Answers

1. (a) $D \approx 16$ m;
    (b) Moment capacity is sufficient;
    (c) Lateral capacity is sufficient;
    (d) $w \approx 1.3 \times 10^{-2}$ m.

2. (a) (i) $w \approx 0.113$ m; (ii) $w_r \approx 0.108$ m; (iii) $w_{corner} \approx 0.067$ m; $w_{centre} \approx 0.135$ m;
    (b) $\Delta\sigma_{corrner} \approx 19.5$ kPa; $\Delta\sigma_{centre} \approx 33$ kPa.

3. (a) For shaft resistance $z_{lim} = 20.6$ m, for end bearing $z_{lim} = 24.1$ m;
    (b) $Q_{ten} = 251z - 3827$; $Q_{comp} = 251z + 998$;
    (c) $N = 13$ piles; $L = 35$ m.

4. (a) $\varphi \approx 39°$;
    (b) $V_{ult} = 1.84$ MPa;
    (d) $e = 0.14$ m.