Commonwealth of Massachusetts
Department of Public Works
John A. Volpe, Commissioner

U. S. Department of the Interior
Geological Survey
W. E. Wrather, Director

Cooperative Geologic Project

File Report

Geologic and Seismic Investigations

for Relocation of Route 128 at Route 1A

in Dedham, Mass.

by

James E. Maynard, Geologist, U. S. Geological Survey

2 pages of text
4 plates

This report has been prepared for open file only, and has not been edited for conformity with U. S. Geological Survey standards and nomenclature.

U. S. GEOLOGICAL SURVEY MASS. DEPT. OF PUBLIC WORKS
COOPERATIVE GEOLOGIC PROGRAM
OPEN FILE REPORT

Boston, Massachusetts
June 1954.

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Seismic Series #_____

Geologic and Seismic Investigations

for Relocation of Route 128 at Route 1A

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General Statement

The proposed relocation of Route 128 in Dedham, Mass. requires a grade separation with long approach cuts at its crossing with Route 1A. In order to obtain information on the configuration and depths of the bedrock surfaces, and on the nature of the overlying material, a geologic study was made of the site, and a program of seismic work was carried out. The work was performed in June, August and September 1953 as part of a cooperative program of the Massachusetts Department of Public Works and the United States Geological Survey.

The area studied is located in the Norwood, Mass. 7-1/2-minute quadrangle map of the United States Geological Survey.

Mr. M. E. Chandler and Mr. W. L. Carney, Department of Public Works' Engineers, performed all pertinent survey work required for this project, and prepared the essential plans and profiles. Mr. Chandler also operated the seismic equipment and assisted in the preparation of the seismic velocity data.

Surface Geology

This site occurs at the intersection of Routes 1A and 128 on the upper boundary between a kame terrace and an undulatory till-bedrock upland. In

general, east of Route 1A, the surface formation is largely sand; west of Route 1A it is mostly till that in the vicinity of the boundary is very sandy. Construction of roads and buildings, and the grading of this surface of the land made it difficult to establish the sand-till boundary without digging numerous test pits; consequently the boundary is not shown on the plan.

Numerous exposures of granitic bedrock occur in the till areas, but none were noted in the sand areas. In general, bedrock appears to be at a shallow depth at this site.

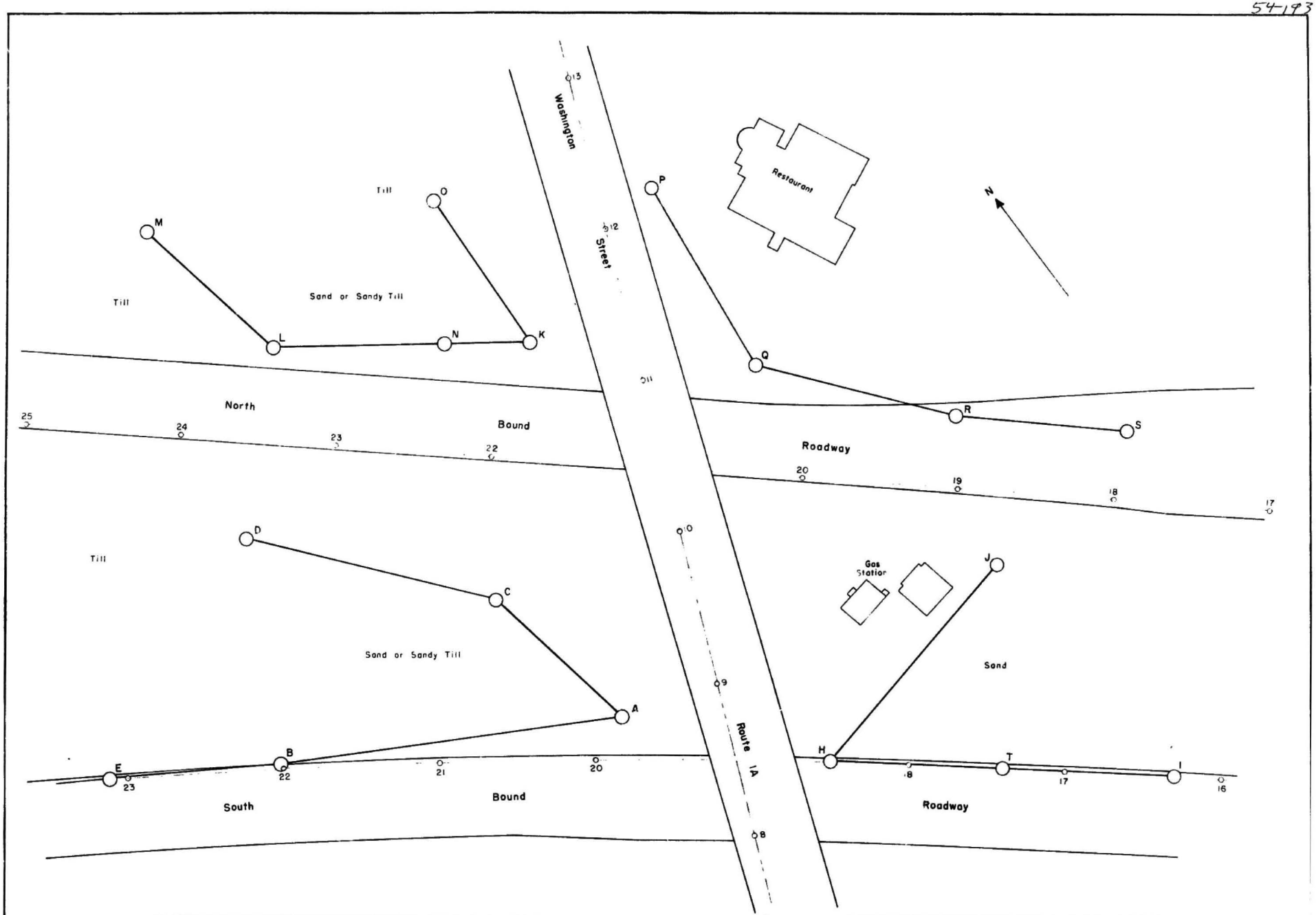
Seismic Traverses

Sixteen seismic traverses were made at this site. The locations of the shot points and the arrangement of the lines are shown on sheets 1 and 2.

Subsurface Interpretation

The geologic sections as interpreted from the surface geology and the seismic data are shown on sheets 3 and 4. All of these sections show bedrock at relatively shallow depths, 4 to 25 feet below the surface of the ground. The bedrock profiles as shown on the sections represent only a generalization of the actual bedrock surface; many small ridges, knobs and depressions may occur at altitudes slightly above and below these profiles. In general, a very irregular and undulatory bedrock surface can be expected at this site.

54-193



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COOPERATIVE GEOLOGIC PROJECT

PLAN OF TRAVERSES

SCALE: 1 INCH = 40 FEET

Letters refer to shot points at ends of traverses.

Numbers refer to D. P. W. stations on baseline.

INTERPRETATIVE GEOLOGIC SECTIONS ALONG SEISMIC TRAVERSES

Shot point.

V – Apparent seismic velocity(ies) in feet per second.

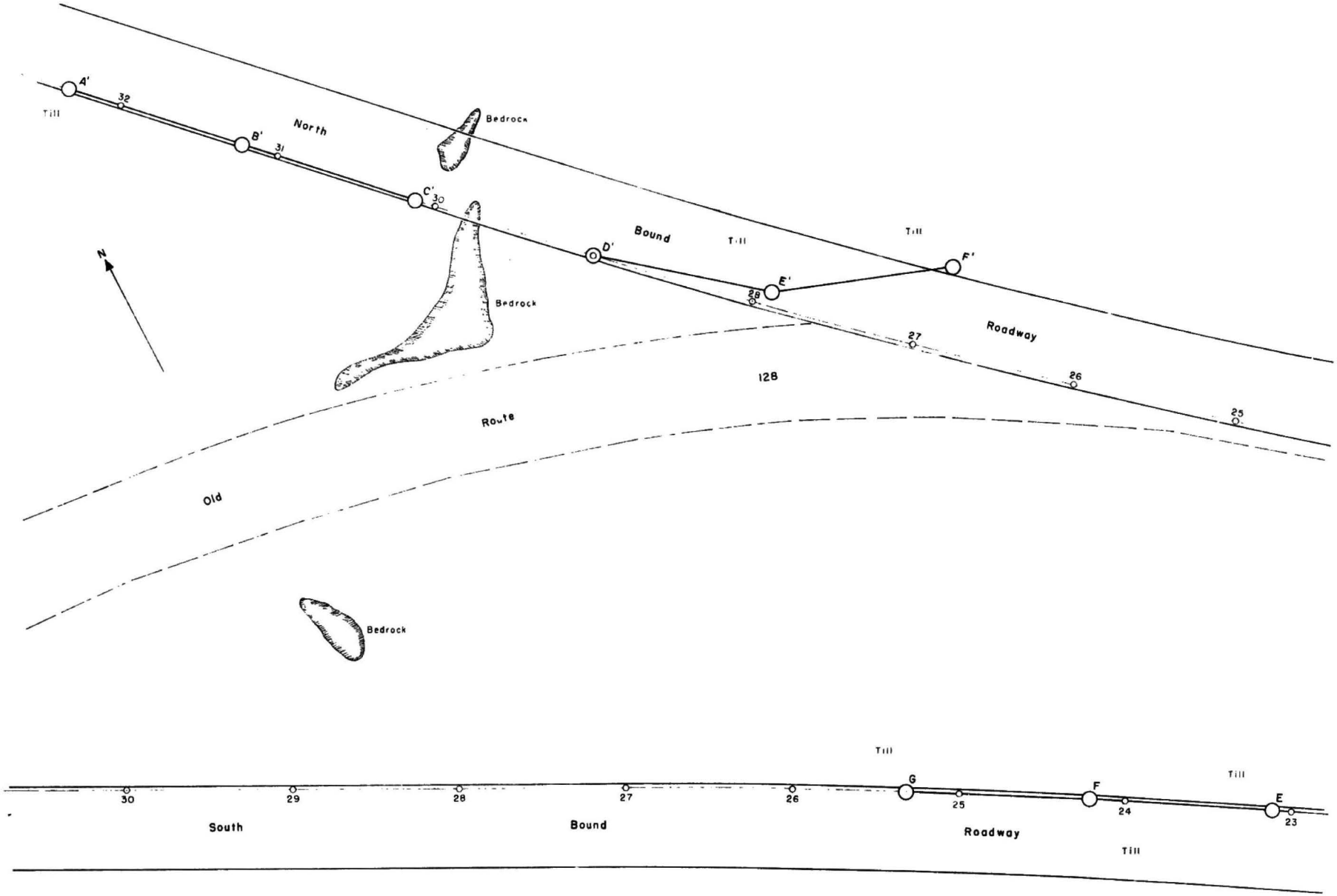
Dotted bedrock lines indicate inconclusive seismic data.

Vertical measurements refer to elevations above mean sea level (datum 1929).

Numerals at shot points indicate depths to bedrock, as A, B

GEOLOGY BY JAMES E MAYNARD	DEDHAM	ROUTE NO. 128	
SEISMIC DATA BY JAMES E MAYNARD	North & South Bound Roadways at Route 1A		
ENGINEERING BY: CHANDLER—CARNEY	SCALE: 1 INCH = 40 FEET	DATE: SEPT 1953	SHEET 1 OF 4

54-193



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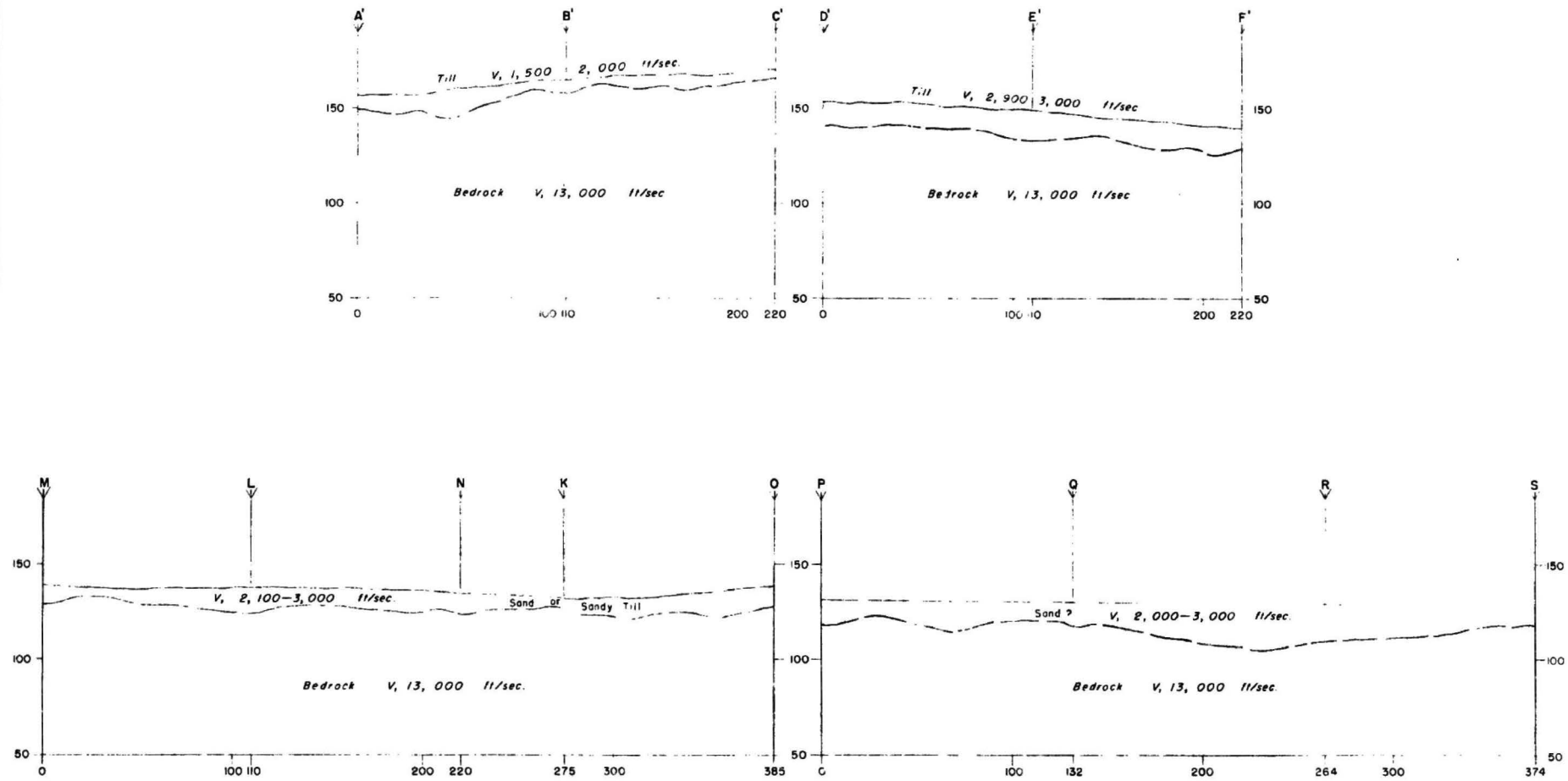
54-193



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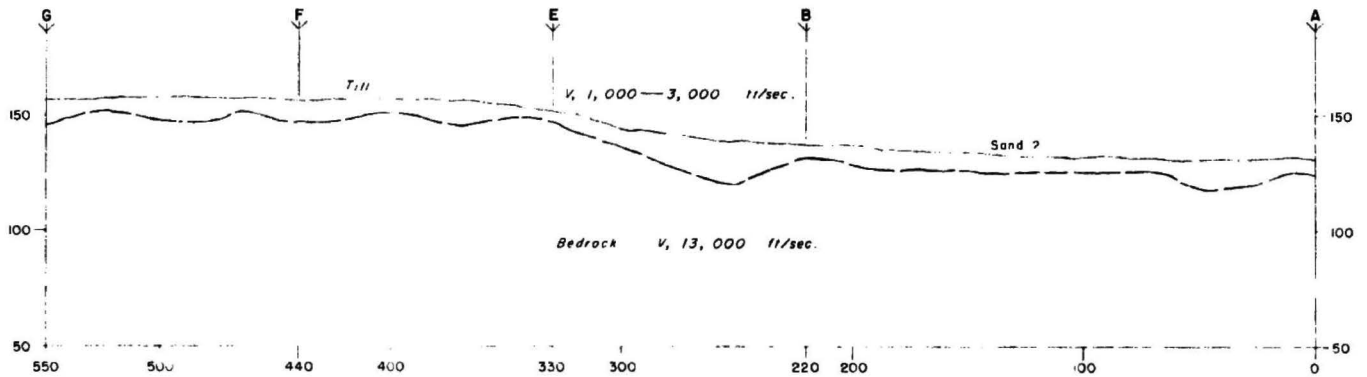

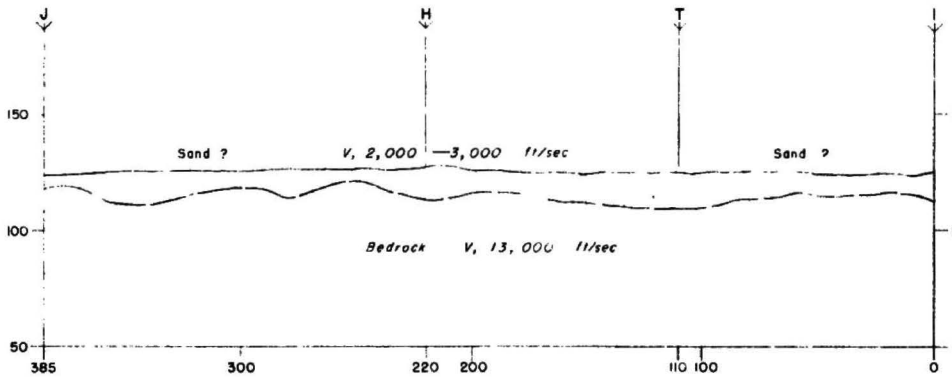

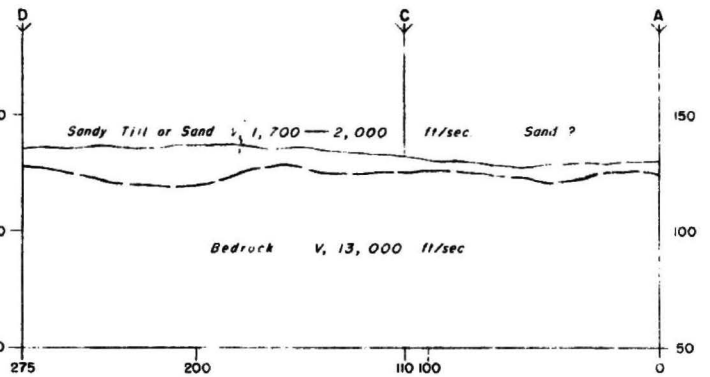

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