

TABLE 1
 GEOTECHNICAL PROPERTIES FOR SLOPE STABILITY ANALYSIS

| Geologic Unit | Strength Model | Total Unit Weight (pcf) | Friction Angle (degrees) | Cohesion (psf) | Uniaxial Compressive Strength (psi) |
|---------------------------------------|--------------------|-------------------------|--------------------------|----------------|-------------------------------------|
| Terrace Deposits (Qt) | Mohr-Coulomb | 103 | 34 | 0 | N.A. |
| Altamira Shale (Tma) | Hoek-Brown | 118 | See Note 4 | See Note 4 | 740 |
| Weathered Tuff (Bentonite Clay) (Tma) | Non-liner Function | 118 | See Note 5 | See Note 5 | N.A. |

Notes:

(1) pcf = pounds per cubic foot

(2) psf = pounds per square foot

(3) psi = piund per cubic inch

(4) The generalized Hoek & Brown (1997) model is nonlinear and does not correspond to single values of friction angle and cohesion. The full nonlinear curve is presented in Appendix I of the Final Report by Shannon & Wilson, Inc., dated December 19, 2013.

(5) The shear strngth envelope used to model the bentonite clay is nonlinear and does not correspond to single values of friction angle and cohesion.

The full nonlinear curve is presented in Appendix I of the Final Report by Shannon & Wilson, Inc., dated December 19, 2013.

WHITE POINT LANDSLIDE STABILIZATION
TABLE 2
SUMMARY OF RESULTS OF SLOPE STABILITY ANALYSIS

| Section | Case | Rock Anchor | | | | | Slope Stability Analysis ⁽⁹⁾ | | | | | | |
|---|--|------------------|-----------------|--------------------------|-----------------|---------------|--|-------------------------|---|--|--------------------------|--|----|
| | | Inclination | | Number of Rows | Spacing | | Post-tensioning Load per Anchor ⁽¹⁾ | Static Factor of Safety | Seismic ⁽²⁾ | | | | |
| | | H:V | Angle (degrees) | | Horizontal (ft) | Vertical (ft) | | | Yield Acceleration of Slope, k_y ⁽³⁾ (g) | Max. Equivalent Acceleration, k_{max} ⁽⁴⁾ (g) | Mobilized ⁽⁷⁾ | Slope Displacement (cm) ⁽⁶⁾ | |
| | | | | Allowable ⁽⁵⁾ | | | | | | | | | |
| | | With Building(s) | No Building | | | | | | | | | | |
| L - L' | No slope dewatering/drain pipes ⁽⁸⁾ | - | - | - | - | - | - | 1.3 | 0.043 | 0.162 | 24 | 6 | 15 |
| | Slope dewatering/drain pipes @ 20 ft | - | - | - | - | - | - | 1.48 | 0.055 | 0.162 | 13 | 6 | 15 |
| | 6 - 0.6" dia. seven-wire strands, ASTM A416, 270 ksi (w/ dewatering/drain pipes @ 20 ft) | 1 : 1 | 45 | 2 | 20 | 20 | 210 | 1.58 | 0.063 | 0.162 | 9 | 6 | 15 |
| | | | | 3 | 20 | 20 | 210 | 1.64 | 0.067 | 0.162 | 7 | 6 | 15 |
| 4 | | | | 20 | 20 | 210 | 1.70 | 0.072 | 0.162 | 6 | 6 | 15 | |
| 13 - 0.6" dia. seven-wire strands, ASTM A416, 270 ksi (w/ dewatering/drain pipes @ 20 ft) | 1 : 1 | 45 | 2 | 20 | 20 | 458 | 1.72 | 0.073 | 0.162 | 5.5 | 6 | 15 | |
| M - M' | No slope dewatering/drain pipes ⁽⁸⁾ | - | - | - | - | - | - | 1.33 | 0.042 | 0.162 | 25 | 6 | 15 |
| | Slope dewatering/drain pipes @ 20 ft | - | - | - | - | - | - | 1.66 | 0.068 ⁽¹⁰⁾ | 0.162 | 7 | 6 | 15 |
| | 6 - 0.6" dia. seven-wire strands, ASTM A416, 270 ksi (w/ dewatering/drain pipes @ 20 ft) | 1 : 1 | 45 | 2 | 20 | 20 | 211 | 1.75 | 0.078 ⁽¹⁰⁾ | 0.162 | 4 | 6 | 15 |

- Notes (1) Load is assumed to be less than or equal to 60% of the anchor ultimate capacity.
(2) "Recommended Procedures for Implementation of DMG Spacial Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California" by the Southern California Earthquake Center (2002) is used for the seismic analysis.
(3) The ground acceleration that causes the slope to yield or have a factor of safety of unity against slope failure.
(4) Ground acceleration demand
(5) Allowable displacement recommended from DMG Special Publication 117.
(6) 1 cm = 0.4 inch; 1 inch = 2.54 cm.
(7) Slope displacement is estimated using Bray et al (1998) as recommended in DMG Special Publication 117.
(8) Hydrostatic pressure is at 30 percent of the height of the near-vertical tension cracks.
(9) GLE method is used to compute the factor of safety against slope failure unless noted.
(10) Janbu method is used in lieu of GLE method due to non-convergent solution.