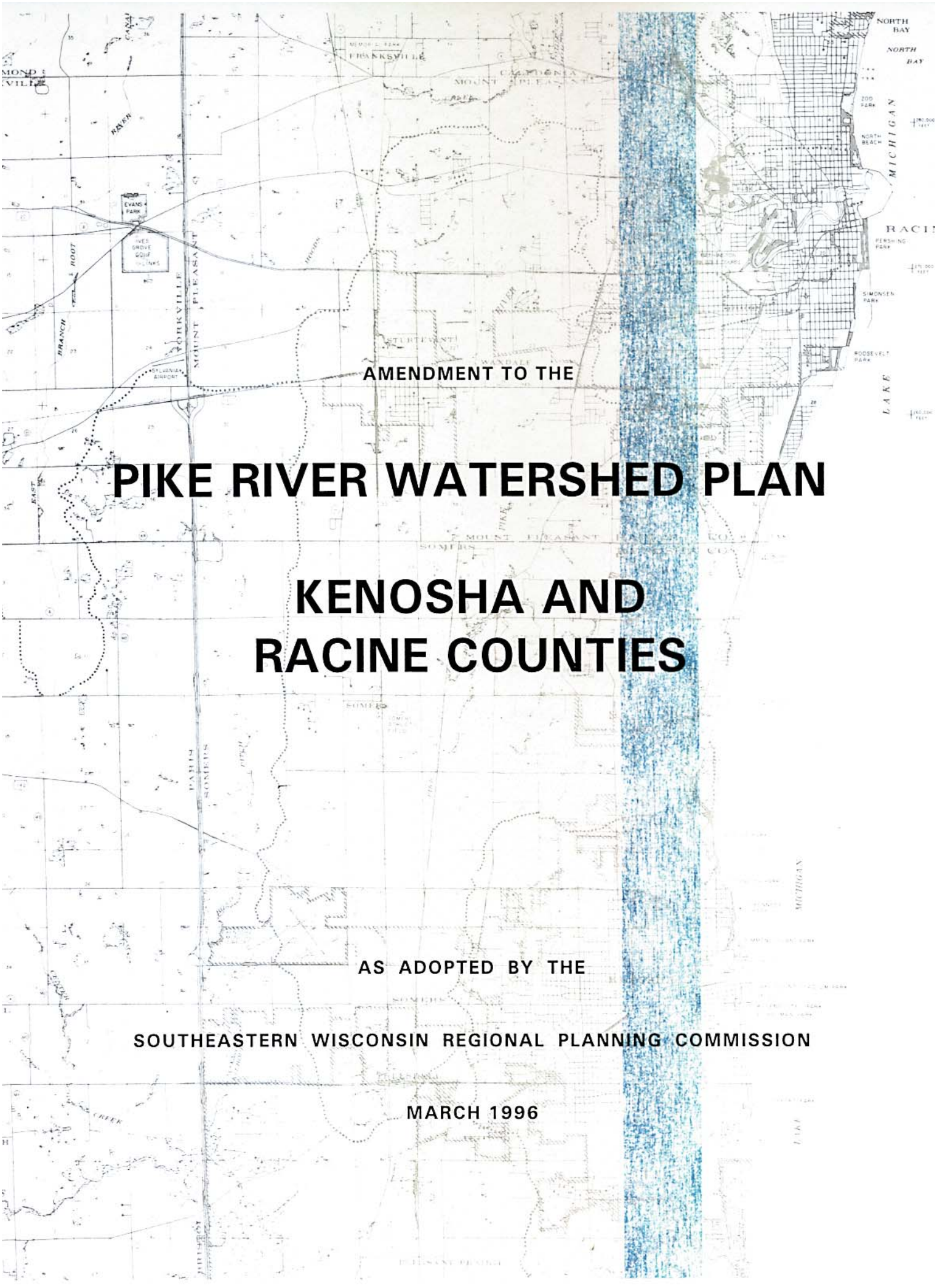

AMENDMENT TO THE

PIKE RIVER WATERSHED PLAN

KENOSHA AND RACINE COUNTIES

AS ADOPTED BY THE

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

MARCH 1996

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Special acknowledgement is due Ronald J. Printz, SEWRPC Principal Engineer, for his contribution to this report.

SEWRPC Staff Memorandum

REPORT ON REFINEMENTS MADE TO THE PIKE RIVER WATERSHED PLAN IN CONJUNCTION WITH THE ENVIRONMENTAL IMPACT STATEMENT PROCESS

INTRODUCTION

In a January 2, 1992, letter to the Town of Mt. Pleasant Stormwater Drainage District No. 1, the Wisconsin Department of Natural Resources indicated that an environmental impact statement would need to be prepared before permits could be issued for implementation by the District of parts of the flood control element of the Pike River watershed plan. In its decision to require the preparation of an environmental impact statement, the Department expressed several concerns over the channel modifications recommended in the plan, most notably the impact on existing and potential aquatic habitat and the impact on downstream flood flows and stages, even though the latter impact had been fully considered and accounted for in the watershed plan. At its meeting of February 13, 1992, the Pike River Watershed Committee asked Department staff in attendance that it be designated as an advisory committee for the preparation of the required environmental impact statement. In making that request, it was noted that the Committee was already in place and provided fair as well as knowledgeable representation of those agencies and groups affected by any flood control decisions regarding the Pike River watershed.

The environmental impact statement process, among other considerations, requires evaluation of alternatives to the action being proposed. At the March 16, 1993, Watershed Committee meeting, it was agreed that a reasonable alternative to the channel improvements being considered would be provided by those improvements modified to include habitat restoration and enhancement features. Such modifications to the needed channel improvements were actually included in the watershed plan, but in a generalized manner, on the assumption that details would be developed as part of the subsequent project design phase.

At an intergovernmental staff meeting held at the Commission offices on July 27, 1993, a decision was made to form an environmental impact statement alternatives work group, the purpose of which would be to refine and detail the adopted plan. This work group included representatives of Kenosha and Racine Counties, the City of Kenosha, the Towns of Mt. Pleasant and Somers, the Regional Planning Commission, and the Department of Natural Resources. Meetings of the work group were held on August 31, September 28, and October 26, 1993. This staff memorandum is intended to document the findings and recommendations of that work group for consideration by the Watershed Committee. Since those findings and recommendations have an impact on flood flows and stages along the Pike River and Pike Creek envisioned in the adopted watershed plan, it is intended that this memorandum serve as the basis for amending the adopted Pike River watershed plan, not only with respect to the details of recommended channel improvements, but also with respect to the flood flows and stages set forth in the adopted watershed plan. In this regard, the flood flows and stages presented in this memorandum have been updated to reflect changes to the stream channels which have occurred since the completion of the original watershed study, and also since the Commission's more recently adopted year 2010 regional land use plan was adopted.

ADOPTED PIKE RIVER WATERSHED PLAN AS IT PERTAINS TO FLOOD CONTROL ALONG THE UPPER PIKE RIVER, PIKE CREEK, THE AIRPORT BRANCH, AND THE TRIBUTARY TO AIRPORT BRANCH

The adopted Pike River watershed plan is set forth in SEWRPC Planning Report No. 35, A Comprehensive Plan for the Pike River Watershed, adopted in June 1983, and in two amendments to that plan adopted in June of 1987. The flood control element of that plan recommends major channel deepening and enlargement along the Pike River main stem upstream of the CTH A crossing, along Pike Creek upstream of the confluence with Somers Branch, and along the Airport Branch and the Tributary to Airport Branch. Under the adopted watershed plan, the channel along the Pike River would be deepened by up to seven feet and widened to a bottom width ranging from 10 to 20 feet; along Pike Creek, the channel would be deepened by up to 12 feet and widened to a bottom width ranging from five to 20 feet; and along the Airport Branch and the Tributary

to Airport Branch, the channel would be deepened by up to six feet and widened to a bottom width ranging from five to 15 feet. The modified channel along these stream reaches would be turf-lined and would have side slopes of one on three. Modification of the subject channel reaches as envisioned would require that 12 bridges along the Pike River, nine bridges along Pike Creek, and one bridge along the Airport Branch be either modified, replaced, or removed.

The watershed plan also recommends that detailed design of the channel modifications include the reestablishment and possible enhancement of the aquatic habitat along the channel bottom. The adopted plan generally describes measures which were to be considered for incorporation into the final design to improve fish and aquatic habitat in the modified channels.

The plan also recommends that channel cleaning and debrushing be carried out along Pike Creek between the confluence with the Pike River and the confluence with Somers Branch. That channel cleaning and debrushing was implemented by the Town of Somers in 1990.

Implementation of the recommended flood control plan would eliminate all structural flood damages within the watershed along the stream channels concerned for floods up to and including a 100-year recurrence interval event. Some localized, shallow flooding of existing agricultural and other open lands would be expected to remain.

ADDITIONAL ISSUES RELATING TO THE PIKE RIVER WATERSHED FLOOD CONTROL PLAN ELEMENT

As called for under the Pike River watershed plan, a preliminary detailed design of the channel modifications for the Upper Pike River in the Town of Mt. Pleasant was prepared in April 1991 by the firm of Crispell-Snyder, Inc., Town engineers. This design generally followed the same planned channel alignment and cross-section as was presented in the adopted watershed plan, with channel dimensions being refined as necessary to take into account existing and proposed drainage easements, potential utility conflicts, and other development conditions which occurred since the preparation of the watershed plan. Under this detailed design, the channel would be widened to a bottom width ranging from six to 38 feet, while channel side slopes would range from one on one to one on four. In areas with steep side slopes the channel would be lined with gabions or riprap and the bottom width increased accordingly. In addition, the refined design included aquatic habitat restoration measures including a meandering low-flow channel and such in-stream structures as wing deflectors and alternating pool and riffle areas.

A park and open space plan for the Town of Mt. Pleasant was prepared by the Commission in November 1991, as documented in SEWRPC Community Assistance Planning Report No. 199, A Park and Open Space Plan for the Town of Mt. Pleasant, Racine County, Wisconsin. That plan includes a recommendation for the establishment of a continuous parkway and recreational trail along the Pike River through the Town. That trail would be part of a larger trail system intended to connect two regional parks, Johnson Park, in the Town of Caledonia, and Petrifying Springs Park, in the Town of Somers.

PROPOSED REFINEMENTS TO THE FLOOD CONTROL PLAN ELEMENT FOR THE UPPER PIKE RIVER

The August 31, 1993, meeting of the environmental impact statement alternatives work group included a discussion of the specific refinements which should be incorporated into the recommended channel improvements for the Upper Pike River. Some of these refinements were the same as those which had been generally recommended in the adopted watershed plan but had not been specifically detailed. Some of the recommendations were the same as those detailed as part of the design for the channel improvements prepared by Crispell-Snyder, Inc., for the Town of Mt. Pleasant. Subsequent to that meeting, the full range of refinements discussed was evaluated by the Commission staff and the findings of the evaluation presented to the work group at its meeting of September 28, 1993. Measures recommended for incorporation into the channel improvement included a low-flow channel within the flood control channel, the addition of pool and riffle areas within that low-flow channel, the preservation of existing channel meanders along that reach between the confluence with Pike Creek and CTH KR, and the provision of additional floodwater storage on

both the Upper Pike River and Pike Creek to preclude any increased flood flows and stages on the Lower Pike River as a result of the refined channel improvement.

A preliminary delineation was also made of the boundaries of a Pike River parkway called for under the park and open space plan for the Town of Mt. Pleasant. This parkway is intended to incorporate the proposed improved Pike River channel and adjacent 50- to 100-foot-wide buffers. Natural resource restoration areas were also incorporated into the proposed parkway. These areas are located adjacent to the channel and have been identified as having hydric soils or being residual floodplains. These areas would be restored to wetland or native upland grasslands. The channel and recreational trail alignments and the related parkway features are shown on Exhibit A.

A reach-by-reach description of the proposed channel refinements for the Pike River is presented below.

- Reach 1: Spring Street (CTH C) to Washington Street (STH 20)
  The proposed flood control channel and streambed cross-section would remain as developed by Crispell-Snyder, Inc. The channel would have a bottom width ranging from 20 to 34 feet and side slopes ranging from one on two to one on four. The channels, which are basically trapezoidal in cross-section, would have rounded corners and a natural appearance.

  A low-flow channel would be located within the flood control channel. This low-flow channel would have a depth varying up to two feet, a bottom width of two to four feet, and side slopes ranging from one on one to one on three feet. The channel would be designed with alternating meanders and runs along the bottom of the flood control channel. Meanders would be located anywhere from five to fifteen channel widths apart, about 50 to 200 feet, with an overall length which is at least 1.5 times the length of the corresponding flood control channel. Those meanders are intended to promote development of alternating pool and riffle areas within the low-flow channel. Additional structures, such as drop sills and wing deflectors, would also be incorporated into the low-flow channel as necessary. The location of those measures would be identified on a site-specific basis as part of an overall habitat design. A rock or gravel substrate would also be added at selected locations along the channel to provide spawning areas. A typical cross-section of this low-flow channel is shown in Exhibit B.

  Because of the small conveyance capacity of the low-flow channel, the bottom of the flood control channel is expected to be inundated several times a year. Therefore, the bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The wetland grasses envisioned would be expected to reach about three feet in height and would provide shade to the low-flow channel. These grasses may be expected to lie flat during periods of high flow, thus producing minimal resistance to such flow. Grasses and forbs would be planted along the remainder of the channel side slope, except for those reaches where gabion lining of the side would be required.

  Cross-section A-A' on Exhibit C illustrates the proposed channel for this stream reach.

- REACH 2: Washington Street (STH 20) to About One-Quarter Mile South of Durand Avenue (STH 11)
  The proposed flood control channel and streambed cross-section would remain as developed by Crispell-Snyder, Inc. The channel would have a bottom width ranging from 20 to 46 feet and side slopes ranging from one on one to one on four.

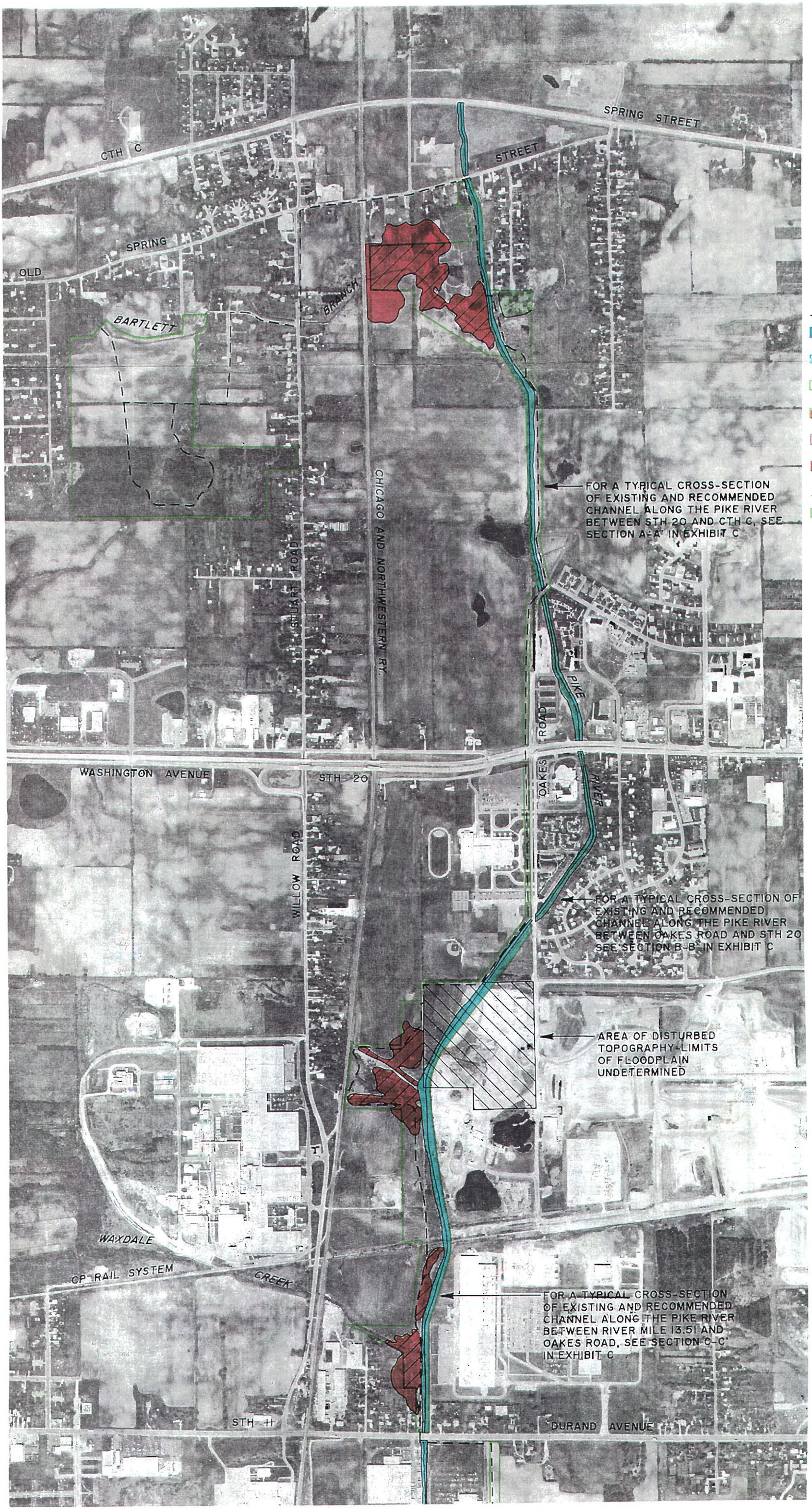
  A low-flow channel as described for Reach 1 would be incorporated into the flood control channel.

  The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The remaining side slopes would be planted with grasses and forbs, except for those reaches where gabion lining of the side would be required.

  Cross-sections B-B' and C-C' on Exhibit C illustrate the proposed channel for this stream reach.

Exhibit A

REFINED RECOMMENDED FLOOD CONTROL AND PARKWAY PLAN FOR THE UPPER PIKE RIVER



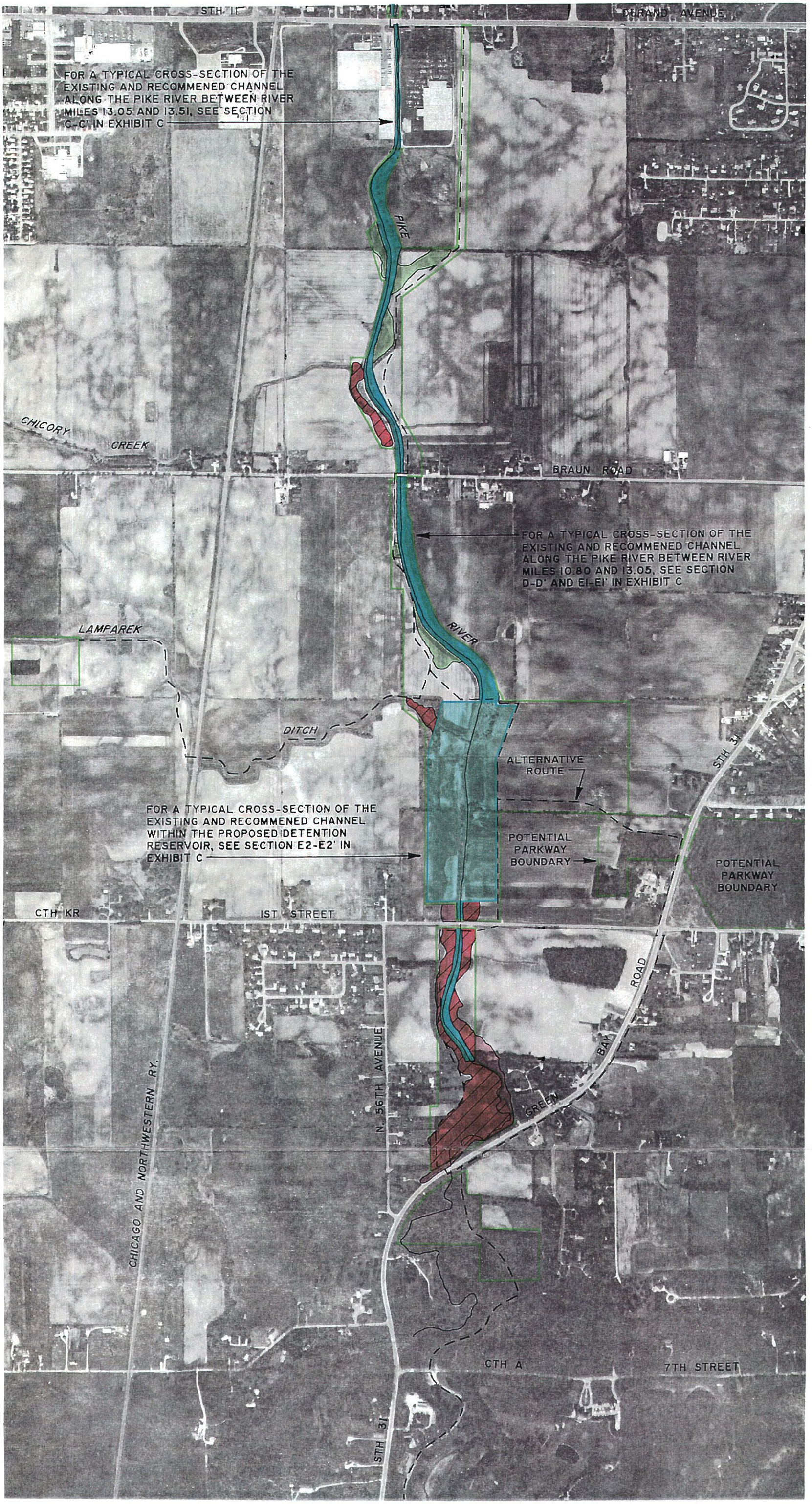
LEGEND

- EXISTING CHANNEL
- PROPOSED FLOOD CHANNEL WITH WETLAND/GRASSLAND RESTORATION AND PROPOSED LOW FLOW CHANNEL
- PROPOSED FLOODWATER STORAGE BASIN WITH WETLAND/GRASSLAND RESTORATION AND PROPOSED LOW FLOW CHANNEL
- AREA OF WETLAND SOILS LOCATED OUTSIDE OF PROPOSED FLOOD CHANNEL AND PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS ANTICIPATED TO REMAIN IN AGRICULTURAL OR OPEN SPACE USE
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS WHICH WOULD POTENTIALLY BE FILLED AND CONVERTED TO URBAN USE
- PROPOSED RECREATION TRAIL
- PROPOSED PARKWAY BOUNDARY

NOTE:
1) THE LOW FLOW CHANNEL DESIGN WOULD PROVIDE FOR A MEANDER ABOUT EVERY 5 TO 15 LOW FLOW CHANNEL WIDTHS (ABOUT EVERY 50 TO 200 FEET).
2) THE PROVISION OF A SERIES OF MEANDERS SHOULD PROMOTE THE FORMATION OF ALTERNATING POOL AND RIFFLE AREAS.
3) ADDITIONAL FEATURES SUCH AS WING DEFLECTORS, SILLS, AND A GRAVEL SUBSTRATE CAN BE PROVIDED BASED UPON DETAILED FIELD DESIGN AND PLACEMENT.

GRAPHIC SCALE
0 400 800 1200 FEET

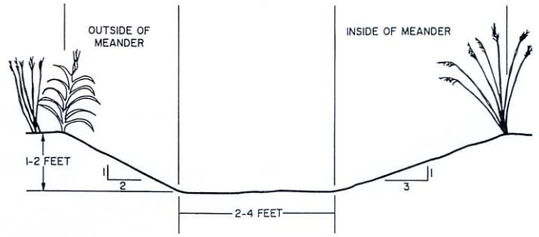
Exhibit A (continued)



Source: SEWRPC.

Exhibit B

TYPICAL CROSS-SECTION OF PROPOSED LOW-FLOW CHANNEL

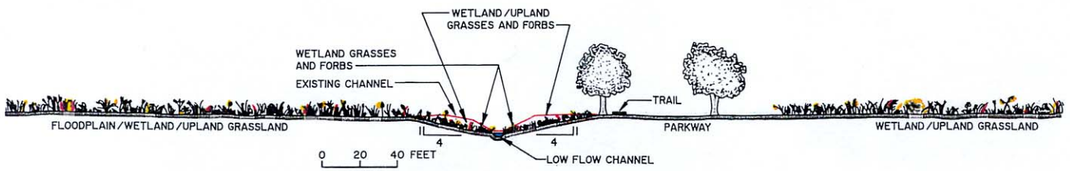


Source: SEWRPC.

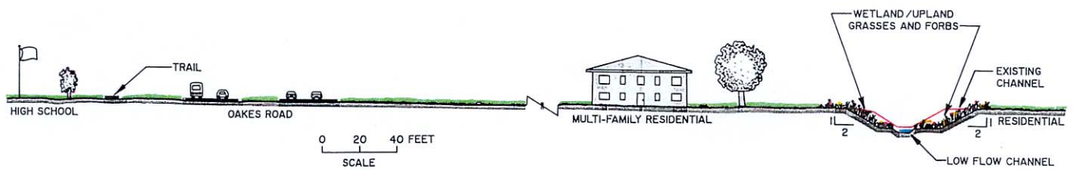
Exhibit C

TYPICAL CROSS-SECTIONS OF EXISTING AND PROPOSED CHANNEL ALONG THE UPPER PIKE RIVER

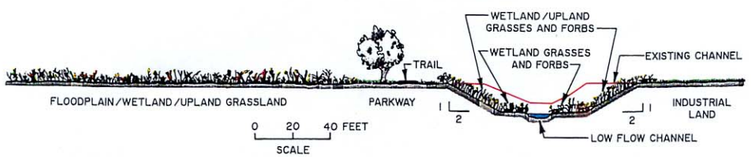
CROSS-SECTION A-A'



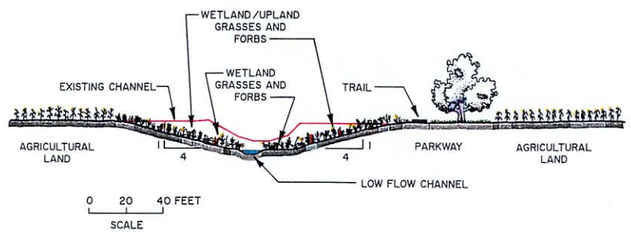
CROSS-SECTION B-B'



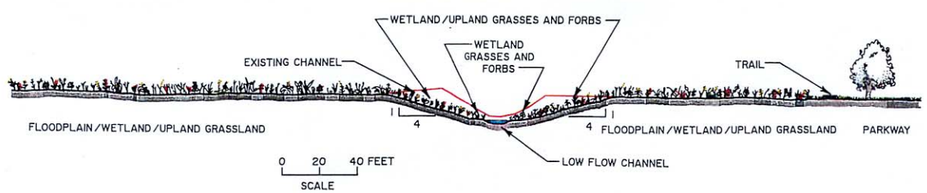
CROSS-SECTION C-C'



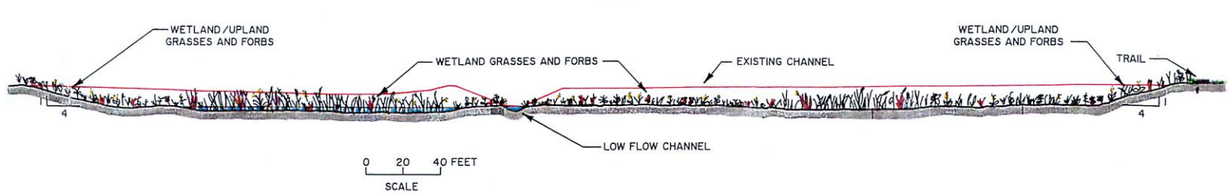
CROSS-SECTION D-D'



CROSS-SECTION E1-E1'



CROSS-SECTION E2-E2'



Source: SEWRPC.

- Reach 3: About One-Quarter Mile South of Durand Avenue (STH 11) to Braun Road
The proposed flood control channel and streambed cross-section would remain as developed by Crispell-Snyder, Inc. The channel would have a bottom width of 30 feet and a side slope of one on four.

  A low-flow channel as described for Reach 1 would be incorporated into the flood control channel.

  The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The remaining side slopes would be planted with grasses and forbs.

  Cross-section D-D' on Exhibit C illustrates the proposed channel for this stream reach.

- Reach 4: Braun Road to the Confluence with Pike Creek
For the reach between Braun Road and a point about 0.1 mile upstream of the confluence with Lamparek Ditch the proposed flood control channel and streambed cross-section would remain as developed by Crispell-Snyder, Inc. The channel would have a bottom width ranging from 28 to 36 feet and side slopes ranging from one on three to one on four.

  The extent of channel modifications within Reach 4 has been reduced from about 2.7 miles to about 1.4 miles. Instead of beginning at CTH A, as proposed in the watershed plan, the channel modifications would begin about 0.35 mile downstream of CTH KR, the downstream limit of past channel deepening and straightening. This refinement is intended to preserve the existing natural channel and primary environmental corridor within the 1.3-mile-long reach upstream of CTH A. It is assumed that the STH 31 crossing would be replaced with one capable of passing the 100-year recurrence interval flood discharge without producing a significant amount of backwater.

  Beginning about 0.35 mile downstream of CTH KR the proposed channel invert would extend upstream at a slope of about 0.05 percent, about the same as the existing channel, for about 0.95 mile to a point about 0.1 mile upstream of the confluence with the Lamparek Ditch. At that point, the invert would match that of the originally proposed channel modification.

  Within the refined stream reach the proposed channel would have a bottom width ranging from 28 feet to 50 feet and side slopes of one on four.

  A low-flow channel as described for Reach 1 would be incorporated into the flood control channel.

  The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The remaining side slopes would be planted with grasses and forbs.

  Cross-section E1-E1' on Exhibit C illustrates the proposed channel for this stream reach.

  The channel modifications proposed for the Upper Pike River may be expected to increase downstream flood flows and stages over existing channel conditions. This would require that proper legal arrangements, usually flood easements, be obtained from all property owners affected by the increase. In order to avoid this increase in flows and stages, additional floodwater storage would be provided by enlarging the flood control channel along an approximately 2,350-foot-long reach beginning 250 feet upstream of CTH KR. This storage facility would extend through the site of a proposed community park to be located at the confluence with Lamparek Ditch. The added storage provided would serve to limit downstream flood discharges and attendant stages to year 2010 planned land use and existing channel condition levels. A total storage volume of about 400 acre-feet would be required at this location during a 100-year recurrence interval flood event. Cross-section E2-E2 on Exhibit C illustrates this floodwater storage basin.

REFINEMENTS TO THE FLOOD CONTROL PLAN ELEMENT FOR
PIKE CREEK, AIRPORT BRANCH AND TRIBUTARY TO AIRPORT BRANCH

The September 28, 1993, meeting of the Pike River environmental impact statement alternatives work group included a discussion of the specific refinements to be incorporated into the recommended channel for Pike Creek, the Airport Branch, and its tributary. Subsequent to that meeting, these refinements were evaluated by the Commission staff and the findings of the evaluation presented to the work group at its meeting of October 26, 1993. These refinements included the incorporation of a low-flow channel within the flood control channel, the preservation of the existing channel downstream from CTH E, and the addition of a floodwater storage area upstream of CTH E.

A preliminary delineation was also made of the boundaries of a Pike Creek parkway, which would connect Petrifying Springs Park with a proposed community park located in the Village of Pleasant Prairie. This parkway is intended to incorporate the proposed improved Pike River channel and adjacent 50- to 200-foot-wide buffers. Natural resource restoration areas were also incorporated into the proposed parkway. These areas are located adjacent to the channel and have been identified as having hydric soils or being residual floodplains. These areas would be restored to wetland or native upland grasslands. The channel and recreational trail alignments and the related parkway features are shown on Exhibit D.

A reach-by-reach description of the proposed channel refinements is presented below:

- Reach 1: 75th Street (STH 50) to Lichter Road (CTH L)
  For the reach between STH 50 and CTH K the proposed flood control channel and streambed cross-section would be revised to reflect changes made in March 1992 under SEWRPC Water Resources Simulation Project File No. 235. That project concerned the accommodation of proposed residential development, in the form of the Prairie Lake Estates subdivision, north of STH 50. A wetland restoration along Pike Creek north of STH 50 is to occur as part of that development. Commission review of the project included revised hydrologic and hydraulic analyses which incorporated new topographic data, a refined tributary drainage area, and the addition of floodwater storage related to Prairie Lake as well as existing and planned wetland areas. As a result of the analyses, it was found that the extent of channel modification could be reduced by about 0.3 mile from that originally proposed in the adopted Pike River watershed plan. Channel modifications would now terminate at an existing farm bridge located about 1,200 feet upstream of the CP Rail System (former Chicago, Milwaukee, St. Paul & Pacific Railroad) crossing. Upstream of that farm bridge the existing channel and attendant floodplain would be retained. At CTH K the proposed channel invert would match that recommended under the Pike River watershed plan. The proposed channel would have a bottom width of 22 feet and typical side slopes of one on three.

  For the reach between CTH K and CTH L the proposed streambed cross-section would remain as shown in the Pike River watershed plan. Between CTH K and STH 158 the channel would have a bottom width of 22 feet, while between STH 158 and CTH L the channel would have a bottom width of 42 feet. Channel side slopes would be one on three. Final detailed design of the flood control channel may indicate a local need to alter the proposed channel side slope and width to avoid utility conflicts.

  A low-flow channel as described for Reach 1 of the Upper Pike River would be incorporated into the flood control channel for the entire channelized reach upstream of CTH L.

  The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The remaining side slopes would be planted with grasses and forbs, except for those reaches where detailed design may indicate a need for a gabion or riprap lining.

  Cross-sections F-F and H-H in Exhibit E illustrate the proposed channel along this stream reach.

  Limited areas of residual floodplain with relatively shallow flooding are expected to remain. The largest of these is located west of Pike Creek between CTH S (formerly STH 142) and STH 158. This area is located within the planned urban service area of the City of Kenosha and is proposed for industrial

development. Lands within the proposed buffer areas, generally 50 feet on one side of the channel and 200 feet on the other, would remain as floodplain. It will be necessary to fill other selected lands beyond the buffer area as they are developed. The impact of the attendant loss of floodplain storage has been incorporated into the design flows and stages for the Pike River watershed system.

- Reach 2: Lichter Road (CTH L) to the Confluence with Pike Creek

  For the reach between CTH L and the Town of Somers transfer station drive the proposed streambed cross-section would remain generally as shown in the Pike River watershed plan. For the reach between the Town of Somers transfer station drive and CTH E the proposed streambed would be raised so as to match the existing channel invert at CTH E. The proposed flood control channel would have a bottom width of 42 feet and side slopes of one on three. Final detailed design of the flood control channel may indicate a local need to alter the proposed channel side slope and width to avoid utility conflicts.

  A low-flow channel as described for Reach 1 of the Upper Pike River would be incorporated into the flood control channel for this reach.

  The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation. The remaining side slopes would be planted with grasses and forbs, except for those reaches where detailed design may indicate a need for a gabion or rip-rap lining.

  Cross-section I-I in Exhibit E illustrates the proposed channel along this stream reach.

  The channel modifications proposed for Pike Creek may be expected to increase downstream flood flows and stages over existing channel conditions. That would require that proper legal arrangements, usually flood easements, be obtained from all property owners affected by the increase. In order to avoid such an increase in flows and stages, a floodwater storage basin would be constructed about 1,100 feet upstream of CTH E. The basin would serve to limit downstream flood discharges and attendant stages to year 2010 planned land use and existing channel conditions levels. It is estimated that the basin would need to store about 475 acre-feet of water during a 100-year recurrence interval event. This basin would contain a low-flow channel along the alignment of the existing Pike Creek channel. As with the flood control channel, wetland vegetation would be established along the bottom and lower side slopes of the basin, with grasses and forbs planted along the upper slopes. This storage basin could be incorporated into a Town park at this location. Cross-section J-J on Exhibit E illustrates the planned floodwater storage basin.

  Because of construction of the floodwater storage basin upstream of CTH E, the channel modifications recommended for the reach between CTH E and the confluence with Somers Branch will not be necessary. This will preserve the existing in-stream habitat along this reach.

  As noted above, channel clearing and debrushing measures recommended under the Pike River watershed plan for the reach between the confluence with Somers Branch and the confluence with the Pike River have been implemented by the Town of Somers.

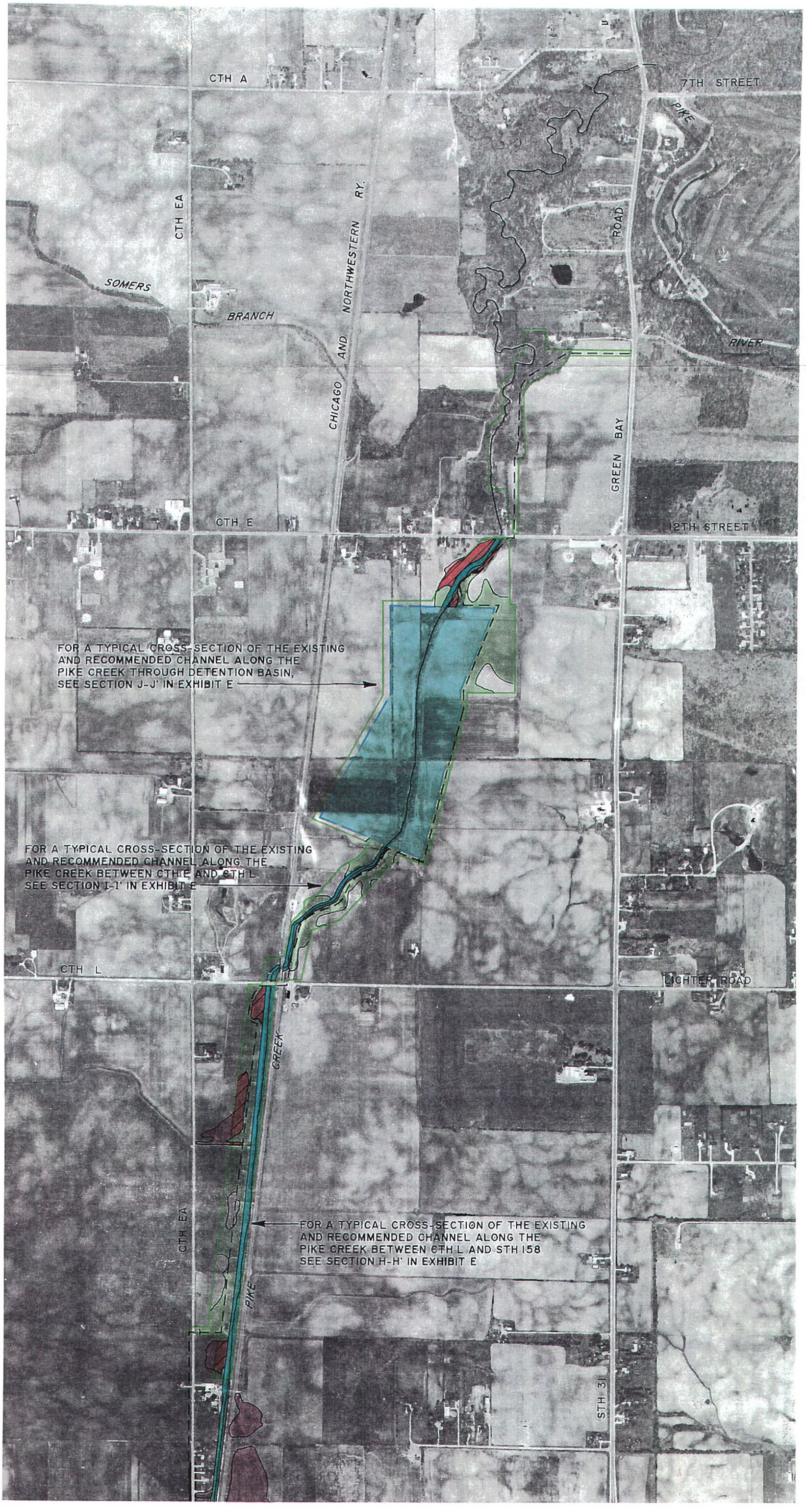
- Reach 3: Airport Branch and Tributary to Airport Branch

  In 1992 the 0.5-mile-long reach of the Airport Branch upstream of its confluence with the Tributary to Airport Branch was enclosed in a culvert. That enclosure was done with the intent of future development of the property through which this reach of the watercourse flowed. Therefore, channel modifications are no longer recommended along this reach. It is recommended, however, that plans for development of this area include a study of the stormwater drainage needs on this property and that that study include consideration of both minor and major drainage systems to ensure that flooding of future development does not occur.

  The proposed flood control channel and streambed cross-section along the remainder of the Airport Branch and its tributary would remain as shown in the Pike River watershed plan. The channel would have a bottom width ranging from 15 to 25 feet and side slopes of one on three. Final detailed design

Exhibit D

REFINED RECOMMENDED FLOOD CONTROL AND PARKWAY PLAN FOR PIKE CREEK, AIRPORT BRANCH, AND THE TRIBUTARY TO AIRPORT BRANCH



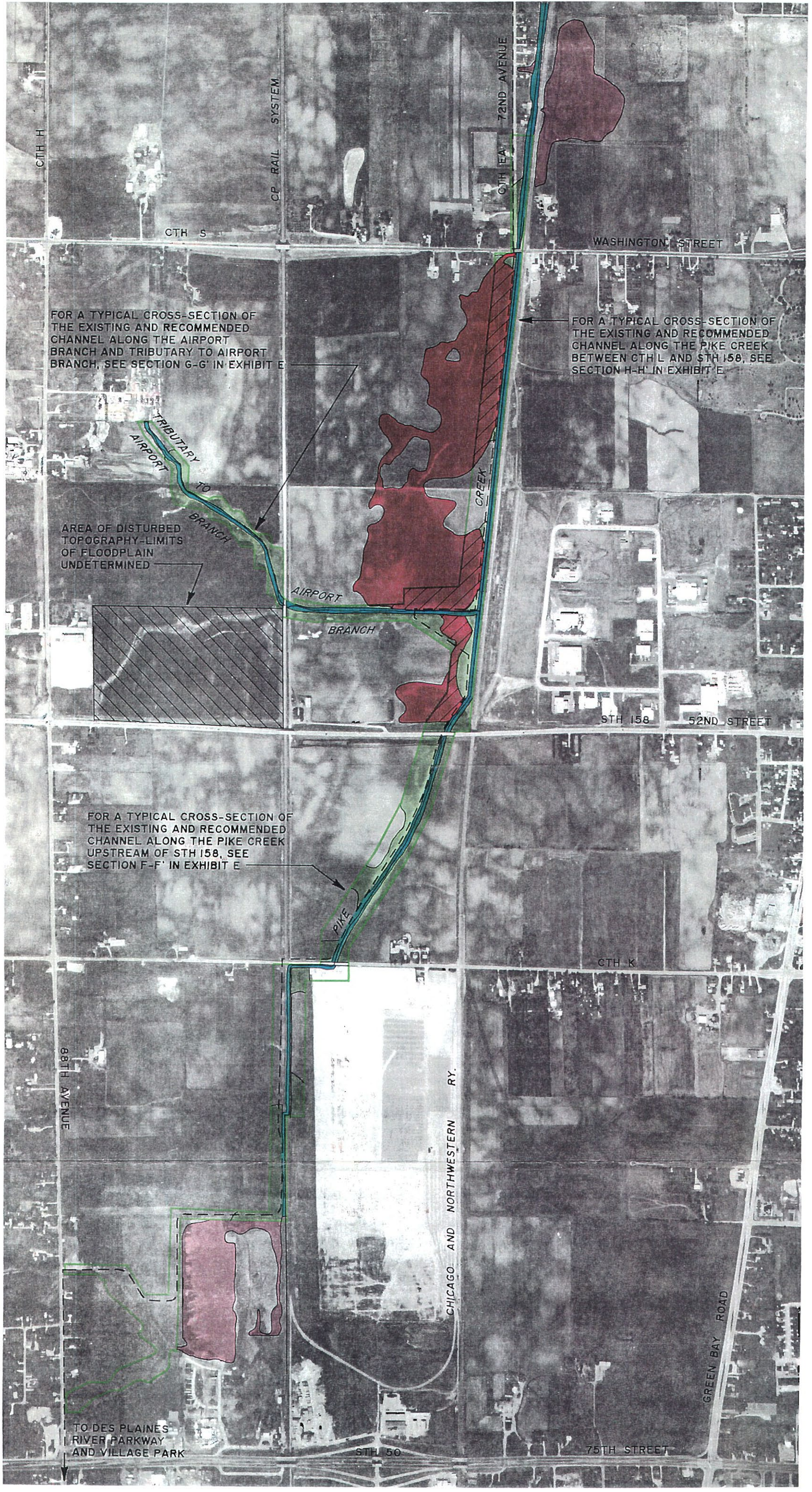
LEGEND

- EXISTING CHANNEL
- PROPOSED FLOOD CHANNEL WITH WETLAND/GRASSLAND RESTORATION AND PROPOSED LOW FLOW CHANNEL
- PROPOSED FLOODWATER STORAGE BASIN WITH WETLAND/GRASSLAND RESTORATION AND PROPOSED LOW FLOW CHANNEL
- AREA OF WETLAND SOILS LOCATED OUTSIDE OF PROPOSED FLOOD CHANNEL AND PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS ANTICIPATED TO REMAIN IN AGRICULTURAL OR OPEN SPACE USE
- RESIDUAL FLOODPLAIN UNDER PLANNED CHANNEL CONDITIONS WHICH WOULD POTENTIALLY BE FILLED AND CONVERTED TO URBAN USE
- PROPOSED RECREATION TRAIL
- PROPOSED PARKWAY BOUNDARY

NOTE:
U THE LOW FLOW CHANNEL DESIGN WOULD PROVIDE FOR A MEANDER ABOUT EVERY 5 TO 15 LOW FLOW CHANNEL WIDTHS (ABOUT EVERY 50 TO 200 FEET).
2.) THE PROVISION OF A SERIES OF MEANDERS SHOULD PROMOTE THE FORMATION OF ALTERNATING POOL AND RIFFLE AREAS.
3.) ADDITIONAL FEATURES SUCH AS WING DEFLECTORS, SILLS, AND A GRAVEL SUBSTRATE CAN BE PROVIDED BASED UPON DETAILED FIELD DESIGN AND PLACEMENT.

GRAPHIC SCALE
0 400 800 1200 FEET

Exhibit D (continued)

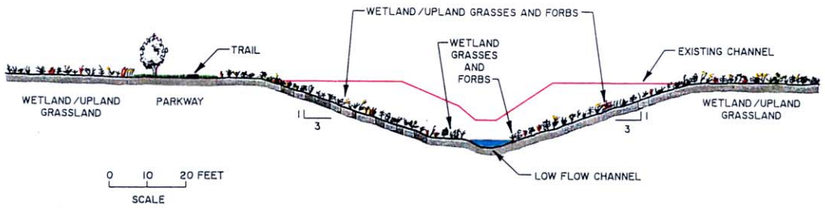


Source: SEWRPC.

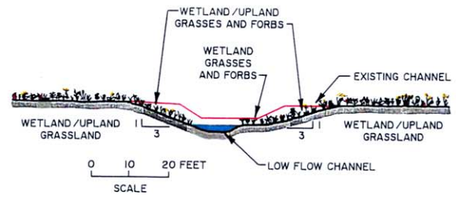
Exhibit E

TYPICAL CROSS-SECTION OF EXISTING AND PROPOSED CHANNEL ALONG PIKE CREEK, AIRPORT BRANCH, AND TRIBUTARY TO AIRPORT BRANCH

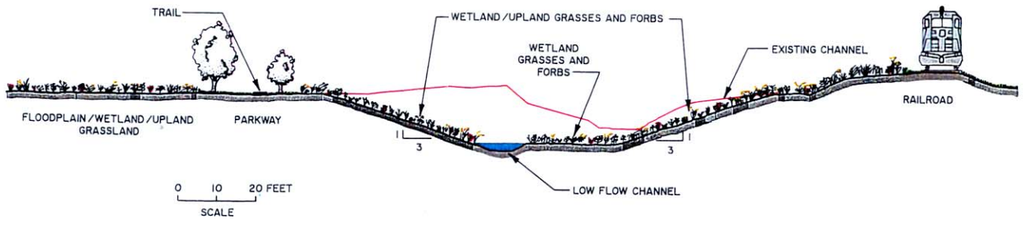
CROSS-SECTION F-F'



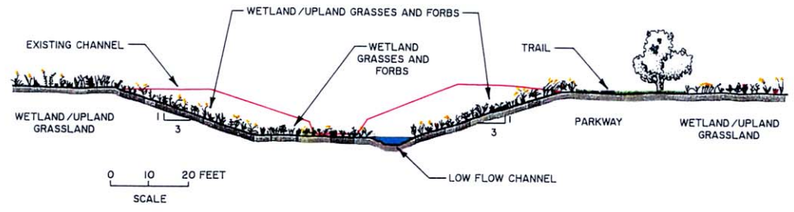
CROSS-SECTION G-G'



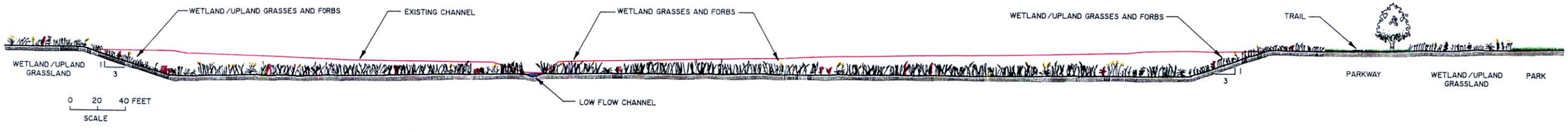
CROSS-SECTION H-H'



CROSS-SECTION I-I'



CROSS-SECTION J-J'



Source: SEWRPC.

of the flood control channel may indicate a need to locally alter the proposed channel side slope and width to avoid utility and easement conflicts.

A low-flow channel as described for Reach 1 of the Upper Pike River would be incorporated into the flood control channel for this reach.

The bottom and lower side slopes of the flood control channel would be planted with wetland vegetation while grasses and forbs would be planted along the remainder of the channel side slope.

Cross-section G-G' on Exhibit E illustrates the proposed channel along these two streams.

REFINEMENTS TO THE FLOOD CONTROL PLAN ELEMENT FOR THE LOWER PIKE RIVER

No refinements are proposed for the flood control plan element of the watershed plan relating to the Lower Pike River. The plan would remain as set forth in SEWRPC Planning Report No. 35 and the June 1987 amendment to that report. During the environmental impact assessment alternatives work group meetings, note was made regarding the severe streambank erosion problems encountered along the Lower Pike River. Those problems have been increasing in recent years as urban development has occurred in upstream areas. Wisconsin Department of Natural Resources staff indicated that the Department is interested in carrying out a streambank restoration project along the Lower Pike River. Therefore, it is recommended that Kenosha County, the City of Kenosha, and the Town of Somers work cooperatively with the Department to identify and correct, on a site-specific basis, streambank erosion problems currently existing. The measures required to control channel erosion would not affect the flood flows and stages as set forth in the watershed plan since those measures should not significantly alter the present channel.

The resulting reduction in erosion due to the proposed streambank stabilization would help to alleviate problems with sedimentation in the Pike River. In this regard, it is reemphasized that communities within the watershed should enact measures to reduce nonpoint source pollutant loadings such as sediment due to construction site erosion.

ESTIMATED COST OF THE REFINED FLOOD CONTROL PLAN ELEMENT FOR THE PIKE RIVER WATERSHED

The estimated capital cost of the recommended flood control plan element for the Upper Pike River, as set forth in the adopted Pike River watershed plan and the June 1987 amendment to that plan, was $1,586,000, expressed in 1980 dollars. The annual operation and maintenance cost was estimated at $7,600. Assuming a project life of 50 years and an annual interest rate of 6 percent, the total average annual cost was estimated at $108,100. The average annual benefits were estimated at $51,900, yielding a benefit-cost ratio of 0.5.

The capital cost of the refined flood control plan element, also expressed in 1980 dollars, is estimated at $3,225,000. The annual operation and maintenance cost is estimated at $6,800, resulting in a total average annual cost of $211,300. The average annual benefits would remain the same, resulting in a benefit-cost ratio of about 0.3. Of the total capital cost, about $353,000 is required for aquatic habitat restoration measures. The average annual cost of the proposed flood control measures without the habitat restoration would be about $188,900, yielding a benefit-cost ratio of about 0.3.

The reduction in the operation and maintenance cost reflects the fact that the use of wetland and prairie vegetation in the flood control channel should eliminate the need for regular mowing of the channel side slopes. Operation and maintenance would be reduced to periodic removal of woody vegetation which could impede streamflow and to the repair of in-stream habitat structures. Expressed in 1994 dollars, the capital cost of the refined plan would be about $5,563,000 and the annual operation and maintenance cost would be about $12,000, resulting in an average annual cost for the project of $364,700.

The estimated capital cost of the recommended flood control plan element for Pike Creek, as set forth in the adopted Pike River watershed plan, was $1,125,000 expressed in 1980 dollars. The annual operation and maintenance cost was estimated at $8,100. Assuming a project life of 50 years and an annual interest rate

of 6 percent, the total average annual cost was estimated at $79,500. The average annual benefits were estimated at $87,800, yielding a benefit-cost ratio of 1.1.

The capital cost of the refined flood control plan element, also expressed in 1980 dollars, is estimated at $3,047,000. The annual operation and maintenance cost is estimated at $6,300, resulting in a total average annual cost of $199,500. The average annual benefits would remain the same, resulting in a benefit-cost ratio of 0.4. Of the total capital cost, about $310,000 is required for aquatic habitat restoration. The total average annual cost of the proposed flood control measures without the habitat restoration would be about $179,800, yielding a benefit-cost ratio of about 0.5.

Expressed in 1994 dollars, the capital cost of the refined plan would be about $6,498,000 and the annual operation and maintenance cost would be about $10,400, resulting in an average annual cost for the project of $422,900.

The estimated capital cost of the recommended flood control plan element for the Airport Branch and the Tributary to the Airport Branch, as set forth in the adopted Pike River watershed plan, was $857,000, expressed in 1980 dollars. The annual operation and maintenance cost was estimated at $1,000. Assuming a project life of 50 years and an annual interest rate of 6 percent, the total average annual cost was estimated at $55,300. No flood damage abatement benefits were computed for these two tributaries since any benefits attendant to the recommended channel modification would be associated with the future development of the industrial park planned for this area by the City of Kenosha. Therefore, no benefit-cost ratio is available for these two streams.

The capital cost of the refined flood control plan element, also expressed in 1980 dollars, is estimated at $626,000. The annual operation and maintenance cost is estimated at $500, resulting in a total average annual cost of $40,200. Of the total capital cost, about $99,000 is required for aquatic habitat restoration. The total average annual cost of the proposed flood control measures without the habitat restoration would be about $36,500.

Expressed in 1994 dollars, the capital cost of the refined plan would be about $1,081,000 and the annual operation and maintenance cost would be about $900, resulting in an average annual cost for the project of $69,400.

The costs outlined above do not include the cost of developing the proposed parkway and recreational trail along the Upper Pike River and Pike Creek since those costs have already been assigned under the regional park and open space plan. Similarly, the above costs do not include the replacement of the bridges at STH 31, CTH KR, and Braun Road along the Upper Pike River and at CTH E, STH 142, and CTH K along Pike Creek. The cost of the bridge reconstruction has been assigned to the highway system improvements recommended in the regional transportation system plan.

CONCLUDING REMARKS AND RECOMMENDATIONS

The flood control plan elements described herein for the Upper Pike River, Pike Creek, the Airport Branch, and the Tributary to Airport Branch, represent a refinement to the flood control element of the adopted Pike River watershed plan. Although not specifically detailed in the systems level planning involved, the watershed plan did include a recommendation that the implementing agencies incorporate habitat restoration measures as part of the detailed design of the recommended channel modifications. Accordingly, those habitat restoration measures were incorporated into the channel configuration along the Upper Pike River as proposed in the preliminary design prepared by Crispell-Snyder, Inc., for the Town of Mt. Pleasant. Two floodwater detention basins have been added to mitigate increases in downstream flooding which may be expected to result from the channelization measures. That increase was specifically noted by the Wisconsin Department of Natural Resources as a cause for concern in its preparation of the environmental impact statement. Also, construction of the proposed channel modifications without these basins would require that legal agreements be concluded with all property owners affected by the increase in flood stage. More stringent regulations in this regard which have been adopted by the State since the preparation of the watershed plan

would serve to increase the number of property owners with which legal agreements would need to be made, making implementation more difficult. Addition of the detention basins addresses both of these concerns.

The refined flood control plan elements for the Pike River watershed offer a reasonable means of addressing the concerns raised in the environmental impact statement process while maintaining the basic recommendations of the adopted watershed plan. Therefore, the Commission staff recommends that the Pike River watershed plan be formally amended to incorporate the refined flood control plan as described in this memorandum. The refined plan, including the proposed parkway, is summarized in graphic form on Exhibit F. Specifically, it is recommended that the Pike River watershed plan be formally amended in the following respects:

1. The previously recommended channel improvement projects for the Upper Pike River, Pike Creek, the Airport Branch and the Tributary to the Airport Branch, as set forth in SEWRPC Planning Report No. 35 and the June 1987 plan amendment, would be revised and amended to include the refined channel modification as described in this memorandum. Furthermore, the economic analyses attendant to those modifications as set forth in Exhibit K on page 20 of the June 1987 plan amendment and Table 103, pages 500 and 501, of SEWRPC Planning Report No. 35, would be revised to include the costs associated with the revised channel modifications. Revised copies of Exhibit K and Table 103 are attached hereto as Exhibits G and H, respectively.

2. The currently recommended plan elements and the planned 100-year recurrence interval floodplain attendant to that plan for the Upper Pike River, Pike Creek, the Airport Branch, and the Tributary to the Airport Branch as originally shown on Exhibit F, pages 14 and 15, of the June 1987 plan amendment, and on Map 80, pages 502 and 503, and Map 82, page 505, of SEWRPC Planning Report No. 35, would be revised to reflect the refined flood control plan. Copies of Exhibit F and Maps 80 and 82 are attached hereto as Exhibits I and J. Maps 80 and 82 have been combined into one map.

3. The planned 100-year recurrence interval floodplain attendant to the currently recommended plan for the Upper Pike River, Pike Creek, the Airport Branch, and the Tributary to the Airport Branch as originally shown on Exhibits G and I, pages 16 and 18, of the June 1987 plan amendment, and Maps G-1, G-2, G-8, G-9, G-11, and G-12, pages 638, 640, 652, 654, and 658, of SEWRPC Planning Report No. 35, would be revised to reflect the refined flood control plan. Copies of Exhibits G, and I, and Maps G-1, G-2, G-8, G-9, G-11, and G-12 are attached hereto as Exhibits K, M, O, Q, S, U, W and Y.

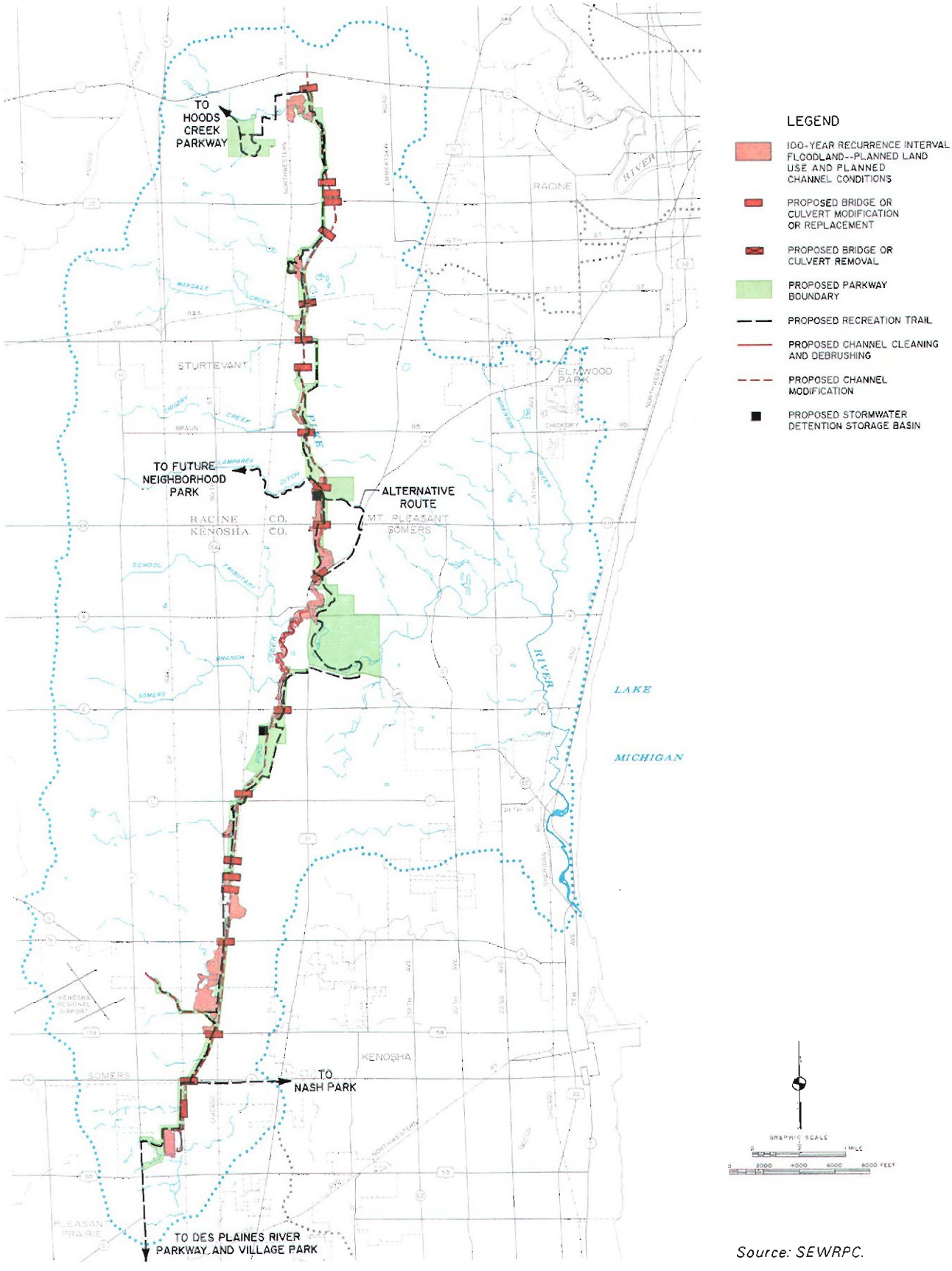
4. The flood stage and streambed cross-sections for the Pike River, Pike Creek, the Airport Branch, and the Tributary to the Airport Branch, as set forth in Exhibits H and J, pages 17 and 19, of the June 1987 plan amendment, and Figures G-1, G-2, G-8, G-9, G-11, and G-12, pages 639, 641, 653, 655, and 659, of SEWRPC Planning Report No. 35, would be revised to reflect the refined flood control elements recommended in this plan amendment. Copies of revised Exhibits H and J, and Figures G-1, G-2, G-8, G-9, G-11, and G-12 are attached hereto as Exhibits L, N, P, R, T, V, X, and Z.

5. The hydrologic-hydraulic tables for the Pike River, Pike Creek, and the Airport Branch as set forth in Tables E-1, E-2, E-6, and E-8, pages 624, 625, 627, and 628 of SEWRPC Planning Report No. 35, would be revised to reflect the more recently adopted year 2010 land use plan with existing channel conditions. Copies of revised Tables E-1, E-2, E-6, and E-8 are attached hereto as Exhibits AA, AB, AC, and AD.

6. The hydrologic-hydraulic summary tables for the Pike River, Pike Creek, and the Airport Branch, as set forth in Tables F-1, F-2, F-6, and F-8, pages 631, 632, 634, and 635, of SEWRPC Planning Report No. 35, would be revised to reflect the refined flood control plan. Copies of revised Tables E-1, E-2, E-6, and E-8 are attached hereto as Exhibits AE, AF, AG, and AH.

Exhibit F

RECOMMENDED FLOODLAND MANAGEMENT PLAN ELEMENT FOR THE UPPER PIKE RIVER AND PIKE CREEK SUBWATERSHEDS: 2010



Source: SEWRPC.

Exhibit G

SUMMARY OF CAPITAL AND OPERATION AND MAINTENANCE COSTS OF THE RECOMMENDED FLOODLAND MANAGEMENT PLAN FOR THE UPPER PIKE RIVER SUBWATERSHED: PIKE RIVER AND BARTLETT BRANCH

Stream	Plan Element	Estimated Cost[a]	
		Capital	Annual Operation and Maintenance
Pike River	Channel improvement		
	Channel widening and deepening, CTH C to Oaks Road	$ 152,000	$ 900
	Channel widening and deepening, Oakes Road to CTH KR	853,000[b]	1,700
	Channel widening and deepening, CTH KR to River Mile 10.80	42,000	200
	Subtotal	$1,047,000	$2,800
	Flood detention storage		
	Detention basin upstream of CTH KR	$1,137,000	$4,000
	Bridge modification or replacement, required for flood control and charged to watershed plan		
	Farm bridge downstream of confluence with Lamparek Ditch	$ 2,000	--
	Farm bridge downstream of STH 11	2,000	--
	STH 11	70,000	--
	Former Chicago, Milwaukee, St. Paul & Pacific Railroad upstream of STH 11	4,000	--
	Oakes Road	94,000	--
	STH 20	186,000	--
	Two private bridges upstream of STH 20	186,000	--
	Spring Street	144,000	--
	Subtotal	$ 688,000	--
	Bridge replacement, required for transportation and flood control and charged to transportation plan		
	STH 31	$ 180,000	--
	CTH KR	120,000	--
	Braun Road	360,000	--
	Subtotal	$ 660,000	--
	Aquatic habitat restoration		
	CTH C to Oakes Road	$ 119,000	--
	Oakes Road to CTH KR	212,000	--
	CTH KR to River Mile 10.80	22,000	--
	Subtotal	$ 353,000	--
	Summary		
	Charged to transportation plan	$ 660,000[c]	--
	Charged to watershed plan	3,225,000[c]	$6,800[c]
	Total	$3,885,000[c]	$6,800[c]
	Benefit cost analysis		
	Average annual benefits		
	Structural damages	$ 37,900	--
	Crop damages	14,000	--
	Total	$ 51,900	--

Exhibit G (continued)

Stream	Plan Element	Estimated Cost[a]	
		Capital	Annual Operation and Maintenance
Pike River (continued)	Average annual costs		
	At 6 percent rate of return	$ 211,300	--
	At 10 percent rate of return	332,200	--
	Benefit-cost ratio		
	At 6 percent rate of return	0.25	--
	At 10 percent rate of return	0.16	--
Bartlett Branch	Dike upstream of Spring Street	$ 37,900	$ 300
	Structure floodproofing and elevation		
	Floodproofing of seven structures	$ 27,600	--
	Elevation of four structures	68,900	--
	Subtotal	$ 96,000	--
	Summary		
	Charged to watershed plan	$ 134,400[d]	$ 300[d]
	Benefit-cost analysis		
	Average annual benefits		
	Structural damages	$ 25,600	--
	Crop damages	--	--
	Total	$ 25,600	--
	Average annual costs		
	At 6 percent rate of return	$ 8,800	--
	At 10 percent rate of return	13,700	--
	Benefit-cost ratio		
	At 6 percent rate of return	2.91	--
	At 10 percent rate of return	1.87	--

NOTE: Costs identified as chargeable to the transportation plan are not included in the benefit-cost analysis.

[a]*Expressed in 1980 dollars.*

[b]*Includes cost of streambank stabilization measures along 0.25-mile-long reach downstream of Durand Avenue (STH 11).*

[c]*Expressed in 1994 dollars, the total capital cost of the plan is estimated at $6,701,000, of which $5,563,000 would be charged to the watershed plan, and $1,138,000 would be charged to the transportation plan. Annual operation and maintenance costs would be about $12,000 per year.*

[d]*Expressed in 1994 dollars, the total capital cost of the plan is estimated at $232,000, with an annual operation and maintenance costs estimated at about $500 per year.*

Source: SEWRPC.

Exhibit H

SUMMARY OF CAPITAL AND OPERATION AND MAINTENANCE COSTS OF THE RECOMMENDED FLOODLAND MANAGEMENT PLAN FOR THE PIKE CREEK SUBWATERSHED: PIKE CREEK, SOMERS BRANCH, AIRPORT BRANCH, AND TRIBUTARY TO AIRPORT BRANCH

Stream	Plan Element	Estimated Cost[a]	
		Capital	Annual Operation and Maintenance
Pike Creek	Channel improvement		
	Channel widening and deepening, CTH E to STH 158 (3.8 miles)	$ 657,000	$1,700
	Channel widening and deepening, STH 158 to CTH K (0.6 mile)	101,000	300
	Channel construction, upstream of CTH K (0.6 mile)	56,000	300
	Subtotal	$ 814,000	$2,300
	Floodwater detention storage		
	Detention basin upstream of CTH E	$1,533,000	$4,000
	Bridge replacement, required for flood control and charged to watershed plan		
	Somers solid waste transfer station		
	Upstream of CTH L	$ 87,000	--
	Three farm bridges upstream of STH 42	9,000	--
	CP Rail System	54,000	--
	STH 158	240,000	--
	Subtotal	$ 390,000	--
	Bridge replacement, required for transportation and flood control and charged to transportation plan		
	CTH E	$ 240,000	--
	STH 142	270,000	--
	CTH K	210,000	--
	Subtotal	$ 720,000	--
	Aquatic habitat restoration		
	CTH E to STH 158 (3.8 miles)	$ 239,000	--
	STH 158 to CTH K (0.6 mile)	35,000	--
	Upstream of CTH K (0.6 mile)	36,000	--
	Subtotal	$ 310,000	--
	Cost Summary		
	Charged to watershed plan	$3,047,000[b]	$6,300[b]
	Charged to transportation plan	720,000[b]	--
	Total	$3,767,000[b]	$6,300[b]
	Benefit cost analysis		
	Average annual benefits		
	Structural damages	$ 31,500	--
	Crop damages	56,300	--
	Total	$ 87,800	--
	Average annual costs		
	At 6 percent rate of return	$ 199,500	--
	At 10 percent rate of return	313,700	--

Exhibit H (continued)

Stream	Plan Element	Estimated Cost[a] Capital	Estimated Cost[a] Annual Operation and Maintenance
Pike Creek (continued)	Benefit-cost ratio		
	At 6 percent rate of return	0.44	--
	At 10 percent rate of return	0.28	--
Somers Branch	Structure floodproofing and elevation		
	Floodproofing of three structures	$ 11,400	--
	Elevation of two structures	42,100	--
	Total	$ 53,500[c]	--
	Benefit-cost analysis		
	Average annual benefits		
	Structural damages	$ 4,200	--
	Average annual costs		
	At 6 percent rate of return	$ 3,400	--
	At 10 percent rate of return	5,400	--
	Benefit-cost ratio		
	At 6 percent rate of return	1.24	--
	At 10 percent rate of return	0.78	--
Airport Branch and Tributary to Airport Branch	Channel improvements		
	Channel widening and deepening along Tributary to Airport Branch upstream from confluence with Airport Branch (0.5 mile) and diversion channel from Kenosha Municipal Airport east of STH 192 (0.3 mile)	$ 31,000	$ 300
	Channel widening and deepening along Airport Branch downstream of CP Rail System to confluence with Pike Creek (0.4 mile)	38,000	200
	Subtotal	$ 69,000	$ 500
	Bridge replacement		
	CP Rail System	$ 498,000	--
	Aquatic habitat restoration		
	Tributary to Airport Branch (0.5 mile)	$ 33,000	--
	Airport Branch (0.4 mile)	26,000	--
	Subtotal	$ 59,000	--
	Cost summary		
	Charged to watershed plan	$ 626,000[d]	$ 500[d]
	Benefit-cost analysis		
	No benefit-cost analysis was conducted for this element of the watershed plan. Any benefits attendant to these flood control measures would be associated with the future development of an industrial park east of the Kenosha Municipal Airport. Any decision to undertake these proposed improvements would necessarily have to consider such benefits at the time development of the industrial park was imminent	--	--

FOOTNOTES TO EXHIBIT H

NOTE: Costs identified as chargeable to the transportation plan are not included in the benefit-cost analysis.

[a]*Expressed in 1980 dollars.*

[b]*Expressed in 1994 dollars, the total capital cost of the plan is estimated at $6,498,000, of which $5,256,000 would be charged to the watershed plan and $1,242,000 would be charged to the transportation plan. Annual operation and maintenance costs would be about $10,900 per year.*

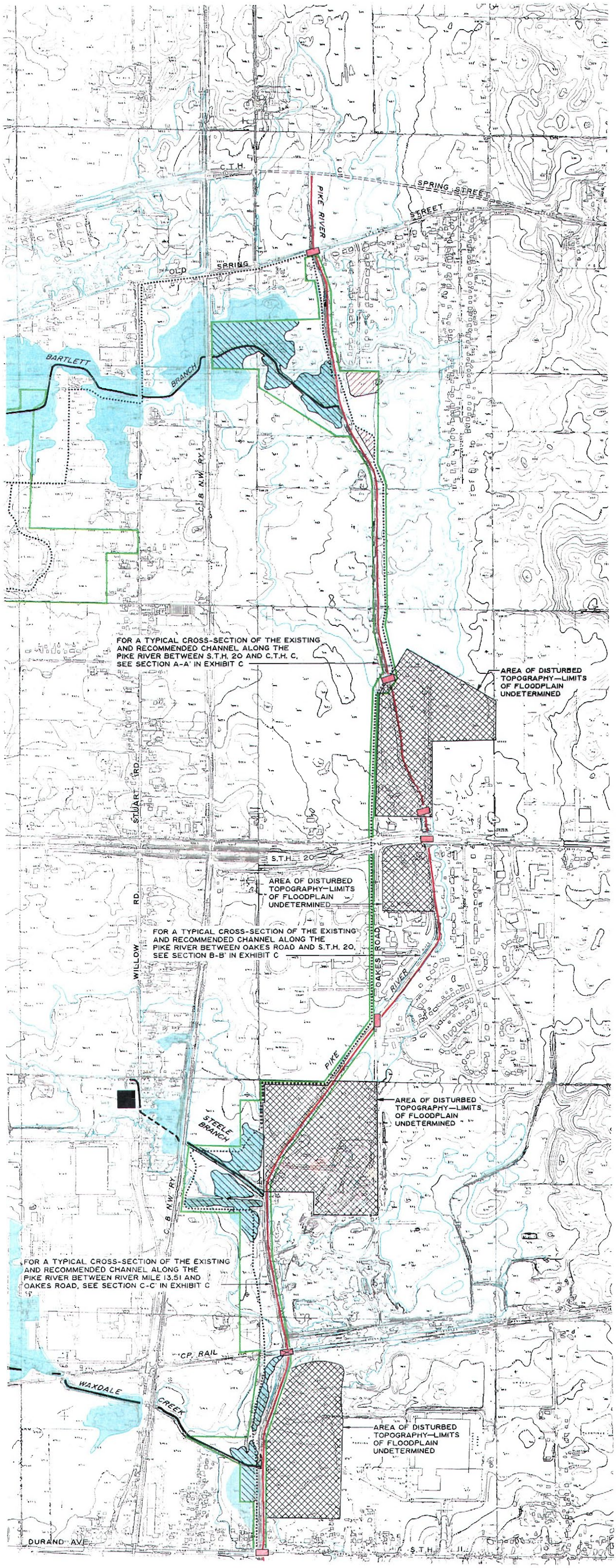
[c]*Expressed in 1994 costs, the total capital cost of the plan is estimated at $92,300.*

[d]*Expressed in 1994 dollars, the total capital cost of the plan is estimated at $1,081,000, with annual operation and maintenance costs at about $900 per year.*

Source: SEWRPC.

Exhibit I

RECOMMENDED STRUCTURAL FLOODLAND MANAGEMENT MEASURES ALONG THE UPPER PIKE RIVER



LEGEND

- 100-YEAR RECURRENCE INTERVAL FLOODLANDS—PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS—PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS
- AREA WITH WETLAND SOILS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- EXISTING CHANNEL
- PROPOSED CHANNEL ENLARGEMENT WITH WETLAND/GRASSLAND RESTORATION
- PROPOSED BRIDGE OR CULVERT MODIFICATION OR REPLACEMENT
- PROPOSED BRIDGE REMOVAL
- PROPOSED DETENTION STORAGE RESERVOIR WITH WETLAND/GRASSLAND RESTORATION
- PROPOSED STORMWATER DETENTION STORAGE AREA TO BE RETAINED
- PROPOSED RECREATION TRAIL
- PROPOSED PIKE RIVER PARKWAY BOUNDARY

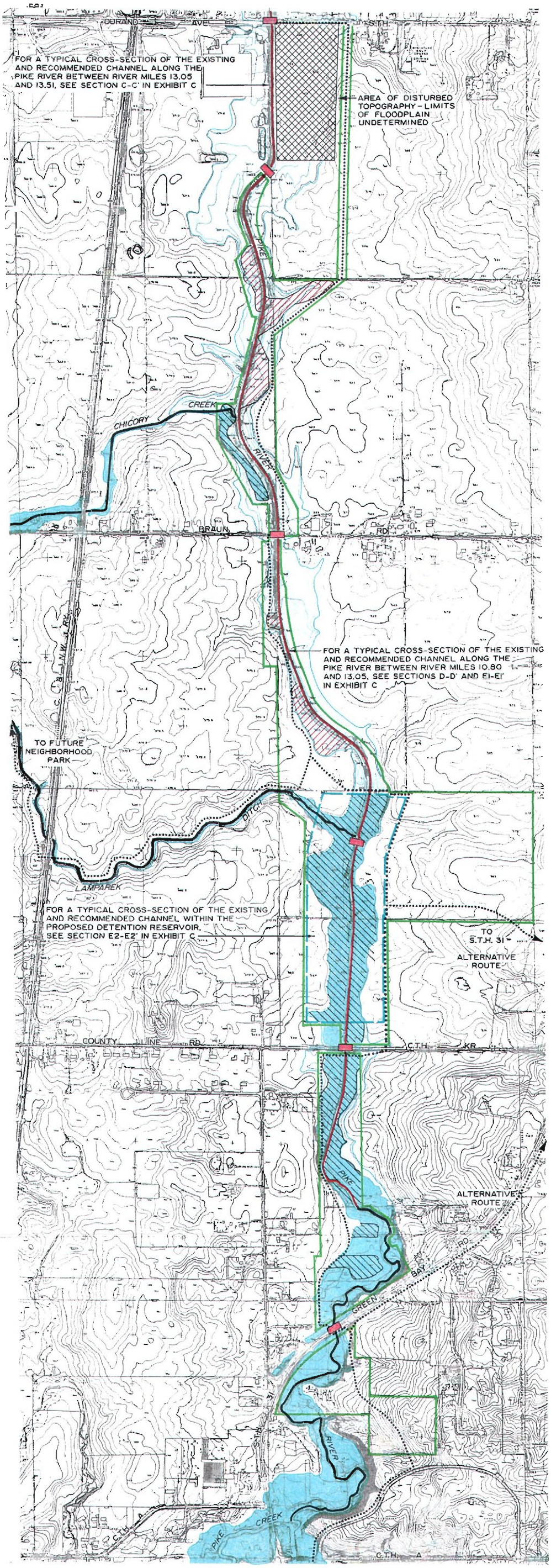
NOTE: 1. NOT SHOWN ON THIS MAP IS A PROPOSED MEANDERING LOW-FLOW CHANNEL TO BE CONSTRUCTED ALONG THE BOTTOM OF THE PROPOSED FLOOD CONTROL CHANNEL AND DETENTION RESERVOIR. SEE EXHIBIT B FOR A DETAIL OF THIS LOW-FLOW CHANNEL.

2. THIS EXHIBIT REPLACES MAP 84 ON PAGE 510 IN SEWRPC PLANNING REPORT NO. 35 AND EXHIBIT F IN SEWRPC AMENDMENT TO THE PIKE RIVER WATERSHED PLAN—TOWN OF MT. PLEASANT, JUNE 1987.

GRAPHIC SCALE

0 400 800 1200 FEET

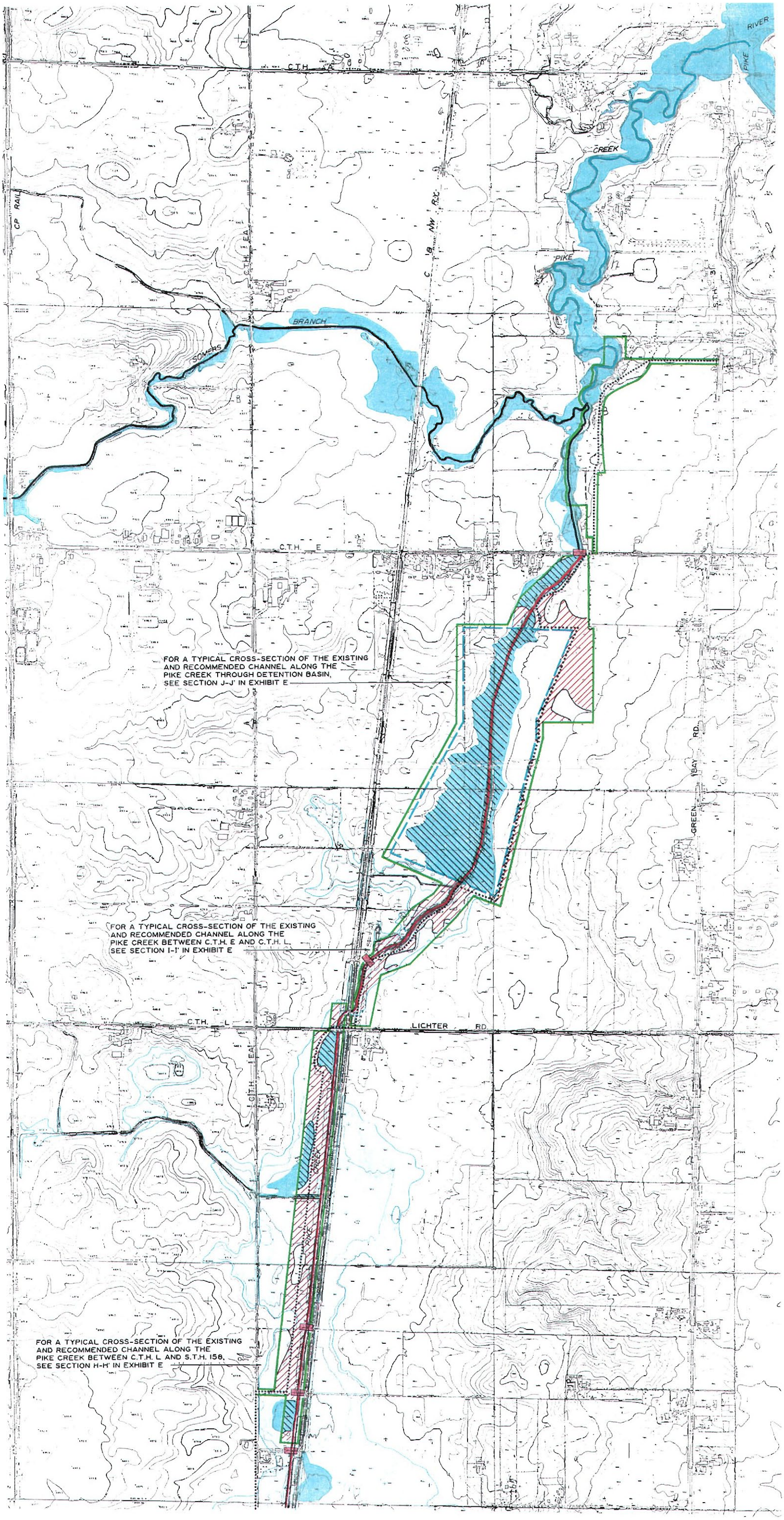
Exhibit I (continued)



Source: SEWRPC.

Exhibit J

RECOMMENDED STRUCTURAL FLOODLAND MANAGEMENT MEASURES ALONG THE PIKE CREEK, THE AIRPORT BRANCH, AND THE TRIBUTARY TO AIRPORT BRANCH



LEGEND

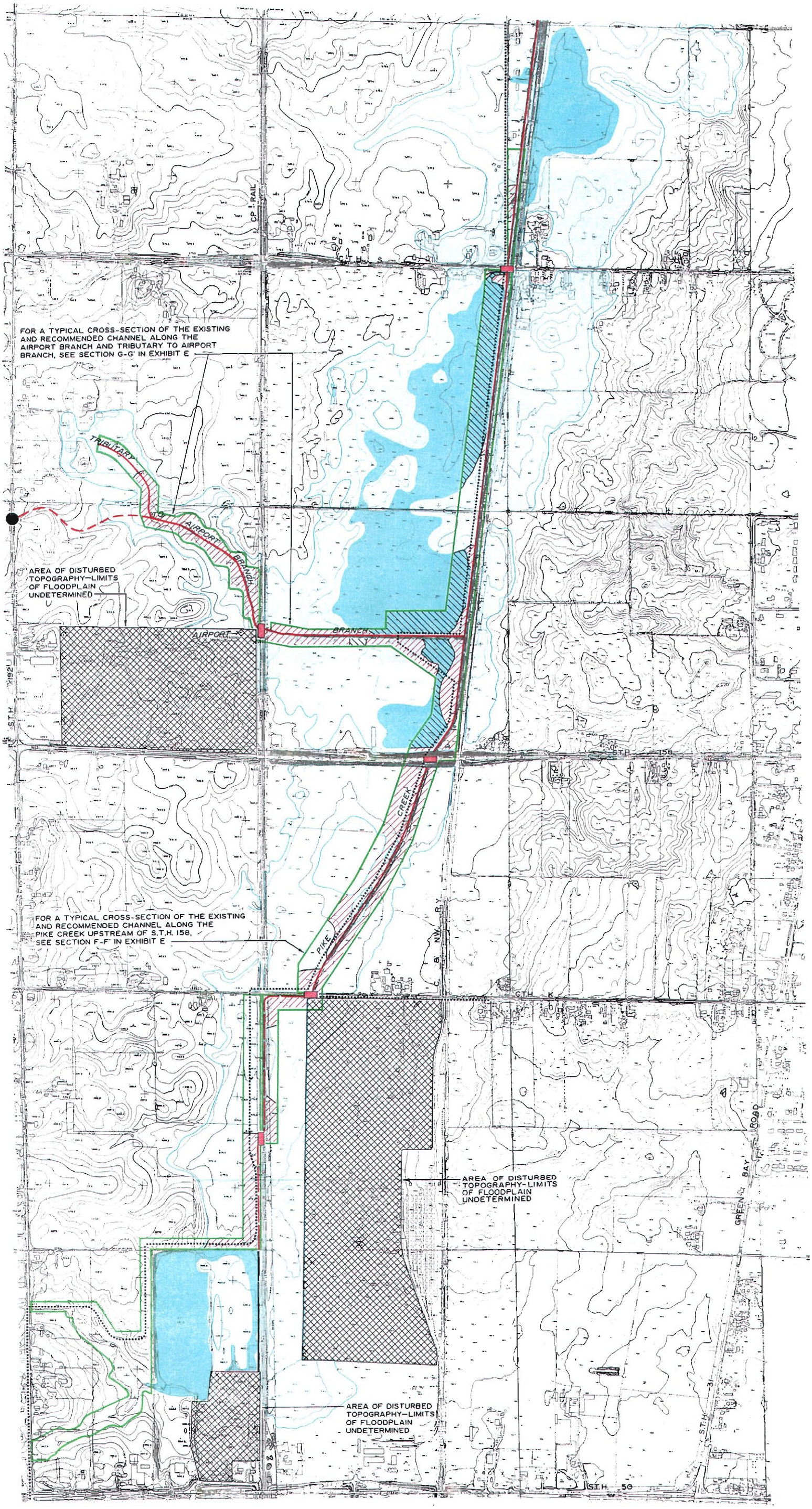
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS—PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS—PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS
- AREA WITH WETLAND SOILS PROPOSED FOR WETLAND/GRASSLAND RESTORATION
- EXISTING CHANNEL
- EXISTING CULVERT
- PROPOSED CHANNEL ENLARGEMENT WITH WETLAND/GRASSLAND RESTORATION
- PROPOSED MAJOR CHANNELIZATION WITH WETLAND/GRASSLAND RESTORATION
- PROPOSED CHANNEL CLEARING AND DEBRUSHING
- PROPOSED GRASS WATERWAY
- PROPOSED BRIDGE OR CULVERT MODIFICATION OR REPLACEMENT
- PROPOSED DETENTION STORAGE RESERVOIR WITH WETLAND/GRASSLAND RESTORATION
- PROPOSED RECREATION TRAIL
- PROPOSED PIKE CREEK PARKWAY BOUNDARY

NOTE: 1. NOT SHOWN ON THIS MAP IS A PROPOSED MEANDERING LOW-FLOW CHANNEL TO BE CONSTRUCTED ALONG THE BOTTOM OF THE PROPOSED FLOOD CONTROL CHANNEL AND DETENTION RESERVOIR. SEE EXHIBIT B FOR A DETAIL OF THIS LOW-FLOW CHANNEL.

2. THIS EXHIBIT REPLACES MAP 80 ON PAGES 502 AND 503 AND MAP 82 ON PAGE 505 IN SEWRPC PLANNING REPORT NO. 35.

GRAPHIC SCALE

0 400 800 1200 FEET



Source: SEWRPC.

Exhibit K

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG THE PIKE RIVER (RIVER MILE 0.00 TO 4.50)

LEGEND

10 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING

100-YEAR RECURRENCE INTERVAL FLOODLANDS-- PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-1 ON PAGE 638 IN SEWRPC PLANNING REPORT NO. 35 AND EXHIBIT C ON PAGE 8 IN AMENDMENT TO THE PIKE RIVER WATERSHED PLAN- TOWN OF SOMERS, JUNE 1987.

GRAPHIC SCALE

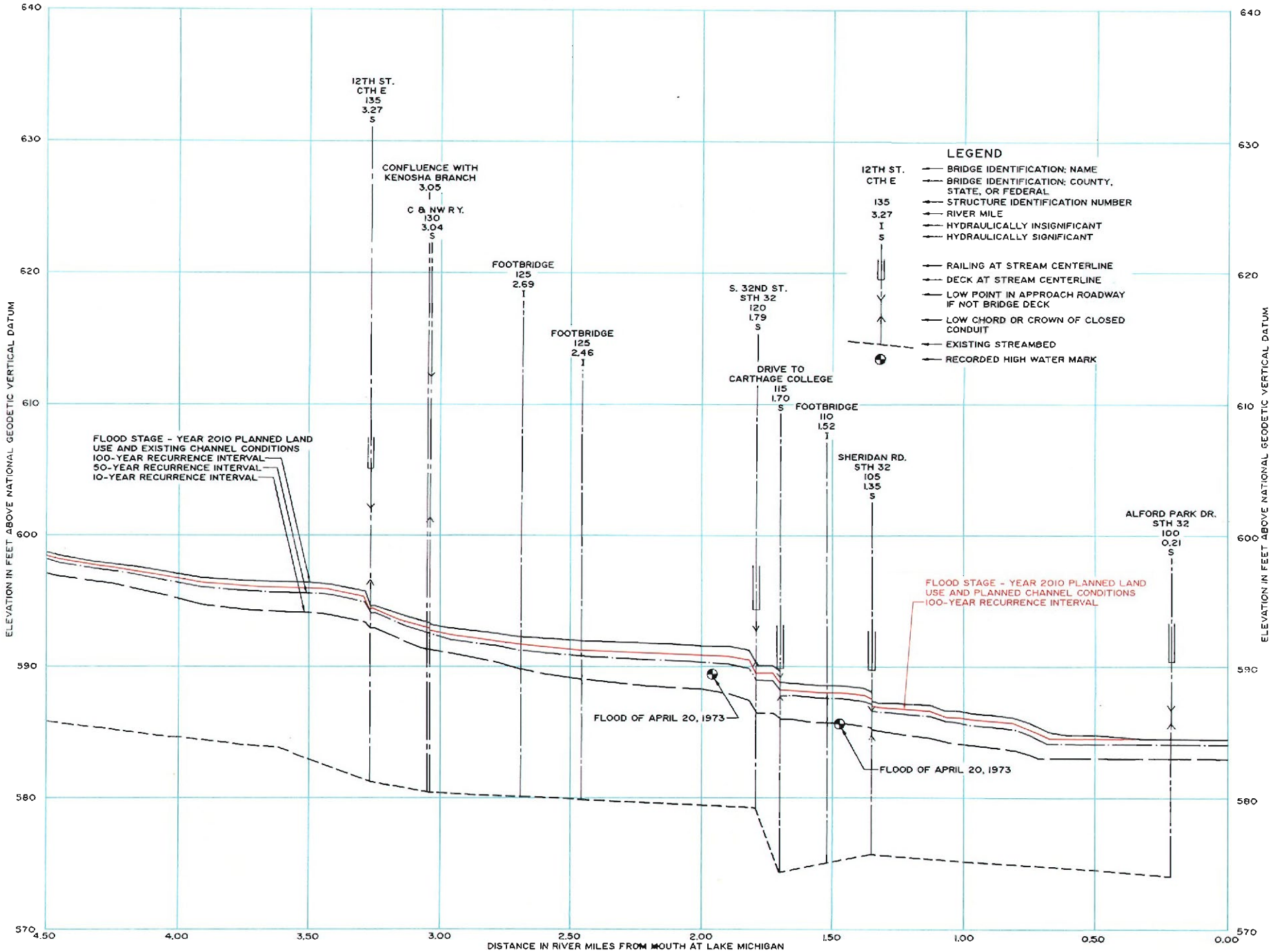
0 1/2 1 MILE

DATE OF PHOTOGRAPHY: APRIL 1990

Source: SEWRPC.

Exhibit L

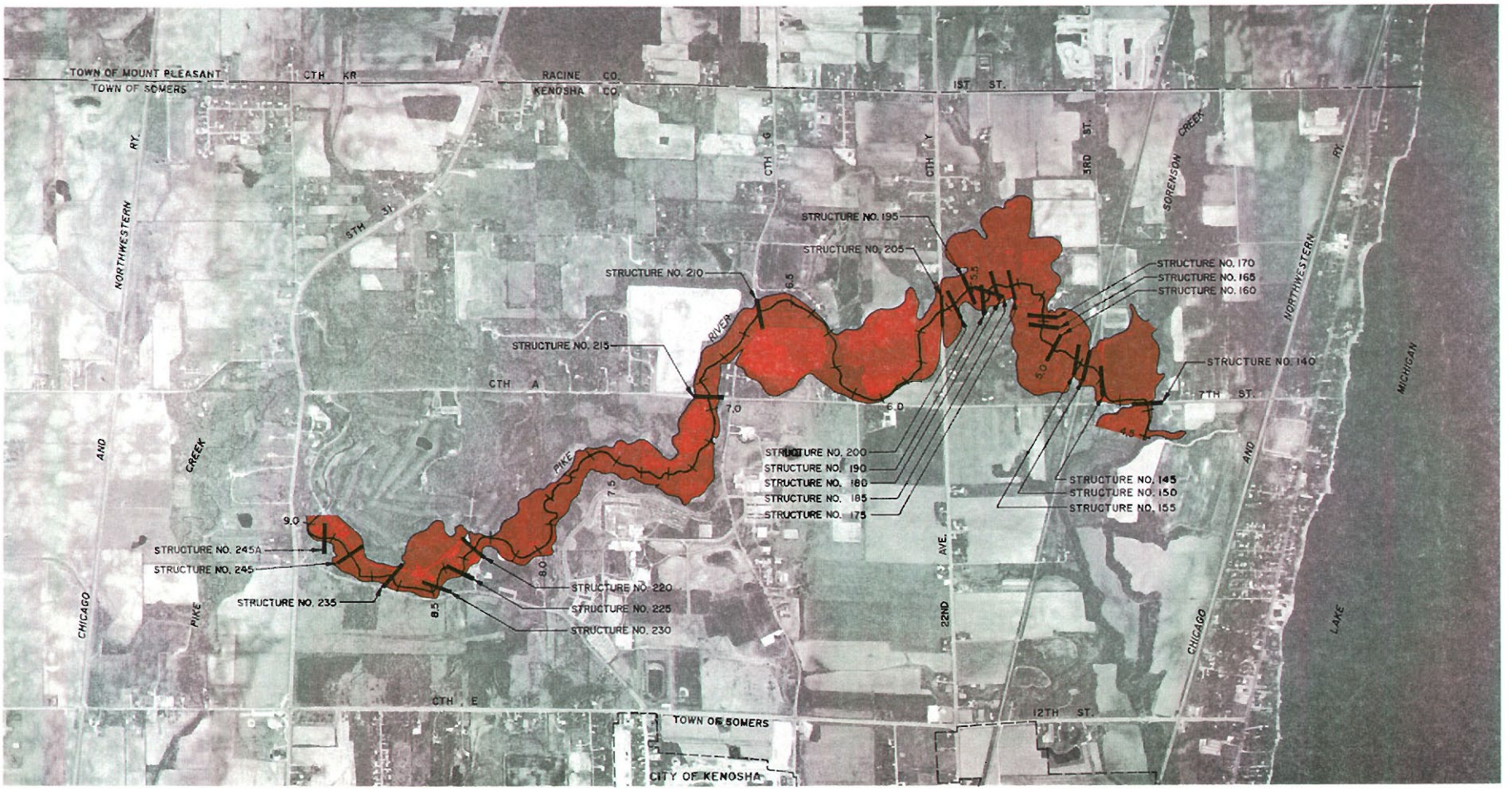
FLOOD STAGE AND STREAMBED PROFILE FOR THE PIKE RIVER (RIVER MILE 0.00 TO 4.50)



Source: SEWRPC.

Exhibit M

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG THE PIKE RIVER (RIVER MILE 4.50 TO 9.00)



LEGEND

7.0 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING

100-YEAR RECURRENCE INTERVAL FLOODLANDS--PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-2 ON PAGE 640 IN SEWRPC PLANNING REPORT NO. 35

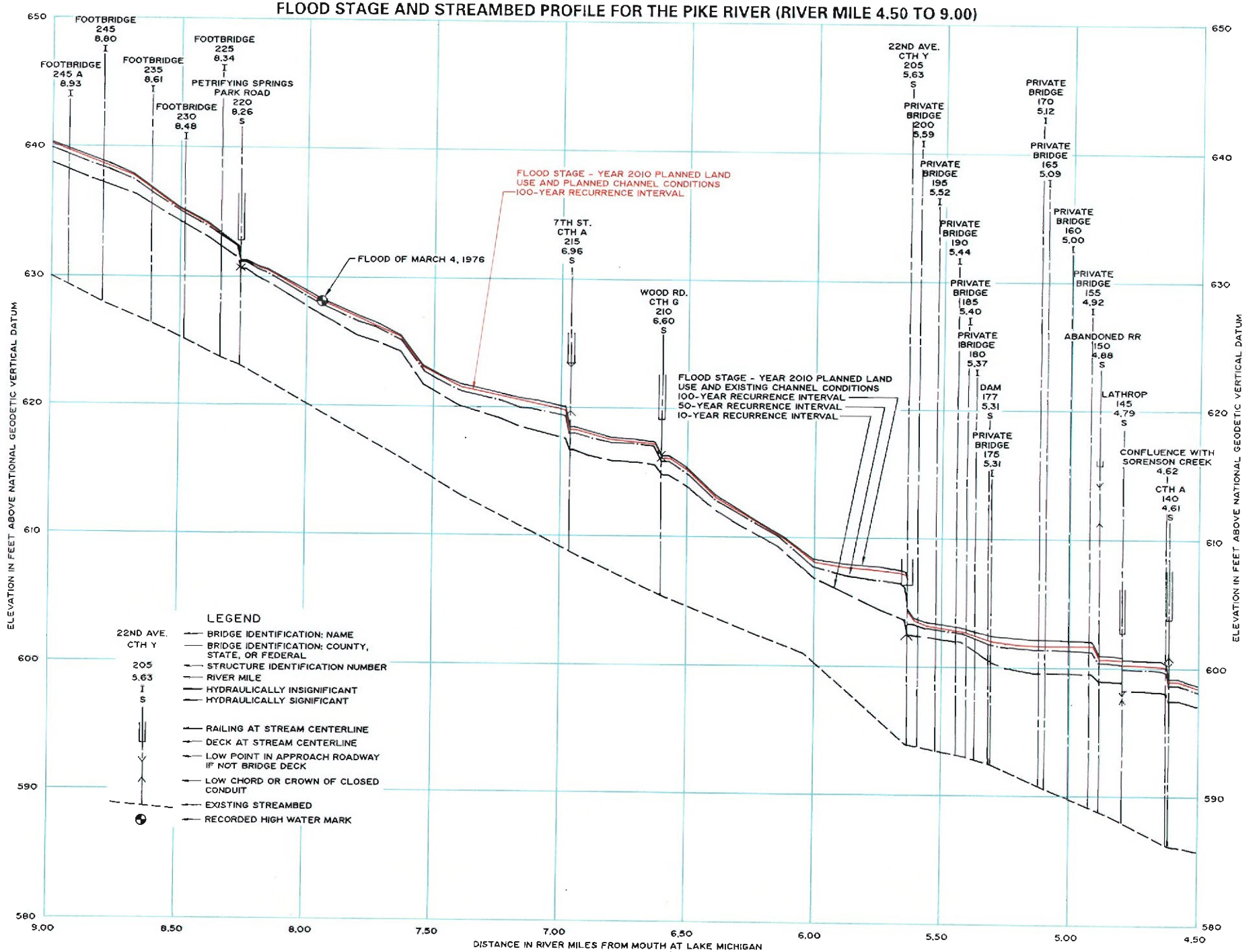
GRAPHIC SCALE

0 1/2 1 MILE

DATE OF PHOTOGRAPHY: APRIL 1990

Source: SEWRPC.

Exhibit N



Source: SEWRPC.

Exhibit O

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG THE PIKE RIVER (RIVER MILE 9.00 TO 13.50)

LEGEND

- 9.00 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS--PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-3 ON PAGE 642 IN SEWRPC PLANNING REPORT NO. 35 AND EXHIBIT G ON PAGE 16 IN AMENDMENT TO THE PIKE RIVER WATERSHED PLAN- TOWN OF MOUNT PLEASANT, JUNE 1987.

GRAPHIC SCALE

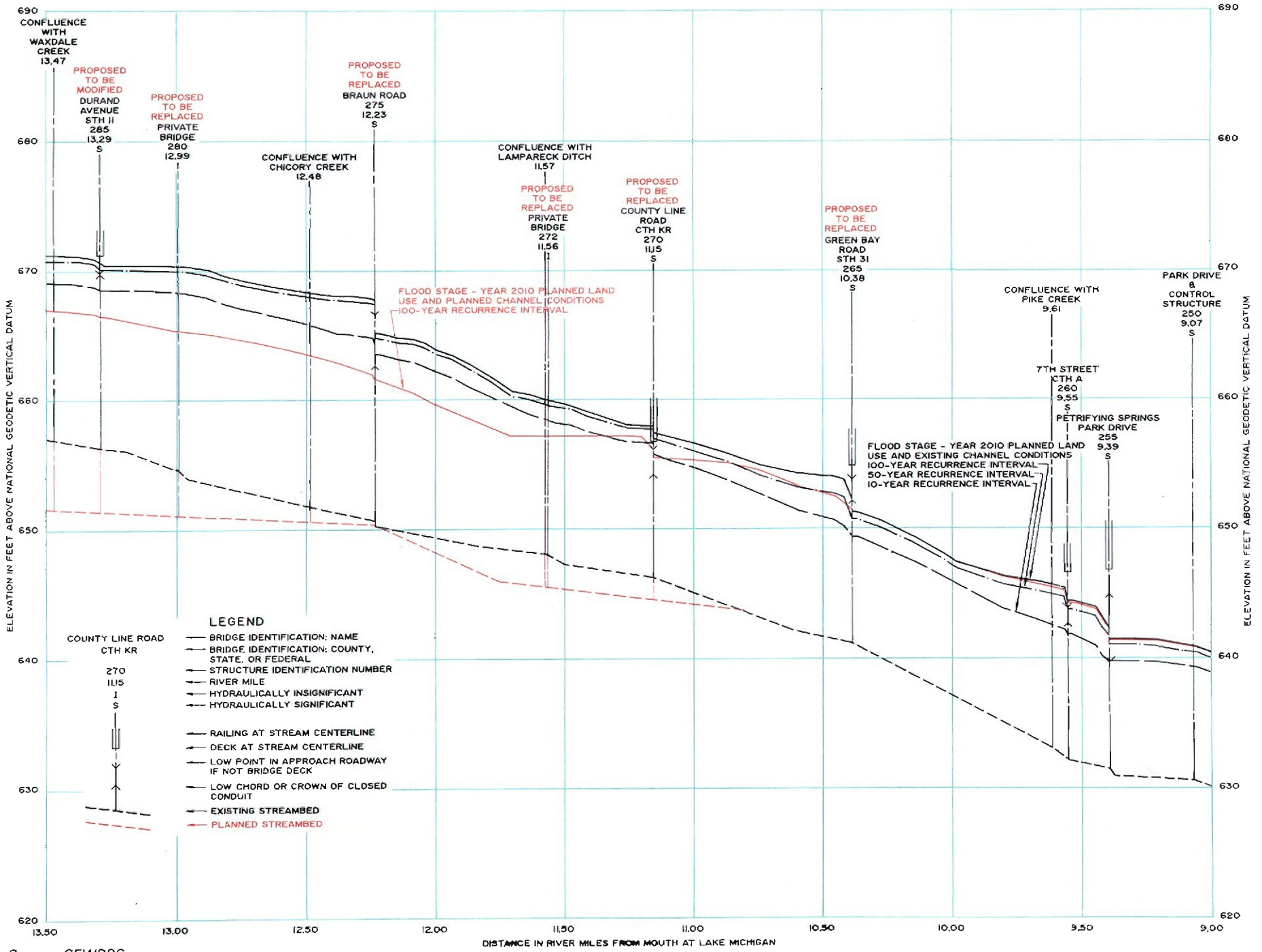
0 1/2 1 MILE

DATE OF PHOTOGRAPHY APRIL 1990

Source: SEWRPC.

Exhibit P

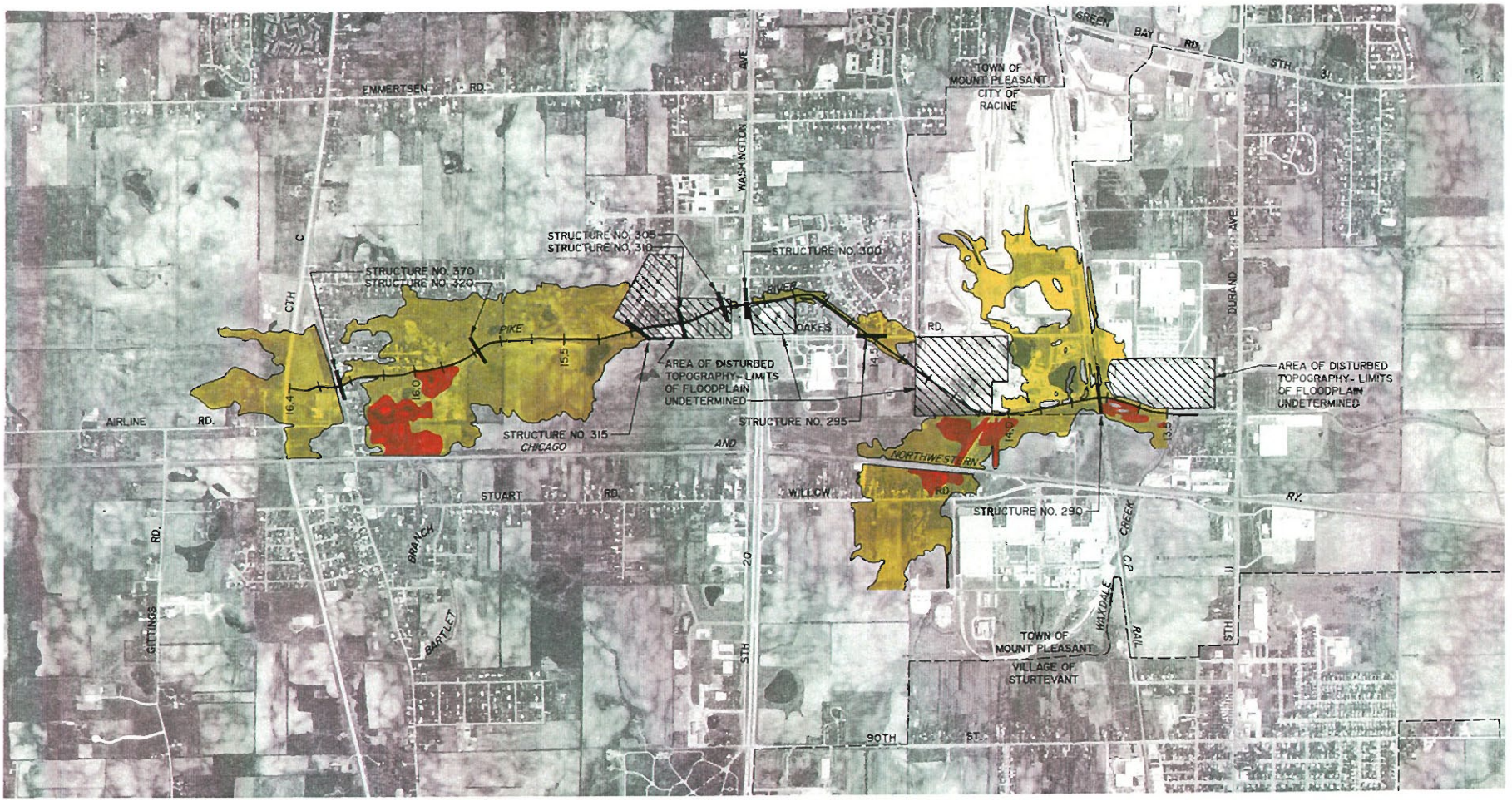
FLOOD STAGE AND STREAMBED PROFILE FOR THE PIKE RIVER(RIVER MILE 9.00 TO 13.50)



Source: SEWRPC.

Exhibit Q

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG THE PIKE RIVER (RIVER MILE 13.50 TO 16.40)



LEGEND

16.0 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING

100-YEAR RECURRENCE INTERVAL FLOODLANDS--PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-4 ON PAGE 644 IN SEWRPC PLANNING REPORT NO. 35 AND EXHIBIT I ON PAGE 18 IN AMENDMENT TO THE PIKE RIVER WATERSHED PLAN- TOWN OF MOUNT PLEASANT, JUNE 1987.

GRAPHIC SCALE

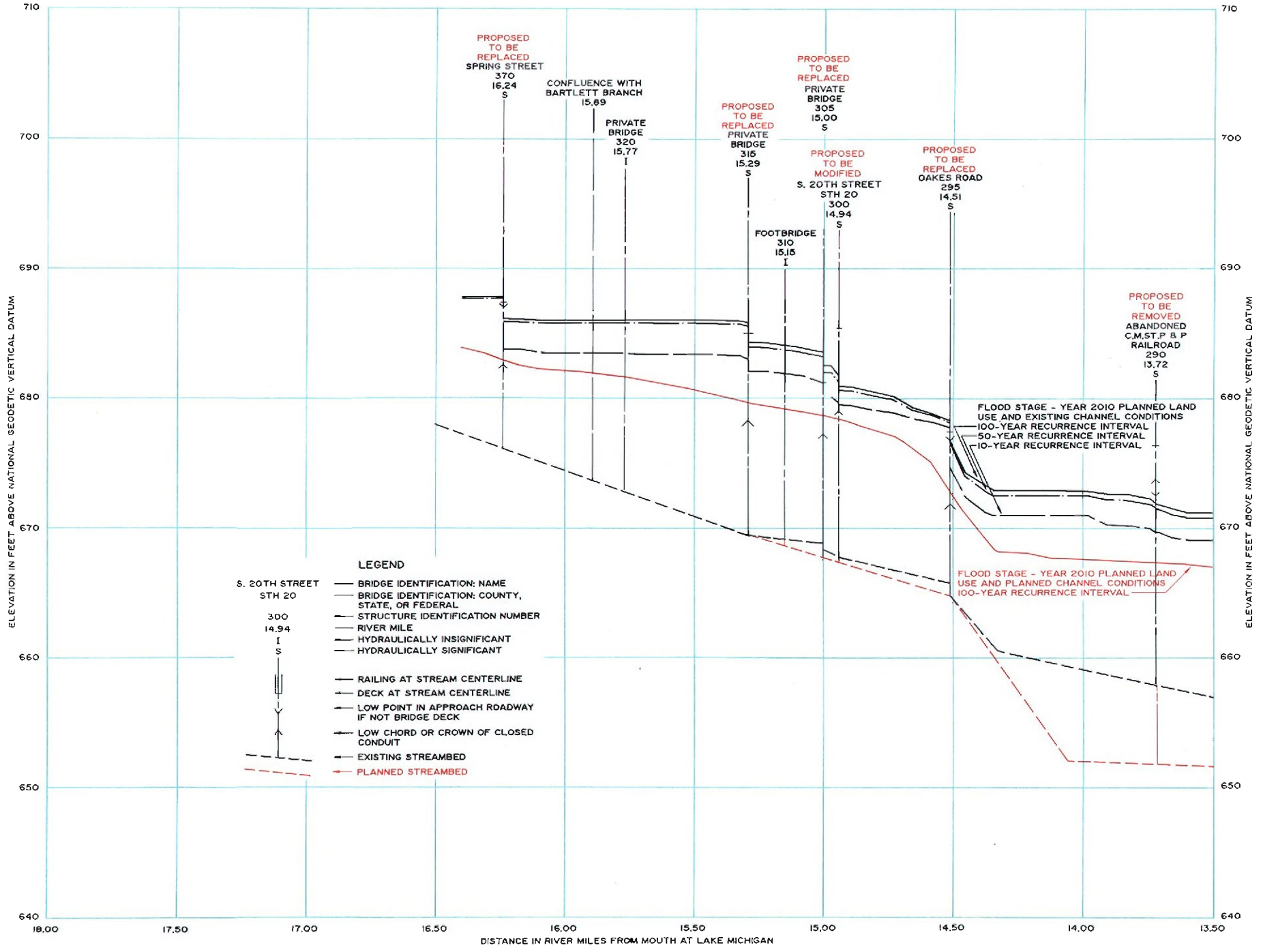
0 1/2 1 MILE

DATE OF PHOTOGRAPHY: APRIL 1990

Source: SEWRPC.

Exhibit R

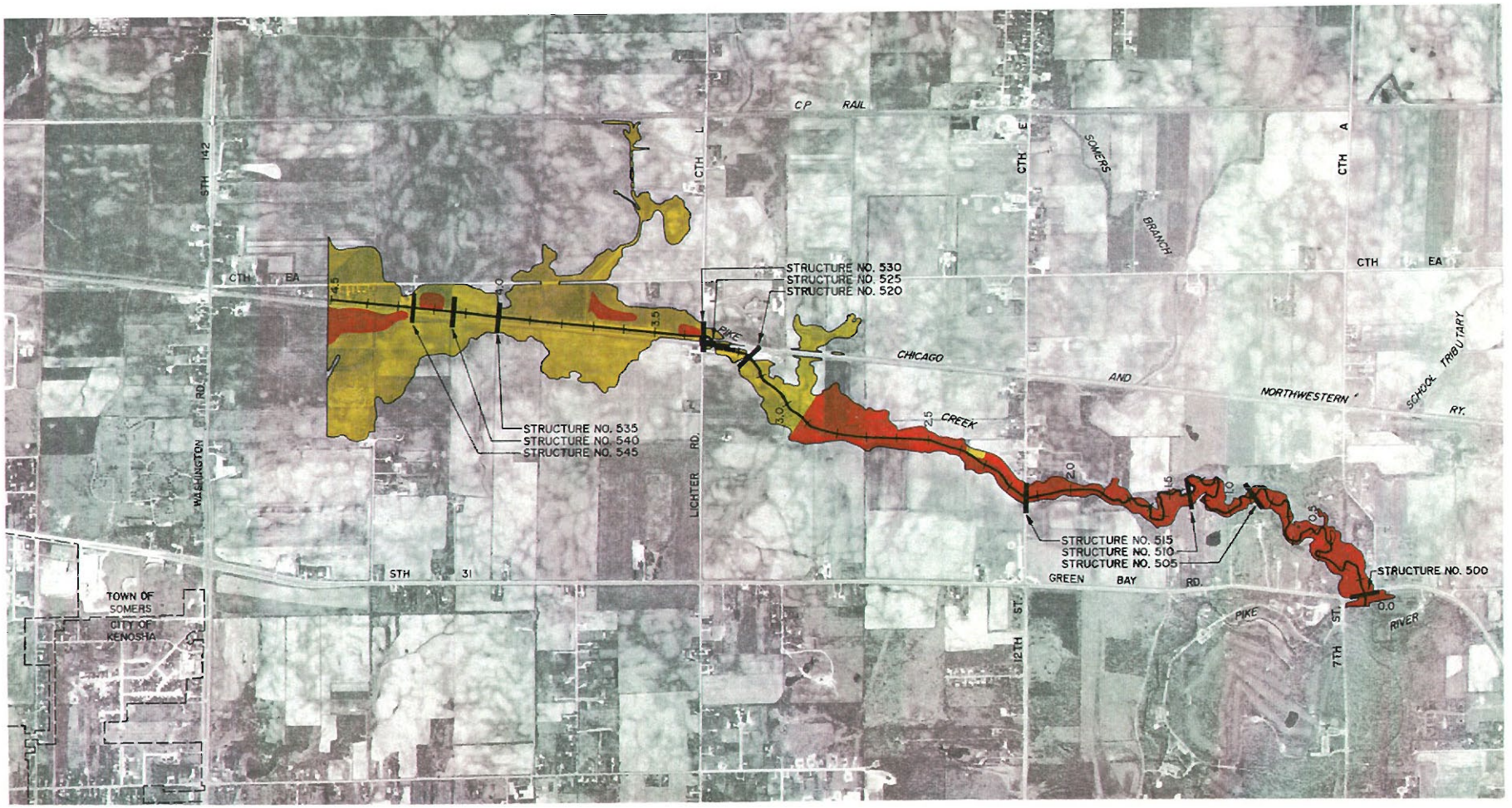
FLOOD STAGE AND STREAMBED PROFILE FOR THE PIKE RIVER (RIVER MILE 13.50 TO 16.40)



Source: SEWRPC.

Exhibit S

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG PIKE CREEK (RIVER MILE 0.00 TO 4.50)



LEGEND

- 1.0 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS--PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-8 ON PAGE 652 IN SEWRPC PLANNING REPORT NO. 35.

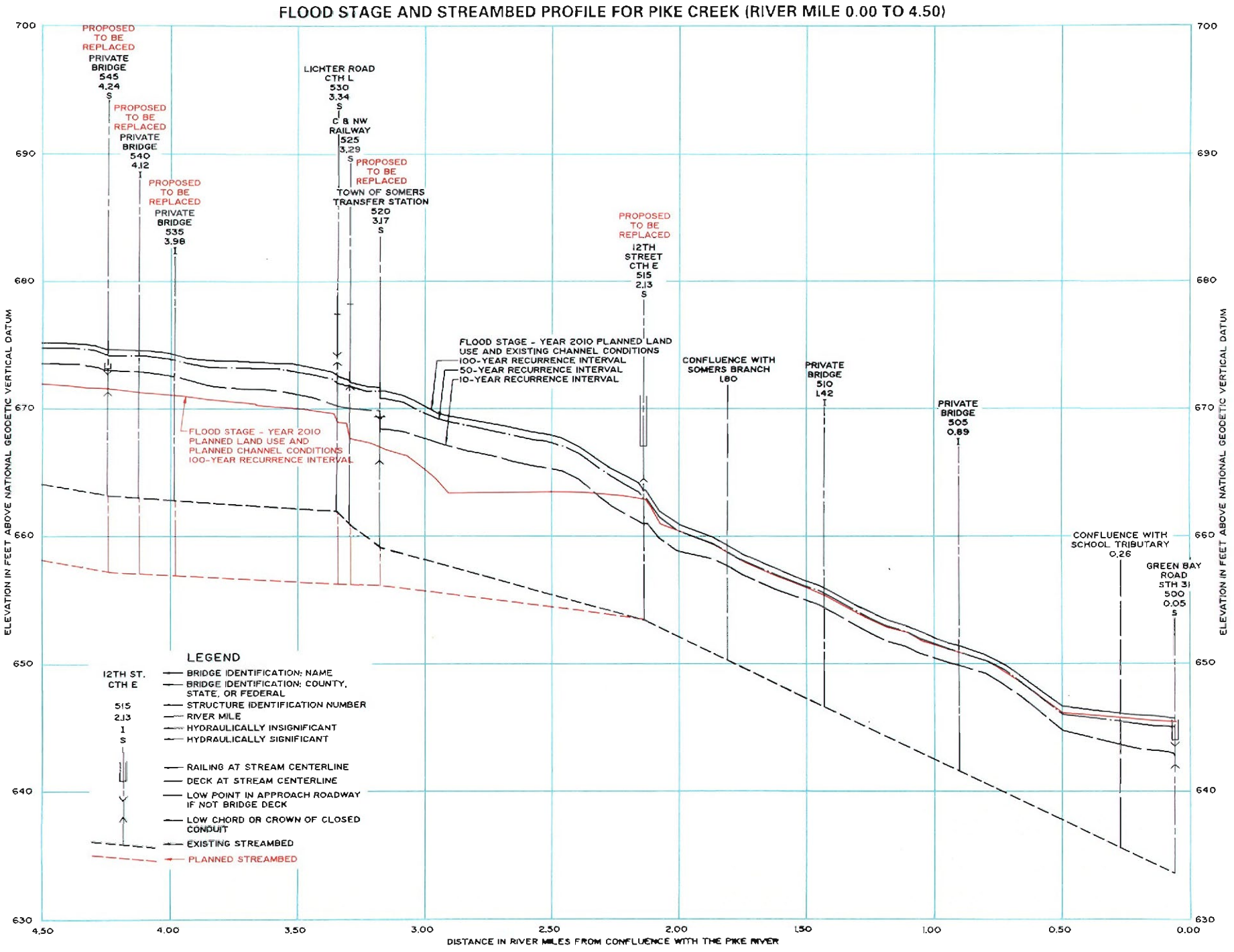
GRAPHIC SCALE

0 1/2 1 MILE

DATE OF PHOTOGRAPHY APRIL 1990

Source: SEWRPC.

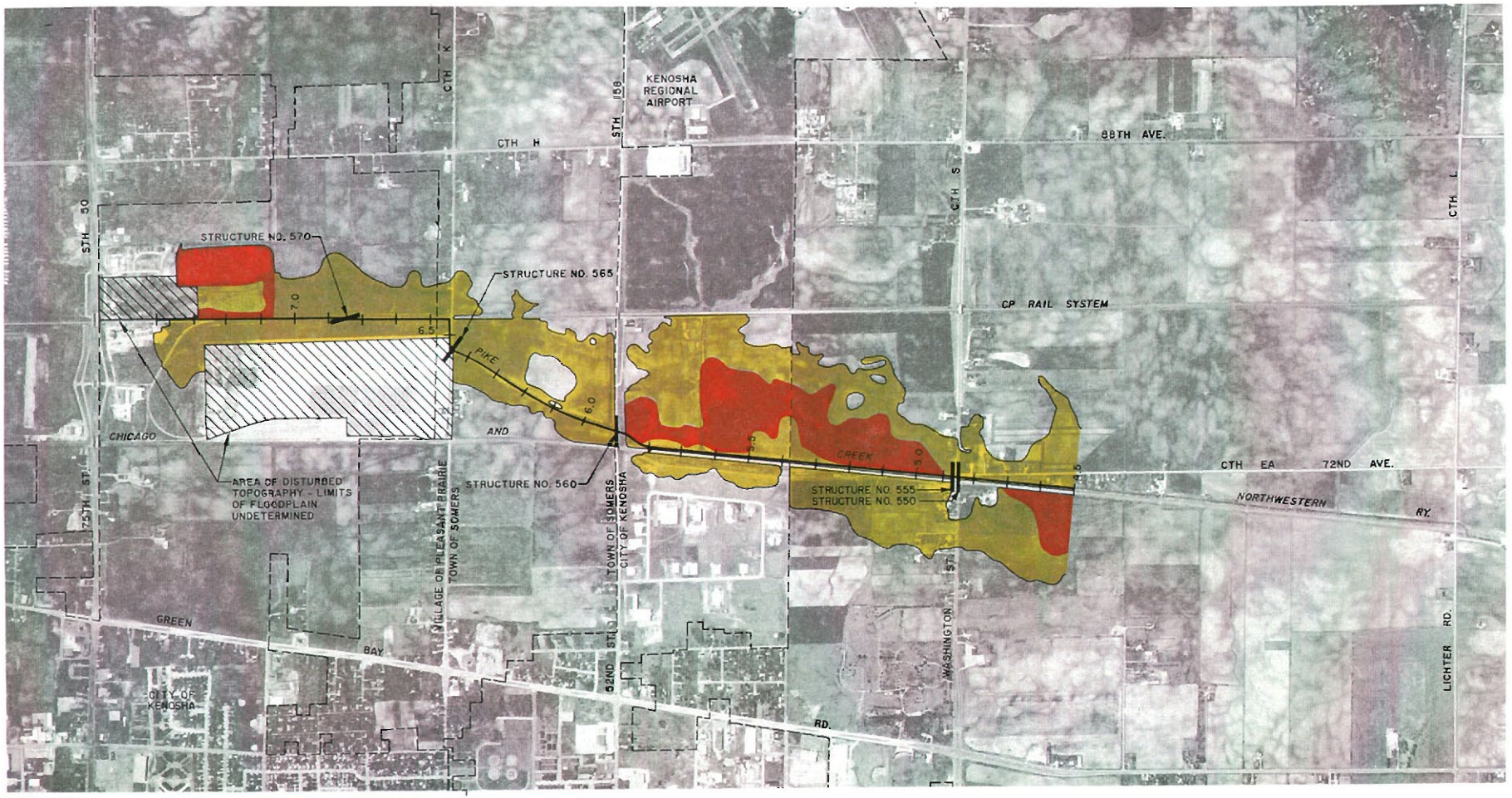
Exhibit T



Source: SEWRPC.

Exhibit U

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG PIKE CREEK (RIVER MILE 4.50 TO 7.50)



LEGEND

- 5.0 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS
- 100-YEAR RECURRENCE INTERVAL FLOODLANDS-- PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-9 ON PAGE 654 IN SEWRPC PLANNING REPORT NO. 35.

GRAPHIC SCALE

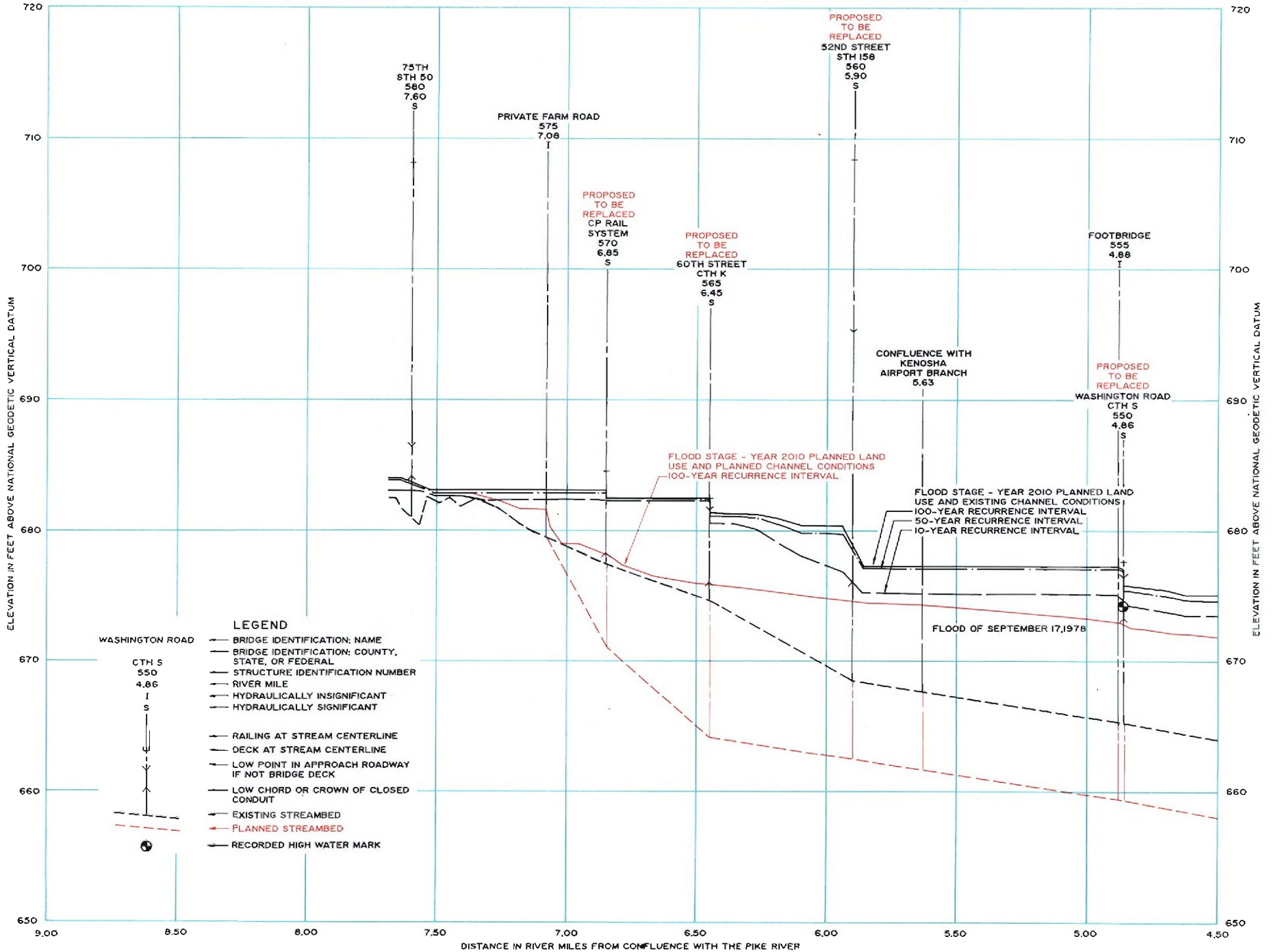
0 1/2 1 MILE

DATE OF PHOTOGRAPHY: APRIL 1990

Source: SEWRPC.

Exhibit V

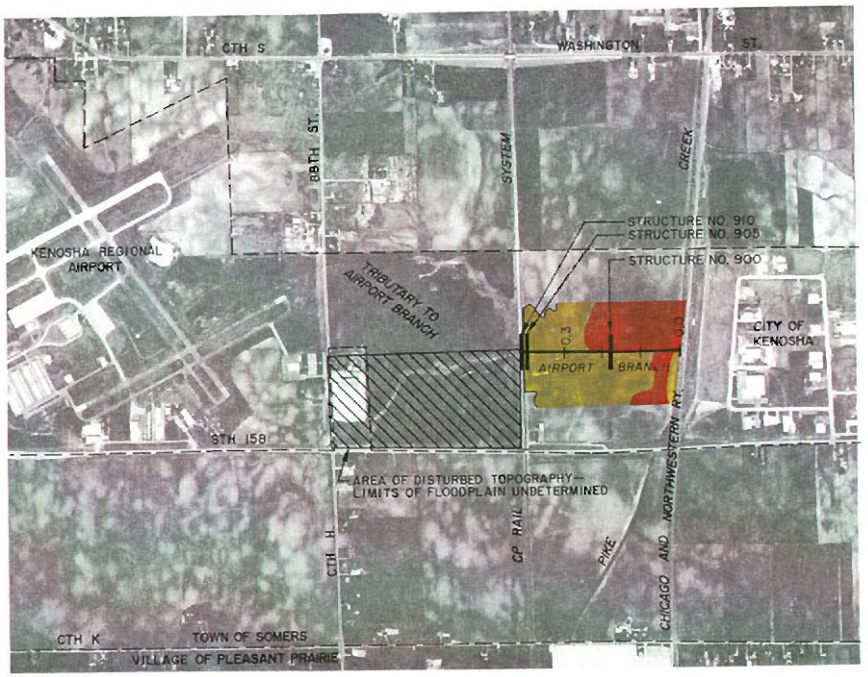
FLOOD STAGE AND STREAMBED PROFILE FOR PIKE CREEK (RIVER MILE 4.50 TO 7.50)



Source: SEWRPC.

Exhibit W

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG AIRPORT BRANCH



LEGEND

0.5 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING

100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS

100-YEAR RECURRENCE INTERVAL FLOODLANDS--PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

NOTE: DUE TO MAP SCALE LIMITATIONS, THE DIFFERENCE BETWEEN THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS, AND THE 100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS, MAY NOT APPEAR ON THIS MAP. WHERE NO DIFFERENCE APPEARS REFERENCE SHOULD BE MADE TO THE FLOOD STAGE PROFILE SHOWN BELOW

THIS EXHIBIT REPLACES MAP G-11 ON PAGE 658 IN SEWRPC PLANNING REPORT NO. 35.

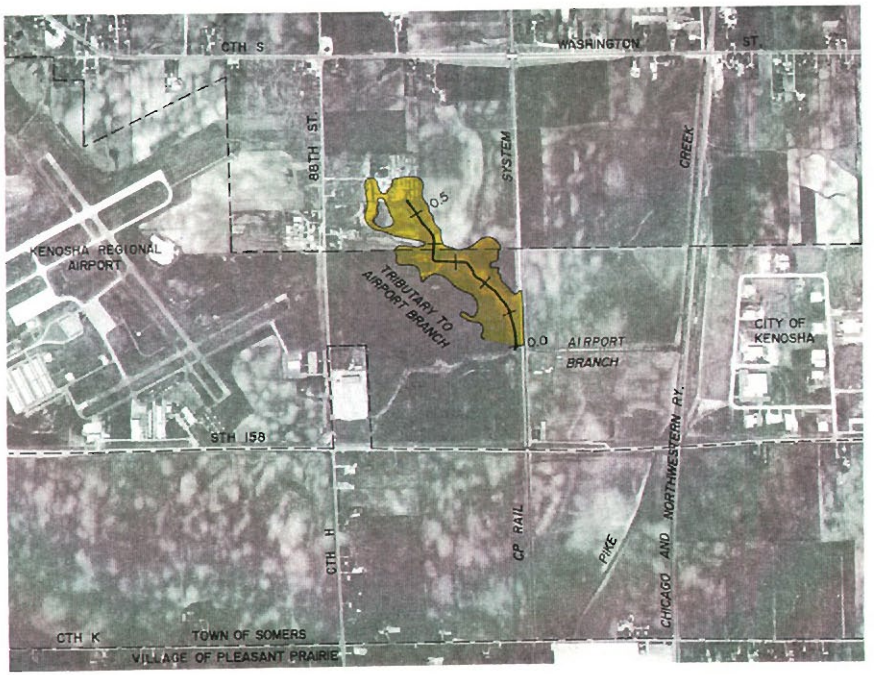
GRAPHIC SCALE
0 1/2 1 MILE

DATE OF PHOTOGRAPHY: APRIL 1990

Source: SEWRPC.

Exhibit Y

AERIAL PHOTOGRAPH SHOWING AREAS SUBJECT TO FLOODING ALONG TRIBUTARY TO AIRPORT BRANCH



LEGEND

0.5 — APPROXIMATE EXISTING CHANNEL CENTERLINE AND RIVER MILE STATIONING

100-YEAR RECURRENCE INTERVAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS

NOTE: THIS EXHIBIT REPLACES MAP G-12 ON PAGE 658 IN SEWRPC PLANNING REPORT NO. 35.

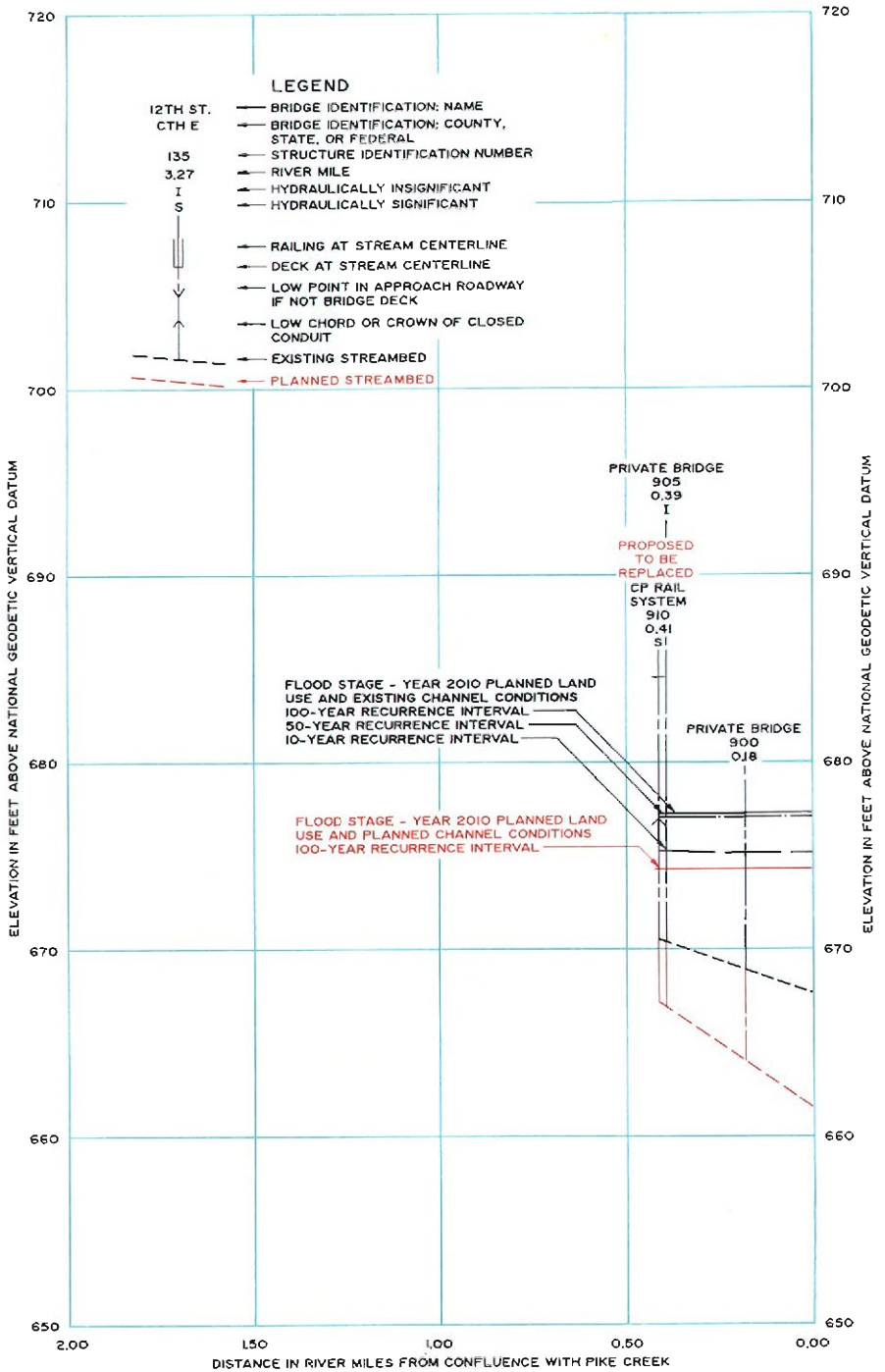
GRAPHIC SCALE
0 1/2 1 MILE

DATE OF PHOTOGRAPHY APRIL 1990

Source: SEWRPC.

Exhibit X

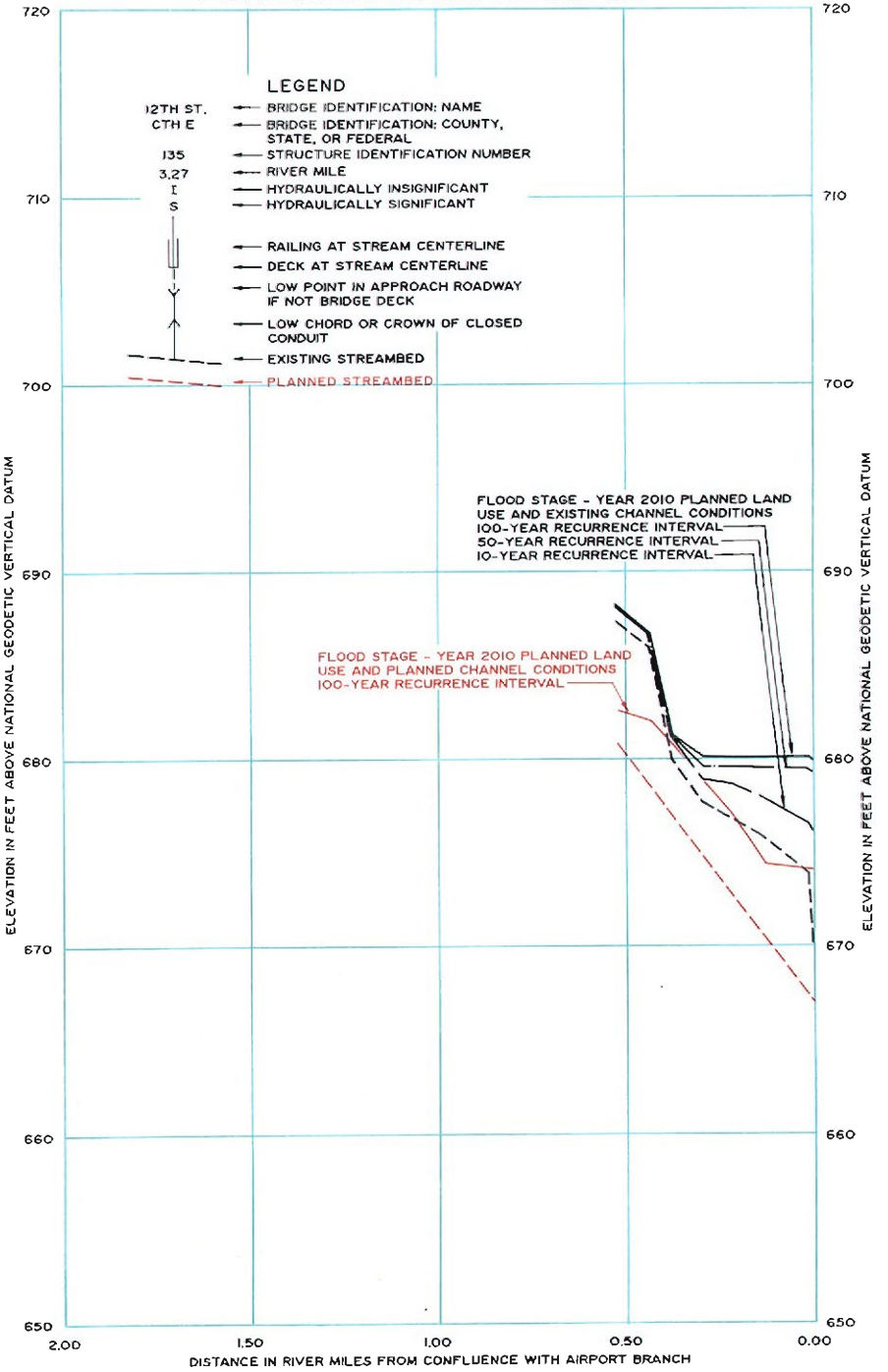
FLOOD STAGE AND STREAMBED PROFILE FOR AIRPORT BRANCH



Source: SEWRPC.

Exhibit Z

FLOOD STAGE AND STREAMBED PROFILE FOR TRIBUTARY TO AIRPORT BRANCH



Source: SEWRPC.

Exhibit AA

HYDROLOGIC-HYDRAULIC SUMMARY—LOWER PIKE RIVER: YEAR 2010 PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 32/Alford Park Drive	100	0.21	1S	50	Yes	2,430	583.1[e]	583.1[e]	--	--	--	3,560	584.2[e]	584.2[e]	--	--	--	4,130	584.6[e]	584.6[e]	--	--	--
STH 32/Sheridan Road	105	1.35	1S	50	Yes	2,440	585.5	585.2	0.3	--	--	3,590	587.4	586.6	0.8	--	--	4,180	588.4	587.3	1.1	--	--
Footbridge	110	1.52	1I	--	--	2,440	--	--	--	--	--	3,590	--	--	--	--	--	4,180	--	--	--	--	--
Drive to Carthage College	115	1.70	1S	10	Yes	2,440	586.5	586.1	0.4	--	--	3,590	589.0	587.8	1.2	--	--	4,180	590.1	588.7	1.4	0.9	0.7
STH 32/S. 32nd Street	120	1.79	1S	50	Yes	2,440	587.5	586.5	1.0	--	--	3,590	589.9	589.0	0.9	--	--	4,180	591.3	590.1	1.2	--	--
Footbridge	125	2.46	1I	--	--	2,430	--	--	--	--	--	3,600	--	--	--	--	--	4,210	--	--	--	--	--
Footbridge	125A	2.69	1I	--	--	2,430	--	--	--	--	--	3,600	--	--	--	--	--	4,210	--	--	--	--	--
Chicago & North Western Transportation Company	130	3.04	1S	100	Yes	2,410	591.4	591.2	0.4	--	--	3,620	592.7	592.4	0.3	--	--	4,240	593.5	593.1	0.4	--	--
CTH E/12th Street	135	3.27	1S	50	Yes	2,410	593.4	592.9	0.5	--	--	3,620	594.9	594.1	0.8	--	--	4,240	595.7	594.6	1.1	--	--
CTH A/7th Street	140	4.61	1S	50	Yes	2,400	598.0	597.5	0.5	--	--	3,600	599.6	598.7	0.9	--	--	4,150	600.3	599.2	1.1	0.1	--
Lathrop Avenue	145	4.79	1S	50	No	2,300	599.0	598.5	0.5	1.2	--	3,520	600.4	599.9	0.5	2.6	--	4,180	601.0	600.7	0.3	3.2	--
Chicago, North Shore & Milwaukee Railway (abandoned)	150	4.88	1S	--	--	2,300	599.6	599.0	0.6	--	--	3,520	601.3	600.4	0.9	--	--	4,180	602.1	601.0	1.1	--	--
Private Bridge	155	4.92	1I	--	--	2,300	--	--	--	--	--	3,520	--	--	--	--	--	4,180	--	--	--	--	--
Private Bridge	160	5.00	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	165	5.04	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	170	5.12	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	175	5.31	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	177	5.31	2S	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	180	5.37	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	185	5.40	1I	--	--	2,270	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	190	5.44	1I	--	--	2,260	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	195	5.52	1I	--	--	2,260	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
Private Bridge	200	5.59	1I	--	--	2,260	--	--	--	--	--	3,510	--	--	--	--	--	4,170	--	--	--	--	--
CTH Y/22nd Avenue	205	5.63	1S	50	Yes	2,260	603.6	602.5	1.1	--	--	3,510	606.3	603.3	3.0	--	--	4,170	607.4	603.8	3.6	0.9	0.9
CTH G/Wood Road	210	6.60	1S	50	No	2,240	615.6	614.8	0.8	--	--	3,500	617.0	615.8	1.2	0.5	--	4,170	617.4	616.3	1.1	0.9	--
CTH A/7th Street	215	6.96	1S	50	Yes	2,240	617.6	616.7	0.9	--	--	3,500	619.3	618.0	1.3	--	--	4,170	620.1	618.5	1.6	--	--
Petrifying Springs Park Road	220	8.26	1S	10	No	2,240	631.5	630.6	0.9	0.9	--	3,500	632.4	631.1	1.3	1.8	--	4,170	632.5	631.3	1.2	1.9	--
Footbridge	225	8.34	1I	--	--	2,240	--	--	--	--	--	3,500	--	--	--	--	--	4,170	--	--	--	--	--
Footbridge	230	8.48	1I	--	--	2,150	--	--	--	--	--	3,390	--	--	--	--	--	4,020	--	--	--	--	--
Footbridge	235	8.61	1I	--	--	2,150	--	--	--	--	--	3,390	--	--	--	--	--	4,020	--	--	--	--	--
Footbridge	245	8.80	1I	--	--	2,150	--	--	--	--	--	3,390	--	--	--	--	--	4,020	--	--	--	--	--
Footbridge	245A	8.93	1I	--	--	2,150	--	--	--	--	--	3,390	--	--	--	--	--	4,020	--	--	--	--	--
Park Drive, Footbridge, and Control Structure	250	9.07	2S	--	--	2,150	--	--	--	--	--	3,390	--	--	--	--	--	4,020	--	--	--	--	--
Petrifying Spring Park Drive	255	9.39	1S	10	Yes	2,150	640.1	639.8	0.5	--	--	3,390	642.3	640.8	1.5	0.9	--	4,020	643.1	641.3	1.8	1.7	--
CTH A/7th Street	260	9.55	1S	50	No	2,150	642.1	641.7	0.4	--	--	3,390	644.6	643.6	1.0	1.0	--	4,020	645.3	644.3	1.0	1.7	--

[a] *Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b] *A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c] *The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d] *Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

[e] *Represents Lake Michigan flood level.*

Source: SEWRPC.

Exhibit AB

HYDROLOGIC-HYDRAULIC SUMMARY—UPPER PIKE RIVER: YEAR 2010 PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 31/Green Bay Road	265	10.38	1S	50	Yes	1,400	650.1	649.3	0.8	--	--	2,420	652.3	650.7	1.6	--	--	2,840	653.7	651.2	2.5	--	--
CTH KR/County Line Road	270	11.15	1S	50	No	1,420	656.6	655.5	1.1	0.5	--	2,430	657.6	656.8	0.8	1.5	0.1	2,840	657.9	657.3	0.6	1.8	0.4
Private Bridge	272	11.56	1I	--	--	1,420	--	--	--	--	--	2,430	--	--	--	--	--	2,840	--	--	--	--	--
Braun Road	275	12.23	1S	50	No	1,510	664.8	663.5	1.3	--	--	2,480	667.4	664.7	2.7	0.9	0.8	2,820	667.7	665.1	2.6	1.2	1.1
Private Bridge	280	12.99	1I	--	--	1,580	--	--	--	--	--	2,530	--	--	--	--	--	2,820	--	--	--	--	--
STH 11/Durand Road	285	13.29	1S	50	No	1,560	668.6	668.4	0.2	--	--	2,500	670.4	669.9	0.5	0.7	--	2,780	670.8	670.2	0.6	1.1	--
Chicago, Milwaukee, St. Paul & Pacific Railroad Company (abandoned)	290	13.72	1I	--	--	1,460	--	--	--	--	--	2,260	--	--	--	--	--	2,530	--	--	--	--	--
Oakes Road	295	14.51	1S	10	No	1,100	678.1	672.3	5.8	1.5	0.8	1,700	678.6	673.9	4.7	2.0	1.3	1,900	678.7	674.3	4.4	2.1	1.4
STH 20/S. 20th Street	300	14.94	1S	50	Yes	900	680.1	679.4	0.7	--	--	1,380	681.9	680.5	1.4	--	--	1,520	682.5	680.4	2.1	--	--
Private Bridge	305	15.00	1S	--	--	900	681.6	680.1	1.5	--	--	1,380	683.4	681.9	1.5	2.3	2.3	1,520	683.8	682.5	1.3	2.7	2.7
Footbridge	310	15.15	1I	--	--	840	--	--	--	--	--	1,260	--	--	--	--	--	1,360	--	--	--	--	--
Private Bridge	315	15.29	1S	--	--	840	683.3	682.1	1.2	--	--	1,260	685.7	683.9	1.8	0.7	0.7	1,360	686.0	684.3	1.7	1.0	1.0
Private Bridge	320	15.77	1I	--	--	630	--	--	--	--	--	920	--	--	--	--	--	1,030	--	--	--	--	--
Spring Street	370	16.24	1S	10	Yes	330	686.6	683.7	2.9	--	--	470	687.7	685.9	1.8	0.6	0.4	530	687.8	686.1	1.7	0.7	0.5

[a]*Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b]*A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c]*The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d]*Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

Source: SEWRPC.

Exhibit AC

HYDROLOGIC-HYDRAULIC SUMMARY—PIKE CREEK: YEAR 2010 PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 31/Green Bay Road	500	0.05	1S	50	No	1,000	643.1	642.7	0.4	--	--	1,590	645.1	645.0	0.1	1.6	1.1	1,900	645.7	645.7	0.0	2.2	1.7
Private Bridge	505	0.89	1I	--	--	920	--	--	--	--	--	1,450	--	--	--	--	--	1,730	--	--	--	--	--
Private Bridge	510	1.42	1I	--	--	920	--	--	--	--	--	1,450	--	--	--	--	--	1,730	--	--	--	--	--
CTH E/12th Street	515	2.13	1S	50	Yes	520	661.1	660.9	0.2	--	--	1,130	663.4	662.9	0.5	--	--	1,410	664.1	663.4	0.7	--	--
Town of Somers Transfer Station	520	3.17	1S	10	No	530	669.8	668.4	1.4	0.5	0.5	1,140	671.4	670.8	0.6	2.1	2.1	1,420	671.7	671.3	0.4	2.4	2.4
Chicago & North Western Transportation Company	525	3.29	1S	100	Yes	530	670.0	670.0	0.0	--	--	1,140	671.8	671.6	0.2	--	--	1,420	672.2	672.0	0.2	--	--
CTH L/Lichter Road	530	3.34	1S	50	Yes	530	670.2	670.1	0.1	--	--	1,140	672.2	671.9	0.3	--	--	1,420	672.8	672.4	0.4	--	--
Private Bridge	535	3.98	1I	--	--	490	--	--	--	--	--	870	--	--	--	--	--	1,030	--	--	--	--	--
Private Bridge	540	4.12	1I	--	--	490	--	--	--	--	--	870	--	--	--	--	--	1,030	--	--	--	--	--
Private Bridge	545	4.24	1S	--	--	490	673.0	672.9	0.1	0.6	--	870	674.2	674.1	0.1	1.8	1.1	1,030	674.6	674.6	0.0	2.2	1.5
CTH S/S. 43rd Street	550	4.86	1S	50	No	460	675.2	674.3	0.9	--	--	740	677.1	675.5	1.6	0.7	--	840	677.3	675.8	1.5	0.9	--
Footbridge	555	4.90	1I	--	--	440	--	--	--	--	--	650	--	--	--	--	--	720	--	--	--	--	--
STH 158/52nd Street	560	5.90	1S	50	Yes	300	676.8	675.3	1.5	--	--	390	679.8	677.1	2.7	--	--	420	680.4	677.3	3.1	--	--
CTH K/60th Street	565	6.45	1S	50	No	310	682.3	680.6	1.7	0.7	--	550	682.5	681.2	1.3	0.9	0.1	610	682.5	681.4	1.1	0.9	0.1
CP Rail System	570	6.85	1S	100	Yes	9	682.4	682.3	0.1	--	--	20	682.9	682.5	0.4	--	--	25	683.1	682.6	0.5	--	--
Private Bridge	575	7.08	1I	--	--	9	--	--	--	--	--	20	--	--	--	--	--	25	--	--	--	--	--
STH 50/75th Street	580	7.60	1S	50	Yes	2	683.1	682.9	0.3	--	--	6	683.9	683.1	0.8	--	--	7	684.1	683.2	0.9	--	--

[a]*Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b]*A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c]*The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d]*Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

Source: SEWRPC.

Exhibit AD

HYDROLOGIC-HYDRAULIC SUMMARY—AIRPORT BRANCH: YEAR 2010 PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
Private Bridge	900	0.18	1I	--	--	260	--	--	--	--	--	340	--	--	--	--	--	370	--	--	--	--	--
Private Bridge	905	0.39	1I	--	--	260	--	--	--	--	--	340	--	--	--	--	--	370	--	--	--	--	--
CP Rail System	910	0.41	1S	100	Yes	240	676.6	675.3	1.3	--	--	330	679.5	677.1	2.4	--	--	350	680.1	677.3	2.8	--	--

[a] *Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b] *A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c] *The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d] *Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

Source: SEWRPC.

Exhibit AE

HYDROLOGIC-HYDRAULIC SUMMARY—LOWER PIKE RIVER: YEAR 2010 PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 32/Alford Park Drive	100	0.21	1S	50	Yes	2,200	583.1[e]	583.1[e]	--	--	--	3,290	584.2[e]	584.2[e]	--	--	--	3,630	584.6[e]	584.6[e]	--	--	--
STH 32/Sheridan Road	105	1.35	1S	50	Yes	2,190	585.1	584.8	0.3	--	--	3,310	586.9	586.3	0.6	--	--	3,870	587.9	586.9	1.0	--	--
Footbridge	110	1.52	1I	--	--	2,190	--	--	--	--	--	3,310	--	--	--	--	--	3,870	--	--	--	--	--
Drive to Carthage College	115	1.70	1S	10	Yes	2,190	586.1	585.7	--	--	--	3,310	588.0	587.4	--	--	--	3,870	589.5	588.3	--	--	--
STH 32/S. 32nd Street	120	1.79	1S	50	Yes	2,190	587.0	586.1	0.9	--	--	3,310	589.1	588.0	1.1	--	--	3,870	590.5	589.5	1.0	--	--
Footbridge	125	2.46	1I	--	--	2,170	--	--	--	--	--	3,320	--	--	--	--	--	3,900	--	--	--	--	--
Footbridge	125A	2.69	1I	--	--	2,170	--	--	--	--	--	3,320	--	--	--	--	--	3,900	--	--	--	--	--
Chicago & North Western Transportation Company	130	3.04	1S	100	Yes	2,160	591.1	590.9	0.2	--	--	3,330	592.3	592.0	0.3	--	--	3,940	593.0	592.7	0.3	--	--
CTH E/12th Street	135	3.27	1S	50	Yes	2,160	593.1	592.7	0.4	--	--	3,330	594.6	593.8	0.8	--	--	3,940	595.3	594.3	1.0	--	--
CTH A/7th Street	140	4.61	1S	50	Yes	2,140	597.7	597.2	0.5	--	--	3,290	599.2	598.4	0.8	--	--	3.900	600.0	598.9	1.1	--	--
Lathrop Avenue	145	4.79	1S	50	No	2,000	598.6	597.9	0.7	-0.8	--	3,210	600.1	599.5	0.6	2.3	--	3,870	600.7	600.3	0.4	2.9	--
Chicago, North Shore & Milwaukee Railroad (abandoned)	150	4.88	1S	--	--	2,000	599.1	598.6	0.5	--	--	3,210	600.9	600.1	0.8	--	--	3,870	601.7	600.7	1.0	--	--
Private Bridge	155	4.92	1I	--	--	2,000	--	--	--	--	--	3,210	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	160	5.00	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	165	5.04	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	170	5.12	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	175	5.31	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Kenosha Country Club Dam	177	5.31	2S	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	180	5.37	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	185	5.40	1I	--	--	1,990	--	--	--	--	--	3,200	--	--	--	--	--	3,870	--	--	--	--	--
Private Bridge	190	5.44	1I	--	--	1,960	--	--	--	--	--	3,190	--	--	--	--	--	3,860	--	--	--	--	--
Private Bridge	195	5.52	1I	--	--	1,960	--	--	--	--	--	3,190	--	--	--	--	--	3,860	--	--	--	--	--
Private Bridge	200	5.59	1I	--	--	1,960	--	--	--	--	--	3,190	--	--	--	--	--	3,860	--	--	--	--	--
CTH Y/22nd Avenue	205	5.63	1S	50	Yes	1,960	603.1	602.3	0.8	--	--	3,190	605.6	603.1	2.5	--	--	3,860	607.1	603.6	3.5	0.6	0.6
CTH G/Wood Road	210	6.60	1S	50	No	1,940	615.1	614.5	0.6	--	--	3,180	616.8	615.6	1.2	0.3	--	3,860	617.2	616.1	1.1	0.7	--
CTH A/7th Street	215	6.96	1S	50	Yes	1,940	617.1	616.3	0.8	--	--	3,180	619.8	617.8	1.2	--	--	3,860	619.8	618.3	1.5	--	--
Petrifying Springs Park Road	220	8.26	1S	10	No	1,940	631.3	630.5	0.8	0.7	--	3,180	632.1	631.0	1.1	1.5	--	3,860	632.5	631.3	1.2	1.9	--
Footbridge	225	8.34	1I	--	--	1,940	--	--	--	--	--	3,180	--	--	--	--	--	3,860	--	--	--	--	--
Footbridge	230	8.48	1I	--	--	1,850	--	--	--	--	--	3,100	--	--	--	--	--	3,750	--	--	--	--	--
Footbridge	235	8.61	1I	--	--	1,850	--	--	--	--	--	3,100	--	--	--	--	--	3,750	--	--	--	--	--
Footbridge	245	8.80	1I	--	--	1,850	--	--	--	--	--	3,100	--	--	--	--	--	3,750	--	--	--	--	--
Footbridge	245A	8.93	1I	--	--	1,850	--	--	--	--	--	3,100	--	--	--	--	--	3,750	--	--	--	--	--
Park Drive, Footbridge, and Control Structure	250	9.07	2S	--	--	1,850	--	--	--	--	--	3,100	--	--	--	--	--	3,750	--	--	--	--	--
Petrifying Springs Park Drive	255	9.39	1S	10	Yes	1,850	639.7	639.2	0.5	--	--	3,100	641.9	640.6	1.3	0.5	--	3,750	642.8	641.1	1.7	1.4	--
CTH A/7th Street	260	9.65	1S	50	Yes	1,850	641.6	641.2	0.4	--	--	3,100	644.1	643.2	0.9	--	--	3,750	645.0	644.0	1.0	1.4	--

[a] *Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b] *A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c] *The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d] *Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

[e] *Represents Lake Michigan flood level.*

Source: SEWRPC.

Exhibit AF

HYDROLOGIC-HYDRAULIC SUMMARY—UPPER PIKE RIVER: YEAR 2010 PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 31/Green Bay Road	265	10.38	1S	50	Yes	1,060	649.1	648.7	0.4	--	--	2,290	651.0	650.6	0.4	--	--	2,830	651.8	651.2	0.6	--	--
CTH KR/County Line Road	270	11.15	1S	50	Yes	1,100	652.8	652.6	0.2	--	--	2,380	655.9	654.7	1.2	--	--	3,000	656.9	655.4	1.5	--	--
Private Bridge	272	11.56	1I	--	--	1,100	--	--	--	--	--	2,380	--	--	--	--	--	3,000	--	--	--	--	--
Braun Road	275	12.23	1S	50	Yes	1,750	658.8	658.4	0.4	--	--	3,260	661.3	660.8	0.5	--	--	3,590	661.7	661.3	0.4	--	--
Private Bridge	280	12.99	1I	--	--	1,770	--	--	--	--	--	3,240	--	--	--	--	--	3,520	--	--	--	--	--
STH 11/Durand Road	285	13.29	1S	50	Yes	1,720	662.9	662.7	0.2	--	--	3,190	666.0	665.8	0.2	--	--	3,470	666.5	666.3	0.2	--	--
Chicago, Milwaukee, St. Paul & Pacific Railroad Company (abandoned)	290	13.72	1I	--	--	1,480	--	--	--	--	--	2,790	--	--	--	--	--	3,170	--	--	--	--	--
Oakes Road	295	14.51	1S	10	Yes	1,310	672.7	669.1	3.6	--	--	2,390	674.5	670.8	3.7	--	--	2,600	674.8	671.1	3.7	--	--
STH 20/S. 20th Street	300	14.94	1S	50	Yes	1,200	675.8	675.4	0.4	--	--	2,110	678.2	677.7	0.5	--	--	2,260	678.5	678.1	0.4	--	--
Private Bridge	305	15.00	1S	--	--	1,200	676.1	675.8	0.3	--	--	2,110	678.5	678.2	0.3	--	--	2,260	678.8	678.5	0.3	--	--
Footbridge	310	15.15	1I	--	--	1,100	--	--	--	--	--	1,900	--	--	--	--	--	2,000	--	--	--	--	--
Private Bridge	315	15.29	1S	--	--	1,100	677.3	677.0	0.3	--	--	1,900	679.5	679.3	0.2	--	--	2,000	679.8	679.6	0.2	--	--
Private Bridge	320	15.77	1I	--	--	770	--	--	--	--	--	1,300	--	--	--	--	--	1,400	--	--	--	--	--
Spring Street	370	16.24	1S	10	Yes	340	681.8	681.0	0.8	--	--	540	682.9	682.2	0.7	--	--	630	683.3	682.5	0.8	--	--

[a]*Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.*

[b]*A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c]*The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d]*Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

Source: SEWRPC.

Exhibit AG

HYDROLOGIC-HYDRAULIC SUMMARY—PIKE CREEK: YEAR 2010 PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
STH 31/Green Bay Road	500	0.05	1S	50	No	840	642.1	641.9	0.2	--	--	1,460	644.6	644.4	0.2	1.1	0.6	1,800	645.3	645.3	0.0	1.8	1.3
Private Bridge	505	0.89	1I	--	--	750	--	--	--	--	--	1,300	--	--	--	--	--	1,610	--	--	--	--	--
Private Bridge	510	1.42	1I	--	--	750	--	--	--	--	--	1,300	--	--	--	--	--	1,610	--	--	--	--	--
CTH E/12th Street	515	2.13	1S	50	Yes	420	659.2	659.1	0.1	--	--	1,070	661.8	661.5	0.2	--	--	1,430	662.8	662.4	0.4	--	--
Town of Somers Transfer Station	520	3.17	1S	10	Yes	1,230	663.9	663.5	0.4	--	--	2,610	666.5	666.0	0.5	--	--	3,170	667.3	666.7	0.6	--	--
Chicago & North Western Transportation Company	525	3.29	1S	100	Yes	1,230	664.6	664.1	0.5	--	--	2,610	667.7	666.7	1.0	--	--	3,170	668.8	667.5	1.3	--	--
CTH L/Lichter Road	530	3.34	1S	50	Yes	1,230	665.0	664.6	0.4	--	--	2,610	668.4	667.8	0.6	--	--	3,170	669.5	668.8	0.7	--	--
Private Bridge	535	3.98	1I	--	--	1,410	--	--	--	--	--	2,640	--	--	--	--	--	3,130	--	--	--	--	--
Private Bridge	540	4.12	1I	--	--	1,410	--	--	--	--	--	2,640	--	--	--	--	--	3,130	--	--	--	--	--
Private Bridge	545	4.24	1S	--	--	1,410	667.0	666.9	0.1	--	--	2,640	670.3	670.3	0.0	--	--	3,130	671.4	671.3	0.1	--	--
CTH S/S. 43rd Street	550	4.86	1S	50	Yes	1,430	668.7	668.5	0.2	--	--	2,520	672.0	671.6	0.4	--	--	2,900	673.0	672.7	0.3	--	--
Footbridge	555	4.90	1I	--	--	1,470	--	--	--	--	--	2,440	--	--	--	--	--	2,710	--	--	--	--	--
STH 158/52nd Street	560	5.90	1S	50	Yes	840	671.1	670.9	0.2	--	--	1,510	673.8	673.7	0.1	--	--	1,700	674.6	674.6	0.0	--	--
CTH K/60th Street	565	6.45	1S	50	Yes	630	672.6	672.5	0.1	--	--	1,230	675.2	675.1	0.1	--	--	1,390	675.9	675.8	0.1	--	--
CP Rail System	570	6.85	1S	100	Yes	260	676.0	675.5	0.5	--	--	490	677.7	677.2	0.5	--	--	550	678.2	677.7	0.5	--	--
Private Bridge	575	7.08	1I	--	--	7	--	--	--	--	--	21	--	--	--	--	--	31	--	--	--	--	--
STH 50/75th Street	580	7.60	1S	50	Yes	2	683.2	683.1	0.1	--	--	6	683.9	683.1	0.8	--	--	7	684.0	683.2	0.8	--	--

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[b]*A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.*

[c]*The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.*

[d]*Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.*

Source: SEWRPC.

Exhibit AH

HYDROLOGIC-HYDRAULIC SUMMARY—AIRPORT BRANCH: YEAR 2010 PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS

Structure Identification and Selected Characteristics						10-Year Recurrence Interval Flood						50-Year Recurrence Interval Flood						100-Year Recurrence Interval Flood					
Name	Number	River Mile	Structure Type and Hydraulic Significance[a]	Recommended Design Frequency (years)	Adequate Hydraulic Capacity[b]	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)	Instantaneous Peak Discharge (cfs)	Upstream Stage[c] (feet above msl)	Downstream Stage[c] (feet above msl)	Backwater[d] (feet)	Depth at Low Point in Bridge Approach Road (feet)	Depth on Road at Centerline of Bridge (feet)
Private Bridge	900	0.18	1I	--	--	540	--	--	--	--	--	810	--	--	--	--	--	930	--	--	--	--	--
Private Bridge	905	0.39	1I	--	--	540	--	--	--	--	--	810	--	--	--	--	--	930	--	--	--	--	--
CP Rail System	910	0.41	1S	100	Yes	420	672.7	672.1	0.6	--	--	610	673.5	673.3	0.2	--	--	640	674.3	674.3	0.0	--	--

[a]Structure codes are as follows: 1: bridge or culvert; 2: dam, sill, or weir. Hydraulically significant structures are denoted by an S; hydraulically insignificant structures are denoted by an I.

[b]A bridge has an adequate hydraulic capacity if it will remain open during a flood having a recurrence interval equal to or less than the recommended design frequency. A bridge is hydraulically inadequate if the approach road or bridge deck is overtopped by a flood having a recurrence interval equal to or less than the recommended design frequency.

[c]The flood stage indicated represents the water surface elevation approximately 100 feet from the bridge.

[d]Backwater is defined as the change in stage from the upstream side of the hydraulic structure to the downstream side.

Source: SEWRPC.