

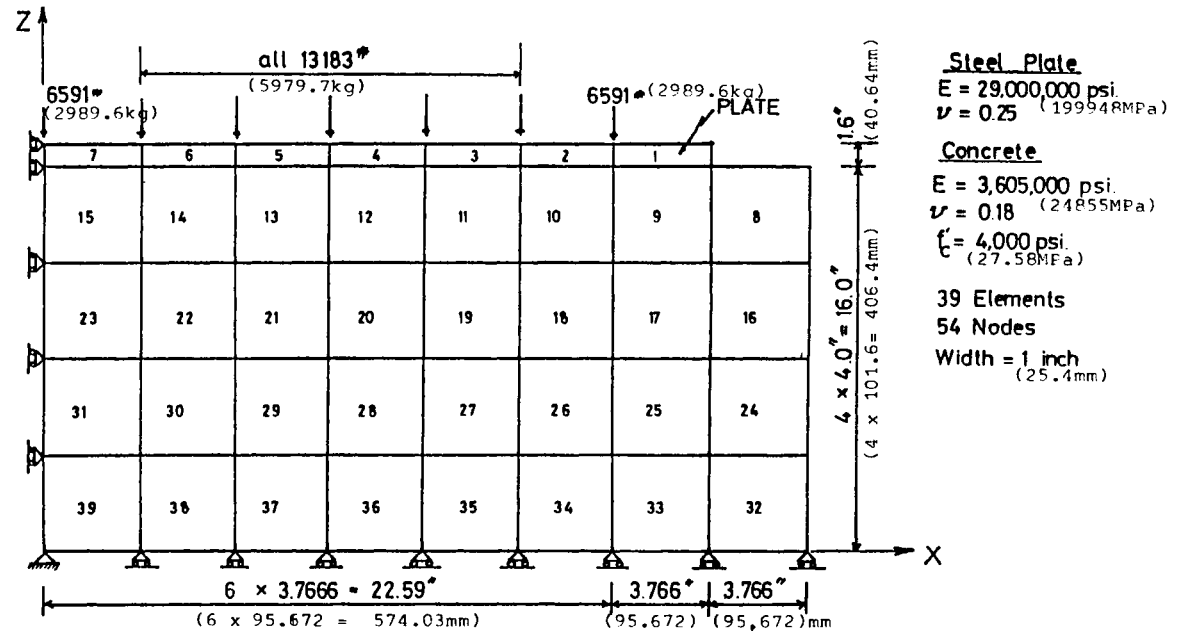


Fig. 2--Finite element grid for 5625 kip (25,021 kN) bearing--Scheme A

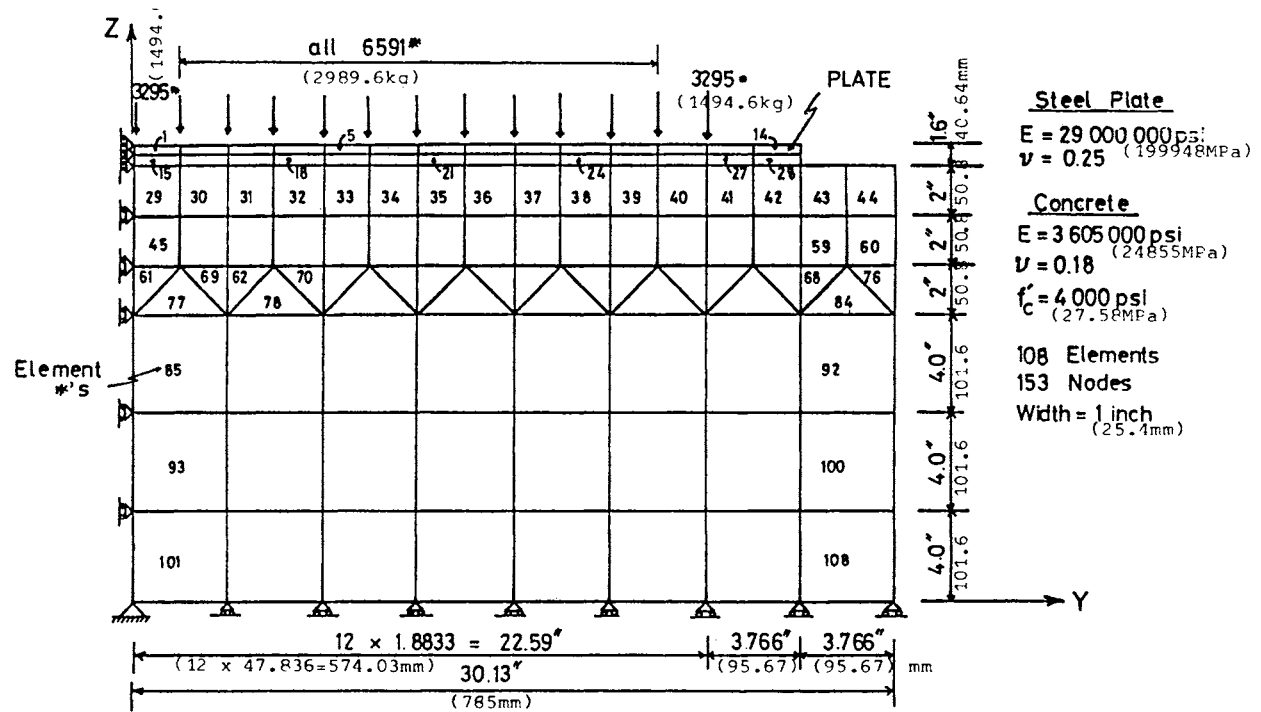
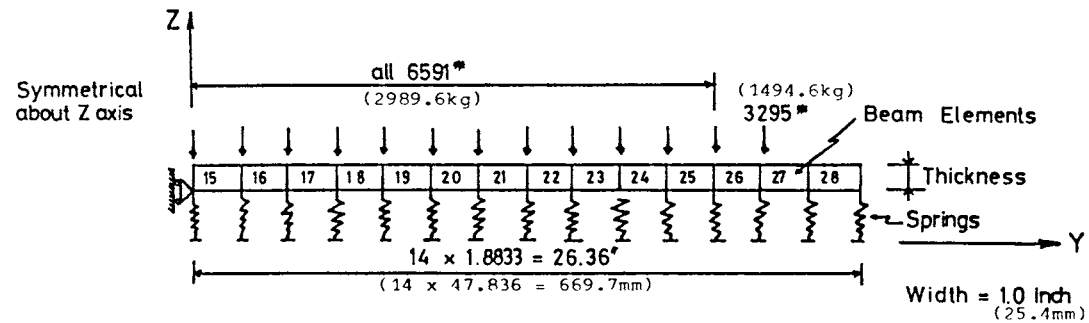


Fig. 3--Finite element grid for 5625 kip (25,021 kN) bearing--Scheme B



Steel Plate

$$E = 29,000,000 \text{ psi. (199948 MPa)}$$

I varies with thickness

Concrete Springs

$$E = 3,605,000 \text{ psi. (24855 MPa)}$$

$$f'_c = 4,000 \text{ psi (27.58 MPa)}$$

$$k = \frac{AE}{L} = \frac{(1)(1.8833)(3,605,000)}{18} = 377,000 \text{ #/inch (42595.3 Nm)}$$

Fig. 4--Elastic foundation model for 5625 kip (25,021 kN) bearing

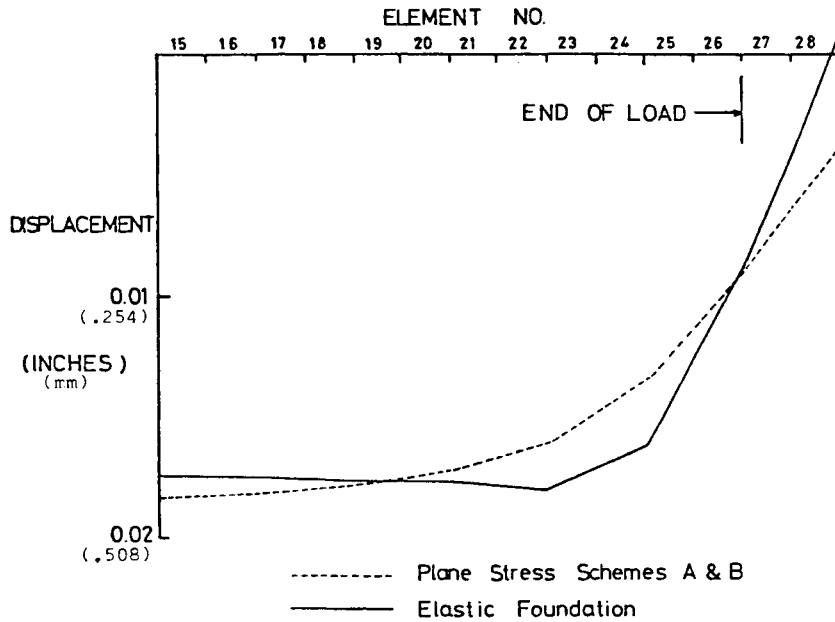


Fig. 5--Vertical displacement at plate-concrete interface for 5625 kip (25,021 kN) bearing. Plate = 1.6 in. (40.64 mm)

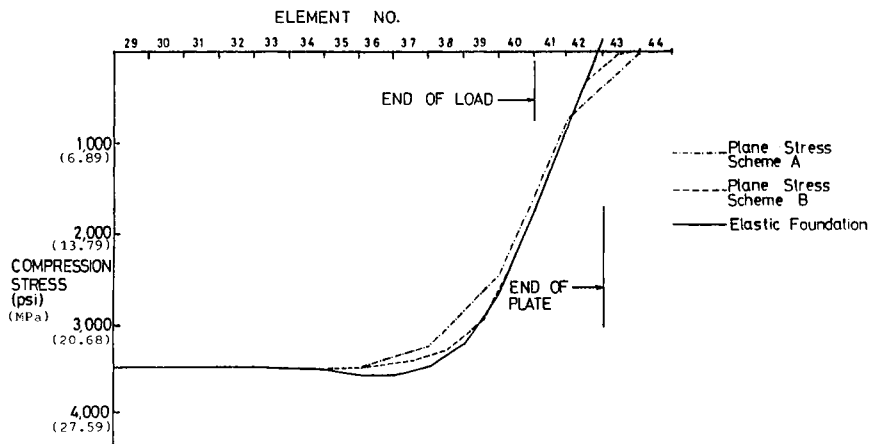


Fig. 6--Vertical stresses in concrete beneath plate for 5625 kip (25,021 kN) bearing. Plate thickness = 1.6 in. (40.64 mm)

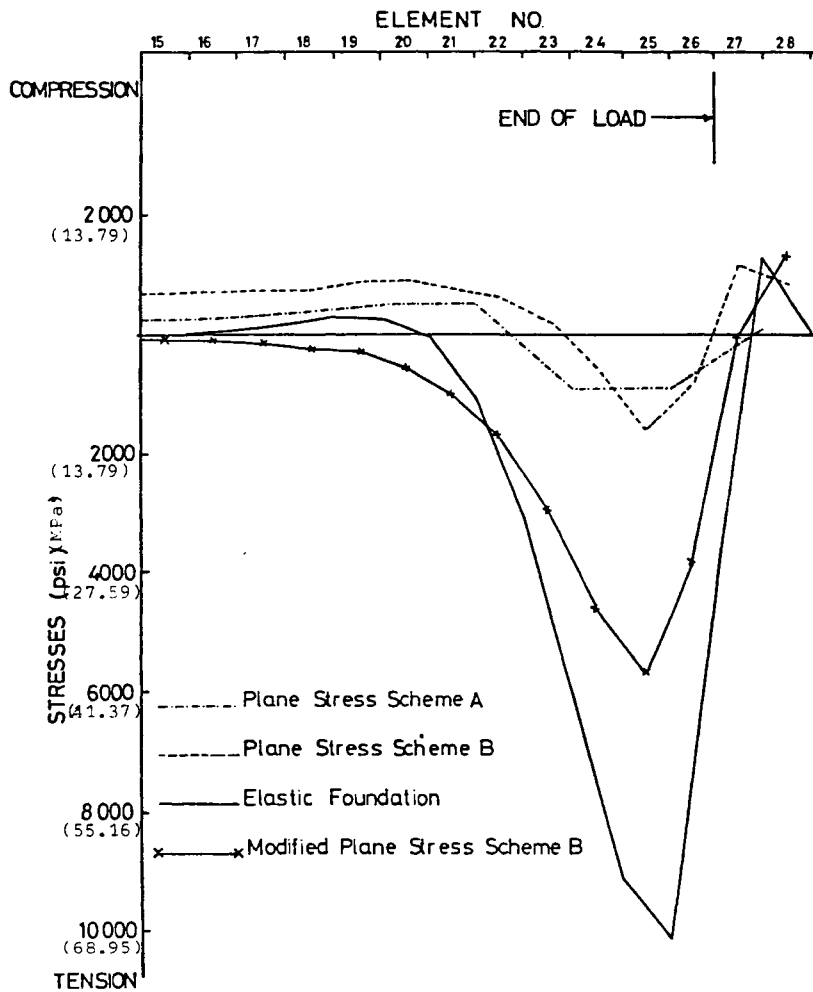


Fig. 7--Bending stresses at bottom surface of plate for 5625 kip (25,021 kN) bearing. 1.6 in. (40.64 mm) thick

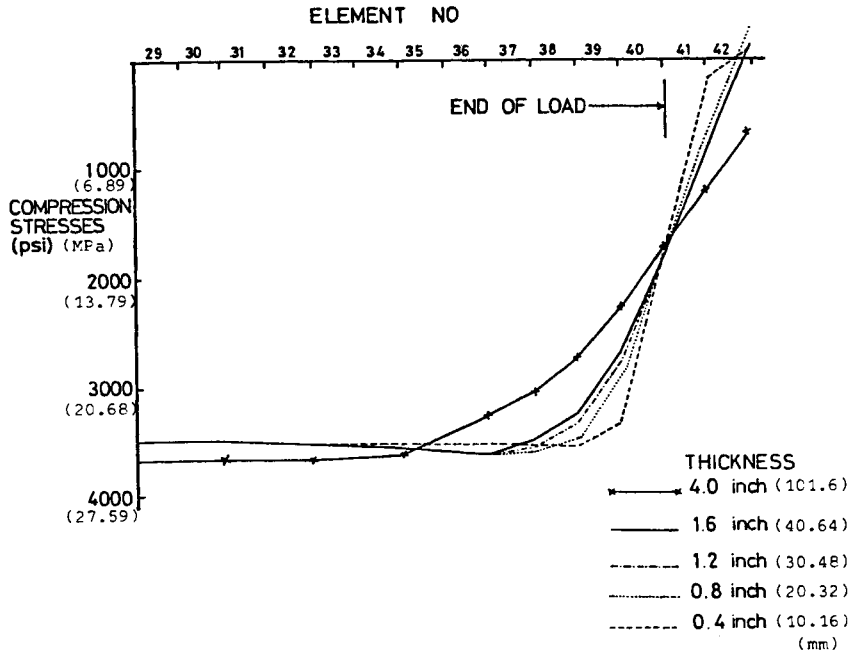


Fig. 8--Vertical stresses in concrete beneath plate for 5625 kip (25,021 kN) bearing. Thickness varies

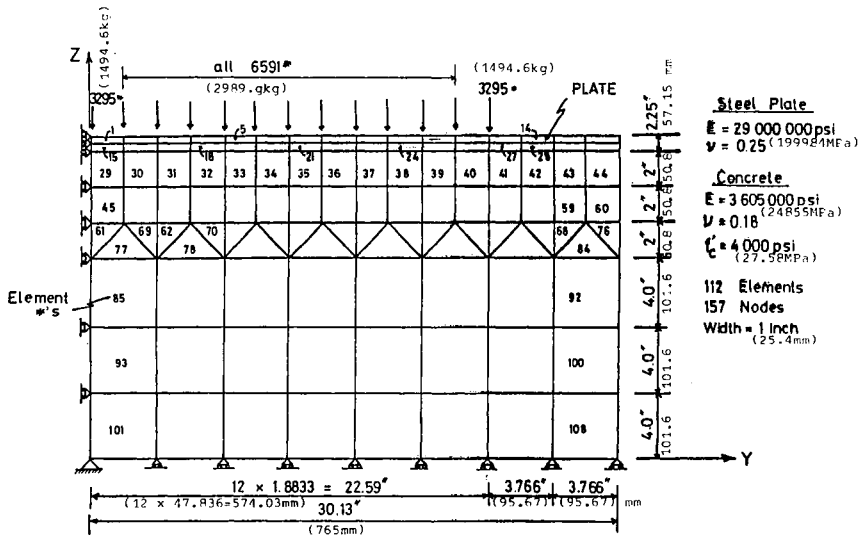
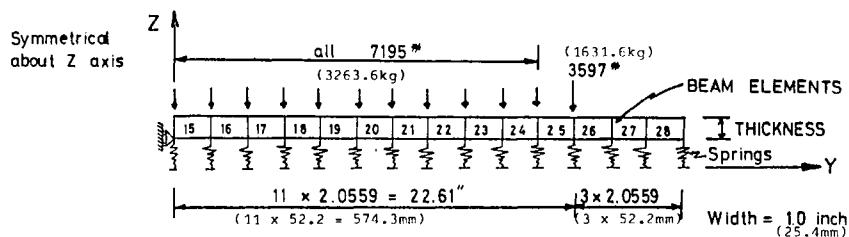


Fig. 9--Finite element grid for top masonry plate of 5625 kip (25,021 kN) bearing

**STEEL PLATE**

$E = 29,000,000$ psi (199984MPa)

I - varies with thickness

CONCRETE SPRINGS

$f'_c = 6,000$ psi (41.37MPa)

$E = 4,415,000$ psi (30440MPa)

$$k = \frac{AE}{L} = \frac{(1)(2.0559)(4,415,000)}{(22.5)} = 403,400 \text{ #/in.} \quad (4557 \text{ P. 1Nm})$$

Fig. 10--Elastic foundation model for top plate of 5625 kip (25,021 kN) bearing

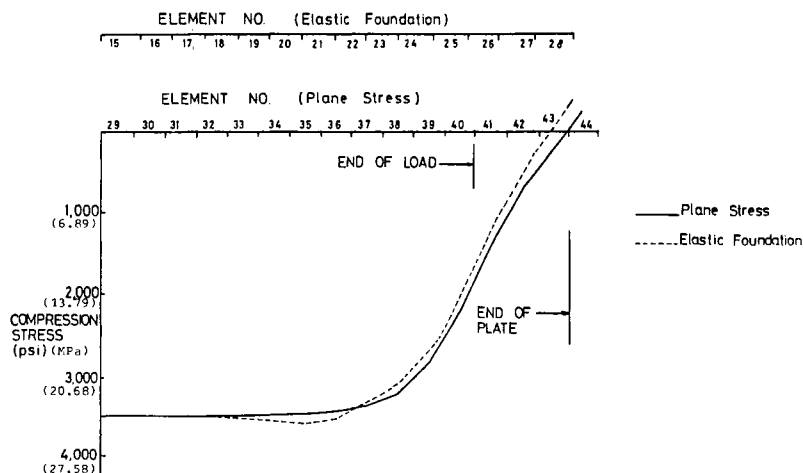


Fig. 11--Vertical stresses in concrete beneath plate of 5625 kip (25,021 kN) bearing. Top plate thickness = 2.25 in. (57.15 mm)

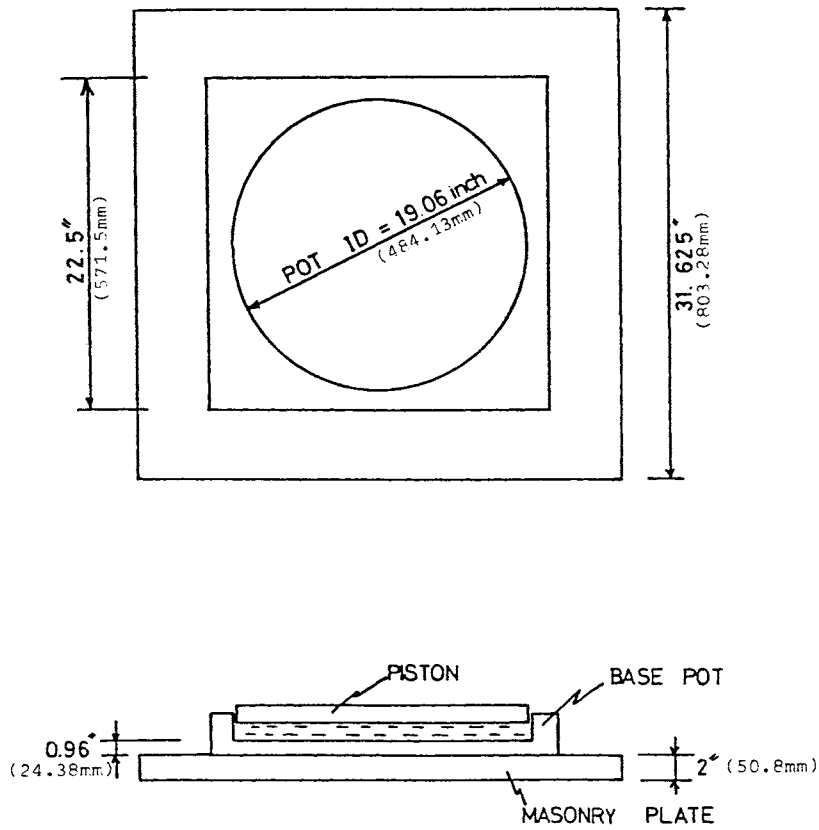
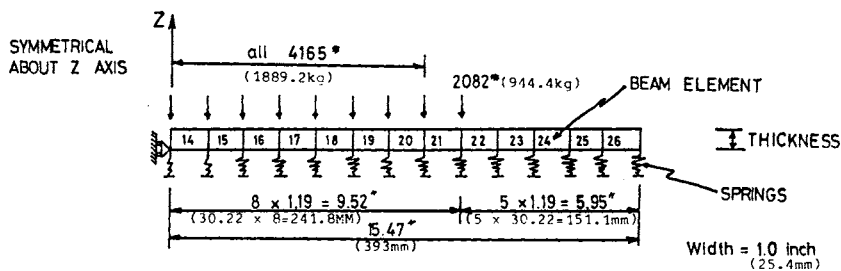


Fig. 12--1000 kip (4448 kN) bearing

STEEL PLATE

$$E = 29,000,000 \text{ psi (199984 MPa)}$$

I - varies

CONCRETE SPRINGS

$$f'_c = 4,000 \text{ psi (27.58 MPa)}$$

$$E = 3,605,000 \text{ psi (24855 MPa)}$$

$$k = \frac{A E}{L} = \frac{(1) (1.19) (3,605,000)}{18} = 238,000 \text{ */in. (26890.4 Nm)}$$

Fig. 13--Elastic foundation model for masonry plate of 1000 kip (4448 kN) bearing.

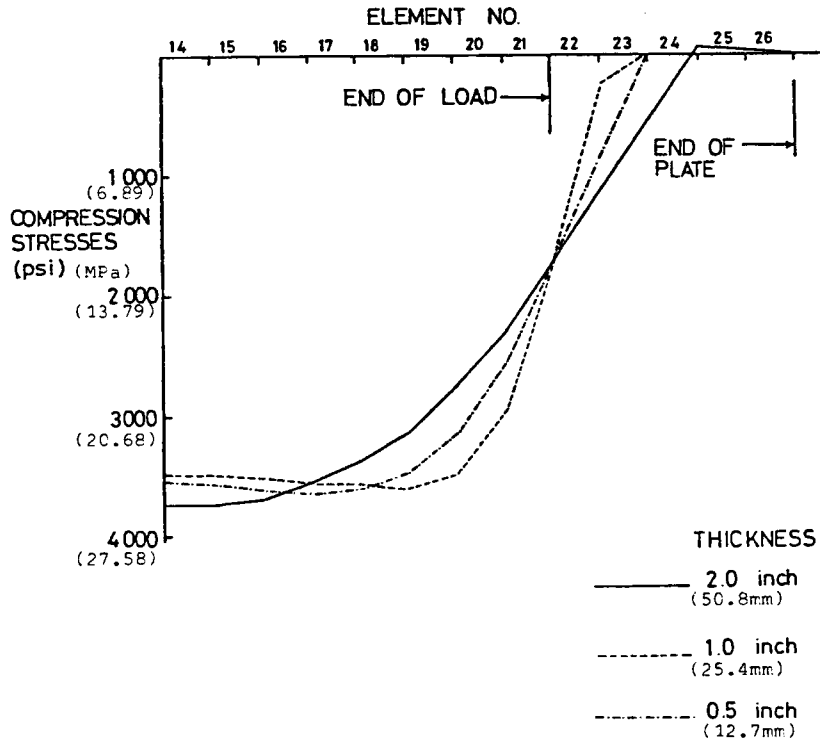


Fig. 14--Vertical stresses in concrete beneath plate of 1000 kip (4448 kN) bearing--Elastic foundation solution