

Using the Australian Code AS 2159-2009. For use with SoilStructure BORED PILE Software:

		APPENDIX E
F_{eh}	Bending moments, shear forces and axial actions induced by heave due to unloading of ground due to excavation	Clauses 3.3.1.2(d), 3.3.2(b)
F_{em}	Bending moments, shear forces and axial actions induced by lateral ground movements	Clauses 3.3.1.2(c), 3.3.2(b)
F_{es}	Compressive and tensile actions in the pile induced by vertical ground movements	Clauses 3.3.1.2(b), 3.3.2(b)
F_{nf}	Actions due to negative friction	Clauses 3.3.1.2(a), 3.3.2(b), 4.6.3, Tables 8.3.3.3, 8.4.3.1 and E1, Appendix E

3.3.2 Load combinations for strength design

The load combinations for strength design shall be as follows:

- (a) The design actions for ultimate strength design of piles shall be the combination of factored loads that produces the most adverse effect on the pile in accordance with AS/NZS 1170.0.
- (b) Where there are actions induced by ground movement (see Clause 3.3.1.2), they shall be computed as follows:
 - (i) For structural design (see Section 5)
 - (A) $S_u = 1.2 F_{nf}$ negative friction actions **Bored Pile uses 1.2 Load Factor**
 - (B) $S_u = 1.5 F_{es}$ compressive and tensile actions **Bored Pile uses 1.2 Load Factor, but you can change it in "Reinforcement Tab"**
 - (C) $S_u = 1.5 F_{em}$ bending moments, shear forces and axial actions **Bored Pile uses 1.6 LF**
 - (D) $S_u = 1.5 F_{eh}$ bending moments, shear forces and axial actions **Bored Pile uses 1.6 LF**

You can change the Default 1.6 for (C) and (D) above here: In "Reinforcement Tab" Take Mu of 2 and say $\mu = 2 * 1.5 / 1.6 = 1.88$ kN.m Same thing for Tu (Torsion) and Vu (Shear). Or you can leave it with 1.6 Load Factor, since it is greater than 1.5

Reinforcement

European
400 MPa
200000 MPa
10M
4
Tie
8M
75.0 mm

Tie/Spiral Spacing
Calculated 160.0 mm
Override 50.0 mm
Spacing Good
Reinforcement 0.44 %
[View Table](#) [View Graph](#)

Load Cases 1

	Pu, KN	Mu, KN.m	Tu, KN.m	Vu, KN	M all, KN.m	Utilization M	T	V	T & V
1	500	2	2	2	48	5%	25%	3%	18%
2	-138	2	1	2		-	-	-	-
3	-138	2	1	2		-	-	-	-
4	-138	2	1	2		-	-	-	-

Pu - Factored Axial
Mu - Factored Moment
Tu - Factored Torsional
Vu - Factored Shear

Use governing load combination. Ensure anchorage breakout strength exceeds the torsional capacity of the section.

Bored Pile can be used in Australia.