

kolomreacties G/6

$$P_d = 228 \text{ kN} \quad (6/2.38)$$

spaktem in bas - B/C/D en J (6/2.10 t/m 26)

$$P_d = 228 - (2.4 \times 1/2 \times 0.9 \times 6.0 \times 1.2 + 2.4 \times 0.9 \times 5.0 \times 1.3) = 181.40 \text{ (6/2.43) } 0.9 \times 5.0 \times 1.3$$

kolom B/2, 40 kN.

6/2.11
geen verd.

$$274.55 \text{ (6/2.22/7)} - (67.68/2 \times 1.2 + 56.40 \times 1.30) = 101.60 \text{ kN}$$

kolom B/6, C/6, D/6 (6/2.49) 154.54 kN 45.93 " (w.bok)

$$169.37 = (33.87 \times 1.2 - 67.42 \times 1.3 - 28.20 \times 1.3) 177.53 \text{ kN.}$$

$$P_d + 48.412 \text{ kN (kr. baan)} = 68.68 \text{ kN.}$$

kolom C/2

(2.35 m verd.) 82.27 " (w.bok)

$$274.55 \text{ (6/2.22) } - (67.68/2 \times 1.2 + 56.40/2 \times 1.3)$$

$$= 197.28 \text{ kN} + 45.93 \text{ (w.bok)} = 243.21 \text{ kN.}$$

kolom D/2 as A/2, A/6, K/2 en K/6

$$274.55 \text{ kN (6/2.22)}$$

kolom D/2 as A/3 en K/3

$$idem = B/2.5 \text{ min 3 verd. } 44.41 \times 1.37 = 60.87 \text{ kN}$$

kolom D/6 as A/4 en K/4

$$+ \text{w.bok} = 45.93 "$$

$$89.80 \text{ kN}$$

$$169.37 = 162.64 \text{ (dak)} \times 1.3 + 107.84 \text{ (22) kN } 62.78 \text{ (w.bok)} = 182.98 \text{ kN}$$

$$= 13.46 \text{ (dak)} + 107.84 \text{ (22) kN (w.bok)} + 10.51 \text{ (w.bok)} = 139.01 \text{ kN}$$

spaktem in bas - A/5 - E t/m H. (6/2.27 t/m 42) as - K

kolom E/6, F/2, G/2 62.48 = 133.09 kN (as - A)

$$P_d \text{ baan} = 215.67 \text{ kN (6/2.5138) } 89.12 \text{ (mw. verd.) k}$$

kolom H/2

$$G/2 = 215.67 + 2.4 \times 2.75 \times 4.0 \times 1.2 = 247.35 \text{ kN}$$

$$31.68$$

1/2 tweevoudige reacties 6/2.60 (E t/m J)

$$P_d = 215.67 - (67.68/2 \times 1.2 + 56.40/2 \times 1.3) = 170.08 \text{ kN}$$

kolom E/6

+ m.w. verdieping

6/2.64 (B t/m D)

$$P_d = 228 - (1.2 \times 2.4 \times 5.0 \times 1.2 + 1.2 \times 2.4 \times 5.0 \times 1.3) = 158.95 \text{ kN.}$$

$$(2.4 \times 0.9 \times 6.0 \times 1.2 + 2.4 \times 0.9 \times 5.0 \times 1.3)$$

gewichtsberekening $\frac{6}{2 \cdot 0.4} = 33,25$ (beton/staal wanden) + 1. 82.

palen op der bedrijfsvloer as- A t/m D e.g. E

$$q_d = 1,2 \times 4,80 + 1,3 \times 250 = 38,26 \text{ kN/m}^2$$

carré $2,375 \times 2,375 = 5,64 \text{ m}^2$ met spreiden } v. b

Paul max) $5,64 \times 38,26 = 215,00 \text{ kN}$

$\times 1,1$ (invloed moment)

palen h. = 240 kN om mm

t.p.v. kolom as- 4, D e.g. D

$P_{\text{kolom}} = 81,93 \text{ kN}$

$\text{m}^2 \text{ vloer} = 1,75 \times 2,4 = 2,82 \text{ m}^2$

$2,82 \times 38,26 = 107,89 \text{ kN}$

Paul belasting) $81,93 + 107,89 = 189,82 \text{ kN}$

Paul belasting 240 kN resp. $2,6 \text{ k}$

t.p.v. kolommen B/3, C/3, D/3

$B/4, C/4, D/4$ $P_0 2(\text{vloer}) = 62,40 \text{ kN}$ (kolom)

$B/5, C/5, D/5$ $240 \times \text{per paal} =$

t.p.d. max = $397,78 \text{ kN}$ (D/3)

uit vloer = $215,00$ (vloer) + $39,16$ (k

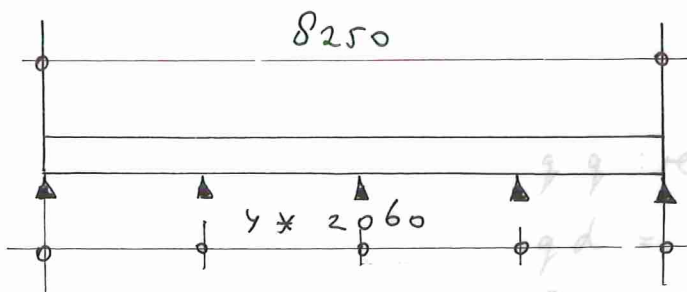
uit balk = $8,64$ " per paal

$1,5 \times 4,80$
 $\text{balk} \times 1,2 = 622,22 \text{ kN}$ (E)

t.p.v. kolper per paal $311,11 \text{ kN}$ (plint)

t.p.v. smeerput $8,64$ (poer) + $215,00$ (vloer) + $314,68$

uit 6 g. - vloer per paal $4, =$



$q_d = 1,20 \times 25,0 = 30,0 \text{ kN/m}$

$q_d = 59,35 \text{ kN/m}$

Paal uiteinde = $4,23$ (kolom) + $31,68$ (k

kolom reacties

80.

spant in as-B/C/D en J (b/2.10 t/m 26)

$$- \frac{1}{2} \text{ buis } = 18,40 \text{ (b/2.43)}$$

kolom B/2

$$274,55 \text{ (b/2.22)} - \left(\underbrace{67,68 \times 1,2 + 56,40 \times 1,30}_{154,54 \text{ kN}} \right) = 101,60 \text{ kN}$$

kolom B/6, C/6, D/6

$$169,37 - (33,84 \times 1,2 - 62,42 \times 1,3 - 28,20 \times 1,3) = 177,53 \text{ kN.}$$

$$+ 44,41 \times 1,3 \text{ (kr. baan)} = 68,68 \text{ kN.}$$

kolom C/2

$$274,55 \text{ (b/2.22)} - \left(\frac{67,68}{2} \times 1,2 + \frac{56,40}{2} \times 1,3 \right) = 197,28 \text{ kN} + 45,93 \text{ (w.bok)} = 243,21 \text{ kN.}$$

kolom D/2

$$274,55 \text{ kN (b/2.22)}$$

kolom J/2

$$\text{idem B/2 minus kr. baan } 44,41 \times 1,3 = 43,87 \text{ kN}$$

kolom J/6

$$+ \text{w.bok} = 45,93 \text{ "}$$

$$169,37 - 62,42 \times 1,3 = 88,22 \text{ kN}$$

$$88,22 \text{ kN (w.bok)}$$

$$170,49 \text{ kN.}$$

spant in as-E t/m H. (b/2.27 t/m 42)

kolom E/2, F/2, G/2

$$Pd \text{ max} = 215,67 \text{ kN (b/2.38)} \quad (\text{m.w. verd.})$$

kolom H/2

$$G/2 = 215,67 + 2,4 \times 2,75 \times 4,0 \times 1,2 = 247,35 \text{ kN}$$

$$31,68$$

$\frac{1}{2}$ e verdieping

$$Pd = 215,67 - \left(\frac{67,68}{2} \times 1,2 + \frac{56,40}{2} \times 1,3 \right) = 170,08 \text{ kN}$$

kolom E/6

$$Pd = 228 - (1,2 \times 2,4 \times 5,0 \times 1,2 + 1,2 \times 2,4 \times 5,0 \times 1,3)$$

$$= 158,95 \text{ kN. } (2,4 \times 0,9 \times 6,0 \times 1,2 + 2,4 \times 0,9 \times 5,0 \times 1,3)$$

kolom F/6, G/6

$$P_d = 228 \text{ kN} \quad (6/2 \cdot 38)$$

kolom H/6

$$P_d = 228 - (2,4 \times 0,9 \times 6,0 \times 1,2 + 2,4 \times 0,9 \times 5,0 \times 1,3) \\ = 198,40 \text{ kN.}$$

kolom E/7 en H/7

$$P_d = 31,66 \text{ kN} \quad (6/2 \cdot 49).$$

kolom F/7 en G/7

$$P_d = 63,32 \text{ kN}$$

kopgevelspantenkolom as A/2, A/6, K/2 en K/6

$$P_d = 7,23 \text{ kN. (dak)}$$

kolom as A/3 en K/3

$$P_d = 53,52 \text{ (2e verd)} + 17,09 \text{ (dak)} = 70,61 \text{ kN}$$

kolom as- A/4 en K/4

$$P_d = 13,46 \text{ (dak)} + 107,04 \text{ (2e)} + 62,78 \text{ (w.bok)}^{as-A} = 182,98 \text{ kN} \\ = 13,46 \text{ (dak)} + 107,04 \text{ (2e)} + 18,51 \text{ (w.bok)} = 139,01 \text{ kN}$$

kolom as- A/5 en K/5

$$P_d = 70,61 \text{ (as-3)} + 62,40^{(w.bok)} = 133,09 \text{ kN (as-A)}$$

$$P_d = \text{"} + 18,51 \text{ (w.bok)} = 89,12 \text{ kN (as-K)}$$

Zie voor overige reacties $6/2 \cdot 60 \begin{pmatrix} E \text{ t/m J} \\ 3 \text{ t/m s} \end{pmatrix}$ $6/2 \cdot 64 \begin{pmatrix} B \text{ t/m D} \\ 3 \text{ t/m s} \end{pmatrix}$

$$q_{g:rep} = 33,25 \text{ (beton/staal wanden)} + 1,5 \times 6,0 \text{ (smeerpvt vloer)} \\ + 2,25 \times 6,0 \text{ (b.g.)} = 55,75 \text{ kN/m}^2$$

$$q_{g:rep} = 0,85 \times 2,50 \text{ (smeerpvt)} + 2,25 \times 25,0 \text{ (v.b.)} \\ = 58,40 \text{ kN/m}^2$$

kriklast spreiden } v.b. b.g.-vloer

$$q_d = 55,75 \times 1,2 + 58,40 \times 1,3 = 142,85 \text{ kN/m}^2$$

palen h.o.h. 2,06 m

$$\text{Paal bel.) } 2,06 \times 142,85 = \underline{294,27 \text{ kN}}$$

palen onder bedrijfsvloer as-H/H^o t/m k,

palen onder vloer als b12.82

Paal belasting 240 kN resp. 216 kN.

t.p.v. kolom J13

$$8,64 \text{ (poer)} + 215,80 \text{ (vloer)} + 141,60 \text{ (kolom)} = 366,04 \text{ kN } 2 \times \\ \text{per paal} = \underline{183,0 \text{ kN}}$$

t.p.v. kolom J14

$$8,64 \text{ (poer)} + 215,80 \text{ (vloer)} + 290,16 \text{ (kolom)} = 514,60 \text{ kN } 2 \times \\ \text{per paal} = \underline{257,30 \text{ kN}}$$

t.p.v. kolom J15

$$8,64 \text{ (poer)} + 215,80 \text{ (vloer)} + 314,68 \text{ (kolom)} = 539,12 \text{ kN } 2 \times \\ \text{per paal} = \underline{269,56 \text{ kN}}$$

balk in as-A

$$q_g : rep = 4,00 \text{ (balk)} + 1,0 \times 4,0 \text{ (plint)} + 7,0 \times 0,50 \text{ (gevel)}$$

$$= 12,30 \text{ kN/m}$$

$$\text{uit b.g. - vloer } 4,0 \times 2,35/2 = 5,65 \text{ kN/m}$$

$$17,95 \text{ kN/m}$$

$$q_g : rep = 1,175 \times 25,0 = 29,35 \text{ kN/m}$$

$$q_d = 59,70 \text{ kN/m}$$

$$\text{paal h.o.h. } 2400 \text{ mm}$$

$$P_{\text{paal}} = 2,40 \times 59,70 \times 1,1 \text{ (incl. mom)} = 157,60 \text{ kN}$$

$$P_{\text{paal t.p.v. as-3}} = 157,60/1,1 + 70,61 = 213,89 \text{ kN}$$

$$\text{as-4} \quad " \quad + 182,98 = 326,25 \text{ kN}$$

$$\text{as-5} \quad " \quad + 133,09 = 276,36 \text{ kN}$$

$$R_d = 1,20 \times 59,70 - 1,18^2 \times 38,26 \times 0,75 = 31,68 \text{ kN}$$

$$P_{\text{trek windbok}} = 62,48 \text{ kN} \uparrow$$

$$\text{e.g. balken e.d. } 2,4 \times 12,30 = 29,52 \text{ kN}$$

$$\text{e.g. 2e verd. vloer } 2,40 \times 2,35 \times 4,0 = 22,56 \text{ kN}$$

$$52,08 \text{ kN}$$

$$P_{\text{trek op paal}} = 62,48 - 0,9 \times 52,08 = 15,60 \text{ kN} \uparrow$$

op te nemen door e.g. paken.

balk in as-2 (A t/m E).

$$q_g : rep = 4,80 \text{ (balk)} + 4,0 \text{ (plint)} + 5,0 \times 0,50 \text{ (gevel)}$$

$$= 11,30 \text{ kN/m}$$

$$\text{uit b.g. - vloer } 2,4/2 \times 4,80 = 5,75$$

$$16,95 \text{ kN/m}$$

$$q_g : rep = 1,20 \times 25,0 = 30,0 \text{ kN/m}$$

$$q_d = 59,35 \text{ kN/m}$$

$$P_d \text{ uiteinde} = 7,23 \text{ (kolom)} + 31,68 \text{ (as-A)} = 38,91 \text{ kN}$$

hoekpaal) $4,2/2 \times 59,35 + 38,91 = \underline{163,55 \text{ kN}}$.

paal t.p.v. as-B) $4,95 \times 59,35 + 147,53 (\text{kolom}) = 441,31 \text{ kN}$
 per paal $\underline{220,66 \text{ kN}}$.

paal t.p.v. as-C) $4,40 \times 59,35 + 243,21 = 522,16 \text{ kN}$
 per paal = $\underline{261,08 \text{ kN}}$.

paal t.p.v. as-D) $4,95 \times 59,35 + 274,55 = 568,33 \text{ kN}$
 per paal = $\underline{284,16 \text{ kN}}$.

$R_{dE} = 2,1 \times 59,35 - 1,10^2 \times 38,26 \times \frac{5}{6} = 80,24 \text{ kN}$.

$P_{\text{trek}} = 45,93 \text{ kN (as-B)}$

e.g. balken e.d. = $4,75 \times 11,30 = 55,94 \text{ kN}$

$55,94 \times 0,90 = 50,35 \text{ kN}$

$> 45,93 \text{ kN}$

geen trek op palen

balk in as-6 (A t/m D⁰).

gd idem as-2 = $59,35 \text{ kN/m}$

hoekpaal idem as-2 $\underline{163,55 \text{ kN}}$.

paal t.p.v. as-D) $150,95 (\text{kolom}) + 4,0 \times 59,35$
 $= \underline{388,35 \text{ kN}}$. 2 palen $\underline{194,18 \text{ kN}}$.

paal t.p.v. as-B/C = $60,68 (\text{kolom}) + 4,95 \times 59,35 =$
 $362,46 \text{ kN}$ 2*

per paal = $\underline{181,23 \text{ kN}}$

$P_{\text{trek}} = 82,27 \text{ kN}$

e.g. balken e.d. = $4,0 \times 11,30 = 45,20 \text{ kN}$

$P_{\text{trek op paal}} = 82,27 - 0,9 \times 45,20 = 41,59 \text{ kN}$

op te nemen door paal.

$R_d = 0,9 \times 59,35 - 1,10^2 \times 38,26 \times \frac{1,2}{1,1} = 17,72 \text{ kN}$. per paal $\underline{20,80 \text{ kN}}$
 schoorheien.

balk in as-k

gg:rep, gg:rep en ga als as-A (b/2.84)
palen h.o.h. 2400 mm

$$Paal 1) 2.4 \times 1.1 \times 59.7 = \underline{157.60 \text{ kN}}$$

$$Paal t.p.v. as-3) 213.89 \text{ kN (b/2.84)}$$

$$Paal t.p.v. as-4) 139.01 + 157.60/1.1 = \underline{282.28 \text{ kN}}$$

$$Paal t.p.v. as-5) 157.60/1.1 + 89.12 = \underline{246.72 \text{ kN}}$$

$$R_d = 31.68 \text{ kN}$$

$$P_{\text{trek w.bok}} = 18.51 \text{ kN}$$

op te nemen door e.g. balk/plint/zevend.
zie b/2.84

balk in as-2 (H t/m K).

ga. gg:rep, gg:rep als b/2.84

$$Pd \text{ uiteinde} = 7.23 \text{ (kolom)} + 31.68 \text{ (balk)} = 38.91 \text{ kN}$$

$$gd = 59.35 \text{ kN/m}$$

$$\text{hoekpaal} 2.1 \times 59.35 + 38.91 = \underline{163.55 \text{ kN}}$$

paal t.p.v. as-1 (kolom)

$$7.95 \times 59.35 + 89.80 = 383.58 \text{ kN } 2 \times$$

$$\text{per paal} = \underline{191.79 \text{ kN}}$$

$$R_d H = 2.1 \times 59.35 - 1.18^2 \times 59.35 \times 5/6 = 80.24 \text{ kN}$$

$$P_{\text{trek windbok}} = 45.93 \text{ kN}$$

op te nemen door e.g. balk + plint
zie b/2.85

balk in as-6 Ht/mk

$$q_d = 59,35 \text{ kN/m}^2$$

Paal as-1)

hoekpaal idem as-2

$$(2,1 + 1,0 + 0,9) \times 59,35 + 170,79 \text{ (kolom)}$$

$$= 407,86 \text{ kN per paal } \underline{203,93 \text{ kN}}$$

2 palen.

P trek windbok $82,27 \text{ kN}$

$$e.g. \text{ balken e.d. } 4,0 \times 11,30 = 45,20 \text{ kN}$$

$$P \text{ trek op paal} = 82,27 - 0,9 \times 45,20$$

$$= -41,59 \text{ kN}$$

per paal $20,80 \text{ kN} \uparrow$

palen schoor heien i.v.m.

invloedsgebied.

$$R_d = 0,90 \times 59,35 - 1,18^2 \times 38,26 \times \frac{2}{3} = 17,72 \text{ kN}$$

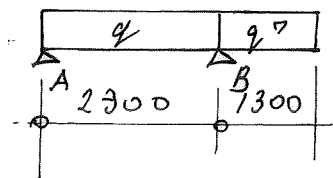
balk in as-4/5, H/H^p

$$l = 3600 \text{ mm}$$

$$q_{g:\text{rep}} = 4,80 \text{ (balk)} + 3,25 \times 4,0 \text{ (m.w.)}$$

$$= 17,80 \text{ kN/m}^2$$

$$q_d = 17,80 \times 1,35 = 24,0 \text{ kN/m}^2$$



$$q_{p g:\text{rep}} = 17,80 \text{ (zie } q.) + 2,1 \times 6,50 \text{ (trap)} = 31,45 \text{ kN/m}^2$$

$$q_{g:\text{rep}} = 2,1 \times 3,0 \text{ (v.b. trap)} = 6,30 \text{ kN/m}^2$$

$$q_d = 31,45 \times 1,2 + 6,30 \times 1,50 = 47,20 \text{ kN/m}^2$$

$$M_{dB} = 0,5 \times 47,20 \times 1,30^2 = 39,88 \text{ kNm} \quad (M_{g:\text{rep}} = 26,55 \text{ kNm})$$

$$R_{dB} = 1,15 \times 24,0 + \frac{39,88}{2,30} + 1,3 \times 47,20 = 106,30 \text{ kN}$$

$$R_d A = 1,15 \times 240 - 0,9 \times 26,58 / 2,3 = 17,20 \text{ kN}$$

balk in as-H^p $l = 7200 \text{ mm}$

$$\begin{aligned} q_g : \text{rep} &= 4,80 (\text{balk}) + 3,25 \times 4,0 (\text{m.w.}) \\ &\quad + 1,2 \times 4,80 (\text{b.g.}) + 1,15 \times 4,60 (\text{b.g.}) \\ &= 28,85 \text{ kN/m}^2 \end{aligned}$$

$$\begin{aligned} q_g : \text{rep} &= 1,2 \times 20,00 = 24,00 \text{ kN/m}^2 \\ &\quad 1,15 \times 3,00 = 3,45 \text{ kN/m}^2 \end{aligned}$$

$$q_d = 28,85 \times 1,2 + 24,0 \times 1,3 + 3,45 \times 1,5 = 71,00 \text{ kN/m}^2$$

$$P_{d6} H^p = 82,27 (\text{w.bok}) + 17,72 (\text{balk}) = 100,0 \text{ kN}$$

$$P_{d4,5} = 17,20 + 1,2 \times 2,35 \times 38,26 (\text{vloer}) = 125,10 \text{ kN}$$

Paal en h.o.h. 3600 mm

$$3,6 \times 1,1 \times 71,0 = \underline{281,16 \text{ kN}}$$

$$P_{a1 \text{ as } 4/5} = 125,10 + 1,8 \times 71,0 = \underline{252,90 \text{ kN}}$$

$$P_{a1 \text{ as } 6} = 100,0 + \quad \quad \quad = \underline{227,80 \text{ kN}}$$

$$P_{\text{trek}} = 82,27 \text{ kN}$$

$$\text{e.g. balk as-6} = 0,9 \times 11,30 = 10,17 \text{ kN}$$

$$1,5 \times 1,15 \times 9,0 (\text{b.g.}) = 6,21 \quad "$$

$$1,8 \times 4,80 (\text{balk}) = 8,64 \text{ kN}$$

$$\begin{aligned} \text{e.g. paal} &\sim 10,0 \times 0,25^2 \\ &\quad \times (24,0 - 10,0) = \underline{8,75 \quad "} \\ &\quad \quad \quad 33,77 \text{ kN} \end{aligned}$$

$$\times 0,9 = 30,39 \text{ kN}$$

$$P_{\text{trek op paal}} = 82,27 - 30,39 = 51,88 \text{ kN}$$

balk in as-4/5, D^p/E

$$q_d = 24,0 \text{ kN/m}^2. (\text{zie 6/2.87}).$$

$$R_{dE} = R_{dD^p} = 1,15 \times 24,0 = 27,60 \text{ kN}$$

balk in as-D'

$$l = 7200 \text{ mm}$$

$$q_d = 71,00 \text{ kN/m}^2 \text{ (zie as-H')}$$

$$P_{d6} = 122,83 \text{ (kolom)} + 17,72 \text{ (balk)} = 140,55 \text{ kN}$$

$$P_{d4,5} = 27,60 + 1,2 \times 2,35 \times 38,26 \text{ (b.g.)} = 135,49 \text{ kN.}$$

$$P_{d \text{ kolom}} = 81,52 \text{ kN.}$$

$$P_{a1} \text{ halverwege)} 3,6 \times 71,0 + 81,52 \times \frac{2}{3} = \underline{310 \text{ kN.}}$$

$$P_{a1} \text{ as-6)} 140,55 + 1,8 \times 71,0 = \underline{268,35 \text{ kN.}}$$

$$P_{a1} \text{ as-4/5)} \frac{81,52}{3} + 1,8 \times 71,0 + 135,49 = \underline{290,46 \text{ kN.}}$$

$$P_{\text{trek as-6}} = 52,0 \text{ kN (zie b/2.88)}$$

balk in as-2, E t/m Hbalk in as-7, E t/m H.

$$3 \times 7700 \text{ mm.}$$

$$q_g : \text{rep} = 4,80 \text{ (balk)} + 1,0 \times 4,0 \text{ (plint)} + \frac{5,0 \times 0,50}{\text{(gevel)}}$$

$$= 11,30 \text{ kN/m}^2$$

$$q_d = 11,30 \times 1,35 = 15,25 \text{ kN/m}^2.$$

$$R_{dE} = R_{dH} = 2,35 \times 15,25 = 35,84 \text{ kN}$$

$$R_{dG} = R_{dF} = 2,35 \times 15,25 \times 2 = 71,68 \text{ kN.}$$

balk je onder trap

$$l = 1000 \text{ mm}$$

$$q_g : \text{rep} = 4,80 + 3,0 \times 2,0 \text{ (m.w.)} + 2,1 \times 6,50 \text{ (trap)}$$

$$24,45 \text{ kN/m}^2$$

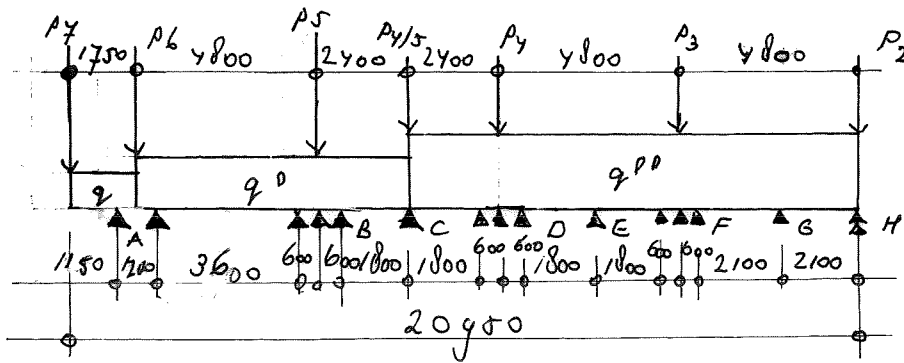
$$q_g : \text{rep} = 2,1 \times 3,0 \text{ (k.b. trap)} = 6,30 \text{ kN/m}^2$$

$$q_d = 38,80 \text{ kN/m}^2$$

$$R_d = 38,80 \text{ kN}$$

$$M_d = 0,5 \times 38,8 \times 1,0^2 = 19,40 \text{ kNm}$$

balk in a s - E



$$P_2 = 215,67 \text{ (kolom)} + 35,84 \text{ (a s - 2)} + 80,24 \text{ (a s - 2)} = 331,75 \text{ kW}$$

$$P_2 \text{ (min)} = 43,89 \text{ kW}$$

$$P_3 = 469,38 \text{ kW (kolom)}$$

$$P_4 = 532,77 \text{ kW (kolom)}$$

$$P_{4/5} = 27,60 \text{ kW}$$

$$P_5 = 199,53 \text{ kW (kolom)} \quad P_5 \text{ min} = 43,43 \text{ kW}$$

$$P_6 = 158,95 \text{ kW}$$

$$P_7 = 31,66 \text{ (kolom)} + 35,84 \text{ (a s - 7)} = 67,50 \text{ kW}$$

$$q_{g:rep} = 7,20 \text{ (balk)} + 1,0 \times 4,0 \text{ (m.w.)} + 2,35 \times 4,6 \text{ (b.g.)} \\ + 5,0 \times 0,50 \text{ (gevel)} = 24,50 \text{ kW/m}^2$$

$$q_{g:rep} = 2,35 \times 3,0 = 7,05 \text{ kW/m}^2$$

$$q_d = 24,50 \times 1,2 + 7,05 \times 1,50 = 40,0 \text{ kW/m}^2$$

$$q_{g:rep}^0 = 6,0 \text{ (balk)} + 3,0 \times 0,50 \text{ (pui)} + (2,35 + 1,175) \times 4,6 \\ = 23,70 \text{ kW/m}^2$$

$$q_{g:rep}^0 = 3,525 \times 3,0 \text{ (b.g.)} = 10,60 \text{ kW/m}^2$$

$$q_d^0 = 23,70 \times 1,2 + 10,60 \times 1,50 = 44,35 \text{ kW/m}^2$$

$$q_{g:rep}^{00} = 4,80 + 3,0 \times 4,0 \text{ (m.w.)} + 2,35 \times 4,6 \text{ (kantoor)} \\ + 2,35/2 \times 4,80 \text{ (bedr.r.)} = 33,25 \text{ kW/m}^2$$

$$q_{g:rep}^{00} = 2,35 \times 3,0 + 1,175 \times 25,0 = 36,45 \text{ kW/m}^2$$

$$q_d^{00} = 1,2 \times 33,25 + 1,5 \times 7,05 + 1,3 \times 29,70 = 88,70 \text{ kW/m}^2$$

$$M_{dA} = 67,50 \times 1,15 + 0,5 \times 40,0 \times 1,15^2 = 104,08 \text{ kNm}$$

$$P_{a1A} / 1.75 \times 40,0 + 2,7 \times 44,35 + 158,95 + 104,08 / 4,2$$

$\swarrow$ 427,27 kN 2x per paal 213,84 kN.
 $+ 67,50 =$

$$P_{a1B} / 499,53 (\text{kolom}) + 3,90 \times 44,35 = 672,50 \text{ kN}$$

3x 224,17 kN

$$P_{a1C} / 27,60 + 0,9 \times (44,35 + 88,70) = 147,35 \text{ kN}$$

$$P_{a1D} / 532,77 (\text{kolom}) + 3,0 \times 88,70 = 798,87 \text{ kN. 3x}$$

per paal 266,29 kN

$$\text{tussenpalen E en G} / 2,1 \times 88,70 = 186,27 \text{ kN.}$$

$$1,0 \times 88,70 = 88,70 \text{ kN.}$$

$$P_{a1F} / 3,15 \times 88,70 + 469,38 = 748,78 \text{ kN 3x}$$

per paal = 249,59 kN.

$$P_{a1H} / 1,05 \times 88,70 + 331,75 = 424,88 \text{ kN 2x}$$

per paal = 212,44 kN.

$$P_{a1 \text{ min B}} / 43,43 \text{ kN}$$

e.g. b.g / 1e / 2e >> 43,43 resp. 43,89 kN.

$$P_{a1 \text{ min H}} / 43,89 \text{ kN.}$$

balk in as F/G. (as-G maat gevend)

$$l = 20950 \text{ mm}$$

$$q_{g:rep} = 4,80 + 4,7 \times 4,6 (\text{b.g.}) + 3,0 \times 2,0 (\text{m.w. b.g.})$$

= 32,45 kN/m.

$$q_{g:rep} = 4,7 \times 3,0 = 14,10 \text{ kN/m}$$

$\int q d = 32,45 \times 1,2$
 $+ 14,10 \times 1,50 =$
60,10 kN/m.

$$P_2 = 247,35 (\text{kolom}) + 71,68 (\text{balk}) = 319,03 \text{ kN}$$

$$P_3 = 553,15 (\text{kolom}) \quad P_5 = 534,58 \text{ kN} (\text{kolom})$$

$$P_4 = 656,16 (\text{kolom}) \quad P_6 = 228,00 \text{ kN} (\text{kolom})$$

$$P_7 = 71,68 \text{ (balk)} + 63,32 \text{ (kolom)} = 135,0 \text{ kN.}$$

$$\begin{aligned} \text{as-2)} & 319,03 + 2,1 \times 60,0 = 445,03 \text{ kN} \quad 2 \times \underline{222,52 \text{ kN}} \\ \text{as-3)} & 553,15 + 5,1 \times 60,0 = 859,15 \text{ kN} \quad 3 \times \underline{286,38 \text{ kN}} \\ \text{as-4)} & 656,16 + 4,8 \times 60,0 = 944,16 \text{ kN} \quad 3 \times \underline{314,72 \text{ kN}} \\ \text{as-5)} & 534,58 + 4,8 \times 60,0 = 822,58 \text{ kN} \quad 3 \times \underline{274,19 \text{ kN}} \\ \text{as-6)} & 228,00 + 3,575 \times 60,0 = 442,50 \text{ kN} \quad 2 \times \underline{221,25 \text{ kN}} \\ \text{as-7)} & 135,00 + 0,575 \times 60,0 = \underline{169,50 \text{ kN}} \end{aligned}$$

as - F

$$\begin{aligned} \text{as-2)} & 71,68 + 215,67 + 2,1 \times 60,0 = 413,35 \text{ kN} \quad 2 \times \underline{206,68 \text{ kN}} \\ \text{as-3)} & 755,23 + 5,1 \times 60,0 = 761,23 \text{ kN} \quad 3 \times \underline{253,74 \text{ kN}} \\ \text{as-4)} & 523,68 + 4,8 \times 60,0 = 811,68 \text{ kN} \quad 3 \times \underline{270,56 \text{ kN}} \\ \text{as-5)} & 468,35 + 4,8 \times 60,0 = 756,35 \text{ kN} \quad 3 \times \underline{252,12 \text{ kN}} \end{aligned}$$

balk in as-H

zie schema b/z. go

q, q^l en $q^{''}$ idem resp. 40,0, 44,35, 88,70 kN/m²

$$P_2 = 170,08 \text{ (kolom)} + 35,84 \text{ (as-2)} + 80,24 \text{ (as-2)} = 286,16 \text{ kN}$$

$$P_3 = 363,55 \text{ kN (kolom)}$$

$$P_{3/4} = \text{balkje trap} = 38,80 \text{ kN.}$$

$$P_4 = 509,52 \text{ kN (kolom)}$$

$$P_{4/5} = 106,30 \text{ kN}$$

$$P_5 = 564,64 \text{ kN}$$

$$P_6 = 198,40 \text{ kN}$$

$$P_7 = 31,66 + 35,84 \text{ (as-7)} = 67,50 \text{ kN}$$

$$M_{dA} = 104,08 \text{ kNm (b/z. g1)}$$

$$\text{Paul A)} \quad 1,75 \times 40,0 + \overset{+ 67,50}{2,4 \times 44,35} + 198,40 + \overset{104,08/4,2}{\quad} \\ = 467,12 \text{ kN} \quad 2 \times \underline{233,56 \text{ kN}}.$$

$$\text{Paul B)} \quad 564,64 + 3,9 \times 44,35 = 737,60 \text{ kN} \quad 3 \times \underline{245,86 \text{ kN}}.$$

$$\text{Paul C)} \quad 106,30 + 0,9 \times (44,35 + 88,70) = \underline{226,05 \text{ kN}}.$$

$$\text{Paul D)} \quad 509,52 + 3,0 \times 88,70 = 775,62 \text{ kN} \quad 3 \times \underline{258,54 \text{ kN}}.$$

$$\text{Paul E)} \quad 38,80 (\text{trap}) + 1,8 \times 88,70 = \underline{198,46 \text{ kN}}$$

$$\text{Paul F)} \quad 3,15 \times 88,70 + 363,55 = 642,96 \text{ kN} \quad 3 \times \underline{214,32 \text{ kN}}.$$

$$\text{Paul G)} \quad 2,1 \times 88,70 = \underline{186,27 \text{ kN}}.$$

$$\text{Paul H)} \quad 1,05 \times 88,70 + 286,16 = 379,30 \text{ kN} \quad 2 \times \underline{189,65 \text{ kN}}$$

Paul B en Paul H minimaal P_{trek} is $-34,30 \text{ kN}$
 resp. $-32,94 \text{ kN}$ op te nemen door e.g.
 balken 1e/2e/b.g (kanaalplaat).

beton constructies

99.

Betonkwaliteit C 20/25,

Betonstaalkwaliteit FeB 500

Zie voor $V_1 + V_{bg}$ s. Md en Mrep b/2. g g en 100

poeren kolommen B/3 / C/3 / D3

400 * 500 mm.

B/4, / C/4, / D/4

B/5, C/5, D/5

J/3, J/4, J/5

Zie b/2. 82 en 83

$$V_d = \underset{\text{(kolom)}}{397,78 \frac{1}{2}} + \underset{2}{8,64 / (\text{balk})} + \frac{2,35 * 1,0 * 38,26 (\text{vloer})}{2}$$

$$= 248,16 \text{ kN}$$

$$V_1 + V_{bg/1s} \text{ } \varnothing 8-125 = 225 \text{ kN}$$

$$V_1 + \underline{V_{bg/1s} \text{ } \varnothing 8-100} = 83 + 142 * 1,25 = 260 \text{ kN} > 248$$

$$M_d = 0,125 * \left(\underset{\text{balk}}{5,76} + \underset{\text{vloer}}{89,90} \right) * 1,0^2 + 0,25 * 397,78 * 1,0$$
$$= 111,40 \text{ kNm}$$

wap. 4 $\varnothing 16$ % b

poer as-4 D/D^o

400 * 400 * 500 mm

praktisch

3 $\varnothing 12$ hrsp

in beide richtingen

3 $\varnothing 16$ % b

balk in as-A (b/2.84) balk in ask 400 x 500 mm

$$V_d = 1,2 \times 59,70 = 71,64 \text{ kN} < V_{g/s} \text{ } \bar{\phi} 8-250$$

$$V_1 + V_{g/s} \text{ } \bar{\phi} 8-250 = 154,0 \text{ kN.}$$

$$M_d = 0,1 \times 59,7 \times 2,40^2 = 34,38 \text{ kNm.}$$

wap. 3 $\bar{\phi} 12^{\circ}/b$

balk in as-2 (b/2.84) (A tlm E)

400 x 500 mm

$$q_d = 59,35 \text{ kN/m}.$$

$$V_d = 2,1 \times 59,35 < V_1 + V_{g/s} \text{ } \bar{\phi} 8-250 \quad \leftarrow \text{idem}$$

$$V_d \text{ t.p.v. kolom} = 59,35 \times 0,5 + 274,55/2 = 166,95 \text{ kN}$$

$$M_d = 0,1 \times 59,35 \times 4,20^2 = 104,69 \text{ kNm}$$

wap. 4 $\bar{\phi} 16^{\circ}/b$

balk in as-6 (b/2.85) (A tlm 0°)

idem

balk in as-2 (H tlm k) balk in as-6 (H° tlm k)

balk in as-4/5 H/H°

400 x 500 mm

(b/2.87)

$$M_d B = 39,88 \text{ kNm}$$

$$M_d A-B = 0,125 \times 24,0 \times 2,30^2 - 0,9 \times 26,58/2 = 3,90 \text{ kNm}$$

$$V_d < V_1 + V_{g/s} \text{ } \bar{\phi} 8-250$$

wap. 3 $\bar{\phi} 12^{\circ}/b$

balk in as-H°

$$V_d = 1,8 \times 71,0 \times 1,1 = 140,58 \text{ kN}$$

400 x 500 mm

$$< V_1 + V_{g/s} \text{ } \bar{\phi} 8-250$$

$$M_d = 0,1 \times 71,0 \times 3,60^2 = 92,02 \text{ kNm}$$

wap. 4 $\bar{\phi} 16^{\circ}/b$

balk in as-4/5, D°/E (b/2.88)

$$M_d = 0,125 \times 24,0 \times 2,30^2 = 15,87 \text{ kNm} \quad \text{wap. 3 $\bar{\phi} 12^{\circ}/b$$$

balk in as-D (b12.8g)

400 x 500 mm 96.

$$V_{dmax} = 1,8 \times 71,0 + \frac{2}{3} \times 81,52 = 182,42 \text{ kN} \quad \text{bg/s } \phi 8-125$$

$$+ \frac{1}{3} \times 81,52 = 154,97 \text{ kN}$$

bg/s $\phi 8-250$

$x_{AB} = 2,18 \text{ m}$ vanaf as-4/5.

$$M_d = 0,8 \times (2,18 \times 154,97 - 0,5 \times 71,0 \times 2,18^2) =$$

$$135,29 \text{ kNm}$$

wap. 5 $\phi 16$ / b

balk in as-2 en 7, E t/m H (b12.8g)

400 x 500 mm

$$V_d < V_1 + V \quad \text{bg/s } \phi 8-250$$

$$M_d = 0,1 \times 15,25 \times 4,70^2 = 33,68 \text{ kNm}$$

wap. 3 $\phi 12$ / b

balkje onder trap (b12.8g)

$$M_d = 19,70 \text{ kNm}$$

idem

stekken.

dikte opstelling 150 mm $\rightarrow d = 120 \text{ mm}$

$$19,70 / \frac{0,12^2 \times 0,4}{3370} = 3370 \quad w_0 = 0,89$$

$$0,89 \times 0,12 \times 0,4 \times 10^4$$

$$= 427 \text{ mm}^2$$

3 $\phi 16$ vloer in

balk in as-E

500 x 500 mm

$$M_{dA} = 104,08 \text{ kNm} \quad \underline{\underline{2 \phi 12 \text{ b/entra}}}$$

$$M_d = 0,1 \times 44,95 \times 3,60^2 = 57,78 \text{ kNm}$$

$$M_d = 0,1 \times 88,70 \times 2,10^2 = 39,12 \text{ kNm}$$

$$M_d \text{ bij A) } 0,25 \times 158,95 \times 1,0 + 0,1 \times 44,95 \times 1,0^2 = 44,17 \text{ kNm.}$$

wap. 4 $\phi 12$ / b

$$V_d = 1,8 \times 44,95 = 79,83 \text{ kN}$$

$$1,05 \times 88,70 = 93,14 \text{ kN}$$

hele balk
bg/s $\phi 8-250$ t.p.v. 600 mm
breed 1 $\phi 12$ / b entra

baalk in as-F/G (b/2.g1).

400 x 500 mm

$$V_d = 2,1 \times 60,10 < V_1 + V_{bg1s} \bar{F} 8.250$$

$$M_d = 1,3 \times 0,5 \times 60,1 + 0,5 \times 60,1 \times 1,30^2 = 89,84 \text{ kNm.}$$

$$M_d = 0,1 \times 60,10 \times 4,2^2 = 106,0 \text{ kNm}$$

$$M_d = 0,1 \times 60,10 \times 1,0^2 + 0,2 \times 220 \times 1,0 < 106,0 \text{ kNm}$$

wap $\bar{F} 16^0/6$

baalk in as-H

500 x 500 mm

idem als as-E (zie b/2.g6).

smeerpultvloer

$$l = 2000 \text{ mm}$$

$$q_d = 4,8 \times 1,2 + 3,0 \times 1,3 = 9,65 \text{ kN/m}^2$$

$$M_d = 0,15 \times 9,65 \times 2,0^2 = 4,83 \text{ kNm}$$

min. wap. $\bar{F} 8-150^0/6$ k.net
(335 mm²)

begane grondvloer

$$l_y = l_x = 2350 \text{ mm} \quad l_y/l_x = 1,0$$

$$q_d = 38,26 \text{ kN/m}^2$$

$$h = 200 \text{ mm} \rightarrow d = 170 \text{ mm}$$

$$p_{d1} = 250 \text{ mm}$$

$$p_{d2} = 240 \text{ mm}$$

$$a = 2 \left(\frac{250 + 240}{\pi} \right) = 318 \text{ mm}$$

$$p = \pi (d + a) = \pi (170 + 318) = 1533 \text{ mm}$$

$$\sigma_d = \frac{240000}{1533 \times 170} = 0,92 \text{ N/mm}^2$$

$\sim 0,8 \times 1,15 = 0,92 \text{ N/mm}^2$
pon s akkoord

$$\psi = \left(1 - \frac{2 \times 125}{3 \times 2350} \right)^2 = 0,93$$

kolomstrook ~ 1175 mm

$$s = 5 \times 125 + 1,5 \times 200 = 925 \text{ mm} > 0,7 \times 1175$$

geen onderverdeling kolom- en
onderwarping middenstroken.

M_d veld (mm), wisselbelasting (hoek-en-randvelden

$$0,086 \times (1,2 \times 4,80 + 1,3 \times 12,5) \times 2,35^2 \times 0,93 = 9,72 \text{ kNm}$$

$$0,151 \times (1,3 \times 12,50) \times 2,35^2 \times 0,93 = \underline{12,60 \text{ kNm}}$$

$$22,32 \text{ kNm}$$

$$\frac{22,32}{0,17^2} = 772$$

$$w_0 = 0,184$$

$$A_{ben} = 0,184 \times 0,17 \times 1,0 \times 10^4 = 312 \text{ mm}^2$$

wap. $\bar{\phi} 8-150$ / kr.net
(335 mm²).

bovenwarping

i.v.m. eis vloeistof dicht

$$\text{staafafstand } s = 100 \text{ mm} \quad \bar{\psi}_{\min} = 0,34\%$$

$$\bar{w}_0 = 0,34 \times 0,2 \times 1,0 \times 10^4 = 680 \text{ mm}^2$$

wap. $\bar{\phi} 10-100$ / (785 mm²)

$$M_{st \text{ mm}} = 0,19 \times 38,26 \times 2,35^2 \times 0,93 = 37,34 \text{ kNm}$$

$$\frac{37,34}{0,17^2} = 1292 \quad w_0 = 0,308$$

$$0,308 \times 0,17 \times 1,0 \times 10^4 = 524 \text{ mm}^2$$

$$< 785 \text{ mm}^2$$

gekozen warping voldoet

Adviesburo J.A. Mulders B.V.

TECHNOSOFT / TS-WAPENINGSTABELLEN VBC 1990 (NEN 6720) Rel: 4.04 24 aug ** blad: 0

Doorsnede $b \cdot h$ (mm*mm) = 400.0* 500.0

Betonsterkte (N/mm ²) = 25.0	Vrije ruimte (mm) = 30.0
Staalkwaliteit (N/mm ²) = 500	Versch. ben. = 0
Milieuklasse = 2	Versch. bov. = 0
Dekking_eis (mm) = 30.0	Sortering = Diameters
Dekking_toegep. (mm) = 30.0	Beugeldiameter (mm) = 8.0
Diameters (mm) = 12.0 16.0 20.0	

Beugels: $\phi = 8.0$ mm Staalkwaliteit = 500 N/mm² $d = 452$ mm
 $\tau_1 = .46$ (N/mm²) $\tau_2 = 3.0$ N/mm² $V_1 = 83$ kN $V_2 = 542$ kN
 Beugels hoh (mm) : 250 125
 τ_{bgl} (N/mm²) : .39 .79
 V_{bgl} (kN) : 71 142
 $V_{bgl} + V_1$ (kN) : 154 225

M_u (kNm) moment op sterkte

M_{rep} (kNm) moment op scheurvorming

N_1, N_2 zijn de staaftaantallen

ϕ_1, ϕ_2 zijn de diameters

$N_1^* \phi_1$	$+N_2^* \phi_2 = \text{mm}^2$	M_u	M_{rep}	$N_1^* \phi_1$	$+N_2^* \phi_2 = \text{mm}^2$	M_u	M_{rep}
2*12.0	----- -226	35.3	25.4	5*16.0	----- 1005	181.9	151.6
3*12.0	----- 339	65.4	47.0	6*16.0	----- 1206	214.4	193.0
4*12.0	----- 452	86.3	63.7	7*16.0	----- 1407	245.5	233.5
5*12.0	----- 565	106.9	88.6	2*20.0	----- 628	117.0	50.5
6*12.0	----- 679	127.0	113.9	3*20.0	----- 942	170.7	104.4
7*12.0	----- 792	146.7	139.1	4*20.0	----- 1257	221.2	164.9
8*12.0	----- 905	166.0	164.0	5*20.0	----- 1571	268.4	224.7
2*16.0	----- 402	76.7	41.4	6*20.0	----- 1885	312.4	282.4
3*16.0	----- 603	113.1	68.7	7*20.0	----- 2199	353.2	337.2
4*16.0	----- 804	148.2	109.9				

Adviesburo J.A. Mulders B.V.

TECHNOSOFT / TS-WAPENINGSTABELLEN VBC 1990 (NEN 6720) Rel: 4.04 01 mei ** blad: 0

Doorsnede b*h (mm*mm) = 500.0* 500.0

Betonsterkte (N/mm ²)	= 25.0	Vrije ruimte (mm)	= 30.0
Staalkwaliteit (N/mm ²)	= 500	Versch. ben.	= 0
Milieuklasse	= 2	Versch. bov.	= 0
Dekking_eis (mm)	= 30.0	Sortering	= Diameters
Dekking_toegep. (mm)	= 30.0	Beugeldiameter (mm)	= 8.0
Diameters (mm)	= 12.0 16.0		

Beugels: $\phi = 8.0$ mm Staalkwaliteit= 500 N/mm² d= 454 mm
 $\tau_1 = .46$ (N/mm²) $\tau_2 = 3.0$ N/mm² $V_1 = 104$ kN $V_2 = 681$ kN
 Beugels hoh (mm) : 250 125
 τ_{bgl} (N/mm²) : .31 .63
 V_{bgl} (kN) : 71 143
 $V_{bgl} + V_1$ (kN) : 176 247

M_u (kNm) moment op sterkte N_1, N_2 zijn de staaftaantallen
 M_{rep} (kNm) moment op scheurvorming ϕ_1, ϕ_2 zijn de diameters

$N_1 * \phi_1 + N_2 * \phi_2 = \text{mm}^2$	M_u	M_{rep}	$N_1 * \phi_1 + N_2 * \phi_2 = \text{mm}^2$	M_u	M_{rep}
3*12.0 ----- -339	52.9	38.0	3*16.0 ----- 603	114.3	61.6
4*12.0 ----- 452	87.0	62.5	4*16.0 ----- 804	150.3	97.5
5*12.0 ----- 565	107.9	79.9	5*16.0 ----- 1005	185.2	137.7
6*12.0 ----- 679	128.5	104.4	6*16.0 ----- 1206	219.1	178.6
7*12.0 ----- 792	148.8	129.2	7*16.0 ----- 1407	251.9	219.5
8*12.0 ----- 905	168.7	154.1	8*16.0 ----- 1608	283.7	259.9
9*12.0 ----- 1018	188.3	178.9	9*16.0 ----- 1810	314.4	299.6
10*12.0 ----- 1131	207.5	203.6			

balk t.b.v. afscheidingsmuur in verlengde
achtergevel bestaande loods.

$$l \approx 27.0 \text{ m}$$

$$\text{afm. } 400 \times 500 \text{ mm}$$

$$g_{g:rep} = 4.00 (\text{balk}) + 2.0 \times 4.0 (\text{steens m.w.}) \\ = 12.00 \text{ kN/m}^0$$

$$g_d = 12.00 \times 1.35 = 17.30 \text{ kN/m}^0$$

palen h.o.h. 5.0 m

$$\text{Paal bel } 5.0 \times 1.1 \times 17.30 = \underline{\underline{95.15 \text{ kN}}}$$

overkraging $\sim 1.0 \text{ m}$

$$M_d = 0.1 \times 17.30 \times 5.0^2 = 43.25 \text{ kNm}$$

$$\underline{\underline{\text{wap. } 3\phi 12 \text{ 9/6}}} \\ \text{bg/s } \phi 8 - 250$$

keuze palen

Ter beschikking zijn gesteld 16 stuks sonderingen gemaakt door WIHA Grondmechanica B.V. (opdr. 21940 en 21347).

Er wordt gekozen voor gladde betonpalen $\varnothing 250$ mm

$F_r: \text{netto: d} = \underline{324 \text{ kN}}$ (max paal belasting).

De sonderingen D2 t/m D9 en D13 t/m D16 bevinden zich rond en in de te bouwen locatie

peil schuur wordt peil nieuwbouw = $0.33 + \text{N.A.P}$

b.k. palen onder vloer = $120^+ \text{ peil} = 450 + \text{N.A.P.}$

b.k. palen onder balken hal = $380 - \text{peil} = 50 - \text{N.A.P.}$

b.k. palen onder kantoor = $580 - \text{peil} = 250 - \text{N.A.P.}$

b.k. palen onder smeerpuit = $1880 - \text{peil} = 1550 - \text{N.A.P.}$

open water / grondwater $0.80 - \text{N.A.P.} - 1.15 - \text{N.A.P.}$

(maatgevende voor bepaling $F_r: \text{netto: d}$)

van sondering D4, D7, D8, D9, D15

zullen de basisnivo's worden berekend,

waarbij $F_r: \text{netto: d}$ te genereren is.

2^{de} voor e.e.a. blz. 103 t/m. 112 (behoudens basisnivo palen bij alle sonderingen sond. 8)

ca. 12.0 m / g palen ^(vloer) 12.50 m, 12.0 m (balken)

10.50 m (smeerpuit)

bij sondering 8 basisnivo ca 13.0 - N.A.P

/g palen 13.50 en 13.0 m

ALGEMENE GEGEVENS:

Projekt : Heeswijk 120 te Montfoort.
 Datum : 04-07-2012
 Opdrachtnummer : 21347 en 21940
 Sonderingsnummer : 4
 Notitie :
 Referentienivo (RN) : n.a.p

GRONDGEGEVENS:

Hoogte maaiveld [m-RN] : .32 Grondwaterstand [m-RN]: 1.00
 Diepte paalkop [m-RN] : .00 Bovenbelasting [kN/m²]: .00
 Trajekt negatieve kleef : .32 tot 5.80 [m-RN]
 Trajekt positieve kleef : 8.00 tot 14.00 [m-RN]
 OCR-gebied: 0 OCR-waarde: n.v.t.

SONDERING:

Regel	Diepte	Conus	Regel	Diepte	Conus	Regel	Diepte	Conus
	[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]
1	.32	.00	9	7.30	6.00	17	10.50	13.00
2	.70	6.40	10	7.50	2.00	18	11.00	8.60
3	1.00	1.80	11	8.30	2.00	19	11.20	10.00
4	1.50	1.80	12	8.50	6.00	20	11.70	5.80
5	1.80	.30	13	9.00	6.00	21	12.50	24.00
6	5.80	.30	14	9.30	11.60	22	13.00	13.00
7	6.80	9.00	15	9.50	11.60	23	13.60	21.00
8	7.00	6.00	16	10.00	5.80	24	14.00	11.60

GRONDLAGEN:

nr	van	tot	droog	nat	phi	tabel	Omschrijving
	[m-RN]	[m-RN]	[kN/m ³]	[kN/m ³]	[°]		
1	.32	.60	18.00	20.00	32.50	7	zand-schoon-los
2	.60	3.00	17.00	17.00	17.50	16	klei-schoon-slap
3	3.00	5.80	13.00	13.00	15.00	26	veen-matig voorbelast-matig
4	5.80	8.00	18.00	20.00	32.50	7	zand-schoon-los
5	8.00	14.00	20.00	22.00	40.00	9	zand-schoon-vast

PAAL/REKEN-GEGEVENS:

Paaln.: 1 Type: prefab betonpaal (geheid)
 Afmeting [m]: .25 * .25
 Factor s paalvoet.....: 1.00
 Factor α_s (tabel 3).....: .01000
 Paalklassefactor α_p: 1.00
 $E_p; m; d$[kN/m²]: .200E+08
 Type lastzakingsdiagram.....: grondverdr.paal
 Stijf bouwwerk (6743 5.3.2.1) : NEE
 Palen: 1 Sonderingen: 1 ksi: .75
 Paalgebied oppervlakte A [m²]: 10.0
 A=0 is paal, A>0 is paalgroep
 Belastingfactor neg.kleef (1B): 1.40
 Belasting (Fs;d) 1A&1B en 2 [kN]: 324.0 270.0
 Toel. zakking 1A&1B en 2 [m] : .15 .05

Resultaten sondering:

Inheinvivo	Fr;d	Fs;nk;d	ctrl1A	Wld1	Wld2
[m-RN]	[kN]	[kN]	[kN]	[mm]	[mm]
9.00	210.9	41.8	169.1x	Fout	Fout
9.20	243.8	41.8	202.0x	Fout	29.4
9.40	258.9	41.8	217.1x	Fout	21.8
9.60	268.8	41.8	227.0x	Fout	18.3
9.80	275.4	41.8	233.6x	Fout	16.3
10.00	305.8	41.8	264.1x	Fout	11.6
10.20	363.2	41.8	321.4x	Fout	8.1
10.40	370.0	41.8	328.2√	30.5√	7.6√
10.60	363.0	41.8	321.3x	Fout	7.6
10.80	374.4	41.8	332.6√	28.1√	7.1√
11.00	383.3	41.8	341.5√	24.1√	6.8√
11.20	390.7	41.8	348.9√	21.5√	6.5√
11.40	393.8	41.8	352.1√	20.3√	6.3√
11.60	403.2	41.8	361.5√	17.7√	6.0√
11.80	484.6	41.8	442.8√	10.5√	5.0√
12.00	572.3	41.8	530.5√	8.0√	4.5√
12.20	634.8	41.8	593.1√	7.0√	4.2√
12.40	665.9	41.8	624.1√	6.5√	4.1√
12.60	675.1	41.8	633.4√	6.4√	4.1√
12.80	680.9	41.8	639.1√	6.3√	4.1√

Verklarende woordenlijst

Trj2	: Onderkant traject I en II (NEN6743/5.3.3.1)
qcI	: $q_{C,I};gem$ (NEN6743/5.3.3.1)
qcII	: $q_{C,II};gem$ (NEN6743/5.3.3.1)
qcIII	: $q_{C,III};gem$ (NEN6743/5.3.3.1)
Prmp	: $Pr,max;punt$ (NEN6743/5.3.3.1)
Frmp	: $Fr,max;punt$ (NEN6743/5.3.3)
qcza	: $q_{C,z;a}$ (NEN6743/5.3.3.2)
Prms	: $Pr,max;schacht$ (NEN6743/5.3.3.2)
Frms	: $Fr,max;schacht$ (NEN6743/5.3.3)
Frmg	: $Fr,max;gem=Fr,max;punt+Fr,max;schacht$
Frnr	: $Fr,fund,max;rep (=Fr,max;rep)$ (NEN6743/5.3)
Frmd	: $Fr,fund,max;d$ (NEN6743/5.2)= $Fr;d$
Fst1/2	: $Fs,tot;d$ voor grenstoestand 1B/2 (NEN6743/6.2.1)
Frmp1/2	: $Fr,max;punt$ voor grenstoestand 1B/2 (NEN6743/6.2.1)
Frms1/2	: $Fr,max;schacht$ voor grenstoestand 1B/2 (NEN6743/6.2.1)
Frpl1/2	: $Fr;punt;d$ voor grenstoestand 1B/2 (NEN6743/6.2.1)
Frsl1/2	: $Fr,schacht;d$ voor grenstoestand 1B/2 (NEN6743/6.2.1)
L	: Lengte tussen de paalpunt en het maaiveld (NEN6743/6.2.2)
l	: Gedeelte van de paal waarover geen schachtwrijving is aangenomen (6743/6.2.2)
Wpd1/2	: $w_{punt;d}$ zakking paalpunt grenstoestand 1B/2 (NEN6743/6.2.1)
Weld1/2	: $w_{el;d}$ zakking paalkop t.o.v. de paalpunt als gevolg van de elasticiteit van de paal grenstoestand 1B/2 (NEN6743/6.2.2)
Fr;d	: $Fr;d$ (NEN6740/6.3.2)
Fs;nk;d	: $Fr,rep;nk$ (NEN6740/11.5.1)
ctrl1A	: $Fr;d-Fs;nk;d \geq F_s;d$ voor 1A; $\sqrt{=Ja}$, $x=Nee$
Wld1/2	: $w_{1;d}$ zakking van v/d paalkop gr. toest. 1B/2 (NEN6743/6.2)
Wld1/2	: Fout houdt in dat er een doorgaande verplaatsing optreedt.
N.B. $w_{2;d}$ wordt 0 verondersteld. dus $w_d=w_{1;d}$ (NEN6743/6.3.1)	

ALGEMENE GEGEVENS:

Projekt : Heeswijk 120 te Montfoort.
 Datum : 04-07-2012
 Opdrachtnummer : 21347 en 21940
 Sonderingsnummer : 7
 Notitie :
 Referentienivo (RN) : n.a.p

GRONDGEGEVENS:

Hoogte maaiveld [m-RN] : .00 Grondwaterstand [m-RN]: 1.00
 Diepte paalkop [m-RN] : .00 Bovenbelasting [kN/m²]: .00
 Trajekt negatieve kleef : .00 tot 5.80 [m-RN]
 Trajekt positieve kleef : 8.00 tot 14.00 [m-RN]
 OCR-gebied: 0 OCR-waarde: n.v.t.

SONDERING:

Regel	Diepte	Conus	Regel	Diepte	Conus	Regel	Diepte	Conus
	[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]
1	.00	.00	10	7.20	3.00	19	11.30	5.00
2	.40	20.00	11	8.00	1.40	20	11.50	9.00
3	.60	3.20	12	8.20	7.20	21	12.20	6.00
4	.80	3.20	13	8.40	5.00	22	12.50	16.00
5	1.00	1.00	14	8.50	5.00	23	12.80	12.40
6	1.60	.80	15	8.70	10.00	24	13.30	18.60
7	1.80	.30	16	8.90	8.20	25	13.80	5.80
8	5.80	.30	17	9.10	8.20	26	14.00	5.80
9	6.50	8.00	18	9.50	22.60			

GRONDLAGEN:

nr	van	tot	droog	nat	phi	tabel	Omschrijving
	[m-RN]	[m-RN]	[kN/m ³]	[kN/m ³]	[°]		
1	.00	.60	18.00	20.00	32.50	7	zand-schoon-los
2	.60	3.00	17.00	17.00	17.50	16	klei-schoon-slap
3	3.00	5.80	13.00	13.00	15.00	26	veen-matig voorbelast-matig
4	5.80	8.00	18.00	20.00	32.50	7	zand-schoon-los
5	8.00	14.00	20.00	22.00	40.00	9	zand-schoon-vast

PAAL/REKEN-GEGEVENS:

Paalnr.: 1 Type: prefab betonpaal (geheid)
 Afmeting [m]: .25 * .25
 Factor s paalvoet.....: 1.00
 Factor α_s (tabel 3).....: .01000
 Paalklassefactor α_p: 1.00
 $E_p; mat; d$[kN/m²]: .200E+08
 Type lastzakingsdiagram.....: grondverdr.paal
 Stijf bouwwerk (6743 5.3.2.1) : NEE
 Palen: 1 Sonderingen: 1 ksi: .75
 Paalgebied oppervlakte A [m²]: 10.0
 A=0 is paal, A>0 is paalgroep
 Belastingfactor neg.kleef (1B): 1.40
 Belasting ($F_s; d$) 1A&1B en 2 [kN]: 324.0 270.0
 Toel. zakking 1A&1B en 2 [m] : .15 .05

Resultaten sondering:

Inheinv	Fr;d	Fs;nk;d	ctrl1A	Wld1	Wld2
[m-RN]	[kN]	[kN]	[kN]	[mm]	[mm]
9.00	276.2	52.4	223.8x	Fout	19.0
9.20	409.0	52.4	356.6√	22.2√	7.3√
9.40	447.8	52.4	395.4√	16.2√	6.3√
9.60	288.4	52.4	236.0x	Fout	14.8
9.80	289.0	52.4	236.6x	Fout	14.1
10.00	276.1	52.4	223.7x	Fout	16.1
10.20	356.5	52.4	304.1x	Fout	8.2
10.40	365.7	52.4	313.3x	Fout	7.6
10.60	371.6	52.4	319.2x	Fout	7.2
10.80	375.5	52.4	323.1x	Fout	7.0
11.00	377.0	52.4	324.6√	32.4√	6.8√
11.20	383.0	52.4	330.6√	28.5√	6.6√
11.40	412.5	52.4	360.2√	17.8√	6.0√
11.60	421.7	52.4	369.3√	15.7√	5.8√
11.80	429.1	52.4	376.7√	14.0√	5.6√
12.00	435.5	52.4	383.1√	13.3√	5.4√
12.20	502.5	52.4	450.2√	9.8√	4.9√
12.40	596.4	52.4	544.0√	7.7√	4.4√
12.60	561.4	52.4	509.0√	8.1√	4.5√
12.80	546.5	52.4	494.2√	8.3√	4.6√

ALGEMENE GEGEVENS:

Projekt : Heeswijk 120 te Montfoort.
 Datum : 04-07-2012
 Opdrachtnummer : 21347 en 21940
 Sonderingsnummer : 8
 Notitie :
 Referentienivo (RN) : n.a.p

GRONDGEGEVENS:

Hoogte maaiveld [m-RN] : .09 Grondwaterstand [m-RN]: 1.00
 Diepte paalkop [m-RN] : .00 Bovenbelasting [kN/m²]: .00
 Trajekt negatieve kleef : .09 tot 5.80 [m-RN]
 Trajekt positieve kleef : 8.00 tot 14.00 [m-RN]
 OCR-gebied: 0 OCR-waarde: n.v.t.

SONDERING:

Regel	Diepte	Conus	Regel	Diepte	Conus	Regel	Diepte	Conus
	[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]
1	.09	.00	9	6.30	8.40	17	11.40	12.20
2	.20	1.00	10	6.60	7.40	18	12.00	5.80
3	.40	2.00	11	6.80	9.00	19	12.30	10.60
4	.60	4.00	12	7.50	1.80	20	12.60	6.80
5	1.00	1.40	13	8.00	6.00	21	12.80	8.40
6	1.50	.30	14	8.80	6.00	22	13.40	19.00
7	5.80	.30	15	9.20	5.00	23	14.00	19.80
8	6.00	7.00	16	10.70	5.80			

GRONDLAGEN:

nr	van	tot	droog	nat	phi	tabel	Omschrijving
	[m-RN]	[m-RN]	[kN/m ³]	[kN/m ³]	[°]		
1	.09	.60	18.00	20.00	32.50	7	zand-schoon-los
2	.60	3.00	17.00	17.00	17.50	16	klei-schoon-slap
3	3.00	5.80	13.00	13.00	15.00	26	veen-matig voorbelast-matig
4	5.80	8.00	18.00	20.00	32.50	7	zand-schoon-los
5	8.00	14.00	20.00	22.00	40.00	9	zand-schoon-vast

PAAL/REKEN-GEGEVENS:

Paalnr.: 1 Type: prefab betonpaal (geheid)
 Afmeting [m]: .25 * .25
 Factor s paalvoet.....: 1.00
 Factor α_s (tabel 3).....: .01000
 Paalklassefactor α_p: 1.00
 $E_p; mat; d$[kN/m²]: .200E+08
 Type lastzakkingsdiagram.....: grondverdr.paal
 Stijf bouwwerk (6743 5.3.2.1) : NEE
 Palen: 1 Sonderingen: 1 ksi: .75
 Paalgebied oppervlakte A [m²]: 10.0
 A=0 is paal, A>0 is paalgroep
 Belastingfactor neg.kleef (1B): 1.40
 Belasting (Fs;d) 1A&1B en 2 [kN]: 324.0 270.0
 Toel. zakking 1A&1B en 2 [m] : .15 .05

Resultaten sondering:

Inheinv	Fr;d	Fs;nk;d	ctrl1A	Wld1	Wld2
[m-RN]	[kN]	[kN]	[kN]	[mm]	[mm]
9.00	200.4	49.3	151.0x	Fout	Fout
9.20	210.6	49.3	161.3x	Fout	Fout
9.40	224.1	49.3	174.8x	Fout	Fout
9.60	237.9	49.3	188.5x	Fout	Fout
9.80	251.9	49.3	202.5x	Fout	26.7
10.00	264.3	49.3	214.9x	Fout	21.0
10.20	274.3	49.3	225.0x	Fout	17.7
10.40	284.0	49.3	234.6x	Fout	15.4
10.60	297.8	49.3	248.5x	Fout	12.8
10.80	327.1	49.3	277.7x	Fout	10.2
11.00	346.3	49.3	297.0x	Fout	8.9
11.20	361.0	49.3	311.7x	Fout	8.2
11.40	370.5	49.3	321.2x	Fout	7.7
11.60	375.2	49.3	325.8√	32.0√	7.3√
11.80	377.1	49.3	327.8√	30.8√	7.1√
12.00	400.0	49.3	350.6√	21.3√	6.6√
12.20	424.7	49.3	375.3√	16.0√	6.1√
12.40	432.0	49.3	382.7√	14.6√	5.8√
12.60	446.7	49.3	397.4√	13.0√	5.7√
12.80	507.0	49.3	457.6√	10.1√	5.0√

ALGEMENE GEGEVENS:

Projekt : Heeswijk 120 te Montfoort.
 Datum : 04-07-2012
 Opdrachtnummer : 21347 en 21940
 Sonderingsnummer : 9
 Notitie :
 Referentienivo (RN) : n.a.p

GRONDGEGEVENS:

Hoogte maaiveld [m-RN] : .35 Grondwaterstand [m-RN]: 1.00
 Diepte paalkop [m-RN] : .00 Bovenbelasting [kN/m²]: .00
 Trajekt negatieve kleef : .35 tot 5.80 [m-RN]
 Trajekt positieve kleef : 8.00 tot 14.00 [m-RN]
 OCR-gebied: 0 OCR-waarde: n.v.t.

SONDERING:

Regel	Diepte	Conus	Regel	Diepte	Conus	Regel	Diepte	Conus
	[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]
1	.35	.00	9	8.50	7.60	17	11.60	18.00
2	.50	7.20	10	8.80	5.00	18	12.30	5.80
3	.80	1.60	11	9.30	5.00	19	13.00	18.00
4	1.70	.30	12	10.00	13.00	20	13.50	18.00
5	5.80	.30	13	10.30	13.00	21	13.60	13.80
6	6.80	9.00	14	10.70	6.20	22	13.80	22.00
7	7.60	1.60	15	11.10	10.00	23	14.00	22.00
8	8.00	1.60	16	11.30	7.40			

GRONDLAGEN:

nr	van	tot	droog	nat	phi	tabel	Omschrijving
	[m-RN]	[m-RN]	[kN/m ³]	[kN/m ³]	[°]		
1	.35	.60	18.00	20.00	32.50	7	zand-schoon-los
2	.60	3.00	17.00	17.00	17.50	16	klei-schoon-slap
3	3.00	5.80	13.00	13.00	15.00	26	veen-matig voorbelast-matig
4	5.80	8.00	18.00	20.00	32.50	7	zand-schoon-los
5	8.00	14.00	20.00	22.00	40.00	9	zand-schoon-vast

PAAL/REKEN-GEGEVENS:

Paaln.: 1 Type: prefab betonpaal (geheid)
 Afmeting [m]: .25 * .25
 Factor s paalvoet.....: 1.00
 Factor α_s (tabel 3).....: .01000
 Paalklassefactor α_p: 1.00
 Ep;mat;d.....[kN/m²]: .200E+08
 Type lastzakkingsdiagram.....: grondverdr.paal
 Stijf bouwwerk (6743 5.3.2.1) : NEE
 Palen: 1 Sonderingen: 1 ksi: .75
 Paalgebied oppervlakte A [m²]: 10.0
 A=0 is paal, A>0 is paalgroep
 Belastingfactor neg.kleef (1B): 1.40
 Belasting (Fs;d) 1A&1B en 2 [kN]: 324.0 270.0
 Toel. zakking 1A&1B en 2 [m] : .15 .05

Resultaten sondering:

Inhe	nivo	Fr;d	Fs;nk;d	ctrl1A	Wld1	Wld2
[m-RN]	[kN]	[kN]	[kN]	[mm]	[mm]	[mm]
9.00	179.1	40.8	138.3x	Fout	Fout	
9.20	195.9	40.8	155.1x	Fout	Fout	
9.40	245.8	40.8	205.0x	Fout	27.7	
9.60	273.6	40.8	232.8x	Fout	17.4	
9.80	303.0	40.8	262.2x	Fout	12.3	
10.00	325.1	40.8	284.3x	Fout	10.1	
10.20	338.8	40.8	298.0x	Fout	8.9	
10.40	350.1	40.8	309.3x	Fout	8.3	
10.60	349.0	40.8	308.2x	Fout	8.1	
10.80	380.2	40.8	339.4√	25.2√	7.0√	
11.00	402.3	40.8	361.5√	19.0√	6.4√	
11.20	388.5	40.8	347.7√	22.0√	6.6√	
11.40	431.5	40.8	390.7√	13.8√	5.7√	
11.60	446.9	40.8	406.1√	12.4√	5.4√	
11.80	445.0	40.8	404.2√	12.3√	5.4√	
12.00	443.1	40.8	402.3√	12.1√	5.3√	
12.20	441.7	40.8	400.9√	12.0√	5.2√	
12.40	503.4	40.8	462.6√	9.3√	4.8√	
12.60	585.7	40.8	544.9√	7.4√	4.3√	
12.80	654.1	40.8	613.3√	6.6√	4.1√	

ALGEMENE GEGEVENS:

Projekt : Heeswijk 120 te Montfoort.
 Datum : 04-07-2012
 Opdrachtnummer : 21347 en 21940
 Sonderingsnummer : 15
 Notitie :
 Referentienivo (RN) : n.a.p

GRONDGEGEVENS:

Hoogte maaiveld [m-RN] : .16 Grondwaterstand [m-RN]: 1.00
 Diepte paalkop [m-RN] : .00 Bovenbelasting [kN/m²]: .00
 Trajekt negatieve kleef : .16 tot 5.80 [m-RN]
 Trajekt positieve kleef : 8.00 tot 14.00 [m-RN]
 OCR-gebied: 0 OCR-waarde: n.v.t.

SONDERING:

Regel	Diepte	Conus	Regel	Diepte	Conus	Regel	Diepte	Conus
	[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]		[m-RN]	[MN/m ²]
1	.16	.00	13	8.30	10.00	25	11.40	13.20
2	.20	2.60	14	8.50	8.00	26	11.60	10.00
3	.40	2.60	15	9.00	7.00	27	11.80	15.60
4	.50	1.00	16	9.20	9.20	28	11.90	11.00
5	1.80	.30	17	9.40	8.60	29	12.20	11.00
6	5.60	.30	18	9.50	10.00	30	12.40	8.00
7	6.20	9.40	19	9.70	16.40	31	12.60	13.00
8	6.50	3.00	20	10.00	10.00	32	12.90	8.00
9	6.90	2.30	21	10.20	11.00	33	13.50	16.00
10	7.50	11.00	22	10.50	7.00	34	14.00	23.00
11	7.80	10.60	23	10.80	6.00			
12	8.00	7.00	24	11.20	7.00			

GRONDLAGEN:

nr	van	tot	droog	nat	phi	tabel	Omschrijving
	[m-RN]	[m-RN]	[kN/m ³]	[kN/m ³]	[°]		
1	.16	.60	18.00	20.00	32.50	7	zand-schoon-los
2	.60	3.00	17.00	17.00	17.50	16	klei-schoon-slap
3	3.00	5.80	13.00	13.00	15.00	26	veen-matig voorbelast-matig
4	5.80	8.00	18.00	20.00	32.50	7	zand-schoon-los
5	8.00	14.00	20.00	22.00	40.00	9	zand-schoon-vast

PAAL/REKEN-GEGEVENS:

Paaln.: 1 Type: prefab betonpaal (geheid)
 Afmeting [m]: .25 * .25
 Factor s paalvoet.....: 1.00
 Factor α_s (tabel 3).....: .01000
 Paalklassefactor α_p: 1.00
 E_p ;mat;d.....[kN/m²]: .200E+08
 Type lastzakkingsdiagram.....: grondverdr.paal
 Stijf bouwwerk (6743 5.3.2.1) : NEE
 Palen: 1 Sonderingen: 1 ksi: .75
 Paalgebied oppervlakte A [m²]: 10.0
 A=0 is paal, A>0 is paalgroep
 Belastingfactor neg.kleef (1B): 1.40
 Belasting (Fs;d) 1A&1B en 2 [kN]: 324.0 270.0
 Toel. zakking 1A&1B en 2 [m] : .15 .05

Resultaten sondering:

Inheinv	Fr;d	Fs;nk;d	ctrl1A	Wld1	Wld2
[m-RN]	[kN]	[kN]	[kN]	[mm]	[mm]
9.00	319.0	47.0	272.0x	Fout	11.7
9.20	350.6	47.0	303.6x	Fout	9.2
9.40	360.5	47.0	313.5x	Fout	8.6
9.60	354.6	47.0	307.6x	Fout	8.7
9.80	347.7	47.0	300.7x	Fout	8.7
10.00	353.8	47.0	306.8x	Fout	8.2
10.20	361.5	47.0	314.5x	Fout	7.8
10.40	367.0	47.0	320.0x	Fout	7.4
10.60	371.4	47.0	324.4√	32.5√	7.2√
10.80	380.5	47.0	333.5√	27.3√	6.9√
11.00	397.8	47.0	350.8√	21.0√	6.4√
11.20	459.4	47.0	412.4√	12.3√	5.3√
11.40	477.7	47.0	430.7√	11.2√	5.1√
11.60	494.7	47.0	447.7√	10.2√	4.9√
11.80	505.7	47.0	458.7√	9.6√	4.8√
12.00	519.1	47.0	472.1√	9.1√	4.6√
12.20	528.6	47.0	481.6√	8.7√	4.6√
12.40	552.4	47.0	505.4√	8.1√	4.5√
12.60	568.6	47.0	521.6√	7.8√	4.4√
12.80	572.1	47.0	525.1√	7.6√	4.4√

Een aantal palen t.p.v. de windbommen,
moet naast een drukbelasting ook een
trekbelasting. Max. trekbelasting = 52 kN
(Rekenwaarde).

Door buro H.F.C. Weijde is hiervoor een
advies gemaakt (zie bijlage).