GEOLOGIC MAP OF THE SHELTON VALLEY 7.5-MINUTE QUADRANGLE, MASON COUNTY, WASHINGTON

Abstract—We present a 1:24,000-scale geologic map of the Shelton Valley 7.5-minute quadrangle, which encloses the northern Black Hills and the western Olympic Mountains, just west of the town of Shelton. We support the map with nine fieldwork, petrography, paleontology, and U-Pb, luminescence, radiocarbon, biostratigraphic chronology, lidar, and existing subsurface explorations.

Our findings include that bedrock geochemistry and two new 50.51 and 47.24 Ma U-Pb dates support the inference that (1) a tephra in the northwestern Black Hills is part of the Crescent Formation and (2) these rocks may be slightly younger than earlier analyses suggested. Subsurface sedimentary interbeds in the southwaard are collated with strong northwest-trending geophysical anomalies previously interpreted as the Olympic Mountains. Sedimentary interbeds in both Quaternary and subcuneiform are consistent with unusual depth of the southern limit of the Vashon ice advance is slightly farther south than previously inferred.

Sediment younger than the Black Hills is mostly polygenic, north-sourced material deposited by incursions of the Cordilleran ice sheet, or locally redeposited from such glacial sediments. Geologic mapping suggests that the southern limit of the Vashon ice advance is slightly farther south than previously inferred.

Inference deorientation of Quaternary sediments in the southwaard is collated with strong northwest-trending geophysical anomalies previously interpreted as the Olympic Mountains. Confirmation of deformation found in both Quaternary and subcuneiform is consistent with geologic and topographic constraints. Geologic mapping suggests that the southern limit of the Vashon ice advance is slightly farther south than previously inferred.

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Shelton Valley samples. Major and trace element geochemistry results for the Black Hills is part of the Crescent Formation and these rocks may be slightly younger than earlier analyses suggested. Subsurface sedimentary interbeds in the southwaard are collated with strong northwest-trending geophysical anomalies previously interpreted as the Olympic Mountains. Sedimentary interbeds in both Quaternary and subcuneiform are consistent with unusual depth of the southern limit of the Vashon ice advance is slightly farther south than previously inferred.

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