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NARUČITELJ: OPĆINA ŠTEFANJE, Štefanje 61, 43246 Štefanje

VRSTA ELABORATA: Dopuna geomehaničkog elaborata br. E/117-2021

LOKACIJA ISPITIVANJA: k. č. br. 1034/1 k. o. Štefanje

GRAĐEVINA: Dječji vrtić

Izradio: mr. sc. Mihael Benković, dipl.inž.rud., inž. građ.

DIREKTOR:

Krunoslav Benković, bacc.ing.aedif.

BEGEM
INŽENJERING d.o.o.
43000 Bjelovar
Novoseljanska ulica 59a

Bjelovar, srpanj 2021.

U prilogu je dopuna (korekcija u dijelu) geomehantičkog elaborata br. E/117- 2021 u pogledu **proračuna dopuštenog opterećenja temeljnog tla s obzirom na dopušteno slijeganje**, a na temelju podataka od statičara o predviđenim dimenzijama temelja i projektnom opterećenju temeljnog tla (stalno opterećenje).

Dodatno je izvršena i određena **korekcija u pogledu modula stišljivosti tla za područje bušotine B3**.

Ulazni podatci za geostatički proračun u pogledu dopuštenog slijeganja tla

Temeljne trake: L x B = 10 m x 1 m, L x B = 10 m x 1,3 m, L x B = 10 m x 1,6 m

Stalno opterećenje na temeljnu podlogu: **120 kN/m²**

Zamjenski kameni materijal ispod dna temelja (debljina sloja): **70 cm**

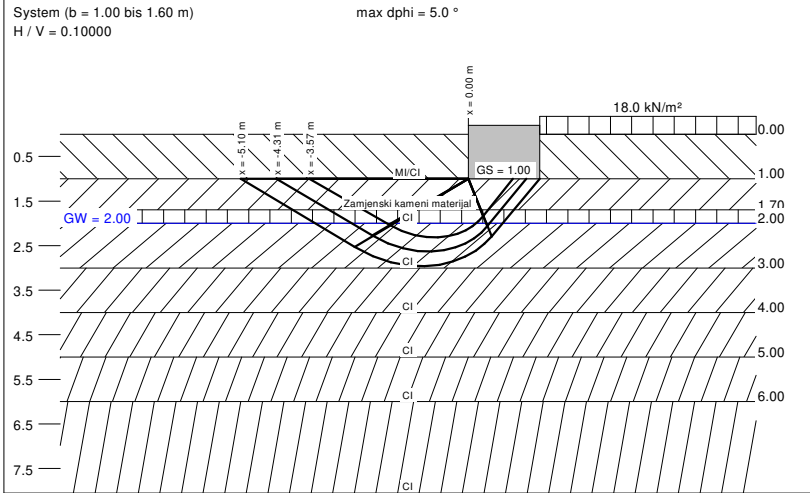
Dodatno je izvršena i **provjera u pogledu proračuna dopuštenog opterećenja s obzirom na slom temeljnog tla**, a prema novim uvjetima temeljenja.

Bjelovar, srpanj 2021.

mr. sc. Mihael Benković, dipl.inž.rud., inž. građ.

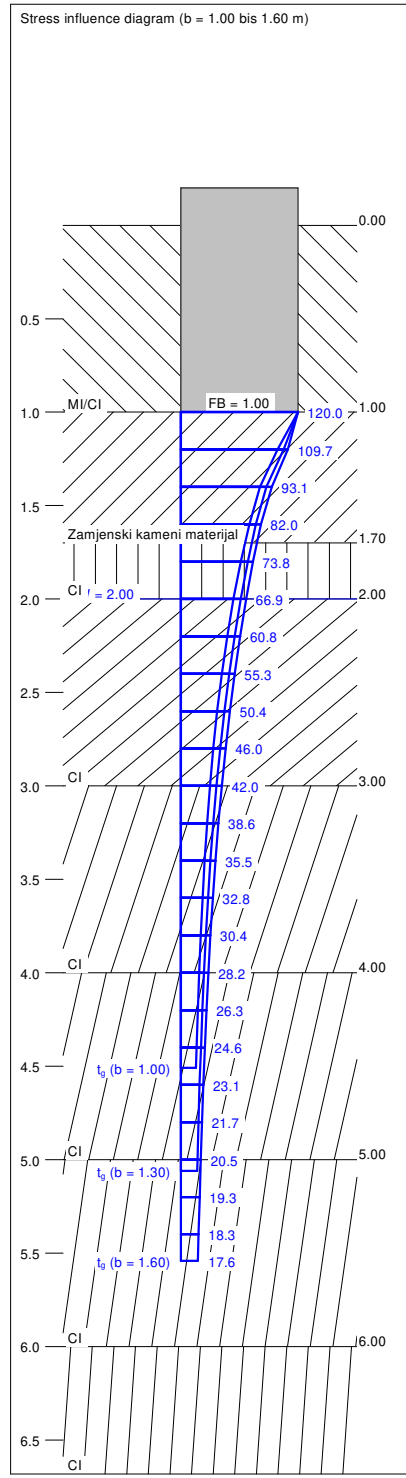


Soil	γ [kN/m ³]	γ' [kN/m ³]	ϕ [°]	c [kN/m ²]	E_s [MN/m ²]	v [-]	Designation
	18.0	8.0	27.0	5.0	1.00	0.00	MI/CI
	18.0	8.0	37.0	0.0	50.0	0.00	Zamjenski kameni materijal
	19.5	9.5	26.0	7.0	2.5	0.00	CI
	19.5	9.5	26.0	7.0	3.0	0.00	CI
	19.5	9.5	25.0	7.0	3.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	6.0	0.00	CI



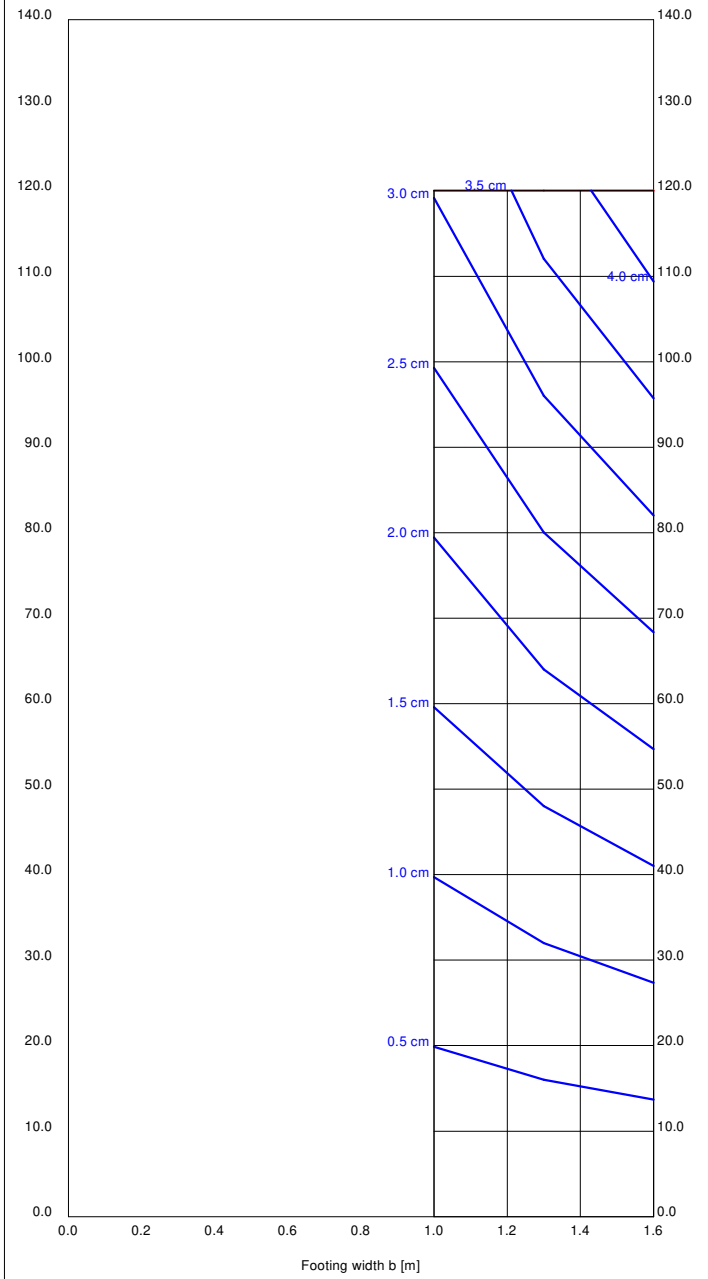
a [m]	b [m]	Allow. σ [kN/m ²]	Allow. R [kN/m]	s [cm]	cal ϕ [°]	cal c [kN/m ²]	γ_2 [kN/m ³]	$\sigma_{\dot{u}}$ [kN/m ²]	t_g [m]	Base LS [m]	L LS [m]	A LS [m ²]	k_s [MN/m ³]
10.00	1.00	120.0	120.0	3.02	30.0 *	4.04	17.32	18.00	4.51	2.31	5.44	3.73	4.0
10.00	1.30	120.0	156.0	3.75	28.8 *	4.61	16.30	18.00	5.06	2.63	6.69	5.67	3.2
10.00	1.60	120.0	192.0	4.39	28.1 *	5.01	15.44	18.00	5.54	2.96	8.00	8.14	2.7

* phi reduced due to 5° condition
 $\text{zul } \sigma = \sigma_{\text{gr,k}} / (\gamma_{\text{Gr}} \cdot \gamma_{\text{(G,Q)}}) = \sigma_{\text{gr,k}} / (1.40 \cdot 1.43) = \sigma_{\text{gr,k}} / 1.99$
 Ratio of changeable(Q)/total loads(G+Q) [-] = 0.50



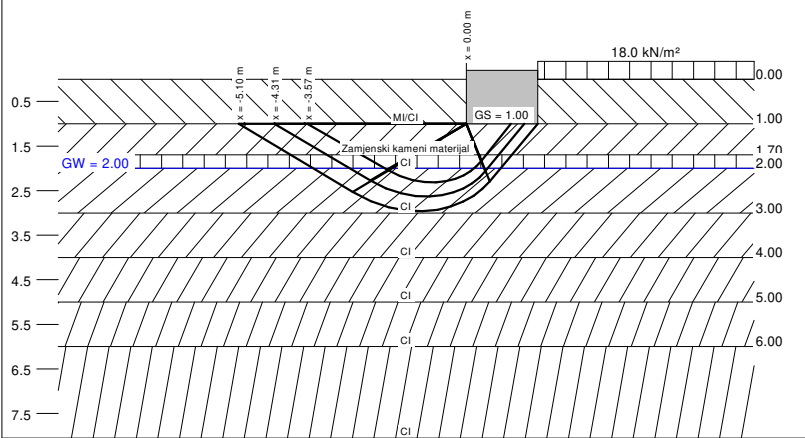
Initial calculation data:
 TRAKA (B1), kamen 70 cm
 Bearing cap. equation after DIN 4017 (neu)
 Partial safety factor concept
 Strip footing (a = 10.00 m)
 $\gamma(\text{Gr}) = 1.40$
 $\gamma(\text{G}) = 1.35$
 $\gamma(\text{Q}) = 1.50$
 Proportion of changeable loads = 50.0 %

H/V = 0.1000
 Allow. sigma restricted to 120.00 kN/m² begrenzt
 Footing base depth = 1.00 m
 Groundwater = 2.00 m
 Limiting depth of p = 20.0 %
 Acceptable bearing pressure
 Settlements



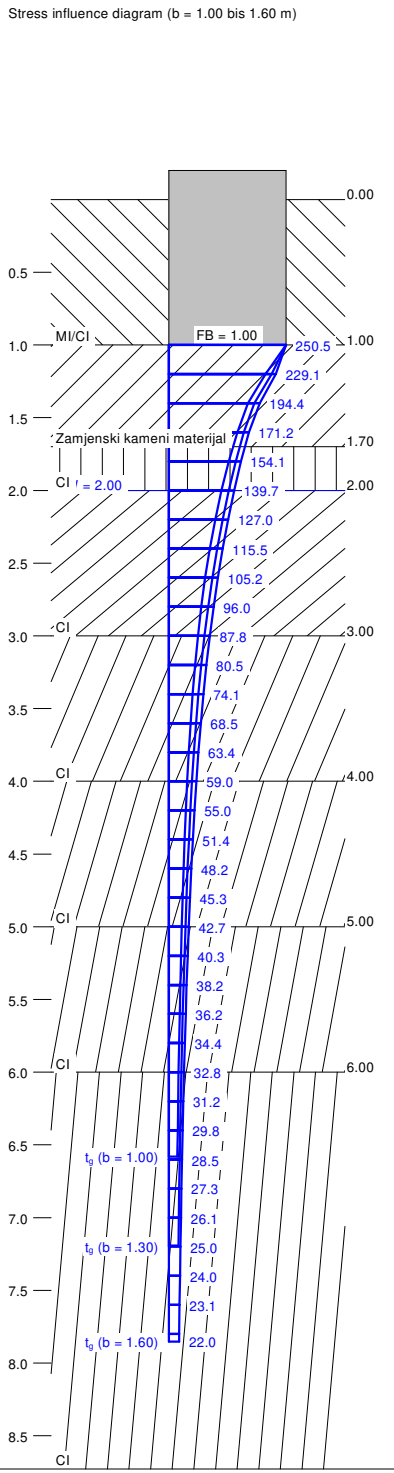
Soil	γ [kN/m ³]	γ' [kN/m ³]	ϕ [°]	c [kN/m ²]	E_s [MN/m ²]	v [-]	Designation
	18.0	8.0	27.0	5.0	1.00	0.00	MI/CI
	18.0	8.0	37.0	0.0	50.0	0.00	Zamjenski kameni materijal
	19.5	9.5	26.0	7.0	2.5	0.00	CI
	19.5	9.5	26.0	7.0	3.0	0.00	CI
	19.5	9.5	25.0	7.0	3.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	6.0	0.00	CI

System (b = 1.00 bis 1.60 m) max dphi = 5.0 °
H / V = 0.10000



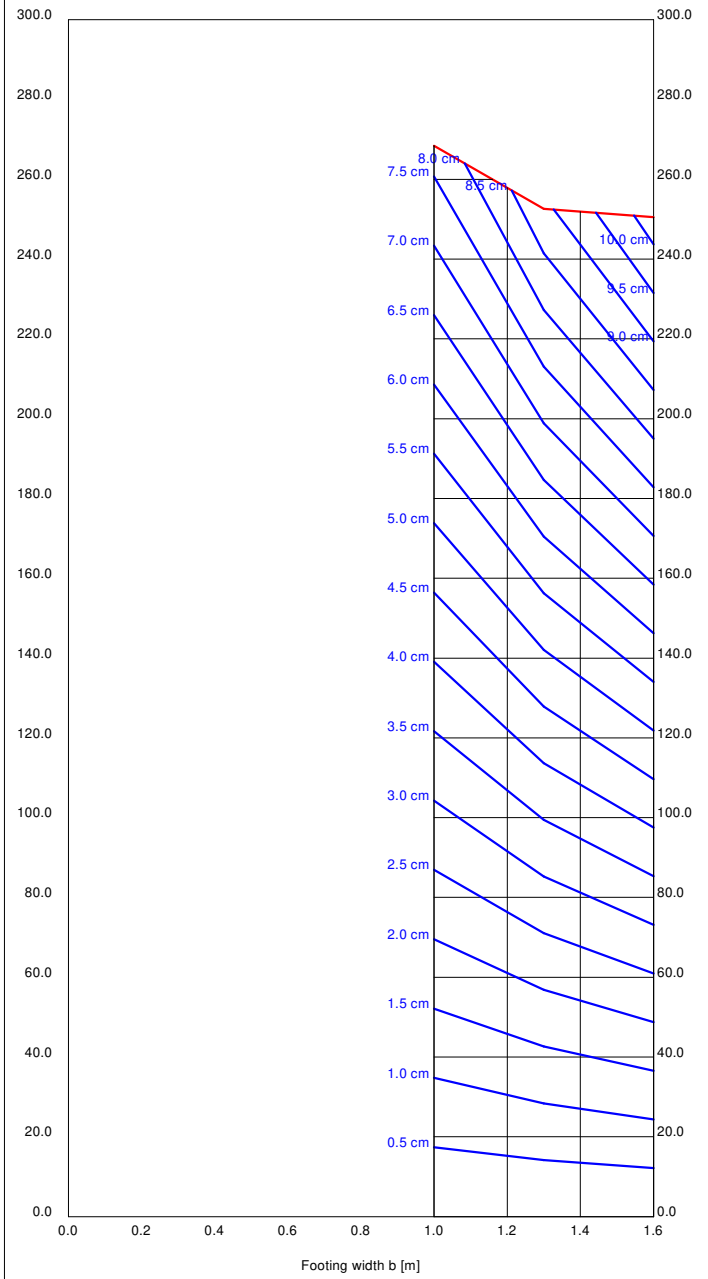
a [m]	b [m]	Allow. σ [kN/m ²]	Allow. R [kN/m]	s [cm]	cal ϕ [°]	cal c [kN/m ²]	γ_2 [kN/m ³]	$\sigma_{\dot{u}}$ [kN/m ²]	t_g [m]	Base LS [m]	L LS [m]	A LS [m ²]	k_s [MN/m ³]
10.00	1.00	268.4	268.4	7.72	30.0 *	4.04	17.32	18.00	6.58	2.31	5.44	3.73	3.5
10.00	1.30	252.6	328.4	8.89	28.8 *	4.61	16.30	18.00	7.19	2.63	6.69	5.67	2.8
10.00	1.60	250.5	400.9	10.28	28.1 *	5.01	15.44	18.00	7.85	2.96	8.00	8.14	2.4

* phi reduced due to 5° condition
zul $\sigma = \sigma_{GR,k} / (\gamma_{Gr} \cdot \gamma_{(G,Q)}) = \sigma_{GR,k} / (1.40 \cdot 1.43) = \sigma_{GR,k} / 1.99$
Ratio of changeable(Q)/total loads(G+Q) [-] = 0.50

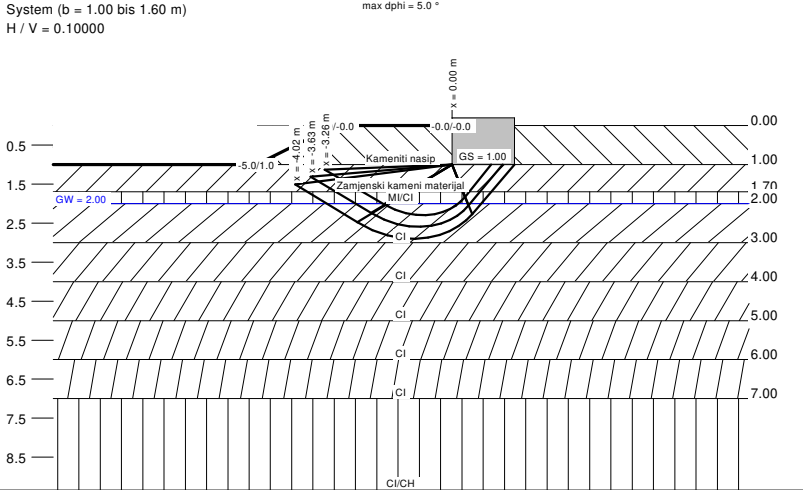


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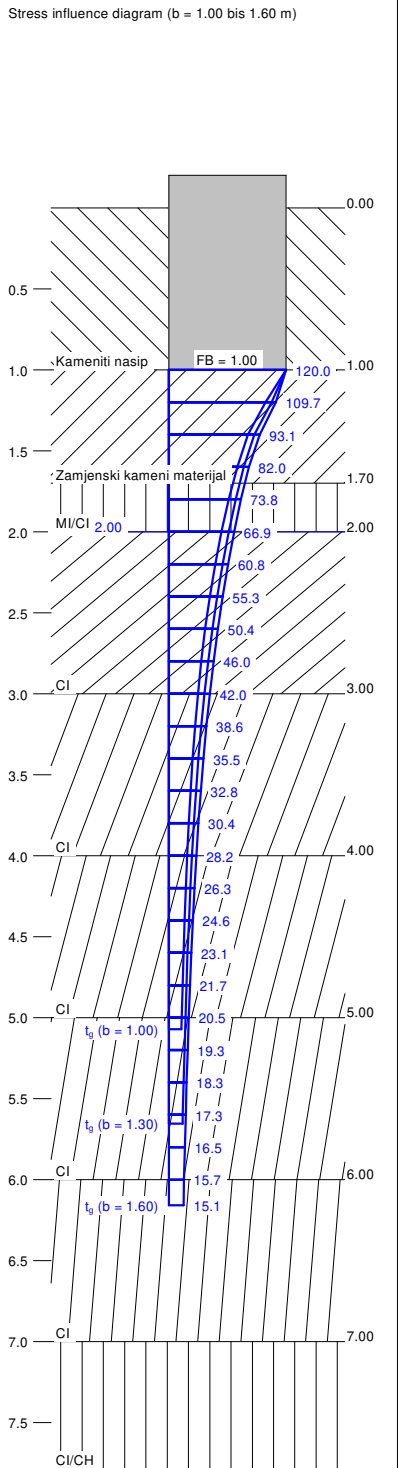


Soil	γ [kN/m ³]	γ' [kN/m ³]	ϕ [°]	c [kN/m ²]	E_s [MN/m ²]	ν [-]	Designation
	18.0	8.0	37.0	0.0	50.0	0.00	Kameniti nasip
	18.0	8.0	37.0	0.0	50.0	0.00	Zamjenski kameni materijal
	18.0	8.0	26.0	7.0	3.0	0.00	MI/CI
	19.5	9.5	26.0	7.0	4.0	0.00	CI
	19.5	9.5	25.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	5.5	0.00	CI
	19.5	9.5	24.0	7.0	6.0	0.00	CI
	19.0	9.0	22.0	10.0	6.0	0.00	CI/CH



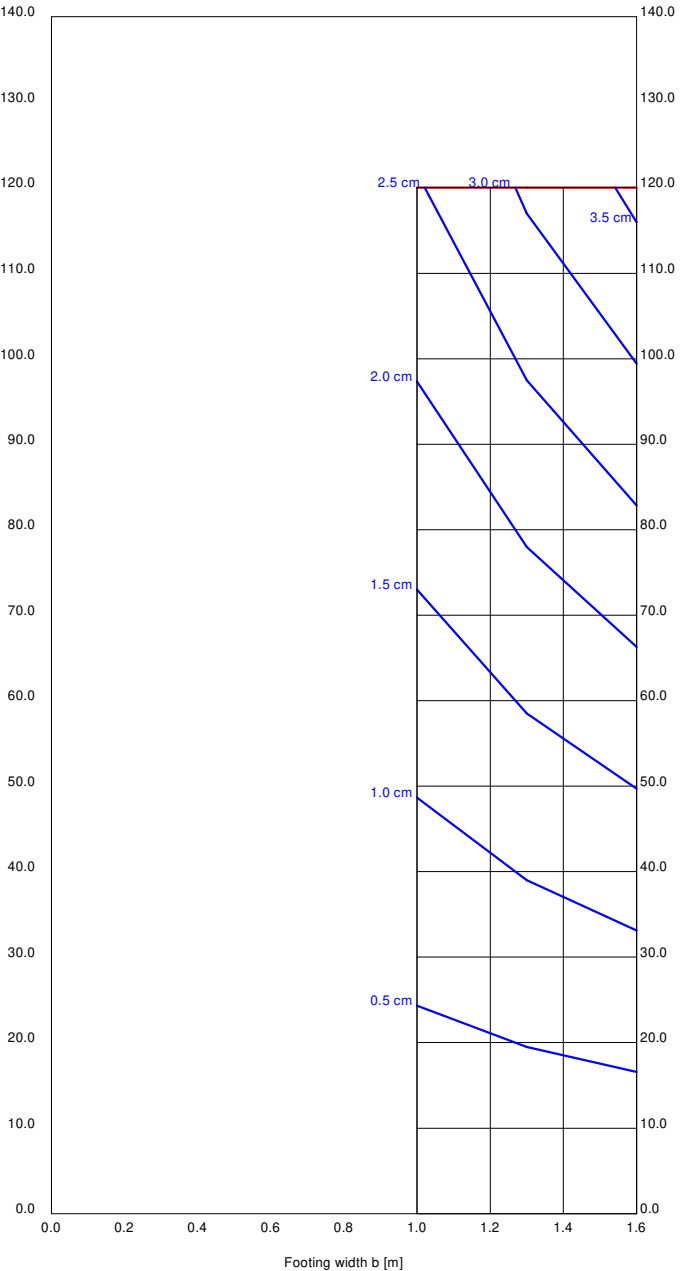
a [m]	b [m]	Allow. σ [kN/m ²]	Allow. R [kN/m]	s [cm]	cal ϕ [°]	cal c [kN/m ²]	γ_2 [kN/m ³]	$\sigma_{\dot{u}}$ [kN/m ²]	t_g [m]	Base LS [m]	L LS [m]	A LS [m ²]	β [°]	k_s [MN/m ³]
10.00	1.00	120.0	120.0	2.47	29.6 *	4.20	17.03	19.08	5.07	2.30	5.08	3.38	2.3	4.9
10.00	1.30	120.0	156.0	3.08	28.1 *	5.02	15.88	20.32	5.65	2.59	5.89	4.73	4.9	3.9
10.00	1.60	120.0	192.0	3.62	27.2 *	5.66	14.82	21.40	6.16	2.90	6.73	6.35	7.2	3.3

* phi reduced due to 5° condition
 $Zul \sigma = \sigma_{GRK} / (\gamma_{GR} \cdot \gamma_{G,D}) = \sigma_{GRK} / (1.40 \cdot 1.43) = \sigma_{GRK} / 1.99$
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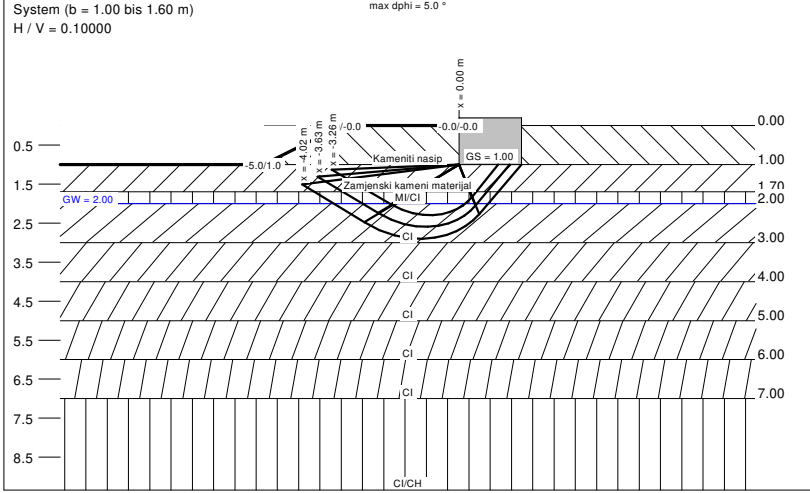


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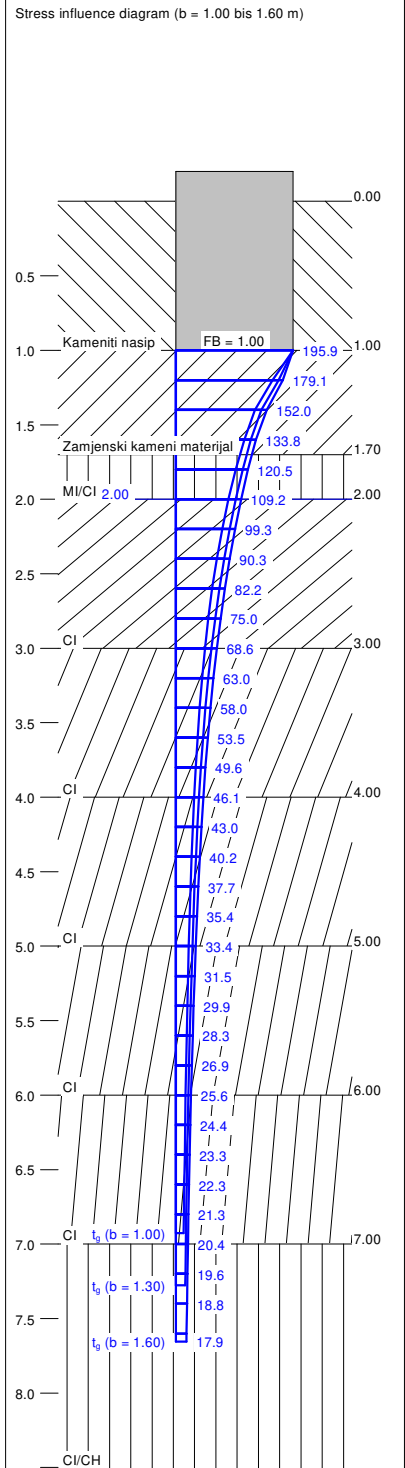


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	19.5	9.5	24.0	7.0	6.0	0.00	CI
	19.0	9.0	22.0	10.0	6.0	0.00	CI/CH



a [m]	b [m]	Allow. σ [kN/m ²]	Allow. R [kN/m]	s [cm]	cal ϕ [°]	cal c [kN/m ²]	γ_2 [kN/m ³]	$\sigma_{\dot{u}}$ [kN/m ²]	t_g [m]	Base LS [m]	L LS [m]	A LS [m ²]	β [°]	k_s [MN/m ³]
10.00	1.00	245.3	245.3	5.72	29.6 *	4.20	17.03	19.08	6.93	2.30	5.08	3.38	2.3	4.3
10.00	1.30	212.9	276.8	6.03	28.1 *	5.02	15.88	20.32	7.28	2.59	5.89	4.73	4.9	3.5
10.00	1.60	195.9	313.4	6.43	27.2 *	5.66	14.82	21.40	7.65	2.90	6.73	6.35	7.2	3.0

* phi reduced due to 5° condition
 $zul \sigma = \sigma_{GRK} / (\gamma_{GR} \cdot \gamma_{G,D}) = \sigma_{GRK} / (1.40 \cdot 1.43) = \sigma_{GRK} / 1.99$
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