

To: Phillip McOllough, Jacobs
From: Weiyu Chen
Date: January 13, 2006
Project: SLAC
Subject: Retaining wall design parameters

Job #: 2003043G4

In response to your e-mail sent to us on January 13, 2006, we provided the design parameters for the retaining wall with 2:1 (horizontal:vertical) sloped backfill as follows:

1. *Static Forces:* The following recommendations apply for walls retaining backfill material with a horizontal surface. For top-restrained walls or cantilever site walls with footings bearing on Ladera sandstone, a lateral earth pressure equal to a 100 pcf equivalent fluid pressure should be used. For cantilever site walls with footings bearing on artificial fill or residual soil, a lateral earth pressure equal to an equivalent fluid pressure of 70 pcf should be used.
2. *Dynamic Case:* For a wall of height H feet, the dynamic earth pressure increment induced by an earthquake should be assumed to be about 25H psf. The associated static earth pressure for top-restrained walls or cantilever site walls with footings bearing on Ladera sandstone should be equal to an equivalent fluid pressure of 85 pcf. For cantilever site walls with footings bearing on artificial fill or residual soil, the associated static earth pressure is still equal to an equivalent fluid pressure of 70 pcf. The total lateral earth pressure is equal to the sum of the dynamic earth pressure increment and the static earth pressure.

Correction for associated static earth pressure (cantilever wall with horizontal backfill)

The associated static earth pressure for cantilever walls with horizontal backfill should be 45 pcf instead of 55 pcf in our previous memo, dated May 26, 2005.

ACTIVE SOIL

SPOKE WITH DR CHEN, THE FORCES ARE PARALLEL WITH THE BANK FILL