

Meeting Summary

Date of meeting 4/24/2013, 9:30am, by conference call
 Subject Kersh-Wishkah Flood Levee Project
 Participants Russ Esses, Ryan Bartelheimer, Jim Dransfield, Joel Darnell, Aaron Porter, Frank Kersh, Wes Cormier, Vickie Raines, and Terry Willis
 Date of issue 4/26/2013
 From Ryan Bartelheimer

Item	Action
Task 1 – Establish Goals, Design Criteria, and Review Existing Information <ul style="list-style-type: none"> • Goals and criteria memo and data review memo are both completed 	
Task 2 – Gather Data and Evaluate Permit Requirements <ul style="list-style-type: none"> • Topographic survey tasks have been completed by Berglund, Schmidt & Associates. • Bathymetric survey tasks have been completed by Hydrographix. • Geotechnical investigation has been completed by AMEC, with drilling done by Boretec. Geotechnical report is being edited for release. • Permit-related information is summarized in the table that was attached to the agenda. It was mentioned that the efforts to engage the regulatory agencies on the various Flood Authority projects would continue. 	<ul style="list-style-type: none"> • Finalize geotechnical report
Task 3 – Engineering and Alternatives Analysis <ul style="list-style-type: none"> • Modelling work is being performed by Coast & Harbor Engineering. Models have been developed and are currently being calibrated. The existing FEMA study is not detailed and appears conservative at project site, compared to recent flood events. See attached update for more information. <ul style="list-style-type: none"> ○ Russ commented that since the various recurrence-interval flood lines on page 3 of the attachment were generated by extrapolating FEMA data from downstream (City of Aberdeen) and FEMA didn't perform a detailed study at the project site, the lines are not truly FEMA data. Design team agreed and indicated it would develop an independent assessment of hydrology/hydraulics, in addition to the already-completed review of other portions of the FEMA information. The alternatives design will proceed with detailed flood information generated by the project team. • Development of Alternatives <ul style="list-style-type: none"> ○ Though there are some variations in the depth to bedrock, the soft soils and upper horizon of weathered bedrock are conducive to driving sheet piles. Sheet pile wall preliminary design is under development by AMEC. While the desired flood wall top elevation has not been finalized, preliminary design for sheet pile length is 30 feet or less. ○ Significant settlement and subsidence of the road through the project site has occurred since it was raised and realigned in the 1980's. Therefore, any fill placed to either raise the road or create a separate levee would be expected to settle substantially in the short term and continue to settle over time. The settlement and subsidence can be partially mitigated through construction 	<ul style="list-style-type: none"> • Model calibration • Recommend elevation of flood protection • Develop preliminary sheet pile design • Develop alternatives

<p>methods and timing and by providing adequate freeboard. Jim Dransfield generally characterized the soils on site and noted that there are likely three contributing factors to the subsidence and settlement observed on the road. The first is settlement from road fill placement. The second is that subsidence of the overall valley area appears to be ongoing, estimated as about ¼ to ½ inch per year. As a third possible contributing factor to subsidence, Jim mentioned that other locations in Western Washington with similar soft organic soils experienced some settling during the 2001 Nisqually earthquake, and that could have resulted in some settlement here. Frank commented that the settlement may explain why “the [high] tides are getting worse.”</p>	
<p>Task 4 – Project Management</p> <ul style="list-style-type: none">• First invoice submitted. Project is within budget.• Project is proceeding well, but some sub-tasks are slightly behind schedule.	<ul style="list-style-type: none">• Agenda for next call