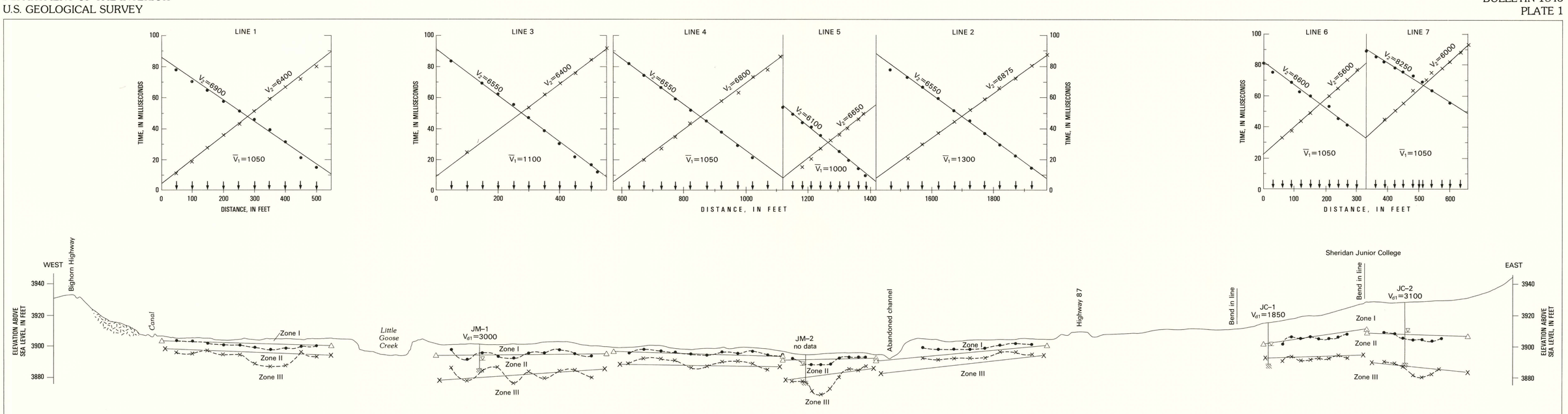
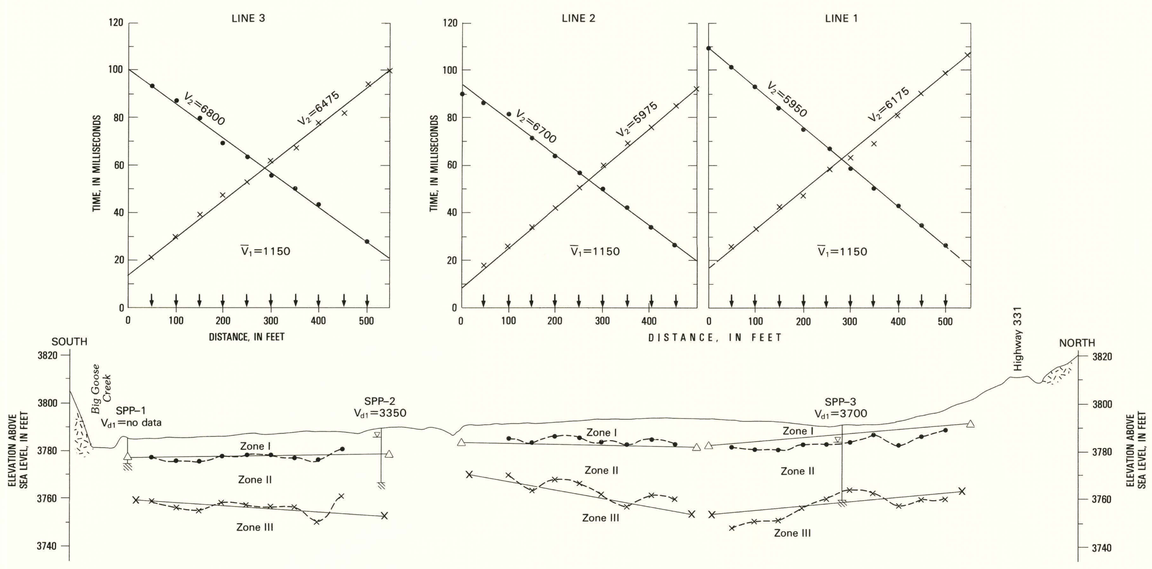


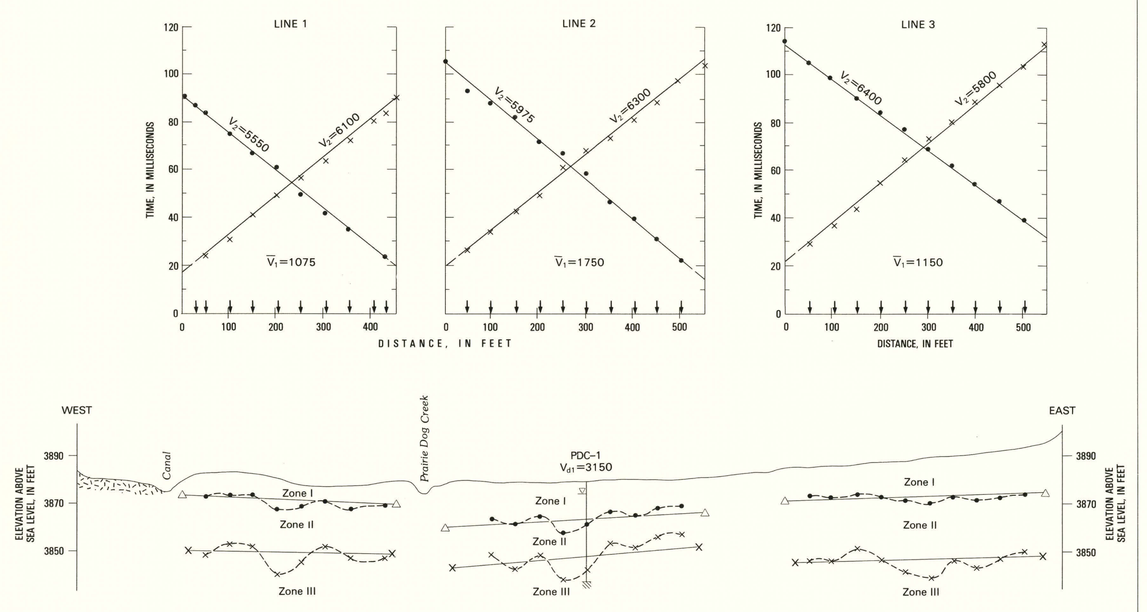
A—LITTLE GOOSE CREEK VALLEY

Time-distance curves and geologic interpretations along seismic lines 1–7 crossing Little Goose Creek valley near Sheridan Junior College, 1.3 miles south of Sheridan, Wyoming (fig. 1, valley seismic spread 1)



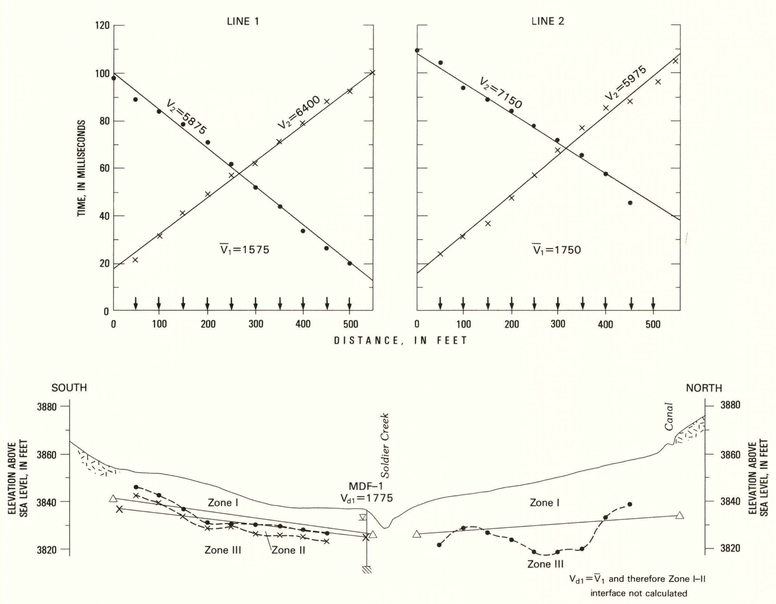
B—BIG GOOSE CREEK VALLEY

Time-distance curves and geologic interpretations along seismic lines 1–3 crossing Big Goose Creek valley, 1.7 miles west of Sheridan, Wyoming (fig. 1, valley seismic spread 2)



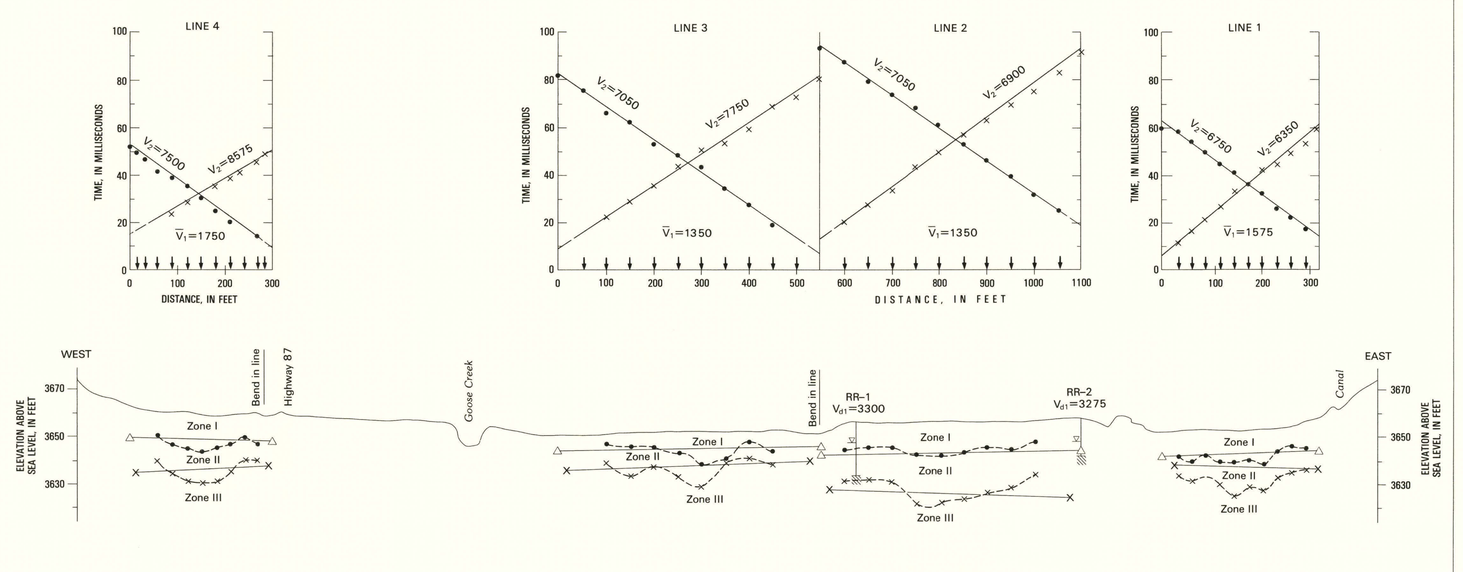
C—PRAIRIE DOG CREEK VALLEY

Time-distance curves and geologic interpretations along seismic lines 1–3 crossing Prairie Dog Creek valley, 3.7 miles east of Sheridan, Wyoming (fig. 1, valley seismic spread 3)



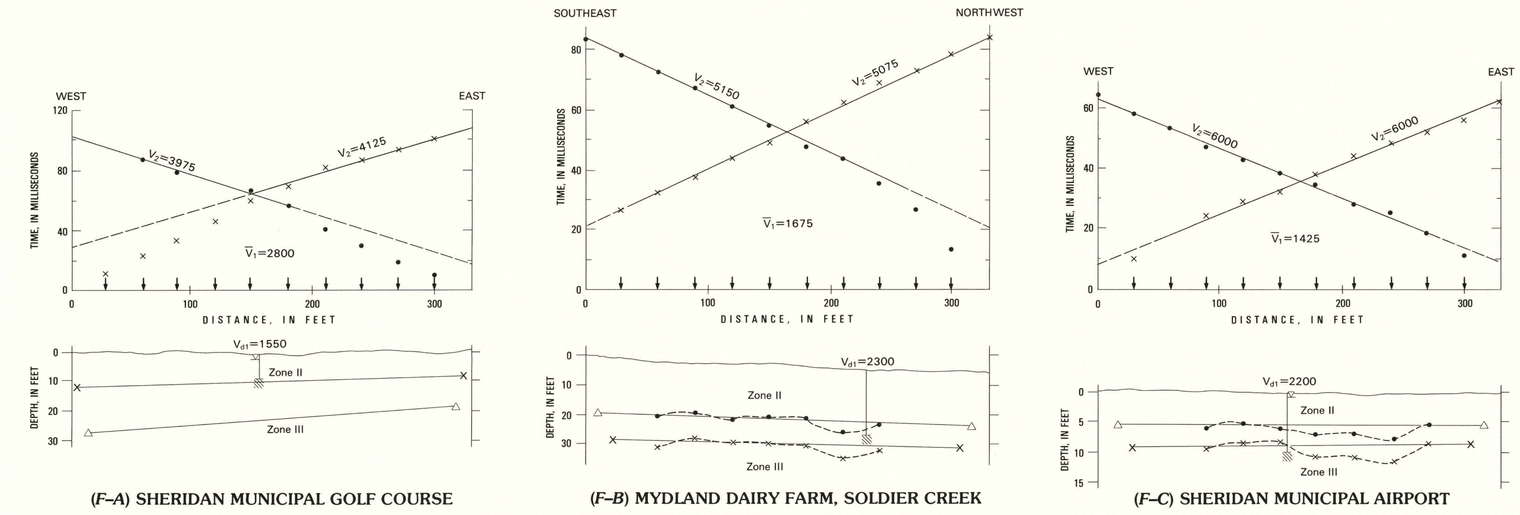
D—SOLDIER CREEK VALLEY

Time-distance curves and geologic interpretations along seismic lines 1–2 crossing Soldier Creek valley, Mydland Dairy Farm, 2.5 miles west of Sheridan, Wyoming (fig. 1, valley seismic spread 4)



E—GOOSE CREEK VALLEY

Time-distance curves and geologic interpretations along seismic lines 1–4 crossing Goose Creek valley, John E. Rice Ranch, 3.3 miles north of Sheridan, Wyoming (fig. 1, valley seismic spread 5)



(F–A) SHERIDAN MUNICIPAL GOLF COURSE

(F–B) MYDLAND DAIRY FARM, SOLDIER CREEK

(F–C) SHERIDAN MUNICIPAL AIRPORT

F—PEDIMENTS

Time-distance curves and geologic interpretations for three pediment sites: (F–A) Sheridan Municipal Golf Course, (F–B) above Soldier Creek, Mydland Dairy Farm, and (F–C) Sheridan Municipal Airport. The $\overline{V}_1$ velocity layer, which coincides with the sand and gravel (Zone II) on the pediments, is obtained from both surface-run and downhole surveys. The V_2 velocity layer, which coincides with the bedrock, is obtained from surface-run seismic surveys only. The interfaces between the sand and gravel and bedrock are computed by both the time-intercept method and method of differences for the Soldier Creek and Sheridan Municipal Airport pediments, and by only the time-intercept method for the Golf Course pediment

EXPLANATION

Surface and downhole seismic surveys

$\overline{V}_1$, V_{d1}, V_2 — Compressional velocity in ft/s: $\overline{V}_1$=low-velocity layer of the fine-grained material of Zone I determined by surface-run refraction surveys, V_{d1}=a low-velocity layer including both the fine-grained material of Zone I ($\overline{V}_1$) and the coarse-grained material of Zone II determined by downhole surveys, and V_2=lowermost high-velocity layer determined by surface-run refraction surveys

Time-distance graphs

× — Compressional-wave arrival time

↓ — Geophone stations

Model of lithologic layering and interpretation of seismic and borehole data

Zone I — Fine-grained materials (fine sand, silt, and clay) of alluvial and colluvial origin

Zone II — Coarse-grained materials (sand, gravel, and some weathered bedrock)

Zone III — Bedrock and some weathered bedrock

Method of calculating interfaces used on geologic sections

Zone I–II

△——△ Interface between fine-grained (Zone I) and coarse-grained (Zone II) material, calculated from surface-run $\overline{V}_1$ and V_2 velocities, using the time-intercept method

●-·-●-·-● Interface between fine-grained (Zone I) and coarse-grained (Zone II) material, calculated from surface-run $\overline{V}_1$ and V_2 velocities, using method of differences

Zone II–III

×——× Interface between coarse-grained (Zone II) and bedrock (Zone III) material, calculated from downhole V_{d1} and surface-run V_2 velocities, using the time-intercept method

×-·-×-·-× Interface between coarse-grained (Zone II) and bedrock (Zone III) material, calculated from downhole V_{d1} and surface-run V_2 velocities, using method of differences

Borehole

Static ground-water level

Coarse-grained bedrock (Zone II–III) interface determined from drillings

Outcrops of bedrock

TIME-DISTANCE CURVES AND GEOLOGIC INTERPRETATIONS FOR VALLEY AND PEDIMENT SEISMIC SURVEYS