

Statische berekeningen voor:  
7 woningen Priemkruid Breda  
Werknummer: 2017 047  
Fase: Bouwaanvraag



Gemeente Breda

Bijlage 13 bij besluit  
Z2018-007274-V1

V&L

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Onderwerp

Deze berekening betreft de nieuwbouw van 2 woon blokken. De woningen worden gefundeerd op een zware gewapend beton funderingsplaat die over damwanden kraagt. De plaat is in een 2d rekenpakket ingevoerd, met de gekozen stroken worden zowel de gewichten op de palen als de plaatwapening bepaald. Aangehouden strookbreedte: Paalafmeting+2x vloerdikte (dwarskracht). In deze berekening zijn maatgevende posities van de plaat getoetst, complete berekeningen van de in het werk te storten funderingsplaat worden voor uitvoering gemaakt in ingediend

Berekeningsgrondslagen

Ontwerp levensduur = 50 jaar  
Klasse = 3  
Gevolgklasse = CC1

**Belastingen**

Conform NEN-EN 1991-1

Zie eerste berekeningsblad

**Materiaalgegevens**

Volgens bijbehorend tekenwerk

**Stabiliteit**

In de richting van de cijferassen houden de bouwmuren de woningen stabiel. In de richting van de letterassen worden de woning voor- en achtergevel penanten hiervoor benut. De vloerschijven van de

**Brandwerendheid**

Brandwerendheid hoofddraagconstructie nvt

Berekeningsmethoden

*EC 0 Grondslagen*

NEN-EN 1990 Grondslag van het constructief ontwerp

*EC 1 Belastingen op constructies*

NEN-EN 1991-1-1 Dichtheden, eigen gewicht en opgelegde belastingen

NEN-EN 1991-1-2 Belasting bij brand

NEN-EN 1991-1-3 Sneeuw belasting

NEN-EN 1991-1-4 Windbelasting

NEN-EN 1991-1-5 Thermische belasting

NEN-EN 1991-1-6 Belastingen tijdens uitvoering

NEN-EN 1991-1-7 Buitengewone belastingen

*EC 2 Beton constructies*

NEN-EN 1992-1-1 Algemene regels en regels voor gebouwen

NEN-EN 1992-1-2 Ontwerp en berekening van constructies bij brand

*EC 3 Staal constructies*

NEN-EN 1993-1-1 Algemene regels en regels voor gebouwen

NEN-EN 1993-1-2 Ontwerp en berekening van constructies bij brand

NEN-EN 1993-1-8 Ontwerp en berekening van verbindingen

*EC 5 Hout constructies*

NEN-EN 1995-1-1 Gemeenschappelijke regels en regels voor gebouwen

NEN-EN 1995-1-2 Ontwerp en berekening van constructies bij brand

*EC 6 Metselwerk constructies*

NEN-EN 1996-1-1 Algemene regels voor constructies van  
gewapend/ongewapend metselwerk

*EC 7 Geotechnisch ontwerp*

NEN-EN 1997-1 Geotechnisch ontwerp - algemene regels

NEN-EN 1991-2 Verkeersbelasting op bruggen

NEN-EN 1991-3 Belastingen veroorzaakt door kranen en machines

NEN-EN 1991-4 Silo's en opslagtanks

NEN-EN 1992-2 Bruggen

NEN-EN 1992-3 Constructies voor keren en opslag van stoffen

Conclusies

De in deze berekening beoordeelde constructies voldoen aan de in bovengenoemde normen gestelde eisen mbt sterkte en stijfheid. Niet berekende onderdelen zijn op praktische gronden gekozen en worden minimaal belast

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**REPRESENTATIEVE LASTEN**

**Belastingcategoriën**

**Functie 1 = daken** (incl. wind/sneeuw)  $\psi_0 =$  **0,00**

**Functie 2 =** **A** **0,40** woon- en verblijf

**Plat dak hoog**

Permanent

Dakbedekking

Beton constructie d = 25,0 cm = 24 kN/m<sup>3</sup>

Plafond

Veranderlijk

**Gevelsteen 10cm** d = 10,0 cm = 20 kN/m<sup>3</sup>

**KZST 12cm** d = 12,0 cm = 19 kN/m<sup>3</sup>

**KZST 2x12cm** d = 24,0 cm = 19 kN/m<sup>3</sup>

**KZST 15cm** d = 15,0 cm = 19 kN/m<sup>3</sup>

**HSB/Pui** d = 10,0 cm = 5 kN/m<sup>3</sup>

**Verdiepingsvloeren**

Permanent

Afwerklaag d = 8,0 cm 20 kN/m<sup>3</sup>

Breedplaat vloer d = 25,0 cm 24 kN/m<sup>3</sup>

Plafond

Veranderlijk

Lichte wanden

**Balkons**

Permanent

Houten delen d = 4,3 cm 7 kN/m<sup>3</sup>

Plafond

Veranderlijk

Lichte wanden

**In werk gestorte betonvloer**

Permanent

Afwerklaag d = 8,0 cm = 20 kN/m<sup>3</sup>

Betonvloer d = 40,0 cm = 24 kN/m<sup>3</sup>

Veranderlijk

Lichte wanden

| $P_g$                | $P_q$                | $\psi_0$ |
|----------------------|----------------------|----------|
| [kN/m <sup>2</sup> ] | [kN/m <sup>2</sup> ] |          |
| 0,10                 | 1,00                 | 0,00     |
| 6,00                 |                      |          |
| 0,00                 |                      |          |
| <b>6,10</b>          |                      |          |
| 2,00                 |                      |          |
| 2,22                 | 1,75                 | 0,40     |
| 4,44                 |                      |          |
| 2,78                 |                      |          |
| 0,50                 |                      |          |
| <b>7,60</b>          |                      |          |
| 1,60                 | 2,50                 | 0,40     |
| 6,00                 |                      |          |
| 0,00                 |                      |          |
| <b>7,60</b>          |                      |          |
| 0,30                 |                      |          |
| 0,00                 | 2,50                 | 0,40     |
| <b>0,30</b>          |                      |          |
| 1,60                 |                      |          |
| 9,60                 |                      |          |
| <b>11,20</b>         |                      |          |
| 1,75                 | 2,25                 | 0,40     |
| 0,50                 |                      |          |
| <b>2,25</b>          |                      |          |

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**SNEEUW BELASTING**

**Sneeuwlast platte daken**

Sneeuw

$$c_e = 1$$

$$c_t = 1$$

$$s_k =$$

$$Sneeuw = \mu_i \cdot c_e \cdot c_t \cdot s_k =$$

$$\mu_i = 0,8$$

$$0,70$$

$$0,56$$

**Sneeuwlast bij obstakels**

Sneeuw

$$c_e = 1$$

$$c_t = 1$$

$$s_k =$$

$$\mu_i = \gamma \cdot h / s_k = (>=0,8 \mu_i <= 2)$$

$$h = 10,0 \text{ m} \quad l_s = 15,00 \text{ m}$$

$$\mu_i = 2,00$$

$$0,70$$

$$Sneeuw = \mu_i \cdot c_e \cdot c_t \cdot s_k =$$

$$1,40$$

**Sneeuwlast bij aangrenzende hogere bouw**

Sneeuw

$$c_e = 1$$

$$c_t = 1$$

$$s_k =$$

$$b1 \text{ hoog dak} =$$

$$3 \text{ m}$$

$$b2 \text{ laag dak} =$$

$$10 \text{ m}$$

$$h \text{ hoogteverschil} =$$

$$3 \text{ m}$$

$$\mu_w = (b1 + b2) / 2h =$$

$$2,0$$

$$\gamma \cdot h / s_k =$$

$$9,4$$

$$\mu_w = (>=0,8 \mu_i <= 4)$$

$$2,0$$

$$Sneeuw = \mu_i \cdot c_e \cdot c_t \cdot s_k =$$

$$0,70$$

$$1,38$$

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ZIE VOOR PAALLASTEN EN KRACHTEN PLAATFUNDERING (geschematiseerd in stroken) BIJLAGE GEWICHTEN

|                             |  |  |  |  | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$       | G                       | $\psi_0 Q$              |
|-----------------------------|--|--|--|--|-----------|-----------|----------------|-------------------------|-------------------------|
|                             |  |  |  |  |           |           |                | [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| In werk gestorte betonvloer |  |  |  |  | 2,80 x    | 11,20     | 2,25 1,00      | 31,4                    | 6,3                     |
|                             |  |  |  |  | 1,30 x    | 11,20     | 2,25 1,00      | 14,6                    | 2,9                     |
|                             |  |  |  |  | 1,35 x    | 11,20     | 2,25 1,00      | 15,1                    | 3,0                     |
| Plat dak hoog               |  |  |  |  | 2,80 x    | 6,10      | 1,00 0,00      | 17,1                    | 0,0                     |
| Verdiepingsvloeren          |  |  |  |  | 2,80 x    | 7,60      | 2,25 1,00      | 21,3                    | 6,3                     |
| Trapgat                     |  |  |  |  | 2,25 x    | 1,60 x    | 7,60 2,25 1,00 | 27,4                    | 8,1                     |
| Dakdeel Hal                 |  |  |  |  |           | 1,20 x    | 7,60 2,25 1,00 | 9,1                     | 2,7                     |
| <b>Lasten fundering</b>     |  |  |  |  | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$       | G                       | $\psi_0 Q$              |
| <b>Tussenwand</b>           |  |  |  |  |           |           |                | [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| KZST 2x12cm                 |  |  |  |  | 3,00 x    | 2,70 x    | 4,44           | 36,0                    |                         |
|                             |  |  |  |  |           | 2,70 x    | 4,44           | 12,0                    |                         |
| KZST 12cm                   |  |  |  |  |           | 2,70 x    | 2,22           | 6,0                     |                         |
|                             |  |  |  |  | 3,00 x    | 2,70 x    | 2,22           | 18,0                    |                         |
|                             |  |  |  |  | 2,00 x    | 2,70 x    | 2,22           | 12,0                    |                         |
| VG 70% gesloten             |  |  |  |  | 0,70 x    | 3,00 x    | 2,70 x         | 12,6                    |                         |
| AG 80% gesloten             |  |  |  |  | 0,80 x    | 3,00 x    | 2,70 x         | 14,4                    |                         |
| AG hoog 60% gesloten        |  |  |  |  | 2,80 x    | 0,60 x    | 2,70 x         | 10,1                    |                         |
| KZST 15cm                   |  |  |  |  | 1,30 x    | 2,70 x    | 2,78           | 9,7                     |                         |
|                             |  |  |  |  | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$       | G                       | $\psi_0 Q$              |
| Gevelsteen 10cm             |  |  |  |  |           |           |                | [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| ( % = % gesloten)           |  |  |  |  | 7,30 x    | 100% x    | 2,00           | 14,6                    |                         |
|                             |  |  |  |  | 2,00 x    | 1,50 x    | 1,75 x         | 10,5                    |                         |
|                             |  |  |  |  |           | 1,00 x    | 2,80 x         | 5,6                     |                         |
|                             |  |  |  |  |           |           | 9,50 x         | 15,2                    |                         |
|                             |  |  |  |  |           |           | 80% x          | 2,00                    |                         |
|                             |  |  |  |  |           |           | 2,80 x         | 10,8                    |                         |
|                             |  |  |  |  |           |           | 60% x          | 2,00                    |                         |

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**WIND BELASTING - STABILITEIT**

**Windlast gebouw met rechthoekige plattegrond**

**Windgebied =**

Basiswindsnelheid  $v_b = c_{dir} * c_{season} * v_{b0} = 24,5 \text{ m/s}$   
 $h = 10 \text{ m}$   $e = 9,1 \text{ m}$   
 $b \text{ zijden loodrecht wind} = 9,1 \text{ m}$   $d \text{ zijden evenwijdig wind} = 17,5 \text{ m}$

$b < h \leq 2b$ ; t/m hoogte = gebouwbreedte stuwdruk op basis b, h=gebouwbreedte en daarboven stuwdruk op basis h

**Referentie hoogte  $z_e$  =** 9,1 (= b) en 10 m (= h)

**Terreincategorie =** 2  $z_0 = 0,2 \text{ m}$   $z_{min} = 4 \text{ m}$   $z_{max} = 200 \text{ m}$

Terreinfactor  $k_r = 0,19 * (z_0/0,05)^{0,07} = 0,21$

Ruwheidsfactor  $c_r(z) = 0,80$

Orografiefactor  $c_o(z) = 1$

Gem.windsnelheid  $v_m(z) = 20 \text{ m/s}$

Turbulentie intensiteit  $I_v(z) = 0,26$   $k_1 = 1$

$c_s c_d = 1$

$h = 0,57 b$   $h < 4d$

$q_b = 1/2 * \rho * v_b^2 = 0,38 \text{ kN/m}^2$   $\rho = 1,25 \text{ kg/m}^3$

$q_p(z_e) = (1 + 7 * I_v(z)) * 1/2 * \rho * v_m^2(z) = 0,68 \text{ kN/m}^2$

$c_e(z) = q_p(z) / q_b = 1,81$

$h/d = 0,57$

| Zones | $C_{pe10}$ | $w_e^*$ | $w_e^{**}$ |
|-------|------------|---------|------------|
| A     | -1,2       | 0,81    | 0,95       |
| B     | -0,8       | 0,54    | 0,68       |
| C     | -0,5       | 0,34    | 0,48       |
| D     | 0,8        | 0,54    | 0,75       |
| E     | -0,5       | 0,34    | 0,48       |

\*  $w_e = c_s c_d * C_{pe10} * q_p(z_e) = \dots \text{ kN/m}^2$

\*\*  $w_e = c_s c_d * (C_{pe10} + |c_{pi}|) * q_p(z_e) = \dots \text{ kN/m}^2$

zones van toepassing =>

A =  $e/5 = 1,82 \text{ m}$

B =  $4/5 e = 7,28 \text{ m}$

C =  $d - e = 8,4 \text{ m}$

**Gevels druk/zuiging**

$w_{eD+E} = \text{reductie} * q_p(z_e) * c_{pe} = 0,75 \text{ kN/m}^2$

reductie = 0,85

**Gevels+dak wrijving**

min. 2b of 4h = 18,2 m

$L_{fr} = 0 \text{ m}$

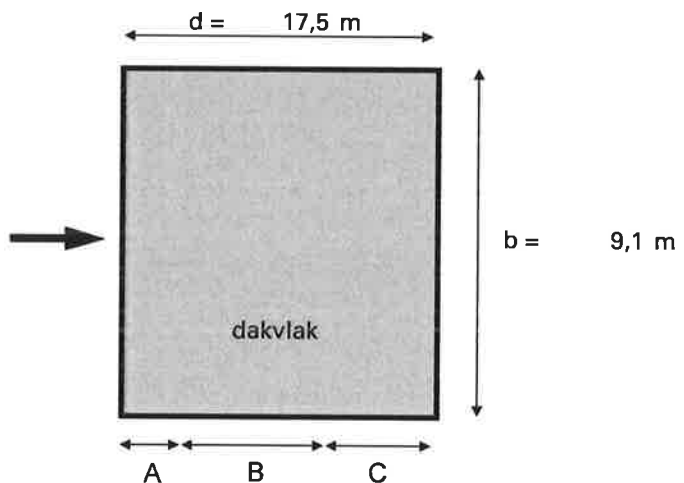
$c_{fr} \text{ dak} = 0,02$

$q_{fr} \text{ dak} = L_{fr} * c_{fr} * q_p(z_e) = 0,00 \text{ kN/m}$

$F_{efr} \text{ dak totaal} = q_{fr} \text{ dak} * L_{fr} = 0,0 \text{ kN}$

$c_{fr} \text{ gevel} = 0,04$

$F_{fr} \text{ gevel} = L_{fr} * c_{fr} * q_p(z_e) = 0,00 \text{ kN / m}$



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**Fwrep totaal** - lengterichting blokken, 3 woningen blok en achtergevel penanten, kleinste maatgevend  
Aanbouw verwaarloost, gebouw als rechthoekige doos berekend. Ongunstig  
Tpv de ankerloze spouwmuren: Koppel - draadeinden op de breedplaatvloer meenemen

|                            |                               |
|----------------------------|-------------------------------|
| H =                        | 7,8 m                         |
| B =                        | 9,1 m                         |
| A =                        | 71,0 m <sup>2</sup>           |
| Fw rep niveau 1e vloer =   | 53 kN                         |
| Fw d niveau 1e vloer =     | 72 kN                         |
| Aantal werkzame penanten = | 3 x                           |
| Fw d niveau 1e vloer =     | 24 kN                         |
| H penant =                 | 2,7 m                         |
| B penant =                 | 0,75 m kleinste penant, as 2D |
| D penant =                 | 0,65 m                        |
| Diagonaallengte penant =   | 2,8 m                         |
| Fwd drukdiagonaal penant = | 102 kN                        |
| Fwd opwaarts penant =      | 100 kN                        |



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**Bovenbelasting penant as 2D**

|                    |        |        |        | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$ |
|--------------------|--------|--------|--------|-----------|-----------|----------|
| Plat dak hoog      |        |        |        |           |           |          |
| KZST 12cm          | 0,50 x | 5,60 x | 3,50 x | 6,10      | 1,00      | 0,00     |
|                    | 0,50 x | 2,00 x | 2,70 x | 3,50 x    | 2,22      |          |
|                    |        | 1,20 x | 2,00 x | 2,70 x    | 2,22      |          |
| Verdiepingsvloeren |        |        |        |           |           |          |
| 2e                 | 0,50 x | 5,60 x | 2,00 x | 7,60      | 2,25      | 0,40     |
| 1e                 | 0,50 x | 5,60 x | 1,00 x | 7,60      | 2,25      | 0,40     |

| G                       | $\psi_0 Q$              |
|-------------------------|-------------------------|
| [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| 59,8                    | 0,0                     |
| 21,0                    |                         |
| 14,4                    |                         |
| 42,6                    | 5,0                     |
| 21,3                    | 2,5                     |
| <b>159,0</b>            | <b>7,6</b>              |
| <b>166,5</b>            |                         |

**Totaal =  
Totaal G+ $\psi Q_0$  =**

$$F_{Ed} = 0,90 \times 159,0 + 1,35 \times 7,6 \times 0,0 = 143,09 \text{ kN}$$

=> voldoende bovenbelasting

**Controle penant drukcapaciteit tgv windlast**

**Art. NEN-STEENACHTIGE WANDEN VOORNAMELIJK VERTICAAL BELAST**

EN1996

-1-1 Capaciteit lijm- of metselwerk; druk  
**Kalkzandsteen massief, lijmwerk, groep 1 (CS12)**  
 Gem. genorm.steendruksterkte  $f_b = 12 \text{ N/mm}^2$   
 Lijmmortel gem. druksterkte  $f_m = 12 \text{ N/mm}^2$  bij mortel algemeen max 2fb  
 $K = 0,8$   
 $\alpha = 0,85$   
 $\beta = 0$   
 $f_k = K \cdot f_b^{\alpha} \cdot f_m^{\beta} = 6,6 \text{ N/mm}^2$   
 $\gamma_m = 1,7$   
 $f_d = 3,9 \text{ N/mm}^2$   
 $\phi_{\infty} = 0,8$   
 $K_E = 700$   
 $E \text{ kort} = K_E \cdot f_k = 4629 \text{ N/mm}^2$   
 $E \text{ lang} = E / 1 + \phi_{\infty} = 2572 \text{ N/mm}^2$

**Afmetingen**

$h = \text{hoogte wand} = 2,7 \text{ m}$   
 $h_{ef} = \rho \cdot h = 2,7 \text{ m}$   
 $t = \text{dikte wand} = 120 \text{ mm}$  Slankheid = 23  
 $b = \text{breedte wand} = 750 \text{ mm}$   
 $A = 0,09 \text{ m}^2$

(5,3-5,5)  $\rho = \text{red. inklemming} = 1$

**Reductie  $\Phi_i$  boven-/onderzijde wand**

$e_{init} = h/450 = 6,0 \text{ mm}$   
 $e_{he} = \text{exc.hor.last} = 0 \text{ mm}$   
 centrische vloeroplegging  
 $N_{id} = \text{last uit vloer} = 0 \text{ kN}$   
 $t \text{ oplegvlak} = N_{id}/f_d \leq 1/10t = 0 \text{ mm}$   
 $e = 60 \text{ mm}$   
 $M_{id} = 0,0 \text{ kNm}$   
 $N_{Ed} = \text{totaal} = 102 \text{ kN}$

(6,5)  $e_i = M_{id}/N_{Ed} + e_{he} + e_{init} \geq 0,05t = 6,0 \text{ mm}$

$\Phi_i = 1 - 2e_i/t = 0,90$

(6,3)  $(0,7 + 3 \cdot A)$  reductie factor  $A = 0,97$

$N_{Rd} = \Phi \cdot t \cdot f_d = 306 \text{ kN}$  niet maatgevend

**Reductie  $\Phi_m$  halve hoogte wand**

$e_{hm} = \text{exc.hor.last} = 0 \text{ mm}$   
 $M_{md} = 1/2 M_{id} = 0,0 \text{ kNm}$   
 $N_{md} = N_{Ed} \text{ totaal} = 102 \text{ kN}$   
 (6,7)  $e_m = M_{md}/N_{md} + e_{hm} + e_{init} = 6 \text{ mm}$   
 (6,8)  $e_k = 0,002 \phi_{\infty} h_{ef} / t_{ef} \cdot \sqrt{t \cdot e_m} = 1 \text{ mm}$  bij  $\lambda_c \leq 15$   $e_k = 0$   
 (6,6)  $e_{mk} = e_m + e_k \geq 0,05t = 7 \text{ mm}$

(G1)  $\Phi_m = A1 \cdot e^{-(u-u_1)/2} = 0,51$

(G2)  $A1 = 1 - 2 \cdot e_{mk}/t = 0,88$

(G3)  $u = \lambda - 0,063 / 0,73 - 1,17 e_{mk}/t = 1,05$

(G4)  $\lambda = h_{ef}/t_{ef} \cdot \sqrt{f_k/E} = 1,14$

$N_{Rd} = \Phi \cdot t \cdot f_d = 174 \text{ kN}$  maatgevend

$N_{Ed} / N_{Rd} = 0,59 < 1$

pons

- ponsbelasting zonder wapening  
- C20/25 t.m. C35/45

Ponsbelasting (kN) zonder ponswapening voor centrisch belaste vierkante kolommen

uitgangspunt:  $v_{Rd,c} = v_{min} = 0,035 k^{3/2} \sqrt{f_{ck}}$

| kolomafmetingen | effectieve vloerdikte $d_{eff}$ (mm) |     |     |     |     |     |     |      |      |      |
|-----------------|--------------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|
|                 | 175                                  | 200 | 225 | 250 | 275 | 300 | 325 | 350  | 375  | 400  |
| <b>C20/25</b>   |                                      |     |     |     |     |     |     |      |      |      |
| 180             | 226                                  | 286 | 338 | 394 | 453 | 516 | 583 | 652  | 726  | 802  |
| 220             | 239                                  | 300 | 354 | 410 | 471 | 535 | 602 | 673  | 747  | 825  |
| 250             | 248                                  | 311 | 365 | 423 | 484 | 548 | 617 | 688  | 763  | 842  |
| 290             | 260                                  | 325 | 380 | 439 | 501 | 567 | 636 | 709  | 785  | 864  |
| 320             | 270                                  | 336 | 392 | 451 | 514 | 581 | 650 | 724  | 801  | 881  |
| 350             | 279                                  | 346 | 403 | 463 | 527 | 594 | 665 | 739  | 817  | 897  |
| 380             | 288                                  | 357 | 415 | 476 | 540 | 608 | 680 | 754  | 833  | 914  |
| 400             | 294                                  | 364 | 422 | 484 | 549 | 617 | 689 | 765  | 843  | 925  |
| <b>C25/30</b>   |                                      |     |     |     |     |     |     |      |      |      |
| 180             | 253                                  | 320 | 378 | 441 | 507 | 577 | 651 | 729  | 811  | 897  |
| 220             | 267                                  | 336 | 395 | 459 | 526 | 598 | 673 | 752  | 835  | 922  |
| 250             | 277                                  | 348 | 408 | 472 | 541 | 613 | 689 | 769  | 853  | 941  |
| 290             | 291                                  | 364 | 425 | 491 | 560 | 634 | 711 | 792  | 877  | 966  |
| 320             | 301                                  | 376 | 438 | 504 | 575 | 649 | 727 | 809  | 895  | 985  |
| 350             | 312                                  | 387 | 451 | 518 | 589 | 664 | 744 | 826  | 913  | 1003 |
| 380             | 322                                  | 399 | 464 | 532 | 604 | 680 | 760 | 843  | 931  | 1022 |
| 400             | 329                                  | 407 | 472 | 541 | 614 | 690 | 771 | 855  | 943  | 1035 |
| <b>C30/37</b>   |                                      |     |     |     |     |     |     |      |      |      |
| 180             | 277                                  | 351 | 414 | 483 | 555 | 632 | 713 | 799  | 889  | 983  |
| 220             | 292                                  | 368 | 433 | 503 | 576 | 655 | 737 | 824  | 915  | 1010 |
| 250             | 304                                  | 381 | 447 | 518 | 592 | 672 | 755 | 843  | 935  | 1031 |
| 290             | 319                                  | 398 | 466 | 538 | 614 | 694 | 779 | 868  | 961  | 1058 |
| 320             | 330                                  | 411 | 480 | 553 | 630 | 711 | 797 | 886  | 980  | 1079 |
| 350             | 342                                  | 424 | 494 | 568 | 646 | 728 | 814 | 905  | 1000 | 1099 |
| 380             | 353                                  | 437 | 508 | 583 | 662 | 745 | 832 | 924  | 1020 | 1120 |
| 400             | 360                                  | 446 | 517 | 593 | 672 | 756 | 844 | 936  | 1033 | 1133 |
| <b>C35/45</b>   |                                      |     |     |     |     |     |     |      |      |      |
| 180             | 299                                  | 379 | 448 | 521 | 600 | 683 | 771 | 863  | 960  | 1062 |
| 220             | 316                                  | 397 | 468 | 543 | 623 | 707 | 796 | 890  | 988  | 1091 |
| 250             | 328                                  | 412 | 483 | 559 | 640 | 725 | 816 | 910  | 1010 | 1113 |
| 290             | 344                                  | 430 | 503 | 581 | 663 | 750 | 841 | 937  | 1038 | 1143 |
| 320             | 357                                  | 444 | 518 | 597 | 680 | 768 | 860 | 958  | 1059 | 1165 |
| 350             | 369                                  | 458 | 533 | 613 | 697 | 786 | 880 | 978  | 1080 | 1187 |
| 380             | 381                                  | 472 | 548 | 629 | 715 | 804 | 899 | 998  | 1101 | 1209 |
| 400             | 389                                  | 482 | 559 | 640 | 726 | 817 | 912 | 1011 | 1116 | 1224 |

Controle Vlaai (Batterijen)  
Plaat Fundatie

⇒ Pons N.V.T.

10

Project...: Priemkruid Breda

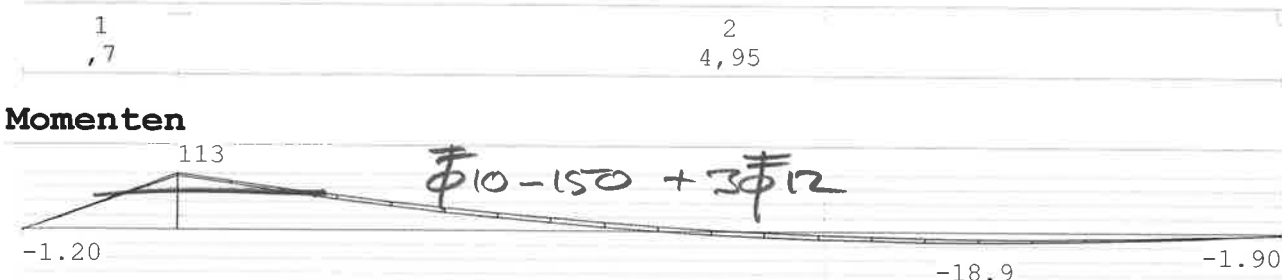
Onderdeel: Funderingsplaat blok 4 won

## Resultaten

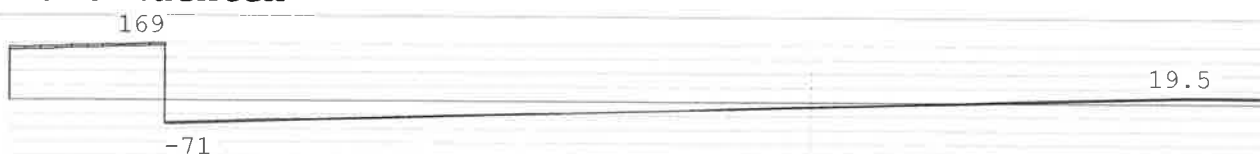
Balk 10:15 veld:1-2 Fundamentele combinatie

### Geometrie

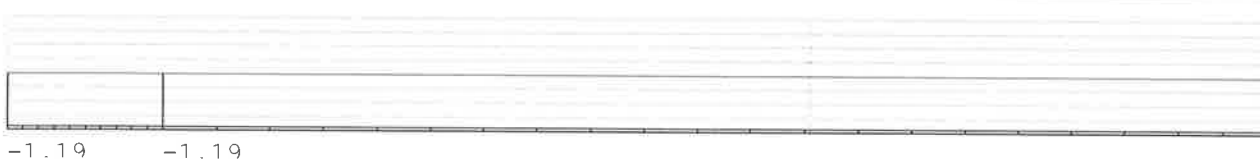
21e Bijlage Gewichten 2



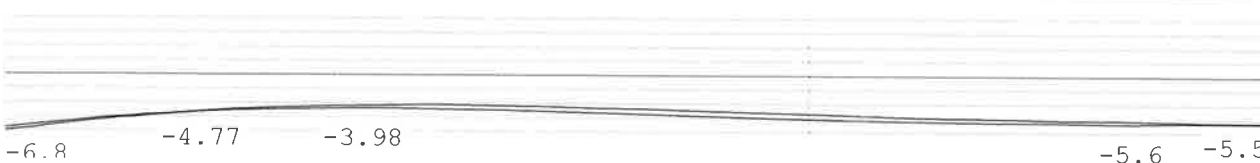
### Dwarskrachten



### Wringkrachten



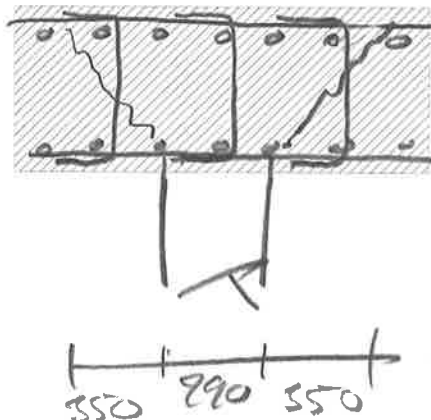
### Verplaatsingen



Resultaten in veld:73 op pos:2.900

|             |        |        |
|-------------|--------|--------|
| Momenten    | -14,34 | -5,96  |
| Dwarskr.    | -15,40 | -13,44 |
| Wringkr.    | -1,19  | -1,12  |
| Verpl. [mm] | -5,15  | -4,55  |

|                |              |
|----------------|--------------|
| Profiel        | B*H 1000*400 |
| E-modulus      | 7480         |
| Oppervlak      | 400000       |
| I <sub>y</sub> | 5.33333e+09  |



Werknr.: 2017 047

**Onderdeel: VS10**

**Materialen**

|                    |                       |              |         |
|--------------------|-----------------------|--------------|---------|
| Betonklasse =      | C20/25                | $M_{Erep} =$ | 100 kNm |
| $f_{ck} =$         | 20 N/mm <sup>2</sup>  | $M_{Ed} =$   | 113 kNm |
| $f_{ctm} =$        | 2,2 N/mm <sup>2</sup> | $V_{Ed} =$   | 169 kN  |
| Betonstaalklasse = | B500 B                |              |         |
| $f_{yk} =$         | 500 N/mm <sup>2</sup> |              |         |
| $f_{yd} =$         | 435 N/mm <sup>2</sup> | $\gamma_s =$ | 1,15    |

**Balk gegevens**

|                          |                                 |
|--------------------------|---------------------------------|
| b =                      | 1300 mm                         |
| h =                      | 400 mm                          |
| $c_{nom} =$              | 35 mm (25+10 berekend; 2e laag) |
| L =                      | nvt m                           |
| Toegepaste hoofdstaven = | 8,7      Ø      10              |
|                          | 3,0      Ø      12              |
|                          | 0,0      Ø      12      +       |
|                          | 1020 mm <sup>2</sup>            |
| $A_{s1, aanw.} =$        |                                 |
| d =                      | 360 mm                          |

**Moment**

|                                                   |                          |                              |                       |
|---------------------------------------------------|--------------------------|------------------------------|-----------------------|
| $K = M_d / b d^2 f_{ck} =$                        | 0,03                     |                              |                       |
| $K' = 0,51\delta - 0,2144\delta^2 - 0,2 =$        | 0,19                     | $\delta < = 1$               |                       |
|                                                   | $K < K'$ ; geen drukwap. | $A_{s, max} (0,04 A_c) =$    | 20800 mm <sup>2</sup> |
| $z = d/2(1 + \sqrt{1 - 28K/9}) =$                 | 350 mm                   | W =                          | 34667 cm <sup>3</sup> |
| $A_{s1, ben.} M / (f_{yd} * z) =$                 | 742 mm <sup>2</sup>      | $M_{E, min} = f_{ctm} * W =$ | 76 kNm                |
| $A_{s, min1} = M_{E, min} / (f_{yd} * 5/6d) =$    | 585 mm <sup>2</sup>      | $0,0013 b_t * d =$           | 608 mm <sup>2</sup>   |
| $A_{s, min2} = 1,25 A_{s1} =$                     | 928 mm <sup>2</sup>      |                              |                       |
| Gekozen wapening: voldoet aan min. eisen wapening |                          | $M_{Rd} =$                   | 155 kNm               |
|                                                   |                          | $M_{Ed} / M_{Rd} =$          | 0,73 < 1              |
| $x_u =$                                           | 25 mm                    |                              |                       |
| $500 / (500 + f) =$                               | 0,53                     |                              |                       |
| $x_u / d =$                                       | 0,07 < 500 / 500+f => ok |                              |                       |

**Dwarskracht**

|                                                                                                       |                        |                            |          |
|-------------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------|
| Betoncapaciteit                                                                                       |                        |                            |          |
| $k = 1 + \sqrt{200/d} =$                                                                              | 1,75 (<=2)             |                            |          |
| $\rho_l = A_{s1} / (b_w * d) =$                                                                       | 0,002 (<=0,02)         |                            |          |
| $C_{Rd, c} / \gamma_c =$                                                                              | 0,12                   | $\gamma_c = 1,5$           |          |
| $V_{Rd, c} = [C_{Rd, c} * k * (100 * \rho_l * f_{ck})^{0,33}] * b_w * d =$                            |                        | 160 kN                     |          |
| <b>Toegepaste beugels =</b>                                                                           | 10 Ø      h.o.h        | 300 mm                     |          |
|                                                                                                       | 3 snedig               | 785 mm <sup>2</sup> /m1    |          |
|                                                                                                       | $\alpha =$             | 90 °                       |          |
| Beugelcapaciteit                                                                                      |                        |                            |          |
| $v = 0,6 * [1 - f_{ck}/250] =$                                                                        | 0,55                   |                            |          |
| $\alpha_{cw} =$                                                                                       | 1                      |                            |          |
| $\alpha_{cc} =$                                                                                       | 1                      |                            |          |
| $f_{cd} = \alpha_{cc} * f_{ck} / \gamma_c =$                                                          | 13,3 N/mm <sup>2</sup> |                            |          |
| $\theta$ drukdiagonaal =                                                                              | 22 °                   | c      2,48      lg hor. = | nvt m    |
| $V_{Rd, s} = (A_{sw}/s) * z * f_{ywd} * (\cot\theta + \cot\alpha) * \sin\alpha =$                     | 296 kN                 |                            |          |
| Drukdiagonaal capaciteit                                                                              |                        |                            |          |
| $V_{Rd, max} = \alpha_{cw} * b_w * z * v * f_{cd} * (\cot\theta + \cot\alpha) / (1 + \cot^2\theta) =$ | 1163 kN                | $V_{Ed} / V_{Rd} =$        | 0,57 < 1 |

Werknr.: 2017 047

### Dekking

|                        |                         |                       |      |
|------------------------|-------------------------|-----------------------|------|
| Max.nom. korrel =      | 32 mm                   |                       |      |
| $C_{min;b;bgls}$ =     | 0,0001 mm               | milieu klasse =       | XC2  |
| $C_{min;bgls\ dur}$ =  | 25 mm                   | constructie klasse =  | S4   |
| $C_{min;b;bgls}$ =     | 30 mm (incl. toeslagen) | slijtklasse toeslag = | 0 mm |
| $C_{gekozen;bgls}$ =   | 35 mm                   | $\Delta C_{dev}$ =    | 5 mm |
|                        |                         | werkvl.stampbeton =   | nee  |
| $C_{min;b;hfdwap}$ =   | 12 mm                   |                       |      |
| $C_{min;hfdwap;dur}$ = | 25 mm                   |                       |      |
| $C_{min;b;hfdwap}$ =   | 30 mm (incl. toeslagen) |                       |      |
| $C_{gekozen;hfdwap}$ = | 35,0001 mm              |                       |      |

### Scheurvorming - tabellen 7.2N / 7.3N

|                                                                       |                       |                        |                     |
|-----------------------------------------------------------------------|-----------------------|------------------------|---------------------|
| $A_{s,min} \cdot \sigma_s = k_c \cdot k \cdot f_{cteff} \cdot A_{ct}$ | $A_{s,min} =$         | 509 mm <sup>2</sup>    |                     |
| $k_c =$                                                               |                       | 0,4                    |                     |
| $k =$                                                                 |                       | 0,65                   |                     |
| $f_{cteff} =$                                                         |                       | 2,2 N/mm <sup>2</sup>  |                     |
| $\sigma_s =$                                                          |                       | 500 N/mm <sup>2</sup>  |                     |
| $A_{ct} = (h-x) \cdot b =$                                            |                       | 445109 mm <sup>2</sup> |                     |
| $x = k_x \cdot d =$                                                   |                       | 58 mm                  |                     |
| $k_x = \sqrt{((\alpha_c \rho)^2 + 2\alpha_c \rho)} - \alpha_c \rho =$ |                       | 0,16                   |                     |
| $\rho = A_s / (bd) =$                                                 |                       | 0,0022                 |                     |
| $\alpha_c = E_s / E_{cm} =$                                           |                       | 7,0                    |                     |
| $w_{max} =$                                                           | 0,3 mm                | $f_{aanw} / c_{nom} =$ | 1,17 (verwaarloost) |
| $\sigma_{s,rep} =$                                                    | 280 N/mm <sup>2</sup> |                        |                     |
| Max.staafdiameter =                                                   | 12 mm                 | $\lambda_{anwezig} =$  | 10,51429 mm         |
| Max.staafafstand =                                                    | 150 mm                | $\lambda_{anwezig} =$  | 105 mm              |
|                                                                       |                       |                        | => voldoet          |

Project...: Priemkruid Breda

Onderdeel: Funderingsplaat Blok1

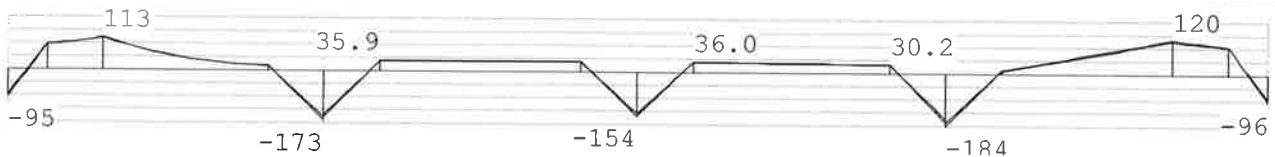
## Resultaten

Balk 7:12 veld:1-14 Fundamentele combinatie

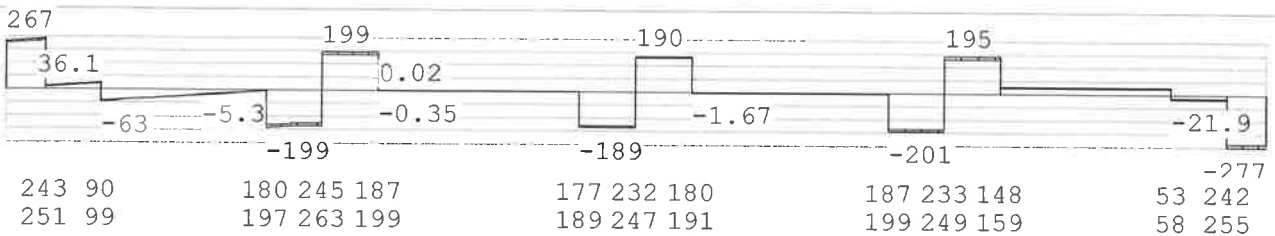
### Geometrie

|    |   |      |   |   |     |   |   |     |    |    |      |    |    |
|----|---|------|---|---|-----|---|---|-----|----|----|------|----|----|
| 1  | 2 | 3    | 4 | 5 | 6   | 7 | 8 | 9   | 10 | 11 | 12   | 13 | 14 |
| ,7 | 1 | 2,95 | 1 | 1 | 3,6 | 1 | 1 | 3,5 | 1  | 1  | 3,05 | 1  | ,7 |

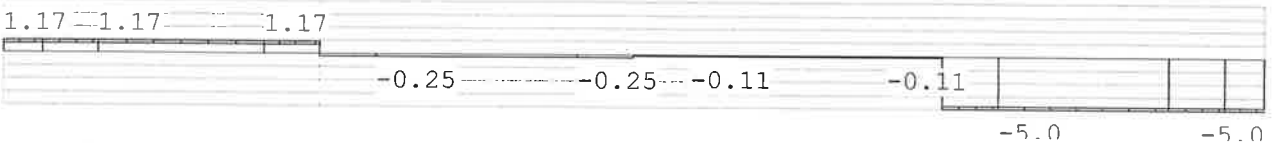
### Momenten



### Dwarskrachten



### Wringkrachten



### Verplaatsingen



Resultaten in veld:57 op pos:1.000

|             |         |         |
|-------------|---------|---------|
| Momenten    | -172,88 | -161,96 |
| Dwarskr.    | -185,51 | -173,44 |
| Wringkr.    | 0,86    | 1,17    |
| Verpl. [mm] | -5,26   | -4,90   |

Profiel B\*H 1000\*400

E-modulus 7480

Oppervlak 400000

I<sub>y</sub> 5.33333e+09



Werknr.: 2017 047

**Onderdeel: VS7**

**Materialen**

|                    |                       |              |         |
|--------------------|-----------------------|--------------|---------|
| Betonklasse =      | C20/25                | $M_{Erep} =$ | 164 kNm |
| $f_{ck} =$         | 20 N/mm <sup>2</sup>  | $M_{Ed} =$   | 184 kNm |
| $f_{ctm} =$        | 2,2 N/mm <sup>2</sup> | $V_{Ed} =$   | 199 kN  |
| Betonstaalklasse = | B500 B                |              |         |
| $f_{yk} =$         | 500 N/mm <sup>2</sup> |              |         |
| $f_{yd} =$         | 435 N/mm <sup>2</sup> | $\gamma_s =$ | 1,15    |

**Balk gegevens**

|                          |                           |
|--------------------------|---------------------------|
| b =                      | 1000 mm                   |
| h =                      | 400 mm                    |
| $C_{nom} =$              | 35 mm                     |
| L =                      | nvt m                     |
| Toegepaste hoofdstaven = | 6,7      Ø      10        |
|                          | 5,0      Ø      16        |
|                          | 0,0      Ø      12      + |
| $A_{s1, aanw.} =$        | 1529 mm <sup>2</sup>      |
| d =                      | 359 mm                    |

**Moment**

|                                                   |                          |                             |                       |
|---------------------------------------------------|--------------------------|-----------------------------|-----------------------|
| $K = Md/bd^2f_{ck} =$                             | 0,07                     |                             |                       |
| $K' = 0,51\delta - 0,2144\delta^2 - 0,2 =$        | 0,19                     | $\delta \leq 1$             |                       |
|                                                   | $K < K'$ ; geen drukwap. | $A_{s,max} (0,04 A_c) =$    | 16000 mm <sup>2</sup> |
| $z = d/2(1 + \sqrt{1 - 28K/9}) =$                 | 338 mm                   | W =                         | 26667 cm <sup>3</sup> |
| $A_{s1, ben. M / (f_{yd} * z) =$                  | 1254 mm <sup>2</sup>     | $M_{E,min} = f_{ctm} * W =$ | 59 kNm                |
| $A_{s,min1} = M_{E,min} / (f_{yd} * 5/6d) =$      | 451 mm <sup>2</sup>      | $0,0013 b_t * d =$          | 466 mm <sup>2</sup>   |
| $A_{s,min2} = 1,25 A_{s1} =$                      | 1567 mm <sup>2</sup>     |                             |                       |
| Gekozen wapening: voldoet aan min. eisen wapening |                          | $M_{Rd} =$                  | 224 kNm               |
|                                                   |                          | $M_{Ed}/M_{Rd} =$           | 0,82 < 1              |

|                     |                          |
|---------------------|--------------------------|
| $x_u =$             | 55 mm                    |
| $500 / (500 + f) =$ | 0,53                     |
| $x_u / d =$         | 0,15 < 500 / 500+f => ok |

**Dwarskracht**

**Betoncapaciteit**

|                                                                          |                |                  |  |
|--------------------------------------------------------------------------|----------------|------------------|--|
| $k = 1 + \sqrt{200/d} =$                                                 | 1,75 (<=2)     |                  |  |
| $\rho_l = A_{s1} / (b_w * d) =$                                          | 0,004 (<=0,02) |                  |  |
| $C_{Rd,c} / \gamma_c =$                                                  | 0,12           | $\gamma_c = 1,5$ |  |
| $V_{Rd,c} = [C_{Rd,c} * k * (100 * \rho_l * f_{ck})^{0,33}] * b_w * d =$ | 154 kN         |                  |  |

**Toegepaste beugels =**

|            |       |                         |
|------------|-------|-------------------------|
| 10 Ø       | h.o.h | 300 mm                  |
| 3 snedig   |       | 785 mm <sup>2</sup> /m1 |
| $\alpha =$ |       | 90 °                    |

**Beugelcapaciteit**

|                                                                                                      |                        |                   |          |
|------------------------------------------------------------------------------------------------------|------------------------|-------------------|----------|
| $v = 0,6 * [1 - f_{ck}/250] =$                                                                       | 0,55                   |                   |          |
| $\alpha_{cw} =$                                                                                      | 1                      |                   |          |
| $\alpha_{cc} =$                                                                                      | 1                      |                   |          |
| $f_{cd} = \alpha_{cc} * f_{ck} / \gamma_c =$                                                         | 13,3 N/mm <sup>2</sup> |                   |          |
| $\theta$ drukdiagonaal =                                                                             | 22 °                   | c                 | 2,48     |
| $V_{Rd,s} = (A_{sw}/s) * z * f_{ywd} * (\cot\theta + \cot\alpha) * \sin\alpha =$                     | 285 kN                 | lg hor. =         | nvt m    |
| Drukdiagonaal capaciteit                                                                             |                        |                   |          |
| $V_{Rd,max} = \alpha_{cw} * b_w * z * v * f_{cd} * (\cot\theta + \cot\alpha) / (1 + \cot^2\theta) =$ | 863 kN                 | $V_{Ed}/V_{Rd} =$ | 0,70 < 1 |

Werknr.: 2017 047

### Dekking

|                        |                         |                       |      |
|------------------------|-------------------------|-----------------------|------|
| Max.nom. korrel =      | 32 mm                   |                       |      |
| $C_{min;b;bgls}$ =     | 0,0001 mm               | milieu klasse =       | XC2  |
| $C_{min;bgls\ dur}$ =  | 25 mm                   | constructie klasse =  | S4   |
| $C_{min;b;bgls}$ =     | 30 mm (incl. toeslagen) | slijtklasse toeslag = | 0 mm |
| $C_{gekozen;bgls}$ =   | 35 mm                   | $\Delta C_{dev}$ =    | 5 mm |
|                        |                         | werkvl.stampbeton =   | nee  |
| $C_{min;b;hfdwap}$ =   | 16 mm                   |                       |      |
| $C_{min;hfdwap;dur}$ = | 25 mm                   |                       |      |
| $C_{min;b;hfdwap}$ =   | 30 mm (incl. toeslagen) |                       |      |
| $C_{gekozen;hfdwap}$ = | 35,0001 mm              |                       |      |

### Scheurvorming - tabellen 7.2N / 7.3N

|                                                                        |                       |                             |                     |
|------------------------------------------------------------------------|-----------------------|-----------------------------|---------------------|
| $A_{s,min} \cdot \sigma_s = k_c \cdot k \cdot f_{cteff} \cdot A_{ct}$  | $A_{s,min} =$         | 369 mm <sup>2</sup>         |                     |
| $k_c =$                                                                |                       | 0,4                         |                     |
| $k =$                                                                  |                       | 0,65                        |                     |
| $f_{cteff} =$                                                          |                       | 2,2 N/mm <sup>2</sup>       |                     |
| $\sigma_s =$                                                           |                       | 500 N/mm <sup>2</sup>       |                     |
| $A_{ct} = (h-x) \cdot b =$                                             |                       | 322426 mm <sup>2</sup>      |                     |
| $x = k_x \cdot d =$                                                    |                       | 78 mm                       |                     |
| $k_x = \sqrt{((\alpha_c \rho)^2 + 2 \alpha_c \rho)} - \alpha_c \rho =$ |                       | 0,22                        |                     |
| $\rho = A_s / (b d) =$                                                 |                       | 0,0043                      |                     |
| $\alpha_c = E_s / E_{cm} =$                                            |                       | 7,0                         |                     |
| $w_{max} =$                                                            | 0,3 mm                | $\sigma_{aanw} / C_{nom} =$ | 1,17 (verwaarloost) |
| $\sigma_{s,rep} =$                                                     | 318 N/mm <sup>2</sup> |                             |                     |
| Max.staafdiameter =                                                    | 10,5 mm               | $\lambda_{aanwezig} =$      | 12,57143 mm         |
| Max.staafafstand =                                                     | 112,5 mm              | $\lambda_{aanwezig} =$      | 79 mm               |
|                                                                        |                       |                             | => voldoet          |



Project...: Priemkruid Breda

Onderdeel: Funderingsplaat Blok1

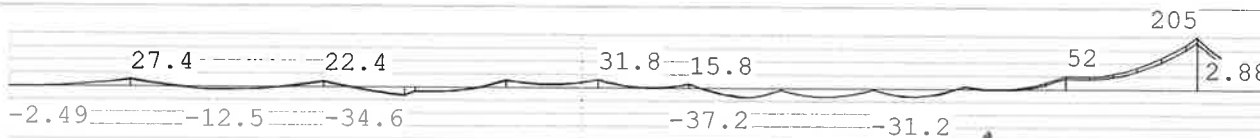
## Resultaten

Balk 6:11 veld:1-12 Fundamentele combinatie

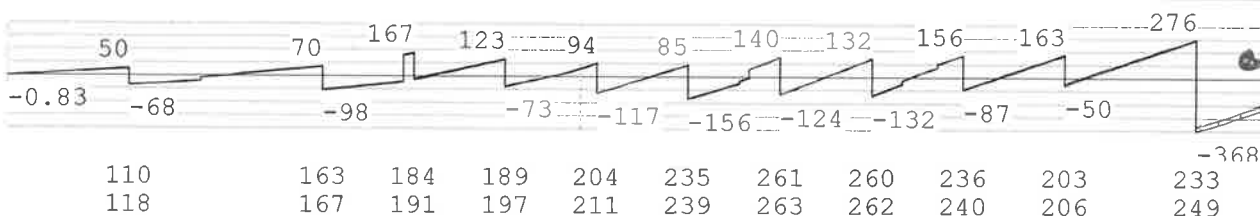
### Geometrie

|     |     |    |    |    |    |    |    |    |    |     |    |
|-----|-----|----|----|----|----|----|----|----|----|-----|----|
| 1   | 2   | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11  | 12 |
| 1,2 | 1,9 | ,9 | ,9 | ,9 | ,9 | ,9 | ,9 | ,9 | 1  | 1,3 | ,7 |

### Momenten



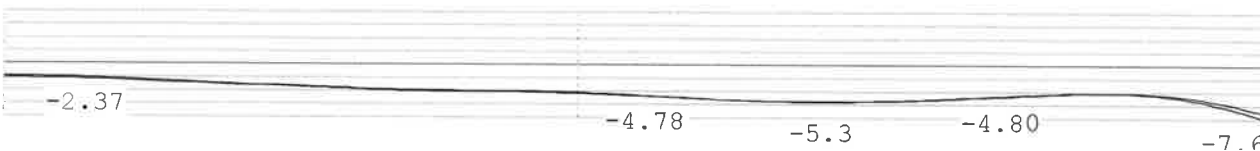
### Dwarskrachten



### Wringkrachten



### Verplaatsingen



Resultaten in veld:46 op pos:0.750

|             |       |       |
|-------------|-------|-------|
| Momenten    | 18,79 | 21,01 |
| Dwarskr.    | 55,82 | 60,12 |
| Wringkr.    | -0,72 | -0,71 |
| Verpl. [mm] | -4,15 | -4,01 |

|                |              |
|----------------|--------------|
| Profiel        | B*H 1000*400 |
| E-modulus      | 7480         |
| Oppervlak      | 400000       |
| I <sub>y</sub> | 5.33333e+09  |



Werknr.: 2017 047

**Onderdeel: VS6**

**Materialen**

|                    |                       |              |         |
|--------------------|-----------------------|--------------|---------|
| Betonklasse =      | C20/25                | $M_{Erep} =$ | 181 kNm |
| $f_{ck} =$         | 20 N/mm <sup>2</sup>  | $M_{Ed} =$   | 205 kNm |
| $f_{ctm} =$        | 2,2 N/mm <sup>2</sup> | $V_{Ed} =$   | 198 kN  |
| Betonstaalklasse = | B500 B                |              |         |
| $f_{yk} =$         | 500 N/mm <sup>2</sup> |              |         |
| $f_{yd} =$         | 435 N/mm <sup>2</sup> | $\gamma_s =$ | 1,15    |

**Balk gegevens**

|                          |                         |
|--------------------------|-------------------------|
| b =                      | 3000 mm                 |
| h =                      | 400 mm                  |
| $c_{nom} =$              | 35 mm                   |
| L =                      | nvt m                   |
| Toegepaste hoofdstaven = | 20,0 $\emptyset$ 10     |
|                          | 0,0 $\emptyset$ 16      |
|                          | 0,0 $\emptyset$ 12    + |
| $A_{s1, aanw.} =$        | 1571 mm <sup>2</sup>    |
| d =                      | 360 mm                  |

**Moment**

|                                                   |                          |                             |                       |
|---------------------------------------------------|--------------------------|-----------------------------|-----------------------|
| $K = M_d / b d^2 f_{ck} =$                        | 0,03                     |                             |                       |
| $K' = 0,51\delta - 0,2144\delta^2 - 0,2 =$        | 0,19                     | $\delta < = 1$              |                       |
|                                                   | $K < K'$ ; geen drukwap. | $A_{s,max} (0,04 A_c) =$    | 48000 mm <sup>2</sup> |
| $z = d/2(1 + \sqrt{1 - 28K/9}) =$                 | 352 mm                   | W =                         | 80000 cm <sup>3</sup> |
| $A_{s1, ben. M} / (f_{yd} * z) =$                 | 1338 mm <sup>2</sup>     | $M_{E,min} = f_{ctm} * W =$ | 176 kNm               |
| $A_{s,min1} = M_{E,min} / (f_{yd} * 5/6d) =$      | 1349 mm <sup>2</sup>     | $0,0013 b_t * d =$          | 1404 mm <sup>2</sup>  |
| $A_{s,min2} = 1,25 A_{s1} =$                      | 1672 mm <sup>2</sup>     |                             |                       |
| Gekozen wapening: voldoet aan min. eisen wapening |                          | $M_{Rd} =$                  | 241 kNm               |
|                                                   |                          | $M_{Ed} / M_{Rd} =$         | 0,85 < 1              |

|                     |                          |
|---------------------|--------------------------|
| $x_u =$             | 19 mm                    |
| $500 / (500 + f) =$ | 0,53                     |
| $x_u / d =$         | 0,05 < 500 / 500+f => ok |

**Dwarskracht**

|                                                                          |                                    |
|--------------------------------------------------------------------------|------------------------------------|
| Betoncapaciteit                                                          |                                    |
| $k = 1 + \sqrt{200/d} =$                                                 | 1,75 (<=2)                         |
| $\rho_l = A_{s1} / (b_w * d) =$                                          | 0,001 (<=0,02)                     |
| $C_{Rd,c} / \gamma_c =$                                                  | 0,12                               |
| $V_{Rd,c} = [C_{Rd,c} * k * (100 * \rho_l * f_{ck})^{0,33}] * b_w * d =$ | $\gamma_c = 1,5$                   |
|                                                                          | 323 kN geen dwarskracht wap. nodig |

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### Dekking

|                        |                         |                       |      |
|------------------------|-------------------------|-----------------------|------|
| Max.nom. korrel =      | 32 mm                   |                       |      |
| $C_{min;b;bgls}$ =     | 0,0001 mm               | milieu klasse =       | XC2  |
| $C_{min;bgls\ dur}$ =  | 25 mm                   | constructie klasse =  | S4   |
| $C_{min;b;bgls}$ =     | 30 mm (incl. toeslagen) | slijtklasse toeslag = | 0 mm |
| $C_{gekozen;bgls}$ =   | 35 mm                   | $\Delta C_{dev}$ =    | 5 mm |
|                        |                         | werkvl.stampbeton =   | nee  |
| $C_{min;b;hfdwap}$ =   | 16 mm                   |                       |      |
| $C_{min;hfdwap;dur}$ = | 25 mm                   |                       |      |
| $C_{min;b;hfdwap}$ =   | 30 mm (incl. toeslagen) |                       |      |
| $C_{gekozen;hfdwap}$ = | 35,0001 mm              |                       |      |

### Scheurvorming - tabellen 7.2N / 7.3N

|                                                                        |                       |                             |                     |
|------------------------------------------------------------------------|-----------------------|-----------------------------|---------------------|
| $A_{s,min} \cdot \sigma_s = k_c \cdot k \cdot f_{cteff} \cdot A_{ct}$  | $A_{s,min} =$         | 1209 mm <sup>2</sup>        |                     |
| $k_c =$                                                                |                       | 0,4                         |                     |
| $k =$                                                                  |                       | 0,65                        |                     |
| $f_{cteff} =$                                                          |                       | 2,2 N/mm <sup>2</sup>       |                     |
| $\sigma_s =$                                                           |                       | 500 N/mm <sup>2</sup>       |                     |
| $A_{ct} = (h-x) \cdot b =$                                             |                       | 1056492 mm <sup>2</sup>     |                     |
| $x = k_x \cdot d =$                                                    |                       | 48 mm                       |                     |
| $k_x = \sqrt{((\alpha_c \rho)^2 + 2 \alpha_c \rho)} - \alpha_c \rho =$ |                       | 0,13                        |                     |
| $\rho = A_s / (b d) =$                                                 |                       | 0,0015                      |                     |
| $\alpha_c = E_s / E_{cm} =$                                            |                       | 7,0                         |                     |
| $w_{max} =$                                                            | 0,3 mm                | $\sigma_{aanw} / c_{nom} =$ | 1,17 (verwaarloost) |
| $\sigma_{s,rep} =$                                                     | 327 N/mm <sup>2</sup> |                             |                     |
| Max.staafdiameter =                                                    | 10 mm                 | $\sigma_{aanw}$ =           | 10 mm               |
| Max.staafafstand =                                                     | 100 mm                | $\sigma_{aanw}$ =           | 146 mm              |
|                                                                        |                       |                             | => voldoet          |

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**Balkon uitkragers tussensituatie**

Eigen gewicht ligger  
UNP200  
Balkons

|        | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$  |
|--------|-----------|-----------|-----------|
| 1,25 x | 2,40 x    | 0,25      |           |
|        | 2,40 x    | 0,30      | 2,50 1,00 |

Totaal =  
Totaal  $G+\psi Q_0$  =

| G                       | $\psi_0 Q$              |
|-------------------------|-------------------------|
| [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| 0,8                     |                         |
| 0,7                     | 6,0                     |
| 1,5                     | 6,0                     |
| 7,5                     |                         |

**Balkon uitkragers randsituatie**

Eigen gewicht ligger  
IPE200  
Balkons

|        | $p_g/q_g$ | $p_q/q_q$ | $\psi_0$ |
|--------|-----------|-----------|----------|
| 1,20 x | 0,22      |           |          |
| 1,20 x | 0,30      | 2,50      | 1,00     |

Totaal =  
Totaal  $G+\psi Q_0$  =

| G                       | $\psi_0 Q$              |
|-------------------------|-------------------------|
| [kN/m <sup>1</sup> -kN] | [kN/m <sup>1</sup> -kN] |
| 0,3                     |                         |
| 0,4                     | 3,0                     |
| 0,6                     | 3,0                     |
| 3,6                     |                         |

Zie bijlage staal  
(balklaag steunt UNP / IPE profielen)

Werknr.: 2017 047

**Onderdeel: Balkon balklaag**

**Categorie :** A

| belasting         | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ | $F_t/F_{t0}$ |
|-------------------|----------|----------|----------|--------------|
| woon- en verblijf | 0,4      | 0,5      | 0,3      | 1,00         |

hartafstand balken = 0,40 m  
 lengte L = 4,60 m  
 zeeg  $w_c$  = 0 mm

| belastingen | $p_g$<br>[kN/m <sup>2</sup> ] | $q_g$<br>[kN/m <sup>1</sup> ] | $q_k$<br>[kN/m <sup>2</sup> ] | $q_k$<br>[kN/m <sup>1</sup> ] | $Q_k$<br>[kN] |
|-------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------|
| vloer       | 0,30                          | 0,12                          | 2,50                          | 1,00                          | 3,0           |
| eg balk     | 0,12                          | [kN/m <sup>2</sup> ]          |                               |                               |               |

factor  $M_q$     factor  $M_F$     factor  $V_p$     factor  $w_q$     factor  $w_F$   
 1/8            1/4            1/2            5/384        1/48

| combinaties             | G    | Q1   | $\Psi$   | Qi   | $\Psi$   | $\Psi$   |
|-------------------------|------|------|----------|------|----------|----------|
| 1. STR 6.10a            | 1,20 | 1,35 | $\Psi_0$ | 1,35 | $\Psi_0$ |          |
| 2. STR 6.10b            | 1,10 | 1,35 |          | 1,35 | $\Psi_0$ |          |
| 3. Karakteristiek 6.14a | 1,00 | 1,00 |          | 1,00 | $\Psi_0$ |          |
| 4. Quasi blijvend 6.16a | 1,00 |      |          | 1,00 |          | $\Psi_2$ |

|                   |       |                   |              |       |                 |                 |       |                   |
|-------------------|-------|-------------------|--------------|-------|-----------------|-----------------|-------|-------------------|
| breedte b =       | 70    | mm                | A =          | 13650 | mm <sup>2</sup> | $k_{mod}$ =     | 0,60  | blijvend          |
| hoogte h =        | 195   | mm                | $W_y$ =      | 444   | cm <sup>3</sup> | $k_{mod}$ =     | 0,70  | lang              |
| klasse =          | C24   | gezaagd           | $I_y$ =      | 4325  | cm <sup>4</sup> | $k_{mod}$ =     | 0,80  | middellang        |
| gewicht =         | 350   | kg/m <sup>3</sup> | $k_h$ =      | 1,00  |                 | $k_{mod}$ =     | 0,90  | kort              |
| klimaatklasse =   | 1     |                   | $k_{def}$ =  | 0,6   |                 | $k_{mod}$ =     | 1,10  | zeer kort         |
| $f_{m,0,rep}$ =   | 24,00 | N/mm <sup>2</sup> | $\gamma_M$ = | 1,3   |                 | $f_{m,0,u,d}$ = | 16,62 | N/mm <sup>2</sup> |
| $f_{v,0,rep}$ =   | 2,50  | N/mm <sup>2</sup> |              |       |                 | $f_{v,u,d}$ =   | 1,73  | N/mm <sup>2</sup> |
| $E_{0,ser,rep}$ = | 11000 | N/mm <sup>2</sup> | $\gamma_M$ = | 1,0   |                 |                 |       |                   |

| STERKTE - combinaties           | $q_d$ [kN/m <sup>1</sup> ] | $Q_d$ [kN] | $M_d$ [kNm] | $\sigma_{m,0,d}$ [N/mm <sup>2</sup> ] | UC   | $V_d$ [kN] | $\tau_d$ [N/mm <sup>2</sup> ] | UC   |
|---------------------------------|----------------------------|------------|-------------|---------------------------------------|------|------------|-------------------------------|------|
| 1. STR 6.10a / comb. q+Q        | 0,14                       | 1,62       | 2,24        | 5,06                                  | 0,30 | 1,95       | 0,21                          | 0,12 |
| 1. STR 6.10a / comb. $\Sigma q$ | 0,68                       | -          | 1,81        | 4,08                                  | 0,25 | 1,57       | 0,17                          | 0,10 |
| 2. STR 6.10b / comb. q+Q        | 0,13                       | 4,05       | 5,01        | 11,29                                 | 0,68 | 4,35       | 0,48                          | 0,28 |
| 2. STR 6.10b / comb. $\Sigma q$ | 1,48                       | -          | 3,92        | 8,84                                  | 0,53 | 3,41       | 0,37                          | 0,22 |

| ERVORMING [mm] - comb | $w_{inst\ G}$ | $w_{inst\ Q}$ | $w_{inst\ G+Q}$ | $w_c$ | $L_t / 300 =$ | $w_{fin\ \Sigma G,Q}$    | $L_t / 250 =$ | $w_{creep}$ |
|-----------------------|---------------|---------------|-----------------|-------|---------------|--------------------------|---------------|-------------|
| 2 / comb. q+Q         | 1,5           | 12,8          | 14,3            | 0,0   | 15,3          | 17,4                     | 18,4          | 3,2         |
| 2 / comb. $\Sigma q$  | 1,5           | 12,3          | 13,7            | 0,0   | 15,3          | 16,8                     | 18,4          | 3,1         |
|                       |               |               |                 |       |               | $w_{netfin\ \Sigma G,Q}$ | $L_t / 250 =$ |             |
|                       |               |               |                 |       |               | 17,4                     | 18,4          |             |
|                       |               |               |                 |       |               | 16,8                     | 18,4          |             |

### Onderdeel: Dak balklaag

**Categorie :** H

| belasting | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ | $F_t/F_{t0}$ |
|-----------|----------|----------|----------|--------------|
| daken     | 0        | 0        | 0        | 1,00         |
| sneeuw    | 0        | 0,2      | 0        | 1,00         |
| wind      | 0        | 0,2      | 0        | 1,00         |

|                      |      |    |
|----------------------|------|----|
| hartafstand balken = | 0,60 | m  |
| lengte L =           | 2,10 | m  |
| zeeg $w_c$ =         | 0    | mm |

| belastingen | $P_g$<br>[kN/m <sup>2</sup> ] | $Q_g$<br>[kN/m <sup>1</sup> ] | $P_{q;onderhoud}$<br>[kN/(10)m <sup>2</sup> ] | $Q_k$<br>[kN] | $q_{onderhoud}$<br>[kN/m <sup>1</sup> ] | $P_{sneeuw}$<br>[kN/m <sup>2</sup> ] | $q_{sneeuw}$<br>[kN/m <sup>1</sup> ] | $P_{wind}$<br>[kN/m <sup>2</sup> ] | $q_{wind}$<br>[kN/m <sup>1</sup> ] |
|-------------|-------------------------------|-------------------------------|-----------------------------------------------|---------------|-----------------------------------------|--------------------------------------|--------------------------------------|------------------------------------|------------------------------------|
| plat dak    | 1,30                          | 0,78                          | 1,00                                          | 1,5           | 0,60                                    | 1,40                                 | 0,84                                 | 0,00                               | 0,00                               |
| eg balk     | 0,03                          | [kN/m <sup>2</sup> ]          |                                               |               |                                         |                                      |                                      |                                    |                                    |

|              |              |              |              |              |
|--------------|--------------|--------------|--------------|--------------|
| factor $M_q$ | factor $M_F$ | factor $V_q$ | factor $w_q$ | factor $w_F$ |
| 1/8          | 1/4          | 1/2          | 5/384        | 1/48         |

| combinaties             | G    | Q1   | $\Psi$   | Qi   | $\Psi$   | $\Psi$   |
|-------------------------|------|------|----------|------|----------|----------|
| 1. STR 6.10a            | 1,20 | 1,35 | $\Psi_0$ | 1,35 | $\Psi_0$ |          |
| 2. STR 6.10b            | 1,10 | 1,35 |          | 1,35 | $\Psi_0$ |          |
| 3. Karakteristiek 6.14a | 1,00 | 1,00 |          | 1,00 | $\Psi_0$ |          |
| 4. Quasi blijvend 6.16a | 1,00 |      |          | 1,00 |          | $\Psi_2$ |

|                          |       |                   |                    |      |                 |                        |       |                   |
|--------------------------|-------|-------------------|--------------------|------|-----------------|------------------------|-------|-------------------|
| breedte b =              | 45    | mm                | A =                | 6525 | mm <sup>2</sup> | k <sub>mod</sub> =     | 0,60  | blijvend          |
| hoogte h =               | 145   | mm                | W <sub>y</sub> =   | 158  | cm <sup>3</sup> | k <sub>mod</sub> =     | 0,70  | lang              |
| klasse =                 | C18   | gezaagd           | I <sub>y</sub> =   | 1143 | cm <sup>4</sup> | k <sub>mod</sub> =     | 0,80  | middellang        |
| gewicht =                | 320   | kg/m3             | k <sub>h</sub> =   | 1,01 |                 | k <sub>mod</sub> =     | 0,90  | kort              |
| klimaatklasse =          | 1     |                   | k <sub>def</sub> = | 0,6  |                 | k <sub>mod</sub> =     | 1,10  | zeer kort         |
| f <sub>m,0,rep</sub> =   | 18,00 | N/mm <sup>2</sup> | γ <sub>M</sub> =   | 1,3  |                 | f <sub>m,0,u;d</sub> = | 12,46 | N/mm <sup>2</sup> |
| f <sub>v,0,rep</sub> =   | 2,00  | N/mm <sup>2</sup> |                    |      |                 | f <sub>v,u;d</sub> =   | 1,38  | N/mm <sup>2</sup> |
| E <sub>0,ser,rep</sub> = | 9000  | N/mm <sup>2</sup> | γ <sub>M</sub> =   | 1,0  |                 |                        |       |                   |

| STERKTE - combinaties    | q <sub>d</sub> [kN/m <sup>1</sup> ] | Q <sub>d</sub> [kN] | M <sub>d</sub> [kNm] | σ <sub>m,0,d</sub> [N/mm <sup>2</sup> ] | UC   | V <sub>d</sub> [kN] | τ <sub>d</sub> [N/mm <sup>2</sup> ] | UC   |
|--------------------------|-------------------------------------|---------------------|----------------------|-----------------------------------------|------|---------------------|-------------------------------------|------|
| 1. STR 6.10a / comb. q+C | 0,94                                | 0,00                | 0,52                 | 3,27                                    | 0,26 | 0,98                | 0,23                                | 0,16 |
| 1. STR 6.10a / comb. Σq  | 0,94                                | -                   | 0,52                 | 3,27                                    | 0,26 | 0,98                | 0,23                                | 0,16 |
| 2. STR 6.10b / comb. q+C | 0,86                                | 2,03                | 1,54                 | 9,74                                    | 0,78 | 2,93                | 0,67                                | 0,49 |
| 2. STR 6.10b / comb. Σq  | 1,99                                | -                   | 1,10                 | 6,96                                    | 0,56 | 2,09                | 0,48                                | 0,35 |

[illegible]

Technosoft Balkroosters release 6.09

12 dec 2018

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

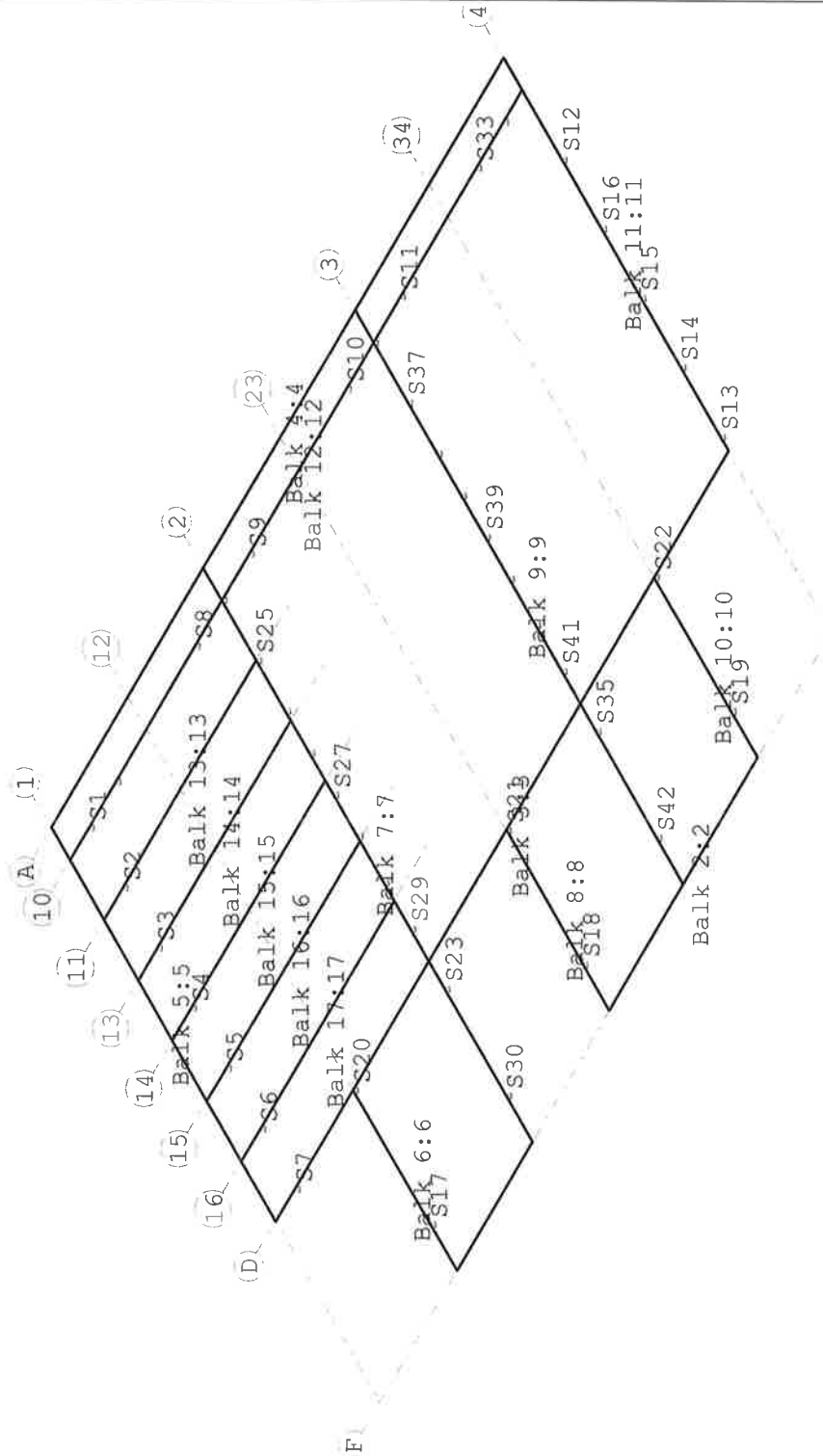
Dimensies: kN/m/rad

Datum....: 07/12/2018

Bestand...: g:\2017\2017-047 breda, 7 woningen priemkruid, de delta\17-047  
adviseurs en derden\17-047 constructeur\17-047 berekeningen\  
2017047fundering.grw

Torsiefac: 100 %

## GEOMETRIE



Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**MATERIALEN**

| Mt | Omschrijving | E-modulus[N/mm2] | S.M. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | C20/25       | 7480             | 25.0 | 0.20  | 1.0000e-05  |

**MATERIALEN vervolg**

| Mt | Omschrijving | Cement | Kruipfac. |
|----|--------------|--------|-----------|
| 1  | C20/25       |        | 3.01      |

**PROFIELEN [mm]**

| Prof. | Omschrijving | Materiaal | Oppervlak | Torsiëtr. | Traagheid | Vormf. |
|-------|--------------|-----------|-----------|-----------|-----------|--------|
| 1     | B*H 1500*400 | 1:C20/25  | 6.000e+05 | 2.666e+10 | 8.000e+09 | 0.00   |

**PROFIELEN vervolg [mm]**

| Prof. | Staaftype | Breedte | Hoogte | Zs  | Rek.As | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|-----|--------|------|----|----|----|----|
| 1     | 0:Normaal | 1500    | 400    | 200 | 0.00   | 0:RH |    |    |    |    |

**PROFIELVORMEN [mm]**

1 B\*H 1500\*400

**STRAMIENLIJNEN**

| Nr. | Naam | X-begin | Y-begin | X-eind | Y-Eind |
|-----|------|---------|---------|--------|--------|
| 1   | 1    | 0.000   | 12.400  | 0.000  | 0.000  |
| 2   | 12   | 2.850   | 12.400  | 2.850  | 0.000  |
| 3   | 2    | 5.650   | 12.400  | 5.650  | 0.000  |
| 4   | 23   | 8.500   | 12.400  | 8.500  | 0.000  |
| 5   | 3    | 11.250  | 12.400  | 11.250 | 0.000  |
| 6   | 34   | 14.000  | 12.400  | 14.000 | 0.000  |
| 7   | 4    | 16.750  | 12.400  | 16.750 | 0.000  |
| 8   | A    | 0.000   | 12.400  | 16.750 | 12.400 |
| 9   | D    | 0.000   | 3.900   | 16.750 | 3.900  |
| 10  | F    | 0.000   | 0.000   | 16.750 | 0.000  |
| 11  | 10   | 0.000   | 11.700  | 16.750 | 11.700 |
| 12  | 11   | 0.000   | 10.400  | 7.000  | 10.400 |
| 13  | 13   | 0.000   | 9.100   | 7.000  | 9.100  |
| 14  | 14   | 0.000   | 7.800   | 7.000  | 7.800  |
| 15  | 15   | 0.000   | 6.500   | 7.000  | 6.500  |
| 16  | 16   | 0.000   | 5.200   | 7.000  | 5.200  |

**BALKEN**

| Nr. | Naam | Begin | Eind | Profiel        |
|-----|------|-------|------|----------------|
| 1   | 1    | 12;F  | 2;F  | 1:B*H 1500*400 |
| 2   | 2    | 23;F  | 34;F | 1:B*H 1500*400 |
| 3   | 3    | 1;D   | 4;D  | 1:B*H 1500*400 |
| 4   | 4    | 1;A   | 4;A  | 1:B*H 1500*400 |
| 5   | 5    | 1;D   | 1;A  | 1:B*H 1500*400 |
| 6   | 6    | 12;F  | 12;D | 1:B*H 1500*400 |
| 7   | 7    | 2;F   | 2;A  | 1:B*H 1500*400 |
| 8   | 8    | 23;F  | 23;D | 1:B*H 1500*400 |



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Onderdeel: Funderingsplaat

**BALKEN**

| Nr. | Naam | Begin | Eind | Profiel        |
|-----|------|-------|------|----------------|
| 9   | 9    | 3;F   | 3;A  | 1:B*H 1500*400 |
| 10  | 10   | 34;F  | 34;D | 1:B*H 1500*400 |
| 11  | 11   | 4;D   | 4;A  | 1:B*H 1500*400 |
| 12  | 12   | 1;10  | 4;10 | 1:B*H 1500*400 |
| 13  | 13   | 1;11  | 2;11 | 1:B*H 1500*400 |
| 14  | 14   | 1;13  | 2;13 | 1:B*H 1500*400 |
| 15  | 15   | 1;14  | 2;14 | 1:B*H 1500*400 |
| 16  | 16   | 1;15  | 2;15 | 1:B*H 1500*400 |
| 17  | 17   | 1;16  | 2;16 | 1:B*H 1500*400 |

**BALKEN vervolg**

| Nr. | Naam | Aansl.begin | Aansl.eind | Excentr. | Pasm.begin | Pasm.eind | Opm. |
|-----|------|-------------|------------|----------|------------|-----------|------|
| 1   | 1    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 2   | 2    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 3   | 3    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 4   | 4    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 5   | 5    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 6   | 6    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 7   | 7    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 8   | 8    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 9   | 9    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 10  | 10   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 11  | 11   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 12  | 12   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 13  | 13   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 14  | 14   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 15  | 15   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 16  | 16   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 17  | 17   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |

**STEUNPUNTYPEN**

Nr. : 1  Rotatie X:Vrij  
 Min.afst.: 0.500 Verplaatsing Z:Veerwaarde: 50000  
 Rotatie Y:Vrij

**STEUNPUNTEN**

| Nr. | Steunpunttype | Balk       | Positie | Excentr. | Opm: |
|-----|---------------|------------|---------|----------|------|
| 1   | 1:            | Balk 12:12 | 0.700   | 0.000    |      |
| 2   | 1:            | Balk 13:13 | 0.700   | 0.000    |      |
| 3   | 1:            | Balk 14:14 | 0.700   | 0.000    |      |
| 4   | 1:            | Balk 15:15 | 0.700   | 0.000    |      |
| 5   | 1:            | Balk 16:16 | 0.700   | 0.000    |      |
| 6   | 1:            | Balk 17:17 | 0.700   | 0.000    |      |
| 7   | 1:            | Balk 3:3   | 0.700   | 0.000    |      |
| 8   | 1:            | Balk 12:12 | 4.65    | 0.000    |      |
| 9   | 1:            | Balk 12:12 | 6.65    | 0.000    |      |
| 10  | 1:            | Balk 12:12 | 10.25   | 0.000    |      |
| 11  | 1:            | Balk 12:12 | 12.25   | 0.000    |      |
| 12  | 1:            | Balk 11:11 | 6.300   | 0.000    |      |

Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat

**STEUNPUNTEN**

| Nr. | Steunpunttype | Balk       | Positie | Excentr. | Opm: |
|-----|---------------|------------|---------|----------|------|
| 13  | 1:            | Balk 11:11 | 0.300   | 0.000    |      |
| 14  | 1:            | Balk 11:11 | 1.800   | 0.000    |      |
| 15  | 1:            | Balk 11:11 | 3.300   | 0.000    |      |
| 16  | 1:            | Balk 11:11 | 4.800   | 0.000    |      |
| 17  | 1:            | Balk 6:6   | 1.000   | 0.000    |      |
| 18  | 1:            | Balk 8:8   | 1.000   | 0.000    |      |
| 19  | 1:            | Balk 10:10 | 1.000   | 0.000    |      |
| 20  | 1:            | Balk 3:3   | 2.850   | 0.000    |      |
| 21  | 1:            | Balk 3:3   | 8.500   | 0.000    |      |
| 22  | 1:            | Balk 3:3   | 14.000  | 0.000    |      |
| 23  | 1:            | Balk 7:7   | 3.300   | 0.000    |      |
| 24  | 1:            | Balk 7:7   | 11.700  | 0.000    |      |
| 25  | 1:            | Balk 7:7   | 10.4    | 0.000    |      |
| 26  | 1:            | Balk 7:7   | 9.300   | 0.000    |      |
| 27  | 1:            | Balk 7:7   | 7.500   | 0.000    |      |
| 28  | 1:            | Balk 7:7   | 6.600   | 0.000    |      |
| 29  | 1:            | Balk 7:7   | 4.600   | 0.000    |      |
| 30  | 1:            | Balk 7:7   | 1.000   | 0.000    |      |
| 31  | 1:            | Balk 12:12 | 1.7     | 0.000    |      |
| 32  | 1:            | Balk 7:7   | 5.600   | 0.000    |      |
| 33  | 1:            | Balk 12:12 | 15.05   | 0.000    |      |
| 34  | 1:            | Balk 7:7   | 8.400   | 0.000    |      |
| 35  | 1:            | Balk 9:9   | 3.300   | 0.000    |      |
| 36  | 1:            | Balk 9:9   | 11.700  | 0.000    |      |
| 37  | 1:            | Balk 9:9   | 10.4    | 0.000    |      |
| 38  | 1:            | Balk 9:9   | 9.300   | 0.000    |      |
| 39  | 1:            | Balk 9:9   | 7.500   | 0.000    |      |
| 40  | 1:            | Balk 9:9   | 6.600   | 0.000    |      |
| 41  | 1:            | Balk 9:9   | 4.600   | 0.000    |      |
| 42  | 1:            | Balk 9:9   | 1.000   | 0.000    |      |
| 43  | 1:            | Balk 9:9   | 5.600   | 0.000    |      |
| 44  | 1:            | Balk 9:9   | 8.400   | 0.000    |      |
| 45  | 1:            | Balk 12:12 | 16.05   | 0.000    |      |

**BELASTINGGEVALLEN**

| B.G. | Omschrijving | Belast/onbelast    | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ | e.g. |
|------|--------------|--------------------|----------|----------|----------|------|
| 1    | permBG       | 2:Permanent EN1991 |          |          |          | 0.00 |
| 2    | varBG        | 0:Alles tegelijk   | 1.00     | 1.00     | 1.00     | 0.00 |
| 3    | gevels       | 2:Permanent EN1991 | 1.00     | 1.00     | 1.00     | 0.00 |
| 4    | kzst         | 2:Permanent EN1991 | 0.00     | 0.00     | 0.00     | 0.00 |
| 5    | permVerdvl   | 2:Permanent EN1991 |          |          |          | 0.00 |
| 6    | varVerdvl    | 0:Alles tegelijk   | 1.00     | 1.00     | 1.00     | 0.00 |
| 7    | permDakvl    | 2:Permanent EN1991 |          |          |          | 0.00 |

Project..: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

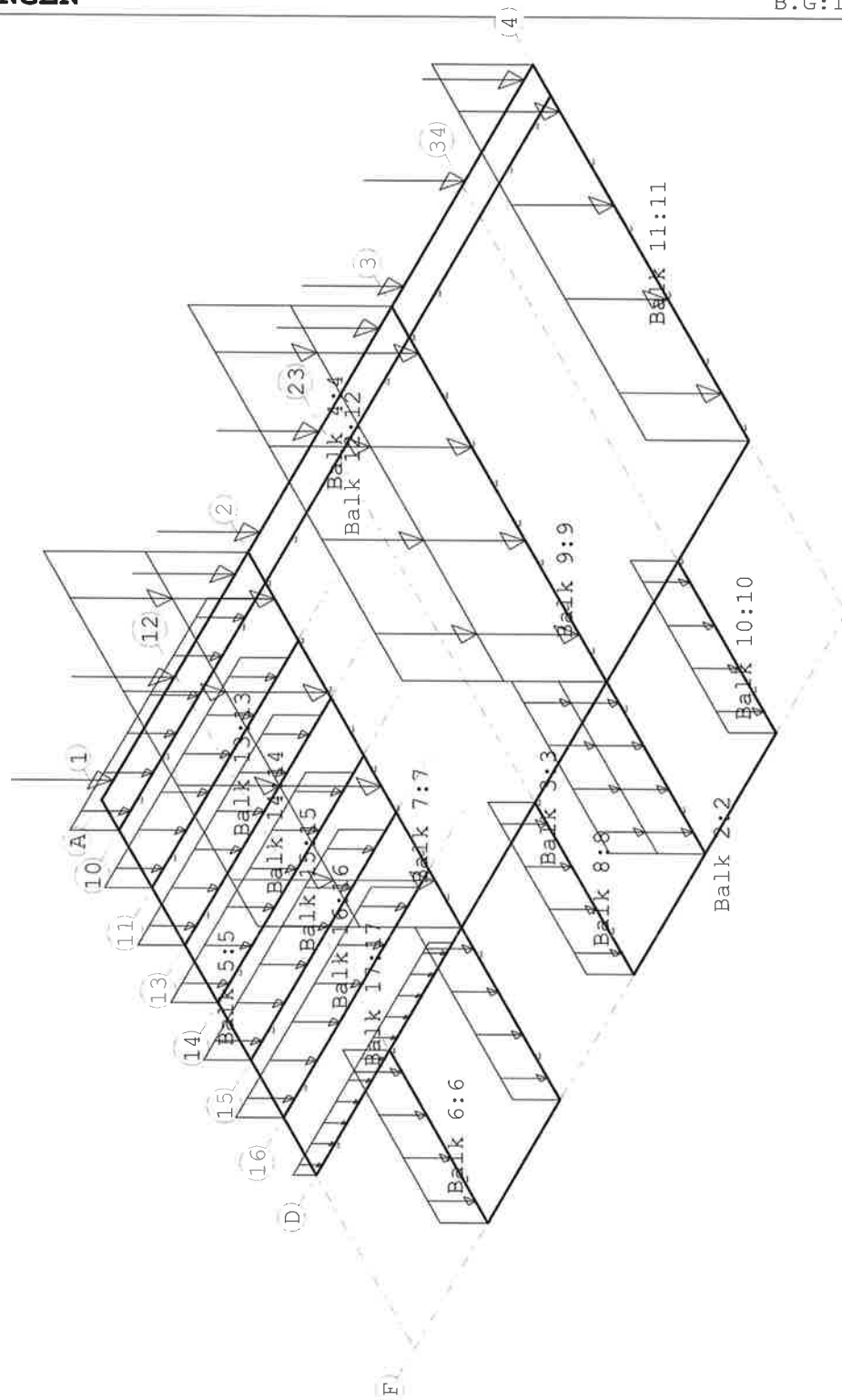
**BELASTINGGEVALLEN**

| B.G. Omschrijving | Type                          |
|-------------------|-------------------------------|
| 1 permBG          | 1 Permanente belasting        |
| 2 varBG           | 2 Ver. bel. pers. ed. (p_rep) |
| 3 gevels          | 2 Ver. bel. pers. ed. (p_rep) |
| 4 kzst            | 2 Ver. bel. pers. ed. (p_rep) |
| 5 permVerdvl      | 1 Permanente belasting        |
| 6 varVerdvl       | 2 Ver. bel. pers. ed. (p_rep) |
| 7 permDakvl       | 1 Permanente belasting        |

Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:1 permBG

**VELDBELASTINGEN**

B.G:1 permBG

| Balk     | Last Type    | q1/p/m | q2     | Afstand | Lengte | Exc.  |
|----------|--------------|--------|--------|---------|--------|-------|
| Balk 3:3 | 1 1:q-last   | -7.300 | -7.300 | 0.000   | 5.300  | 0.000 |
| Balk 4:4 | 1 8:Puntlast | -4.000 |        | 0.450   |        | 0.000 |
| Balk 4:4 | 2 8:Puntlast | -4.000 |        | 2.800   |        | 0.000 |
| Balk 4:4 | 3 8:Puntlast | -4.000 |        | 5.150   |        | 0.000 |
| Balk 4:4 | 4 8:Puntlast | -4.000 |        | 6.100   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:1 permBG

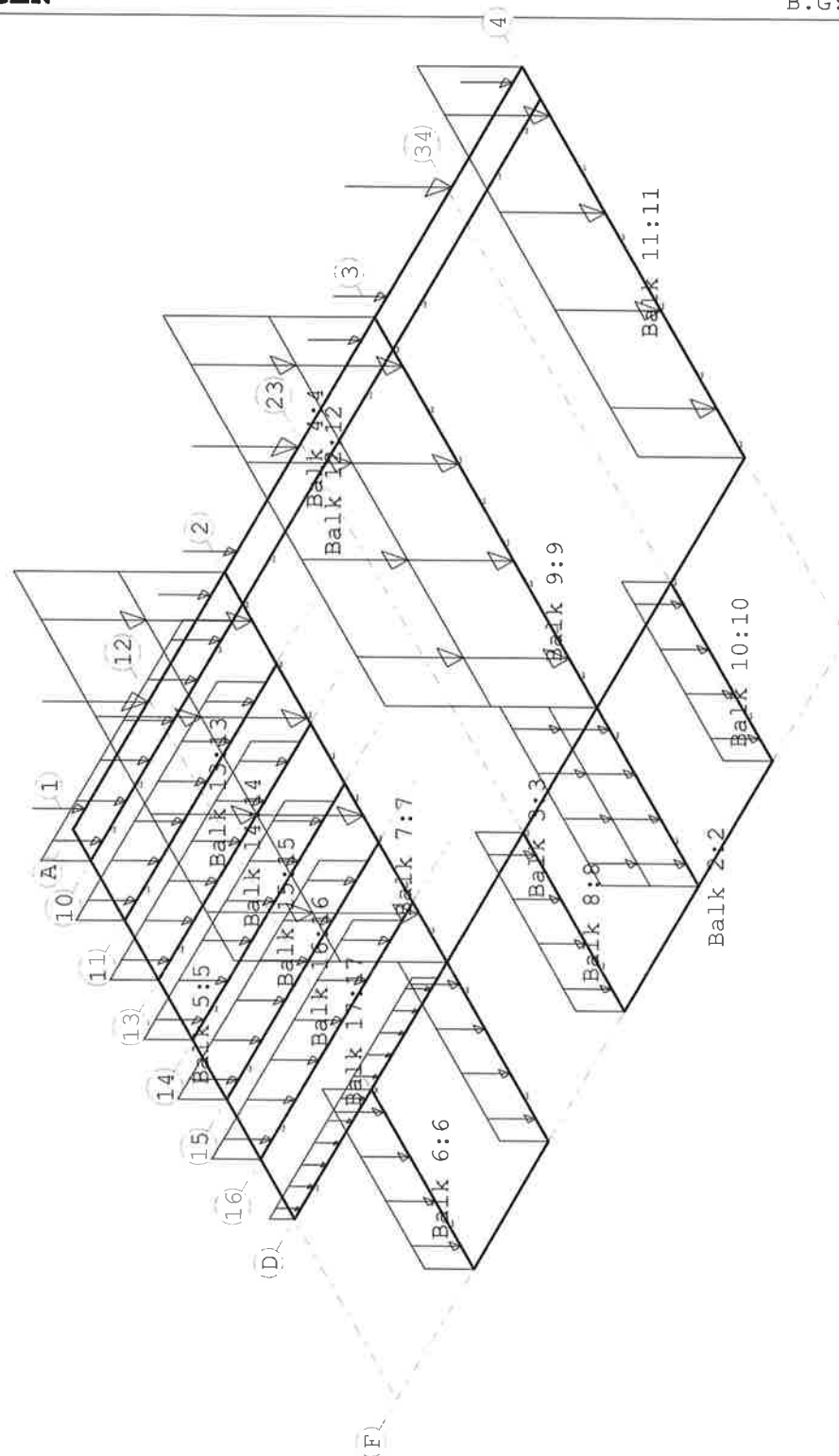
| Balk       | Last | Type       | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------|------------|---------|---------|---------|--------|-------|
| Balk 4:4   | 5    | 8:Puntlast | -4.000  |         | 8.400   |        | 0.000 |
| Balk 4:4   | 6    | 8:Puntlast | -4.000  |         | 10.750  |        | 0.000 |
| Balk 4:4   | 7    | 8:Puntlast | -4.000  |         | 11.700  |        | 0.000 |
| Balk 4:4   | 8    | 8:Puntlast | -4.000  |         | 14.100  |        | 0.000 |
| Balk 4:4   | 9    | 8:Puntlast | -4.000  |         | 16.400  |        | 0.000 |
| Balk 6:6   | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 7:7   | 1    | 1:q-last   | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 7:7   | 2    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 7:7   | 3    | 1:q-last   | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 8:8   | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 1    | 1:q-last   | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 9:9   | 2    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 3    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 4    | 1:q-last   | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 10:10 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 11:11 | 1    | 1:q-last   | -31.400 | -31.400 | 0.000   | 8.500  | 0.000 |
| Balk 12:12 | 1    | 1:q-last   | -15.100 | -15.100 | 0.000   | 5.300  | 0.000 |
| Balk 13:13 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 14:14 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 15:15 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 16:16 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 17:17 | 1    | 1:q-last   | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:2 varBG

**VELDBELASTINGEN**

B.G:2 varBG

| Balk     | Last Type    | q1/p/m  | q2     | Afstand | Lengte | Exc.  |
|----------|--------------|---------|--------|---------|--------|-------|
| Balk 3:3 | 1 1:q-last   | -1.500  | -1.500 | 0.000   | 5.300  | 0.000 |
| Balk 4:4 | 1 8:Puntlast | -18.000 |        | 2.800   |        | 0.000 |
| Balk 4:4 | 2 8:Puntlast | -18.000 |        | 8.400   |        | 0.000 |
| Balk 4:4 | 3 8:Puntlast | -18.000 |        | 14.100  |        | 0.000 |
| Balk 4:4 | 4 8:Puntlast | -9.000  |        | 0.450   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

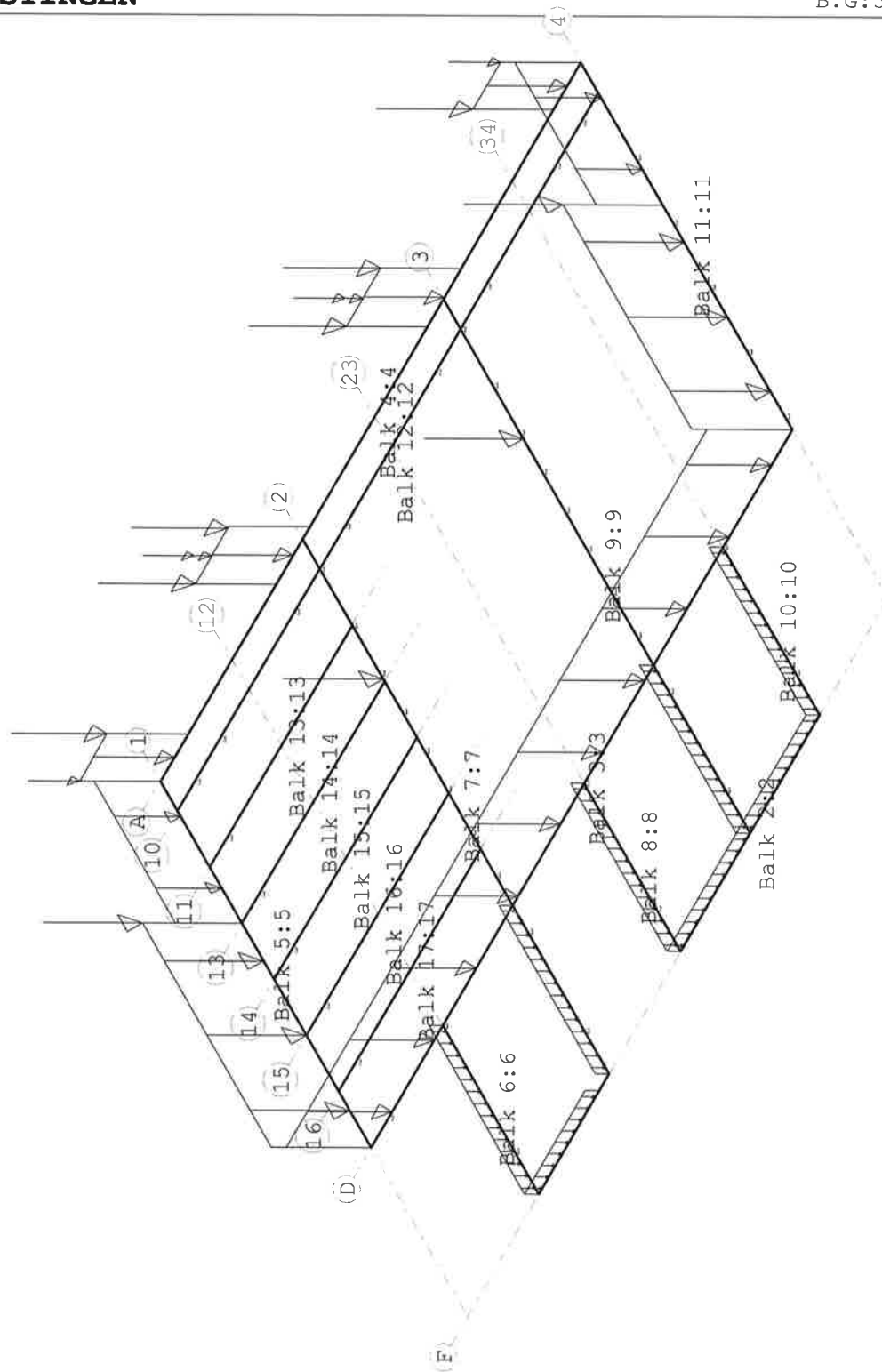
B.G:2 varBG

| Balk       | Last | Type       | q1/p/m | q2     | Afstand | Lengte | Exc.  |
|------------|------|------------|--------|--------|---------|--------|-------|
| Balk 4:4   | 5    | 8:Puntlast | -9.000 |        | 5.150   |        | 0.000 |
| Balk 4:4   | 6    | 8:Puntlast | -9.000 |        | 6.100   |        | 0.000 |
| Balk 4:4   | 7    | 8:Puntlast | -9.000 |        | 10.750  |        | 0.000 |
| Balk 4:4   | 8    | 8:Puntlast | -9.000 |        | 11.700  |        | 0.000 |
| Balk 4:4   | 9    | 8:Puntlast | -9.000 |        | 16.400  |        | 0.000 |
| Balk 6:6   | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 7:7   | 1    | 1:q-last   | -6.300 | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 7:7   | 2    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 7:7   | 3    | 1:q-last   | -6.300 | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 8:8   | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 1    | 1:q-last   | -6.300 | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 9:9   | 2    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 3    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 4    | 1:q-last   | -6.300 | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 10:10 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 11:11 | 1    | 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 12:12 | 1    | 1:q-last   | -3.000 | -3.000 | 0.000   | 5.300  | 0.000 |
| Balk 13:13 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 14:14 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 15:15 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 16:16 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 17:17 | 1    | 1:q-last   | -2.900 | -2.900 | 0.000   | 5.250  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:3 gevels

**VELDBELASTINGEN**

B.G:3 gevels

| Balk     | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|------------|---------|---------|---------|--------|-------|
| Balk 1:1 | 1 1:q-last | -2.500  | -2.500  | 0.000   | 2.400  | 0.000 |
| Balk 2:2 | 1 1:q-last | -2.500  | -2.500  | 0.000   | 5.500  | 0.000 |
| Balk 3:3 | 1 1:q-last | -15.200 | -15.200 | 0.000   | 16.750 | 0.000 |
| Balk 4:4 | 1 1:q-last | -14.600 | -14.600 | 0.000   | 1.100  | 0.000 |



Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:3 gevels

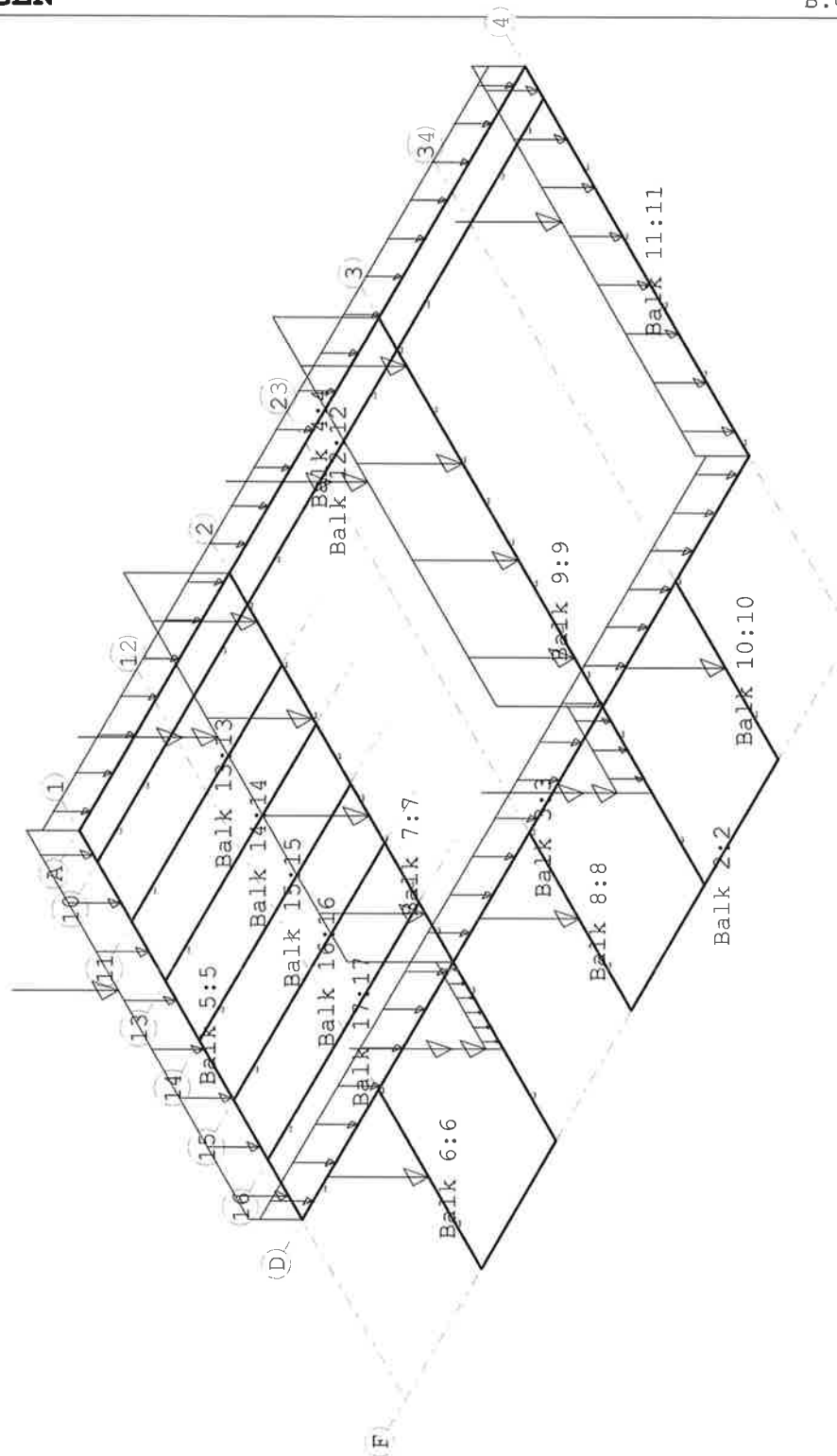
| Balk       | Last Type     | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|---------------|---------|---------|---------|--------|-------|
| Balk 4:4   | 2 1:q-last    | -14.600 | -14.600 | 15.650  | 1.100  | 0.000 |
| Balk 4:4   | 3 1:q-last    | -14.600 | -14.600 | 4.600   | 1.350  | 0.000 |
| Balk 4:4   | 4 1:q-last    | -14.600 | -14.600 | 10.600  | 1.350  | 0.000 |
| Balk 4:4   | 5 8:Puntlast  | -10.500 |         | 1.100   |        | 0.000 |
| Balk 4:4   | 6 8:Puntlast  | -10.500 |         | 4.600   |        | 0.000 |
| Balk 4:4   | 7 8:Puntlast  | -10.500 |         | 10.600  |        | 0.000 |
| Balk 4:4   | 8 8:Puntlast  | -10.500 |         | 5.900   |        | 0.000 |
| Balk 4:4   | 9 8:Puntlast  | -10.500 |         | 15.650  |        | 0.000 |
| Balk 4:4   | 10 8:Puntlast | -10.500 |         | 11.950  |        | 0.000 |
| Balk 4:4   | 11 8:Puntlast | -5.600  |         | -0.000  |        | 0.000 |
| Balk 4:4   | 12 8:Puntlast | -5.600  |         | 5.250   |        | 0.000 |
| Balk 4:4   | 13 8:Puntlast | -5.600  |         | 11.250  |        | 0.000 |
| Balk 4:4   | 14 8:Puntlast | -5.600  |         | 16.750  |        | 0.000 |
| Balk 4:4   | 15 8:Puntlast | -5.600  |         | 5.250   |        | 0.000 |
| Balk 4:4   | 16 8:Puntlast | -5.600  |         | 11.250  |        | 0.000 |
| Balk 5:5   | 1 1:q-last    | -18.000 | -18.000 | 0.000   | 5.200  | 0.000 |
| Balk 5:5   | 2 1:q-last    | -12.000 | -12.000 | 5.200   | 3.300  | 0.000 |
| Balk 5:5   | 3 8:Puntlast  | -10.800 |         | 5.200   |        | 0.000 |
| Balk 6:6   | 1 1:q-last    | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 7:7   | 1 8:Puntlast  | -10.800 |         | 9.150   |        | 0.000 |
| Balk 7:7   | 2 1:q-last    | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 8:8   | 1 1:q-last    | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 9:9   | 1 8:Puntlast  | -10.800 |         | 9.150   |        | 0.000 |
| Balk 9:9   | 2 1:q-last    | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 10:10 | 1 1:q-last    | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 11:11 | 1 1:q-last    | -18.000 | -18.000 | 0.000   | 5.200  | 0.000 |
| Balk 11:11 | 2 1:q-last    | -12.000 | -12.000 | 5.200   | 3.300  | 0.000 |
| Balk 11:11 | 3 8:Puntlast  | -10.800 |         | 5.200   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:4 kzst

**VELDBELASTINGEN**

B.G:4 kzst

| Balk     | Last Type    | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|--------------|---------|---------|---------|--------|-------|
| Balk 3:3 | 1 1:q-last   | -14.400 | -14.400 | 0.000   | 16.750 | 0.000 |
| Balk 4:4 | 1 1:q-last   | -12.600 | -12.600 | 0.000   | 16.750 | 0.000 |
| Balk 5:5 | 1 1:q-last   | -18.000 | -18.000 | 0.000   | 8.500  | 0.000 |
| Balk 5:5 | 2 8:Puntlast | -10.100 |         | 5.000   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:4 kzst

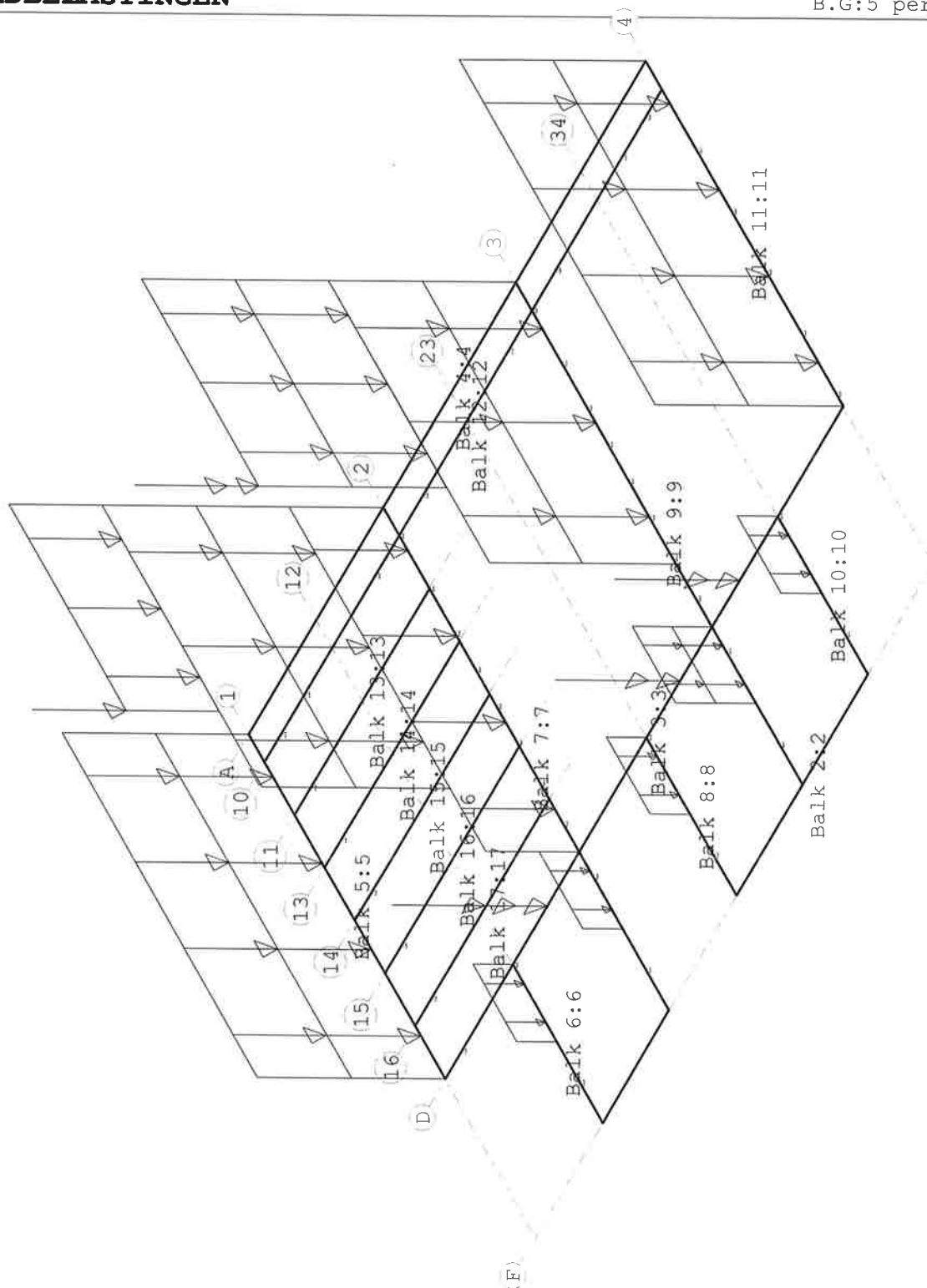
| Balk       | Last Type    | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|--------------|---------|---------|---------|--------|-------|
| Balk 6:6   | 1 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 7:7   | 1 1:q-last   | -36.000 | -36.000 | 3.900   | 8.500  | 0.000 |
| Balk 7:7   | 2 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 7:7   | 3 1:q-last   | -6.000  | -6.000  | 2.000   | 1.900  | 0.000 |
| Balk 7:7   | 4 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 7:7   | 5 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 7:7   | 6 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 8:8   | 1 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 9:9   | 1 1:q-last   | -36.000 | -36.000 | 3.900   | 8.500  | 0.000 |
| Balk 9:9   | 2 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 9:9   | 3 1:q-last   | -12.000 | -12.000 | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 4 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 9:9   | 5 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 9:9   | 6 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 10:10 | 1 8:Puntlast | -9.700  |         | 2.000   |        | 0.000 |
| Balk 11:11 | 1 1:q-last   | -18.000 | -18.000 | 0.000   | 8.500  | 0.000 |
| Balk 11:11 | 2 8:Puntlast | -10.100 |         | 5.100   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:5 permVerdvl

**VELDBELASTINGEN**

B.G:5 permVerdvl

| Balk     | Last Type    | q1/p/m  | q2 | Afstand | Lengte | Exc.  |
|----------|--------------|---------|----|---------|--------|-------|
| Balk 3:3 | 1 8:Puntlast | -27.400 |    | 4.300   |        | 0.000 |
| Balk 3:3 | 2 8:Puntlast | -27.400 |    | 9.900   |        | 0.000 |
| Balk 3:3 | 3 8:Puntlast | -27.400 |    | 12.400  |        | 0.000 |
| Balk 3:3 | 4 8:Puntlast | -27.400 |    | 4.300   |        | 0.000 |
| Balk 3:3 | 5 8:Puntlast | -27.400 |    | 9.900   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

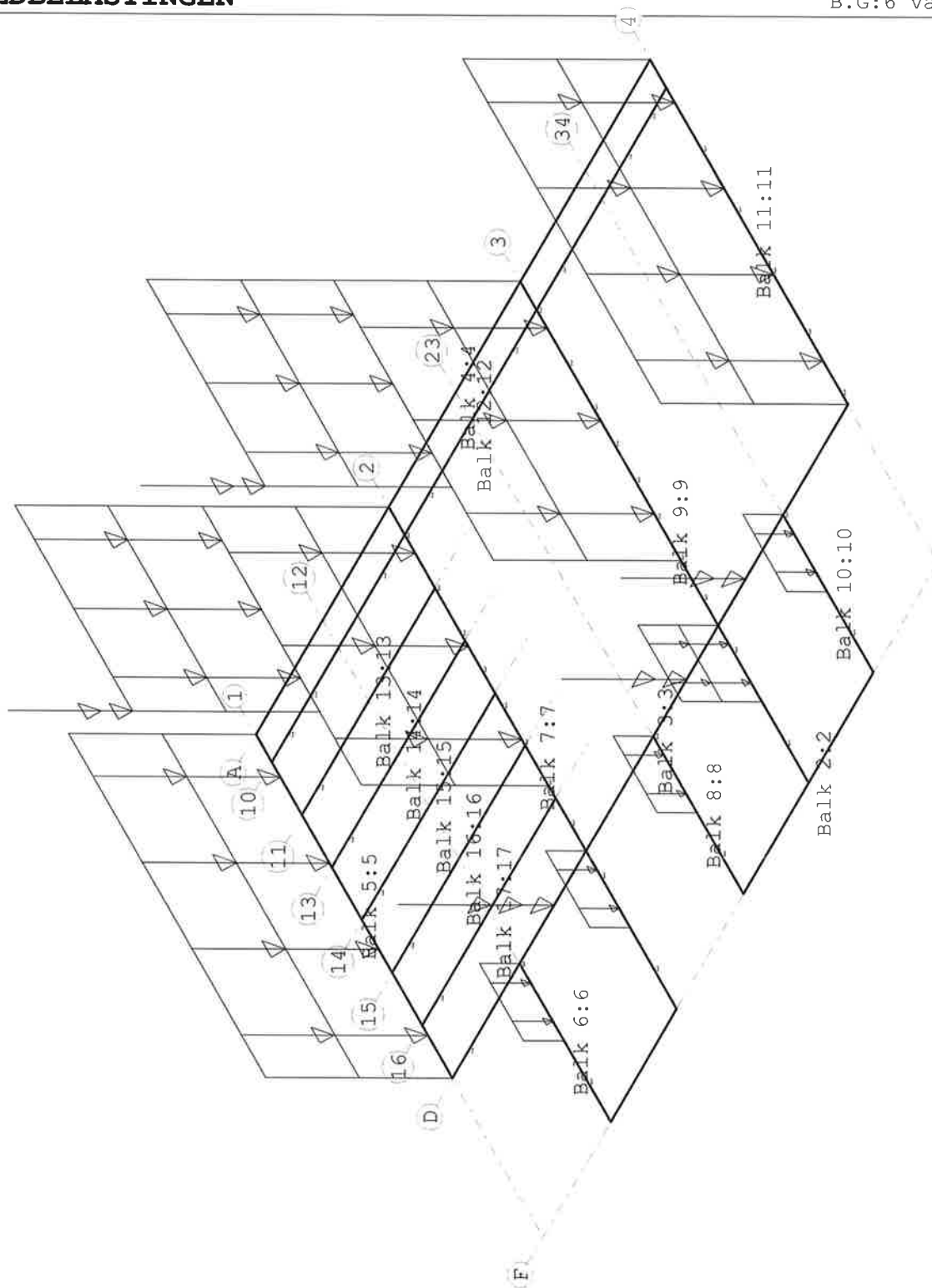
B.G:5 permVerdvl

| Balk       | Last Type    | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|--------------|---------|---------|---------|--------|-------|
| Balk 3:3   | 6 8:Puntlast | -27.400 |         | 12.400  |        | 0.000 |
| Balk 3:3   | 7 8:Puntlast | -27.100 |         | 4.300   |        | 0.000 |
| Balk 5:5   | 1 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:5   | 2 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 6:6   | 1 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 7:7   | 1 1:q-last   | -21.300 | -21.300 | 3.900   | 8.500  | 0.000 |
| Balk 7:7   | 2 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 7:7   | 3 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 7:7   | 4 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 7:7   | 5 1:q-last   | -21.300 | -21.300 | 5.450   | 6.950  | 0.000 |
| Balk 7:7   | 6 1:q-last   | -21.300 | -21.300 | 5.450   | 6.950  | 0.000 |
| Balk 8:8   | 1 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 1 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 9:9   | 2 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 9:9   | 3 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 9:9   | 4 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 9:9   | 5 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 6 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 7 1:q-last   | -21.300 | -21.300 | 5.450   | 6.950  | 0.000 |
| Balk 9:9   | 8 1:q-last   | -21.300 | -21.300 | 5.450   | 6.950  | 0.000 |
| Balk 10:10 | 1 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 11:11 | 1 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 11:11 | 2 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |

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Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:6 varVerdvl

**VELDBELASTINGEN**

B.G:6 varVerdvl

| Balk     | Last Type    | q1/p/m | q2 | Afstand | Lengte | Exc.  |
|----------|--------------|--------|----|---------|--------|-------|
| Balk 3:3 | 1 8:Puntlast | -8.100 |    | 4.300   |        | 0.000 |
| Balk 3:3 | 2 8:Puntlast | -8.100 |    | 9.900   |        | 0.000 |
| Balk 3:3 | 3 8:Puntlast | -8.100 |    | 12.400  |        | 0.000 |
| Balk 3:3 | 4 8:Puntlast | -8.100 |    | 4.300   |        | 0.000 |
| Balk 3:3 | 5 8:Puntlast | -8.100 |    | 9.900   |        | 0.000 |

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Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:6 varVerdvl

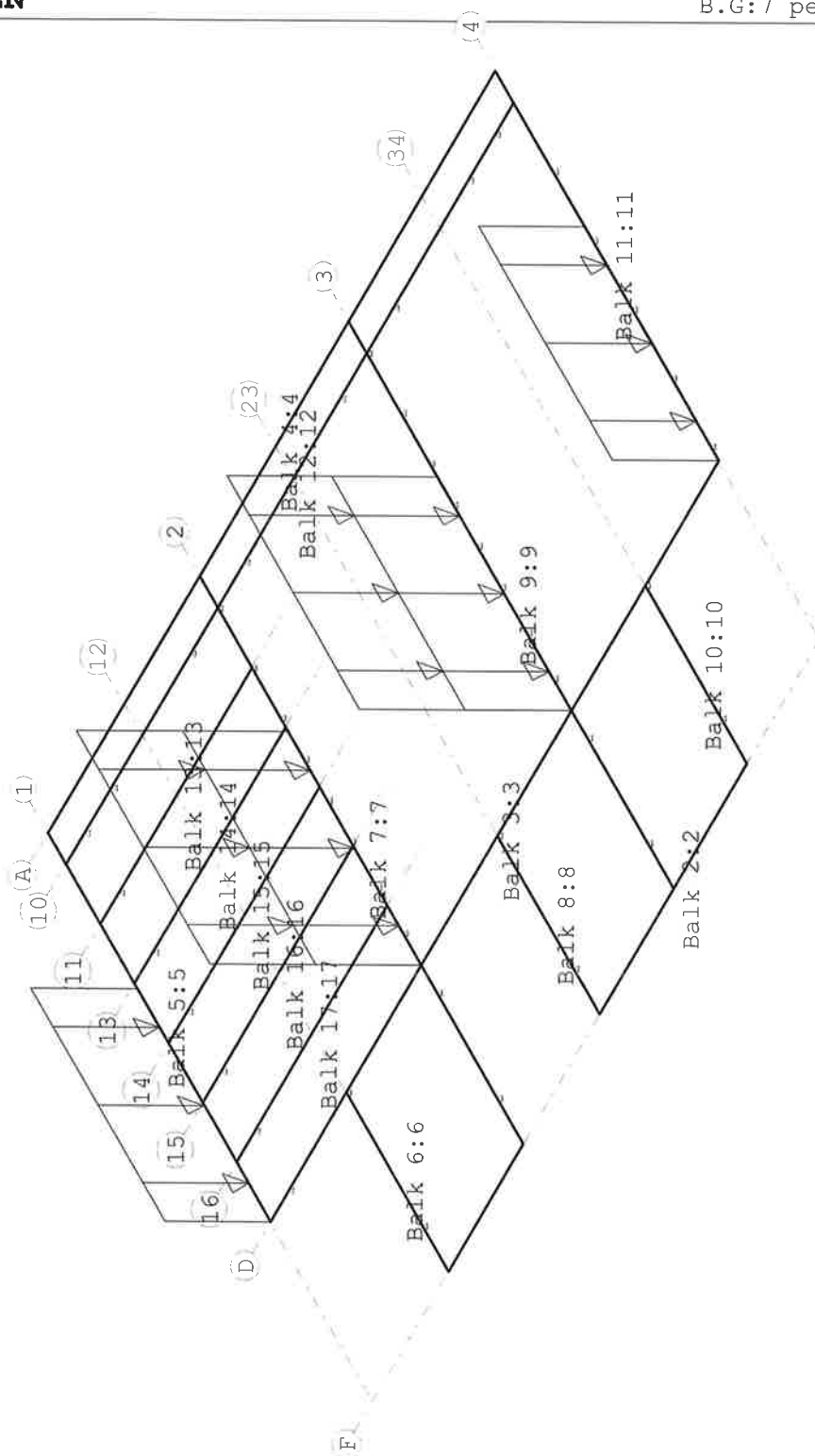
| Balk       | Last Type    | q1/p/m | q2     | Afstand | Lengte | Exc.  |
|------------|--------------|--------|--------|---------|--------|-------|
| Balk 3:3   | 6 8:Puntlast | -8.100 |        | 12.400  |        | 0.000 |
| Balk 3:3   | 7 8:Puntlast | -8.100 |        | 4.300   |        | 0.000 |
| Balk 5:5   | 1 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:5   | 2 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 6:6   | 1 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 7:7   | 1 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 7:7   | 2 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 7:7   | 3 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 7:7   | 4 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 7:7   | 5 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 7:7   | 6 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 7:7   | 7 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 8:8   | 1 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 1 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 9:9   | 2 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 9:9   | 3 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 9:9   | 4 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 9:9   | 5 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 6 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 9:9   | 7 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 9:9   | 8 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 10:10 | 1 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 11:11 | 1 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 11:11 | 2 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |

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Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:7 permDakvl

**VELDBELASTINGEN**

B.G:7 permDakvl

| Balk     | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|------------|---------|---------|---------|--------|-------|
| Balk 5:5 | 1 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |
| Balk 7:7 | 1 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 7:7 | 2 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 9:9 | 1 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 9:9 | 2 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |



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Onderdeel: Funderingsplaat

**VELDBELASTINGEN**

B.G:7 permDakvl

| Balk       | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------------|---------|---------|---------|--------|-------|
| Balk 11:11 | 1 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |

**BELASTINGCOMBINATIES**

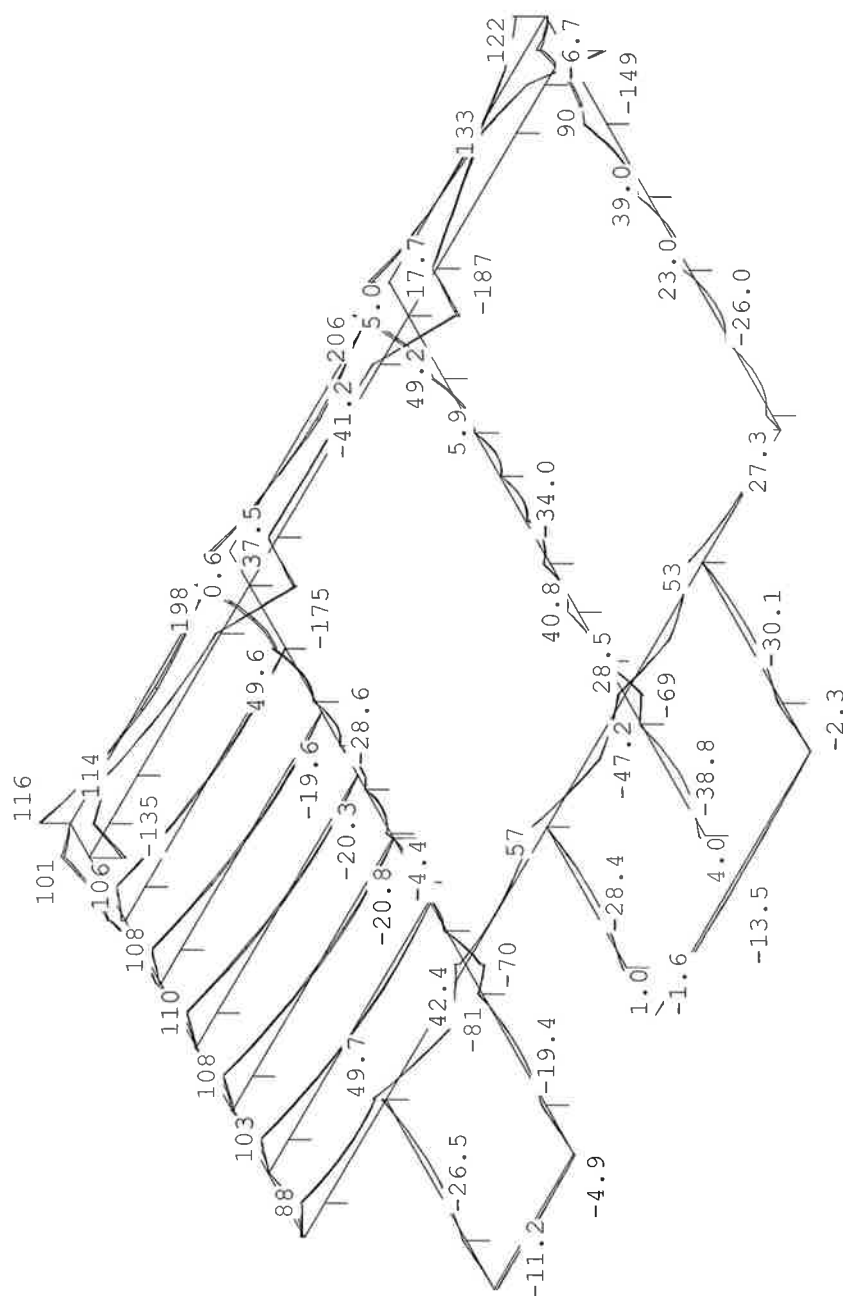
| BC Type | BG Gen. | Factor | BG Gen. | Factor | BG Gen. | Factor | BG Gen. | Factor |
|---------|---------|--------|---------|--------|---------|--------|---------|--------|
| 1 Fund. | 1 Perm  | 1.10   | 2 Extr  | 1.35   | 3 Extr  | 1.10   | 4 Extr  | 1.10   |
|         | 5 Perm  | 1.10   | 6 Extr  | 0.95   | 7 Perm  | 1.10   |         |        |
| 2 Fund. | 1 Perm  | 1.10   | 2 Extr  | 0.54   | 3 Extr  | 1.10   | 4 Extr  | 1.10   |
|         | 5 Perm  | 1.10   | 6 Extr  | 1.35   | 7 Perm  | 1.10   |         |        |
| 3 Fund. | 1 Perm  | 1.20   | 2 Extr  | 0.54   | 3 Extr  | 1.20   | 4 Extr  | 1.20   |
|         | 5 Perm  | 1.20   | 6 Extr  | 0.54   | 7 Perm  | 1.20   |         |        |
| 4 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |
| 5 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |
| 6 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |

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**OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES****MOMENTEN**

Fundamentele combinatie





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Onderdeel: Funderingsplaat

**REACTIES**

Fundamentele combinatie

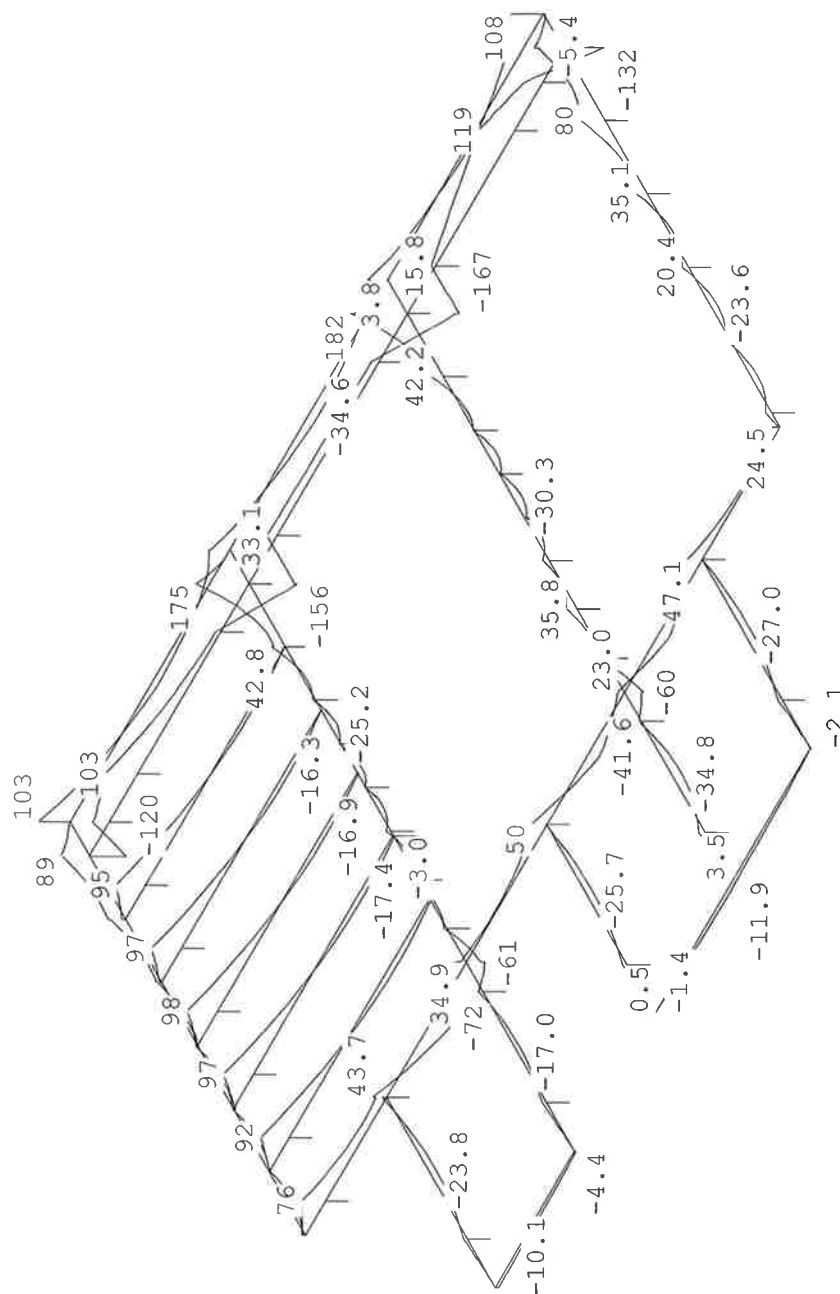
|      | (1) | (12) | (2) | (23) | (3) | (34) | (4) |     |     |     |
|------|-----|------|-----|------|-----|------|-----|-----|-----|-----|
| (A)  | 230 | 132  | 201 | 247  | 206 | 199  | 228 | 164 | 107 | 243 |
| (10) |     |      |     |      |     |      |     |     |     |     |
| (11) | 208 |      | 230 |      |     |      | 212 |     |     | 243 |
| (13) | 222 |      | 256 |      |     |      | 245 |     |     | 228 |
| (14) | 238 |      | 272 |      |     |      | 261 |     |     | 238 |
| (15) | 241 |      | 277 |      |     |      | 262 |     |     | 238 |
| (16) | 227 |      | 272 |      |     |      | 250 |     |     | 237 |
| (D)  | 191 | 199  | 261 |      |     |      | 239 |     |     | 214 |
|      |     |      | 247 |      |     | 207  | 242 |     | 194 |     |
|      |     |      | 204 |      |     |      | 230 |     |     |     |
| (F)  |     | 72   | 74  |      |     | 85   | 122 |     | 84  |     |

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**OMHULLENDE VAN DE KARAKTERISTIEKE COMBINATIES****MOMENTEN**

Karakteristieke combinatie



Technosoft Balkroosters release 6.09

19 dec 2018

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Onderdeel: Funderingsplaat blok 4 won

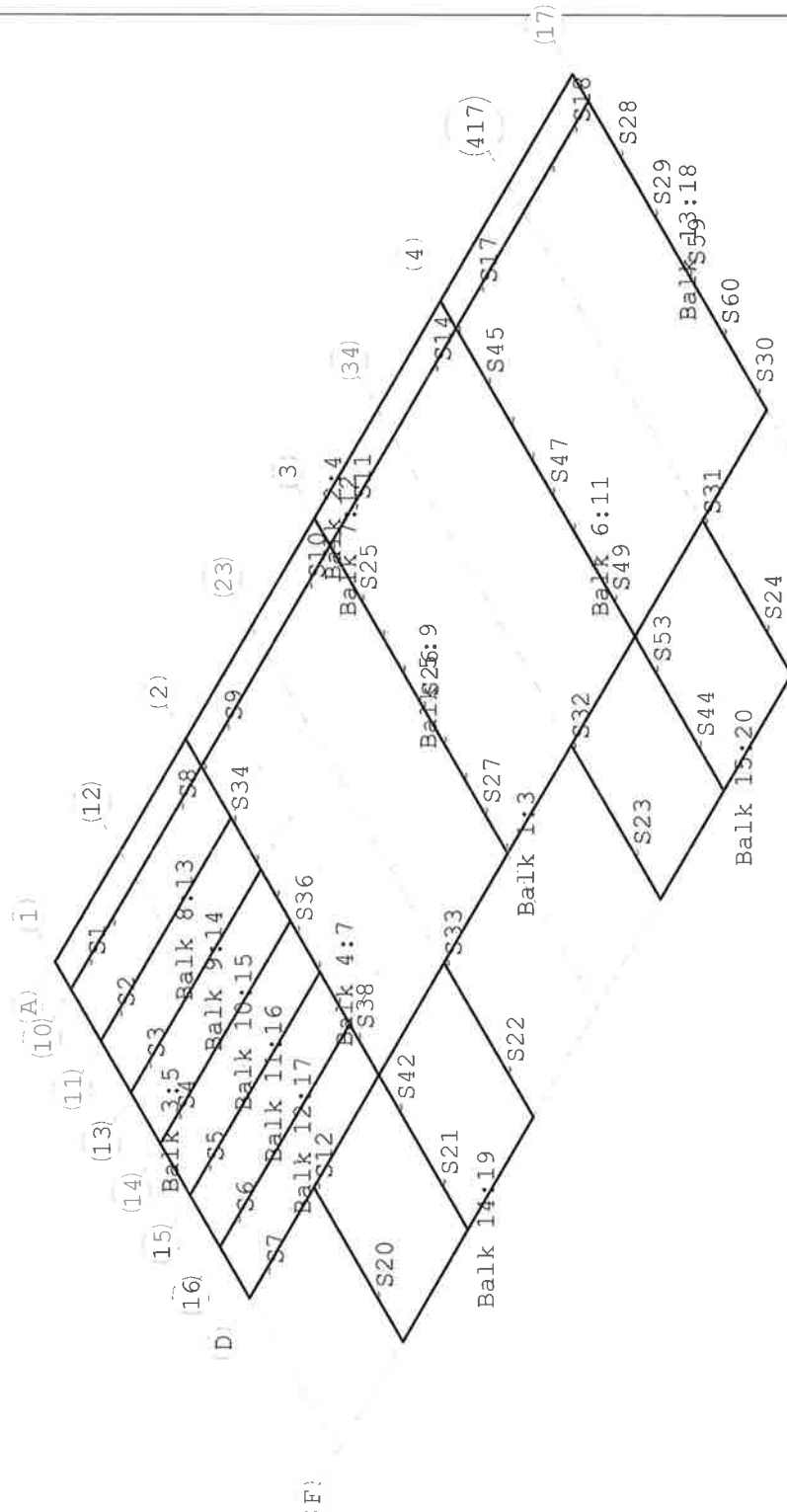
Dimensies: kN/m/rad

Datum....: 07/12/2018

Bestand...: g:\2017\2017-047 breda, 7 woningen priemkruid, de delta\17-047  
adviseurs en derden\17-047 constructeur\17-047 berekeningen\  
2017047fundering2.grw

Torsiefac: 30 %

## GEOMETRIE



Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat blok 4 won

**MATERIALEN**

| Mt | Omschrijving | E-modulus[N/mm2] | S.M. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | C20/25       | 7480             | 25.0 | 0.20  | 1.0000e-05  |

**MATERIALEN vervolg**

| Mt | Omschrijving | Cement | Kruipfac. |
|----|--------------|--------|-----------|
| 1  | C20/25       |        | 3.01      |

**PROFIELEN [mm]**

| Prof. | Omschrijving | Materiaal | Oppervlak | Torsietr. | Traagheid | Vormf. |
|-------|--------------|-----------|-----------|-----------|-----------|--------|
| 1     | B*H 1000*400 | 1:C20/25  | 4.000e+05 | 1.603e+10 | 5.333e+09 | 0.00   |

**PROFIELEN vervolg [mm]**

| Prof. | Staaftype | Breedte | Hoogte | Zs  | Rek.As | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|-----|--------|------|----|----|----|----|
| 1     | 0:Normaal | 1000    | 400    | 200 | 0.00   | 0:RH |    |    |    |    |

**PROFIELVORMEN [mm]**

1 B\*H 1000\*400

**STRAMIENLIJNEN**

| Nr. | Naam | X-begin | Y-begin | X-eind | Y-Eind |
|-----|------|---------|---------|--------|--------|
| 1   | 1    | 0.000   | 12.400  | 0.000  | 0.000  |
| 2   | 12   | 2.800   | 12.400  | 2.800  | 0.000  |
| 3   | 2    | 5.650   | 12.400  | 5.650  | 0.000  |
| 4   | 23   | 8.500   | 12.400  | 8.500  | 0.000  |
| 5   | 3    | 11.250  | 12.400  | 11.250 | 0.000  |
| 6   | 34   | 14.000  | 12.400  | 14.000 | 0.000  |
| 7   | 4    | 16.750  | 12.400  | 16.750 | 0.000  |
| 8   | A    | 0.000   | 12.400  | 22.000 | 12.400 |
| 9   | D    | 0.000   | 3.900   | 22.000 | 3.900  |
| 10  | F    | 0.000   | 0.000   | 22.000 | 0.000  |
| 11  | 10   | 0.000   | 11.700  | 16.750 | 11.700 |
| 12  | 11   | 0.000   | 10.400  | 7.000  | 10.400 |
| 13  | 13   | 0.000   | 9.100   | 7.000  | 9.100  |
| 14  | 14   | 0.000   | 7.800   | 7.000  | 7.800  |
| 15  | 15   | 0.000   | 6.500   | 7.000  | 6.500  |
| 16  | 16   | 0.000   | 5.200   | 7.000  | 5.200  |
| 17  | 17   | 22.500  | 12.400  | 22.500 | 0.000  |
| 18  | 417  | 19.700  | 12.400  | 19.700 | 0.000  |

**BALKEN**

| Nr. | Naam | Begin | Eind | Profiel        |
|-----|------|-------|------|----------------|
| 1   | 3    | 1;D   | 17;D | 1:B*H 1000*400 |
| 2   | 4    | 1;A   | 17;A | 1:B*H 1000*400 |
| 3   | 5    | 1;D   | 1;A  | 1:B*H 1000*400 |
| 4   | 7    | 2;F   | 2;A  | 1:B*H 1000*400 |
| 5   | 9    | 3;D   | 3;A  | 1:B*H 1000*400 |
| 6   | 11   | 4;F   | 4;A  | 1:B*H 1000*400 |

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**BALKEN**

| Nr. | Naam | Begin | Eind  | Profiel        |
|-----|------|-------|-------|----------------|
| 7   | 12   | 1;10  | 17;10 | 1:B*H 1000*400 |
| 8   | 13   | 1;11  | 2;11  | 1:B*H 1000*400 |
| 9   | 14   | 1;13  | 2;13  | 1:B*H 1000*400 |
| 10  | 15   | 1;14  | 2;14  | 1:B*H 1000*400 |
| 11  | 16   | 1;15  | 2;15  | 1:B*H 1000*400 |
| 12  | 17   | 1;16  | 2;16  | 1:B*H 1000*400 |
| 13  | 18   | D;17  | A;17  | 1:B*H 1000*400 |
| 14  | 19   | 12;F  | 23;F  | 1:B*H 1000*400 |
| 15  | 20   | 34;F  | F;417 | 1:B*H 1000*400 |
| 16  | 21   | 12;F  | 12;D  | 1:B*H 1000*400 |
| 17  | 22   | 23;F  | 23;D  | 1:B*H 1000*400 |
| 18  | 23   | 34;F  | 34;D  | 1:B*H 1000*400 |
| 19  | 24   | F;417 | D;417 | 1:B*H 1000*400 |

**BALKEN vervolg**

| Nr. | Naam | Aansl.begin | Aansl.eind | Excentr. | Pasm.begin | Pasm.eind | Opm. |
|-----|------|-------------|------------|----------|------------|-----------|------|
| 1   | 3    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 2   | 4    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 3   | 5    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 4   | 7    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 5   | 9    | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 6   | 11   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 7   | 12   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 8   | 13   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 9   | 14   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 10  | 15   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 11  | 16   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 12  | 17   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 13  | 18   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 14  | 19   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 15  | 20   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 16  | 21   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 17  | 22   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 18  | 23   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |
| 19  | 24   | WDM         | WDM        | 0.000    | 0.000      | 0.000     |      |

Opmerkingen:

De torsie traagheid van alle balken is tot 30% gereduceerd

**STEUNPUNTYPEN**

Nr. : 1  Rotatie X:Vrij  
Min.afst.: 0.500 Verplaatsing Z:Veerwaarde: 50000  
Rotatie Y:Vrij

**STEUNPUNTEN**

| Nr. | Steunpunttype | Balk       | Positie | Excentr. | Opm: |
|-----|---------------|------------|---------|----------|------|
| 1   | 1:            | Balk 7:12  | 0.700   | 0.000    |      |
| 2   | 1:            | Balk 8:13  | 0.700   | 0.000    |      |
| 3   | 1:            | Balk 9:14  | 0.700   | 0.000    |      |
| 4   | 1:            | Balk 10:15 | 0.700   | 0.000    |      |
| 5   | 1:            | Balk 11:16 | 0.700   | 0.000    |      |



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**STEUNPUNTEN**

| Nr. | Steunpunttype | Balk       | Positie | Excentr. | Opm: |
|-----|---------------|------------|---------|----------|------|
| 6   | 1:            | Balk 12:17 | 0.700   | 0.000    |      |
| 7   | 1:            | Balk 1:3   | 0.700   | 0.000    |      |
| 8   | 1:            | Balk 7:12  | 4.65    | 0.000    |      |
| 9   | 1:            | Balk 7:12  | 6.65    | 0.000    |      |
| 10  | 1:            | Balk 7:12  | 10.25   | 0.000    |      |
| 11  | 1:            | Balk 7:12  | 12.25   | 0.000    |      |
| 12  | 1:            | Balk 1:3   | 2.850   | 0.000    |      |
| 13  | 1:            | Balk 7:12  | 1.7     | 0.000    |      |
| 14  | 1:            | Balk 7:12  | 15.75   | 0.000    |      |
| 15  | 1:            | Balk 4:7   | 11.700  | 0.000    |      |
| 16  | 1:            | Balk 5:9   | 7.800   | 0.000    |      |
| 17  | 1:            | Balk 7:12  | 17.75   | 0.000    |      |
| 18  | 1:            | Balk 7:12  | 21.8    | 0.000    |      |
| 19  | 1:            | Balk 7:12  | 20.8    | 0.000    |      |
| 20  | 1:            | Balk 16:21 | 1.200   | 0.000    |      |
| 21  | 1:            | Balk 4:7   | 1.200   | 0.000    |      |
| 22  | 1:            | Balk 17:22 | 1.200   | 0.000    |      |
| 23  | 1:            | Balk 18:23 | 1.200   | 0.000    |      |
| 24  | 1:            | Balk 19:24 | 1.200   | 0.000    |      |
| 25  | 1:            | Balk 5:9   | 6.5     | 0.000    |      |
| 26  | 1:            | Balk 5:9   | 3.8     | 0.000    |      |
| 27  | 1:            | Balk 5:9   | 1.1     | 0.000    |      |
| 28  | 1:            | Balk 13:18 | 6.5     | 0.000    |      |
| 29  | 1:            | Balk 13:18 | 5.0     | 0.000    |      |
| 30  | 1:            | Balk 13:18 | 0.5     | 0.000    |      |
| 31  | 1:            | Balk 1:3   | 19.700  | 0.000    |      |
| 32  | 1:            | Balk 1:3   | 14.000  | 0.000    |      |
| 33  | 1:            | Balk 1:3   | 8.500   | 0.000    |      |
| 34  | 1:            | Balk 4:7   | 10.400  | 0.000    |      |
| 35  | 1:            | Balk 4:7   | 9.400   | 0.000    |      |
| 36  | 1:            | Balk 4:7   | 7.600   | 0.000    |      |
| 37  | 1:            | Balk 4:7   | 6.700   | 0.000    |      |
| 38  | 1:            | Balk 4:7   | 4.900   | 0.000    |      |
| 39  | 1:            | Balk 4:7   | 4.0     | 0.000    |      |
| 40  | 1:            | Balk 4:7   | 8.500   | 0.000    |      |
| 41  | 1:            | Balk 4:7   | 5.800   | 0.000    |      |
| 42  | 1:            | Balk 4:7   | 3.100   | 0.000    |      |
| 43  | 1:            | Balk 6:11  | 11.700  | 0.000    |      |
| 44  | 1:            | Balk 6:11  | 1.200   | 0.000    |      |
| 45  | 1:            | Balk 6:11  | 10.400  | 0.000    |      |
| 46  | 1:            | Balk 6:11  | 9.400   | 0.000    |      |
| 47  | 1:            | Balk 6:11  | 7.600   | 0.000    |      |
| 48  | 1:            | Balk 6:11  | 6.700   | 0.000    |      |
| 49  | 1:            | Balk 6:11  | 4.900   | 0.000    |      |
| 50  | 1:            | Balk 6:11  | 4.0     | 0.000    |      |
| 51  | 1:            | Balk 6:11  | 8.500   | 0.000    |      |
| 52  | 1:            | Balk 6:11  | 5.800   | 0.000    |      |
| 53  | 1:            | Balk 6:11  | 3.100   | 0.000    |      |
| 54  | 1:            | Balk 5:9   | 2       | 0.000    |      |
| 55  | 1:            | Balk 5:9   | 2.9     | 0.000    |      |

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 Onderdeel: Funderingsplaat blok 4 won

**STEUNPUNTEN**

| Nr. | Steunpunttype | Balk       | Positie | Excentr. Opm: |
|-----|---------------|------------|---------|---------------|
| 56  | 1:            | Balk 5:9   | 4.7     | 0.000         |
| 57  | 1:            | Balk 5:9   | 5.6     | 0.000         |
| 58  | 1:            | Balk 5:9   | 0.2     | 0.000         |
| 59  | 1:            | Balk 13:18 | 3.5     | 0.000         |
| 60  | 1:            | Balk 13:18 | 2.0     | 0.000         |

**BELASTINGGEVALLEN**

| B.G. | Omschrijving | Belast/onbelast    | $\psi_0$ | $\psi_1$ | $\psi_2$ | e.g. |
|------|--------------|--------------------|----------|----------|----------|------|
| 1    | permBG       | 2:Permanent EN1991 |          |          |          | 0.00 |
| 2    | varBG        | 0:Alles tegelijk   | 1.00     | 1.00     | 1.00     | 0.00 |
| 3    | gevels       | 2:Permanent EN1991 | 1.00     | 1.00     | 1.00     | 0.00 |
| 4    | kzst         | 2:Permanent EN1991 | 0.00     | 0.00     | 0.00     | 0.00 |
| 5    | permVerdvl   | 2:Permanent EN1991 |          |          |          | 0.00 |
| 6    | varVerdvl    | 0:Alles tegelijk   | 1.00     | 1.00     | 1.00     | 0.00 |
| 7    | permDakvl    | 2:Permanent EN1991 |          |          |          | 0.00 |

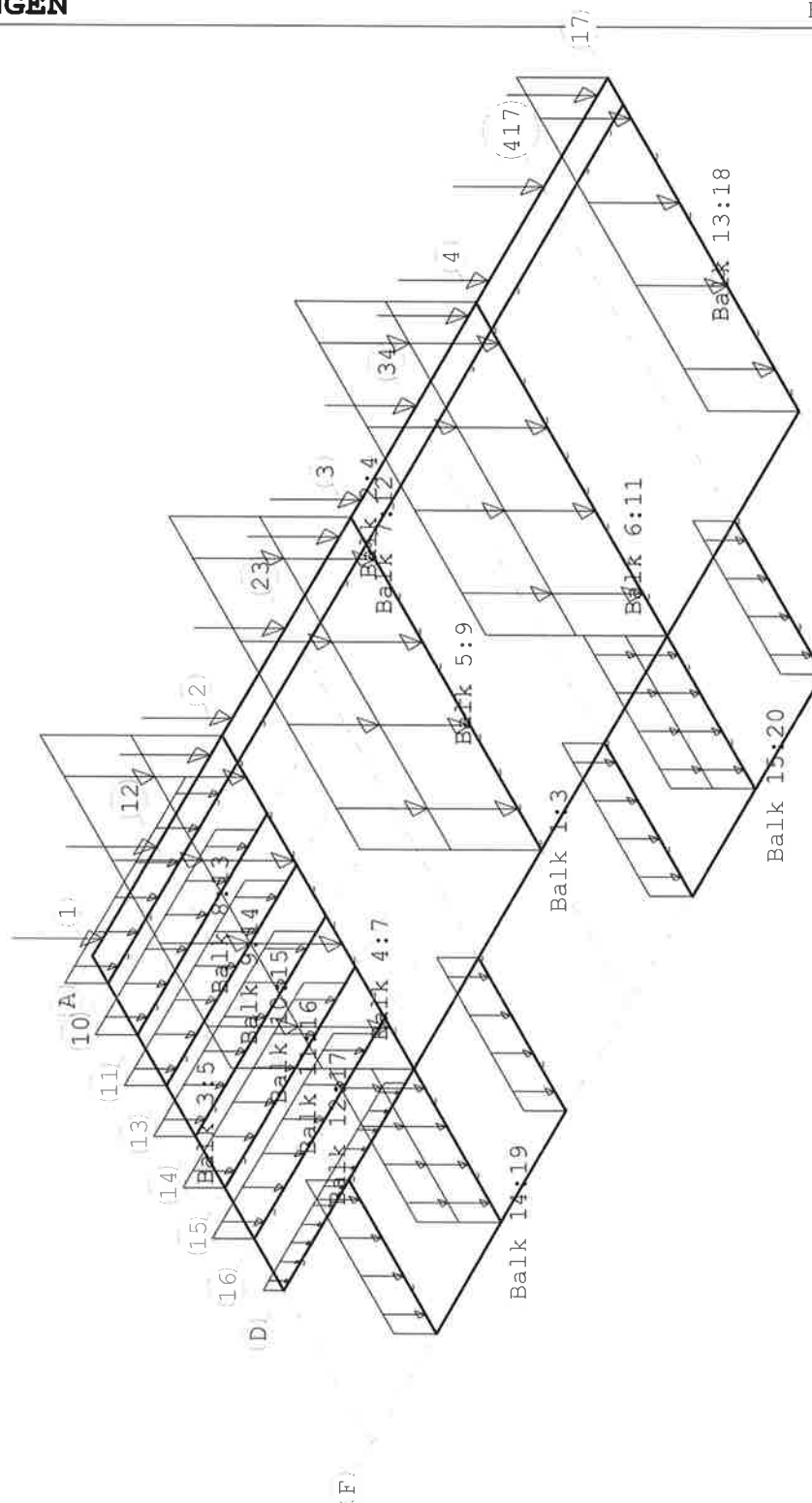
**BELASTINGGEVALLEN**

| B.G. | Omschrijving | Type                          |
|------|--------------|-------------------------------|
| 1    | permBG       | 1 Permanente belasting        |
| 2    | varBG        | 2 Ver. bel. pers. ed. (p_rep) |
| 3    | gevels       | 2 Ver. bel. pers. ed. (p_rep) |
| 4    | kzst         | 2 Ver. bel. pers. ed. (p_rep) |
| 5    | permVerdvl   | 1 Permanente belasting        |
| 6    | varVerdvl    | 2 Ver. bel. pers. ed. (p_rep) |
| 7    | permDakvl    | 1 Permanente belasting        |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:1 permBG

**VELDBELASTINGEN**

B.G:1 permBG

| Balk     | Last Type    | q1/p/m | q2     | Afstand | Lengte | Exc.  |
|----------|--------------|--------|--------|---------|--------|-------|
| Balk 1:3 | 1 1:q-last   | -7.300 | -7.300 | 0.000   | 5.300  | 0.000 |
| Balk 2:4 | 1 8:Puntlast | -4.000 |        | 0.450   |        | 0.000 |
| Balk 2:4 | 2 8:Puntlast | -4.000 |        | 2.800   |        | 0.000 |
| Balk 2:4 | 3 8:Puntlast | -4.000 |        | 5.150   |        | 0.000 |
| Balk 2:4 | 4 8:Puntlast | -4.000 |        | 6.100   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

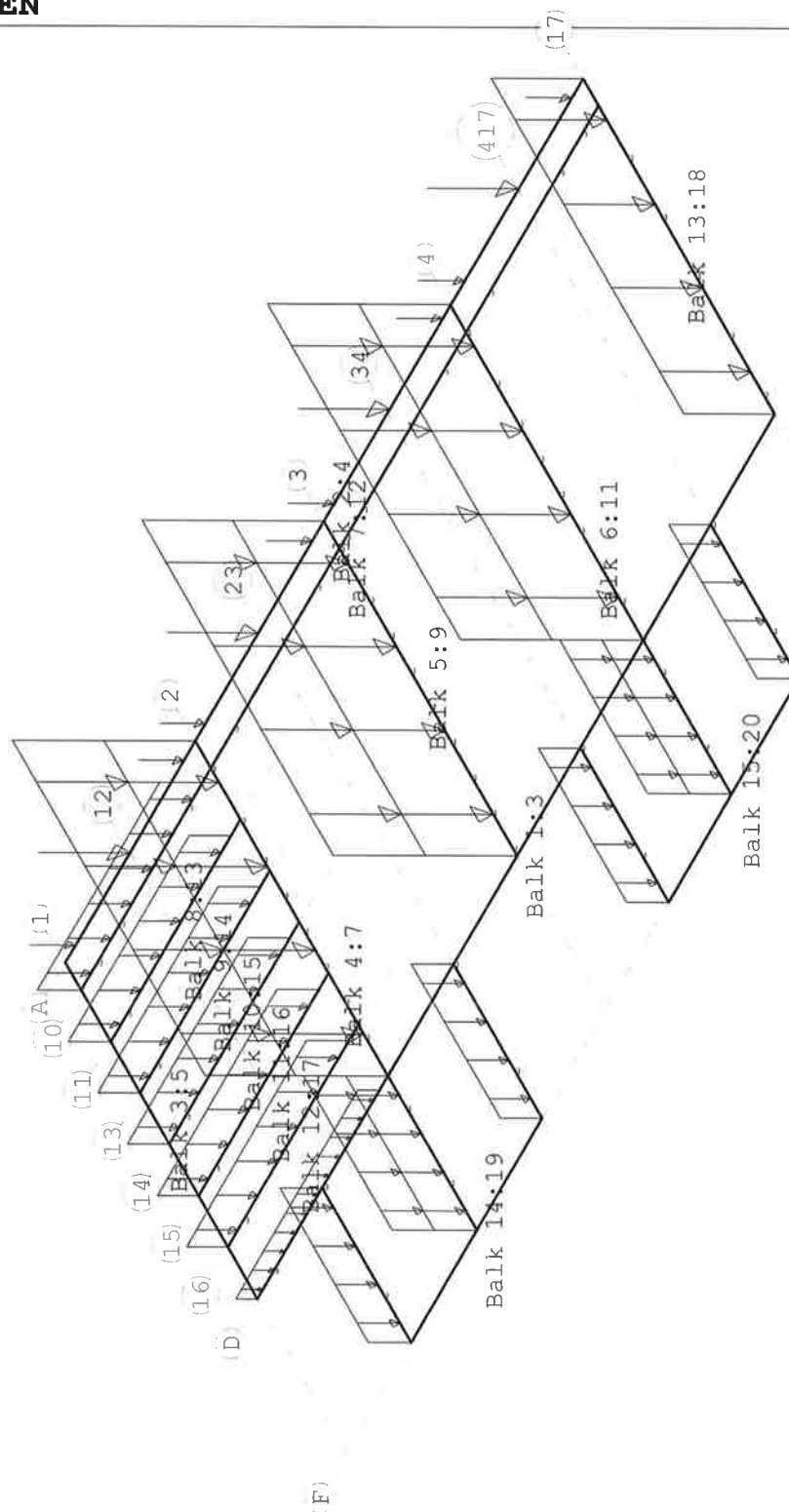
B.G:1 permBG

| Balk       | Last Type     | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|---------------|---------|---------|---------|--------|-------|
| Balk 2:4   | 5 8:Puntlast  | -4.000  |         | 8.400   |        | 0.000 |
| Balk 2:4   | 6 8:Puntlast  | -4.000  |         | 10.750  |        | 0.000 |
| Balk 2:4   | 7 8:Puntlast  | -4.000  |         | 11.700  |        | 0.000 |
| Balk 2:4   | 8 8:Puntlast  | -4.000  |         | 14.100  |        | 0.000 |
| Balk 2:4   | 9 8:Puntlast  | -4.000  |         | 16.400  |        | 0.000 |
| Balk 2:4   | 10 8:Puntlast | -4.000  |         | 17.300  |        | 0.000 |
| Balk 2:4   | 11 8:Puntlast | -4.000  |         | 19.700  |        | 0.000 |
| Balk 2:4   | 12 8:Puntlast | -4.000  |         | 22.050  |        | 0.000 |
| Balk 4:7   | 1 1:q-last    | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 4:7   | 2 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 4:7   | 3 1:q-last    | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 4:7   | 4 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 5:9   | 1 1:q-last    | -31.400 | -31.400 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 2 1:q-last    | -31.400 | -31.400 | 0.000   | 8.500  | 0.000 |
| Balk 6:11  | 1 1:q-last    | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 6:11  | 2 1:q-last    | -31.400 | -31.400 | 3.900   | 8.500  | 0.000 |
| Balk 6:11  | 3 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 6:11  | 4 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 7:12  | 1 1:q-last    | -15.100 | -15.100 | 0.000   | 5.300  | 0.000 |
| Balk 8:13  | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 9:14  | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 10:15 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 11:16 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 12:17 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 5.250  | 0.000 |
| Balk 13:18 | 1 1:q-last    | -31.400 | -31.400 | 0.000   | 8.500  | 0.000 |
| Balk 16:21 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 17:22 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 18:23 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |
| Balk 19:24 | 1 1:q-last    | -14.600 | -14.600 | 0.000   | 3.900  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:2 varBG

**VELDBELASTINGEN**

B.G:2 varBG

| Balk     | Last Type    | q1/p/m  | q2     | Afstand | Lengte | Exc.  |
|----------|--------------|---------|--------|---------|--------|-------|
| Balk 1:3 | 1 1:q-last   | -1.500  | -1.500 | 0.000   | 5.300  | 0.000 |
| Balk 2:4 | 1 8:Puntlast | -18.000 |        | 2.800   |        | 0.000 |
| Balk 2:4 | 2 8:Puntlast | -18.000 |        | 8.400   |        | 0.000 |
| Balk 2:4 | 3 8:Puntlast | -18.000 |        | 14.100  |        | 0.000 |
| Balk 2:4 | 4 8:Puntlast | -9.000  |        | 0.450   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

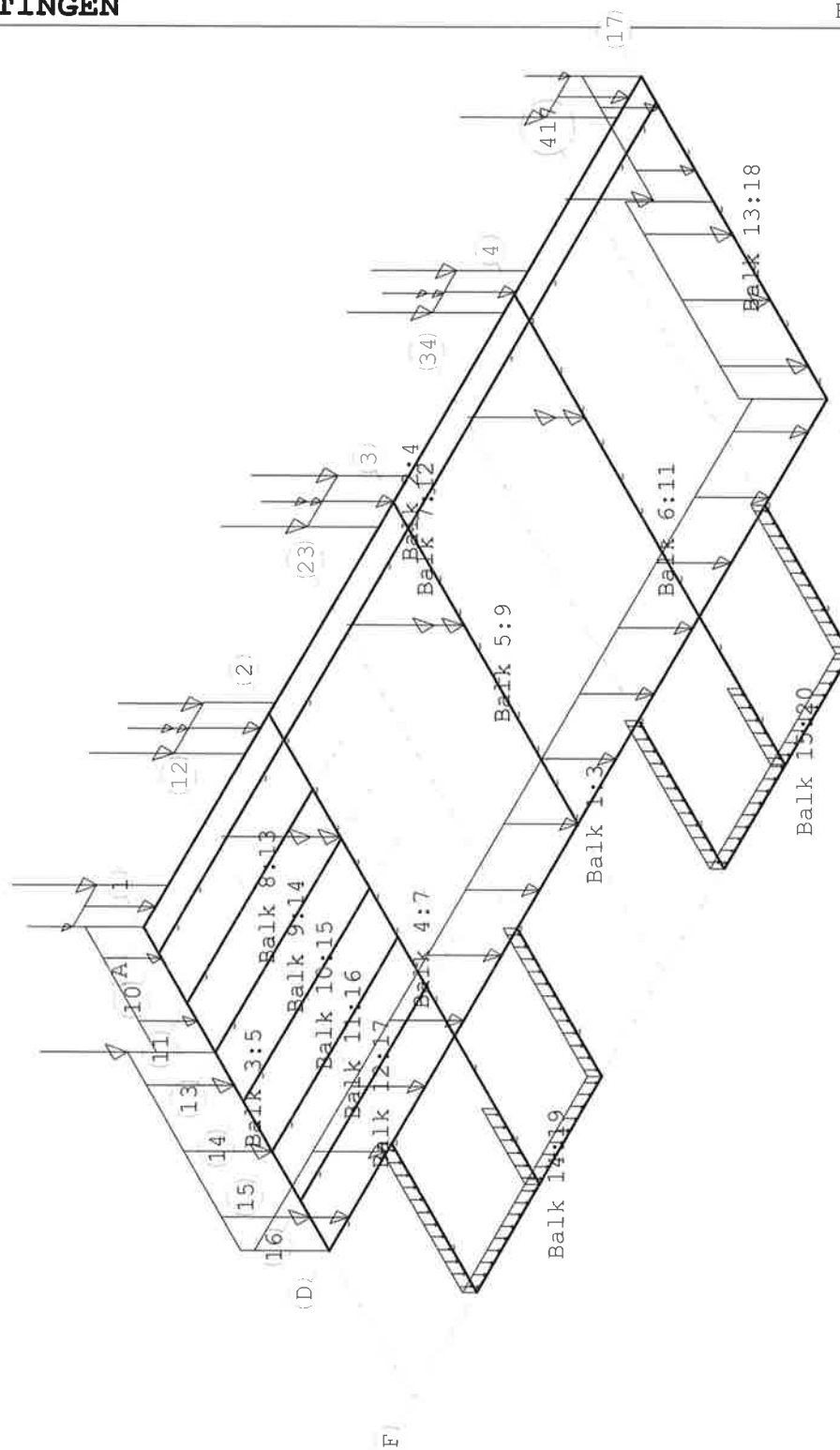
B.G:2 varBG

| Balk       | Last | Type       | q1/p/m  | q2     | Afstand | Lengte | Exc.  |
|------------|------|------------|---------|--------|---------|--------|-------|
| Balk 2:4   | 5    | 8:Puntlast | -9.000  |        | 5.150   |        | 0.000 |
| Balk 2:4   | 6    | 8:Puntlast | -9.000  |        | 6.100   |        | 0.000 |
| Balk 2:4   | 7    | 8:Puntlast | -9.000  |        | 10.750  |        | 0.000 |
| Balk 2:4   | 8    | 8:Puntlast | -9.000  |        | 11.700  |        | 0.000 |
| Balk 2:4   | 9    | 8:Puntlast | -9.000  |        | 16.400  |        | 0.000 |
| Balk 2:4   | 10   | 8:Puntlast | -9.000  |        | 17.350  |        | 0.000 |
| Balk 2:4   | 11   | 8:Puntlast | -18.000 |        | 19.700  |        | 0.000 |
| Balk 2:4   | 12   | 8:Puntlast | -9.000  |        | 22.000  |        | 0.000 |
| Balk 4:7   | 1    | 1:q-last   | -6.300  | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 4:7   | 2    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 4:7   | 3    | 1:q-last   | -6.300  | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 4:7   | 4    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 5:9   | 1    | 1:q-last   | -6.300  | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 2    | 1:q-last   | -6.300  | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 6:11  | 1    | 1:q-last   | -6.300  | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 6:11  | 2    | 1:q-last   | -6.300  | -6.300 | 3.900   | 8.500  | 0.000 |
| Balk 6:11  | 3    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 6:11  | 4    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 7:12  | 1    | 1:q-last   | -3.000  | -3.000 | 0.000   | 5.300  | 0.000 |
| Balk 8:13  | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 9:14  | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 10:15 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 11:16 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 12:17 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 5.250  | 0.000 |
| Balk 13:18 | 1    | 1:q-last   | -6.300  | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 16:21 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 17:22 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 18:23 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |
| Balk 19:24 | 1    | 1:q-last   | -2.900  | -2.900 | 0.000   | 3.900  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:3 gevels

**VELDBELASTINGEN**

B.G:3 gevels

| Balk     | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|------------|---------|---------|---------|--------|-------|
| Balk 1:3 | 1 1:q-last | -15.200 | -15.200 | 0.000   | 22.500 | 0.000 |
| Balk 2:4 | 1 1:q-last | -14.600 | -14.600 | 0.000   | 1.100  | 0.000 |
| Balk 2:4 | 2 1:q-last | -14.600 | -14.600 | 16.250  | 1.100  | 0.000 |
| Balk 2:4 | 3 1:q-last | -14.600 | -14.600 | 4.600   | 1.350  | 0.000 |
| Balk 2:4 | 4 1:q-last | -14.600 | -14.600 | 10.600  | 1.350  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:3 gevels

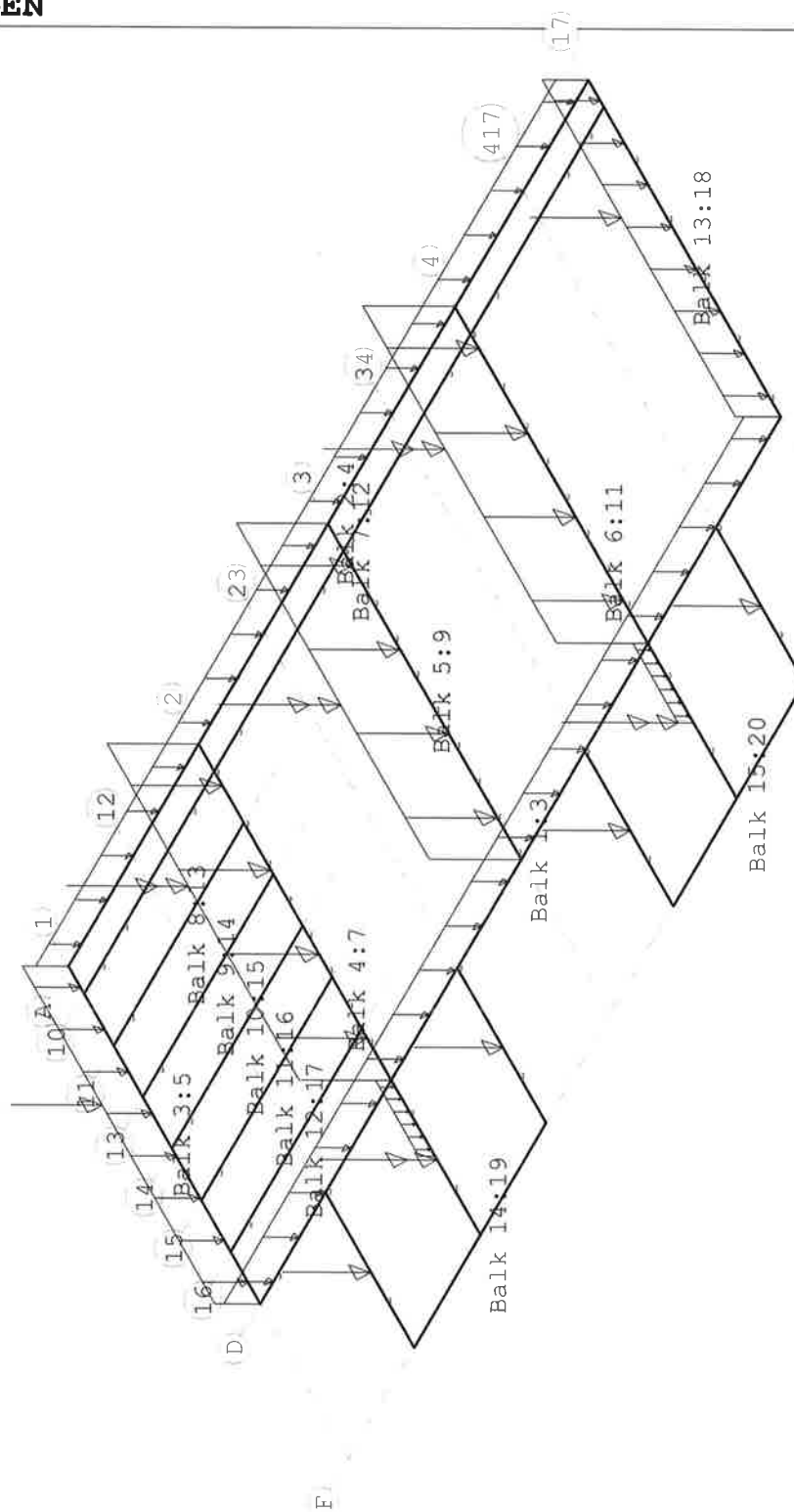
| Balk       | Last | Type       | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------|------------|---------|---------|---------|--------|-------|
| Balk 2:4   | 5    | 8:Puntlast | -10.500 |         | 1.100   |        | 0.000 |
| Balk 2:4   | 6    | 8:Puntlast | -10.500 |         | 4.600   |        | 0.000 |
| Balk 2:4   | 7    | 8:Puntlast | -10.500 |         | 10.600  |        | 0.000 |
| Balk 2:4   | 8    | 8:Puntlast | -10.500 |         | 5.900   |        | 0.000 |
| Balk 2:4   | 9    | 8:Puntlast | -10.500 |         | 16.250  |        | 0.000 |
| Balk 2:4   | 10   | 8:Puntlast | -10.500 |         | 11.950  |        | 0.000 |
| Balk 2:4   | 11   | 8:Puntlast | -5.600  |         | -0.000  |        | 0.000 |
| Balk 2:4   | 12   | 8:Puntlast | -5.600  |         | 5.250   |        | 0.000 |
| Balk 2:4   | 13   | 8:Puntlast | -5.600  |         | 11.250  |        | 0.000 |
| Balk 2:4   | 14   | 8:Puntlast | -5.600  |         | 16.750  |        | 0.000 |
| Balk 2:4   | 15   | 8:Puntlast | -5.600  |         | 5.250   |        | 0.000 |
| Balk 2:4   | 16   | 8:Puntlast | -5.600  |         | 11.250  |        | 0.000 |
| Balk 2:4   | 17   | 1:q-last   | -14.600 | -14.600 | 21.400  | 1.100  | 0.000 |
| Balk 2:4   | 18   | 8:Puntlast | -5.600  |         | 22.500  |        | 0.000 |
| Balk 2:4   | 19   | 8:Puntlast | -10.500 |         | 21.400  |        | 0.000 |
| Balk 2:4   | 20   | 8:Puntlast | -5.600  |         | 16.750  |        | 0.000 |
| Balk 2:4   | 21   | 8:Puntlast | -10.500 |         | 17.350  |        | 0.000 |
| Balk 3:5   | 1    | 1:q-last   | -18.000 | -18.000 | 0.000   | 5.200  | 0.000 |
| Balk 3:5   | 2    | 1:q-last   | -12.000 | -12.000 | 5.200   | 3.300  | 0.000 |
| Balk 3:5   | 3    | 8:Puntlast | -10.800 |         | 5.200   |        | 0.000 |
| Balk 4:7   | 1    | 8:Puntlast | -10.800 |         | 9.150   |        | 0.000 |
| Balk 4:7   | 2    | 1:q-last   | -2.500  | -2.500  | 0.000   | 2.000  | 0.000 |
| Balk 4:7   | 3    | 8:Puntlast | -10.800 |         | 9.150   |        | 0.000 |
| Balk 5:9   | 1    | 8:Puntlast | -10.800 |         | 5.250   |        | 0.000 |
| Balk 5:9   | 2    | 8:Puntlast | -10.800 |         | 5.250   |        | 0.000 |
| Balk 6:11  | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 2.000  | 0.000 |
| Balk 6:11  | 2    | 8:Puntlast | -10.800 |         | 9.150   |        | 0.000 |
| Balk 6:11  | 3    | 8:Puntlast | -10.800 |         | 9.150   |        | 0.000 |
| Balk 13:18 | 1    | 8:Puntlast | -10.800 |         | 5.250   |        | 0.000 |
| Balk 13:18 | 2    | 1:q-last   | -18.000 | -18.000 | 0.000   | 5.200  | 0.000 |
| Balk 13:18 | 3    | 1:q-last   | -12.000 | -12.000 | 5.200   | 3.300  | 0.000 |
| Balk 14:19 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 5.700  | 0.000 |
| Balk 15:20 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 5.700  | 0.000 |
| Balk 16:21 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 17:22 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 18:23 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |
| Balk 19:24 | 1    | 1:q-last   | -2.500  | -2.500  | 0.000   | 3.900  | 0.000 |



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 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:4 kzst

**VELDBELASTINGEN**

B.G:4 kzst

| Balk     | Last Type    | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|--------------|---------|---------|---------|--------|-------|
| Balk 1:3 | 1 1:q-last   | -14.400 | -14.400 | 0.000   | 22.500 | 0.000 |
| Balk 2:4 | 1 1:q-last   | -12.600 | -12.600 | 0.000   | 22.500 | 0.000 |
| Balk 3:5 | 1 1:q-last   | -18.000 | -18.000 | 0.000   | 8.500  | 0.000 |
| Balk 3:5 | 2 8:Puntlast | -10.100 |         | 5.000   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

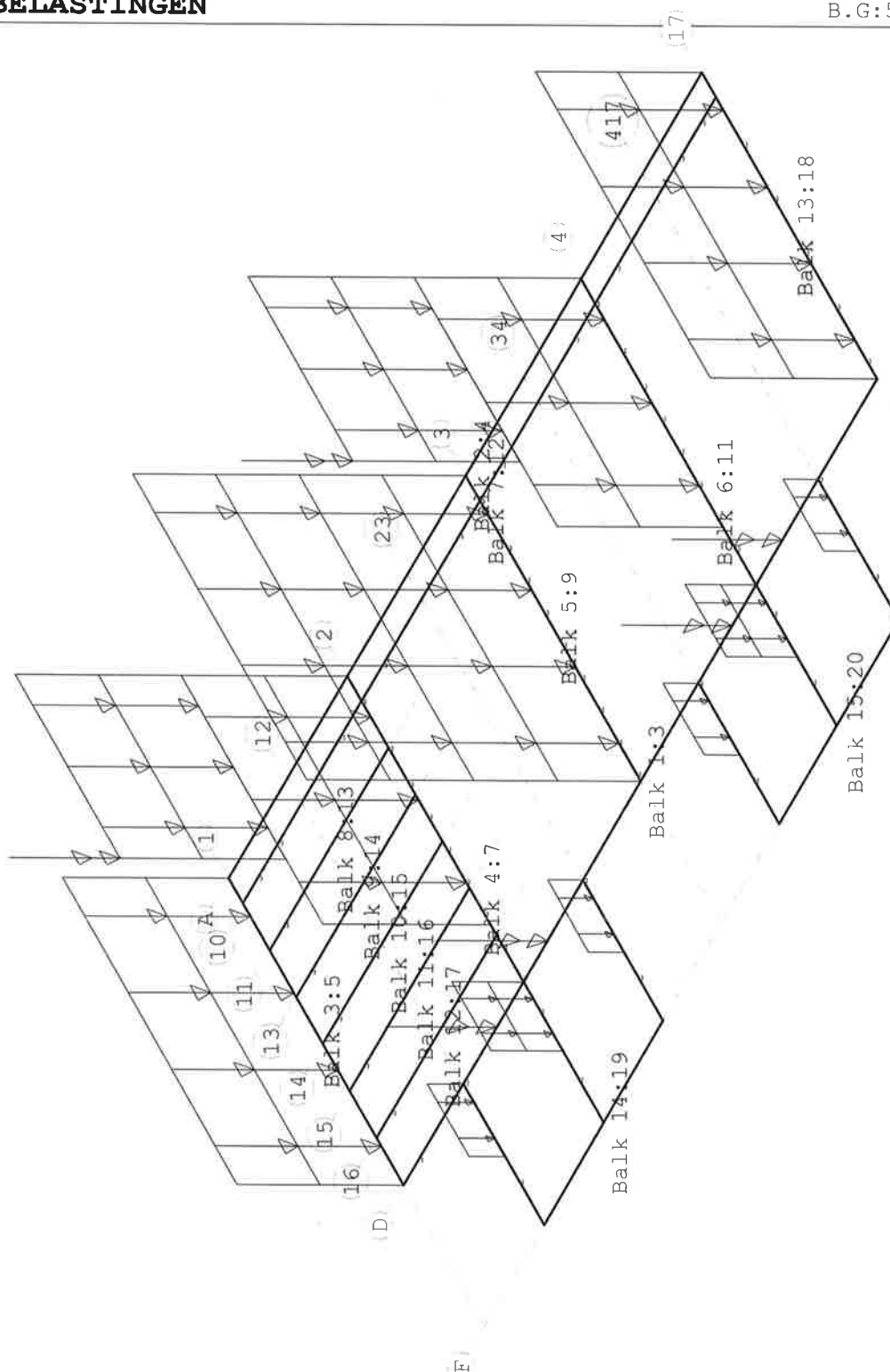
B.G:4 kzst

| Balk       | Last | Type       | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------|------------|---------|---------|---------|--------|-------|
| Balk 4:7   | 1    | 1:q-last   | -36.000 | -36.000 | 3.900   | 8.500  | 0.000 |
| Balk 4:7   | 2    | 1:q-last   | -6.000  | -6.000  | 2.000   | 1.900  | 0.000 |
| Balk 4:7   | 3    | 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 4:7   | 4    | 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 4:7   | 5    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 4:7   | 6    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 5:9   | 1    | 1:q-last   | -36.000 | -36.000 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 2    | 8:Puntlast | -10.100 |         | 3.900   |        | 0.000 |
| Balk 5:9   | 3    | 8:Puntlast | -10.100 |         | 3.900   |        | 0.000 |
| Balk 6:11  | 1    | 1:q-last   | -36.000 | -36.000 | 3.900   | 8.500  | 0.000 |
| Balk 6:11  | 2    | 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 6:11  | 3    | 8:Puntlast | -10.100 |         | 8.800   |        | 0.000 |
| Balk 6:11  | 4    | 1:q-last   | -6.000  | -6.000  | 1.900   | 2.000  | 0.000 |
| Balk 6:11  | 5    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 6:11  | 6    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 13:18 | 1    | 1:q-last   | -18.000 | -18.000 | 0.000   | 8.500  | 0.000 |
| Balk 13:18 | 2    | 8:Puntlast | -10.100 |         | 5.000   |        | 0.000 |
| Balk 16:21 | 1    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 17:22 | 1    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 18:23 | 1    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |
| Balk 19:24 | 1    | 8:Puntlast | -9.700  |         | 1.900   |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat blok 4 won

## VELDBELASTINGEN

B.G:5 permVerdvl



## VELDBELASTINGEN

B.G:5 permVerdvl

| Balk     | Last Type    | q1/p/m  | q2 | Afstand | Lengte | Exc.  |
|----------|--------------|---------|----|---------|--------|-------|
| Balk 1:3 | 1 8:Puntlast | -27.400 |    | 4.400   |        | 0.000 |
| Balk 1:3 | 2 8:Puntlast | -27.400 |    | 4.400   |        | 0.000 |
| Balk 1:3 | 3 8:Puntlast | -27.400 |    | 6.800   |        | 0.000 |
| Balk 1:3 | 4 8:Puntlast | -27.400 |    | 6.800   |        | 0.000 |
| Balk 1:3 | 5 8:Puntlast | -27.400 |    | 15.600  |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

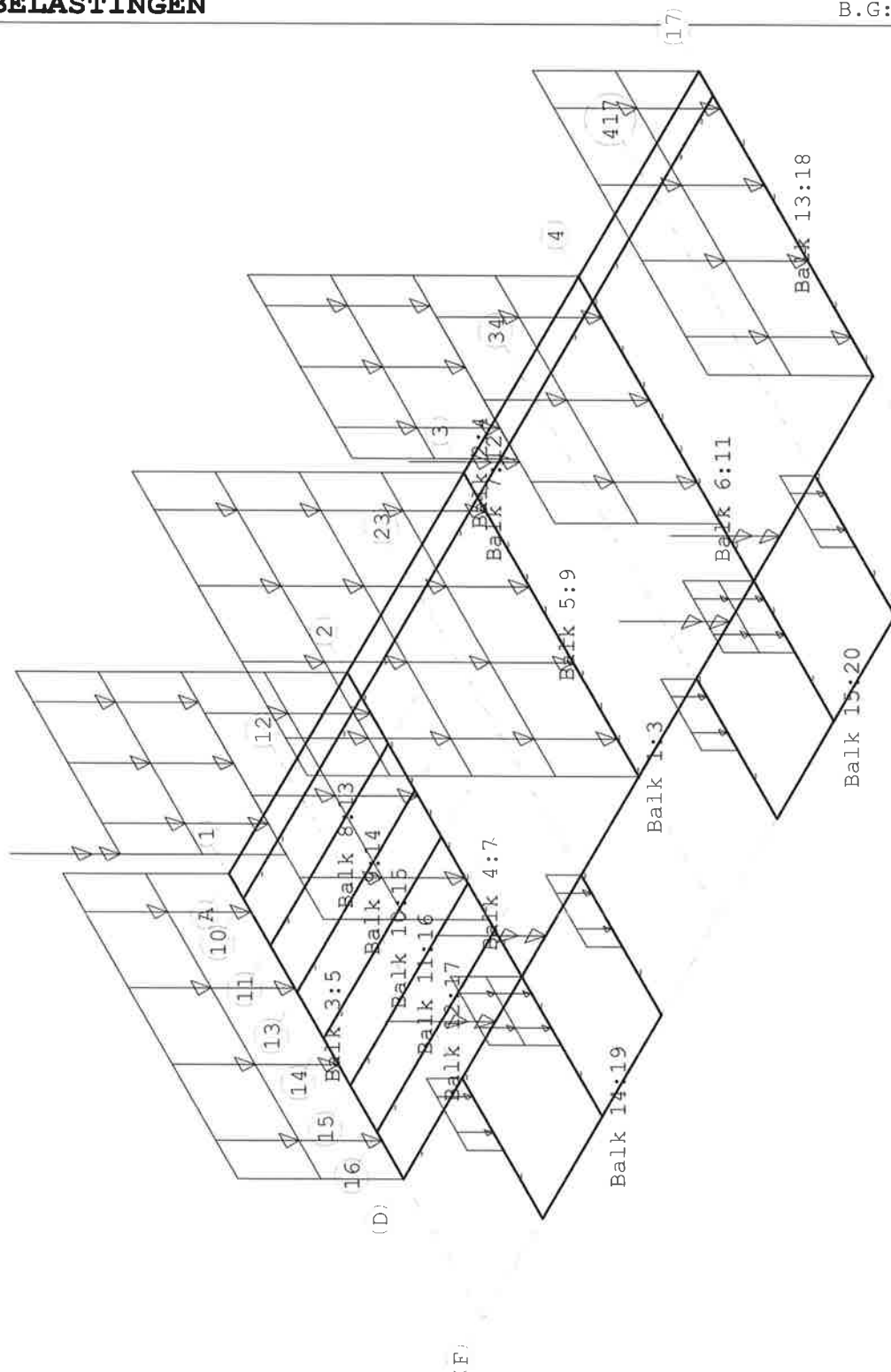
B.G:5 permVerdvl

| Balk       | Last | Type       | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------|------------|---------|---------|---------|--------|-------|
| Balk 1:3   | 6    | 8:Puntlast | -27.400 |         | 18.000  |        | 0.000 |
| Balk 1:3   | 7    | 8:Puntlast | -27.400 |         | 15.600  |        | 0.000 |
| Balk 1:3   | 8    | 8:Puntlast | -27.400 |         | 18.000  |        | 0.000 |
| Balk 3:5   | 1    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 3:5   | 2    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 4:7   | 1    | 1:q-last   | -21.300 | -21.300 | 5.500   | 6.900  | 0.000 |
| Balk 4:7   | 2    | 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 4:7   | 3    | 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 4:7   | 4    | 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 4:7   | 5    | 1:q-last   | -21.300 | -21.300 | 5.500   | 6.900  | 0.000 |
| Balk 4:7   | 6    | 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 4:7   | 7    | 1:q-last   | -9.100  | -9.100  | 2.000   | 1.900  | 0.000 |
| Balk 4:7   | 8    | 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 5:9   | 1    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 2    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 3    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 4    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 6:11  | 1    | 1:q-last   | -21.300 | -21.300 | 5.500   | 6.900  | 0.000 |
| Balk 6:11  | 2    | 1:q-last   | -21.300 | -21.300 | 5.500   | 6.900  | 0.000 |
| Balk 6:11  | 3    | 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 6:11  | 4    | 1:q-last   | -21.300 | -21.300 | 7.300   | 5.100  | 0.000 |
| Balk 6:11  | 5    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |
| Balk 6:11  | 6    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |
| Balk 6:11  | 7    | 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 6:11  | 8    | 8:Puntlast | -27.400 |         | 7.300   |        | 0.000 |
| Balk 13:18 | 1    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 13:18 | 2    | 1:q-last   | -21.300 | -21.300 | 0.000   | 8.500  | 0.000 |
| Balk 16:21 | 1    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |
| Balk 17:22 | 1    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |
| Balk 18:23 | 1    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |
| Balk 19:24 | 1    | 1:q-last   | -9.100  | -9.100  | 1.900   | 2.000  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:6 varVerdvl

**VELDBELASTINGEN**

B.G:6 varVerdvl

| Balk     | Last Type    | q1/p/m | q2 | Afstand | Lengte | Exc.  |
|----------|--------------|--------|----|---------|--------|-------|
| Balk 1:3 | 1 8:Puntlast | -8.100 |    | 4.400   |        | 0.000 |
| Balk 1:3 | 2 8:Puntlast | -8.100 |    | 4.400   |        | 0.000 |
| Balk 1:3 | 3 8:Puntlast | -8.100 |    | 6.800   |        | 0.000 |
| Balk 1:3 | 4 8:Puntlast | -8.100 |    | 6.800   |        | 0.000 |
| Balk 1:3 | 5 8:Puntlast | -8.100 |    | 15.600  |        | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:6 varVerdvl

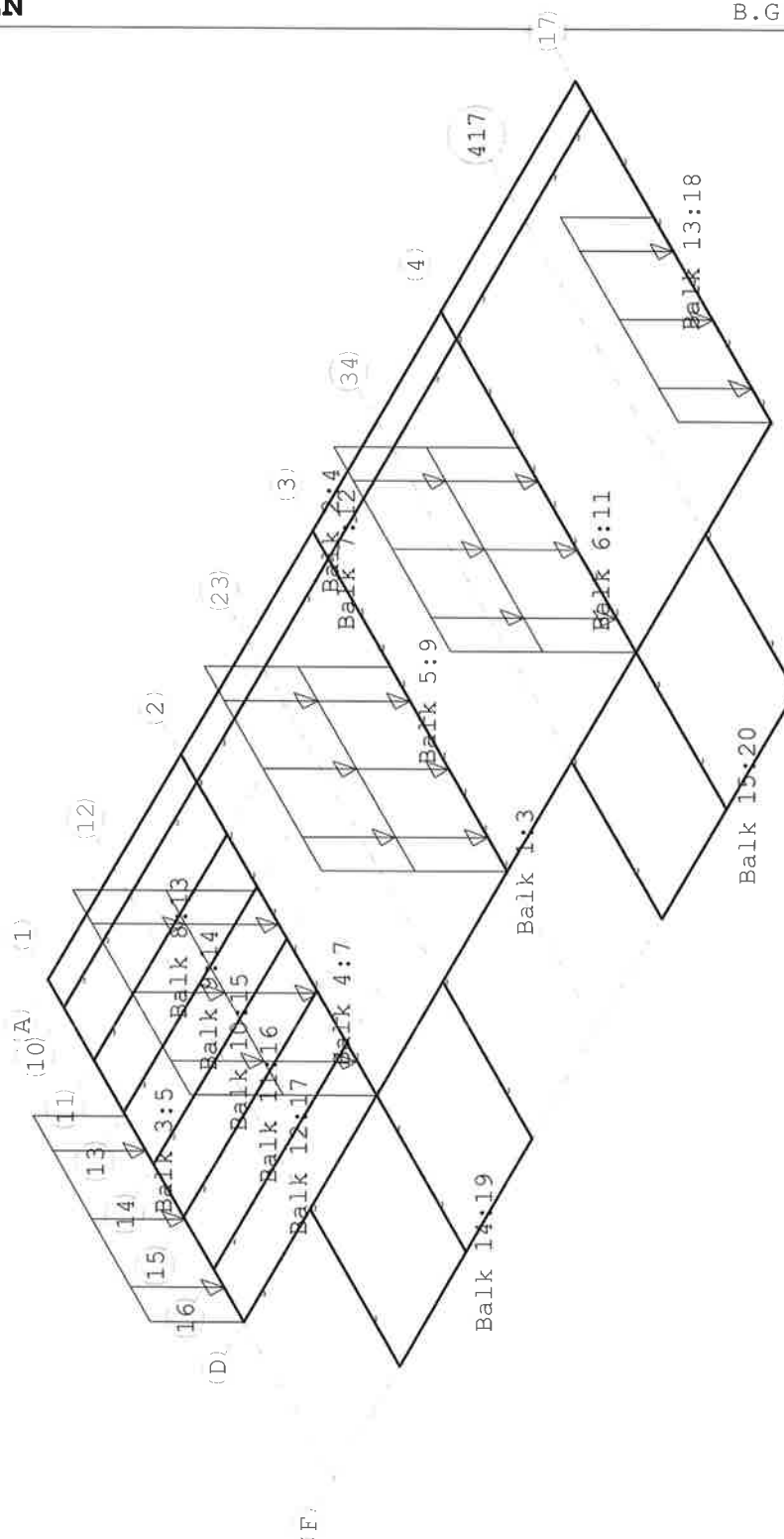
| Balk       | Last Type    | q1/p/m | q2     | Afstand | Lengte | Exc.  |
|------------|--------------|--------|--------|---------|--------|-------|
| Balk 1:3   | 6 8:Puntlast | -8.100 |        | 15.600  |        | 0.000 |
| Balk 1:3   | 7 8:Puntlast | -8.100 |        | 18.000  |        | 0.000 |
| Balk 1:3   | 8 8:Puntlast | -8.100 |        | 18.000  |        | 0.000 |
| Balk 3:5   | 1 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 3:5   | 2 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 4:7   | 1 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 4:7   | 2 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 4:7   | 3 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 4:7   | 4 8:Puntlast | -8.100 |        | 7.300   |        | 0.000 |
| Balk 4:7   | 5 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 4:7   | 6 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 4:7   | 7 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 4:7   | 8 1:q-last   | -2.700 | -2.700 | 2.000   | 1.900  | 0.000 |
| Balk 5:9   | 1 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 2 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 3 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 5:9   | 4 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 6:11  | 1 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 6:11  | 2 1:q-last   | -6.300 | -6.300 | 5.500   | 6.900  | 0.000 |
| Balk 6:11  | 3 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 6:11  | 4 1:q-last   | -6.300 | -6.300 | 7.300   | 5.100  | 0.000 |
| Balk 6:11  | 5 8:Puntlast | -8.100 |        | 7.200   |        | 0.000 |
| Balk 6:11  | 6 8:Puntlast | -8.100 |        | 7.200   |        | 0.000 |
| Balk 6:11  | 7 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |
| Balk 6:11  | 8 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |
| Balk 13:18 | 1 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 13:18 | 2 1:q-last   | -6.300 | -6.300 | 0.000   | 8.500  | 0.000 |
| Balk 16:21 | 1 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |
| Balk 17:22 | 1 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |
| Balk 18:23 | 1 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |
| Balk 19:24 | 1 1:q-last   | -2.700 | -2.700 | 1.900   | 2.000  | 0.000 |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:7 permDakvl

**VELDBELASTINGEN**

B.G:7 permDakvl

| Balk     | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|----------|------------|---------|---------|---------|--------|-------|
| Balk 3:5 | 1 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |
| Balk 4:7 | 1 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 4:7 | 2 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 5:9 | 1 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |
| Balk 5:9 | 2 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |

Project...: 2017047 - Priemkruid Breda  
 Onderdeel: Funderingsplaat blok 4 won

**VELDBELASTINGEN**

B.G:7 permDakvl

| Balk       | Last Type  | q1/p/m  | q2      | Afstand | Lengte | Exc.  |
|------------|------------|---------|---------|---------|--------|-------|
| Balk 6:11  | 1 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 6:11  | 2 1:q-last | -17.100 | -17.100 | 3.900   | 5.100  | 0.000 |
| Balk 13:18 | 1 1:q-last | -17.100 | -17.100 | 0.000   | 5.100  | 0.000 |

**BELASTINGCOMBINATIES**

| BC Type | BG Gen. | Factor | BG Gen. | Factor | BG Gen. | Factor | BG Gen. | Factor |
|---------|---------|--------|---------|--------|---------|--------|---------|--------|
| 1 Fund. | 1 Perm  | 1.10   | 2 Extr  | 1.35   | 3 Extr  | 1.10   | 4 Extr  | 1.10   |
|         | 5 Perm  | 1.10   | 6 Extr  | 0.95   | 7 Perm  | 1.10   |         |        |
| 2 Fund. | 1 Perm  | 1.10   | 2 Extr  | 0.54   | 3 Extr  | 1.10   | 4 Extr  | 1.10   |
|         | 5 Perm  | 1.10   | 6 Extr  | 1.35   | 7 Perm  | 1.10   |         |        |
| 3 Fund. | 1 Perm  | 1.20   | 2 Extr  | 0.54   | 3 Extr  | 1.20   | 4 Extr  | 1.20   |
|         | 5 Perm  | 1.20   | 6 Extr  | 0.54   | 7 Perm  | 1.20   |         |        |
| 4 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |
| 5 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |
| 6 Kar.  | 1 Perm  | 1.00   | 2 Extr  | 1.00   | 3 Extr  | 1.00   | 4 Extr  | 1.00   |
|         | 5 Perm  | 1.00   | 6 Extr  | 1.00   | 7 Perm  | 1.00   |         |        |

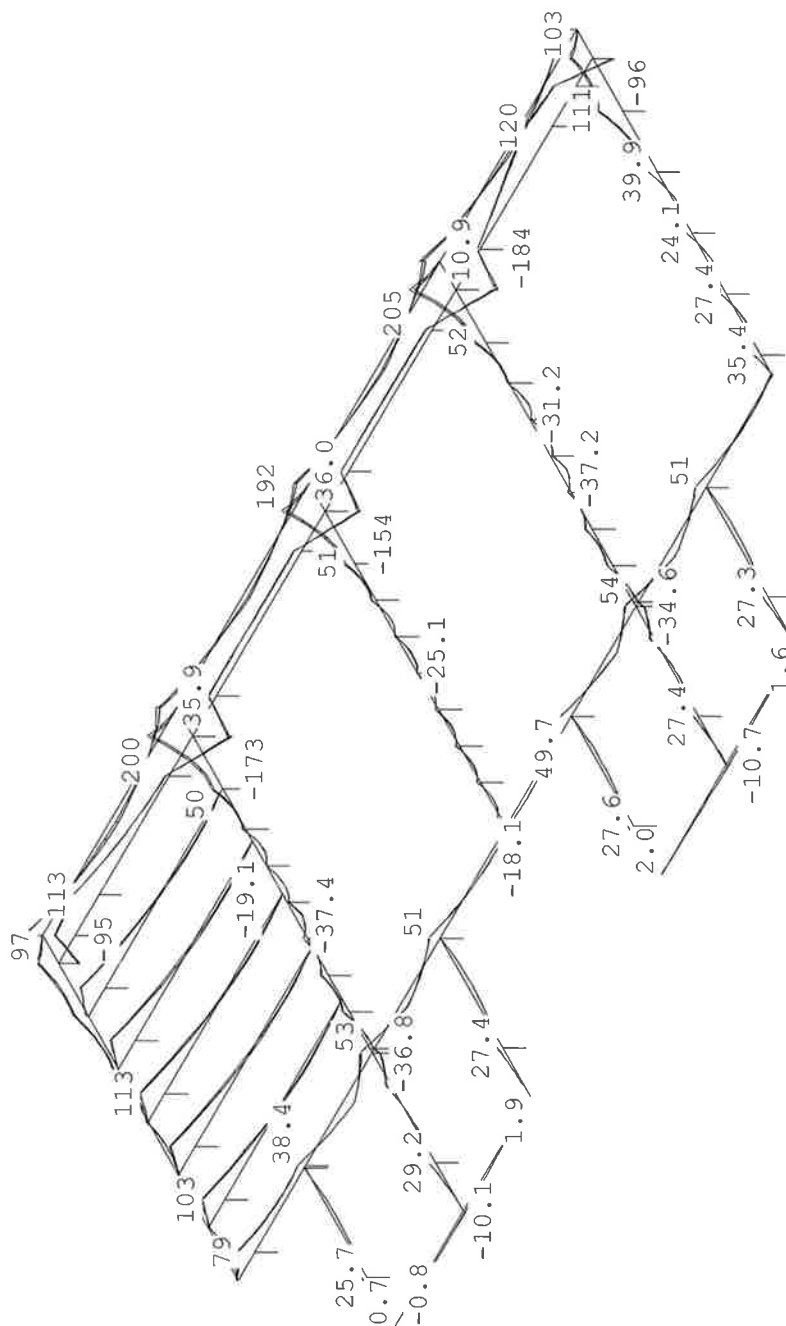


Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat blok 4 won

## OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES

### MOMENTEN

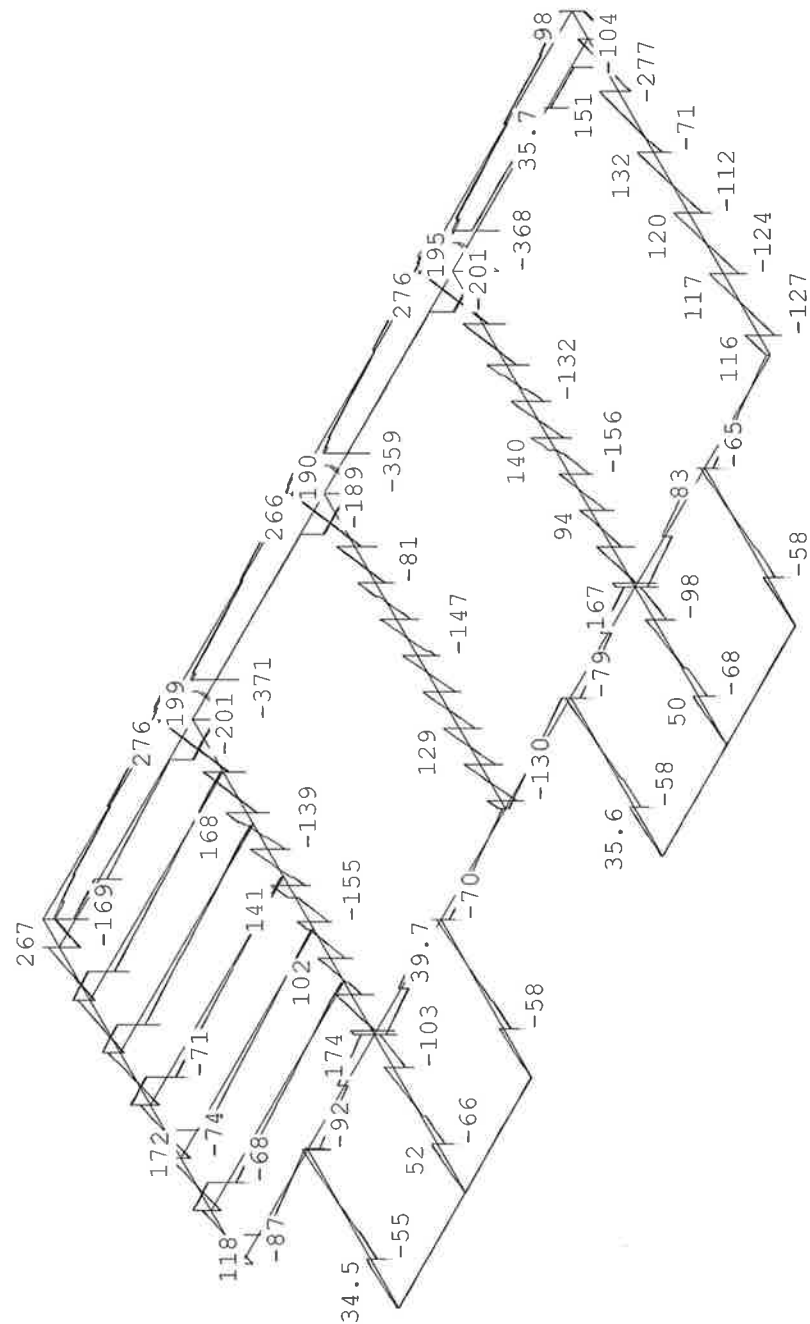
Fundamentele combinatie



Project...: 2017047 - Priemkruid Breda  
Onderdeel: Funderingsplaat blok 4 won

## DWARSKRACHTEN

Fundamentele combinatie



Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat blok 4 won

**REACTIES**

Fundamentele combinatie

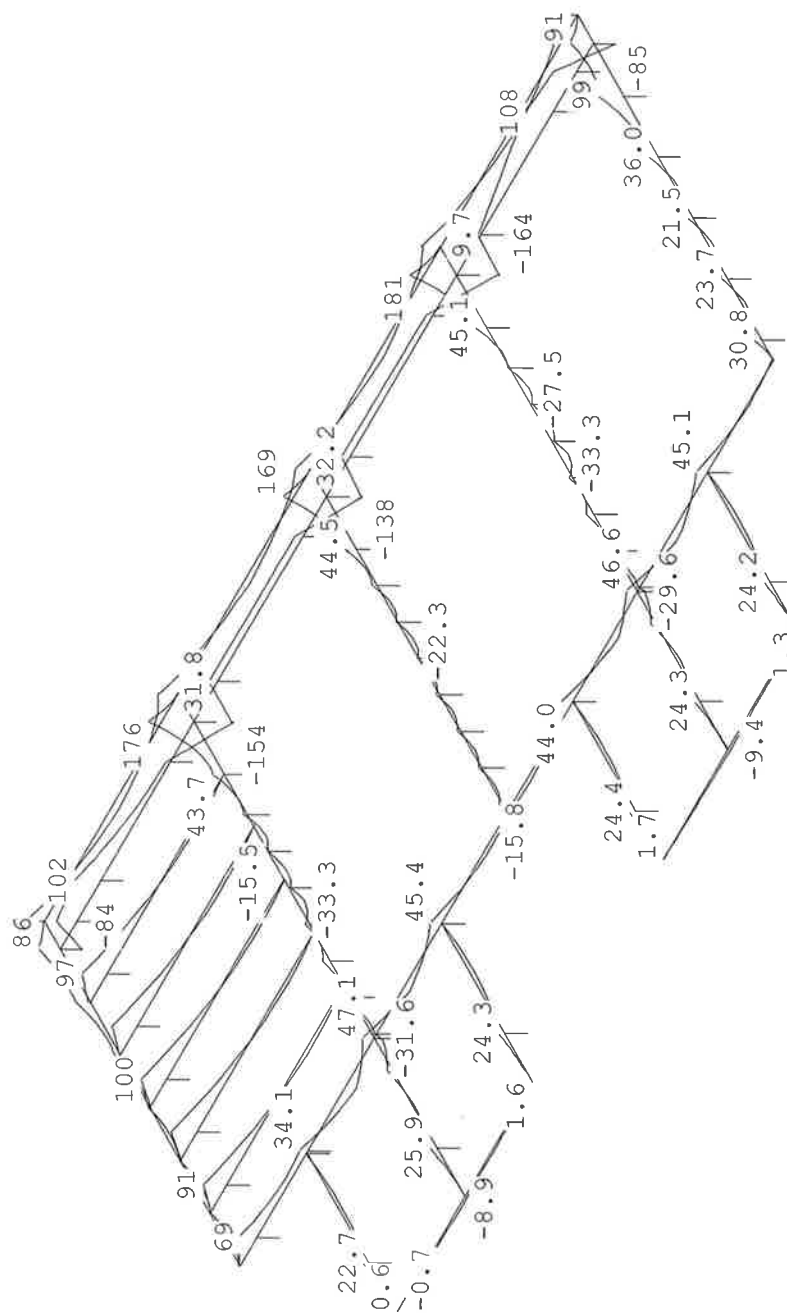
| (1)  | (12)   | (2)         | (23)        | (3)         | (34)   | (4) | (417) | (17) |
|------|--------|-------------|-------------|-------------|--------|-----|-------|------|
| (A)  | 251 99 | 197 263 199 | 185 247 191 | 195 249 159 | 58 255 |     |       |      |
| (10) | 213    | 221         | 197         | 206         | 249    |     |       |      |
| (11) | 222    | 252         | 221         | 240         | 213    |     |       |      |
| (13) | 239    | 275         | 247         | 262         | 232    |     |       |      |
| (14) | 241    | 275         | 262         | 263         | 241    |     |       |      |
| (15) | 226    | 224         | 258         | 239         | 243    |     |       |      |
| (16) | 186    | 208         | 251         | 211         |        |     |       |      |
| (D)  | 162    | 198         | 240         | 197         | 186    |     |       |      |
|      |        | 171         | 187         | 191         |        |     |       |      |
| (F)  | 89     | 118         | 93          | 118         | 94     |     |       |      |

Project...: 2017047 - Priemkruid Breda

Onderdeel: Funderingsplaat blok 4 won

**OMHULLENDE VAN DE KARAKTERISTIEKE COMBINATIES****MOMENTEN**

Karakteristieke combinatie



### Opmerkingen van de constructeur:

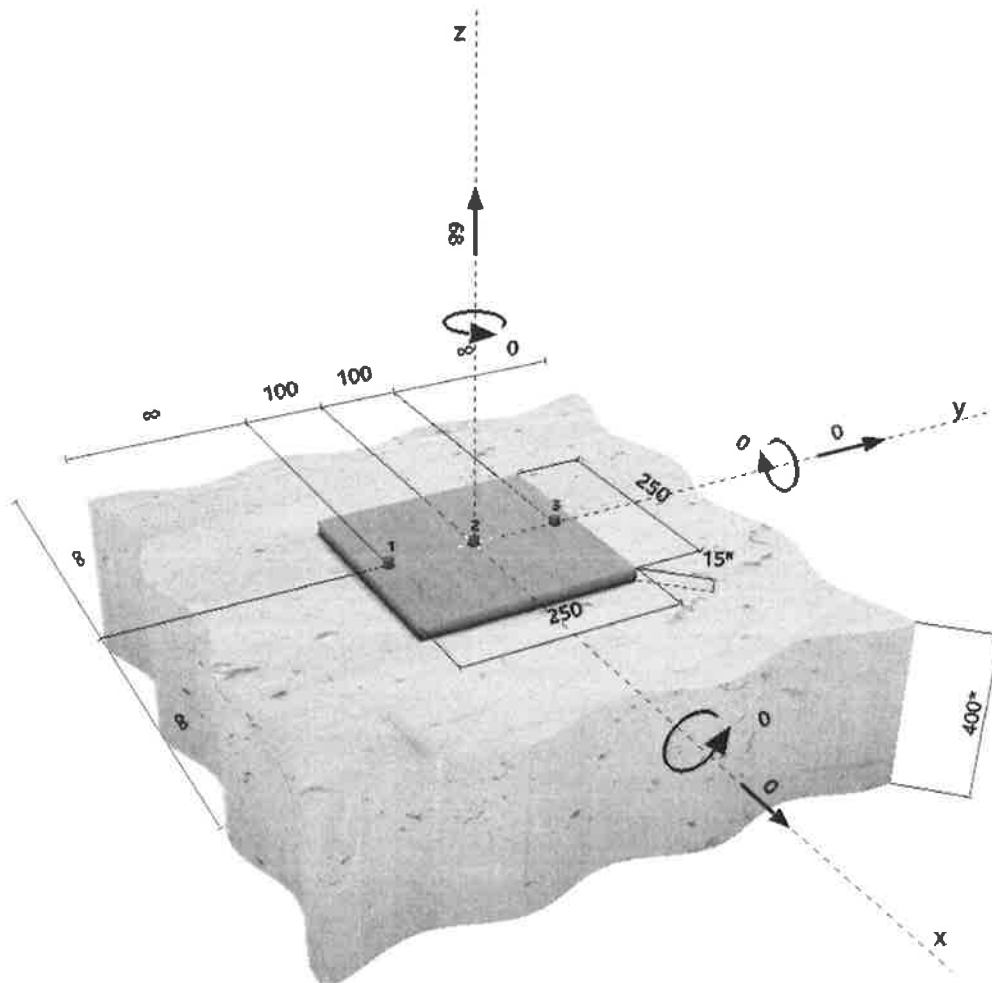
## 1 Invoergegevens

|                                |                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ankertype en -afmeting:        | HIT-HY 200-A + HIT-V (8.8) M12                                                                                                                                    |
| Effectieve verankeringsdiepte: | $h_{ef,act} = 200 \text{ mm}$ ( $h_{ef,limit} = - \text{ mm}$ )                                                                                                   |
| Materiaal:                     | 8.8                                                                                                                                                               |
| Goedkeuring nr.:               | ETA 11/0493                                                                                                                                                       |
| Uitgegeven I Geldig:           | 28-7-2017   -                                                                                                                                                     |
| Aantoning:                     | rekenmethode ETAG methode voor lijmankers; EOTA TR 029                                                                                                            |
| Afstandsmontage:               | $e_b = 0 \text{ mm}$ (geen afstandsmontage); $t = 15 \text{ mm}$                                                                                                  |
| Ankerplaat:                    | $l_x \times l_y \times t = 250 \text{ mm} \times 250 \text{ mm} \times 15 \text{ mm}$ ; (Aanbevolen ankerplaatdikte: niet berekend)                               |
| Staalprofiel:                  | geen profiel                                                                                                                                                      |
| Ondergrond:                    | gescheurd beton, C20/25, $f_{c,cube} = 25,00 \text{ N/mm}^2$ ; $h = 400 \text{ mm}$ , Temp. kort/lang: 40/24 °C                                                   |
| Plaatsing:                     | hamergeboord gat, plaatsingsconditie: droog                                                                                                                       |
| Wapening:                      | Geen wapening of wapening met staafafstand $\geq 150 \text{ mm}$ (elke $\emptyset$ ) of $\geq 100$ ( $\emptyset \leq 10 \text{ mm}$ )<br>geen rechte randwapening |



<sup>R</sup> - de gebruiker dient te zorgen voor een stijve grondplaat voor de ingevoerde dikte met gepaste oplossingen (versteigers, ...)

### Geometrie [mm] & Belastingen [kN, kNm]



Firma:  
 Constructeur:  
 Adres:  
 Tel. I Fax:  
 E-mail:

Bladzijde:  
 Project:  
 Sub-Project I Pos. Nr.:  
 Datum:

2  
 2017 047  
 Balkonankers  
 12-12-2018

## 2 Belastingsituatie/Resultierende ankerlasten

Belastingsituatie: Rekenwaarden belasting

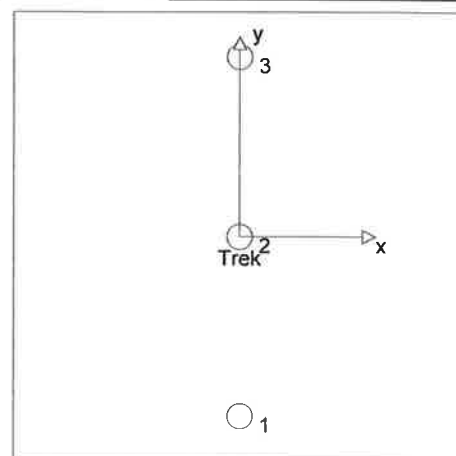
### Ankerreacties [kN]

Trekkraft: (+ Trek, - Druk)

| Anker | Trekkraft | Afschuifkracht | Afschuifkracht x | Afschuifkracht y |
|-------|-----------|----------------|------------------|------------------|
| 1     | 22,667    | 0,000          | 0,000            | 0,000            |
| 2     | 22,667    | 0,000          | 0,000            | 0,000            |
| 3     | 22,667    | 0,000          | 0,000            | 0,000            |

max. stuik van het beton: - [%]  
 max. betondrukspanning: - [N/mm<sup>2</sup>]  
 resulterende trekkraft in (x/y)=(0/0): 68,000 [kN]  
 resulterende drukkraft in (x/y)=(0/0): 0,000 [kN]

Ankerkrachten gaan uit van een stijve grondplaat!



## 3 Treklast (EOTA TR 029, paragraaf 5.2.2)

|                                                             | Belasting [kN] | Capaciteit [kN] | Benutting $\beta_N$ [%] | Status |
|-------------------------------------------------------------|----------------|-----------------|-------------------------|--------|
| Staalbreuk*                                                 | 22,667         | 44,667          | 51                      | OK     |
| Gecombineerd bezwijken door uittrekken en betonkegelbreuk** | 68,000         | 77,363          | 88                      | OK     |
| Betonkegelbreuk**                                           | 68,000         | 90,510          | 76                      | OK     |
| Splijten**                                                  | 68,000         | 147,255         | 47                      | OK     |

\* ongunstigste anker \*\*ankergroep (ankers onder trekbelasting)

### 3.1 Staalbreuk

| $N_{Rk,s}$ [kN] | $\gamma_{M,s}$ | $N_{Rd,s}$ [kN] | $N_{Sd}$ [kN] |
|-----------------|----------------|-----------------|---------------|
| 67,000          | 1,500          | 44,667          | 22,667        |

### 3.2 Gecombineerd bezwijken door uittrekken en betonkegelbreuk

| $A_{p,N}$ [mm <sup>2</sup> ] | $A_{p,N}^0$ [mm <sup>2</sup> ]      | $\tau_{Rk,ucr,25}$ [N/mm <sup>2</sup> ] | $s_{cr,Np}$ [mm] | $c_{cr,Np}$ [mm] | $c_{min}$ [mm] |
|------------------------------|-------------------------------------|-----------------------------------------|------------------|------------------|----------------|
| 212.601                      | 138.240                             | 18,00                                   | 372              | 186              | ∞              |
| $\psi_c$                     | $\tau_{Rk,cr}$ [N/mm <sup>2</sup> ] | k                                       | $\psi_{g,Np}^0$  | $\psi_{g,Np}$    |                |
| 1,000                        | 8,50                                | 2,300                                   | 1,368            | 1,177            |                |
| $e_{c1,N}$ [mm]              | $\psi_{ec1,Np}$                     | $e_{c2,N}$ [mm]                         | $\psi_{ec2,Np}$  | $\psi_{s,Np}$    | $\psi_{re,Np}$ |
| 0                            | 1,000                               | 0                                       | 1,000            | 1,000            | 1,000          |
| $N_{Rk,p}^0$ [kN]            | $N_{Rk,p}$ [kN]                     | $\gamma_{M,p}$                          | $N_{Rd,p}$ [kN]  | $N_{Sd}$ [kN]    |                |
| 64,088                       | 116,045                             | 1,500                                   | 77,363           | 68,000           |                |

### 3.3 Betonkegelbreuk

| $A_{c,N}$ [mm <sup>2</sup> ] | $A_{c,N}^0$ [mm <sup>2</sup> ] | $c_{cr,N}$ [mm] | $s_{cr,N}$ [mm] |               |               |
|------------------------------|--------------------------------|-----------------|-----------------|---------------|---------------|
| 480.000                      | 360.000                        | 300             | 600             |               |               |
| $e_{c1,N}$ [mm]              | $\psi_{ec1,N}$                 | $e_{c2,N}$ [mm] | $\psi_{ec2,N}$  | $\psi_{s,N}$  | $\psi_{re,N}$ |
| 0                            | 1,000                          | 0               | 1,000           | 1,000         | 1,000         |
| $k_1$                        | $N_{Rk,c}^0$ [kN]              | $\gamma_{M,c}$  | $N_{Rd,c}$ [kN] | $N_{Sd}$ [kN] |               |
| 7,200                        | 101,823                        | 1,500           | 90,510          | 68,000        |               |

Firma:  
 Constructeur:  
 Adres:  
 Tel. | Fax:  
 E-mail:

Bladzijde:  
 Project:  
 Sub-Project | Pos. Nr.:  
 Datum:

3  
 2017 047  
 Balkonankers  
 12-12-2018

### 3.4 Splijten

| $A_{c,N}$ [mm <sup>2</sup> ] | $A_{c,N}^0$ [mm <sup>2</sup> ] | $c_{cr,sp}$ [mm] | $s_{cr,sp}$ [mm] | $\psi_{h,sp}$ |               |       |
|------------------------------|--------------------------------|------------------|------------------|---------------|---------------|-------|
| 240.000                      | 160.000                        | 200              | 400              | 1,446         |               |       |
| $e_{c1,N}$ [mm]              | $\psi_{ec1,N}$                 | $e_{c2,N}$ [mm]  | $\psi_{ec2,N}$   | $\psi_{s,N}$  | $\psi_{re,N}$ | $k_1$ |
| 0                            | 1,000                          | 0                | 1,000            | 1,000         | 1,000         | 7,200 |
| $N_{Rk,c}^0$ [kN]            | $\gamma_{M,sp}$                | $N_{Rd,sp}$ [kN] | $N_{Sd}$ [kN]    |               |               |       |
| 101,823                      | 1,500                          | 147,255          | 68,000           |               |               |       |

Firma:  
Constructeur:  
Adres:  
Tel. | Fax:  
E-mail:

Bladzijde: 4  
Project: 2017 047  
Sub-Project | Pos. Nr.: Balkonankers  
Datum: 12-12-2018

#### 4 Afschuifbelasting (EOTA TR 029, paragraaf 5.2.3)

|                                  | Belasting [kN] | Capaciteit [kN] | Benutting $\beta_v$ [%] | Status |
|----------------------------------|----------------|-----------------|-------------------------|--------|
| Staalbreuk (zonder hefboomsarm)* | N.V.T.         | N.V.T.          | N.V.T.                  | N.V.T. |
| Staalbreuk (met hefboomsarm)*    | N.V.T.         | N.V.T.          | N.V.T.                  | N.V.T. |
| Betonachteruitbreken*            | N.V.T.         | N.V.T.          | N.V.T.                  | N.V.T. |
| Betonrandbreuk in richting **    | N.V.T.         | N.V.T.          | N.V.T.                  | N.V.T. |

\* ongunstigste anker \*\*ankergroep (geactiveerde ankers)

#### 5 Verplaatsingen (hoogst belaste anker)

Kortdurende belastingen

|          |   |             |               |   |            |
|----------|---|-------------|---------------|---|------------|
| $N_{Sk}$ | = | 16,790 [kN] | $\delta_N$    | = | 0,156 [mm] |
| $V_{Sk}$ | = | 0,000 [kN]  | $\delta_V$    | = | 0,000 [mm] |
|          |   |             | $\delta_{NV}$ | = | 0,156 [mm] |

Langeduur-belastingen

|          |   |             |               |   |            |
|----------|---|-------------|---------------|---|------------|
| $N_{Sk}$ | = | 16,790 [kN] | $\delta_N$    | = | 0,356 [mm] |
| $V_{Sk}$ | = | 0,000 [kN]  | $\delta_V$    | = | 0,000 [mm] |
|          |   |             | $\delta_{NV}$ | = | 0,356 [mm] |

NB: Verplaatsingen t.g.v. trekbelasting zijn gebaseerd op de helft van het vereiste aandraaimoment voor ongescheurd beton! Verplaatsingen t.g.v. afschuiving zijn bepaald zonder inachtneming van wrijving tussen beton en ankerplaat! De speling als gevolg van toleranties in boorgatdiameter en gatdiameter in ankerplaat wordt niet beschouwd in deze berekening!

Hoeveel verplaatsing toelaatbaar is, hangt af van de verbinding en dient door de constructeur te worden bepaald!

#### 6 Waarschuwingen

- De rekenmethoden in PROFIS Anchor gaan uit van starre ankerplaten volgens de geldende normen (ETAG 001/Annex C, EOTA TR029, etc.). Met deze functie van PROFIS anker kunt u de minimale ankerplaatdikte berekenen middels de Eindige Elementen Methode (FEM) voor het gekozen anker om de spanning in de ankerplaat te minimaliseren, gebaseerd op een starre ankerplaat en lastverdeling. De toetsing of de ankerplaat star genoeg is wordt niet uitgevoerd door PROFIS anker. Aannames en resultaten moeten altijd worden gecontroleerd op juistheid.
- De overdracht van de belastingen in de ondergrond moet worden gecontroleerd volgens EOTA TR 029 paragraaf 7!
- De berekening is enkel geldig indien het boutgat in de ankerplaat niet groter is dan de waarde die is opgegeven in Tabel 4.1 van EOTA TR 029! Voor grotere boutgatdiameters zie Hoofdstuk 1.1 van EOTA TR029!
- De lijst van benodigheden is slechts ter informatie voor de gebruiker. In elk geval, dienen de gebruiksinstructies behorende bij het produkt opgevolgd te worden om een juiste installatie te bewerkstelligen.
- Boorgatreiniging moet volgens de gebruiksaanwijzingen worden uitgevoerd (2x blazen met olievrije perslucht (min. 6 bar), 2x borstelen, 2x blazen met olievrije perslucht (min. 6 bar)).
- Karakteristieke hechtspanningen zijn afhankelijk van korte en lange termijn temperaturen.
- Neem contact op met Hilti om leverbaarheid van HIT-V ankerstang te controleren.
- Er is geen randwapening vereist om splijten te voorkomen

**Verbinding is VEILIG!**



## 7 Plaatsingsgegevens

Ankerplaat, staal: -  
Staalprofiel: geen profiel  
Gatdiameter in ankerplaat:  $d_r = 14$  mm  
Ankerplaatdikte (invoer): 15 mm  
Aanbevolen ankerplaatdikte: niet berekend  
Boormethode: Hamergeboord  
Boorgatreiniging: Premium boorgatreiniging is vereist

Ankertype en -afmeting: HIT-HY 200-A + HIT-V (8.8) M12  
Aandraaimoment: 0,040 kNm  
Boorgatdiameter: 14 mm  
Boorgatdiepte in ondergrond: 200 mm  
Minimale dikte van de ondergrond: 230 mm

<sup>R</sup> - de gebruiker dient te zorgen voor een stijve grondplaat voor de ingevoerde dikte met gepaste oplossingen (verstevigers, ...)

### 7.1 Vereiste toebehoren

#### Boren

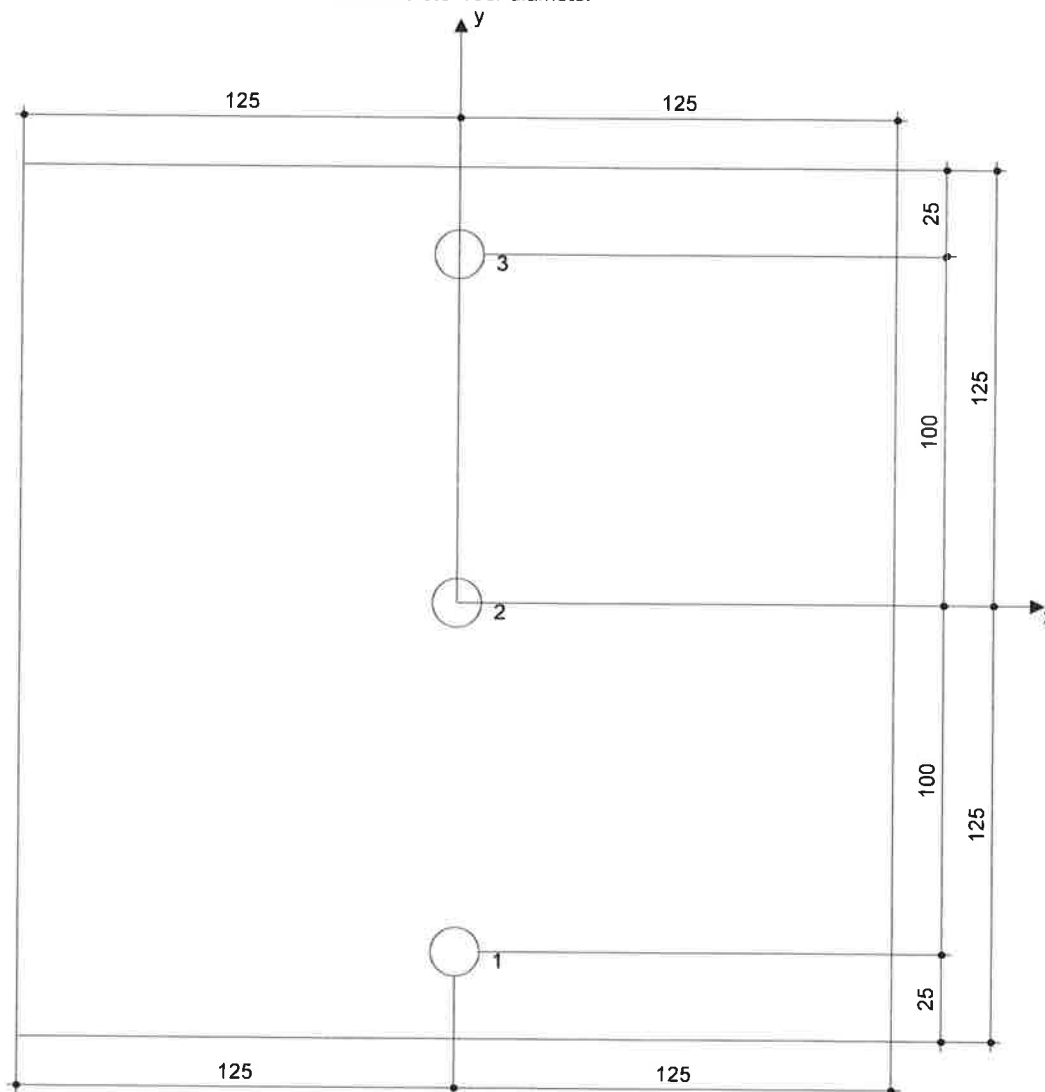
- Hamerboormachine
- Juiste boordiameter

#### Boorgatreiniging

- Perslucht met benodigde toebehoren om van onder in het gat te blazen.
- Juiste borstel voor diameter

#### Plaatsing

- Dispenser inclusief cassette en mixtuit
- Momentsleutel



#### Ankercoördinaten [mm]

| Anker | x | y    | C <sub>-x</sub> | C <sub>+x</sub> | C <sub>-y</sub> | C <sub>+y</sub> |
|-------|---|------|-----------------|-----------------|-----------------|-----------------|
| 1     | 0 | -100 | -               | -               | -               | -               |
| 2     | 0 | 0    | -               | -               | -               | -               |
| 3     | 0 | 100  | -               | -               | -               | -               |

www.hilti.nl

Firma:  
Constructeur:  
Adres:  
Tel. | Fax:  
E-mail:

Bladzijde: 6  
Project: 2017 047  
Sub-Project | Pos. Nr.: Balkonankers  
Datum: 12-12-2018

## 8 Opmerkingen

- Alle informatie en data die deel uitmaken van de Software hebben uitsluitend betrekking op het gebruik van Hilti producten en zijn gebaseerd op de principes, formules en beveiligingsregels zoals die van kracht zijn op technische richtlijnen die Hilti hanteert en de instructies voor gebruik, montage, assemblage enz. die strikt dienen te worden nageleefd door de gebruiker. Alle in die informatie genoemde cijfers zijn gemiddelden, wat wil zeggen dat op de specifieke toepassing toegesneden tests nodig kunnen zijn voordat een product van Hilti daadwerkelijk in gebruik wordt genomen. De uitkomsten van met behulp van de Software uitgevoerde berekeningen zijn in essentie niet los te zien van de door u als gebruiker ingevoerde gegevens. Eventuele fouten in die berekeningen zijn dan ook niet aan de Software toe te schrijven, maar, waar van toepassing, het gevolg van mogelijke onvolledigheid of irrelevantie van de door u ingevoerde gegevens. Daarnaast bent u ook als enige verantwoordelijk voor het laten controleren en bevestigen van zulke berekeningen en de uitkomsten daarvan door een terzake deskundige, met name waar het gaat om conformering aan geldende normen en voorschriften, voordat u deze toepast binnen uw organisatie. De Software is uitsluitend bedoeld als hulpmiddel bij de interpretatie van zulke normen en voorschriften, zonder dat garanties worden verleend ten aanzien van volledige correctheid en relevantie van de resultaten, noch ten aanzien van geschiktheid voor een specifieke toepassing.
- U bent persoonlijk verantwoordelijk voor binnen de grenzen van het redelijke te nemen stappen en maatregelen ter voorkoming van schade die het gevolg kan zijn van gebruik van de Software. Dat wil onder meer zeggen dat u zorg dient te dragen voor regelmatige backups van programmatuur en gegevens, en implementatie van updates op de Software die door Hilti ter beschikking worden gesteld. Als u ervoor kiest geen gebruik te maken van de AutoUpdate functie die in de Software beschikbaar is, dient u zeker te stellen dat u in alle gevallen met de actuele, op dat moment nieuwste versie van de Software werkt door middel van handmatige updates via de Hilti Website. Hilti is niet aansprakelijk voor schadelijke gevolgen, bijvoorbeeld in de vorm van gegevensverlies, gegevenscorruptie of schade aan programmatuur, van het op de genoemde punten in gebreke blijven door de gebruiker.

**ALGEMENE GEGEVENS**

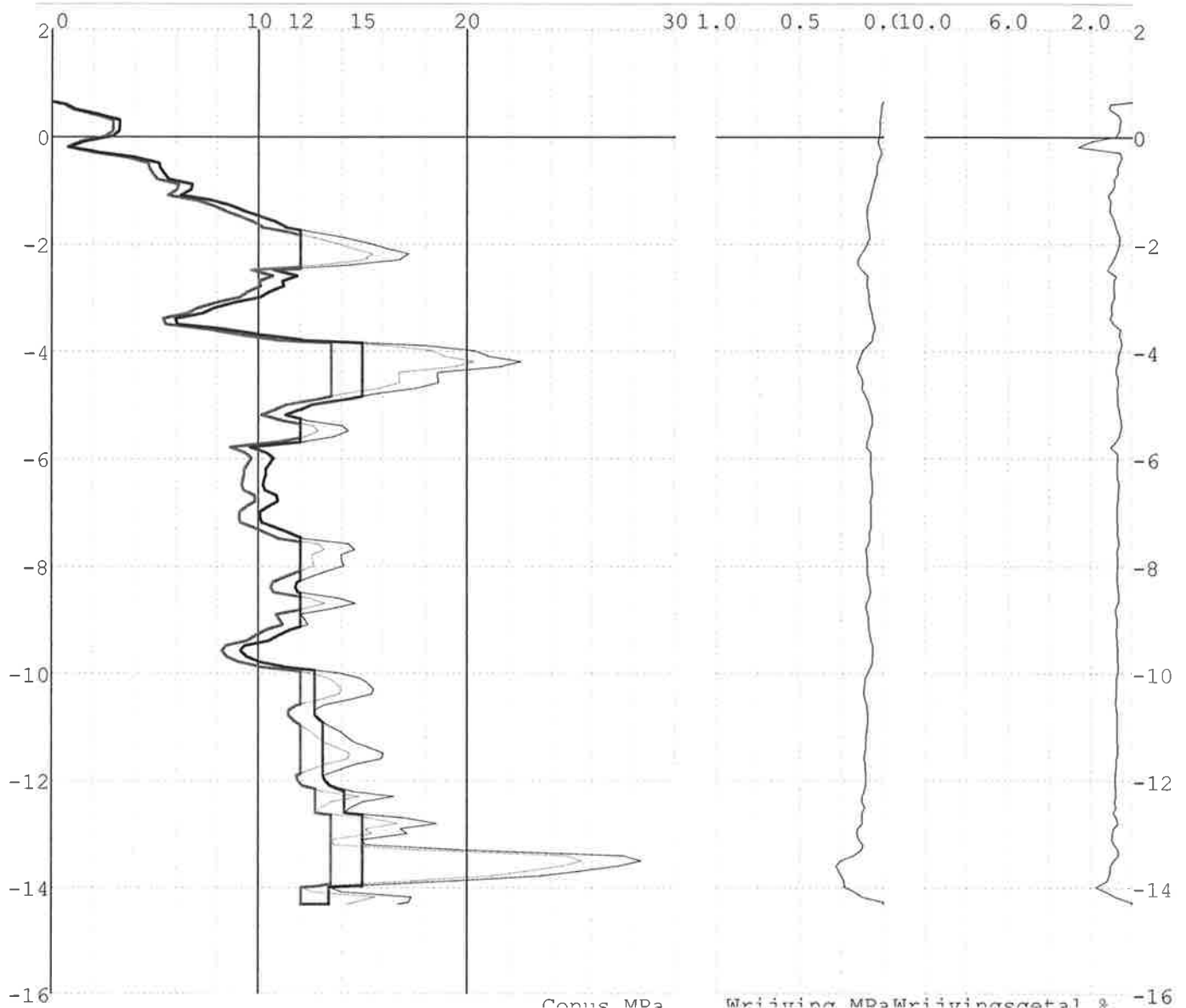
Project : 2017047 Priemkruid  
 Onderdeel : Palen  
 Datum : 28-06-2018  
 Bestand : G:\2017\2017-047 Breda, 7 woningen Priemkruid,  
 De Delta\17-047 Adviseurs en derden\17-047  
 Constructeur\17-047 Berekeningen\  
 2017047palen.pvw  
 Berekeningstype : Verticaal belaste paal  
 Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

**Toegepaste normen volgens Eurocode met Nederlandse NB**

|             |                    |            |         |
|-------------|--------------------|------------|---------|
| Geotechniek | EN 1997-1:2004     | AC:2009    |         |
|             | NEN-EN 1997-1:2005 | C1+A1:2013 | NB:2016 |
|             | NEN 9997-1:2016    | C2:2017    |         |

**SONDERINGSGEGEVENS ALGEMEEN: 1**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.  
 Hoogte maaiveld [m] : 0.66 Bodemprofiel: 1  
 Traject negatieve kleef : 0.66 tot 0.66 [m]  
 Traject positieve kleef : -0.50 tot -14.32 [m]

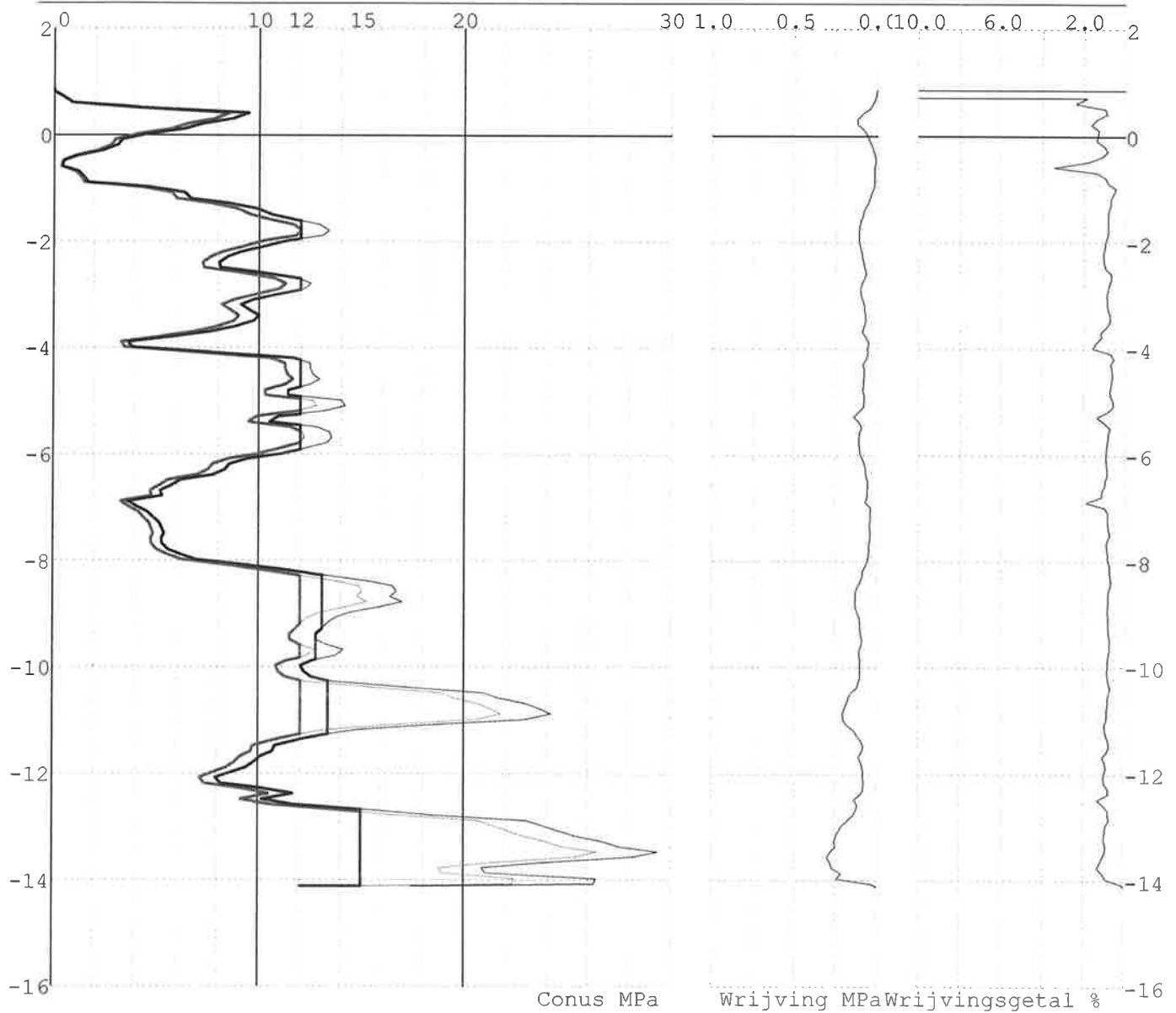
**SONDERINGSGEGEVENS GRAFIEK: 1**

Project : 2017047 Priemkruid  
Onderdeel : Palen

**SONDERINGSGEGEVENS ALGEMEEN: 2**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

Hoogte maaiveld [m] : 0.86 Bodemprofiel: 2  
Traject negatieve kleeft : 0.86 tot -1.00 [m]  
Traject positieve kleeft : -1.00 tot -14.12 [m]

**SONDERINGSGEGEVENS GRAFIEK: 2**

Na reductie en afsnuiten

rekengegevens

paal

VK29

Vk29

VK29gr

Vk29gr

R35

R35

R40

R40

R45

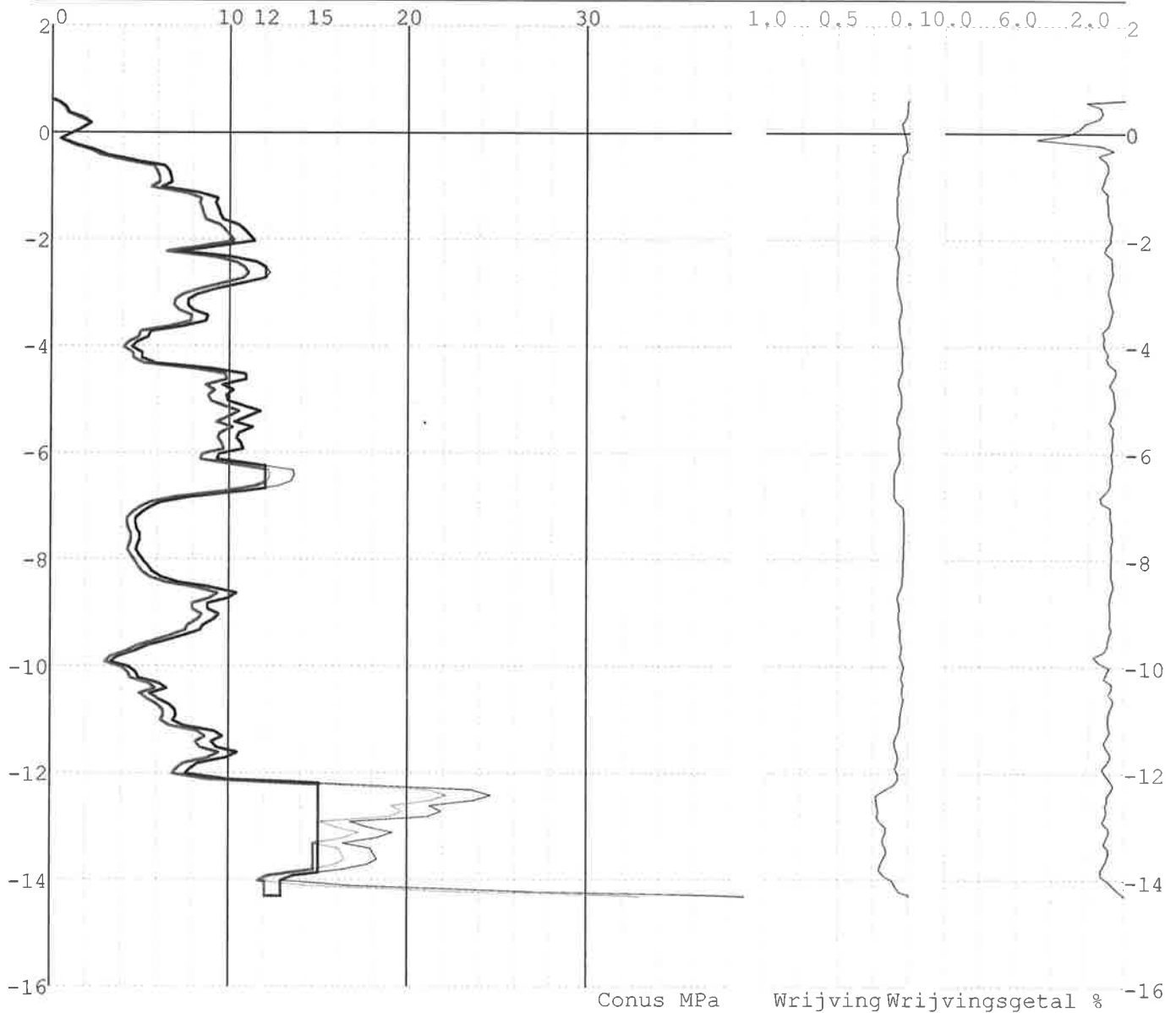
R45

Project : 2017047 Priemkruid  
Onderdeel : Palen

**SONDERINGSGEGEVENS ALGEMEEN: 3**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

Hoogte maaiveld [m] : 0.62 Bodemprofiel: 3  
Traject negatieve kleeft : 0.62 tot -0.50 [m]  
Traject positieve kleeft : -0.50 tot -14.31 [m]

**SONDERINGSGEGEVENS GRAFIEK: 3**

Na reductie en afsnuiten

rekengegevens

paal

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VK29

Vk29

VK29gr

Vk29gr

R35

R35

R40

R40

R45

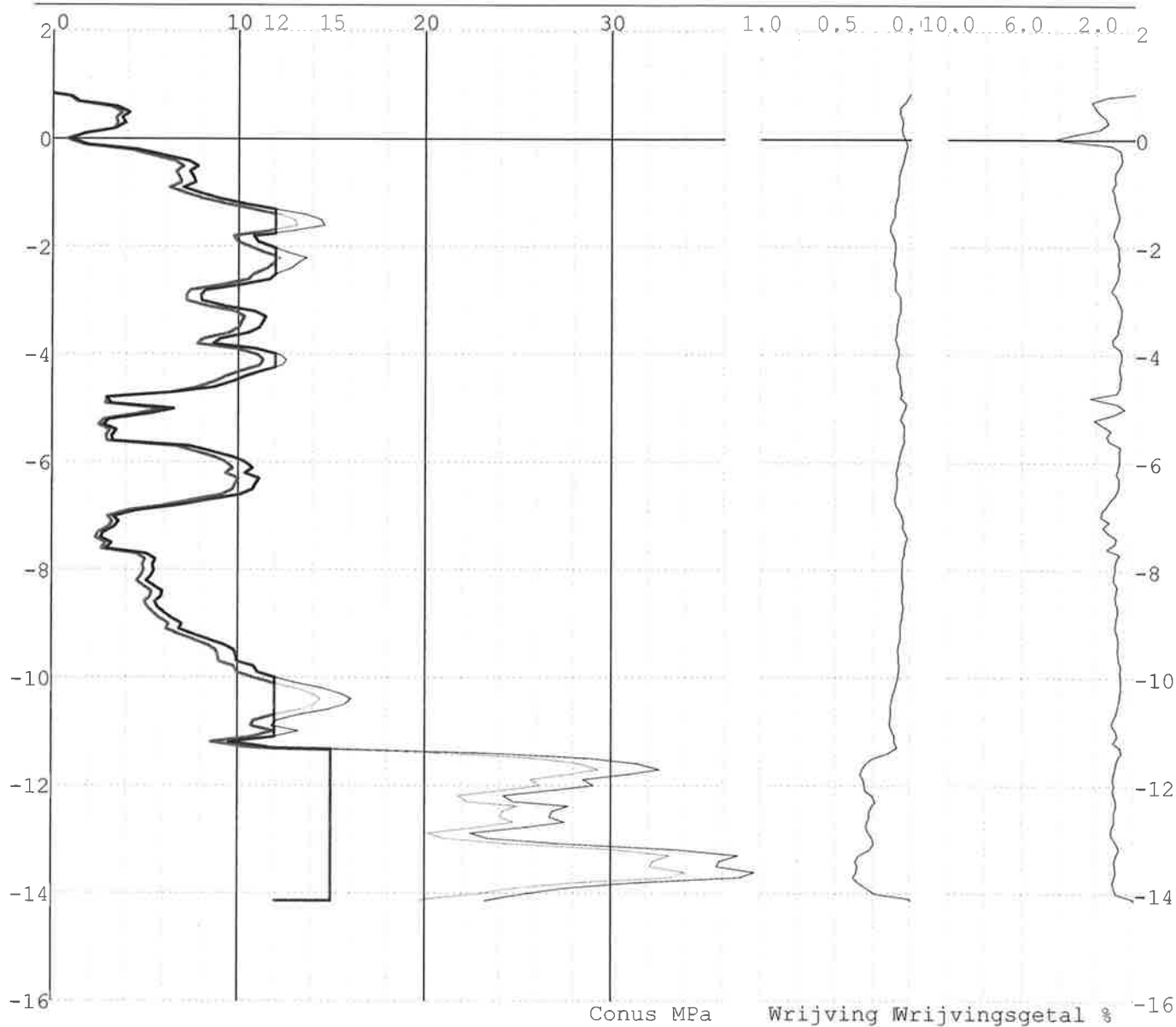
R45

Project : 2017047 Priemkruid  
Onderdeel : Palen

**SONDERINGSGEGEVENS ALGEMEEN: 4**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

Hoogte maaiveld [m] : 0.84 Bodemprofiel: 4  
Traject negatieve kleeft : 0.84 tot -0.50 [m]  
Traject positieve kleeft : -0.50 tot -14.14 [m]

**SONDERINGSGEGEVENS GRAFIEK: 4**

Na reductie en afsnuiten

rekengegevens

paal

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VK29

Vk29

VK29gr

Vk29gr

R35

R35

R40

R40

R45

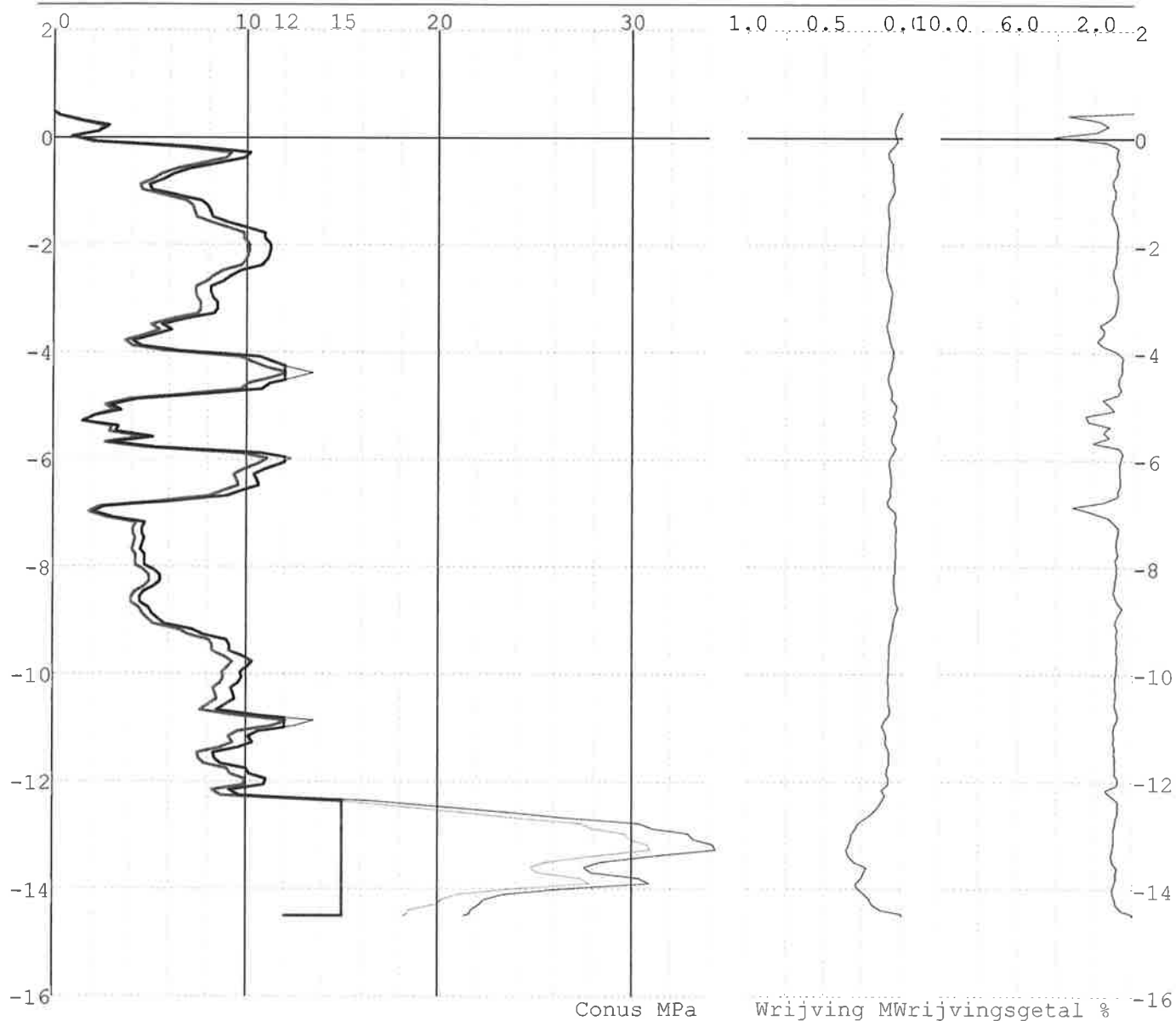
R45

Project : 2017047 Priemkruid  
Onderdeel : Palen

**SONDERINGSGEGEVENS ALGEMEEN: 5**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

Hoogte maaiveld [m] : 0.47 Bodemprofiel: 5  
Traject negatieve kleeft : 0.47 tot -0.50 [m]  
Traject positieve kleeft : -0.50 tot -14.50 [m]

**SONDERINGSGEGEVENS GRAFIEK: 5**

Na reductie en afsnuiten

rekengegevens

paal

VK29

Vk29

VK29gr

Vk29gr

R35

R35

R40

R40

R45

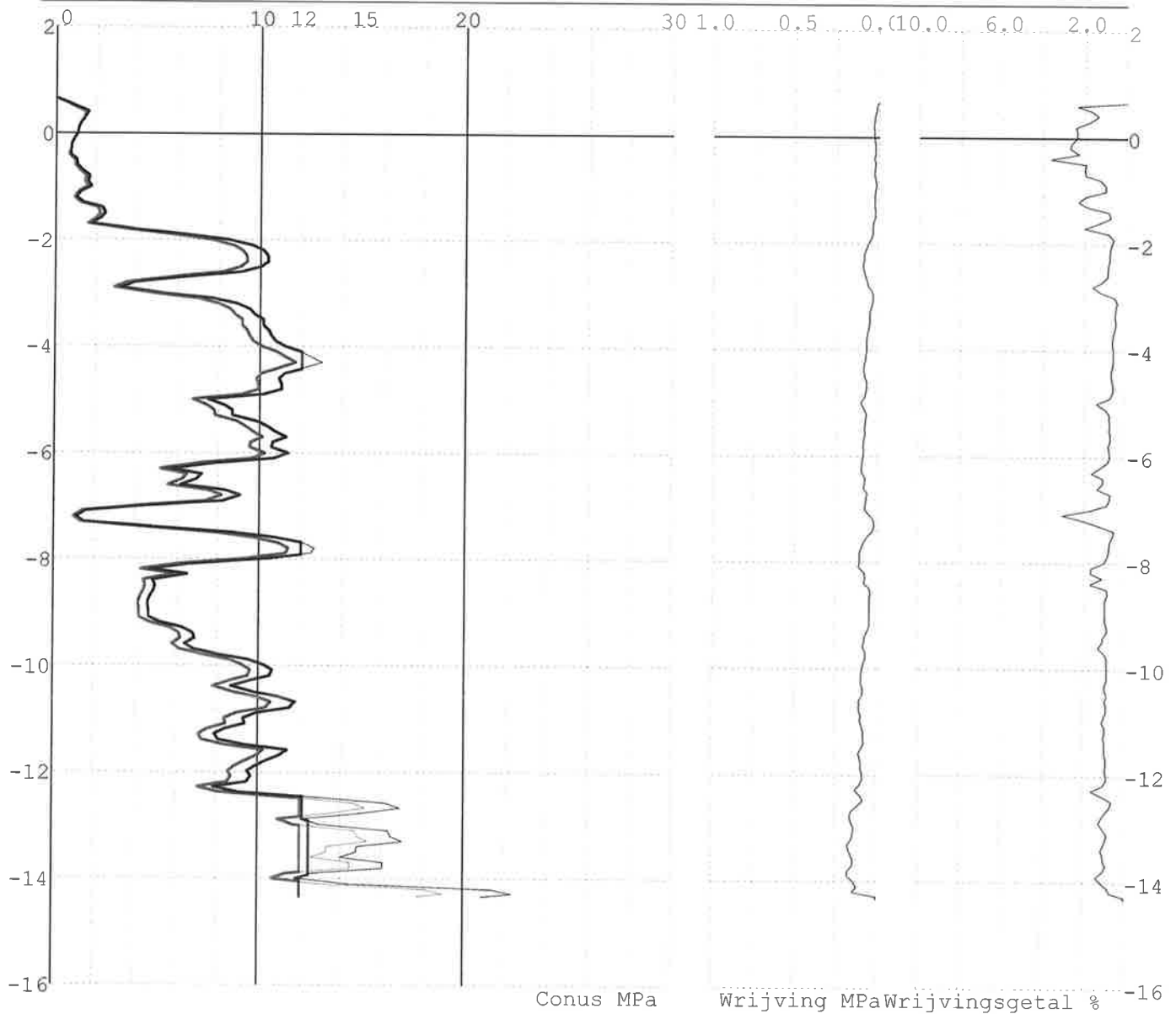
R45

Project : 2017047 Priemkruid  
Onderdeel : Palen

**SONDERINGSGEGEVENS ALGEMEEN: 6**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

Hoogte maaiveld [m] : 0.65 Bodemprofiel: 6  
Traject negatieve kleeft : 0.65 tot 0.65 [m]  
Traject positieve kleeft : -2.00 tot -14.33 [m]

**SONDERINGSGEGEVENS GRAFIEK: 6**

Na reductie en afsnuiten

rekengegevens

paal

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VK29

Vk29

VK29gr

Vk29gr

R35

R35

R40

R40

R45

R45



Project : 2017047 Priemkruid  
Onderdeel : Palen

**PAALGEGEVENS Vk29**

Type : Geheide paal (beton)  
Wijze van installeren : Heien  
Afmeting a [m] : 0.290  
Afmeting b [m] : 0.290  
Elasticiteitsmodulus [N/mm<sup>2</sup>] : 20000  
Factor  $\alpha_s$  (tabel 7.c EC 7.1) : 0.010 (zandlagen; voor kleilagen zie tabel 7.d)  
Factor  $\alpha_t$  (tabel 7.c EC 7.1) : 0.0070 (zandlagen; voor kleilagen zie tabel 7.d)  
Paalklassefactor  $\alpha_p$  : 0.70  
Paalvoetvormfactor  $\beta$  : 1.00  
Type lastzakingsdiagram : Grondverdringende paal  
Verm.factor \*  $\varphi'_{j;k}$  : 0.75

**PAALGEGEVENS Vk29gr**

Type : Geheide paal (beton)  
Wijze van installeren : Heien  
Afmeting a [m] : 0.290  
Afmeting b [m] : 0.290  
Elasticiteitsmodulus [N/mm<sup>2</sup>] : 20000  
Factor  $\alpha_s$  (tabel 7.c EC 7.1) : 0.010 (zandlagen; voor kleilagen zie tabel 7.d)  
Factor  $\alpha_t$  (tabel 7.c EC 7.1) : 0.0070 (zandlagen; voor kleilagen zie tabel 7.d)  
Paalklassefactor  $\alpha_p$  : 0.70  
Paalvoetvormfactor  $\beta$  : 1.00  
Type lastzakingsdiagram : Grondverdringende paal  
Verm.factor \*  $\varphi'_{j;k}$  : 0.75

**PAALGEGEVENS R35**

Type : Avegaarpaal  
Wijze van installeren : Schroeven  
Diameter [m] : 0.350  
Elasticiteitsmodulus [N/mm<sup>2</sup>] : 20000  
Factor  $\alpha_s$  (tabel 7.c EC 7.1) : 0.006 (zandlagen; voor kleilagen zie tabel 7.d)  
Factor  $\alpha_t$  (tabel 7.c EC 7.1) : 0.0045 (zandlagen; voor kleilagen zie tabel 7.d)  
Paalklassefactor  $\alpha_p$  : 0.56  
Paalvoetvormfactor  $\beta$  : 1.00  
Type lastzakingsdiagram : Avegaarpaal  
Verm.factor \*  $\varphi'_{j;k}$  : 1.00

**PAALGEGEVENS R40**

Type : Avegaarpaal  
Wijze van installeren : Schroeven  
Diameter [m] : 0.400  
Elasticiteitsmodulus [N/mm<sup>2</sup>] : 20000  
Factor  $\alpha_s$  (tabel 7.c EC 7.1) : 0.006 (zandlagen; voor kleilagen zie tabel 7.d)  
Factor  $\alpha_t$  (tabel 7.c EC 7.1) : 0.0045 (zandlagen; voor kleilagen zie tabel 7.d)  
Paalklassefactor  $\alpha_p$  : 0.56  
Paalvoetvormfactor  $\beta$  : 1.00  
Type lastzakingsdiagram : Avegaarpaal  
Verm.factor \*  $\varphi'_{j;k}$  : 1.00

Project : 2017047 Priemkruid  
Onderdeel : Palen

**PAALGEGEVENS R45**

Type : Avegaarpaal  
Wijze van installeren : Schroeven  
Diameter [m] : 0.450  
Elasticiteitsmodulus [N/mm<sup>2</sup>] : 20000  
Factor  $\alpha_s$  (tabel 7.c EC 7.1) : 0.006 (zandlagen; voor kleilagen zie tabel 7.d)  
Factor  $\alpha_t$  (tabel 7.c EC 7.1) : 0.0045 (zandlagen; voor kleilagen zie tabel 7.d)  
Paalklassefactor  $\alpha_p$  : 0.56  
Paalvoetvormfactor  $\beta$  : 1.00  
Type lastzakingsdiagram : Avegaarpaal  
Verm.factor \*  $\varphi'_{j;k}$  : 1.00

**REKENGEGEVENS VK29**

Berekening : Ontwerpend  
Rekenmethode : Drukpalen volgens NEN-EN 1997-1, art. 7.6.2  
Sondering(en) : 1, 2, 3, 4, 5, 6

Stijf bouwwerk : NEE  
Paalgroep : NEE  
Aantal sonderingen : 6  
Factor  $\xi_3$  (n=1) : 1.39  
Factor  $\xi_3$  (gem) : 1.27  
Factor  $\xi_4$  (min) : 1.01  
Weerstandsfactor  $\gamma_R$  : 1.20  
 $\gamma_{f,nk}$  : 1.4  
 $R_{s;cal;max;i}$  begrenzen op  $0.75 * R_{b;cal;max;i}$  : NEE  
UGT draagvermogen zonder negatieve kleeft : NEE

Paal : Vk29  
Niveau paalkop [m] : N.A.P. 0.70  
Bovenbel. [kN/m<sup>2</sup>] : 0.00

**PAALPUNTNIVEAUS VK29**

Alle niveaus/hoogtes/peilmaten zijn t.o.v. : N.A.P.

| Nr | Beginniveau [m] | Eindniveau [m] | Stapgrootte [m] |
|----|-----------------|----------------|-----------------|
| 1  | -2.50           | -5.00          | 0.25            |

**TUSSENRESULTATEN VK29 (n=1)****Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau [m] | Trj2 [m] | $q_{cI}$ [MPa] | $q_{cII}$ [MPa] | $q_{cIII}$ [MPa] | $q_{bmax}$ [MPa] | $q_{bmax;red}$ [MPa] | $q_{cza}$ [MPa] | $F_{nk;k}$ [kN] | $F_{c;tot1}$ [kN] | $F_{c;tot2}$ [kN] |
|------------|----------|----------------|-----------------|------------------|------------------|----------------------|-----------------|-----------------|-------------------|-------------------|
| -2.50      | -3.59    | 9.1            | 6.1             | 5.0              | 4.4              | 4.4                  | 8.8             | 0.0             | 0.0               | 0.0               |
| -2.75      | -3.59    | 8.4            | 6.1             | 5.5              | 4.5              | 4.5                  | 9.0             | 0.0             | 0.0               | 0.0               |
| -3.00      | -3.59    | 7.5            | 6.2             | 5.8              | 4.4              | 4.4                  | 9.0             | 0.0             | 0.0               | 0.0               |
| -3.25      | -3.49    | 6.5            | 6.0             | 5.9              | 4.3              | 4.3                  | 8.9             | 0.0             | 0.0               | 0.0               |
| -3.50      | -3.73    | 8.7            | 8.7             | 6.0              | 5.1              | 5.1                  | 8.7             | 0.0             | 0.0               | 0.0               |
| -3.75      | -5.06    | 17.7           | 12.1            | 6.3              | 7.4              | 7.4                  | 8.6             | 0.0             | 0.0               | 0.0               |
| -4.00      | -5.31    | 16.9           | 11.3            | 6.8              | 7.3              | 7.3                  | 8.9             | 0.0             | 0.0               | 0.0               |
| -4.25      | -5.56    | 15.4           | 11.8            | 7.3              | 7.3              | 7.3                  | 9.2             | 0.0             | 0.0               | 0.0               |
| -4.50      | -5.81    | 13.9           | 9.6             | 7.3              | 6.7              | 6.7                  | 9.5             | 0.0             | 0.0               | 0.0               |
| -4.75      | -6.06    | 12.5           | 9.7             | 7.6              | 6.6              | 6.6                  | 9.7             | 0.0             | 0.0               | 0.0               |
| -5.00      | -6.31    | 11.7           | 9.9             | 8.0              | 6.6              | 6.6                  | 9.9             | 0.0             | 0.0               | 0.0               |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 2)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>CI</sub><br>[MPa] | q <sub>CII</sub><br>[MPa] | q <sub>CIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c,tot1</sub><br>[kN] | F <sub>c,tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 9.9                      | 5.4                       | 3.5                        | 3.9                        | 3.9                            | 8.8                       | -8.4                      | -11.8                       | -8.4                        |
| -2.75         | -4.06       | 8.7                      | 3.7                       | 2.8                        | 3.1                        | 3.1                            | 8.9                       | -8.4                      | -11.8                       | -8.4                        |
| -3.00         | -4.09       | 7.9                      | 3.8                       | 3.1                        | 3.1                        | 3.1                            | 9.2                       | -8.4                      | -11.8                       | -8.4                        |
| -3.25         | -4.09       | 7.4                      | 3.9                       | 3.4                        | 3.2                        | 3.2                            | 9.1                       | -8.4                      | -11.8                       | -8.4                        |
| -3.50         | -4.09       | 6.4                      | 4.0                       | 3.6                        | 3.1                        | 3.1                            | 9.1                       | -8.4                      | -11.8                       | -8.4                        |
| -3.75         | -3.99       | 4.6                      | 3.7                       | 3.6                        | 2.7                        | 2.7                            | 8.9                       | -8.4                      | -11.8                       | -8.4                        |
| -4.00         | -4.23       | 8.6                      | 8.6                       | 3.6                        | 4.3                        | 4.3                            | 8.5                       | -8.4                      | -11.8                       | -8.4                        |
| -4.25         | -5.39       | 12.5                     | 10.5                      | 4.1                        | 5.5                        | 5.5                            | 8.5                       | -8.4                      | -11.8                       | -8.4                        |
| -4.50         | -5.39       | 12.5                     | 10.5                      | 4.8                        | 5.7                        | 5.7                            | 8.7                       | -8.4                      | -11.8                       | -8.4                        |
| -4.75         | -6.06       | 12.4                     | 9.9                       | 5.3                        | 5.8                        | 5.8                            | 8.9                       | -8.4                      | -11.8                       | -8.4                        |
| -5.00         | -6.31       | 11.8                     | 8.2                       | 5.3                        | 5.4                        | 5.4                            | 9.0                       | -8.4                      | -11.8                       | -8.4                        |

**Tussenresultaten punt en schacht (Sondering : 3)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>CI</sub><br>[MPa] | q <sub>CII</sub><br>[MPa] | q <sub>CIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c,tot1</sub><br>[kN] | F <sub>c,tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 8.9                      | 5.5                       | 4.5                        | 4.1                        | 4.1                            | 7.9                       | -3.5                      | -4.8                        | -3.5                        |
| -2.75         | -4.06       | 7.6                      | 4.5                       | 4.2                        | 3.6                        | 3.6                            | 8.2                       | -3.5                      | -4.8                        | -3.5                        |
| -3.00         | -4.31       | 6.6                      | 4.7                       | 4.5                        | 3.5                        | 3.5                            | 8.3                       | -3.5                      | -4.8                        | -3.5                        |
| -3.25         | -4.33       | 6.3                      | 4.7                       | 4.5                        | 3.5                        | 3.5                            | 8.2                       | -3.5                      | -4.8                        | -3.5                        |
| -3.50         | -4.33       | 5.8                      | 4.7                       | 4.5                        | 3.4                        | 3.4                            | 8.1                       | -3.5                      | -4.8                        | -3.5                        |
| -3.75         | -4.03       | 5.1                      | 4.5                       | 4.5                        | 3.3                        | 3.3                            | 8.0                       | -3.5                      | -4.8                        | -3.5                        |
| -4.00         | -4.23       | 4.9                      | 4.9                       | 4.5                        | 3.3                        | 3.3                            | 7.8                       | -3.5                      | -4.8                        | -3.5                        |
| -4.25         | -4.48       | 7.2                      | 7.2                       | 4.6                        | 4.1                        | 4.1                            | 7.6                       | -3.5                      | -4.8                        | -3.5                        |
| -4.50         | -5.03       | 10.2                     | 9.7                       | 4.8                        | 5.2                        | 5.2                            | 7.5                       | -3.5                      | -4.8                        | -3.5                        |
| -4.75         | -5.03       | 9.9                      | 9.8                       | 5.3                        | 5.3                        | 5.3                            | 7.6                       | -3.5                      | -4.8                        | -3.5                        |
| -5.00         | -6.13       | 10.6                     | 9.3                       | 5.8                        | 5.5                        | 5.5                            | 7.7                       | -3.5                      | -4.8                        | -3.5                        |

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>CI</sub><br>[MPa] | q <sub>CII</sub><br>[MPa] | q <sub>CIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c,tot1</sub><br>[kN] | F <sub>c,tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.11       | 9.5                      | 8.1                       | 6.8                        | 5.5                        | 5.5                            | 9.8                       | -4.8                      | -6.8                        | -4.8                        |
| -2.75         | -3.01       | 8.2                      | 8.0                       | 7.5                        | 5.5                        | 5.5                            | 9.8                       | -4.8                      | -6.8                        | -4.8                        |
| -3.00         | -3.81       | 10.2                     | 8.6                       | 7.8                        | 6.0                        | 6.0                            | 9.6                       | -4.8                      | -6.8                        | -4.8                        |
| -3.25         | -3.81       | 10.5                     | 8.7                       | 7.9                        | 6.1                        | 6.1                            | 9.5                       | -4.8                      | -6.8                        | -4.8                        |
| -3.50         | -4.81       | 10.0                     | 2.9                       | 2.9                        | 3.3                        | 3.3                            | 9.5                       | -4.8                      | -6.8                        | -4.8                        |
| -3.75         | -5.06       | 8.9                      | 3.2                       | 2.9                        | 3.1                        | 3.1                            | 9.5                       | -4.8                      | -6.8                        | -4.8                        |
| -4.00         | -5.31       | 7.7                      | 2.7                       | 2.7                        | 2.8                        | 2.8                            | 9.5                       | -4.8                      | -6.8                        | -4.8                        |
| -4.25         | -5.56       | 6.0                      | 2.8                       | 2.7                        | 2.5                        | 2.5                            | 9.6                       | -4.8                      | -6.8                        | -4.8                        |
| -4.50         | -5.61       | 4.8                      | 2.9                       | 2.7                        | 2.3                        | 2.3                            | 9.6                       | -4.8                      | -6.8                        | -4.8                        |
| -4.75         | -5.31       | 4.1                      | 2.7                       | 2.7                        | 2.2                        | 2.2                            | 9.5                       | -4.8                      | -6.8                        | -4.8                        |
| -5.00         | -5.61       | 3.8                      | 3.0                       | 2.7                        | 2.1                        | 2.1                            | 9.1                       | -4.8                      | -6.8                        | -4.8                        |

**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>CI</sub><br>[MPa] | q <sub>CII</sub><br>[MPa] | q <sub>CIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c,tot1</sub><br>[kN] | F <sub>c,tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 7.5                      | 4.1                       | 3.9                        | 3.4                        | 3.4                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -2.75         | -3.98       | 6.8                      | 4.2                       | 4.1                        | 3.4                        | 3.4                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -3.00         | -3.98       | 6.4                      | 4.2                       | 4.1                        | 3.3                        | 3.3                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -3.25         | -3.98       | 5.8                      | 4.3                       | 4.1                        | 3.2                        | 3.2                            | 7.7                       | -2.6                      | -3.6                        | -2.6                        |
| -3.50         | -3.88       | 5.1                      | 4.1                       | 4.1                        | 3.0                        | 3.0                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |
| -3.75         | -3.98       | 4.8                      | 4.7                       | 4.1                        | 3.1                        | 3.1                            | 7.4                       | -2.6                      | -3.6                        | -2.6                        |
| -4.00         | -5.31       | 8.1                      | 1.5                       | 1.5                        | 2.2                        | 2.2                            | 7.2                       | -2.6                      | -3.6                        | -2.6                        |
| -4.25         | -5.56       | 6.7                      | 1.8                       | 1.5                        | 2.0                        | 2.0                            | 7.4                       | -2.6                      | -3.6                        | -2.6                        |
| -4.50         | -5.78       | 5.1                      | 2.1                       | 1.5                        | 1.8                        | 1.8                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |

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**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -4.75         | -5.28       | 3.8                      | 1.5                       | 1.5                        | 1.4                        | 1.4                            | 7.7                       | -2.6                      | -3.6                        | -2.6                        |
| -5.00         | -5.28       | 2.6                      | 1.5                       | 1.5                        | 1.2                        | 1.2                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |

**Tussenresultaten punt en schacht (Sondering : 6)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.00       | 6.0                      | 3.4                       | 1.7                        | 2.2                        | 2.2                            | 9.0                       | 0.0                       | 0.0                         | 0.0                         |
| -2.75         | -2.98       | 3.9                      | 3.5                       | 1.9                        | 2.0                        | 2.0                            | 8.4                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.23       | 7.6                      | 7.6                       | 2.2                        | 3.4                        | 3.4                            | 7.2                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.48       | 9.6                      | 9.6                       | 2.9                        | 4.4                        | 4.4                            | 7.1                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -3.73       | 10.2                     | 10.2                      | 3.7                        | 4.9                        | 4.9                            | 7.4                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.00       | 11.2                     | 7.5                       | 4.0                        | 4.7                        | 4.7                            | 7.6                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.31       | 10.6                     | 7.7                       | 4.6                        | 4.8                        | 4.8                            | 7.9                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.50       | 10.2                     | 8.0                       | 5.2                        | 5.0                        | 5.0                            | 8.2                       | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -5.40       | 9.6                      | 8.0                       | 5.6                        | 5.1                        | 5.1                            | 8.5                       | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -5.30       | 9.1                      | 7.9                       | 6.1                        | 5.1                        | 5.1                            | 8.6                       | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.30       | 9.6                      | 5.7                       | 5.2                        | 4.5                        | 4.5                            | 8.7                       | 0.0                       | 0.0                         | 0.0                         |

**REKENGEDEGENS VK29gr**

Berekening : Ontwerpend  
Rekenmethode : Drukpalen volgens NEN-EN 1997-1, art. 7.6.2  
Sondering(en) : 1, 2, 3, 4, 5, 6

Stijf bouwwerk : NEE  
Paalgroep : JA  
Aantal sonderingen : 6  
Factor  $\xi_3$  (n=1) : 1.39  
Factor  $\xi_3$  (gem) : 1.27  
Factor  $\xi_4$  (min) : 1.01  
Weerstandsfactor  $\gamma_R$  : 1.20  
 $\gamma_{f,nk}$  : 1.4  
R<sub>s;cal;max;i</sub> begrenzen op 0.75 \* R<sub>b;cal;max;i</sub> : NEE  
UGT draagvermogen zonder negatieve kleef : NEE

Paal : Vk29gr  
Niveau paalkop [m] : N.A.P. 0.70  
Opp. paalgebied [m<sup>2</sup>] : 5.00 Bovenbel. [kN/m<sup>2</sup>] : 0.00

**PAALPUNTNIVEAUS VK29gr**

Alle niveaus/hoogtes/peilmaten zijn t.o.v. : N.A.P.

| Nr | Beginniveau<br>[m] | Eindniveau<br>[m] | Stapgrootte<br>[m] |
|----|--------------------|-------------------|--------------------|
| 1  | -2.50              | -5.00             | 0.25               |

**TUSSENRESULTATEN VK29gr (n=1)****Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.59       | 9.1                      | 6.1                       | 5.0                        | 4.4                        | 4.4                            | 8.8                       | 0.0                       | 0.0                         | 0.0                         |
| -2.75         | -3.59       | 8.4                      | 6.1                       | 5.5                        | 4.5                        | 4.5                            | 9.0                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.59       | 7.5                      | 6.2                       | 5.8                        | 4.4                        | 4.4                            | 9.0                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.49       | 6.5                      | 6.0                       | 5.9                        | 4.3                        | 4.3                            | 8.9                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -3.73       | 8.7                      | 8.7                       | 6.0                        | 5.1                        | 5.1                            | 8.7                       | 0.0                       | 0.0                         | 0.0                         |

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Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -3.75         | -5.06       | 17.7                     | 12.1                      | 6.3                        | 7.4                        | 7.4                            | 8.6                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.31       | 16.9                     | 11.3                      | 6.8                        | 7.3                        | 7.3                            | 8.9                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.56       | 15.4                     | 11.8                      | 7.3                        | 7.3                        | 7.3                            | 9.2                       | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -5.81       | 13.9                     | 9.6                       | 7.3                        | 6.7                        | 6.7                            | 9.5                       | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -6.06       | 12.5                     | 9.7                       | 7.6                        | 6.6                        | 6.6                            | 9.7                       | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.31       | 11.7                     | 9.9                       | 8.0                        | 6.6                        | 6.6                            | 9.9                       | 0.0                       | 0.0                         | 0.0                         |

**Tussenresultaten punt en schacht (Sondering : 2)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 9.9                      | 5.4                       | 3.5                        | 3.9                        | 3.9                            | 8.8                       | -7.2                      | -10.1                       | -7.2                        |
| -2.75         | -4.06       | 8.7                      | 3.7                       | 2.8                        | 3.1                        | 3.1                            | 8.9                       | -7.2                      | -10.1                       | -7.2                        |
| -3.00         | -4.09       | 7.9                      | 3.8                       | 3.1                        | 3.1                        | 3.1                            | 9.2                       | -7.2                      | -10.1                       | -7.2                        |
| -3.25         | -4.09       | 7.4                      | 3.9                       | 3.4                        | 3.2                        | 3.2                            | 9.1                       | -7.2                      | -10.1                       | -7.2                        |
| -3.50         | -4.09       | 6.4                      | 4.0                       | 3.6                        | 3.1                        | 3.1                            | 9.1                       | -7.2                      | -10.1                       | -7.2                        |
| -3.75         | -3.99       | 4.6                      | 3.7                       | 3.6                        | 2.7                        | 2.7                            | 8.9                       | -7.2                      | -10.1                       | -7.2                        |
| -4.00         | -4.23       | 8.6                      | 8.6                       | 3.6                        | 4.3                        | 4.3                            | 8.5                       | -7.2                      | -10.1                       | -7.2                        |
| -4.25         | -5.39       | 12.5                     | 10.5                      | 4.1                        | 5.5                        | 5.5                            | 8.5                       | -7.2                      | -10.1                       | -7.2                        |
| -4.50         | -5.39       | 12.5                     | 10.5                      | 4.8                        | 5.7                        | 5.7                            | 8.7                       | -7.2                      | -10.1                       | -7.2                        |
| -4.75         | -6.06       | 12.4                     | 9.9                       | 5.3                        | 5.8                        | 5.8                            | 8.9                       | -7.2                      | -10.1                       | -7.2                        |
| -5.00         | -6.31       | 11.8                     | 8.2                       | 5.3                        | 5.4                        | 5.4                            | 9.0                       | -7.2                      | -10.1                       | -7.2                        |

**Tussenresultaten punt en schacht (Sondering : 3)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 8.9                      | 5.5                       | 4.5                        | 4.1                        | 4.1                            | 7.9                       | -3.4                      | -4.7                        | -3.4                        |
| -2.75         | -4.06       | 7.6                      | 4.5                       | 4.2                        | 3.6                        | 3.6                            | 8.2                       | -3.4                      | -4.7                        | -3.4                        |
| -3.00         | -4.31       | 6.6                      | 4.7                       | 4.5                        | 3.5                        | 3.5                            | 8.3                       | -3.4                      | -4.7                        | -3.4                        |
| -3.25         | -4.33       | 6.3                      | 4.7                       | 4.5                        | 3.5                        | 3.5                            | 8.2                       | -3.4                      | -4.7                        | -3.4                        |
| -3.50         | -4.33       | 5.8                      | 4.7                       | 4.5                        | 3.4                        | 3.4                            | 8.1                       | -3.4                      | -4.7                        | -3.4                        |
| -3.75         | -4.03       | 5.1                      | 4.5                       | 4.5                        | 3.3                        | 3.3                            | 8.0                       | -3.4                      | -4.7                        | -3.4                        |
| -4.00         | -4.23       | 4.9                      | 4.9                       | 4.5                        | 3.3                        | 3.3                            | 7.8                       | -3.4                      | -4.7                        | -3.4                        |
| -4.25         | -4.48       | 7.2                      | 7.2                       | 4.6                        | 4.1                        | 4.1                            | 7.6                       | -3.4                      | -4.7                        | -3.4                        |
| -4.50         | -5.03       | 10.2                     | 9.7                       | 4.8                        | 5.2                        | 5.2                            | 7.5                       | -3.4                      | -4.7                        | -3.4                        |
| -4.75         | -5.03       | 9.9                      | 9.8                       | 5.3                        | 5.3                        | 5.3                            | 7.6                       | -3.4                      | -4.7                        | -3.4                        |
| -5.00         | -6.13       | 10.6                     | 9.3                       | 5.8                        | 5.5                        | 5.5                            | 7.7                       | -3.4                      | -4.7                        | -3.4                        |

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.11       | 9.5                      | 8.1                       | 6.8                        | 5.5                        | 5.5                            | 9.8                       | -3.8                      | -5.4                        | -3.8                        |
| -2.75         | -3.01       | 8.2                      | 8.0                       | 7.5                        | 5.5                        | 5.5                            | 9.8                       | -3.8                      | -5.4                        | -3.8                        |
| -3.00         | -3.81       | 10.2                     | 8.6                       | 7.8                        | 6.0                        | 6.0                            | 9.6                       | -3.8                      | -5.4                        | -3.8                        |
| -3.25         | -3.81       | 10.5                     | 8.7                       | 7.9                        | 6.1                        | 6.1                            | 9.5                       | -3.8                      | -5.4                        | -3.8                        |
| -3.50         | -4.81       | 10.0                     | 2.9                       | 2.9                        | 3.3                        | 3.3                            | 9.5                       | -3.8                      | -5.4                        | -3.8                        |
| -3.75         | -5.06       | 8.9                      | 3.2                       | 2.9                        | 3.1                        | 3.1                            | 9.5                       | -3.8                      | -5.4                        | -3.8                        |
| -4.00         | -5.31       | 7.7                      | 2.7                       | 2.7                        | 2.8                        | 2.8                            | 9.5                       | -3.8                      | -5.4                        | -3.8                        |
| -4.25         | -5.56       | 6.0                      | 2.8                       | 2.7                        | 2.5                        | 2.5                            | 9.6                       | -3.8                      | -5.4                        | -3.8                        |
| -4.50         | -5.61       | 4.8                      | 2.9                       | 2.7                        | 2.3                        | 2.3                            | 9.6                       | -3.8                      | -5.4                        | -3.8                        |
| -4.75         | -5.31       | 4.1                      | 2.7                       | 2.7                        | 2.2                        | 2.2                            | 9.5                       | -3.8                      | -5.4                        | -3.8                        |
| -5.00         | -5.61       | 3.8                      | 3.0                       | 2.7                        | 2.1                        | 2.1                            | 9.1                       | -3.8                      | -5.4                        | -3.8                        |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.81       | 7.5                      | 4.1                       | 3.9                        | 3.4                        | 3.4                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -2.75         | -3.98       | 6.8                      | 4.2                       | 4.1                        | 3.4                        | 3.4                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -3.00         | -3.98       | 6.4                      | 4.2                       | 4.1                        | 3.3                        | 3.3                            | 7.8                       | -2.6                      | -3.6                        | -2.6                        |
| -3.25         | -3.98       | 5.8                      | 4.3                       | 4.1                        | 3.2                        | 3.2                            | 7.7                       | -2.6                      | -3.6                        | -2.6                        |
| -3.50         | -3.88       | 5.1                      | 4.1                       | 4.1                        | 3.0                        | 3.0                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |
| -3.75         | -3.98       | 4.8                      | 4.7                       | 4.1                        | 3.1                        | 3.1                            | 7.4                       | -2.6                      | -3.6                        | -2.6                        |
| -4.00         | -5.31       | 8.1                      | 1.5                       | 1.5                        | 2.2                        | 2.2                            | 7.2                       | -2.6                      | -3.6                        | -2.6                        |
| -4.25         | -5.56       | 6.7                      | 1.8                       | 1.5                        | 2.0                        | 2.0                            | 7.4                       | -2.6                      | -3.6                        | -2.6                        |
| -4.50         | -5.78       | 5.1                      | 2.1                       | 1.5                        | 1.8                        | 1.8                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |
| -4.75         | -5.28       | 3.8                      | 1.5                       | 1.5                        | 1.4                        | 1.4                            | 7.7                       | -2.6                      | -3.6                        | -2.6                        |
| -5.00         | -5.28       | 2.6                      | 1.5                       | 1.5                        | 1.2                        | 1.2                            | 7.6                       | -2.6                      | -3.6                        | -2.6                        |

**Tussenresultaten punt en schacht (Sondering : 6)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.00       | 6.0                      | 3.4                       | 1.7                        | 2.2                        | 2.2                            | 9.0                       | 0.0                       | 0.0                         | 0.0                         |
| -2.75         | -2.98       | 3.9                      | 3.5                       | 1.9                        | 2.0                        | 2.0                            | 8.4                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.23       | 7.6                      | 7.6                       | 2.2                        | 3.4                        | 3.4                            | 7.2                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.48       | 9.6                      | 9.6                       | 2.9                        | 4.4                        | 4.4                            | 7.1                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -3.73       | 10.2                     | 10.2                      | 3.7                        | 4.9                        | 4.9                            | 7.4                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.00       | 11.2                     | 7.5                       | 4.0                        | 4.7                        | 4.7                            | 7.6                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.31       | 10.6                     | 7.7                       | 4.6                        | 4.8                        | 4.8                            | 7.9                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.50       | 10.2                     | 8.0                       | 5.2                        | 5.0                        | 5.0                            | 8.2                       | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -5.40       | 9.6                      | 8.0                       | 5.6                        | 5.1                        | 5.1                            | 8.5                       | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -5.30       | 9.1                      | 7.9                       | 6.1                        | 5.1                        | 5.1                            | 8.6                       | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.30       | 9.6                      | 5.7                       | 5.2                        | 4.5                        | 4.5                            | 8.7                       | 0.0                       | 0.0                         | 0.0                         |

**REKENGEGEVENS R35**

Berekening : Ontwerpend  
Rekenmethode : Drukpalen volgens NEN-EN 1997-1, art. 7.6.2  
Sondering(en) : 1, 2, 3, 4, 5, 6

Stijf bouwwerk : NEE  
Paalgroep : NEE  
Aantal sonderingen : 6  
Factor  $\xi_3$  (n=1) : 1.39  
Factor  $\xi_3$  (gem) : 1.27  
Factor  $\xi_4$  (min) : 1.01  
Weerstandsfactor  $\gamma_R$  : 1.20  
 $\gamma_{f,nk}$  : 1.4  
 $R_{s;cal;max;i}$  begrenzen op  $0.75 * R_{p;cal;max;i}$  : NEE  
UGT draagvermogen zonder negatieve kleef : NEE

Paal : R35  
Niveau paalkop [m] : N.A.P. 0.70  
Bovenbel. [kN/m<sup>2</sup>] : 0.00

**PAALPUNTNIVEAUS R35**

Alle niveaus/hoogtes/peilmaten zijn t.o.v. : N.A.P.

| Nr | Beginniveau<br>[m] | Eindniveau<br>[m] | Stapgrootte<br>[m] |
|----|--------------------|-------------------|--------------------|
| 1  | -2.50              | -5.00             | 0.25               |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**TUSSENRESULTATEN R35 (n=1)****Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.59       | 9.1                      | 6.1                       | 1.8                        | 2.6                        | 2.6                            | 9.4                       | 0.0                       | 0.0                         | 0.0                         |
| -2.75         | -3.59       | 8.4                      | 6.1                       | 1.9                        | 2.6                        | 2.6                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.59       | 7.5                      | 6.2                       | 2.0                        | 2.5                        | 2.5                            | 9.7                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.49       | 6.5                      | 6.0                       | 2.0                        | 2.3                        | 2.3                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -3.74       | 8.8                      | 8.8                       | 2.0                        | 3.0                        | 3.0                            | 9.3                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.15       | 17.4                     | 11.6                      | 2.0                        | 4.6                        | 4.6                            | 9.3                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.40       | 16.7                     | 11.5                      | 2.0                        | 4.5                        | 4.5                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.65       | 15.3                     | 11.7                      | 2.0                        | 4.3                        | 4.3                            | 10.0                      | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -5.90       | 13.7                     | 9.6                       | 2.0                        | 3.8                        | 3.8                            | 10.3                      | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -6.15       | 12.4                     | 9.8                       | 2.0                        | 3.7                        | 3.7                            | 10.6                      | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.40       | 11.6                     | 9.9                       | 2.0                        | 3.6                        | 3.6                            | 10.8                      | 0.0                       | 0.0                         | 0.0                         |

**Tussenresultaten punt en schacht (Sondering : 2)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.90       | 9.5                      | 3.6                       | 1.4                        | 2.2                        | 2.2                            | 9.6                       | -11.1                     | -15.5                       | -11.1                       |
| -2.75         | -4.09       | 8.7                      | 3.8                       | 1.5                        | 2.2                        | 2.2                            | 9.7                       | -11.1                     | -15.5                       | -11.1                       |
| -3.00         | -4.09       | 7.9                      | 3.8                       | 1.7                        | 2.1                        | 2.1                            | 10.0                      | -11.1                     | -15.5                       | -11.1                       |
| -3.25         | -4.09       | 7.4                      | 3.9                       | 1.8                        | 2.1                        | 2.1                            | 10.0                      | -11.1                     | -15.5                       | -11.1                       |
| -3.50         | -4.09       | 6.4                      | 4.0                       | 2.0                        | 2.0                        | 2.0                            | 9.9                       | -11.1                     | -15.5                       | -11.1                       |
| -3.75         | -3.99       | 4.6                      | 3.7                       | 2.0                        | 1.7                        | 1.7                            | 9.8                       | -11.1                     | -15.5                       | -11.1                       |
| -4.00         | -4.24       | 8.8                      | 8.8                       | 2.0                        | 3.0                        | 3.0                            | 9.3                       | -11.1                     | -15.5                       | -11.1                       |
| -4.25         | -5.39       | 12.5                     | 10.5                      | 2.0                        | 3.8                        | 3.8                            | 9.3                       | -11.1                     | -15.5                       | -11.1                       |
| -4.50         | -5.39       | 12.5                     | 10.5                      | 2.0                        | 3.8                        | 3.8                            | 9.5                       | -11.1                     | -15.5                       | -11.1                       |
| -4.75         | -6.15       | 12.2                     | 8.9                       | 2.0                        | 3.5                        | 3.5                            | 9.7                       | -11.1                     | -15.5                       | -11.1                       |
| -5.00         | -6.40       | 11.6                     | 7.6                       | 2.0                        | 3.2                        | 3.2                            | 9.8                       | -11.1                     | -15.5                       | -11.1                       |

**Tussenresultaten punt en schacht (Sondering : 3)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.90       | 8.7                      | 5.0                       | 1.7                        | 2.4                        | 2.4                            | 8.8                       | -4.2                      | -5.9                        | -4.2                        |
| -2.75         | -4.15       | 7.4                      | 4.6                       | 1.9                        | 2.2                        | 2.2                            | 9.1                       | -4.2                      | -5.9                        | -4.2                        |
| -3.00         | -4.33       | 6.6                      | 4.7                       | 2.0                        | 2.1                        | 2.1                            | 9.2                       | -4.2                      | -5.9                        | -4.2                        |
| -3.25         | -4.33       | 6.3                      | 4.7                       | 2.0                        | 2.1                        | 2.1                            | 9.1                       | -4.2                      | -5.9                        | -4.2                        |
| -3.50         | -4.33       | 5.8                      | 4.7                       | 2.0                        | 2.0                        | 2.0                            | 9.0                       | -4.2                      | -5.9                        | -4.2                        |
| -3.75         | -4.03       | 5.1                      | 4.5                       | 2.0                        | 1.9                        | 1.9                            | 8.9                       | -4.2                      | -5.9                        | -4.2                        |
| -4.00         | -4.24       | 4.9                      | 4.9                       | 2.0                        | 1.9                        | 1.9                            | 8.6                       | -4.2                      | -5.9                        | -4.2                        |
| -4.25         | -4.49       | 7.4                      | 7.4                       | 2.0                        | 2.6                        | 2.6                            | 8.4                       | -4.2                      | -5.9                        | -4.2                        |
| -4.50         | -5.03       | 10.2                     | 9.7                       | 2.0                        | 3.4                        | 3.4                            | 8.3                       | -4.2                      | -5.9                        | -4.2                        |
| -4.75         | -5.03       | 9.9                      | 9.8                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -4.2                      | -5.9                        | -4.2                        |
| -5.00         | -6.13       | 10.6                     | 9.3                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -4.2                      | -5.9                        | -4.2                        |

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.50         | -3.11       | 9.5                      | 8.1                       | 1.9                        | 3.0                        | 3.0                            | 10.4                      | -6.2                      | -8.7                        | -6.2                        |
| -2.75         | -3.01       | 8.2                      | 8.0                       | 2.0                        | 2.8                        | 2.8                            | 10.5                      | -6.2                      | -8.7                        | -6.2                        |
| -3.00         | -3.81       | 10.2                     | 8.6                       | 2.0                        | 3.2                        | 3.2                            | 10.3                      | -6.2                      | -8.7                        | -6.2                        |
| -3.25         | -4.65       | 10.7                     | 7.8                       | 2.0                        | 3.2                        | 3.2                            | 10.2                      | -6.2                      | -8.7                        | -6.2                        |
| -3.50         | -4.90       | 9.5                      | 2.9                       | 2.0                        | 2.3                        | 2.3                            | 10.3                      | -6.2                      | -8.7                        | -6.2                        |
| -3.75         | -5.15       | 8.7                      | 3.1                       | 2.0                        | 2.2                        | 2.2                            | 10.3                      | -6.2                      | -8.7                        | -6.2                        |
| -4.00         | -5.40       | 7.4                      | 2.8                       | 2.0                        | 2.0                        | 2.0                            | 10.3                      | -6.2                      | -8.7                        | -6.2                        |
| -4.25         | -5.65       | 5.8                      | 2.9                       | 2.0                        | 1.8                        | 1.8                            | 10.4                      | -6.2                      | -8.7                        | -6.2                        |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | $q_{cI}$<br>[MPa] | $q_{cII}$<br>[MPa] | $q_{cIII}$<br>[MPa] | $q_{bmax}$<br>[MPa] | $q_{bmax;red}$<br>[MPa] | $q_{cza}$<br>[MPa] | $F_{nk;k}$<br>[kN] | $F_{c;tot1}$<br>[kN] | $F_{c;tot2}$<br>[kN] |
|---------------|-------------|-------------------|--------------------|---------------------|---------------------|-------------------------|--------------------|--------------------|----------------------|----------------------|
| -4.50         | -5.61       | 4.8               | 2.9                | 2.0                 | 1.6                 | 1.6                     | 10.4               | -6.2               | -8.7                 | -6.2                 |
| -4.75         | -5.31       | 4.1               | 2.7                | 2.0                 | 1.5                 | 1.5                     | 10.3               | -6.2               | -8.7                 | -6.2                 |
| -5.00         | -5.61       | 3.8               | 3.0                | 2.0                 | 1.5                 | 1.5                     | 9.9                | -6.2               | -8.7                 | -6.2                 |

**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | $q_{cI}$<br>[MPa] | $q_{cII}$<br>[MPa] | $q_{cIII}$<br>[MPa] | $q_{bmax}$<br>[MPa] | $q_{bmax;red}$<br>[MPa] | $q_{cza}$<br>[MPa] | $F_{nk;k}$<br>[kN] | $F_{c;tot1}$<br>[kN] | $F_{c;tot2}$<br>[kN] |
|---------------|-------------|-------------------|--------------------|---------------------|---------------------|-------------------------|--------------------|--------------------|----------------------|----------------------|
| -2.50         | -3.90       | 7.3               | 4.1                | 1.9                 | 2.1                 | 2.1                     | 8.6                | -3.3               | -4.6                 | -3.3                 |
| -2.75         | -3.98       | 6.8               | 4.2                | 2.0                 | 2.1                 | 2.1                     | 8.7                | -3.3               | -4.6                 | -3.3                 |
| -3.00         | -3.98       | 6.4               | 4.2                | 2.0                 | 2.1                 | 2.1                     | 8.6                | -3.3               | -4.6                 | -3.3                 |
| -3.25         | -3.98       | 5.8               | 4.3                | 2.0                 | 2.0                 | 2.0                     | 8.6                | -3.3               | -4.6                 | -3.3                 |
| -3.50         | -3.88       | 5.1               | 4.1                | 2.0                 | 1.9                 | 1.9                     | 8.5                | -3.3               | -4.6                 | -3.3                 |
| -3.75         | -3.99       | 4.9               | 4.9                | 2.0                 | 1.9                 | 1.9                     | 8.2                | -3.3               | -4.6                 | -3.3                 |
| -4.00         | -5.40       | 7.8               | 1.6                | 1.5                 | 1.7                 | 1.7                     | 8.0                | -3.3               | -4.6                 | -3.3                 |
| -4.25         | -5.65       | 6.6               | 1.9                | 1.5                 | 1.6                 | 1.6                     | 8.2                | -3.3               | -4.6                 | -3.3                 |
| -4.50         | -5.78       | 5.1               | 2.1                | 1.5                 | 1.4                 | 1.4                     | 8.4                | -3.3               | -4.6                 | -3.3                 |
| -4.75         | -5.28       | 3.8               | 1.5                | 1.5                 | 1.2                 | 1.2                     | 8.6                | -3.3               | -4.6                 | -3.3                 |
| -5.00         | -5.28       | 2.6               | 1.5                | 1.5                 | 1.0                 | 1.0                     | 8.4                | -3.3               | -4.6                 | -3.3                 |

**Tussenresultaten punt en schacht (Sondering : 6)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | $q_{cI}$<br>[MPa] | $q_{cII}$<br>[MPa] | $q_{cIII}$<br>[MPa] | $q_{bmax}$<br>[MPa] | $q_{bmax;red}$<br>[MPa] | $q_{cza}$<br>[MPa] | $F_{nk;k}$<br>[kN] | $F_{c;tot1}$<br>[kN] | $F_{c;tot2}$<br>[kN] |
|---------------|-------------|-------------------|--------------------|---------------------|---------------------|-------------------------|--------------------|--------------------|----------------------|----------------------|
| -2.50         | -3.00       | 6.0               | 3.4                | 1.3                 | 1.7                 | 1.7                     | 9.9                | 0.0                | 0.0                  | 0.0                  |
| -2.75         | -2.99       | 4.0               | 3.6                | 1.4                 | 1.5                 | 1.5                     | 9.3                | 0.0                | 0.0                  | 0.0                  |
| -3.00         | -3.24       | 7.7               | 7.7                | 1.5                 | 2.6                 | 2.6                     | 8.0                | 0.0                | 0.0                  | 0.0                  |
| -3.25         | -3.49       | 9.7               | 9.7                | 1.7                 | 3.2                 | 3.2                     | 7.9                | 0.0                | 0.0                  | 0.0                  |
| -3.50         | -3.74       | 10.2              | 10.2               | 1.8                 | 3.4                 | 3.4                     | 8.2                | 0.0                | 0.0                  | 0.0                  |
| -3.75         | -5.00       | 11.2              | 7.5                | 1.8                 | 3.1                 | 3.1                     | 8.5                | 0.0                | 0.0                  | 0.0                  |
| -4.00         | -5.40       | 10.5              | 7.8                | 1.9                 | 3.1                 | 3.1                     | 8.8                | 0.0                | 0.0                  | 0.0                  |
| -4.25         | -5.50       | 10.2              | 8.0                | 2.0                 | 3.1                 | 3.1                     | 9.1                | 0.0                | 0.0                  | 0.0                  |
| -4.50         | -5.40       | 9.6               | 8.0                | 2.0                 | 3.0                 | 3.0                     | 9.4                | 0.0                | 0.0                  | 0.0                  |
| -4.75         | -5.30       | 9.1               | 7.9                | 2.0                 | 2.9                 | 2.9                     | 9.5                | 0.0                | 0.0                  | 0.0                  |
| -5.00         | -6.30       | 9.6               | 5.7                | 2.0                 | 2.7                 | 2.7                     | 9.6                | 0.0                | 0.0                  | 0.0                  |

**REKENEGEGEVENS R40**

Berekening : Ontwerpend  
Rekenmethode : Drukpalen volgens NEN-EN 1997-1, art. 7.6.2  
Sondering(en) : 1, 2, 3, 4, 5, 6

Stijf bouwwerk : NEE  
Paalgroep : NEE  
Aantal sonderingen : 6  
Factor  $\xi_3$  (n=1) : 1.39  
Factor  $\xi_3$  (gem) : 1.27  
Factor  $\xi_4$  (min) : 1.01  
Weerstandsfactor  $\gamma_R$  : 1.20  
 $\gamma_{f,nk}$  : 1.4  
 $R_{s;cal;max;i}$  begrenzen op  $0.75 * R_{b;cal;max;i}$  : NEE  
UGT draagvermogen zonder negatieve kleef : NEE

Paal : R40  
Niveau paalkop [m] : N.A.P. 0.70  
Bovenbel. [kN/m<sup>2</sup>] : 0.00



Project : 2017047 Priemkruid  
Onderdeel : Palen

**PAALPUNTNIVEAUS R40**

Alle niveaus/hoogtes/peilmaten zijn t.o.v. : N.A.P.

| Nr | Beginniveau<br>[m] | Eindniveau<br>[m] | Stapgrootte<br>[m] |
|----|--------------------|-------------------|--------------------|
|----|--------------------|-------------------|--------------------|

|   |       |       |      |
|---|-------|-------|------|
| 1 | -2.75 | -5.00 | 0.25 |
|---|-------|-------|------|

**TUSSENRESULTATEN R40 (n=1)****Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -3.59       | 8.4                      | 6.1                       | 1.8                        | 2.5                        | 2.5                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.59       | 7.5                      | 6.2                       | 1.8                        | 2.4                        | 2.4                            | 9.7                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.53       | 6.5                      | 6.1                       | 1.9                        | 2.3                        | 2.3                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -3.78       | 9.2                      | 9.2                       | 2.0                        | 3.1                        | 3.1                            | 9.3                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.35       | 16.7                     | 11.4                      | 2.0                        | 4.5                        | 4.5                            | 9.3                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.60       | 16.3                     | 11.7                      | 2.0                        | 4.5                        | 4.5                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.85       | 14.7                     | 9.6                       | 2.0                        | 4.0                        | 4.0                            | 10.0                      | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -6.10       | 13.3                     | 9.7                       | 2.0                        | 3.8                        | 3.8                            | 10.3                      | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -6.35       | 12.1                     | 9.8                       | 2.0                        | 3.6                        | 3.6                            | 10.6                      | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.60       | 11.5                     | 9.9                       | 2.0                        | 3.5                        | 3.5                            | 10.8                      | 0.0                       | 0.0                         | 0.0                         |

**Tussenresultaten punt en schacht (Sondering : 2)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -4.09       | 8.7                      | 3.8                       | 1.4                        | 2.1                        | 2.1                            | 9.7                       | -12.7                     | -17.7                       | -12.7                       |
| -3.00         | -4.09       | 7.9                      | 3.8                       | 1.5                        | 2.1                        | 2.1                            | 10.0                      | -12.7                     | -17.7                       | -12.7                       |
| -3.25         | -4.09       | 7.4                      | 3.9                       | 1.7                        | 2.0                        | 2.0                            | 10.0                      | -12.7                     | -17.7                       | -12.7                       |
| -3.50         | -4.09       | 6.4                      | 4.0                       | 1.8                        | 1.9                        | 1.9                            | 9.9                       | -12.7                     | -17.7                       | -12.7                       |
| -3.75         | -4.03       | 4.6                      | 3.8                       | 1.9                        | 1.7                        | 1.7                            | 9.8                       | -12.7                     | -17.7                       | -12.7                       |
| -4.00         | -4.28       | 9.2                      | 9.2                       | 2.0                        | 3.1                        | 3.1                            | 9.3                       | -12.7                     | -17.7                       | -12.7                       |
| -4.25         | -5.39       | 12.5                     | 10.5                      | 2.0                        | 3.8                        | 3.8                            | 9.3                       | -12.7                     | -17.7                       | -12.7                       |
| -4.50         | -6.10       | 12.4                     | 9.3                       | 2.0                        | 3.6                        | 3.6                            | 9.5                       | -12.7                     | -17.7                       | -12.7                       |
| -4.75         | -6.35       | 11.8                     | 8.0                       | 2.0                        | 3.3                        | 3.3                            | 9.7                       | -12.7                     | -17.7                       | -12.7                       |
| -5.00         | -6.60       | 10.9                     | 5.7                       | 2.0                        | 2.9                        | 2.9                            | 9.8                       | -12.7                     | -17.7                       | -12.7                       |

**Tussenresultaten punt en schacht (Sondering : 3)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -4.35       | 7.2                      | 4.7                       | 1.7                        | 2.1                        | 2.1                            | 9.1                       | -4.8                      | -6.7                        | -4.8                        |
| -3.00         | -4.33       | 6.6                      | 4.7                       | 1.8                        | 2.1                        | 2.1                            | 9.2                       | -4.8                      | -6.7                        | -4.8                        |
| -3.25         | -4.33       | 6.3                      | 4.7                       | 1.9                        | 2.1                        | 2.1                            | 9.1                       | -4.8                      | -6.7                        | -4.8                        |
| -3.50         | -4.33       | 5.8                      | 4.7                       | 2.0                        | 2.0                        | 2.0                            | 9.0                       | -4.8                      | -6.7                        | -4.8                        |
| -3.75         | -4.03       | 5.1                      | 4.5                       | 2.0                        | 1.9                        | 1.9                            | 8.9                       | -4.8                      | -6.7                        | -4.8                        |
| -4.00         | -4.28       | 5.0                      | 5.0                       | 2.0                        | 2.0                        | 2.0                            | 8.6                       | -4.8                      | -6.7                        | -4.8                        |
| -4.25         | -4.53       | 7.8                      | 7.8                       | 2.0                        | 2.7                        | 2.7                            | 8.4                       | -4.8                      | -6.7                        | -4.8                        |
| -4.50         | -6.10       | 10.5                     | 9.4                       | 2.0                        | 3.3                        | 3.3                            | 8.3                       | -4.8                      | -6.7                        | -4.8                        |
| -4.75         | -5.03       | 9.9                      | 9.8                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -4.8                      | -6.7                        | -4.8                        |
| -5.00         | -6.13       | 10.6                     | 9.3                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -4.8                      | -6.7                        | -4.8                        |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -3.03       | 8.2                      | 8.0                       | 1.8                        | 2.8                        | 2.8                            | 10.5                      | -7.1                      | -10.0                       | -7.1                        |
| -3.00         | -3.81       | 10.2                     | 8.6                       | 1.9                        | 3.2                        | 3.2                            | 10.3                      | -7.1                      | -10.0                       | -7.1                        |
| -3.25         | -4.85       | 10.0                     | 2.9                       | 2.0                        | 2.4                        | 2.4                            | 10.2                      | -7.1                      | -10.0                       | -7.1                        |
| -3.50         | -5.10       | 9.0                      | 3.2                       | 2.0                        | 2.3                        | 2.3                            | 10.3                      | -7.1                      | -10.0                       | -7.1                        |
| -3.75         | -5.35       | 8.0                      | 2.7                       | 2.0                        | 2.1                        | 2.1                            | 10.3                      | -7.1                      | -10.0                       | -7.1                        |
| -4.00         | -5.60       | 6.9                      | 2.8                       | 2.0                        | 1.9                        | 1.9                            | 10.3                      | -7.1                      | -10.0                       | -7.1                        |
| -4.25         | -5.71       | 5.8                      | 3.0                       | 2.0                        | 1.8                        | 1.8                            | 10.4                      | -7.1                      | -10.0                       | -7.1                        |
| -4.50         | -5.61       | 4.8                      | 2.9                       | 2.0                        | 1.6                        | 1.6                            | 10.4                      | -7.1                      | -10.0                       | -7.1                        |
| -4.75         | -5.61       | 3.8                      | 2.9                       | 2.0                        | 1.5                        | 1.5                            | 10.3                      | -7.1                      | -10.0                       | -7.1                        |
| -5.00         | -5.61       | 3.8                      | 3.0                       | 2.0                        | 1.5                        | 1.5                            | 9.9                       | -7.1                      | -10.0                       | -7.1                        |

**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -3.98       | 6.8                      | 4.2                       | 1.8                        | 2.1                        | 2.1                            | 8.7                       | -3.8                      | -5.3                        | -3.8                        |
| -3.00         | -3.98       | 6.4                      | 4.2                       | 1.9                        | 2.0                        | 2.0                            | 8.6                       | -3.8                      | -5.3                        | -3.8                        |
| -3.25         | -3.98       | 5.8                      | 4.3                       | 2.0                        | 2.0                        | 2.0                            | 8.6                       | -3.8                      | -5.3                        | -3.8                        |
| -3.50         | -3.88       | 5.1                      | 4.1                       | 2.0                        | 1.9                        | 1.9                            | 8.5                       | -3.8                      | -5.3                        | -3.8                        |
| -3.75         | -5.28       | 7.7                      | 1.5                       | 1.5                        | 1.7                        | 1.7                            | 8.2                       | -3.8                      | -5.3                        | -3.8                        |
| -4.00         | -5.60       | 7.3                      | 1.9                       | 1.5                        | 1.7                        | 1.7                            | 8.0                       | -3.8                      | -5.3                        | -3.8                        |
| -4.25         | -5.78       | 6.3                      | 2.0                       | 1.5                        | 1.6                        | 1.6                            | 8.2                       | -3.8                      | -5.3                        | -3.8                        |
| -4.50         | -5.78       | 5.1                      | 2.1                       | 1.5                        | 1.4                        | 1.4                            | 8.4                       | -3.8                      | -5.3                        | -3.8                        |
| -4.75         | -5.28       | 3.8                      | 1.5                       | 1.5                        | 1.2                        | 1.2                            | 8.6                       | -3.8                      | -5.3                        | -3.8                        |
| -5.00         | -5.28       | 2.6                      | 1.5                       | 1.5                        | 1.0                        | 1.0                            | 8.4                       | -3.8                      | -5.3                        | -3.8                        |

**Tussenresultaten punt en schacht (Sondering : 6)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -2.75         | -3.03       | 4.1                      | 3.8                       | 1.3                        | 1.5                        | 1.5                            | 9.3                       | 0.0                       | 0.0                         | 0.0                         |
| -3.00         | -3.28       | 7.9                      | 7.9                       | 1.4                        | 2.6                        | 2.6                            | 8.0                       | 0.0                       | 0.0                         | 0.0                         |
| -3.25         | -3.53       | 9.7                      | 9.7                       | 1.5                        | 3.2                        | 3.2                            | 7.9                       | 0.0                       | 0.0                         | 0.0                         |
| -3.50         | -5.00       | 11.0                     | 7.5                       | 1.6                        | 3.1                        | 3.1                            | 8.2                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.35       | 10.6                     | 7.7                       | 1.7                        | 3.0                        | 3.0                            | 8.5                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.50       | 10.5                     | 7.9                       | 1.8                        | 3.1                        | 3.1                            | 8.8                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.50       | 10.2                     | 8.0                       | 1.9                        | 3.1                        | 3.1                            | 9.1                       | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -5.40       | 9.6                      | 8.0                       | 2.0                        | 3.0                        | 3.0                            | 9.4                       | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -6.30       | 9.7                      | 5.7                       | 2.0                        | 2.7                        | 2.7                            | 9.5                       | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.30       | 9.6                      | 5.7                       | 2.0                        | 2.7                        | 2.7                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**REKENGEGEVENS R45**

Berekening : Ontwerpend  
Rekenmethode : Drukpalen volgens NEN-EN 1997-1, art. 7.6.2  
Sondering(en) : 1, 2, 3, 4, 5, 6

Stijf bouwwerk : NEE  
Paalgroep : NEE  
Aantal sonderingen : 6  
Factor  $\xi_3$  (n=1) : 1.39  
Factor  $\xi_3$  (gem) : 1.27  
Factor  $\xi_4$  (min) : 1.01  
Weerstandsfactor  $\gamma_R$  : 1.20  
 $\gamma_{f,nk}$  : 1.4  
 $R_{s,cal,max;i}$  begrenzen op  $0.75 * R_{b,cal,max;i}$  : NEE  
UGT draagvermogen zonder negatieve kleeft : NEE

Paal : R45  
Niveau paalkop [m] : N.A.P. 0.70  
Bovenbel. [kN/m<sup>2</sup>] : 0.00

**PAALPUNTNIVEAUS R45**

Alle niveaus/hoogtes/peilmaten zijn t.o.v. : N.A.P.

| Nr | Beginniveau<br>[m] | Eindniveau<br>[m] | Stapgrootte<br>[m] |
|----|--------------------|-------------------|--------------------|
| 1  | -3.50              | -5.00             | 0.25               |

**TUSSENRESULTATEN R45 (n=1)****Tussenresultaten punt en schacht (Sondering : 1)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | $q_{cI}$<br>[MPa] | $q_{cII}$<br>[MPa] | $q_{cIII}$<br>[MPa] | $q_{bmax}$<br>[MPa] | $q_{bmax,red}$<br>[MPa] | $q_{cza}$<br>[MPa] | $F_{nk;k}$<br>[kN] | $F_{c,tot1}$<br>[kN] | $F_{c,tot2}$<br>[kN] |
|---------------|-------------|-------------------|--------------------|---------------------|---------------------|-------------------------|--------------------|--------------------|----------------------|----------------------|
| -3.50         | -3.81       | 9.6               | 9.6                | 1.9                 | 3.2                 | 3.2                     | 9.3                | 0.0                | 0.0                  | 0.0                  |
| -3.75         | -5.55       | 16.4              | 11.7               | 2.0                 | 4.5                 | 4.5                     | 9.3                | 0.0                | 0.0                  | 0.0                  |
| -4.00         | -5.80       | 15.8              | 9.6                | 2.0                 | 4.1                 | 4.1                     | 9.6                | 0.0                | 0.0                  | 0.0                  |
| -4.25         | -6.05       | 14.3              | 9.7                | 2.0                 | 3.9                 | 3.9                     | 10.0               | 0.0                | 0.0                  | 0.0                  |
| -4.50         | -6.30       | 13.0              | 9.8                | 2.0                 | 3.7                 | 3.7                     | 10.3               | 0.0                | 0.0                  | 0.0                  |
| -4.75         | -6.55       | 11.9              | 9.8                | 2.0                 | 3.6                 | 3.6                     | 10.6               | 0.0                | 0.0                  | 0.0                  |
| -5.00         | -6.80       | 11.4              | 10.0               | 2.0                 | 3.6                 | 3.6                     | 10.8               | 0.0                | 0.0                  | 0.0                  |

**Tussenresultaten punt en schacht (Sondering : 2)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | $q_{cI}$<br>[MPa] | $q_{cII}$<br>[MPa] | $q_{cIII}$<br>[MPa] | $q_{bmax}$<br>[MPa] | $q_{bmax,red}$<br>[MPa] | $q_{cza}$<br>[MPa] | $F_{nk;k}$<br>[kN] | $F_{c,tot1}$<br>[kN] | $F_{c,tot2}$<br>[kN] |
|---------------|-------------|-------------------|--------------------|---------------------|---------------------|-------------------------|--------------------|--------------------|----------------------|----------------------|
| -3.50         | -4.09       | 6.4               | 4.0                | 1.6                 | 1.9                 | 1.9                     | 9.9                | -14.2              | -19.9                | -14.2                |
| -3.75         | -4.06       | 4.7               | 4.0                | 1.7                 | 1.7                 | 1.7                     | 9.8                | -14.2              | -19.9                | -14.2                |
| -4.00         | -4.31       | 9.6               | 9.6                | 1.8                 | 3.2                 | 3.2                     | 9.3                | -14.2              | -19.9                | -14.2                |
| -4.25         | -6.05       | 12.5              | 10.1               | 2.0                 | 3.7                 | 3.7                     | 9.3                | -14.2              | -19.9                | -14.2                |
| -4.50         | -6.30       | 12.0              | 8.3                | 2.0                 | 3.4                 | 3.4                     | 9.5                | -14.2              | -19.9                | -14.2                |
| -4.75         | -6.55       | 11.2              | 5.9                | 2.0                 | 3.0                 | 3.0                     | 9.7                | -14.2              | -19.9                | -14.2                |
| -5.00         | -6.80       | 10.3              | 5.1                | 2.0                 | 2.7                 | 2.7                     | 9.8                | -14.2              | -19.9                | -14.2                |

Project : 2017047 Priemkruid  
Onderdeel : Palen

**Tussenresultaten punt en schacht (Sondering : 3)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -3.50         | -4.33       | 5.8                      | 4.7                       | 1.9                        | 2.0                        | 2.0                            | 9.0                       | -5.4                      | -7.6                        | -5.4                        |
| -3.75         | -4.06       | 5.0                      | 4.5                       | 2.0                        | 1.9                        | 1.9                            | 8.9                       | -5.4                      | -7.6                        | -5.4                        |
| -4.00         | -4.31       | 5.0                      | 5.0                       | 2.0                        | 2.0                        | 2.0                            | 8.6                       | -5.4                      | -7.6                        | -5.4                        |
| -4.25         | -4.56       | 8.1                      | 8.1                       | 2.0                        | 2.8                        | 2.8                            | 8.4                       | -5.4                      | -7.6                        | -5.4                        |
| -4.50         | -6.13       | 10.5                     | 9.3                       | 2.0                        | 3.3                        | 3.3                            | 8.3                       | -5.4                      | -7.6                        | -5.4                        |
| -4.75         | -6.13       | 10.5                     | 9.3                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -5.4                      | -7.6                        | -5.4                        |
| -5.00         | -6.80       | 11.2                     | 8.6                       | 2.0                        | 3.3                        | 3.3                            | 8.5                       | -5.4                      | -7.6                        | -5.4                        |

**Tussenresultaten punt en schacht (Sondering : 4)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -3.50         | -5.30       | 8.4                      | 2.8                       | 1.9                        | 2.1                        | 2.1                            | 10.3                      | -8.0                      | -11.2                       | -8.0                        |
| -3.75         | -5.55       | 7.5                      | 2.8                       | 2.0                        | 2.0                        | 2.0                            | 10.3                      | -8.0                      | -11.2                       | -8.0                        |
| -4.00         | -5.71       | 6.8                      | 3.0                       | 2.0                        | 1.9                        | 1.9                            | 10.3                      | -8.0                      | -11.2                       | -8.0                        |
| -4.25         | -5.71       | 5.8                      | 3.0                       | 2.0                        | 1.8                        | 1.8                            | 10.4                      | -8.0                      | -11.2                       | -8.0                        |
| -4.50         | -5.61       | 4.8                      | 2.9                       | 2.0                        | 1.6                        | 1.6                            | 10.4                      | -8.0                      | -11.2                       | -8.0                        |
| -4.75         | -5.61       | 3.8                      | 2.9                       | 2.0                        | 1.5                        | 1.5                            | 10.3                      | -8.0                      | -11.2                       | -8.0                        |
| -5.00         | -5.61       | 3.8                      | 3.0                       | 2.0                        | 1.5                        | 1.5                            | 9.9                       | -8.0                      | -11.2                       | -8.0                        |

**Tussenresultaten punt en schacht (Sondering : 5)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -3.50         | -5.28       | 7.4                      | 1.5                       | 1.5                        | 1.7                        | 1.7                            | 8.5                       | -4.2                      | -5.9                        | -4.2                        |
| -3.75         | -5.28       | 7.7                      | 1.5                       | 1.5                        | 1.7                        | 1.7                            | 8.2                       | -4.2                      | -5.9                        | -4.2                        |
| -4.00         | -5.80       | 6.9                      | 2.0                       | 1.5                        | 1.7                        | 1.7                            | 8.0                       | -4.2                      | -5.9                        | -4.2                        |
| -4.25         | -5.78       | 6.3                      | 2.0                       | 1.5                        | 1.6                        | 1.6                            | 8.2                       | -4.2                      | -5.9                        | -4.2                        |
| -4.50         | -5.78       | 5.1                      | 2.1                       | 1.5                        | 1.4                        | 1.4                            | 8.4                       | -4.2                      | -5.9                        | -4.2                        |
| -4.75         | -5.28       | 3.8                      | 1.5                       | 1.5                        | 1.2                        | 1.2                            | 8.6                       | -4.2                      | -5.9                        | -4.2                        |
| -5.00         | -5.31       | 2.5                      | 1.5                       | 1.5                        | 1.0                        | 1.0                            | 8.4                       | -4.2                      | -5.9                        | -4.2                        |

**Tussenresultaten punt en schacht (Sondering : 6)**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| Niveau<br>[m] | Trj2<br>[m] | q <sub>cI</sub><br>[MPa] | q <sub>cII</sub><br>[MPa] | q <sub>cIII</sub><br>[MPa] | q <sub>bmax</sub><br>[MPa] | q <sub>bmax;red</sub><br>[MPa] | q <sub>cza</sub><br>[MPa] | F <sub>nk;k</sub><br>[kN] | F <sub>c;tot1</sub><br>[kN] | F <sub>c;tot2</sub><br>[kN] |
|---------------|-------------|--------------------------|---------------------------|----------------------------|----------------------------|--------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|
| -3.50         | -5.00       | 11.0                     | 7.5                       | 1.5                        | 3.0                        | 3.0                            | 8.2                       | 0.0                       | 0.0                         | 0.0                         |
| -3.75         | -5.55       | 10.5                     | 7.9                       | 1.6                        | 3.0                        | 3.0                            | 8.5                       | 0.0                       | 0.0                         | 0.0                         |
| -4.00         | -5.50       | 10.5                     | 7.9                       | 1.7                        | 3.1                        | 3.1                            | 8.8                       | 0.0                       | 0.0                         | 0.0                         |
| -4.25         | -5.50       | 10.2                     | 8.0                       | 1.8                        | 3.1                        | 3.1                            | 9.1                       | 0.0                       | 0.0                         | 0.0                         |
| -4.50         | -6.30       | 9.9                      | 5.7                       | 1.9                        | 2.7                        | 2.7                            | 9.4                       | 0.0                       | 0.0                         | 0.0                         |
| -4.75         | -6.30       | 9.7                      | 5.7                       | 1.9                        | 2.7                        | 2.7                            | 9.5                       | 0.0                       | 0.0                         | 0.0                         |
| -5.00         | -6.30       | 9.6                      | 5.7                       | 2.0                        | 2.7                        | 2.7                            | 9.6                       | 0.0                       | 0.0                         | 0.0                         |

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 Onderdeel : Palen

**OVERZICHT NETTO DRAAGVERMOGEN DRUKPALEN**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| sondering | maaiveld<br>niveau | paalpunt<br>niveau | R <sub>c, netto; d</sub><br>VK29 | [kN]<br>VK29gr | R35   | R40   | R45   |
|-----------|--------------------|--------------------|----------------------------------|----------------|-------|-------|-------|
| 1         | 0.66               | -2.50              | 344.4                            | 344.4          | 225.5 |       |       |
|           |                    | -2.75              | 365.2                            | 365.2          | 233.3 | 288.0 |       |
|           |                    | -3.00              | 381.1                            | 381.1          | 238.5 | 292.8 |       |
|           |                    | -3.25              | 385.7                            | 385.7          | 237.5 | 292.7 |       |
|           |                    | -3.50              | 439.4                            | 439.4          | 285.7 | 362.2 | 448.0 |
|           |                    | -3.75              | 568.6                            | 568.6          | 385.2 | 474.8 | 580.8 |
|           |                    | -4.00              | 585.2                            | 585.2          | 393.0 | 490.6 | 564.0 |
|           |                    | -4.25              | 608.7                            | 608.7          | 398.4 | 468.3 | 563.9 |
|           |                    | -4.50              | 599.4                            | 599.4          | 383.7 | 471.6 | 566.9 |
|           |                    | -4.75              | 617.6                            | 617.6          | 389.0 | 476.9 | 572.3 |
|           |                    | -5.00              | 640.1                            | 640.1          | 397.8 | 486.7 | 585.4 |
| 2         | 0.86               | -2.50              | 277.1                            | 278.9          | 170.3 |       |       |
|           |                    | -2.75              | 255.0                            | 256.7          | 177.4 | 220.1 |       |
|           |                    | -3.00              | 273.2                            | 274.9          | 185.5 | 228.4 |       |
|           |                    | -3.25              | 289.6                            | 291.3          | 193.6 | 237.1 |       |
|           |                    | -3.50              | 300.8                            | 302.6          | 198.0 | 241.3 | 288.0 |
|           |                    | -3.75              | 295.6                            | 297.4          | 189.6 | 232.4 | 280.4 |
|           |                    | -4.00              | 381.6                            | 383.3          | 269.9 | 345.8 | 428.2 |
|           |                    | -4.25              | 455.0                            | 456.8          | 322.1 | 403.7 | 487.1 |
|           |                    | -4.50              | 486.1                            | 487.9          | 333.9 | 403.7 | 472.8 |
|           |                    | -4.75              | 509.4                            | 511.2          | 330.8 | 396.4 | 446.3 |
|           |                    | -5.00              | 508.3                            | 510.0          | 326.3 | 376.4 | 438.7 |
| 3         | 0.62               | -2.50              | 312.1                            | 312.2          | 202.1 |       |       |
|           |                    | -2.75              | 305.3                            | 305.4          | 202.2 | 246.5 |       |
|           |                    | -3.00              | 318.6                            | 318.7          | 208.8 | 254.9 |       |
|           |                    | -3.25              | 329.7                            | 329.8          | 214.7 | 263.6 |       |
|           |                    | -3.50              | 337.9                            | 338.0          | 218.6 | 268.9 | 320.5 |
|           |                    | -3.75              | 341.3                            | 341.4          | 218.5 | 267.6 | 320.0 |
|           |                    | -4.00              | 351.2                            | 351.3          | 225.5 | 277.0 | 334.2 |
|           |                    | -4.25              | 400.5                            | 400.6          | 270.6 | 342.4 | 423.4 |
|           |                    | -4.50              | 465.5                            | 465.6          | 319.3 | 395.4 | 479.5 |
|           |                    | -4.75              | 489.0                            | 489.1          | 328.3 | 406.6 | 492.7 |
|           |                    | -5.00              | 513.1                            | 513.2          | 339.1 | 419.1 | 506.0 |
| 4         | 0.84               | -2.50              | 405.2                            | 406.7          | 245.7 |       |       |
|           |                    | -2.75              | 422.0                            | 423.4          | 247.2 | 306.3 |       |
|           |                    | -3.00              | 462.8                            | 464.3          | 277.2 | 344.9 |       |
|           |                    | -3.25              | 483.2                            | 484.6          | 284.0 | 295.3 |       |
|           |                    | -3.50              | 358.4                            | 359.8          | 246.4 | 300.3 | 347.3 |
|           |                    | -3.75              | 365.9                            | 367.3          | 251.2 | 296.4 | 349.0 |
|           |                    | -4.00              | 364.8                            | 366.2          | 248.0 | 297.3 | 355.3 |
|           |                    | -4.25              | 369.3                            | 370.7          | 247.8 | 301.5 | 358.2 |
|           |                    | -4.50              | 375.8                            | 377.3          | 249.8 | 300.9 | 355.7 |
|           |                    | -4.75              | 380.7                            | 382.1          | 250.9 | 299.3 | 352.6 |
|           |                    | -5.00              | 382.2                            | 383.6          | 251.6 | 301.7 | 355.4 |
| 5         | 0.47               | -2.50              | 274.4                            | 274.4          | 185.7 |       |       |
|           |                    | -2.75              | 287.8                            | 287.8          | 193.3 | 237.6 |       |
|           |                    | -3.00              | 297.7                            | 297.8          | 199.3 | 245.5 |       |
|           |                    | -3.25              | 305.4                            | 305.5          | 202.6 | 250.1 |       |
|           |                    | -3.50              | 308.9                            | 308.9          | 202.7 | 249.0 | 281.2 |
|           |                    | -3.75              | 320.0                            | 320.1          | 212.5 | 244.2 | 292.7 |

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Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.

| sondering | maaiveld<br>niveau | paalpunt<br>niveau | $R_{c; netto; d}$<br>VK29 | [kN]<br>VK29gr | R35   | R40   | R45   |
|-----------|--------------------|--------------------|---------------------------|----------------|-------|-------|-------|
|           |                    | -4.00              | 282.6                     | 282.7          | 205.7 | 249.1 | 294.9 |
|           |                    | -4.25              | 290.0                     | 290.1          | 209.3 | 252.6 | 301.0 |
|           |                    | -4.50              | 297.8                     | 297.9          | 210.5 | 254.0 | 300.8 |
|           |                    | -4.75              | 297.9                     | 297.9          | 205.8 | 246.0 | 289.0 |
|           |                    | -5.00              | 295.4                     | 295.5          | 201.3 | 239.4 | 279.1 |
| 6         | 0.65               | -2.50              | 143.8                     | 143.8          | 116.6 |       |       |
|           |                    | -2.75              | 142.6                     | 142.6          | 111.3 | 143.7 |       |
|           |                    | -3.00              | 222.5                     | 222.5          | 180.4 | 232.5 |       |
|           |                    | -3.25              | 282.6                     | 282.6          | 222.2 | 282.6 |       |
|           |                    | -3.50              | 322.5                     | 322.5          | 242.3 | 285.8 | 351.0 |
|           |                    | -3.75              | 329.1                     | 329.1          | 239.4 | 296.7 | 365.8 |
|           |                    | -4.00              | 352.9                     | 352.9          | 248.5 | 312.1 | 381.4 |
|           |                    | -4.25              | 380.8                     | 380.8          | 260.2 | 324.8 | 395.5 |
|           |                    | -4.50              | 402.6                     | 402.6          | 267.2 | 333.0 | 377.2 |
|           |                    | -4.75              | 422.0                     | 422.0          | 273.4 | 322.9 | 390.5 |
|           |                    | -5.00              | 407.1                     | 407.1          | 269.8 | 333.9 | 403.7 |

## VERKLARENDE WOORDENLIJST

|                   |                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------|
| a                 | de kleinste afmeting van de rechthoekige paalvoet, in m                                                          |
| b                 | de grootste afmeting van de rechthoekige paalvoet, in m                                                          |
| Bovenk            | Niveau bovenkant beschouwde grondlaag                                                                            |
| $d_{50}$          | Gemiddelde korrelgrootte [mm]                                                                                    |
| dg.vpl            | Doorgaande verplaatsing                                                                                          |
| $e_{0; i}$        | Initiële poriëngetal van de grond (art. 7.6.3.3 (e))                                                             |
| $e_{1; i}$        | Poriëngetal van de grond na paalinstallatie                                                                      |
| $e_{max}$         | Maximaal poriëngetal van de grond (art. 7.6.3.3 (e))                                                             |
| $e_{min}$         | Minimaal poriëngetal van de grond (art. 7.6.3.3 (e))                                                             |
| $E_{d; 1}$        | Rekenwaarde van de belasting op de paalkop voor grenstoestand 1B                                                 |
| $E_{d; 2}$        | Rekenwaarde van de belasting op de paalkop voor grenstoestand 2                                                  |
| $f_{1; i}$        | Factor voor het effect van installatie (art. 7.6.3.3 (e))                                                        |
| $f_{2; i}$        | Factor voor de afname van de korrelspanning (art. 7.6.3.3 (f))                                                   |
| $F_{c; tot; 1/2}$ | $F_{c; tot} = (F_{c; k} + F_{nk; k})$ voor grenstoestand 1B/2 (art. 7.6.4.2 (i))                                 |
| $F_{nk; k}$       | $F_{nk; k}$ karakteristieke waarde van de belastingen ten gevolge van negatieve kleeft (art. 7.3.2.2 (d) en (e)) |
| $F_{nk; d}$       | $\gamma_{f; nk} \times F_{nk; k}$ rekenwaarde v.d. de belastingen t.g.v. negatieve kleeft                        |
| L                 | Lengte tussen de paalpunt en het bovenende van de paal                                                           |
| l                 | Gedeelte van de paal waarover geen schachtwrijving is aangenomen (art. 7.6.4.2 (j))                              |
| $M_i$             | Hulpfactor in $kN/m^2$ (art. 7.6.3.3 (f))                                                                        |
| Onderk            | Niveau onderkant beschouwde grondlaag                                                                            |
| $O_{s; gem}$      | Omtrek van de dwarsdoorsnede van de paalschacht (art. 7.6.3.3 (a))                                               |
| $p_{sur; k}$      | Bovenbelasting in $kN/m^2$                                                                                       |
| $q_{b; max}$      | Maximumpuntweerstand in MPa (art. 7.6.2.3 (e))                                                                   |
| $q_{bmax}$        | Zie $q_{b; max}$                                                                                                 |
| $q_{bmax; red}$   | Door de gebruiker toegepaste reductie op maximumpuntweerstand $q_{b; max}$ ('volgens richtlijnen Almere')        |
| $q_{c; i; d}$     | Rekenwaarde gemiddelde conusweerstand in laag j in MPa (art. 7.6.3.3 (f))                                        |
| $q_{c; z}$        | De gemeten conusweerstand op diepte z in MPa (voor ontgraven) (art. 7.6.2.3 (k))                                 |
| $q_{c; z; a}$     | Afgesnuten conusweerstand $q_{c; z; a}$ op diepte z in MPa (art. 7.6.2.3 (i t/m k))                              |
| $q_{c; z; d}$     | Rekenwaarde van de conusweerstand (art. 7.6.3.3 (b) en (e))                                                      |
| $q_{c; z; ontgr}$ | De conusweerstand op diepte z in MPa na ontgraven (art. 7.6.2.3 (k))                                             |

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## VERKLARENDE WOORDENLIJST

|                    |                                                                                                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------|
| $q_{c,z;gem}$      | Gemiddelde conusweerstand beschouwde grondlaag                                                                                 |
| $q_{c,z;gem;corr}$ | Gemiddelde gecorrigeerde conusweerstand beschouwde grondlaag                                                                   |
| $q_{cI}$           | $q_{c,I;gem}$ (art. 7.6.2.3 (e))                                                                                               |
| $q_{cII}$          | $q_{c,II;gem}$ (art. 7.6.2.3 (e))                                                                                              |
| $q_{cIII}$         | $q_{c,III;gem}$ (art. 7.6.2.3 (e))                                                                                             |
| $q_{cza}$          | Zie $q_{c,z;a}$                                                                                                                |
| $q_{s,max}$        | Zie $q_{s,max;z;i}$                                                                                                            |
| $q_{s,max;z;i}$    | Maximumpaalschachtwrijving $q_{s,max;z;i}$ op diepte $z$ (art 7.6.2.3 (i))                                                     |
| $q_{s,z;d}$        | Rekenwaarde van de schachtwrijving in kPa (art. 7.6.3.3 (b))                                                                   |
| $q_{t,i;d}$        | Bijdrage draagkracht op trek van deze laag in $kN/m^2$ (art. 7.6.3.3 (f))                                                      |
| $r$                | Verhouding $b/a$ ; voor ronde palen geldt: $r=1$ (art. 7.6.2.3 (h))                                                            |
| $R_b$              | $R_{b,cal,max;i}$ maximumpundraagkracht (art. 7.6.2.3 (c))                                                                     |
| $R_{b,1/2}$        | $R_{b,cal,max;i}$ voor grenstoestand 1B/2 (art. 7.6.2.3 (c))                                                                   |
| $R_{c,cal}$        | $R_{b,cal,max} + R_{s,cal,max}$ (art. 7.6.2.3 (c))                                                                             |
| $R_{c,k}$          | Karakteristieke waarde van de uiterste draagkracht                                                                             |
| $R_{c,d}$          | Draagkracht $R_{c,d}$ (art. 7.6.4.2 (k)) drukpaal                                                                              |
| $R_{c,netto;d}$    | Rekenwaarde van de netto paal draagkracht ( $R_{c,d} - F_{nk;d}$ )                                                             |
| $R_{t,netto;d}$    | Rekenwaarde van de netto paal draagkracht belast op trek                                                                       |
| $R_{c,cal;gem}$    | Het gemiddelde van de $R_{c,cal}$ waardes berekend over de toegepaste sondering                                                |
| $R_{c,cal;min}$    | Het minimum van de $R_{c,cal}$ waardes berekend over de toegepaste sondering                                                   |
| $R_{t,cal;gem}$    | Het gemiddelde van de $R_{t,cal}$ waardes berekend over de toegepaste sondering                                                |
| $R_{t,cal;min}$    | Het minimum van de $R_{t,cal}$ waardes berekend over de toegepaste sondering                                                   |
| $R_{t,d}$          | Draagkracht $R_{t,d}$ (art. 7.6.3.3 (g)) trekpaal                                                                              |
| $R_{cnd}$          | Zie $R_{c,netto;d}$                                                                                                            |
| $R_{bc1/2}$        | $R_{b,cal,max;i}$ voor grenstoestand 1B/2 (art. 7.6.4.2 (i))                                                                   |
| $R_{sc1/2}$        | $R_{s,cal,max;i}$ voor grenstoestand 1B/2 (art. 7.6.4.2 (i))                                                                   |
| $R_{e,i}$          | Initiële waarde van de relatieve dichtheid van de grond (art. 7.6.3.3 (e))                                                     |
| $R_s$              | Zie $R_{s,cal,max;i}$ voor grenstoestand 1B/2                                                                                  |
| $R_{s,1/2}$        | Zie $R_{s,cal,max;i}$ voor grenstoestand 1B/2                                                                                  |
| $R_{s,cal,max;i}$  | Maximumschachtwrijvingskracht $R_{s,cal,max;i}$ (art. 7.6.2.3 (h))                                                             |
| $R_t$              | Opneembare trekkracht                                                                                                          |
| $R_{t,d}$          | Draagkracht $R_{t,d}$ (art. 7.6.3.3 (g))                                                                                       |
| $R_{t,max;d}$      | Maximale draagkracht op trek i.v.m. kluitgewicht in kN                                                                         |
| $s$                | Paalvoetfactor $s$ (art. 7.6.2.3 (h))                                                                                          |
| $s_{1,1/2}$        | $s_1$ zakking van de paalkop grenstoestand 1B/2 (art. 7.6.4.2 (h))                                                             |
| N.B. $s_2$ wordt 0 | verondersteld. Dus $s=s_1$ (art. 7.6.4.2 (k))                                                                                  |
| $s_{el,1/2}$       | $s_{el,d}$ zakking paalkop t.o.v. de paalpunt als gevolg van de elasticiteit van de paal grenstoestand 1B/2 (art. 7.6.4.2 (j)) |
| $s_{b,1/2}$        | $s_{punt,d}$ zakking paalpunt grenstoestand 1B/2 (art. 7.6.4.2 (i))                                                            |
| $s_{req,1/2}$      | Toelaatbare zakking grenstoestand 1B/2 (art. 2.4.9 (b)) (art. 7.6.3.3 (f))                                                     |
| $Trj2$             | Onderkant traject I en II (art. 7.6.2.3 (e))                                                                                   |
| U.C.               | Unity Check $((E_d + F_{nk;d}) / R_{c,d})$                                                                                     |
| $\alpha_s$         | Paalklassefactor voor de berekening van de draagkracht van de schacht bij drukpalen (art. 7.6.2.3 (e), tabel 7.c)              |
| $\alpha_p$         | Paalklassefactor voor de berekening van de draagkracht van de paalpunt (art. 7.6.2.3 (f), tabel 7.c)                           |
| $\alpha_t$         | Paalklassefactor voor de berekening van de draagkracht van de schacht bij trekpalen (art. 7.6.2.3 (e), tabel 7.c)              |
| $\beta$            | Factor, die de invloed van de paalvoetvorm (figuur 7.i) in rekening brengt (art. 7.6.2.3 (g))                                  |
| $\Delta e_i$       | Afname poriëngetal t.g.v. inbrengen grondverdringende paal (art. 7.6.3.3 (e))                                                  |
| $\Delta R_{e,i}$   | Toename relatieve dichtheid door paalinstallatie (art. 7.6.3.3 (e))                                                            |
| $\gamma'$          | Karakteristieke waarde van het effectieve volumieke gewicht laag in $kN/m^3$                                                   |
| $\gamma'_d$        | Rekenwaarde van het effectieve volumieke gewicht laag in $kN/m^3$                                                              |

Project : 2017047 Priemkruid  
 Onderdeel : Palen

**VERKLARENDE WOORDENLIJST**

|                      |                                                                                                                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\gamma'_i$          | $\gamma'_{i;d}$ rekenwaarde v.h. effectief volumiek gewicht van laag i in $\text{kN/m}^3$                                                                                                         |
| $\gamma_{f;nk}$      | Belastingfactor voor de negatieve kleef (art. 7.3.2.2 (b))                                                                                                                                        |
| $\gamma_{k;1/2}$     | Karakteristieke waarde van het volumiek gewicht van droge grond in $\text{kN/m}^3$                                                                                                                |
| $\gamma_{m;var;q_c}$ | Factor, die de invloed van het wisselen van belastingen weergeeft (art. 7.6.3.3 (d))                                                                                                              |
| $\gamma_R$           | Partiële weerstandsfactor volgens art. A.3.3.2 tabel A.6, A.7 of A.8<br>$\gamma_b / \gamma_s / \gamma_t$ bij druk, $\gamma_{s;t}$ bij trek                                                        |
| $\gamma_{sat;k;1/2}$ | Karakteristieke waarde van het volumiek gewicht van verzadigde grond in $\text{kN/m}^3$                                                                                                           |
| $\varphi$            | Hoek van inwendige wrijving (art. 7.6.2.3 (h))                                                                                                                                                    |
| $\varphi'_{k;1/2}$   | Karakteristieke waarde van de hoek van inwendige wrijving grenstoestand 1B/2                                                                                                                      |
| $\sigma_{v;z;gem}$   | Gemiddelde verticale spanning beschouwde grondlaag                                                                                                                                                |
| $\sigma'_{v;z;0}$    | Initiële effectieve verticale spanning op diepte z tijdens sonderen in kPa (art. 7.6.2.3 (k))                                                                                                     |
| $\sigma'_{vd;i}$     | Rekenwaarde effectieve verticale korrelspanning in een laagscheiding in kPa.                                                                                                                      |
| $\sigma'_{vj0d}$     | $\sigma'_{v;j;0;d}$ rekenwaarde van de effectieve verticale korrelspanning na ontgraven (indien van toepassing) in laagscheiding j in $\text{kN/m}_2$                                             |
| $\Sigma q_{t;n;d}$   | Bijdrage draagkracht op trek van de bovenliggende lagen in $\text{kN/m}^2$                                                                                                                        |
| $\xi_3 (n=1)$        | Correlatiefactor op de berekende draagkracht uit de resultaten van 1 enkele grondproef (voor de bepaling van karakteristieke waarden) volgens art. A.3.3.3 tabel A.10a of A.10b                   |
| $\xi_3 (gem)$        | Correlatiefactor op de gemiddelde waarde van de uit de resultaten van grondproeven berekende draagkracht (voor de bepaling van karakteristieke waarden) volgens art. A.3.3.3 tabel A.10a of A.10b |
| $\xi_4 (min)$        | Correlatiefactor op de minimumwaarde van de uit de resultaten van grondproeven berekende draagkracht (voor de bepaling van karakteristieke waarden) volgens art. A.3.3.3 tabel A.10a of A.10b     |





## **Bijlage A**

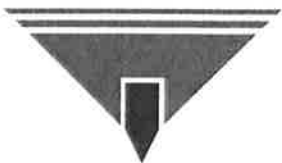
### **Situatietekening**



## **Bijlage B**

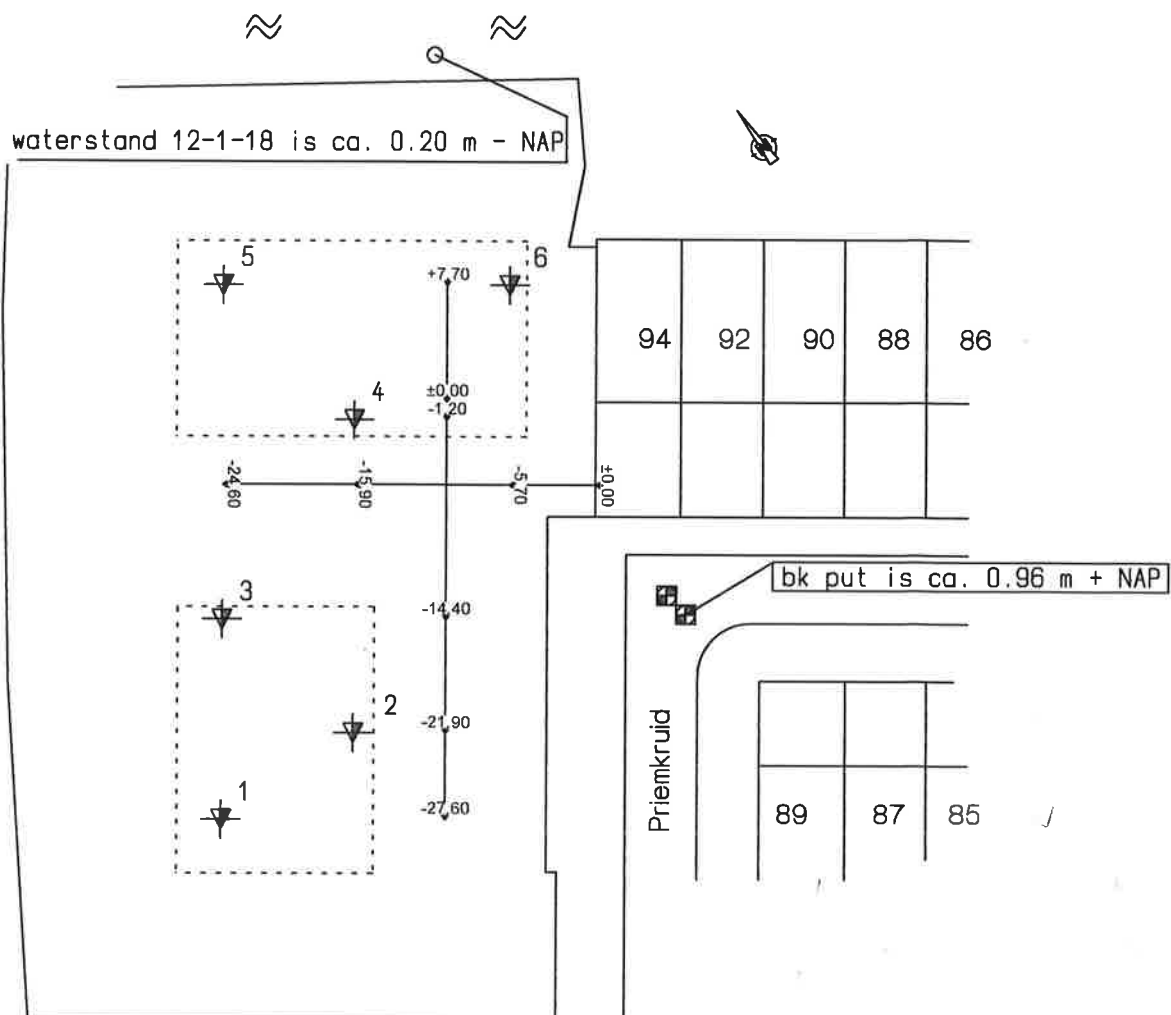
### **Sonderingen**

# GEOSONDA



Franse Akker 13 4824 AL BREDA  
Tel. (076) 5220566 Fax. (076) 5211670

Werk : Breda  
Opdr. nr. : 17129214-1320  
Datum : 12 jan. 2018  
Situatie : ca. 1 : 500  
Opdrachtgever : Bouwbedrijf de Delta BV  
Postbus 8017, 4330 EA Middelburg



| Legenda |                    |
|---------|--------------------|
|         | sondering          |
|         | sondering + boring |
|         | boring             |
|         | referentiepunt     |



Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Opdrachtnr.: 17129214

Sondering: 1

Plaats: Breda

Datum: 12-1-2018

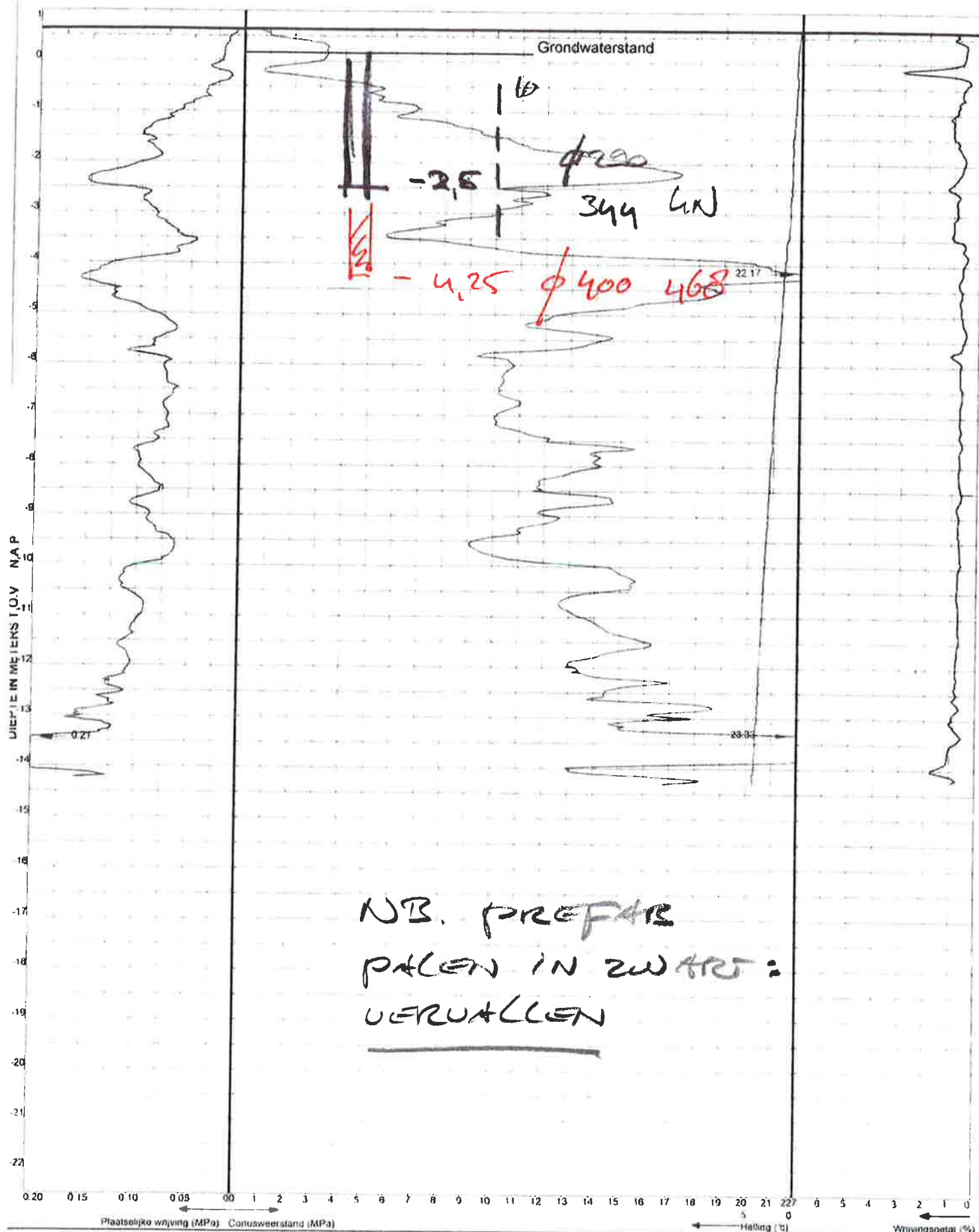
Locatie: Priemkruid

Maaiveldhoogte: 0.66 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand: 0.50 m t.o.v. maaiveld

NEN-EN-ISO 22476-1 K2





Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Opdrachtnr.: 17129214

Sondering: 2

Plaats: Breda

Datum: 12-1-2018

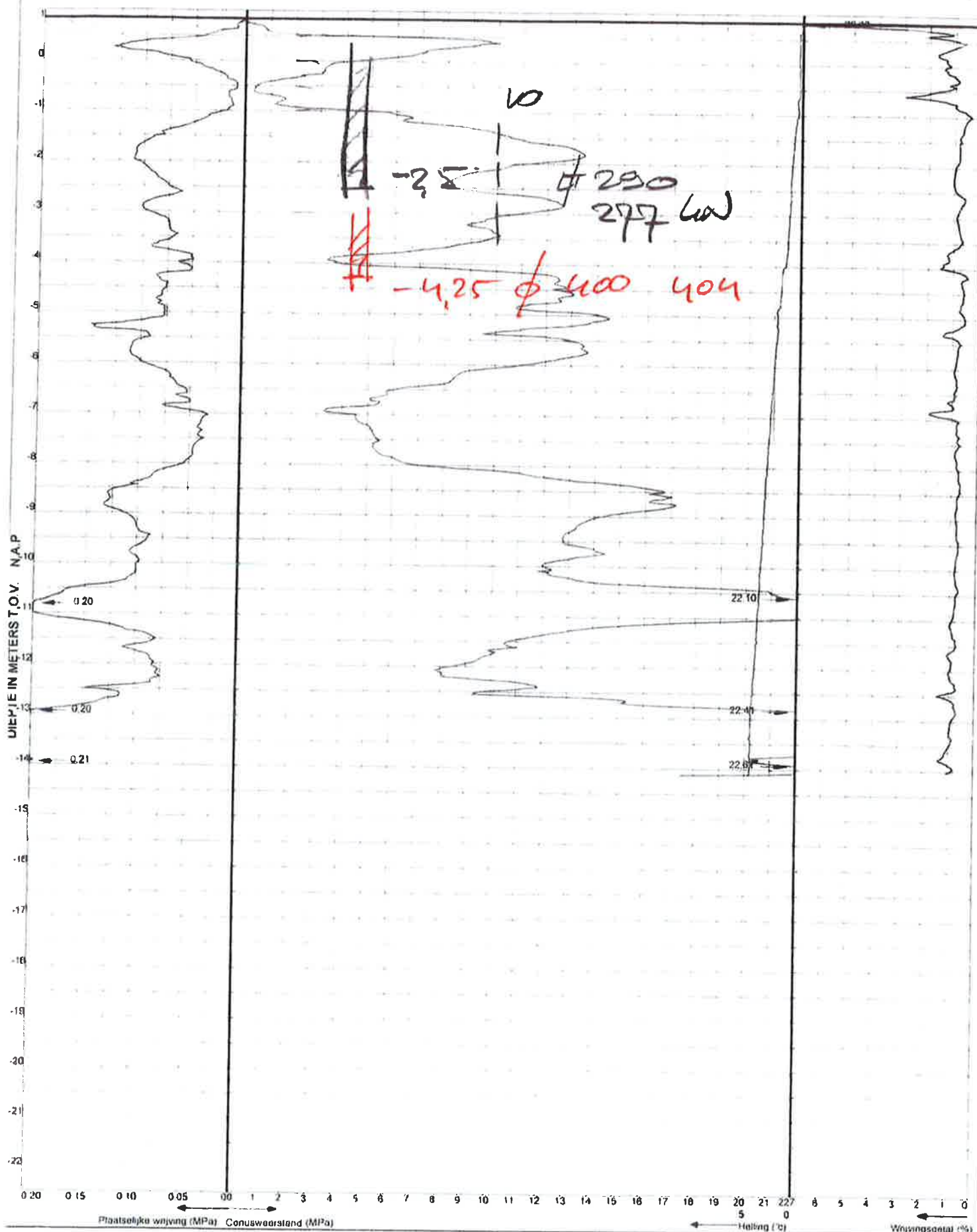
Locatie: Priemkruid

Maaiveldhoogte: 0.86 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand:

m t.o.v. maaiveld NEN-EN-ISO 22476-1 K2





Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Opdrachtnr.: 17129214

Sondering: 3

Plaats: Breda

Datum: 12-1-2018

Locatie: Priemkruid

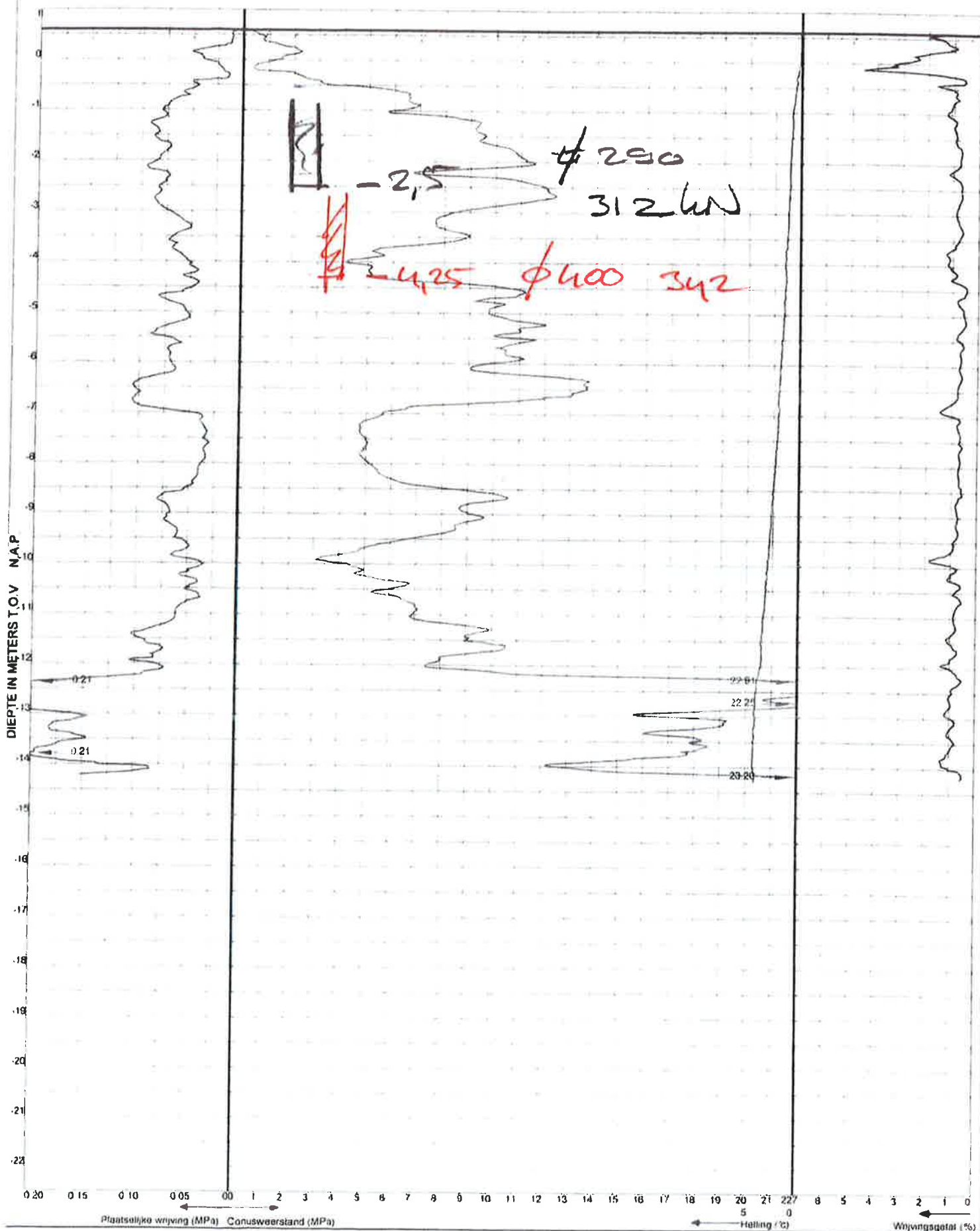
Maaiveldhoogte: 0.62 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand:

m t.o.v. maaiveld

NEN-EN-ISO 22476-1 K2







Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Opdrachtnr.: 17129214

Sondering: 4

Plaats: Breda

Datum: 12-1-2018

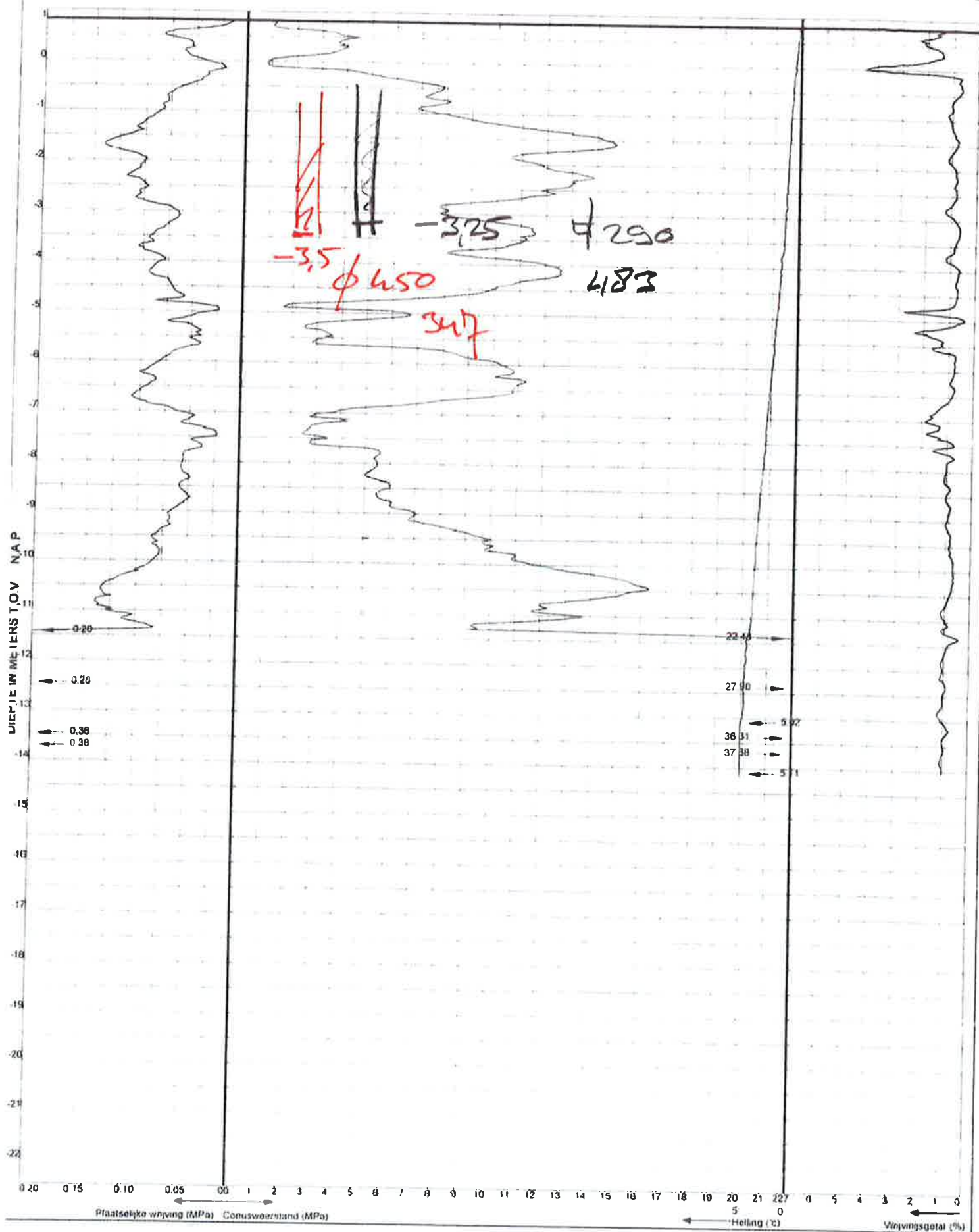
Locatie: Priemkruid

Maaiveldhoogte: 0.84 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand:

m t.o.v. maaiveld NEN-EN-ISO 22476-1 K2





Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Opdrachtnr.: 17129214

Sondering: 5

Plaats: Breda

Datum: 12-1-2018

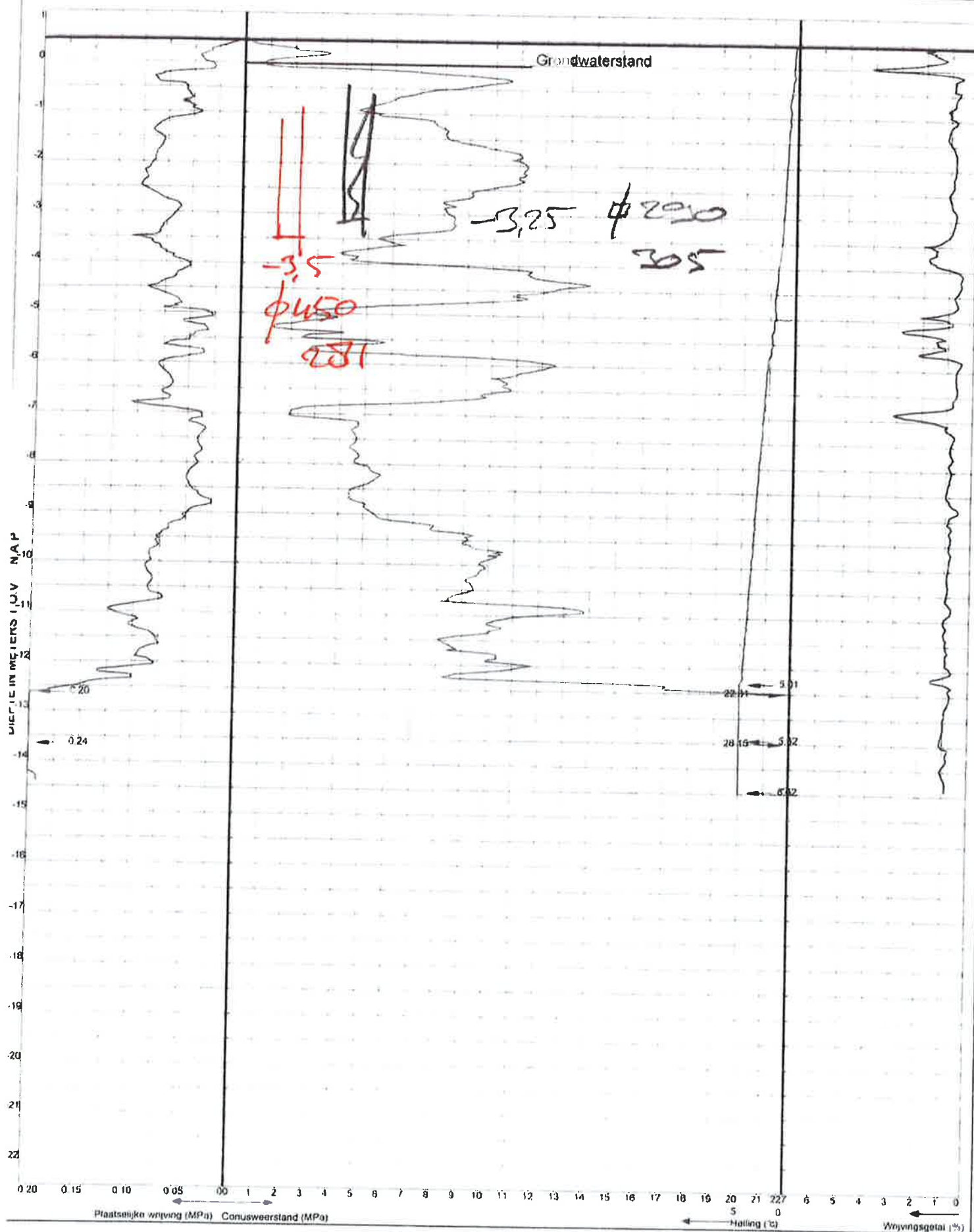
Locatie: Priemkruid

Maaiveldhoogte: 0.47 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand: 0.50 m t.o.v. maaiveld

NEN-EN-ISO 22476-1 K2







Franse Akker 13, 4824 AL Breda  
Tel. (076) 5220566 Fax (076) 5211670

Plaats: Breda

Datum: 12-1-2018

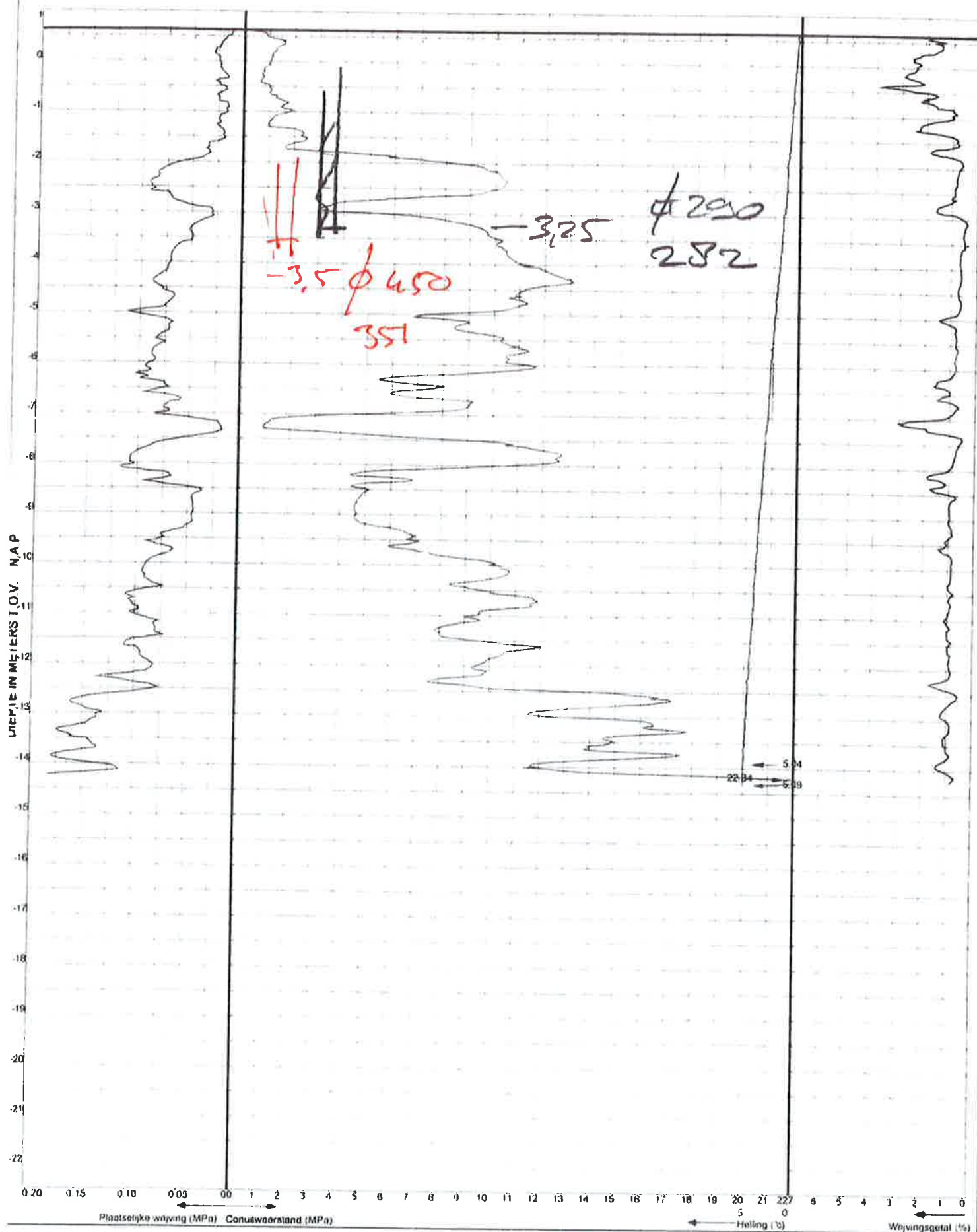
Locatie: Priemkruid

Maaiveldhoogte: 0.65 m t.o.v. N.A.P.

sondering volgens

Grondwaterstand:

m t.o.v. maaiveld NEN-EN-ISO 22476-1 K2



Project...: 2017 047 Priemkruid  
 Onderdeel: Uitkragers balkons  
 Dimensies: kN;m;rad (tenzij anders aangegeven)  
 Datum....: 16/08/2018  
 Bestand...: g:\2017\2017-047 breda, 7 woningen priemkruid, de delta\  
 17-047 adviseurs en derden\17-047 constructeur\17-047  
 berekeningen\2017047staal.rww

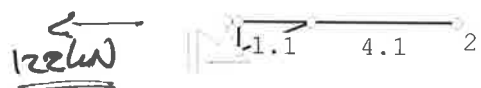
Rekenmodel.....: 1e-orde-elastisch.  
 Theorie voor de bepaling van de krachtsverdeling:  
 Geometrisch lineair.  
 Fysisch lineair.

Gunstige werking van de permanente belasting wordt automatisch verwerkt.

## Toegepaste normen volgens Eurocode met Nederlandse NB

|             |                      |         |             |
|-------------|----------------------|---------|-------------|
| Belastingen | NEN-EN 1990:2002     | C2:2010 | NB:2011(nl) |
|             | NEN-EN 1991-1-1:2002 | C1:2009 | NB:2011(nl) |
| Staal       | NEN-EN 1993-1-1:2006 | C2:2009 | NB:2011(nl) |

## GEOMETRIE



## MATERIALEN

| Mt | Omschrijving | E-modulus[N/mm2] | S.M. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | S235         | 210000           | 78.5 | 0.30  | 1.2000e-05  |
| 2  | S355         | 210000           | 78.5 | 0.30  | 1.2000e-05  |

## PROFIELEN [mm]

| Prof. | Omschrijving | Materiaal | Oppervlak  | Traagheid  | Vormf. |
|-------|--------------|-----------|------------|------------|--------|
| 1     | IPE200       | 1:S235    | 2.8480e+03 | 1.9430e+07 | 0.00   |
| 2     | UNP200       | 1:S235    | 3.2200e+03 | 1.9110e+07 | 0.00   |
| 3     | HEB120       | 1:S235    | 3.4000e+03 | 8.6400e+06 | 0.00   |
| 4     | K60/60/6     | 2:S355    | 1.2574e+03 | 5.9887e+05 | 0.00   |

## PROFIELEN vervolg [mm]

| Prof. | Staaftype | Breedte | Hoogte | e     | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|-------|------|----|----|----|----|
| 1     | 0:Normaal | 100     | 200    | 100.0 |      |    |    |    |    |
| 2     | 0:Normaal | 75      | 200    | 100.0 |      |    |    |    |    |
| 3     | 0:Normaal | 120     | 120    | 60.0  |      |    |    |    |    |
| 4     | 0:Normaal | 60      | 60     | 30.0  |      |    |    |    |    |

Project...: 2017 047 Priemkruid

Onderdeel: Uitkragers balkons

**PROFIELVORMEN [mm]**

1 IPE200



2 UNP200



3 HEB120



4 K60/60/6

**KNOPEN**

| Knoop | X     | Z      | Knoop | X      | Z      |
|-------|-------|--------|-------|--------|--------|
| 1     | 0.000 | 0.000  | 6     | -0.000 | -3.400 |
| 2     | 3.000 | 0.000  | 7     | -0.150 | 0.000  |
| 3     | 0.000 | -3.000 | 8     | -0.150 | -3.000 |
| 4     | 3.000 | -3.000 | 9     | 1.000  | -3.000 |
| 5     | 0.000 | -0.400 | 10    | 1.000  | 0.000  |

**STAVEN**

| St. | ki | kj | Profiel    | Aansl.i | Aansl.j | Lengte Opm. |
|-----|----|----|------------|---------|---------|-------------|
| 1   | 1  | 10 | 1:IPE200   | NDM     | NDM     | 1.000       |
| 2   | 3  | 9  | 2:UNP200   | NDM     | NDM     | 1.000       |
| 3   | 9  | 4  | 2:UNP200   | NDM     | NDM     | 2.000       |
| 4   | 10 | 2  | 1:IPE200   | NDM     | NDM     | 2.000       |
| 5   | 5  | 10 | 4:K60/60/6 | NDM     | NDM     | 1.077       |
| 6   | 6  | 9  | 4:K60/60/6 | NDM     | NDM     | 1.077       |
| 7   | 6  | 3  | 3:HEB120   | NDM     | NDM     | 0.400       |
| 8   | 5  | 1  | 3:HEB120   | NDM     | NDM     | 0.400       |
| 9   | 7  | 1  | 4:K60/60/6 | NDM     | NDM     | 0.150       |
| 10  | 8  | 3  | 4:K60/60/6 | NDM     | NDM     | 0.150       |

**VASTE STEUNPUNTEN**

| Nr. | knoop | Kode | XZR 1=vast 0=vrij | Hoek |
|-----|-------|------|-------------------|------|
| 1   | 5     | 100  |                   | 0.00 |
| 2   | 6     | 100  |                   | 0.00 |
| 3   | 7     | 110  |                   | 0.00 |
| 4   | 8     | 110  |                   | 0.00 |

**BELASTINGGEVALLEN**

| B.G. | Omschrijving         | Type                          |
|------|----------------------|-------------------------------|
| 1    | Permanente belasting | EGZ=-1.00 1                   |
| 2    | Variabele belasting  | 2 Ver. bel. pers. ed. (p_rep) |

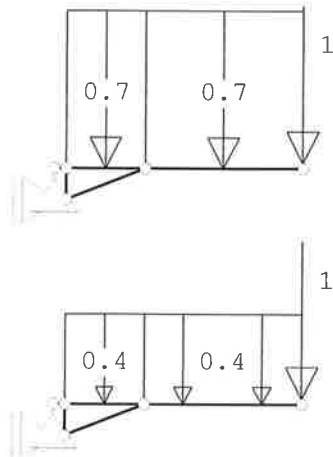
Project...: 2017 047 Priemkruid

Onderdeel: Uitkragers balkons

## BELASTINGEN

B.G:1 Permanente belasting

Eigen gewicht van alle staven is meegenomen in berekening. Richting:↓



## KNOOPBELASTINGEN

B.G:1 Permanente belasting

| Last | Knoop | Richting | waarde | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|------|-------|----------|--------|----------|----------|----------|
| 1    | 2     | Z        | -1.000 |          |          |          |
| 2    | 4     | Z        | -1.000 |          |          |          |

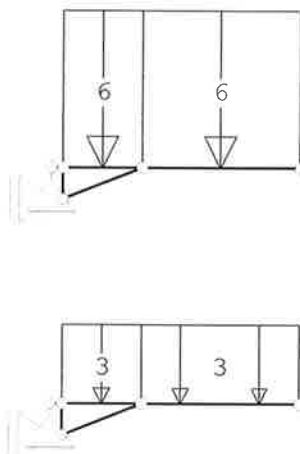
## STAAFBELASTINGEN

B.G:1 Permanente belasting

| Staat | Type       | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-------|------------|--------|-------|-------|-------|----------|----------|----------|
| 1     | 1:QZLokaal | -0.70  | -0.70 | 0.000 | 0.000 |          |          |          |
| 2     | 1:QZLokaal | -0.40  | -0.40 | 0.000 | 0.000 |          |          |          |
| 3     | 1:QZLokaal | -0.40  | -0.40 | 0.000 | 0.000 |          |          |          |
| 4     | 1:QZLokaal | -0.70  | -0.70 | 0.000 | 0.000 |          |          |          |

## BELASTINGEN

B.G:2 Variabele belasting



## STAAFBELASTINGEN

B.G:2 Variabele belasting

| Staat | Type       | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-------|------------|--------|-------|-------|-------|----------|----------|----------|
| 1     | 1:QZLokaal | -6.00  | -6.00 | 0.000 | 0.000 | 0.4      | 0.5      | 0.3      |
| 2     | 1:QZLokaal | -3.00  | -3.00 | 0.000 | 0.000 | 0.4      | 0.5      | 0.3      |
| 3     | 1:QZLokaal | -3.00  | -3.00 | 0.000 | 0.000 | 0.4      | 0.5      | 0.3      |
| 4     | 1:QZLokaal | -6.00  | -6.00 | 0.000 | 0.000 | 0.4      | 0.5      | 0.3      |

Project...: 2017 047 Priemkruid

Onderdeel: Uitkragers balkons

**BELASTINGCOMBINATIES**

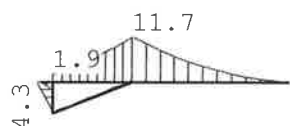
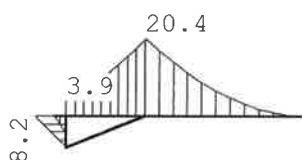
| BC Type |      |           |   |                |
|---------|------|-----------|---|----------------|
| 1 Fund. | 1.10 | $G_{k,1}$ | + | 1.35 $Q_{k,2}$ |
| 2 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,2}$ |
| 3 Blij. | 1.00 | $G_{k,1}$ |   |                |

**GUNSTIGE WERKING PERMANENTE BELASTINGEN**

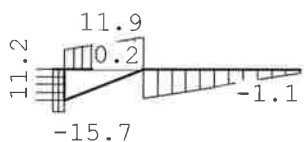
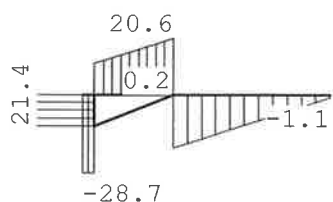
| BC Staven met gunstige werking |      |  |  |  |
|--------------------------------|------|--|--|--|
| 1                              | Geen |  |  |  |

**OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES****MOMENTEN**

Fundamentele combinatie

**DWARSKRACHTEN**

Fundamentele combinatie

**REACTIES**

Fundamentele combinatie

| Kn. | X      | Z | M |
|-----|--------|---|---|
| 5   | 121.71 |   |   |
| 6   | 67.90  |   |   |

Project...: 2017 047 Priemkruid

Onderdeel: Uitkragers balkons

**REACTIES**

Fundamentele combinatie

| Kn. | X       | Z     | M |
|-----|---------|-------|---|
| 7   | -121.71 | 28.70 |   |
| 8   | -67.90  | 15.65 |   |

**STAALPROFIELEN - ALGEMENE GEGEVENS**

Stabiliteit: Classificatie gehele constructie: Geschoord

Doorbuiging en verplaatsing:

Aantal bouwlagen: 1

Gebouwtype: Overig

Toel. horiz. verplaatsing gehele gebouw: h/300

Kleinste gevelhoogte [m]: 0.0

**MATERIAAL**

| Mat nr. | Profielnaam | Vloeisp. [N/mm <sup>2</sup> ] | Productie methode | Min. drsn. klasse |
|---------|-------------|-------------------------------|-------------------|-------------------|
| 1       | IPE200      | 235                           | Gewalst           | 1                 |
| 2       | UNP200      | 235                           | Gewalst           | 1                 |
| 3       | HEB120      | 235                           | Gewalst           | 1                 |
| 4       | K60/60/6    | 355                           | Warmgewalst       | 1                 |

Partiële veiligheidsfactoren:

Gamma M;0 : 1.00 Gamma M;1 : 1.00

**KNIKSTABILITEIT**

| Staafl | l <sub>sys</sub> [m] | Classif. y<br>sterke as | l <sub>knik;y</sub> [m] | Extra        |                         | l <sub>knik;z</sub> [m] | Extra        |  |
|--------|----------------------|-------------------------|-------------------------|--------------|-------------------------|-------------------------|--------------|--|
|        |                      |                         |                         | aanp. y [kN] | Classif. z<br>zwakke as |                         | aanp. z [kN] |  |
| 1-4    | 3.000                | Geschoord               | 3.000                   | 0.0          | Geschoord               | 3.000                   | 0.0          |  |
| 2-3    | 3.000                | Geschoord               | 3.000                   | 0.0          | Geschoord               | 3.000                   | 0.0          |  |
| 5      | 1.077                | Geschoord               | 1.077                   | 0.0          | Geschoord               | 1.077                   | 0.0          |  |
| 6      | 1.077                | Geschoord               | 1.077                   | 0.0          | Geschoord               | 1.077                   | 0.0          |  |
| 7      | 0.400                | Geschoord               | 0.400                   | 0.0          | Geschoord               | 0.400                   | 0.0          |  |
| 8      | 0.400                | Geschoord               | 0.400                   | 0.0          | Geschoord               | 0.400                   | 0.0          |  |
| 9      | 0.150                | Geschoord               | 0.150                   | 0.0          | Geschoord               | 0.150                   | 0.0          |  |
| 10     | 0.150                | Geschoord               | 0.150                   | 0.0          | Geschoord               | 0.150                   | 0.0          |  |

**KIPSTABILITEIT**

| Staafl | Plts. aangr. | l gaffel [m] | Kipsteunafstanden [m] |         |
|--------|--------------|--------------|-----------------------|---------|
| 1-4    | 1.0*h        | boven:       | 3.00                  | 1,5;1,5 |
|        |              | onder:       | 3.00                  | 1,5;1,5 |
| 2-3    | 1.0*h        | boven:       | 3.00                  | 1,5;1,5 |
|        |              | onder:       | 3.00                  | 1,5;1,5 |
| 5      | 0.0*h        | boven:       | 1.08                  | 1.077   |
|        |              | onder:       | 1.08                  | 1.077   |
| 6      | 0.0*h        | boven:       | 1.08                  | 1.077   |
|        |              | onder:       | 1.08                  | 1.077   |
| 7      | 1.0*h        | boven:       | 0.40                  | 0.400   |
|        |              | onder:       | 0.40                  | 0.400   |
| 8      | 1.0*h        | boven:       | 0.40                  | 0.400   |
|        |              | onder:       | 0.40                  | 0.400   |
| 9      | 1.0*h        | boven:       | 0.15                  | 0.150   |
|        |              | onder:       | 0.15                  | 0.150   |
| 10     | 1.0*h        | boven:       | 0.15                  | 0.150   |
|        |              | onder:       | 0.15                  | 0.150   |

Project...: 2017 047 Priemkruid

Onderdeel: Uitkragers balkons

**TOETSING SPANNINGEN**

| Staafl<br>nr. | Mat | BC | Sit | Kl | Plaats | Norm    | Artikel | Formule | Hoogste toetsing<br>U.C. [N/mm <sup>2</sup> ] |     | Opm.  |
|---------------|-----|----|-----|----|--------|---------|---------|---------|-----------------------------------------------|-----|-------|
| 1-4           | 1   | 1  | 1   | 1  | My-max | EN3-1-1 | 6.2.10  | (6.31)  | 0.394                                         | 93  | 42,46 |
| 2-3           | 2   | 1  | 1   | 1  | 0.998  | EN3-1-1 | 6.2.1   | (6.2)   | 0.288                                         | 68  | 42,76 |
| 5             | 4   | 1  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.332                                         | 118 |       |
| 6             | 4   | 1  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.186                                         | 66  |       |
| 7             | 3   | 1  | 1   | 1  | Staafl | EN3-1-1 | 6.3.1.1 | T(6.46) | 0.115                                         | 27  | 8,4   |
| 8             | 3   | 1  | 1   | 1  | Staafl | EN3-1-1 | 6.3.1.1 | T(6.46) | 0.220                                         | 52  | 8,4   |
| 9             | 4   | 1  | 1   | 1  | Einde  | EN3-1-1 | 6.2.10  | (6.31)  | 0.522                                         | 185 |       |
| 10            | 4   | 1  | 1   | 1  | Begin  | EN3-1-1 | 6.2.1   | N+D     | 0.274                                         | 97  |       |

Opmerkingen:

[ 4] Controle gedrukte T-rand houdt geen rekening met 2e-orde-wringing.

[ 8] Controle van de gedrukte rand is toegepast (zonder buiging!).

[ 42] **Waarschuwing: Er sluiten tussentijds staven en/of opleggingen aan.**

[ 46] T.b.v. kip is een equivalente Q-last berekend.

[ 76] **Toetsing van kipstabiliteit voor dit profieltype is niet voorzien.****TOETSING DOORBUIGING**

| Staafl | Soort | Mtg | Lengte | Overst | Zeeg | u <sub>tot</sub> | BC    | Sit      | u     | Toelaatbaar   |
|--------|-------|-----|--------|--------|------|------------------|-------|----------|-------|---------------|
|        |       |     | [m]    | I      | J    | [mm]             |       |          | [mm]  | *1            |
| 1-4    | Vloer | ss  | 3.00   | N      | J    | 0.0              | -10.8 | 2 1 Eind | -10.8 | ±24.0 2*0.004 |
|        |       | ss  |        |        |      |                  |       | 2 1 Bijk | -8.2  | ±18.0 2*0.003 |
| 2-3    | Vloer | ss  | 3.00   | N      | J    | 0.0              | -6.4  | 2 1 Eind | -6.4  | ±24.0 2*0.004 |
|        |       | ss  |        |        |      |                  |       | 2 1 Bijk | -4.1  | ±18.0 2*0.003 |
| 9      | Vloer | ss  | 0.15   | N      | N    | 0.0              | -0.3  | 2 1 Eind | -0.3  | ±1.2 2*0.004  |
|        |       | ss  |        |        |      |                  |       | 2 1 Bijk | -0.2  | ±0.9 2*0.003  |
| 10     | Vloer | ss  | 0.15   | N      | N    | 0.0              | -0.2  | 2 1 Eind | -0.2  | ±1.2 2*0.004  |
|        |       | ss  |        |        |      |                  |       | 2 1 Bijk | -0.1  | ±0.9 2*0.003  |