

NPS&N-DB

16 May 1979

Mr. and Mrs. Donald Austin
1381 Austin Road
Mount Vernon, Washington 98273

Dear Mr. and Mrs. Austin:

This is a reply to your 24 April 1979 letter in which you requested information concerning potential raises in water surface elevations at your farm on Austin Road south of Clear Lake due to construction of the proposed Skagit River, Washington, flood damage reduction project.

In general terms, and for the Nookachamps area as a whole, circumstances and conditions surrounding various levels of floodflows were discussed at the 6 December 1978 and 20 December 1978 meetings at Mount Vernon, our evening meeting on 17 April in Clear Lake, and again, to a somewhat lesser degree, on 24 April near Burlington. We also discussed the Nookachamps area and various flood conditions by phone on 25 April. In a 10 May telephone conversation, you briefly discussed specific information relating to your property with Mr. James Towle of this office. Mr. Towle suggested that if additional material is required you could visit this office where more detailed data and information is available.

Answers to the questions raised in your letter are shown on inclosure 1.

We have been examining the possibility for mitigating induced damages by one of several alternatives depending on specific location and need. You will be given more information on this possibility of mitigation at the public meeting to be held on 19 June 1979.

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Mr. and Mrs. Donald Austin

I will send you an information brochure and invitation for the 19 June public meeting. However, if you have additional questions concerning this project prior to the meeting, please contact me at (206) 764-3450.

Sincerely,

1 Incl
As stated

VERNON E. COOK
Project Manager

SUBJECT: Skagit River, Washington, Letter Inclosure for Mr. and Mrs. Donald Austin

1. Question: What would the water levels be over the 1975 flood level for the 20-, 50- and 100-year floods?

Answer: If the proposed project were in place, water surface over the 1975 level would be:

- 0.5 foot for a 20-year event
- 1.4 feet for a 50-year event
- 2.0 feet for a 100-year event

See revision 30 May 79

2. Question: What would the river gage read at both Mount Vernon and Sedro Woolley for each of the above levels?

Answer:

	Mount Vernon		Sedro Woolley	
	w/o Project	w/Project	w/o Project	w/Project
1975	35.7	35.7	25.9	25.9
20-year	36.8	37.6	26.8	27.3
50-year	37.2	39.3	27.8	28.9
100-year	37.7	40.6	28.9	30.2



Note: a. Mount Vernon gage is set at MSL.

b. Sedro Woolley gage is set at 15.46 feet MSL (0.0 on gage = 15.46 MSL)

3. Question: Have you allowed for water in our storage basin from the hills feeding into the Nookachamps? If so, at what level or depth?

Answer: The coincident inflow from Nookachamps Creek was considered in the modeling for the 100-year Skagit River event. Nookachamps inflow resulted in approximately a 0.2-foot increase in the Skagit River water surface profile, project conditions, above what that profile would have been without inclusion of Nookachamps Creek flows.

Incl 1

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4. Question: As a rule of thumb, can we expect to use 1-1/2 to 2 feet of additional water per 10,000 c.f.s. up to a 50-year flood level over the 1975 level?

Answer:

c.f.s. Flows	Elevation without Project (in feet)	Elevation with Project-Add (in feet)	
130,000 to 140,000	39.6 to 40.3	+0.9	40.5 - 41.2
140,000 to 150,000	40.3 to 41.2	+1.0	41.3 - 42.2
150,000 to 160,000	41.2 to 43.1	+1.4	42.6 - 44.5

Note: Averages for Nookachamps Valley

5. Question: The river level in Mount Vernon during the 1975 flood was a higher reading than at Sedro Woolley? Could you explain?

Answer: This question may be interpreted as concerning either higher c.f.s. flows or higher water surface elevations. Considering c.f.s., the explanation is that storage capability for flows that pass through Sedro Woolley exists in both the Nookachamps and Samish basins. Normally, this capacity is filling as the peak flow passes between Sedro Woolley and Mount Vernon. This results in a lesser peak at Mount Vernon even after inflow between the two measurement points is added. However, in 1975, a series of heavy precipitation periods, about 24 hours apart, caused the crest to remain near maximum for an unusually long period of time. This permitted the storage to remain full and with inflows now contributing to main stem flow the peak at Mount Vernon exceeded that at Sedro Woolley.

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Another factor to be considered is the integrity of measuring techniques. Limitations on equipment and methodology may be responsible for part of the apparent differential (130,000 c.f.s. - 121,000 c.f.s. = 9,000 c.f.s.). Our recent studies indicate that inflow between Sedro Woolley and Mount Vernon were probably considerably less than 9,000 c.f.s during the 1975 Skagit River peak.

If your question concerns gage readings for water surface elevations, peak flow at Sedro Woolley was 121,000 c.f.s. which read 26.1 feet on the gage. Zero on Sedro Woolley gage is equal to 15.46 feet MSL. Therefore, water surface elevation at Sedro Woolley was at 41.6 feet MSL. Peak flow at Mount Vernon was 130,000 c.f.s. which read 35.66 on the gage. Zero on Mount Vernon gage is set at 0.0 MSL. Therefore, water surface at Sedro Woolley was actually 41.6 - 35.7 or 5.9 feet higher than the water surface at Mount Vernon.

6. Question: What additional water level could be expected if Highway 20 is located south of Burlington and Sedro Woolley and acts as a dike?

Answer: The proposed freeway (if on continuous fill) on day 1 will raise the water level approximately 4.0 feet without proposed project and 2.0 feet above the proposed project day 1 condition.