

Slide Analysis Information

Document Name

File Name: Seção1-LadoA.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Right to Left
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduo
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 2.393130
Center: 136.230, 864.401
Radius: 264.077
Left Slip Surface Endpoint: 98.545, 603.027
Right Slip Surface Endpoint: 280.167, 643.000
Resisting Moment=2.68116e+006 kN-m
Driving Moment=1.12036e+006 kN-m

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 21134
Number of Invalid Surfaces: 13087
Error Codes:
Error Code -102 reported for 20 surfaces
Error Code -103 reported for 11117 surfaces
Error Code -105 reported for 1 surface
Error Code -106 reported for 378 surfaces
Error Code -107 reported for 96 surfaces
Error Code -108 reported for 102 surfaces
Error Code -112 reported for 284 surfaces
Error Code -1000 reported for 1089 surfaces

Error Codes

The following errors were encountered during the computation:

-102 = Two surface / slope intersections,
but resulting arc is actually outside soil region.

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-105 = More than two surface / slope
intersections with no valid slip surface.

-106 = Average slice width is less than

0.0001 * (maximum horizontal extent of soil region).
This limitation is imposed to avoid numerical errors
which may result from too many slices, or too
small a slip region.

-107 = Total driving moment or
total driving force is negative. This will occur
if the wrong failure direction is specified,
or if high external or anchor loads are applied
against the failure direction.

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

-1000 = No valid slip surfaces are generated
at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

-19.956	613.000
448.601	613.000
448.601	1032.002
-19.956	1032.002

Material Boundary

84.068	601.464
90.973	600.000
191.624	600.000
200.552	608.000
235.786	608.000
240.835	613.000
347.647	613.000
371.317	618.000
398.566	618.000
413.409	613.000
448.601	613.000
458.970	608.000
500.624	608.000
506.742	613.000
515.859	613.000
521.925	618.000
533.371	618.000
539.474	623.000
574.077	623.000
580.980	628.000

608.409	628.000
613.658	633.000
745.764	633.000
753.115	638.000
854.162	638.000
859.379	633.000
880.748	633.000
881.313	632.858
886.321	628.000
900.388	628.000
904.524	627.000
918.270	625.729
929.288	623.000
952.986	623.000
1004.853	628.000
1018.682	627.000
1034.084	627.000
1040.624	628.000
1090.397	628.000
1132.287	627.000

Material Boundary

-0.000	580.195
200.782	592.743
245.087	606.035
348.255	606.035
415.346	606.035
464.715	594.642
502.691	594.642
522.000	608.000
539.000	613.000
556.702	618.047
573.549	618.047
581.230	623.757
608.779	623.757
744.718	623.757
753.000	628.000
854.000	628.000
860.000	623.000
881.000	623.000
930.000	613.000
953.000	613.000
1005.000	617.000
1040.000	618.000
1142.786	618.000

External Boundary

0.000	550.000
1142.786	550.000
1142.786	618.000
1142.786	627.000
1132.287	627.000
1122.230	633.000
1117.202	633.000
1107.145	638.000
1102.117	638.000

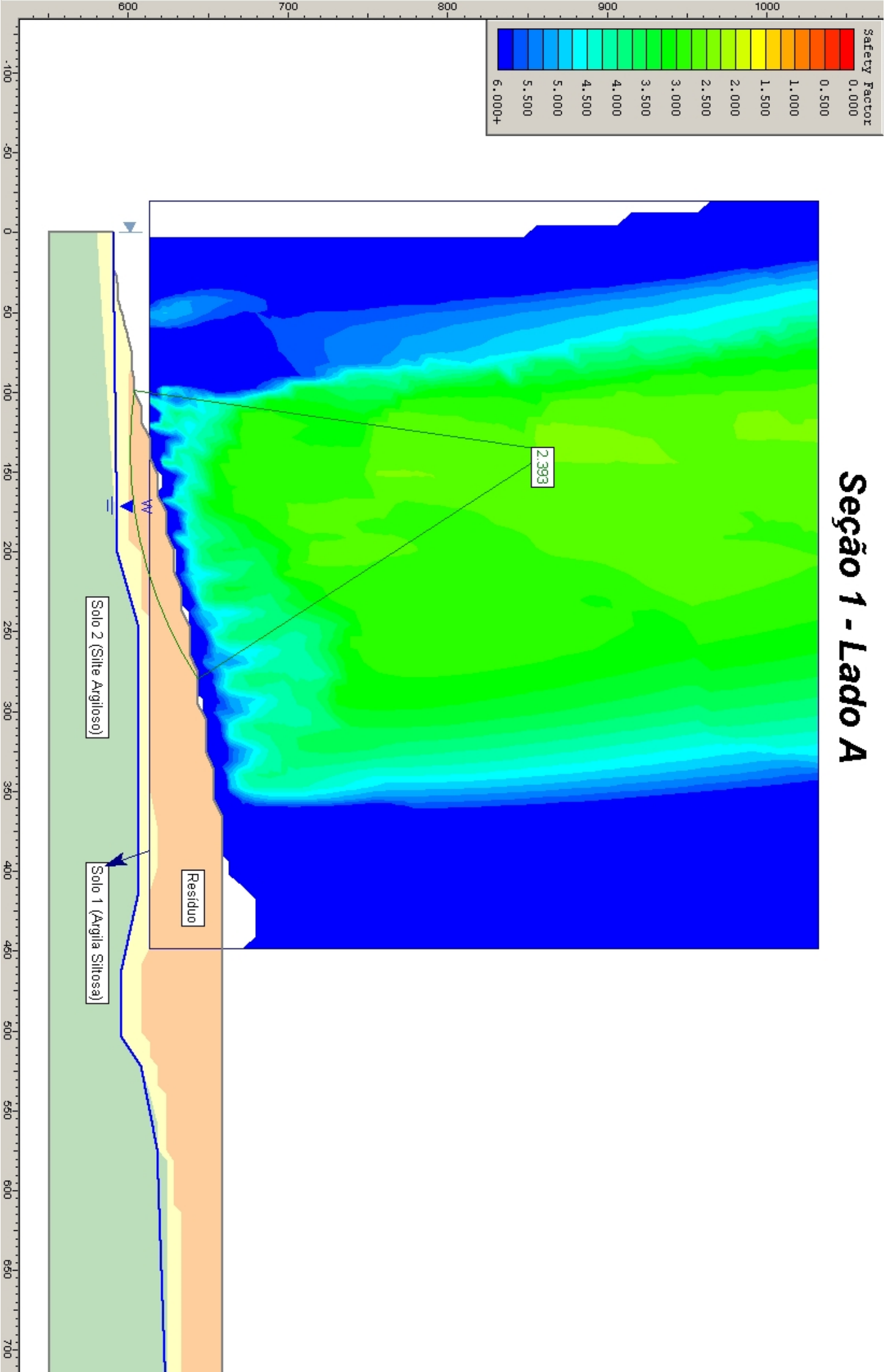
1092.060	643.000
1087.031	643.000
1076.975	648.000
854.582	648.000
842.873	653.000
837.019	653.000
825.310	658.000
364.840	658.000
354.027	653.000
334.945	653.000
324.644	648.000
304.375	648.000
294.368	643.000
274.229	643.000
264.044	638.000
246.072	638.000
235.243	633.000
222.075	633.000
211.470	628.000
198.163	628.000
187.738	623.000
174.328	623.000
164.046	618.000
150.564	618.000
140.394	613.000
128.361	613.000
118.303	608.000
108.490	608.000
98.490	603.000
90.082	603.000
84.068	601.464
74.055	601.464
70.910	601.000
66.130	600.000
62.248	599.000
58.545	598.000
54.951	597.000
51.556	596.000
48.213	595.000
44.654	594.000
41.096	593.000
31.522	593.000
26.511	592.000
24.024	591.000
0.000	590.472
-0.000	580.195

Water Table

0.000	590.472
200.782	592.743
245.087	606.035
348.255	606.035
415.346	606.035
464.715	594.642
502.691	594.642
522.000	608.000

573.549	618.047
744.718	623.757
854.000	628.000
930.000	613.000
1040.000	618.000
1142.786	618.000

Seção 1 - Lado A



Slide Analysis Information

Document Name

File Name: Seção1-LadoB.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Left to Right
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: Off
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduo

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified

FS: 2.086250
Center: 1121.470, 712.284
Radius: 85.000
Left Slip Surface Endpoint: 1065.858, 648.000
Right Slip Surface Endpoint: 1130.927, 627.811
Resisting Moment=206302 kN-m
Driving Moment=98886.5 kN-m

Valid / Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces: 21059
Number of Invalid Surfaces: 13162
Error Codes:
Error Code -103 reported for 8876 surfaces
Error Code -106 reported for 49 surfaces
Error Code -107 reported for 1410 surfaces
Error Code -108 reported for 2141 surfaces
Error Code -112 reported for 631 surfaces
Error Code -1000 reported for 55 surfaces

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified,

or if high external or anchor loads are applied against the failure direction.

-108 = Total driving moment
or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$
< 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-1000 = No valid slip surfaces are generated at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

716.460	627.000
1142.786	627.000
1142.786	1014.653
716.460	1014.653

Material Boundary

84.068	601.464
90.973	600.000
191.624	600.000
200.552	608.000
235.786	608.000
240.835	613.000
347.647	613.000
371.317	618.000
398.566	618.000
413.409	613.000
448.601	613.000
458.970	608.000
500.624	608.000
506.742	613.000
515.859	613.000
521.925	618.000
533.371	618.000
539.474	623.000
574.077	623.000
580.980	628.000
608.409	628.000
613.658	633.000
745.764	633.000
753.115	638.000
854.162	638.000
859.379	633.000
880.748	633.000
881.313	632.858

886.321	628.000
900.388	628.000
904.524	627.000
918.270	625.729
929.288	623.000
952.986	623.000
1004.853	628.000
1018.682	627.000
1034.084	627.000
1040.624	628.000
1090.397	628.000
1132.287	627.000

Material Boundary

-0.000	580.195
200.782	592.743
245.087	606.035
348.255	606.035
415.346	606.035
464.715	594.642
502.691	594.642
522.000	608.000
539.000	613.000
556.702	618.047
573.549	618.047
581.230	623.757
608.779	623.757
744.718	623.757
753.000	628.000
854.000	628.000
860.000	623.000
881.000	623.000
930.000	613.000
953.000	613.000
1005.000	617.000
1040.000	618.000
1142.786	618.000

External Boundary

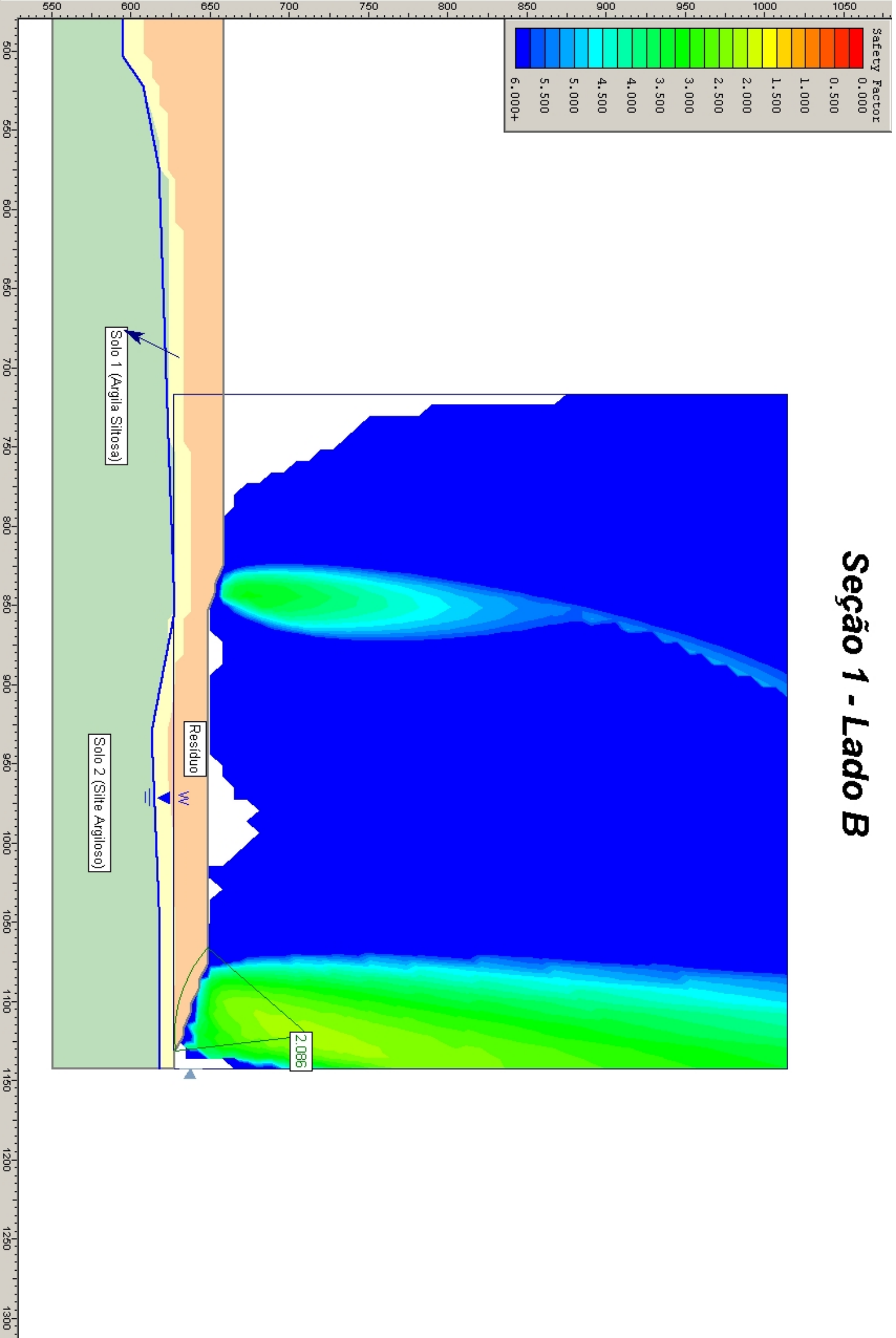
0.000	550.000
1142.786	550.000
1142.786	618.000
1142.786	627.000
1132.287	627.000
1122.230	633.000
1117.202	633.000
1107.145	638.000
1102.117	638.000
1092.060	643.000
1087.031	643.000
1076.975	648.000
854.582	648.000
842.873	653.000
837.019	653.000
825.310	658.000
364.840	658.000

354.027	653.000
334.945	653.000
324.644	648.000
304.375	648.000
294.368	643.000
274.229	643.000
264.044	638.000
246.072	638.000
235.243	633.000
222.075	633.000
211.470	628.000
198.163	628.000
187.738	623.000
174.328	623.000
164.046	618.000
150.564	618.000
140.394	613.000
128.361	613.000
118.303	608.000
108.490	608.000
98.490	603.000
90.082	603.000
84.068	601.464
74.055	601.464
70.910	601.000
66.130	600.000
62.248	599.000
58.545	598.000
54.951	597.000
51.556	596.000
48.213	595.000
44.654	594.000
41.096	593.000
31.522	593.000
26.511	592.000
24.024	591.000
0.000	590.472
-0.000	580.195

Water Table

0.000	590.472
200.782	592.743
245.087	606.035
348.255	606.035
415.346	606.035
464.715	594.642
502.691	594.642
522.000	608.000
573.549	618.047
744.718	623.757
854.000	628.000
930.000	613.000
1040.000	618.000
1142.786	618.000

Seção 1 - Lado B



Slide Analysis Information

Document Name

File Name: Seção2-LadoA.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Right to Left
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³

Cohesion: 54 kPa
Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 1.492540
Center: 146.897, 805.635
Radius: 205.378
Left Slip Surface Endpoint: 113.431, 603.002
Right Slip Surface Endpoint: 289.669, 658.000
Resisting Moment=2.51347e+006 kN-m
Driving Moment=1.68402e+006 kN-m

Method: spencer
FS: 1.495860
Center: 146.897, 805.635
Radius: 205.378
Left Slip Surface Endpoint: 113.431, 603.002
Right Slip Surface Endpoint: 289.669, 658.000
Resisting Moment=2.51906e+006 kN-m
Driving Moment=1.68402e+006 kN-m
Resisting Horizontal Force=11475.6 kN
Driving Horizontal Force=7671.55 kN

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 57289
Number of Invalid Surfaces: 32702
Error Codes:
Error Code -102 reported for 120 surfaces
Error Code -103 reported for 23394 surfaces
Error Code -105 reported for 2 surfaces
Error Code -106 reported for 284 surfaces
Error Code -107 reported for 793 surfaces
Error Code -108 reported for 460 surfaces
Error Code -112 reported for 1533 surfaces
Error Code -1000 reported for 6116 surfaces

Method: spencer
Number of Valid Surfaces: 54189
Number of Invalid Surfaces: 35802
Error Codes:
Error Code -102 reported for 120 surfaces
Error Code -103 reported for 23394 surfaces
Error Code -105 reported for 2 surfaces

Error Code -106 reported for 284 surfaces
Error Code -107 reported for 793 surfaces
Error Code -108 reported for 3338 surfaces
Error Code -111 reported for 118 surfaces
Error Code -112 reported for 1637 surfaces
Error Code -1000 reported for 6116 surfaces

Error Codes

The following errors were encountered during the computation:

-102 = Two surface / slope intersections,
but resulting arc is actually outside soil region.

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-105 = More than two surface / slope
intersections with no valid slip surface.

-106 = Average slice width is less than
 $0.0001 * (\text{maximum horizontal extent of soil region})$.
This limitation is imposed to avoid numerical errors
which may result from too many slices, or too
small a slip region.

-107 = Total driving moment or
total driving force is negative. This will occur
if the wrong failure direction is specified,
or if high external or anchor loads are applied
against the failure direction.

-108 = Total driving moment
or total driving force < 0.1 . This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$
 < 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

-1000 = No valid slip surfaces are generated
at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

-22.995	603.215
338.477	603.215
338.477	873.109
-22.995	873.109

Material Boundary

82.358	592.880
92.401	600.000

Material Boundary

102.402	600.000
212.112	600.000
267.991	600.000
284.204	608.000
310.950	608.000
320.958	613.000
343.704	613.000
351.629	618.000
375.994	618.000
382.551	622.357
386.787	623.000
472.684	623.000
478.647	628.000
494.462	628.000

Material Boundary

0.000	586.146
22.281	586.146
82.358	590.095
103.444	595.517
291.877	595.517
307.943	603.215
338.477	603.215
350.000	613.000
470.000	613.000
478.000	623.000
515.567	623.000

External Boundary

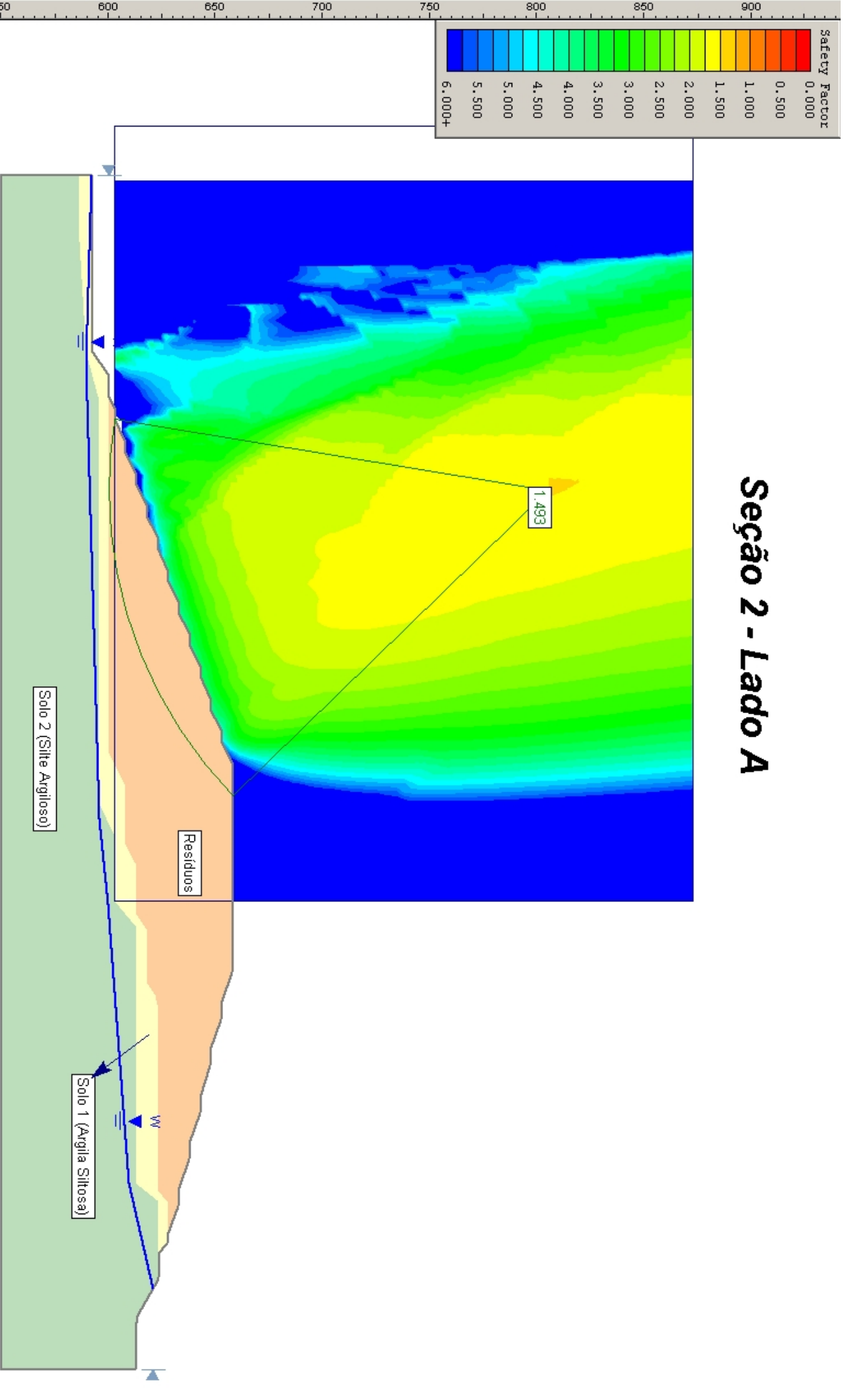
0.000	550.000
556.703	550.000
556.703	613.000
538.149	613.000
531.631	614.000
529.801	615.000
528.029	616.000
526.284	617.000
524.444	618.000
522.700	619.000
520.870	620.000
519.126	621.000
517.353	622.000
515.567	623.000
513.987	623.885
502.491	623.885

498.179	628.000
498.179	628.000
494.462	628.000
480.597	633.000
473.338	633.000
458.820	638.000
451.560	638.000
437.042	643.000
429.783	643.000
415.264	648.000
408.005	648.000
393.400	653.000
386.227	653.000
371.709	658.000
273.665	658.000
263.646	653.000
258.637	653.000
248.618	648.000
243.608	648.000
233.586	643.000
228.580	643.000
218.562	638.000
213.552	638.000
203.533	633.000
198.524	633.000
188.505	628.000
183.496	628.000
173.477	623.000
168.468	623.000
158.458	618.000
153.440	618.000
143.428	613.000
138.419	613.000
128.416	608.000
123.412	608.000
113.426	603.000
108.402	603.000
102.402	600.000
92.401	600.000
82.358	592.880
0.000	592.440
0.000	586.146

Water Table

0.000	592.440
87.000	590.000
300.000	596.000
340.000	600.000
470.000	610.000
519.126	621.000

Seção 2 - Lado A



Slide Analysis Information

Document Name

File Name: Seção2-LadoB.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Left to Right
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified
Spencer

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³

Cohesion: 54 kPa
Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 2.445770
Center: 438.861, 734.384
Radius: 107.864
Left Slip Surface Endpoint: 362.703, 658.000
Right Slip Surface Endpoint: 475.682, 633.000
Resisting Moment=672253 kN-m
Driving Moment=274864 kN-m

Method: spencer
FS: 2.446680
Center: 438.861, 734.384
Radius: 107.864
Left Slip Surface Endpoint: 362.703, 658.000
Right Slip Surface Endpoint: 475.682, 633.000
Resisting Moment=672505 kN-m
Driving Moment=274864 kN-m
Resisting Horizontal Force=5882.43 kN
Driving Horizontal Force=2404.25 kN

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 26879
Number of Invalid Surfaces: 7342
Error Codes:
Error Code -103 reported for 3683 surfaces
Error Code -105 reported for 1 surface
Error Code -106 reported for 84 surfaces
Error Code -107 reported for 1314 surfaces
Error Code -108 reported for 396 surfaces
Error Code -109 reported for 1 surface
Error Code -112 reported for 1632 surfaces
Error Code -1000 reported for 231 surfaces

Method: spencer
Number of Valid Surfaces: 26347
Number of Invalid Surfaces: 7874
Error Codes:
Error Code -103 reported for 3683 surfaces
Error Code -105 reported for 1 surface
Error Code -106 reported for 84 surfaces

Error Code -107 reported for 1314 surfaces
Error Code -108 reported for 773 surfaces
Error Code -109 reported for 1 surface
Error Code -111 reported for 104 surfaces
Error Code -112 reported for 1683 surfaces
Error Code -1000 reported for 231 surfaces

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.

-105 = More than two surface / slope intersections with no valid slip surface.

-106 = Average slice width is less than $0.0001 \times$ (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified, or if high external or anchor loads are applied against the failure direction.

-108 = Total driving moment or total driving force < 0.1 . This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region, even though the slip surface is wholly within the soil region.

-111 = safety factor equation did not converge

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F) < 0.2$ for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-1000 = No valid slip surfaces are generated

at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

338.477	613.000
556.703	613.000
556.703	873.109
338.477	873.109

Material Boundary

82.358	592.880
92.401	600.000

Material Boundary

102.402	600.000
212.112	600.000
267.991	600.000
284.204	608.000
310.950	608.000
320.958	613.000
343.704	613.000
351.629	618.000
375.994	618.000
382.551	622.357
386.787	623.000
472.684	623.000
478.647	628.000
494.462	628.000

Material Boundary

0.000	586.146
22.281	586.146
82.358	590.095
103.444	595.517
291.877	595.517
307.943	603.215
338.477	603.215
350.000	613.000
470.000	613.000
478.000	623.000
515.567	623.000

External Boundary

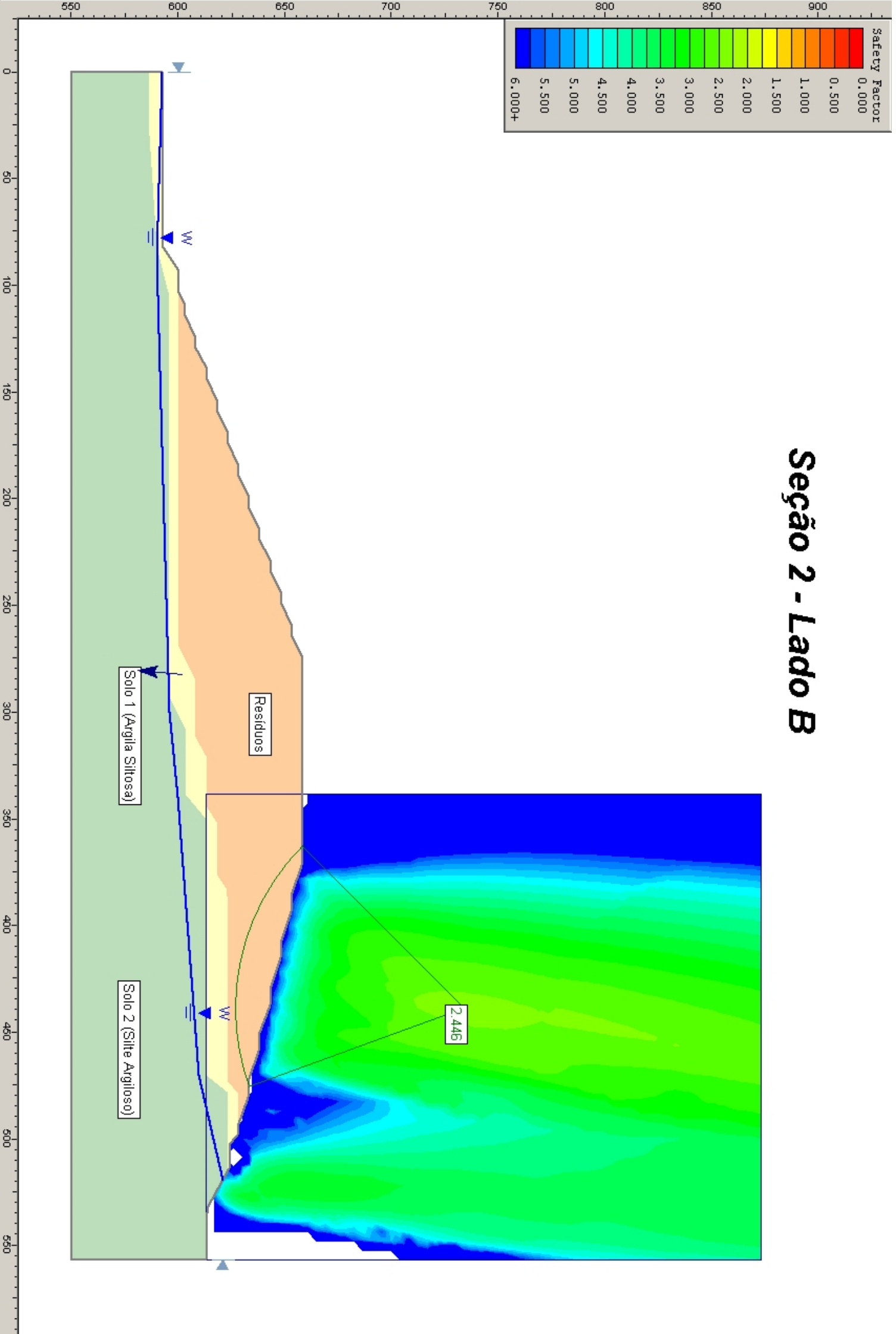
0.000	550.000
556.703	550.000
556.703	613.000
538.149	613.000
531.631	614.000
529.801	615.000
528.029	616.000
526.284	617.000
524.444	618.000
522.700	619.000
520.870	620.000

519.126	621.000
517.353	622.000
515.567	623.000
513.987	623.885
502.491	623.885
498.179	628.000
498.179	628.000
494.462	628.000
480.597	633.000
473.338	633.000
458.820	638.000
451.560	638.000
437.042	643.000
429.783	643.000
415.264	648.000
408.005	648.000
393.400	653.000
386.227	653.000
371.709	658.000
273.665	658.000
263.646	653.000
258.637	653.000
248.618	648.000
243.608	648.000
233.586	643.000
228.580	643.000
218.562	638.000
213.552	638.000
203.533	633.000
198.524	633.000
188.505	628.000
183.496	628.000
173.477	623.000
168.468	623.000
158.458	618.000
153.440	618.000
143.428	613.000
138.419	613.000
128.416	608.000
123.412	608.000
113.426	603.000
108.402	603.000
102.402	600.000
92.401	600.000
82.358	592.880
0.000	592.440
0.000	586.146

Water Table

0.000	592.440
87.000	590.000
300.000	596.000
340.000	600.000
470.000	610.000
519.126	621.000

Seção 2 - Lado B



Slide Analysis Information

Document Name

File Name: Seção3-LadoA.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Right to Left
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 1.661840
Center: 127.110, 760.678
Radius: 142.631
Left Slip Surface Endpoint: 103.128, 620.078
Right Slip Surface Endpoint: 226.108, 658.000
Resisting Moment=934445 kN-m
Driving Moment=562297 kN-m

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 51352
Number of Invalid Surfaces: 38639
Error Codes:
Error Code -101 reported for 2 surfaces
Error Code -102 reported for 39 surfaces
Error Code -103 reported for 18103 surfaces
Error Code -105 reported for 2 surfaces
Error Code -106 reported for 589 surfaces
Error Code -107 reported for 6467 surfaces
Error Code -108 reported for 1035 surfaces
Error Code -109 reported for 3 surfaces
Error Code -112 reported for 2433 surfaces
Error Code -1000 reported for 9966 surfaces

Error Codes

The following errors were encountered during the computation:

-101 = Only one (or zero)
surface / slope intersections.

-102 = Two surface / slope intersections,
but resulting arc is actually outside soil region.

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-105 = More than two surface / slope intersections with no valid slip surface.

-106 = Average slice width is less than $0.0001 * (\text{maximum horizontal extent of soil region})$. This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified, or if high external or anchor loads are applied against the failure direction.

-108 = Total driving moment or total driving force < 0.1 . This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region, even though the slip surface is wholly within the soil region.

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi))/F$ < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-1000 = No valid slip surfaces are generated at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

-28.750	608.000
295.957	608.000
295.957	862.463
-28.750	862.463

Material Boundary

61.973	608.000
78.973	608.000
93.261	608.000
98.374	613.000
127.123	613.000
132.236	618.000
188.021	618.000

196.118	623.000
228.171	623.000
259.502	618.000
275.378	618.000
281.178	613.000
290.238	613.000
295.957	608.000
319.237	608.000
324.248	613.000
329.647	613.000
334.669	618.000
348.078	618.000
353.279	622.450
356.268	623.000
434.308	623.000
439.946	618.000
463.100	618.000

Material Boundary

72.973	611.000
78.973	608.000

Material Boundary

0.000	598.000
52.000	600.270
113.000	608.000
207.000	615.000
245.000	615.000
292.000	605.000
325.000	605.000
357.000	613.000
425.000	613.000
440.000	615.000
488.045	612.687

External Boundary

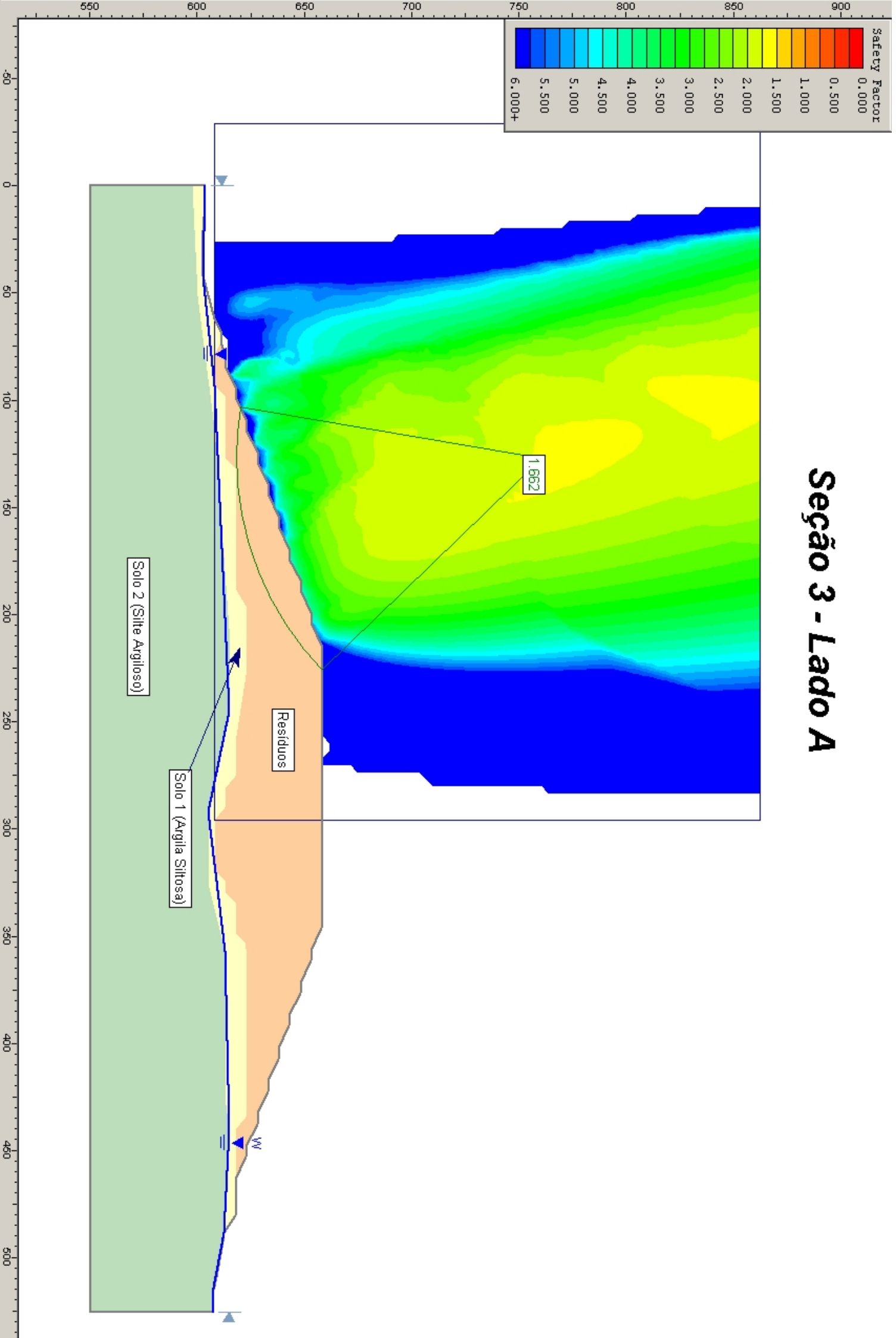
0.000	550.000
525.124	550.000
525.124	607.000
516.710	607.000
513.259	608.000
508.658	609.000
503.227	610.000
497.731	611.000
492.172	612.000
488.045	612.687
480.042	618.000
466.901	618.000
463.100	618.000
452.835	623.000
447.761	623.000
437.622	628.000
432.539	628.000
422.391	633.000
417.317	633.000
407.169	638.000

402.095	638.000
391.947	643.000
386.873	643.000
376.725	648.000
371.651	648.000
361.503	653.000
356.429	653.000
346.281	658.000
213.973	658.000
203.973	653.000
198.973	653.000
188.973	648.000
183.973	648.000
173.973	643.000
168.973	643.000
158.973	638.000
153.973	638.000
143.973	633.000
138.973	633.000
128.973	628.000
123.973	628.000
113.973	623.000
108.973	623.000
98.973	618.000
93.973	618.000
83.973	613.000
78.973	613.000
72.973	611.000
67.973	611.000
61.973	608.000
41.973	602.954
28.012	602.487
14.588	603.000
0.000	603.707
0.000	598.000

Water Table

0.000	603.707
41.973	602.954
93.261	608.000
245.000	615.000
292.000	605.000
357.000	613.000
440.000	615.000
488.045	612.687
516.710	607.000
525.124	607.000

Seção 3 - Lado A



Slide Analysis Information

Document Name

File Name: Seção3-LadoB.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Left to Right
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argiloso)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 1.764390
Center: 418.180, 738.989
Radius: 115.694
Left Slip Surface Endpoint: 335.561, 658.000
Right Slip Surface Endpoint: 442.095, 625.794
Resisting Moment=620469 kN-m
Driving Moment=351661 kN-m

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 32327
Number of Invalid Surfaces: 8604
Error Codes:
Error Code -103 reported for 5774 surfaces
Error Code -105 reported for 1 surface
Error Code -106 reported for 94 surfaces
Error Code -107 reported for 210 surfaces
Error Code -108 reported for 314 surfaces
Error Code -109 reported for 2 surfaces
Error Code -112 reported for 2033 surfaces
Error Code -1000 reported for 176 surfaces

Error Codes

The following errors were encountered during the computation:

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-105 = More than two surface / slope
intersections with no valid slip surface.

-106 = Average slice width is less than
0.0001 * (maximum horizontal extent of soil region).
This limitation is imposed to avoid numerical errors
which may result from too many slices, or too

small a slip region.

-107 = Total driving moment or total driving force is negative. This will occur if the wrong failure direction is specified, or if high external or anchor loads are applied against the failure direction.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region, even though the slip surface is wholly within the soil region.

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$ < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-1000 = No valid slip surfaces are generated at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

295.957	607.000
525.124	607.000
525.124	862.463
295.957	862.463

Material Boundary

61.973	608.000
78.973	608.000
93.261	608.000
98.374	613.000
127.123	613.000
132.236	618.000
188.021	618.000
196.118	623.000
228.171	623.000
259.502	618.000
275.378	618.000
281.178	613.000
290.238	613.000
295.957	608.000
319.237	608.000

324.248	613.000
329.647	613.000
334.669	618.000
348.078	618.000
353.279	622.450
356.268	623.000
434.308	623.000
439.946	618.000
463.100	618.000

Material Boundary

72.973	611.000
78.973	608.000

Material Boundary

0.000	598.000
52.000	600.270
113.000	608.000
207.000	615.000
245.000	615.000
292.000	605.000
325.000	605.000
357.000	613.000
425.000	613.000
440.000	615.000
488.045	612.687

External Boundary

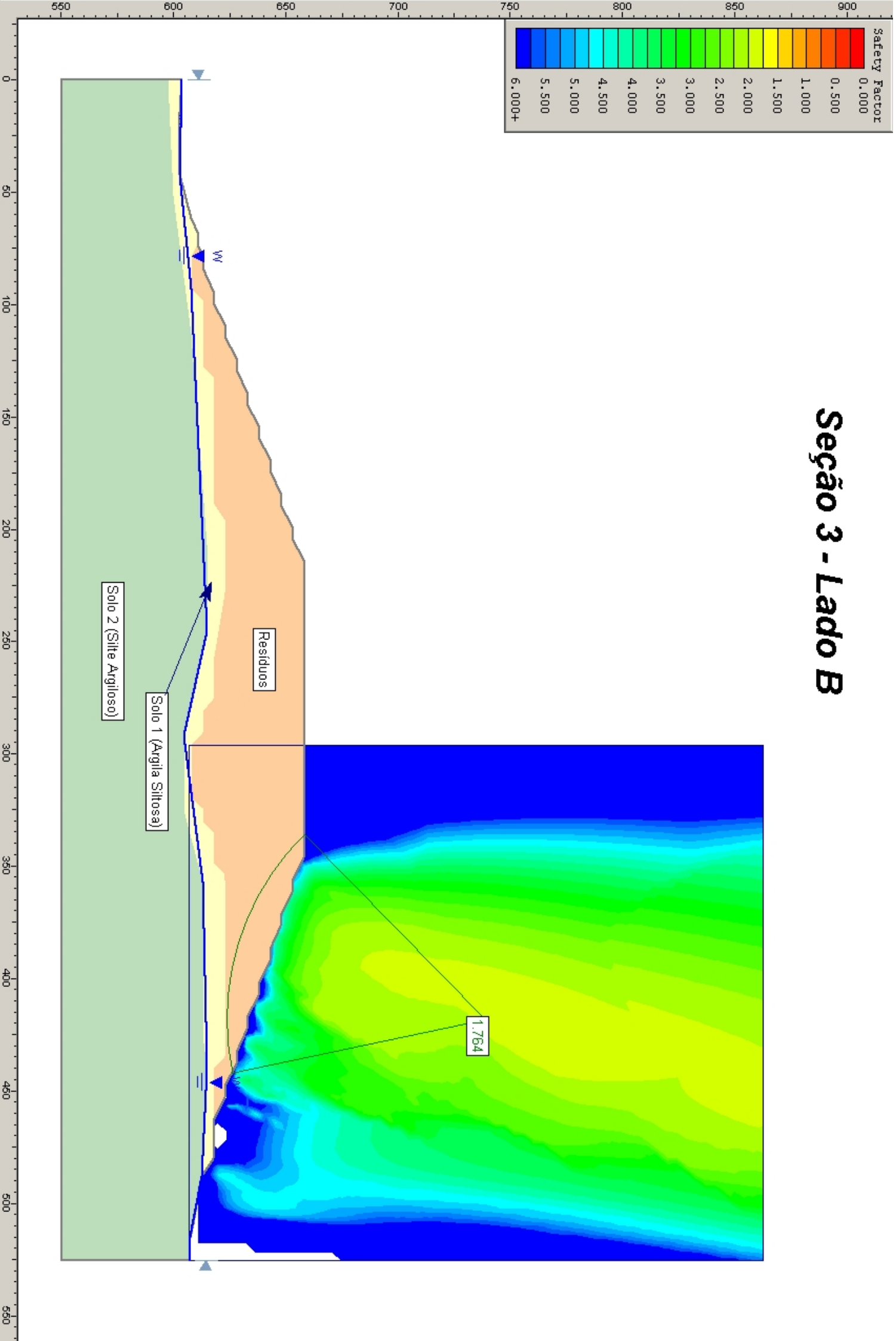
0.000	550.000
525.124	550.000
525.124	607.000
516.710	607.000
513.259	608.000
508.658	609.000
503.227	610.000
497.731	611.000
492.172	612.000
488.045	612.687
480.042	618.000
466.901	618.000
463.100	618.000
452.835	623.000
447.761	623.000
437.622	628.000
432.539	628.000
422.391	633.000
417.317	633.000
407.169	638.000
402.095	638.000
391.947	643.000
386.873	643.000
376.725	648.000
371.651	648.000
361.503	653.000
356.429	653.000
346.281	658.000

213.973	658.000
203.973	653.000
198.973	653.000
188.973	648.000
183.973	648.000
173.973	643.000
168.973	643.000
158.973	638.000
153.973	638.000
143.973	633.000
138.973	633.000
128.973	628.000
123.973	628.000
113.973	623.000
108.973	623.000
98.973	618.000
93.973	618.000
83.973	613.000
78.973	613.000
72.973	611.000
67.973	611.000
61.973	608.000
41.973	602.954
28.012	602.487
14.588	603.000
0.000	603.707
0.000	598.000

Water Table

0.000	603.707
41.973	602.954
93.261	608.000
245.000	615.000
292.000	605.000
357.000	613.000
440.000	615.000
488.045	612.687
516.710	607.000
525.124	607.000

Seção 3 - Lado B



Slide Analysis Information

Document Name

File Name: Seção4–Lado A.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Right to Left
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argilos)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 1.976350
Center: 110.148, 729.458
Radius: 108.363
Left Slip Surface Endpoint: 88.996, 623.179
Right Slip Surface Endpoint: 181.613, 648.000
Resisting Moment=493407 kN-m
Driving Moment=249656 kN-m

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 52268
Number of Invalid Surfaces: 19903
Error Codes:
Error Code -102 reported for 40 surfaces
Error Code -103 reported for 6317 surfaces
Error Code -105 reported for 1 surface
Error Code -106 reported for 422 surfaces
Error Code -107 reported for 5182 surfaces
Error Code -108 reported for 1513 surfaces
Error Code -109 reported for 1 surface
Error Code -112 reported for 4799 surfaces
Error Code -1000 reported for 1628 surfaces

Error Codes

The following errors were encountered during the computation:

-102 = Two surface / slope intersections,
but resulting arc is actually outside soil region.

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-105 = More than two surface / slope
intersections with no valid slip surface.

-106 = Average slice width is less than
 $0.0001 * (\text{maximum horizontal extent of soil region})$.
This limitation is imposed to avoid numerical errors
which may result from too many slices, or too
small a slip region.

-107 = Total driving moment or
total driving force is negative. This will occur
if the wrong failure direction is specified,
or if high external or anchor loads are applied
against the failure direction.

-108 = Total driving moment
or total driving force < 0.1 . This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-109 = Soiltype for slice base not
located. This error should occur very rarely,
if at all. It may occur if a very low number of
slices is combined with certain soil geometries,
such that the midpoint of a slice base is
actually outside the soil region, even though
the slip surface is wholly within the soil region.

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$
 < 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

-1000 = No valid slip surfaces are generated
at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

1.151	609.164
230.619	609.164
230.619	832.967
1.151	832.967

Material Boundary

78.637	621.000
93.637	621.000
97.300	621.000
179.267	621.000
186.331	628.000
230.198	628.000
235.304	633.000
255.906	633.000
261.083	638.000
266.109	638.000
269.798	643.000

Material Boundary

88.637	623.000
93.637	621.000

Material Boundary

0.000	608.000
44.000	605.000
94.000	617.000
180.000	616.000
256.000	628.000
282.000	640.000
349.370	640.000

External Boundary

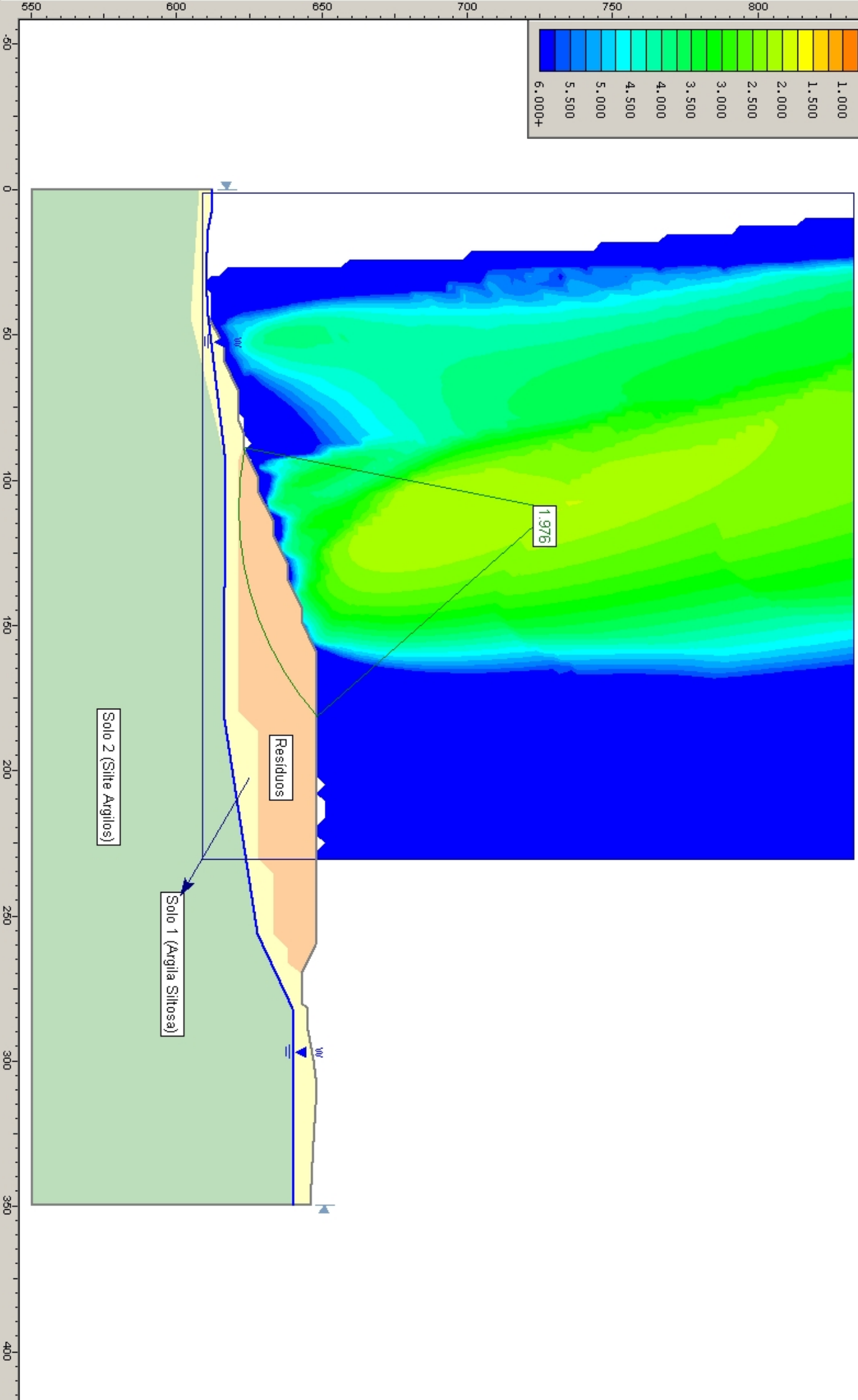
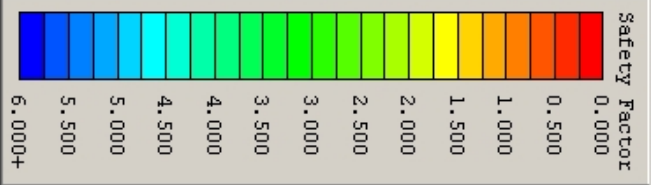
0.000	550.000
349.370	550.000
349.370	640.000
349.370	646.000
327.621	647.000
314.908	648.000
305.776	648.000
299.719	647.000
293.578	646.000
287.278	645.000
281.624	644.763
279.798	643.000
269.798	643.000
259.798	648.000
158.637	648.000
148.637	643.000
143.637	643.000
133.637	638.000
128.637	638.000
118.637	633.000
113.637	633.000
103.637	628.000
98.637	628.000
88.637	623.000
83.637	623.000
78.637	621.000
68.637	621.000
58.637	616.000
53.637	616.000
43.637	610.869
30.063	610.050
13.694	611.000
8.089	612.000
0.000	612.386
0.000	608.000

Water Table

0.000	612.386
8.089	612.000
13.694	611.000
30.063	610.050

43.637	610.869
94.000	617.000
180.000	616.000
256.000	628.000
282.000	640.000
349.370	640.000

Seção 4 - Lado A



Slide Analysis Information

Document Name

File Name: Seção4-LadoB.sli

Project Settings

Project Title: SLIDE - An Interactive Slope Stability Program
Failure Direction: Left to Right
Units of Measurement: SI Units
Pore Fluid Unit Weight: 9.81 kN/m³
Groundwater Method: Ru Coefficient
Data Output: Standard
Calculate Excess Pore Pressure: Off
Allow Ru with Water Surfaces or Grids: On
Random Numbers: Pseudo-random Seed
Random Number Seed: 10116
Random Number Generation Method: Park and Miller v.3

Analysis Methods

Analysis Methods used:
Bishop simplified

Number of slices: 25
Tolerance: 0.005
Maximum number of iterations: 50

Surface Options

Surface Type: Circular
Search Method: Grid Search
Radius increment: 10
Composite Surfaces: Disabled
Reverse Curvature: Create Tension Crack
Minimum Elevation: Not Defined
Minimum Depth: Not Defined

Material Properties

Material: Solo 1 (Argila Siltosa)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 41 kPa
Friction Angle: 29 degrees
Ru value: 0

Material: Solo 2 (Silte Argilos)

Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 19 kN/m³
Saturated Unit Weight: 20 kN/m³
Cohesion: 54 kPa

Friction Angle: 27 degrees
Ru value: 0

Material: Resíduos
Strength Type: Mohr-Coulomb
Unsaturated Unit Weight: 9 kN/m³
Saturated Unit Weight: 10 kN/m³
Cohesion: 16 kPa
Friction Angle: 26 degrees
Ru value: 0.3

Global Minimums

Method: bishop simplified
FS: 3.896610
Center: 264.223, 651.404
Radius: 9.038
Left Slip Surface Endpoint: 255.850, 648.000
Right Slip Surface Endpoint: 268.697, 643.551
Resisting Moment=3247.47 kN-m
Driving Moment=833.408 kN-m

Valid / Invalid Surfaces

Method: bishop simplified
Number of Valid Surfaces: 15255
Number of Invalid Surfaces: 39096
Error Codes:
Error Code -101 reported for 1 surface
Error Code -102 reported for 10 surfaces
Error Code -103 reported for 2989 surfaces
Error Code -106 reported for 99 surfaces
Error Code -107 reported for 33482 surfaces
Error Code -108 reported for 1782 surfaces
Error Code -112 reported for 623 surfaces
Error Code -1000 reported for 110 surfaces

Error Codes

The following errors were encountered during the computation:

-101 = Only one (or zero)
surface / slope intersections.

-102 = Two surface / slope intersections,
but resulting arc is actually outside soil region.

-103 = Two surface / slope intersections,
but one or more surface / nonslope external polygon
intersections lie between them. This usually occurs
when the slip surface extends past the bottom of the
soil region, but may also occur on a benched
slope model with two sets of Slope Limits.

-106 = Average slice width is less than

0.0001 * (maximum horizontal extent of soil region).
This limitation is imposed to avoid numerical errors
which may result from too many slices, or too
small a slip region.

-107 = Total driving moment or
total driving force is negative. This will occur
if the wrong failure direction is specified,
or if high external or anchor loads are applied
against the failure direction.

-108 = Total driving moment
or total driving force < 0.1. This is to
limit the calculation of extremely high safety
factors if the driving force is very small
(0.1 is an arbitrary number).

-112 = The coefficient $M\text{-}\alpha = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi)/F)$
< 0.2 for the final iteration of the safety factor calculation. This screens out
some slip surfaces which may not be valid in the context of the analysis, in
particular, deep seated slip surfaces with many high negative base angle
slices in the passive zone.

-1000 = No valid slip surfaces are generated
at a grid center. Unable to draw a surface.

List of All Coordinates

Search Grid

184.569	619.364
349.370	619.364
349.370	832.967
184.569	832.967

Material Boundary

78.637	621.000
93.637	621.000
97.300	621.000
179.267	621.000
186.331	628.000
230.198	628.000
235.304	633.000
255.906	633.000
261.083	638.000
266.109	638.000
269.798	643.000

Material Boundary

88.637	623.000
93.637	621.000

Material Boundary

0.000	608.000
44.000	605.000
94.000	617.000

180.000	616.000
256.000	628.000
282.000	640.000
349.370	640.000

External Boundary

0.000	550.000
349.370	550.000
349.370	640.000
349.370	646.000
327.621	647.000
314.908	648.000
305.776	648.000
299.719	647.000
293.578	646.000
287.278	645.000
281.624	644.763
279.798	643.000
269.798	643.000
259.798	648.000
158.637	648.000
148.637	643.000
143.637	643.000
133.637	638.000
128.637	638.000
118.637	633.000
113.637	633.000
103.637	628.000
98.637	628.000
88.637	623.000
83.637	623.000
78.637	621.000
68.637	621.000
58.637	616.000
53.637	616.000
43.637	610.869
30.063	610.050
13.694	611.000
8.089	612.000
0.000	612.386
0.000	608.000

Water Table

0.000	612.386
8.089	612.000
13.694	611.000
30.063	610.050
43.637	610.869
94.000	617.000
180.000	616.000
256.000	628.000
282.000	640.000
349.370	640.000

Seção 4 - Lado B

