



**Date:** October 15, 2012

**To:** Lyra Cressey, Salmon River Restoration Council  
Michael Love, Michael Love & Associates

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**Subject: Preliminary Exploration of Alluvial Deposits in the West Channel of Hotelling Gulch**

In April 2010, at the request of the Salmon River Restoration Council (SRRC), Pacific Watershed Associates (PWA) completed the *Hotelling Gulch Stream Crossing and Channel Realignment Feasibility Study* (HGFS). Final recommendations in the HGFS included: “further analysis to characterize hydraulic and hydrologic conditions conducive for fish passage through the bedrock cascade adjacent to the South Fork Salmon River.” Upon completion of the HGFS, SRRC contracted with Michael Love & Associates (MLA) to further analyze conditions that would be conducive to fish passage at the Hotelling Gulch stream mouth as well as develop a preliminary design to implement fish passage restoration activities at the site. During MLA’s analysis it was determined that the western alternative channel alignment required a further geologic characterization to determine the depth of alluvial materials capping the bedrock interface directly in the active channel bottom.

On October 9, 2012 PWA Staff worked with SRRC Staff to conduct a preliminary stratigraphic exploration of the Hotelling Gulch active channel bottom between the culverted crossing on South Fork Salmon River Road and downstream to its confluence with South Fork Salmon River. Figure 1 illustrates the approximate exploration (probing) locations conducted in the channel bed. During field exploration, 5 separate locations were observed within the active channel bed. Rock bars were used to probe through alluvium to the maximum depth possible while minimizing channel bed disturbing activities.

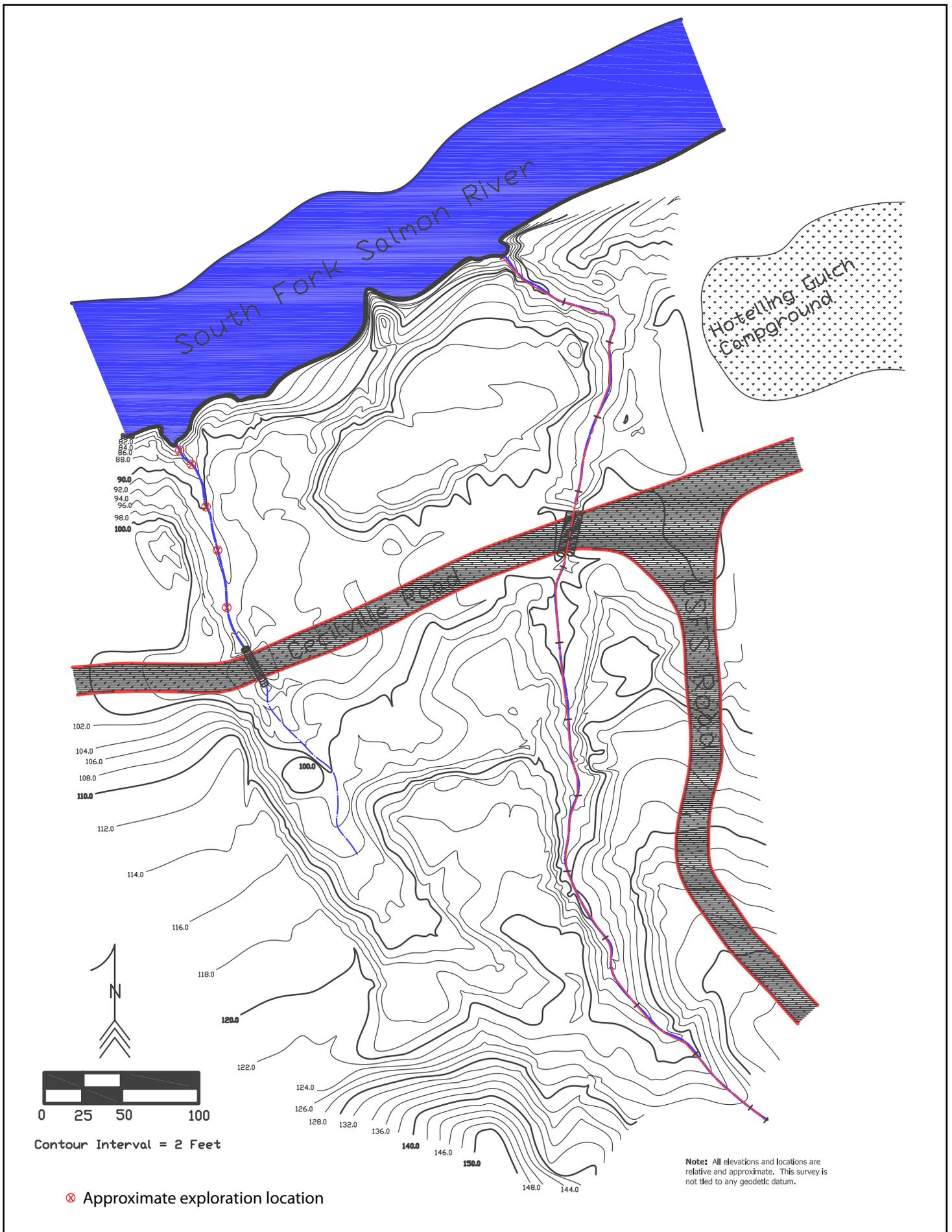
All 5 exploration locations were penetrated to the maximum rock bar depth of 3 feet without reaching an inferred bedrock surface. This indicates that through the explored channel reach bedrock is at least 3 feet below the channel bed surface and likely deeper in places. Without additional investigation techniques, it is difficult to infer how deep bedrock may be below the channel bed at any one location. In addition, the geomorphic character of the channel bed and banks in the investigation area indicate that it is likely that some portion of this channel was either blasted or hydraulically mined in the historic past.

In the event that engineering design requires knowledge of the exact depth to bedrock in the channel at any specific location, additional investigation techniques will need to be employed. Other subsurface investigation techniques may include excavation/backhoe pits across the channel or geophysical methods relevant to specific site condition constraints. These techniques may have specific limitations and difficulties that limit the effectiveness of investigation results and costs may be highly variable.

If you have any questions regarding the information provided here please contact me.

Thank you,

Randy Lew



**Figure 1.** Plan view map of Hotelling Gulch in the vicinity of Cecilville Road. Figure modified from the Hotelling Gulch Stream Crossing and Channel Realignment Feasibility Study, Map Sheet 1 (PWA, 2009).