

MEMORANDUM

To: Programs, Projects, and Operations Subcommittee
From: Amanda Grint, Assistant General Manager
Date: May 4, 2022
Re: Papio Watershed PL566 Site S-6 Completion of Federal Interest

Papio Site S-6, see attached map, was built in 1990 as part of the Papillion Creek Watershed Plan, PL-566 Program with NRCS. It is in Sarpy County, near 180th and Giles, and is an earthen embankment with a drop inlet and 36-inch corrugated metal principal spillway. The structure has been in place for 32 years of its 50-year life span. Although it has not completed its life span, the District has requested a Completion of Federal Interest for the project due to the location of S-6 in relation to the District's proposed WP2 project. The WP2 project replaces the older S-6 structure with a high hazard dam.

The District has worked with Nebraska NRCS staff on the decommissioning, and they concur with our plan. A report, to be approved by the District Board, needs to be signed and submitted to NRCS Headquarters for review and approval. The Completion of Federal Interest is attached for Board consideration.

Staff recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute the Papillion Creek Watershed Site S-6 Completion of Federal Interest with NRCS subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.



FYRA
ENGINEERING
12702 Westport Pkwy, Ste 300
Omaha, Nebraska 68136
402.502.7131
www.fyraengineering.com

REGIONAL DETENTION BASIN WP-2
PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
SARPY COUNTY, NEBRASKA
2018

ENGINEER'S SEAL

REVISIONS	
NO.	DATE

DESIGNED BY: SEM
DRAWN BY: XXX
QA / QC BY: XXX
PROJECT NO.: 001-17-01
DATE: XXXX.XXXX

TITLE
**RESERVOIR
PLAN**

SHEET
B.1

Papillion Creek Watershed Site S-6

Completion of Federal Interest

APRIL 2022

Background Information

The Papillion Creek Watershed Plan was completed in August 1966 and is still an active watershed today. It was prepared under the authority of the Watershed Protection and Flood Prevention Act. (Public Law 566, 83d Congress, 68 Stat. 666) It was prepared by the Soil Conservation Service, Sarpy Soil and Water Conservation District, Douglas Soil and Water Conservation District, Papio Soil and Water Conservation District, Douglas County Commissioners, Sarpy County Commissioners, Washington County Supervisors and Papio Watershed Board.

The sponsors were Douglas, Papio and Sarpy Soil and Water Conservation Districts and the Counties of Douglas, Sarpy and Washington. In 1972 Nebraska Natural Resource Districts were started and soon after, responsibility for many Watershed structures in Nebraska were transferred to the Natural Resources Districts including the Papillion Creek Watershed structures to the Papio NRD.

Documentation transferring Operation and Maintenance of Papio S-6 to the Papio NRD was signed November 9, 1989. The Papio NRD and the Middle Missouri Tributaries NRD merged in 1989 to become the Papio-Missouri River NRD. The project sponsor is now the Papio - Missouri River Natural Resources District (PMRNRD).

Planned structural works of improvement consisted of 52 grade stabilization structures. Papio Grade Stabilization Structure S-6 was completed in 1990. Cost of construction was \$77,098. It is in Sarpy County, Nebraska. The structure has been in place for 31 years of its 50-year plan life. The structure is a full-flow earth embankment structure with a drop inlet and 36-inch corrugated principal spillway pipe. Drainage area for the structure is 685 acres. This earth-fill structure is 33.5 feet high and contains 26,534 cubic yards of fill. The structure is in good condition.

The Papio-Missouri River NRD has provided excellent O&M for this site.

The Sponsor proposes to construct a High Hazard Flood Control structure (dam), named Papio WP-2 immediately downstream of the existing Low Hazard Papio S-6 site. Papio WP-2 would be more compatible with the urban development in the area.

Papillion Creek Watershed PLAN economics price base is 1965.

The nearest Census of Agriculture to the price base of 1965 is the 1964 Census of Agriculture. The most current available Census of Agriculture is the 2017 Census of Agriculture.

Table 1

	Change in Land Values		
	1964	2017	Increase in Value
Sarpy County	\$427	\$7,439	\$7,012
Nebraska (statewide)	\$109	\$2,645	\$2,645
Difference in value increase			\$4,367

The CPI index for the same time period:

$$1965 - 31.50 \quad 2017 - 245.12 \quad 245.12/31.50=7.78$$

Increase in Sarpy County land values:

$$1964 - \$427 \quad 2017 - \$7,439 \quad \$7,439/\$427=17.43$$

Agricultural land values in Sarpy County, Nebraska increased by a rate of 17.43 compared to an increase in the CPI rate of 7.78 during the same time period. Sarpy County agricultural land values increased by more than twice the rate than the CPI index.

This structure in place for 31 years has currently provided more than the planned 50-year benefits due to the steep increase in the land values that it has protected. The grade stabilization will continue to be provided by the proposed High Hazard Dam Papio WP-2.

Therefore, both the sponsor, Papio-Missouri River Natural Resources District and the Natural Resources Conservation Service agree to end Federal Interest in the Papillion Creek Watershed Site S-6 structure.

Papio-Missouri River Natural Resources District

8901 S. 154th Street

Omaha, NE 68138-3621

By_____

Title_____

Date_____

The signing of this agreement was authorized by a resolution of governing body of the Papio-Missouri River Natural Resources District adopted at a meeting held on_____(Date).

Secretary

Address

Zip Code

Natural Resources Conservation Service

United States Department of Agriculture

Approved by: _____

Date: _____

Appendix A

Supporting Data

TABLE 4 - ESTIMATED AVERAGE ANNUAL LAND DAMAGE REDUCTION BENEFITS
Papillion Creek Watershed, Nebraska
(Dollars) 1/

Evaluation Unit	Amortization of Installation Costs <u>1/</u>	Operation and Maintenance <u>2/</u>	Total
<u>Grade Stabilization</u>			
<u>Structures (52)</u>			
D-2, 3, 4, 15, 15A, 15B, 17A, 18, 20, 23, 29, 31, 32, 38, 45, 49, 50, 54, 65, 76, 76A, 78			
S-1, 4, 5, 6, 7, 9, 15, 16, 17, 18, 21, 22, 24, 27, 30, 31, 32, 35			
W-2, 3, 4, 5, 6, 15, 16, 16A, 20, 20A, 26, 42	50,290	2,700 <u>3/</u>	52,990
Total	50,290	2,700 <u>3/</u>	52,990

1/ 1965 construction costs, amortized at 3 1/8 percent for 50 years.

2/ Long-term projected prices, 34 percent of construction costs.

3/ \$1,100 - Cash cost to sponsoring local organizations.

1,600 - Value of goods and services contributed by owners and operators of land upon whose property the works of improvement are located and the individual directors of the Papio Watershed Board.

August, 1966

TABLE 5 - ESTIMATED AVERAGE ANNUAL LAND DAMAGE REDUCTION BENEFITS
Papillion Creek Watershed, Nebraska
(dollars) 1/

	Estimated Average Annual Damage \$/		
	without :	iii	7) - 11-4 ut.,.
	roadst : P	cjcgT	"B,,oefil.
rosion			
Gullies			
Agriculture		j	")8,411:0
Urban		0	n,9-2,0
Bridges and peline		0	,:, _
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1/ Price base, long-term projected.

1/ This includes evaluated arms only.

TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES
Papillion Creek Watershed, Nebraska
(Dollars) 1/

JICA Section: Unit	Average Annual Benefits			Average : Benefits		
	Damage	:	:	Annual	:	Cost
	Reduction	:	Secondary &/	Total	:	Ratio
Grade Stabilization Structures (52)						
1, 3, 4, 15, 15A, 15B, 17A, 18, 20, 23, 29, 31, 32, 38, 45, 49, 50, 54, 65, 76, 76A, 78						
1, 4, 5, 6, 7, 9, 51, 16, 17, 18, 19, 24, 27, 30, 31						
V-2, 3, & 5, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100						
61g						
	55,330		4,170	67,500		

Price base - i rl. ui, loo
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Census by Year

[2002](#)[1997](#)[1992](#)[1987](#)[1982](#)[1978](#)[1974](#)[1969](#)[1964](#)[1959](#)[1954](#)[1950](#)[1945](#)[1940](#)[1935](#)

1964 Census Publications

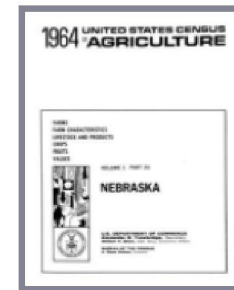
All files are in PDF format

Volume 1, Part 20:

Nebraska

INTRODUCTION

1. Introduction
2. State Map
3. Selected Measures of Agriculture: 1964 and 1959
4. Percent Change in Selected Measures of Agriculture: 1959 to 1964

[Full PDF \(31 MB\)](#)

STATISTICS

Table Description

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NEBRASKA

TABLE 1. Farms, Acreage, and

[Data for value of land and buildings and land-use practices]

SUBJECT		ROCK	SALINE	SARPY	SAUNDERS	SCOTTS BLUFF	SEWARD	SHERIDAN
1	FARMS	270	1,311	587	1,802	1,371	1,199	792
2	APPROXIMATE LAND AREA	67,680	368,000	151,010	4,83,840	1,161,010	1,161,010	1,161,010
3	PERCENT IN FARMS	98.7	95.1	86.4	95.8	113.2	113.2	113.2
4	ACRES 1964	639,550	350,750	130,477	463,294	519,775	519,775	519,775
5	ACRES 1959	655,505	353,531	128,161	461,104	534,706	534,706	534,706
6	AVERAGE SIZE OF FARM	2,368.7	260.4	222.1	251.5	1,000.6	1,000.6	1,000.6
7	ACRES 1964	2,054.9	2,519.9	1,981.1	2,211.1	3,431.1	3,431.1	3,431.1
8	VALUE OF LAND AND BUILDINGS	129,444	50,083	95,281	61,161	1,161,010	1,161,010	1,161,010
9	AVERAGE PER FARM	84,686	41,910	62,612	61,161	1,161,010	1,161,010	1,161,010
10	ACRES 1964	5,111	187.65	426.77	227.13	168.62	168.62	168.62
11	ACRES 1959	5,111	187.65	426.77	227.13	168.62	168.62	168.62
12	PERCENT IN FARMS	100	100	100	100	100	100	100
13	PERCENT IN FARMS	52	70	62	79	79	79	79

Table 8. Farms, Land in Farms, Value of Land and Buildings, and Land Use: 2017 and 2012 (continued)

(For meaning or abbreviations and symbols, see introduction.)

Item	Red Willow	Richardson	Rock	Saline	Sarpy	Saunders	Scotts Bluff
FARMS AND LAND IN FARMS							
Farms	333	708	220	717	417	1,111	761
Land in farms	405	736	247	756	376	1,204	800
Average size of farm	419,608	319,179	644,551	361,904	9,171	469,462	445,217
Estimated market value of farmland and buildings	1,319	473	2,655	503	239	429	581
per acre	1,008	434	2,610	479	232	300	461
per acre	1,319	708	220	717	417	1,111	761
per acre	405	736	247	756	376	1,204	800
per acre	855,319	1,459,222	864,392	1,699,395	739,985	2,706,512	899,924
per acre	664,937	1,216,852	694,967	1,743,522	546,533	2,473,201	1,101,110
per acre	2,568,525	2,061,048	3,019,965	2,370,146	1,774,545	2,420,851	1,184,110
per acre	1,651,696	1,653,331	2,613,630	2,300,246	1,360,133	2,051,153	1,604,445
per acre	1,947	4,267	1,138	4,716	7,439	5,641	2,035
per acre	1,594	3,812	1,078	4,818	5,959	5,268	1,867

Appendix B

Request from Sponsor Letter



February 17, 2022

Mr. Robb Lawson
State Conservationist
USDA - NRCS
Federal Building, Room 152
100 Centennial Mall North
Lincoln, NE 68508

RE: Papio Creek Watershed Structure S-6
Completion of Federal Interest

Dear Mr. Lawson:

The District is seeking NRCS approval of Completion of Federal Interest in the referenced grade stabilization structure. Enclosed for your consideration is a Completion of Federal Interest Program Report. The structure site would be significantly modified by the Papio-Missouri River Natural Resources District to provide additional flood control yet continue to provide grade stabilization as planned by the NRCS with the original structure for many years to come.

If you have any questions, please contact me at 402-315-1722 or agrint@papionrd.org.

Sincerely,

Amanda Grint, PE, CFM
Water Resources Engineer

Enclosures:

1. Completion of Federal Interest Program Report
2. Grading Plan for WP2 Flood Control Reservoir
3. Location Map

Cc: Allen Gehring and Robert Sullivan, NRCS
Martin Cleveland, P-MRNRD

Completion of Federal Interest Program Report

To: Robert Sullivan, Nebraska NRCS
From: Amanda Grint, Water Resources Engineer
Date: February 17, 2022
Re: Completion of Federal Interest Report for Papio Site S-6 Grade Control Structure

Papio Creek Watershed Structure S-6 was built in 1990 near 180th and Giles Road in Sarpy County, Nebraska. This grade stabilization structure included an earthen embankment with 36" corrugated metal pipe outlet and riser structure, Hazard Class A. The structure has not yet reached its lifespan however, the Papio-Missouri River NRD (P-MRNRD) requests that a Completion of Federal Interest be approved because a new flood control reservoir is proposed in its place.

Papio Site S-6 Features:

- Drainage Area = 685 acres
- Riser Crest = 1130 ft above MSL
- Emergency (auxiliary) Spillway Crest = 1137 ft above MSL
- Conservation Pool (at riser crest) = 4.4 acres; 6.2 acre-ft
- Flood Pool (at aux. spillway crest) = 15.8 acres; 14.7 acre-ft
- Structure Height = 38.5 ft
- Principle Spillway = 48" diameter corrugated metal riser and 36" diameter corrugated metal outlet pipe

The Papio S-6 structure was built when the area was agricultural cropland and was designed based on an agricultural watershed. The watershed has rapidly changed from an agricultural setting to an urban setting with road improvements and residential housing on nearly all sides.

The P-MRNRD proposes to construct a high hazard flood control reservoir/dam (WP-2) at this location to provide flood control and reduce peak flows on the South and West Papillion Creek branches. The WP-2 structure has been a part of the watershed management plan since 2009 and is slated to begin construction in fall 2022 or spring 2023. The new structure will consist of a principal spillway crest (riser) of 1138 ft and an auxiliary spillway crest of 1147.5. The top of dam elevation is 1152 ft which results in a maximum dam height of 44 ft. The conservation pool (normal pool) will be 17.4 surface acres. The outlet pipe will be 48" reinforced concrete pipe.

The P-MRNRD requests that the NRCS complete federal interest in the Papio S-6 structure, as the new flood control structure will provide grade control as well as flood control with newer materials that will significantly extend the life of the project. The WP-2 project also addresses the urbanization of the watershed and reduces peak flows for the Papio Creek watershed.