



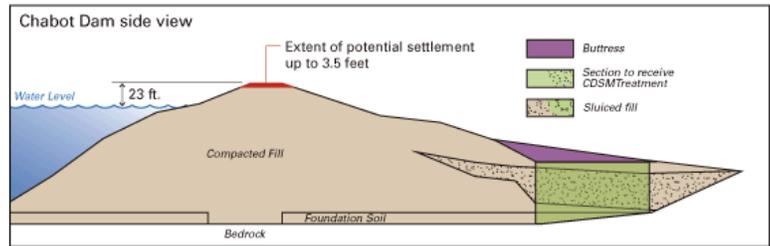
# Chabot Dam Seismic Upgrade Project

## Project Overview

EBMUD will be performing seismic upgrade work on the dry side of Chabot Dam and on the dam's outlet tower. Chabot Dam was built in 1874 and retrofitted in 1980.

Additional work is required at this time because a small portion of surface fill added to the bottom of the dam in the 1880s could cause the dam to settle approximately three feet in a major earthquake. Settlement would not cause the dam to fail, because there is at least 23 feet of space between the top of the dam and the top of the water. However it would require draining the reservoir and rehabilitating the dam after an earthquake. The proposed project is intended to strengthen the dam.

The outlet tower of the dam (which is adjacent to the northwest corner of the dam and is used to release water from Lake Chabot) could also be made inoperable by an earthquake. To address this issue, EBMD will move the valves and controls to an existing onshore shaft and remove the tower and pavilion. There is no water outage associated with this project.



## Schedule and Work plan

Construction will be from May 2016 to Summer 2017. The San Leandro City Chabot Park off of Estudillo Avenue and portions of the West Shore Trail in Lake Chabot Regional Park will be closed during construction.

### Start Field Work—May 2016

- Mondays to Fridays, 7:00am to 7:00pm

### Dam Upgrade Work—June 2016 to November 2016

- CDSM (see graphic on back for details) - Mondays to Saturdays, 24 hour work possible

### Outlet Works Retrofit –December 2016 to May 2017

- Typical work hours: Mondays to Fridays 7:00am to 7:00pm
- Activities greater than 90 dba at nearest receptor: Mondays to Fridays 8:00am to 4:00pm

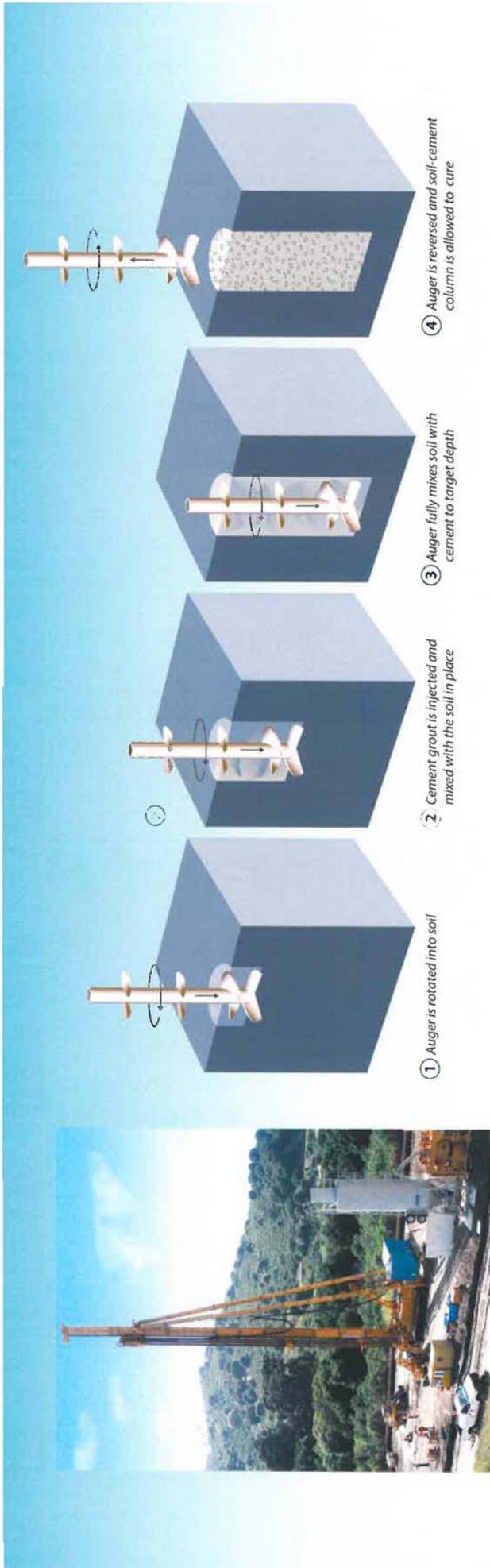
### Hauling and Deliveries

- Typical haul and delivery hours: Mondays to Friday 7:00am to 7:00pm with some deliveries arriving at 6:30am with prior approval

Gate will be opened daily 30 minutes prior to start of work to allow deliveries and workers access and to prevent street queuing.

## Contact

For more information, visit the website at [www.ebmud.com/chabot-dam](http://www.ebmud.com/chabot-dam). If you have questions, please contact Laura Luong, EBMD Community Affairs Representative, at [laura.luong@ebmud.com](mailto:laura.luong@ebmud.com) or (510) 287-0140.



CDSM equipment at San Pablo Dam. Above, the tall main column supports three vertical drilling shafts. In the foreground to the right is a cement silo, which is connected to mixing equipment for making grout. The grout is pumped into the ground through large, hollow augers (illustrated above, right) as they burrow into the soil (below).



## How CDSM Works

Cement deep soil mixing (CDSM) is a process used to improve soils in place by mixing them with cement grout using large, 3 to 5 foot diameter mixing augers. The augers are equipped with paddles along the shafts and grout injection ports at the tips. The mixing augers are mounted on a crane or rig and then driven into the soil by a motor.

As the mixing shafts are advanced into the soil ①, cement grout is pumped through the hollow stem of the shafts and injected into the soil ② at the shaft tips. Auger flights and mixing blades on the shafts blend the soil with the grout. When the target depth is reached ③, the mixing shafts are withdrawn and the mixing process continues until the augers are fully removed from the ground ④. After withdrawal, overlapping soil-cement columns remain in the ground. Adjacent, overlapping strokes are installed to form walls of treated columns.

The CDSM columns in this project penetrated the foundation soils and keyed into the bedrock below.