



# Federal Emergency Management Agency

Washington, D.C. 20472

AUG 22 1983

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Larry J. Kunzler

Dear Mr. Kunzler:

This is in response to our recent telephone conversations and the materials you sent to me in support of a floodway designation for Gages Slough on the Skagit River Delta.

For the purposes of the National Flood Insurance Program (NFIP), a floodway is defined as the channel of a stream, plus any adjacent flood plain areas, that must be kept free of encroachment so that the 100-year flood can be carried without increasing the flood heights by more than 1.0 foot. This concept was designed for typical river valley situations, where the channel represents the lowest point in the flood plain and the most effective conveyance area is immediately adjacent to the channel. As you know, the Skagit River Delta area deviates greatly from this general situation. The limited channel capacity of the Skagit River results in bank and levee overtopping and subsequent overland sheetflow flooding across the delta itself. One path that some of the overland flooding can take is along Gages Slough. You have proposed that we designate Gages Slough and adjacent areas as a regulatory floodway under the NFIP. FEMA will not designate a regulatory floodway for Gages Slough for the reasons outlined below.

In our analysis of flooding conditions for the Skagit River Delta, the 100-year discharge of 240,000 cubic feet per second (cfs) developed by the U.S. Army Corps of Engineers was adopted downstream of Sedro Woolley. Of this total discharge, it is estimated that approximately 130,000 cfs will flow through the overbank areas north of the Skagit River levees. Because of the lack of adequate topographic mapping and field survey data, it is not possible to determine the distribution of floodflows between Burlington proper (Gages Slough and overbank areas) and the agricultural area north of Burlington. Without an accurate determination of the flows along Gages Slough, a floodway cannot be developed. The 63,000 cfs discharge identified by John E. Norman for Gages Slough in the Cascade Mall Environmental Impact Statement is not supported by any scientific or technical data and must be considered as speculation. The carrying capacity of Gages Slough and the overbank areas is also not known due to a lack of adequate topographic and field survey data.

Additionally, the actual carrying capacity of the Skagit River channel at various locations cannot be accurately determined due to the uncertainties of levee overtopping and failures. Overtopping and/or breakouts will occur along the levees during a 100-year event contributing to the overbank flows in Burlington. The location of breakouts and the amount of overtopping cannot

be accurately determined. Quantification and location of this overflow would be necessary to develop a floodway in the Gages Slough area.

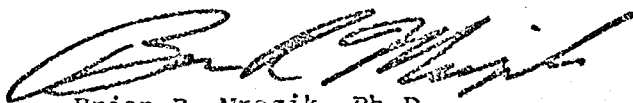
In our discussions, you indicated that all overbank flooding north of the Skagit River levees would only cross Interstate Highway 5 in a low area between the first two interchanges north of the Skagit River. Our analysis, which included a review of the Interstate Highway 5 profile and grading plans, indicates that weir flow would occur for approximately two miles along Interstate Highway 5 in the vicinity of Burlington. Exceptions to the weir flow condition would be at elevated portions of the highway, such as road intersections, and where openings allow flow under the highway.

Your concerns over the need for a floodway have been seriously considered and are greatly appreciated. From a qualitative perspective, we agree with your conclusion that Gages Slough is a conveyance area which should be protected. However, as outlined in this letter, a quantitative floodway analysis is not possible due to the limited data available and the uncertainties of flow conditions created by the numerous possible modes of levee failure and overtopping.

Despite the fact that the Federal Emergency Management Agency (FEMA) has not designated a regulatory floodway, it is still recognized that there is a need for development to be regulated in order that flood hazards are not significantly increased. Section 60.3c of the Code of Federal Regulations is designated for areas where 100-year flood elevations have been established but no regulatory floodway identified. The City of Burlington and Skagit County will be required to adopt ordinances which comply with the requirements of Section 60.3c in order to maintain participation in the NFIP. Part of this requirement will be to ensure that no new construction, substantial improvements, or other development (including fill) is permitted within Zones A1-A30 on the Flood Insurance Rate Maps, unless it is demonstrated that the cumulative effect of proposed development, when combined with all other development, will not increase the water-surface elevations of the base flood more than 1.0 foot at any point within the community. While it is recognized that this determination will be difficult for reasons discussed in this letter, good faith efforts on the part of these communities will be expected by FEMA.

Thank you for your interest and support for the NFIP. Should you have any further questions or comments regarding this matter, please contact me in Washington, D.C., at (202) 287-0230.

Sincerely,



Brian R. Mrazik, Ph.D.  
Chief, Engineering Branch  
Natural Hazards Division

cc: Raymond Henry, Mayor, City of Burlington  
Bud Norris, Chairman, Skagit County Commissioners  
Chuck Steele, FEMA Region 10