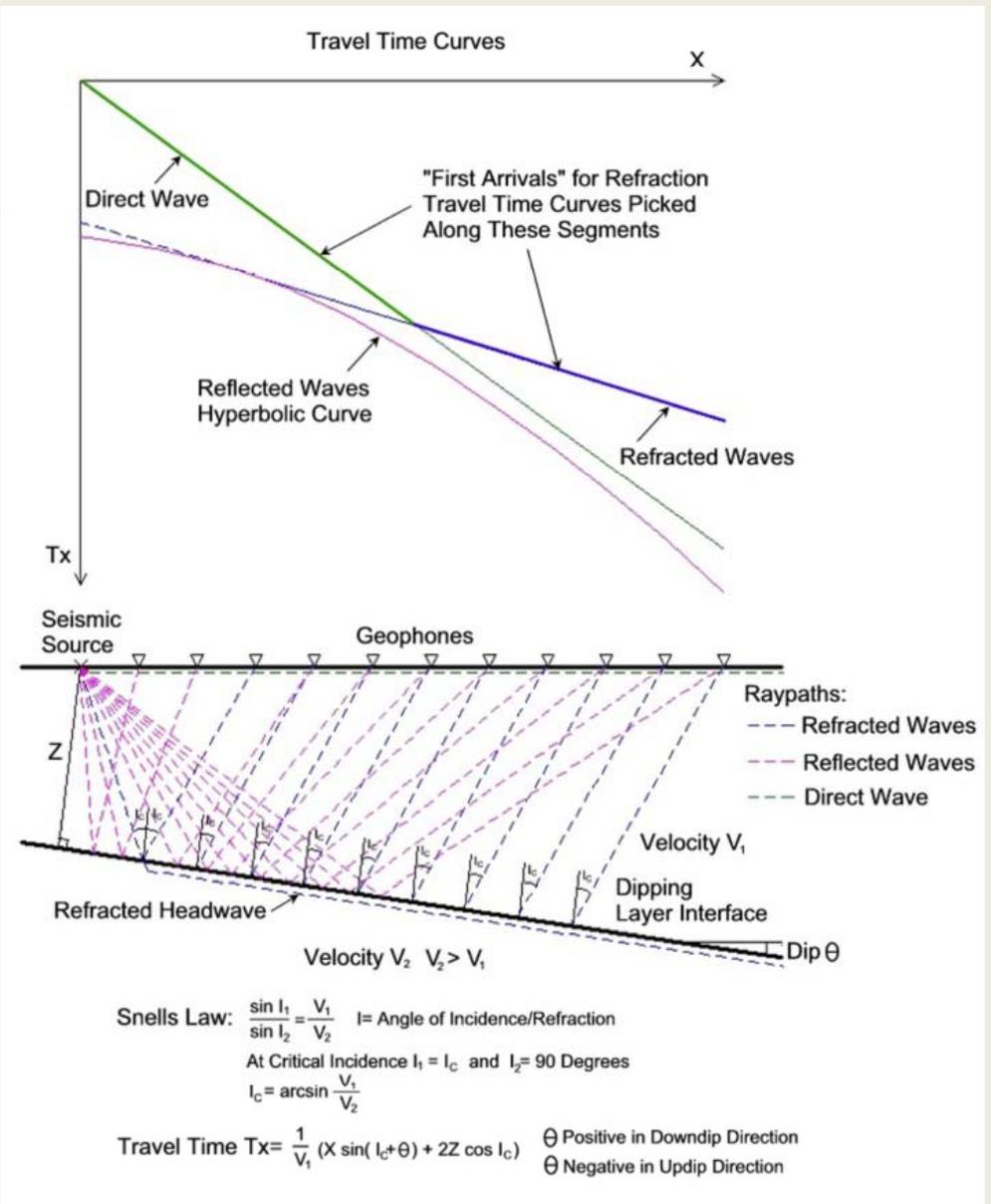


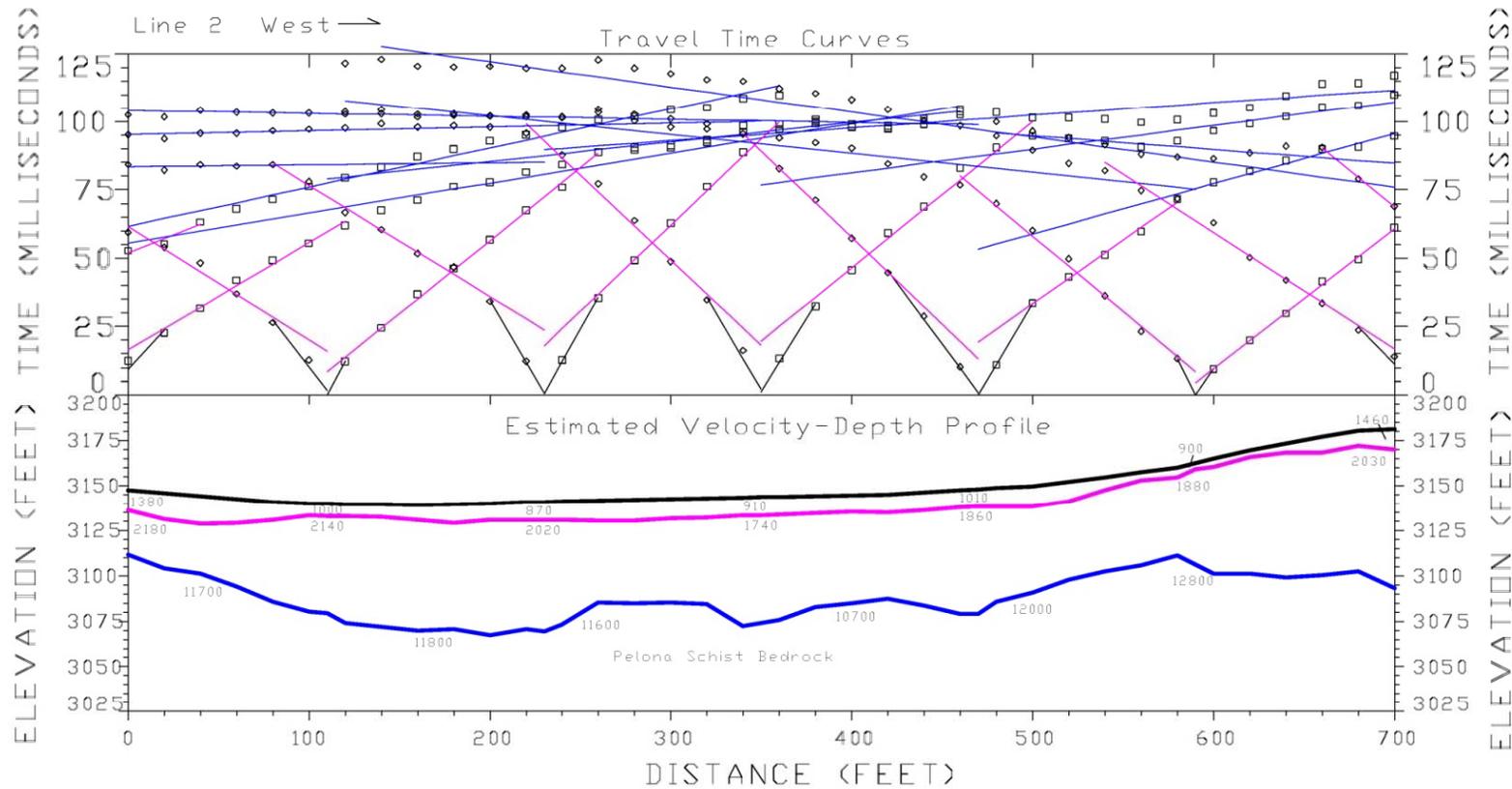
Seismic Refraction

Seismic refraction methods use seismic energy sources generated from the ground surface to transmit “refracted waves” along higher velocity subsurface interfaces. According to Snell’s Law these refraction events occur at higher velocity interfaces when the angle of incidence of incoming seismic raypaths reaches “critical incidence” (shown on the left). As the refracted “headwave” moves along this interface its vibrations send back seismic waves through the overlying layer. These returning refracted waves are recorded on the ground surface by numerous geophones. The refraction survey initiates the energy source at several points along a line of geophones to record a set of “field records” showing vibration-amplitude versus time at each geophone position. The direct and refracted waves are the “first arrivals” on these field records. Their time is picked and used to construct “travel time curves” for the refraction survey. These curves are used in computer programs (such as RAYFRACT or IXRefrax) to generate a two-dimensional model of subsurface velocity structure (refraction velocity profile).

The refraction velocity profiles can be used to image velocity variations due to shallow bedrock structure and faulting, and provide velocity information for the evaluation of rippability and conversion of reflection time profiles to depth profiles. Surveys using a shear-wave energy sources can also be used to generate seismic shear-wave velocity profiles.



Seismic Refraction Velocity Profile Generated Using the “Generalized Reciprocal Method” (GRM) for 3-Layer Earth Model with Computer Program GREMIX (IXRefracX)



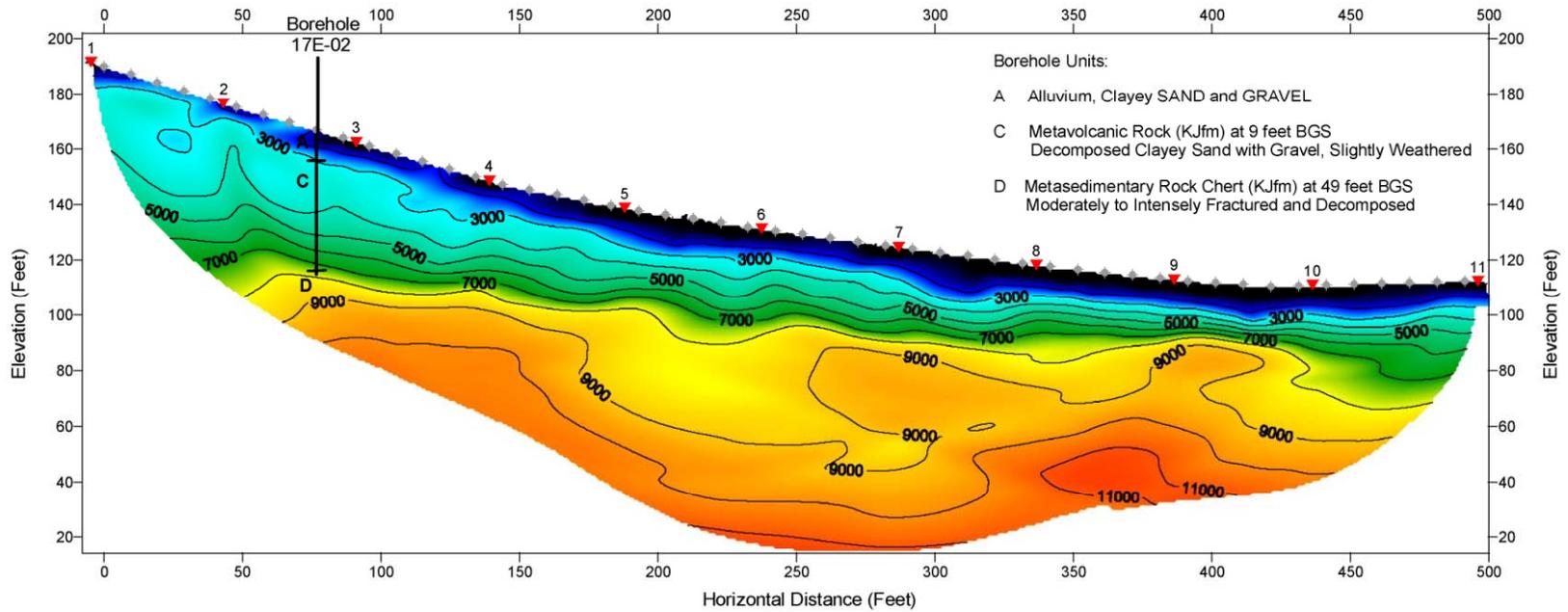
— Ground Surface
 — First Refractor
 — Second Refractor
 Seismic Velocity Depth Profile Based on GRM Processing and Modeling
 Estimated Seismic Compressional (P) Wave Velocities in Ft/sec
 Horizontal and Vertical Scale 1 inch= 60 Ft

for:	
by: ADVANCED GEOSCIENCE, INC.	
Energy Source: Seisgun	Date: 11-30-2005
Equipment: Seistranix RAS	Geophysicist: M. Olson

Line 2
Seismic Refraction Profile
Proposed Development Palmdale, California
Figure 2

Seismic Refraction Tomography Velocity Profile Generated Using Computer Program RAYFRACT

Shows Estimated Range of Bedrock Rippability for Caterpillar Equipment

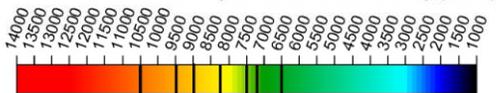


Estimated Rippability for Caterpillar Equipment
Based on Caterpillar Handbook of Ripping, 12th Edition

———— Rippable
----- Marginal Rippability

Seismic Velocity Range of Rippability for
Metamorphic Schist Rock Type for
Franciscan Formation Melange (KJfm)

Estimated Seismic Compressional Wave Velocity (ft/sec)



D8R Ripper
D9R Ripper
D10R Ripper
D11R Ripper

Horizontal & Vertical Scale 1 inch= 40 Feet
Seismic Velocity Contour Interval 1,000 ft/sec

Based on RAYFRACT Refraction Tomography
Initial Delta TV Velocity Model + 110 WET Iterations w/Vmax= 5,100 m/sec

Line 4 Seismic Refraction Velocity Profile
For Bedrock Investigation at WRF South Bay Blvd
Morro Bay, California