	8.5	8.5	8.5	5.0	1.0	1.0
	a. Improvement Project Area	0.2	0.2	0.2	0.2	0.2	0.2
13.	Pigeon/Elk Creek Drainage	1.5	1.5	1.5	1.5	1.5	1.5
	a. Pigeon/Elk Creek IPA	0.1	0.1	0.1	0.1	0.1	0.1
14.	Small Flood Control Program	0.5	1.0	1.0	1.0	1.0	1.0
15.	Urban Stormwater Program	5.0	6.0	6.0	6.0	6.0	6.0
16.	Offutt Drain Project	0.5	1.0	1.0	1.0	1.0	1.0
17.	Urban Drainageway Program	0.5	0.5	0.5	0.5	0.5	0.5
18.	Elkhorn River Breakout IPA	0.1	0.1	0.1	0.1	0.1	0.1
19.	Emergency Flood Operations	6.0	6.0	6.0	6.0	6.0	6.0
20.	New Flood Control Project		5.0	10.0	10.0	30.0	30.0
21.	Conservation Assistance Program	18.0	18.0	18.0	18.0	18.0	18.0
22.	Buffer Strip Program	0.6	0.6	0.6	0.6	0.6	0.6
23.	Nebraska Soil & Water Conservation Prog.	1.0	1.0	1.0	1.0	1.0	1.0
24.	NRCS Assistance	55.5	55.5	55.5	55.5	55.5	55.5
25.	Urban Conservation Program	3.0	3.0	3.0	3.0	3.0	3.0

Table 5. Projected Personnel Needs for Fiscal Years 2006-2011 (work months).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
26.	a. Papillion Creek PL 566 Watershed	3.0	3.0	3.0	3.0	3.0	3.0
	b. Tekamah-Mud Creek PL 566 Watershed	3.0	3.0	3.0	3.0	3.0	3.0
	c. Turtle Creek PL 566 Watershed	0.1	0.1	0.1	0.1	0.1	0.1
27.	Buffalo Creek Watershed	0.1	0.1	0.1	0.1	0.1	0.1
28.	County Road Structure Program	0.1	0.1	0.1	0.1	0.1	0.1
29.	Elkhorn River	0.1	0.1	0.1	0.1	0.1	0.1
30.	Elkhorn River IPA	1.0	1.0	1.0	1.0	1.0	1.0
31.	Native Grass Program	2.3	2.3	2.3	2.3	2.3	2.3
32.	Erosion & Sediment Control Program	0.3	0.3	0.3	0.3	0.3	0.3
33.	Streambed Stabilization Program	0.1	0.1	0.1	0.1	0.1	0.1
34.	New Erosion Control Project		2.0	6.0	6.0	6.0	6.0
35.	Groundwater Management Program	8.0	8.0	8.0	8.0	8.0	8.0
36.	Chemigation Certification Program	0.5	0.5	0.5	0.5	0.5	0.5
37.	Well Abandonment Program	1.5	1.5	1.5	1.5	1.5	1.5
38.	Clean Lakes Projects	0.8	0.8	0.8	0.8	0.8	0.8
39.	Lower Platte River Corridor Alliance	3.0	3.0	3.0	3.0	3.0	3.0
40.	Chalco Hills Recreation Area	62.0	62.0	62.0	62.0	62.0	62.0
41.	Walnut Creek Lake & Recreation Area	40.0	40.0	20.0			
42.	Elkhorn Crossing Recreation Area	1.0	1.0	1.0	1.0	1.0	1.0
43.	Platte River Landing Recreation Area	1.0	1.0	1.0	1.0	1.0	1.0
44.	Prairie View Recreation Area	4.0	4.0	4.0	4.0	4.0	4.0
45.	Elkhorn River Canoe Access	1.0	1.0	1.0	1.0	0.5	0.5
46.	Missouri River Corridor Project	3.0	3.0	3.0	3.0	3.0	3.0
47.	Back to the River	6.0	6.0	6.0	6.0	6.0	6.0
48.	Rumsey Station Wetland	1.0	1.0	1.0	1.0	1.0	1.0
49	Heron Haven Wetland	1.0	1.0	1.0	1.0	1.0	1.0
50.	Wetlands Mitigation Bank	0.5	2.0	2.0	2.0	2.0	2.0

Table 5. Projected Personnel Needs for Fiscal Years 2006-2011 (work months).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
51.	Conservation Easement Program	0.3	0.3	0.3	0.3	0.3	0.3
52.	Papio Trails Project	5.8	5.8	5.8	5.8	5.8	5.8
	Trails Assistance Program	0.2	0.2	0.2	0.2	0.2	0.2
53.	Recreation Area Development Program	0.4	0.4	0.4	0.4	0.4	0.4
54.	Nebraska WILD Program	2.0	2.0	2.0	2.0	2.0	2.0
55.	Tree Planting Program	12.0	12.0	12.0	12.0	12.0	12.0
56.	Mentored Youth Hunting	0.2	0.2	0.2	0.2	0.2	0.2
57.	New Wildlife/Recreation Project		3.0	3.0	3.0	3.0	3.0
58.	Washington County Rural Water #1	11.0	11.0	11.0	11.0	11.0	11.0
59.	Washington County Rural Water #2	7.0	7.0	7.0	7.0	7.0	7.0
60.	Dakota County Rural Water	32.0	32.0	32.0	32.0	32.0	32.0
61.	Thurston County Rural Water	6.0	6.0	6.0	6.0	6.0	6.0
62.	Solid Waste/Recycling Program	1.0	1.0	1.0	1.0	1.0	1.0
63.	Information/Education Programs	26.0	26.0	26.0	26.0	26.0	26.0
64.	General Administration	159.5	159.5	159.5	159.5	159.5	159.5
	Totals	570.5	595.0	564.0	535.5	551.0	551.0

Table 6. Projected Expenditures by Program or Project for Fiscal Years 2006-2011 (x$1,000).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.	Channel & Levee Maintenance Program	$356.2	$357.0	$358.0	$359.0	$360.0	$361.0
2.	West Branch Channel Project	$1,152.8	$2,051.0	$318.0	$50.0	$50.5	$51.5
3.	R-613 Levee	$63.1	$63.0	$63.5	$64.0	$64.5	$65.0
4.	R-616 Levee	$8.2	$8.5	$8.6	$8.7	$8.8	$8.9
5.	Union Dike	$32.9	$60.0	$62.0	$64.0	$66.0	$68.0
6.	Big Papillion Creek Channel	$2.7	$11.0	$289.0	$540.0	$815.0	$565.0
7.	Papio Reservoirs	$7,076.0	$11,495.0	$16,540.0	$16,250.0	$17,200.0	$17,500.0
8.	Little Papillion Channel Project	$45.3	$46.0	$47.0	$48.0	$50.0	$51.0
9.	Floodplain Management Program	$32.9	$34.0	$35.0	$36.0	$37.0	$38.0
10.	Floodway Purchase Program	$1,204.0	$650.0	$2,800.0	$3,200.0	$3,200.0	$3,200.0
11.	Flood Mitigation Planning Program	$2.7	$260.0	$261.0	$262.0	$263.0	$264.0
12.	Western Sarpy Dike Project	$1,900.1	$133.5	$84.3	$45.0	$12.0	$13.0
	a. Improvement Project Area	$125.2	$20.0	$20.0	$20.0	$20.0	$20.0
13.	Pigeon/Elk Creek Drainage	$128.2	$45.0	$45.0	$45.0	$45.0	$45.0
	a. Pigeon/Elk Creek IPA	$266.9	$45.0	$45.0	$45.0	$45.0	$45.0
14.	Small Flood Control Program	$24.7	$25.0	$160.0	$160.0	$200.0	$200.0
15.	Urban Stormwater Program	$627.5	$628.0	$530.0	$531.0	$532.0	$533.0
16.	Offutt Drain Project	$2.7	$5.0	$5.5	$6.0	$6.5	$7.0
17.	Urban Drainageway Program	$465.5	$500.0	$505.0	$506.0	$507.0	$508.0
18.	Elkhorn River Breakout IPA	$5.9	$6.0	$6.1	$6.2	$6.3	$6.4
19.	Emergency Flood Operations	$197.9	$170.0	$172.0	$174.0	$176.0	$178.0
20.	New Flood Control Project		$500.0	$750.0	$1,000.0	$1,000.0	$1,000.0
21.	Conservation Assistance Program	$1,552.4	$1,005.0	$1,010.0	$1,015.0	$1,020.0	$1,025.0
22.	Buffer Strip Program	$23.3	$24.0	$24.2	$24.4	$24.6	$24.8
23.	Nebraska Soil & Water Conservation Prog.	$5.5	$5.7	$5.9	$6.1	$6.3	$6.5
24.	NRCS Assistance	$303.9	$305.0	$310.0	$315.0	$320.0	$325.0
25.	Urban Conservation Program	$62.7	$65.0	$66.0	$67.0	$68.0	$69.0

Table 6. Projected Expenditures by Program or Project for Fiscal Years 2006-2011 (x$1,000).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
26.	a. Papillion Creek PL 566 Watershed	$36.4	$380.0	$82.0	$35.0	$35.0	$35.0
	b. Tekamah-Mud Creek PL 566 Watershed	$21.4	$25.0	$26.0	$27.0	$28.0	$29.0
	c. Turtle Creek PL 566 Watershed	$0.5	$2.0	$2.0	$2.0	$2.0	$2.0
27.	Buffalo Creek Watershed	$0.5	$2.0	$2.0	$2.0	$2.0	$2.0
28.	County Road Structure Program	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
29.	Elkhorn River	$0.5	$1.0	$1.0	$1.0	$1.1	$1.2
30.	Elkhorn River IPA	$87.4	$88.0	$89.0	$90.0	$91.0	$92.0
31.	Native Grass Program	$12.6	$13.0	$13.0	$13.0	$13.5	$13.5
32.	Erosion & Sediment Control Program	$1.6	$1.6	$1.6	$1.6	$1.6	$1.6
33.	Streambed Stabilization Program	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
34.	New Erosion Control Project		$250.0	$500.0	$750.0	$750.0	$750.0
35.	Groundwater Management Program	$106.5	$150.0	$150.0	$150.0	$150.0	$150.0
36.	Chemigation Certification Program	$2.9	$2.9	$2.9	$2.9	$2.9	$2.9
37.	Well Abandonment Program	$43.2	$43.2	$43.2	$43.2	$43.2	$43.2
38.	Clean Lakes Projects	$109.9	$110.0	$110.0	$110.0	$112.0	$115.0
39.	Lower Platte River Corridor Alliance	$114.0	$70.0	$71.0	$72.0	$73.0	$74.0
40.	Chalco Hills Recreation Area	$526.0	$525.0	$530.0	$535.0	$540.0	$545.0
41.	Walnut Creek Lake & Recreation Area	$313.0	$315.0	$150.0			
42.	Elkhorn Crossing Recreation Area	$11.0	$11.0	$11.0	$11.0	$11.0	$11.0
43.	Platte River Landing Recreation Area	$11.0	$11.0	$11.0	$11.0	$11.0	$11.0
44.	Prairie View Recreation Area	$27.9	$27.9	$27.9	$27.9	$27.9	$27.9
45.	Elkhorn River Canoe Access	$255.5	$210.0	$215.0	$11.0	$11.0	$11.0
46.	Missouri River Corridor Project	$1,887.0	$530.0	$532.0	$534.0	$536.0	$538.0
47.	Back to the River	$870.6	$800.0	$810.0	$820.0	$830.0	$840.0
48.	Rumsey Station Wetland	$22.0	$22.0	$22.0	$22.0	$22.0	$22.0
49.	Heron Haven Wetland	$9.0	$9.0	$9.0	$9.0	$9.0	$9.0
50.	Wetlands Mitigation Bank	$216.4	$215.0	$245.0	$248.0	$300.0	$300.0

Table 6. Projected Expenditures by Program or Project for Fiscal Years 2006-2011 (x$1,000).

	Program/Project	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
51.	Conservation Easement Program	$1.6	$20.0	$20.0	$20.0	$20.0	$20.0
52.	Papio Trails Project	$1,504.9	$3,450.0	$3,455.0	$3,460.0	$3,465.0	$3,470.0
53.	Trails Assistance Program	$306.7	$310.0	$310.0	$310.0	$310.0	$310.0
54.	Recreation Area Development Program	$421.0	$200.0	$200.0	$200.0	$200.0	$200.0
55.	Mentored Youth Hunting	$1.1	$1.1	$1.1	$1.1	$1.1	$1.1
56.	Nebraska WILD Program	$18.5	$10.0	$12.0	$14.0	$16.0	$18.0
57.	Tree Planting Program	$78.7	$72.0	$73.0	$74.0	$75.0	$76.0
58.	New Wildlife/Recreation Project		$250.0	$500.0	$750.0	$750.0	$750.0
59.	Washington County Rural Water #1	$934.0	$950.0	$975.0	$1,000.0	$1,025.0	$1,050.0
60.	Washington County Rural Water #2	$2,591.9	$2,625.0	$80.0	$90.0	$100.0	$110.0
61.	Dakota County Rural Water	$1,022.6	$1,040.0	$1,055.0	$1,070.0	$1,085.0	$1,100.0
62.	Thurston County Rural Water	$267.5	$270.0	$275.0	$280.0	$285.0	$290.0
63.	Solid Waste/Recycling Program	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0
64.	Information/Education Programs	$309.9	$310.0	$312.0	$314.0	$316.0	$318.0
65.	General Administration	$3,272.9	$3,300.0	$3,300.0	$3,300.0	$3,300.0	$3,300.0
	Totals	$31,128.3	$35,181.4	$38,786.8	$39,300.1	$40,695.8	$40,858.5

Table 7. Projected Revenue by Source (x $1000).

Source of Revenue	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
CASH ON HAND	$3,118.8	1,488.5	2,684.3	2,613.5	2,516.3	2,172.5
STATE FUNDS:						
Resources Development Fund:						
Western Sarpy Dike	$1,126.2					
Papio Reservoirs Fund			$5,000.0	$5,000.0	$6,150.0	$6,150.0
New Erosion/Flood Control Project			$500.0	$500.0	$500.0	$500.0
Nebraska Emergency Management:						
Floodway Purchase Program	$155.0	$1,500.0	$1,500.0	$1,500.0	$1,500.0	$1,500.0
Hazard Mitigation Grant Program		$25.0	$25.0	$50.0	$50.0	$50.0
Nebraska WILD	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5
DEQ:						
319 Funds		$300.0	$300.0	$300.0	$300.0	$300.0
LB 71 Funds		$100.0	$100.0	$200.0	$100.0	$100.0
Government Subdivision State Aid	$609.3					
DOR/NGPC - TEA-21	$480.0	$2,000.0	$2,000.0	$2,000.0	$2,000.0	$2,000.0
Environmental Trust Fund:						
Missouri River Corridor	$1,000.0	$500.0	$500.0	$500.0	$500.0	$500.0
Back to the River		$10.0	$10.0	$10.0	$10.0	$10.0
Clean Lakes Program		$80.0	$80.0	$80.0	$80.0	$80.0
New Wildlife/Recreation Project		$250.0	$250.0	$300.0	$300.0	$300.0
Sport Fish & Wildlife Restoration						
Elkhorn River Canoe Access	$135.0	$75.0	$75.0			
Buffer Strip Program	$20.0	$20.0	$20.0	$20.0	$20.0	$20.0
Well Abandonment Program	$9.0	$9.0	$9.0	$9.0	$9.0	$9.0
Natural Resources Water Quality Fund	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0
FEDERAL FUNDS:						
USDA - NRCS	$412.8	$1,600.0	$400.0	$400.0	$400.0	$400.0
FEMA - Cooperative Technical Partners	$115.0	$100.0	$100.0	$100.0	$50.0	$50.0

Table 7. Projected Revenue by Source (x $1000).

Source of Revenue	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
LOCAL FUNDS:						
Papio Reservoirs	$1,024.0	$1,376.0	$1,200.0	$1,200.0	$1,200.0	$1,200.0
Western Douglas County Trails	$42.0					
Papio Creek Watershed Partnership	$540.9	$350.0	$350.0	$350.0	$350.0	$350.0
City of Omaha:						
Flood Warning	$4.0	$4.0	$4.0	$4.0	$4.0	$4.0
Stormwater Fees						
Douglas County:						
Ice Jam Agreement	$20.0	$20.0	$20.0	$20.0	$20.0	$20.0
Flood Warning	$20.0	$20.0	$20.0	$20.0	$20.0	$20.0
Floodway Purchase			$250.0	$250.0	$250.0	$250.0
Sarpy County:						
Floodway Purchase	$15.0	$15.0	$15.0	$15.0	$15.0	$15.0
Ice Jam Agreement	$20.0	$20.0	$20.0	$20.0	$20.0	$20.0
Flood Warning	$4.0	$4.0	$4.0	$4.0	$4.0	$4.0
Western Sarpy	$93.9					
Washington County (Flood Warning)	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0
Saunders County (Ice Jam Agreement)	$7.5	$7.5	$7.5	$7.5	$7.5	$7.5
Cass County (Ice Jam Agreement)	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5
Lower Platte South NRD:						
Ice Jam Agreement	$15.0	$15.0	$15.0	$15.0	$15.0	$15.0
Western Sarpy	$112.6					
Lower Platte North NRD:						
Ice Jam Agreement	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0
Western Sarpy	$150.0					

Table 7. Projected Revenue by Source (x $1000).

Source of Revenue	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
PRIVATE FUNDS:						
Wetland Mitigation Bank	$200.0	$105.0	$225.0	$225.0	$225.0	$225.0
Small Flood Control Structure Prog.	$5.0	$25.0	$25.0	$25.0	$25.0	$25.0
INVESTMENT INCOME	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0
SPECIAL ASSESSMENTS:						
Washington County Rural Water #1	$934.0	$950.0	$975.0	$1,000.0	$1,025.0	$1,050.0
Washington County Rural Water #2	$2,591.9	$2,625.0	$80.0	$90.0	$100.0	$110.0
Dakota County Rural Water	$1,022.6	$1,040.0	$1,055.0	$1,070.0	$1,085.0	$1,100.0
Thurston County Rural Water	$267.5	$270.0	$275.0	$280.0	$285.0	$290.0
Elkhorn River IPA	$87.4	$88.0	$89.0	$90.0	$91.0	$92.0
Elkhorn River Breakout IPA	$5.9	$6.0	$6.1	$6.2	$6.3	$6.4
Western Sarpy IPA	$125.2	$20.0	$20.0	$20.0	$20.0	$20.0
Elk/Pigeon Creek Drainage Dist. IPA	$266.9	$45.0	$45.0	$45.0	$45.0	$45.0
GENERAL PROPERTY TAX	$15,730.4	$15,966.36	$16,205.85	$16,448.94	$16,695.67	$16,946.11
GENERAL OBLIGATION BONDS		$3,500.00	$3,675.00	$3,860.00	$4,050.00	$4,250.00
RENTAL INCOME	$242.0	$250.0	$250.0	$250.0	$250.0	$250.0
MISCELLANEOUS INCOME:	$272.5	$275.0	$275.0	$275.0	$275.0	$275.0
TOTAL	$31,128.3	$35,181.4	$38,786.8	$39,300.1	$40,695.8	$40,858.5

Memorandum

To: PPO Subcommittee
From: Paul Woodward, Water Resources Engineer
Date: October 31, 2005
Re: Flood Mitigation Planning and Mapping Assistance for the Village of Homer

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The District received the enclosed request from the City of Homer dated October 3, 2005 for financial assistance from the District to revise their existing floodplain map. An agreement between Homer and the NRD has been drafted and is enclosed for your consideration. Major provisions of this agreement are as follows:

- Homer would contract with the United States Geological Survey (USGS) to perform the study and prepare the revised floodplain mapping per the attached proposal from USGS. Per this proposal, USGS would cost-share $9,000 on the total cost of the required services of $25,700.
- The District will cost-share 50/50 with Homer on the remaining project costs not covered by federal or state funding up to a maximum of $8,500.

In summary, the District would provide financial assistance for 50% of the non-federal and non-state (local) cost up to a maximum of $8,500 to prepare revised floodplain maps on Omaha Creek within the Village of Homer.

Management recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute the Agreement with the Village of Homer for Flood Mitigation and Mapping Assistance not to exceed $8,500.

Village of Homer
PO Box 386
Homer NE 68030
Phone (402)698-2155
•
Fax (402)698-2342

October 3, 2005

Mr. Paul Woodward
Water Resources Engineer
Papio-Missouri River NRD
8901 S. 154th Street
Omaha, NE 68138-3621

Subject: Homer Channel Capacity Study

Dear Mr. Woodward:

The Village of Homer requests funding participation by the Papio-Missouri NRD for the subject study. A copy of the study scope is attached for your reference.

The Village of Homer does not have a lot of financial resources. We therefore request funding as the highest level possible. The non-federal share of the study is $17,000. A fifty percent match would be $8,500 and a seventy five percent would be $12,750.

Thank you for your consideration.

Sincerely,
/s/ Kevin Schwartz

Kevin Schwartz, Chair
Homer Village Board

cc: Brian Dunnigan, Nebraska DNR
Don 'Skip' Meisner, SIMPCO
Homer$10-05

Proposal to Evaluate the Channel Capacity of Omaha Creek at Homer, Nebraska

By

Richard C. Wilson, P.E., and
Ben Dietsch

U.S. Geological Survey
in cooperation with the
Nebraska Department of Natural Resources
and
Papio-Missouri Natural Resources District

September 29, 2005

PROBLEM AND BACKGROUND

The Village of Homer is located in southeastern Dakota County, Nebraska approximately 10 miles south of South Sioux City. The estimated population of Homer in 2003 was 603.

The source of flooding in Homer is overflow from Omaha Creek a right bank tributary of the Missouri River. Historically, Omaha Creek has been a significant source of flooding in Homer. The largest flooding event occurred on June 3, 1940 with an estimated discharge of 51,000 cubic feet per second (cfs) and the second largest event occurred on May 31, 1920 with a flood stage of 8 feet.

The Federal Emergency Management Agency (FEMA) completed a Flood Insurance Study (FIS) of Homer in September 1981 and then revised the study in June 1996 (FEMA, 1996). The upstream limit of the detailed study was at the divergence of the Old Omaha Creek Channel and Omaha Creek and the downstream limit was 3,100 feet from the divergence.

The Nebraska Department of Natural Resources (NDNR) has requested that the US Geological Survey (USGS) conduct a topographic survey and evaluate the channel capacity of Omaha Creek at Homer. The purpose of the study is to evaluate the observed channel bed scour which is assumed to have increased the channel capacity. If the channel capacity has increased sufficiently to contain the 100-year discharge (peak discharge produced by the 1 percent annual chance storm event) then the flood boundaries will be remapped.

OBJECTIVES

The primary objectives of the proposed study are to:

1. Conduct a topographic survey of the Omaha Creek channel which is bounded by the divergence of the Old Omaha Creek Channel and Omaha Creek to 3,100 feet downstream from the divergence. The topographic survey team will consist of the USGS and NDNR personnel.
2. Review the hydrologic analysis from the flood insurance and determine if it needs to be updated.
3. Convert the standard step backwater HEC-2 hydraulic model to a HEC-RAS hydraulic model and incorporate the topographic survey data and the hydrologic analysis into the model.
4. Archive the data in appropriate computer databases; and
5. Publish a report that shows methods and results.

RELEVANCE AND BENEFIT

The proposed assessment of the channel capacity of Omaha Creek will provide valuable information for the Village of Homer, FEMA, NDNR, Papio-Missouri Natural Resources District, and Dakota County. The study will provide information to decision makers so that they can determine if the flood plain boundaries need to be changed.

METHOD

Mission Planning and Recon. The USGS will obtain digital orthophoto quadrangles (DOQs) of the Omaha Creek study area in tagged-image-file format. USGS will load the DOQs into Environmental Systems Research Institute (ESRI) Geographic Information System (GIS) software and a create site map. Data points from previous topographic surveys will be incorporated into the site map. A digital planned line file will be generated to determine the X-Y-Z coordinates of the cross section data collection points, cross section spacing, location of bench marks and survey reference points.

Coordinates and Datum. The coordinate system will be the North American Datum of 1983 (NAD 83), feet for horizontal control and the North American Vertical Datum of 1988 (NAVD 88), feet for vertical control. The positional data will be converted to a Cartesian northing and easting State Plane Coordinate System and all elevations will be referenced from the National Geodetic Vertical Datum of 1929 (NVGD). Any bench marks that are established will be of C stability quality or better.

Topographic Surveys. A Real Time Kinematic Global Positioning System (RTKGPS) or an optical Total Station will be used to survey the channel. Determination of which surveying unit to be used will depend upon satellite reception and accuracy requirements. It is possible that a combination of RTKGPS and Total Station will be used. The topographic survey team will consist of the USGS and NDNR personnel. The survey will include the submerged channel bed and extending to the top of the left and right bank. At a minimum, the 12 cross sections surveyed in the original Village of Homer, FIS will be resurveyed.

Data Format. Waters edge and top of bank will be noted in each data set. Coordinates from topographic surveys will be reported in X-Y-Z format with the X and Y being the horizontal position and the Z being the elevation. Horizontal-position and elevation data will be loaded into GIS for data processing. Data conversions will be made to present cross-sectional data in left-to-right sequence looking downstream. Data files will be created that include the geospatial horizontal coordinates and associated elevations at points no more than two feet apart along each cross-section.

Hydrology. The hydrology calculated for the Omaha Creek drainage basin from the Village of Homer, FIS will be reviewed. Any updates to the peak flows will incorporate records from USGS gage no. 066010000 at Homer.

Hydraulics. The hydraulics of the Omaha Creek evaluation of channel capacity will be modeled with the U.S. Army Corps of Engineers River Analysis System (HEC-RAS) Version 3.0 software computer program. A one-dimensional steady flow numeric model will be constructed. The HEC-RAS Version 3.0 was released in January 2001 and the program supersedes the HEC-2 river hydraulics package.

Water-surface profiles for Omaha Creek will be calculated for the 10-, 50-, 100-, and the 500-year peak discharges. The corresponding inundated area will be mapped for the 100-year interval. A comparison of the calculated water-surface profiles and inundated flood-boundary maps from the current study will be made to the Village of Homer, Nebraska, Flood Insurance Study (FEMA, 1996). Any mapping changes that occur will be submitted by NDNR to the FEMA.

Quality Assurance and Quality Control. Accuracy of RTKDGPS horizontal-position and elevation data will be documented by occupying points of known horizontal position and elevation a minimum of 2 times per day (before and after data-collection activities). More frequent QA/QC checks may be necessary depending on ranges in environmental conditions that affect instrument operation and performance during actual data-collection activities.

PRODUCTS

USGS will provide a digital data set of the topographic survey after the completion of data collection. The HEC-RAS input and output files will be provided digitally. Updates to the peak discharges will be provided in table format for the 10-, 50-, 100- and 500-Year events. Any relevant hydrologic backup data such as gaging station records will be provided. If map changes occur to the flood insurance zones and/or boundaries a DFIRM will be generated and submitted to NDNR.

PERSONNEL. A four person survey crew will be utilized. Crews will be staffed with NDNR and USGS personnel. The USGS Nebraska Surface Water Specialist will be supervised by a professional engineer registered in the State of Nebraska.

SCHEDULE

The proposed work will begin within 4 weeks of receipt of the signed agreement. Field data collection is expected to take one week, weather permitting. The hydrologic review, hydraulic modeling and DFIRM updates (if necessary) are expected to be completed within 26 weeks of receipt of the signed agreement.

COST

Total cost for this project	$25,500
Cooperative contribution by the USGS	$8,500
Local sponsor contribution	$17,000

REFERENCES

Federal Emergency Management Agency, 1996, Flood Insurance Study - Village of Homer, Nebraska, Dakota County.

AGREEMENT

BETWEEN
PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
AND
THE VILLAGE OF HOMER, NEBRASKA

FLOOD MITIGATION PLANNING AND MAPPING ASSISTANCE

THIS AGREEMENT is made and entered into by and between the PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT, a subdivision of the State of Nebraska (hereinafter referred to as the "NRD"), and the VILLAGE OF HOMER, NEBRASKA, a political subdivision of the State of Nebraska (hereinafter referred to as the "VILLAGE").

RECITALS:

WHEREAS, the NRD has established a Flood Mitigation Planning and Mapping Assistance Program (hereinafter referred to as "the PROGRAM"), to provide technical and financial assistance to governmental entities within the NRD and to help identify flood prone areas and plan projects to reduce flood risk and damage; and,

WHEREAS, assistance under the PROGRAM requires sponsorship by a city, town, village, county, municipality or other unit of local government with the authority and capability to carry out the Flood Mitigation Plan and/or adopt any new or revised National Flood Insurance Program (NFIP) Flood Hazard Studies and Maps; the sponsor must participate in the NFIP and be in "good-standing" status; and, flood mitigation planning and floodplain mapping assisted under the PROGRAM must conform with all federal, state and local laws, standards or guidelines; and,

WHEREAS, the VILLAGE is eligible for and desires to receive cost-sharing assistance under the PROGRAM for a project to revise the VILLAGE'S flood insurance study and map (hereinafter referred to as "the PROJECT"), as more particularly described in the scope of work for the PROJECT (hereinafter referred to as "the SCOPE OF WORK"), previously submitted to and approved by the NRD, and a true and correct copy of the SCOPE OF WORK is attached hereto as Exhibit "A" and incorporated herein by reference; and,

WHEREAS, under the PROGRAM the sponsor must apply for and receive federal or state cost sharing to assist in the implementation of the PROJECT; and,

WHEREAS, under the PROGRAM the NRD will reimburse a portion of the local (non-federal or non-state) cost of the PROJECT.

NOW, THEREFORE, for and in consideration of the foregoing recitals and their mutual covenants hereinafter expressed, the parties agree as follows:

1. The VILLAGE has applied for and received federal or state cost sharing to assist in the implementation of the PROJECT in accordance with the agreement between the VILLAGE and the Nebraska Department of Natural Resources attached hereto as Exhibit "B" and incorporated herein by reference.

2. The VILLAGE shall retain such consultants and other personnel, at the VILLAGE'S own discretion and expense, as may be needed to perform the PROJECT.

3. Through its consultants and other personnel, the VILLAGE, at the VILLAGE'S own discretion and expense, shall perform the PROJECT in accordance with the SCOPE OF WORK.

4. Prior to implementing the same for the PROJECT, the VILLAGE shall submit in writing to the NRD, and obtain the NRD'S approval of any revisions in the SCOPE OF WORK, and approval of PROJECT plans, reports, maps, specifications, and implementation schedules.

5. The NRD shall reimburse the VILLAGE 50% of the non-federal and non-state portion of the cost of the PROJECT, such NRD share to not in any event exceed the sum of $8,500.00, the NRD's reimbursement payment(s) to the VILLAGE will be made within 45 days following the receipt of a written request for actual costs incurred.

6. Any NRD reviews of the SCOPE OF WORK, and NRD reviews of PROJECT plans, reports, maps, specifications, and implementation schedules, shall be performed by the NRD without unnecessary delay.

7. Upon completion of the PROJECT, the VILLAGE shall promptly implement or adopt the Flood Mitigation Plan and/or any new or revised NFIP Flood Hazard Studies and Maps that result from the PROJECT.

8. The VILLAGE shall indemnify and hold the NRD harmless from and against all liability and damages resulting from the PROJECT, and from and against all demands, causes of action and claims arising therefrom, except as may be caused solely by the negligence of the NRD, or its agents, representatives, or employees.

9. This agreement shall have permanent duration, commencing upon the signatures of both parties being affixed hereto.

IN WITNESS WHEREOF, the parties have executed this agreement on the dates hereinafter indicated pursuant to authorizing resolutions duly adopted at regularly-called meetings of their governing bodies.

Executed by THE VILLAGE OF HOMER, NEBRASKA, on this _____ day of _____, 2005.

THE VILLAGE OF HOMER, NEBRASKA

By_____
Mayor

Attest:

_____
VILLAGE CLERK

Executed by the PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT on this _____ day of _____, 2005.

PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT

By_____
General Manager

Agenda Item 11

Memo to: Programs, Projects, and Operations Subcommittee

Subject: Elkhorn River Project – Changes to Allbery Easement

Date: November 2, 2005

From: Gerry Bowen

In April, 2005, the Board approved a resolution to modify an easement agreement with Lyle Allbery (currently owned by Aaron Graham) for an emergency streambank stabilization project on the Elkhorn River. The action changed the access provisions of the agreement, reducing the access from a blanket easement to three corridors.

The new owners also wish to modify additional portions of the easement agreement as follows:

1. Limit the easement corridor to 250 feet from the bank of the Elkhorn River on the south portion of the property;
2. Limit the easement corridor to 200 feet from the bank of the river on the northern portion of the property;
3. Allow an exception for an existing house in the easement area, and limiting the easement area to 75 feet from the bank of the river;
4. Relieve the NRD from responsibility for damages should the Elkhorn River move outside of the easement area;
5. Prohibits any new structures to be placed in the modified easement area; and
6. Prohibits no increase in the "footprint" of any existing structures in the modified easement area.

Management has determined that the District's operation and maintenance responsibilities can be adequately performed if these modifications are approved...

It is recommended that the Subcommittee recommend to the Board that the General Manager be authorized to execute the modified easement agreement on the Alberry Parcel, subject to minor changes deemed necessary by the General Manager, and accepted as to form by District Legal Counsel.

REGISTER OF DEEDS USE

AMENDMENT TO ELKHORN RIVER BANK STABILIZATION DEMONSTRATION PROJECT AGREEMENT AND EASEMENT AGREEMENT

This agreement is hereby made and entered into by and among **ALLBERY FARMS, INC., AARON G. GRAHAM** and **KIMBERLIE L. GRAHAM**, Husband and Wife (hereinafter collectively called "the GRANTORS"), the **COUNTY OF SARPY** (hereinafter called "the COUNTY"); the **STATE OF NEBRASKA DEPARTMENT OF ROADS**, (hereinafter called "the STATE"), and the **PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT** (hereinafter called "the DISTRICT" or "the GRANTEE/DISTRICT").

WHEREAS, the parties hereto, with the exception of Aaron G. Graham and Kimberlie L. Graham, were the parties to a certain agreement entitled "ELKHORN RIVER BANK STABILIZATION DEMONSTRATION PROJECT AGREEMENT AND EASEMENT AGREEMENT - ALLBERY FARMS, INC." (hereinafter called "the STABILIZATION AGREEMENT"), dated as of February 22, 1993, and filed for record with the Sarpy County, Nebraska Register of Deeds as Instrument No. 93-06643; and,

WHEREAS, the GRANTORS respectively now own the following described parcels of real estate (hereinafter referred to collectively as "the GRANTORS' PARCELS"):

1. Aaron G. Graham and Kimberlie L. Graham own the Northwest Quarter of the Northeast Quarter, Section 16, Township 14 North, Range 10 East of the 6th P.M., Sarpy County, Nebraska (hereinafter referred to as "PARCEL 1"),

2. Aaron G. Graham and Kimberlie L. Graham own the Southeast Quarter of the Northeast Quarter, all in Section 16, Township 14 North, Range 10 East of the 6th P.M., Sarpy County, Nebraska (hereinafter referred to as "PARCEL 2"), and

3. Allbery Farms, Inc., continues to own the North one-half of the Southeast Quarter, except Tax Lot 4, all in Section 16, Township 14 North, Range 10 East of the 6th P.M., Sarpy County, Nebraska (hereinafter referred to as "PARCEL 3").

WHEREAS, Article VI of the STABILIZATION AGREEMENT granted to the COUNTY, the STATE and the GRANTEE/DISTRICT certain permanent easements over and across portions of the GRANTORS' PARCELS for the purposes of construction, operation and maintenance of windrow-launched revetments, jetties and other improvements comprising the ELKHORN RIVER BANK STABILIZATION DEMONSTRATION PROJECT (hereinafter referred to as "the PROJECT"). Such easements also included a permanent ingress and egress easement over and across portions of the GRANTORS' PARCELS.

WHEREAS, the parties to this Agreement desire to amend the STABILIZATION AGREEMENT, to re-define the aforesaid permanent easements and to provide that, among its original grantee-parties, the GRANTEE/DISTRICT now shall be the sole party having easement rights in the GRANTORS' PARCELS.

NOW, THEREFORE, for and in consideration of the foregoing recitals and the following mutual covenants and agreements hereinafter contained, the parties agree as follows, to-wit:

1. In substitution for the easement grants made by Article VI of the STABILIZATION AGREEMENT, grants that the parties hereto agree are hereby revoked, the following easement grants are hereby made by the GRANTORS to the GRANTEE/DISTRICT, with the consent of the other parties, to-wit:

VI. THE EASEMENTS. The GRANTORS, for themselves and for their heirs, successors and assigns, do hereby grant to the DISTRICT ("the GRANTEE/DISTRICT") certain permanent easements ("the NEW EASEMENTS"), running with the land, in, on, over and across portions of the GRANTOR'S PARCELS, to-wit:

a) The GRANTORS do hereby grant to the DISTRICT a permanent easement in, on, over and across (i) all those portions of PARCEL 1 that, at once, are occupied by PROJECT revetments and jetties and are within one hundred feet of the riverward side of the "approximate top of bank" (i.e., Elkhorn River bank) depicted in the diagram contained in the document attached hereto as **Exhibit A** and incorporated herein by reference; (ii) all those portions of PARCEL 1 that are described in the legal description attached hereto as **Exhibit B** and incorporated herein by reference, except the portion referred to and described as "Exception No. 1" in **Exhibit A**; (iii) all those portions of PARCEL 2 and PARCEL 3 that, at once, are occupied by PROJECT revetments and jetties and are within one hundred feet of the riverward side of the "approximate top of bank" (i.e., Elkhorn River bank) depicted in the diagram attached hereto as **Exhibit C** and incorporated herein by reference; and (iv) all those portions of PARCEL 2 and PARCEL 3 that are within the parcel of land depicted in **Exhibit C** and described in

the legal description attached hereto as **Exhibit D** and incorporated herein by reference (all such portions of the GRANTORS' PARCELS referred to above in subparagraphs (i) through (iv) hereinafter being referred to collectively as "the REVETMENT AND JETTY EASEMENT AREAS"), such grant being made for the purpose of construction, operation, maintenance, repair, reconstruction, replacement and inspection of Elkhorn River bank stabilization revetments and jetties in the REVETMENT AND JETTY EASEMENT AREAS. Such permanent easement rights granted to the GRANTEE/DISTRICT shall include the right to construct, operate, maintain, repair, reconstruct, replace and inspect revetments and jetties and the right to perform all activities necessarily incident thereto, including but not limited to the following, to-wit:

1) the right to temporarily stockpile and permanently place clean broken concrete rubble in the REVETMENT AND JETTY EASEMENT AREAS,

2) the right to temporarily or permanently detain or deposit in the REVETMENT AND JETTY EASEMENT AREAS any waters and sediment detained by the PROJECT,

3) the right to flow waters over the REVETMENT AND JETTY EASEMENT AREAS,

4) the right to borrow and spoil earthen materials in the REVETMENT AND JETTY EASEMENT AREAS,

5) the right to temporarily store equipment in the REVETMENT AND JETTY EASEMENT AREAS, and

6) the right to perform such other acts in the REVETMENT AND JETTY EASEMENT AREAS as the GRANTEE/DISTRICT determines necessary or convenient for purposes of the PROJECT.

b) Permanent ingress and egress easements in, on, over and across the REVETMENT AND JETTY EASEMENT AREAS and in, on, over and across the other portions of the GRANTORS' PARCELS shown on **Exhibit C** and described in the legal description attached hereto as **Exhibit E** and incorporated herein by reference; and, pursuant to such permanent ingress and egress easements, the GRANTEE/DISTRICT shall have the right to use all such portions of the GRANTORS' PARCELS for pedestrian and equipment ingress and egress in connection with its construction, operation, maintenance, repair, reconstruction, replacement and inspection of the PROJECT.

Provided, however, there is hereby reserved to the GRANTORS, and their heirs, successors and assigns, the right and privilege to use the GRANTORS' PARCELS for purposes not inconsistent with the easement rights granted herein; and, provided, further, the GRANTORS and the NEW EASEMENTS shall not permit the construction of non-PROJECT structures or other obstructions, or the enlargement of the footprint of any existing non-PROJECT structures, in the REVETMENT AND

JETTY EASEMENT AREAS or in any of the portions of the GRANTORS' PARCELS that are subject to the aforesaid permanent ingress and egress easements; and, the GRANTORS hereby release the GRANTEE/DISTRICT, and agree to indemnify the GRANTEE/DISTRICT and hold the GRANTEE/DISTRICT harmless from and against any and all liability, causes of action or claims for damages to the GRANTORS' PARCELS or to improvements thereon (including, without limitation, damages from floodwaters and sediment) caused by or resulting from the construction, operation, maintenance, repair, reconstruction, replacement or inspection of the PROJECT revetments and jetties in the REVETMENT AND JETTY EASEMENT AREAS or the use of the aforesaid ingress and egress easements, including damages resulting from any failure of such revetments to contain the waters of the Elkhorn River, and also including any intentional damaging or demolitions of landscaping or other improvements in the REVETMENT AND JETTY EASEMENT AREAS that the GRANTEE/DISTRICT, in its sole discretion, determines is or are necessary to enable proper construction, operation, maintenance, repair, reconstruction, replacement and inspection of PROJECT improvements.

2. The GRANTEE/DISTRICT'S construction, operation, maintenance, repair, reconstruction, replacement and inspection of PROJECT revetments and jetties in the REVETMENT AND JETTY EASEMENT AREAS, and its use of the aforesaid ingress and egress easements, shall be performed at such times and in such manner as the GRANTEE/DISTRICT, in its sole discretion, determines advisable, necessary or justified; and, the GRANTEE/DISTRICT reserves the exclusive and discretionary right to abandon any of the PROJECT revetments and jetties that have been flanked or circumvented by the Elkhorn River, or that the GRANTEE/DISTRICT, in its sole discretion, determines are not feasible, maintainable, advisable, necessary or justified.

3. Any and all rights, interests, duties and responsibilities of the COUNTY and the STATE, arising under or by virtue of the Stabilization Agreement, are hereby permanently terminated, released and extinguished.

4. This amendment to the Stabilization Agreement shall become effective upon the execution hereof by all of the parties.

5. Except as modified herein, the Stabilization Agreement is hereby ratified and confirmed in all respects.

6. The consideration recited herein shall constitute payment in full for any and all damages sustained by the GRANTORS, their heirs, successors and assigns, by reason of the GRANTEE/DISTRICT'S exercise of rights or privileges herein expressly granted or reasonably implied.

7. The GRANTORS waive compliance by the GRANTEE/DISTRICT with the notice and other provisions of the Uniform Procedure for Acquiring Private Property for Public Use (Sec. 25-2501, R.R.S. 1943, et seq.).

8. The GRANTORS, for themselves and for their heirs, successors and assigns, covenant and warrant that they are the respective owners of the GRANTORS' PARCELS, as ownership is described above; that they have the right to grant the NEW EASEMENTS; that the GRANTORS' PARCELS are free and clear of liens and

encumbrances except easements of record; and, that they warrant and will defend the GRANTEE/DISTRICT'S right and title to the NEW EASEMENTS against the lawful claims and demands of all persons whomsoever.

9. The GRANTORS warrant that no verbal or written representations or inducements have been made or given by the GRANTEE/DISTRICT, or by any of its officers, agents or employees, other than as may be recited in this instrument.

10. The DISTRICT acknowledges receipt of a permanent ingress and egress easement, in a form acceptable to the DISTRICT, executed by the holders of title, in, on, over and across a 20 foot wide parcel of land in Section 9, Township 14 North, Range 10 East of the 6th P.M. Douglas County, Nebraska, including the south twenty feet (S 20') of Lot One (1) Riverside Acres, as surveyed, platted and recorded, in Douglas County, Nebraska.

11. The DISTRICT acknowledges receipt of a permanent ingress and egress easement, in a form acceptable to the DISTRICT, executed by the holders of title, in, on, over and across a parcel of land consisting of the South 25 feet of Tax Lot 4, Section 16, Township 14 North, Range 10 East of the 6th P.M. Sarpy County, Nebraska.

Executed by Allbery Farms, Inc. on this _____ day of _____, 20 ____.

Allbery Farms, Inc

By: _____
Lyle Allbery, President

Executed by Aaron G. Graham and Kimberlie L. Graham on this _____ day of _____, 20 ____.

_____
Aaron G. Graham

_____
Kimberlie L. Graham

Executed by the State of Nebraska Department of Roads on this _____ day of _____, 20 ____.

State of Nebraska Department of Roads

By: _____
Director-State Engineer

Executed by the County of Sarpy, Nebraska on this _____ day of _____, 20 ___.

County of Sarpy, Nebraska

By: _____
Chairperson

Executed by the Papio-Missouri River Natural Resources District on this _____ day of _____, 20 ___.

Papio-Missouri River Natural Resources District

By: _____
General Manager

STATE OF NEBRASKA)
) SS.
COUNTY OF SARPY)

The foregoing instrument was acknowledged before me on this _____ day of _____, 20 ___, by Lyle Allbery, President of Allbery Farms, Inc., on behalf of the corporation.

_____
Notary Public

STATE OF NEBRASKA)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me on this _____ day of _____, 20___, by Aaron G. Graham and Kimberlie L. Graham, husband and wife.

_____
Notary Public

STATE OF NEBRASKA)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me on this _____ day of _____, 20__, by _____, Director, State Engineer, State of Nebraska Department of Roads, on behalf of such Department.

_____
Notary Public

STATE OF NEBRASKA)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me on this _____ day of _____, 20__, by _____, Chairperson of Sarpy County, Nebraska, on behalf of such County.

_____
Notary Public

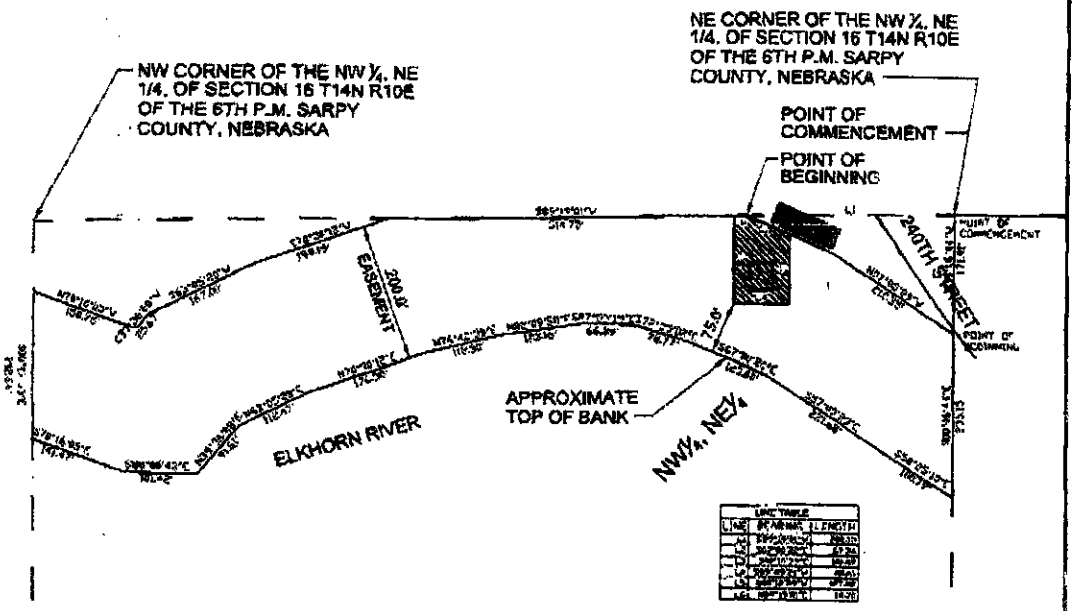
STATE OF NEBRASKA)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me on this _____ day of _____, 20__, by _____, General Manager of the Papio-Missouri River Natural Resources District, Nebraska, on behalf of such District.

_____
Notary Public

EXHIBIT B - NORTH 200' EASEMENT

A



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EXCEPTION No. 1

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER, OF THE NORTHEAST QUARTER OF SECTION 16, T14N, R10E, OF THE 6TH P.M., SARPY COUNTY, NEBRASKA,

THENCE S 89°19'01" W FOR 302.13 FEET ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER TO A POINT ON THE NORTHERLY LINE OF SAID 200 FEET EASEMENT AND TO THE TRUE POINT OF BEGINNING:
THENCE S 67°00'22" E FOR 67.34 FEET ALONG SAID NORTHERLY LINE OF 200 FEET EASEMENT:
THENCE S 00°10'39" E FOR 101.47 FEET:
THENCE S 89°49'21" W FOR 80.51 FEET:
THENCE N 00°10'39" W FOR 127.68 FEET TO THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER:
THENCE N 89°19'01" E FOR 18.70 FEET TO THE POINT OF BEGINNING:

CONTAINS 0.22 ACRES

0 200 400 600

3DSZ inc. 3D SERVICES & SOLUTIONS
1043 NORTH 204TH AVE. - ELKHORN, NE 68022
PH: (402) 763-3475 - FAX: (402) 763-3527

FIELD:	MRF
OFFICE:	DJN
DATE:	9/1/05
PAGE:	4 OF 5

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EXHIBIT A - NORTH 200' EASEMENT LEGAL DESCRIPTION

EASEMENT LEGAL DESCRIPTION

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER, OF THE NORTHEAST QUARTER OF SECTION 16, T14N, R10E, OF THE 6TH P.M., SARPY COUNTY, NEBRASKA,
THENCE S 00°06'44" W FOR 171.41 FEET ALONG THE EAST LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER TO THE TRUE POINT OF BEGINNING:
THENCE N 57°05'29" W FOR 212.35 FEET:
THENCE N 67°00'22" W FOR 134.23 FEET TO A POINT ON THE NORTH LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER:
THENCE S 89°19'01" W FOR 514.75 FEET ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER:
THENCE S 70°30'12" W FOR 199.19 FEET:
THENCE S 63°05'20" W FOR 167.00 FEET:
THENCE S 39°36'08" W FOR 25.67 FEET:
THENCE N 70°16'05" W FOR 158.75 FEET TO A POINT ON THE WEST LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER:
THENCE S 00°07'33" E FOR 212.64 FEET ALONG SAID WEST LINE TO THE APPROXIMATE TOP OF BANK OF THE ELKHORN RIVER:
THENCE ALONG SAID APPROXIMATE TOP OF BANK OF THE ELKHORN RIVER FOR THE NEXT TWELVE COURSES:
THENCE S 70°16'05" E FOR 141.47 FEET:
THENCE S 88°00'43" E FOR 101.42 FEET:
THENCE N 39°36'08" E FOR 91.61 FEET:
THENCE N 63°05'20" E FOR 112.47 FEET:
THENCE N 70°30'12" E FOR 176.58 FEET:
THENCE N 76°42'35" E FOR 112.30 FEET:
THENCE N 82°09'58" E FOR 123.16 FEET:
THENCE S 87°55'19" E FOR 66.39 FEET:
THENCE S 72°25'-02" E FOR 78.77 FEET:
THENCE S 67°00'22" E FOR 123.60 FEET:
THENCE S 57°05'29" E FOR 221.68 FEET:
THENCE S 58°25'13" E FOR 100.72 FEET TO THE EAST LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER:
THENCE N 00°06'44" E FOR 235.15 FEET ALONG THE EAST LINE OF SAID NORTHWEST QUARTER, OF THE NORTHEAST QUARTER TO THE POINT OF BEGINNING:
THENCE EXCEPTING THE SOUTH 100.00 FEET OF THE NORTH 300.00 FEET OF THE EAST 100.00 FEET OF THE WEST 150.00 FEET OF THE NORTHEAST QUARTER OF SECTION 16 TOWNSHIP 14 NORTH, RANGE 10 EAST OF THE 6TH P.M., SARPY COUNTY, NEBRASKA AND EXCEPT THE SOUTH 100.00 FEET OF THE NORTH 160.00 FEET OF THE WEST 100.00 FEET OF THE EAST 350.00 FEET OF THE NORTHEAST QUARTER OF SECTION 16 TOWNSHIP 14 NORTH, RANGE 10 EAST OF THE 6TH P.M., SARPY COUNTY, NEBRASKA.

CONTAINS 6.25 ACRES.

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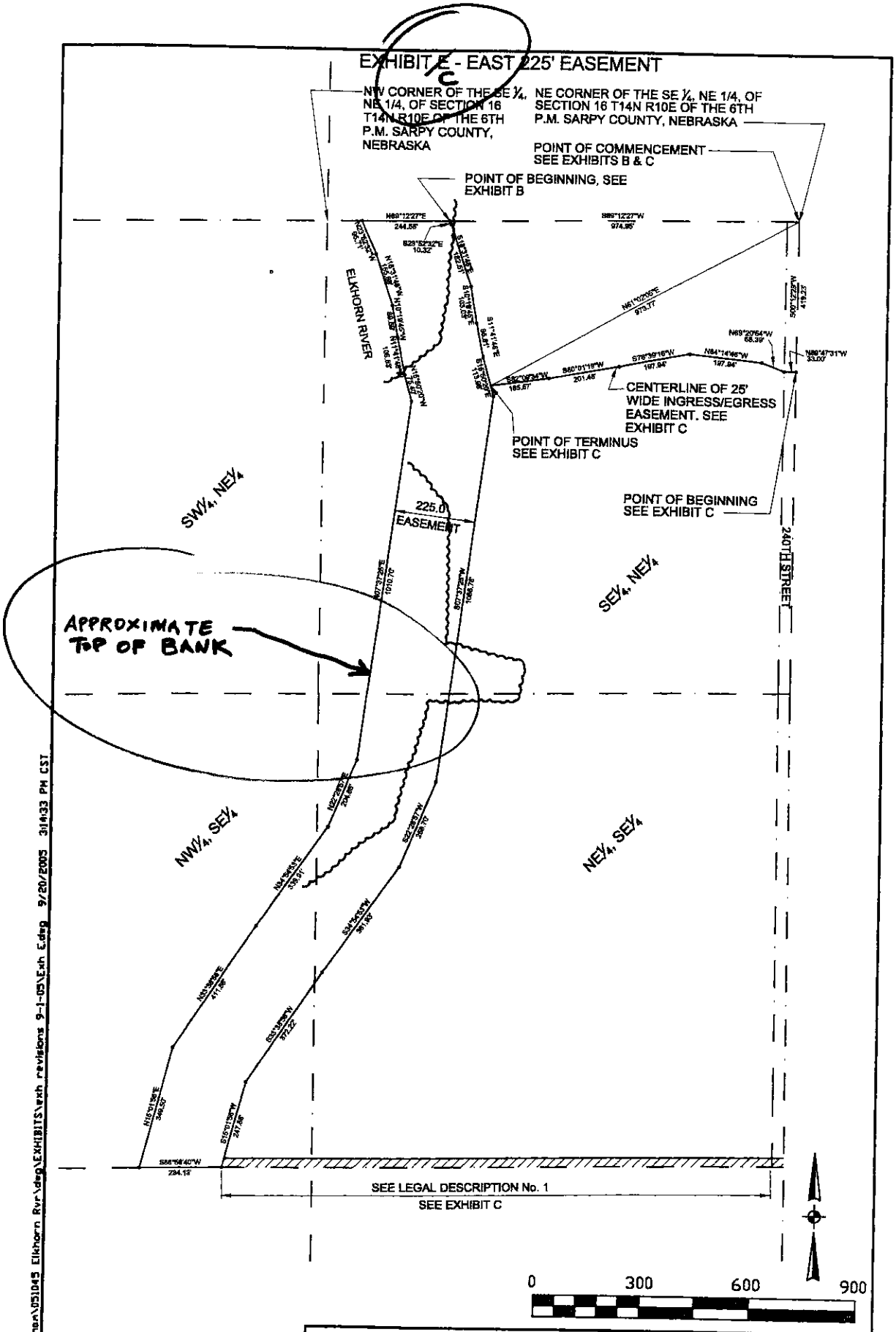
PAGE	1 OF 5

EXHIBIT C - EAST 225' EASEMENT



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PAGE	5 OF 5

EXHIBIT D - EAST 225' EASEMENT LEGAL DESCRIPTION

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 16, T14N, R10E OF THE 6TH P.M., SARPY COUNTY, NEBRASKA:

THENCE S 89°12'27" W FOR 974.95 FEET ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE NORTHEAST QUARTER TO THE TRUE POINT OF BEGINNING:
THENCE S 23°52'32" E FOR 10.32 FEET:
THENCE S 18°31'48" E FOR 182.51 FEET:
THENCE S 10°19'45" E FOR 103.03 FEET:
THENCE S 11°41'48" E FOR 95.81 FEET:
THENCE S 15°50'20" E FOR 113.98 FEET:
THENCE S 07°37'25" W FOR 1086.76 FEET:
THENCE S 22°28'57" W FOR 258.70 FEET:
THENCE S 34°54'53" W FOR 361.93 FEET:
THENCE S 33°38'56" W FOR 372.22 FEET:
THENCE S 15°01'56" W FOR 247.88 FEET TO A POINT ON THE SOUTH LINE OF THE NW ¼ , SE1/4:
THENCE S 88°58'40" W FOR 234.13 FEET ALONG SAID SOUTH LINE:
THENCE ALONG THE APPROXIMATE TOP OF BANK OF THE ELKHORN RIVER FOR THE NEXT TEN COURSES:
THENCE N 15°01'56" E FOR 349.50 FEET:
THENCE N 33°38'56" E FOR 411.58 FEET:
THENCE N 34°54'53" E FOR 339.91 FEET:
THENCE N 22°28'57" E FOR 204.85" FEET:
THENCE N 07°37'25" E FOR 1010.70 FEET:
THENCE N 15°50'20" W FOR 75.40 FEET:
THENCE N 11°41'48" W FOR 106.63 FEET:
THENCE N 10°19'45" W FOR 89.59 FEET:
THENCE N 18°31'48" W FOR 155.88 FEET:
THENCE N 23°52'32" W FOR 95.71 FEET TO THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE NORTHEAST QUARTER:
THENCE N 89°12'27" E FOR 244.58 FEET TO THE POINT OF BEGINNING:

CONTAINS 14.65 ACRES.

Z:\Work\0051Graham\051045 Elkhorn Rvr\dwg\EXHIBITS\exh revisions 9-1-05\Exh 1.dwg 9/20/2005 3:11:17 PM CST

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DATE:	9/1/05

EXHIBIT ~~D~~ E - INGRESS/EGRESS EASEMENT LEGAL DESCRIPTION

THE SOUTH 25.00 FEET OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER EXCEPT THE EAST 208.73 FEET THEREOF AND THE SOUTH 25.00 FEET OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER LYING EAST OF THE LINE DELINEATED IN EXHIBIT B, AND A TWENTY FIVE FEET WIDE INGRESS/EGRESS EASEMENT, THE CENTERLINE OF SAID INGRESS/EGRESS EASEMENT MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 16, T14N, R10E, OF THE 6TH P.M., SARPY COUNTY, NEBRASKA:
THENCE S 00°12'29" W FOR 419.23 FEET ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE NORTHEAST QUARTER TO THE TRUE POINT OF BEGINNING:
THENCE N 89°47'31" W FOR 33.00 FEET:
THENCE N 69°20'54" W FOR 68.39 FEET:
THENCE N 84°14'46" W FOR 197.94 FEET:
THENCE S 78°39'16" W FOR 197.94 FEET:
THENCE S 80°01'19" W FOR 201.46 FEET:
THENCE S 82°09'34" W FOR 165.57 FEET TO A POINT ON THE EAST LINE OF SAID 225.00 FEET BANK STABILIZATION AND EASEMENT AGREEMENT AND THE POINT OF TERMINUS:
THENCE N 61°02'05" E FOR 973.77 FEET TO THE POINT OF COMMENCEMENT.

3DS2 inc. 3D SERVICES & SOLUTIONS
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FIELD:	MRF
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