Addendum No. 2
November 1980
South Fork Licking River Watershed Plan, Ohio

The purpose of this addendum is to delete the accelerated land treatment from the plan, provide additional information on the rationale for the recommended plan, and update the interest rate to the current level. This is the result of a careful study of the final plan based on comments received from reviewers.

1. Land Treatment:

Based on the present conditions, it appears the land treatment needs in the watershed can be carried out under the ongoing program.

After a careful analysis of the erosion problem during final review stages, it is apparent that the problem is not of sufficient magnitude to warrant the expenditure of $1,125,400 for accelerated land treatment. A revised Table 1 reflects this change.

2. Recommended Plan:

The South Fork Licking Watershed Conservancy District, after public hearings, selected for economic development the plan consisting of six dams, I-70 bypass channel, channel obstruction removal, a flood prevention dike, land acquisition and relocation, and recreation facilities.

The selected alternative for the South Fork includes Big Hollow, Etna and Kirkersville dams, the I-70 bypass, channel enlargement, the Hebron dike, obstruction removal, streambank stabilization, and channel recreation development.

The Etna and Kirkersville dams are not economically justified individually (see Incremental Analysis tables) but are included to fulfill program criteria. The installation of the I-70 bypass with the Big Hollow dam results in induced flooding on prime agricultural land. This prime agricultural land is valued at $2,500 an acre. The addition of the Etna and Kirkersville dams eliminates the induced flooding on those acres but results in average annual incremental costs slightly greater ($97,385) than the average annual incremental benefit ($88,949).

If the Etna and Kirkersville structures are not built, then easements will have to be purchased on 719 acres at an estimated cost of $1,438,000. This estimate is based on recent district court decisions which have awarded the landowner approximately 80 percent of the land value in similar situations. One specific court decision was 90 percent. The cost of $1,438,000 far exceeds the loss in net benefits brought about by adding the Etna and Kirkersville structures as they have a benefit-cost ratio of 0.94:1. In addition, the two structures were selected as elements of the EQ Plan since they add critically needed wildlife habitat to an area that at the present time is characterized by a mono-culture with practically no wildlife habitat. The two structures will add aquatic and marshland habitat that add greatly to the habitat diversity of the area. The combination of environmental quality benefits and economic benefits provided by the two structures provide overall benefits in excess of costs.

Incremental Analysis (Dollars) of Alternative No. 1

Increment Description	Annual Costs Total	Annual Costs Incremental Costs	Annual Benefits Total	Annual Benefits Incremental Benefits	Net Benefits
SOUTH FORK LICKING RIVER					
1. Big Hollow Structure		30,056		42,470	12,414
2. Plus I-70 Bypass, Enlargement, and Obstruction Removal	230,258	200,202	281,630	239,160	38,958
3. Plus Hebron Dike	233,344	3,086	301,109	19,479	67,765
4. Plus Recreation	301,304	67,960	370,131	69,022	68,827
5. Plus Kirkersville and Etna Structures	398,689	97,385	459,080	88,949	60,391

For Raccoon Creek, the alternative includes the Lobdell, Kiber, and Simpson dams, obstruction removal, land acquisition and recreation at the Lobdell site.

The Kiber and Simpson dams were included because of a remaining threat to loss of life in residential establishments. Originally, the Lobdell dam and channel modification were considered on Raccoon Creek to deal with the flood problems, much of which involves residential and commercial flooding by the 100-year flood event. Early in planning, it was determined that major modification of the Raccoon channel would have adverse environmental effects. Therefore, channel modification was limited to obstruction removal and some streambank stabilization measures. When these modifications were included with the Lobdell dam, there were still 38 houses and 13 commercial establishments flooded by the 100-year event. Also, four 4-unit apartment houses and one house are located so they have a threat of possible loss of life. While the addition of the Kiber and Simpson dams are not economically justified on an incremental bases, (see table) they do remove the threat of loss of life in the apartments without environmental damage to the Raccoon channel. The single house will be relocated.

Incremental Analysis (Dollars) of Alternative No. 1

Increment Description	Annual Costs Total	Annual Costs Incremental Costs	Annual Benefits Total	Annual Benefits Incremental Benefits	Net Benefits
RACCOON CREEK					
1. Lobdell Structure		110,575		145,506	33,105
2. Plus Recreation	344,740	234,165	535,100	389,594	188,534
3. Plus Kiber and Simpson Structure	416,480	71,740	561,892	26,792	143,586

The estimated cost of relocating the four apartment houses would be $660,000. Since this costs more than the loss in net benefits incurred by adding the two structures, the addition of the two structures to the selected plan is the least costly alternative to attain the objective of reducing the threat of loss of life due to flooding. The criteria used to establish risk to loss of life was: two or more feet of water on the first floor of a residence or a velocity of four feet/second or greater and water on the first floor.

A ten-foot dike around the four apartments was considered as one alternative. It had an average annual cost of $13,691 compared with the loss in net benefits of $44,948 for adding the Kiber and Simpson dams. However, the dike was not considered an environmentally or socially acceptable alternative. The land around the apartments was so low that the area inside the dike could only be drained by installation of a pumping system. In the event of power failure or malfunction of the pumping system, water could not be drained out of the dike. Also with a ten-foot dike around the apartments, the ground floor residents visual environment would be impaired.

3. Change in Interest Rate:

The change in interest rate, from 7 1/8 to 7 3/8, results in the following annual project costs, benefits, and benefit-cost ratio:

a. Project costs are $977,314.
b. Project benefits are $1,065,690.
c. Project benefit-cost ratio is 1.09:1.

TABLE I - ESTIMATED INSTALLATION COST
South Fork Licking River Watershed, Ohio

Item	Unit	Number	Estimated Cost (Dollars) 1/ PL-566 Funds SCS 3/	PL-566 Funds Total	Other Funds SCS 3/	Other Funds Total	Total Installation Cost
NONSTRUCTURAL MEASURES							
Land Acquisition House No. 44 at Granville	Each	1	12,100	12,100	4,400	4,400	16,500
SUBTOTAL Nonstructural Costs			12,100	12,100	4,400	4,400	16,500
STRUCTURAL MEASURES							
Floodwater Retarding Reservoirs	No.	5	1,836,700	1,836,700	438,750	438,750	2,275,450
Lobdell Multiple-Purpose Res.	No.	1	854,457	854,457	461,743	461,743	1,316,200
Lobdell Creek Recreational Facilities	No.	1	733,085	733,085	733,085	733,085	1,466,170
Channel Work - (M) 4/	Miles	0.7	202,100	202,100	11,100	11,100	213,200
- (N) 4/	Miles	11.2	40,505	40,505	8,315	8,315	48,820
- (O) 4/	Miles	3.3	1,628,655	1,628,655	476,130	476,130	2,104,785
South Fork Channel Recreational Facilities	No.	1	226,965	226,965	226,965	226,965	453,930
Heath Critical Area Stabilization	Miles	5.9	777,900	777,900	17,100	17,100	795,000
Raccoon Creek Obstruction Removal	Miles	7.0	12,430	12,430	3,300	3,300	15,730
Flood Prevention Dikes - Hebron	Miles	0.3	33,395	33,395	6,000	6,000	39,395
SUBTOTAL - Structural Costs			6,346,192	6,346,192	2,382,488	2,382,488	8,728,680
PROJECT ADMINISTRATION							
Construction Inspection			1,103,635	1,103,635			1,103,635
Relocation Assistance Advisory Service					500	500	500
Other			411,170	411,170	193,460	193,460	604,630
SUBTOTAL - Project Administration			1,514,805	1,514,805	193,960	193,960	1,708,765
TOTAL ALL COSTS			7,873,097	7,873,097	2,580,848	2,580,848	10,453,945

1/ Price base 1978.

2/ Includes only estimated acres to be adequately protected during the project installation period. Dollar amounts apply to all watershed land receiving conservation treatment rather than to only the land that will become adequately protected during the project installation period.

3/ Federal agency responsible for assisting in installation of project measures.

4/ Type of channel before project: (M) - a manmade or previously modified channel; (N) - an unmodified, well-drained natural channel; (O) - none or practically no defined channel.

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