

(P.B.T) ()

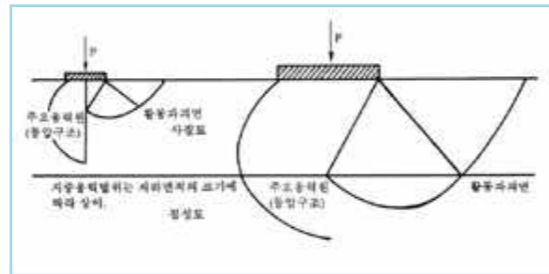
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1.

1 :
2 :
B :
D_f :
N_C, N_y, N_q :

30cm (45cm, 75cm)

가)



[1]

$$q_u = c \cdot N_C + 0.5 \cdot \gamma \cdot B \cdot N_q + \gamma \cdot D_f \cdot N_q$$

q_u :

c :

Boring Data

가
가
가 1/2
가
가
가 50%

Scale Effect

30cm

$$(D = 2B \sim 4B)$$

가

3.

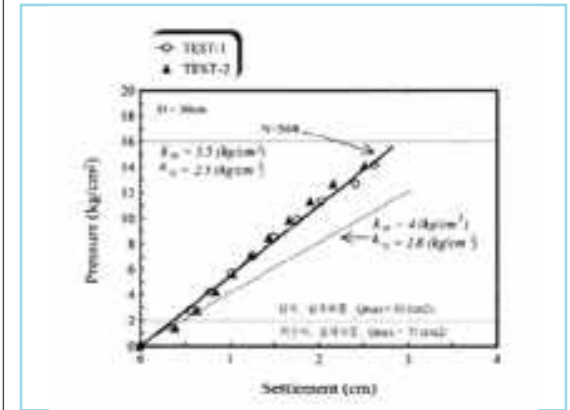
			가

3.1 :

(1)

D = 30cm

[2]



[2]

PBT

[2]

< 1 >

TEST2 TEST1

< 1 >	PLT	
	k ₃₀	k ₇₅
TEST1	5.5	2.5
TEST2	4	1.8

2.0cm

(2)

(KSF 2444)

50

30 ~ 75(cm) 3

30

30cm

[2]

, Terzaghi-Peck(1967)

Winkler fdn.

(3)

(1996)

= + =

1)

$$= \frac{1}{k_v} \cdot \frac{V}{A}$$

$$= \frac{1}{2.94(\text{kg/cm}^3)} \cdot \frac{4148.95 \cdot 10^3(\text{kg})}{1200 \times 1200(\text{cm}^2)}$$

$$= 0.98(\text{cm}) = 9.8(\text{mm})$$

$$k_v = k \left(\frac{B}{30} \right)^{3/4}$$

$$= 46.7 \left(\frac{1200}{30} \right)^{3/4} = 2.94(\text{kg/cm}^3)$$

$$B_v = \sqrt{A_v} : \quad (\text{cm})$$

$$B_v = \sqrt{A_v} = 12(\text{m}) = 1200(\text{cm})$$

$$A_v : \quad (\text{cm}^2) = 12 \times 12 = 144(\text{m}^2)$$

$$k = \frac{1}{30} E_0 = \frac{1 \times 1400(\text{kg/cm}^2)}{30} = 46.7(\text{kg/cm}^2)$$

: 1,

2 (, p.611).

$$E_0 = 28N = 28 \times 50 = 1400(\text{kg/cm}^2)$$

[]

N

SM

2) Terzaghi (1955)

$$v = \frac{1}{k_v} \cdot \frac{V}{A}$$

$$= \frac{1}{1.44(\text{kg/cm}^3)} \cdot \frac{4148.95 \cdot 10^3(\text{kg})}{1200 \times 1200(\text{cm}^2)}$$

$$= 2.00(\text{cm}) = 20(\text{mm})$$

$$k = k_{0.3} \left(\frac{B+0.3}{2B} \right)^2$$

$$= 5.5 \left(\frac{12+0.3}{2 \times 12} \right)^2 = 1.44(\text{kg/cm}^3)$$

Terzaghi-Peck(1967)

$$S = H = H_p \left(\frac{2B}{B+B_p} \right)^2$$

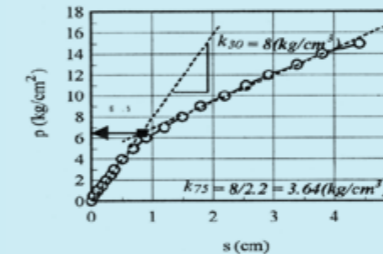
$$0.8 \left(\frac{2 \times 12(\text{m})}{12(\text{m}) + 0.3(\text{m})} \right)^2 = 3.1(\text{cm})$$

(4)

		Terzaghi-Peck(1967)			
		Terzaghi(1955)	Peck(1967)		
9.8mm	20mm	3.1cm	2.0cm	N.G!	

< 2 >

<Case 1>



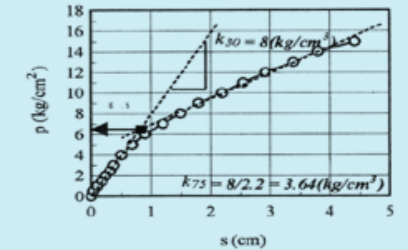
$$y = 6.5(\text{kg/cm}^3) = 65(\text{t/m}^2)$$

$$k_{30} = 8.0(\text{kg/cm}^3)$$

$$k_{75} = \frac{8}{2.2} = 3.64(\text{kg/cm}^3)$$

1.5m

<Case 2>



$$y = 8.5(\text{kg/cm}^3)$$

Mansur-Kaufmann

가 2.0cm

3.2 :

3.2.1

< 2 >

3.2.2 Case 1 :

1)

(qu)

$$q_u = 1.5 \times q_y = 1.5 \times 65 = 97.5(\text{t/m}^2)$$

$$q_u = p_{0.1b} = p_{3cm} = 12(\text{kg/cm}^2) = 120(\text{t/m}^2) :$$

10% , 0.1b 가

$$q_u = \text{Min}(1.5 q_y, p_{0.1b}) = 97.5(\text{t/m}^2)$$

qy :

p0.1b: 0.1b

Technical Report

(q_a)

$$q_a = q_{test} + \frac{1}{3} (\cdot D_f \cdot N_q)$$

가

$$\therefore q_a = q_{test}$$

$$q_t = \frac{q_y}{FS} = \frac{q_y}{2.0} = \frac{65}{2} = 32.5(t/m^2)$$

$$q_t = \frac{q_u}{FS} = \frac{q_u}{3.0} = \frac{97.5}{3.0} = 32.5(t/m^2)$$

, q_t

$$q_a = q_t = 32.5(t/m^2)$$

2)

(q_u)

가 가

$$q_{t(F)} = q_{u(P)} \frac{B_{(F)}}{B_{(P)}}$$

$$q_{u(F)} = 97.5(t/m^2) \times \frac{4(m)}{0.3(m)} = 1300(t/m^2)$$

q_{u(F)}: Footing

q_{u(P)}: Plate

B_(F): Footing

B_(P): Plate

$$q_{all(F)} = \frac{1300(t/m^2)}{3} = 433.3(t/m^2)$$

(q_a)

3)

20mm,

$$q_{all(F)} = \frac{P_{20mm}}{FS} = \frac{87(t/m^2)}{2.0} = 43.5(t/m^2)$$

25mm

4)

, (3.1), (3.2), (3.3) 가

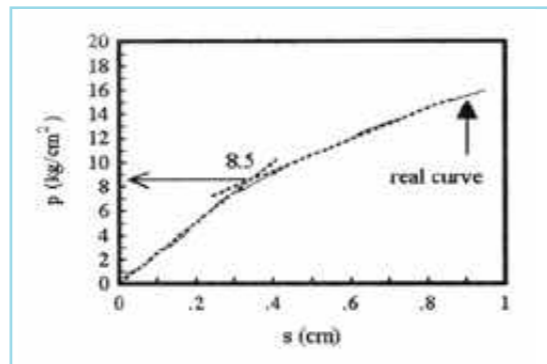
$$\therefore q_a = 32.5(t/m^2)$$

5)

$$q_a = 32.5(t/m^2) < q_{text} = 53.563(t/m^2) : N.G !$$

가

3.2.3 Case 2 : 1.5m

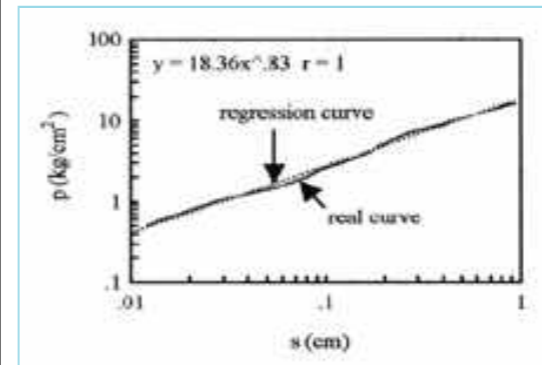


[3]

DM-7

Peck(1967)

. Terzaghi-



[4] logp-log s

$$S_{cal} = H = H_p \left[\frac{2B}{B+B_p} \right]^2$$

$$= 0.2 \left[\frac{2 \times 4(m)}{4(m) + 0.3(m)} \right]^2 = 0.69(cm) \quad S = 2.5cm$$

, S : (cm)

H_p :

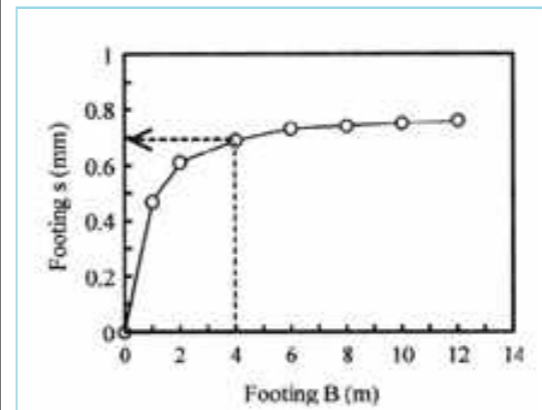
(bearing stress) ,

$$= 0.8(cm) [50ton/m^2]$$

] (cm)

$$B : = 12m = 1,200(cm)$$

$$B_p : = 30(cm)$$



[5]

Footing

$$q_{design} = 53.565(t/m^2) \quad (cm), \quad H_p,$$

0.2(cm)

[] Terzaghi-Peck(1967)

footing

footing

footing

가

footing

가

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