

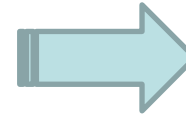
ROCK RIPPABILITY EVALUATION BY MEANS OF SEISMIC METHODS

Scope of the survey: evaluation of the rippability of the bedrock for the excavation of the foundations of a High Voltage.

Investigation depth → less than 10 m (depth of excavation = 4 m)

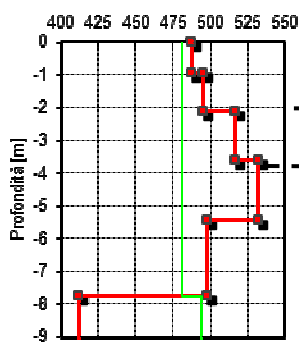
Area dimensions → 20x20 m (excavation area)

Resolution requested → very high



The more appropriate geophysical method is the refraction survey method, coupled with a MASW sounding (Vs) to avoid overestimation due to the presence of water

Profile MASW in the middle of the HV post 20 (velocity Vs waves)
Velocità onde di taglio Vs [m/s]

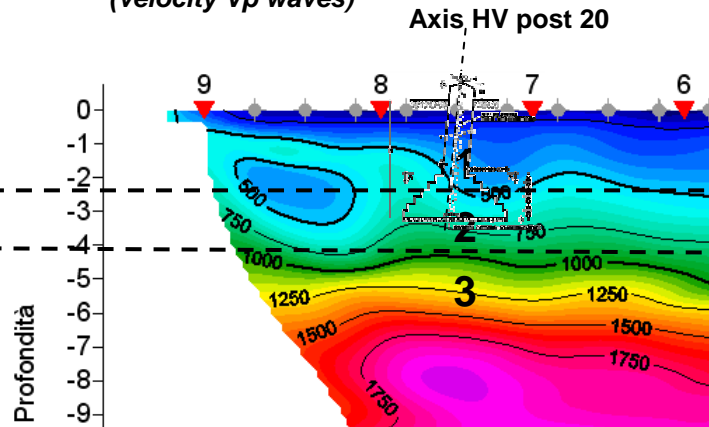


— INVERTED Vs
— INITIAL Model



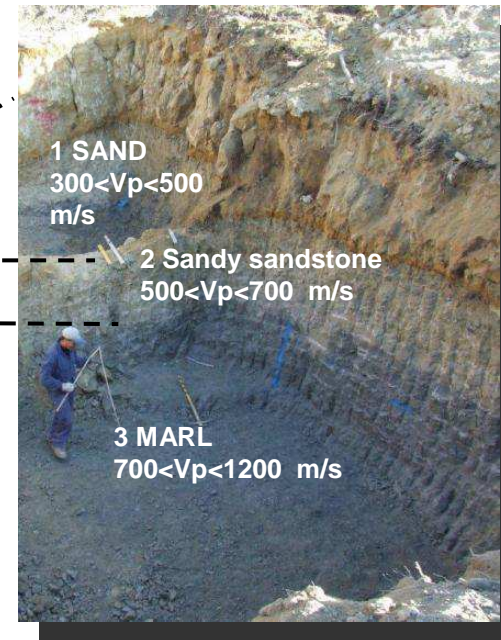
The MASW sounding pointed out a clear velocity inversion at 8 m, which depends on the degree of fracturing of teh marls (3).

Refraction seismic section (velocity Vp waves)



Velocity (m/s)	Rippability
< 1050	Easily Ripped
1050 – 1500	Moderately Difficult
1500 – 2000	Difficult Ripping / Light Blasting
> 2000	Blasting Required

Table 1. Standard Caltrans Rippability Chart



Final results: Soft rocks with ease of excavation by ripper. Seismic methods are correlated to the mechanical properties of the soil/rocks