The Presidio of San Francisco is brimming with historic resources and spectacular panoramic views. In order to complement this unique setting, the new high viaduct bridge was designed with fewer columns and wide spans to open views to the San Francisco Bay and surrounding area. To support the bridge columns, huge foundations are being set deep into the ground. In order to dig the 12-foot diameter foundations a special oscillator rig was purchased by Malcolm Drilling specifically for the Presidio Parkway project.

The 180,000 pound oscillator is used to twist giant, 12-foot-wide steel casings, some to a depth of nearly 200 feet, to create the seismically safe bridge foundations.

The machine’s unique twisting motion also eliminates disruption to the surrounding ground, minimizing affects on nearby historic and natural resources, and greatly reduces the noise associated with more traditional, brute force pile driving.

**HOW DOES THE OSCILLATOR WORK?**

1. The machine oscillates, or twists back and forth, steel liners (called casings) into the ground. Multiple 40-60 foot casings must be welded together to reach the full depth of the bridge foundation.

2. As the sections of the casing are inserted into the ground, earth is excavated from within the casing. The casing prevents the ground around the excavated area from collapsing and causing any settling or shifting.

3. After the earth is removed, steel rebar cages are placed within the casing.

4. Then, concrete is poured to fill the casing, which becomes the foundation for a bridge column.