

where  $N_i$  and  $d_i$  in Equation 16-41 are for cohesionless soil, cohesive soil and rock layers.

$$\overline{N}_{ch} = \frac{d_s}{\sum_{i=1}^m \frac{d_i}{N_i}} \quad (\text{Equation 16-42})$$

where:

$$\sum_{i=1}^m d_i = d_s$$

Use  $d_i$  and  $N_i$  for cohesionless soil layers only in Equation 16-42.

$d_s$  = The total thickness of cohesionless soil layers in the top 100 feet (30 480 mm).

$m$  = The number of cohesionless soil layers in the top 100 feet (30 480 mm).

$s_{ui}$  = The undrained shear strength in psf (kPa), not to exceed 5,000 psf (240 kPa), ASTM D 2166 or D 2850.

$$\overline{s}_u = \frac{d_c}{\sum_{i=1}^k \frac{d_i}{s_{ui}}} \quad (\text{Equation 16-43})$$

where:

$$\sum_{i=1}^k d_i = d_c$$

$d_c$  = The total thickness of cohesive soil layers in the top 100 feet (30 480 mm).

$k$  = The number of cohesive soil layers in the top 100 feet (30 480 mm).

$PI$  = The plasticity index, ASTM D 4318.

$w$  = The moisture content in percent, ASTM D 2216.

Where a site does not qualify under the criteria for *Site Class F* and there is a total thickness of soft clay greater than 10 feet (3048 mm) where a soft clay layer is defined by:  $S_u < 500$  psf (24 kPa),  $w \geq 40$  percent, and  $PI > 20$ , it shall be classified as *Site Class E*.

The shear wave velocity for rock, *Site Class B*, shall be either measured on site or estimated by a geotechnical engineer or engineering geologist/seismologist for