

Input file name: "Slope 4 case 2 free water surface.txt"

List of input data:

Search data:

xStart	yStart	xEnd	yEnd	xStep	yStep	rXStart	rYStart	rStep	nStrm
19,0	15,0	25,0	20,0	0,50	0,50	24,2	7,0	0,5	20

Lines definition:

Line#	x1 [m]	y1 [m]	x2 [m]	y2 [m]	C [kPa]	Fric [°]	D [kg/m3]	LineType
1	0,00	15,00	9,00	15,00	0,00	35,00	2,070	Soil
2	0,00	11,40	9,00	10,50	0,00	33,00	2,030	Soil
3	9,00	15,00	19,30	9,50	0,00	35,00	2,070	Soil
4	9,00	12,00	10,50	9,00	0,00	33,00	2,030	Soil
5	12,00	9,00	17,50	7,80	0,00	33,00	2,030	Soil
6	0,00	5,70	17,50	7,80	7,30	20,00	1,780	Soil
7	19,30	9,50	20,60	9,50	0,00	35,00	2,070	Soil
8	20,60	9,50	24,20	7,00	0,00	35,00	2,070	Soil
9	17,50	7,80	24,20	7,00	7,30	20,00	1,780	Soil
10	24,20	7,00	40,00	7,00	7,30	20,00	1,780	Soil
11	0,00	9,00	40,00	9,00	0,00	0,00	0	Water
12	21,30	9,00	24,20	7,00	0,00	20,00	0	AreaLoad
13	24,20	7,00	40,00	7,00	20,00	20,00	0	AreaLoad

Failure arc definition

x [m]	y [m]	R [m]	StartX [m]	StartY [m]	EndX [m]	EndY [m]
20,000	18,500	7,228	13,243	15,000	26,567	7,000

Slope details:

Slice#	Line#	GWP [kPa]	X1 [m]	ΔX [m]	y1 [m]	y2 [m]	Area [m2]	vF [kN/m]	hArm [m]	hF [kN/m]	vArm [m]	A-M [kNm/m]	LineType
1	1	0,000	7,228	0,886	15,00	15,00	1,036	21,048	12,181	0,00	0,000	256,389	Soil
1	1	0,000	7,228	0,886	15,00	12,661	0,099	2,005	12,351	0,00	0,000	24,766	Soil
2	1	0,000	8,114	0,886	15,00	15,00	2,753	55,895	11,407	0,00	0,000	637,570	Soil
2	1	0,000	8,114	0,886	12,661	11,126	0,035	0,712	11,453	0,00	0,000	8,154	Soil
3	3	0,000	9,00	0,736	15,00	14,607	3,072	62,392	10,623	0,00	0,000	662,802	Soil
3	3	0,000	9,00	0,736	11,126	10,132	0,012	0,242	10,637	0,00	0,000	2,574	Soil
4	3	0,000	9,736	0,519	14,607	14,33	2,318	47,070	10,005	0,00	0,000	470,918	Soil
4	4	0,000	9,736	0,519	10,132	9,872	0,088	1,756	9,918	0,00	0,000	17,420	Soil
4	4	0,000	9,736	0,519	10,132	9,533	0,003	0,062	10,006	0,00	0,000	0,625	Soil
5	3	0,000	10,255	0,519	14,33	14,053	2,309	46,884	9,486	0,00	0,000	444,725	Soil
5	4	0,000	10,255	0,519	9,872	9,613	0,247	4,925	9,461	0,00	0,000	46,596	Soil
5	4	0,000	10,255	0,519	9,533	9,00	0,000	0,052	9,487	0,00	0,000	0,490	Soil
6	3	2,803	10,774	0,613	14,053	13,725	2,715	55,136	8,92	0,00	0,000	491,799	Soil
6	4	2,803	10,774	0,613	9,613	9,306	0,453	9,029	8,902	0,00	0,000	80,378	Soil
6	4	2,803	10,774	0,613	9,00	8,441	0,004	0,072	8,921	0,00	0,000	0,639	Soil
7	3	7,960	11,387	0,613	13,725	13,398	2,702	54,877	8,307	0,00	0,000	455,847	Soil
7	4	7,960	11,387	0,613	9,306	9,00	0,588	11,716	8,297	0,00	0,000	97,198	Soil
7	4	7,960	11,387	0,613	8,441	7,947	0,003	0,061	8,308	0,00	0,000	0,508	Soil
8	3	12,131	12,00	0,499	13,398	13,132	2,155	43,767	7,752	0,00	0,000	339,285	Soil
8	5	12,131	12,00	0,499	9,00	8,891	0,588	11,718	7,742	0,00	0,000	90,716	Soil
8	5	12,131	12,00	0,499	7,947	7,586	0,001	0,029	7,751	0,00	0,000	0,227	Soil
9	3	15,498	12,499	0,499	13,132	12,865	2,077	42,171	7,253	0,00	0,000	305,866	Soil
9	5	15,498	12,499	0,499	8,891	8,782	0,705	14,049	7,245	0,00	0,000	101,790	Soil
9	5	15,498	12,499	0,499	7,586	7,26	0,001	0,027	7,252	0,00	0,000	0,193	Soil
10	3	19,667	12,998	0,90	12,865	12,384	3,548	72,053	6,557	0,00	0,000	472,465	Soil
10	5	19,667	12,998	0,90	8,782	8,586	1,234	24,570	6,568	0,00	0,000	161,385	Soil
10	6	19,667	12,998	0,90	7,26	7,368	0,280	4,887	6,402	0,00	0,000	31,283	Soil
10	6	19,667	12,998	0,90	7,26	6,746	0,007	0,122	6,554	0,00	0,000	0,802	Soil
11	3	24,261	13,898	0,90	12,384	11,904	3,292	66,854	5,657	0,00	0,000	378,207	Soil
11	5	24,261	13,898	0,90	8,586	8,389	0,960	19,110	5,673	0,00	0,000	108,406	Soil
11	6	24,261	13,898	0,90	7,368	7,476	0,800	13,962	5,606	0,00	0,000	78,276	Soil
11	6	24,261	13,898	0,90	6,746	6,321	0,006	0,109	5,653	0,00	0,000	0,614	Soil
12	3	28,039	14,799	0,90	11,904	11,423	3,036	61,655	4,757	0,00	0,000	293,311	Soil
12	5	28,039	14,799	0,90	8,389	8,193	0,685	13,650	4,781	0,00	0,000	65,260	Soil
12	6	28,039	14,799	0,90	7,476	7,584	1,244	21,726	4,726	0,00	0,000	102,686	Soil
12	6	28,039	14,799	0,90	6,321	5,975	0,006	0,099	4,752	0,00	0,000	0,469	Soil
13	3	31,077	15,699	0,90	11,423	10,942	2,780	56,456	3,858	0,00	0,000	217,778	Soil
13	5	31,077	15,699	0,90	8,193	7,996	0,411	8,190	3,901	0,00	0,000	31,946	Soil
13	6	31,077	15,699	0,90	7,584	7,692	1,621	28,300	3,835	0,00	0,000	108,522	Soil
13	6	31,077	15,699	0,90	5,975	5,701	0,005	0,092	3,852	0,00	0,000	0,353	Soil
14	3	33,427	16,60	0,90	10,942	10,461	2,524	51,257	2,958	0,00	0,000	151,607	Soil
14	5	33,427	16,60	0,90	7,996	7,80	0,137	2,730	3,10	0,00	0,000	8,464	Soil
14	6	33,427	16,60	0,90	7,692	7,80	1,934	33,770	2,939	0,00	0,000	99,258	Soil
14	6	33,427	16,60	0,90	5,701	5,495	0,005	0,087	2,951	0,00	0,000	0,256	Soil
15	3	35,126	17,50	0,90	10,461	9,981	2,227	45,226	2,061	0,00	0,000	93,225	Soil
15	9	35,126	17,50	0,90	7,80	7,693	2,089	36,486	2,049	0,00	0,000	74,757	Soil
15	9	35,126	17,50	0,90	5,495	5,354	0,005	0,083	2,05	0,00	0,000	0,170	Soil
16	3	36,202	18,40	0,90	9,981	9,50	1,891	38,407	1,163	0,00	0,000	44,679	Soil
16	9	36,202	18,40	0,90	7,693	7,585	2,092	36,523	1,151	0,00	0,000	42,036	Soil
16	9	36,202	18,40	0,90	5,354	5,276	0,005	0,081	1,15	0,00	0,000	0,093	Soil
17	7	36,653	19,30	0,65	9,50	9,50	1,270	25,788	0,373	0,00	0,000	9,615	Soil
17	9	36,653	19,30	0,65	7,585	7,507	1,482	25,878	0,376	0,00	0,000	9,740	Soil
17	9	36,653	19,30	0,65	5,276	5,257	0,002	0,030	0,375	0,00	0,000	0,011	Soil
18	7	36,677	19,95	0,65	9,50	9,50	1,320	26,812	-0,277	0,00	0,000	-7,429	Soil
18	9	36,677	19,95	0,65	7,507	7,43	1,433	25,024	-0,273	0,00	0,000	-6,826	Soil
18	9	36,677	19,95	0,65	5,257	5,271	0,002	0,030	-0,275	0,00	0,000	-0,008	Soil
19	8	36,368	20,60	0,70	9,50	9,014	1,308	26,566	-0,937	0,00	0,000	-24,904	Soil
19	9	36,368	20,60	0,70	7,43	7,346	1,465	25,574	-0,946	0,00	0,000	-24,200	Soil
19	9	36,368	20,60	0,70	5,271	5,321	0,002	0,038	-0,95	0,00	0,000	-0,036	Soil
20	8	35,505	21,30	0,967	9,014	8,343	1,343	27,279	-1,751	0,00	0,000	-47,769	Soil
20	9	35,505	21,30	0,967	7,346	7,231	1,838	32,102	-1,773	0,00	0,000	-56,913	Soil
20	9	35,505	21,30	0,967	5,321	5,452	0,006	0,102	-1,784	0,00	0,000	-0,182	Soil
20	12	35,505	21,30	0,967	9,00	8,333	0,000	3,222	-1,944	-2,222	9,944	-28,364	AreaLoad
21	8	33,856	22,267	0,967	8,343	7,671	0,806	16,368	-2,696	0,00	0,000	-44,132	Soil
21	9	33,856	22,267	0,967	7,231	7,115	1,564	27,311	-2,734	0,00	0,000	-74,670	Soil
21	9	33,856	22,267	0,967	5,452	5,658	0,006	0,106	-2,751	0,00	0,000	-0,292	Soil
21	12	33,856	22,267	0,967	8,333	7,667	0,000	9,667	-2,804	-6,667	10,537	-97,349	AreaLoad
22	8	31,464	23,233	0,967	7,671	7,00	0,269	5,456	-3,556	0,00	0,000	-19,399	Soil
22	9	31,464	23,233	0,967	7,115	7,00	-1,216	21,242	-3,691	0,00	0,000	-78,409	Soil
22	9	31,464	23,233	0,967	5,658	5,941	0,006	0,112	-3,718	0,00	0,000	-0,418	Soil
22	12	31,464	23,233	0,967	7,667	7,00	0,000	16,111	-3,749	-11,111	11,189	-184,720	AreaLoad
23	10	28,626	24,20	0,789	7,00	7,00	0,721	12,583	-4,573	0,00	0,000	-57,546	Soil
23	10	28,626	24,20	0,789	5,941	6,233	0,004	0,065	-4,595	0,00	0,000	-0,301	Soil
23	13	28,626	24,20	0,789	7,00	7,00	0,000	15,780	-4,594	0,00	0,000	-72,501	AreaLoad
24	10	25,474	24,989	0,789	7,00	7,00	0,467	8,151	-5,344	0,00	0,000	-43,563	Soil
24	10	25,474	24,989	0,789	6,233	6,584	0,004	0,071	-5,385	0,00	0,000	-0,381	Soil
24	13	25,474	24,989	0,789	7,00	7,00	0,000	15,780	-5,383	0,00	0,000	-84,952	AreaLoad
25	10	21,716											

4	48,889	0,000	0,000	32,013	48,270	49,095	0,519	0,793	0,000	275,311	415,127	0,000	488,962
5	51,861	0,000	0,000	36,175	50,013	45,770	0,519	0,744	0,000	311,106	430,114	0,000	491,811
6	64,237	0,000	2,803	45,136	59,088	42,366	0,613	0,830	0,000	388,175	508,162	0,000	572,816
7	66,653	0,000	7,960	45,629	57,419	38,867	0,613	0,787	0,000	392,415	493,806	0,000	553,553
8	55,515	0,000	12,131	37,541	45,459	35,832	0,499	0,616	0,000	322,857	390,954	0,000	430,228
9	56,247	0,000	15,498	37,816	44,259	33,210	0,499	0,596	0,000	325,224	380,635	0,000	407,848
10	101,631	0,000	19,667	67,918	81,169	29,678	0,900	1,037	100,212	327,368	391,238	0,000	665,935
11	100,034	0,000	24,261	66,295	74,612	25,280	0,900	0,996	96,287	319,546	359,632	0,000	565,503
12	97,130	0,000	28,039	63,605	68,088	21,038	0,900	0,965	93,282	306,578	328,188	0,000	461,726
13	93,037	0,000	31,077	59,766	61,508	16,915	0,900	0,941	91,000	288,073	296,470	0,000	358,599
14	87,843	0,000	33,427	54,759	54,786	12,880	0,900	0,924	89,310	263,941	264,071	0,000	259,585
15	81,795	0,000	35,126	48,808	48,035	8,910	0,900	0,911	88,086	235,258	231,530	0,000	168,152
16	75,011	0,000	36,202	42,021	41,216	4,985	0,900	0,904	87,353	202,545	198,663	0,000	86,808
17	51,696	0,000	36,653	27,841	27,577	1,623	0,650	0,650	62,869	134,194	132,921	0,000	19,367
18	51,867	0,000	36,677	28,010	28,261	-1,190	0,650	0,650	62,858	135,012	136,218	0,000	-14,263
19	52,178	0,000	36,368	26,519	27,584	-4,115	0,700	0,702	67,854	127,824	132,958	0,000	-49,139
20	59,484	3,222	35,505	27,496	30,451	-7,744	0,976	0,976	94,333	132,532	146,775	-28,364	-104,864
21	43,785	9,667	33,856	18,827	23,638	-11,994	0,967	0,988	95,559	90,748	113,935	-97,349	-119,093
22	26,810	16,111	31,464	9,503	15,829	-16,311	0,967	1,007	97,394	45,803	76,299	-184,720	-98,225
23	12,648	15,780	28,626	2,577	8,747	-20,311	0,789	0,841	81,346	12,422	42,161	-72,501	-57,847
24	8,222	15,780	25,474	0,000	7,167	-24,000	0,789	0,864	83,509	0,000	34,543	-84,952	-43,944
25	2,944	15,780	21,716	0,000	5,001	-27,798	0,789	0,892	86,243	0,000	24,105	-97,402	-17,793

Slope data summary

Slope#	MS [MNm/m]	MAL [MNm/m]	MC [MNm/m]	MFS [MNm/m]	MFSB [MNm/m]	FSwedish	FSBishop
1	6,618	-0,565	1,377	5,321	6,920	1,107	1,371

Basic failure arc data:

Slope number in sequence of simplified Bishop safety factor: ----- 1

Slope number in sequence of center evaluation: ----- 94

Failure area [m2/m]: ----- 73,497

Failure weight [kg/m]: ----- 145 954,078

Failure arc length [m]: ----- 24,131

Σ Resisting cohesion moment [kNm/m]: ----- 1 377,496

Σ Resisting friction moment simplified Bishop [kNm/m]: ----- 6 920,150

Σ Resisting friction moment Swedish (ordinary) [kNm/m]: ----- 5 320,685

Σ Acting soil moment [kNm/m]: ----- 6 617,981

Σ Acting area load moment [kNm/m]: ----- -565,288

Total factor of safety simplified Bishop method of slices: ----- 1,371

Total factor of safety Swedish (ordinary) method of slices: ----- 1,107

Number of failure arcs evaluated at this center: ----- 13

Is failure arc having problems (poor convergence simplified Bishop): - false

Basic calculation sum up data:

Number of failure arcs analysed: ----- 1 948

Number of slices analysed: ----- 48 748

Number of failure arcs saved (max one per centre): ----- 143

Number of centers without possible failure arcs (zero failure arcs analysed): - 0

Number of double slopes encountered: ----- 102

Number of NaN's encountered (if any, mail input file to psicon@mac.com): ----- 0

Number of possibly problematic failure arcs analysed: ----- 0

Number of centers in calculation: ----- 143

Execution time in seconds: ----- 0,602