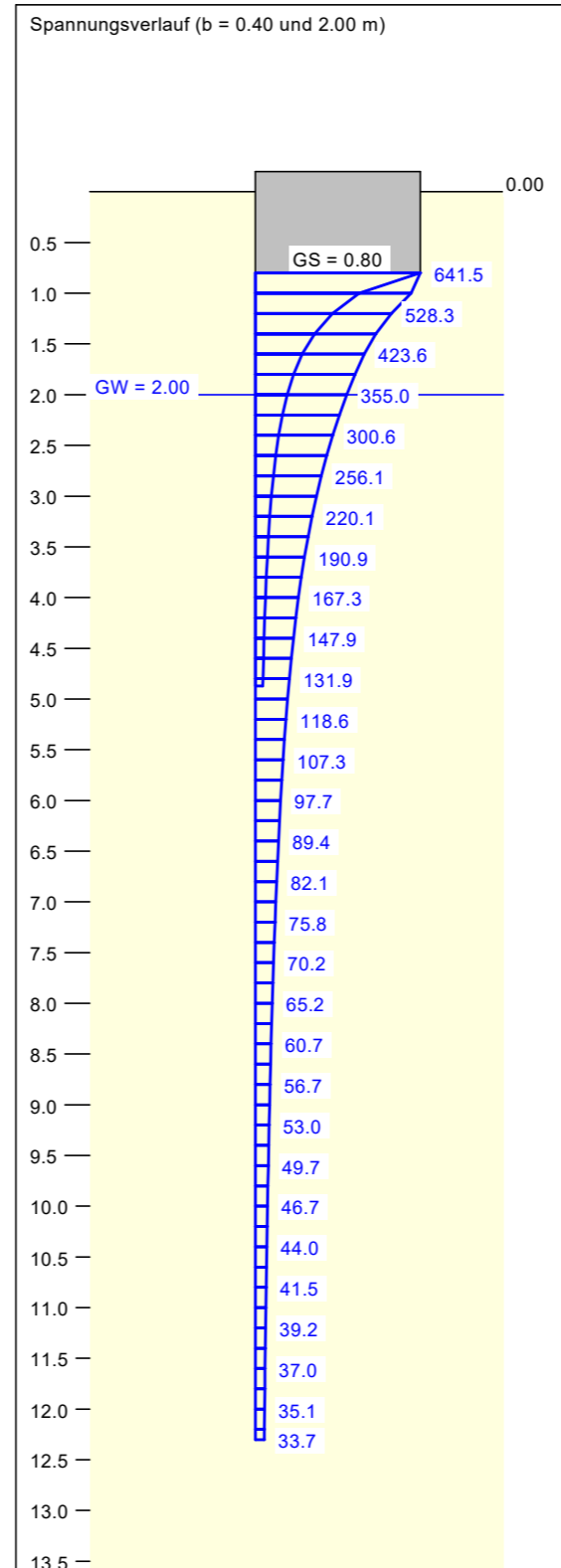
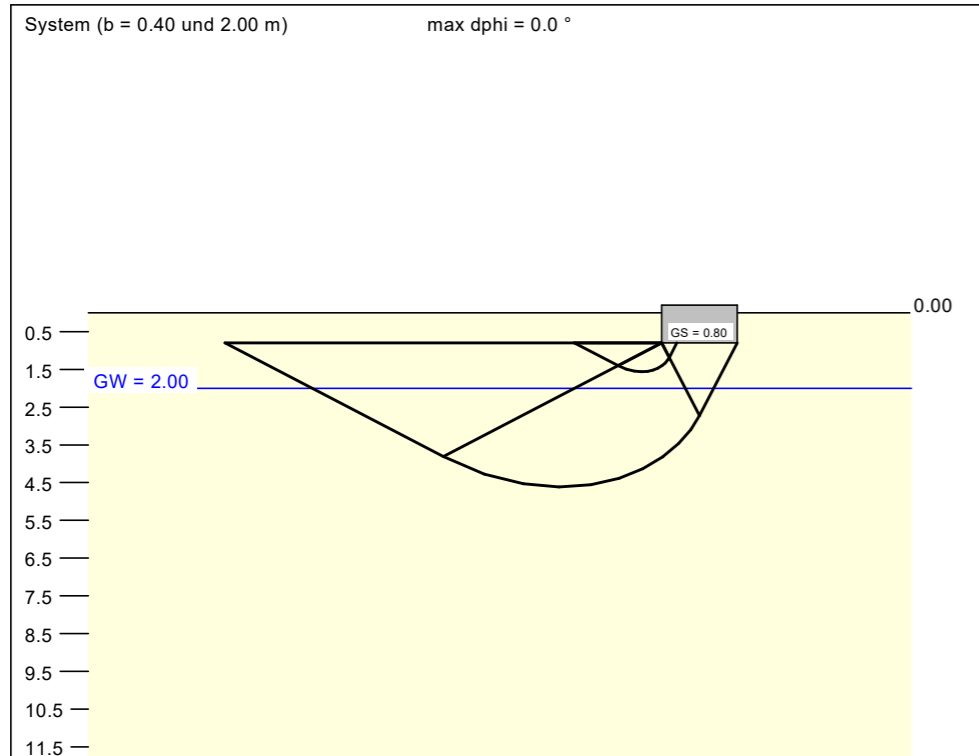


Boden	$\gamma$ [kN/m <sup>3</sup> ]	$\gamma'$ [kN/m <sup>3</sup> ]	$\varphi$ [°]	c [kN/m <sup>2</sup> ]	$E_s$ [MN/m <sup>2</sup> ]	$\nu$ [-]	Bezeichnung
	21.0	11.0	35.0	0.0	100.0	0.00	Kies



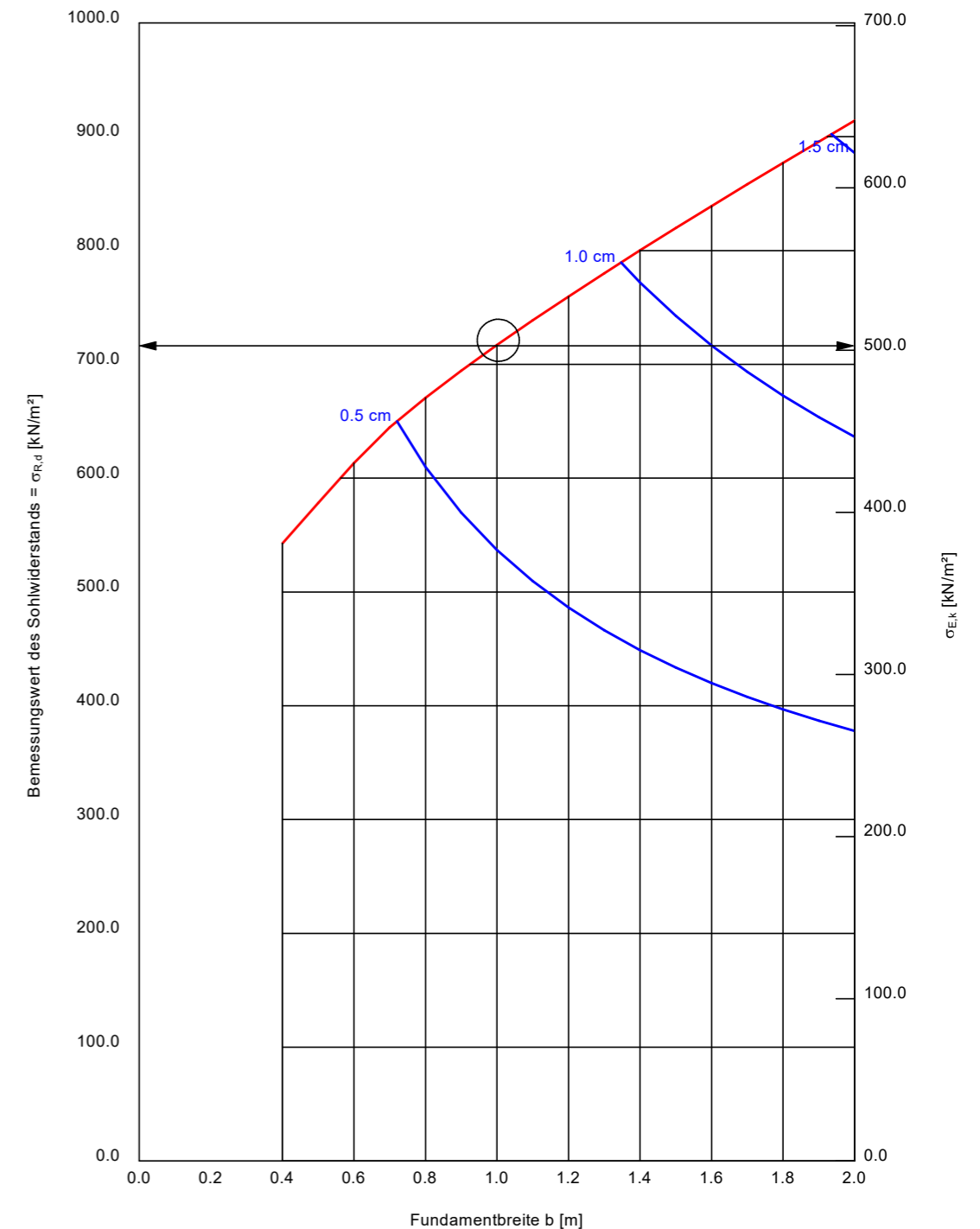
Berechnungsgrundlagen:  
 Norm: EC 7  
 BS: DIN 1054: BS-P  
 Grundbruchformel nach DIN 4017:2006  
 Teilsicherheitskonzept (EC 7)  
 Streifenfundament (a = 10.00 m)  
 $\gamma_{R,v} = 1.40$   
 $\gamma_G = 1.35$   
 $\gamma_Q = 1.50$   
 Anteil Veränderliche Lasten = 0.500

$\gamma_{(G,Q)} = 0.500 \cdot \gamma_Q + (1 - 0.500) \cdot \gamma_G$   
 $\gamma_{(G,Q)} = 1.425$   
 Gründungssohle = 0.80 m  
 Grundwasser = 2.00 m  
 Vorbelastung = 50.0 kN/m<sup>2</sup>  
 Grenztiefe mit p = 20.0 %  
 Grenztiefen spannungsvariabel bestimmt

— Sohldruck  
 — Setzungen

a [m]	b [m]	$\sigma_{R,d}$ [kN/m <sup>2</sup> ]	$R_{n,d}$ [kN/m]	$\sigma_{E,k}$ [kN/m <sup>2</sup> ]	s [cm]	cal $\varphi$ [°]	cal c [kN/m <sup>2</sup> ]	$\gamma_2$ [kN/m <sup>3</sup> ]	$\sigma_0$ [kN/m <sup>2</sup> ]	$t_g$ [m]	UK LS [m]
10.00	0.40	542.8	217.1	380.9	0.25 *	35.0	0.00	21.00	16.80	4.87	1.56
10.00	0.50	578.1	289.0	405.7	0.33 *	35.0	0.00	21.00	16.80	5.55	1.75
10.00	0.60	613.2	367.9	430.3	0.41 *	35.0	0.00	21.00	16.80	6.19	1.94
10.00	0.70	644.6	451.2	452.3	0.49 *	35.0	0.00	20.69	16.80	6.78	2.14
10.00	0.80	670.6	536.4	470.6	0.56 *	35.0	0.00	20.03	16.80	7.32	2.33
10.00	0.90	694.4	624.9	487.3	0.64 *	35.0	0.00	19.39	16.80	7.83	2.52
10.00	1.00	716.9	716.9	503.1	0.72 *	35.0	0.00	18.79	16.80	8.32	2.71
10.00	1.10	738.6	812.5	518.3	0.80 *	35.0	0.00	18.27	16.80	8.78	2.90
10.00	1.20	759.6	911.5	533.0	0.88 *	35.0	0.00	17.80	16.80	9.22	3.09
10.00	1.30	780.1	1014.1	547.4	0.96 *	35.0	0.00	17.38	16.80	9.65	3.28
10.00	1.40	800.1	1120.1	561.5	1.04 *	35.0	0.00	17.01	16.80	10.06	3.47
10.00	1.50	819.8	1229.7	575.3	1.13 *	35.0	0.00	16.68	16.80	10.46	3.66
10.00	1.60	839.2	1342.6	588.9	1.21 *	35.0	0.00	16.38	16.80	10.85	3.85
10.00	1.70	858.2	1459.0	602.3	1.30 *	35.0	0.00	16.11	16.80	11.23	4.04
10.00	1.80	877.1	1578.8	615.5	1.38 *	35.0	0.00	15.86	16.80	11.59	4.23
10.00	1.90	895.7	1701.9	628.6	1.47 *	35.0	0.00	15.64	16.80	11.95	4.42
10.00	2.00	914.1	1828.2	641.5	1.56 *	35.0	0.00	15.44	16.80	12.30	4.62

\* Vorbelastung = 50.0 kN/m<sup>2</sup>  
 $\sigma_{E,k} = \sigma_{of,k} / (\gamma_{R,v} \cdot \gamma_{(G,Q)}) = \sigma_{of,k} / (1.40 \cdot 1.43) = \sigma_{of,k} / 1.99$  (für Setzungen)  
 Verhältnis Veränderliche(Q)/Gesamtlasten(G+Q) [-] = 0.50



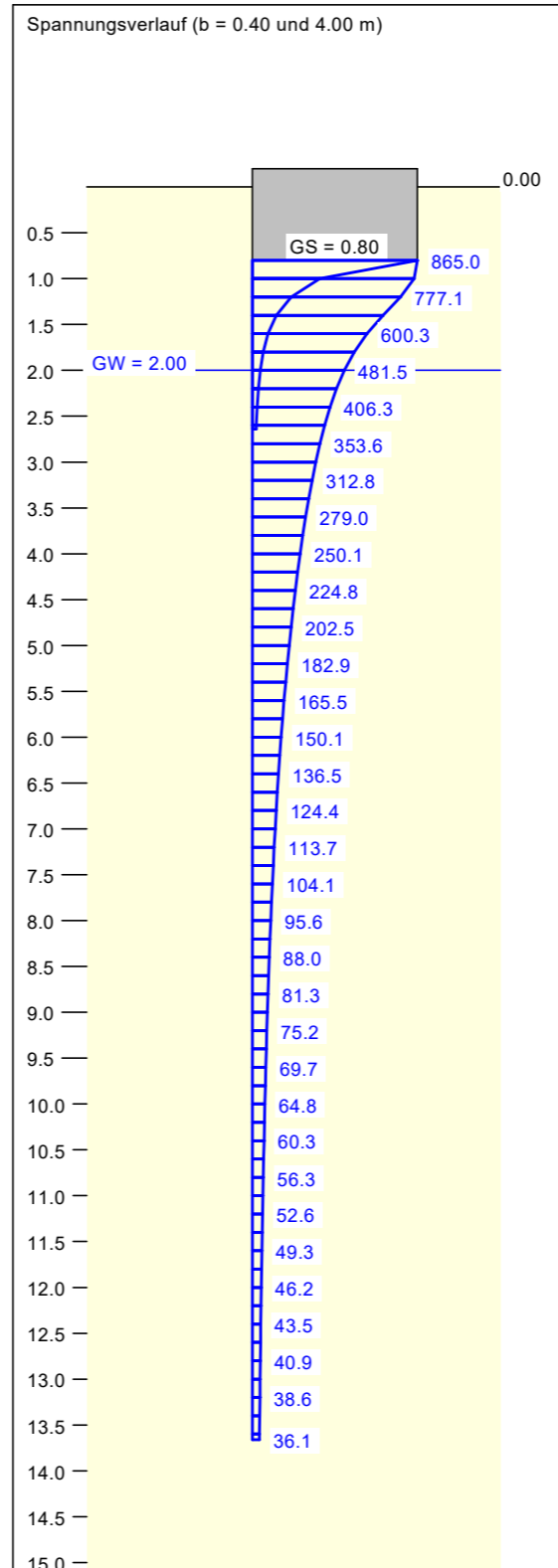
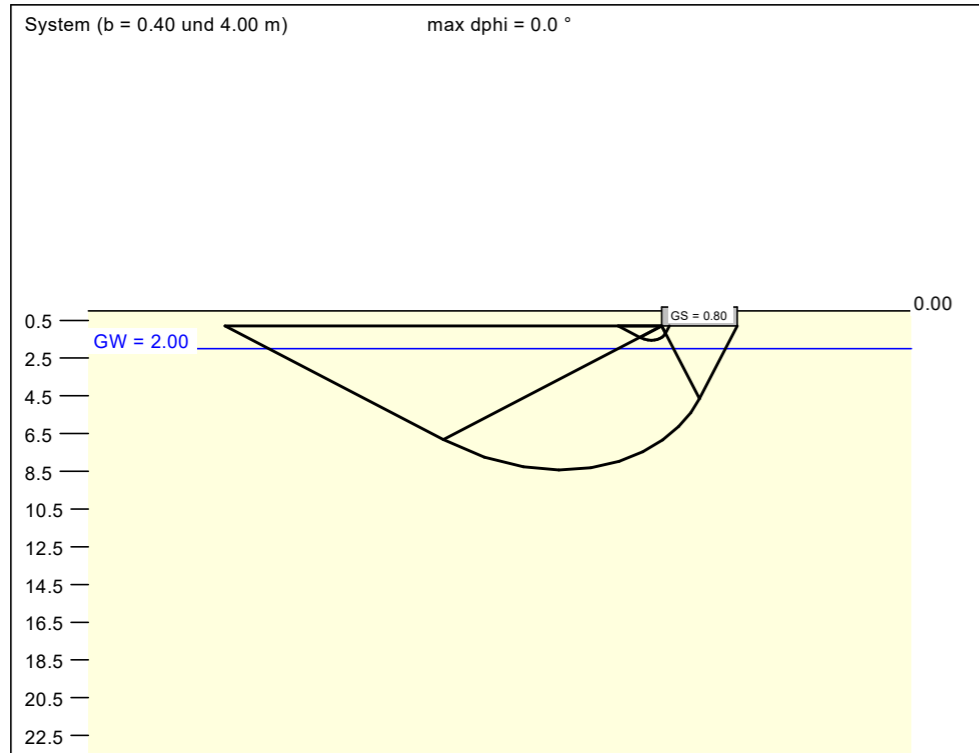
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 08032/91220

Ottobrunn  
 Alte Landstraße 17  
 Einzelfundament

AZ:19-11-04

Anlage 4.2

Boden	$\gamma$ [kN/m <sup>3</sup> ]	$\gamma'$ [kN/m <sup>3</sup> ]	$\phi$ [°]	c [kN/m <sup>2</sup> ]	$E_s$ [MN/m <sup>2</sup> ]	$\nu$ [-]	Bezeichnung
	21.0	11.0	35.0	0.0	100.0	0.00	Kies



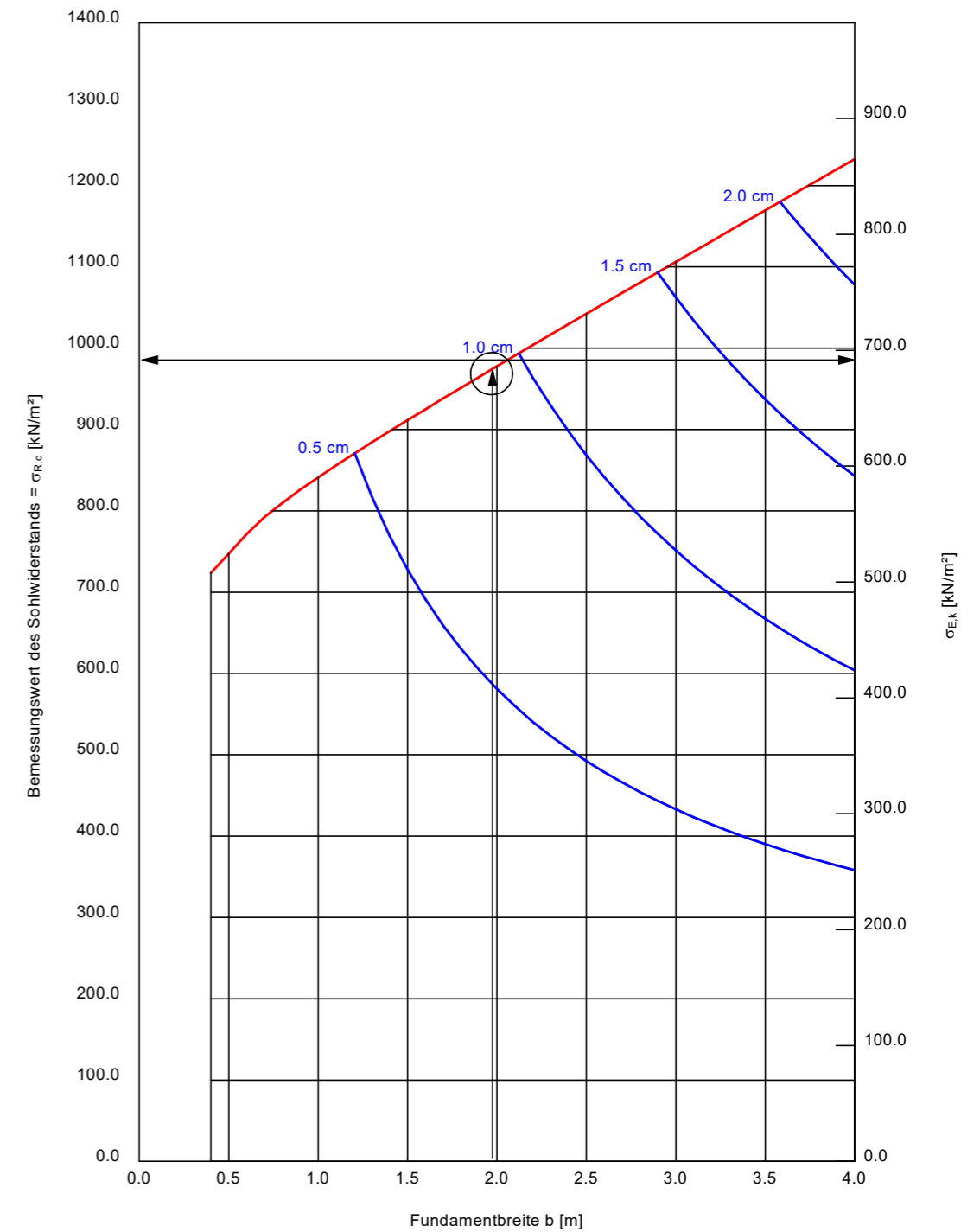
Berechnungsgrundlagen:  
 Norm: EC 7  
 BS: DIN 1054: BS-P  
 Grundbruchformel nach DIN 4017:2006  
 Teilsicherheitskonzept (EC 7)  
 Einzelfundament (a/b = 1.00)  
 $\gamma_{R,v} = 1.40$   
 $\gamma_G = 1.35$   
 $\gamma_Q = 1.50$   
 Anteil Veränderliche Lasten = 0.500

$\gamma_{(G,Q)} = 0.500 \cdot \gamma_Q + (1 - 0.500) \cdot \gamma_G$   
 $\gamma_{(G,Q)} = 1.425$   
 Gründungssohle = 0.80 m  
 Grundwasser = 2.00 m  
 Vorbelastung = 50.0 kN/m<sup>2</sup>  
 Grenztiefe mit p = 20.0 %  
 Grenztiefen spannungsvariabel bestimmt

— Sohldruck  
 — Setzungen

a [m]	b [m]	$\sigma_{R,d}$ [kN/m <sup>2</sup> ]	$R_{n,d}$ [kN]	$\sigma_{E,k}$ [kN/m <sup>2</sup> ]	s [cm]	cal $\phi$ [°]	cal c [kN/m <sup>2</sup> ]	$\gamma_2$ [kN/m <sup>3</sup> ]	$\sigma_0$ [kN/m <sup>2</sup> ]	$t_g$ [m]	UK LS [m]
0.40	0.40	723.7	115.8	507.9	0.14 *	35.0	0.00	21.00	16.80	2.64	1.56
0.50	0.50	747.5	186.9	524.5	0.18 *	35.0	0.00	21.00	16.80	3.04	1.75
0.60	0.60	771.2	277.6	541.2	0.22 *	35.0	0.00	21.00	16.80	3.43	1.94
0.70	0.70	792.5	388.3	556.1	0.27 *	35.0	0.00	20.69	16.80	3.81	2.14
0.80	0.80	809.9	518.4	568.4	0.31 *	35.0	0.00	20.03	16.80	4.17	2.33
0.90	0.90	826.0	669.1	579.6	0.36 *	35.0	0.00	19.39	16.80	4.52	2.52
1.00	1.00	841.2	841.2	590.3	0.40 *	35.0	0.00	18.79	16.80	4.86	2.71
1.10	1.10	855.9	1035.6	600.6	0.45 *	35.0	0.00	18.27	16.80	5.19	2.90
1.20	1.20	870.2	1253.1	610.7	0.50 *	35.0	0.00	17.80	16.80	5.52	3.09
1.30	1.30	884.2	1494.3	620.5	0.55 *	35.0	0.00	17.38	16.80	5.85	3.28
1.40	1.40	898.0	1760.0	630.1	0.60 *	35.0	0.00	17.01	16.80	6.16	3.47
1.50	1.50	911.6	2051.0	639.7	0.65 *	35.0	0.00	16.68	16.80	6.48	3.66
1.60	1.60	925.0	2368.0	649.1	0.70 *	35.0	0.00	16.38	16.80	6.79	3.85
1.70	1.70	938.3	2711.8	658.5	0.76 *	35.0	0.00	16.11	16.80	7.10	4.04
1.80	1.80	951.6	3083.1	667.8	0.81 *	35.0	0.00	15.86	16.80	7.40	4.23
1.90	1.90	964.7	3482.6	677.0	0.87 *	35.0	0.00	15.64	16.80	7.70	4.42
2.00	2.00	977.8	3911.1	686.2	0.93 *	35.0	0.00	15.44	16.80	8.00	4.62
2.10	2.10	990.8	4369.4	695.3	0.99 *	35.0	0.00	15.25	16.80	8.30	4.81
2.20	2.20	1003.8	4858.2	704.4	1.05 *	35.0	0.00	15.08	16.80	8.59	5.00
2.30	2.30	1016.7	5378.2	713.5	1.11 *	35.0	0.00	14.92	16.80	8.89	5.19
2.40	2.40	1029.6	5930.3	722.5	1.17 *	35.0	0.00	14.77	16.80	9.18	5.38
2.50	2.50	1042.4	6515.0	731.5	1.24 *	35.0	0.00	14.63	16.80	9.47	5.57
2.60	2.60	1055.2	7133.2	740.5	1.30 *	35.0	0.00	14.51	16.80	9.75	5.76
2.70	2.70	1068.0	7785.7	749.5	1.37 *	35.0	0.00	14.39	16.80	10.04	5.95
2.80	2.80	1080.8	8473.1	758.4	1.43 *	35.0	0.00	14.28	16.80	10.32	6.14
2.90	2.90	1093.5	9196.3	767.4	1.50 *	35.0	0.00	14.17	16.80	10.61	6.33
3.00	3.00	1106.2	9955.9	776.3	1.57 *	35.0	0.00	14.08	16.80	10.89	6.52
3.10	3.10	1118.9	10752.7	785.2	1.64 *	35.0	0.00	13.98	16.80	11.17	6.71
3.20	3.20	1131.6	11587.5	794.1	1.71 *	35.0	0.00	13.90	16.80	11.45	6.90
3.30	3.30	1144.3	12461.0	803.0	1.79 *	35.0	0.00	13.82	16.80	11.73	7.10
3.40	3.40	1156.9	13373.9	811.9	1.86 *	35.0	0.00	13.74	16.80	12.01	7.29
3.50	3.50	1169.6	14327.0	820.7	1.94 *	35.0	0.00	13.67	16.80	12.28	7.48
3.60	3.60	1182.2	15321.1	829.6	2.01 *	35.0	0.00	13.60	16.80	12.56	7.67
3.70	3.70	1194.8	16356.8	838.5	2.09 *	35.0	0.00	13.53	16.80	12.84	7.86
3.80	3.80	1207.4	17435.0	847.3	2.17 *	35.0	0.00	13.47	16.80	13.11	8.05
3.90	3.90	1220.0	18556.4	856.2	2.25 *	35.0	0.00	13.41	16.80	13.39	8.24
4.00	4.00	1232.6	19721.7	865.0	2.33 *	35.0	0.00	13.35	16.80	13.66	8.43

\* Vorbelastung = 50.0 kN/m<sup>2</sup>  
 $\sigma_{E,k} = \sigma_{of,k} / (\gamma_{R,v} \cdot \gamma_{(G,Q)}) = \sigma_{of,k} / (1.40 \cdot 1.43) = \sigma_{of,k} / 1.99$  (für Setzungen)  
 Verhältnis Veränderliche(Q)/Gesamtlasten(G+Q) [-] = 0.50



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 Achenweg 3  
 83101 Rohrdorf  
 08032/91220

Ottobrunn  
 Alte Landstraße 17  
 Bodenplatte

AZ:19-11-04

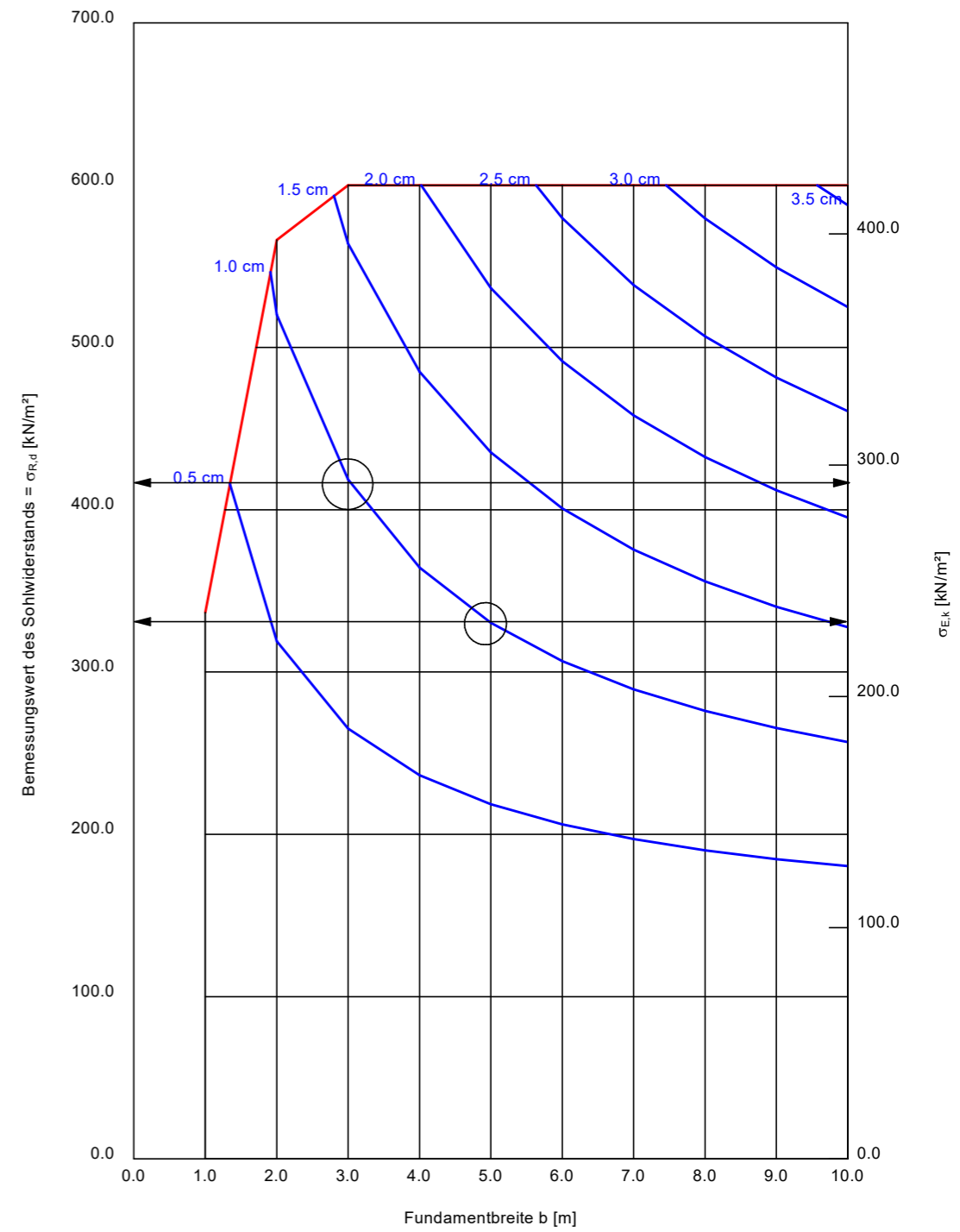
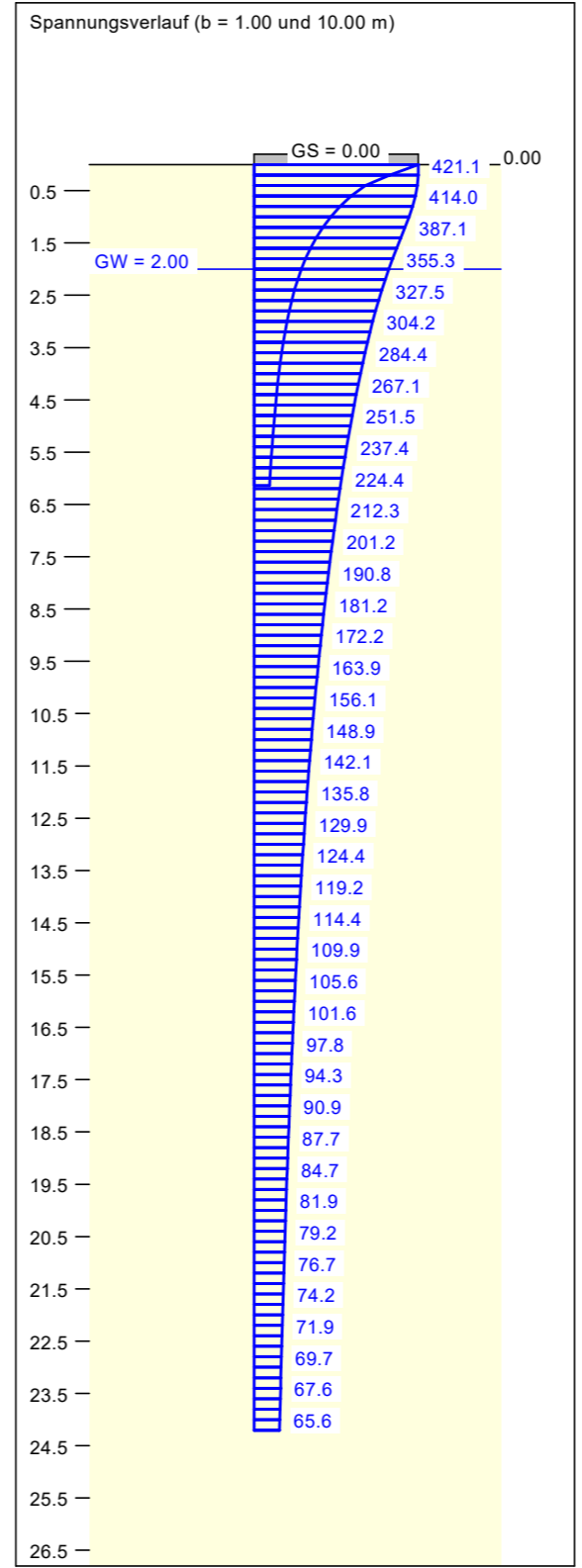
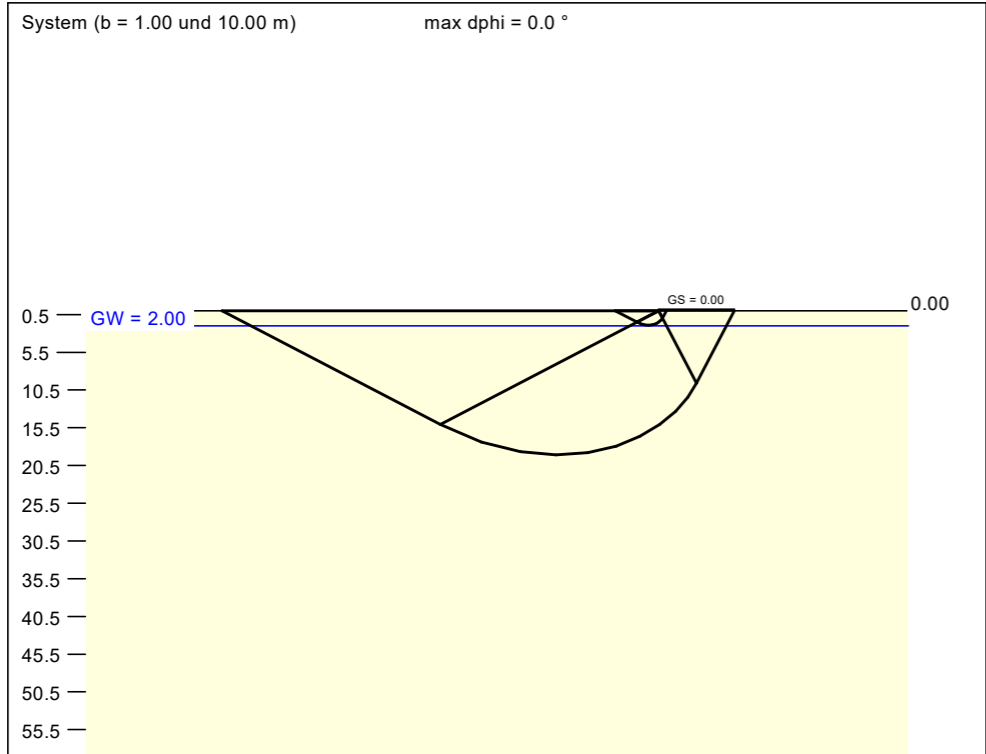
Anlage 4.3

Boden	$\gamma$ [kN/m <sup>3</sup> ]	$\gamma'$ [kN/m <sup>3</sup> ]	$\varphi$ [°]	c [kN/m <sup>2</sup> ]	$E_s$ [MN/m <sup>2</sup> ]	$\nu$ [-]	Bezeichnung
	21.0	11.0	35.0	0.0	100.0	0.00	Kies

Berechnungsgrundlagen:  
 Norm: EC 7  
 BS: DIN 1054: BS-P  
 Grundbruchformel nach DIN 4017:2006  
 Teilsicherheitskonzept (EC 7)  
 Streifenfundament (a = 40.00 m)  
 $\gamma_{R,v} = 1.40$   
 $\gamma_G = 1.35$   
 $\gamma_Q = 1.50$   
 Anteil Veränderliche Lasten = 0.500

$\gamma_{(G,Q)} = 0.500 \cdot \gamma_Q + (1 - 0.500) \cdot \gamma_G$   
 $\gamma_{(G,Q)} = 1.425$   
 $\sigma_{R,d}$  auf 600.00 kN/m<sup>2</sup> begrenzt  
 Gründungssohle = 0.00 m  
 Grundwasser = 2.00 m  
 Vorbelastung = 50.0 kN/m<sup>2</sup>  
 Grenztiefe mit p = 20.0 %  
 Grenztiefen spannungsvariabel bestimmt

Sohldruck  
 Setzungen



a [m]	b [m]	$\sigma_{R,d}$ [kN/m <sup>2</sup> ]	$R_{n,d}$ [kN/m]	$\sigma_{E,k}$ [kN/m <sup>2</sup> ]	s [cm]	cal $\varphi$ [°]	cal c [kN/m <sup>2</sup> ]	$\gamma_2$ [kN/m <sup>3</sup> ]	$\sigma_{\dot{u}}$ [kN/m <sup>2</sup> ]	$t_g$ [m]	UK LS [m]
40.00	1.00	336.7	336.7	236.3	0.32 *	35.0	0.00	21.00	0.00	6.14	1.91
40.00	2.00	566.3	1132.6	397.4	1.12 *	35.0	0.00	17.80	0.00	11.62	3.82
40.00	3.00	600.0	1800.0	421.1	1.63 *	35.0	0.00	15.86	0.00	14.41	5.72
40.00	4.00	600.0	2400.0	421.1	1.99 *	35.0	0.00	14.77	0.00	16.38	7.63
40.00	5.00	600.0	3000.0	421.1	2.32 *	35.0	0.00	14.08	0.00	18.07	9.54
40.00	6.00	600.0	3600.0	421.1	2.62 *	35.0	0.00	13.60	0.00	19.55	11.45
40.00	7.00	600.0	4200.0	421.1	2.89 *	35.0	0.00	13.25	0.00	20.88	13.35
40.00	8.00	600.0	4800.0	421.1	3.14 *	35.0	0.00	12.98	0.00	22.08	15.26
40.00	9.00	600.0	5400.0	421.1	3.38 *	35.0	0.00	12.77	0.00	23.19	17.17
40.00	10.00	600.0	6000.0	421.1	3.60 *	35.0	0.00	12.60	0.00	24.21	19.08

\* Vorbelastung = 50.0 kN/m<sup>2</sup>  
 $\sigma_{E,k} = \sigma_{of,k} / (\gamma_{R,v} \cdot \gamma_{(G,Q)}) = \sigma_{of,k} / (1.40 \cdot 1.43) = \sigma_{of,k} / 1.99$  (für Setzungen)  
 Verhältnis Veränderliche(Q)/Gesamtlasten(G+Q) [-] = 0.50