FINAL
SUPPLEMENTAL
ENVIRONMENTAL STATEMENT

SUN RIVER
FLOOD PROTECTION PROJECT
GREAT FALLS, MONTANA

Prepared by
U.S. Army Engineer District
Omaha, Nebraska
FEBRUARY 1979

STATEMENT OF FINDINGS

SUN RIVER
GREAT FALLS, MONTANA
LOCAL FLOOD PROTECTION PROJECT

PURPOSE AND AUTHORITY

The project was authorized by the Flood Control Act of 1958 (Public Law 85-500) as modified by Public Law 89-298 in October 1965. House Document 343, 85th Congress, 2nd Session, 1958, contains a description of the authorized plan and is the project document. Other modifications to the project were made under Section 2 of the Flood Control Act of 1941.

Since creation of the West Great Falls Flood District in August 1967, a series of court actions have prevented implementation of the project. The final order of confirmation of the West Great Falls Flood Control and Drainage District was entered on 17 August 1970. This order was appealed to the State Supreme Court. The primary point of the appeal was on the method of assessment. The Court ruled in December 1971. Legislation was then passed by the Montana Legislative Assembly which changed the method of assessment. In the case of Great Falls, a new election was required before the Drainage District could make use of the new statutes. An election was held in the latter part of 1974. It failed. Following the flood of 1975, local interests petitioned the Court to (1) hold a new election and (2) exclude from the District the right bank area where the flood threat is less severe and where the majority of the project opposition rests. The election was held on 26 October 1976 and passed 3 to 1 in favor of proceeding with construction of the left-bank levee on the Sun River. In January 1977, the Omaha District was notified about the election results.

Approximately 10 years had passed since an economic evaluation of the project had been done and 7 years since an environmental statement had been written. In order to update the information and comply with current evaluation criteria, I initiated an economic and environmental review. The economic reevaluation resulted in a project change. Uneconomic portions of the project were placed in an inactive status. The only part of the project with a benefit-to-cost ratio greater than 1.0 that had local support is the Sun River left-bank levee. A draft of a supplemental environmental statement was circulated 10 February 1978. The original environmental statement was circulated in 1971.

A public notice announcing a public hearing on 24 May 1978 was circulated to all interested parties on 24 April 1978. A copy of the notice was sent to 63 agencies, groups, organizations and individuals. Approximately 350 people attended the public hearing including two members of the Montana legislature. Thirty-seven people made comments at the public hearing and 122 written statements were submitted to become part of the official record.

Agencies involved in the formulation of the project include the following:

U. S. Environmental Protection Agency
U. S. Department of the Interior
U. S. Department of Housing and Urban Development
U. S. Department of Agriculture
Montana Department of Fish and Game
Montana Department of Natural Resources and Conservation
Montana Environmental Quality Council
Montana Department of State Lands
City of Great Falls
Cascade County, Montana
Cascade County Soil Conservation District
West Great Falls Flood Control and Drainage District
Concerned Citizens of the Sun River

SOURCES OF INFORMATION

The most significant sources of information used in the study were:

Sun River and Tributaries, Montana. House Document 343, 85th Congress, 2nd Session, 1958 is the project document and contains a description of the authorized levee project.

Sun River, Great Falls, Montana, Flood Protection Project, Design Memorandum No. MGF-1. U. S. Army Engineer District, Omaha, July 1966, reaffirmed the plan of improvement recommended in the project document with three exceptions.

Sun River, Great Falls, Montana, Flood Protection Project, Supplement to Design Memorandum No. MGF-1. U. S. Army Engineer District, Omaha, March 1967, presented three revisions to Design Memorandum MGF-1, submitted July 1966.

Sun River, Great Falls, Montana, Supplement No. 2 to Design Memorandum No. MGF-1, Flood Protection Project. U. S. Army Engineer District, Omaha, April 1967, reviewed upstream reservoir storage feasibility. The completed studies indicated that construction of any of the potential reservoir projects

would not obviate the need for a local flood protection project at Great Falls.

Sun River, Great Falls, Montana, Supplement No. 3 to Design Memorandum No. MGF-1, Flood Protection Project. U. S. Army Engineer District, Omaha, March 1968, presented the results of additional foundation investigations that more adequately defined the foundation conditions. The proposals for the control of underseepage resulting from this supplemental exploration and reevaluation program did not vary appreciably from those recommended in Design Memorandum MGF-1.

Draft and Final Environmental Statements, Sun River, Great Falls, Montana, Great Falls Flood Protection Project. U. S. Army Engineer District, Omaha, was filed with C.E.Q. on 6 May 1971 and 12 August 1971, respectively.

Sun River, Great Falls, Montana, Supplement No. 4 to Design Memorandum No. MGF-1, Flood Protection Project. U. S. Army Engineer District, Omaha, April 1978, Economic Reevaluation. This project economic reevaluation concludes that certain portions of the authorized project should not be constructed at this time. The authorized levee project was separated into five units, each of which would operate independently to protect five distinct areas. Only two of the units, one that would protect the entire left bank of the Sun River, including Watson Coulee Drain, and the one protecting the entire left bank of the Missouri River are economically feasible. Due to lack of local support and significant adverse environmental impact, the levee unit that would protect the left bank of the Missouri River has been placed in an inactive status along with the economically infeasible units which would protect the right bank of the Sun River and the right bank of the Missouri River.

Sun River, Great Falls, Montana, Draft Supplemental Environmental Statement, Flood Protection Project. U. S. Army Engineer District, Omaha, January 1978 recommends construction of levees along the left bank of the Sun River and the conduit structure beneath 27th Street to drain Watson Coulee.

EVALUATION AND TRADEOFF ANALYSIS

Due to the large Sun River drainage basin and the intensity of rainstorms and their duration, a high level of flood protection is required for the West Great Falls area. The most recent floods in West Great Falls occurred in 1975, 1964 and 1953. Respectively, these flood discharges were measured at 31,000 c.f.s.; 53,500 c.f.s. and 17,900 c.f.s. Measured at 1978 price levels, this area suffered approximately 11 million dollars

damage during the 1975 flood and approximately 12 million dollars damage during the 1964 flood.

Much of the project area land use is transitional between urban and agricultural uses. The characteristic land use pattern in the project area is a single-family house on a large lot. In the western portion of the project area, some parcels serve as pasture and cropland.

I have considered several alternatives. The first, a flood control reservoir alternative, was not selected because it was not economically justifiable and still would require levees to contain uncontrolled flows through West Great Falls. The second, a channelization alternative, was not selected due to high right-of-way and maintenance costs and adverse environmental effects.

I considered nonstructural alternatives such as floodproofing or relocating existing structures, strict enforcement of flood plain regulations, and an evacuation plan. Annualized costs of floodproofing or relocating existing structures are much greater than equivalent average annual benefits because there are 474 structures currently occupying the flood plain. The strict enforcement of flood plain regulations or an evacuation plan allow a threat of $1,199,000 in average annual damages to remain. Consequently, I discarded these alternatives as a solution.

The only levee unit remaining in the active category is the left bank Sun River Levee. This consists of the levee, drainage structures, riprap bank protection, a channel modification; the Watson Coulee drainage conduits, interceptor ditch and levee; and project beautification. This is the proposed action. It would withstand a Standard Project Flood discharge design of 65,000 c.f.s. with 3 feet of freeboard and essentially eliminates flood damages in West Great Falls on the left bank of the Sun River. At current price levels and discount rate, the proposed action has a benefit-to-cost ratio of 1.9.

The proposed action would eliminate the entire $1,199,000 in average annual damages on the left bank of the Sun River flood plain. This plan will protect approximately 469 family structures, 3 businesses, 1 church, and 1 grade school located within the 500-year flood plain. The plan would require displacement of eight families who live along the potential levee alignment. Approximately 221 acres of land will be permanently committed to the project. Twenty-eight acres of cropland and 125 acres of

pastureland will be taken out of production. Approximately 87 acres of land will be required for borrow. This land will be graded and revegetated for future land use except in the area of Wadsworth Park where deep borrow is proposed.

As designed, the project induces flood damages on the right bank of the Sun River upstream from Interstate 15 and on both banks upstream from the levees during major flood events. The levee may reduce the esthetic value of the river. No wetlands are on or near the project site. Any area disturbed by construction activity will be revegetated with native grasses.

Residents of the Country Club Subdivision on the right bank of the Sun River oppose the project. They also fear induced flooding from the Sun River. However, no induced flooding would occur in that area.

Persons who live upstream of the project area oppose the project. They fear the effects of induced flood elevations that would occur with the levee's construction. A 100-year flood would induce approximately $40,000 in additional damages and a 500-year flood would induce approximately $20,000 in additional damages. Due to the infrequent occurrence of such storms, average annual damages increase approximately $2,000.

Other homeowners who live between Sixth Street and the Missouri River on the left bank of the Sun River also oppose the project. They feel they would be taxed for an equal share of the project cost without benefiting equally from the flood protection provided by the levee. The project has been modified accordingly.

Before construction can begin, the local sponsor may have to obtain permission to build from the State of Montana. The City of Great Falls requires a Conditional Use Permit under provisions of the city's flood plain regulations. Under the State of Montana's regulations, any obstruction in the flood plain that raises the elevation of the 100-year flood more than 0.5 feet at any point requires a zoning variance. This is available from the Montana Department of Natural Resources and Conservation for Cascade County.

CONCLUSIONS

I have reviewed and evaluated, in light of the overall public interest, the documents concerning the proposed action, as well as the stated views of other interested agencies and the

concerned public. The active portion of the Sun River Flood Protection Project, the Left Bank Sun River Levee, with the conduits draining Watson Coulee, is economically justified. I find there is no practicable alternative to this construction as defined by Executive Order 11988. The proposed action includes practical measures that minimize harm to the affected flood plain. Future development in the flood plain will not be induced by construction of this project. Therefore, construction of the active portion of the Sun River Flood Protection Project will be initiated as soon as possible.

RECOMMENDATIONS

Acting in the public interest, I recommend the active portion of the Sun River Flood Protection Project for flood control be constructed as authorized.

I also recommend that the City of Great Falls and Cascade County furnish assurances satisfactory to the Secretary of the Army that they will provide the items of local cooperation as presented in the Supplemental Final Environmental Statement.

Date: 14 Feb 79

JAMES W. RAY
Colonel, Corps of Engineers
District Engineer

I concur with the findings of the District Engineer.

Date: 8 Mar 79

C. A. SELLECK, JR.
Colonel, Corps of Engineers
Division Engineer

Date: _____

HUGH G. ROBINSON
Brigadier General, USA
Deputy Director of Civil Works

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( ) Draft (Supplemental) (X) Final Environmental Statement (Supplemental) Responsible Office: U.S. Army Engineer District, Omaha, Nebraska

1. Name of Action. (X) Administrative ( ) Legislative

2. Description of the Action. The active portion of the authorized project recommended for construction at this time consists of a levee, drainage structures, a channel modification on the left bank of the Sun River and riprap bank protection; a collector ditch, interceptor levee, and buried conduits that will carry runoff from Watson Coulee (an interior drainage area) into the Sun River; and project beautification. This project will provide flood protection for a large part of West Great Falls, Montana. The levee will be 31,800 feet long. The levee will average 15.5 feet in height adjacent to the Sun River and 6 feet in height adjacent to Sixth Street. Sixteen drainage structures will be constructed. A total of 1,237,000 cubic yards of fill material will be required. About 1,600 feet of channel immediately downstream from Interstate 15 will be moved westward as much as 300 feet to provide room for the levee on the western side of 14th Street. The Watson Coulee collector ditch will be approximately 3,200 feet long and the interceptor levee will be approximately 2,300 feet long. This small levee will require 5,300 cubic yards of fill which will be obtained from the collector ditch. There will be two 84-inch conduits which will carry runoff from Watson Coulee along 27th Street to the Sun River. Approximately 200 tons of riprap will be required around the Watson Coulee inlet and another 29,000 tons of rock will be required to riprap 6,250 linear feet of bankline along the Sun River. Flooded areas and depths will increase in some of the unprotected areas in West Great Falls. The City of Great Falls should continue to enforce flood plain regulations in these areas. Since regulations are not part of the Federal action, they are not addressed in the environmental statement. The project is shown on plate 1.

3. a. Environmental impacts. The levee will provide protection against the 500-year flood event for a large portion of West Great Falls, Montana. Based on present development, the levee will prevent $1,199,000 in average annual damages and drainage from Watson Coulee will be improved. The levee will eliminate requirements for prohibitive zoning in portions of the flood plain except in designated ponding areas; these areas may

be rezoned for urban development. A 33-acre lake with an average depth of 12 feet will result from a deep borrow area in Wadsworth Park.

b. Adverse environmental effects. Approximately 211 acres of land will be committed to the project. A total of 33 acres of cropland and 125 acres of pastureland will be taken out of production. Approximately 27 acres of trees and shrubs and 26 acres of natural grasses will be eliminated; however, nursery grown trees will be planted in other areas and in the project right-of-way. Material for the levee will be obtained from an upstream 29-acre shallow excavation and a 33-acre deep borrow area in Wadsworth Park; material from excavation of the Watson Coulee collector ditch may also be used. Each drainage structure will have a ponding area behind the levee. Eight families will be displaced and the tax base will be slightly reduced. Induced flood stages will occur to unprotected areas on the right bank of the Sun River upstream from Interstate 15 and to agricultural areas upstream from the levee. Channel modifications immediately downstream from Interstate 15 will reduce the stream length by about 350 feet. Construction activities will cause a temporary increase in noise levels and temporary degradation of air and water quality. Trucks and other heavy equipment will cause temporary traffic congestion and an undetermined amount of roadway deterioration.

4. Alternatives. Alternatives considered in the original Design Memorandum and supplements thereto included levees, flood control reservoirs, channelization, and no action. During the economic reevaluation of this project, other solutions were considered. These included flood proofing of existing structures, strict enforcement of flood plain zoning regulations, removal of structures from the flood plain, and an emergency evacuation plan.

5. Comments Requested.

U.S. Environmental Protection Agency
U.S. Department of the Interior, Office of the Secretary
U.S. Department of Health Education and Welfare, Public Health Service
U.S. Department of Transportation
U.S. Department of Housing and Urban Development
U.S. Department of Agriculture
Federal Energy Regulatory Commission
Missouri River Basin Commission
Old West Regional Commission
Montana, Office of the Governor
Montana Department of Fish and Game

Montana Department of Natural Resources and Conservation
Montana Environmental Quality Council
Montana State Department of Health and Environmental Sciences
Montana Recreation and Parks Division
Montana Wildlife Federation
Montana Association of Conservation Districts
Montana Wildlife Society
City of Great Falls
Cascade County, Montana
Cascade County Soil Conservation District
West Great Falls Flood Control and Drainage District

6. Draft Statement to CEQ on 6 May 1971.

Final Statement to CEQ on 12 August 1971.
Supplemental Draft Statment to EPA on 10 February 1978.
Supplemental Final Statement to EPA on 4 May 1979.

I. PROJECT DESCRIPTION

AUTHORIZATION

1.01 The Great Falls Flood Control Project was authorized by the Flood Control Act of 1958 (Public Law 85-500). Following the flood of 1964, the City of Great Falls expressed an interest in sponsoring the project. Later, the project was modified by the Flood Control Act of 1965 (Public Law 89-298). Other modifications to an authorized project are allowed under conditions prescribed in Section 2 of the Flood Control Act of 1941. The authorization was made subject to the condition that no expenditures would be made until local interests gave assurances, to the satisfaction of the Secretary of the Army, that they would:

(a) Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, including lands necessary for ponding of interior drainage;

(b) Hold and save the United States free from damages due to the construction works;

(c) Perform without cost to the United States, in conjunction with furnishing rights-of-way, all necessary removal or alteration of existing buildings and other improvements, and all necessary alterations to bridges and approaches, roads, streets, sewers, and other utilities;

(d) Contribute $179,000 toward the cost of the Watson Coulee Interceptor;

(e) Zone the unleveed portion of the floodway through the damage area to preserve its capacity and to prevent further encroachments; and

(f) Maintain and operate all the works after completion.

PROJECT HISTORY

1.02 Congress appropriated funds for construction of the project in Fiscal Year 1967. The West Great Falls Flood Control and Drainage District was created in August 1967 to sponsor the project. Construction of the project was about to begin in July 1968 when the local sponsor encountered legal difficulties. The final order of confirmation of the District was appealed in the State Supreme Court. The primary point of the appeal was on the method of assessment in the District. Meanwhile, a Final Environmental Statement was filed with CEQ on 12 August 1971.

1.03 After the lengthy dispute in the courts and State legislature, the West Great Falls Flood Control and Drainage District abandoned all efforts to act as sponsor for the project in January 1975.

1.04 After the flood of 1975, there was renewed local interest in the levee project. The local sponsor petitioned the court to: (1) hold a new election and (2) exclude from the District the Country Club area where the flood threat is less severe and where the majority of the project opposition rested. The election was held on 26 October 1976 and passed 3 to 1 in favor of proceeding with construction of the left-bank levee on the Sun River. In January 1977, the Corps was notified of the new election and funds were transferred to the project; this enabled the Omaha District Corps of Engineers to work with the local interests in reviewing the design of the project.

1.05 Prior to final design it was determined that the project should be reevaluated. The reevaluation report concluded that only one of the five levee elements that were included in the authorized project should be constructed at this time. This is the left-bank Sun River levee. The other levee elements have been placed in an "inactive" status.

1.06 At the public meeting held on 24 May 1978, residents on the left bank of the Sun River downstream from Sixth Street expressed opposition to the proposed project. Later, the Corps of Engineers consulted the Montana Department of Fish and Game. As a result, a channel realignment was designed to follow the old channel more closely. The levee alignment also was changed at the request of the local sponsor to eliminate protection of the left-bank area downstream from Sixth Street. The project is shown on plate 1.

1.07 As a supplement to the original EIS, this document describes the conditions associated with construction of the left-bank Sun River levee. The remaining levee units have been placed in an inactive status. In the future, if a decision is made to return any of the remaining levee units to active status, another supplemental EIS to the original EIS will have to be written for each levee unit considered for construction.

LOCATION

1.08 The project will be located on the left bank of the Sun River in West Great Falls, Montana. The location is shown on plate 1.

LOCAL SPONSORS

1.09 The local sponsor for the left-bank Sun River levee is the West Great Falls Flood Control and Drainage District.

PROJECT DESCRIPTION

1.10 The Sun River Flood Control Project consists of all levee units displayed on plate 2. These levee units include the left-bank Sun River levee, the right-bank Sun River levee, the left-bank Missouri River levee which will protect the Country Club subdivision and the right-bank Missouri River levee protecting the Great Falls municipal water facilities. A Final Environmental Statement (EIS) for this entire project was filed with CEQ on 12 August 1971. The subsequent decision to use provisions of the Flood Control Act of 1941 to reduce the scale of the project requires this document.

1.11 The flood protection project recommended for construction at this time consists of the left-bank Sun River levee, drainage structures, riprap bank protection, and a channel modification; the Watson Coulee drainage conduits interceptor ditch and levee; and project beautification. The project is shown on plate 1.

1.12 The left-bank Sun River levee will be 31,800 feet in length. Adjacent to the Sun River, the levee will average 15.5 feet in height. It will average 6 feet in height where it follows Sixth Street and Crescent Drive. Approximately 1,237,000 cubic yards of fill material will be required for levee construction. Channel realignment will relocate a 1,600-foot section of the current Sun River channel immediately downstream from Interstate 15 westward about 300 feet; this will provide room for the levee west of Fourteenth Street. The levee will be set back from the existing channel a minimum distance of 50 feet, except in the channel modification area.

1.13 Sixteen (16) interior drainage structures will be installed. Fifteen will be through the levee at all required locations to provide adequate facilities for discharging interior stormwater drainage from the project area. Another drainage structure is part of the Watson Coulee drainage system (see plate 1.) The number of drainage structures may change slightly after further study. The structures are designed to convey the peak discharge of the 100-year design rainfall storm and less frequent storms emanating from each of the drainage areas intercepted by the levee. Each drainage structure is sized to convey the 100-year peak discharge through the levee without requiring supplemental ponding storage. A headwater elevation that would not cause any material damage in the vicinity of each structure location is used. All drainage structure outlets would be equipped with

automatic flap gates and manual slide gates to prevent Sun River floodwaters from entering the protected area by reverse flow through the structures. If a floodgate is closed when it rains in the project area, ponding would occur behind the levee. According to the historic sequence of flood events, the protected area would be drained before flood stages are experienced on the Sun River. The relationship between the hydrograph timing of the small drainage areas at the project location and the much larger Sun River basin upstream from Great Falls make a coincident occurrence of the 100-year flood peaks a very remote event in a probability range far exceeding the criteria for stormwater drainage protection.

1.14 Certain areas along the Sun River have severe erosion problems. Approximately 29,000 tons of riprap will be required to armor 6,250 linear feet of bankline to control erosion. The areas to be riprapped are shown on plate 1.

1.15 The location of the two borrow sites are shown on plate 1. Twenty-nine acres will be used for shallow borrow to a depth of 8 feet on the site near the levee's upstream tieoff. The site in Wadsworth Park which will be used for deep borrow is 33 acres in size and 24 feet deep. This second site will become a lake with a mean depth of 12 feet which can be used for recreational purposes.

1.16 The quality of the water within the lake is uncertain at this time. Ground water quality testing indicates that the area when the lake is to be excavated may be in an "alkali seep". Ground water in "alkali seeps" is typically very high in alkalinity, hardness, and total dissolved solids. Since ground water will be the principal source of water for the lake, the water in the lake is expected to measure high in these particular parameters. In spite of the probable alkaline conditions, the lake should be marginally suitable for either a cold-water or warm-water "put and take" fishery depending upon maximum water temperatures.

1.17 Runoff from the Watson Coulee will be routed by a collector ditch and interceptor levee; it will then drain into two 84-inch conduits which will pass the water through the project area to the Sun River. Approximately 28,500 cubic yards of material will be removed to form the ditch which will be 3,200 feet in length. A drainage structure located under Watson Coulee Road will allow interior drainage to flow into the collector ditch. The interceptor levee will be 2,300 feet long with an average height of 3 feet. It will be composed of 5,300 cubic yards of compacted fill material. Two hundred tons of riprap will be used to armor the Watson Coulee inlet.

1.18 Project beautification includes tree plantings which will be located to the west of the deep borrow site in Wadsworth Park. Single trees will be planted elsewhere in Wadsworth Park for landscaping purposes.

ECONOMIC SUMMARY

1.19 Estimated total cost of the project is $10,122,000 of which $8,070,000 will be Federal cost. The estimated average annual cost is $704,300. This is computed at a 6.875-percent interest rate and includes $7,500 annual operation and maintenance costs. Average annual benefits under existing conditions are $1,199,000 and $1,305,600 under future conditions. Benefit-cost ratios are 1.7 to 1.0 under existing conditions and 1.9 to 1.0 under future conditions.

ACTIVITIES SUBJECT TO REGULATION

1.20 It has been determined that certain construction activities proposed in this project are subject to regulation under Sections 401 and 404 of the Federal Water Pollution Control Act Amendments of 1972 and the Clean Water Act of 1977, the State of Montana Stream Preservation Act of 1963, and the Montana Administrative Code 16-2.14(10)-S14480, Water Quality Standards and 26-2-10(6)-S10140. Activities subject to regulation include channel slope modifications and placement of riprap for bank protection on the Sun River and placement of permanent fill in the Sun River in conjunction with the channel modification. All construction activites are subject to State of Montana air quality regulations.

1.21 Flood plain regulations that apply to the project area include the Flood Plain Zoning Ordinance of the City of Great Falls and the Montana Floodway Management and Regulation Act administered by the Department of Natural Resources and Conservation. Under the Montana Floodway Management and Regulation Act, the Sun River levee may be subject to regulation.

1.22 Executive Order of the President 11988, Flood Plain Management; specifies the conditions under which Federal projects may be constructed in a flood plain.

1.23 This project is also subject to the requirements of the Endangered Species Act, the Fish and Wildlife Coordination Act, the Historical Preservation Act, and Executive Order 11990 on Protection of Wetlands.

II. THE ENVIRONMENTAL SETTING WITHOUT THE PROJECT

TOPOGRAPHY

2.01 West Great Falls is located within the flood plains of the Missouri River and the Sun River. The Sun River begins at the Continental Divide and flows down the eastern slope of the Rocky Mountains in a general southeastward direction for 34 miles to Gibson Dam. It flows in an eastward direction for 86 miles and enters the Missouri River on the left bank at Great Falls. A diversion dam is located about 4 miles downstream from Gibson Dam. The western portion of the basin is in the main range and foothills of the Rocky Mountains with an average stream slope above Gibson Dam of 107 feet per mile. From Gibson Dam to the diversion dam, the stream slope reduces to about 50 feet per mile as it goes through a transition from the mountains to the broad rolling plateau of the lower basin. The slope of the stream below the diversion dam averages slightly less than 14 feet per mile. The total contributing drainage area is estimated to be 1,927 square miles at Great Falls. The lower Sun River valley is approximately 1 to 1.5 miles wide and is bordered by upland hills which are 200 to 300 feet above the flood plain.

GEOLOGY AND SOILS

2.02 The soils of the valley are alluvial and consist of sandy clay to sand depending on depth. Ground water levels are encountered at an average depth of 7 feet. According to the Soil Conservation Service, there is no unique farmland in the vicinity of the project. However, there are approximately 180 acres of prime farmland in close proximity to the proposed levee. This acreage is located in low areas adjacent to the river. Any of the 33 acres of cropland designated for the levee right-of-way would qualify as prime farmland if irrigated.

CLIMATE

2.03 The climate of the Sun River basin is classified as semi-arid. Summer days are generally hot and dry with cool nights; the winters are cold. Winter precipitation is in the form of snow and is moderately heavy, especially in the mountainous areas. The basin is subject to chinooks which normally occur several times a winter. Precipitation and temperatures vary somewhat between the mountainous area and the plateau region. This is the result of the extreme differences in elevation which range from 3300 feet to 9500 feet mean sea level (m.s.l.).

POPULATION

2.04 Great Falls and surrounding Cascade County comprise the Great Falls Standard Metropolitan Statistical Area (SMSA). Population for the SMSA was 53,027 in 1950, 73,418 in 1960, and 81,804 in 1970. This represents 38 percent and 11 percent growth for the 10-year periods from 1950 to 1960 and 1960 to 1970, respectively.

2.05 The population for the City of Great Falls increased 47 percent between 1950 and 1960 and 4 percent between 1960 and 1970. Great Falls had a population of 39,214 in 1950, 57,629 in 1960, and 60,091 in 1970.

2.06 Local planners prepared a special population projection for the "1976 Great Falls Urban Transportation Study" which indicates Great Falls had a 1975 population of 76,076, a 26-percent increase from 1970. Projections to the year 2020 are shown in table 1.

Table 1
PROJECTED POPULATION - GREAT FALLS

Year	Population
1980	79,956
1990	88,321
2000	97,562
2010	107,766
2020	119,025

EMPLOYMENT

2.07 The labor force in Cascade County numbered 24,184 in 1960 and 32,804 in 1970, an increase of 36 percent. At the same time, the Great Falls labor force increased 24 percent from 19,452 in 1960 to 24,183 in 1970. For both the city and the SMSA, the employment population ratio was 40 percent in 1970.

2.08 The two economic sectors employing the most persons are retail and wholesale trade and the armed forces. Great Falls is the retail trade center for a large market area which includes several surrounding counties. Nearby Malmstrom Air Force Base is the other source.

INCOME

2.09 Income comparisons for Great Falls and Cascade County are shown in table 2.

Table 2
INCOME
(U.S. Census, 1970)

	Median Family Income	Per Capita Income
United States	$9,957	$3,119
Montana	8,509	2,696
Cascade County	8,952	2,860
Great Falls	9,475	3,065

2.10 Great Falls has a higher median family income than Cascade County and the State of Montana but is below the United States average.

2.11 Measured in constant 1967 dollars by OBERS, the Great Falls SMSA per capita income increased by 22 percent from 1962 to 1970 from $2,773 to $3,385. It is expected to increase another 28 percent by 1980 to $4,600.

LAND USE

2.12 The corporate limits of Great Falls consist of 10,415 acres which include 3,100 acres for streets and 500 vacant acres. Public parks occupy 700 acres within the city. The 240-acre Wadsworth Park is in the Sun River flood plain and is outside the corporate limits of Great Falls. Public buildings occupy another 15 acres and include the community civic center, city hall, the courthouse, and fire stations. Public and private schools from the elementary to college level occupy another 300 acres.

2.13 Residential land use occurs on 5,000 acres. The city has zoned more land for commercial and industrial uses than is actually used for those purposes. There are 300 acres zoned for commercial use of which only 100 acres is being used. The remainder is in residential use.

2.14 The city has zoned 400 acres for industrial land use but only 100 acres is actually in use for this purpose. The remainder is in commercial and residential use.

RECREATION

2.15 The Great Falls area has good water-based recreational opportunities. The Missouri River represents the most convenient location for boating, waterskiing, and fishing. The Sun River also offers some fishing opportunities during certain

times of the year. The largest body of water near the Great Falls metropolitan area is Holter Lake. Great Falls lies within the North Central Region in the 1979 Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP). According to the SCORP report, the North Central Region has high demand but only limited opportunities for sightseeing, fishing, bicycling, boating, camping, nature walks, hiking, waterskiing, hunting, sailing, mountain climbing, canoeing, and snow skiing.

THE FLOOD PROBLEM

2.16 Flood of record. During the period 7 through 13 June 1964, northwestern Montana experienced the worst flood in the State's history. Heavy rainfall, centered near the Continental Divide, coupled with high snowmelt runoff caused unprecedented flooding in the Sun River basin. At Vaughn, the peak flow was estimated at 53,500 cubic feet per second (c.f.s.). This flow was nearly three times the previous record flow of 17,900 c.f.s. which occurred in June 1953. In Great Falls, residential damage was estimated to be more than $3,160,000, commercial damage was estimated to be nearly $200,000, and damage to streets and utilities exceeded $1,000,000. Varying degrees of damage were sustained by 681 homes and 24 business establishments. There were approximately 3,000 persons evacuated from the flooded area. Rescue operations, flood fighting, and welfare assistance had a total cost close to $47,000. Other floods which have occurred in the potential project area include the following.

2.17 May and June 1948. During the periods from 22 to 26 May 1948 and from 4 to 18 June 1948, the Sun River overtopped its banks generally throughout its entire length. The peak flow during the May flood was 14,300 c.f.s. at the gage located approximately 4 miles southeast of Vaughn. The peak flow during the June flood was 13,600 c.f.s. at the same gage.

2.18 May and June 1953. A heavy rainstorm occurred over the basin from 23 May to 4 June 1953 causing flooding along the entire length of the Sun River from near Augusta, Montana, to its confluence with the Missouri River at Great Falls. The peak discharge of 17,900 c.f.s. and a gage height of 16.38 feet were recorded at about 1 p.m. on 4 June 1953 at the river gage located 4 miles southeast of Vaughn.

2.19 June 1975. Flooding in the western part of Great Falls resulted from high stages on the Sun River and from backwater effects on the Missouri River caused by high inflows from the Sun River. The peak flow was estimated at 31,000 c.f.s. Flood depths as great as 12 feet occurred in low-lying areas. Urban

damages at Great Falls were estimated to be $9,459,000. Residential damage was estimated to be more than $8,700,000; damage surveys conducted by the Corps of Engineers reported that 552 residences were flooded. Commercial damage amounted to $1,000,000, and damages to streets and utilities were in excess of $650,000. Approximately 570 families (2,000 persons) were evacuated before flooding occurred in the western part of Great Falls. The estimated cost of rescue, evacuation, and welfare assistance amounted to about $691,000. Plates 3 and 4 are aerial photographs of this most recent flood.

FLORA AND WILDLIFE HABITAT

2.20 The immediate project area is predominantly urbanized. The western portion of the project area, however, is interspersed with open space and farmland. Trees and shrubs dominate low-lying areas along the Sun and Missouri Rivers; native grasses, forbs, and yucca dominate the surrounding uplands. The dominant tree species is boxelder. Other tree species include eastern cottonwood, green ash, russian olive, chokecherry, peach-leaved willow, and sand-bar willow. Ground cover plants include crested wheatgrass, smooth broom grass, intermediate wheatgrass, tall wheatgrass, reed grass, wild rose, and a number of various forbs and legumes. Wild rose is the principal understory species in and near wooded areas.

2.21 The best wildlife habitat in the immediate project area exists in the upstream portion of the project area along the Sun River. In this area there is a relatively dense stand of about 23 acres of trees and understory. Also located in this area is Wadworth Park, an undeveloped area owned by the City of Great Falls. The principal vegetation in this area includes native grasses and forbs.

BIRDS AND MAMMALS

2.22 Great Falls lies within the combined Pacific and Central flyways. Principal migratory bird species include green-winged and blue-winged teal, mallard, pintail, cinnamon teal, shoveler, gadwall, mottled duck, wood duck, American widgeon, canvasback, lesser scoup, redhead, goldeneye, ring-necked duck, bufflehead, ruddy duck, mergansers, American coot, lesser and greater Canada geese, white-fronted geese, snow geese, Ross' geese, trumpeter and whistling swans, and blue heron.

2.23 Upland bird species include the ring-necked pheasant, Hungarian partridge, and sharp-tailed grouse. Raptors include the bald and golden eagles; the rough-legged, red-tailed, American kestrel (sparrow), and ferruginous hawks. Many species of songbirds and other birdlife are also abundant in the area.

2.24 Some mammals that can be found in the area include the mink, muskrat, beaver, badger, raccoon, skunk, cottontail rabbit, squirrel, a large number of other small furbearers, fox, coyote, and white-tailed and mule deer.

FISH

2.25 The fish species found in the lower Sun River differ greatly from those found in the upper Sun River or the Missouri River. This is largely because of the heavy silt load entering the Sun River from Muddy Creek near Vaughn. Muddy Creek has always had a heavy silt load; however, return flows from the Greenfields Irrigation Project have increased the base flow on Muddy Creek and its tributaries, causing a greater silt load and poor water quality in the lower portion of the Sun River. Studies are being conducted by the Bureau of Reclamation to determine the amount and source of the silt load contributed by return flows from the Greenfields Irrigation Project and to provide remedial measures. Fish species found in this lower portion of the Sun River include carp, long nose and white sucker, yellow perch, black bullhead, and numerous species of minnows and shiners. Fish species found on the Sun River above Vaughn, however, are more typical of a cold-water fishery. They include the brown, brook and rainbow trout, white fish, yellow perch, mottled sculpin, carp, suckers, and minnows. Fish species found in the Missouri River include the brown and rainbow trout, white fish, perch, large mouth bass, crappie, black bullhead, burbot, carp, suckers, and minnows.

AMPHIBIANS AND REPTILES

2.26 Species of amphibians and reptiles found in the area include the western toad, leopard frog, chorus frog, western painted turtle, horned lizards, gopher snake, red-sided garter snake and prairie rattlesnake.

THREATENED AND ENDANGERED SPECIES

2.27 Endangered species that may occur in Cascade County include the rocky mountain wolf, black-footed ferret, peregrine falcon, and the bald eagle. With the exception of the bald eagle, none of these endangered species are known to utilize habitat in the immediate project area. Although bald eagles are known to migrate through the area, none are known to frequent the immediate project vicinity because it is urbanized. The Montana Department of Fish and Game also lists other threatened or "unstable" species as possibly occurring in Cascade County. Although none of these species are known to frequent the immediate project area, listed birds include the marsh; pigeon; sharp-shinned, Cooper's, and ferruginous hawks; prairie falcon;

osprey; mountain plover; sanderling; semipalmated sandpiper; western sandpiper; knot; dunlin; black-necked stilt; and screech, snowy, burrowing, and long-earred owl. Mammals included on the State's list are the black-tailed prairie dog, dwarf and merriam shrews, long-earred and big-earred bats, least weasel, wolverine, swift fox, and Canadian lynx. Reptiles and fish included are the hog-nosed snake, blue sucker, and fine-scaled dace.

HISTORICAL AND ARCHEOLOGICAL RESOURCES

2.28 The "National Register of Historical Places" and its monthly supplements and the "Montana Historic Preservation Plan with Historic Sites Compendium" have been consulted. There are no known National Historic sites or sites of State significance in the levee, riprap or borrow areas; however, there are three National Register Sites in the Great Falls vicinity.

2.29 One cultural resources survey has been completed for the levee, riprap, and borrow areas. A second cultural resources survey for the Watson Coulee area and the upstream and downstream levee areas will be completed prior to construction.

2.30 The survey determined that an archeological site exists in a potential borrow area to the west of the proposed project. Its size is approximately 250 feet by 250 feet. Appropriate State agencies are being consulted to determine the effect of construction activity on the site.

WETLANDS

2.31 No wetlands exist on project land or any adjacent territory. Executive Order of the President 11990, Protection of Wetlands, specifies that impacts to wetlands be considered if applicable.

III. RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS

3.01 Population increases in Great Falls will result in a need for additional residential lots. If the project is not implemented, the additional land will be in areas outside the city and outside the 100-year flood plain due to the flood hazard and enforcement of flood plain regulations. If the project is implemented, these constraints will be removed on vacant residential lots protected by the project.

3.02 Specific land use plans for which the project will have an impact include the Great Falls Community Facility Plan and the Projected Land Use Plan which are part of the city's Comprehensive Plan. This document was published in 1970 but is currently being reviewed and updated by the City-County Planning Board in Great Falls. At present, local authorities have not projected any future land use in the project area pending construction of the levee system.

3.03 With the project in place, land that is already partially urbanized would probably be more desirable for development than other areas some distance from the city limits. Such factors as existing street rights-of-way, utilities, sanitary sewers, electricity, natural gas lines and water lines would attract development. There are also other locational advantages. The protected areas opened to development are in a close proximity to Interstate 15, the airport, and the central business district.

IV. PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

4.01 General impacts of the project include the following:

- Flood Control
- Residual Flood Hazard
- Induced Flooding
- Land Use Impacts
- Economic Impact
- Tax Revenues
- Ecological Effects
- Loss of Flood Plain Esthetics
- Temporary Impacts
- Displacement of People
- Historic and Archeological Resources

FLOOD CONTROL

4.02 The proposed project will provide protection against the 500-year flood event as defined by extrapolating the discharge-probability curve. The project will reduce the average annual damages in West Great Falls by 98 percent. Average annual damages will be reduced by 92 percent in the City of Great Falls. There are approximately 469 single-family structures, 3 businesses, 1 church, and 1 grade school located within the 500-year flood plain that will be protected by the levee project. The project will prevent $1,199,000 in average annual damages to existing development. The project will also provide other unquantifiable benefits such as the improved safety and well being for 469 families residing in the 500-year flood plain. In protecting these families from flooding, the project has a significant, beneficial impact.

4.03 The Watson Coulee conduits will significantly reduce the flood hazard in Watson Coulee and provide an outlet for local storm drainage. Runoff from Watson Coulee is presently conveyed through the West Great Falls area by inadequate, open ditches. The project would capture this runoff before it enters the developed area and convey it to the Sun River through two buried 84-inch conduits. In reducing the flood threat from Watson Coulee to the project area, this project element has a significant, beneficial impact.

RESIDUAL FLOOD HAZARD

4.04 Although the project will reduce the average annual flood damage in West Great Falls, residual flood hazards will still exist in three areas. The first of these is the right bank of the Sun River. The second is the left bank of the Missouri River above its confluence with the Sun River. The third is a

small area on the left bank of the Sun River downstream from Sixth Street. Since there is little local support for levees in the three areas, local interests should enforce flood plain regulations and otherwise comply with the findings of the flood insurance study so that flood insurance can be obtained. It would also be advisable for local interests to formulate a flood contingency plan for emergency evacuation and cleanup. The project does not significantly affect the residual flooding.

INDUCED FLOODING

4.05 After the levee is constructed, subsequent large floods will have greater stages and cover an increased number of acres on the right bank of the Sun River between Interstate 15 and the upstream end of the levee and on both banks upstream from the levee. The 100-year flood will be approximately 2 feet deeper than under existing conditions at the upstream end of the levee (see plate 5). From the upstream end of the levee, the induced flood depth decreases gradually to nothing at a point approximately 5 miles upstream from the levee. Downstream from the levee's upstream tieoff, the depth will decrease to approximately 0.3 foot less than existing conditions at the Interstate 15 bridge. Approximately 63 more acres will be flooded during the 100-year flood (see plate 5.) This 100-year flood can be expected to cause approximately $2,400,000 in damage in the area between Manchester and the levee's upstream tieoff with no levee in place. In the same area, total flood damages will increase by approximately $40,000 with the levee in place. In the area downstream from the upstream tieoff on the right bank, a 100-year flood will cause approximately $92,000 damage under existing conditions. Chances of a 100-year flood occurring are 0.01 in any year.

4.06 Under design conditions, the standard project flood of 65,000 c.f.s. will be approximately 3.5 feet deeper than under existing conditions at the upstream end of the levee. From this end of the levee, the induced flood elevation decreases gradually to nothing at a point approximately 5 miles upstream from the levee and downstream to the Interstate 15 bridge (see plate 5.) Approximately 35 more acres will be flooded. Under existing conditions, a standard project flood in the area between Manchester and the levee's upstream tieoff can be expected to cause approximately $3,500,000 in damage. Under design conditions, total flood damages will increase by approximately $20,000 in the same area. In the area downstream from the upstream tieoff on the right bank, the standard project flood will cause approximately $107,000 damage under existing conditions and $170,000 damage under design conditions. The chance of a standard project flood occurring are .002 in 1 year. Because the 100-year and standard project floods are infrequent

storms, the equivalent average annual induced damages amount to only $2,000. The induced damages are sufficiently minor, using an average annual equivalent measurement; the induced depths are an insignificant impact, even though the subject is controversial.

4.07 Levee Drainage Structures. The past history of recorded rainfall and stream gage information in the project vicinity has not indicated a coincidental occurrence of a significant rainfall over the project and a Sun River flood stage that would block surface drainage. If this did happen, the gates on the drainage structures would be closed to prevent river water from backing through the structures; the coincident rainfall over the protected area would result in some potential flooding from ponding water in the area behind the levee. Portable pumps could be utilized to alleviate potential flooding in the areas behind the levee.

4.08 In the design of the drainage structures, ponding storage was not utilized to augment the discharge of the design storm runoff. Therefore, it is only necessary that the stormwater inflow on the landward side of the levee reach an elevation high enough to provide each structure with the hydraulic capability to handle the peak discharge of the 100-year design storm. This is referred to as the structure design headwater elevation. Under existing development conditions, the headwater elevations chosen for the drainage structures would cause shallow inundation of low-lying land and streets adjacent to the levee alignment for short periods of time without serious damage.

4.09 The contour limits showing the potential areas of inundation for each drainage structure headwater elevation operating under the 100-year design storm will be delineated on a map and included in the project Operation and Maintenance Manual. The local sponsor will be required to notify the local jurisdiction with zoning authority every year, providing them with a map of the potential flooded areas that would result from the operation of the drainage structure during the occurrence of a 100-year storm over the protected area. These local bodies will be responsible for making sure that any new development constructed within these areas of potential inundation is on fill dirt to an elevation above the headwater elevation or flood proofed to that same elevation. If this action is taken, the interior flooding will be an insignificant impact.

LAND USE IMPACTS

4.10 Approximately 211 acres of land will be committed to the project. This consists of 33 acres of cropland, 125 acres of pastureland, 27 acres of trees and 26 acres of natural grasses.

Cropland is considered prime farmland if irrigated. In addition, the only practical location for the levee is in its proposed site in the flood plain. The area to be protected is already urbanized. As a result, the impact of using the levee at its proposed location is minimal.

4.11 The levees built on the Sun River flood plain will provide flood protection to 830 acres that are now part of the "floodway" under flood plain zoning regulations. All but 178 acres are currently developed. No further construction is currently allowed in this area. With protection, this area will most likely have more single-family, large-lot development. This is presently the characteristic land use in the area. Possibilities exist for a limited number of multifamily structures and small, quick-service stores. These land use changes are a positive impact. Such development can add to the tax base. This development may create a demand for some public services which are not now provided. Since the project area is now urbanized, most public services are already in place. In rural Cascade County outside the project area, there is a negligible amount of development in the flood plain. The State of Montana strictly enforces flood plain regulations on the Sun River flood plain. New urban development will remain insignificant.

4.12 Other possibilities include the development of an industrial park on property belonging to the Burlington Northern railroad. Most of this land is in the 500-year flood plain and not affected by flood plain zoning. Levee construction might provide a slight impetus for development of the park. This is an insignificant impact.

4.13 Two sites will be required for borrow. One site is located to the west of the levee near the upstream tieoff and south of the Burlington Northern railroad tracks. A 43-acre easement has been obtained for this site. Twenty-nine acres will be used for borrow to a depth of 8 feet. The bottom of the pit will be 2 feet above the water table. A drainage ditch will be dug so that water does not collect in the pit. The second site is located in Wadsworth Park. This site requires a 45-acre easement. The borrow pit will utilize 33 acres to a depth of 24 feet. The bottom of the pit will be approximately 12 feet below the level of the water table. The actual depth may vary depending on geological factors. The impact of the first site will be insignificant. The pit will be sloped and contoured to drain incoming water. All soil will be reseeded with native grasses. The second site may have a significant, positive impact. It will become a fresh water lake.

ECONOMIC IMPACT

4.14 Secondary economic benefits from the project would include "spin-off" effects such as local and regional purchases related to construction expenditures. The impact on the local economy will be minor.

4.15 It is possible that the increased level of protection provided by the project would increase economic activity in the protected area, but there is no evidence that the flood threat is the determining factor for the presence or lack of commercial or industrial activity in West Great Falls. This impact is insignificant because it may not occur and if it does, it will be very minor.

TAX REVENUES

4.16 The left-bank levee will occupy 200 acres of which 153 acres are now in the private sector. Twenty acres are part of the Wadsworth Sun River Park owned by the City of Great Falls. Another 17 acres are in the public sector. Watson Coulee will use 11 acres of land now in the private sector. Table 3 gives the amount of land removed from taxation by the levees.

Table 3
LAND REMOVED FROM TAXATION
(acres)

	Urban	Agricultural
Left-Bank Levee		
Outside Great Falls	20	33
Inside Great Falls	100	0
Publicly Owned Land	17	20
Channel Modification	0	10
Watson Coulee	0	11
Total	137	74

4.17 Land classed as urban is taxed on the basis of assessed value per lot. Agricultural land of the type found in the vicinity of the levee is assessed at approximately $23 per acre. In West Great Falls, lots outside the city limits have average assessments of $400. Similar lots within the city limits average $450. Total loss in annual tax revenue amounts to $6,100 at the current tax rates.

4.18 Local school budgets affected include the high school, $10,991,000; elementary school, District 1, $15,762,000; and vocational-technical center, $860,000. Amounts lost to each

budget come to less than one-tenth of 1 percent. The affect will be minimal as the urban property will probably not be reappraised and lost agricultural land accounts for less than 16 percent of the tax loss. If land behind the levee becomes attractive for residential development, greater revenues from an increase in total taxable value would more than compensate expected losses. The overall impact is not significant.

ECOLOGICAL EFFECTS

4.19 Ecological effects will be insignificant. Terrestrial and aquatic environmental losses and degradation will be small. No wetlands, threatened or endangered species or important nesting, spawning, rearing or resting sites for terrestrial or aquatic species will be affected by the project.

4.20 Terrestrial Environment. Approximately 53 acres of native vegetation, which includes trees, shrubs, forbs and natural grasses, will be cleared from the levee right-of-way. An additional 62 acres of native grasses and forbs will be destroyed by shallow and deep borrow operations. Any loss of native vegetation is unadvoidable. To avoid displacement of homes and other improvements, the proposed levee alignment closely follows the river channel where the native vegetation is located.

4.21 One of the project elements is beautification. An area to the west of the proposed lake in Wadsworth Park will be planted with a thick band of nursery grown trees. The trees will be native species. Other trees will be planted throughout Wadsworth Park for landscaping purposes. The City of Great Falls plans to develop recreational facilities in the park.

4.22 The vegetation along the river provides habitat for pheasants, songbirds, rodents, and some furbearers. These wildlife species may be displaced from the cleared areas into adjoining areas with suitable habitat where competition with their own kind and other species may lead to a nominal reduction in their populations. Because impacts on the terrestrial environment are so small, no plan has been established to mitigate habitat and wildlife losses. Any mitigative effect the beautification plantings in Wadsworth Park may have will be small.

4.23 Effects on the aquatic environment. A channel modification on the Sun River just downstream from Interstate 15 will reduce the length of the Sun River by 350 feet. Riprap bank protection will be provided at four locations along the Sun River. Approximately 6,250 lineal feet of bankline will be affected by the bank protection.

4.24 The riprap bank protection is required as the levee must be protected from the undercutting effects of erosion. The channel modification is also required as only one other feasible, alternate levee alignment exists that does not involve a channel modification. That alignment would follow the left bank of the existing Sun River channel. It would require the relocation of 14th Street and the displacement of 15 houses and 14 other buildings. The proposed alignment will result in less overall impact.

4.25 The placement of rock and fill material in conjunction with the bank protection will cover established benthic and macroinvertibrate communities. The rock and fill material, however, will be a suitable environment for reestablishment of these communities. These activities will have no permanent effect on the aquatic environment of the Sun River or any aquatic species inhabiting the river. Because the impacts on the aquatic environment are not significant, no plan has been established to mitigate losses.

LOSS OF FLOOD PLAIN ESTHETICS

4.26 Much of the natural habitat along the Sun River is typical of an urban area. Most of the levee alignment will lie in urban and agricultural areas and will not cause a significant loss of esthetics. The levee will, however, be an unnatural addition to some relatively undisturbed areas along the Sun River and may tend to detract from the natural beauty of these areas. Any esthetic loss that may occur is unavoidable. Steps will be taken to minimize esthetic losses. Incorporated into the project is a beautification plan whereby native species of trees and shrubs will be planted along the landward side of the levee and in the Wadsworth Park area. Plantings in the Wadsworth Park area will be primarily in a thick band on the landward side of the levee to the west of the lake. Some trees will also be planted throughout the park for landscaping purposes.

TEMPORARY IMPACTS

4.27 All temporary impacts related to construction of the levee project, whether social, economic, or ecological, will be insignificant. By their very nature, all are unavoidable and cannot be completely eliminated. Remedial and protective measures, however, will be employed wherever possible to minimize adverse effects.

4.28 Increased noise level. Levee construction operation will cause increased noise levels from heavy equipment. As required by State law, noise will be kept within acceptable levels

through the use of noise retarding equipment. This impact will be minor.

4.29 Degradation of air quality. Cleared and excavated areas will be subject to erosion by the wind. The windblown dust will degrade air quality. During construction any dust problem will be controlled by using water.

4.30 Emissions from construction equipment will be in compliance with the State air quality regulations. Burning of the cleared trees and brush by the contractor will not be permitted.

4.31 Degradation of water quality. Runoff from excavated areas can degrade water quality of the Sun and Missouri Rivers during construction.

4.32 The channel will be modified and riprapped under dry conditions. In doing this, soil particles entering the Sun River will be minimal. Clean, durable riprap will be taken from non-streambed sources as will any fill material to prevent channel disturbance. In addition, the use of construction machinery in the wetted channel will be kept at a minimum and will be approved in advance by the contracting officer.

4.33 Disposal of any materials, chemicals, wastes, effluents, trash, garbage, fuels, oils, and grease will not be allowed in or adjacent to streams. Such materials will be properly disposed of in areas designated by the contracting officer.

4.34 Erosion control. Seeding, mulching, and grading will be used to control erosion from open areas when necessary. Permanent erosion control measures will include seeding and mulching of all disturbed areas. The contractor will have to provide the contracting officer with an erosion control plan before construction begins.

4.35 Traffic congestion. Heavy equipment will move material over the right-of-way and across thoroughfares in West Great Falls. This may cause an undetermined amount of congestion on these streets. Crossovers will be infrequent but will cause traffic to go at a slower rate than usual when the crossovers occur.

4.36 Twenty-seventh Street will be closed in sections during the construction of the Watson Coulee drainage conduits. Traffic will have to be rerouted around construction.

DISPLACEMENT OF PEOPLE

4.37 Eight families will be displaced. They will be completely reimbursed for costs incurred in moving. This is to be done in accordance with the Uniform Relocation Act. If, however, individuals personally object to being moved, personal stress could result. Every effort will be made to accomplish the necessary moves in a manner that will eliminate or minimize personal stress.

HISTORICAL AND ARCHEOLOGICAL RESOURCES

4.38 A cultural resources reconnaissance was conducted during 1978 in the early fall. The research team found no physical surface evidence of historic sites. No structure or buildings in the area fit National Register of Historic Places criteria. A possible prehistoric site was found near one of the borrow areas. A second survey will be done by May 1979. During this survey, a thorough examination of the potential prehistoric site will be done. The land to be used for the new levee alignment adjacent to Eighth Street and Crescent Drive will be surveyed. Project funds will be allocated to either salvage or relocate the potential site or other sites determined to be significant. The project may be modified to avoid such sites.

V. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

INDUCED FLOODING

5.01 After the levee is constructed, induced flood stages would increase flood damage during the 100-year flood and standard project flood. This is an insignificant impact.

LAND USE IMPACTS

5.02 The levee right-of-way will occupy 211 acres with an additional 88 acres to be used for borrow. This impact is insignificant.

TAX REVENUE

5.03 An insignificant though unavoidable circumstance with construction of this project is the annual loss of $6,100 in tax revenue.

ECOLOGICAL EFFECTS

5.04 An insignificant loss will occur to the terrestrial and aquatic environment.

TEMPORARY IMPACTS

5.05 Temporary impacts to air quality and water quality which are related to actual construction of the levee project will be insignificant.

DISPLACEMENT OF PEOPLE

5.06 Eight families will be displaced. They will be reimbursed in accordance with the Uniform Relocation Act; this minimizes the impact to an insignificant level.

HISTORIC AND ARCHEOLOGIC RESOURCES

5.07 If significant archeologic sites are found, the site will be relocated or the project modified to avoid the sites.

VI. ALTERNATIVES TO THE PROPOSED ACTION

ALTERNATIVES CONSIDERED IN EARLY REPORTS

6.01 Levees. Early Design Memoranda recommended levees for Great Falls. The levee plan recommended is presented on plate 2. Funds for the construction of these levees were appropriated in Fiscal Year 1967, and construction was about to begin when litigation over local sponsorship issues stopped the project. Based on the economics at that time, the project cost was estimated at $4,756,000 of which $4,338,200 was Federal cost. Average annual benefits attributable to the project were $254,600. Based on a 3.125-percent interest rate and including $6,000 in annual maintenance cost, the average annual cost was estimated at $194,600, yielding a benefit-cost ratio of 1.3 to 1.0 for the overall project.

6.02 Based on the current economic conditions, the estimated project cost for all five levees of the authorized project is now $14,898,000 of which $12,613,000 is Federal cost. Average annual benefits under existing and future conditions are $1,199,000 and $1,305,600, respectively. The average annual cost is $1,035,500, based on a 6.875-percent interest rate and includes $9,900 in annual maintenance. Benefit-cost ratios for existing and future conditions are, therefore, 1.3 and 1.4, respectively.

6.03 The impacts of the authorized project would be similar to those described in this document except for the additional right-of-way requirements and relocations and significant adverse environmental impacts related to the channel blocks on the Missouri River at Park Island. This is still the authorized project but it is not recommended for construction at this time.

6.04 Flood control reservoirs. The Corps of Engineers, in cooperation with the Bureau of Reclamation, completed a report on flood control requirements and benefits for the following potential systems on the Sun River: (1) Existing Gibson Reservoir and potential Lower Sun Butte Reservoir; (2) potential Castle Reef Reservoir; and (3) existing Gibson Reservoir and potential Lowry Reservoir which is the same as the Corps' Flowree Butte site. The approximate locations of these sites are shown on plate 6. The results of the analyses indicated that construction of any of the potential reservoir projects would not alleviate the need for a local protection project at Great Falls. Uncontrolled flows would still require levees to eliminate flooding at Great Falls. Construction of the Gibson - Lower Sun Butte System or the Castle Reef project would have only minor effects on the design of the Great Falls project

because of the large, uncontrolled area downstream. Construction of the Flowree Butte or Lowry Reservoirs would permit substantial reductions in the height of the levees at Great Falls. Because of the opposition to the Lower Sun Butte project, the marginal feasibility of the Castle Reef project and the submarginal feasibility of the Flowree Butte and Lowry projects, construction of reservoirs in the Sun River Basin is unlikely.

6.05 Channel modifications. Channel enlargement, channel straightening, and the removal of sandbars were considered. This plan was dropped due to high maintenance costs which would cost considerably more than the levee and would create significant adverse environmental impacts.

REEVALUATION OF THE AUTHORIZED PROJECT

6.06 A reevaluation report of the authorized levee plan was prepared concurrently with the preparation of this supplemental environmental statement. The primary purpose of the reevaluation was to determine if the authorized project was economically feasible using current evaluation criteria and data collected during the 1975 flood.

6.07 For the purpose of this evaluation, the authorized levee plan was divided into five separate elements with the areas protected by each of these elements separated into study areas. Study area 1 is the area protected by the left-bank Sun River levee. Study area 2 is the area protected by the right-bank Sun River levee upstream from Inter- state 15. Study area 3 is the area protected by the right-bank Sun River levee downstream from the 14th Street bridge. Study area 4 is the area protected by the left-bank Missouri River levee. Study area 5 is the area protected by the right-bank Missouri River levee. These study areas are shown on plate 2.

6.08 Average annual flood damages and associated flood costs were determined for existing and future development. Cost estimates were updated for the respective levees in each study area. Table 4 shows a summary of the reevaluation results. Induced damages were subtracted from the benefits in study area 1.

THE PROPOSED ACTION

6.09 Only two of the five levee elements authorized levees are economically feasible (see table 4). These are the left-bank Sun River levee (study area 1), and the left-bank Missouri River levee (study area 4). Currently there is only strong local support for a levee unit to protect study area 1.

Table 4
ECONOMIC SUMMARY: 6.875 PERCENT
($1,000)

Study Area	Cost	Average Annual Cost	Existing Average Annual Benefits	Benefit/ Cost Ratio Without Futures	Average Annual Benefits With Futures	Benefit/ Cost Ratio With Futures
1	$10,122.0	$704.3	$1,199.0	1.7	$1,305.6	1.9
2	687.0	47.7	11.2	0.2	22.1	0.5
3	1,724.0	119.3	1.7	0.01	1.7	0.01
4	2,003.0	139.1	97.0	0.7	140.6	1.0
5	362.0	25.1	0.1	0.004	0.1	0.004
Total	$14,898.0	$1,035.5	$1,309.0	1.3	$1,470.1	1.4

6.10 As a result of these findings, the levee element in study area 1 is the only element of the authorized project recommended for construction at this time. All other levee elements of the authorized project have been placed in an inactive category. Construction of the levee in study area 1 is more thoroughly described in Section I.

6.11 The selected plan includes two different borrow sites (see plate 1). One of these sites lies within Wadsworth Park on the western edge of the city. Deep borrow will be taken from this site. This will result in a lake with a mean depth of 12 feet.

NO ACTION

6.12 This alternative would mean no specific action would be taken to change the existing flood threat at Great Falls. A flood plain regulation program has been adopted for the Great Falls area and the State of Montana has set up a program for Cascade County. These flood plain regulations will prevent further development in the designated "floodway" and will force structures in the "flood fringe" to be placed 1 foot above the elevation of the 100-year flood. The flood plain regulation program, however, will not provide any relief for those persons already living in the flood plain and damage potential will continue to rise because of new structures constucted in the flood plain above the elevation of the 100-year flood.

OTHER ALTERNATIVES

6.13 Four other alternatives were examined briefly. These included flood proofing of existing structures, enforcement of flood plain zoning, removal of structure from the flood plain, and emergency evacuation. If existing structures are flood proofed or removed from the flood plain, average annual costs exceed average annual benefits. Enforcement of flood plain regulations and emergency evacuation would reduce flood damages to future development, but would allow a threat of $1,199,000 in average annual damages to remain to existing development.

VII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

7.01 The completed project will significantly reduce the threat of flooding, thereby improving the living conditions for residents of Great Falls. A levee will also reduce the "floodway" area in the Great Falls flood plain, keeping Great Falls a compact community. The flood protection provided may tend to accelerate land use change by raising the economic and social values of protected lands. Short-term use of the environment will be emphasized for the benefit of mankind.

7.02 Riparian vegetation valuable as long-term wildlife habitat will be disrupted by the project and in some areas destroyed. Natural vegetation losses, however, will be relatively small.

VIII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

8.01 The time, materials, and supplies used in the construction of the proposed Federal levee are irretrievable commitments of resources.

8.02 Approximately 211 acres of land will be committed to the levees for the life of the project. Of this total, 33 acres are cropland, 125 acres are pastureland, and 53 acres are trees and grasses. The 33 acres of cropland could be considered prime farmland if irrigated.

IX. COORDINATION AND COMMENT AND RESPONSE

THE AUTHORIZED PROJECT

9.01 Previous EIS's. The first draft EIS was filed with CEQ on 6 May 1971 and was circulated per regulations for comment. Comments on the draft EIS were received from the following entities.

Bureau of Outdoor Recreation
Bureau of Reclamation
Bureau of Sport Fisheries and Wildlife
Montana Department of Fish and Game
Montana Council on Natural Resources and Development
Great Falls City-County Planning Board

9.02 The agencies that commented on the draft EIS expressed no objections to the authorized project which consisted of all five levee elements including the proposed levee. These comments were addressed in the final EIS filed with CEQ on 12 August 1971.

SINCE THE 1975 FLOOD

9.03 Following the 1975 flood, local interests held one public meeting in July and the second in December 1975. In addition, court hearings were held in November 1975 and June 1976 which were well attended by the local citizens. There were also a number of small neighborhood meetings held prior to the elections in October 1976. Approximately 80 percent of the voters participated in the 1976 election and citizens on the left bank of the Sun River voted 3 to 1 to proceed with the left-bank levee project.

PUBLIC HEARING

9.04 A public notice announcing a joint public hearing on 24 May 1978 was circulated to all interested parties on 24 April 1978. The meeting was sponsored by the U.S. Army Corps of Engineers and the Montana Department of Natural Resources and Conservation. It served three purposes; the first was to discuss the Section 404 action and the second was to discuss the Draft Supplemental EIS. Thirdly, it served as a preliminary hearing for the Montana Department of Natural Resources and Conservation (DNRC). The DNRC agency will conduct a regular hearing in Great Falls after this Final Supplemental EIS is filed. A copy of the notice was sent to 63 agencies, groups, organizations, and individuals.

9.05 Approximately 350 people attended the public hearing on the Great Falls Flood Protection Project. Two members of the Montana legislature and several representatives of the Montana DNRC were present. Mr. Ted Doney, Director of DNRC, explained the State of Montana's requirements for the project in the first presentation. Of the 37 people who made comments, 11 spoke in favor of the project and 26 people expressed opposition. A total of 122 written statements were submitted to become part of the official record. Of this number, 116 favored the project and 6 expressed opposition. Those expressing opposition were concerned about induced flood stages from the 100-year and standard project floods with the levee in place. Residents of the Country Club Subdivision were concerned about being flooded from the Sun River. There are no induced stages in that area. Many of those opposed to the project reside in the area on the left bank of the Sun River downstream from Sixth Street which has since been eliminated from the project.

COORDINATION PURSUANT TO SECTION 404 OF THE FWPCA AMENDMENTS OF 1972

9.06 Activities involving the discharge of dredged or fill material in navigable waters of the United States are subject to regulation pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 and the Clean Water Act of 1977. Certain construction activities proposed in this project are subject to regulation under Section 404. These include channel fill in conjunction with the channel modification and placement of riprap for bank protection. Appendix A contains the public notice circulated pursuant to Section 404 dated 24 April 1978; five letters were received in response to the public notice. Four Federal and State agencies responded and discussed statutory requirements that must be met prior to and during construction. One private citizen from Great Falls responded and expressed opposition to the project.

9.07 An exclusion from further regulation under Section 404 will be sought pursuant to Section 404(r) of the Clean Water Act of 1977. Section 404(r) amended Section 404 of the FWPCA Amendments of 1972 to allow an exclusion from regulation under Section 404 for Federal projects specifically authorized by Congress; information on the effects of the discharge, including consideration of the Environmental Protection Agency water quality guidelines developed under subsection 404(b)(1) must be included in an EIS prior to either authorization or an appropriation of funds. Pursuant to Section 404(r), a 404(b) evaluation report has been included with this EIS as Appendix C. If an exclusion is not allowed pursuant to Section 404(r), the Omaha District could follow the Corps permit issuance procedures. A

public notice announcing this proposed construction has already been coordinated with State and Federal agencies. State water quality certification was received on 15 May 1978 and a Section 404b(1) evaluation has been completed.

COORDINATION OF THE FINAL SUPPLEMENTAL ENVIRONMENTAL STATEMENT

9.08 This final supplemental environmental statement has been distributed to the following Government agencies, elected officials, citizen groups, and other organizations. This statement has also been sent to individual citizens who have expressed interest in such matters.

U.S. Environmental Protection Agency
U.S. Department of the Interior, Office of the Secretary
U.S. Department of Health, Education and Welfare, Public Health Service
U.S. Department of Transportation
U.S. Department of Housing and Urban Development
U.S. Department of Agriculture
Federal Energy Regulatory Commission
Missouri River Basin Commission
Old West Regional Commission
Montana, Office of the Governor
Montana Department of Fish and Game
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana Environmental Quality Council
Montana State Department of Health and Environmental Sciences
Montana Recreation and Parks Division
Montana Wildlife Federation
Montana Association of Conservation Districts
Montana Wildlife Society
City of Great Falls, Montana
Cascade County, Montana
Cascade County Soil Conservation District
Concerned Citizens of the Sun River
West Great Falls Flood Control and Drainage District

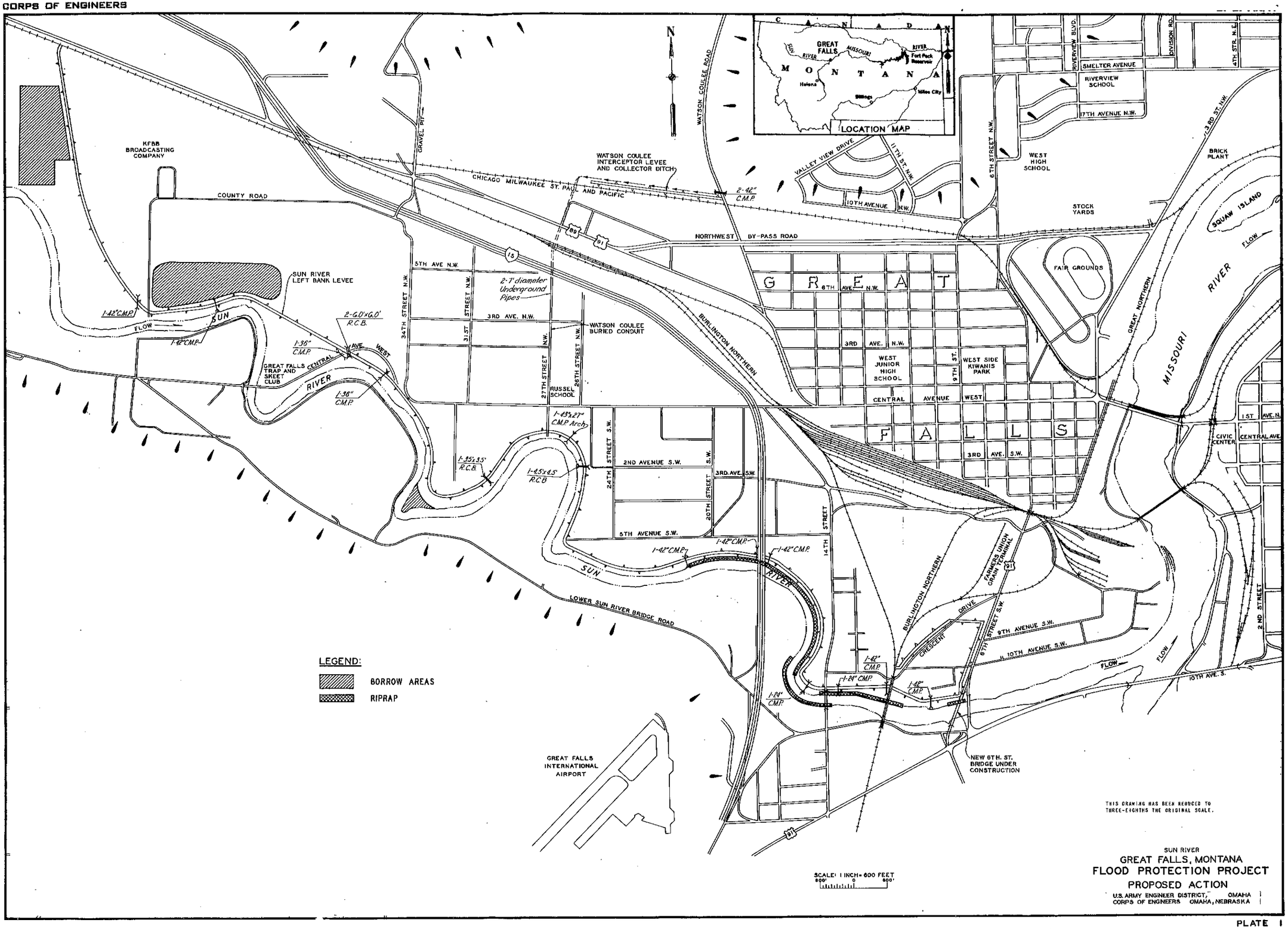
A copy of the cover letter circulated with the draft of this document prefaces appendix B. Reviews and comments received after circulation of the draft copy of this document are in appendix B. Replies appear adjacent to the comments expressed.

COORDINATION OF EXECUTIVE ORDER 11988

9.09 The public notice for the hearing held 24 May 1978 discusses E.O. 11988, Flood Plain Management. Executive Order of the President 11988, Flood Plain Management, specifies that

Federal agencies thoroughly analyze the effects of locating projects in the 100-year flood plain. Since the levee is to be built for purposes of flood protection, no location outside the 100-year flood plain is practicable (see plate 1). Before construction can begin, the local sponsor may have to obtain permission to build from the State of Montana and the City of Great Falls in order to comply with flood plain regulations. The City of Great Falls requires a Conditional Use Permit under provisions of a city ordinance. Under the State of Montana's regulations, any obstruction in the flood plain that raises the elevation of the 100-year flood more than 0.5 feet at any point requires a variance. This permit may have to be obtained from the Montana Department of Natural Resources and Conservation. Only 21 percent of the flood plain that will be protected by the levee is available for development. There is, therefore, little area remaining which has natural flood plain value. The levee will extend upstream only far enough to protect existing buildings to allow maximum preservation of the natural flood plain. Land clearing will be limited to the minimum necessary and nursery grown trees will be planted to replace those that must be cleared for the levee. The effect of increased flood depths in unprotected areas is discussed in paragraphs 4.05 and 4.06. Alternatives to this project are discussed in Section VI.

CORPS OF ENGINEERS



THIS DRAWING HAS BEEN REDUCED TO THREE-EIGHTHS THE ORIGINAL SCALE.

SUN RIVER
GREAT FALLS, MONTANA
FLOOD PROTECTION PROJECT
PROPOSED ACTION

U.S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS OMAHA, NEBRASKA

PLATE 1

U. S. ARMY

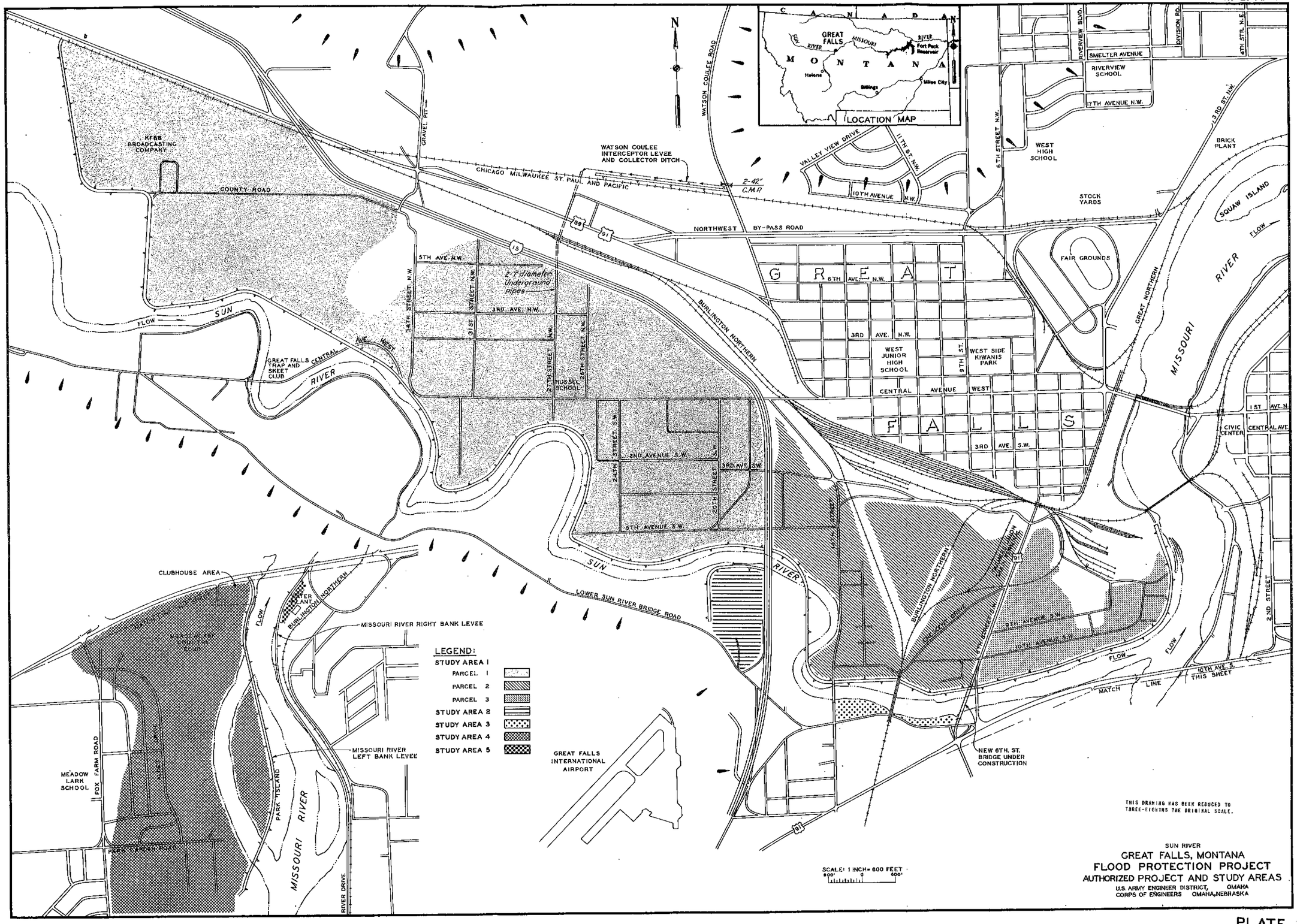


PLATE 2

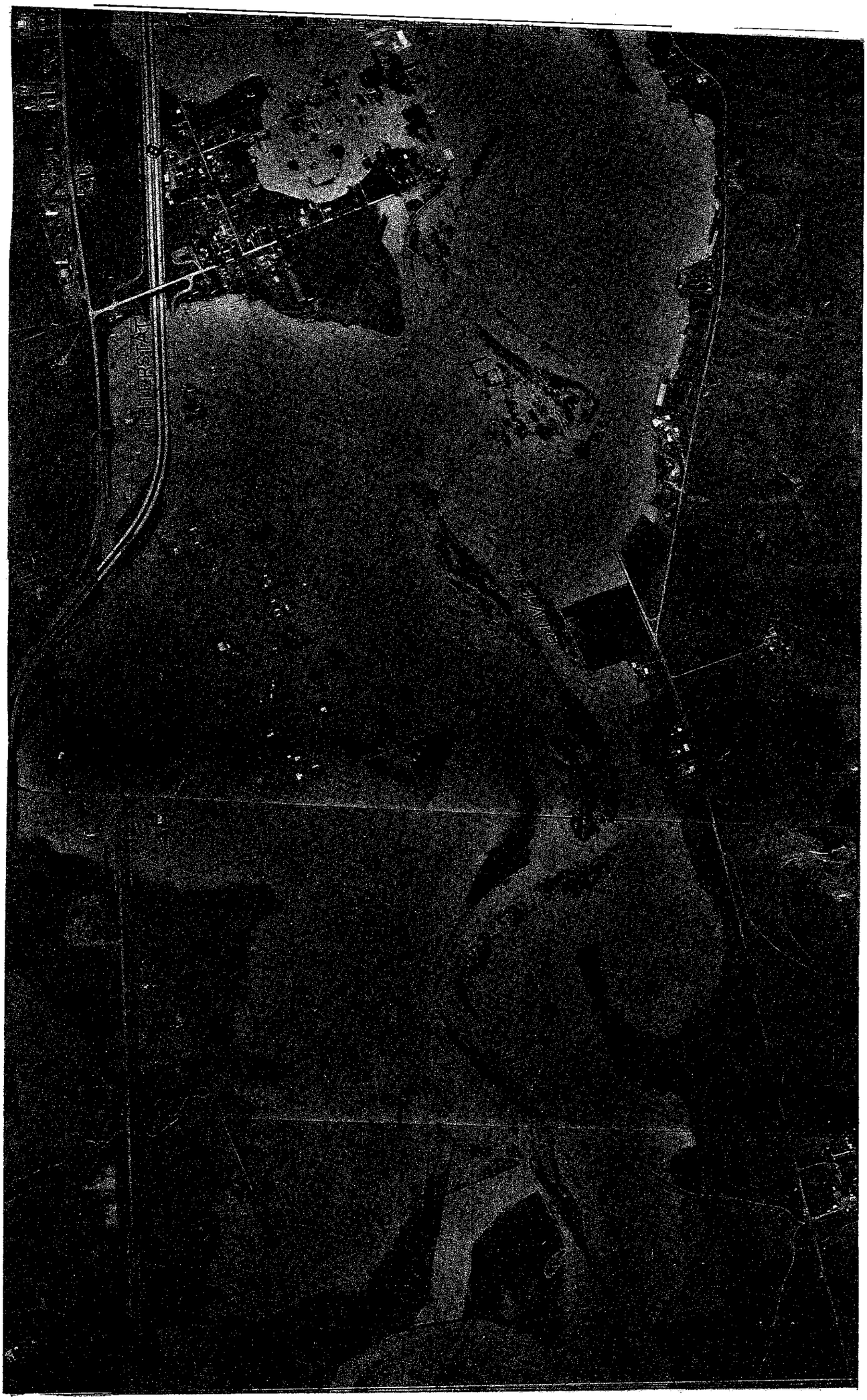
MATCH LINE PLATE 3

MISSOURI RIVER AND TRIBUTARIES
MONTANA

FLOOD OF JUNE 1975

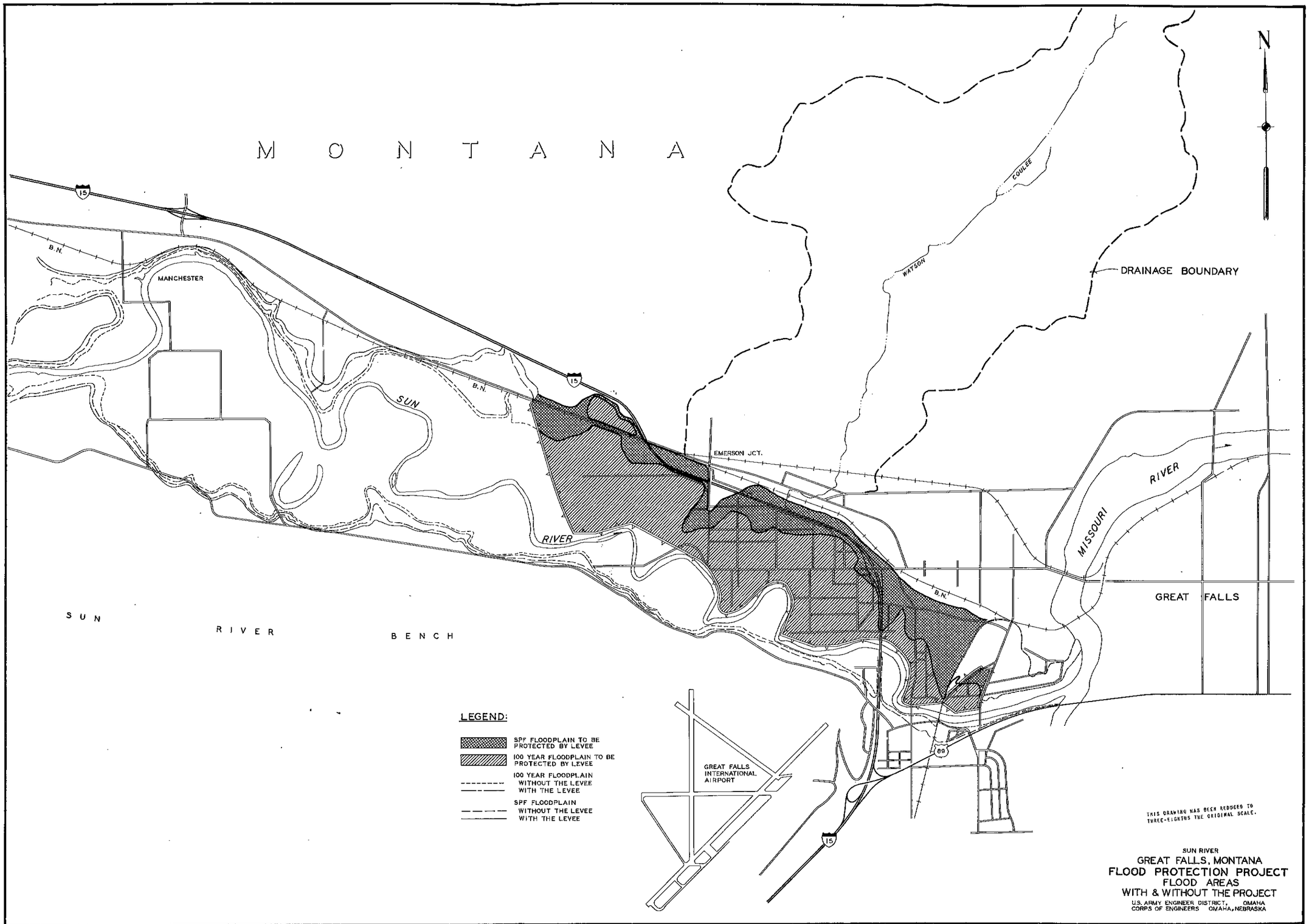
HIGH-WATER
SUN RIVER

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS OMAHA, NEBRASKA



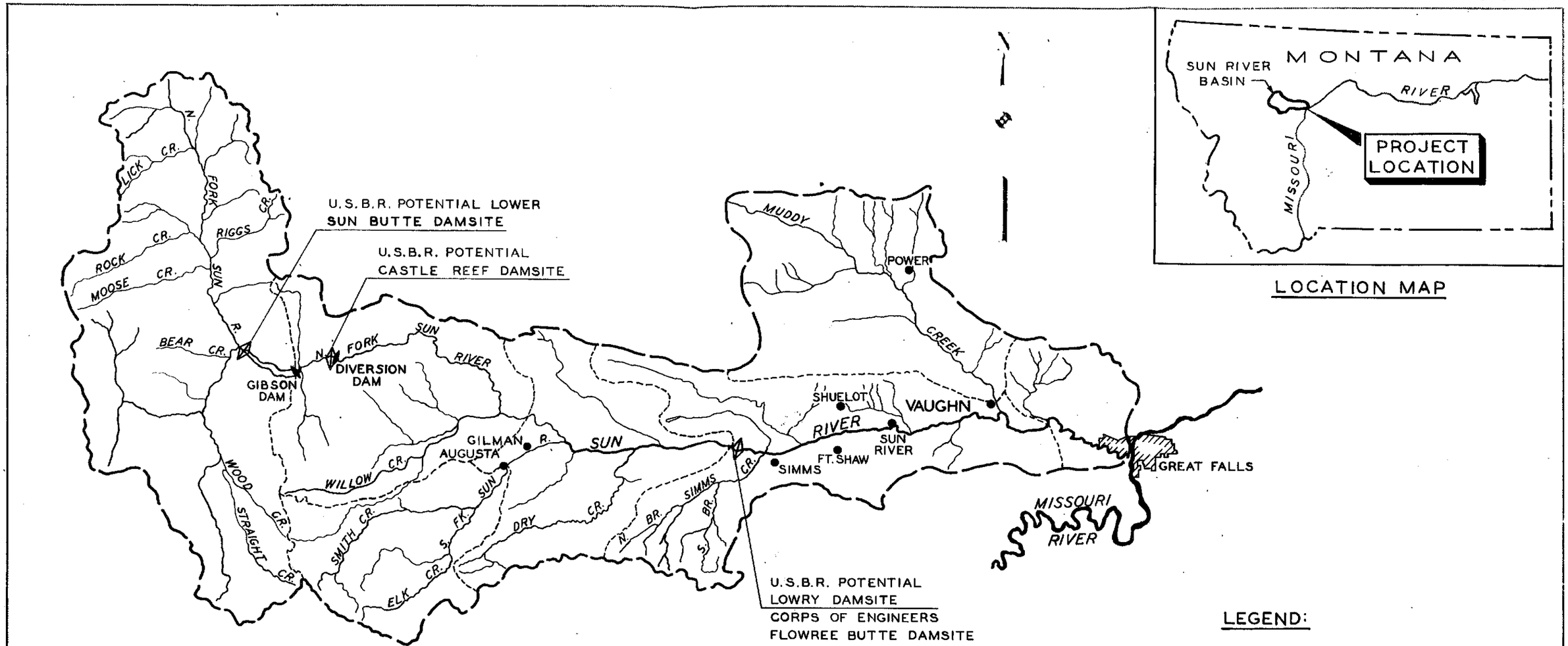
MISSOURI RIVER AND TRIBUTARIES
MONTANA
FLOOD OF JUNE 1975
HIGH-WATER
SUN RIVER

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS OMAHA, NEBRASKA


M O N T A N A
N
DRAINAGE BOUNDARY
COULEE
WATSON
MANCHESTER
B.N.
SUN
RIVER
EMERSON JCT.
MISSOURI
RIVER
GREAT FALLS
S U N
R I V E R
B E N C H
GREAT FALLS INTERNATIONAL AIRPORT
15
89
LEGEND:
SPF FLOODPLAIN TO BE PROTECTED BY LEVEE
100 YEAR FLOODPLAIN TO BE PROTECTED BY LEVEE
100 YEAR FLOODPLAIN WITHOUT THE LEVEE
WITH THE LEVEE
SPF FLOODPLAIN WITHOUT THE LEVEE
WITH THE LEVEE
THIS DRAWING WAS BEEN REDUCED TO THREE-EIGHTHS THE ORIGINAL SCALE.
SUN RIVER
GREAT FALLS, MONTANA
FLOOD PROTECTION PROJECT
FLOOD AREAS
WITH & WITHOUT THE PROJECT
U.S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS OMAHA, NEBRASKA

CORPS OF ENGINEERS

U. S. ARMY



LOCATION MAP

LEGEND:

- POTENTIAL DAM
- DAM
- BASIN BOUNDARY
- SUB BASIN BOUNDARY

SCALE IN MILES

8 0 8

SUN RIVER

GREAT FALLS, MONTANA

FLOOD PROTECTION PROJECT

RESERVOIR SITES

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS OMAHA, NEBRASKA

PLATE 6

COORDINATION PURSUANT TO SECTION 404 OF THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972

APPENDIX A

DEPARTMENT OF THE ARMY
OMAHA DISTRICT, CORPS OF ENGINEERS
6014 U.S. POST OFFICE AND COURTHOUSE
OMAHA, NEBRASKA 68102

MROOP-N
78-4 (C.O.E.)
Flood Protection Project
Great Falls, Montana
Riprap and Fill

24 April 1978

JOINT NOTICE OF PUBLIC HEARING
FOR PENDING PROJECT
U.S. ARMY CORPS OF ENGINEERS
AND
STATE OF MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

Notice is hereby given that a Joint Public Hearing will be conducted on Wednesday, 24 May 1978, to advise interested parties of a proposed local Flood Protection Project on the Sun and Missouri Rivers, located in Sections 5, 6, 8, 9, 10, 11, 14 & 15, Township 20 North, Range 3 East, Cascade County, Montana. The hearing will be held at 7:00 P.M. in the auditorium of West Junior High School, 1205 First Avenue Northwest, Great Falls, Montana.

The Public Hearing is being held Pursuant to: Section 102 of the National Environmental Policy Act of 1969; Section 404 of the Federal Water Pollution Control Act as amended; and Executive Order 11988, Flood Plain Management; and the Montana Environmental Policy Act.

The proposed project is authorized by the Flood Control Act of 1958 (Public Law 85-500) as modifed by Public Law 89-298 in October 1965.

The proposed project involves two elements; a local flood protection levee and the interior drainage system for the Watson-Coulee drainage basin.

The flood protection levee consists of approximately 34,200 linear feet of levee commencing at a point near the Burlington Northern Railroad yards on the left bank of the Missouri River, south to the confluence of the Sun and Missouri Rivers, then upstream on the left bank of the Sun River to a point along the Burlington Northern Railroad tracks, approximately one mile northwest of the City of Great Falls. The levee will be set back from the existing channel approximately 50 feet except in the channel cut-off area. Twenty-two interior drainage structures including the one for Watson-Coulee will be installed along the levee. The levee embankment will require an estimated 1,322,000 cubic yards of compacted fill material.

The Watson-Coulee collector and drainage system consists of two 84-inch conduits, 4,685 feet in length, installed down Twenty-seventh Street from North of the Chicago-Milwaukee-St. Paul and Pacific Railroad to the Sun River, with an interceptor ditch and levee directly north and adjacent to the Chicago-Milwaukee-St. Paul and Pacific Railroad tracks. This ditch

and levee goes west from Watson-Coulee Road for approximately 2,600 linear feet and will require an estimated 22,700 cubic yards of compacted fill material and 15,200 cubic yards excavation.

In accordance with Executive Order 11988, this gives notice that the only possible location for this flood protection project is in the flood plain. As it is a levee, it will protect dwelling units and other structures from damage caused by flooding from the Sun and Missouri Rivers. Under the provisions of Federal Regulation 33 C.F.R. 209.145, Federal projects involving the disposal of dredged or fill material in navigable and ocean waters; notice is hereby given to advise interested parties that the proposed project involves channel excavation, placing permanent fill material and riprap in the Sun River.

The channel cut-off would consist of approximately 2,245 linear feet of channel excavation. The new channel would have a 160 foot bottom width and the banks sloped on a 3-foot horizontal, to 1-foot vertical slope. The estimated 235,000 cubic yards of excavated material will be utilized as levee embankment. The side slopes of the channel cut-off will be armour coated with clean, durable riprap as shown on the drawing (see sheet 2 of 2 sheets). The permanent fill material placed in the Sun River involves an estimated 18,000 cubic yards of compacted earth fill forming the berms and levee embankment across the old Sun River channel (see sheet 1 of 2 sheets). A total of 11,960 linear feet of riprap bank protection (including the channel cut-off) will be placed at five separate locations. The riprap will be clean, durable stone extending from the normal highwater line to the channel bottom with allowance for degradation.

The construction will be done by contract under the supervision and inspection of the Corps of Engineers, Omaha District. Upon completion of construction, the maintenance of the project will be the responsibility of the West Great Falls Flood Control and Drainage District.

Certification that the proposed activity will not violate applicable water quality standards has been requested from the Montana Department of Health and Environmental Sciences, Water Quality Bureau, Capitol Station, Helena, Montana 59601.

The Final Environmental Impact Statement was prepared by the U.S. Army Corps of Engineers, Omaha District, and filed with the Council of Environmental Quality on 12 August 1971. A draft supplement to the above document was filed with the Environmental Protection Agency, Region VIII, 1860 Lincoln Street, Denver, Colorado 80203 on 10 February 1978 and made available to the public on that date. The draft supplement describes the structure proposed for construction on the Sun and Missouri Rivers and the projected environmental impacts expected from such construction. It also addresses other consideration such as the adverse environmental effects which cannot be avoided, alternatives to the proposed project, and the relationship between local short-term uses of environment and the maintenance and enhancement of long-term productivity.

The Corps has mailed copies of the document to those people who are on the mailing list for environmental matters. Others wishing to receive a copy should call or write the Corps as follows: District Engineer, U.S. Army Engineer District, ATTN: MROPD-M, 215 North 17th Street, Omaha, Nebraska 68102; (402) 221-4605.

All interested parties are invited to be present or represented at this hearing. The objective of this hearing is to give all interested parties an opportunity to express their views freely, fully, and publicly concerning the proposal, and to enable the Corps of Engineers to obtain data which will be useful in formulating sound conclusion as to the final action to be taken. Both proponents and opponents of the work will be given an opportunity to be heard. Rebuttals will be permitted. All statements will be heard but should be limited to not more than ten minutes each. For accuracy of the record, all important facts and arguments should be submitted in writing. Written statements may be handed in at the hearing or mailed to this office on or before 3 June 1978.

The decision whether to complete the proposed construction will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonable foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, prime and unique farmland, navigation, recreation, water supply, water quality, and in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Federal Water Pollution Control Act. The construction will not be completed unless it's found to be in the public interest.

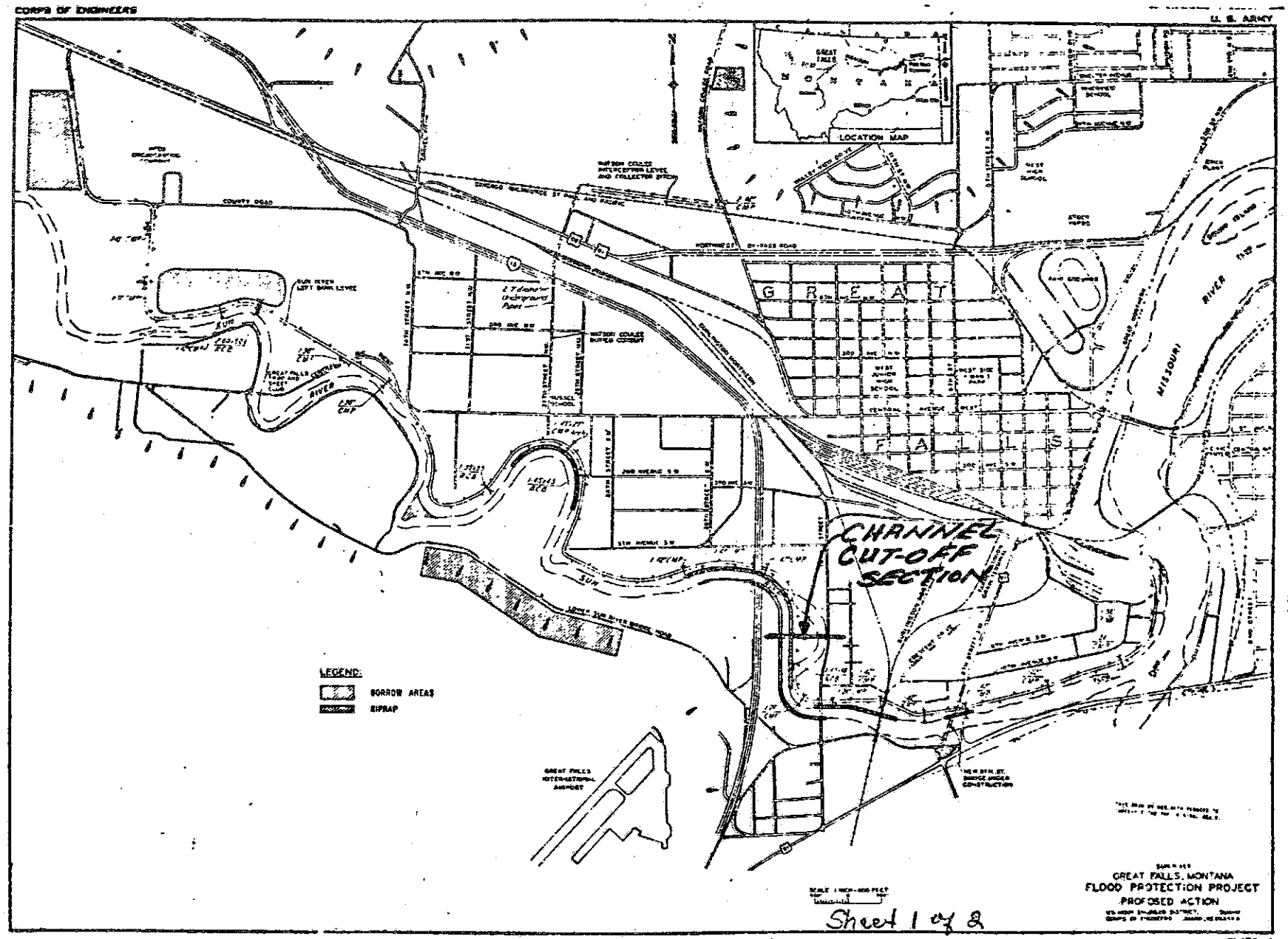
Drawings showing the location and extent of the work are attached to this notice.

FOR THE DISTRICT ENGINEER:

Ralph J. Miller

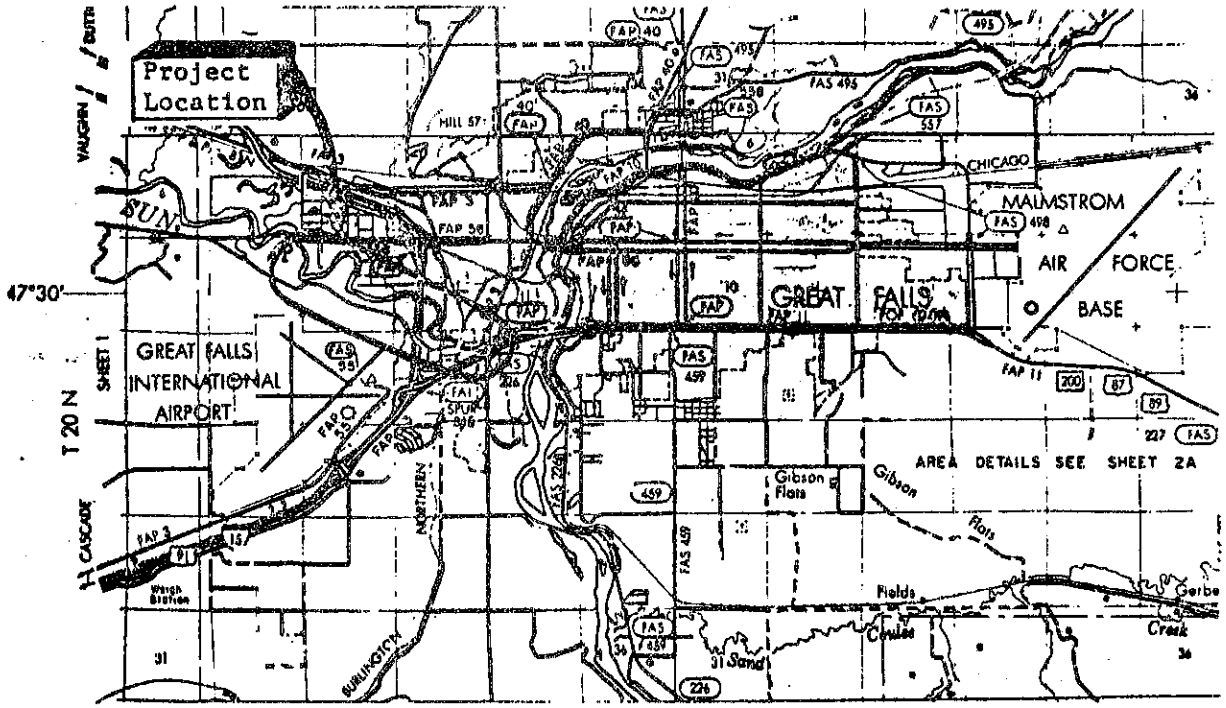
RALPH J. MILLER
Chief, Regulatory Functions Branch
Operations Division

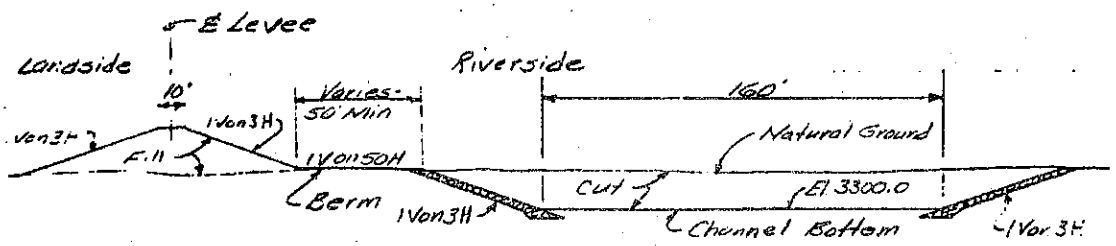
Attachment
As stated


CORPS OF ENGINEERS
U. S. ARMY
LOCATION MAP
GREAT FALLS
MONTANA
G R E A T
F A L L S
MISSOURI
RIVER
CHANNEL
CUT-OFF
SECTION
LEGEND:
BORROW AREAS
RIPRAP
GREAT FALLS, MONTANA
FLOOD PROTECTION PROJECT
PROPOSED ACTION
Sheet 1 of 2
PLATE 1

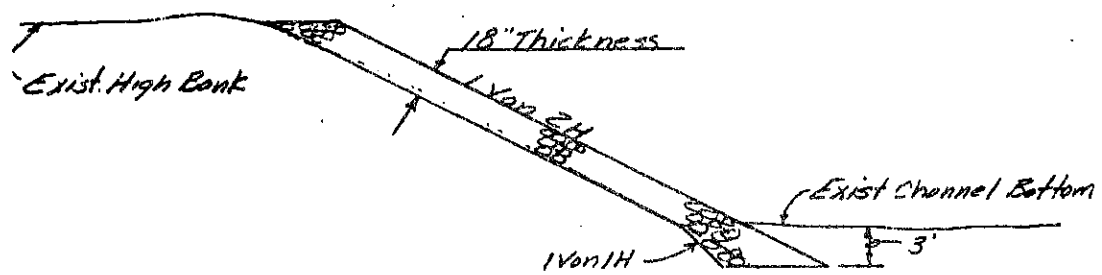
C.O.E. 78-4

C. O. E. 78-4





TYPICAL SECTION
ALONG CHANNEL CUT-OFF



TYPICAL RIPRAP SECTION

PURPOSE: Bank Protection
DATUM MSL
ADJACENT PROPERTY OWNERS:
1
2

T 20N, R3E, Sec 9.
IN Sun River
AT Mile 3.30 L
COUNTY OF Cascade STATE Mont.
APPLICATION BY West Great Falls Levee Dist
SHEET 2 OF 2 DATE 4/18/78

MRO 15 FORM MAY 76 1643

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
MEMBERS OF THE BOARD - CHAIRMAN CECIL WEEDING, J. VIOLA HERAK, DAVID G. DRUM, DR WILSON F. CLARK, DR ROY E. HUFFMAN, WILLIAM H. BERTSCHE, CHARLES L. HASH
DNRC
Ted J. Doney, Director

June 8, 1978

Russell L. Bywater, Chief Operations Division
Department of the Army, Corps of Engineers
Omaha District, 6014 U.S. Post Office and Court House
Omaha, Nebraska 68102

Dear Sir:

RE: Corps Project Nos. MT 2SB OXT 1 001590, 001592; MT 2 SB OXT 2 001437, 001517, 001575, 001600, 001607, 001608, 001614; MT 2 SB OXT 3 001558, 001604 and 001612. Also 78-4 and 78-2 (COE)

Enclosed are the comments of the Montana Historical Society on the referenced proposed projects relative to possible historical and/or archaeological impacts.

Sincerely,

Robert Culver
Assistant Administrator
Water Resources Division

Enclosures

RECEIVED
JUN 12 10 04 AM '78
C OF E-OMER DIV
OMAHA DISTRICT

WATER RESOURCES DIVISION
ORRIN FERRIS, ADMINISTRATOR
(406) 449-2872

FLOODPLAIN MANAGEMENT (406) 449-2864 | ENGINEERING (406) 449-2864 | WATER PLANNING (406) 449-2872 | TECHNICAL SERVICES (406) 449-2872 | WATER RIGHTS (406) 449-3634 | WEATHER MODIFICATION (HIPLEX) (406) 449-2872

32 SOUTH EWING, HELENA, MONTANA 59601

MONTANA HISTORICAL SOCIETY

225 NORTH ROBERTS STREET • (406) 449-2694 • HELENA, MONTANA 59601

To: Russell L. Bywater , Chief Operations Division
Department of the Army, Corps of Engineers
Omaha District , 6014 U. S. Post Office and Court House
Omaha, Nebraska 68102

From Kenneth L. Korte, Montana State Historic Preservation Officer
225 North Roberts, Helena, Mont. 59601 Att: Al Thompson

Re: Request for Comments from SHPO on projects

Corps Project no. 78-4 (COE) Corps Date: 4-24-78
Applicant: COE.
Location - County Cascade
Location- Description Sec. 5, 6, 8, 9, 10, 11, 14, 15 T. 20 N., R. 3 E.
Activity: Flood Protection

Comments:

____ No records of archaeological surveys in area
____ Archaeological surveys show no sites of record
____ Archaeological sites on record in following adjacent areas: _____
____ Activity does not appear to involve previously undisturbed lands or threaten cultural resources
__X__ Activity may - does - involve previously undisturbed lands and a cultural resources inventory should be considered before surfaces are disturbed.
____ There is no impact to historic resources.

Thank you for the opportunity to comment.

Kenneth L. Korte, SHPO

There are eight listed historic sites and 2 prehistoric sites in the general vicinity. Please conduct an archaeological and historical inventory & identify and impacts to cultural resources. You may submit the inventory report & this office for further comment.

Rec 6/14/78

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO:

ES

May 31, 1978

District Engineer
U.S. Army District, Omaha
Corps of Engineers
P.O. Box 5
Omaha, NE 68101

Dear Sir:

We have reviewed Notice of Public Hearing for Pending Flood Protection Project No. 78-4 (C.O.E.) as it pertains to placement of fill and riprap pursuant to Section 404 of the Federal Water Pollution Control Act as amended. The activities are in conjunction with the proposed construction of a levee along the Sun and Missouri Rivers in the vicinity of Great Falls, Montana.

The proposed activity will result in a channel block in the river, excavation of a new channel, and placement of 11,960 linear feet of riprap at five locations. We normally oppose channel blocks because of the changes resulting in the hydraulic characteristics of the channel and the adverse environmental impacts associated with this activity. However, because of sediment and turbidity, the Sun River in the vicinity of the project provides only fair quality aquatic habitat for a few fish species. In addition, this alternative appears to have the least adverse environmental effects considering the other options. Accordingly, we do not oppose construction of the channel block in this instance.

The Notice indicates that the riprap will be clean, durable rock material and will cover approximately 11,960 linear feet of the bankline. The levee embankment will require an estimated 1,322,000 cubic yards of fill material.

We do not oppose construction of this project if it is done in a manner which minimizes adverse environmental effects and providing: 1) the riprap is from a non-streambed source, 2) the "new" channel is excavated and riprapping of this channel is done in the dry, 3) the fill material for the levee is from a source outside the existing river channel, 4) the use of construction machinery in the wetted channel is kept to a minimum, and 5) the protective, remedial, and mitigative measures outlined in the Draft Supplemental Environmental Statement dated January 1978, are implemented as part of the project.

We recommend that the levee system upstream of the 14th Street bridge be fenced on the landward side to allow indigenous vegetation to become re-established. In addition, consideration should be given to dredging the borrow areas in a manner conducive to development of a fishery. Lakes formed by dredging which are 10 acres or larger, have irregular shorelines, have an average depth of 10-15 feet where at least 20 percent of the water area exceeds 20 feet would provide the basic requirements for sustaining a lake fishery in this area.

The Draft Supplemental Environmental Statement alluded to above states that if historical objects are found during construction, all construction will halt or the area by-passed until the state archeologist has been notified and appropriate actions taken. Accordingly, we assume steps will be taken to assure the contractor will adhere to this condition.

These comments constitute the position of the Department of the Interior.

Sincerely,

Burton W. Rounds
Area Manager

cc: Associate Regional Director, Planning and Resource Preservation, NPS, Denver, CO
Director, Montana Department of Fish and Game, Helena, MT
Regional Director, USFWS, Denver, CO (ENV)

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

A. C. Knight, M.D., F.C.C.P.
Director

May 15, 1978

Ralph J. Miller, Chief
Regulatory Functions Branch
Operations Division
Department of the Army
Omaha District, Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Re: Application No. 78-4 (C.O.E.)
Flood Protection Project
Great Falls, Montana

Dear Mr. Miller:

This is to certify that the above referenced proposed activity will not violate applicable State of Montana Water Quality Standards if the West Great Falls Flood Control and Drainage District applies for and receives a Section 6. (g.) Authorization from this department for necessary activities which, in spite of best construction procedures, may unavoidably cause excess turbidity.

Thank you for your consideration.

Sincerely yours,

Kevin D. Keenan
Permits Section
Water Quality Bureau
DHES

cc: File

KDK/jk

STATE OF MONTANA

DEPARTMENT OF STATE LANDS

MAILING ADDRESS: CAPITOL STATION
OFFICE: 1625 11TH AVENUE HELENA 59601 (406) 449-2074

May 31, 1978

RECEIVED
JUN 5 8 30 AM '78
C OF E, OPER DIV
OMAHA DISTRICT

Ralph Miller, Chief
Regulatory Functions Branch
Operations Division
Department of the Army
Omaha District, Corps of Engineers
6014 U.S. Post Office & Courthouse
Omaha, NB 68102

Re: MROOP-N
78-4 (C.O.E.)
Flood Protection Project
Great Falls, Montana
Riprap and Fill

Dear Mr. Miller:

In response to your letter of April 24, 1978 concerning the above referenced project the Department of State Lands will require the successful bidder on the project to comply with Montana's Open Cut Mining Act.

I have enclosed, for your use and information, copies of the Act. Please note Rule 26-2.10(6)-S10140 as it pertains to proposed excavations located on a floodplain.

We would also like a copy of the EIS and draft supplement prepared on the project. Please place us on your mailing list for EIS's, etc.

Thank you for the opportunity to comment.

Sincerely,

Joseph N. Murphy, Chief
Open Cut Bureau
Reclamation Division

sm

enclosures

SCHOOL LANDS

MINING

RECLAMATION

26-2.10(6)-S10140 APPROVAL OR DISAPPROVAL OF AN APPLICATION FOR A CONTRACT (1) Upon receipt of an application the Department shall conduct a detailed examination of the operator's application to determine if the requirements of the Act, and the Rules and Regulations adopted pursuant thereto, shall be satisfied. The Department shall report its findings to the Commission pursuant to the time limitations imposed by Section 10, Subsection (1) of the Act. After receiving the Department's report, the Commission shall approve the application and enter into a contract with the operator if it determines that the fee, bond or security and the detailed reclamation plan shall satisfy the requirements of the Act and the Rules and Regulations adopted pursuant thereto. If, however, the Commission determines that the mining or reclamation of an area for which an application has been submitted cannot be carried out in accordance with the provisions of the Act, and the Rules and Regulations adopted thereto, then the application shall not be approved and a contract to mine shall not be issued. No person may commence a mining operation which is subject to the provisions of the Act, or the Rules and Regulations adopted pursuant thereto, without first obtaining a contract from the Commission.

(2) Plans to create a shallow pond as part of a reclamation plan must be approved by the Department. A shallow pond may be allowed in remote areas where creation of waterfowl is to be the reclaimed use. A pond may also be created for other beneficial uses if the landowner and/or government agency desires and approves the creation of such pond.

(3) No excavations will be allowed on any river or live stream channels or floodways at locations likely to cause detrimental erosion or offer a new channel to the river or stream at times of flooding.

(4) Before approving an operator's application for a contract, a copy of the reclamation plan shall be submitted to the Chairman of the Department of Anthropology at the University of Montana at Missoula for comment. If the site is likely to contain archaeological or historic artifacts, then the Commission may require that the company sponsor an archaeological survey by a representative of the State Archaeological Survey or by other competent professional authorities.

(5) If the site is likely to contain critical fish and wildlife use areas the Department may require a fish and wildlife survey covering all seasons of wildlife use. This survey report when submitted shall include a complete presentation of all field data, identification of the data source and a detailed description of the methodology used.

(6) Issuance of a contract pursuant to the provisions of the Act imposes upon an operator the duty to comply with all rules and regulations promulgated by the Commission under the Act.

Rt 1 West Box 120
Great Falls, Montana 59401
May 14, 1978

FILE No. 1518-01 Great Falls, MT

Dear Mr Ralph J. Miller,

In regard to the construction of levees on the north banks of the Sun River in West Great Falls. We are operating a dairy farm on the south bank of the Sun River opposite the proposed levee. Our farm lies inbetween the river and Gore Hill. With the levee in place the diverted water will be forced over our farm destroying everything we have leaving nothing to come back to. It seems strange to us that the Army Corp of Engineers would construct a levee and not even consult us.

This dairy farm has been in operation through all the major floods since 1908. The buildings were built on high enough ground that the cows could always be milked. If the proposed levee would be in place we would not be able to milk the cows as the increase in water depth would push the water into our milking parlor. Pit silos that store feed would be flooded as would the pens making it impossible to feed the cattle, leaving us unable to operate our business. A new river channel will be formed through the land requiring extensive riprapping and other work to stabilize the new channel and to protect water quality. We would certainly anticipate a reply.

Sincerely,
Ron Hepp

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO:

ES

November 24, 1978

District Engineer
U.S. Army District, Omaha
Corps of Engineers
P.O. Box 5
Omaha, NE 68101

ATTN: Messrs. Velehradsky and Dean

Dear Sirs:

This is a reply to your letter of November 7, 1978, concerning the Sun River Flood Protection Project at Great Falls, Montana.

We have no objection to revegetation of this project as a beautification measure, rather than planned mitigation or enhancement.

Sincerely,

Burton W. Rounds
Area Manager

cc: Regional Director, USFWS, Denver, CO (ENV)
Montana Department of Fish and Game, Great Falls, MT
(ATTN: Al Wipperman)

COORDINATION OF THE DRAFT SUPPLEMENTAL ENVIRONMENTAL STATEMENT

APPENDIX B

DEPARTMENT OF THE ARMY
OMAHA DISTRICT, CORPS OF ENGINEERS
6014 U.S. POST OFFICE AND COURTHOUSE
OMAHA, NEBRASKA 68102

MROPD-E

SUPPLEMENTAL ENVIRONMENTAL STATEMENT
THE SUN RIVER FLOOD PROTECTION PROJECT
GREAT FALLS, MONTANA

In accordance with Public Law 91-190, Section 102(2)(c), we have prepared a Draft Supplemental Environmental Statement for the Sun River Flood Protection Project at Great Falls, Montana. The Draft is inclosed for your review. Please forward your comments to this office by 20 March 1978. Your comments will become a part of the Final Supplemental Environmental Statement.

Sincerely yours,

R. H. Crawford

JOHN E. VELEHRADSKY, P.E.
Chief, Planning Division

1 Incl
As Stated

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80203

APR 3 1978

Ref: 8W-EE
DS-COE-J36011-MT

John E. Velahradsky
Chief, Planning Division
Omaha District, Corps of Engineers
6014 U.S. Post Office
Omaha, Nebraska 68102

Dear Mr. Velahradsky:

The Region VIII Office of the Environmental Protection Agency has reviewed the draft supplemental EIS for the Sun River Flood Protection Project and offers the following comments. The statement indicates that the Oxbow Lake formed by the channel cutoff on the Sun River will be a potential health hazard due to poor water quality and mosquitos. Rather than cross the river at that point, why not extend the length of the levee and keep the levee on the left bank of the Sun River? What are the costs and impacts of this variation of the proposed plan? It would appear flood protection could be offered under this option by eliminating this closed drainage and its related problems. Alternatively this area could be developed into a wetland if flow is maintained through bypass culverts which could be installed in the levee. 1

With regard to the construction of the proposed project, we offer the following recommendations: 2

1. All work in the watercourse should minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.

2. Clean durable riprap material should be used in order to avoid the percolation of fines which would result in excessive local turbidity.

3. Measures to prevent or control spilled fuels or lubricants from entering the watercourse should be employed.

In accordance with the procedures EPA has adopted to rate the adequacy of draft environmental impact statements, the draft supplemental EIS for the Sun River Flood Protection Project will be listed

DEPARTMENT OF THE ARMY
OMAHA DISTRICT, CORPS OF ENGINEERS
6014 U.S. POST OFFICE AND COURTHOUSE
OMAHA, NEBRASKA 68102

CORPS OF ENGINEERS RESPONSES

1 As suggested, a channel modification discussed in paragraph 1.06 has replaced the oxbow lake as a project feature. The levee will remain on the left bank. The old channel will be filled during construction.

2 This document has been revised to incorporate your recommendations. See paragraphs 4.27, 4.31, 4.32 and 4.33 and 4.34.

in the Federal Register in Category LO-2. This means EPA has no objection to implementation of the proposed project but does request that additional information regarding alternatives to creating the Oxbow Lake and how the Corps will meet the EPA recommendations regarding water quality protection. 3

Thank you for an opportunity to review this document.

Sincerely yours,

Alan Merson
Regional Administrator

3 See response to comment 1 of this letter.

United States Department of the Interior
OFFICE OF THE SECRETARY
MISSOURI BASIN REGION
DENVER, COLORADO 80225

In Reply Refer To:
ER 78-172

APR 5 1978

Colonel James W. Ray, U.S.A.
District Engineer
U.S. Army Corps of Engineers
Omaha District
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Dear Colonel Ray:

This responds to your request for the Department of Interior's review of the Supplemental Environmental Statement for the Sun River Flood Protection Project, Great Falls, Montana (ER-78-172).

General Comments

The draft is generally adequate in its description of the proposed project impacts on fish and wildlife resources. However, there is a great deal of information which is not relevant to the area to be impacted while on the other hand the draft lacks detail on the area to be protected from flooding. Several examples of these areas of concern follow.

The discussion of Flora and Wildlife Habitat, pages 13-16, should be limited to species that inhabit the project area or make significant use of same. Listing the principal migratory waterfowl and raptors found in two flyways or Endangered Species like swift fox, wolverine, plovers, wolves, ferrets, and falcons has little or no practical application to this local urban project.

Land use, vegetation, and wildlife in the area to be protected are hinted at but not described in enough detail. Descriptions seem to be limited to the area to be covered by the dike. A wildlife mitigation plan is mentioned, but is not described in sufficient detail.

1

The significance of data on employment, income, and land use within Great Falls to the flood protection project is not clear. Much of this could be eliminated.

2

1 As indicated in paragraph 2.21, good wildlife habitat exists in the upstream portion of the project area. Although downstream areas are largely urbanized, many forms of wildlife can be observed in the upstream area. The discussion on wildlife describes species that could be found as either migrants or residents of the project area. In establishing this list of species, an inventory of wildlife species occurring in Cascade County was consulted. This list is maintained by the Montana Department of Fish and Game. It is acknowledged that certain species listed in paragraph 2.27 probably do not frequent the immediate project area. Because impacts to the terrestrial environment are minor, there is no mitigation plan. See paragraph 4.22.

2 The purpose of such information is to give persons who are unfamiliar with Great Falls an impression of the community when they read this document.

So far as we can determine, the historic and archeological sites mentioned on pages 16 and 17 will not be affected, and we see no reason to mention them. | 3

3 | These have been deleted.

Some plans seem quite indefinite. For example, on page 21, the following statements are made. "A lake . . . will result if a deep borrow area is developed . . . If excavated to a sufficient depth, the lake could be suitable for a solmonoid (sic) fishery." | 4

4 | Paragraph 4.13 has been rewritten to clarify plans for the borrow areas.

Specific Comments

We suggest that a section be added on studies which should be done on the effects sloping and riprapping will have on the river in the future. This could change the flow characteristics and sediment carrying capacity of the river causing serious problems in other unprotected areas. | 5

5 | Sloping and riprapping will be done only where channel bank erosion can jeopardize the integrity of the levee. Flow characteristics and sediment carrying capacity will not change during low flow conditions. Velocity will increase during high flow conditions since the levee will restrict the left-bank flood plain. Increased velocity increases the sediment carrying capacity of the river. These increases are expected to be minimal. The long-term effects will be inconsequential.

The levee upstream of the 14th Street bridge should be fenced on the landward side, revegetated with grasses, legumes, and forbes, and then, indigenous vegetation such as wild rose, chokecherry, russian olive, willow, green ash, boxelder, and cottonwood be allowed to re-establish naturally. This would reduce annual O&M and help mitigate the loss of riparian habitat valuable to wildlife. | 6

6 | Under the Corps of Engineers' maintenance requirements, trees cannot be planted on the levee. Root systems weaken the levee by forming paths for seepage of floodwater.

The discussion of benefit-cost ratios seems contradictory. On page 5, the benefit-cost ratio is stated to be 1.9 to 1.0 under existing conditions and 2.1 to 1.0 under future conditions. On page 36, it is noted that flood plain regulations to be established in Cascade County will prevent further development in the floodway. Either there is an inconsistency or the improved future benefit-cost ratio is contingent on the project being built. | 7

7 | The future part of the B/C ratio is contingent on the project being built.

We suggest the Corps consider inserting after "Sun River" on page 15, fifth line, the following: Studies are being conducted by the Bureau of Reclamation to determine the amount and source of the silt load contributed by Sun River Project return flows and provide remedial measures. | 8

8 | Change made. See paragraph 2.25.

On page 15, "ospre" should be "osprey" and on page 21, "solmonoid" should be "salmonoid." | 9

9 | Changes made.

The draft statement indicates that an archeological survey of all affected lands will be initiated prior to preparation of the final document and that the results of such survey will be discussed in the final statement (page 17). The final statement should also document consultation with | 10

10 | One cultural resources survey has been completed. Due to a change in the proposed alignment, additional surveys will be conducted prior to construction. See paragraphs 2.28 and 4.38.

the State Historic Preservation Officer concerning the methods and results of the anticipated survey as well as recommendations regarding the need for further investigation. If any discovered sites are deemed eligible for inclusion in the National Register of Historic Places, the final statement should document measures taken to comply with Section 106 of the National Historic Preservation Act of 1966 as codified in 36 CFR 800.

If Wadsworth Park is selected for a deep borrow site, we support fish and wildlife and recreation development in this area. The possibility of constructing bicycle or other trails along the levees should be explored. This would enhance the recreational value of the Lewis and Clark Trail, a potential addition to the National Trails System, which passes through the project area along the Missouri and Sun Rivers. | 11

The oxbow lake created by levee construction may hold possibilities for development of a natural area, particularly if means for slow circulation of water could be developed to help reduce stagnation. Local flood plain regulation programs to limit future development in the flood plain should be encouraged. | 12 | 13

Borrow areas would be more conducive to fisheries management if they were constructed to be at least 10 acres in size and to have irregular shorelines. These should be dredged to an average depth of 10 to 15 feet and at least 20 percent of the water area in each should exceed 10 feet in depth. These could be managed for fishing under a cooperative agreement between the city and the Montana Fish and Game Department. | 14

The establishment of a greenbelt was not mentioned, nor was there any mention of the possible economic benefits that may accrue by establishing a greenbelt. | 15

The character of land to be affected by increased flood stages (pages 27 and 28) and duration of floods is not described. | 16

The final statement should address the potential for changes in ground water levels or other changes in the ground water regimen as a result of the implementation of the proposed project. | 17

11 | The potential recreational value of the project has been discussed with the local sponsor. The final decision on recreational development of project lands is a decision to be made by the local sponsor.

12 | See paragraph 1.06. The creation of an oxbow lake is no longer a project feature.

13 | The Corps of Engineer encourages flood plain regulations in all unprotected areas in the flood plain.

14 | See paragraphs 1.15 and 1.16 and the letter dated 14 March 1978 from the Montana Department of Fish and Game.

15 | The establishment of a greenbelt in place of the proposed action would require relocation of the major portion of the homes in the flood plain. The social and economic impacts associated with such a plan would be significantly adverse. For these reasons, such an alternative was not chosen. At a minimum, the levee and its right-of-way will serve as a greenbelt.

16 | The land subject to increased flood stages is rural with one exception. Six homes just upstream from the Interstate 15 bridge on the right bank will be subject to an increased stage of 1 foot from a 100-year flood.

17 | Under normal conditions, the levee would have no effect on the ground water table. During a flood condition, seepage through the ground is to be expected. A berm is part of the levee wherever soil conditions make it possible for excess seepage to cause flooding. Any raise in the water table that normally occurs from infiltration during a flood will no longer occur if a levee is constructed. Extended periods of high or low flows on the Sun River will ultimately be reflected by the water table, with or without the flood protection project.

It should also be noted that the Corps should consult with Montana Fish and Game Department in connection with the Montana Stream Preservation Act, Section 26-1502, R.C.M. 1947. 18

Sincerely yours,

John E. Raybourn

JOHN E. RAYBOURN
Regional Environmental Officer

18 The West Great Falls Flood Protection District applied for a permit required by the Montana Streambed Preservation Act. The act is administered by the Montana Department of Fish and Game.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION VIII
FEDERAL OFFICE BUILDING
19TH AND STOUT STREETS
DENVER, COLORADO 80294

March 6, 1978

OFFICE OF THE
PRINCIPAL REGIONAL OFFICIAL

John E. Velehradsky, P.E.
Chief, Planning Division
Omaha District, Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Dear Mr. Velehradsky:

Thank you for the opportunity to review the draft supplemental environmental statement for the Sun River Flood Protection Project at Great Falls, Montana.

It appears that the impacts expected to result from this proposed project and reasonable alternatives thereto have been adequately addressed.

Sincerely yours,

Wellington E. Webb

Wellington E. Webb
Principal Regional Official

cc:
Office of Environmental Affairs
HEW, Washington, D.C.

No response is necessary.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION EIGHT
Montana Division
501 North Fee Street
Helena, Montana 59601

February 15, 1978

IN REPLY REFER TO:

HEB-MT

Department of the Army
Omaha District Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Subject: Supplemental Environmental Statement
The Sun River Flood Protection Project
Great Falls, Montana

We have reviewed your January 1978 supplemental environmental statement concerning the Sun River Flood Project and have no significant comments to offer. We note that a copy was not forwarded the Montana Department of Highways and since several of their highways cross the flood plain, we recommend they be furnished a copy so they can respond. We assume you have coordinated with them since we note the 6th Street Southwest Bridge is shown as being under construction.

We note there was no discussion of wetlands (Executive Order of the President No. 11990) but possibly there are no wetlands in the area you have under study. 1

We appreciate the opportunity to review your supplemental environmental statement.

Sincerely yours,

W. N. Stewart
Division Administrator

1 There are no wetlands on project lands or adjacent lands nearby. See paragraph 2.31.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

REGION VIII

February 28, 1978

IN REPLY REFER TO:
8DE

Mr. John E. Velehradsky
Chief, Planning Division
Omaha District Corps of Engineers
Omaha, Nebraska 68102

Dear Mr. Velehradsky:

This is in response to your supplemental draft environmental impact statement (EIS) on the Sun River Flood Protection at Great Falls, Montana.

As you may know, this Department's main concern in responding to a draft environmental statement are (1) the compatibility of an action with the comprehensive planning for the area; and (2) the action's impact on housing, particularly in an urban environment. We have reviewed your draft in relation to our areas of concern and the following are our comments.

The benefit/cost (B/C) analysis presented in this draft EIS appears to be incomplete. The benefits of changing an existing flood plain into a residential or industrial area were discussed; however, the costs of providing public facilities and services (water, sewer, streets, etc.) were not discussed. Furthermore, as an alternative, no consideration was given to floodproofing of existing structures or portions of them. Also, evacuation of the 25-year or 50-year flood plain, etc., combined with some floodproofing might have yielded a higher B/C ratio, and resulted in fewer environmental impacts. With the National Flood Insurance Program in effect, we also question why future-condition benefits are 13 percent greater than existing-condition benefits. 1 2 3

We also note that if residential development is to occur in this area there could be an adverse effect from noise due to the adjacent airport, freeway, and railroad. We are enclosing a copy of this Department's Noise Assessment Guidelines which may help you in assessing the exposure of housing sites to present and future noise conditions. 4

1 Public facilities are already provided in the existing flood plain. The project will provide the opportunity to use the land for which the facilities were developed. For additional discussion see paragraphs 3.01, 3.02 and 3.03.

2 Floodproofing existing structures or relocating them costs more than benefits gained if costs and benefits are annualized.

3 Future condition benefits are based on three factors. First, damages prevented to future structures and building contents is estimated. Second, floodproofing new construction on fill is not necessary if a levee is constructed. This results in a cost savings. Thirdly, location advantages result when public facilities and services are available relative to new installation of such services with new subdivisions elsewhere.

4 The area most directly affected by airport flight paths is already fully developed. New development would occur some distance from frequently used flight paths. The impacts of aircraft noise to new residential construction is not expected to be significant.

We hope that these concerns will be resolved in the final environmental impact statement. We appreciate this opportunity to comment on the draft EIS. If you have any questions regarding our comments, please contact Mr. David LeFevre, Environmental Quality Division, at (303) 837-3102.

Sincerely,

Robert J. Matuschek

Robert J. Matuschek
Assistant Regional Administrator
Community Planning and Development

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

REPLY TO: 1950 Environmental Statement Process March 17, 1978

SUBJECT: Other Federal Agency Environmental Statements -
The Sun River Flood Protection Project - Supplemental DES

TO: John E. Velehradsky, PE
Chief, Planning Division
Omaha District, Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

We have reviewed the above-mentioned plan and have no substantive comments.

for James E Reed

ROBERT H. TORHEIM
Regional Forester

No response is necessary.

FEDERAL ENERGY REGULATORY COMMISSION

REGIONAL OFFICE

Federal Building - 31st Floor
230 South Dearborn Street
Chicago, Illinois 60604

February 22, 1978

Your Reference: MROPD-E

District Engineer
Department of the Army
Omaha District, Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Dear Sir:

We have reviewed the Draft Supplemental Environmental Statement dated January 1978 for the Sun River Flood Protection Project at Great Falls, Montana, for which our comments were requested.

Comments of this office are made in accordance with the National Environmental Policy Act of 1969 and the August 1, 1973 Guidelines of the Council on Environmental Quality. Our principal concern with developments affecting land and water resources is the possible effect of such developments on bulk electric power facilities including potential hydroelectric developments and on natural gas pipeline facilities.

Since the proposed project apparently would pose no major obstacle to the construction and operation of such facilities, we have no comments on the Draft Supplemental Environmental Statement.

Thank you for the opportunity to comment on the Draft Environmental Statement.

Very truly yours,

Bernard D. Murphy
Regional Engineer

By: Clifford L. Emmerling (Acting)

No response is necessary.

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME
Helena, MT 59601
March 16, 1978

Mr. John E. Velehradsky
U. S. Army Engineer District
6014 U. S. Post Office and Courthouse
Omaha, Nebraska 68102

Dear Mr. Velehradsky:

As requested, our department has reviewed the draft EIS entitled Sun River Flood Protection Project, Great Falls, Montana.

Al Wipperman, our regional fisheries manager in Great Falls, has prepared rather extensive comments on this proposal, which we hope can be incorporated into its implementation.

We appreciate the opportunity to review your impact statement, and would be happy to assist in any way we can as this project progresses.

Sincerely,

James A. Posewitz, Administrator
Ecological Services Division

sd
Enc

cc: State Clearinghouse
Nels Thoreson

STATE OF MONTANA
DEPARTMENT OF FISH AND GAME
HELENA, MONTANA

RECEIVED
MAR 15 1978
ENVIRON. REQUIRES

Office Memorandum

TO : Robert Wambach-i DATE: March 14, 1978
ATTENTION: Jim Posewitz
FROM : Nels Thoreson
BY: Al Wipperman
SUBJECT: Sun River Flood Protection Project (Draft E.I.S.)

I have reviewed the subject matter and have the following comments:

On Page 15, paragraph 2.26, northern pike should be omitted. Although they have access to the river, specimens have not been taken from the Sun or Missouri Rivers above the Black Eagle Dam. Black bullheads should be added to the list of species found in the lower Sun River. | 1

Page 21, paragraph 4.08 New aquatic habitat. It is proposed to develop a lake from a borrow area in Wadsworth Park. This property is owned by the City of Great Falls. The report states that if the lake is constructed to a proper depth, it could be suitable for a samonid fishery. It could be, but more information is needed before this construction should be attempted. We need to know the quality of the ground water, the rate of exchange of ground water, soil types in the area and if water levels will be sufficient in the winter for carry over of fish. If all these parameters are adequate, I would recommend construction of at least a twenty acre lake with an irregular shoreline and a mean depth of about 10 feet. We would then cooperate with the City of Great Falls to manage a fishery in the lake. | 2

Page 22, paragraph 4.12 Oxbow Lake. A 2,400 foot portion of the Sun River is proposed to be rechanneled immediately below the Interstate Bridge. This is to prevent displacement of several houses to accommodate the dike. A shallow oxbow lake will be created from the old meander which will probably become an unattractive slough. Gradient of the river is low so I don't believe headcutting would be stimulated during high water. If such drastic alteration of the Sun River is proposed, I recommend the dike be constructed riverward and follow the existing contour of the riverbank. Much of the rip-rap planned for the opposite bank of the river could be eliminated. | 3

1 | Paragraph 2.25 of this document has been changed.

2 | Comment acknowledged. Paragraph 1.16 of this document provides a response to this comment.

3 | The oxbow resulting from the channel realignment will be filled. See paragraph 1.06 and plate 5.

Page 24, paragraph 4.16. Reduced esthetics. It is proposed for annual mowing of the levee and berm. How can shrubs and other woody vegetation reestablish with this type of maintenance? Mowing would help control undesirable weeds, however, it would be detrimental to wildlife habitat. The upper end of the project area supports a fair ringnecked pheasant population. I recommend the dike be fenced to prevent livestock and motor vehicle use so vegetation can establish and help prevent erosion. | 4

4 | Mowing is done annually to facilitate inspection. Although this would not allow the development of shrubs, it should not affect the development of native grasses nor their use by upland game birds for nesting. It is Corps policy to prohibit mowing until after 15 July. This protects the area during nesting season. During an inspection, the levee is checked for holes left by burrowing animals. The local sponsor has to determine what areas need to be fenced. Coordination between the Department of Fish and Game and the local sponsor is desirable in this matter.

On Page 25, paragraph 4.19, the report states only vegetation in the right of way will be removed and that the sponsor and the Fish and Game Department will coordinate selection of planting areas. Why does this need to be done when theoretically only the dike and berm will be revegetated? I suggest vegetation presently native to the area be replanted. The whole area has limited value for wildlife except for pheasants, songbirds, rodents and some furbearers. Because of urbanization, revegetating under the guise of wildlife enhancement or mitigation should be taken lightly. The first sentence in paragraph 5.06 on Page 28 bears this out. | 5

5 | Any area disturbed by construction activity will be revegetated with grasses. The primary purpose of planting grass on the levee is to prevent erosion. Other vegetation can be planted within the right-of-way, but not on the levee side slopes. See paragraph 4.20.

The low gradient, turbid flow of the Sun River through the project area supports at best a minimal sport fishery. In my opinion, this project will have very little impact on fisheries and terrestrial wildlife. While the levee will not stop all flooding along the lower Sun River, this project will cause the least damage to wildlife habitat of the alternatives considered. | 6

6 | Concur.

AHW/ez

cc: Ralph Boland

GREAT FALLS CITY-COUNTY PLANNING BOARD

SERVING THE COUNTY OF CASCADE AND THE CITY OF GREAT FALLS, MONTANA

March 21, 1978 Rev. #78-3

U. S. Army Engineer District
6014 U. S. Post Office & Courthouse
Omaha, Nebraska 68102

Attn: John E. Velehradsky, P.E.

Gentlemen:

The Great Falls City-County Planning Board Office has received a Supplemental Environmental Statement Draft and an Environmental Impact Statement Assessment form request for review for the Sun River Flood Protection Project. The Impact Statement review forms and a copy of the Draft Supplemental Environmental Statement were distributed to the following local agencies for their comments:

1) City Commission of City of Great Falls through City Manager
2) County Commission, Cascade County
3) School District No. 1, Great Falls and part of Cascade County
4) City-County Health Department, Cascade County
5) Civil Defense Director, Cascade County
6) Soil Conservation Service, Cascade County

Attached, find copies of the review forms and comments which have been received by our office from the review agencies. Many of the comments are minor due to misinformation or lack of information; some are issues which can be resolved, others will remain as definite adverse environmental impacts.

We have completed our review functioning in our capacity as the A-95 areawide review agency. Based upon our review, we find comments and problems which affect the environment appear to need addressing before the Supplementary Environmental Statement is acceptable.

Sincerely,

John Mooney
Director

JM/GRF/j
Enc.
cc: Jack Paulson; Raymond Horn; John Kelly

ENVIRONMENTAL IMPACT STATEMENT ASSESSMENT FORM

REQUEST FOR ENVIRONMENTAL IMPACT STATEMENT REVIEW

TO: Great Falls City-County Planning Board
City of Great Falls, Cascade County
Montana Areawide Clearinghouse
P. O. Box 1609
Great Falls, Montana 59403

FROM:

Environmental Impact Statement Title: Sun River Flood Protection Project
Great Falls, MT., Draft E.S.

State Clearinghouse File Number: E 8-2-02

Local Clearinghouse File Number:

EIS Agency Sponsor: U.S. Army Engineer District

Sponsor Address: 6014 U. S. Post Office and Courthouse
Omaha, Nebraska 68102

Contact Person: John E. Velehradsky, P.E.

Comments Due by: March 20, 1978

The Above Named EIS Statement

X is enclosed for your review and comment
_____ should have been received by your Agency from the sponsor
_____ is available at the Clearinghouse Office for review (only one copy was received)

Please evaluate the EIS for its consistency and fulfillment of statewide and local objectives related to:

1. The environmental impact of the proposed action.
2. Any adverse environmental effects which cannot be avoided should the proposal be implemented.
3. Alternatives to the proposed action.
4. The relationship between local short-term uses of man's environment and maintenance and enhancement of long-term productivity.
5. Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

IF YOUR AGENCY HAS COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT, PLEASE SEND THE COMMENTS DIRECTLY TO THE EIS AGENCY SPONSOR AND FORWARD A COPY OF THE COMMENTS TO THE LOCAL AREAWIDE CLEARINGHOUSE.

IF YOU AGENCY DOES NOT INTEND TO COMMENT, PLEASE CHECK THE BOX BELOW AND RETURN THIS POSM TO THE LOCAL AREAWIDE CLEARINGHOUSE.

_____ NO COMMENT

Reviewer's Signature John Mooney

Title Planning Director Date March 20, 1978

ENVIRONMENTAL IMPACT STATEMENT ASSESSMENT FORM

REQUEST FOR ENVIRONMENTAL IMPACT STATEMENT REVIEW

TO: City Commission
City of Great Falls
Great Falls, Montana

FROM: Great Falls City-County Planning Board
City of Great Falls, Cascade County
Montana Areawide Clearinghouse
P. O. Box 1609, Civic Center Buildi:
Great Falls, Montana 59403

Environmental Impact Statement Title: Sun River Flood Protection Project
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Omaha, Nebraska 68102

Contact Person: John E. Velehradsky, P.E.

Comments Due by: March 16, 1978

The Above Named EIS Statement

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_____ should have been received by your Agency from the sponsor
_____ is available at the Clearinghouse Office for review (only one copy was received)

Please evaluate the EIS for its consistency and fulfillment of statewide and local objectives related to:

1. The environmental impact of the proposed action.
2. Any adverse environmental effects which cannot be avoided should the proposal be implemented.
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IF YOU AGENCY DOES NOT INTEND TO COMMENT, PLEASE CHECK THE BOX BELOW AND RETURN THIS FORM TO THE LOCAL AREAWIDE CLEARINGHOUSE.

_____ NO COMMENT

Reviewer's Signature John R Kelly

Title City Engineer, City of Great Falls Date March 20, 1978

See attached comments

March 20, 1978

Review Comments on Environmental Impact Statement for the Sun River Flood Protection Project:

Prepared by City Engineering and Planning Departments for City Commission

Page	Paragraph			
5	1.17	Annual operation maintenance cost referred to as $8,700. This is again mentioned on page 30, paragraph 6.02 and is stated as $11,100 in annual maintenance. One figure or the other should be used. The $11,100 figure is probably more realistic and accurate.	1	The operation and maintenance cost for the Sun River Left Bank Levee and Watson Coulee is $7,500. The discussion in paragraph 6.02 is about the entire project consisting of five levee segments. Before realignment, the operation and maintenance cost was $8,700.
16	2.31	This paragraph should be changed to read correctly, "The Paris Gibson Junior High School, which was one of the town's earliest schoolhouses, is currently in use as the Paris Gibson Square and is located 1-1/4 miles east of the Missouri River at 1400 1st Avenue North."	2	This information has been deleted from the final supplemental environmental statement.
17	2.36	The Milwaukee Railroad Depot does not stand on a hill between the Missouri River and downtown Great Falls. It is presently a private enterprise.	3	This information has been deleted from the final supplemental environmental statement.
20	4.03	The statement to the effect that there is no evidence that the flood threat is the determining factor for the presence or lack of commercial/industrial activity in West Great Falls is incorrect. Industrial and commercial activity has been, for all practical reasons, zoned out of this area by Flood Control requirements within the City and the floodway within the County area.	4	See paragraph 4.15 of this document for a discussion of this topic.
22	4.12	The statement on Ox Bow Lake should be changed to the situation addressed. This area cannot be left untreated. It must either be filled or made suitable for another purpose.	5	See paragraph 1.06. The oxbow is no longer a feature of the project.
22	4.13	Nowhere in the statement does it address additional acres that can be developed and added to the tax base nor does it address the possible eight families which will have to be relocated, leave the area, or maybe even the County or State, or assume residence in different type of living quarters, which will permaneatly remove their dwellings from the tax rolls.	6	Under provisions of the Uniform Relocation Assistance Act (P.L. 91-646), each family relocated must be moved into a safe and sanitary dwelling. There is not expected to be any net tax loss as a result of the relocations.
23	4.15	Statement that little change would be noticed for flood of magnitude of less than 100 year event. As we understand it, the 100 year flood is approximately 39,000 CFS; the 1975 flood only reached a magnitude of 29,000 CFS. The area has only experienced one flood larger than the 100 year flood and that was the 1964 flood which was 53,000 CFS.	7	The statement referenced in the first sentence is a discussion of induced flood depth. This is additional depth created by a levee in the area where the water would flow at a lesser depth under normal conditions.

City Engineering and Planning Department Review Comments
Sun River Flood Protection Project

Page	Paragraph		
24	4.15	Under this section, the statement of the approximate acres covered and such flood damage should be shown by an exhibit showing existing contours in the area being discussed.	8
27	5.01	220 acres of land will be permanently committed to the levy. What existing amenities will remain to the private landowners or will the existing amenities be made available to the general public for their use? Cannot this land be made available to the private owners under a lease agreement and if not, cannot it be utilized by the general public for park uses, boat docks and other river bank amenities?	9
28	5.06	This section should more specifically address the aesthetic loss to property owners along the Sun River. A prime example would be that area along 14th Street Southwest and the Sun River.	10
29	5.09	Stated tax loss of $494 seems very low if actual dwelling units or other structures are involved in either relocation or removal and not replaced.	11
30	6.02	On page 5, paragraph 1.17, operation maintenance costs were referred to as $8,700. Shouldn't these figures be consistent? See comments on that section.	12
33	Table 4	Structural Values in the 500 Year Floodplain - Very noticeable within these figures are values on sewerage lift stations. There are 5 such stations within the area. Any of these stations which are below low ground level are not eligible for flood insurance.	

8 | Comment acknowledged. See plate 5.

9 | Decisions about recreational use of project land have to be made by the West Great Falls Flood Control District.

10 | Paragraph 4.26 discusses the aesthetic changes that will occur due to the project.

11 | The statement has been corrected; tax loss is $6,100. It is for land removed from the private sector for levee right-of-way.

12 | See comment 1 of this letter for the correct figures.

13 | The comment is acknowledged.

November 20, 1974

BIF

Mr. John Kelly
City Engineer
City of Great Falls
P.O. Box 1609
Great Falls, Montana 59403

Dear Mr. Kelly:

This is to respond to the question you raised during my November 11, 1974, visit to your office relative to the availability of flood insurance. More specifically the question was referenced to the last paragraph of a November 1, 1974, letter from Mr. William H. Hornberg, Director, Office of Grants, United States Environmental Protection Agency, to Mr. Richard D. Thomas, City Manager of Great Falls, Montana.

It is my understanding that the subject reimbursement project refers to a water and/or sewer improvement project which consists of improvements and structures that are primarily below ground.

The National Flood Insurance Program defines Structure Coverage as: "Structure Coverage is insurance on a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a mobile home on foundation. The words structure and building have identical meanings for the purposes of the National Flood Insurance Program."

Under the above definition flood insurance would not be available or required on the subject project.

Sincerely,

Jon L. Brown
Flood Insurance Specialist
Flood Insurance Office

7/19 BK

RECEIVED
NOV 29 1974
ENGR. OFFICE
CITY OF GREAT FALLS

ATTEST:

RECEIVED
MAR 16 1978
GREAT FALLS CITY-COUNTY
PLANNING BOARD OFFICE

March 14, 1978

To: Great Falls City Commissioners, Mayor, and City Manager
Civic Center
Great Falls, Montana 59401

Re: Supplemental Environmental Statement, Sun River Flood Protection Project, Great Falls, Montana, January 1978.

Comments by: The Concerned Citizens of the Sun River, a group, 200 10th Avenue Southwest, Great Falls, Montana 59404, Jack Paulson, Chairman.

Enclosed please find a letter to the U.S. Army Engineer District, Omaha Corps of Engineers, Omaha, Nebraska from our group, the Concerned Citizens of the Sun River. The Corps has asked for comments by the 20th of March, and we would appreciate very much if you would read over our letter to them and read for yourself the matters of great concern to us.

Our group advocates flood control by means of an upstream storage reservoir. We feel that more people will benefit from this. The proposed levee creates a problem for every problem it solves. In fact, it transfers the problem from the north side of the Sun River to the south side of the Sun River where many property values are higher. We feel that there are great cost descrepancies in the Environmental Statement, and that more study is needed including all land areas affected by the flood waters of the Sun River!

There is a drawback to the project that the city, county, and state should be aware of. In providing local sponsorship for the project, they can be held liable for damage resulting from a Corps project. On page 2, Point 1.05 (b) the Environmental Statement states that authorization is subject to the condition that no expenditures would be made until local interests gave assurances to the satisfaction of the Secretary of the Army that they would hold and save the United States free from damages due to the construction works.

Your consideration to these matters will be greatly appreciated by the Concerned Citizens of the Sun River.

Sincerely,

Jack O. Paulson
Chairman

RECEIVED
MAR 17 1978
GREAT FALLS
CITY-COUNTY
PLANNING BOARD

March 14, 1978

U.S. Army Engineer District
Omaha Corps of Engineers
Omaha, Nebraska

Subject: Supplemental Environmental Statement, Sun River Flood Protection Project, Great Falls, Montana, January 1978.

Comments by: The Concerned Citizens of the Sun River, group, 200 10th Avenue Southwest, Great Falls, Montana 59404, Jack Paulson, Chairman.

Comments:

On point 3.a. the EIS states that the levee will provide protection for a large portion of West Great Falls, Montana. We, as Concerned Citizens feel that more than a 'portion' of West Great Falls should be considered. People in the Country Club, the entire south bank of the Sun River in Gt. Falls, plus the communities of Manchester, Vaughn, Sun River, Simms, and the entire Sun River Valley would be adversely affected if the levee was built. We wish to point out that there hasn't even been an adequate study to point out all the potential damages on the south bank to homes and land. We further request that an up-to-date study be made.

Point 4 states that the flood control reservoir alternative was not selected because it was not economically justifiable. What year was this decided--1954 as much of the data is based on? With the energy crisis of the last couple of years, the drought in the West, the need for more recreational areas, we feel that there is new and vital criteria that make a reservoir alternative economically feasible. Plus, it would protect approximately 30 miles of property and lives during a design flood, rather than 3 miles of property and lives.

The Sun River is a precious natural resource that should be studied and preserved for the good of the many, not a few. A levee system does not provide for such consideration, and Montana's water flows into the Missouri River where it is reserved for other states. There is no storage facility on the Sun River and, therefore, more study is needed in regard to preserving water for Montana.

Point 1.05 (a) states that local interests provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, including lands necessary for ponding of interior drainage. When figuring the cost-benefit ratio of this project, were the land owners along the Sun River consulted about giving up their land for the levee? Did you know that over 50% of these owning land along the Sun River do not want the levee and intend to take whatever legal means they can to stop the levee? This will be expensive, but will also be expensive for the local sponsor. We have signed petitions on file proving the basis for this statement. Copies of petitions are enclosed.

Point 1.16 talks about potential borrow areas. One potential site in Wadsworth Park (inside the left-bank levee on the upstream end) may be used for deep borrow. If this borrow area is used, a lake with a mean depth about 8 to 10 feet will be provided. Point 4.08 states that if excavated to a sufficient depth, the lake could be suitable for a salmonoid fishery. After talking to a fisheries expert from the Montana State Fish and Game Dept., we found that there is not enough information to back the fact that the lake could be suitable for a salmonoid fishery. Will the water be free-flowing, will it be the right temperature, what type of bottom will the lake have, what kind of plant and animal life will there be, and where is the source of water? The Sun River cannot be pumped in and out, surely? Doesn't this mean, we would most likely have a lake 8 to 10 feet deep that is stagnant and a potential hazard for our neighborhood? Perhaps even a mosquito breeding ground and a death trap for youngsters?

Point 4.05 states that the levees built on the Sun River flood plain will provide flood protection to areas that are now part of the "floodway" under flood plain zoning regulations. No further construction is currently allowed in the greatest portion of the flood plain. There is a need for study to determine the property loss and future development loss on the south bank of the Sun River due to the building of the levee on the north and creating new "floodways" and "floodplains" on the south. It seems to us, the Concerned Citizens of the Sun River, that the problems on the north side of the Sun River are being transferred to the south side.

Point 4.15 states that during the designed flood, the water upstream of the Interstate would be approximately 1 foot deeper and at the upstream end of the levee the water would be approximately 5 feet deeper and extend five miles upstream and would cause only $2,200 in increased damages. $2,200 is an unrealistic figure and must be one from 1964 statistics! There are approximately 70 families along the Sun River in the valley alone; many new houses have been built in the city limits of Great Falls on the south side of the Sun River and 5 feet of water during a design flood would affect them. A milking parlor worth over $100,000 would be flooded and an inch or two in greater depth of water would affect homes in the Country Club seriously. $2,200 isn't even realistic, it is ridiculous!

Irrigation systems, concrete ditches, pipelines would also be damaged by additional water and higher velocities of water.

Point 5.09 states the loss of $490.00 in tax revenue due to construction of the levee. Here is another unrealistic figure when there will be (taken from point 4.09) approximately 220 acres of land permanently committed to the project. Eight families relocated and 27 acres of cropland and 125 acres of pastureland taken out of production. Approximately 87 acres of land will be required for borrow. Is $490.00 a realistic figure for tax revenue lost when it involves all this property? One can owns five acres that is in our group, Concerned Citizens of the Sun River, and pays over a $100 a year in taxes for that alone!

Point 1.17 includes $8,700 annual operation and maintenance costs. And point 4.03 states that one, possibly two permanent jobs may be created for maintenance of the project. Is it realistic to think that one, let alone two permanent jobs, plus the mowing and grading of the levee can be done for $8,700 annually. That calculates to be $4,350 salary perjob and less if you take off for equipment, repairs, and gasoline. $8,700 is another ridiculous figure.

We the Concerned Citizens of the Sun River advocate flood control of the Sun River with upstream storage (reservoir), and request a more up-to-date environmental impact study including all land areas affected by the floodwaters of the Sun River.

Sincerely,

Jack O. Paulson

The Concerned Citizens of the Sun River
Jack O. Paulson, Chairman

Enc: page 3

Encl Petitions (1) Sun River Dam Petition

We have over 160 signatures and just started this past week. We intend to continue until we can show that a dam is wanted most of all!

(2) A petition signed by those who will be adversely affected by the levee, protest the levee, and request an up-to-date study of all land areas affected by the Sun River in light of present economic, social, and technological conditions. This will be circulated further, too. There are over 100 signatures on this petition to date.

(3) Petitions of property owners within the West Great Falls Flood Control and Drainage District petitioning to have their properties deleted from the District stating that the dike system does not benefit their properties and will assume no liability for damages that may be incurred by the District. Over 200 have signed and more are sign

Cc: Great Falls Chamber of Commerce

Governor Tom Judge of Montana

Office of Management and Budget in Washington D. C.

Great Falls City Commissioners and Mayor and City Manager

Cascade County Commissioners

Montana Department of Fish and Game

Montana Department of Natural Resources and Conservation

Montana Environmental Quality Council

Montana State Department of Health and Environmental Sciences

Montana Recreation and Parks Division

Montana Association of Conservation

Congressman Ron Marlenee

Senator Paul Hatfield

Senator John Melcher

Congressman Max Baucus

Great Falls Park and Recreation Dept.

West Great Falls Flood Control and Drainage District

FROM THE GOVERNOR'S OFFICE

On November 19, 1976, Mr. Blake J. Wordal, Administrative Assistant to Governor Tom Judge wrote a reply to our letter regarding the levee project. The following is a quote from that letter showing that construction of a levee shortens the possibility of the construction of a dam:

"Completion of a levee project would reduce the level of flood control benefits to be derived from a possible future storage project. Thus, even though a levee could be a quicker solution, a completed levee could make the prospect of a long-range storage structure even more unlikely. Whether a levee project is an acceptable alternative to a possible future storage structure must ultimately be decided at the local level by the affected citizens."

Jack O. Paulson,
Chairman

West Great Falls Flood Control & Drainage District
P. O. Box 2567
Great Falls, Montana 59403

March 18, 1976

Mr. Glen R. Floerchinger
City-County Planning Board
Civic Center
Great Falls, Montana 59401

Subject: Comments on Draft Supplemental Environmental Statement for Sun River Flood Protection Project by U. S. Army Corps of Engineers, dated January 1978.

The Commissioners of the Flood District would like to make several comments on this proposed draft.

Overall, it is a very good Environmental Statement showing that the project is both economically and technically feasible, with minimal adverse impact on the environment.

The oxbow lake discussed on page 22, 4.12, is an oversight on the part of the Flood Commission. We cannot leave this area untreated to become a hazard and a nuisence. It must either be filled or made deeper into a recreational lake. | 1

Increased flood stages discussed on Page 23, 4.15, need to be clarified in several ways. 100 Year Flood stages should be included as the more likely flood to consider, and there should be mention of how much new land is flooded as opposed to higher flood stages for existing flooded land. We understand not much new land is flooded. | 2

The number of homes and businesses affected is greater than mentioned on page 19 of this report. | 3

Chairman, Board of Commissioners

Commissioner

Commissioner

1 | See paragraph 1.06. The oxbow is no longer a feature of the project.

2 | Discussion on induced flood stages and damages has been expanded. See paragraphs 4.05 and 4.06 and plate 5.

3 | Concur.

Thomas L. Judge, Governor

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

MEMBERS OF THE BOARD - CHAIRMAN CECIL WEEDING, DR. WILSON F. CLARK, VIOLA HERAK, WILLIAM GERTSCHE, DAVID G. DRUM, ROY HUFFMAN, CHARLES HASH

DNRC

John C. Bell, Director

March 20, 1978

Mr. John E. Velehradsky, Chief
Planning Division
U. S. Army Corps of Engineers
6014 U. S. Post Office and Courthouse
Omaha, NE 68102

Dear Mr. Velehradsky:

As a follow up to Mr. Porrini's letter to you on March 16, 1978 the Montana Department of Natural Resources and Conservation wishes to make the following comments on the Supplemental Draft Environmental Statement for the Sun River Flood Protection Project. It is hoped that these comments can be resolved so that a decision can be made by this Department's Water Resources Division, towards issuing a permit for the construction of a flood control structure in an officially designated floodplain.

Of major concern to the Department is the discussion of increased flood stages (4.15) pages 23-24 and (5.07) page 28. The Montana Floodway Management and Regulation Act states that flood control structures are permissible in a designated floodway if they do not increase the 100-year flood elevation by more than five tenths (0.5) foot at any point. On the referred-to pages no specific increase is established for floods of a 100-year magnitude. To this matter Mr. Porrini has already been in contact with Mr. George Pattenode requesting the necessary data. The need for detailing increased flood stages at the 100-year flood level is urgent. 1

With the proposed construction of the levee the Sun River floodplain limits will be changed. The report estimates 60 acres of land would be added to the 500-year floodplain. A map showing the location of the increase (500 and 100-year floodplains) would clarify some confusion and provide this Department with the information necessary to hold a public hearing for the purpose of changing the official floodplain delineation of the Sun River. 2

If 60 acres are to be added to the floodplain by the proposed construction, what would be the alternatives towards protecting that land? Would the land necessary to construct a levee to protect that 60 acres exceed the amount of land available? What would be the number of acres affected by only the 100-year flood? 3

32 SOUTH EWING, HELENA, MONTANA 59601 (406) 449-3712

1 The discussion on increased flood stages in the final supplemental EIS has been expanded. See paragraphs 4.05 and 4.06.

2 Concur. See plate 5.

3 Construction of a levee to protect the additional acreage flooded by induced flood stages would occupy most of the land it was built to protect. See paragraphs 4.05, 4.06 and plate 5.

In summary this Department thanks the Corps of Engineers for being allowed to comment on this statement. It is our hope that we can continue to work together towards a satisfactory conclusion of the flooding problems in the West Great Falls area. We will be looking forward to your reply but if more information is necessary along the way, please do not hesitate to call either myself or Mr. Phil Porrini, Supervisor, Floodplain Management Section, telephone number (406) 449-2864.

Sincerely,

Wayne Wetzel

WAYNE WETZEL
ENVIRONMENTAL COORDINATOR

WW/bh

STATE OF MONTANA
ENVIRONMENTAL QUALITY COUNCIL
CAPITOL STATION
Helena, Montana 59601
Telephone (406) 449-3742

Terrence D. Carmody, Executive Director

March 2, 1978

John E. Velehradsky, PE
U.S. Army Engineer District
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Dear Mr. Velehradsky:

Regarding the report on the Sun River Flood Protection Project, Great Falls, Montana, on page 21 land use impacts are discussed in the event a levee is constructed. Paragraph 4.05 states that the levee, "will provide flood protection to areas that are now part of the 'floodway' under floodplain zoning regulations. No further construction is currently allowed in the greatest portion of the floodplain." In the next paragraph, 4.06 the EIS states "With protection, this area will most likely have more single-family, large-lot development." An environmental impact, good or bad, should probably be addressed due to the construction of new houses in an area that is zoned for a floodplain.

Thank you for the opportunity to comment.

Sincerely,

TERRENCE D. CARMODY
Executive Director

By Duane Noel
Ecology Researcher

TDC/RDN/mb

Many of the people now living in the project area are low-income and elderly persons. A substantial number of this last group live on fixed incomes. The area is relatively flat. Most of it drains into the Sun River directly or in ditches which empty into the Sun River. The levee will have 16 interior drainage structures to handle ordinary runoff. Construction of a levee generates a sense of well-being for those protected. Three extra feet is added to the levee height in order to insure against levee failure. Land use impacts due to the project are discussed in paragraphs 1.16, 3.01, 3.02, 3.03 and 4.10 through 4.13.

Cascade County Conservation District

4930 9TH AVENUE SOUTH GREAT FALLS, MONTANA 59405 PHONE (406) 454-3446

March 16, 1978

Department of the Army
Omaha District, Corps of Engineers
6014 U.S. Post Office & Courthouse
Omaha NE 68102

TO WHOM IT MAY CONCERN:

The Board of Supervisors at their monthly meeting, March 14, 1978, completed review of the "Supplemental Environmental Statement" for the Sun River Flood Protection Project (Diking), Great Falls, Montana.

A motion was made and carried at this meeting that per the review of the environmental statement that further impact study is necessary and recommended by this Board. Attached is the board's reasoning on this suggestion and questions asked at the meeting for your consideration.

Dale Marxer

Dale Marxer, Chairman and Board of Supervisors, Cascade County Conservation District

jf
Encl.

CASCADE COUNTY CONSERVATION DISTRICT'S COMMENTS - Sun River Flood Protection Project, Great Falls, Montana - Draft, Supplemental Environmental Statement

Page ii - 3.b., Adverse Environmental Effects -

The levee will cause or increase in potential damage to unprotected areas on the right bank of the Sun River. 1

No mention is made of adverse damage that could be expected to irrigation pumps, earthen and concrete irrigation ditches, drainage ways, and leveled fields that have been developed in this area at the costs of thousands of dollars.

1 Paragraphs 4.05 and 4.06 discuss induced flooding and potential damages in more detail.

Page 5, Project Description -

1.15 - Certain areas along the Sun River have severe erosion problems. Erosion in these areas must be controlled to provide protection for the new levee structure. During 1976 and 1977, several reaches on both the north bank and south bank of the Sun River were protected by rock rip-rap. If the levee is installed as designed, rip-rap should be installed to protect both banks of the Sun River. 2

2 Concur; riprap will be placed at points on the right bank (south). See plate 1.

Page 7, Geology and Soils, 2.02 -

Reference statement, line 5, "...there are no prime or unique farmlands in the project area."

There are some of the best farmland in Cascade County located within and adjacent to the project area. We have documented proof of this statement. (See attached copies of news clippings on sugarbeet production; and dairy industry (which still is a productive business in this lower Sun River valley and livlihood of farmers.) 3

3 See paragraph 2.02 for a discussion of prime farmland.

Page 22, Detrimental Impacts Discussed, 4.15 -

"Increased Flood Stages," reference line six, "During a flood equal to that which the levee is designed, the water just upstream of the Interstate would be approximately 1 foot deeper than under existing conditions. At the upstream end of the levee the water would be approximately 2 feet deeper, and about 5 miles upstream the effects of the levee would be negligible...Flood damages in this unprotected area are expected to be approximately $4,200 greater with the levee than under existing conditions." At the present time, no Environmental Impact Statement has been prepared in detail on this area. Request shall be made to the West Great Falls Flood Control and Drainage District, and herewith, to the U.S. Army Corps of Engineers, that a study in detail be made. Suggest again, that potential for a dam be also, studied. 4

4 Additional studies on increased flood stages have been conducted. See plate 5 and the discussion in paragraphs 4.05 and 4.06.

Some flood control measure needs to be developed that will help ALL people. The diking may not be a solution to a problem, but may in fact cause just another flooding problem somewhere else. What effect will the water coming down at flood stage along the Sun River along dikes cause when it hits the already also swollen waters of the Missouri River? This water would be like hitting a stone wall—and either would back up the Sun River to cause flooding upstream—or could cause the Missouri River to flood the City Water Works of Great Falls, perhaps, and/or residential areas along the Missouri. What about Donovan Park area and the Country Club residential areas--these areas and items should be considered. Item 1.11 5

5 Backup flooding on the Missouri River can be expected to occur whenever the Sun River floods. Coincidental flooding from both rivers is a possibility. Consideration of flood flows from both the Sun and Missouri Rivers were taken into account in the design of the levee.

page 4, Project Description, lines 9 and 10, speaks of diverting water from Watson Coulee into two 84-inch conduits to carry flow into the Sun River. That does not make sense--to run more water into an already swollen stream! 6

Page 28, Increased Flood Stage -

We feel the proposed left bank levee on the Sun River will cause a large increase in flood stages during major flood events upstream of Interstate 15, and to the inlet end of said levee. 7

Deterimental damage will occur to cropland in this area. The Sun River streambanks along the project area are stabilized at the present time. If this north bank levee is installed proper streambank management would be impossible. During 1976 and 1977, $376,599 was spent by the federal government under allocation to the Soil Conservation Service, and monitored through this conservation district for flood restoration project "216" for rock rip-rapping on streambanks of the lower Sun River to help control further erosion commenced by flood waters of June 1975. It is felt that homes not flooded before, would be flooded out in this area if dikes are installed in the proposed project area.

We request that these items be taken into serious consideration before any firm decision is made for dikes.

CC:
Montana Association of Conservation Districts
West Great Falls Flood Control & Drainage District
U.S. Department of Interior, Office of the Secretary
City of Great Falls - Commissioners
Cascade County Commissioners
Chamber of Commerce, Great Falls, Montana
Montana Dept. of Natural Resources and Conservation
Montana Environmental Quality Council
U.S. Environmental Protection Agency
Sen. John Melcher
Sen. Paul Hatfield
Rep. Max Baucus
Rep. Ron Marlenee
Gov. Tom Judge

6 The Watson Coulee drains to the Sun River and will continue to do so with or without the twin 84 inch conduits. To completely protect the project area from any flooding, water flow from Watson Coulee can pass through the conduits to the Sun River without causing any problem. In case of coincidental flooding, water that cannot immediately flow into the conduits will pond against the interceptor levee. (See plate 1.)

7 Increased flood stages are discussed in paragraphs 4.05 and 4.06.

March 14, 1978

U.S. Army Engineer District
Omaha Corps of Engineers
Omaha, Nebraska

Subject: Supplemental Environmental Statement, Sun River Flood Protection Project, Great Falls, Montana, January 1978.

Comments by: The Concerned Citizens of the Sun River, group, 200 10th Avenue Southwest, Great Falls, Montana 59404, Jack Paulson, Chairman.

Comments:

On point 3.a. the EIS states that the levee will provide protection for a large portion of West Great Falls, Montana. We, as Concerned Citizens feel that more than a 'portion' of West Great Falls should be considered. People in the Country Club, the entire south bank of the Sun River in Gt. Falls, plus the communities of Manchester, Vaughn, Sun River, Simms, and the entire Sun River Valley would be adversely affected if the levee was built. We wish to point out that there hasn't even been an adequate study to point out all the potential damages on the south bank to homes and land. We further request that an up-to-date study be made. 1

Point 4 states that the flood control reservoir alternative was not selected because it was not economically justifiable. What year was this decided--1964 as much of the data is based on? With the energy crisis of the last couple of years, the drought in the West, the need for more recreational areas, we feel that there is new and vital criteria that make a reservoir alternative economically feasible. Plus, it would protect approximately 30 miles of property and lives during a design flood, rather than 3 miles of property and lives. 2

The Sun River is a precious natural resource that should be studied and preserved for the good of the many, not a few. A levee system does not provide for such consideration, and Montana's water flows into the Missouri River where it is reserved for other states. There is no storage facility on the Sun River and, therefore, more study is needed in regard to preserving water for Montana. 3

Point 1.05 (a) states that local interests provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, including lands necessary for ponding of interior drainage. When figuring the cost-benefit ratio of this project, were the land owners along the Sun River consulted about giving up their land for the levee? Did you know that over 50% of those owning land along the Sun River do not want the levee and intend to take whatever legal means they can to stop the levee? This will be expensive, but will also be expensive for the local sponsor. We have signed petitions on file proving the basis for this statement. Copies of petitions are enclosed. 4

Point 1.16 talks about potential borrow areas. One potential site in Wadsworth Park (inside the left-bank levee on the upstream end) may be used for deep borrow. If this borrow area is used, a lake with a mean depth about 8 to 10 feet will be provided. Point 4.08 states that if excavated to a sufficient depth, the lake could be suitable for a solmonoid fishery. After talking to a fisheries expert from the Montana State Fish and Game Dept., we found that there is not enough information to back the fact that the lake could be suitable for a solmonoid fishery. Will the water be free-flowing, will it be the right 5

1 Flood damage studies have been conducted for the entire area. The discussion is contained in paragraphs 6.06, 6.07, and 6.08. Outlines of flooded areas with and without the project can be found on plate 5. Average annual damage potential upstream of the levee's upstream tieoff and Manchester amounts to $661,000 which is measured in 1978 dollars.

2 See paragraph 6.04. The economic analysis was based on data updated to 1978.

3 The project will have the least impact on the Sun River of the alternatives considered. The feasibility of other alternatives is diacussed in Section VI.

4 The benefit-cost analysis includes projected land costs. The increased project cost is attributable to the additional cost for land. See paragraph 1.19.

5 Details for such a fishery will be worked out between the Montana Department of Fish and Game, the City of Great Falls and the local sponsor.

temperature, what type of bottom will the lake have, what kind of plant and animal life will there be, and where is the source of water? The Sun River cannot be pumped in and out, surely? Doesn't this mean, we would most likely have a lake 8 to 10 feet deep that is stagnant and a potential hazard for our neighborhood? Perhaps even a mosquito breeding ground and a death trap for youngsters?

Point 4.05 states that the levees built on the Sun River flood plain will provide flood protection to areas that are now part of the "floodway" under flood plain zoning regulations. No further construction is currently allowed in the greatest portion of the flood plain. There is a need for study to determine the property loss and future development loss on the south bank of the Sun River due to the building of the levee on the north and creating new "floodways" and "floodplains" on the south. It seems to us, the Concerned Citizens of the Sun River, that the problems on the north side of the Sun River are being transferred to the south side. 6

Point 4.15 states that during the designed flood, the water upstream of the Interstate would be approximately 1 foot deeper and at the upstream end of the levee the water would be approximately 5 feet deeper and extend five miles upstream and would cause only $2,200 in increased damages. $2,200 is an unrealistic figure and must be one from 1964 statistics! There are approximately 70 families along the Sun River in the valley alone; many new houses have been built in the city limits of Great Falls on the south side of the Sun River and 5 feet of water during a design flood would affect them. A milking parlor worth over $100,000 would be flooded and an inch or two in greater depth of water would affect homes in the Country Club seriously. $2,200 isn't even realistic, it is ridiculous!

Irrigation systems, concrete ditches, pipelines would also be damaged by additional water and higher velocities of water. 7

Point 5.09 states the loss of $490.00 in tax revenue due to construction of the levee. Here is another unrealistic figure when there will be (taken from point 4.09) approximately 220 acres of land permanently committed to the project. Eight families relocated and 27 acres of cropland and 125 acres of pastureland taken out of production. Approximately 87 acres of land will be required for borrow. Is $490.00 a realistic figure for tax revenue lost when it involves all this property? One man owns five acres that is in our group, Concerned Citizens of the Sun River, and pays over a $100 a year in taxes for that alone! 8

Point 1.17 includes $8,700 annual operation and maintenance costs. And point 4.03 states that one, possibly two permanent jobs may be created for maintenance of the project. Is it realistic to think that one, let alone two permanent jobs, plus the mowing and grading of the levee can be done for $8,700 annually. That calculates to be $4,350 salary perjob and less if you take off for equipment, repairs, and gasoline. $8,700 is another ridiculous figure. 9

We the Concerned Citizens of the Sun River advocate flood control of the Sun River with upstream storage (reservoir), and request a more up-to-date environmental impact study including <u>all</u> land areas affected by the floodwaters of the Sun River.

Sincerely,

The Concerned Citizens of the Sun River
Jack O. Paulson, Chairman

Enc: page 3

6 | A discussion of the residual flood hazard is presented in paragraph 4.04. A discussion on induced flooding upstream of Interstate 15 is presented in paragraphs 4.05 and 4.06. Downstream of Interstate 15 the natural flows are not affected by the levee.

7 | This has been included in the damage analysis of induced stages.

8 | The discussion of annual tax revenue loss due to lands removed from taxation has been revised. See paragraphs 4.16 and 4.17.

9 | This has been corrected. The estimated operation and maintenance cost is expected to pay for annual mowing, pest control, weed control and replacement of damaged levee components. The local sponsor is required to perform these tasks. In performing the required operation and maintenance, the local sponsor may incur more or less expenses than the estimated figure.

Encl: Petitions (1) Sun River Dam Petition

We have over 160 signatures and just started this past week. We intend to continue until we can show that a dam is wanted most of all!

(2) A petition signed by those who will be adversely affected by the levee, protest the levee, and request an up-to-date study of all land areas affected by the Sun River in light of present economic, social, and technological conditions. This will be circulated further, too. There are over 100 signatures on this petition to date.

(3) Petitions of property owners within the West Great Falls Flood Control and Drainage District petitioning to have their properties deleted from the District stating that the dike system does not benefit their properties and will assume no liability for damages that may be incurred by the District. Over 200 have signed and more are signing.

Cc: Great Falls Chamber of Commerce

Governor Tom Judge of Montana

Office of Management and Budget in Washington D. C.

Great Falls City Commissioners and Mayor and City Manager

Cascade County Commissioners

Montana Department of Fish and Game

Montana Department of Natural Resources and Conservation

Montana Environmental Quality Council

Montana State Department of Health and Environmental Sciences

Montana Recreation and Parks Division

Montana Association of Conservation

Congressman Ron Marlenee

Senator Paul Hatfield

Senator John Melcher

Congressman Max Baucus

Great Falls Park and Recreation Dept.

West Great Falls Flood Control and Drainage District

427 - 9th Ave. Southwest
Great Falls, Montana 59404
March 17, 1978

U. S. Army Corps of Engineers
U. S. Army
Omaha, Nebraska

Re: West Great Falls Flood Control District

Gentlemen:

In looking over your Environmental Impact Study, it seems to be very vague.

You only surveyed a portion of the Sun River and did not give a very accurate picture of the damages that could be caused on the South Side of the Sun River from the dykes that will be on the North Side of the Sun River. Also, your Study did not give an estimate of the damages to the valuable agricultural lands along the river, or to the Country Club area. 1

In looking further, we could not find where you have made a study of the five miles above the dykes, where water would be backed up.

Shouldn't all this be important too, or is your study just to benefit the few dyke people at the expense of hunnreds of others, that live above and below the system?

We believe that you should make a more complete study and not do a slanted study just to benefit these few.

Yours very truly,

Mrs. Cecelia J. Harmon

Mrs. Cecelia J. Harmon

1 | Damages from induced flooding are discussed in paragraphs 4.05 and 4.06.

SUPPLEMENTAL
ENVIRONMENTAL STATEMENT
SUN RIVER
FLOOD PROTECTION PROJECT
GREAT FALLS, MONTANA

APPENDIX C
SECTION 404(b) EVALUATION REPORT

U.S. ARMY ENGINEER DISTRICT
OMAHA, NEBRASKA

SUN RIVER
FLOOD PROTECTION PROJECT
GREAT FALLS, MONTANA

SECTION 404(b) EVALUATION REPORT

This evaluation was made in accordance with guidelines established by the Environmental Protection Agency in conjunction with the Secretary of the Army pursuant to Section 404(b) of the Federal Water Pollution Control Act of Amendments of 1972, P.L. 92-500. In accordance with these guidelines (40 CFR 230, 5 Sept 1975), the District Engineer is required to do an ecological evaluation following the guidance contained in 40 CFR 230.4 and 230.5 when evaluating discharges of dredged or fill material on a case by case basis. The following is a discussion of the proposed discharge in accordance with 40 CFR 230.3 through 230.5. Since the District Engineer is to consider all factors contained therein, all factors will be mentioned. Those factors determined to be not applicable or not significant are so noted.

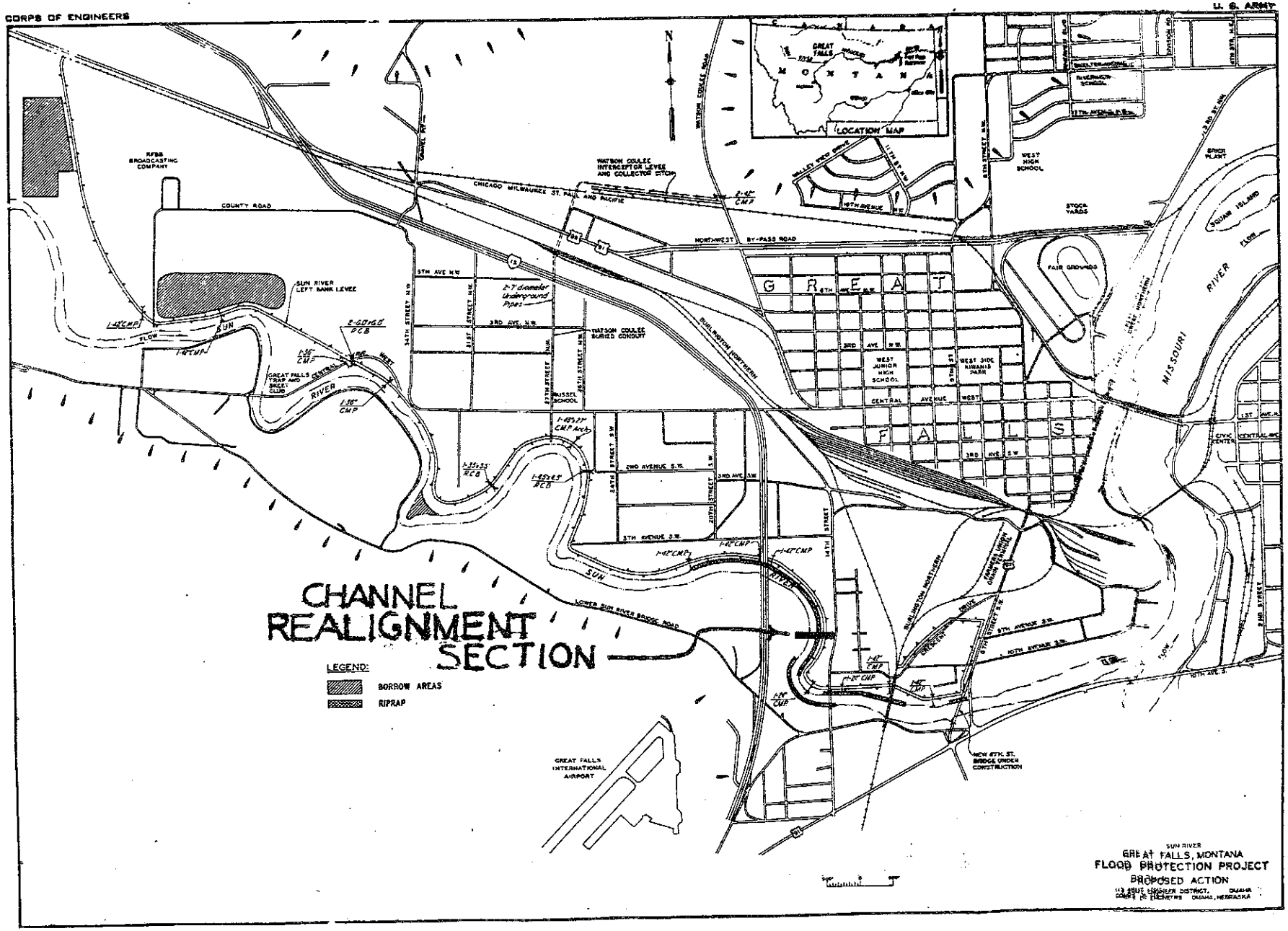
I. PROJECT DESCRIPTION

The proposed project would be at Great Falls, Montana near the confluence of the Sun and Missouri Rivers. The proposed project involves two elements; a local flood protection levee and the interior drainage system for the Watson-Coulee drainage basin.

The flood protection levee consists of approximately 31,800 linear feet of levee commencing at a point near the Burlington Northern Railroad yards on the left bank of the Missouri River, south to the confluence of the Sun and Missouri Rivers, then upstream on the left bank of the Sun River to a point along the Burlington Northern Railroad tracks, approximately one mile northwest of the City of Great Falls. The levee will be set back from the existing channel approximately 50 feet except in the channel realignment area. Sixteen interior drainage structures including the one for Watson-Coulee will be installed along the levee. The levee embankment will require an estimated 1,237,000 cubic yards of compacted fill material.

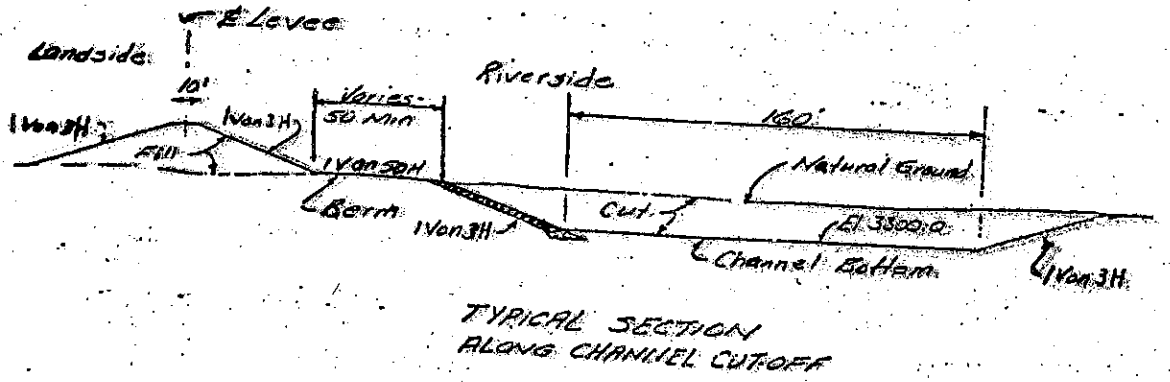
The Watson-Coulee collector and drainage system consists of two 84-inch conduits, 4,685 feet in length, installed down Twenty-seventh Street from north of the Chicago-Milwaukee-St. Paul and Pacific Railroad to the Sun River, with an interceptor ditch and levee directly north and adjacent to the Chicago-Milwaukee-St. Paul and Pacific Railroad tracks. This ditch goes west from Watson-Coulee Road for approximately 3,200 linear feet. It will require an estimated 28,500 cubic yards of excavation. The levee will be 2,300 feet long and require an estimated 5,300 cubic yards of compacted fill material.

A. Description of the Proposed Discharge. The disposal of fill material in navigable waters involves a channel realignment on the Sun River and the placement of riprap for bank protection. The channel realignment will consist of approximately 1,000 linear feet of new channel excavation and the filling of the abandoned channel. The new channel will have a 160-foot bottom width and the banks sloped on a 3-foot horizontal to a 1-foot vertical slope. The side slopes will be armour


CORPS OF ENGINEERS
U. S. ARMY
CHANNEL REALIGNMENT SECTION
LEGEND:
BORROW AREAS
RIPRAP
LOCATION MAP
GREAT FALLS
MONTANA
SUN RIVER
GREAT FALLS, MONTANA
FLOOD PROTECTION PROJECT
PROPOSED ACTION
KFBB BROADCASTING COMPANY
COUNTY ROAD
SUN RIVER LEFT BANK LEVEE
WATSON COULEE INTERCEPTOR LEVEE AND COLLECTOR DITCH
CHICAGO MILWAUKEE ST. PAUL AND PACIFIC
NORTHWEST BY-PASS ROAD
BURLINGTON NORTHERN
WATSON COULEE BURIED CONDUIT
GREAT FALLS TRAP AND SKEET CLUB
SUN RIVER
MISSOURI RIVER
WEST HIGH SCHOOL
WEST JUNIOR HIGH SCHOOL
BRUSSEL SCHOOL
STOCK YARDS
FAIR GROUNDS
SQUAW ISLAND
CIVIC CENTER
GREAT FALLS INTERNATIONAL AIRPORT
NEW 6TH ST. BRIDGE UNDER CONSTRUCTION
LOWER SUN RIVER BRIDGE ROAD
CENTRAL AVENUE WEST
2ND AVENUE S.W.
5TH AVENUE S.W.
10TH AVENUE S.W.
3RD AVE. N.W.
5TH AVE N.W.

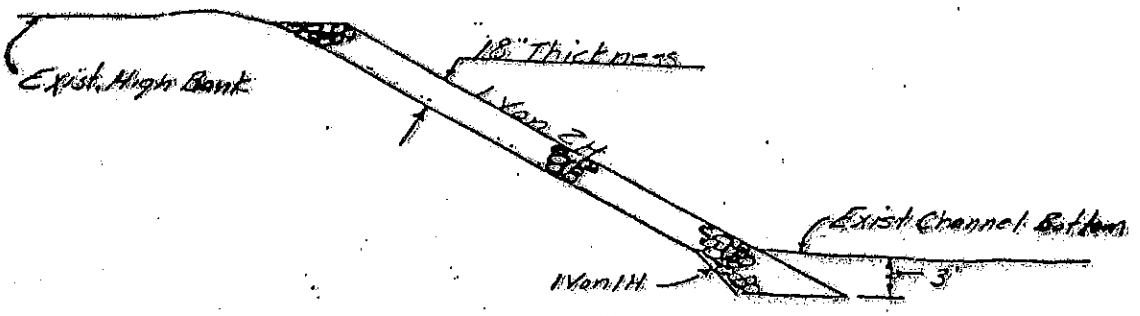
C-3

FIGURE 1



TYPICAL SECTION
ALONG CHANNEL CUTOFF

FIGURE 2



TYPICAL RIPRAP SECTION

FIGURE 3

coated with clean, durable riprap as shown on Figure 3. The permanent fill material placed in the Sun River involves an estimated 18,000 cubic yards of compacted earth fill forming the berms and levee embankment across the old Sun River channel as shown on Figure 2, 200,000 cubic yards of earth fill in the abandoned Sun River channel, and a total of 6,250 linear feet of riprap bank protection at three separate locations.

(1) General Characteristics of the Fill Material. Fill material for the levees will consist primarily of silts and clays. Some sandy clays and silts may also be used as fill. Riprap material will consist of some durable quarry stone; probably limestone and/or sandstone.

(2) Sources of Material. Fill material for the levees will be excavated from the areas designated on figure 1 as borrow areas. Rock for riprap will probably be obtained from some nearby quarry site. Potential sources of rock have not been established.

(3) Method of Discharge. Fill material for the levee will be placed with heavy earth moving equipment. Riprap will be moved in with dump trucks and placed with a crane.

(4) Temporal Factors. The placing of riprap may occur any time during the year. Construction of the Sun River channel cut-off will probably occur sometime in the fall or early spring of the year.

(5) Projected Life of the Disposal Sites. The projected life of the levee project is 100 years. Periodic maintenance may be required during the projected life of the project.

II. PHYSICAL EFFECTS (40 CFR 230.4-1(a))

A. Potential Destruction of Wetlands. Part 230.4-1(a)(1)(i-vi) requires consideration of the following wetland impacts associated with dredging and filling activities.

(1) Food chain production

(2) General habitat

(3) Nesting, spawning, rearing, and resting sites for aquatic or land species.

(4) Those set aside for aquatic environment study or sanctuaries or refuges.

(5) Natural drainage characteristics

(6) Sedimentation patterns

(7) Salinity distribution

(8) Flushing characteristics

(9) Current patterns

(10) Wave action, erosion or storm damage protection.

(11) Storage areas for storm and flood waters.

(12) Prime natural recharge areas

- The proposed discharge does not involve any wetland destruction or degradation. Therefore, these considerations do not apply.

B. Impact on the Water Column. Part 230.4-1(a)(2) requires consideration of water column impacts related to dredging and filling activities. Water column impacts generally associated with such activities are those associated with a reduction of light transmission, esthetic values, and direct destructive effects on nektonic and planktonic populations.

- The construction activities associated with this project will cause insignificant temporary increases in turbidity. Turbidity increases will be largely localized, but may cause some reduction of light transmission and some negative esthetic effects. Protective and remedial provisions in the construction contract will help to minimize these effects. See paragraphs 4.31 through 4.33 of the Final EIS.

C. Covering of Benthic Communities. Part 230.4-1(a)(3) requires consideration of destructive effects to benthic communities. Destructive effects to benthic communities are essentially the covering of the community, and a subsequent change in community structure of function.

- The placement of rock and fill in this project will cover established benthic communities. However, benthic populations in this reach of the Sun River are generally quite sparse in the main channel portions of the river, and direct destructive effects to benthic communities will be insignificant. The fill material used will consist of silty sands, clays and limestone; all of which are nonpollutional and suitable for reestablishment of benthic communities. Riprap may provide some benefit to benthic communities by affording a stable substrate where no stable substrate before existed.

D. Other Effects. Part 230.4-1(a) requires consideration of other effects which may be related to change in bottom geometry and substrate composition. These effects generally include alterations in water circulation, salinity gradients and the exchange of constituents between sediments and overlying water.

- These considerations generally apply to open water disposal of dredged or fill material and are not applicable here.

III. CHEMICAL-BIOLOGICAL INTERACTIVE EFFECTS

Part 230.4-1(b) requires consideration of chemical-biological interactive effects resulting from the discharge of dredged or fill material. The principal concern here is the discharge of dredged or fill material containing chemical contaminants that may adversely effect the water column or benthic communities. Part 230.4-1(b)(1) allows an exclusion from a detailed technical analysis of these potential effects if:

a. The dredged or fill material is composed predominantly of sand, gravel, or any other naturally occurring sedimentary material with particle sizes larger than silt, characteristic of and generally found in, areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels;

b. The dredged or fill material is for beach nourishment or restoration and is composed predominantly of sand, gravel or shell with particle sizes compatible with material on receiving shores; or

c.(1) The material proposed for discharge is substantially the same as the substrate at the proposed disposal site; and

(2) The site from which the material proposed for discharge is to be taken is sufficiently removed from sources of pollution to provide reasonable assurance that such material has not been contaminated; and

(3) Adequate terms and conditions are imposed on the discharge of dredged or fill material to provide reasonable assurance that the material proposed for discharge will not be moved by currents or otherwise in a manner that is damaging to the environment outside the disposal site.

- The proposed discharge meets the provisions contained in a, c(1) and c(2) above; b and c(3) are not applicable. Therefore, an exclusion from a technical analysis of chemical-biological interactive effects is allowed.

IV. COMPARISON OF SITES

A. Total Sediment Analysis. Part 230.4-1(c)(1) advises the District Engineer that an inventory of total concentrations of chemical constituents may be valuable in comparing sediment or fill material with sediment at the disposal site.

- Such a comparison will not be required here because the fill material is composed predominantly of clays, silts, alluvial soils and rock that have been sufficiently removed from sources of pollution.

B. Biological Community Structure. Part 230.4-1(c)(2) advises the District Engineer that a comparison of the biological characteristics between the excavation and disposal site may be valuable in assessing the environmental impact at a disposal site.

- This comparison will not be required. In this instance, knowledge of the biological community structure at the excavation site (which is upland) will provide little or no benefit in assessing environmental impacts at the disposal site.

V. WATER QUALITY CONSIDERATIONS

Part 230.4-2 of the guidelines requires consideration of applicable narrative and numerical water quality standards as are applicable by law.

- The State of Montana Department of Health and Environmental Sciences, pursuant to Section 401 of the Federal Water Pollution Control Act Amendments of 1972, certified on 15 May 1978 that the proposed project would not violate applicable State of Montana Water Quality standards. The letter certifying the above is included with this report as exhibit 1.

VI. SELECTION OF DISPOSAL SITES

Part 230.5(a) requires consideration of the need for the activity and the availability of alternate sites and methods of disposal that are less damaging to the environment.

- Need for the Proposed Activity. The purpose of the proposed project is to provide flood control for a large portion of Great Falls, Montana. The need for the project rests on the proposition that the proposed levee will prevent flooding and economic losses in the protected urbanized areas. Numerous alternative solutions to the flood problem at Great Falls were evaluated. Levees were determined to be the most economically feasible and practicable solution. Alternatives are discussed in Section VI of the EIS.

- Alternate Sites and Methods. An alternate alignment for the left bank Sun River levee just downstream from Interstate 15 was considered. This alignment was entirely landward and followed the left bank of the Sun River instead of cutting across the channel. This alternate alignment would not require a channel realignment. It was dropped, however, because it would displace 15 homes and 14 other buildings, and 1,500 feet of 14th Street would have to be relocated.

  In order for the project to be effective, erosion control techniques must be applied directly to erosion problem areas. Therefore, where erosion problem areas represent a threat to the new levee, site selection alternatives for erosion protection do not exist.

Alternative methods of disposal are quite limited. The use of heavy earth moving equipment, trucks and cranes is the only practicable means of constructing a project of this nature.

C. Objectives to be Considered in Discharge Determination. Part 230.5(a)(1-8) requires consideration of the following objectives in making a determination on any proposed discharge.

Avoid discharges that:

(1) Disrupt the chemical, physical and biological integrity of the aquatic ecosystem;

(2) Disrupt the food chain;

- Filling activities associated with this project will not significantly affect the food chain or the chemical, physical or biological integrity of the aquatic ecosystem.

(3) Inhibit the movement of fauna, especially their movement into and out of feeding, spawning, breeding and nursery areas;

- None of the proposed filling activities are expected to temporarily or permanently inhibit the movement of fauna.

(4) Destroy wetland areas having significant functions in maintenance of water quality;

- No wetland will be affected.

(5) Destroy or isolate areas that serve the function of retaining natural high waters and flood waters;

. Areas that serve to retain natural flood waters would be isolated by the levee project to the extent that a largely urbanized area once subject to flooding would be protected by the levee.

(6) Cause adverse turbidity levels;

. Soil erosion from disturbed areas on the riverbanks will cause temporary increases in turbidity in the Sun River. Remedial and protective measures will keep increased turbidity within acceptable levels. See paragraphs 4.31 through 4.33 of the Final EIS.

(7) Degrade esthetic, recreational and economic values; and

. The levee project is located in a largely urbanized area. However, some relatively undisturbed areas exist along the Sun River. The levee will tend to detract from the natural beauty and esthetic value of these areas.

(8) Degrade water quality.

. As indicated above, the levee project will cause temporary increases in turbidity. This constitutes a temporary degradation in water quality. However, the project will not have a lasting effect on water quality.

D. Impacts on Water Use at the Disposal Site. Part 230.5(b)(1-10) requires consideration of the following guidelines in making a determination on any proposed discharge:

(1) No disposal may be designated in the proximity of a public water supply intake;

(2) Disposal sites for dredged or fill material shall not be designated in areas of concentrated shellfish production (except for disposals in areas of widely disposed production);

(3) Significant disruptions to fish spawning and nursery areas should be avoided;

(4) Disposal sites will be designated so as to minimize impacts on wildlife and marine or aquatic sanctuaries;

(5) In instances where discharges of dredged or fill material are proposed in or near recreation areas, the following factors will be considered:

(a) Methods should be employed to minimize the amount and duration of turbidity and esthetically displeasing changes in color, taste, or odor of the water;

(b) Releases of nutrients from dredged or fill material should be minimized in order to prevent eutrophication;

(c) No material that will result in unacceptable levels of pathogenic organisms shall be discharged into areas used for recreation involving physical contact with the water; and

(d) No material shall be discharged which will release oil or greases in harmful quantities.

(6) No discharge will be allowed that jeopardizes the continued existence of any threatened or endangered species or destroy or modify critical habitat for such species;

(7) Disposal sites should be areas where benthic life, which may be damaged, is minimal.

(8) Discharge of dredged and fill material into wetlands may be permitted:

(a) When it can be demonstrated that the site selected is the least environmentally damaging alternative; provided, however, the applicant is able to demonstrate that other alternatives are not practicable and that the wetlands disposal will not have an unacceptable adverse impact on the aquatic resources. Where the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to ecosystem, the site may be permitted.

(b) When the applicant clearly demonstrates the following:

(aa) The activity associated with the fill must have direct access or proximity to, or be located in, the water resources in order to fulfill its basic purpose, or that other site or construction alternatives are not practicable; and

(bb) That the proposed fill and the activity associated with it will not cause a permanent unacceptable disruption to the beneficial water quality uses of the affected aquatic ecosystem, or that the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to the ecosystem.

(9) Disposal sites shall be located to minimize the impact on areas containing submersed vegetation of significant biological productivity.

(10) The specified disposal site shall be confined to the smallest practicable area consistent with the type of dispersion determined to be appropriate by the application of these guidelines.

- The proposed discharge is in compliance with all these guidelines. No public water supplies, concentrated shellfish areas, significant fish spawning and nursery areas, wildlife or aquatic sanctuaries, recreation areas, threatened or endangered species, significant amounts of benthic life, submersed vegetation or wetlands

will be affected by this project. The disposal will be confined to the smallest practicable area. Fill material will be placed in the most practical manner as to accomplish the desired flood control and erosion control effects with the least amount of material, expense, and environmental damage.

E. Consideration to Minimize Harmful Effects. Part 230.5(c) recommends the following considerations in determining the site and disposal conditions to minimize possible harmful effects.

(1) When considering impacts on water quality, refer to appropriate scientific literature, such as the National Water Quality Criteria;

(2) Investigate alternatives to open water disposal, such as upland or confined disposal;

(3) Investigate alternative disposal sites that are most amenable to the type of dispersion desired;

(4) Investigate ocean dumping (seaward of the base-line of the territorial sea);

(5) Investigate covering contaminated dredged material with cleaner material;

(6) Investigate conditions that may minimize the effect of runoff from confined disposal areas; and

(7) Consider appropriate monitoring conditions in proximity of disposal sites to control and minimize water quality degradation.

- The above considerations are most applicable to the disposal of dredged or fill material (particularly dredged material or fill material) that is known or suspected to be pollutional.

The fill material used in the proposed project is removed from significant sources of pollution, and is suspected to be essentially nonpollutional. Therefore, these considerations are not applicable.

F. Contaminated Fill Material. Part 230.5(d) prohibits the discharge of fill material known to be contaminated with harmful constituents except under very specific conditions.

- The fill material used in this project is removed from sources of pollution and is believed to be nonpollutional.

G. Mixing Zone Determination. Part 230.5(e) requires consideration of mixing zone factors in determining the acceptability of a discharge. The rationale here is that if a pollutional material is proposed for discharge, certain physiological conditions at the disposal site, such as stratification and current patterns and other factors affecting the mixing of the material in the water column, may influence the pollutional effect of the discharge.

- Since the fill material used in this project is believed to be nonpollutional, these considerations do not apply.

VII. DETERMINATION (40 CFR 230.3)

In view of the preceding ecological evaluation, which is based upon the evaluation guidance in 40 CFR Part 230.4 and 230.5, it has been determined that:

(1) Consideration has been given to appropriate water quality standards;

(2) The proposed discharge will not have any lasting adverse effects on the aquatic environment and that appropriate measures have been identified and incorporated into the proposed plan to minimize temporary adverse effects on the aquatic environment;

(3) Due consideration has been given to the need for the proposed activity and the availability of alternate sites and methods of disposal that are less damaging to the environment; and

(4) That no wetlands will be affected.

The proposed discharge is, therefore, judged to be in compliance with the guidelines established pursuant to Section 404(b).

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

A. C. Knight, M.D., F.C.C.P.
Director

May 15, 1978

Ralph J. Miller, Chief
Regulatory Functions Branch
Operations Division
Department of the Army
Omaha District, Corps of Engineers
6014 U.S. Post Office and Courthouse
Omaha, Nebraska 68102

Re: Application No. 78-4 (C.O.E.)
Flood Protection Project
Great Falls, Montana

Dear Mr. Miller:

This is to certify that the above referenced proposed activity will not violate applicable State of Montana Water Quality Standards if the West Great Falls Flood Control and Drainage District applies for and receives a Section 6. (g.) Authorization from this department for necessary activities which, in spite of best construction procedures, may unavoidably cause excess turbidity.

Thank you for your consideration.

Sincerely yours,

Kevin D. Keenan
Permits Section
Water Quality Bureau
DHES

cc: File

KDK/jk

MAY 22 10 29 AM '78
C OF E-OMAHA DIV
OMAHA DISTRICT

EXHIBIT 1