

Additional Hydrotechnical Report by RV Anderson

- Modeling was completed, as for the previous report, for 140 m bridges.
- Results show small differences between the 140 m spans and the 241 m spans.

Predicted Flood Levels

Predicted Increases in Water levels upstream of a bridge, relative to existing conditions (no bridge)	
Bridge Span (meters)	Return Period of Flow 100 years
140 m	0.08 m
241 m	0.01 m

- The model predicts that a 100 year flood event would produce water depths roughly 2.2 meters higher than the banks of the channel for existing conditions. The table above shows increases in water levels predicted just upstream of a bridge. These are small values relative to the total flood depth.
- The water level increases would affect levels upstream of the bridge for up to approximately 1 km up the channel. The incremental change in water levels would decline to zero over this distance for a 100 year flood event.

Scour

- Scour occurs naturally during flood flows. The bed materials of river channels can be mobilized during high flows and are redeposited when velocities decline again. Where there is a restriction to flow, such as at a bridge, contraction of the flow will produce increased scour.
- At a new bridge over the West River there will be increased scour under the bridges.
- The scour table describes average depth of additional scour from a 100 year flood event in the channel under a bridge. There would also be scour of the banks, which would not be as deep as predicted in the channel.

Predicted Increases in Scour Depth at a bridge, relative to existing conditions (no bridge)	
Bridge Span (metres)	Return Period of Flow 100 years
140 m	0.5 m
241 m	0.3 m