

SUMMARY

ROOT CREEK
BOLIVAR, NEW YORK

() Draft

(X) Final Environmental Statement

Responsible Office: U. S. Army Engineer District, 1000 Liberty Avenue,
Pittsburgh, Pennsylvania 15222. Phone: 412-644-6800.

1. NAME OF ACTION: (X) Administrative () Legislative

2. DESCRIPTION OF ACTION: A local flood protection project consisting of widening, deepening, minor realignment and the construction of a section of floodwall through the Village of Bolivar, Allegany County, New York.

3. a. ENVIRONMENTAL IMPACTS: The project will reduce periodic flood damage and the ensuing socio-economic problems for the community; eliminate an erosion problem on the high bank; and alter aesthetic conditions.

b. ADVERSE ENVIRONMENTAL EFFECTS: Construction activity would result in temporary increases in acoustic levels; stream turbidity and sedimentation; dust, exhaust and smoke; and a reduction in the quality of the stream bottom as a fish habitat.

4. ALTERNATIVES:

- a. Channel, dike and floodwall combination
- b. Reservoir
- c. Temporary evacuation
- d. Flood-proofing
- e. Flood plain management
- f. Flood insurance
- g. No action

5. COMMENTS RECEIVED:

U.S. Environmental Protection Agency
U.S. Department of Agriculture, Forest Service
U.S. Department of Transportation, Federal Highway Administration
Department of Health, Education and Welfare, Region II
Ohio River Basin Commission
New York State Department of Environmental Conservation
State of New York Department of Health
New York State Department of Transportation
The University of the State of New York, The State Education Department
New York Archaeological Council

6. DRAFT STATEMENT TO CEQ 11 November 1974.
FINAL STATEMENT TO CEQ _____.

ROOT CREEK
BOLIVAR, NEW YORK
LOCAL FLOOD PROTECTION PROJECT
FINAL
ENVIRONMENTAL STATEMENT

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2	Letter from Fish and Wildlife Service, U.S.D.I., dated 17 May 1974
3	Letter from Fish and Wildlife Service, U.S.D.I., dated 27 February 1974
4	Letter from New York State Department of Environmental Conservation, dated 6 March 1974
5	Letter from New York State Office of Parks and Recrea- tion, dated 16 April 1974
6	Letter from National Park Service, U.S.D.I., dated 24 April 1974

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ROOT CREEK
BOLIVAR, NEW YORK
LOCAL FLOOD PROTECTION PROJECT
FINAL
ENVIRONMENTAL STATEMENT

1.0 PROJECT DESCRIPTION.

1.01 Authority. - A small flood control project on Root Creek in Bolivar, New York is considered under the authority of Section 205 of the Flood Control Act of 1948, as amended.

1.02 Study Area. - The study area is located in the southwestern part of the State of New York, approximately 5 miles from the Pennsylvania border and 57 miles east of Jamestown, New York, as shown on PLATE 1.

1.03 Recommended Plan.

1.03.1 Proposed Project. - The proposed project involves widening and deepening of Root Creek by channel excavation with attendant slope protection. Channel modification would begin about 1,800 feet above the confluence of Root Creek and Little Genesee Creek and continue upstream for about 4,500 feet as shown on PLATES 1 and 2 (Drawing Nos. 038pal-R2-3/1 and 038pal-R2-3/2). The exact limits of the proposed channel modification would extend from Station 19+00 to Station 66+50, as indicated.

1.03.1.1 The channel bottom and side slopes would be cleared and excavated to obtain a channel width of twenty feet with side slopes graded to approximately 2 horizontal on 1 vertical. Slope protection would be provided by mattress type, stone-filled wire baskets (gabions) within the reach of the proposed project. Five gabion drop structures would be located at Stations 24+15, 33+60, 42+00, 45+25, and 48+50 to reduce velocities and channel gradients. The bottom at these locations would be protected by mattress type gabions 12 feet upstream and 40-50 feet downstream to prevent scouring effects. A small gabion wall would be constructed between Stations 36+23 and 37+07. In the reach of stream between Station 48+50 and the downstream end of the debris basin at Station 63+00, gabions will be placed in selected areas to prevent further stream bank erosion. These gabions, by preventing further bank erosion, will save the trees on the banks in this reach and also reduce sediment build-up in the project thus helping to reduce maintenance costs. The natural stream invert will not be excavated and gabion slope protection will be placed on the banks to an elevation equal to the 15-year frequency flood. This additional work has been added to the proposed channel improvement project to make it more complete and thus in agreement with the desires of local interests to prevent erosion and the

loss of stream bank vegetation in the project area. The proposed channel improvement, when combined with the additional work just described, has been designated as the Environmental Quality (EQ) Plan. This EQ Plan is also the recommended plan. Typical cross-sections of the proposed channel modifications are shown on PLATE 3 (Drawing No. 038pal-R2-82/6).

1.03.1.2 Small dikes would be constructed to retain stream flows within the creek banks where the design water surface exceeds proposed protected bank heights. These would extend for very short distances and would not exceed 3 feet in height.

1.03.1.3 The First Street Bridge would be permanently removed as part of the New York State Department of Transportation's (NYSDOT) improvement, in accordance with the wishes of local officials, because of its inadequate clearance being a cause of backwater flooding, and because it is not essential to the local highway network. NYSDOT's improvement project on Root Creek was coordinated with the Corps of Engineers project and the two are hydraulically compatible.

1.03.1.4 There would be no major utility relocations; however, some small individual storm drains may have to be incorporated into the project banks.

1.03.1.5 Finally, a debris basin from Station 63+00 to Station 66+00 would be provided to act as a collection site for a significant portion of transported materials, to reduce maintenance costs for the channel downstream and to insure proper functioning of the project during high flows. This would encompass an area approximately 140 feet width by 300 feet in length and would have a bottom slope of 0.4%.

1.03.1.6 The clearing of existing vegetation would be kept at a minimum consistent with the requirements for project construction and maintenance. Generally, the limits of clearing would coincide with the permanent easement lines along the entire Root Creek project reach. The proposed project plan provides for landscaping, including tree plantings, where consistent with project function and maintenance. Seeding would be provided on disposal fills and on exposed cut slopes. Gabion slope protection would be provided on all slopes to the design discharge elevation, as stated above.

1.03.1.7 Construction of the proposed project would require the excavation of approximately 36,500 cubic yards of channel material. There are three areas available for disposal of this material. These areas, indicated on Plates Nos. 1 and 2, are as follows: (1) behind the left bank just downstream of the existing First Street Bridge, (2) in the open area on the left bank just upstream of the Davis Street Bridge, and (3) in the area adjacent to both sides of the proposed debris basin.

1.03.1.8 Open burning is allowed under state permit and may be used to dispose of trees and brush from areas that would be cleared for project

construction. In addition to required compliance with all State and local laws regarding burning, the specific time, location and manner of burning would be subject to the approval of the Corps of Engineers with respect to air pollution, fire laws and safety. Fires would not be started by use of tires or heavy oils; only kerosene or No. 2 fuel oil would be acceptable for this purpose. No burning operations would be conducted within 100 feet of any standing timber or flammable growth.

1.03.2 Non-Federal Cooperation. - Non-Federal cooperation as specified in Section 3 of the Flood Control Act of 22 June 1936, as amended, would basically apply. Prior to construction of the proposed project, the State of New York, the non-Federal cooperating body, would be required to:

- (1) Provide without cost to the United States all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas as determined by the Chief of Engineers as necessary for the construction of the project, at a presently estimated cost of \$24,000;
- (2) Adjust utilities as necessary without cost to the United States;
- (3) Hold and save the United States free from damages due to the construction work and maintenance of the project excepting, however, damages due to the fault or negligence of the United States or its contractors;
- (4) Publicize flood plain information in the areas concerned and provide this information to zoning and other regulatory agencies for their guidance and leadership in preventing unwise future development in the flood plain and in adopting such regulations as may be necessary to insure compatibility between future development and protection levels provided by the project;
- (5) Prescribe and enforce regulations to prevent obstructions or encroachment on channels and interior ponding areas which would reduce their flood carrying capacity or hinder maintenance and operation, and control development in the project area to prevent an undue increase in the flood damage potential;
- (6) Maintain the project works after completion in accordance with regulations prescribed by the Secretary of the Army;
- (7) At least annually, notify interests affected that the improvement will not provide complete protection from floods greater than the design conditions; and
- (8) Provide certification of financial and legal capability to operate and maintain the project in compliance with Section 221 of the River and Harbor and Flood Control Act of 1970 (P.L. 91-611).

1.03.3 Project Maintenance. - The State of New York, as the non-Federal cooperating agency, would be responsible for maintaining the hydraulic efficiency and structural integrity of the proposed project. Essentially, this involves the removal of debris, sediment deposits, vegetation and other materials which significantly alter the project's design, and the repair of slope protection and drop structures. The frequency at which it would be necessary to perform maintenance work cannot be accurately predicted. However, it is anticipated that it would be necessary to clean out the debris basin at least annually, and to remove the sediment deposits that would form downstream of the drop structures every two years. The necessity for removing large sediment deposits at other locations in the channel, clearing vegetation and making structural repairs is expected to occur infrequently.

1.04 Related Projects. - New York State's Department of Transportation is completing design on highway improvements that are scheduled to be under construction during calendar year 1974. These include:

- Replacement of the Main Street Bridge
- Roadway rebuilding to accommodate the bridge replacement.
- Removal of the First Street Bridge.

- A length of channel modification in Root Creek involving widening and deepening generally along the present alignment from 300 feet upstream of the Main Street Bridge to a point 100 feet downstream of the present structure.

1.04.1 There are no water resource development projects in the area that would be affected by the proposed project.

1.05 Project Economics. - The estimated average annual benefits from the project are \$48,000 (July 1974 values). The estimated average annual cost of the project is \$41,300, \$34,800 of which is a Federal cost and \$6,500 of which is a non-Federal cost. The ratio of project benefits to project costs is approximately 1.2, based solely on flood damage reduction to existing development. Project economics are summarized in EXHIBIT 1.

2.0 ENVIRONMENTAL SETTING WITHOUT THE PROJECT.

2.01 General Basin Description. - The study area is situated in Allegany County, 17 miles east of Olean in the western section of New York State. It lies just above the Pennsylvania border. New York State Route 17 is the major highway and runs directly through the village, acting as at least a portion of its main business thoroughfare. This highway will shortly be changed to State Route 417. In the study area, four bridges cross Root Creek. The general locale possesses rolling topography with elevations ranging from 2,440 feet above mean sea level (m.s.l.) near the

stream's headwaters, to elevation 1550 m.s.l. adjacent to the Little Genesee Creek. The valley of Root Creek is narrow and the surrounding hillsides are steep, producing a rapid concentration of runoff to the valley floor. Inadequate hydraulic capacity of the natural channel and man-made obstructions tend to impede stream flow, causing Root Creek to overflow its banks during periods of heavy runoff in the basin. In the study area, elevations are much more limited, ranging from 1650 m.s.l. east of the Bolivar Central High School Athletic Field to elevation 1575 m.s.l. near the mouth of Root Creek at its confluence with the Little Genesee. Root Creek has an average slope of about 11 feet per 1,000 feet. Existing bank slopes extend from almost vertical to 1 vertical on 3 horizontal. Basic geology in the study area is glacial till ranging from 100 to 200 feet in depth, resting on Upper Devonian shales and siltstones. Root Creek cuts through very porous sand and gravel subject to movement during high flow resulting in heavy erosion of the unstable banks and heavy deposition downstream.

2.01.1 Climate. - The climate is typical for the western sections of northern Pennsylvania and southern New York. Mean monthly and annual temperatures are fairly uniform throughout the basin because of its small area. The normal daily average temperature varies from a minimum of 18.6 degrees F. in January to a maximum of 64.9 degrees F. in July. Mean monthly temperatures occurring in the Village of Bolivar for the years 1970 to 1972 are shown in the following. The average annual temperature during this period of record was 43.9 degrees F.

January	18.6 degrees F.	July	64.9 degrees F.
February	20.3 " "	August	63.9 " "
March	27.7 " "	September	60.0 " "
April	40.5 " "	October	48.9 " "
May	53.5 " "	November	36.7 " "
June	60.9 " "	December	31.7 " "

2.01.2 Precipitation. - Precipitation data for Bolivar and Wells-ville, which is within 13 miles, is available from the National Weather Service, for the period 1890 to 1972. As discussed below in section 2.02.3, flooding occurs primarily during the months of May to September, resulting from high intensity late spring and summer rains. The mean monthly precipitation in the basin over the period of record, 1890 to 1972, is presented below. As shown, the mean monthly precipitation ranges from a minimum of 2.18 inches in February to a maximum of 4.39 inches in June. The mean annual precipitation over the period of record is 35.65 inches.

January	2.32 Inches	July	3.65 Inches
February	2.18 "	August	3.07 "
March	2.61 "	September	2.96 "
April	3.16 "	October	2.63 "
May	3.35 "	November	2.92 "
June	4.39 "	December	2.39 "

2.02 Root Creek.

2.02.1 Description of Project Reach. - Root Creek is a headwater tributary of Little Genesee Creek within the Allegheny River watershed. It is a perennial stream with periodic, low-flow conditions and drains approximately nine square miles. Starting from high ground it passes through Bolivar and a small marshland before its confluence with the Little Genesee. During normal flows, the stream is 3 to 6 inches deep and 12 to 15 feet wide. The stream gradient is steep and consequently during periods of high runoff the creek level rises and recedes quickly.

2.02.2 Water Quality. - Sampling in Root Creek on 22 September 1973 produced the following data:

pH	7.4
Total Coliforms	0 (two tests)
Alkalinity	140 ppm
Total Hardness	110 ppm
Turbidity	None

2.02.2.1 There is no evidence of acid mine drainage and the municipal waste disposal plant appears efficient and well maintained. Even with a slightly higher hardness count than might be expected, clean stream conditions exist. This is further evidenced by the presence of Mayflies and Caddisflies, both sensitive species inhabiting only streams with high water quality.

2.02.3 Flooding. - In spite of no official records, the following flooding occurrences on Root Creek have been developed from newspaper accounts and interviews:

July	1942
January	1959
September	1967
July	1970
June	1972 (Tropical Storm Agnes)

2.02.3.1 Due to the geography of the watershed, flash floods of short duration occur periodically. The more numerous floods are of the basement damaging variety associated with overbank flows. The residential area at Bolivar, between the State Route 17 Highway Bridge and the mouth of the creek, is particularly subject to inundation to varying degrees.

Existing Hydrologic Data:

Drainage area	9.1 sq. mi.
Maximum flood of record, June 1972	2,000 c.f.s.
Elevation of maximum flood of record (at damage reference point, in Bolivar, 600 feet upstream of the existing Main Street Bridge)	1,605.7 feet above m.s.l.
Existing stream channel slope	0.011 ft./ft.

2.02.3.2 The Village of Bolivar is susceptible to flash flooding due to a high rate of runoff during periods of intense rainfall. These conditions in conjunction with the channel's inability to contain high flows and low bridge clearances create backwater effects and ensuing flood damage. During the July 1970 flood, 22 residential and 8 commercial buildings suffered a total of approximately \$68,000 in primary damages. The flood of June 1972 has been selected as the design flood for the proposed modification and has an estimated statistical frequency of occurrence of once every 100 years. The types and extent of damages in the project area resulting from the June 1972 flood, based on October 1973 values, are shown in TABLE 1. In addition, yards, gardens, retaining walls, and dikes were affected in every major flood. Outer stream banks were undercut, producing slides and deposition of excessive amounts of material in the downstream channel. It has been estimated that annual damages in the study area caused by flooding amounts to approximately \$51,000 (December 1973 values).

TABLE 1

PRIMARY FLOOD DAMAGES, JUNE 1972 FLOOD

<u>Type of Damage</u>	<u>Total No. of Buildings Affected</u>	<u>No. of Basements Flooded</u>	<u>No. of First Floors Flooded</u>	<u>Estimated Value</u>	<u>Estimated Damage</u>
Residential	111	50	31	\$820,000	\$ 92,400
Commercial	10	5	5	268,000	44,300
Industrial	3	--	3	97,000	12,400
Schools	1	1	--	953,000	7,200
Churches	1	1	--	25,000	4,300
Municipal	5	1	2	184,000	19,600
Utilities	2	--	1	1,500	1,100
Total	133	58	42	\$2,348,500	\$181,300

2.03 Air Quality. - Reliable data describing the ambient air quality of the Bolivar area are not available. Considering the absence of major point sources and the lack of excessive vehicular traffic, it is assumed that the area has good air quality.

2.04 Vegetation. - The following species of trees were observed in the general locale:

Sugar Maple
Yellow Birch
American Ash
Crab Apple
Spruce

(Acer saccharum)
(Betula lutea)
(Fraxinus americana)
(Malus sp.)
(Picea sp.)

Pine	(<u>Pinus sp.</u>)
Quaking Aspen	(<u>Populus tremuloides</u>)
Black Willow	(<u>Salix nigra</u>)
Weeping Willow	(<u>Salix sp.</u>)
Canada Hemlock	(<u>Tsuga canadensis</u>)
Slippery Elm	(<u>Ulmus rubra</u>)

No rare or valuable stands of prime timber are to be found in the immediate vicinity. Within the project area, besides some ash and elm, a few large spruce, maple and black willow are found on the high vertical bank near South and Kincaid Streets. In the upper reaches of the project near the school, on an eroding bank, are some sugar maple, red pine, hemlock and yellow birch.

2.05 Wildlife.

2.05.1 Terrestrial. - The project is limited to the confines of an incorporated village, where existing development and human activity has reduced the amount and value of available wildlife habitat, as indicated by the Fish and Wildlife Service (see EXHIBITS Nos. 2 and 3). Outside the limits, however, mammals common to the area include:

Cottontail rabbit	<u>Sylvilagus floridanus</u>
Deer	<u>Odocoileus virginianus</u>
Squirrel	<u>Sciurus carolinensis</u>
Woodchuck	<u>Marmota monax</u>

The project area provides some habitat for song birds and other non-game species. However, this habitat is not critical or unique. The region surrounding the project area supports a variety of game birds such as the ruffed grouse (Bonasa umbella) and wild turkey (Meleagris gallonova) in addition to non-game species. Some migratory species are seasonally found in the area.

2.05.2 Aquatic. - Electrofishing in Root Creek near Leather Street and First Street Bridge on 8 December 1973 by Dr. Robert Scherer and Sherman Rosen, consultants to the Corps of Engineers, yielded the following species:

White sucker	<u>Catostomus commersoni</u>
Hog sucker	<u>Hypentelium nigricans</u>
Northern creek chub	<u>Semotilus atromaculatus</u>
Blacknosed dace	<u>Rhinichthys atratulus</u>
Ohio stoneroller minnow	<u>Campostoma anomalum</u>
Central Johnny darter	<u>Etheostoma nigrum</u>
Barred fantail darter	<u>Etheostoma flabellare</u>

None of the above species are rare or endangered and only the hog sucker and the white sucker commonly reach lengths of more than 7 inches. None are considered game fish.

2.05.2.1 Invertebrates observed during a field trip on 22 September 1973 include:

2 species of Mayflies	<u>Hemageniidae</u> <u>Baetiidae</u>
2 species of Caddisflies	<u>Hydropsyche</u> sp. <u>Glossosoma</u> sp.
Craneflies	<u>Tipulidae</u>
Snails	<u>Physa</u> sp.

2.05.2.2 According to the Olean office of the New York Department of Environmental Conservation, EXHIBIT No. 4, Little Genesee Creek is a popular trout fishing stream and is heavily stocked with brown trout.

2.05.3 Rare or Endangered Species. - On the basis of information contained in the publication, "Threatened Wildlife of the United States", published in 1973 by the U. S. Bureau of Sport Fisheries and Wildlife, there are no rare or endangered species of terrestrial or aquatic wildlife in the proposed project area.

2.06 Socio-Economic Characteristics.

2.06.1 Historical Development. - The development of the Bolivar area is closely linked to the oil fields. Oil was first discovered in the late 1800's. Because of the natural pressure in the oil deposits, extraction was easy and the area grew. When the natural pressure diminished extraction decreased, in the period between 1916-1918, and the area declined. When a method of injecting water into the deposits to extract the oil was employed in the early 1920's, production increased and the area again prospered. This continued into the 1940's and 1950's until the oil removable by this method was nearly exhausted. At its peak, the oil fields were producing about 15,000 barrels a day. Today, although 50 percent of the original oil deposits still remain, expensive extraction methods prohibit significant amounts of production, and therefore only about 800 barrels per day are pumped.

2.06.2 Land Use. - Allegany County, in which the proposed project is located, is predominately rural with scattered small to moderately sized villages. Important agricultural lands generally lie in a broad area from the northwestern to the southeastern portions of the County, with some also found in the northeast. In the southwestern part of the County, in which the Village and the Town of Bolivar are located, agricultural activity is restricted by rough topography. While most of Allegany County is forested, a large proportion of the publicly owned (State and County) forest areas are in the northern half of the County. The Root Creek basin is about 90% forested, which is characteristic of the southwestern part of the County. The Village of Bolivar is the most intensive land use in the Root Creek basin. The Village is basically residential in nature with the usual complement of supporting commercial activity and a few small industries.

2.06.3 Population. - Both the Village of Bolivar and the remainder of the Town of Bolivar have experienced slight population declines for some time. The Village had a peak population of 1,490 in 1950, while the remainder of the Town has been declining from 1,284 people in 1940. In 1970 the Village had a population of 1,379 and the remainder of the Town had a population of 1,012.

2.06.4 Economic Development. - The periods of greatest economic activity and growth in the area have in the past been associated with periods of high oil production. Economic conditions at other times have ranged from very limited growth to some decline in economic activity. Presently the Villages of Wellsville and Alfred are the centers of economic activity in the County and contribute significantly toward Allegany County's mean annual income of \$10,022. The mean annual income in Bolivar, however, is \$7,808. In recent years both the Bolivar area and all Allegany County have been experiencing an out-migration of people, primarily well educated young adults seeking better job opportunities. In the Village of Bolivar, economic activity is based on the commercial activity associated with a residential community of about 1,400 people located in a sparsely populated rural area, two small industries employing a total of approximately 25 people and two companies involved in salvaging pipe from non-producing oil wells.

2.06.5 Social Characteristics. - The area is typical of a small community in a rural setting, and can be characterized as having a high degree of social stability. Social attitudes emphasize self-sufficiency and an evident pride in the appearance and maintenance of residential, business and community property, and tend to be conservative. The Village of Bolivar has a comparatively high proportion of older, retired persons, reflecting the County-wide trend of out-migrating younger persons seeking better job opportunities. This tends to depress per capita income and restrict the potential for expanding public services.

2.06.6 Recreation. - Public open space lands and public recreation sites, offering both dispersed and intensive recreation opportunities, are available in Allegany County. However, the County's Preliminary Land Use Plan (2) indicates that these types of facilities are mostly located in the northern two-thirds of the County and are essentially lacking in the County's southern tier, in which the proposed project is located. Two major recreational areas, Allegany State Park in New York and Allegheny National Forest in Pennsylvania, are within 40 miles of the project area. While these areas do meet regional needs, they do not satisfy the local recreational needs of the Bolivar, New York area.

2.06.6.1 It should be noted that recently lots and/or homes have been sold to buyers from Buffalo, New York and other metropolitan areas to be used as second homes for recreational purposes. This, however, appears to be on a very limited basis and does not indicate a trend in the area.

2.06.7 Hunting and Fishing. - The project area consists of the portion of Root Creek that is within the limits of Bolivar. The frequent low-flow conditions of the creek virtually eliminate any serious fishing potential. A Town ordinance precludes hunting in the immediate area. Good hunting for a variety of species of birds and mammals is available outside the project area and Little Genesee Creek provides good trout fishing.

2.06.8 Aesthetics. - Erosion resulting from flooding activity has caused a loss of low-lying ground. Through the Village, cans, bottles, toys and other debris were observed in Root Creek, indicating that it is more or less informally utilized for dumping purposes which detracts from the aesthetic value of the stream channel. No plans or programs are currently underway to correct these environmental conditions.

2.06.9 Archaeological and Historical Resources. - There are no known sites of archaeological and historical value that would be affected by the proposed project, including those listed in the National Register of Historic Places. However, both the New York Office of Parks and Recreation, EXHIBIT 5, and the National Park Service, EXHIBIT 6, report that there are likely to be previously unreported sites of archaeological significance in the proposed project area. Therefore, an archaeological survey with possible salvage activities, if warranted, would be conducted under the new "Archaeological and Historical Preservation Act", Public Law 93-291, dated 24 May 1974. This Act offers the Corps of Engineers the authority to expend funds for the survey and salvage of important scientific, historical, archaeological and paleontological resources which are being or may be irreparably lost or damaged as a result of project construction.

2.07 Future Conditions Without the Project. - The present declining population trends can be expected to continue until the job-seeking segment of the population is commensurate with meaningful job opportunities within commuting distance, allowing for a "normal" rate of unemployment. Reversal of this pattern depends upon economic expansion, to include an increase in local job opportunities. Economic expansion would most likely occur in response to the transportation advantages to be offered by the completion of the Southern Tier Expressway. This new highway traverses the central part of Allegany County in an east-west direction, passing about ten miles north of the Village of Bolivar. Additionally, economic stimulation from increased oil production could occur in the future, depending upon domestic oil market conditions and the development of advanced recovery technology.

2.07.1 Flood Potential. - The flood potential of Root Creek to the existing development in the Village of Bolivar is not expected to diminish in the future without some type of effective flood control measure. Moreover, any upstream development would tend to alter the basin's runoff characteristics and result in additional accumulations of sediment and debris in the stream channel, which would ultimately increase the flood potential of the stream.

3.0 RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS.

3.01 A Preliminary Land Use Plan was prepared by the Allegany County Department of Planning in June 1971. This plan was adopted primarily to stimulate public interest and discussion in County planning so that future planning activities can benefit from the broadest possible public involvement. Present social and economic trends provide the basis for emphasizing existing land use patterns and encouraging the location of future development in areas of existing development. This planning objective recognizes a limited capability to provide expanded public services in new areas when existing facilities are generally under-utilized. A lack of adequate public recreation areas and the strong need to provide additional industrial development areas are the exceptions to emphasizing existing development patterns. In the plan the Village of Bolivar, in which the proposed project is located, is designated as an urban area. Since the proposed project would function to increase community stability and cohesion in the Village as a whole, making those areas outside the flood plain more desirable for expanding existing development, its construction would compliment the County's Preliminary Land Use Plan.

4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION.

4.01 Water Quality. - During project construction, there would be a temporary increase in suspended solids and turbidity resulting from excavation in the stream channel. This condition would be most evident during the single construction season (April to October) necessary to construct the proposed project and would continue to a lesser degree until adequate vegetative cover is established on exposed soils. The relative coarseness of the stream bed material, frequent low flows in the creek and temporary erosion and sediment control measures would reduce, somewhat, the adverse effects of increased turbidity and suspended solids. A portion of the suspended solids generated by the project would be deposited in the Little Genesee Creek near the mouth of Root Creek, resulting in a temporary disruption to aquatic organisms and fishlife.

4.01.1 Erosion. - The stabilization of the stream banks in the project area, upon completion of the proposed modification, would reduce erosion in the project limits and benefit the community of Bolivar. However, since erosion in the remaining part of the basin would remain unchanged, only a minor reduction in the sediment load of Root Creek and Little Genesee Creek is expected to occur after project completion.

4.01.2 Water Temperature. - The removal of bank vegetation, reduction in effective stream bank vegetation, reduction in effective stream depth by providing a wider, flat-bottomed channel and reducing the effective stream gradient from 1.1% to 0.5% for a distance of about 3,200 feet would serve to slightly elevate stream temperatures. While average annual or monthly water temperatures are not expected to be greatly altered, it can be anticipated that greater temperature rises would occur under conditions of low stream flow, high air temperature and bright sunshine.

4.02 Flooding. - The proposed project would reduce flood damages in the project area with a negligible increase in downstream water levels during periods of high flow.

4.03 Air Quality. - Local ambient air quality would be affected by the exhaust emissions from construction equipment and the burning of cleared vegetation, if burning is used as a disposal method, during the one construction season necessary to build the project. Exhaust emissions from construction equipment would be comparatively small considering the scale of the project and would not significantly affect air quality. If burning is used as a disposal method, contract controls would consider atmospheric conditions, among other factors, to insure that air quality does not deteriorate to unsatisfactory levels.

4.04 Vegetation. - A number of larger trees would have to be removed for construction. Of these, several are located on the stream banks and would eventually be lost by further erosion. When the project is complete, those remaining would be protected from this action. In addition, fill and excavated areas would be reseeded and where consonant with the functioning of the project, fast growing trees and shrubs would be planted.

4.05 Wildlife. - During construction of the proposed channel modification, existing wildlife populations would move away from the area as a result of habitat destruction, increased noise levels, etc. The proposed reduction in streambank vegetation would restrict the ability of the area to support the terrestrial wildlife populations presently associated with this riparian habitat. Project construction would therefore result in a loss of wildlife populations inhabiting the reach of the stream involved. Considering the natural character and high level of habitat diversity occurring in the basin, this loss would be negligible.

4.05.1 Aquatic Ecosystem. - The aquatic ecosystems of both Root Creek and Little Genesee Creek would be altered by the proposed modification of approximately 3,000 feet of stream channel. Little Genesee Creek would be affected to the extent that; (1) the proposed project would begin about 1,700 feet upstream of the confluence of the two streams, (2) where Root Creek enters Little Genesee Creek the Root Creek watershed constitutes 40% of the drainage area of the latter stream, and (3) at the mouth of Little Genesee Creek the Root Creek watershed represents 21% of the total drainage area of Little Genesee Creek. Within the limits of the proposed project the existing aquatic habitat diversity would be removed and replaced with a physically uniform channel. This would reduce the number of species of benthic organisms this reach of the stream would support, although some of those species that would be present after project completion may occur in great numbers. The differences between the present benthic community and that which would develop after project construction would be governed by the changes in physical diversity, stream bottom substrate, stream depths, stream velocity, water temperature and amount of shading. Project construction would also affect fish populations in this reach of the stream. The

most important factors in this regard would be changes in food supply, reflecting changes in the stream's benthic community and a reduction in allochthonous production (food of terrestrial origin in the aquatic ecosystem) resulting from clearing streamside vegetation, elimination of pools which are now used by fish to survive periods of low stream flow and the prevention of upstream movement by the project's five drop structures. While natural processes would work toward eventual reversion to near pre-project conditions, required maintenance activities are intended to retain design conditions.

4.05.2 Short-term effects of the proposed project on downstream aquatic life are those associated with high levels of turbidity and suspended solids resulting from project construction and would be generally limited to the one construction season necessary to construct the project. Generally, these effects are reduced populations of benthic organisms, decreased feeding efficiency for sight-feeding fish, reduced reproductive success and increased competition for food and space from those fish moving away from the project area. Long-term downstream effects could involve elevated maximum water temperatures and changes in that portion of the food supply drifting down from the project area. Generally these factors are not expected to be great enough to significantly affect Little Genesee Creek's trout population, however, under certain concurrent stream-flow and climatic conditions, the water temperature may become unsuitable for trout.

4.06 Socio-Economics.

4.06.1 Flood-related Losses. - In addition to a reduction in monetary flood damages, the proposed project would also reduce the frequency and severity of non-monetary factors associated with flooding and which detract from the quality of life in Bolivar. These factors include disruption of traffic patterns, interruptions in utility services, unsanitary conditions associated with overbank flooding and the inconvenience, resources and money committed to post-flood clean up work.

4.06.2 Land Use and Development. - The proposed project would minimize the direct loss of acreage due to erosion activity in the project reach. It would also reduce the incidence of flooding and increase the utility of the adjacent land. In the process of implementing the proposed project, the existing debris-lined channel would be cleared out, resulting in a cleaner streambed, making the area more attractive. Although the proposed project would bring about the above results, it is not anticipated that this would significantly alter the land use and development patterns which have evolved from the declining economy.

4.06.3 Natural Resources. - Implementation of the proposed project would involve utilization of local stone-fill material for the gabion structures. This material would be obtained from a quarry located in Portville, Cattaraugus County, approximately 15 miles from the proposed project. No other natural resources would be affected by the proposed project.

4.06.4 Population. - As in the past, the population is directly related to the oil fields. The proposed project would not significantly influence future trends. There would be no displacement or disruption of inhabitants as a result of the project.

4.06.5 Recreation. - Construction of the proposed channel modification would not significantly affect existing recreational facilities in the area. The proposed improvement would prevent Root Creek from overtopping its banks and flooding the Bolivar Central High School athletic field; however, the field could still be flooded by a small tributary which runs through a culvert under the field. If this culvert was to become clogged or if its capacity was to be restricted by backwater from Root Creek, then the tributary's flow would inundate the athletic field with several inches of water.

4.06.6 Hunting and Fishing. - Hunting opportunities in the area would not be significantly affected, but fishing would be temporarily affected by increased stream turbidity and sedimentation in Root Creek and Little Genesee Creek during construction. Mr. James K. Pomeroy, Conservation Biologist, New York State Department of Environmental Conservation, advised the District that upstream movement of trout would be effectively prevented by the higher drop structures proposed in the new channel, but he does not believe the Little Genesee would suffer significantly if trout are prevented from ascending Root Creek in the future because in the past there has been no evidence of trout migrating into Root Creek because of its low-flow characteristics.

4.06.7 Aesthetics. - The aftermath of any flooding activity invariably includes debris, mud and other similar type aesthetic intrusions, if only on a temporary basis. With flood control, those situations would be substantially reduced. Local policing could reduce the amount of debris thrown into and resting in the creek. This would significantly improve aesthetic quality. Bank stabilization and the reduction of flooding activity, in conjunction with landscaping, including slope-seeding, could improve visual appeal. However, replacement of a natural channel with a man-made one would generally reduce the aesthetic quality of the stream.

4.06.8 Archaeological and Historical Resources. - Although it appears that the proposed project will have no impact on these resources, an inventory of such possible resources will be made prior to construction, as discussed in Paragraph 2.06.9.

4.06.9 Employment. - The proposed channel modification would provide temporary employment opportunities during the construction period. No additional employment opportunities are expected, other than the minor opportunities associated with periodic maintenance.

4.06.10 Public Service. - The proposed project would necessitate removal of the First Street Bridge, replacement of the Main Street Bridge, and roadway replacement to accommodate the bridge replacement, all of which

would interrupt normal traffic patterns. Removal and replacement of these related projects, being performed by the State of New York, are now underway and scheduled for completion in December 1975. Replacement of the Main Street Bridge would cause only temporary inconvenience. However, removal of the First Street Bridge would be permanent, but it has been determined by the New York State Department of Transportation to be non-essential to the local highway network.

5.0 ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED.

5.01 Temporary Effects. - The adverse effects of the proposed project would consist of both temporary and permanent impacts. The temporary impacts, i.e., those lasting for the one-year construction period, would include elevated levels of noise, dust and exhaust emissions from construction equipment. An increase in stream turbidity and sedimentation in Root Creek and Little Genesee Creek would disturb the aquatic wildlife presently inhabiting these areas. Initiation of the proposed modification would degrade the appearance of the project area during the period of construction activity.

5.02 Permanent Effects. - Permanent effects associated with the proposed channel modification include a change in the benthic community and fish populations inhabiting the project reach. The project may also result in elevated water temperatures which occasionally, under certain circumstances, could raise the temperature of Little Genesee Creek to levels unsuitable for trout. Replacement of the existing stream channel with a man-made project would alter the aesthetic quality of the area.

6.0 ALTERNATIVES TO THE PROPOSED ACTION.

The effects of the structural and non-structural alternatives to the proposed project are displayed in TABLE 2 and discussed in the following paragraphs.

6.01 Channel, Dike and Floodwall Combination. - This alternative would consist of providing floodwalls and dikes along the proposed project reach and would require ponding areas and pumping facilities for internal drainage. Utilization of dikes would necessitate the relocation of several homes and the families inhabiting them. Construction of dikes, 6-8 feet high, would also create a prominent visual intrusion to the general locale. In addition, the construction and maintenance costs of this alternative exceed those of the proposed plan. Future conditions with this alternative would be generally similar to those associated with the proposed plan, except for the additional removal of riparian vegetation, which serves as terrestrial wildlife habitat, necessitated by the construction of floodwalls and dikes along the stream banks. Another additional impact would be the temporarily elevated noise and air pollution levels from operation of construction equipment.

6.02 Reservoir. - The construction of a reservoir located approximately 1.6 miles above the mouth of Root Creek could provide effective flood control in the Bolivar area. Because of the drainage basin topography, including steep stream gradients and valley walls, effective flood control would necessitate a high dam for the relatively small drainage area, requiring relatively large investments of money and materials. The cost of providing effective flood control through the use of an upstream dam would far exceed the benefits from reduced flood damages. Inundation of several oil wells would result with implementation of this alternative, reducing the potential for future utilization of these deposits for the area's economy. Considerable disruptions to the transportation patterns of the community would occur with the 1.2 miles of highway relocations required for reservoir construction. In addition, this alternative would necessitate the clearing of a considerably larger area than the proposed project, thus causing a more significant impact in wildlife habitat. Future aesthetic conditions in the Bolivar area under the alternative of providing flood control through the use of an upstream dam would be generally similar to those of the proposed project. This alternative would not provide the aesthetic improvements which would result from the proposed project through the removal of litter from the stream channel and banks. However, since this alternative would not require any clearing along the reach of Root Creek passing through the Village of Bolivar, this section of the stream would retain its natural appearance. Construction of an upstream dam would result in higher temporary elevated traffic, noise and air pollution than would occur during construction of the proposed project. A reservoir could have multi-purpose functions such as minimal recreation development.

6.03 Temporary Evacuation of Affected Areas. - This alternative would involve utilization by local officials of the flood warning system program operated by the Environmental Science Service Administration (National Weather Service) in Pittsburgh, Pennsylvania. According to the National Weather Service, a flood warning system, such as a float and siren apparatus, would be of assistance in warning residents of a possible flood. A consideration of primary importance in determining the value of such a warning system is the possible occurrence of a major storm centered directly over the study area. In the case of Root Creek, it is estimated that the warning time for such a storm would be approximately one hour. This warning duration might permit the evacuation of residents, but not sufficient time for taking action to protect property, and thus would not significantly reduce flood damages in the area. Future conditions under this alternative would be very much like those described in the "ENVIRONMENTAL SETTING WITHOUT THE PROJECT" section of this report.

6.04 Flood-proofing. - Flood-proofing would involve structural treatment of most of the existing homes, churches and commercial buildings in the flood zone. The treatment would consist of individual flood-proofing of the involved buildings or the construction of separate dikes or walls to provide for their protection. Not all of the damageable structures,

TABLE 2
ASSESSMENT OF ALTERNATIVES
ROOT CREEK
BOLIVAR, NEW YORK

FACTORS	STRUCTURAL				NON-STRUCTURAL			
	RECOMMENDED PLAN (RP)	FLOODWALLS & DIKES	RESERVOIR	TEMPORARY EVACUATION	FLOOD- PROOFING	FLOOD PLAIN MANAGEMENT	FLOOD INS.	NO ACTION
<u>ECONOMIC INPUTS</u>								
a. Initial const. cost	\$559,000	\$750,000	\$4,000,000	Nominal installation cost less than RP	Tot. cost less than RP, more expensive to individual prop. owners. Est. cost - \$392,000	No initial costs	Less than RP to community premiums expensive to individual prop. owners	NONE
b. Annual charges	\$ 41,300	\$ 59,000	\$ 300,000	Nominal	\$24,400	NONE	Same as above	NONE
c. Regional impact	1.3 miles of stream bank	Same as RP except more relocations required	Greater and more varied than RP	NONE	NONE	NONE	NONE	NONE
d. Tax base impact	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
e. Property values	\$ 21,700	Slightly more than RP	Much greater than RP	NONE	NONE	NONE	NONE	NONE
f. Public facilities	Limited utility relocation	More than RP	1.2 mi. of road & extensive utility relocation	NONE	NONE	NONE	NONE	NONE
g. Public service	Minor traffic disruption during construction	Same as RP	Greater than RP	NONE	NONE	NONE	NONE	NONE
h. Business & Industrial Activity	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
i. Employment/Labor force	Temporary increase in construction jobs	Same as RP	Greater than RP	NONE	NONE	NONE	NONE	NONE
j. Displacement of farms	NONE	Greater than RP	Greater than RP	NONE	NONE	NONE	NONE	NONE

TABLE 2 (Cont'd)

TABLE 2 (Cont'd)								
FACTORS	STRUCTURAL				NON-STRUCTURAL			
	RECOMMENDED PLAN (RP)	FLOODWALLS & DIKES	RESERVOIR	TEMPORARY EVACUATION	FLOOD- PROOFING	FLOOD PLAIN MANAGEMENT	FLOOD INS.	NO ACTION
<u>ECONOMIC OUTPUTS</u>								
a. Annual benefits	\$48,000	\$48,000	\$ 53,000	Possible minor reduction in flood damages	Flood damage reduction less than RP. \$27,200 in benefits.	None-cont'd. damage to existing development	Distribution of flood losses	NONE
b. Annual net benefits	\$ 6,700	-\$11,000	-\$250,000	Nominal	\$2,800	NONE	NONE	NONE
c. Benefit-cost ratio	1.2	Less than 1.0	Far less than 1.0	Not determined	1.1	Not determined	Not determined	N/A
d. Property values	Substantial reduction of average annual flood damages plus possible increase in real estate activities			NONE	Less than RP	NONE	NONE	Restrained
e. Regional impacts	See "Property Values" (above) plus temporary employment opportunities			NONE	Less than RP	Less than RP	NONE	NONE
f. Public facilities	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
g. Public services	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
h. Business and Industrial Activity	Potential for increased activity would be per- manently established			NONE	NONE	NONE	NONE	Restrained
i. Employment/Labor force	The labor force would remain basically the same; however, potential for increased employment opportunity would be established			NONE	Less than RP	NONE	NONE	NONE
<u>PHYSICAL INPUTS</u>								
a. Land requirements	4 acres	More than RP	Considerably more than RP	NONE	NONE	None-use would be restricted	NONE	NONE
b. Improvements	NONE	More than RP	Considerably more than RP	NONE	Approx. 58 units in 100-yr. flood plain area	NONE	NONE	NONE

TABLE 2 (Cont'd)

FACTORS	STRUCTURAL				NON-STRUCTURAL			
	RECOMMENDED PLAN (RP)	FLOODWALLS & DIKES	RESERVOIR	TEMPORARY EVACUATION	FLOOD- PROOFING	FLOOD PLAIN MANAGEMENT	FLOOD INS.	NO ACTION
<u>PHYSICAL OUTPUTS</u>								
a. Reduction in flood stage	2.3 feet (100-Year Flood)	Same as RP	Greater than RP	NONE	NONE	NONE	NONE	NONE
b. Improvements protected	133 units	133 units	Greater than RP	NONE	58	NONE	NONE	NONE
<u>SOCIOLOGICAL IMPACTS</u>								
a. Persons displaced	NONE	Several families	Slight	NONE	NONE	NONE	NONE	NONE
b. Transportation patterns	Minor temporary disruption during const.	Same as RP	Greater than RP	NONE	NONE	NONE	NONE	NONE
c. Acoustics	Slight	Same as RP	Less than RP because of location	NONE	Slight	NONE	NONE	NONE
d. Community Cohesion	Possible improvement	Less improvement than RP; project more intrusive	Same as RP	NONE	NONE	NONE	NONE	NONE
e. Community growth	Possible improvement	Same as RP	Same as RP	NONE	NONE	Zoning may restrict growth	NONE	NONE
<u>ENVIRONMENTAL INPUTS</u>								
a. Aesthetics	Loss of existing stream conditions	Same as RP	Loss of natural stream having good but not unique scenic qualities	NONE	NONE	NONE	NONE	NONE
b. Recreation	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
c. Ecological	Loss of 1.3 mi. of stream bank vege. & slight alt. of aquatic eco-sys. on Root Creek and Little Genesee Cr.	Same as RP plus part of adj. flood plain for flood dikes	Loss of free-flowing stream & aquatic eco-sys. it sun-ports	NONE	NONE	NONE	NONE	NONE

TABLE 2 (Cont'd)

FACTORS	STRUCTURAL				NON-STRUCTURAL			
	RECOMMENDED PLAN (RP)	FLOODWALLS & DIKES	RESERVOIR	TEMPORARY EVACUATION	FLOOD- PROOFING	FLOOD PLAIN MANAGEMENT	FLOOD INS.	NO ACTION
<u>ENV. INPUTS (Cont'd)</u>								
d. Archeological	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
e. Man-made resources	NONE	More than RP	Considerably more than RP	NONE	Approx. 58 units in 100-yr. flood plain area	NONE	NONE	NONE
f. Natural resources	None rela- ted to RP	Same as RP	Inundation of oil wells	NONE	NONE	NONE	NONE	NONE
g. Historical	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
h. Air pollution	Temp. rise during construction	Same as RP	Greater than RP	NONE	Less than RP	NONE	NONE	NONE
i. Water pollution	Slight increase in turbidity during const.	Same as RP	Greater than RP	NONE	NONE	NONE	NONE	NONE
j. Water quality	Possible slight increase in water temps.	Same as RP	NONE	NONE	NONE	NONE	NONE	NONE
<u>ENVIRONMENTAL OUTPUTS</u>								
a. Aesthetics	Existing vegeta- tion removed by const. will be selectively re- placed with fast- growing trees and shrubs	Same as RP	Proj. removed from Bolivar; minimal land- scaping near dam	Continuation of present stream conditions				
b. Recreation	NONE	NONE	Minimal rec- reation dev.	NONE	NONE	NONE	NONE	NONE
c. Ecological	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
d. Health and sanitation	Post-flooding health hazards reduced	Same as RP	Same as RP	Continuation of post-flooding health hazards				

TABLE 2 (Cont'd)

FACTORS	STRUCTURAL			NON-STRUCTURAL				
	RECOMMENDED PLAN (RP)	FLOODWALLS & DIKES	RESERVOIR	TEMPORARY EVACUATION	FLOOD- PROOFING	FLOOD PLAIN MANAGEMENT	FLOOD INS.	NO ACTION
<u>ENV. OUTPUTS</u> (Cont'd)								
e. Man-made resources	NONE	NONE	NONE	Developments would remain susceptible to flooding				
f. Natural resources	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
g. Air pollution	No change	No change	No change	No change	No change	No change	No change	No change
h. Water pollution	No change	No change	No change	No change	No change	No change	No change	No change

however, could be individually flood-proofed economically because of their foundations and structural conditions. The estimated total cost for flood-proofing those structures that could economically be flood-proofed is \$392,000. This equals an annual cost of \$24,400, based on a 50-year project life. The average annual benefits associated with the flood-proofing plan is \$27,200, which when compared to the annual cost yields a benefit-cost ratio of about 1.1. The residual damages that would still occur annually, even with implementation of the flood-proofing plan, are estimated to be about \$23,000. This plan would also leave certain other unprotected structures, such as roads and public utilities, still vulnerable to damage. Other benefits usually provided by a flood protection project, such as the elimination of losses resulting from the interruption of commerce, production and traffic, and the danger of loss of human life, would also be foregone. Except for a reduction in flood damages, future conditions of the area under this alternative would be similar to those described in the "ENVIRONMENTAL SETTING WITHOUT THE PROJECT" section of this statement.

6.05 Flood Plain Management. - This alternative entails the adoption and enforcement of zoning regulations to insure the wise use of the flood plain. While an approach of this type is generally feasible for preventing or reducing flood damages to future development, it does not affect flood damages to existing structures. This is a significant consideration in the already developed Bolivar area, where existing flood damages, rather than potential future flood damages, are of primary concern. Under this alternative there would be no change in the extent of land area subject to flooding and the existing developments would continue to be subject to flooding. Future conditions with this alternative would be essentially the same as that described under paragraph 2.06 of the "ENVIRONMENTAL SETTING WITHOUT THE PROJECT" section of this statement, except that the flood plain zoning regulations would result in less damages to future development even without the implementation of a flood control project.

6.06 Flood Insurance. - Flood insurance can be made available to residents and businesses in communities qualified for participation in the National Flood Insurance Program. In order to become involved in this program, land use requirements and controls must be established in flood hazard areas. A flood insurance alternative would not actually protect life and property from high waters, but instead would encourage more prudent development of the flood plain and would alleviate economic hardships to present occupants. While no adverse environmental impacts to the wildlife resources of the area would occur with the implementation of a flood insurance program until another flood occurs, the human environment must be considered. This alternative would not reduce the existing potential for severe damages to life and property in the basin. Flood insurance, by itself, is not considered an effective solution to the flooding problem in the Bolivar area. Future conditions under this alternative would be very much like those described in the "ENVIRONMENTAL SETTING WITHOUT THE PROJECT" section of this report.

6.07 No Action. - If the alternative of no action were chosen, it would serve to perpetuate current conditions as described in the "ENVIRONMENTAL SETTING WITHOUT THE PROJECT" section of this statement. This would forego the tangible and intangible benefits that would be provided by the proposed project, and would not be responsive to the needs of the inhabitants of Bolivar for the alleviation of their flood problem.

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

Presently, the potential for local use of Root Creek at Bolivar, New York is limited, and there is no indication that this situation will change in the future, with or without the implementation of the proposed project. Although there would be some temporary and minor negative impacts on certain physical environmental factors as specified in Section 5.0, these would be outweighed by the enhancement of the long-term productivity of the area resulting primarily from the flood protection and related environmental improvements afforded by the proposed project.

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

Material, including concrete ingredients and steel; labor, both for construction and maintenance; public funds; and the energy required to create and maintain the channel improvement would be both irretrievably and irreversibly committed with implementation of the proposed project.

9.0 COORDINATION WITH OTHERS.

9.01 Project Coordination. During formulation studies the proposed project was coordinated with the following agencies:

- U. S. Department of Agriculture, Soil Conservation Service
- U. S. Department of Housing and Urban Development
- U. S. Department of the Interior, Fish and Wildlife Service
- U. S. Department of the Interior, National Park Service
- U. S. Environmental Protection Agency
- New York State Department of Environmental Conservation
- New York State Department of Transportation
- New York State Office of Parks and Recreation

9.02 Public Participation. - In addition to the agency coordination listed above, a public meeting was held on 4 March 1974 in Bolivar, New York with approximately 50 people in attendance. The proposed project was thoroughly reviewed and all questions were satisfactorily answered. All comments were favorable toward the project.

9.03 Government Agencies. - Copies of the Draft Environmental Statement for this project were sent to numerous governmental agencies requesting their views and comments. The resultant comments received from the

governmental agencies which responded are attached as "Appendix A" to this statement and are addressed in the ensuing paragraphs:

9.03.1 United States Environmental Protection Agency (Letter of 3 January 1975).

a. Comment: The draft EIS points out that privately financed flood-proofing would be less expensive than the proposed channel modification project. It also mentions that "this alternative would result in a reduction in most of the tangible and intangible flood related losses," and that "it would not affect the frequency and aerial extent of overbank flooding." In other words, according to the EIS this alternative would control flood damage without destroying the ecosystem of the flood plain. In a telephone conversation on 31 December 1974 with Jim Purdy and George Haberman of the Pittsburgh District Corps of Engineers, it was stated that it would be structurally and possibly economically unfeasible to flood proof all affected structures against the 100-year storm. They agreed to present in the final EIS the cost estimates for flood-proofing as well as to indicate the degree of protection that such a plan would provide. A cost-benefit analysis would then be used as a basis for comparison of this alternative with the proposed project.

Response: Paragraph 6.04 of the statement has been revised accordingly.

b. Comment: During the telephone conversation, we also briefly discussed the potential adverse effects of project construction on the trout fishery of the Little Genesee Creek. We suggest that the Corps of Engineers solicit the expertise of the Fish and Wildlife Service in evaluating the thermal effect of the proposed project. Referring to the letter from the Fish and Wildlife Service to the Pittsburgh District Corps of Engineers dated 17 May 1974 and listed as EXHIBIT 2 in the EIS, EPA feels that the recommendations of the Fish and Wildlife Service must be seriously considered and addressed in detail in the final EIS.

Response: The New York Department of Environmental Conservation (NYDEC), Bureau of Fish and Wildlife, Olean, New York, has indicated that the proposed construction of the Root Creek Local Flood Protection Project would not seriously affect the trout fishery in Little Genesee Creek. Their studies have indicated that, in the past, water temperatures of Root Creek have not significantly changed water temperatures of Little Genesee Creek. After Tropical Storm Agnes, much of the shade vegetation along both creeks was removed as a result of the clean-up and related remedial measures. The clean-up and remedial measures resulted in higher than average monthly water temperatures previously reported and did not seriously affect the trout fishery in Little Genesee Creek.

9.03.2 U.S. Department of Agriculture, Forest Service (Letters of 31 December 1974).

a. Comment: The last sentence in item 2.06.6 suggests that the Allegheny National Forest is a park - this is obviously not true.

Response: Paragraph 2.06.6 of the statement has been revised accordingly.

b. Comment: Although the statement considers both structural and non-structural measures for alienating the periodic flooding problem, no combinations of measures are considered. It seems impractical to recommend a structural solution without including suitable non-structural elements. For instance, flood plain management should, we expect, be an integral part of a structural solution to prevent future damage of an increased magnitude caused by building on the "protected" flood plain. Why is any further development permitted?

Response: The proposed project provides for protection against a 100-year frequency flood. Implementation of a flood plain management program would only offer protection for new development from floods exceeding this level; however, no new development is projected to take place on the flood plain within the project area. The only new development expected to occur is that which involves improvement to existing structures.

c. Comment: Some effort should be made to evaluate the Benefit/Cost ratios for non-structural alternatives.

Response: It is extremely difficult, if not impossible, to quantify in dollar terms the benefits and costs associated with the evaluation of the non-structural alternatives of temporary evacuation, flood plain management, flood insurances and no action. We have, as discussed in Paragraph 6.04, quantified the benefits and costs associated with flood-proofing and arrived at a benefit-cost ratio.

d. Comment: From Detailed Plan Plates No. 1 and 2, it appears as though disposal areas are within the natural 1972 high water flood plain. If these locations could be used as flood storage areas, some of the need for channel construction could possibly be negated.

Response: The volume of the locations proposed for disposal of excavated material, even though situated on the flood plain within the limits of the June 1972 flood, if utilized to store flood waters, would have an insignificant effect on reducing flood flow elevations within the damage area.

9.03.3 U.S. Department of Transportation, Federal Highway Administration (Letter of 9 December 1974).

a. Comment: Paragraph 1.03.1.3 - There should be an indication here that New York State Department of Transportation's (NYS DOT) project on Root Creek was coordinated with the Corps of Engineer's project and that the two are hydraulically compatible.

Response: Paragraph 1.03.1.3 of the statement has been revised accordingly.

b. Comment: Paragraph 2.01 - The NYS DOT is in the process of re-signing State routes in this area. What is now Route 17 will shortly become Route 417, while the Southern Tier Expressway will become Route 17. To avoid confusion we suggest you check the status of these route changes at as late a date as is possible so that the final statement reflects actual field conditions. NYS DOT plans to make these changes in 1975.

Response: Paragraph 2.01 of the statement has been revised accordingly.

c. Comment: Paragraph 4.06.10 - NYS DOT's project is presently underway and scheduled completion is December 1975.

Response: Paragraph 4.06.10 of the statement has been revised to incorporate this comment.

d. Comment: While there is no specific reference, it is assumed that the substructures and foundations of the Davis Street Bridge will be adequately protected.

Response: The substructures and foundations of the Davis Street Bridge will be adequately protected.

e. Comment: Paragraph 1.03.1.5 - A more definite statement would be beneficial as to the extent of right-of-way (ROW) required by this project. TABLE 2, commencing on page 15, indicates that 4 acres of land are required. Is this ROW in fee or in easements? If it is in fee, hen contrary to TABLE 2 there will be some effect, even though perhaps minor, on the tax base.

Response: The 4 acres of land required for the project are located adjacent to the stream channel and will be acquired as permanent easements and would not have a major effect on the local tax base.

f. Comment: Paragraph 4.01 - A more definite statement would be beneficial regarding specific erosion and sediment control measures to be followed during construction.

Response: Prior to any major construction, the contractor will be required to submit a plan showing his scheme for controlling erosion and disposal of wastes to the Corps of Engineers for approval. These controls will be spelled out in the "Special Provisions" section of the construction contract and will require that the contractor and subcontractors comply with all Federal, State and local laws and regulations regarding erosion and disposal of wastes.

g. Comment: Exhibit 2 - We see no response to the letter from the DOI, dated 17 May 1974. We feel DOI's points are well taken and should be incorporated into the project.

Response: This comment has been addressed in Paragraph 9.03.6 which is the response to the U.S. Department of the Interior, Fish and Wildlife Service letter of 17 May 1974.

9.03.4 Department of Health, Education and Welfare (Letter of 7 January 1975).

Comment: On the basis of our review of the statement, we have determined that the impacts in those areas of concern to this Department have been adequately addressed. We have no objection to the implementation of this project.

No response required.

9.03.5 Ohio River Basin Commission (Letter of 30 December 1974).

Comment: The Ohio River Basin Commission staff has reviewed the draft EIS and finds no indication that the proposed action would not be compatible with the ORBC Comprehensive Coordinated Joint Plan as it exists today.

No response required.

9.03.6 U.S. Department of the Interior, Fish and Wildlife Service (Letter of 17 May 1974).

No comments regarding the Draft Environmental Statement have been received from this agency; however, their letter of 17 May 1974 (EXHIBIT 2) addressed certain comments and recommendations pertinent to the project which follow:

Comment: As was also previously stated in our preliminary report, our main concern was centered upon potential adverse effects of project construction on the downstream trout fishery resource of Little Genesee Creek. Since the proposed plan of improvement for Root Creek would widen the existing channel, remove stream bank vegetation, and reduce stream flow velocities; increased water temperatures can be expected to occur, particularly during periods of hot weather and low stream flow. Such warming will increase water temperatures downstream in Little Genesee Creek to levels unsuitable for trout. Construction of a low flow channel along the shaded side of the stream bed would minimize warming of Root Creek flows

during low flow periods. It will be necessary, however, to plant fast growing trees and shrubs along the excavated banks in order that stream shading be provided as rapidly as possible.

Consequently, to minimize the environmental risks associated with the warming of Root Creek, the Bureau of Sport Fisheries and Wildlife recommends that:

1. A low-flow channel be constructed along the shaded side of the excavated stream bed in Root Creek.
2. Fast growing trees and shrubs be planted along the excavated stream banks of Root Creek.

Response: Although construction of a low-flow channel along the shaded side of the excavated stream bed in Root Creek would be beneficial, it could not be maintained due to the composition of the material prevalent there. The channel bottom material consists of alluvial sands and gravels which tend to not remain in any particular location, but shift and move as a result of changing water currents. Because of this condition, a low-flow channel would develop naturally. This channel, however, would not necessarily be located adjacent to the shaded stream bank. Where possible, fast growing trees and shrubs will be planted along the stream banks to provide shade and minimize the environmental risks associated with the warming of the water in Root Creek. It is pointed out, however, that the NNew York Department of Environmental Conservation, Bureau of Fish and WWildlife, by telephone in January 1975, informed this office that construction of the project on Root Creek would not seriously affect the trout population downstream in Little Genesee Creek. Studies they have conducted in the past have shown that water temperatures in Root Creek do not significantly change the water temperatures in Little Genesee Creek.

9.03.7 U.S. Department of the Interior, National Park Service (Letter of 2 April 1974).

No comments regarding the Draft Environmental Statement have been received from this agency; however, their letter of 24 April 1974 (EXHIBIT 6) addressed a comment pertinent to the historic and archaeological resources of the project which follows:

Comment: Our principal concern in this matter would be historic and archaeological resources. Since the project involves channel work within a developed area, the chances of disturbing cultural values are not too great. However, the possibility that buried prehistoric sites may be present always exists. We, therefore, recommend that the project area be inspected by a professional archaeologist to establish the presence or absence of cultural resources. Should such be found, they should be considered fully in the environmental impact statement.

Response: This comment has been addressed in Paragraph 2.06.9 of the statement.

9.03.8 New York State Department of Environmental Conservation (Letter of 14 January 1975).

a. Comment: Construction of a low flow channel should be incorporated in the project design as a mitigating measure. Although the installation of gabion drop structures will prevent trout movement upstream in Root Creek, a low flow channel would minimize warming of the stream during periods of low flow. This would reduce the detrimental effect of warm water temperatures on trout populations in Little Genesee Creek.

Response: See response to U.S. Department of the Interior, Fish and Wildlife Service, letter of 17 May 1974, which is contained in Paragraph 9.03.6. In addition, the installation of gabion drop structures would discourage trout movement upstream into the project area of Root Creek. However, records have shown that because of the low-flow conditions trout do not presently migrate upstream into Root Creek nor have they done so in the past.

b. Comment: In discussing alternatives to the proposed project, consideration should be given to the non-structural alternatives provided by Section 73 of the Water Resources Development Act of 1974 (Public Law 93-251). We recognize that this Act may not have been in effect at the time the alternatives section of the Draft EIS was prepared. However, we believe that an additional evaluation is warranted at this time in order to adequately consider viable alternatives to the proposed action.

Response: Public Law 93-251, dated 7 March 1974, Section 73, directs Federal agencies involved in providing flood protection to give consideration to non-structural alternatives for preventing or reducing flood damages. We are of the opinion that the report adequately addresses non-structural alternatives. None of the non-structural alternatives investigated, however, would be socially acceptable to the local people. The non-structural alternatives investigated, except for flood-proofing, would not protect the existing development in Bolivar. Flood-proofing is a viable and feasible solution to Bolivar's flood problem, however, as discussed in Paragraph 6.04, it would provide only partial protection.

9.03.9 State of New York, Department of Health (Letter of 17 December 1974).

Comment: We have reviewed the Draft Environmental Statement for the Root Creek Local Flood Protection Project. Our field unit advises us that there are no downstream water supplies or recreational areas in New York State which would be affected by this project.

No response required.

9.03.10 New York State Department of Transportation (Letter of 31 December 1974).

Comment: We have reviewed the Draft Environmental Impact Statement for the "Root Creek Local Flood Protection Project" in Bolivar, Allegany County,

and find that the work proposed does not conflict with any Highway Project in the area.

No response required.

9.03.11 The University of the State of New York, The State Education Department (Letter of 3 January 1975).

Comment: Although we are aware that no significant archeological sites have been reported from the Bolivar area, we are gratified to note that you are including an item for archeological survey and salvage in the project plans. We look forward to seeing these plans implemented.

No response required.

9.03.12 New York Archaeological Council (Letter of 6 February 1975).

Comment: Your section 2.06.9 (pp. 10 and 11) indicate that an archaeological survey and salvage will be conducted prior to construction, by which I assume you mean subsequent to authorization and final design of the project. If you will inspect Title 36, Chapter VIII, Part 800.4 of the Code of Federal Regulations you will find that cultural resources potentially qualifying for the National Register of Historic Places must be identified prior to a decision by your agency about an undertaking such as the Root Creek Project. To judge from the data provided in the Draft EIS, it appears that during preparation of the Final EIS an intensive cultural resources survey will be necessary, with an associated consideration of the general regional impacts of the project on non-federally owned cultural properties, leading to a determination about the need to consult with the Advisory Council on Historic Preservation before proceeding further.

Response: This comment has been addressed in Paragraph 2.06.9 of the statement.

BIBLIOGRAPHY

U. S. Army Engineer District, Pittsburgh. 1974. Detailed Project Report. Root Creek, Bolivar, New York, Local Flood Protection Project.

U. S. Army Engineer District, P Pittsburgh. 1974. Environmental Report, Root Creek, Bolivar, New York. Prepared by S. J. Rosen Associates, Inc.

Allegany County Department of Planning. 1971. Preliminary Land Use Plan.

EXHIBITS

ECONOMIC DATA

Extracted from U. S. Army Corps of Engineers
Detailed Project Report, Root Creek, Bolivar, New York
Complete Document is Available at
U. S. Army Engineer District, Pittsburgh, Pennsylvania
(July 1974 Cost Level)

FIRST COSTS

Federal	\$559,000
Non-Federal	<u>24,000</u>
Total First Cost	\$583,000

AAVERAGE ANNUAL CHARGES

Federal:	
Interest at 5-7/8%	\$ 32,841
Amortization at .359%	<u>2,007</u>
Sub-Total (rounded)	\$ 34,800
Non-Federal:	
Interest at 5-7/8%	\$ 1,400
Amortization at .359%	86
Maintenance	<u>5,000</u>
Sub-Total (rounded)	\$ 6,500
Total Average Annual Charges (rounded)	\$ 41,300

AVERAGE ANNUAL BENEFITS

Flood Control:	
Total available average annual benefits	\$ 51,000
Average annual benefits attributable to project	\$ 48,000

BENEFIT-COST RATIO 1.2

The above economic data does not include those intangible benefits and costs which have been considered in project formulation, but which cannot be quantified. These unquantified benefits and costs are effects on fish and wildlife resources, changes in aesthetic character, improving social well-being and community cohesion, and temporary increases traffic, noise, dust, exhaust emissions, erosion, stream turbidity and sedimentation during project construction.



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
John W. McCormack Post Office and Courthouse
BOSTON, MASSACHUSETTS 02109

MAY 17 1974

District Engineer
Pittsburgh District, Corps of Engineers
New Federal Building
1000 W. Liberty Street
Pittsburgh, PA 15222

Dear Sir:

This letter is a supplement to our preliminary report dated February 27, 1974 on fish and wildlife aspects of the proposed Root Creek flood protection plan for Bolivar, Allegany County, New York. It has been prepared in view of additional information which you recently submitted to our Upper Darby, Pennsylvania office.

Since it is now clearly evident that the monetary costs involved with the construction of an upstream reservoir on Root Creek would be exceedingly high, we feel that our original recommendation calling for such construction cannot be reasonably justified.

As was also previously stated in our preliminary report, our main concern was centered upon potential adverse effects of project construction on the downstream trout fishery resource of Little Genessee Creek. Since the proposed plan of improvement for Root Creek would widen the existing channel, remove stream bank vegetation, and reduce stream flow velocities; increased water temperatures can be expected to occur, particularly during periods of hot weather and low stream flow. Such warming will increase water temperatures downstream in Little Genessee Creek to levels unsuitable for trout. Construction of a low flow channel along the shaded side of the stream bed would minimize warming of Root Creek flows during low flow periods. It will be necessary, however, to plant fast growing trees and shrubs along the excavated banks in order that stream shading be provided as rapidly as possible.

Consequently, to minimize the environmental risks associated with the warming of Root Creek, the Bureau of Sport Fisheries and Wildlife recommends that:

1. A low-flow channel be constructed along the shaded side of the excavated stream bed in Root Creek.
2. Fast growing trees and shrubs be planted along the excavated stream banks of Root Creek.

Please advise us of any action taken by your office regarding our recommendations.

Sincerely yours,

Robert A. Shultz
Regional Director

ACTING



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
John W. McCormack Post Office and Courthouse
BOSTON, MASSACHUSETTS 02109

FEB 27 1974

District Engineer
Pittsburgh District, Corps of Engineers
New Federal Building
1000 W. Liberty Street
Pittsburgh, Pennsylvania 15222

Dear Sir:

This is in response to your letter (ORPED-PF) dated December 11, 1973, regarding your proposed plan for a flood protection project on Root Creek at Bolivar, Allegany County, New York. Your studies are authorized under Section 205 of the 1948 Flood Control Act as amended. This letter constitutes the Bureau's preliminary report on the fish and wildlife aspects of the project. It was prepared under authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), in cooperation with the New York Division of Fish and Wildlife, and the Pennsylvania Fish Commission whose comments will be forwarded upon receipt.

Your letter states that the best plan of flood protection for Bolivar, New York appears to be channel improvement work in Root Creek which would protect the town against the maximum flood of record. You also indicated that non-structural alternatives could be employed as a supplement to the proposed channel improvement to provide a higher degree of protection. The proposed work plan includes channelizing a 4,500 foot (approx.) reach of Root Creek in Bolivar, New York. The work would involve widening, and deepening of the existing stream channel, slope protection, and installation of gabion drop structures to reduce stream grade and flow velocities.

Wildlife resources within the project area along Root Creek are limited due to the lack of suitable habitat. Since the project is located within the corporate limits of Bolivar, human development and activity restricts habitat available to wildlife. However, existing stream bank vegetation provides habitat for cottontail rabbits, grey squirrels, muskrats, mink, raccoons, opossums, raptors, and song birds. Channel widening and bank clearing features of the proposed project will destroy the habitat being utilized by these species, and further add to the piecemeal destruction of remaining wildlife habitat.

Sport fishery resources of Root Creek, within the immediate project area, are limited due to intermittent stream flows. The stream supports fish populations sustained in pools during drought flows. These include non-game species such as suckers, shiners, dace, and other varieties of minnows. Fishes and the bottom organisms produced contribute to the high quality fisheries in Little Genessee Creek into which Root Creek flows about 1,800 feet downstream from the project area. Little Genessee Creek is an excellent trout stream and receives heavy fishing.

The proposed channelization project poses a serious threat to the extremely valuable trout fishery of Little Genessee Creek. Silt and sediment resulting from channelization work are especially damaging in gravel and rubble type bottoms. The sediment fills the existing spaces between gravel stones, thus eliminating the spawning grounds of fish and the habitat of many aquatic insects and other invertebrates such as crayfish, scuds, and mollusks which serve as fish food. Sediments may also change heat characteristics, retain organic materials and other substances which create unfavorable conditions on the bottom, interfere with fish feeding, and smother fish eggs. Silt in suspension can also clog or cut the gills of many fish, insects and mollusks.

Excessive turbidity, caused by the suspension of silt particles, reduces light penetration in the water reducing photosynthesis by phytoplankton, attached algae, and submerged aquatic plants. Restricted growth of these plants can interrupt food chains and result in a paucity of aquatic fauna. Turbidity also limits fishing success for sight feeding species such as trout.

Your letter stated that alternatives considered in your studies included a reservoir, wall and dikes, flood plain management and flood proofing. These alternatives were waived because of unfavorable cost-benefits and advanced stage of development in the flood plain. We are not aware of inclusion of environmental costs and benefits in your computations. We believe that considerable benefits could be obtained in fishing opportunities through construction of an upstream reservoir. The impoundment would provide increased fishing opportunities while cool releases would enhance fisheries downstream.

The Bureau of Sport Fisheries and Wildlife, therefore, recommends that:

1. In order to prevent excessive losses in fishery resources, an alternate plan be adopted excluding stream channelization.
2. In order to increase fishing opportunities and enhance quantity and quality of stream fisheries, an upstream reservoir be constructed with adequate minimum flow releases provided for downstream fisheries.

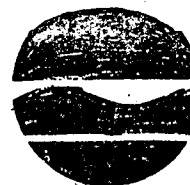
This Bureau will be happy to assist your agency in development of plans to produce fishery benefits in accordance with the above recommendations.

Please advise us of any action taken by your office regarding our recommendations.

Sincerely yours,

Robert H. Shields

Regional Director



New York State Department of Environmental Conservation

Region 9 - Fish and Wildlife Office
409 Exchange Bank Building
Olean, New York 14760

Henry L. Diamond
Commissioner

March 6, 1974

Colonel N. G. Delbridge
District Engineer
Army Corps of Engineers
Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Colonel Delbridge:

The following comments refer to the document entitled "Summary of Environmental Considerations: Root Creek, Bolivar, New York" and are the result of the public hearing held on March 4, 1974 in the Village of Bolivar.

In general we do not oppose this project. However, the present summary and the forthcoming environmental impact statement have stimulated the following comments.

1. Summary (the page preceding Table of Contents), #3a. Environmental Impacts: "possibly allow for redevelopment of low lying areas adjacent to the stream." Exactly what kind of development and where in relation to this project is not explained, but additional development of the flood plain should be discouraged. This is particularly true upstream and downstream of the project area where the flood plain has not been extensively developed. The Village and Town of Bolivar should be obligated to restrict such development in order to qualify for this project. To do otherwise would simply encourage circumstances eventually requiring an extension of the proposed channel.
2. Page 11 of Summary (section 3.d.: environmental impacts of the proposed project on wildlife) and page 12 of Summary (section 4: adverse environmental effects which can not be avoided should the proposal be implemented). There is no concern expressed for fish (in Little Genesee Creek and the lower portion of Root Creek) which might try to migrate upstream. Upstream migration will be effectively prevented by the higher drop structures proposed in the new channel. Since Little Genesee Creek is a heavily stocked brown trout stream, it is conceivable that Root Creek could become a spawning or nursery stream. This has not been true in the

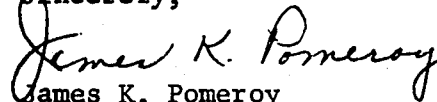
March 7, 1974

past, nor do we believe the Little Genesee will suffer significantly if trout are prevented from ascending Root Creek in the future. Therefore, we have little basis for justifying major changes in the proposed drop structures. Nevertheless these recognized as having an adverse environmental impact.

Our last comments pertain to a statement at the hearing. It was said that once the project was completed the village could keep vegetation from growing in the gabion walls by using herbicides. If vegetation is a problem in these structures, perhaps means other than chemicals should be used to control the plants. We do not encourage the use of these chemicals near water without strict environmental safeguards. Where this concern might fit into an environmental impact statement is unclear, but those who will be responsible for maintenance of the channel should be made aware of it.

Thank you for this opportunity to present our comments.

Sincerely,



James K. Pomeroy
Conservation Biologist
Region 9

for: William F. Shepherd
Acting Supervisor of Fish
and Wildlife

JKP/dcs

cc: H. Budka
R. Abendschein



NEW YORK STATE PARKS & RECREATION South Swan Street Bldg. South Mall, Albany, New York 12223 Information 518 474 0456
Alexander Aldrich, Commissioner

April 16, 1974

Department of the Army
Pittsburgh District, Corps of Engineers
Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

ATTENTION: ORPED-P

Re: Root Creek, Bolivar, New York;
Detailed Project Report

Gentlemen:

This office has reviewed the proposal for flood protection along Root Creek in Bolivar and a staff member has made an on-site inspection of the project area.

We have determined, as a result of the visit to the area, that no structures of historic or architectural merit will be affected. However, we are concerned with sites of archeological value in the area in question.

According to our files, several sites have been recorded in the vicinity of Root Creek, and we have been advised by a professional archeologist that it is very likely that there are more sites here than we have knowledge of at the present time.

We recommend, therefore, that prior to any construction a systematic survey be conducted by a recognized archeologist and that the presence or absence of archeological remains be fully reported.

We suggest that you contact either this office or Dr. Ellis F. McDowell, Anthropology-Sociology, SUNY College at Cortland, Cortland, New York 13045 for the names of archeologists who would be available to do such work.

Sincerely,

Lewis C. Rubenstein

Lewis C. Rubenstein
National Register Supervisor
Division for Historic Preservation

LCR:cak

cc: Dr. Robert E. Funk, State Archeologist
Ms. Ann Webster Smith, Compliance Officer, Advisory Council on
Historic Preservation



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Mid-Atlantic Region

~~XXXXXXXXXXXXXXXXXXXX~~
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

(MAR)PSA

APR 2 1974

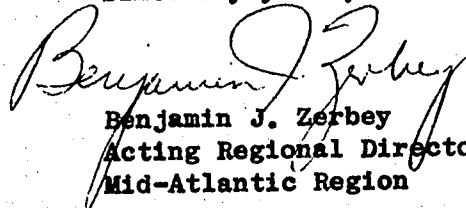
Col. N. G. Delbridge, District Engineer
Department of the Army
Pittsburgh District, Corps of Engineers
Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Col. Delbridge:

Thank you for your letter and information concerning the Root Creek, Bolivar, New York flood protection project. Our principal concern in this matter would be historic and archaeological resources. Since the project involves channel work within a developed area, the chances of disturbing cultural values are not too great. However, the possibility that buried prehistoric sites may be present always exists. We, therefore, recommend that the project area be inspected by a professional archeologist to establish the presence or absence of cultural resources. Should such be found, they should be considered fully in the environmental impact statement.

Should you have any questions, please do not hesitate to contact Mr. Wilfred Husted, Archeologist, of this office.

Sincerely yours,


Benjamin J. Zerby
Acting Regional Director
Mid-Atlantic Region

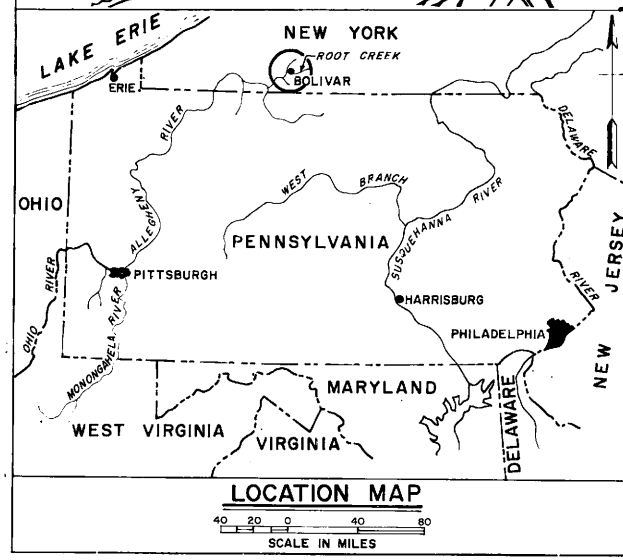
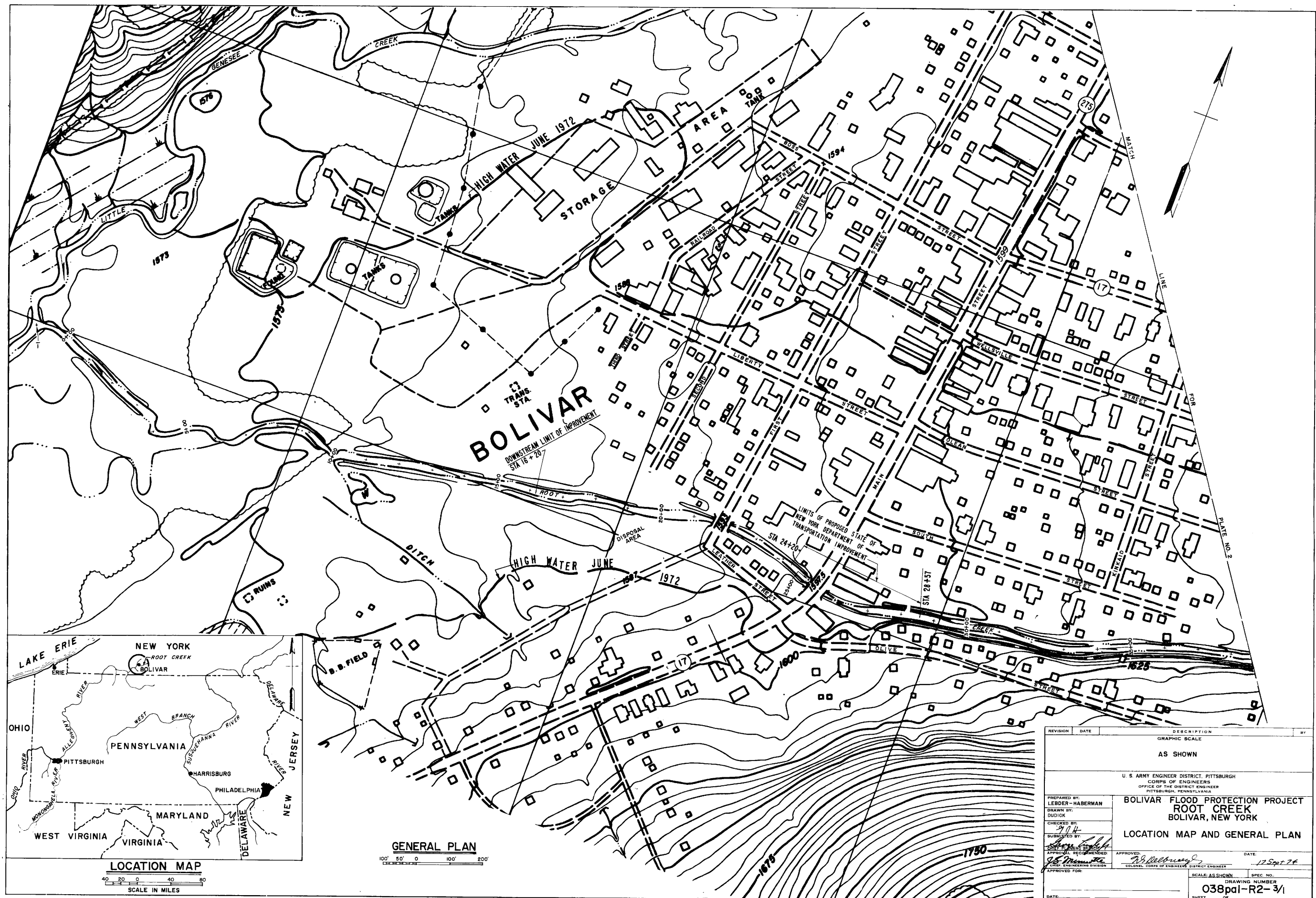


76

Let's Clean Up America For Our 200th Birthday

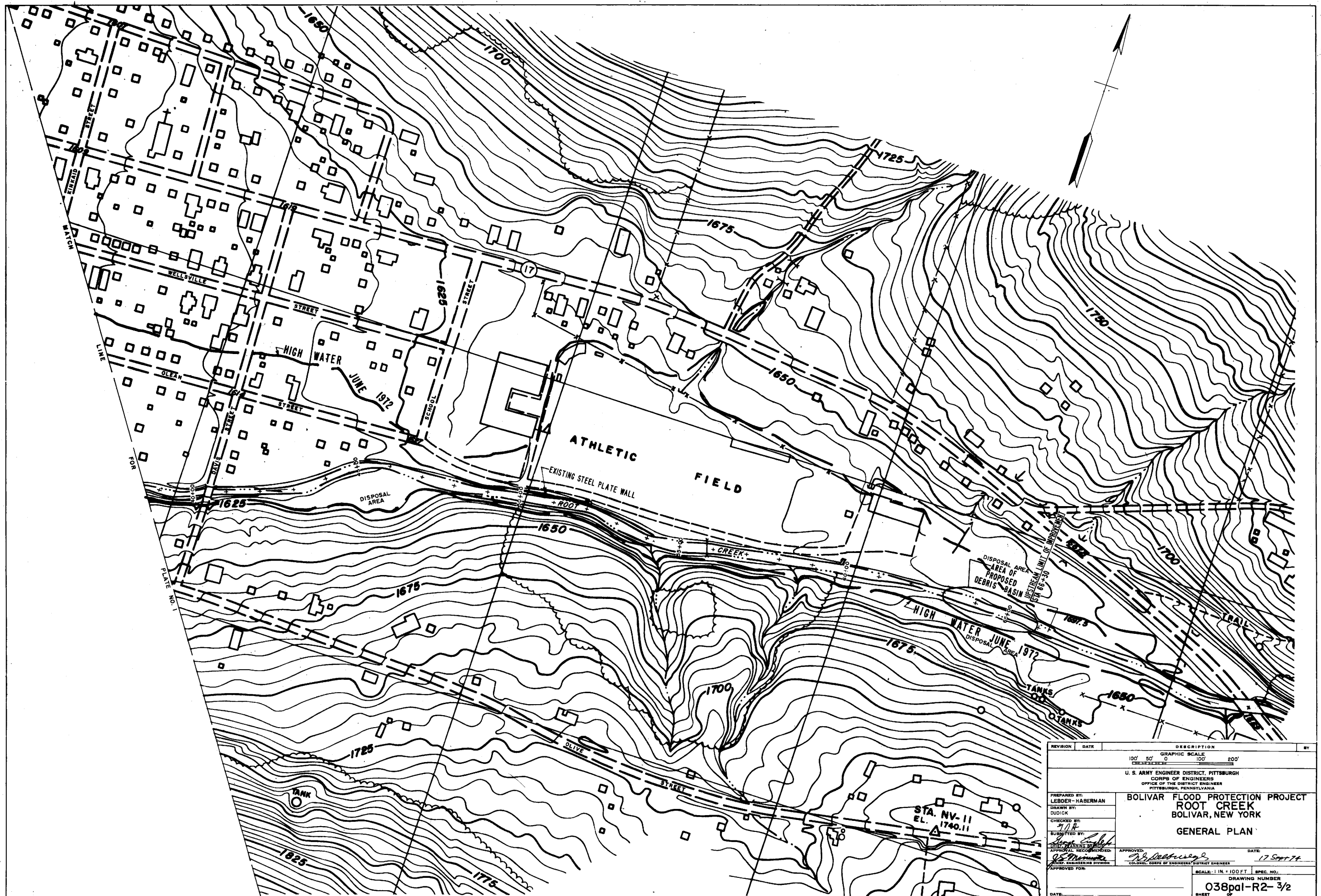
EXHIBIT 6

PLATES

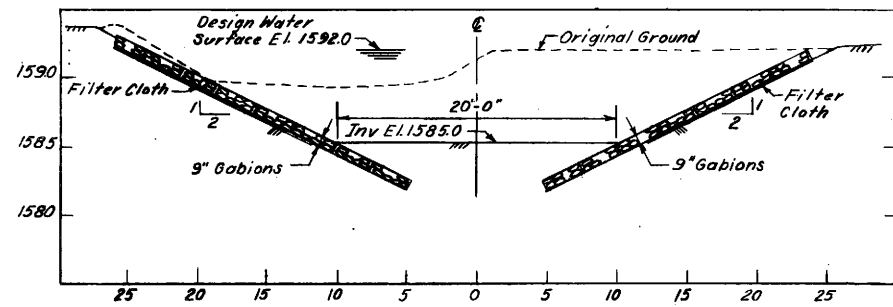


GENERAL PLAN

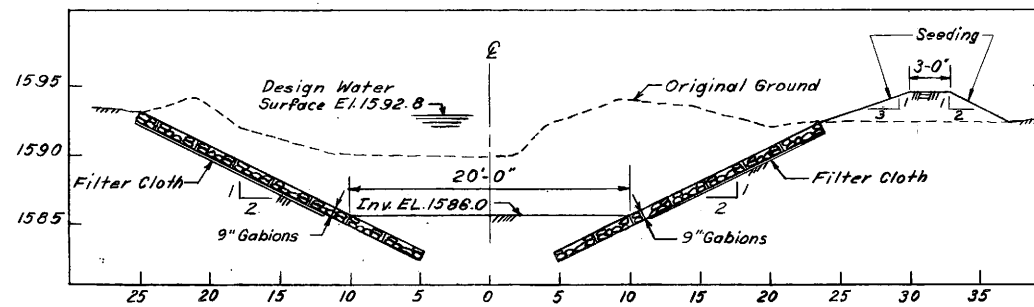
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GRAPHIC SCALE			
AS SHOWN			
U. S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
PREPARED BY: LEBBER - HABERMAN		BOLIVAR FLOOD PROTECTION PROJECT ROOT CREEK BOLIVAR, NEW YORK	
DRAWN BY: DUDOK		LOCATION MAP AND GENERAL PLAN	
CHECKED BY: 204		APPROVED: <i>[Signature]</i> DATE: 17 Sept 74	
SUBMITTED BY: J.E. Munn		APPROVED FOR: <i>[Signature]</i> DATE: 17 Sept 74	
APPROVED FOR:		SCALE: AS SHOWN SPEC. NO.	
DATE:		DRAWING NUMBER 038pa1-R2-3/1	
		SHEET OF	



ELEVATION IN FEET ABOVE MSL

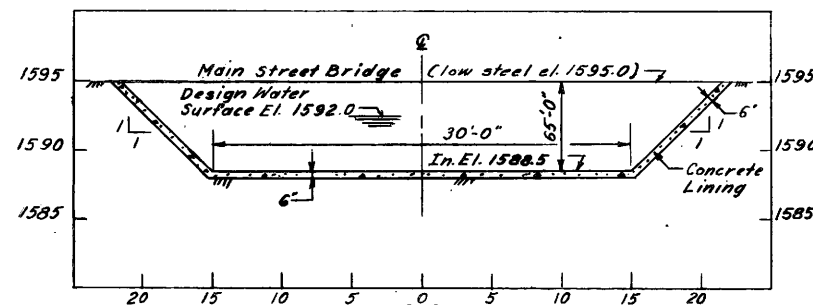


A-A
(CHANNEL)
STA 22+50

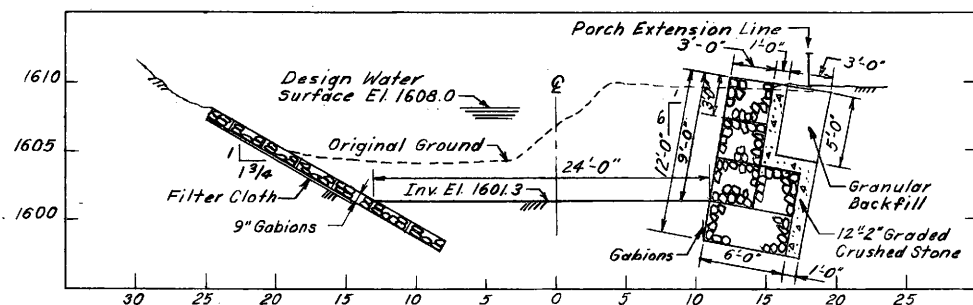


B-B
(CHANNEL & DIKE)
STA 23+50

ELEVATION IN FEET ABOVE MSL



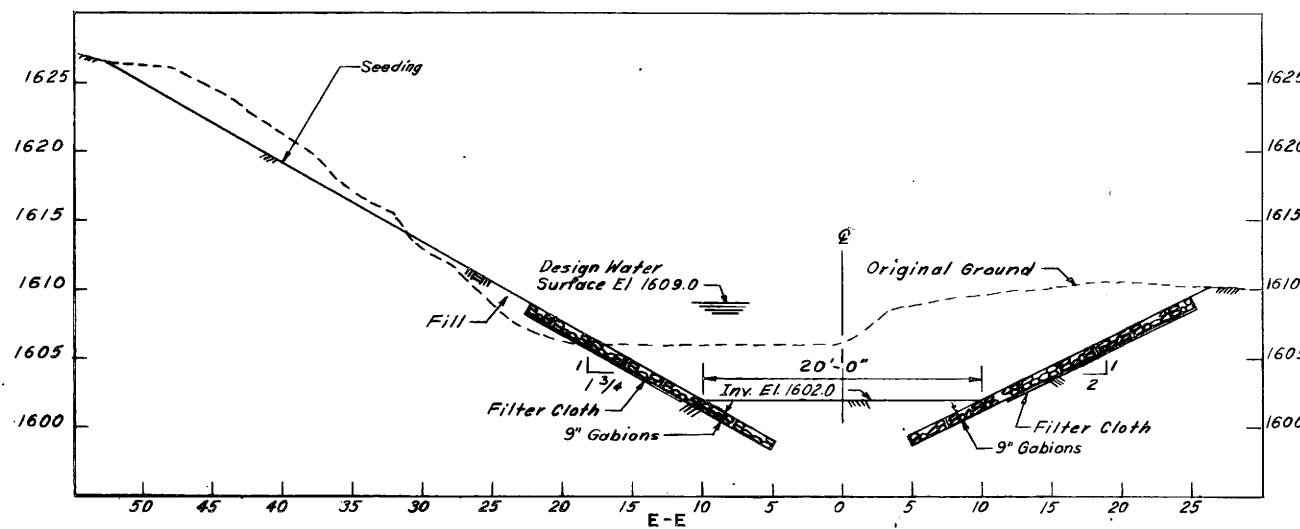
C-C
(N.Y.D.O.T. IMPROVEMENT)
STA 25+25



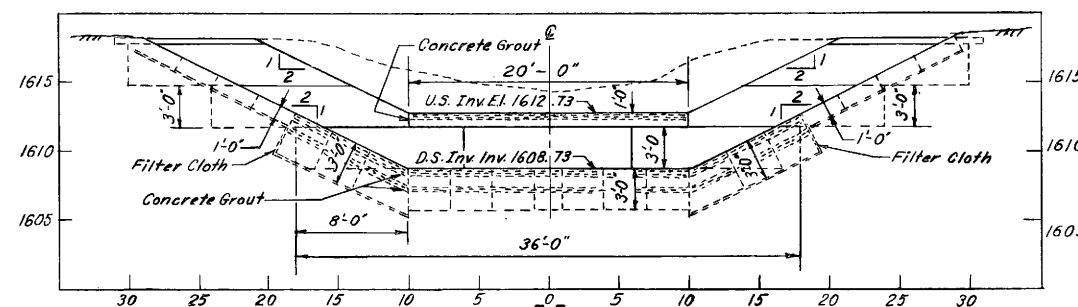
D-D
(CHANNEL & WALL)
STA 36+65

ELEVATION IN FEET ABOVE MSL

ELEVATION IN FEET ABOVE MSL



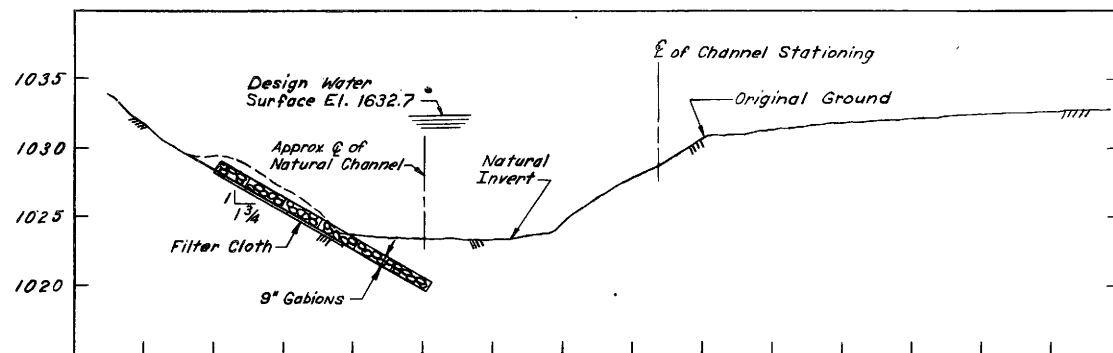
E-E
STA 38+00



F-F
(4 FOOT GABION DROP STRUCTURE)
STA 45+25

ELEVATION IN FEET ABOVE MSL

ELEVATION IN FEET ABOVE MSL



G-G
STA 55+00

ELEVATION IN FEET ABOVE MSL

SECTIONS (TYPICAL)

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
AS SHOWN			
U. S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
PREPARED BY: HABERMAN	BOLIVAR FLOOD PROTECTION PROJECT ROOT CREEK BOLIVAR, NEW YORK		
DRAWN BY: GRATZINGER	SECTIONS		
CHECKED BY:	APPROVED: _____ DATE: _____		
SUBMITTED BY:	CHIEF PLANNING BRANCH		
APPROVAL RECOMMENDED:	CHIEF, ENGINEERING DIVISION		
APPROVED FOR:	CHIEF, CORPS OF ENGINEERS, DISTRICT ENGINEER		
DATE:	SCALE:	SPEC. NO.:	DRAWING NUMBER:
			038pal-R2-82/6
			SHEET OF

APPENDIX A

LETTERS RECEIVED BY THE
PITTSBURGH DISTRICT ON THE
DRAFT ENVIRONMENTAL STATEMENT

APPENDIX A

TABLE OF CONTENTS

OF

LETTERS RECEIVED BY THE

PITTSBURGH DISTRICT ON THE

DRAFT ENVIRONMENTAL STATEMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

JAN 3 1975

Class. ER-2

Mr. J. S. Minnotte
Chief, Engineering Division
Pittsburgh District, Corps of Engineers
Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Mr. Minnotte:

We have reviewed the draft environmental impact statement (EIS) for Root Creek, Bolivar, New York and have the following comments.

The draft EIS points out that privately financed flood-proofing would be less expensive than the proposed channel modification project. It also mentions that "this alternative would result in a reduction in most of the tangible and intangible flood related losses," and that "it would not affect the frequency and aerial extent of overbank flooding." In other words, according to the EIS this alternative would control flood damage without destroying the ecosystem of the flood plain.

In a telephone conversation on December 31, 1974 with Jim Purdy and George Haverman of the Pittsburgh District Corps of Engineers, it was stated that this information is incorrect. These representatives said that it would be structurally and possibly economically unfeasible to flood proof all affected structures against the 100-year storm. They agreed to present in the final EIS the cost estimates for flood-proofing as well as to indicate the degree of protection that such a plan would provide. A cost-benefit analysis would then be used as a basis for comparison of this alternative with the proposed project.

During the telephone conversation, we also briefly discussed the potential adverse effects of project construction on the trout fishery of the Little Genesee Creek. We suggest that the Corps of Engineers solicit the expertise of the Fish and Wildlife Service in evaluating the thermal effect of the proposed project. Referring to the letter from the Fish and Wildlife Service to the Pittsburgh District Corps of Engineers dated May 17, 1974 and listed as Exhibit 2 in the EIS, EPA feels that the recommendations of the Fish and Wildlife Service must be seriously considered and addressed in detail in the final EIS.

Based on the information presented in the draft EIS, this Agency would recommend that flood-proofing along with a flood plain management plan be implemented. We will reserve any judgment at this time, however, until we have a chance to review the final EIS.

Thank you for the opportunity to review this EIS. Three copies of the final EIS are requested for a subsequent review.

Sincerely yours,

A handwritten signature in cursive script that reads "Paul H. Arbesman".

Paul H. Arbesman
Chief
Environmental Impacts Branch

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
NORTHEASTERN AREA, STATE AND PRIVATE FORESTRY
6816 MARKET STREET, UPPER DARBY, PA. 19082
TELEPHONE (215) ~~344-XXXX~~ 597-3772

8400
December 31, 1974



J. S. Minnotte, Chief
Engineering Division
Pittsburgh District
U.S. Army Corps of Engineers
Federal Building, 1000 Liberty Ave.
Pittsburgh, Pennsylvania 15222

Re: ORPED-PE - Draft Environmental
Statement, Root Creek, Bolivar,
New York

Dear Sir:

We have reviewed the above statement and offer the following comments for your consideration:

The last sentence in item 2.066 suggests that the Allegheny National Forest is a park - this is obviously not true.

Although the statement considers both structural and non structural measures for alienating the periodic flooding problem, no combinations of measures are considered. It seems impractical to recommend a structural solution without including suitable non structural elements. For instance, flood plain management should, we expect, be an integral part of a structural solution to prevent future damage of an increased magnitude caused by building on the "protected" flood plain. Why is any further development permitted?

Some effort should be made to evaluate the Benefit/Cost ratios for non structural alternatives.

From Detailed Plan Plate No. 1 and 2, it appears as though disposal areas are within the natural 1972 high water flood plain. If these locations could be used as flood storage areas, some of the need for channel construction could possibly be negated.

We appreciate the opportunity to comment on this proposal.

Sincerely,

Alfred H. Troutt
ALFRED H. TROUTT

Assistant Director
Environmental Protection and Improvement



U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

REGION ONE
16 Russell Road
Albany, New York 12206

December 9, 1974

IN REPLY REFER TO:

01-36.4D

Mr. J. S. Minnotte, Chief
Engineering Division
Department of the Army
Pittsburgh District, Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Mr. Minnotte:

We have reviewed the Draft Environmental Statement for the Root Creek Local Flood Protection Project submitted to us by your letter of November 5, 1974. Please be advised that the comments that follow represent those of our office and those of the Regional Federal Highway Administrator, Region 1. Our specific comments are:

1. Page 1, Paragraph 1.03.1.3 - There should be an indication here that New York State Department of Transportation's (NYS DOT) project on Root Creek was coordinated with the Corps of Engineer's project and that the two are hydraulically compatible.
2. Page 4, Paragraph 2.01 - The NYS DOT is in the process of re-signing State routes in this area. What is now Route 17 will shortly become Route 417, while the Southern Tier Expressway will become Route 17. To avoid confusion we suggest you check the status of these route changes at as late a date as is possible so that the final statement reflects actual field conditions. NYS DOT plans to make these changes in 1975.
3. Page 15, Paragraph 4.06.10 - NYS DOT's project is presently underway and scheduled completion is December-1975.
4. General - While there is no specific reference, it is assumed that the substructures and foundations of the Davis Street bridge will be adequately protected.

The following comments refer to subjects outside of our normal area of interest but are offered for your information and consideration:

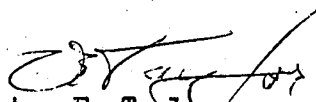
1. Page 2, Paragraph 1.03.1.5 - A more definite statement would be beneficial as to the extent of right-of-way (ROW) required by this project. Table 2, commencing on page 15, indicates that 4 acres of land are required. Is this ROW in fee or in easements? If it is in fee, then contrary to Table 2 there will be some effect, even though perhaps minor, on the tax base.

2. Page 12, Paragraph 4.01 - A more definite statement would be beneficial regarding specific erosion and sediment control measures to be followed during construction.

3. Exhibit 2 - We see no response to the letter from the DOI, dated May 17, 1974. We feel DOI's points are well taken and should be incorporated into the project.

We appreciate the opportunity to review and comment on this project.

Sincerely yours,



Victor E. Taylor
Division Engineer



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION II

FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

OFFICE OF THE
REGIONAL DIRECTOR

January 7, 1975

Our Reference: ROFEC

Mr. J. S. Minnotte
Chief, Engineering Division
Corps of Engineers, Pittsburgh District
Department of the Army
Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222

Dear Mr. Minnotte:

Subject: EIS#041-11-74
Root Creek
Bolivar, New York

On the basis of our review of the above, we have determined that the impacts in those areas of concern to this Department have been adequately addressed. We have no objection to the implementation of this project.

We appreciate the opportunity to review your draft EIS.

Sincerely yours,

Luther Stringham
Regional Environmental Officer



OHIO RIVER BASIN COMMISSION

Suite 208-20
Cincinnati, Ohio 45202

36 East Fourth Street
513/684-3831 (FTS)

December 30, 1974

Mr. J. S. Minnotte
Chief, Engineering Division
Department of the Army
Pittsburgh District, Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Mr. Minnotte:

Thank you for your letter of 5 November 1974 inviting comments of the Ohio River Basin Commission on the Draft Environment Impact Statement (EIS) for the Root Creek Local Flood Protection Project, Bolivar, Allegany County, New York. In my opinion, the EIS has been properly coordinated with the Commission members.

The Ohio River Basin Commission staff has reviewed the draft EIS and finds no indication that the proposed action would not be compatible with the ORBC Comprehensive Coordinated Joint Plan as it exists today.

The Commission looks forward to a continuing cooperative effort with your Department and appreciates your action in keeping us well informed.

Sincerely,

Fred E. Morr
Chairman

cc: BG Wayne S. Nichols
Council on Environmental
Quality

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York ~~12201~~ 12233



January 14, 1975

Mr. J. S. Minnotte
Chief, Engineering Division
Pittsburgh District, Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Mr. Minnotte:

ORPED-PE
Draft Environmental Impact Statement
Root Creek, Bolivar, New York
DEC Project No. 902-11-0060

We have reviewed the above noted document and believe that the statement is generally adequate. However, the following concerns should be addressed in the final environmental impact statement:

1. Construction of a low flow channel should be incorporated in the project design as a mitigating measure. Although the installation of gabion drop structures will prevent trout movement upstream in Root Creek, a low flow channel would minimize warming of the stream during periods of low flow. This would reduce the detrimental effect of warm water temperatures on trout populations in Little Genesee Creek.
2. In discussing alternatives to the proposed project, consideration should be given to the non-structural alternatives provided by Section 73 of the Water Resources Development Act of 1974 (Public Law 93-251). We recognize that this Act may not have been in effect at the time the alternatives section of the Draft E.I.S. was prepared. However, we believe that an additional evaluation is warranted at this time in order to adequately consider viable alternatives to the proposed action.

Thank you for the opportunity to review this statement.

Very truly yours,

Terence P. Curran
Director of Environmental Analysis



HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF HEALTH

DIVISION OF SANITARY ENGINEERING

845 CENTRAL AVENUE
ALBANY, N.Y. 12206

MEREDITH H. THOMPSON, D. ENG.
ASSISTANT COMMISSIONER

December 17, 1974

Mr. J. S. Minnotte
Chief, Engineering Division
Department of the Army
Pittsburgh District, Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Mr. Minnotte:

Draft Environmental Statement;
Root Creek, Bolivar, New York

We have reviewed the Draft Environmental Statement for the
Root Creek Local Flood Protection Project.

Our field unit advises us that there are no downstream
water supplies or recreational areas in New York State which would
be affected by this project.

Sincerely,

Meredith H. Thompson, D.Eng.
Assistant Commissioner

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION

Raymond T. Schuler, Commissioner



1220 Washington Avenue, State Campus, Albany, New York 12226

DEC 31 1974

J. S. Minnotte, Chief, Engineering Division
Department of The Army
Pittsburgh District, Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, Pennsylvania, 15222

Dear Mr. Minnotte:

We have reviewed the Draft Environmental Impact Statement for the "Root Creek Local Flood Protection Project" in Bolivar, Alleghany County, and find that the work proposed does not conflict with any Highway Project in the area.

Sincerely,

J. H. Maduin

for RAYMOND T. SCHULER
Commissioner

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
ALBANY, NEW YORK 12224

NEW YORK STATE MUSEUM AND SCIENCE SERVICE

ANTHROPOLOGICAL SURVEY

January 3, 1975

Department of the Army
Pittsburgh District
Corps of Engineers
Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222
ATTENTION: J.S. Minnotte

RE: Draft Environmental Statement;
Root Creek, Bolivar, New York

Gentlemen:

We have received the Draft Environmental Statement for the Root Creek Local Flood Protection Project located in Bolivar, Allegany County, New York. Dr. Robert E. Funk, New York State Archeologist, has asked me to reply to your note enclosed.

Although we are aware that no significant archeological sites have been reported from the Bolivar area, we are gratified to note that you are including an item for archeological survey and salvage in the project plans. We look forward to seeing these plans implemented.

Thank you for the consideration of archeological impact in your Draft Environmental Statement.

Sincerely yours,

Charles E. Gillette

Charles E. Gillette
Sr. Scientist, Archeology

CEG:dm

New York Archaeological Council

February 6, 1975

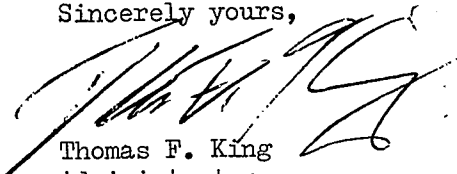
District Engineer, Pittsburgh District
U.S. Army Corps of Engineers
Federal Building, 1000 Liberty Ave.
Pittsburgh, Pennsylvania 15222

Dear Sir:

I have just had occasion to inspect your Draft Environmental Statement for the Root Creek Local Flood Protection Project in Bolivar, New York. Your section 2.06.9 (pp. 10 and 11) indicate that an archaeological survey and salvage will be conducted prior to construction, by which I assume you mean subsequent to authorization and final design of the project.

If you will inspect Title 36, Chapter VIII, Part 800.4 of the Code of Federal Regulations you will find that cultural resources potentially qualifying for the National Register of Historic Places must be identified prior to a decision by your agency about an undertaking such as the Root Creek Project. To judge from the data provided in the Draft EIS, it appears that during preparation of the Final EIS an intensive cultural resources survey will be necessary, with an associated consideration of the general regional impacts of the project on non-federally owned cultural properties, leading to a determination about the need to consult with the Advisory Council on Historic Preservation before proceeding further. If we can be of assistance to you in providing the appropriate studies, please contact me at the address and telephone number given below.

Sincerely yours,



Thomas F. King
Administrator