

Terēan™ ReMi™ Software Case Studies: Liquefaction, IBC / ASCE Site Class, & Rippability Applications

Liquefaction: Black Eagle Consulting, Reno, NV, used ReMi 1dS™ software to reveal a *hidden* layer (velocity reversal) subject to liquefaction (Figure 1). Borehole results confirmed this revelation, including correlations with blow counts and other liquefaction analysis (Figure 1).

ReMi™ software revealed a ten (10) foot-thick low velocity layer hidden beneath five (5) foot-thick gravels (Figure 1) marking the water table. Black Eagle used a 24-channel ReMiDAQ™4 system with 17-foot geophone spacing to acquire the data (Terean.com/products, Figure 2). Terēan ReMi software analysis successfully revealed the presence of this liquefaction prone layer and determined Vs100 as Black Eagle’s project required using IBC 2018 / ASCE 2016 (Site Class C, Figure 1).

Terēan’s ReMiDAQ™ system and ReMi software are commonly used by geotechnics and engineering practitioners to reveal critical subsurface information across entire projects to save cost, meet timelines, and get better and more comprehensive subsurface information for their clients (Terean.com/products). ReMi 2dS™ software provides practitioners with the ability to make 2d images to assist in **mapping zones prone to liquefaction, constraining the location of faults, mapping landslide planes, determining bedrock topography, measuring overburden, and determining rippability across entire project sites** (Figure 2).

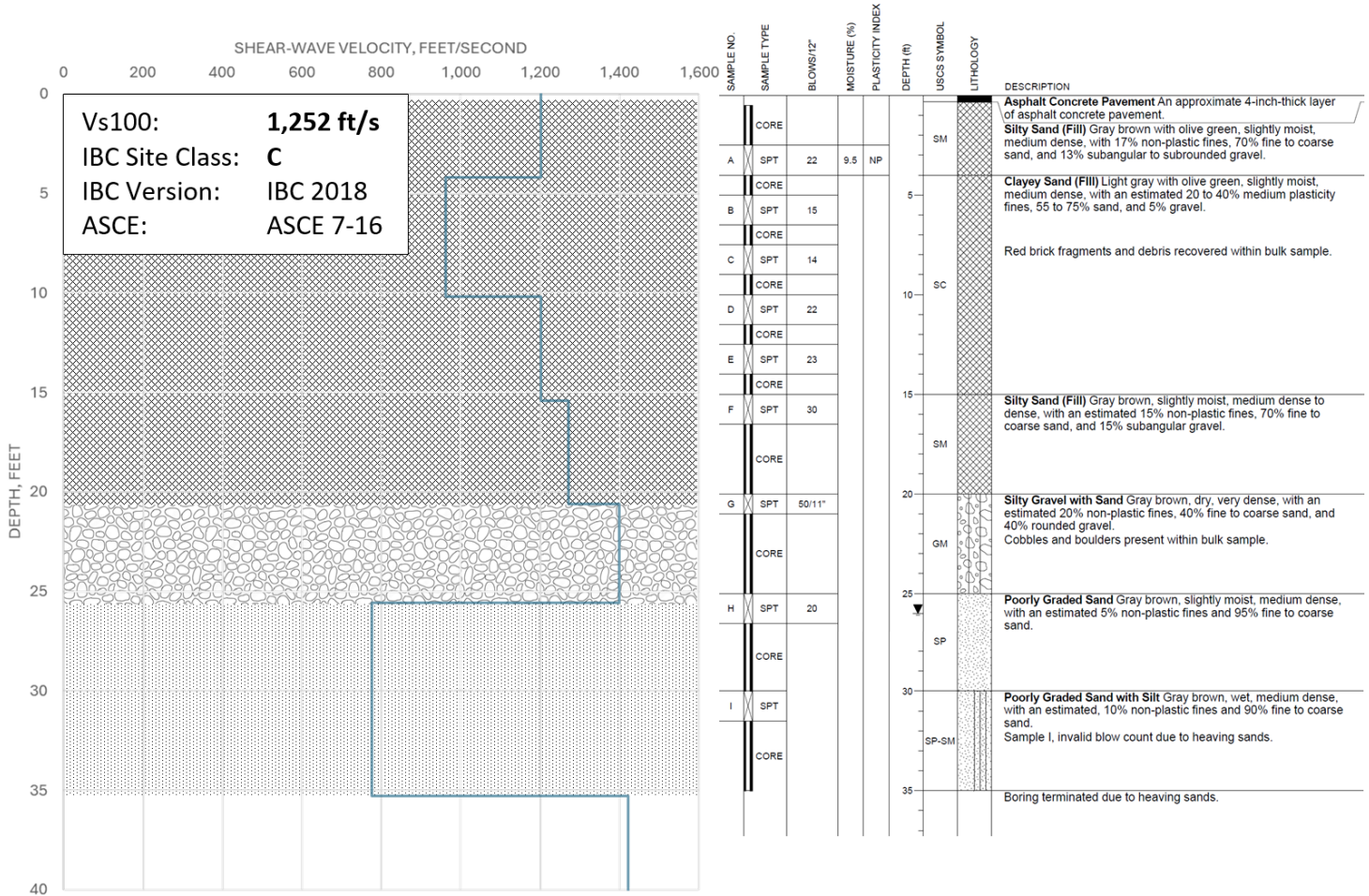


Figure 1. ReMi 1dS™ software analysis (left) correlated with borehole result (right). Black Eagle Consulting will use the ReMiDAQ™ system (Terean.com/products) to model entire project areas to save cost and time by reducing the number of boreholes required for project in addition to getting a project-wide view of the subsurface (Figure 4).

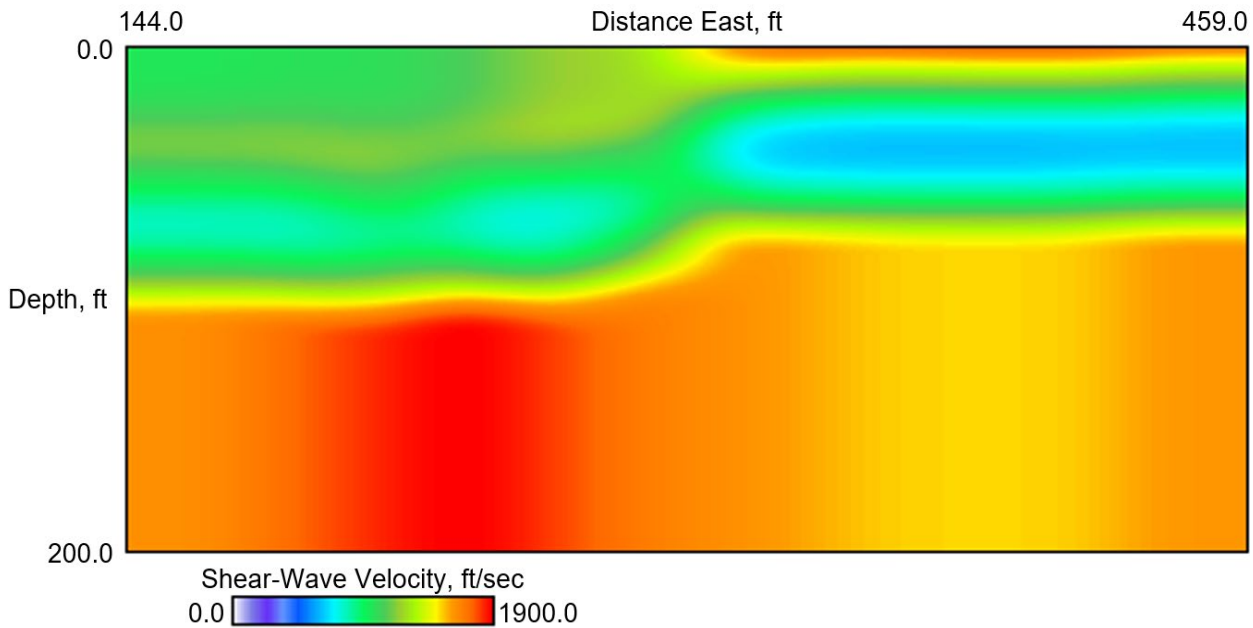


Figure 2a. Terēan, ReMi 2dS™ image from a project to constrain the location of mapped faults in the Las Vegas Valley, NV, USA, produced by **Southwest Geotechnical**. The constrained fault location is shown at about 390 ft offset as a displaced velocity reversal, shown in blue. A shallow caliche layer, showing in orange, is imaged over the upside of the constrained fault location.

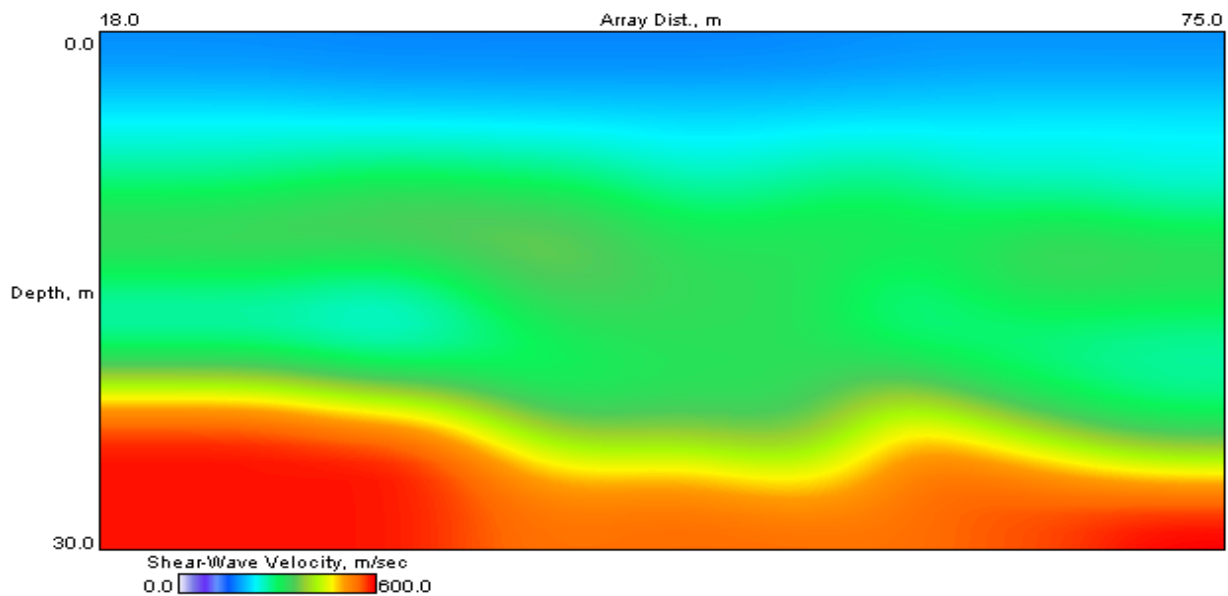


Figure 2b. Terēan, ReMi 2dS™ image to determine the depth and thickness of layers and bedrock topography for a project in Mexico. Variations in subsurface bedrock topography are required for rippability, determining overburden removal costs, and placement of engineered structures.



Figure 3. The ReMiDAQ™ Bundle in action at a job site for an **Earth Tech IBC / ASCE Site Class** project at Minden, NV, USA. The ReMiDAQ™4-12 or 24 channel seismograph includes wireless connection to your field laptop and everything you need to determine the depth and thickness of subsurface layers, IBC site class, and produce a report in the field, in about 30 minutes (Figure 1).

More important, as part of training and support, Terean’s team of post graduate geophysicists become part of your team when you need us. That includes assisting in planning your seismic surveys and processing your data with you when you have questions.

Terean can also process your data for you on-demand anytime with a 24-hour turnaround when you need it (Terean.com/processing).

Rippability, IBC Site Class, depth and variability of subsurface layers: Strata Design, Portland, OR, used ReMi 1dS™ and 2dS™ software to determine D8 rippability. ReMi 1dS™ software showed high velocity zones from 20-98 ft and 111-160 ft (Figure 4). ReMi™ software includes proprietary technology that allows partitioners to determine rippability of subsurface materials using S-waves. In this case, the result reveals subsurface material to be marginally rippable to non-rippable, providing Strata Design a way to predict excavation costs and equipment requirements over their entire project area rapidly and accurately.

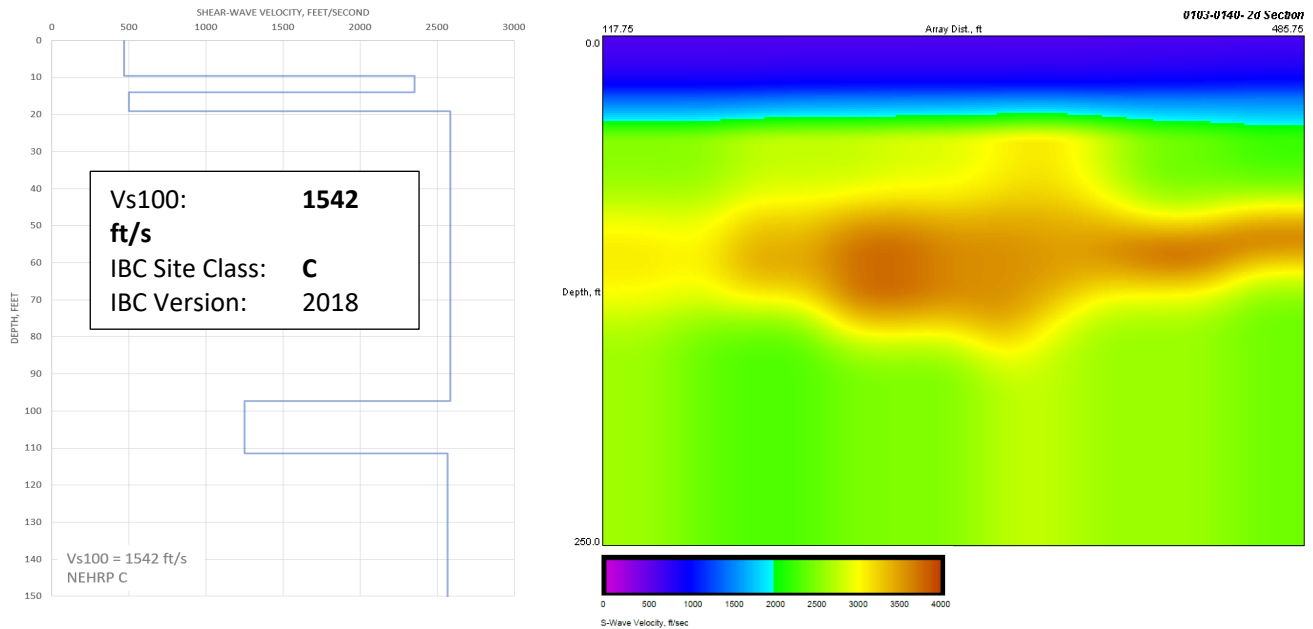


Figure 4. Rippability project performed by **Strata Design, Portland, OR, USA.** Using ReMi™ software determined IBC site class and the depth and thickness of layers (left) and variation in depth and thickness of subsurface layers, revealing D8 rippability (right). With this information, Stata Design was able to reduce borehole costs while getting information over their entire project area easily, rapidly, and accurately. The result is a more thorough excavation plan with budgeting and timeline information based on project-wide subsurface information.

We want to share more information with you!

Contact us anytime so we can answer your questions or discuss our products and related services:

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