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

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

Cooperative Geologic Project

File Report

Geologic and Seismic Investigations for

Relocation of Route 138

Brockton-Avon Town Line

Prospective Cut, Stations 193+00 in Brockton

to 8+00 in Avon, Mass.

This report has been prepared for the
and has not been edited for conformity
U. S. Geological Survey standards and
format.

by

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

and

Raymond Miller, Geophysicist, U. S. Geological Survey

GEOLOGICAL SURVEY MASS. DEPT. OF PUBLIC WORKS 2 pages of text
COOPERATIVE GEOLOGIC PROGRAM 2 plates
OPEN FILE RE

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Room 1, Boston 16, Massachusetts March 1954.
DEPT. of PUBLIC WORKS, 100 NASHUA ST., BOSTON, MASS.

Seismic Series #

**Geologic and Seismic Investigations for
Relocation of Route 138
Brookton-Avon Town Line
Prospective Cut, Stations 193+00 in Brookton
to 8+00 in Avon, Mass.**

by

**James E. Maynard, Geologist, U. S. Geological Survey
and
Raymond Miller, Geophysicist, U. S. Geological Survey**

General Statement

This work was done to obtain information that would aid in establishing a grade for this segment of Route 138, and would also be of value in determining the kinds and quantities of materials to be excavated from the prospective cut at this site. The work was performed in August 1952 as part of a cooperative program of the Massachusetts Department of Public Works and the United States Geological Survey.

Surface Geology

At this location the baseline traverses an area of undulatory ground moraine. The till constituting the knobs of the ground moraine contains unusual quantities of cobbles and boulders of all sizes, most of which are of granite. Although no bedrock was noted at the site, the geology of the location and the surrounding region suggests that the site is underlain at shallow depths by dark colored granite.

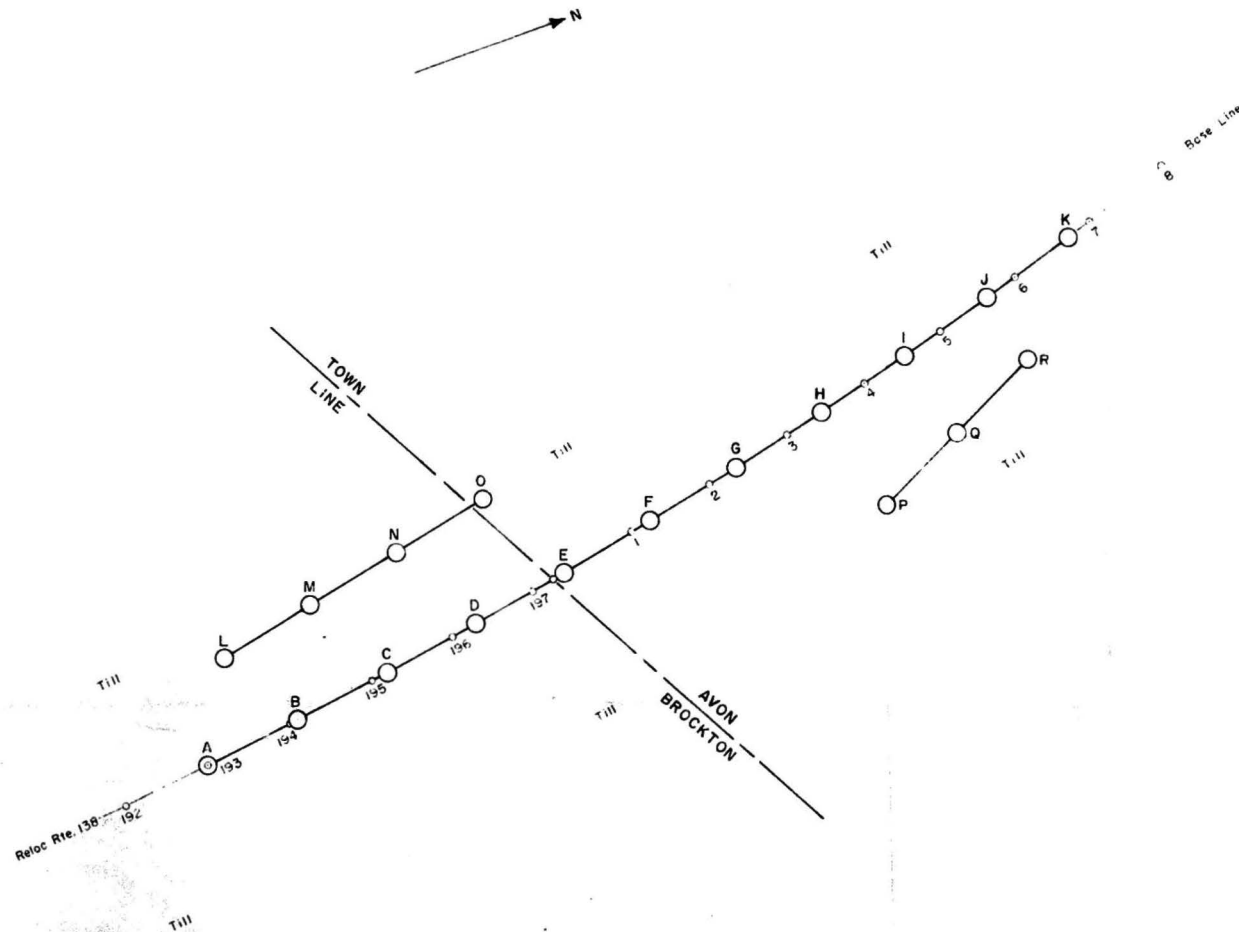
Seismic Traverses

Fifteen seismic traverses were made at this site. The locations of the shot points and the arrangement of the seismic lines as surveyed and plotted by the State Engineers are shown on sheet 1.

Subsurface Interpretation

The geologic sections as interpreted from the surface geology and the seismic data are shown on sheet 2. The surface profiles for these sections were prepared by the State Engineers.

The geologic sections show a layer of till overlying an irregular bedrock profile that ranges from 5 to 21 feet below the surface of the ground. The bedrock surface may be more irregular than the smooth curves indicate, with small ridges and depressions at altitudes both above and below these lines. The dotted bedrock profiles in the vicinity of shot points E and J indicate bedrock surfaces interpreted from inclusive seismic data.



PLAN OF TRAVERSES

SCALE: 1 INCH = 100 FEET

Letters refer to shot points at ends of traverses.

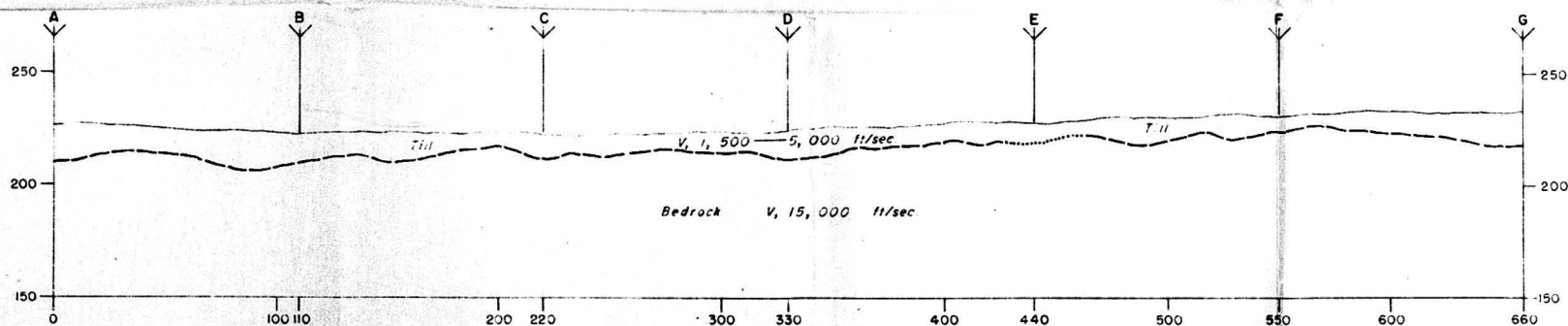
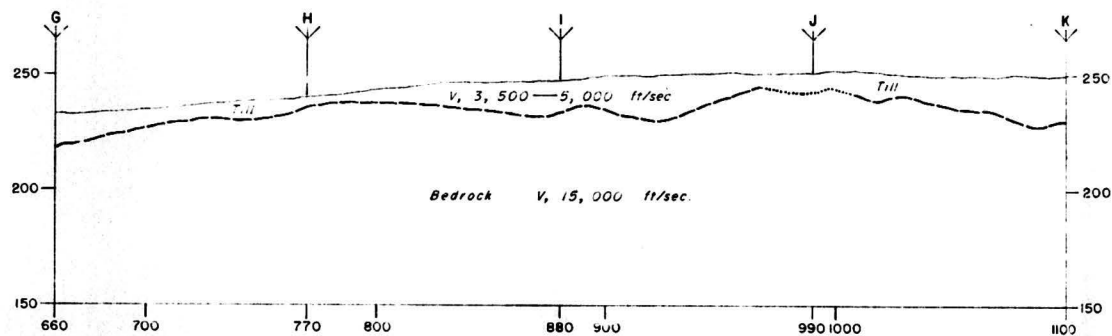
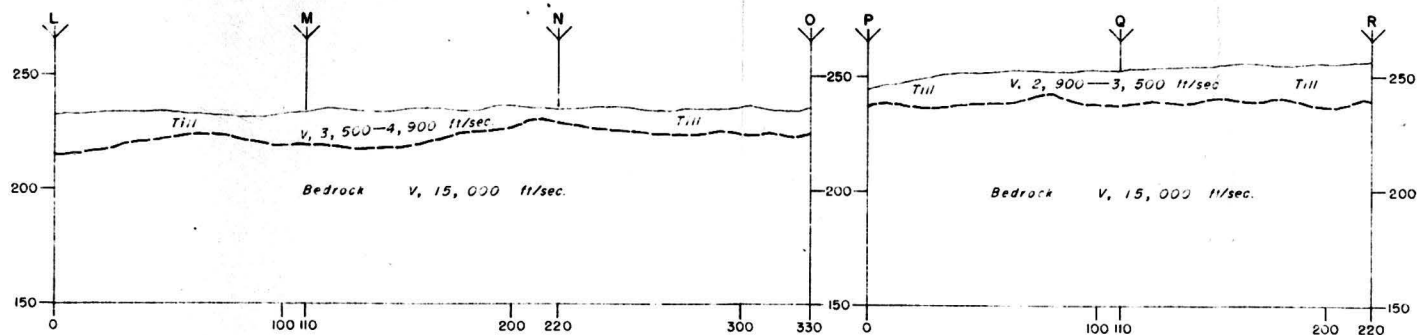
Numbers refer to D. P. W. stations on baseline.

Y - 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 of shot points indicate depths to bedrock, as A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 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PLAN OF TRAVERSES

SCALE: 1 INCH = 100 FEET

Letters refer to shot points at ends of traverses.

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

Y 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 follows:

Y₂₁ Y₁₈

INTERPRETATIVE GEOLOGIC SECTIONS ALONG SEISMIC TRAVERSES

GEOLOGY BY: JAMES E. MAYNARD

SEISMIC DATA BY: RAYMOND MILLER

ENGINEERING BY: CHANDLER-CARNEY

BROCKTON-AVON

ROUTE NO. 138

Sta. 193 Brockton—Sta. 8 Avon

SCALE: 1 INCH = 40 FEET

DATE: AUG 1952

SHEET 2 OF 2

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COOPERATIVE GEOLOGIC PROJECT