

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.1	0

Global Minimums

Method: bishop simplified

FS: 1.721500
Center: 260.792, 1111.202
Radius: 121.486
Left Slip Surface Endpoint: 175.188, 1025.000
Right Slip Surface Endpoint: 284.757, 992.103
Resisting Moment=701658 kN-m
Driving Moment=407585 kN-m
Total Slice Area=1175.23 m2

Method: janbu simplified

FS: 1.612200
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=5382.56 kN
Driving Horizontal Force=3338.64 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.7215

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.38273	90.7536	Resíduos Dispostos	13.5	22	10.002	17.2184	11.2741	2.07071	9.20336
2	4.38273	263.811	Resíduos Dispostos	13.5	22	17.1198	29.4717	45.5506	6.01932	39.5313
3	4.38273	393.113	Resíduos Dispostos	13.5	22	22.6536	38.9981	72.0797	8.96959	63.1101
4	4.38273	442.756	Resíduos Dispostos	13.5	22	25.0232	43.0775	83.3092	10.1023	73.2069
5	4.38273	487.888	Resíduos Dispostos	13.5	22	27.2364	46.8875	93.769	11.1321	82.6369
6	4.38273	587.775	Resíduos Dispostos	13.5	22	31.7965	54.7376	115.478	13.4112	102.067
			Resíduos							

			Dispostos								
8	4.38273	621.872	Resíduos Dispostos	13.5	22	33.9772	58.4918	125.548	14.1891	111.359	
9	4.38273	667.141	Resíduos Dispostos	13.5	22	36.3045	62.4982	136.497	15.222	121.275	
10	4.38273	705.797	Resíduos Dispostos	13.5	22	38.3678	66.0501	146.17	16.104	130.066	
11	4.38273	680.495	Resíduos Dispostos	13.5	22	37.602	64.7319	142.33	15.5267	126.803	
12	4.38273	665.981	Resíduos Dispostos	13.5	22	37.2935	64.2008	140.684	15.1956	125.489	
13	4.38273	702.315	Resíduos Dispostos	13.5	22	39.2765	67.6145	149.963	16.0246	133.938	
14	4.38273	666.453	Resíduos Dispostos	13.5	22	37.9778	65.3787	143.611	15.2063	128.404	
15	4.38273	612.492	Resíduos Dispostos	13.5	22	35.8121	61.6505	133.152	13.9751	119.177	
16	4.38273	612.257	Resíduos Dispostos	13.5	22	36.1059	62.1563	134.398	13.9698	120.429	
17	4.38273	585.337	Resíduos Dispostos	13.5	22	35.146	60.5039	129.694	13.3555	116.339	
18	4.38273	506.8	Resíduos Dispostos	13.5	22	31.7208	54.6074	113.308	11.5635	101.744	
19	4.38273	448.952	Resíduos Dispostos	13.5	22	29.224	50.3092	101.35	10.2437	91.106	
20	4.38273	431.151	Resíduos Dispostos	13.5	22	28.6135	49.2581	98.342	9.8375	88.5045	
21	4.38273	339.345	Resíduos Dispostos	13.5	22	24.3963	41.9983	78.2787	7.74278	70.5359	
22	4.38273	238.976	Resíduos Dispostos	13.5	22	19.6877	33.8923	55.9253	5.45267	50.4726	
23	4.38273	198.897	Resíduos Dispostos	13.5	22	17.8789	30.7785	47.304	4.5382	42.7658	
24	4.38273	135.323	Resíduos Dispostos	13.5	22	14.8677	25.5947	33.0231	3.08764	29.9355	
25	4.38273	46.3096	Resíduos Dispostos	13.5	22	10.523	18.1153	12.48	1.05664	11.4234	

Global Minimum Query (janbu simplified) - Safety Factor: 1.6122

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	10.491	16.9136	10.9381	2.48917	8.44892
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.9875	30.6116	49.4716	7.11876	42.3529
3	3.74549	397.507	Resíduos Dispostos	13.5	22	25.8467	41.67	80.336	10.6129	69.7231
4	3.74549	461.245	Resíduos Dispostos	13.5	22	29.6268	47.7644	97.1221	12.3147	84.8074
5	3.74549	507.313	Resíduos Dispostos	13.5	22	32.5793	52.5243	110.133	13.5446	96.5886
6	3.74549	579.767	Resíduos Dispostos	13.5	22	36.9156	59.5154	129.371	15.4791	113.892
7	3.74549	651.791	Resíduos Dispostos	13.5	22	41.3088	66.598	148.824	17.402	131.422
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	43.314	69.8308	157.194	17.7701	139.424
10	3.74549	697.104	Resíduos Dispostos	13.5	22	45.6319	73.5678	167.285	18.6118	148.673
11	3.74549	732.215	Resíduos Dispostos	13.5	22	48.1724	77.6635	178.359	19.5492	158.81
12	3.74549	710.671	Resíduos Dispostos	13.5	22	47.5738	76.6985	175.396	18.974	156.422
13	3.74549	679.299	Resíduos Dispostos	13.5	22	46.3772	74.7693	169.783	18.1364	151.647
14	3.74549	679.898	Resíduos Dispostos	13.5	22	46.9648	75.7166	172.144	18.1524	153.992
15	3.74549	686.268	Resíduos Dispostos	13.5	22	47.8854	77.2008	175.987	18.3225	157.665
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.5865	73.4945	165.515	17.0237	148.492
17	3.74549	579.78	Resíduos Dispostos	13.5	22	42.6801	68.8089	152.374	15.4794	136.894
18	3.74549	550.999	Resíduos Dispostos	13.5	22	41.4476	66.8218	146.687	14.711	131.976
19	3.74549	532.841	Resíduos Dispostos	13.5	22	40.8309	65.8276	143.742	14.2262	129.515
20	3.74549	457.805	Resíduos Dispostos	13.5	22	36.7043	59.1746	125.271	12.2228	113.049
21	3.74549	372.644	Resíduos Dispostos	13.5	22	31.8521	51.352	103.636	9.94912	93.6871
22	3.74549	317.001	Resíduos Dispostos	13.5	22	28.7466	46.3453	89.7585	8.46353	81.295
23	3.74549	271.962	Resíduos Dispostos	13.5	22	26.2473	42.3159	78.5827	7.26106	71.3216
24	3.74549	170.287	Resíduos Dispostos	13.5	22	20.0255	32.2851	51.0413	4.54645	46.4948
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	12.9416	20.8645	19.7763	1.54857	18.2277

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.7215

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	175.188	1025	0	0	0
2	179.571	1020.86	2.93928	0	0
3	183.954	1017.1	99.1323	0	0
4	188.337	1013.69	246.175	0	0
5	192.719	1010.58	395.68	0	0
6	197.102	1007.75	541.884	0	0
7	201.485	1005.18	699.966	0	0
8	205.867	1002.84	842.059	0	0
9	210.25	1000.73	958.622	0	0
10	214.633	998.827	1059.41	0	0
11	219.016	997.125	1140.35	0	0
12	223.398	995.614	1190.9	0	0
13	227.781	994.287	1214.48	0	0

14	232.164	993.138	1215.08	0	0
15	236.547	992.16	1189.31	0	0
16	240.929	991.351	1140.41	0	0
17	245.312	990.706	1069.09	0	0
18	249.695	990.224	977.913	0	0
19	254.078	989.902	875.668	0	0
20	258.46	989.739	764.387	0	0
21	262.843	989.733	639.724	0	0
22	267.226	989.887	521.019	0	0
23	271.608	990.199	417.452	0	0
24	275.991	990.671	316.915	0	0
25	280.374	991.305	230.943	0	0
26	284.757	992.103	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.6122

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	15.133	0	0
3	184.029	1015.74	155.746	0	0
4	187.775	1012.01	358.947	0	0
5	191.52	1008.72	567.227	0	0
6	195.266	1005.81	765.401	0	0
7	199.011	1003.23	960.47	0	0
8	202.757	1000.95	1145.41	0	0
9	206.502	998.933	1297.11	0	0
10	210.248	997.161	1413.33	0	0
11	213.993	995.616	1500.72	0	0
12	217.739	994.285	1557.6	0	0
13	221.484	993.156	1577.24	0	0
14	225.23	992.221	1562.1	0	0
15	228.975	991.474	1514.77	0	0
16	232.721	990.908	1434.85	0	0
17	236.466	990.52	1328.17	0	0
18	240.212	990.308	1200.54	0	0
19	243.957	990.27	1050.8	0	0
20	247.702	990.406	878.266	0	0
21	251.448	990.716	701.822	0	0
22	255.193	991.203	531.961	0	0
23	258.939	991.87	364.343	0	0
24	262.684	992.722	199.041	0	0
25	266.43	993.764	70.7811	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoSS-0.2
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:40:15

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.2	0

Global Minimums

Method: bishop simplified

FS: 1.569780
Center: 260.792, 1111.202
Radius: 121.486
Left Slip Surface Endpoint: 175.188, 1025.000
Right Slip Surface Endpoint: 284.757, 992.103
Resisting Moment=639818 kN-m
Driving Moment=407585 kN-m
Total Slice Area=1175.23 m2

Method: janbu simplified

FS: 1.461540
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=4886.02 kN
Driving Horizontal Force=3343.06 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.56978

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.38273	90.7536	Resíduos Dispostos	13.5	22	10.3499	16.2471	10.9407	4.14142	6.79926
2	4.38273	263.811	Resíduos Dispostos	13.5	22	17.2045	27.0073	45.4702	12.0386	33.4316
3	4.38273	393.113	Resíduos Dispostos	13.5	22	22.5523	35.4022	72.149	17.9392	54.2098
4	4.38273	442.756	Resíduos Dispostos	13.5	22	24.8676	39.0366	83.4099	20.2045	63.2054
5	4.38273	487.888	Resíduos Dispostos	13.5	22	27.0347	42.4386	93.8895	22.2641	71.6254
6	4.38273	587.775	Resíduos Dispostos	13.5	22	31.4653	49.3936	115.662	26.8223	88.8397
			Resíduos							

			Dispostos								
8	4.38273	621.872	Resíduos Dispostos	13.5	22	33.6477	52.8195	125.698	28.3783	97.3192	
9	4.38273	667.141	Resíduos Dispostos	13.5	22	35.9347	56.4095	136.649	30.444	106.205	
10	4.38273	705.797	Resíduos Dispostos	13.5	22	37.969	59.6029	146.317	32.2081	114.109	
11	4.38273	680.495	Resíduos Dispostos	13.5	22	37.2678	58.5023	142.438	31.0534	111.385	
12	4.38273	665.981	Resíduos Dispostos	13.5	22	37.0076	58.0938	140.765	30.3911	110.374	
13	4.38273	702.315	Resíduos Dispostos	13.5	22	38.9676	61.1706	150.038	32.0492	117.989	
14	4.38273	666.453	Resíduos Dispostos	13.5	22	37.7466	59.2539	143.658	30.4127	113.245	
15	4.38273	612.492	Resíduos Dispostos	13.5	22	35.6817	56.0124	133.172	27.9502	105.222	
16	4.38273	612.257	Resíduos Dispostos	13.5	22	36.0032	56.5171	134.411	27.9395	106.471	
17	4.38273	585.337	Resíduos Dispostos	13.5	22	35.1061	55.1088	129.697	26.711	102.986	
18	4.38273	506.8	Resíduos Dispostos	13.5	22	31.8085	49.9323	113.3	23.1271	90.1731	
19	4.38273	448.952	Resíduos Dispostos	13.5	22	29.4102	46.1675	101.342	20.4873	80.8548	
20	4.38273	431.151	Resíduos Dispostos	13.5	22	28.847	45.2834	98.3415	19.675	78.6665	
21	4.38273	339.345	Resíduos Dispostos	13.5	22	24.7649	38.8754	78.2919	15.4856	62.8063	
22	4.38273	238.976	Resíduos Dispostos	13.5	22	20.1966	31.7042	55.9624	10.9053	45.0571	
23	4.38273	198.897	Resíduos Dispostos	13.5	22	18.4551	28.9704	47.3669	9.0764	38.2905	
24	4.38273	135.323	Resíduos Dispostos	13.5	22	15.535	24.3866	33.1207	6.17528	26.9454	
25	4.38273	46.3096	Resíduos Dispostos	13.5	22	11.305	17.7463	12.6233	2.11327	10.51	

Global Minimum Query (janbu simplified) - Safety Factor: 1.46154

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	10.7885	15.7678	10.5914	4.97835	5.61305
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.995	27.762	49.5372	14.2375	35.2997
3	3.74549	397.507	Resíduos Dispostos	13.5	22	25.6544	37.4949	80.6154	21.2259	59.3895
4	3.74549	461.245	Resíduos Dispostos	13.5	22	29.3646	42.9176	97.4405	24.6293	72.8112
5	3.74549	507.313	Resíduos Dispostos	13.5	22	32.2811	47.1801	110.451	27.0892	83.3613
6	3.74549	579.767	Resíduos Dispostos	13.5	22	36.5377	53.4013	129.717	30.9581	98.7594
7	3.74549	651.791	Resíduos Dispostos	13.5	22	40.8562	59.713	149.185	34.804	114.381
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	42.9353	62.7517	157.442	35.5401	121.902
10	3.74549	697.104	Resíduos Dispostos	13.5	22	45.2518	66.1373	167.505	37.2236	130.282
11	3.74549	732.215	Resíduos Dispostos	13.5	22	47.7878	69.8438	178.554	39.0984	139.456
12	3.74549	710.671	Resíduos Dispostos	13.5	22	47.2714	69.089	175.536	37.9481	137.588
13	3.74549	679.299	Resíduos Dispostos	13.5	22	46.1695	67.4786	169.874	36.2729	133.602
14	3.74549	679.898	Resíduos Dispostos	13.5	22	46.8056	68.4083	172.208	36.3048	135.903
15	3.74549	686.268	Resíduos Dispostos	13.5	22	47.7682	69.8151	176.03	36.645	139.385
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.5842	66.6231	165.532	34.0475	131.484
17	3.74549	579.78	Resíduos Dispostos	13.5	22	42.801	62.5554	152.375	30.9588	121.416
18	3.74549	550.999	Resíduos Dispostos	13.5	22	41.6533	60.8779	146.686	29.422	117.264
19	3.74549	532.841	Resíduos Dispostos	13.5	22	41.1086	60.0818	143.746	28.4524	115.294
20	3.74549	457.805	Resíduos Dispostos	13.5	22	37.1155	54.2458	125.295	24.4456	100.849
21	3.74549	372.644	Resíduos Dispostos	13.5	22	32.401	47.3553	103.693	19.8982	83.7949
22	3.74549	317.001	Resíduos Dispostos	13.5	22	29.3974	42.9655	89.8565	16.9271	72.9294
23	3.74549	271.962	Resíduos Dispostos	13.5	22	26.9864	39.4417	78.73	14.5221	64.2079
24	3.74549	170.287	Resíduos Dispostos	13.5	22	20.8944	30.538	51.2635	9.09289	42.1706
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	13.9342	20.3654	20.0896	3.09715	16.9925

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.56978

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	175.188	1025	0	0	0
2	179.571	1020.86	0.012203	0	0
3	183.954	1017.1	95.4923	0	0
4	188.337	1013.69	243.161	0	0
5	192.719	1010.58	393.602	0	0
6	197.102	1007.75	540.965	0	0
7	201.485	1005.18	700.896	0	0
8	205.867	1002.84	844.878	0	0
9	210.25	1000.73	963.119	0	0
10	214.633	998.827	1065.73	0	0
11	219.016	997.125	1148.57	0	0
12	223.398	995.614	1200.66	0	0
13	227.781	994.287	1225.51	0	0

14	232.164	993.138	1227.46	0	0
15	236.547	992.16	1202.66	0	0
16	240.929	991.351	1154.26	0	0
17	245.312	990.706	1083.31	0	0
18	249.695	990.224	992.226	0	0
19	254.078	989.902	889.52	0	0
20	258.46	989.739	777.355	0	0
21	262.843	989.733	651.602	0	0
22	267.226	989.887	531.224	0	0
23	271.608	990.199	425.372	0	0
24	275.991	990.671	322.241	0	0
25	280.374	991.305	233.252	0	0
26	284.757	992.103	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.46154

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	12.4301	0	0
3	184.029	1015.74	153.539	0	0
4	187.775	1012.01	358.831	0	0
5	191.52	1008.72	569.517	0	0
6	195.266	1005.81	770.145	0	0
7	199.011	1003.23	967.99	0	0
8	202.757	1000.95	1155.97	0	0
9	206.502	998.933	1310.42	0	0
10	210.248	997.161	1429.05	0	0
11	213.993	995.616	1518.79	0	0
12	217.739	994.285	1577.98	0	0
13	221.484	993.156	1599.51	0	0
14	225.23	992.221	1585.84	0	0
15	228.975	991.474	1539.74	0	0
16	232.721	990.908	1460.9	0	0
17	236.466	990.52	1354.81	0	0
18	240.212	990.308	1227.28	0	0
19	243.957	990.27	1077.3	0	0
20	247.702	990.406	904.255	0	0
21	251.448	990.716	726.738	0	0
22	255.193	991.203	555.207	0	0
23	258.939	991.87	385.46	0	0
24	262.684	992.722	217.608	0	0
25	266.43	993.764	86.1273	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoSS-0.3
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:40:15

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.3	0

Global Minimums

Method: bishop simplified

FS: 1.416880
Center: 251.850, 1092.458
Radius: 102.454
Left Slip Surface Endpoint: 174.737, 1025.000
Right Slip Surface Endpoint: 279.285, 993.745
Resisting Moment=503672 kN-m
Driving Moment=355480 kN-m
Total Slice Area=1240.91 m2

Method: janbu simplified

FS: 1.311990
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=4388.99 kN
Driving Horizontal Force=3345.28 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.41688

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.18189	94.1063	Resíduos Dispostos	13.5	22	10.7296	15.2026	10.9651	6.75099	4.21413
2	4.18189	271.963	Resíduos Dispostos	13.5	22	17.6834	25.0552	48.1103	19.5101	28.6002
3	4.18189	417.644	Resíduos Dispostos	13.5	22	23.679	33.5503	79.587	29.9609	49.6261
4	4.18189	481.491	Resíduos Dispostos	13.5	22	26.6622	37.7771	94.6291	34.5411	60.088
5	4.18189	522.935	Resíduos Dispostos	13.5	22	28.8069	40.8159	105.124	37.5143	67.6092
6	4.18189	606.628	Resíduos Dispostos	13.5	22	32.6878	46.3147	124.738	43.5182	81.2194
			Resíduos							

			Dispostos							
8	4.18189	674.746	Resíduos Dispostos	13.5	22	36.5376	51.7694	143.125	48.4049	94.7201
9	4.18189	683.874	Resíduos Dispostos	13.5	22	37.4344	53.04	146.924	49.0597	97.8648
10	4.18189	742.755	Resíduos Dispostos	13.5	22	40.4612	57.3287	161.764	53.2837	108.48
11	4.18189	736.791	Resíduos Dispostos	13.5	22	40.7204	57.6959	162.245	52.8558	109.389
12	4.18189	705.144	Resíduos Dispostos	13.5	22	39.8325	56.4379	156.861	50.5856	106.275
13	4.18189	707.454	Resíduos Dispostos	13.5	22	40.4172	57.2663	159.077	50.7513	108.326
14	4.18189	720.747	Resíduos Dispostos	13.5	22	41.4958	58.7945	163.813	51.7049	112.108
15	4.18189	668.863	Resíduos Dispostos	13.5	22	39.6142	56.1286	153.493	47.9829	105.51
16	4.18189	613.06	Resíduos Dispostos	13.5	22	37.4984	53.1308	142.069	43.9796	98.0899
17	4.18189	611.633	Resíduos Dispostos	13.5	22	37.8649	53.65	143.252	43.8773	99.3747
18	4.18189	565.056	Resíduos Dispostos	13.5	22	36.1038	51.1548	133.735	40.5359	93.1989
19	4.18189	480.641	Resíduos Dispostos	13.5	22	32.4923	46.0377	115.014	34.4802	80.5335
20	4.18189	415.361	Resíduos Dispostos	13.5	22	29.7206	42.1105	100.611	29.7971	70.8135
21	4.18189	386.969	Resíduos Dispostos	13.5	22	28.6885	40.6481	94.9544	27.7604	67.194
22	4.18189	289.25	Resíduos Dispostos	13.5	22	24.2026	34.2922	72.2126	20.7502	51.4624
23	4.18189	178.211	Resíduos Dispostos	13.5	22	18.9413	26.8376	45.7961	12.7845	33.0116
24	4.18189	115.614	Resíduos Dispostos	13.5	22	16.0095	22.6836	31.0241	8.29393	22.7302
25	4.18189	48.5592	Resíduos Dispostos	13.5	22	12.7753	18.101	14.8714	3.48354	11.3879

Global Minimum Query (janbu simplified) - Safety Factor: 1.31199

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	11.112	14.5789	10.1379	7.46752	2.67033
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.9668	24.8842	49.5331	21.3563	28.1768
3	3.74549	397.507	Resíduos Dispostos	13.5	22	25.3811	33.2997	80.8449	31.8388	49.0061
4	3.74549	461.245	Resíduos Dispostos	13.5	22	29.0037	38.0526	97.7138	36.944	60.7698
5	3.74549	507.313	Resíduos Dispostos	13.5	22	31.874	41.8184	110.724	40.6338	70.0905
6	3.74549	579.767	Resíduos Dispostos	13.5	22	36.0302	47.2713	130.024	46.4372	83.5869
7	3.74549	651.791	Resíduos Dispostos	13.5	22	40.2544	52.8134	149.51	52.206	97.304
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	42.4215	55.6566	157.651	53.3102	104.341
10	3.74549	697.104	Resíduos Dispostos	13.5	22	44.7345	58.6912	167.688	55.8354	111.852
11	3.74549	732.215	Resíduos Dispostos	13.5	22	47.2634	62.0091	178.712	58.6476	120.064
12	3.74549	710.671	Resíduos Dispostos	13.5	22	46.8485	61.4648	175.639	56.9221	118.717
13	3.74549	679.299	Resíduos Dispostos	13.5	22	45.8646	60.1739	169.931	54.4093	115.522
14	3.74549	679.898	Resíduos Dispostos	13.5	22	46.5611	61.0877	172.241	54.4573	117.784
15	3.74549	686.268	Resíduos Dispostos	13.5	22	47.576	62.4192	176.047	54.9675	121.079
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.5369	59.7439	165.529	51.0712	114.458
17	3.74549	579.78	Resíduos Dispostos	13.5	22	42.9098	56.2972	152.365	46.4382	105.927
18	3.74549	550.999	Resíduos Dispostos	13.5	22	41.8701	54.9331	146.683	44.133	102.55
19	3.74549	532.841	Resíduos Dispostos	13.5	22	41.4177	54.3396	143.76	42.6786	101.082
20	3.74549	457.805	Resíduos Dispostos	13.5	22	37.596	49.3256	125.34	36.6685	88.6713
21	3.74549	372.644	Resíduos Dispostos	13.5	22	33.0589	43.373	103.786	29.8474	73.9384
22	3.74549	317.001	Resíduos Dispostos	13.5	22	30.188	39.6063	90.0061	25.3906	64.6155
23	3.74549	271.962	Resíduos Dispostos	13.5	22	27.893	36.5954	78.9461	21.7832	57.1629
24	3.74549	170.287	Resíduos Dispostos	13.5	22	21.9712	28.826	51.5724	13.6393	37.9331
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	15.1744	19.9087	20.5078	4.64572	15.862

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.41688

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	174.737	1025	0	0	0
2	178.919	1020.5	4.51649	0	0
3	183.101	1016.49	123.328	0	0
4	187.283	1012.91	309.704	0	0
5	191.465	1009.69	502.93	0	0
6	195.647	1006.79	686.863	0	0
7	199.829	1004.19	874.86	0	0
8	204.011	1001.86	1052.53	0	0
9	208.192	999.77	1198.64	0	0
10	212.374	997.914	1315.03	0	0
11	216.556	996.274	1411.16	0	0
12	220.738	994.841	1473.5	0	0
13	224.92	993.606	1500.85	0	0

14	229.102	992.561	1498.24	0	0
15	233.284	991.7	1465.9	0	0
16	237.466	991.018	1404.98	0	0
17	241.648	990.513	1320.11	0	0
18	245.829	990.18	1209.48	0	0
19	250.011	990.02	1080.1	0	0
20	254.193	990.03	943.142	0	0
21	258.375	990.211	800.725	0	0
22	262.557	990.564	647.331	0	0
23	266.739	991.091	508.172	0	0
24	270.921	991.794	396.834	0	0
25	275.103	992.677	302.544	0	0
26	279.285	993.745	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.31199

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	8.89406	0	0
3	184.029	1015.74	149.972	0	0
4	187.775	1012.01	356.984	0	0
5	191.52	1008.72	569.735	0	0
6	195.266	1005.81	772.48	0	0
7	199.011	1003.23	972.786	0	0
8	202.757	1000.95	1163.5	0	0
9	206.502	998.933	1320.37	0	0
10	210.248	997.161	1441.02	0	0
11	213.993	995.616	1532.69	0	0
12	217.739	994.285	1593.75	0	0
13	221.484	993.156	1616.69	0	0
14	225.23	992.221	1603.92	0	0
15	228.975	991.474	1558.47	0	0
16	232.721	990.908	1480.06	0	0
17	236.466	990.52	1373.86	0	0
18	240.212	990.308	1245.65	0	0
19	243.957	990.27	1094.6	0	0
20	247.702	990.406	920.138	0	0
21	251.448	990.716	740.576	0	0
22	255.193	991.203	566.336	0	0
23	258.939	991.87	393.348	0	0
24	262.684	992.722	221.75	0	0
25	266.43	993.764	85.7876	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoSS-0.4
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:40:15

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.4	0

Global Minimums

Method: bishop simplified

FS: 1.261560
Center: 251.850, 1092.458
Radius: 102.454
Left Slip Surface Endpoint: 174.737, 1025.000
Right Slip Surface Endpoint: 279.285, 993.745
Resisting Moment=448459 kN-m
Driving Moment=355480 kN-m
Total Slice Area=1240.91 m2

Method: janbu simplified

FS: 1.162680
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=3893.61 kN
Driving Horizontal Force=3348.82 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.26156

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.18189	94.1063	Resíduos Dispostos	13.5	22	11.1749	14.0979	10.4811	9.00132	1.47974
2	4.18189	271.963	Resíduos Dispostos	13.5	22	17.7538	22.3975	48.0355	26.0134	22.0221
3	4.18189	417.644	Resíduos Dispostos	13.5	22	23.4546	29.5894	79.7706	39.9479	39.8227
4	4.18189	481.491	Resíduos Dispostos	13.5	22	26.3352	33.2234	94.8719	46.0549	48.817
5	4.18189	522.935	Resíduos Dispostos	13.5	22	28.4296	35.8656	105.376	50.019	55.3568
6	4.18189	606.628	Resíduos Dispostos	13.5	22	32.1674	40.5811	125.053	58.0243	67.0282
			Resíduos							

			Dispostos							
8	4.18189	674.746	Resíduos Dispostos	13.5	22	35.9586	45.3639	143.406	64.5399	78.866
9	4.18189	683.874	Resíduos Dispostos	13.5	22	36.882	46.5289	147.162	65.413	81.7495
10	4.18189	742.755	Resíduos Dispostos	13.5	22	39.8313	50.2496	162.004	71.045	90.9585
11	4.18189	736.791	Resíduos Dispostos	13.5	22	40.1517	50.6538	162.433	70.4745	91.9587
12	4.18189	705.144	Resíduos Dispostos	13.5	22	39.3778	49.6774	156.99	67.4474	89.5422
13	4.18189	707.454	Resíduos Dispostos	13.5	22	40.0068	50.471	159.175	67.6684	91.5066
14	4.18189	720.747	Resíduos Dispostos	13.5	22	41.1093	51.8618	163.889	68.9399	94.9488
15	4.18189	668.863	Resíduos Dispostos	13.5	22	39.3804	49.6808	153.528	63.9771	89.5506
16	4.18189	613.06	Resíduos Dispostos	13.5	22	37.4226	47.2108	142.077	58.6395	83.4371
17	4.18189	611.633	Resíduos Dispostos	13.5	22	37.8428	47.741	143.252	58.503	84.7495
18	4.18189	565.056	Resíduos Dispostos	13.5	22	36.2199	45.6936	133.73	54.0479	79.6819
19	4.18189	480.641	Resíduos Dispostos	13.5	22	32.8121	41.3944	115.015	45.9736	69.0411
20	4.18189	415.361	Resíduos Dispostos	13.5	22	30.2056	38.1062	100.632	39.7295	60.9026
21	4.18189	386.969	Resíduos Dispostos	13.5	22	29.2731	36.9298	95.0047	37.0139	57.9908
22	4.18189	289.25	Resíduos Dispostos	13.5	22	24.9998	31.5387	72.3144	27.6669	44.6475
23	4.18189	178.211	Resíduos Dispostos	13.5	22	19.964	25.1858	45.9695	17.046	28.9235
24	4.18189	115.614	Resíduos Dispostos	13.5	22	17.1744	21.6665	31.2714	11.0586	20.2128
25	4.18189	48.5592	Resíduos Dispostos	13.5	22	14.0837	17.7674	15.2068	4.64472	10.5621

Global Minimum Query (janbu simplified) - Safety Factor: 1.16268

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	11.4936	13.3634	9.61854	9.95669	-0.338151
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.935	22.0154	49.5513	28.475	21.0763
3	3.74549	397.507	Resíduos Dispostos	13.5	22	25.0574	29.1337	81.1464	42.4518	38.6946
4	3.74549	461.245	Resíduos Dispostos	13.5	22	28.573	33.2213	98.0706	49.2586	48.812
5	3.74549	507.313	Resíduos Dispostos	13.5	22	31.3852	36.491	111.083	54.1784	56.9048
6	3.74549	579.767	Resíduos Dispostos	13.5	22	35.4177	41.1794	130.425	61.9162	68.5089
7	3.74549	651.791	Resíduos Dispostos	13.5	22	39.5242	45.954	149.935	69.608	80.3267
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	41.7919	48.5906	157.932	71.0802	86.8523
10	3.74549	697.104	Resíduos Dispostos	13.5	22	44.0976	51.2714	167.935	74.4472	93.4875
11	3.74549	732.215	Resíduos Dispostos	13.5	22	46.6149	54.1982	178.928	78.1969	100.732
12	3.74549	710.671	Resíduos Dispostos	13.5	22	46.3224	53.8581	175.786	75.8961	99.8899
13	3.74549	679.299	Resíduos Dispostos	13.5	22	45.4821	52.8811	170.017	72.5457	97.4715
14	3.74549	679.898	Resíduos Dispostos	13.5	22	46.2513	53.7755	172.295	72.6097	99.6852
15	3.74549	686.268	Resíduos Dispostos	13.5	22	47.3294	55.029	176.078	73.29	102.788
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.4699	52.867	165.532	68.095	97.4368
17	3.74549	579.78	Resíduos Dispostos	13.5	22	43.038	50.0394	152.356	61.9177	90.438
18	3.74549	550.999	Resíduos Dispostos	13.5	22	42.1339	48.9882	146.68	58.844	87.8364
19	3.74549	532.841	Resíduos Dispostos	13.5	22	41.7982	48.5979	143.775	56.9048	86.8704
20	3.74549	457.805	Resíduos Dispostos	13.5	22	38.1948	44.4083	125.392	48.8913	76.5007
21	3.74549	372.644	Resíduos Dispostos	13.5	22	33.8857	39.3982	103.897	39.7965	64.1002
22	3.74549	317.001	Resíduos Dispostos	13.5	22	31.187	36.2605	90.1883	33.8541	56.3342
23	3.74549	271.962	Resíduos Dispostos	13.5	22	29.0446	33.7696	79.2132	29.0442	50.169
24	3.74549	170.287	Resíduos Dispostos	13.5	22	23.3477	27.1459	51.9606	18.1858	33.7748
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	16.7701	19.4982	21.0405	6.19429	14.8462

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.26156

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	174.737	1025	0	0	0
2	178.919	1020.5	0.456998	0	0
3	183.101	1016.49	118.642	0	0
4	187.283	1012.91	306.572	0	0
5	191.465	1009.69	501.897	0	0
6	195.647	1006.79	688.086	0	0
7	199.829	1004.19	879.019	0	0
8	204.011	1001.86	1059.97	0	0
9	208.192	999.77	1209.02	0	0
10	212.374	997.914	1328.1	0	0
11	216.556	996.274	1427.18	0	0
12	220.738	994.841	1492.09	0	0
13	224.92	993.606	1521.43	0	0

14	229.102	992.561	1520.57	0	0
15	233.284	991.7	1489.83	0	0
16	237.466	991.018	1429.84	0	0
17	241.648	990.513	1345.23	0	0
18	245.829	990.18	1234.62	0	0
19	250.011	990.02	1104.68	0	0
20	254.193	990.03	966.332	0	0
21	258.375	990.211	821.829	0	0
22	262.557	990.564	665.921	0	0
23	266.739	991.091	523.333	0	0
24	270.921	991.794	407.564	0	0
25	275.103	992.677	308.157	0	0
26	279.285	993.745	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.16268

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	4.8454	0	0
3	184.029	1015.74	146.061	0	0
4	187.775	1012.01	355.333	0	0
5	191.52	1008.72	570.78	0	0
6	195.266	1005.81	776.3	0	0
7	199.011	1003.23	979.821	0	0
8	202.757	1000.95	1174.12	0	0
9	206.502	998.933	1334.17	0	0
10	210.248	997.161	1457.54	0	0
11	213.993	995.616	1551.84	0	0
12	217.739	994.285	1615.47	0	0
13	221.484	993.156	1640.4	0	0
14	225.23	992.221	1629	0	0
15	228.975	991.474	1584.61	0	0
16	232.721	990.908	1506.99	0	0
17	236.466	990.52	1400.9	0	0
18	240.212	990.308	1272.08	0	0
19	243.957	990.27	1119.91	0	0
20	247.702	990.406	943.89	0	0
21	251.448	990.716	761.953	0	0
22	255.193	991.203	584.46	0	0
23	258.939	991.87	407.515	0	0
24	262.684	992.722	231.291	0	0
25	266.43	993.764	89.7008	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoSS-0.5
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:40:15

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.5	0

Global Minimums

Method: bishop simplified

FS: 1.106160
Center: 248.869, 1095.136
Radius: 105.213
Left Slip Surface Endpoint: 170.442, 1025.000
Right Slip Surface Endpoint: 278.160, 994.082
Resisting Moment=435622 kN-m
Driving Moment=393813 kN-m
Total Slice Area=1370.98 m2

Method: janbu simplified

FS: 1.013770
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=3400.74 kN
Driving Horizontal Force=3354.54 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.10616

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.37492	100.722	Resíduos Dispostos	13.5	22	11.8528	13.1111	10.5487	11.5113	-0.962592
2	4.37492	291.009	Resíduos Dispostos	13.5	22	18.1488	20.0754	49.5336	33.2588	16.2748
3	4.37492	460.643	Resíduos Dispostos	13.5	22	24.0763	26.6322	85.1493	52.6458	32.5035
4	4.37492	590.865	Resíduos Dispostos	13.5	22	28.9404	32.0127	113.349	67.5286	45.8204
5	4.37492	636.517	Resíduos Dispostos	13.5	22	31.1224	34.4264	124.541	72.7461	51.7948
6	4.37492	670.182	Resíduos Dispostos	13.5	22	32.9208	36.4157	133.312	76.5935	56.7185
			Resíduos							

			Dispostos							
8	4.37492	788.227	Resíduos Dispostos	13.5	22	38.3644	42.4372	161.707	90.0846	71.6222
9	4.37492	779.371	Resíduos Dispostos	13.5	22	38.7125	42.8222	161.647	89.0725	72.575
10	4.37492	804.19	Resíduos Dispostos	13.5	22	40.2705	44.5456	168.75	91.909	76.8406
11	4.37492	839.199	Resíduos Dispostos	13.5	22	42.2271	46.7099	178.108	95.9101	82.1974
12	4.37492	802.758	Resíduos Dispostos	13.5	22	41.5094	45.916	171.978	91.7453	80.2324
13	4.37492	769.186	Resíduos Dispostos	13.5	22	40.8561	45.1934	166.353	87.9085	78.4441
14	4.37492	791.644	Resíduos Dispostos	13.5	22	42.3533	46.8495	173.018	90.4751	82.5429
15	4.37492	746.825	Resíduos Dispostos	13.5	22	41.2125	45.5876	164.772	85.3529	79.4194
16	4.37492	676.257	Resíduos Dispostos	13.5	22	38.9894	43.1285	150.621	77.2878	73.3332
17	4.37492	650.525	Resíduos Dispostos	13.5	22	38.5235	42.6132	146.405	74.347	72.0575
18	3.89963	554.583	Resíduos Dispostos	13.5	22	37.8996	41.923	141.457	71.1073	70.3493
19	4.20639	513.152	Resíduos Dispostos	13.5	22	34.7186	38.4043	122.637	60.9968	61.6404
20	4.20639	427.688	Resíduos Dispostos	13.5	22	31.4463	34.7846	103.519	50.8379	52.6812
21	4.20639	397.685	Resíduos Dispostos	13.5	22	30.5759	33.8218	97.5697	47.2716	50.2981
22	4.20639	310.699	Resíduos Dispostos	13.5	22	27.0766	29.9511	77.6497	36.9318	40.7179
23	4.20639	194.591	Resíduos Dispostos	13.5	22	22.1181	24.4662	50.2726	23.1304	27.1422
24	4.20639	106.237	Resíduos Dispostos	13.5	22	18.3143	20.2586	29.3561	12.6281	16.728
25	4.20639	48.2385	Resíduos Dispostos	13.5	22	15.8473	17.5296	15.7076	5.73396	9.97365

Global Minimum Query (janbu simplified) - Safety Factor: 1.01377

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	11.953	12.1176	9.02433	12.4459	-3.42157
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.9028	19.1631	49.6103	35.5938	14.0165
3	3.74549	397.507	Resíduos Dispostos	13.5	22	24.6717	25.0114	81.5563	53.0647	28.4916
4	3.74549	461.245	Resíduos Dispostos	13.5	22	28.0539	28.4402	98.5515	61.5733	36.9782
5	3.74549	507.313	Resíduos Dispostos	13.5	22	30.7909	31.2149	111.569	67.7231	43.846
6	3.74549	579.767	Resíduos Dispostos	13.5	22	34.6666	35.144	130.966	77.3953	53.5708
7	3.74549	651.791	Resíduos Dispostos	13.5	22	38.623	39.1548	150.508	87.0101	63.4978
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	41.0049	41.5695	158.325	88.8503	69.4743
10	3.74549	697.104	Resíduos Dispostos	13.5	22	43.2964	43.8926	168.283	93.059	75.2244
11	3.74549	732.215	Resíduos Dispostos	13.5	22	45.7938	46.4244	179.237	97.7461	81.4908
12	3.74549	710.671	Resíduos Dispostos	13.5	22	45.6509	46.2795	176.002	94.8702	81.1321
13	3.74549	679.299	Resíduos Dispostos	13.5	22	44.9884	45.6079	170.152	90.6821	79.4698
14	3.74549	679.898	Resíduos Dispostos	13.5	22	45.8465	46.4778	172.385	90.7621	81.6229
15	3.74549	686.268	Resíduos Dispostos	13.5	22	47.002	47.6492	176.135	91.6125	84.5222
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.3704	45.9951	165.547	85.1187	80.4282
17	3.74549	579.78	Resíduos Dispostos	13.5	22	43.1881	43.7828	152.35	77.3971	74.9528
18	3.74549	550.999	Resíduos Dispostos	13.5	22	42.4587	43.0434	146.677	73.555	73.1225
19	3.74549	532.841	Resíduos Dispostos	13.5	22	42.2744	42.8565	143.791	71.131	72.6599
20	3.74549	457.805	Resíduos Dispostos	13.5	22	38.9578	39.4942	125.452	61.1141	64.3377
21	3.74549	372.644	Resíduos Dispostos	13.5	22	34.9513	35.4326	104.031	49.7456	54.2851
22	3.74549	317.001	Resíduos Dispostos	13.5	22	32.4847	32.932	90.4135	42.3177	48.0958
23	3.74549	271.962	Resíduos Dispostos	13.5	22	30.5507	30.9714	79.5486	36.3053	43.2433
24	3.74549	170.287	Resíduos Dispostos	13.5	22	25.1638	25.5103	52.4588	22.7322	29.7266
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	18.8941	19.1542	21.7376	7.74286	13.9948

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.10616

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	170.442	1025	0	0	0
2	174.817	1020.4	-3.2794	0	0
3	179.192	1016.3	120.14	0	0
4	183.567	1012.64	326.493	0	0
5	187.942	1009.36	571.886	0	0
6	192.317	1006.41	802.557	0	0
7	196.692	1003.77	1010.68	0	0
8	201.067	1001.41	1213.45	0	0
9	205.442	999.303	1386.11	0	0
10	209.817	997.439	1518.15	0	0
11	214.191	995.802	1618.25	0	0
12	218.566	994.381	1686.58	0	0
13	222.941	993.167	1713.69	0	0

14	227.316	992.154	1703.56	0	0
15	231.691	991.334	1660.06	0	0
16	236.066	990.704	1583.56	0	0
17	240.441	990.261	1479.84	0	0
18	244.816	990.001	1349.38	0	0
19	248.716	989.923	1212.63	0	0
20	252.922	990.001	1057.04	0	0
21	257.128	990.247	899.251	0	0
22	261.335	990.664	730.019	0	0
23	265.541	991.252	570.456	0	0
24	269.747	992.015	439.066	0	0
25	273.954	992.957	334.389	0	0
26	278.16	994.082	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.01377

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	0.212751	0	0
3	184.029	1015.74	141.875	0	0
4	187.775	1012.01	354.217	0	0
5	191.52	1008.72	573.296	0	0
6	195.266	1005.81	782.572	0	0
7	199.011	1003.23	990.433	0	0
8	202.757	1000.95	1189.56	0	0
9	206.502	998.933	1353.98	0	0
10	210.248	997.161	1481.16	0	0
11	213.993	995.616	1579.16	0	0
12	217.739	994.285	1646.45	0	0
13	221.484	993.156	1674.31	0	0
14	225.23	992.221	1665.06	0	0
15	228.975	991.474	1622.43	0	0
16	232.721	990.908	1546.25	0	0
17	236.466	990.52	1440.71	0	0
18	240.212	990.308	1311.49	0	0
19	243.957	990.27	1158.26	0	0
20	247.702	990.406	980.624	0	0
21	251.448	990.716	795.961	0	0
22	255.193	991.203	614.546	0	0
23	258.939	991.87	432.717	0	0
24	262.684	992.722	250.685	0	0
25	266.43	993.764	101.872	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoSS-0.6
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:40:15

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.6	0

Global Minimums

Method: bishop simplified

FS: 0.949236
Center: 248.869, 1095.136
Radius: 105.213
Left Slip Surface Endpoint: 170.442, 1025.000
Right Slip Surface Endpoint: 278.160, 994.082
Resisting Moment=373822 kN-m
Driving Moment=393813 kN-m
Total Slice Area=1370.98 m2

Method: janbu simplified

FS: 0.865940
Center: 242.908, 1071.035
Radius: 80.772
Left Slip Surface Endpoint: 176.538, 1025.000
Right Slip Surface Endpoint: 270.175, 995.005
Resisting Horizontal Force=2910.36 kN
Driving Horizontal Force=3360.93 kN
Total Slice Area=1242.21 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.949236

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.37492	100.722	Resíduos Dispostos	13.5	22	12.5466	11.9097	9.87736	13.8136	-3.93624
2	4.37492	291.009	Resíduos Dispostos	13.5	22	18.2929	17.3642	49.4748	39.9105	9.56432
3	4.37492	460.643	Resíduos Dispostos	13.5	22	23.7343	22.5295	85.5238	63.175	22.3488
4	4.37492	590.865	Resíduos Dispostos	13.5	22	28.24	26.8064	113.969	81.0343	32.9343
5	4.37492	636.517	Resíduos Dispostos	13.5	22	30.3383	28.7982	125.16	87.2953	37.8643
6	4.37492	670.182	Resíduos Dispostos	13.5	22	32.0927	30.4635	133.898	91.9122	41.986
			Resíduos							

			Dispostos								
8	4.37492	788.227	Resíduos Dispostos	13.5	22	37.2918	35.3987	162.303	108.102	54.2009	
9	4.37492	779.371	Resíduos Dispostos	13.5	22	37.7372	35.8215	162.135	106.887	55.2477	
10	4.37492	804.19	Resíduos Dispostos	13.5	22	39.2882	37.2938	169.182	110.291	58.8915	
11	4.37492	839.199	Resíduos Dispostos	13.5	22	41.2095	39.1175	178.498	115.092	63.4056	
12	4.37492	802.758	Resíduos Dispostos	13.5	22	40.6808	38.6157	172.258	110.094	62.1639	
13	4.37492	769.186	Resíduos Dispostos	13.5	22	40.2084	38.1673	166.544	105.49	61.0541	
14	4.37492	791.644	Resíduos Dispostos	13.5	22	41.7185	39.6007	173.172	108.57	64.6017	
15	4.37492	746.825	Resíduos Dispostos	13.5	22	40.7964	38.7254	164.859	102.423	62.4355	
16	4.37492	676.257	Resíduos Dispostos	13.5	22	38.8684	36.8953	150.651	92.7454	57.9054	
17	4.37492	650.525	Resíduos Dispostos	13.5	22	38.5664	36.6086	146.412	89.2164	57.1959	
18	3.89963	554.583	Resíduos Dispostos	13.5	22	38.1115	36.1768	141.456	85.3287	56.1271	
19	4.20639	513.152	Resíduos Dispostos	13.5	22	35.2688	33.4784	122.645	73.1962	49.4483	
20	4.20639	427.688	Resíduos Dispostos	13.5	22	32.3358	30.6943	103.563	61.0055	42.5573	
21	4.20639	397.685	Resíduos Dispostos	13.5	22	31.6456	30.0391	97.6618	56.7259	40.9359	
22	4.20639	310.699	Resíduos Dispostos	13.5	22	28.4853	27.0393	77.8291	44.3181	33.511	
23	4.20639	194.591	Resíduos Dispostos	13.5	22	23.9379	22.7227	50.5832	27.7564	22.8268	
24	4.20639	106.237	Resíduos Dispostos	13.5	22	20.463	19.4243	29.8168	15.1537	14.6631	
25	4.20639	48.2385	Resíduos Dispostos	13.5	22	18.2425	17.3164	16.3267	6.88075	9.44592	

Global Minimum Query (janbu simplified) - Safety Factor: 0.86594

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	3.74549	93.2318	Resíduos Dispostos	13.5	22	12.4903	10.8159	8.29162	14.935	-6.64338
2	3.74549	266.632	Resíduos Dispostos	13.5	22	18.8335	16.3087	49.6643	42.7125	6.9518
3	3.74549	397.507	Resíduos Dispostos	13.5	22	24.1575	20.9189	82.0402	63.6776	18.3626
4	3.74549	461.245	Resíduos Dispostos	13.5	22	27.3658	23.6971	99.1266	73.8879	25.2387
5	3.74549	507.313	Resíduos Dispostos	13.5	22	30.0009	25.979	112.154	81.2677	30.8866
6	3.74549	579.767	Resíduos Dispostos	13.5	22	33.6697	29.1559	131.624	92.8743	38.7499
7	3.74549	651.791	Resíduos Dispostos	13.5	22	37.425	32.4078	151.21	104.412	46.7985
			Resíduos							

			Dispostos							
9	3.74549	665.576	Resíduos Dispostos	13.5	22	39.9387	34.5845	158.806	106.62	52.1863
10	3.74549	697.104	Resíduos Dispostos	13.5	22	42.2044	36.5465	168.713	111.671	57.0419
11	3.74549	732.215	Resíduos Dispostos	13.5	22	44.6681	38.6799	179.618	117.295	62.3227
12	3.74549	710.671	Resíduos Dispostos	13.5	22	44.7155	38.7209	176.268	113.844	62.4242
13	3.74549	679.299	Resíduos Dispostos	13.5	22	44.2826	38.3461	170.315	108.819	61.4958
14	3.74549	679.898	Resíduos Dispostos	13.5	22	45.2539	39.1872	172.493	108.915	63.5776
15	3.74549	686.268	Resíduos Dispostos	13.5	22	46.5081	40.2732	176.201	109.935	66.2659
16	3.74549	637.623	Resíduos Dispostos	13.5	22	45.1796	39.1228	165.561	102.142	63.4193
17	3.74549	579.78	Resíduos Dispostos	13.5	22	43.3336	37.5243	152.339	92.8765	59.4622
18	3.74549	550.999	Resíduos Dispostos	13.5	22	42.8413	37.098	146.673	88.266	58.4072
19	3.74549	532.841	Resíduos Dispostos	13.5	22	42.8645	37.1181	143.814	85.3572	58.4567
20	3.74549	457.805	Resíduos Dispostos	13.5	22	39.9455	34.5904	125.537	73.3369	52.2006
21	3.74549	372.644	Resíduos Dispostos	13.5	22	36.3642	31.4892	104.22	59.6947	44.525
22	3.74549	317.001	Resíduos Dispostos	13.5	22	34.2296	29.6408	90.731	50.7812	39.9498
23	3.74549	271.962	Resíduos Dispostos	13.5	22	32.5996	28.2293	80.0224	43.5663	36.4561
24	3.74549	170.287	Resíduos Dispostos	13.5	22	27.6673	23.9582	53.1635	27.2787	25.8848
25	3.74549	58.0017	Resíduos Dispostos	13.5	22	21.8587	18.9284	22.7271	9.29144	13.4356

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.949236

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	170.442	1025	0	0	0
2	174.817	1020.4	-9.16143	0	0
3	179.192	1016.3	113.743	0	0
4	183.567	1012.64	323.425	0	0
5	187.942	1009.36	574.466	0	0
6	192.317	1006.41	810.981	0	0
7	196.692	1003.77	1024.9	0	0
8	201.067	1001.41	1234.48	0	0
9	205.442	999.303	1413.81	0	0
10	209.817	997.439	1551.77	0	0
11	214.191	995.802	1657.64	0	0
12	218.566	994.381	1731.77	0	0
13	222.941	993.167	1763.64	0	0

14	227.316	992.154	1757.32	0	0
15	231.691	991.334	1717.54	0	0
16	236.066	990.704	1643.71	0	0
17	240.441	990.261	1541.29	0	0
18	244.816	990.001	1411.39	0	0
19	248.716	989.923	1274.48	0	0
20	252.922	990.001	1117.23	0	0
21	257.128	990.247	956.294	0	0
22	261.335	990.664	783.117	0	0
23	265.541	991.252	618.057	0	0
24	269.747	992.015	479.224	0	0
25	273.954	992.957	365.459	0	0
26	278.16	994.082	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 0.86594

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	176.538	1025	0	0	0
2	180.284	1020.02	-5.49978	0	0
3	184.029	1015.74	136.569	0	0
4	187.775	1012.01	352.536	0	0
5	191.52	1008.72	575.96	0	0
6	195.266	1005.81	789.762	0	0
7	199.011	1003.23	1002.9	0	0
8	202.757	1000.95	1207.95	0	0
9	206.502	998.933	1377.73	0	0
10	210.248	997.161	1509.57	0	0
11	213.993	995.616	1612.14	0	0
12	217.739	994.285	1683.95	0	0
13	221.484	993.156	1715.42	0	0
14	225.23	992.221	1708.76	0	0
15	228.975	991.474	1668.23	0	0
16	232.721	990.908	1593.73	0	0
17	236.466	990.52	1488.72	0	0
18	240.212	990.308	1358.76	0	0
19	243.957	990.27	1203.91	0	0
20	247.702	990.406	1023.87	0	0
21	251.448	990.716	835.314	0	0
22	255.193	991.203	648.363	0	0
23	258.939	991.87	459.644	0	0
24	262.684	992.722	269.401	0	0
25	266.43	993.764	110.367	0	0
26	270.175	995.005	0	0	0

List Of Coordinates

External Boundary

X	Y
297.965	989.184
295.931	988.978

292.516	992
285.101	992
275.1	995
270.185	995
260.096	1000
255.135	1000
245.148	1005
240.153	1005
230	1010
225	1010
215	1015
210	1015
200	1020
195	1020
185	1025
0	1025
0	994.897
0	972
312.183	972
312.183	989.184

Material Boundary

X	Y
0	994.897
295.931	988.978

Project Summary

File Name: SeçãoTT-0.0
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0	0

Global Minimums

Method: bishop simplified

FS: 1.819760
Center: 166.287, 1124.686
Radius: 135.915
Left Slip Surface Endpoint: 73.899, 1025.000
Right Slip Surface Endpoint: 184.898, 990.051
Resisting Moment=874652 kN-m
Driving Moment=480642 kN-m
Total Slice Area=1216.76 m2

Method: janbu simplified

FS: 1.729810
Center: 152.428, 1075.313
Radius: 88.351
Left Slip Surface Endpoint: 79.802, 1025.000
Right Slip Surface Endpoint: 181.343, 991.828
Resisting Horizontal Force=6429 kN
Driving Horizontal Force=3716.59 kN
Total Slice Area=1364.76 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.81976

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.43995	87.4283	Resíduos Dispostos	13.5	22	9.8545	17.9328	10.9716	0	10.9716
2	4.43995	255.004	Resíduos Dispostos	13.5	22	17.092	31.1033	43.5697	0	43.5697
3	4.43995	396.421	Resíduos Dispostos	13.5	22	23.3768	42.5401	71.8768	0	71.8768
4	4.43995	451.355	Resíduos Dispostos	13.5	22	26.0348	47.3771	83.8488	0	83.8488
5	4.43995	485.462	Resíduos Dispostos	13.5	22	27.8151	50.6168	91.8673	0	91.8673
6	4.43995	575.829	Resíduos Dispostos	13.5	22	32.1058	58.4249	111.193	0	111.193
			Resíduos							

			Dispostos								
8	4.43995	625.52	Resíduos Dispostos	13.5	22	34.9593	63.6176	124.046	0	124.046	
9	4.43995	655.065	Resíduos Dispostos	13.5	22	36.6136	66.628	131.496	0	131.496	
10	4.43995	709.5	Resíduos Dispostos	13.5	22	39.4256	71.7451	144.161	0	144.161	
11	4.43995	688.637	Resíduos Dispostos	13.5	22	38.7818	70.5735	141.262	0	141.262	
12	4.43995	668.66	Resíduos Dispostos	13.5	22	38.1572	69.437	138.449	0	138.449	
13	4.43995	708.593	Resíduos Dispostos	13.5	22	40.3326	73.3957	148.247	0	148.247	
14	4.43995	681.964	Resíduos Dispostos	13.5	22	39.3761	71.655	143.939	0	143.939	
15	4.43995	629.017	Resíduos Dispostos	13.5	22	37.1402	67.5863	133.868	0	133.868	
16	4.43995	628.296	Resíduos Dispostos	13.5	22	37.3789	68.0206	134.943	0	134.943	
17	4.43995	611.743	Resíduos Dispostos	13.5	22	36.8487	67.0558	132.555	0	132.555	
18	4.43995	537.918	Resíduos Dispostos	13.5	22	33.5105	60.981	117.52	0	117.52	
19	4.43995	484.064	Resíduos Dispostos	13.5	22	31.1034	56.6007	106.678	0	106.678	
20	4.43995	474.045	Resíduos Dispostos	13.5	22	30.8312	56.1054	105.452	0	105.452	
21	4.43995	388.274	Resíduos Dispostos	13.5	22	26.7746	48.7234	87.1811	0	87.1811	
22	4.43995	294.7	Resíduos Dispostos	13.5	22	22.2666	40.5199	66.8767	0	66.8767	
23	4.43995	263.95	Resíduos Dispostos	13.5	22	20.8734	37.9845	60.6014	0	60.6014	
24	4.43995	180.501	Resíduos Dispostos	13.5	22	16.7725	30.522	42.1308	0	42.1308	
25	4.43995	61.2583	Resíduos Dispostos	13.5	22	10.7717	19.6018	15.1026	0	15.1026	

Global Minimum Query (janbu simplified) - Safety Factor: 1.72981

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.06165	109.832	Resíduos Dispostos	13.5	22	10.7679	18.6264	12.6882	0	12.6882
2	4.06165	292.807	Resíduos Dispostos	13.5	22	19.4342	33.6175	49.7927	0	49.7927
3	4.06165	390.655	Resíduos Dispostos	13.5	22	24.5284	42.4295	71.6029	0	71.6029
4	4.06165	466.229	Resíduos Dispostos	13.5	22	28.6977	49.6416	89.4534	0	89.4534
5	4.06165	580.647	Resíduos Dispostos	13.5	22	34.8354	60.2587	115.732	0	115.732
6	4.06165	658.723	Resíduos Dispostos	13.5	22	39.3172	68.0113	134.92	0	134.92
7	4.06165	684.035	Resíduos Dispostos	13.5	22	41.2202	71.3031	143.068	0	143.068
			Resíduos							

			Dispostos							
9	4.06165	782.053	Resíduos Dispostos	13.5	22	47.4694	82.113	169.823	0	169.823
10	4.06165	791.748	Resíduos Dispostos	13.5	22	48.5892	84.05	174.617	0	174.617
11	4.06165	773.476	Resíduos Dispostos	13.5	22	48.2156	83.4039	173.018	0	173.018
12	4.06165	777.436	Resíduos Dispostos	13.5	22	48.995	84.7521	176.355	0	176.355
13	4.06165	806.195	Resíduos Dispostos	13.5	22	51.113	88.4157	185.423	0	185.423
14	4.06165	767.053	Resíduos Dispostos	13.5	22	49.5322	85.6813	178.655	0	178.655
15	4.06165	715.834	Resíduos Dispostos	13.5	22	47.2308	81.7003	168.802	0	168.802
16	4.06165	710.1	Resíduos Dispostos	13.5	22	47.4178	82.0238	169.602	0	169.602
17	4.06165	687.371	Resíduos Dispostos	13.5	22	46.6381	80.6751	166.264	0	166.264
18	4.06165	611.69	Resíduos Dispostos	13.5	22	42.8046	74.0438	149.851	0	149.851
19	4.06165	538.037	Resíduos Dispostos	13.5	22	39.0042	67.4698	133.58	0	133.58
20	4.06165	515.949	Resíduos Dispostos	13.5	22	38.1401	65.9751	129.88	0	129.88
21	4.06165	440.196	Resíduos Dispostos	13.5	22	34.0849	58.9604	112.519	0	112.519
22	4.06165	333.782	Resíduos Dispostos	13.5	22	28.1078	48.6212	86.9281	0	86.9281
23	4.06165	245.368	Resíduos Dispostos	13.5	22	23.0877	39.9374	65.4348	0	65.4348
24	4.06165	190.587	Resíduos Dispostos	13.5	22	20.016	34.6238	52.2833	0	52.2833
25	4.06165	67.6006	Resíduos Dispostos	13.5	22	12.6358	21.8576	20.6857	0	20.6857

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.81976

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	73.8992	1025	0	0	0
2	78.3392	1021.06	-0.437602	0	0
3	82.7791	1017.45	81.1597	0	0
4	87.2191	1014.14	215.854	0	0
5	91.659	1011.09	355.823	0	0
6	96.0989	1008.3	489.468	0	0
7	100.539	1005.73	632.431	0	0
8	104.979	1003.38	766.579	0	0
9	109.419	1001.24	877.675	0	0
10	113.859	999.29	971.946	0	0
11	118.299	997.525	1051.82	0	0
12	122.739	995.937	1104.4	0	0
13	127.179	994.519	1131.64	0	0

14	131.619	993.267	1138.64	0	0
15	136.058	992.175	1121.38	0	0
16	140.498	991.24	1082.08	0	0
17	144.938	990.458	1022.03	0	0
18	149.378	989.827	942.502	0	0
19	153.818	989.344	850.812	0	0
20	158.258	989.008	748.876	0	0
21	162.698	988.818	632.354	0	0
22	167.138	988.774	517.666	0	0
23	171.578	988.874	412.334	0	0
24	176.018	989.12	304.99	0	0
25	180.458	989.512	214.189	0	0
26	184.898	990.051	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.72981

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	79.8022	1025	0	0	0
2	83.8639	1019.59	24.8395	0	0
3	87.9255	1014.94	177.619	0	0
4	91.9872	1010.87	369.001	0	0
5	96.0488	1007.29	572.729	0	0
6	100.11	1004.12	798.092	0	0
7	104.172	1001.3	1017.79	0	0
8	108.234	998.81	1207.12	0	0
9	112.295	996.603	1365.67	0	0
10	116.357	994.661	1502.49	0	0
11	120.419	992.965	1601.15	0	0
12	124.48	991.499	1658.67	0	0
13	128.542	990.252	1679.32	0	0
14	132.604	989.215	1663.82	0	0
15	136.665	988.38	1611.66	0	0
16	140.727	987.741	1527.52	0	0
17	144.789	987.293	1410.6	0	0
18	148.85	987.035	1263.93	0	0
19	152.912	986.964	1100.55	0	0
20	156.974	987.079	926.506	0	0
21	161.035	987.383	732.042	0	0
22	165.097	987.876	538.008	0	0
23	169.159	988.561	364.131	0	0
24	173.22	989.444	212.485	0	0
25	177.282	990.53	74.2995	0	0
26	181.343	991.828	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.1
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.1	0

Global Minimums

Method: bishop simplified

FS: 1.668240
Center: 162.822, 1118.514
Radius: 130.479
Left Slip Surface Endpoint: 71.829, 1025.000
Right Slip Surface Endpoint: 185.380, 990.000
Resisting Moment=849800 kN-m
Driving Moment=509399 kN-m
Total Slice Area=1368.41 m2

Method: janbu simplified

FS: 1.581440
Center: 152.428, 1075.313
Radius: 88.351
Left Slip Surface Endpoint: 79.802, 1025.000
Right Slip Surface Endpoint: 181.343, 991.828
Resisting Horizontal Force=5881.71 kN
Driving Horizontal Force=3719.22 kN
Total Slice Area=1364.76 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.66824

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.71044	102.76	Resíduos Dispostos	13.5	22	10.4969	17.5113	12.1099	2.18153	9.92833
2	4.71044	298.764	Resíduos Dispostos	13.5	22	18.2159	30.3885	48.1429	6.34259	41.8003
3	4.71044	474.504	Resíduos Dispostos	13.5	22	25.3625	42.3107	81.3825	10.0735	71.309
4	4.71044	560.721	Resíduos Dispostos	13.5	22	29.1373	48.608	98.7992	11.9038	86.8954
5	4.71044	597.602	Resíduos Dispostos	13.5	22	30.9991	51.714	107.27	12.6867	94.5831
6	4.71044	684.856	Resíduos Dispostos	13.5	22	34.9224	58.259	125.322	14.5391	110.783
			Resíduos							

			Dispostos								
8	4.71044	748.368	Resíduos Dispostos	13.5	22	38.3478	63.9733	140.813	15.8874	124.926	
9	4.71044	781.427	Resíduos Dispostos	13.5	22	40.1348	66.9544	148.893	16.5892	132.304	
10	4.71044	831.285	Resíduos Dispostos	13.5	22	42.6499	71.1503	160.337	17.6477	142.689	
11	4.71044	801.172	Resíduos Dispostos	13.5	22	41.7735	69.6883	156.079	17.0084	139.071	
12	4.71044	788.261	Resíduos Dispostos	13.5	22	41.6082	69.4125	155.123	16.7343	138.388	
13	4.71044	821.001	Resíduos Dispostos	13.5	22	43.4171	72.4301	163.287	17.4294	145.857	
14	4.71044	768.842	Resíduos Dispostos	13.5	22	41.5132	69.2539	154.318	16.3221	137.996	
15	4.71044	716.777	Resíduos Dispostos	13.5	22	39.5703	66.0128	145.191	15.2168	129.974	
16	4.71044	727.381	Resíduos Dispostos	13.5	22	40.3919	67.3833	148.808	15.4419	133.366	
17	4.71044	659.03	Resíduos Dispostos	13.5	22	37.657	62.8209	136.064	13.9908	122.074	
18	4.71044	573.265	Resíduos Dispostos	13.5	22	34.0775	56.8495	119.464	12.1701	107.294	
19	4.71044	555.507	Resíduos Dispostos	13.5	22	33.5581	55.9829	116.942	11.7931	105.149	
20	4.71044	475.724	Resíduos Dispostos	13.5	22	30.1538	50.3038	101.192	10.0993	91.0926	
21	4.71044	360.709	Resíduos Dispostos	13.5	22	25.0424	41.7767	77.645	7.65765	69.9873	
22	4.71044	307.424	Resíduos Dispostos	13.5	22	22.7527	37.957	67.0596	6.52643	60.5332	
23	4.71044	220.072	Resíduos Dispostos	13.5	22	18.8017	31.3657	48.8912	4.67201	44.2192	
24	4.71044	79.3483	Resíduos Dispostos	13.5	22	12.2152	20.3779	18.708	1.68452	17.0235	
25	0.500605	0.418807	Solo de Alteração	18	36	12.0642	20.1261	2.92628	0	2.92628	

Global Minimum Query (janbu simplified) - Safety Factor: 1.58144

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.06165	109.832	Resíduos Dispostos	13.5	22	11.0075	17.4077	12.376	2.70412	9.67188
2	4.06165	292.807	Resíduos Dispostos	13.5	22	19.4221	30.7149	49.8174	7.20906	42.6084
3	4.06165	390.655	Resíduos Dispostos	13.5	22	24.4066	38.5976	71.7368	9.61815	62.1187
4	4.06165	466.229	Resíduos Dispostos	13.5	22	28.5043	45.0778	89.6366	11.4788	78.1578
5	4.06165	580.647	Resíduos Dispostos	13.5	22	34.5182	54.5884	115.993	14.2958	101.697
6	4.06165	658.723	Resíduos Dispostos	13.5	22	38.9338	61.5715	135.199	16.2181	118.981
7	4.06165	684.035	Resíduos Dispostos	13.5	22	40.8466	64.5965	143.31	16.8413	126.468
			Resíduos							

			Dispostos								
9	4.06165	782.053	Resíduos Dispostos	13.5	22	47.057	74.4179	170.032	19.2546	150.777	
10	4.06165	791.748	Resíduos Dispostos	13.5	22	48.2106	76.2421	174.785	19.4933	155.292	
11	4.06165	773.476	Resíduos Dispostos	13.5	22	47.9048	75.7586	173.139	19.0434	154.095	
12	4.06165	777.436	Resíduos Dispostos	13.5	22	48.7247	77.0552	176.446	19.1409	157.305	
13	4.06165	806.195	Resíduos Dispostos	13.5	22	50.8558	80.4254	185.495	19.849	165.646	
14	4.06165	767.053	Resíduos Dispostos	13.5	22	49.3646	78.0671	178.694	18.8853	159.809	
15	4.06165	715.834	Resíduos Dispostos	13.5	22	47.163	74.5854	168.816	17.6242	151.192	
16	4.06165	710.1	Resíduos Dispostos	13.5	22	47.4011	74.962	169.607	17.483	152.124	
17	4.06165	687.371	Resíduos Dispostos	13.5	22	46.6897	73.8369	166.262	16.9235	149.339	
18	4.06165	611.69	Resíduos Dispostos	13.5	22	42.9723	67.9581	149.848	15.0601	134.788	
19	4.06165	538.037	Resíduos Dispostos	13.5	22	39.2812	62.1208	133.587	13.2468	120.341	
20	4.06165	515.949	Resíduos Dispostos	13.5	22	38.4791	60.8524	129.904	12.703	117.201	
21	4.06165	440.196	Resíduos Dispostos	13.5	22	34.5271	54.6025	112.57	10.8379	101.732	
22	4.06165	333.782	Resíduos Dispostos	13.5	22	28.669	45.3383	87.0203	8.21788	78.8024	
23	4.06165	245.368	Resíduos Dispostos	13.5	22	23.7464	37.5535	65.5756	6.04109	59.5345	
24	4.06165	190.587	Resíduos Dispostos	13.5	22	20.7442	32.8057	52.4755	4.69237	47.7831	
25	4.06165	67.6006	Resíduos Dispostos	13.5	22	13.4632	21.2912	20.9482	1.66436	19.2839	

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.66824

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	71.8289	1025	0	0	0
2	76.5394	1020.64	3.47915	0	0
3	81.2498	1016.68	108.428	0	0
4	85.9603	1013.08	282.194	0	0
5	90.6707	1009.8	469.023	0	0
6	95.3811	1006.82	643.276	0	0
7	100.092	1004.1	818.922	0	0
8	104.802	1001.65	982.846	0	0
9	109.512	999.423	1115.49	0	0
10	114.223	997.424	1224.36	0	0
11	118.933	995.638	1310.14	0	0
12	123.644	994.056	1360.64	0	0
13	128.354	992.67	1379.99	0	0

14	133.065	991.474	1371.18	0	0
15	137.775	990.462	1332.16	0	0
16	142.486	989.63	1266.9	0	0
17	147.196	988.974	1174.52	0	0
18	151.906	988.493	1063	0	0
19	156.617	988.183	939.768	0	0
20	161.327	988.044	798.241	0	0
21	166.038	988.075	653.313	0	0
22	170.748	988.276	519.931	0	0
23	175.459	988.649	387.975	0	0
24	180.169	989.194	272.928	0	0
25	184.88	989.913	202.028	0	0
26	185.38	990	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.58144

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	79.8022	1025	0	0	0
2	83.8639	1019.59	22.1985	0	0
3	87.9255	1014.94	175.181	0	0
4	91.9872	1010.87	367.652	0	0
5	96.0488	1007.29	572.879	0	0
6	100.11	1004.12	800.429	0	0
7	104.172	1001.3	1022.55	0	0
8	108.234	998.81	1214.08	0	0
9	112.295	996.603	1374.66	0	0
10	116.357	994.661	1513.65	0	0
11	120.419	992.965	1614.23	0	0
12	124.48	991.499	1673.29	0	0
13	128.542	990.252	1695.24	0	0
14	132.604	989.215	1680.97	0	0
15	136.665	988.38	1629.63	0	0
16	140.727	987.741	1545.87	0	0
17	144.789	987.293	1429.1	0	0
18	148.85	987.035	1282.32	0	0
19	152.912	986.964	1118.34	0	0
20	156.974	987.079	943.25	0	0
21	161.035	987.383	747.476	0	0
22	165.097	987.876	551.687	0	0
23	169.159	988.561	375.522	0	0
24	173.22	989.444	221.121	0	0
25	177.282	990.53	79.807	0	0
26	181.343	991.828	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.2
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.2	0

Global Minimums

Method: bishop simplified

FS: 1.516550
Center: 162.822, 1118.514
Radius: 130.479
Left Slip Surface Endpoint: 71.829, 1025.000
Right Slip Surface Endpoint: 185.380, 990.000
Resisting Moment=772531 kN-m
Driving Moment=509399 kN-m
Total Slice Area=1368.41 m2

Method: janbu simplified

FS: 1.430600
Center: 148.963, 1069.142
Radius: 83.216
Left Slip Surface Endpoint: 78.419, 1025.000
Right Slip Surface Endpoint: 180.628, 992.186
Resisting Horizontal Force=5800.18 kN
Driving Horizontal Force=4054.38 kN
Total Slice Area=1513.61 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.51655

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.71044	102.76	Resíduos Dispostos	13.5	22	10.8718	16.4876	11.7578	4.36306	7.3947
2	4.71044	298.764	Resíduos Dispostos	13.5	22	18.3222	27.7865	48.0456	12.6852	35.3604
3	4.71044	474.504	Resíduos Dispostos	13.5	22	25.2381	38.2749	81.467	20.1469	61.3201
4	4.71044	560.721	Resíduos Dispostos	13.5	22	28.9181	43.8557	98.9406	23.8076	75.133
5	4.71044	597.602	Resíduos Dispostos	13.5	22	30.7578	46.6457	107.412	25.3735	82.0384
6	4.71044	684.856	Resíduos Dispostos	13.5	22	34.5902	52.4577	125.502	29.0782	96.4236
			Resíduos							

			Dispostos								
8	4.71044	748.368	Resíduos Dispostos	13.5	22	37.9928	57.618	140.971	31.7749	109.196	
9	4.71044	781.427	Resíduos Dispostos	13.5	22	39.7685	60.3109	149.039	33.1785	115.861	
10	4.71044	831.285	Resíduos Dispostos	13.5	22	42.2521	64.0774	160.479	35.2954	125.184	
11	4.71044	801.172	Resíduos Dispostos	13.5	22	41.4478	62.8576	156.181	34.0169	122.164	
12	4.71044	788.261	Resíduos Dispostos	13.5	22	41.3316	62.6815	155.197	33.4687	121.728	
13	4.71044	821.001	Resíduos Dispostos	13.5	22	43.134	65.4148	163.352	34.8588	128.494	
14	4.71044	768.842	Resíduos Dispostos	13.5	22	41.3264	62.6736	154.353	32.6442	121.709	
15	4.71044	716.777	Resíduos Dispostos	13.5	22	39.4777	59.8699	145.203	30.4336	114.77	
16	4.71044	727.381	Resíduos Dispostos	13.5	22	40.3199	61.1472	148.815	30.8838	117.931	
17	4.71044	659.03	Resíduos Dispostos	13.5	22	37.6947	57.1659	136.059	27.9817	108.077	
18	4.71044	573.265	Resíduos Dispostos	13.5	22	34.2406	51.9276	119.452	24.3402	95.1118	
19	4.71044	555.507	Resíduos Dispostos	13.5	22	33.771	51.2154	116.935	23.5862	93.3489	
20	4.71044	475.724	Resíduos Dispostos	13.5	22	30.4799	46.2243	101.194	20.1987	80.9955	
21	4.71044	360.709	Resíduos Dispostos	13.5	22	25.5126	38.6911	77.6655	15.3153	62.3502	
22	4.71044	307.424	Resíduos Dispostos	13.5	22	23.3016	35.3381	67.1041	13.0529	54.0512	
23	4.71044	220.072	Resíduos Dispostos	13.5	22	19.4581	29.5092	48.9682	9.34402	39.6242	
24	4.71044	79.3483	Resíduos Dispostos	13.5	22	13.0213	19.7475	18.832	3.36904	15.463	
25	0.500605	0.418807	Solo de Alteração	18	36	13.3808	20.2927	3.15555	0	3.15555	

Global Minimum Query (janbu simplified) - Safety Factor: 1.4306

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.08838	121.511	Resíduos Dispostos	13.5	22	11.4599	16.3945	13.1083	5.94419	7.16406
2	4.08838	339.018	Resíduos Dispostos	13.5	22	20.9472	29.9671	57.3419	16.5845	40.7574
3	4.08838	461.405	Resíduos Dispostos	13.5	22	26.9411	38.542	84.5527	22.5715	61.9812
4	4.08838	542.592	Resíduos Dispostos	13.5	22	31.3264	44.8155	104.052	26.5431	77.5087
5	4.08838	640.233	Resíduos Dispostos	13.5	22	36.5377	52.2709	127.281	31.3196	95.9614
6	4.08838	744.777	Resíduos Dispostos	13.5	22	42.1859	60.3512	152.395	36.4338	115.961
7	4.08838	775.65	Resíduos Dispostos	13.5	22	44.4983	63.6593	162.093	37.9441	124.149
			Resíduos							

			Dispostos							
9	4.08838	856.382	Resíduos Dispostos	13.5	22	50.0453	71.5948	185.683	41.8934	143.79
10	4.08838	884.619	Resíduos Dispostos	13.5	22	52.2568	74.7586	194.895	43.2747	151.62
11	4.08838	864.909	Resíduos Dispostos	13.5	22	52.0732	74.4959	193.281	42.3105	150.97
12	4.08838	850.757	Resíduos Dispostos	13.5	22	52.1237	74.5682	192.767	41.6183	151.149
13	4.08838	882.868	Resíduos Dispostos	13.5	22	54.5354	78.0184	202.878	43.1891	159.689
14	4.08838	850.953	Resíduos Dispostos	13.5	22	53.6271	76.719	198.101	41.6279	156.473
15	4.08838	794.489	Resíduos Dispostos	13.5	22	51.3657	73.4837	187.331	38.8657	148.465
16	4.08838	766.296	Resíduos Dispostos	13.5	22	50.5519	72.3195	183.07	37.4865	145.583
17	4.08838	755.134	Resíduos Dispostos	13.5	22	50.6379	72.4426	182.828	36.9405	145.888
18	4.08838	677.059	Resíduos Dispostos	13.5	22	47.0121	67.2555	166.171	33.1211	133.05
19	4.08838	590.367	Resíduos Dispostos	13.5	22	42.8006	61.2306	147.018	28.8802	118.137
20	4.08838	553.522	Resíduos Dispostos	13.5	22	41.3172	59.1084	139.963	27.0778	112.885
21	4.08838	485.23	Resíduos Dispostos	13.5	22	37.9793	54.3332	124.803	23.737	101.066
22	4.08838	370.324	Resíduos Dispostos	13.5	22	31.8126	45.5111	97.3462	18.1159	79.2303
23	4.08838	261.649	Resíduos Dispostos	13.5	22	25.837	36.9624	70.8712	12.7996	58.0716
24	4.08838	199.772	Resíduos Dispostos	13.5	22	22.5217	32.2195	56.1052	9.77266	46.3326
25	4.08838	73.634	Resíduos Dispostos	13.5	22	15.1292	21.6438	23.7587	3.60211	20.1566

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.51655

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	71.8289	1025	0	0	0
2	76.5394	1020.64	0.152381	0	0
3	81.2498	1016.68	104.169	0	0
4	85.9603	1013.08	278.76	0	0
5	90.6707	1009.8	467.01	0	0
6	95.3811	1006.82	642.744	0	0
7	100.092	1004.1	820.354	0	0
8	104.802	1001.65	986.48	0	0
9	109.512	999.423	1121.04	0	0
10	114.223	997.424	1231.83	0	0
11	118.933	995.638	1319.62	0	0
12	123.644	994.056	1371.71	0	0
13	128.354	992.67	1392.36	0	0

14	133.065	991.474	1384.86	0	0
15	137.775	990.462	1346.64	0	0
16	142.486	989.63	1281.73	0	0
17	147.196	988.974	1189.59	0	0
18	151.906	988.493	1077.79	0	0
19	156.617	988.183	953.705	0	0
20	161.327	988.044	811.09	0	0
21	166.038	988.075	664.552	0	0
22	170.748	988.276	528.89	0	0
23	175.459	988.649	394.277	0	0
24	180.169	989.194	276.052	0	0
25	184.88	989.913	201.24	0	0
26	185.38	990	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.4306

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	78.4188	1025	0	0	0
2	82.5071	1019.06	31.2036	0	0
3	86.5955	1014.05	232.95	0	0
4	90.6839	1009.74	487.385	0	0
5	94.7723	1005.99	750.083	0	0
6	98.8607	1002.7	1019.91	0	0
7	102.949	999.804	1288.98	0	0
8	107.037	997.258	1520.26	0	0
9	111.126	995.025	1709.15	0	0
10	115.214	993.076	1867	0	0
11	119.303	991.391	1982.45	0	0
12	123.391	989.952	2048.28	0	0
13	127.479	988.746	2068.18	0	0
14	131.568	987.764	2045.21	0	0
15	135.656	986.996	1978.67	0	0
16	139.745	986.438	1873.93	0	0
17	143.833	986.084	1732.65	0	0
18	147.921	985.932	1553.98	0	0
19	152.01	985.981	1354.15	0	0
20	156.098	986.232	1142.82	0	0
21	160.186	986.686	910.871	0	0
22	164.275	987.346	673.62	0	0
23	168.363	988.219	459.037	0	0
24	172.452	989.309	276.412	0	0
25	176.54	990.628	110.631	0	0
26	180.628	992.186	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.3
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.3	0

Global Minimums

Method: bishop simplified

FS: 1.365040
Center: 162.822, 1118.514
Radius: 130.479
Left Slip Surface Endpoint: 71.829, 1025.000
Right Slip Surface Endpoint: 185.380, 990.000
Resisting Moment=695348 kN-m
Driving Moment=509399 kN-m
Total Slice Area=1368.41 m2

Method: janbu simplified

FS: 1.280340
Center: 148.963, 1069.142
Radius: 83.216
Left Slip Surface Endpoint: 78.419, 1025.000
Right Slip Surface Endpoint: 180.628, 992.186
Resisting Horizontal Force=5195.63 kN
Driving Horizontal Force=4058.02 kN
Total Slice Area=1513.61 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.36504

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.71044	102.76	Resíduos Dispostos	13.5	22	11.311	15.4399	11.3461	6.5446	4.80152
2	4.71044	298.764	Resíduos Dispostos	13.5	22	18.4455	25.1789	47.9339	19.0278	28.9061
3	4.71044	474.504	Resíduos Dispostos	13.5	22	25.0887	34.2471	81.5713	30.2204	51.3509
4	4.71044	560.721	Resíduos Dispostos	13.5	22	28.6555	39.1159	99.1128	35.7114	63.4014
5	4.71044	597.602	Resíduos Dispostos	13.5	22	30.468	41.59	107.585	38.0602	69.5251
6	4.71044	684.856	Resíduos Dispostos	13.5	22	34.191	46.6721	125.721	43.6173	82.104
			Resíduos							

			Dispostos								
8	4.71044	748.368	Resíduos Dispostos	13.5	22	37.5645	51.277	141.164	47.6623	93.5014	
9	4.71044	781.427	Resíduos Dispostos	13.5	22	39.3254	53.6808	149.219	49.7677	99.4509	
10	4.71044	831.285	Resíduos Dispostos	13.5	22	41.7701	57.0178	160.653	52.9431	107.71	
11	4.71044	801.172	Resíduos Dispostos	13.5	22	41.0513	56.0366	156.307	51.0253	105.282	
12	4.71044	788.261	Resíduos Dispostos	13.5	22	40.9937	55.958	155.29	50.203	105.087	
13	4.71044	821.001	Resíduos Dispostos	13.5	22	42.7872	58.4062	163.435	52.2881	111.147	
14	4.71044	768.842	Resíduos Dispostos	13.5	22	41.0956	56.0972	154.398	48.9662	105.432	
15	4.71044	716.777	Resíduos Dispostos	13.5	22	39.3607	53.7289	145.22	45.6503	99.57	
16	4.71044	727.381	Resíduos Dispostos	13.5	22	40.2276	54.9123	148.825	46.3257	102.499	
17	4.71044	659.03	Resíduos Dispostos	13.5	22	37.7357	51.5107	136.052	41.9725	94.0799	
18	4.71044	573.265	Resíduos Dispostos	13.5	22	34.4349	47.005	119.438	36.5103	82.9277	
19	4.71044	555.507	Resíduos Dispostos	13.5	22	34.0264	46.4474	116.927	35.3793	81.5477	
20	4.71044	475.724	Resíduos Dispostos	13.5	22	30.8746	42.145	101.197	30.298	70.8988	
21	4.71044	360.709	Resíduos Dispostos	13.5	22	26.0852	35.6073	77.6906	22.9729	54.7177	
22	4.71044	307.424	Resíduos Dispostos	13.5	22	23.9722	32.723	67.158	19.5793	47.5787	
23	4.71044	220.072	Resíduos Dispostos	13.5	22	20.2629	27.6597	49.0624	14.016	35.0464	
24	4.71044	79.3483	Resíduos Dispostos	13.5	22	14.0131	19.1285	18.9845	5.05356	13.9309	
25	0.500605	0.418807	Solo de Alteração	18	36	15.0177	20.4997	3.44058	0	3.44058	

Global Minimum Query (janbu simplified) - Safety Factor: 1.28034

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.08838	121.511	Resíduos Dispostos	13.5	22	11.7322	15.0213	12.6815	8.91628	3.76524
2	4.08838	339.018	Resíduos Dispostos	13.5	22	20.822	26.6593	57.4471	24.8767	32.5704
3	4.08838	461.405	Resíduos Dispostos	13.5	22	26.6286	34.0937	84.8285	33.8573	50.9712
4	4.08838	542.592	Resíduos Dispostos	13.5	22	30.9165	39.5836	104.374	39.8147	64.5591
5	4.08838	640.233	Resíduos Dispostos	13.5	22	36.0026	46.0956	127.656	46.9794	80.6768
6	4.08838	744.777	Resíduos Dispostos	13.5	22	41.5194	53.159	152.81	54.6507	98.1595
7	4.08838	775.65	Resíduos Dispostos	13.5	22	43.8455	56.1372	162.447	56.9161	105.531
			Resíduos							

			Dispostos							
9	4.08838	856.382	Resíduos Dispostos	13.5	22	49.3926	63.2393	185.949	62.8401	123.109
10	4.08838	884.619	Resíduos Dispostos	13.5	22	51.6304	66.1045	195.113	64.9121	130.201
11	4.08838	864.909	Resíduos Dispostos	13.5	22	51.5553	66.0083	193.429	63.4658	129.963
12	4.08838	850.757	Resíduos Dispostos	13.5	22	51.7043	66.1991	192.862	62.4274	130.435
13	4.08838	882.868	Resíduos Dispostos	13.5	22	54.1433	69.3218	202.947	64.7836	138.164
14	4.08838	850.953	Resíduos Dispostos	13.5	22	53.3625	68.3221	198.131	62.4418	135.69
15	4.08838	794.489	Resíduos Dispostos	13.5	22	51.262	65.6328	187.332	58.2985	129.033
16	4.08838	766.296	Resíduos Dispostos	13.5	22	50.567	64.7429	183.06	56.2298	126.83
17	4.08838	755.134	Resíduos Dispostos	13.5	22	50.7498	64.977	182.821	55.4107	127.41
18	4.08838	677.059	Resíduos Dispostos	13.5	22	47.305	60.5665	166.175	49.6817	116.494
19	4.08838	590.367	Resíduos Dispostos	13.5	22	43.2777	55.4102	147.052	43.3203	103.731
20	4.08838	553.522	Resíduos Dispostos	13.5	22	41.9175	53.6687	140.038	40.6167	99.4211
21	4.08838	485.23	Resíduos Dispostos	13.5	22	38.7333	49.5918	124.936	35.6055	89.3304
22	4.08838	370.324	Resíduos Dispostos	13.5	22	32.7551	41.9377	97.5598	27.1739	70.3859
23	4.08838	261.649	Resíduos Dispostos	13.5	22	26.9471	34.5015	71.1799	19.1994	51.9805
24	4.08838	199.772	Resíduos Dispostos	13.5	22	23.7523	30.411	56.5152	14.659	41.8562
25	4.08838	73.634	Resíduos Dispostos	13.5	22	16.505	21.1321	24.2931	5.40316	18.8899

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.36504

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	71.8289	1025	0	0	0
2	76.5394	1020.64	-3.73714	0	0
3	81.2498	1016.68	99.2127	0	0
4	85.9603	1013.08	274.822	0	0
5	90.6707	1009.8	464.802	0	0
6	95.3811	1006.82	642.344	0	0
7	100.092	1004.1	822.343	0	0
8	104.802	1001.65	991.151	0	0
9	109.512	999.423	1128.07	0	0
10	114.223	997.424	1241.2	0	0
11	118.933	995.638	1331.47	0	0
12	123.644	994.056	1385.53	0	0
13	128.354	992.67	1407.8	0	0

14	133.065	991.474	1401.92	0	0
15	137.775	990.462	1364.73	0	0
16	142.486	989.63	1300.29	0	0
17	147.196	988.974	1208.5	0	0
18	151.906	988.493	1096.41	0	0
19	156.617	988.183	971.323	0	0
20	161.327	988.044	827.423	0	0
21	166.038	988.075	678.953	0	0
22	170.748	988.276	540.529	0	0
23	175.459	988.649	402.684	0	0
24	180.169	989.194	280.572	0	0
25	184.88	989.913	200.95	0	0
26	185.38	990	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.28034

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	78.4188	1025	0	0	0
2	82.5071	1019.06	27.467	0	0
3	86.5955	1014.05	230.092	0	0
4	90.6839	1009.74	486.785	0	0
5	94.7723	1005.99	752.126	0	0
6	98.8607	1002.7	1025.09	0	0
7	102.949	999.804	1297.77	0	0
8	107.037	997.258	1532.27	0	0
9	111.126	995.025	1723.96	0	0
10	115.214	993.076	1884.61	0	0
11	119.303	991.391	2002.59	0	0
12	123.391	989.952	2070.34	0	0
13	127.479	988.746	2091.68	0	0
14	131.568	987.764	2069.96	0	0
15	135.656	986.996	2004.11	0	0
16	139.745	986.438	1899.41	0	0
17	143.833	986.084	1757.67	0	0
18	147.921	985.932	1578.15	0	0
19	152.01	985.981	1376.77	0	0
20	156.098	986.232	1163.16	0	0
21	160.186	986.686	928.406	0	0
22	164.275	987.346	687.698	0	0
23	168.363	988.219	468.837	0	0
24	172.452	989.309	281.144	0	0
25	176.54	990.628	109.624	0	0
26	180.628	992.186	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.4
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.4	0

Global Minimums

Method: bishop simplified

FS: 1.210600
Center: 159.358, 1112.342
Radius: 125.161
Left Slip Surface Endpoint: 69.711, 1025.000
Right Slip Surface Endpoint: 185.769, 990.000
Resisting Moment=649090 kN-m
Driving Moment=536172 kN-m
Total Slice Area=1533.57 m2

Method: janbu simplified

FS: 1.130390
Center: 148.963, 1069.142
Radius: 83.216
Left Slip Surface Endpoint: 78.419, 1025.000
Right Slip Surface Endpoint: 180.628, 992.186
Resisting Horizontal Force=4593.5 kN
Driving Horizontal Force=4063.66 kN
Total Slice Area=1513.61 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.2106

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.79045	111.643	Resíduos Dispostos	13.5	22	11.9416	14.4564	11.6895	9.32216	2.36729
2	4.79045	323.834	Resíduos Dispostos	13.5	22	19.1028	23.1259	50.8647	27.04	23.8247
3	4.79045	515.229	Resíduos Dispostos	13.5	22	25.8576	31.3032	87.0858	43.0214	44.0644
4	4.79045	650.802	Resíduos Dispostos	13.5	22	30.9549	37.474	113.679	54.3416	59.3379
5	4.79045	694.804	Resíduos Dispostos	13.5	22	33.0439	40.003	123.613	58.0158	65.5973
6	4.79045	751.59	Resíduos Dispostos	13.5	22	35.6023	43.1002	136.021	62.7574	73.2632
			Resíduos							

			Dispostos								
8	4.79045	855.265	Resíduos Dispostos	13.5	22	40.4822	49.0077	159.299	71.4143	87.8847	
9	4.79045	863.758	Resíduos Dispostos	13.5	22	41.3904	50.1072	162.729	72.1234	90.606	
10	4.79045	928.996	Resíduos Dispostos	13.5	22	44.4001	53.7508	177.195	77.5707	99.6241	
11	4.79045	907.34	Resíduos Dispostos	13.5	22	44.1947	53.5021	174.771	75.7624	99.0088	
12	4.79045	875.631	Resíduos Dispostos	13.5	22	43.5761	52.7532	170.27	73.1148	97.1551	
13	4.79045	910.007	Resíduos Dispostos	13.5	22	45.4747	55.0517	178.829	75.9852	102.844	
14	4.79045	866.389	Resíduos Dispostos	13.5	22	44.353	53.6938	171.826	72.3431	99.4831	
15	4.79045	799.916	Resíduos Dispostos	13.5	22	42.2828	51.1875	160.073	66.7926	93.28	
16	4.79045	802.316	Resíduos Dispostos	13.5	22	42.9139	51.9516	162.164	66.993	95.1712	
17	4.79045	741.01	Resíduos Dispostos	13.5	22	40.9639	49.5909	151.202	61.874	89.328	
18	4.79045	643.567	Resíduos Dispostos	13.5	22	37.4716	45.3631	132.602	53.7376	78.8639	
19	4.79045	611.427	Resíduos Dispostos	13.5	22	36.6097	44.3197	127.335	51.0538	76.2814	
20	4.79045	535.398	Resíduos Dispostos	13.5	22	33.872	41.0054	112.784	44.7055	68.0782	
21	4.79045	409.577	Resíduos Dispostos	13.5	22	28.9338	35.0273	87.4813	34.1995	53.2818	
22	4.79045	339.197	Resíduos Dispostos	13.5	22	26.2704	31.803	73.6243	28.3228	45.3015	
23	4.79045	250.321	Resíduos Dispostos	13.5	22	22.7259	27.512	55.5825	20.9017	34.6808	
24	4.79045	97.3836	Resíduos Dispostos	13.5	22	16.2316	19.65	23.3532	8.13148	15.2218	
25	1.08702	2.38392	Solo de Alteração	18	36	18.5338	22.437	6.10705	0	6.10705	

Global Minimum Query (janbu simplified) - Safety Factor: 1.13039

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.08838	121.511	Resíduos Dispostos	13.5	22	12.0538	13.6255	12.199	11.8884	0.310607
2	4.08838	339.018	Resíduos Dispostos	13.5	22	20.6761	23.3721	57.6032	33.1689	24.4343
3	4.08838	461.405	Resíduos Dispostos	13.5	22	26.2579	29.6817	85.1942	45.1431	40.0511
4	4.08838	542.592	Resíduos Dispostos	13.5	22	30.426	34.3932	104.799	53.0862	51.7126
5	4.08838	640.233	Resíduos Dispostos	13.5	22	35.3576	39.9679	128.15	62.6392	65.5104
6	4.08838	744.777	Resíduos Dispostos	13.5	22	40.7112	46.0195	153.356	72.8676	80.4887
7	4.08838	775.65	Resíduos Dispostos	13.5	22	43.0493	48.6625	162.918	75.8882	87.0303
			Resíduos							

			Dispostos							
9	4.08838	856.382	Resíduos Dispostos	13.5	22	48.5876	54.9229	186.312	83.7868	102.525
10	4.08838	884.619	Resíduos Dispostos	13.5	22	50.8534	57.4842	195.414	86.5495	108.865
11	4.08838	864.909	Resíduos Dispostos	13.5	22	50.9085	57.5465	193.64	84.6211	109.019
12	4.08838	850.757	Resíduos Dispostos	13.5	22	51.1762	57.8491	193.004	83.2365	109.768
13	4.08838	882.868	Resíduos Dispostos	13.5	22	53.6458	60.6407	203.056	86.3782	116.677
14	4.08838	850.953	Resíduos Dispostos	13.5	22	53.0215	59.935	198.186	83.2557	114.931
15	4.08838	794.489	Resíduos Dispostos	13.5	22	51.121	57.7867	187.345	77.7314	109.613
16	4.08838	766.296	Resíduos Dispostos	13.5	22	50.574	57.1683	183.056	74.973	108.083
17	4.08838	755.134	Resíduos Dispostos	13.5	22	50.878	57.512	182.814	73.8809	108.933
18	4.08838	677.059	Resíduos Dispostos	13.5	22	47.6628	53.8775	166.18	66.2422	99.9378
19	4.08838	590.367	Resíduos Dispostos	13.5	22	43.8713	49.5917	147.091	57.7604	89.3302
20	4.08838	553.522	Resíduos Dispostos	13.5	22	42.6703	48.2341	140.125	54.1556	85.9697
21	4.08838	485.23	Resíduos Dispostos	13.5	22	39.6864	44.8611	125.096	47.474	77.6215
22	4.08838	370.324	Resíduos Dispostos	13.5	22	33.9565	38.3841	97.8222	36.2318	61.5904
23	4.08838	261.649	Resíduos Dispostos	13.5	22	28.3725	32.072	71.5665	25.5992	45.9673
24	4.08838	199.772	Resíduos Dispostos	13.5	22	25.3422	28.6466	57.0345	19.5453	37.4892
25	4.08838	73.634	Resíduos Dispostos	13.5	22	18.2967	20.6824	24.9813	7.20422	17.7771

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.2106

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	69.7109	1025	0	0	0
2	74.5013	1020.34	-2.70447	0	0
3	79.2918	1016.14	119.33	0	0
4	84.0822	1012.35	325.803	0	0
5	88.8727	1008.92	567.767	0	0
6	93.6631	1005.81	793.587	0	0
7	98.4536	1003	1005.2	0	0
8	103.244	1000.47	1211.25	0	0
9	108.034	998.188	1380.09	0	0
10	112.825	996.153	1513.04	0	0
11	117.615	994.347	1620.37	0	0
12	122.406	992.761	1686.03	0	0
13	127.196	991.384	1711.7	0	0

14	131.987	990.211	1703.71	0	0
15	136.777	989.235	1658.96	0	0
16	141.568	988.452	1581.79	0	0
17	146.358	987.859	1472.57	0	0
18	151.148	987.451	1337.99	0	0
19	155.939	987.228	1188.08	0	0
20	160.729	987.189	1017.73	0	0
21	165.52	987.333	839.245	0	0
22	170.31	987.662	671.951	0	0
23	175.101	988.176	508.301	0	0
24	179.891	988.878	360.457	0	0
25	184.682	989.77	261.87	0	0
26	185.769	990	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.13039

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	78.4188	1025	0	0	0
2	82.5071	1019.06	23.242	0	0
3	86.5955	1014.05	227.17	0	0
4	90.6839	1009.74	486.857	0	0
5	94.7723	1005.99	755.686	0	0
6	98.8607	1002.7	1032.78	0	0
7	102.949	999.804	1310.19	0	0
8	107.037	997.258	1548.99	0	0
9	111.126	995.025	1744.46	0	0
10	115.214	993.076	1908.92	0	0
11	119.303	991.391	2030.4	0	0
12	123.391	989.952	2100.92	0	0
13	127.479	988.746	2124.4	0	0
14	131.568	987.764	2104.62	0	0
15	135.656	986.996	2040.02	0	0
16	139.745	986.438	1935.71	0	0
17	143.833	986.084	1793.76	0	0
18	147.921	985.932	1613.54	0	0
19	152.01	985.981	1410.52	0	0
20	156.098	986.232	1194.32	0	0
21	160.186	986.686	956.295	0	0
22	164.275	987.346	711.446	0	0
23	168.363	988.219	487.327	0	0
24	172.452	989.309	293.288	0	0
25	176.54	990.628	114.499	0	0
26	180.628	992.186	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.5
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.5	0

Global Minimums

Method: bishop simplified

FS: 1.054440
Center: 155.893, 1109.257
Radius: 122.719
Left Slip Surface Endpoint: 66.669, 1025.000
Right Slip Surface Endpoint: 184.947, 990.026
Resisting Moment=600292 kN-m
Driving Moment=569298 kN-m
Total Slice Area=1704.09 m2

Method: janbu simplified

FS: 0.981256
Center: 148.963, 1069.142
Radius: 83.216
Left Slip Surface Endpoint: 78.419, 1025.000
Right Slip Surface Endpoint: 180.628, 992.186
Resisting Horizontal Force=3994.02 kN
Driving Horizontal Force=4070.32 kN
Total Slice Area=1513.61 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.05444

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.73113	112.214	Resíduos Dispostos	13.5	22	12.5163	13.1977	11.1108	11.8591	-0.74829
2	4.73113	325.287	Resíduos Dispostos	13.5	22	19.2852	20.3351	51.2948	34.3773	16.9175
3	4.73113	517.145	Resíduos Dispostos	13.5	22	25.7004	27.0995	88.3135	54.6534	33.6601
4	4.73113	689.534	Resíduos Dispostos	13.5	22	31.7429	33.471	122.302	72.8721	49.4298
5	4.73113	777.108	Resíduos Dispostos	13.5	22	35.2488	37.1677	140.707	82.1271	58.5798
6	4.73113	806.885	Resíduos Dispostos	13.5	22	36.9325	38.9431	148.248	85.2741	62.9738
			Resíduos							

			Dispostos								
8	4.73113	944.344	Resíduos Dispostos	13.5	22	42.982	45.3219	178.563	99.8012	78.7619	
9	4.73113	935.835	Resíduos Dispostos	13.5	22	43.4168	45.7804	178.799	98.9019	79.8969	
10	4.73113	955.596	Resíduos Dispostos	13.5	22	44.8226	47.2627	184.556	100.99	83.5658	
11	4.73113	1001.16	Resíduos Dispostos	13.5	22	47.1629	49.7304	195.479	105.806	89.6735	
12	4.73113	963.073	Resíduos Dispostos	13.5	22	46.5045	49.0362	189.735	101.78	87.9555	
13	4.73113	937.76	Resíduos Dispostos	13.5	22	46.272	48.791	186.454	99.1053	87.3482	
14	4.73113	962.544	Resíduos Dispostos	13.5	22	47.8874	50.4944	193.289	101.725	91.5639	
15	4.73113	901.683	Resíduos Dispostos	13.5	22	46.2786	48.798	182.658	95.2926	87.3655	
16	4.73113	837.473	Resíduos Dispostos	13.5	22	44.4794	46.9009	171.177	88.5067	82.67	
17	4.73113	837.335	Resíduos Dispostos	13.5	22	45.1238	47.5803	172.844	88.4921	84.3518	
18	4.73113	758.843	Resíduos Dispostos	13.5	22	42.6699	44.9929	158.145	80.1968	77.9477	
19	4.73113	660.433	Resíduos Dispostos	13.5	22	39.3372	41.4787	139.046	69.7966	69.2498	
20	4.73113	629.91	Resíduos Dispostos	13.5	22	38.6789	40.7846	134.103	66.5708	67.5319	
21	4.73113	537.705	Resíduos Dispostos	13.5	22	35.442	37.3715	115.91	56.8263	59.0841	
22	4.73113	408.653	Resíduos Dispostos	13.5	22	30.5552	32.2186	89.5181	43.1877	46.3304	
23	4.73113	341.189	Resíduos Dispostos	13.5	22	28.1562	29.689	76.127	36.0579	40.0691	
24	4.73113	238.118	Resíduos Dispostos	13.5	22	24.1354	25.4493	54.7407	25.1651	29.5756	
25	4.73113	80.9008	Resíduos Dispostos	13.5	22	17.5878	18.5453	21.0375	8.54985	12.4877	

Global Minimum Query (janbu simplified) - Safety Factor: 0.981256

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.08838	121.511	Resíduos Dispostos	13.5	22	12.4242	12.1914	11.6215	14.8605	-3.23903
2	4.08838	339.018	Resíduos Dispostos	13.5	22	20.4805	20.0967	57.7885	41.4612	16.3273
3	4.08838	461.405	Resíduos Dispostos	13.5	22	25.7835	25.3002	85.6353	56.4288	29.2065
4	4.08838	542.592	Resíduos Dispostos	13.5	22	29.7984	29.2399	105.315	66.3578	38.9576
5	4.08838	640.233	Resíduos Dispostos	13.5	22	34.5323	33.885	128.754	78.299	50.4547
6	4.08838	744.777	Resíduos Dispostos	13.5	22	39.6749	38.9312	154.029	91.0845	62.9443
7	4.08838	775.65	Resíduos Dispostos	13.5	22	42.0208	41.2332	163.502	94.8602	68.6421
			Resíduos							

			Dispostos								
9	4.08838	856.382	Resíduos Dispostos	13.5	22	47.5339	46.6429	186.765	104.734	82.0311	
10	4.08838	884.619	Resíduos Dispostos	13.5	22	49.8288	48.8948	195.792	108.187	87.6051	
11	4.08838	864.909	Resíduos Dispostos	13.5	22	50.0447	49.1067	193.906	105.776	88.1299	
12	4.08838	850.757	Resíduos Dispostos	13.5	22	50.4598	49.514	193.183	104.046	89.1375	
13	4.08838	882.868	Resíduos Dispostos	13.5	22	52.9638	51.971	203.192	107.973	95.2188	
14	4.08838	850.953	Resíduos Dispostos	13.5	22	52.5385	51.5537	198.256	104.07	94.1858	
15	4.08838	794.489	Resíduos Dispostos	13.5	22	50.8957	49.9417	187.36	97.1642	90.1963	
16	4.08838	766.296	Resíduos Dispostos	13.5	22	50.5402	49.5929	183.049	93.7163	89.333	
17	4.08838	755.134	Resíduos Dispostos	13.5	22	51.002	50.046	182.806	92.3511	90.4545	
18	4.08838	677.059	Resíduos Dispostos	13.5	22	48.0906	47.1892	166.186	82.8028	83.3836	
19	4.08838	590.367	Resíduos Dispostos	13.5	22	44.6146	43.7783	147.142	72.2005	74.9416	
20	4.08838	553.522	Resíduos Dispostos	13.5	22	43.629	42.8112	140.242	67.6945	72.5478	
21	4.08838	485.23	Resíduos Dispostos	13.5	22	40.9191	40.1521	125.309	59.3425	65.9662	
22	4.08838	370.324	Resíduos Dispostos	13.5	22	35.5329	34.8669	98.1748	45.2898	52.885	
23	4.08838	261.649	Resíduos Dispostos	13.5	22	30.2645	29.6972	72.0885	31.999	40.0895	
24	4.08838	199.772	Resíduos Dispostos	13.5	22	27.4726	26.9577	57.7406	24.4316	33.309	
25	4.08838	73.634	Resíduos Dispostos	13.5	22	20.7237	20.3352	25.923	9.00527	16.9177	

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.05444

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	66.669	1025	0	0	0
2	71.4001	1020.26	-6.78413	0	0
3	76.1313	1015.99	120.254	0	0
4	80.8624	1012.15	337.826	0	0
5	85.5935	1008.67	612.301	0	0
6	90.3246	1005.52	887.428	0	0
7	95.0558	1002.68	1133.44	0	0
8	99.7869	1000.11	1364.09	0	0
9	104.518	997.809	1571.42	0	0
10	109.249	995.747	1733.64	0	0
11	113.98	993.916	1858.47	0	0
12	118.711	992.305	1949.21	0	0
13	123.443	990.905	1993.81	0	0

14	128.174	989.709	1996.98	0	0
15	132.905	988.71	1962.51	0	0
16	137.636	987.903	1889.89	0	0
17	142.367	987.285	1784.26	0	0
18	147.098	986.853	1644.47	0	0
19	151.829	986.605	1480.92	0	0
20	156.56	986.539	1303.05	0	0
21	161.292	986.656	1103.52	0	0
22	166.023	986.956	900.288	0	0
23	170.754	987.441	711.701	0	0
24	175.485	988.111	526.8	0	0
25	180.216	988.972	364.975	0	0
26	184.947	990.026	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 0.981256

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	78.4188	1025	0	0	0
2	82.5071	1019.06	18.185	0	0
3	86.5955	1014.05	223.659	0	0
4	90.6839	1009.74	486.958	0	0
5	94.7723	1005.99	760.027	0	0
6	98.8607	1002.7	1042.18	0	0
7	102.949	999.804	1325.42	0	0
8	107.037	997.258	1569.54	0	0
9	111.126	995.025	1769.7	0	0
10	115.214	993.076	1938.94	0	0
11	119.303	991.391	2064.8	0	0
12	123.391	989.952	2138.79	0	0
13	127.479	988.746	2164.96	0	0
14	131.568	987.764	2147.64	0	0
15	135.656	986.996	2084.6	0	0
16	139.745	986.438	1980.78	0	0
17	143.833	986.084	1838.52	0	0
18	147.921	985.932	1657.33	0	0
19	152.01	985.981	1452.14	0	0
20	156.098	986.232	1232.49	0	0
21	160.186	986.686	990.111	0	0
22	164.275	987.346	739.721	0	0
23	168.363	988.219	508.536	0	0
24	172.452	989.309	305.926	0	0
25	176.54	990.628	117.255	0	0
26	180.628	992.186	0	0	0

List Of Coordinates

External Boundary

X	Y
190	990
185	990

175	995
170	995
160	1000
155	1000
145	1005
140	1005
130	1010
125	1010
115	1015
110	1015
100	1020
95	1020
85	1025
0	1025
0	988.561
0	970.767
0	969.233
249.656	970
249.656	990

Material Boundary

X	Y
0	988.561
178.067	985
185	990

Project Summary

File Name: SeçãoTT-0.6
Slide Modeler Version: 6.025
Project Title: SLIDE - An Interactive Slope Stability Program
Date Created: 29/03/2019, 09:42:05

General Settings

Units of Measurement: Metric Units
Time Units: days
Permeability Units: meters/second
Failure Direction: Left to Right
Data Output: Standard
Maximum Material Properties: 20
Maximum Support Properties: 20

Analysis Options

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50
Check $m\alpha < 0.2$: Yes
Initial trial value of FS: 1
Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
Pore Fluid Unit Weight: 9.81 kN/m³
Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
Random Number Generation Method: Park and Miller v.3

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius Increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Invalid Surfaces
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Property	Resíduos Dispostos	Solo de Alteração
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [kN/m3]	10	20
Cohesion [kPa]	13.5	18
Friction Angle [deg]	22	36
Water Surface	None	None
Ru Value	0.6	0

Global Minimums

Method: bishop simplified

FS: 0.897330
Center: 155.893, 1109.257
Radius: 122.719
Left Slip Surface Endpoint: 66.669, 1025.000
Right Slip Surface Endpoint: 184.947, 990.026
Resisting Moment=510848 kN-m
Driving Moment=569298 kN-m
Total Slice Area=1704.09 m2

Method: janbu simplified

FS: 0.832680
Center: 145.498, 1069.142
Radius: 83.435
Left Slip Surface Endpoint: 74.696, 1025.000
Right Slip Surface Endpoint: 179.288, 992.856
Resisting Horizontal Force=3644.23 kN
Driving Horizontal Force=4376.51 kN
Total Slice Area=1651.76 m2

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.89733

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.73113	112.214	Resíduos Dispostos	13.5	22	13.3087	11.9423	10.3756	14.231	-3.85545
2	4.73113	325.287	Resíduos Dispostos	13.5	22	19.5113	17.508	51.173	41.2528	9.92018
3	4.73113	517.145	Resíduos Dispostos	13.5	22	25.4241	22.8139	88.6368	65.5841	23.0527
4	4.73113	689.534	Resíduos Dispostos	13.5	22	31.0255	27.8401	122.939	87.4465	35.4928
5	4.73113	777.108	Resíduos Dispostos	13.5	22	34.3451	30.8189	141.418	98.5526	42.8657
6	4.73113	806.885	Resíduos Dispostos	13.5	22	36.0152	32.3175	148.904	102.329	46.5749
			Resíduos							

			Dispostos							
8	4.73113	944.344	Resíduos Dispostos	13.5	22	41.8197	37.5261	179.228	119.761	59.4671
9	4.73113	935.835	Resíduos Dispostos	13.5	22	42.3599	38.0108	179.348	118.682	60.6665
10	4.73113	955.596	Resíduos Dispostos	13.5	22	43.7924	39.2962	185.036	121.188	63.8482
11	4.73113	1001.16	Resíduos Dispostos	13.5	22	46.0908	41.3587	195.92	126.967	68.9533
12	4.73113	963.073	Resíduos Dispostos	13.5	22	45.6275	40.9429	190.06	122.137	67.923
13	4.73113	937.76	Resíduos Dispostos	13.5	22	45.5555	40.8783	186.69	118.926	67.764
14	4.73113	962.544	Resíduos Dispostos	13.5	22	47.1984	42.3525	193.482	122.069	71.413
15	4.73113	901.683	Resíduos Dispostos	13.5	22	45.8498	41.1424	182.769	114.351	68.4176
16	4.73113	837.473	Resíduos Dispostos	13.5	22	44.3188	39.7686	171.225	106.208	65.0172
17	4.73113	837.335	Resíduos Dispostos	13.5	22	45.0666	40.4396	172.868	106.191	66.6775
18	4.73113	758.843	Resíduos Dispostos	13.5	22	42.918	38.5116	158.142	96.2362	61.9058
19	4.73113	660.433	Resíduos Dispostos	13.5	22	39.9368	35.8365	139.041	83.7559	55.2848
20	4.73113	629.91	Resíduos Dispostos	13.5	22	39.4631	35.4114	134.118	79.885	54.2325
21	4.73113	537.705	Resíduos Dispostos	13.5	22	36.5572	32.8039	115.97	68.1915	47.779
22	4.73113	408.653	Resíduos Dispostos	13.5	22	32.0795	28.7859	89.6592	51.8253	37.8339
23	4.73113	341.189	Resíduos Dispostos	13.5	22	29.9445	26.8701	76.3618	43.2695	33.0923
24	4.73113	238.118	Resíduos Dispostos	13.5	22	26.2597	23.5636	55.1063	30.1981	24.9082
25	4.73113	80.9008	Resíduos Dispostos	13.5	22	20.1456	18.0772	21.589	10.2598	11.3292

Global Minimum Query (janbu simplified) - Safety Factor: 0.83268

Slice Number	Width [m]	Weight [kN]	Base Material	Base Cohesion [kPa]	Base Friction Angle [degrees]	Shear Stress [kPa]	Shear Strength [kPa]	Base Normal Stress [kPa]	Pore Pressure [kPa]	Effective Normal Stress [kPa]
1	4.18369	127.432	Resíduos Dispostos	13.5	22	12.9659	10.7964	11.584	18.2756	-6.69157
2	4.18369	361.836	Resíduos Dispostos	13.5	22	20.7155	17.2494	61.1724	51.8924	9.28001
3	4.18369	547.961	Resíduos Dispostos	13.5	22	27.595	22.9778	102.044	78.5853	23.4583
4	4.18369	641.33	Resíduos Dispostos	13.5	22	31.8765	26.5429	124.258	91.9757	32.2823
5	4.18369	704.242	Resíduos Dispostos	13.5	22	35.2533	29.3547	140.24	100.998	39.2418
6	4.18369	803.343	Resíduos Dispostos	13.5	22	39.9339	33.2522	164.099	115.211	48.8882
7	4.18369	878.587	Resíduos Dispostos	13.5	22	43.9059	36.5596	183.076	126.002	57.0742
			Resíduos							

			Dispostos							
9	4.18369	905.828	Resíduos Dispostos	13.5	22	47.4941	39.5474	194.378	129.908	64.4699
10	4.18369	967.452	Resíduos Dispostos	13.5	22	51.1402	42.5834	210.73	138.746	71.9844
11	4.18369	962.399	Resíduos Dispostos	13.5	22	52.2351	43.4951	212.262	138.022	74.2402
12	4.18369	929.409	Resíduos Dispostos	13.5	22	52.1739	43.4442	207.405	133.29	74.1148
13	4.18369	928.245	Resíduos Dispostos	13.5	22	53.3825	44.4505	209.729	133.123	76.6055
14	4.18369	936.692	Resíduos Dispostos	13.5	22	55.015	45.8099	214.305	134.335	79.9696
15	4.18369	877.243	Resíduos Dispostos	13.5	22	53.7178	44.7297	203.105	125.809	77.2963
16	4.18369	813.392	Resíduos Dispostos	13.5	22	52.1365	43.413	190.689	116.652	74.0371
17	4.18369	803.6	Resíduos Dispostos	13.5	22	52.947	44.0879	190.955	115.247	75.7081
18	4.18369	743.714	Resíduos Dispostos	13.5	22	51.4363	42.83	179.253	106.659	72.5944
19	4.18369	646.721	Resíduos Dispostos	13.5	22	48.0644	40.0223	158.394	92.7489	65.6451
20	4.18369	569.245	Resíduos Dispostos	13.5	22	45.4972	37.8846	141.992	81.6378	60.3541
21	4.18369	523.92	Resíduos Dispostos	13.5	22	44.4502	37.0128	133.334	75.1375	58.1961
22	4.18369	406.444	Resíduos Dispostos	13.5	22	39.5989	32.9732	106.488	58.2898	48.1979
23	4.18369	274.906	Resíduos Dispostos	13.5	22	33.7338	28.0895	75.5357	39.4254	36.1103
24	4.18369	192.183	Resíduos Dispostos	13.5	22	30.2576	25.1949	56.5078	27.5617	28.9461
25	4.18369	79.7185	Resíduos Dispostos	13.5	22	24.8677	20.7069	29.2704	11.4328	17.8376

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.89733

Slice Number	X coordinate [m]	Y coordinate - Bottom [m]	Interslice Normal Force [kN]	Interslice Shear Force [kN]	Interslice Force Angle [degrees]
1	66.669	1025	0	0	0
2	71.4001	1020.26	-13.7414	0	0
3	76.1313	1015.99	112.139	0	0
4	80.8624	1012.15	332.835	0	0
5	85.5935	1008.67	613.629	0	0
6	90.3246	1005.52	896.057	0	0
7	95.0558	1002.68	1149.1	0	0
8	99.7869	1000.11	1387.36	0	0
9	104.518	997.809	1602.68	0	0
10	109.249	995.747	1772.01	0	0
11	113.98	993.916	1903.59	0	0
12	118.711	992.305	2001.16	0	0
13	123.443	990.905	2051.4	0	0