

6 June 1978

18 May - 2 June

MEMO FOR: RECORD

SUBJECT: Skagit River Levee and Channel Improvement Project—Meetings to Discuss Hydrology and Hydraulic Analysis and A/E Contract.

1. On 18 May 1978 Messrs. Sellevold, Cook, McKinley, Brooks, and Merkle met to discuss the hydrology, hydraulics, and A/E Contract for the Skagit River Levee and Channel Improvement Project. Mr. Cook stated we would award in the near future an A/E contract for design, quantity, and cost estimates. The A/E will be given all the information we have obtained: surveys, work sheets, borings, cross sections, water surface profiles, and freeboard analysis. He will prepare quantities and cost estimate for the downstream portion of the project. There was much discussion concerning the status of the work being done by Hydrology and Hydraulics (H&H) Branch and what reasonably could be used as criteria for the A/E. It was determined that since the 130,000 c.f.s. profile (1975 flood), which was being used by Les Soule to verify the unsteady state hydraulic model was completed, we could use it as a base to determine three different heights for the levee system (1 foot, 3 feet, and 5 feet above the 1975 flood profile). Additional meetings would be held to discuss the criteria to be used by McKinley in evaluating the upstream areas.
2. On 22 May 1978 Messrs. Cook, McKinley, Jump, Soule, Brooks, and Williams met to discuss the hydraulic analysis on the Skagit Study. The hydrology review is currently underway, but has not been completed. It appears the frequency curve will probably be adjusted to somewhere between the frequency curve from the Upper Baker report and the frequency curve which was recently developed. Based on the recent frequency curve, respective 10-, 50-, 100-, and 500-year floods are 147,000 c.f.s., 204,000 c.f.s., 228,000 c.f.s., and 299,000 c.f.s. Mr. Soule said that if he were to use these discharges, it would take him until about the end of July to determine the existing and with-project condition for each of these cases. He has already prepared a preliminary 120,000 c.f.s. profile. It was decided that he should complete that profile and then proceed using the preliminary frequency curve data.
3. A general discussion was held concerning the methods of hydrologic analysis and the possibility that additional survey work could obtain useful information. It was decided that some additional surveys would be taken (H&H Branch would like a resurvey of 8 sections on both the North and South Forks to help in the sedimentation analysis and an additional 7 sections on the North Fork for use in evaluating dredging).

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4. Mr. Williams talked with Harold Maresh, Operations Division, and they agreed to obtain the 15 channel sections. Mr. McKinley and Mr. Soule determined that a resurvey would be made at sections 3.6, 4.06, 4.75, and 7.9 in the North Fork and 3.4, 4.25, 4.65, and 5.8 on the South Fork. Additional sections would be required in seven locations (river miles 4.4, 4.9, 5.2, and 5.6 ~~and~~ on the downstream side of the North Fork Bridge 6.1, 6.9, and 7.62). Messrs. McKinley and Soule will physically mark the section locations a day or two before Mr. Maresh performs the survey work (later Mr. Williams did the flagging because Mr. McKinley was on leave ~~when~~ when it was required).

5. On 24 May 1978 Messrs. Knutson, Cook, Hogan, Farrar, Thompson, Brooks, MacDonald, and Harnisch met to discuss the work of H&H Branch on the Skagit Project. Mr. MacDonald asked which items of work were on the critical path and were necessary for Economics and others to proceed. He thought the water surface profiles should be prepared using the steady state model since the unsteady state model would provide detail which was not necessary. He expressed surprise that the project could involve higher levels of protection than approximately the 10-year flood and said that the work request issued to H&H Branch (Water Control Section) did not cover evaluation of a range of flooding events (a copy of the work request dated ^{11 July 77} ~~and~~ requesting these profiles is attached for information). He also stated that, if the project design is standard project flood (SPF) level of protection, substantial additional work will be required to determine the SPF and another work request necessary. Based upon his discussions with Mr. Merkle, it appeared that the frequency curve which will be used for this project will be very similar to the Upper Baker frequency curve and not modified as the preliminary output from Hydrology Section had indicated. Mr. Thompson stated that to maintain present schedules, they needed the water surface profile information and limits of flooding from Hydrology and Hydraulics Branch approximately 2 months ago. Mr. Cook discussed the problems of getting an A/E contract underway in the immediate future and the need to have some criteria for the A/E. There appeared to be general disagreement concerning the proposed scope of the project and the method of analysis. Mr. MacDonald will discuss the methods being employed by H&H Branch personnel and possibly redirect their efforts into more expedient methods.

6. On 25 May 1978 Messrs. Hogan, Farrar, and Brooks met to discuss the Skagit Project and the previous day's meeting. We discussed the various criteria under which we were trying to evaluate the project, and several items were determined. Mr. Hogan stated that he does not want the plan which we propose to aggravate flooding anywhere else along the river. He also asked to be advised about the meeting which Mr. Merkle will be setting up to further discuss the work of Hydrology and Hydraulics Branch.

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7. On 25 May 1978, Messrs. Merkle, Cook, Farrar, Thompson, McKinley, and Brooks met to discuss the hydrology, hydraulics, and economic work. The meeting began with a general discussion of the background of where we are on the project and a recount of what work had been completed. The hydrology was completed in approximately February and is still under review. Present indications are that the frequency curve which was developed will not be used but a frequency curve closer to the curve in the Upper Baker report will be used. Mr. Merkle was interested in determining what specific items of work were necessary for other elements in the district, primarily Economics, to proceed with their studies and if there were any possibilities of rearranging their work to expedite work by others. After much discussion, it was determined that there did not appear to be any easy way to speed up the work. No one else in the Branch at this time is familiar with running the unsteady state model. There was a general discussion of what options were available, including changing the schedule for the project (unlikely due to the high priority assigned to this project by the District Engineer), rearranging the work somehow, reallocating personnel, or redefining the study methods to complete the necessary work in a more expeditious manner. Mr. Merkle said that he would look into the work to see if the schedule could be shortened. Mr. Farrar suggested that Mr. Merkle consider having H&H Branch personnel prepare preliminary profiles based on engineering judgment. Mr. Brooks will provide H&H Branch locations for possible levee alignments (done on 1 June 1978). In regards to the hydrology review which was to have been completed by 1 June, Merkle stated that the Yakima-Union Gap work had delayed his review at least a week and it would not be completed until the first or second week of June.

8. On 25 May 1978 Messrs. Hogan, Knutson, Merkle, Brooks, and Farrar met to discuss the outcome of the previous meeting concerning H&H Branch work on the Skagit project. After generally discussing the background and what had gone on in the other meetings, Mr. Merkle stated that he did not understand why Mr. MacDonald felt that the analysis should be done with a steady state model and not an unsteady state model. He said that the initial work items are the water surface profiles and the flood plain delineations for the various levels of flooding and with and without project conditions. This output will be coming from H&H Branch periodically through July or August. Mr. Farrar again suggested that Mr. Merkle have someone estimate water surface profiles in a period of 1 or 2 weeks and provide these preliminary profiles to other work groups so that they may work productively. Mr. Merkle said that since his hydraulics people were on leave today, he would like to talk to Mr. Regan in the morning and then get back with Mr. Knutson to discuss the possibilities and the problems of trying to speed up the hydraulic analysis.

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9. On 2 June 1978 Messrs. Sellevold, Cook, Farrar(part time), Merkle, and Brooks met to discuss H&H Branch on the Skagit Project. Mr. Merkle said he had found no way to short cut the process and produce preliminary profiles in a couple of weeks. However, by a reallocation of personnel the water surface profiles and flooded areas will be completed by the end of June (this may delay flood insurance studies). Ballpark hydrology will be provided to hydraulics for their use, with solid hydrology available by the end of July. Work on the interior drainage will commence at that time. Work on sedimentation studies has been started and should be completed by the end of July. Mr. Brooks said that this would regain about a month of the time that has been lost in the schedule. Mr. Merkle said that he would review recent DF's by Chief, H&H Branch to determine whether modifications of the work request are necessary.

10. Based upon earlier coordination, the H&H Branch work on the Skagit Project would have been done about 2 months behind the schedule shown in the June 1977 Plan of Study (primarily due to a 7 week delay in obtaining surveys due to high water). The speed up in the H&H Branch work should enable us to regain about a month on the schedule (leaving us about a month behind the plan of study schedule). As the study progresses we will have to be alert to the areas where we can expedite the work to regain the original schedule.

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BROOKS

cc: w/incl
Brooks

Cook

Ch, Reg Plng

Ch, Econ and Social Eval/Thompson

Ch, FPMS

Ch, ERS/Mettling

Ch, H&H Br/Merkle/Regan

Ch, Plng Br

Ch, Survey Br

Ch, F&M Br/Sabo

Ch, Design Br

Ch, Civ Des Sec/Jump