



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 01 - 01 Prof.: 1.7 m
 Datum: WGS84 Coordenadas UTM: 726 414 E 9 717 011 N

Proyecto: DESLIZAMIENTO QUILLOAC
 Solicitado por: GADICC
 Fecha: 15-jul-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|--------|
| | 177 | 155 | 203 | 104 | 157 | 135 | 119 | 117 | 133 | 186 | 174 | 103 | 187 | 190 |
| Muestra húmeda + tarro (gr) | 29.95 | 29.10 | 33.67 | 28.26 | 30.70 | 14.25 | 16.77 | 16.18 | 124.72 | 133.29 | 128.58 | 112.12 | 120.00 | 118.61 |
| Muestra seca + tarro (gr) | 25.56 | 24.72 | 28.24 | 24.06 | 26.07 | 14.04 | 16.57 | 15.99 | 114.67 | 122.64 | 118.12 | 108.16 | 115.82 | 114.66 |
| Peso de tarro (gr) | 14.77 | 14.41 | 15.77 | 14.85 | 16.24 | 13.29 | 15.82 | 15.25 | 16.88 | 16.24 | 15.09 | 14.53 | 13.95 | 15.31 |
| Peso de agua (gr) | 4.39 | 4.38 | 5.43 | 4.20 | 4.63 | 0.21 | 0.20 | 0.19 | 10.05 | 10.65 | 10.46 | 3.96 | 4.18 | 3.95 |
| Peso muestra seca (gr) | 10.79 | 10.31 | 12.47 | 9.21 | 9.83 | 0.75 | 0.75 | 0.74 | 97.79 | 106.40 | 103.03 | 93.63 | 101.87 | 99.35 |
| Porcentaje de humedad | 40.7% | 42.5% | 43.5% | 45.6% | 47.1% | 28.0% | 26.7% | 25.7% | 10.3% | 10.0% | 10.2% | 4.2% | 4.1% | 4.0% |
| Número de golpes - Promedio | 35 | 30 | 26 | 22 | 18 | 26.8% | | | 10.1% | | | 4.1% | | |

| |
|--------------------------|
| D ₁₀ = |
| D ₃₀ = 2.703 |
| D ₆₀ = 17.984 |

| |
|------------------|
| C _u = |
| C _c = |

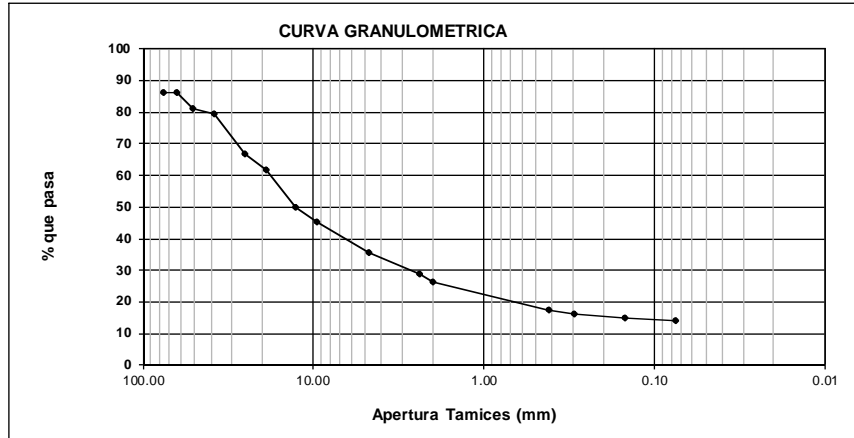
| | |
|---------|-----|
| % Grava | 65% |
| % Arena | 21% |
| % Finos | 14% |

| | |
|---------------|-------|
| L Líquido | 44.1% |
| L Plástico | 26.8% |
| I Plasticidad | 17.3% |
| H. Natural | 10.1% |
| I. Líquidez | -0.96 |

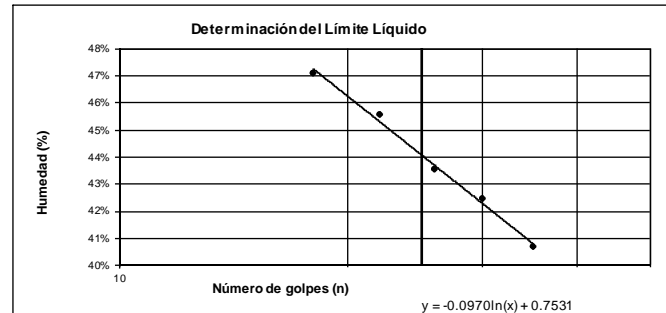
SUCS GM
 AASHTO A-2-6 (0)

P. Williams J
 JEFE DE LABORATORIO

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3" | 76.20 | 690 | 690 | 690 | 14.0 | 86.0 |
| 2 1/2" | 63.50 | 0 | 0 | 690 | 14.0 | 86.0 |
| 2" | 50.80 | 250 | 250 | 940 | 19.1 | 80.9 |
| 1 1/2" | 38.10 | 65 | 65 | 1005 | 20.4 | 79.6 |
| 1" | 25.40 | 625 | 625 | 1630 | 33.1 | 66.9 |
| 3/4" | 19.10 | 255 | 255 | 1885 | 38.2 | 61.8 |
| 1/2" | 12.70 | 585 | 585 | 2470 | 50.1 | 49.9 |
| 3/8" | 9.52 | 230 | 230 | 2700 | 54.8 | 45.2 |
| Nº 4 | 4.76 | 480 | 480 | 3180 | 64.5 | 35.5 |
| PASA Nº 4 | | 1820 | | | | |



| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 85.8 | 85.8 | 85.8 | 18.9 | 81.1 | 28.8 |
| Nº 10 | 2.00 | 29.1 | 29.1 | 114.9 | 25.3 | 74.7 | 26.5 |
| Nº 40 | 0.42 | 117.2 | 117.4 | 232.3 | 51.2 | 48.8 | 17.3 |
| Nº 50 | 0.297 | 16.9 | 16.9 | 249.2 | 54.9 | 45.1 | 16.0 |
| Nº 100 | 0.149 | 16.2 | 16.2 | 265.4 | 58.5 | 41.5 | 14.7 |
| Nº 200 | 0.075 | 9.4 | 9.4 | 274.8 | 60.5 | 39.5 | 14.0 |
| FONDO | | 0.0 | 179.1 | 453.9 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 01 - 02 Prof.: 2,7m
 Datum: WGS84 Coordenadas UTM: 726 414 E 9 717 011 N

Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 15-jul-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|--------|
| | 126 | 170 | 120 | 196 | 142 | 200 | 154 | 185 | 126 | 131 | 101 | 108 | 120 | 143 |
| Muestra húmeda + tarro (gr) | 30.13 | 27.58 | 29.64 | 28.42 | 28.27 | 15.81 | 14.11 | 16.91 | 116.92 | 121.72 | 116.64 | 119.01 | 122.86 | 118.78 |
| Muestra seca + tarro (gr) | 25.24 | 23.44 | 25.27 | 23.91 | 23.55 | 15.55 | 13.86 | 16.68 | 106.48 | 111.13 | 106.51 | 113.72 | 117.15 | 113.84 |
| Peso de tarro (gr) | 15.54 | 15.40 | 16.98 | 15.67 | 15.16 | 14.68 | 12.99 | 15.84 | 15.53 | 15.07 | 13.91 | 16.18 | 16.98 | 16.83 |
| Peso de agua (gr) | 4.89 | 4.14 | 4.37 | 4.51 | 4.72 | 0.26 | 0.25 | 0.23 | 10.44 | 10.59 | 10.13 | 5.29 | 5.71 | 4.94 |
| Peso muestra seca (gr) | 9.70 | 8.04 | 8.29 | 8.24 | 8.39 | 0.87 | 0.87 | 0.84 | 90.95 | 96.06 | 92.60 | 97.54 | 100.17 | 97.01 |
| Porcentaje de humedad | 50.4% | 51.5% | 52.7% | 54.7% | 56.3% | 29.9% | 28.7% | 27.4% | 11.5% | 11.0% | 10.9% | 5.4% | 5.7% | 5.1% |
| Número de golpes - Promedio | 35 | 30 | 24 | 19 | 15 | 28.7% | | | 11.1% | | | 5.4% | | |

D₁₀ = 0.693
 D₃₀ = 6.864
 D₆₀ = 18.553

C_u = 26.8
 C_c = 3.7

% Grava 78%
 % Arena 15%
 % Finos 7%

L. Líquido 52.7%
 L. Plástico 28.7%
 I. Plasticidad 24.0%
 H. Natural 11.1%
 I. Liquidez -0.73

SUCS GP - GC

AASHTO A-2-6 (0)

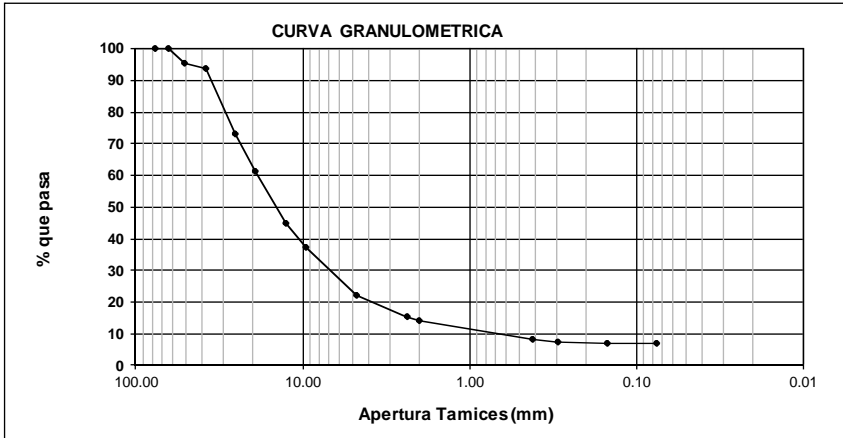
P. Wilches S

JEFE DE LABORATORIO

FRACCION GRUESA

| | |
|---|-------|
| Peso húmedo total antes del ensayo (gr) | 4795 |
| Peso húmedo total después del ensayo (gr) | 4795 |
| Error | 0.00% |
| Humedad de material que pasa # 4 | 5.41% |
| Peso seco total después del ensayo (gr) | 4739 |

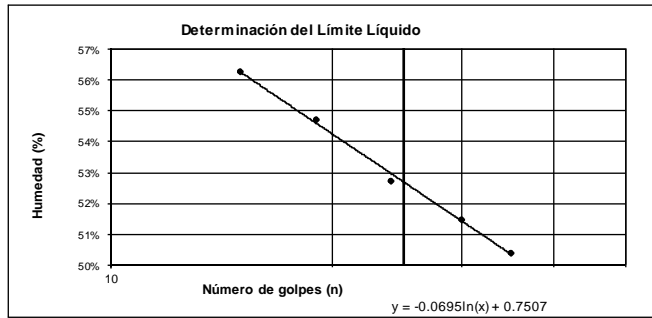
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 210 | 210 | 210 | 4.4 | 95.6 |
| 1 1/2" | 38.10 | 95 | 95 | 305 | 6.4 | 93.6 |
| 1" | 25.40 | 970 | 970 | 1275 | 26.9 | 73.1 |
| 3/4" | 19.10 | 565 | 565 | 1840 | 38.8 | 61.2 |
| 1/2" | 12.70 | 780 | 780 | 2620 | 55.3 | 44.7 |
| 3/8" | 9.52 | 355 | 355 | 2975 | 62.8 | 37.2 |
| Nº 4 | 4.76 | 725 | 725 | 3700 | 78.1 | 21.9 |
| PASA Nº 4 | | 1095 | | | | |



FRACCION FINA

| | |
|---|--------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 449.85 |
| Peso seco después de lavado (gr) | 311.90 |
| Peso seco total después del ensayo | 311.70 |
| Error | 0.06% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 137.7 | 137.9 | 137.9 | 30.7 | 69.3 | 15.2 |
| Nº 10 | 2.00 | 26.7 | 26.7 | 164.6 | 36.6 | 63.4 | 13.9 |
| Nº 40 | 0.42 | 117.9 | 117.9 | 282.5 | 62.8 | 37.2 | 8.2 |
| Nº 50 | 0.297 | 12.4 | 12.4 | 294.9 | 65.6 | 34.4 | 7.6 |
| Nº 100 | 0.149 | 12.6 | 12.6 | 307.5 | 68.4 | 31.6 | 6.9 |
| Nº 200 | 0.075 | 4.3 | 4.3 | 311.8 | 69.3 | 30.7 | 6.7 |
| FONDO | | 0.1 | 138.1 | 449.9 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 02 - 01 Prof.: 2.0 m
 Datum: WGS84 Coordenadas UTM: 726 522 E 9 716 402 N

Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|-------|
| Número de tarro | 145 | 98 | 106 | 183 | 138 | 188 | 129 | 147 | 178 | 193 | 170 | 110 | 191 | 156 |
| Muestra húmeda + tarro (gr) | 31.00 | 30.55 | 31.52 | 32.30 | 30.38 | 17.39 | 17.22 | 18.69 | 106.95 | 122.12 | 102.86 | 105.81 | 112.78 | 96.87 |
| Muestra seca + tarro (gr) | 26.14 | 25.77 | 26.50 | 27.10 | 25.77 | 17.03 | 16.92 | 18.37 | 90.05 | 102.65 | 86.72 | 98.12 | 104.80 | 90.09 |
| Peso de tarro (gr) | 14.49 | 14.75 | 15.15 | 15.69 | 16.03 | 15.84 | 15.90 | 17.26 | 14.64 | 15.37 | 15.40 | 15.06 | 15.71 | 16.49 |
| Peso de agua (gr) | 4.86 | 4.78 | 5.02 | 5.20 | 4.61 | 0.36 | 0.30 | 0.32 | 16.90 | 19.47 | 16.14 | 7.69 | 7.98 | 6.78 |
| Peso muestra seca (gr) | 11.65 | 11.02 | 11.35 | 11.41 | 9.74 | 1.19 | 1.02 | 1.11 | 75.41 | 87.28 | 71.32 | 83.06 | 89.09 | 73.60 |
| Porcentaje de humedad | 41.7% | 43.4% | 44.2% | 45.6% | 47.3% | 30.3% | 29.4% | 28.8% | 22.4% | 22.3% | 22.6% | 9.3% | 9.0% | 9.2% |
| Número de golpes - Promedio | 36 | 30 | 25 | 19 | 14 | 29.5% | | | 22.4% | | | 9.1% | | |

| |
|--------------------------|
| D ₁₀ = |
| D ₃₀ = 1.190 |
| D ₆₀ = 12.508 |

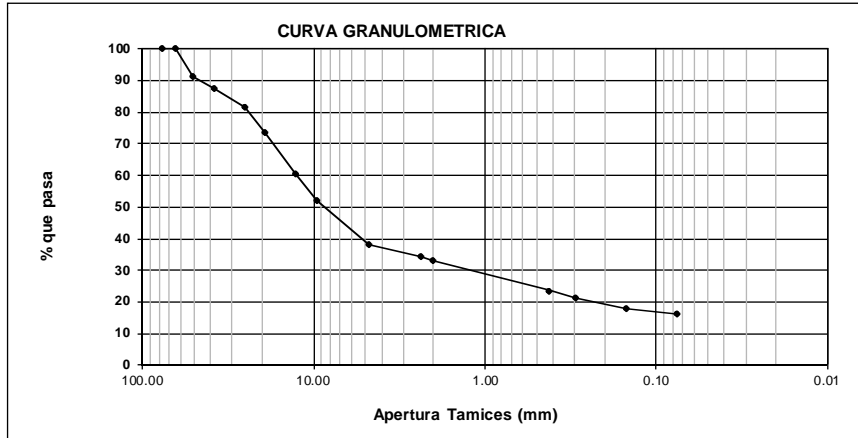
| |
|------------------|
| C _u = |
| C _c = |

| | |
|---------|-----|
| % Grava | 62% |
| % Arena | 22% |
| % Finos | 16% |

| | |
|---------------|-------|
| L Líquido | 44.1% |
| L Plástico | 29.5% |
| I Plasticidad | 14.6% |
| H. Natural | 22.4% |
| I. Líquidez | -0.48 |

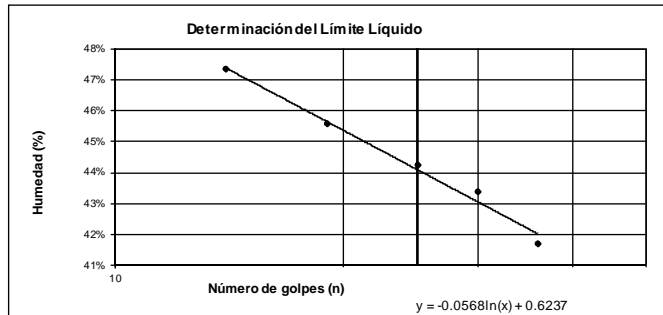
| FRACCION GRUESA | | | | | | |
|---|-------|--|--|--|--|--|
| Peso húmedo total antes del ensayo (gr) | 3480 | | | | | |
| Peso húmedo total después del ensayo (gr) | 3475 | | | | | |
| Error | 0.14% | | | | | |
| Humedad de material que pasa # 4 | 9.14% | | | | | |
| Peso seco total después del ensayo (gr) | 3363 | | | | | |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acum. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 295 | 295 | 295 | 8.8 | 91.2 |
| 1 1/2" | 38.10 | 130 | 130 | 425 | 12.6 | 87.4 |
| 1" | 25.40 | 190 | 190 | 615 | 18.3 | 81.7 |
| 3/4" | 19.10 | 275 | 275 | 890 | 26.5 | 73.5 |
| 1/2" | 12.70 | 440 | 440 | 1330 | 39.6 | 60.4 |
| 3/8" | 9.52 | 285 | 285 | 1615 | 48.0 | 52.0 |
| Nº 4 | 4.76 | 465 | 465 | 2080 | 61.9 | 38.1 |
| PASA Nº 4 | | 1395 | 1400 | | | |



| FRACCION FINA | | | | | | |
|---|--------|--|--|--|--|--|
| Peso para lavado de material que pasa #4 (gr) | 500 | | | | | |
| Peso seco antes de lavado (gr) | 408.33 | | | | | |
| Peso seco después de lavado (gr) | 234.00 | | | | | |
| Peso seco total después del ensayo | 233.80 | | | | | |
| Error | 0.09% | | | | | |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acum. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 42.0 | 42.0 | 42.0 | 10.3 | 89.7 | 34.2 |
| Nº 10 | 2.00 | 10.9 | 10.9 | 52.9 | 13.0 | 87.0 | 33.2 |
| Nº 40 | 0.42 | 102.8 | 103.0 | 155.9 | 38.2 | 61.8 | 23.6 |
| Nº 50 | 0.297 | 26.0 | 26.0 | 181.9 | 44.5 | 55.5 | 21.2 |
| Nº 100 | 0.149 | 34.5 | 34.5 | 216.4 | 53.0 | 47.0 | 17.9 |
| Nº 200 | 0.075 | 17.6 | 17.6 | 234.0 | 57.3 | 42.7 | 16.3 |
| FONDO | | 0.0 | 174.3 | 408.3 | 100.0 | | |



SUCS GM
 AASHTO A-2-6 (0)

P. Williams S
 JEFE DE LABORATORIO

Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 03 - 01 Prof.: 2.5 m
 Datum: WGS84 Coordenadas UTM: 727 017 E 9 716 788 N

Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 15-jul-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|--------|
| | 114 | 113 | 140 | 133 | 128 | 180 | 148 | 97 | 188 | 117 | 107 | 109 | 113 | 202 |
| Muestra húmeda + tarro (gr) | 30.85 | 27.89 | 28.51 | 28.49 | 28.23 | 17.59 | 16.29 | 18.04 | 111.06 | 102.66 | 105.38 | 113.64 | 108.86 | 117.66 |
| Muestra seca + tarro (gr) | 25.88 | 23.24 | 23.91 | 24.36 | 23.30 | 17.36 | 16.01 | 17.82 | 96.18 | 88.87 | 90.99 | 103.90 | 99.41 | 107.67 |
| Peso de tarro (gr) | 16.03 | 14.23 | 15.43 | 16.88 | 14.24 | 16.67 | 15.22 | 17.20 | 15.83 | 15.25 | 14.30 | 14.43 | 14.23 | 16.80 |
| Peso de agua (gr) | 4.97 | 4.65 | 4.60 | 4.13 | 4.93 | 0.23 | 0.28 | 0.22 | 14.88 | 13.79 | 14.39 | 9.74 | 9.45 | 9.99 |
| Peso muestra seca (gr) | 9.85 | 9.01 | 8.48 | 7.48 | 9.06 | 0.69 | 0.79 | 0.62 | 80.35 | 73.62 | 76.69 | 89.47 | 85.18 | 90.87 |
| Porcentaje de humedad | 50.5% | 51.6% | 54.2% | 55.2% | 54.4% | 33.3% | 35.4% | 35.5% | 18.5% | 18.7% | 18.8% | 10.9% | 11.1% | 11.0% |
| Número de golpes - Promedio | 38 | 34 | 29 | 25 | 20 | 34.8% | | | 18.7% | | | 11.0% | | |

D₁₀ =
 D₃₀ = 0.424
 D₆₀ = 5.820

C_U =
 C_G =

% Grava 43%
 % Arena 37%
 % Finos 20%

L. Líquido 54.1%
 L. Plástico 34.8%
 I. Plasticidad 19.3%
 H. Natural 18.7%
 I. Liquidez -0.83

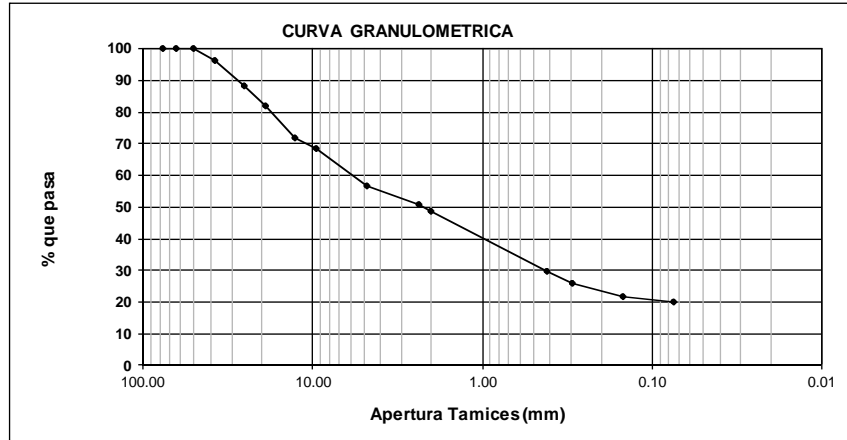
SUCS GM
 AASHTO A-2-6 (0)

P. Williams
 JEFE DE LABORATORIO

FRACCION GRUESA

Peso húmedo total antes del ensayo (gr) 5425
 Peso húmedo total después del ensayo (gr) 5410
 Error 0.28%
 Humedad de material que pasa # 4 10.99%
 Peso seco total después del ensayo (gr) 5108

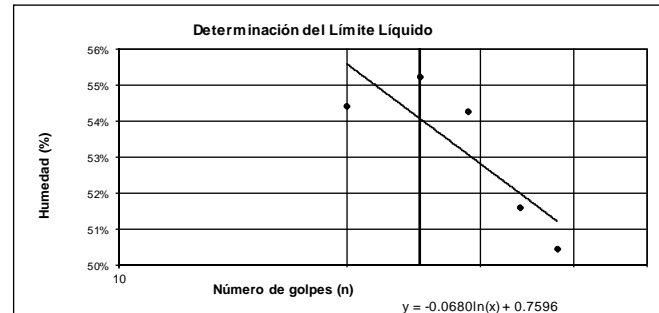
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|----------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 0 | 0 | 0 | 0.0 | 100.0 |
| 1 1/2" | 38.10 | 185 | 185 | 185 | 3.6 | 96.4 |
| 1" | 25.40 | 420 | 420 | 605 | 11.8 | 88.2 |
| 3/4" | 19.10 | 325 | 325 | 930 | 18.2 | 81.8 |
| 1/2" | 12.70 | 505 | 505 | 1435 | 28.1 | 71.9 |
| 3/8" | 9.52 | 175 | 175 | 1610 | 31.5 | 68.5 |
| Nº 4 | 4.76 | 610 | 610 | 2220 | 43.5 | 56.5 |
| PASANº 4 | | 3190 | | | | |



FRACCION FINA

Peso para lavado de material que pasa #4 (gr) 500
 Peso seco antes de lavado (gr) 421.33
 Peso seco después de lavado (gr) 272.80
 Peso seco total después del ensayo 272.70
 Error 0.04%

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 44.1 | 44.1 | 44.1 | 10.5 | 89.5 | 50.6 |
| Nº 10 | 2.00 | 16.0 | 16.0 | 60.1 | 14.3 | 85.7 | 48.5 |
| Nº 40 | 0.42 | 138.5 | 138.6 | 198.7 | 47.2 | 52.8 | 29.9 |
| Nº 50 | 0.297 | 29.9 | 29.9 | 228.6 | 54.3 | 45.7 | 25.9 |
| Nº 100 | 0.149 | 30.5 | 30.5 | 259.1 | 61.5 | 38.5 | 21.8 |
| Nº 200 | 0.075 | 13.7 | 13.7 | 272.8 | 64.7 | 35.3 | 19.9 |
| FONDO | | 0.0 | 148.5 | 421.3 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 04 - 01 Prof.: 1.0 m
 Datum: WGS84 Coordenadas UTM: 727 727 E 9 716 752 N

Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | HUM. GRANULOM. | | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|----------------|--------|--------|--------|
| Número de tarro | 123 | 141 | 199 | 102 | 144 | 118 | 153 | 125 | 190 | 199 | 180 | 131 | 105 | 197 |
| Muestra húmeda + tarro (gr) | 31.81 | 31.16 | 31.88 | 28.44 | 28.95 | 15.31 | 16.39 | 15.98 | 107.24 | 108.60 | 115.16 | 114.49 | 108.83 | 110.32 |
| Muestra seca + tarro (gr) | 27.40 | 26.78 | 27.35 | 24.58 | 24.89 | 15.08 | 16.22 | 15.80 | 93.14 | 94.45 | 100.17 | 108.27 | 103.05 | 104.20 |
| Peso de tarro (gr) | 15.70 | 15.10 | 15.60 | 14.75 | 14.92 | 14.23 | 15.60 | 15.13 | 15.32 | 15.60 | 16.67 | 15.07 | 15.05 | 13.77 |
| Peso de agua (gr) | 4.41 | 4.38 | 4.53 | 3.86 | 4.06 | 0.23 | 0.17 | 0.18 | 14.10 | 14.15 | 14.99 | 6.22 | 5.78 | 6.12 |
| Peso muestra seca (gr) | 11.70 | 11.68 | 11.75 | 9.83 | 9.97 | 0.85 | 0.62 | 0.67 | 77.82 | 78.85 | 83.50 | 93.20 | 88.00 | 90.43 |
| Porcentaje de humedad | 37.7% | 37.5% | 38.6% | 39.3% | 40.7% | 27.1% | 27.4% | 26.9% | 18.1% | 17.9% | 18.0% | 6.7% | 6.6% | 6.8% |
| Número de golpes - Promedio | 36 | 30 | 25 | 20 | 16 | 27.1% | | | 18.0% | | 6.7% | | | |

| |
|-------------------------|
| D ₁₀ = |
| D ₃₀ = 0.357 |
| D ₆₀ = 6.787 |

| |
|------------------|
| C _u = |
| C _c = |

| | |
|---------|-----|
| % Grava | 43% |
| % Arena | 36% |
| % Finos | 21% |

| | |
|----------------|-------|
| L. Líquido | 38.6% |
| L. Plástico | 27.1% |
| I. Plasticidad | 11.5% |
| H. Natural | 18.0% |
| I. Líquidez | -0.79 |

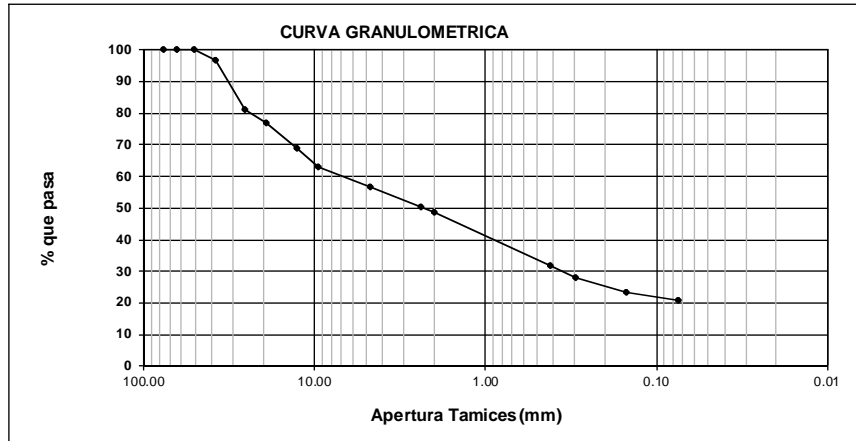
SUCS GM

AASHTO A-2-7 (0)

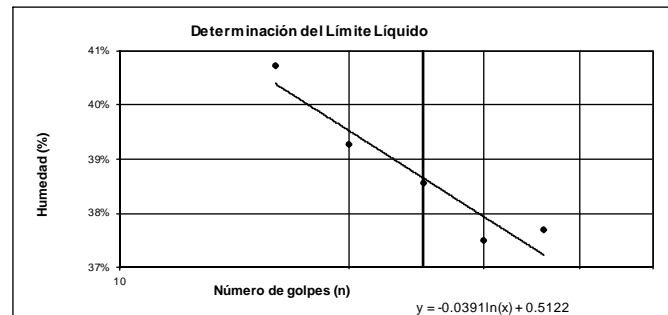
P. Williams

JEFE DE LABORATORIO

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acum. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 0 | 0 | 0 | 0.0 | 100.0 |
| 1 1/2" | 38.10 | 120 | 120 | 120 | 3.5 | 96.5 |
| 1" | 25.40 | 530 | 530 | 650 | 18.8 | 81.2 |
| 3/4" | 19.10 | 150 | 150 | 800 | 23.2 | 76.8 |
| 1/2" | 12.70 | 275 | 275 | 1075 | 31.2 | 68.8 |
| 3/8" | 9.52 | 195 | 195 | 1270 | 36.8 | 63.2 |
| Nº 4 | 4.76 | 225 | 225 | 1495 | 43.3 | 56.7 |
| PASA Nº 4 | | 2085 | | | | |



| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acum. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 48.0 | 48.0 | 48.0 | 11.3 | 88.7 | 50.2 |
| Nº 10 | 2.00 | 12.5 | 12.5 | 60.5 | 14.3 | 85.7 | 48.6 |
| Nº 40 | 0.42 | 125.3 | 125.4 | 185.9 | 43.9 | 56.1 | 31.8 |
| Nº 50 | 0.297 | 28.6 | 28.6 | 214.5 | 50.6 | 49.4 | 28.0 |
| Nº 100 | 0.149 | 34.9 | 34.9 | 249.4 | 58.9 | 41.1 | 23.3 |
| Nº 200 | 0.075 | 18.7 | 18.7 | 268.1 | 63.3 | 36.7 | 20.8 |
| FONDO | | 0.0 | 155.6 | 423.7 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.

CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 04 - 02 Prof. : 2.50 m
Datum: WGS84 Coordenadas UTM: 727 727 E 9 716 752 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|--------|
| Número de tarro | 171 | 201 | 181 | 107 | 194 | 150 | 103 | 121 | 143 | 111 | 197 | 186 | 202 | 184 |
| Muestra húmeda + tarro (gr) | 31.98 | 28.81 | 29.56 | 28.95 | 30.20 | 16.14 | 15.53 | 16.52 | 120.31 | 105.81 | 118.09 | 114.39 | 126.86 | 103.40 |
| Muestra seca + tarro (gr) | 27.20 | 24.83 | 24.97 | 24.42 | 25.74 | 15.90 | 15.32 | 16.28 | 100.48 | 88.02 | 97.14 | 107.65 | 119.69 | 97.47 |
| Peso de tarro (gr) | 16.16 | 15.63 | 14.45 | 14.32 | 16.09 | 15.06 | 14.53 | 15.44 | 16.82 | 15.61 | 13.77 | 16.24 | 16.81 | 15.10 |
| Peso de agua (gr) | 4.78 | 3.98 | 4.59 | 4.53 | 4.46 | 0.24 | 0.21 | 0.24 | 19.83 | 17.79 | 20.95 | 6.74 | 7.17 | 5.93 |
| Peso muestra seca (gr) | 11.04 | 9.20 | 10.52 | 10.10 | 9.65 | 0.84 | 0.79 | 0.84 | 83.66 | 72.41 | 83.37 | 91.41 | 102.88 | 82.37 |
| Porcentaje de humedad | 43.3% | 43.3% | 43.6% | 44.9% | 46.2% | 28.6% | 26.6% | 28.6% | 23.7% | 24.6% | 25.1% | 7.4% | 7.0% | 7.2% |
| Número de golpes - Promedio | 36 | 31 | 27 | 23 | 18 | 27.9% | | | 24.5% | | | 7.2% | | |

D₁₀ =
D₃₀ = 0.082
D₆₀ = 2.457

C_u =
C_e =

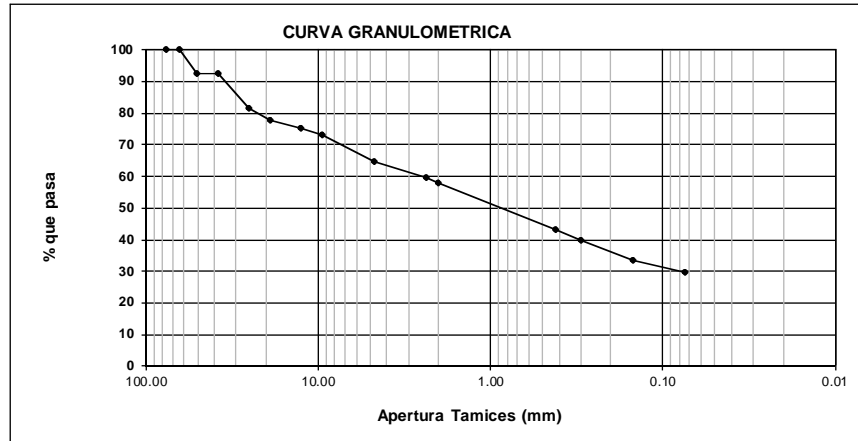
% Grava 36%
% Arena 35%
% Finos 30%

L. Líquido 44.5%
L. Plástico 27.9%
I. Plasticidad 16.6%
H. Natural 24.5%
I. Liquidez -0.21

FRACCION GRUESA

| | |
|---|-------|
| Peso húmedo total antes del ensayo (gr) | 4935 |
| Peso húmedo total después del ensayo (gr) | 4925 |
| Error | 0.20% |
| Humedad de material que pasa # 4 | 7.18% |
| Peso seco total después del ensayo (gr) | 4717 |

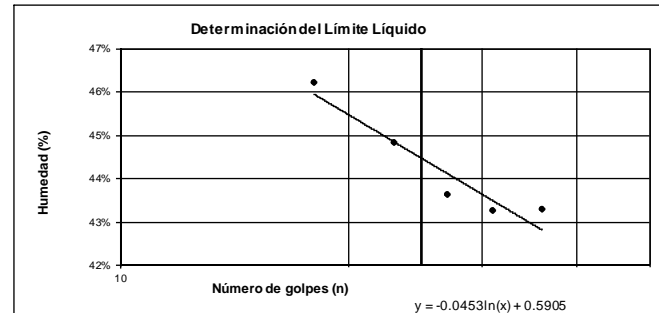
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 350 | 350 | 350 | 7.4 | 92.6 |
| 1 1/2" | 38.10 | 0 | 0 | 350 | 7.4 | 92.6 |
| 1" | 25.40 | 520 | 520 | 870 | 18.4 | 81.6 |
| 3/4" | 19.10 | 185 | 185 | 1055 | 22.4 | 77.6 |
| 1/2" | 12.70 | 120 | 120 | 1175 | 24.9 | 75.1 |
| 3/8" | 9.52 | 95 | 95 | 1270 | 26.9 | 73.1 |
| Nº 4 | 4.76 | 405 | 405 | 1675 | 35.5 | 64.5 |
| PASA Nº 4 | | 3250 | 3260 | | | |



FRACCION FINA

| | |
|---|--------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 401.71 |
| Peso seco después de lavado (gr) | 217.90 |
| Peso seco total después del ensayo | 217.70 |
| Error | 0.09% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 29.3 | 29.3 | 29.3 | 7.3 | 92.7 | 59.8 |
| Nº 10 | 2.00 | 11.5 | 11.5 | 40.8 | 10.2 | 89.8 | 57.9 |
| Nº 40 | 0.42 | 92.1 | 92.3 | 133.1 | 33.1 | 66.9 | 43.1 |
| Nº 50 | 0.297 | 21.8 | 21.8 | 154.9 | 38.6 | 61.4 | 39.6 |
| Nº 100 | 0.149 | 38.5 | 38.5 | 193.4 | 48.1 | 51.9 | 33.4 |
| Nº 200 | 0.075 | 24.5 | 24.5 | 217.9 | 54.2 | 45.8 | 29.5 |
| FONDO | | 0.0 | 183.8 | 401.7 | 100.0 | | |



SUCS GM
AASHTO A-2-6 (0)

P. Willes S
JEFE DE LABORATORIO

Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.

CLASIFICACION DE SUELOS - ASTM 2487

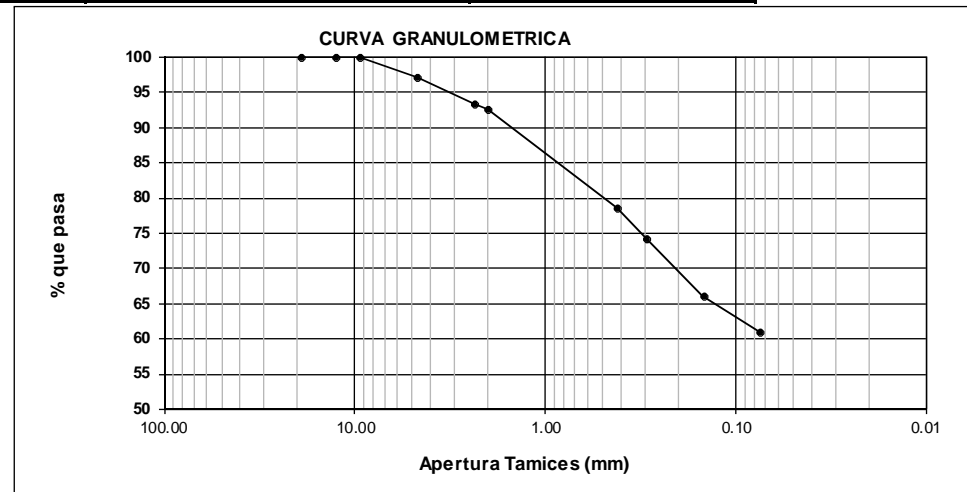
Muestra: PCA # 05 - 01
Datum: WGS84

Prof.: 2.5 m
Coordenadas UTM: 727 727 E 9 716 752 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 197 | 186 | 195 | 172 | 203 | 205 | 153 | 130 | 141 | 195 | 179 |
| Número de tarro | 197 | 186 | 195 | 172 | 203 | 205 | 153 | 130 | 141 | 195 | 179 |
| Muestra húmeda + tarro (gr) | 32.83 | 29.27 | 29.35 | 33.56 | 31.02 | 18.51 | 16.86 | 17.66 | 158.86 | 161.30 | 157.59 |
| Muestra seca + tarro (gr) | 26.99 | 25.16 | 24.69 | 27.58 | 25.95 | 18.27 | 16.61 | 17.38 | 124.25 | 126.74 | 122.77 |
| Peso de tarro (gr) | 13.77 | 16.24 | 14.79 | 15.20 | 15.77 | 17.30 | 15.60 | 16.31 | 15.10 | 14.78 | 15.13 |
| Peso de agua (gr) | 5.84 | 4.11 | 4.66 | 5.98 | 5.07 | 0.24 | 0.25 | 0.28 | 34.61 | 34.56 | 34.82 |
| Peso muestra seca (gr) | 13.22 | 8.92 | 9.90 | 12.38 | 10.18 | 0.97 | 1.01 | 1.07 | 109.15 | 111.96 | 107.64 |
| Porcentaje de humedad | 44.2% | 46.1% | 47.1% | 48.3% | 49.8% | 24.7% | 24.8% | 26.2% | 31.71% | 30.87% | 32.35% |
| Número de golpes | 36 | 31 | 25 | 20 | 16 | 25.2% | | | 31.64% | | |

| FRACCION FINA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | |
| Peso seco antes de lavado (gr) | | 379.8 | | | | |
| Peso seco después de lavado (gr) | | 148.4 | | | | |
| Peso seco total después del ensayo | | 148.2 | | | | |
| Error | | 0.13% | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 10.4 | 10.4 | 10.4 | 2.7 | 97.3 |
| Nº 8 | 2.38 | 14.5 | 14.5 | 24.9 | 6.6 | 93.4 |
| Nº 10 | 2.00 | 3.4 | 3.4 | 28.3 | 7.5 | 92.5 |
| Nº 40 | 0.42 | 52.5 | 52.7 | 81 | 21.3 | 78.7 |
| Nº 50 | 0.297 | 17.1 | 17.1 | 98.1 | 25.8 | 74.2 |
| Nº 100 | 0.149 | 30.6 | 30.6 | 128.7 | 33.9 | 66.1 |
| Nº 200 | 0.075 | 19.6 | 19.6 | 148.3 | 39.0 | 61.0 |
| FONDO | | 0.1 | 231.5 | 379.8 | 100.0 | |



D₁₀ =
D₃₀ =
D₆₀ =

C_u =
C_G =

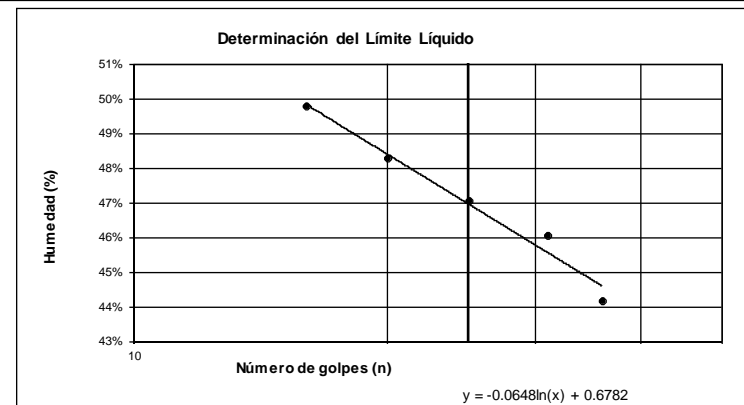
% Grava 3%
% Arena 36%
% Finos 61%

| | |
|----------------|-------|
| L. Líquido | 47.0% |
| L. Plástico | 25.2% |
| I. Plasticidad | 21.8% |
| H. Natural | 31.6% |
| I. Liquidez | 0.29 |

SUCS CL
AASHTO A-2-6 (12)



JEFE DE LABORATORIO



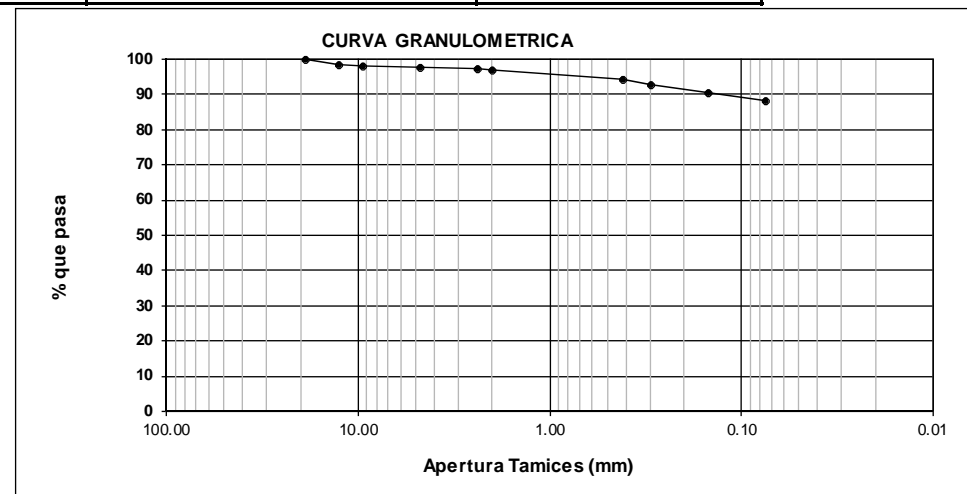
CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 06 - 01 Prof.: 2.5 m
Datum: WGS84 Coordenadas UTM: 728 371 E 9 717 790 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|--------|--------|
| | 188 | 171 | 129 | 147 | 176 | 200 | 111 | 178 | 106 | 192 | 147 |
| Número de tarro | 188 | 171 | 129 | 147 | 176 | 200 | 111 | 178 | 106 | 192 | 147 |
| Muestra húmeda + tarro (gr) | 28.30 | 30.45 | 33.03 | 30.58 | 28.86 | 15.68 | 16.50 | 15.70 | 114.15 | 112.85 | 108.90 |
| Muestra seca + tarro (gr) | 23.66 | 24.98 | 26.24 | 25.22 | 23.73 | 15.47 | 16.31 | 15.47 | 84.42 | 84.00 | 81.49 |
| Peso de tarro (gr) | 15.84 | 16.15 | 15.90 | 17.27 | 16.36 | 14.67 | 15.61 | 14.63 | 15.14 | 13.96 | 17.26 |
| Peso de agua (gr) | 4.64 | 5.47 | 6.79 | 5.36 | 5.13 | 0.21 | 0.19 | 0.23 | 29.73 | 28.85 | 27.41 |
| Peso muestra seca (gr) | 7.82 | 8.83 | 10.34 | 7.95 | 7.37 | 0.80 | 0.70 | 0.84 | 69.28 | 70.04 | 64.23 |
| Porcentaje de humedad | 59.3% | 61.9% | 65.7% | 67.4% | 69.6% | 26.2% | 27.1% | 27.4% | 42.91% | 41.19% | 42.67% |
| Número de golpes | 35 | 30 | 26 | 21 | 15 | 26.9% | | | 42.26% | | |

| FRACCION FINA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | |
| Peso seco antes de lavado (gr) | | 351.5 | | | | |
| Peso seco después de lavado (gr) | | 41.4 | | | | |
| Peso seco total después del ensayo | | 41.4 | | | | |
| Error | | 0.00% | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 5.1 | 5.1 | 5.1 | 1.5 | 98.5 |
| 3/8" | 9.52 | 1.6 | 1.6 | 6.7 | 1.9 | 98.1 |
| Nº 4 | 4.76 | 1.3 | 1.3 | 8 | 2.3 | 97.7 |
| Nº 8 | 2.38 | 1.3 | 1.3 | 9.3 | 2.6 | 97.4 |
| Nº 10 | 2.00 | 0.6 | 0.6 | 9.9 | 2.8 | 97.2 |
| Nº 40 | 0.42 | 10.4 | 10.4 | 20.3 | 5.8 | 94.2 |
| Nº 50 | 0.297 | 4.3 | 4.3 | 24.6 | 7.0 | 93.0 |
| Nº 100 | 0.149 | 8.2 | 8.2 | 32.8 | 9.3 | 90.7 |
| Nº 200 | 0.075 | 8.5 | 8.5 | 41.3 | 11.7 | 88.3 |
| FONDO | | 0.1 | 310.2 | 351.5 | 100.0 | |



D₁₀ =
D₃₀ =
D₆₀ =

C_u =
C_c =

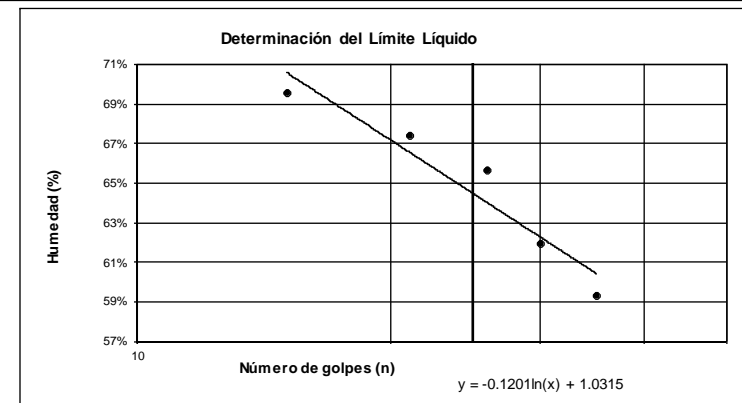
% Grava 2%
% Arena 9%
% Finos 88%

| | |
|----------------|-------|
| L. Líquido | 64.5% |
| L. Plástico | 26.9% |
| I. Plasticidad | 37.6% |
| H. Natural | 42.3% |
| I. Liquidez | 0.41 |

SUCS CH
AASHTO A-2-6 (37)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 07 - 01

Prof.: 2.5 m

Datum: WGS84 Coordenadas UTM: 728 415 E 9 718 033 N

Proyecto: Deslizamiento Quilloac

Solicitado por: GADICC

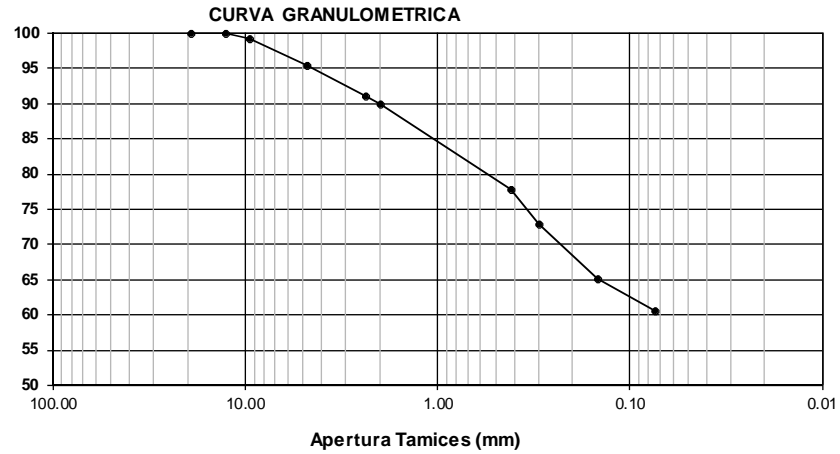
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 150 | 134 | 118 | 115 | 198 | 103 | 121 | 97 | 157 | 127 | 155 |
| Muestra húmeda + tarro (gr) | 28.57 | 26.57 | 30.00 | 31.91 | 26.70 | 15.75 | 16.76 | 18.35 | 116.35 | 124.79 | 124.74 |
| Muestra seca + tarro (gr) | 24.30 | 22.59 | 24.88 | 26.77 | 22.46 | 15.48 | 16.48 | 18.10 | 91.63 | 101.70 | 100.09 |
| Peso de tarro (gr) | 15.06 | 14.17 | 14.23 | 16.43 | 14.29 | 14.53 | 15.44 | 17.20 | 16.24 | 16.79 | 14.41 |
| Peso de agua (gr) | 4.27 | 3.98 | 5.12 | 5.14 | 4.24 | 0.27 | 0.28 | 0.25 | 24.72 | 23.09 | 24.65 |
| Peso muestra seca (gr) | 9.24 | 8.42 | 10.65 | 10.34 | 8.17 | 0.95 | 1.04 | 0.90 | 75.39 | 84.91 | 85.68 |
| Porcentaje de humedad | 46.2% | 47.3% | 48.1% | 49.7% | 51.9% | 28.4% | 26.9% | 27.8% | 32.79% | 27.19% | 28.77% |
| Número de golpes | 38 | 33 | 27 | 22 | 18 | 27.7% | | | 29.58% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 385.8 |
| Peso seco después de lavado (gr) | 152.1 |
| Peso seco total después del ensayo | 152.1 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 2.8 | 2.8 | 2.8 | 0.7 | 99.3 |
| Nº 4 | 4.76 | 14.5 | 14.5 | 17.3 | 4.5 | 95.5 |
| Nº 8 | 2.38 | 16.8 | 16.8 | 34.1 | 8.8 | 91.2 |
| Nº 10 | 2.00 | 4.4 | 4.4 | 38.5 | 10.0 | 90.0 |
| Nº 40 | 0.42 | 47.1 | 47.1 | 85.6 | 22.2 | 77.8 |
| Nº 50 | 0.297 | 18.9 | 18.9 | 104.5 | 27.1 | 72.9 |
| Nº 100 | 0.149 | 30.0 | 30 | 134.5 | 34.9 | 65.1 |
| Nº 200 | 0.075 | 17.6 | 17.6 | 152.1 | 39.4 | 60.6 |
| FONDO | | 0.0 | 233.7 | 385.8 | 100.0 | |



D₁₀ =
D₃₀ =
D₆₀ =

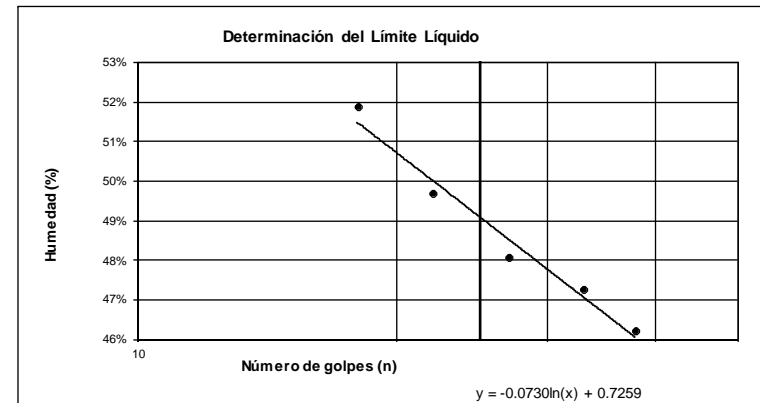
C_U =
C_G =

% Grava 4%
% Arena 35%
% Finos 61%

| | |
|----------------|-------|
| L. Líquido | 49.1% |
| L. Plástico | 27.7% |
| I. Plasticidad | 21.4% |
| H. Natural | 29.6% |
| I. Liquidez | 0.09 |

SUCS CL
AASHTO A-2-6 (11)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 08 - 1 Prof. : 2.5 m
Datum: WGS84 Coordenadas UTM: 728 317 E 9 718 204 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 15-jul-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|----------------|--------|--------|
| | 103 | 178 | 205 | 180 | 136 | 177 | 116 | 154 | 116 | 108 | 173 | 145 | 124 | 174 |
| Muestra húmeda + tarro (gr) | 28.60 | 29.26 | 30.58 | 30.85 | 30.81 | 15.58 | 15.91 | 13.78 | 118.63 | 116.33 | 113.28 | 106.64 | 111.08 | 109.71 |
| Muestra seca + tarro (gr) | 24.20 | 24.75 | 26.36 | 26.21 | 25.79 | 15.39 | 15.68 | 13.60 | 105.51 | 103.45 | 100.97 | 100.32 | 104.23 | 103.47 |
| Peso de tarro (gr) | 14.54 | 14.62 | 17.31 | 16.67 | 15.86 | 14.78 | 14.95 | 12.99 | 14.95 | 16.18 | 15.15 | 14.49 | 14.90 | 15.08 |
| Peso de agua (gr) | 4.40 | 4.51 | 4.22 | 4.64 | 5.02 | 0.19 | 0.23 | 0.18 | 13.12 | 12.88 | 12.31 | 6.32 | 6.85 | 6.24 |
| Peso muestra seca (gr) | 9.66 | 10.13 | 9.05 | 9.54 | 9.93 | 0.61 | 0.73 | 0.61 | 90.56 | 87.27 | 85.82 | 85.83 | 89.33 | 88.39 |
| Porcentaje de humedad | 45.5% | 44.5% | 46.6% | 48.6% | 50.6% | 31.1% | 31.5% | 29.5% | 14.5% | 14.8% | 14.3% | 7.4% | 7.7% | 7.1% |
| Número de golpes - Promedio | 35 | 30 | 26 | 21 | 17 | 30.7% | | | 14.5% | | | 7.4% | | |

D₁₀ =
D₃₀ = 0.527
D₆₀ = 20.931

C_U =
C_G =

% Grava 56%
% Arena 23%
% Finos 21%

L. Líquido 47.2%
L. Plástico 30.7%
I. Plasticidad 16.5%
H. Natural 14.5%
I. Liquidez -0.98

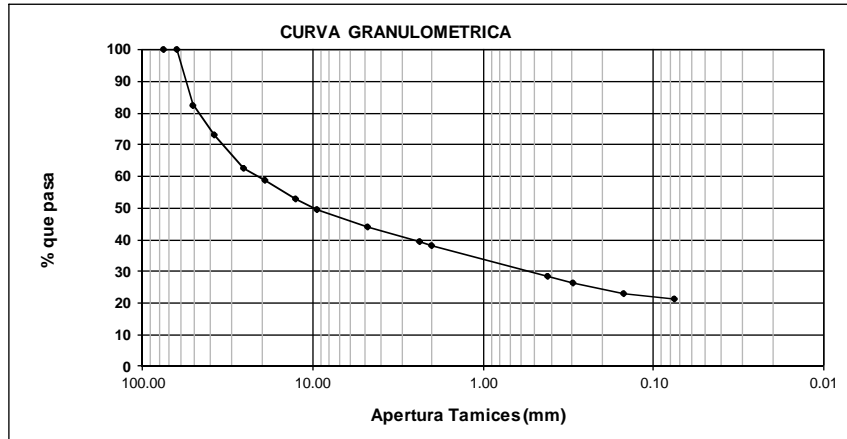
SUCS GM

AASHTO A-2-6 (0)

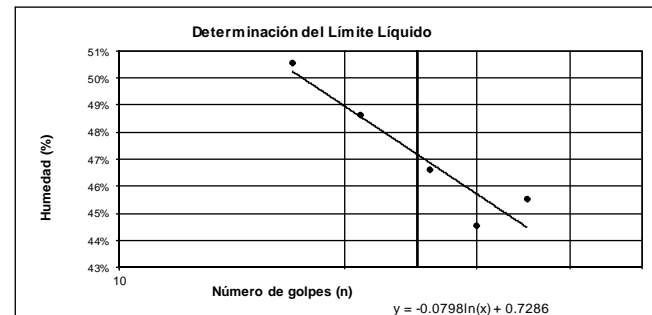


JEFE DE LABORATORIO

| FRACCION GRUESA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso húmedo total antes del ensayo (gr) | | 3290 | | | | |
| Peso húmedo total después del ensayo (gr) | | 3290 | | | | |
| Error | | 0.00% | | | | |
| Humedad de material que pasa # 4 | | 7.36% | | | | |
| Peso seco total después del ensayo (gr) | | 3187 | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 555 | 555 | 555 | 17.4 | 82.6 |
| 1 1/2" | 38.10 | 300 | 300 | 855 | 26.8 | 73.2 |
| 1" | 25.40 | 335 | 335 | 1190 | 37.3 | 62.7 |
| 3/4" | 19.10 | 125 | 125 | 1315 | 41.3 | 58.7 |
| 1/2" | 12.70 | 185 | 185 | 1500 | 47.1 | 52.9 |
| 3/8" | 9.52 | 105 | 105 | 1605 | 50.4 | 49.6 |
| Nº 4 | 4.76 | 185 | 185 | 1790 | 56.2 | 43.8 |
| PASANº 4 | | 1500 | 1500 | | | |



| FRACCION FINA | | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | | |
| Peso seco antes de lavado (gr) | | 436.57 | | | | | |
| Peso seco después de lavado (gr) | | 226.40 | | | | | |
| Peso seco total después del ensayo | | 226.20 | | | | | |
| Error | | 0.09% | | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
| Nº 8 | 2.38 | 42.7 | 42.7 | 42.7 | 9.8 | 90.2 | 39.5 |
| Nº 10 | 2.00 | 12.6 | 12.6 | 55.3 | 12.7 | 87.3 | 38.3 |
| Nº 40 | 0.42 | 96.3 | 96.5 | 151.8 | 34.8 | 65.2 | 28.6 |
| Nº 50 | 0.297 | 20.9 | 20.9 | 172.7 | 39.6 | 60.4 | 26.5 |
| Nº 100 | 0.149 | 34.9 | 34.9 | 207.6 | 47.6 | 52.4 | 23.0 |
| Nº 200 | 0.075 | 18.8 | 18.8 | 226.4 | 51.9 | 48.1 | 21.1 |
| FONDO | | 0.0 | 210.2 | 436.6 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 09 - 1 Prof.: 2.50 m
 Datum: WGS84 Coordenadas UTM: 728 815 E 9 718 598 N

Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 15-jul-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|-------|--------|----------------|--------|--------|
| | 139 | 122 | 204 | 101 | 193 | 111 | 112 | 109 | 104 | 183 | 112 | 201 | 133 | 137 |
| Muestra húmeda + tarro (gr) | 27.11 | 29.85 | 27.06 | 27.98 | 32.70 | 16.59 | 16.74 | 15.80 | 106.79 | 97.96 | 109.23 | 109.06 | 110.69 | 110.24 |
| Muestra seca + tarro (gr) | 22.24 | 24.43 | 21.49 | 22.28 | 25.65 | 16.34 | 16.47 | 15.45 | 85.00 | 78.37 | 87.17 | 98.72 | 100.65 | 100.01 |
| Peso de tarro (gr) | 14.28 | 15.73 | 12.94 | 13.91 | 15.37 | 15.60 | 15.69 | 14.42 | 14.85 | 15.69 | 15.68 | 15.64 | 16.90 | 14.20 |
| Peso de agua (gr) | 4.87 | 5.42 | 5.57 | 5.70 | 7.05 | 0.25 | 0.27 | 0.35 | 21.79 | 19.59 | 22.06 | 10.34 | 10.04 | 10.23 |
| Peso muestra seca (gr) | 7.96 | 8.70 | 8.55 | 8.37 | 10.28 | 0.74 | 0.78 | 1.03 | 70.15 | 62.68 | 71.49 | 83.08 | 83.75 | 85.81 |
| Porcentaje de humedad | 61.2% | 62.3% | 65.1% | 68.1% | 68.6% | 33.8% | 34.6% | 34.0% | 31.1% | 31.3% | 30.9% | 12.4% | 12.0% | 11.9% |
| Número de golpes - Promedio | 37 | 32 | 26 | 21 | 15 | 34.1% | | | 31.1% | | | 12.1% | | |

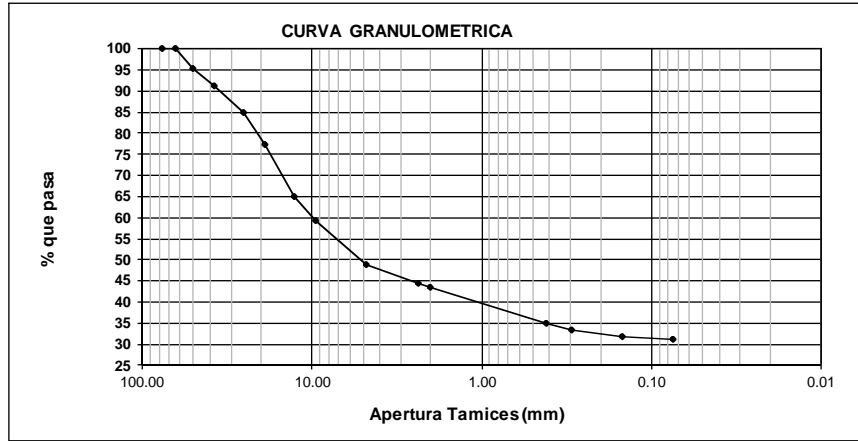
| |
|-------------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = 9.876 |

| |
|------------------|
| C _u = |
| C _e = |

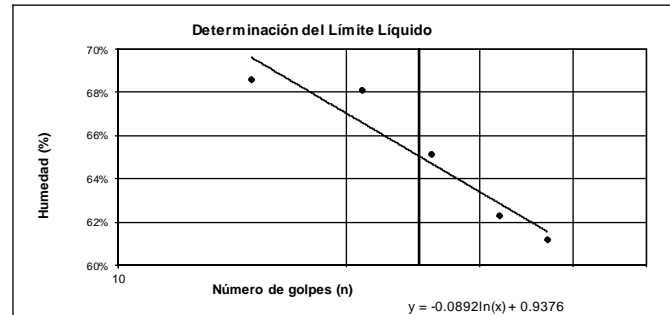
| | |
|---------|-----|
| % Grava | 51% |
| % Arena | 18% |
| % Finos | 31% |

| | |
|----------------|-------|
| L. Líquido | 65.0% |
| L. Plástico | 34.1% |
| I. Plasticidad | 30.9% |
| H. Natural | 31.1% |
| I. Liquidez | -0.10 |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|-----------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 170 | 170 | 170 | 4.5 | 95.5 |
| 1 1/2" | 38.10 | 165 | 165 | 335 | 8.9 | 91.1 |
| 1" | 25.40 | 235 | 235 | 570 | 15.2 | 84.8 |
| 3/4" | 19.10 | 275 | 275 | 845 | 22.6 | 77.4 |
| 1/2" | 12.70 | 465 | 465 | 1310 | 35.0 | 65.0 |
| 3/8" | 9.52 | 215 | 215 | 1525 | 40.7 | 59.3 |
| Nº 4 | 4.76 | 395 | 395 | 1920 | 51.3 | 48.7 |
| PASA Nº 4 | | 2040 | 2045 | | | |



| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Nº 8 | 2.38 | 33.1 | 33.1 | 33.1 | 8.7 | 91.3 | 44.5 |
| Nº 10 | 2.00 | 9.1 | 9.1 | 42.2 | 11.1 | 88.9 | 43.3 |
| Nº 40 | 0.42 | 65.4 | 65.5 | 107.7 | 28.2 | 71.8 | 35.0 |
| Nº 50 | 0.297 | 11.9 | 11.9 | 119.6 | 31.3 | 68.7 | 33.4 |
| Nº 100 | 0.149 | 12.7 | 12.7 | 132.3 | 34.7 | 65.3 | 31.8 |
| Nº 200 | 0.075 | 5.0 | 5.0 | 137.3 | 36.0 | 64.0 | 31.2 |
| FONDO | | 0.1 | 244.2 | 381.5 | 100.0 | | |



SUCS GM
 AASHTO A-2-6 (2)

P. Willes J
 JEFE DE LABORATORIO

Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.

CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 10 - 01

Prof. : 3.00 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84

Coordenadas UTM: 728 958 E 9 720 606 N

Solicitado por: GADICC

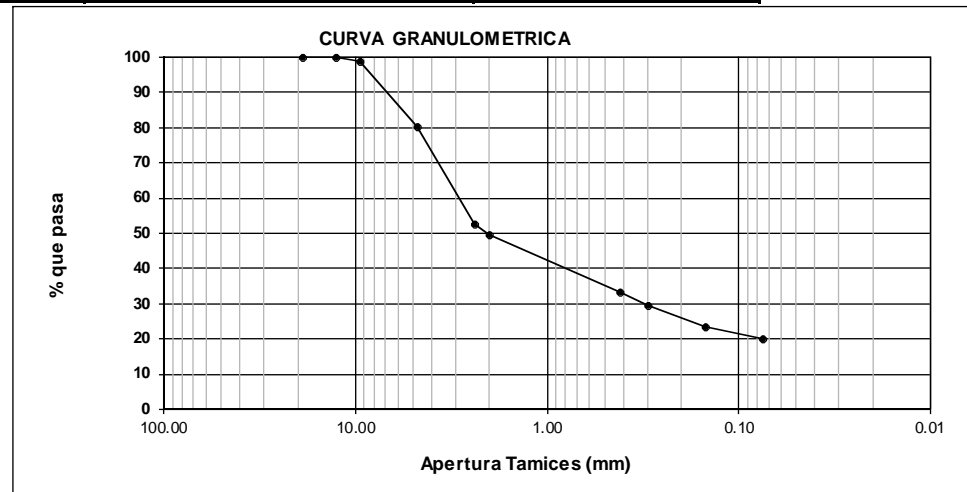
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 142 | 123 | 149 | 120 | 117 | 179 | 98 | 174 | 178 | 199 | 204 |
| Número de tarro | 142 | 123 | 149 | 120 | 117 | 179 | 98 | 174 | 178 | 199 | 204 |
| Muestra húmeda + tarro (gr) | 32.42 | 31.10 | 31.67 | 32.21 | 29.31 | 16.33 | 15.74 | 16.43 | 126.37 | 144.96 | 120.28 |
| Muestra seca + tarro (gr) | 26.29 | 25.73 | 25.50 | 26.49 | 23.97 | 16.05 | 15.51 | 16.11 | 95.60 | 108.31 | 91.93 |
| Peso de tarro (gr) | 15.16 | 15.70 | 14.47 | 16.98 | 15.25 | 15.14 | 14.74 | 15.08 | 14.63 | 15.60 | 12.94 |
| Peso de agua (gr) | 6.13 | 5.37 | 6.17 | 5.72 | 5.34 | 0.28 | 0.23 | 0.32 | 30.77 | 36.65 | 28.35 |
| Peso muestra seca (gr) | 11.13 | 10.03 | 11.03 | 9.51 | 8.72 | 0.91 | 0.77 | 1.03 | 80.97 | 92.71 | 78.99 |
| Porcentaje de humedad | 55.1% | 53.5% | 55.9% | 60.1% | 61.2% | 30.8% | 29.9% | 31.1% | 38.00% | 39.53% | 35.89% |
| Número de golpes | 36 | 31 | 25 | 20 | 16 | 30.6% | | | 37.81% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 362.8 |
| Peso seco después de lavado (gr) | 290.3 |
| Peso seco total después del ensayo | 290.2 |
| Error | 0.03% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 4.4 | 4.4 | 4.4 | 1.2 | 98.8 |
| Nº 4 | 4.76 | 66.4 | 66.4 | 70.8 | 19.5 | 80.5 |
| Nº 8 | 2.38 | 100.6 | 100.7 | 171.5 | 47.3 | 52.7 |
| Nº 10 | 2.00 | 11.2 | 11.2 | 182.7 | 50.4 | 49.6 |
| Nº 40 | 0.42 | 59.6 | 59.6 | 242.3 | 66.8 | 33.2 |
| Nº 50 | 0.297 | 13.8 | 13.8 | 256.1 | 70.6 | 29.4 |
| Nº 100 | 0.149 | 21.7 | 21.7 | 277.8 | 76.6 | 23.4 |
| Nº 200 | 0.075 | 12.5 | 12.5 | 290.3 | 80.0 | 20.0 |
| FONDO | | 0.0 | 72.5 | 362.8 | 100.0 | |



| | |
|-------------------|-------|
| D ₁₀ = | |
| D ₃₀ = | 0.313 |
| D ₆₀ = | 2.854 |

| | |
|------------------|--|
| C _U = | |
| C _G = | |

| | |
|---------|-----|
| % Grava | 20% |
| % Arena | 61% |
| % Finos | 20% |

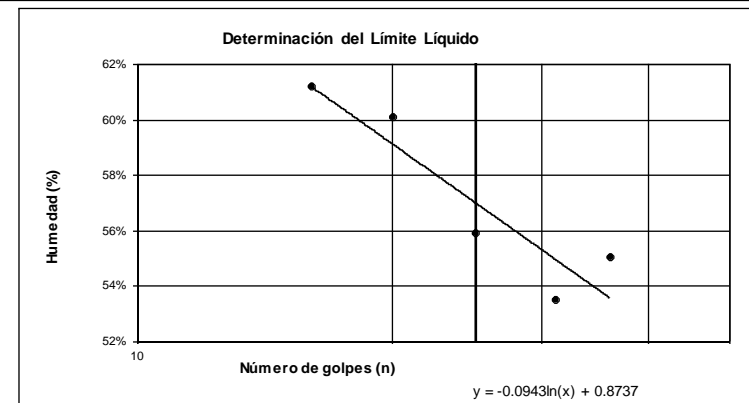
| | |
|----------------|-------|
| L. Líquido | 57.0% |
| L. Plástico | 30.6% |
| I. Plasticidad | 26.4% |
| H. Natural | 37.8% |
| I. Liquidez | 0.27 |

SUCS SM

AASHTO A-2-6 (0)

P. Velasco S.

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 11 - 01

Prof.: 3.00 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84

Coordenadas UTM: 728 813 E 9 719 995 N

Solicitado por: GADICC

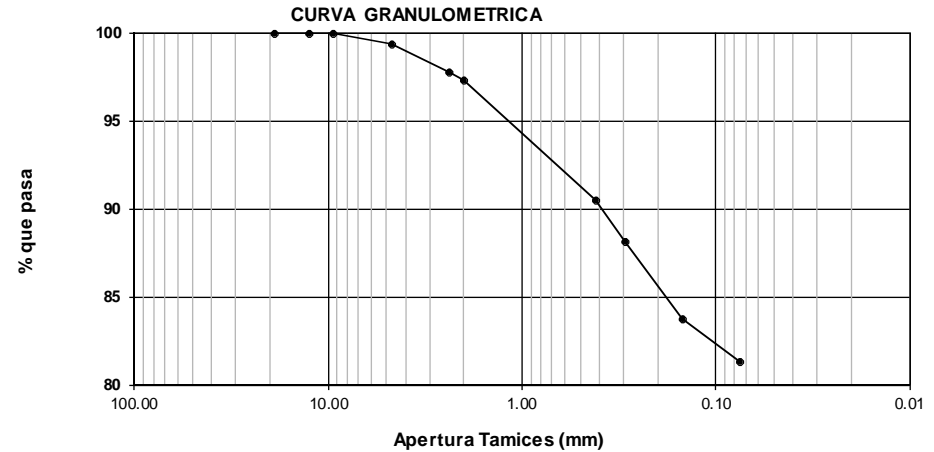
Fecha: 15-jul-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 145 | 104 | 140 | 157 | 108 | 180 | 174 | 177 | 128 | 123 | 149 |
| Número de tarro | 145 | 104 | 140 | 157 | 108 | 180 | 174 | 177 | 128 | 123 | 149 |
| Muestra húmeda + tarro (gr) | 29.07 | 28.00 | 30.20 | 31.56 | 30.28 | 17.88 | 16.33 | 16.13 | 144.28 | 139.51 | 124.48 |
| Muestra seca + tarro (gr) | 23.67 | 23.06 | 24.51 | 25.57 | 24.64 | 17.58 | 16.02 | 15.79 | 98.63 | 90.31 | 85.65 |
| Peso de tarro (gr) | 14.49 | 14.85 | 15.43 | 16.24 | 16.18 | 16.67 | 15.08 | 14.78 | 14.24 | 15.70 | 14.47 |
| Peso de agua (gr) | 5.40 | 4.94 | 5.69 | 5.99 | 5.64 | 0.30 | 0.31 | 0.34 | 45.65 | 49.20 | 38.83 |
| Peso muestra seca (gr) | 9.18 | 8.21 | 9.08 | 9.33 | 8.46 | 0.91 | 0.94 | 1.01 | 84.39 | 74.61 | 71.18 |
| Porcentaje de humedad | 58.8% | 60.2% | 62.7% | 64.2% | 66.7% | 33.0% | 33.0% | 33.7% | 54.09% | 65.94% | 54.55% |
| Número de golpes | 36 | 32 | 27 | 22 | 18 | 33.2% | | | 58.20% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 316.1 |
| Peso seco después de lavado (gr) | 58.9 |
| Peso seco total después del ensayo | 58.9 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 1.9 | 1.9 | 1.9 | 0.6 | 99.4 |
| Nº 8 | 2.38 | 5.1 | 5.1 | 7 | 2.2 | 97.8 |
| Nº 10 | 2.00 | 1.4 | 1.4 | 8.4 | 2.7 | 97.3 |
| Nº 40 | 0.42 | 21.4 | 21.4 | 29.8 | 9.4 | 90.6 |
| Nº 50 | 0.297 | 7.6 | 7.6 | 37.4 | 11.8 | 88.2 |
| Nº 100 | 0.149 | 13.8 | 13.8 | 51.2 | 16.2 | 83.8 |
| Nº 200 | 0.075 | 7.7 | 7.7 | 58.9 | 18.6 | 81.4 |
| FONDO | | 0.0 | 257.2 | 316.1 | 100.0 | |



| |
|-------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = |

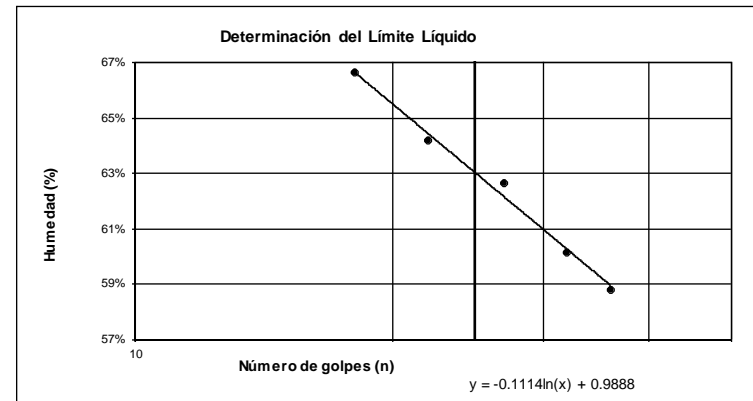
| |
|------------------|
| C _u = |
| C _G = |

| | |
|---------|-----|
| % Grava | 1% |
| % Arena | 18% |
| % Finos | 81% |

| | |
|----------------|-------|
| L. Líquido | 63.0% |
| L. Plástico | 33.2% |
| I. Plasticidad | 29.8% |
| H. Natural | 58.2% |
| I. Liquidez | 0.84 |

SUCS MH
AASHTO A-2-6 (28)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 12 - 01
Datum: WGS84

Prof.: 2.3 m
Coordenadas UTM: 728 813 E 9 719 995 N

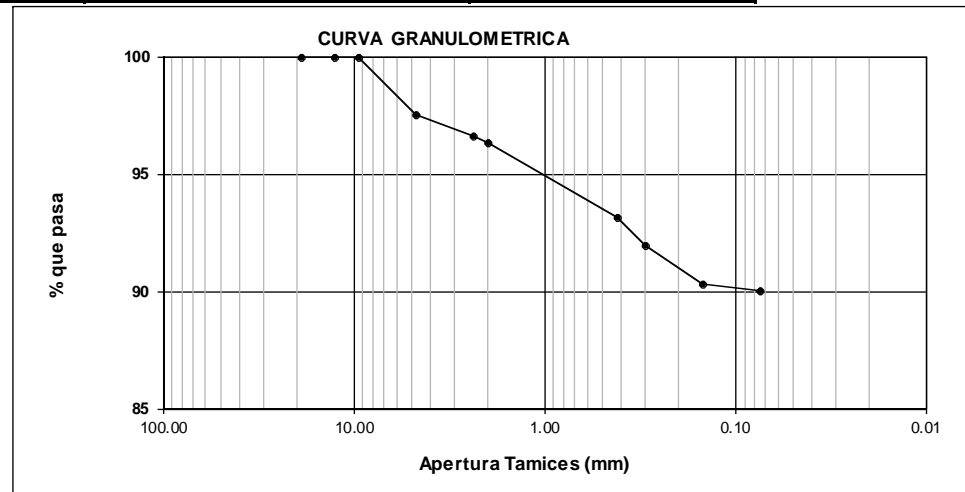
Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 149 | 172 | 180 | 171 | 107 | 153 | 173 | 190 | 98 | 140 | 148 |
| Número de tarro | 149 | 172 | 180 | 171 | 107 | 153 | 173 | 190 | 98 | 140 | 148 |
| Muestra húmeda + tarro (gr) | 30.97 | 26.57 | 29.59 | 30.29 | 28.86 | 16.78 | 15.96 | 16.65 | 99.54 | 102.66 | 105.82 |
| Muestra seca + tarro (gr) | 23.17 | 21.12 | 23.26 | 23.25 | 21.43 | 16.46 | 15.73 | 16.29 | 75.26 | 77.55 | 79.61 |
| Peso de tarro (gr) | 14.47 | 15.20 | 16.66 | 16.16 | 13.96 | 15.60 | 15.15 | 15.31 | 14.74 | 15.43 | 15.22 |
| Peso de agua (gr) | 7.80 | 5.45 | 6.33 | 7.04 | 7.43 | 0.32 | 0.23 | 0.36 | 24.28 | 25.11 | 26.21 |
| Peso muestra seca (gr) | 8.70 | 5.92 | 6.60 | 7.09 | 7.47 | 0.86 | 0.58 | 0.98 | 60.52 | 62.12 | 64.39 |
| Porcentaje de humedad | 89.7% | 92.1% | 95.9% | 99.3% | 99.5% | 37.2% | 39.7% | 36.7% | 40.12% | 40.42% | 40.71% |
| Número de golpes | 37 | 33 | 28 | 24 | 19 | 37.9% | | | 40.42% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 356.1 |
| Peso seco después de lavado (gr) | 35.4 |
| Peso seco total después del ensayo | 35.3 |
| Error | 0.28% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 8.6 | 8.6 | 8.6 | 2.4 | 97.6 |
| Nº 8 | 2.38 | 3.3 | 3.3 | 11.9 | 3.3 | 96.7 |
| Nº 10 | 2.00 | 1.0 | 1 | 12.9 | 3.6 | 96.4 |
| Nº 40 | 0.42 | 11.3 | 11.4 | 24.3 | 6.8 | 93.2 |
| Nº 50 | 0.297 | 4.2 | 4.2 | 28.5 | 8.0 | 92.0 |
| Nº 100 | 0.149 | 5.8 | 5.8 | 34.3 | 9.6 | 90.4 |
| Nº 200 | 0.075 | 1.1 | 1.1 | 35.4 | 9.9 | 90.1 |
| FONDO | | 0.0 | 320.7 | 356.1 | 100.0 | |



| |
|-------------------------|
| D₁₀ = |
| D₃₀ = |
| D₆₀ = |

| |
|------------------------|
| C_U = |
| C_G = |

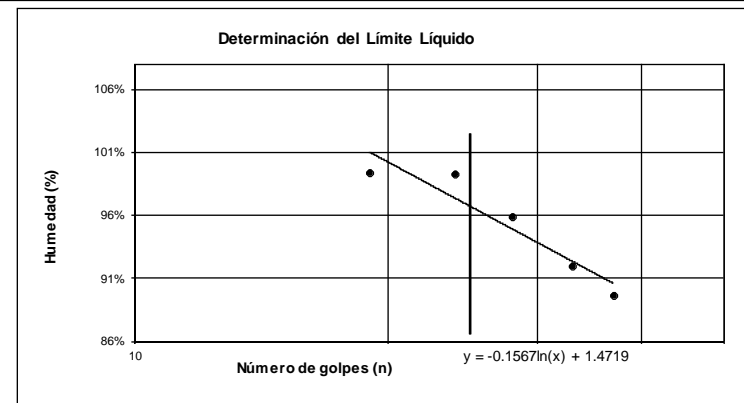
| | |
|----------------|-----|
| % Grava | 2% |
| % Arena | 8% |
| % Finos | 90% |

| | |
|-----------------------|-------|
| L. Líquido | 98.3% |
| L. Plástico | 37.9% |
| I. Plasticidad | 60.4% |
| H. Natural | 40.4% |
| I. Liquidez | 0.04 |

SUCS CH
AASHTO A-2-6 (65)

P. Villalobos S

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 12 - 02

Prof.: 4.0 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84

Coordenadas UTM: 727 218 E 9 716 204 N

Solicitado por: GADICC

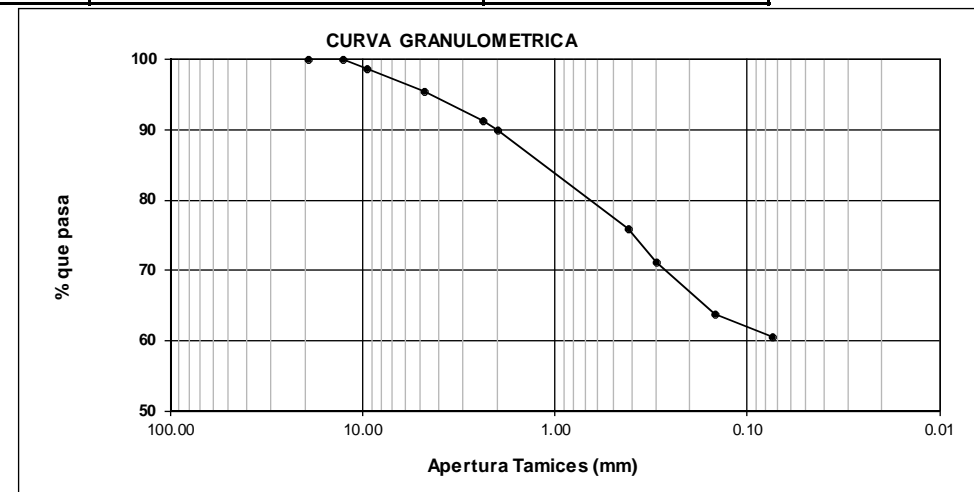
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|--------|--------|
| | 145 | 102 | 148 | 150 | 115 | 188 | 101 | 135 | 174 | 150 | 173 |
| Número de tarro | 145 | 102 | 148 | 150 | 115 | 188 | 101 | 135 | 174 | 150 | 173 |
| Muestra húmeda + tarro (gr) | 29.22 | 29.37 | 29.37 | 32.37 | 31.55 | 17.00 | 15.00 | 14.38 | 114.99 | 119.08 | 117.03 |
| Muestra seca + tarro (gr) | 24.47 | 24.50 | 24.53 | 26.35 | 26.07 | 16.71 | 14.73 | 14.11 | 91.54 | 95.32 | 91.17 |
| Peso de tarro (gr) | 14.49 | 14.76 | 15.22 | 15.06 | 16.42 | 15.84 | 13.91 | 13.28 | 15.08 | 15.06 | 15.14 |
| Peso de agua (gr) | 4.75 | 4.87 | 4.84 | 6.02 | 5.48 | 0.29 | 0.27 | 0.27 | 23.45 | 23.76 | 25.86 |
| Peso muestra seca (gr) | 9.98 | 9.74 | 9.31 | 11.29 | 9.65 | 0.87 | 0.82 | 0.83 | 76.46 | 80.26 | 76.03 |
| Porcentaje de humedad | 47.6% | 50.0% | 52.0% | 53.3% | 56.8% | 33.3% | 32.9% | 32.5% | 30.67% | 29.60% | 34.01% |
| Número de golpes | 30 | 26 | 21 | 17 | 13 | 32.9% | | | 31.43% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 380.4 |
| Peso seco después de lavado (gr) | 150.1 |
| Peso seco total después del ensayo | 150.0 |
| Error | 0.07% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 5.2 | 5.2 | 5.2 | 1.4 | 98.6 |
| Nº 4 | 4.76 | 11.7 | 11.7 | 16.9 | 4.4 | 95.6 |
| Nº 8 | 2.38 | 16.3 | 16.3 | 33.2 | 8.7 | 91.3 |
| Nº 10 | 2.00 | 5.0 | 5 | 38.2 | 10.0 | 90.0 |
| Nº 40 | 0.42 | 52.8 | 52.9 | 91.1 | 23.9 | 76.1 |
| Nº 50 | 0.297 | 18.2 | 18.2 | 109.3 | 28.7 | 71.3 |
| Nº 100 | 0.149 | 28.3 | 28.3 | 137.6 | 36.2 | 63.8 |
| Nº 200 | 0.075 | 12.4 | 12.4 | 150 | 39.4 | 60.6 |
| FONDO | | 0.1 | 230.4 | 380.4 | 100.0 | |



| |
|-------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = |

| |
|------------------|
| C _U = |
| C _G = |

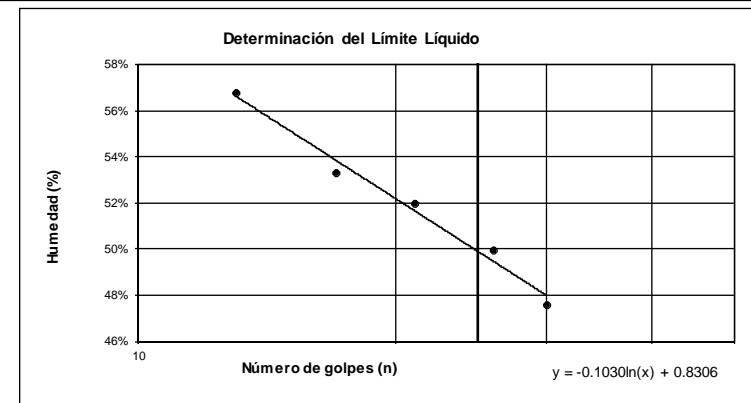
| | |
|---------|-----|
| % Grava | 4% |
| % Arena | 35% |
| % Finos | 61% |

| | |
|----------------|-------|
| L. Líquido | 49.9% |
| L. Plástico | 32.9% |
| I. Plasticidad | 17.0% |
| H. Natural | 31.4% |
| I. Liquidez | -0.09 |

SUCS ML
AASHTO A-2-6 (10)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 13 - 01

Prof.: 3.00 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84 Coordenadas UTM: 727 942 E 9 717 406 N

Solicitado por: GADICC

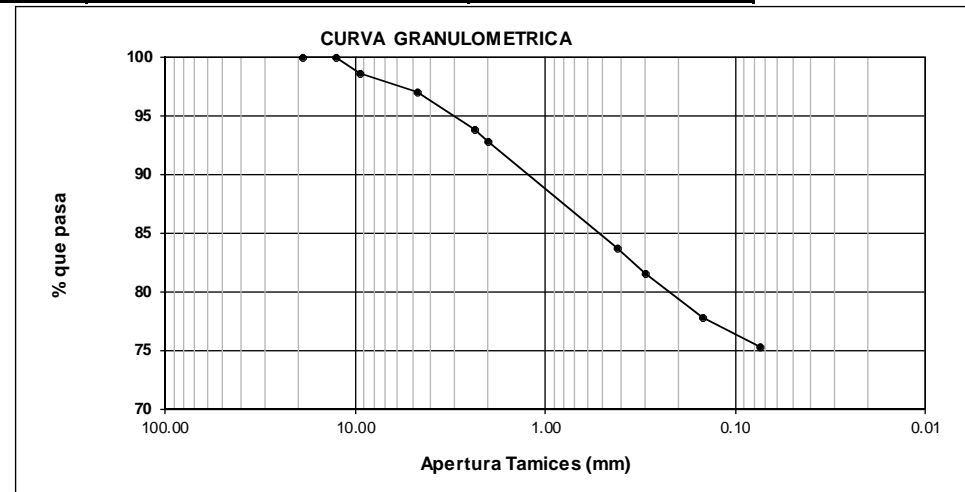
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 178 | 129 | 111 | 106 | 155 | 203 | 139 | 196 | 171 | 154 | 128 |
| Número de tarro | 178 | 129 | 111 | 106 | 155 | 203 | 139 | 196 | 171 | 154 | 128 |
| Muestra húmeda + tarro (gr) | 26.01 | 29.16 | 30.51 | 28.10 | 26.98 | 16.90 | 15.44 | 17.07 | 134.15 | 117.21 | 129.29 |
| Muestra seca + tarro (gr) | 21.36 | 23.58 | 24.11 | 22.40 | 21.62 | 16.69 | 15.22 | 16.80 | 103.17 | 89.79 | 99.25 |
| Peso de tarro (gr) | 14.63 | 15.89 | 15.61 | 15.15 | 14.41 | 15.76 | 14.26 | 15.66 | 16.15 | 12.98 | 14.24 |
| Peso de agua (gr) | 4.65 | 5.58 | 6.40 | 5.70 | 5.36 | 0.21 | 0.22 | 0.27 | 30.98 | 27.42 | 30.04 |
| Peso muestra seca (gr) | 6.73 | 7.69 | 8.50 | 7.25 | 7.21 | 0.93 | 0.96 | 1.14 | 87.02 | 76.81 | 85.01 |
| Porcentaje de humedad | 69.1% | 72.6% | 75.3% | 78.6% | 74.3% | 22.6% | 22.9% | 23.7% | 35.60% | 35.70% | 35.34% |
| Número de golpes | 36 | 30 | 25 | 20 | 14 | 23.1% | | | 35.55% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 368.9 |
| Peso seco después de lavado (gr) | 91.1 |
| Peso seco total después del ensayo | 91.1 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 4.9 | 4.9 | 4.9 | 1.3 | 98.7 |
| Nº 4 | 4.76 | 5.9 | 5.9 | 10.8 | 2.9 | 97.1 |
| Nº 8 | 2.38 | 11.8 | 11.8 | 22.6 | 6.1 | 93.9 |
| Nº 10 | 2.00 | 3.6 | 3.6 | 26.2 | 7.1 | 92.9 |
| Nº 40 | 0.42 | 33.5 | 33.5 | 59.7 | 16.2 | 83.8 |
| Nº 50 | 0.297 | 8.2 | 8.2 | 67.9 | 18.4 | 81.6 |
| Nº 100 | 0.149 | 13.9 | 13.9 | 81.8 | 22.2 | 77.8 |
| Nº 200 | 0.075 | 9.3 | 9.3 | 91.1 | 24.7 | 75.3 |
| FONDO | | 0.0 | 277.8 | 368.9 | 100.0 | |



| | |
|-------------------|--|
| D ₁₀ = | |
| D ₃₀ = | |
| D ₆₀ = | |

| | |
|----------------|-------|
| L. Líquido | 73.7% |
| L. Plástico | 23.1% |
| I. Plasticidad | 50.6% |
| H. Natural | 35.5% |
| I. Liquidez | 0.25 |

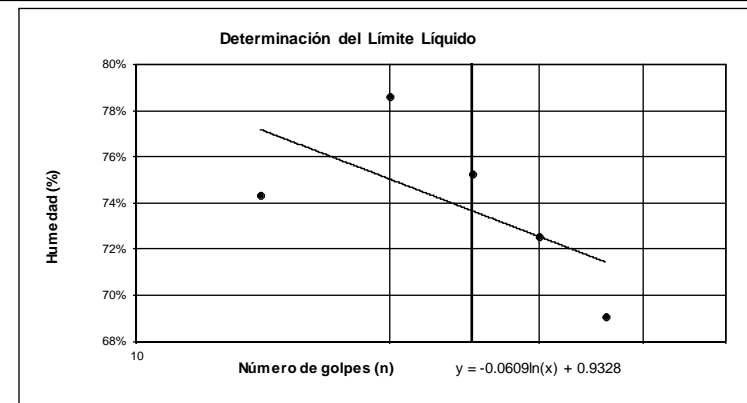
| | |
|------------------|--|
| C _U = | |
| C _G = | |

| | |
|---------|-----|
| % Grava | 3% |
| % Arena | 22% |
| % Finos | 75% |

SUCS CH
AASHTO A-2-6 (39)

P. Velasco S.

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 13 - 02

Prof.: 5.00 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84

Coordenadas UTM: 727 942 E 9 717 406 N

Solicitado por: GADICC

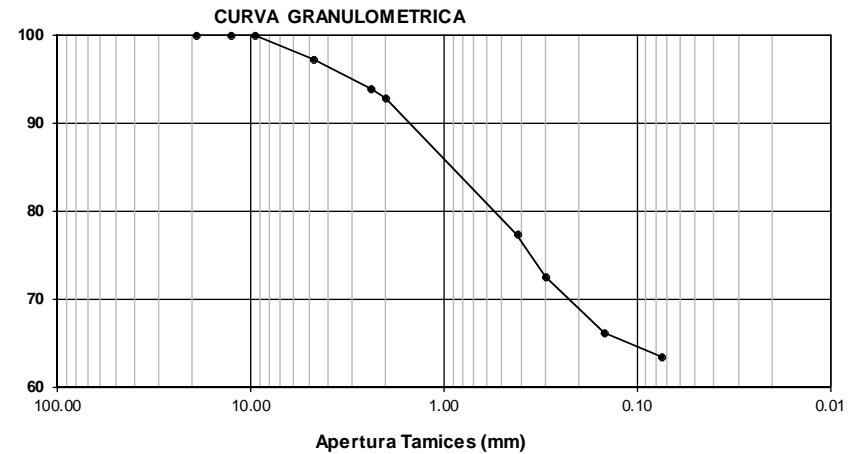
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 150 | 134 | 181 | 174 | 132 | 193 | 108 | 185 | 125 | 153 | 110 |
| Número de tarro | 150 | 134 | 181 | 174 | 132 | 193 | 108 | 185 | 125 | 153 | 110 |
| Muestra húmeda + tarro (gr) | 30.21 | 27.08 | 31.27 | 27.60 | 28.10 | 16.62 | 17.08 | 17.00 | 183.03 | 157.73 | 156.52 |
| Muestra seca + tarro (gr) | 25.46 | 22.94 | 25.69 | 23.30 | 23.58 | 16.41 | 16.94 | 16.81 | 133.64 | 116.88 | 115.98 |
| Peso de tarro (gr) | 15.10 | 14.19 | 14.46 | 15.10 | 15.36 | 15.36 | 16.18 | 15.84 | 15.13 | 15.60 | 15.01 |
| Peso de agua (gr) | 4.75 | 4.14 | 5.58 | 4.30 | 4.52 | 0.21 | 0.14 | 0.19 | 49.39 | 40.85 | 40.54 |
| Peso muestra seca (gr) | 10.36 | 8.75 | 11.23 | 8.20 | 8.22 | 1.05 | 0.76 | 0.97 | 118.51 | 101.28 | 100.97 |
| Porcentaje de humedad | 45.8% | 47.3% | 49.7% | 52.4% | 55.0% | 20.0% | 18.4% | 19.6% | 41.68% | 40.33% | 40.15% |
| Número de golpes | 35 | 30 | 24 | 19 | 15 | 19.3% | | | 40.72% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 355.3 |
| Peso seco después de lavado (gr) | 129.9 |
| Peso seco total después del ensayo | 129.8 |
| Error | 0.08% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 9.9 | 9.9 | 9.9 | 2.8 | 97.2 |
| Nº 8 | 2.38 | 11.5 | 11.5 | 21.4 | 6.0 | 94.0 |
| Nº 10 | 2.00 | 4.0 | 4 | 25.4 | 7.1 | 92.9 |
| Nº 40 | 0.42 | 54.8 | 54.9 | 80.3 | 22.6 | 77.4 |
| Nº 50 | 0.297 | 17.2 | 17.2 | 97.5 | 27.4 | 72.6 |
| Nº 100 | 0.149 | 22.3 | 22.3 | 119.8 | 33.7 | 66.3 |
| Nº 200 | 0.075 | 10.1 | 10.1 | 129.9 | 36.6 | 63.4 |
| FONDO | | 0.0 | 225.4 | 355.3 | 100.0 | |



| |
|-------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = |

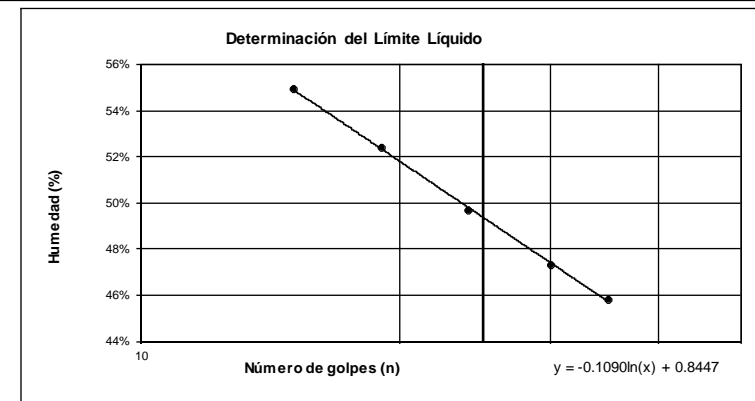
| |
|------------------|
| C _u = |
| C _G = |

| | |
|---------|-----|
| % Grava | 3% |
| % Arena | 34% |
| % Finos | 63% |

| | |
|----------------|-------|
| L. Líquido | 49.4% |
| L. Plástico | 19.3% |
| I. Plasticidad | 30.1% |
| H. Natural | 40.7% |
| I. Liquidez | 0.71 |

SUCS CL
AASHTO A-2-6 (17)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 14 - 01
Datum: WGS84

Prof.: 2.0 m
Coordenadas UTM: 728 189 E 9 718 027 N

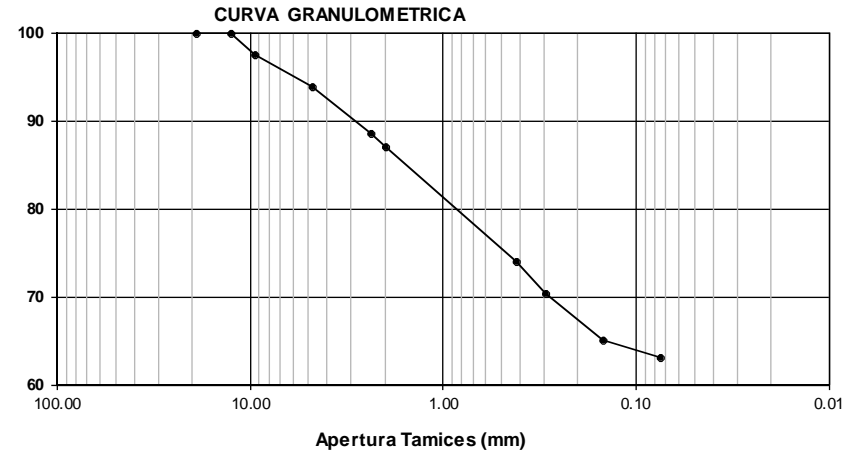
Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 25-ago-14

| Número de tarro | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|--------|--------|
| | 120 | 204 | 152 | 104 | 141 | 106 | 155 | 98 | 195 | 119 | 107 |
| Muestra húmeda + tarro (gr) | 31.32 | 27.73 | 28.65 | 27.11 | 28.35 | 16.43 | 15.56 | 15.91 | 118.87 | 132.59 | 135.07 |
| Muestra seca + tarro (gr) | 25.88 | 22.02 | 23.56 | 22.27 | 23.03 | 16.15 | 15.30 | 15.65 | 97.74 | 110.12 | 109.88 |
| Peso de tarro (gr) | 16.98 | 12.94 | 15.54 | 14.86 | 15.10 | 15.15 | 14.41 | 14.74 | 14.80 | 15.82 | 14.32 |
| Peso de agua (gr) | 5.44 | 5.71 | 5.09 | 4.84 | 5.32 | 0.28 | 0.26 | 0.26 | 21.13 | 22.47 | 25.19 |
| Peso muestra seca (gr) | 8.90 | 9.08 | 8.02 | 7.41 | 7.93 | 1.00 | 0.89 | 0.91 | 82.94 | 94.30 | 95.56 |
| Porcentaje de humedad | 61.1% | 62.9% | 63.5% | 65.3% | 67.1% | 28.0% | 29.2% | 28.6% | 25.48% | 23.83% | 26.36% |
| Número de golpes | 36 | 31 | 25 | 21 | 17 | 28.6% | | | 25.22% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 399.3 |
| Peso seco después de lavado (gr) | 147.1 |
| Peso seco total después del ensayo | 147.1 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 9.9 | 9.9 | 9.9 | 2.5 | 97.5 |
| Nº 4 | 4.76 | 14.4 | 14.4 | 24.3 | 6.1 | 93.9 |
| Nº 8 | 2.38 | 21.0 | 21 | 45.3 | 11.3 | 88.7 |
| Nº 10 | 2.00 | 5.8 | 5.8 | 51.1 | 12.8 | 87.2 |
| Nº 40 | 0.42 | 52.2 | 52.2 | 103.3 | 25.9 | 74.1 |
| Nº 50 | 0.297 | 14.6 | 14.6 | 117.9 | 29.5 | 70.5 |
| Nº 100 | 0.149 | 21.0 | 21 | 138.9 | 34.8 | 65.2 |
| Nº 200 | 0.075 | 8.0 | 8 | 146.9 | 36.8 | 63.2 |
| FONDO | | 0.2 | 252.4 | 399.3 | 100.0 | |



| | |
|-------------------|--|
| D ₁₀ = | |
| D ₃₀ = | |
| D ₆₀ = | |

| | |
|------------------|--|
| C _U = | |
| C _G = | |

| | |
|---------|-----|
| % Grava | 6% |
| % Arena | 31% |
| % Finos | 63% |

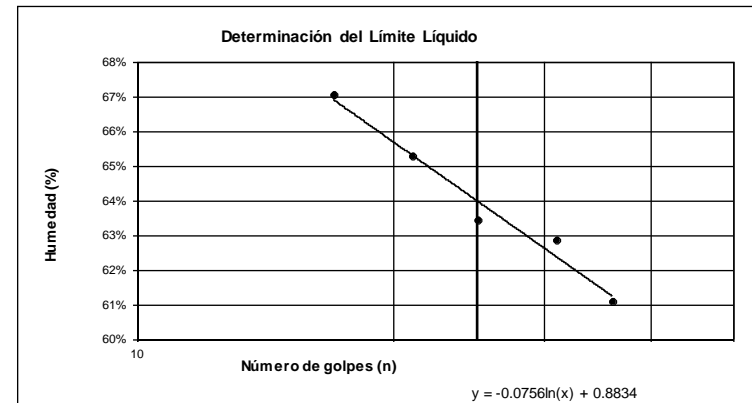
| | |
|----------------|-------|
| L. Líquido | 64.0% |
| L. Plástico | 28.6% |
| I. Plasticidad | 35.4% |
| H. Natural | 25.2% |
| I. Liquidez | -0.10 |

SUCS CH

AASHTO A-2-6 (21)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

 Muestra: PCA # 14 - 02
 Datum: WGS84

 Prof.: 4.0 m
 Coordenadas UTM: 728 189 E 9 718 027 N

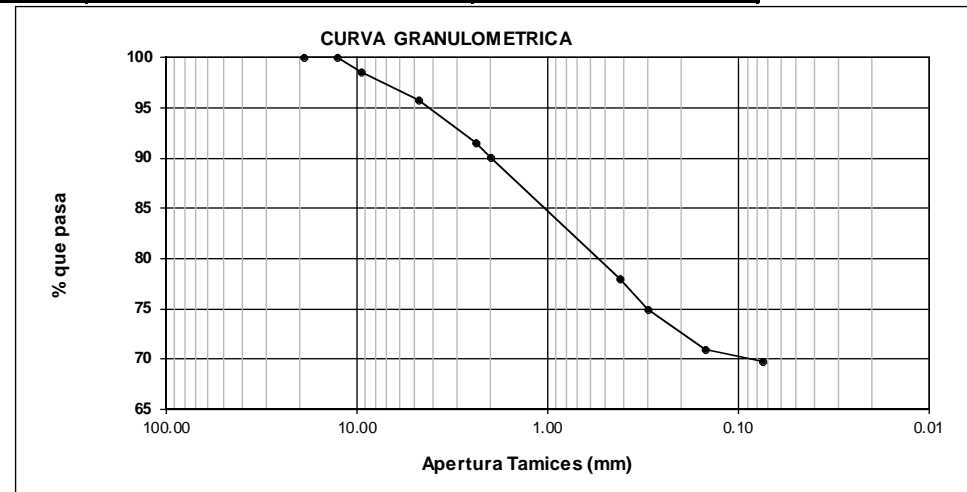
 Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 124 | 136 | 108 | 193 | 133 | 200 | 175 | 179 | 100 | 172 | 180 |
| Muestra húmeda + tarro (gr) | 28.95 | 30.54 | 31.62 | 28.73 | 30.91 | 15.83 | 16.90 | 16.21 | 117.86 | 110.13 | 120.52 |
| Muestra seca + tarro (gr) | 24.18 | 25.45 | 26.15 | 23.87 | 25.64 | 15.54 | 16.59 | 15.94 | 97.79 | 90.86 | 101.62 |
| Peso de tarro (gr) | 14.90 | 15.86 | 16.17 | 15.37 | 16.90 | 14.67 | 15.66 | 15.14 | 14.66 | 15.20 | 16.67 |
| Peso de agua (gr) | 4.77 | 5.09 | 5.47 | 4.86 | 5.27 | 0.29 | 0.31 | 0.27 | 20.07 | 19.27 | 18.90 |
| Peso muestra seca (gr) | 9.28 | 9.59 | 9.98 | 8.50 | 8.74 | 0.87 | 0.93 | 0.80 | 83.13 | 75.66 | 84.95 |
| Porcentaje de humedad | 51.4% | 53.1% | 54.8% | 57.2% | 60.3% | 33.3% | 33.3% | 33.8% | 24.14% | 25.47% | 22.25% |
| Número de golpes | 38 | 34 | 29 | 25 | 20 | 33.5% | | | 23.95% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 403.4 |
| Peso seco después de lavado (gr) | 121.8 |
| Peso seco total después del ensayo | 121.8 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 5.8 | 5.8 | 5.8 | 1.4 | 98.6 |
| Nº 4 | 4.76 | 11.5 | 11.5 | 17.3 | 4.3 | 95.7 |
| Nº 8 | 2.38 | 17.0 | 17 | 34.3 | 8.5 | 91.5 |
| Nº 10 | 2.00 | 5.7 | 5.7 | 40 | 9.9 | 90.1 |
| Nº 40 | 0.42 | 48.8 | 48.8 | 88.8 | 22.0 | 78.0 |
| Nº 50 | 0.297 | 12.2 | 12.2 | 101 | 25.0 | 75.0 |
| Nº 100 | 0.149 | 16.1 | 16.1 | 117.1 | 29.0 | 71.0 |
| Nº 200 | 0.075 | 4.7 | 4.7 | 121.8 | 30.2 | 69.8 |
| FONDO | | 0.0 | 281.6 | 403.4 | 100.0 | |



| |
|-------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = |

| | |
|----------------|-------|
| L. Líquido | 57.1% |
| L. Plástico | 33.5% |
| I. Plasticidad | 23.6% |
| H. Natural | 24.0% |
| I. Liquidez | -0.40 |

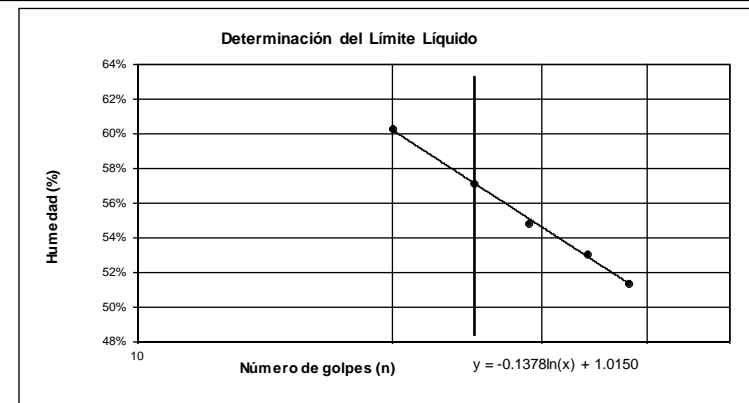
| |
|------------------|
| C _U = |
| C _G = |

| | |
|---------|-----|
| % Grava | 4% |
| % Arena | 26% |
| % Finos | 70% |

SUCS MH
 AASHTO A-2-6 (17)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 15 - 01

Prof.: 2.0 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84

Coordenadas UTM: 728 643 E 9 720 342 N

Solicitado por: GADICC

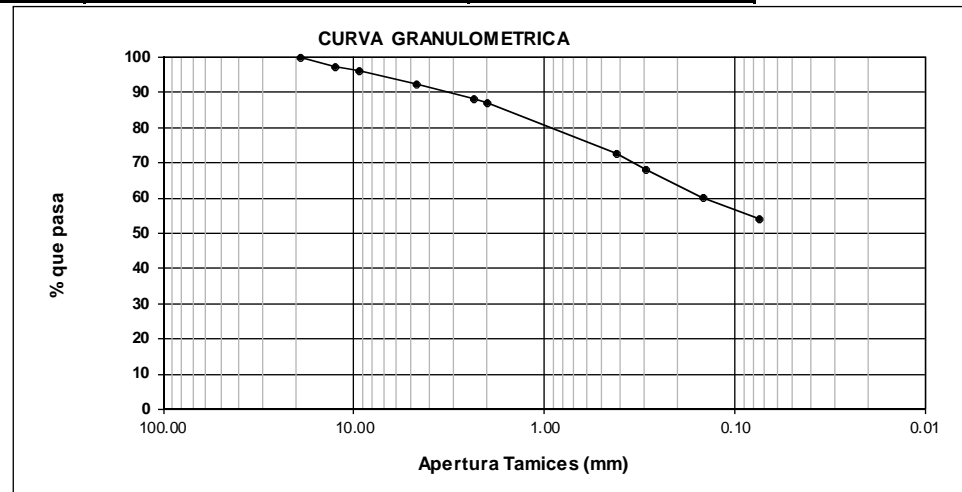
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 202 | 114 | 116 | 119 | 174 | 100 | 189 | 128 | 114 | 101 | 184 |
| Número de tarro | 202 | 114 | 116 | 119 | 174 | 100 | 189 | 128 | 114 | 101 | 184 |
| Muestra húmeda + tarro (gr) | 31.75 | 30.00 | 29.68 | 33.77 | 30.55 | 16.03 | 16.37 | 15.63 | 136.56 | 142.94 | 146.24 |
| Muestra seca + tarro (gr) | 27.04 | 25.53 | 24.88 | 27.74 | 25.23 | 15.74 | 16.14 | 15.36 | 110.47 | 114.30 | 119.00 |
| Peso de tarro (gr) | 16.80 | 16.03 | 14.95 | 15.81 | 15.08 | 14.67 | 15.22 | 14.24 | 16.03 | 13.91 | 15.09 |
| Peso de agua (gr) | 4.71 | 4.47 | 4.80 | 6.03 | 5.32 | 0.29 | 0.23 | 0.27 | 26.09 | 28.64 | 27.24 |
| Peso muestra seca (gr) | 10.24 | 9.50 | 9.93 | 11.93 | 10.15 | 1.07 | 0.92 | 1.12 | 94.44 | 100.39 | 103.91 |
| Porcentaje de humedad | 46.0% | 47.1% | 48.3% | 50.5% | 52.4% | 27.1% | 25.0% | 24.1% | 27.63% | 28.53% | 26.21% |
| Número de golpes | 30 | 26 | 22 | 17 | 12 | 25.4% | | | 27.46% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 392.3 |
| Peso seco después de lavado (gr) | 179.7 |
| Peso seco total después del ensayo | 179.5 |
| Error | 0.11% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acum. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 10.4 | 10.4 | 10.4 | 2.7 | 97.3 |
| 3/8" | 9.52 | 4.7 | 4.7 | 15.1 | 3.8 | 96.2 |
| Nº 4 | 4.76 | 14.2 | 14.2 | 29.3 | 7.5 | 92.5 |
| Nº 8 | 2.38 | 16.0 | 16 | 45.3 | 11.5 | 88.5 |
| Nº 10 | 2.00 | 5.6 | 5.6 | 50.9 | 13.0 | 87.0 |
| Nº 40 | 0.42 | 55.3 | 55.5 | 106.4 | 27.1 | 72.9 |
| Nº 50 | 0.297 | 18.1 | 18.1 | 124.5 | 31.7 | 68.3 |
| Nº 100 | 0.149 | 30.8 | 30.8 | 155.3 | 39.6 | 60.4 |
| Nº 200 | 0.075 | 24.4 | 24.4 | 179.7 | 45.8 | 54.2 |
| FONDO | | 0.0 | 212.6 | 392.3 | 100.0 | |



| | |
|-------------------|-------|
| D ₁₀ = | |
| D ₃₀ = | |
| D ₆₀ = | 0.142 |

| | |
|----------------|-------|
| L. Líquido | 47.4% |
| L. Plástico | 25.4% |
| I. Plasticidad | 22.0% |
| H. Natural | 27.5% |
| I. Liquidez | 0.09 |

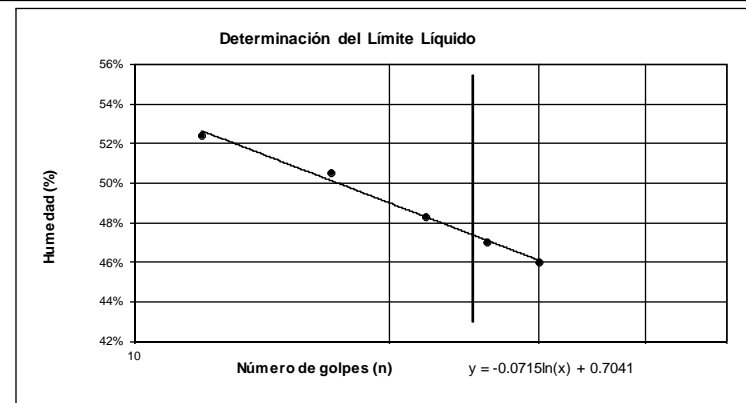
| | |
|------------------|--|
| C _U = | |
| C _G = | |

| | |
|---------|-----|
| % Grava | 7% |
| % Arena | 38% |
| % Finos | 54% |

SUCS CL
AASHTO A-2-6 (9)

P. Williams

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 15 - 02

Prof.: 4.50 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84 Coordenadas UTM: 728 643 E 9 720 342 N

Solicitado por: GADICC

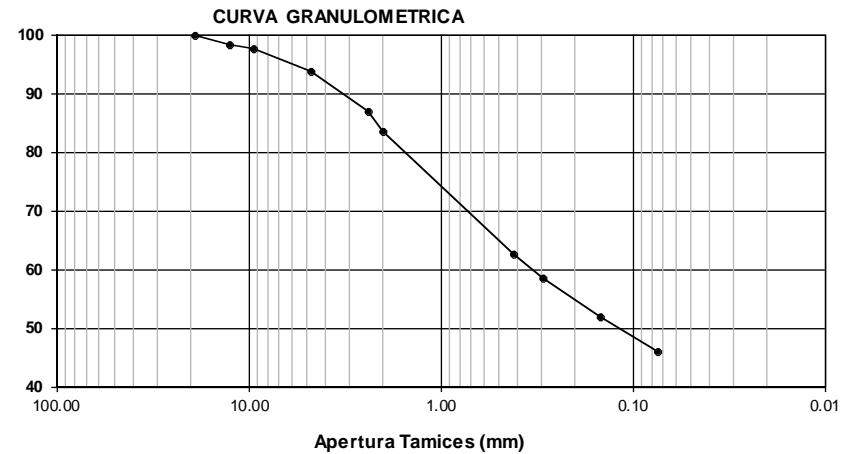
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 184 | 110 | 128 | 130 | 122 | 154 | 153 | 173 | 143 | 156 | 102 |
| Número de tarro | 184 | 110 | 128 | 130 | 122 | 154 | 153 | 173 | 143 | 156 | 102 |
| Muestra húmeda + tarro (gr) | 28.74 | 31.01 | 29.12 | 30.80 | 29.88 | 14.15 | 17.04 | 16.54 | 168.98 | 158.92 | 161.48 |
| Muestra seca + tarro (gr) | 24.46 | 25.86 | 24.23 | 25.90 | 24.89 | 13.97 | 16.81 | 16.32 | 136.41 | 122.61 | 130.43 |
| Peso de tarro (gr) | 15.10 | 15.02 | 14.23 | 16.30 | 15.71 | 12.98 | 15.61 | 15.15 | 16.82 | 16.44 | 14.75 |
| Peso de agua (gr) | 4.28 | 5.15 | 4.89 | 4.90 | 4.99 | 0.18 | 0.23 | 0.22 | 32.57 | 36.31 | 31.05 |
| Peso muestra seca (gr) | 9.36 | 10.84 | 10.00 | 9.60 | 9.18 | 0.99 | 1.20 | 1.17 | 119.59 | 106.17 | 115.68 |
| Porcentaje de humedad | 45.7% | 47.5% | 48.9% | 51.0% | 54.4% | 18.2% | 19.2% | 18.8% | 27.23% | 34.20% | 26.84% |
| Número de golpes | 31 | 27 | 22 | 18 | 13 | 18.7% | | | 29.43% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 386.3 |
| Peso seco después de lavado (gr) | 208.2 |
| Peso seco total después del ensayo | 208.2 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 5.8 | 5.8 | 5.8 | 1.5 | 98.5 |
| 3/8" | 9.52 | 3.0 | 3 | 8.8 | 2.3 | 97.7 |
| Nº 4 | 4.76 | 14.8 | 14.8 | 23.6 | 6.1 | 93.9 |
| Nº 8 | 2.38 | 26.6 | 26.6 | 50.2 | 13.0 | 87.0 |
| Nº 10 | 2.00 | 12.5 | 12.5 | 62.7 | 16.2 | 83.8 |
| Nº 40 | 0.42 | 81.5 | 81.5 | 144.2 | 37.3 | 62.7 |
| Nº 50 | 0.297 | 15.1 | 15.1 | 159.3 | 41.2 | 58.8 |
| Nº 100 | 0.149 | 26.2 | 26.2 | 185.5 | 48.0 | 52.0 |
| Nº 200 | 0.075 | 22.7 | 22.7 | 208.2 | 53.9 | 46.1 |
| FONDO | | 0.0 | 178.1 | 386.3 | 100.0 | |



D₁₀ =
 D₃₀ =
 D₆₀ = 0.331

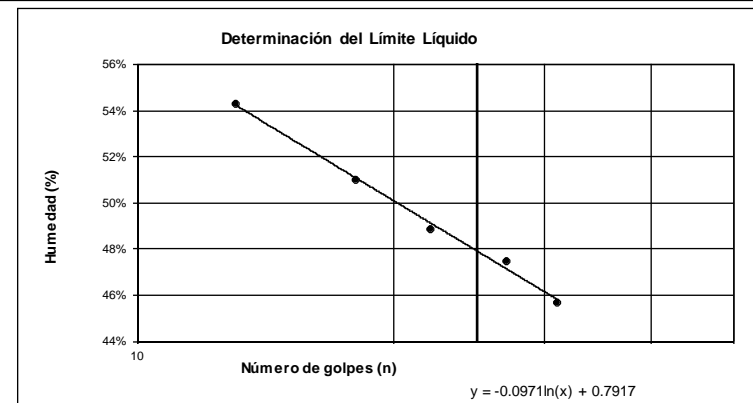
C_U =
 C_G =

% Grava 6%
 % Arena 48%
 % Finos 46%

| | |
|----------------|-------|
| L. Líquido | 47.9% |
| L. Plástico | 18.7% |
| I. Plasticidad | 29.2% |
| H. Natural | 29.4% |
| I. Liquidez | 0.37 |

SUCS SC
AASHTO A-2-6 (9)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 16 - 01 Prof.: 2.00 m
Datum: WGS84 Coordenadas UTM: 729 100 E 9 721 097 N

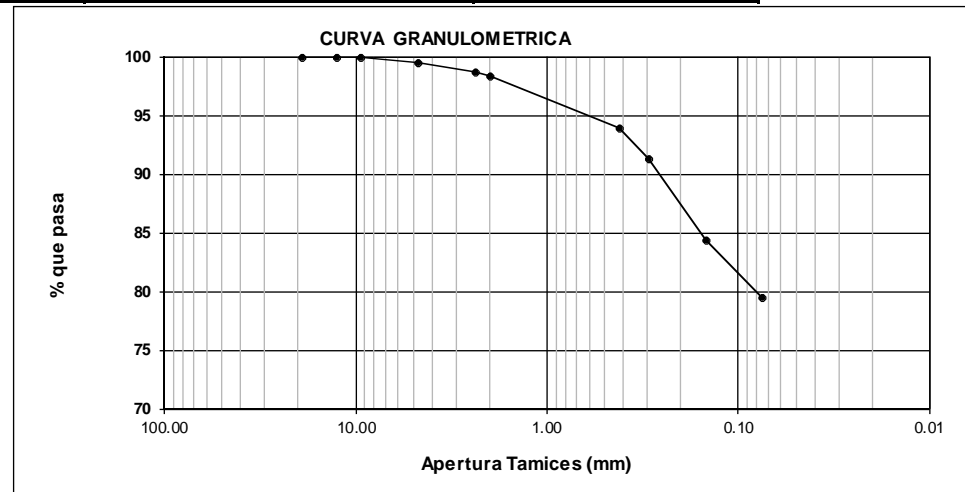
Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 25-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|--------|--------|
| | 157 | 144 | 195 | 113 | 118 | 143 | 112 | 111 | 189 | 141 | 190 |
| Número de tarro | 157 | 144 | 195 | 113 | 118 | 143 | 112 | 111 | 189 | 141 | 190 |
| Muestra húmeda + tarro (gr) | 31.48 | 30.14 | 31.76 | 33.32 | 29.86 | 18.10 | 17.06 | 16.99 | 150.70 | 141.58 | 144.02 |
| Muestra seca + tarro (gr) | 27.63 | 26.15 | 27.15 | 28.00 | 25.38 | 17.82 | 16.76 | 16.68 | 121.71 | 114.35 | 115.60 |
| Peso de tarro (gr) | 16.24 | 14.92 | 14.79 | 14.23 | 14.24 | 16.81 | 15.69 | 15.61 | 15.22 | 14.94 | 15.30 |
| Peso de agua (gr) | 3.85 | 3.99 | 4.61 | 5.32 | 4.48 | 0.28 | 0.30 | 0.31 | 28.99 | 27.23 | 28.42 |
| Peso muestra seca (gr) | 11.39 | 11.23 | 12.36 | 13.77 | 11.14 | 1.01 | 1.07 | 1.07 | 106.49 | 99.41 | 100.30 |
| Porcentaje de humedad | 33.8% | 35.5% | 37.3% | 38.6% | 40.2% | 27.7% | 28.0% | 29.0% | 27.22% | 27.39% | 28.33% |
| Número de golpes | 36 | 32 | 27 | 23 | 19 | 28.2% | | | 27.65% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 391.7 |
| Peso seco después de lavado (gr) | 80.2 |
| Peso seco total después del ensayo | 80.2 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 1.6 | 1.6 | 1.6 | 0.4 | 99.6 |
| Nº 8 | 2.38 | 3.4 | 3.4 | 5 | 1.3 | 98.7 |
| Nº 10 | 2.00 | 1.0 | 1 | 6 | 1.5 | 98.5 |
| Nº 40 | 0.42 | 17.6 | 17.6 | 23.6 | 6.0 | 94.0 |
| Nº 50 | 0.297 | 10.3 | 10.3 | 33.9 | 8.7 | 91.3 |
| Nº 100 | 0.149 | 27.2 | 27.2 | 61.1 | 15.6 | 84.4 |
| Nº 200 | 0.075 | 19.1 | 19.1 | 80.2 | 20.5 | 79.5 |
| FONDO | | 0.0 | 311.5 | 391.7 | 100.0 | |



D₁₀ =
D₃₀ =
D₆₀ =

| | |
|----------------|-------|
| L. Líquido | 37.8% |
| L. Plástico | 28.2% |
| I. Plasticidad | 9.6% |
| H. Natural | 27.6% |
| I. Liquidez | -0.06 |

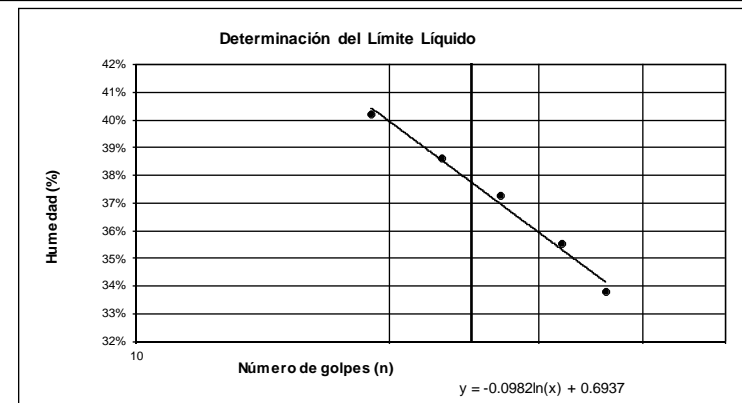
C_U =
C_G =

| | |
|---------|-----|
| % Grava | 0% |
| % Arena | 20% |
| % Finos | 80% |

SUCS ML
AASHTO A-2-5 (8)



JEFE DE LABORATORIO





CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 16 - 02
Datum: WGS84

Prof.: 5.00 m
Coordenadas UTM: 729 100 E 9 721 097 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 26-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | | HUM. GRANULOM. | | |
|-----------------------------|----------------|------|------|------|------|-----------------|------|------|--------------|--------|--------|----------------|--------|--------|
| | | | | | | | | | 188 | 122 | 202 | 117 | 127 | 191 |
| Número de tarro | | | | | | | | | | | | | | |
| Muestra húmeda + tarro (gr) | | | | | | | | | 149.05 | 121.66 | 150.92 | 111.29 | 136.37 | 136.21 |
| Muestra seca + tarro (gr) | | | | | | | | | 135.05 | 110.42 | 136.60 | 107.33 | 131.54 | 131.46 |
| Peso de tarro (gr) | | | | | | | | | 15.84 | 15.71 | 16.81 | 15.26 | 16.79 | 15.66 |
| Peso de agua (gr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14.00 | 11.24 | 14.32 | 3.96 | 4.83 | 4.75 |
| Peso muestra seca (gr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 119.21 | 94.71 | 119.79 | 92.07 | 114.75 | 115.80 |
| Porcentaje de humedad | NP | NP | NP | NP | NP | NP | NP | NP | 11.7% | 11.9% | 12.0% | 4.3% | 4.2% | 4.1% |
| Número de golpes - Promedio | | | | | | | | NP | | | 11.9% | | | 4.2% |

D₁₀ = 0.600
D₃₀ = 2.677
D₆₀ = 21.578

C_u = 36.0
C_c = 0.6

% Grava 66%
% Arena 32%
% Finos 1%

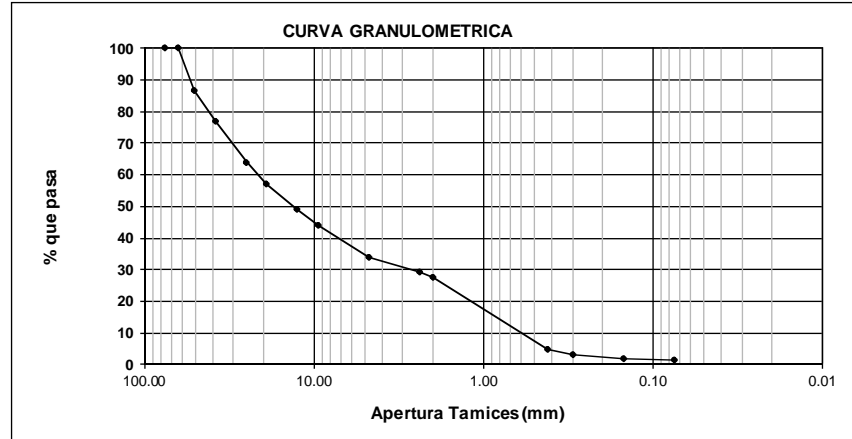
L. Líquido NP
L. Plástico NP
I. Plasticidad NP
H. Natural 11.9%
I. Líquidez

SUCS GP

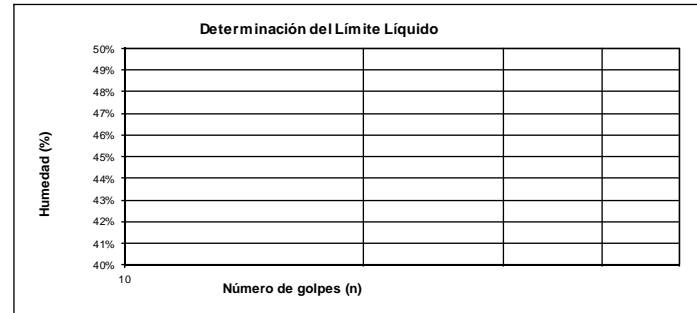
AASHTO A-1-a (0)

P. Williams S
JEFE DE LABORATORIO

| FRACCION GRUESA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso humedo total antes del ensayo (gr) | | 5175 | | | | |
| Peso humedo total después del ensayo (gr) | | 5170 | | | | |
| Error | | 0.10% | | | | |
| Humedad de material que pasa # 4 | | 4.20% | | | | |
| Peso seco total después del ensayo (gr) | | 5102 | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3" | 76.20 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2 1/2" | 63.50 | 0 | 0 | 0 | 0.0 | 100.0 |
| 2" | 50.80 | 680 | 680 | 680 | 13.3 | 86.7 |
| 1 1/2" | 38.10 | 500 | 500 | 1180 | 23.1 | 76.9 |
| 1" | 25.40 | 655 | 655 | 1835 | 36.0 | 64.0 |
| 3/4" | 19.10 | 360 | 360 | 2195 | 43.0 | 57.0 |
| 1/2" | 12.70 | 410 | 410 | 2605 | 51.1 | 48.9 |
| 3/8" | 9.52 | 245 | 245 | 2850 | 55.9 | 44.1 |
| Nº 4 | 4.76 | 525 | 525 | 3375 | 66.1 | 33.9 |
| PASANº 4 | | 1795 | | | | |



| FRACCION FINA | | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|---------------------|---------------------|-----------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | | |
| Peso seco antes de lavado (gr) | | 447.01 | | | | | |
| Peso seco después de lavado (gr) | | 428.00 | | | | | |
| Peso seco total después del ensayo | | 427.90 | | | | | |
| Error | | 0.02% | | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | Porcentaje retenido | Porcentaje que pasa | Liga % que pasa |
| Nº 8 | 2.38 | 61.3 | 61.3 | 61.3 | 13.7 | 86.3 | 29.2 |
| Nº 10 | 2.00 | 22.7 | 22.7 | 84.0 | 18.8 | 81.2 | 27.5 |
| Nº 40 | 0.42 | 299.3 | 299.4 | 383.4 | 85.8 | 14.2 | 4.8 |
| Nº 50 | 0.297 | 24.5 | 24.5 | 407.9 | 91.3 | 8.7 | 3.0 |
| Nº 100 | 0.149 | 12.8 | 12.8 | 420.7 | 94.1 | 5.9 | 2.0 |
| Nº 200 | 0.075 | 7.0 | 7.0 | 427.7 | 95.7 | 4.3 | 1.5 |
| FONDO | | 0.3 | 19.3 | 447.0 | 100.0 | | |



Nota: Para la granulometría de la serie fina se usa la humedad natural, en tanto que, para la serie gruesa se considera la humedad de granulometría.

CLASIFICACION DE SUELOS - ASTM 2487

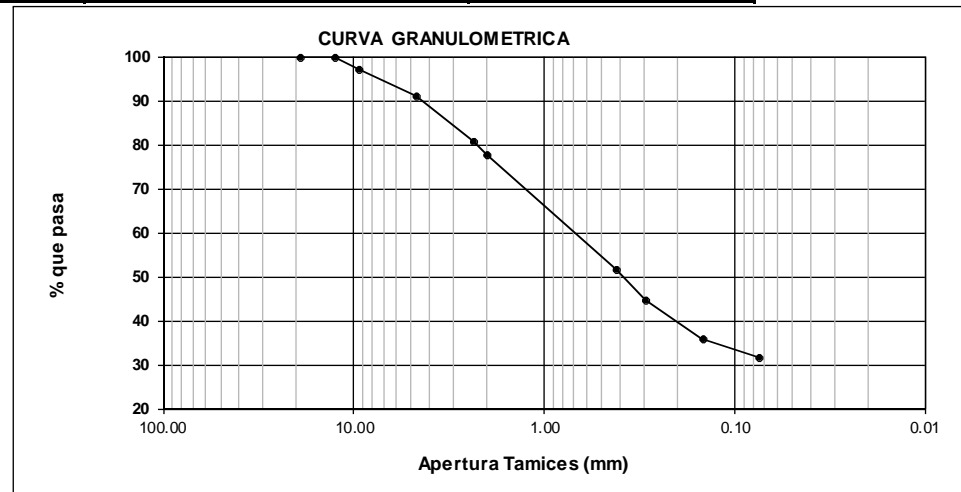
Muestra: PCA # 17 - 01
Datum: WGS84

Prof.: 3.0 m
Coordenadas UTM: 728 232 E 9 720 510 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 26-ago-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 123 | 134 | 125 | 194 | 131 | 203 | 103 | 178 | 186 | 177 | 155 |
| Número de tarro | 123 | 134 | 125 | 194 | 131 | 203 | 103 | 178 | 186 | 177 | 155 |
| Muestra húmeda + tarro (gr) | 30.59 | 26.57 | 29.33 | 30.15 | 28.33 | 17.45 | 15.83 | 15.99 | 137.93 | 129.23 | 112.69 |
| Muestra seca + tarro (gr) | 26.35 | 23.00 | 25.16 | 25.90 | 24.25 | 17.00 | 15.50 | 15.63 | 119.10 | 111.80 | 97.71 |
| Peso de tarro (gr) | 15.71 | 14.18 | 15.15 | 16.09 | 15.08 | 15.78 | 14.55 | 14.64 | 16.24 | 14.78 | 14.41 |
| Peso de agua (gr) | 4.24 | 3.57 | 4.17 | 4.25 | 4.08 | 0.45 | 0.33 | 0.36 | 18.83 | 17.43 | 14.98 |
| Peso muestra seca (gr) | 10.64 | 8.82 | 10.01 | 9.81 | 9.17 | 1.22 | 0.95 | 0.99 | 102.86 | 97.02 | 83.30 |
| Porcentaje de humedad | 39.8% | 40.5% | 41.7% | 43.3% | 44.5% | 36.9% | 34.7% | 36.4% | 18.31% | 17.97% | 17.98% |
| Número de golpes | 35 | 31 | 27 | 18 | 14 | 36.0% | | | 18.08% | | |

| FRACCION FINA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | |
| Peso seco antes de lavado (gr) | | 423.4 | | | | |
| Peso seco después de lavado (gr) | | 288.5 | | | | |
| Peso seco total después del ensayo | | 288.3 | | | | |
| Error | | 0.07% | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 11.2 | 11.2 | 11.2 | 2.6 | 97.4 |
| Nº 4 | 4.76 | 25.5 | 25.5 | 36.7 | 8.7 | 91.3 |
| Nº 8 | 2.38 | 43.8 | 43.8 | 80.5 | 19.0 | 81.0 |
| Nº 10 | 2.00 | 13.1 | 13.1 | 93.6 | 22.1 | 77.9 |
| Nº 40 | 0.42 | 109.9 | 110.1 | 203.7 | 48.1 | 51.9 |
| Nº 50 | 0.297 | 29.3 | 29.3 | 233 | 55.0 | 45.0 |
| Nº 100 | 0.149 | 38.1 | 38.1 | 271.1 | 64.0 | 36.0 |
| Nº 200 | 0.075 | 17.4 | 17.4 | 288.5 | 68.1 | 31.9 |
| FONDO | | 0.0 | 134.9 | 423.4 | 100.0 | |



D₁₀ =
D₃₀ =
D₆₀ = 0.683

C_u =
C_G =

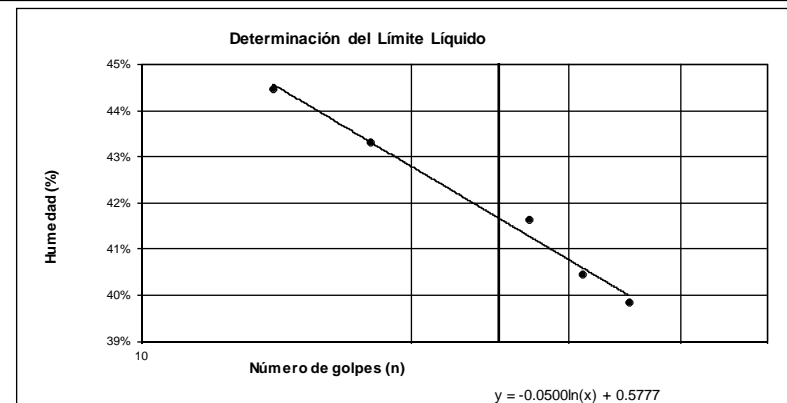
% Grava 9%
% Arena 59%
% Finos 32%

| | |
|----------------|-------|
| L. Líquido | 41.7% |
| L. Plástico | 36.0% |
| I. Plasticidad | 5.7% |
| H. Natural | 18.1% |
| I. Liquidez | -3.14 |

SUCS SM
AASHTO A-1-a (0)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 18 - 01

Prof.: 1,00m

Proyecto: Deslizamiento Quilloac

Datum: WGS84 Coordenadas UTM: 728 317 E 9 718 639 N

Solicitado por: GADICC

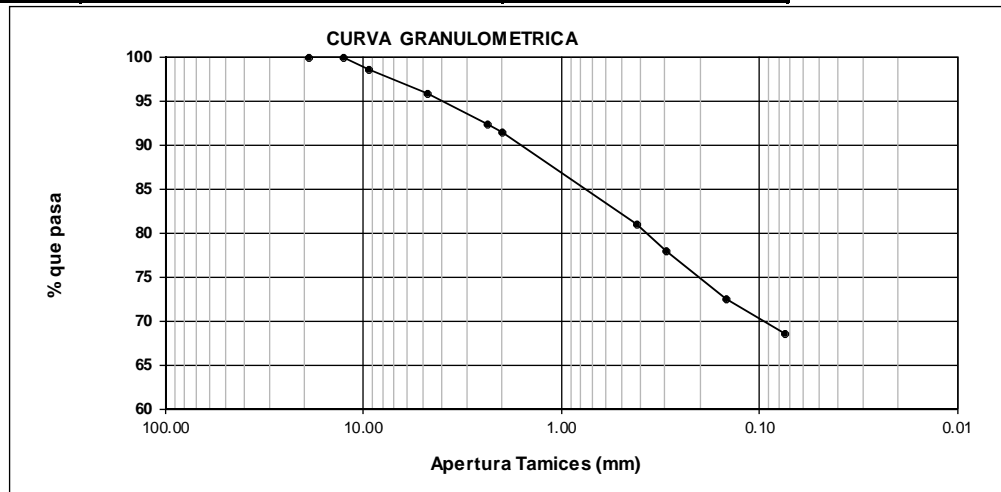
Fecha: 18-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 140 | 103 | 176 | 182 | 128 | 97 | 157 | 142 | 148 | 157 | 131 |
| Número de tarro | 140 | 103 | 176 | 182 | 128 | 97 | 157 | 142 | 148 | 157 | 131 |
| Muestra húmeda + tarro (gr) | 28.27 | 29.27 | 29.81 | 30.80 | 27.84 | 18.72 | 17.21 | 16.38 | 131.45 | 159.17 | 132.91 |
| Muestra seca + tarro (gr) | 23.43 | 23.50 | 24.31 | 24.48 | 22.01 | 18.32 | 16.97 | 16.07 | 86.80 | 106.08 | 87.11 |
| Peso de tarro (gr) | 15.42 | 14.53 | 16.35 | 15.67 | 14.24 | 17.20 | 16.24 | 15.16 | 15.22 | 16.25 | 15.07 |
| Peso de agua (gr) | 4.84 | 5.77 | 5.50 | 6.32 | 5.83 | 0.40 | 0.24 | 0.31 | 44.65 | 53.09 | 45.80 |
| Peso muestra seca (gr) | 8.01 | 8.97 | 7.96 | 8.81 | 7.77 | 1.12 | 0.73 | 0.91 | 71.58 | 89.83 | 72.04 |
| Porcentaje de humedad | 60.4% | 64.3% | 69.1% | 71.7% | 75.0% | 35.7% | 32.9% | 34.1% | 62.38% | 59.10% | 63.58% |
| Número de golpes | 38 | 34 | 29 | 25 | 20 | 34.2% | | | 61.68% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 309.2 |
| Peso seco después de lavado (gr) | 97.5 |
| Peso seco total después del ensayo | 97.5 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 4.2 | 4.2 | 4.2 | 1.4 | 98.6 |
| Nº 4 | 4.76 | 8.4 | 8.4 | 12.6 | 4.1 | 95.9 |
| Nº 8 | 2.38 | 11.0 | 11 | 23.6 | 7.6 | 92.4 |
| Nº 10 | 2.00 | 2.5 | 2.5 | 26.1 | 8.4 | 91.6 |
| Nº 40 | 0.42 | 32.3 | 32.3 | 58.4 | 18.9 | 81.1 |
| Nº 50 | 0.297 | 9.5 | 9.5 | 67.9 | 22.0 | 78.0 |
| Nº 100 | 0.149 | 17.0 | 17 | 84.9 | 27.5 | 72.5 |
| Nº 200 | 0.075 | 12.2 | 12.2 | 97.1 | 31.4 | 68.6 |
| FONDO | | 0.4 | 212.1 | 309.2 | 100.0 | |



| |
|-------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = |

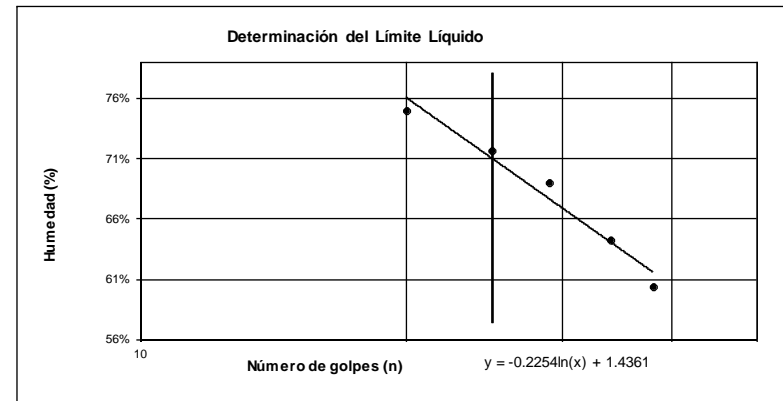
| | |
|----------------|-------|
| L. Líquido | 71.1% |
| L. Plástico | 34.2% |
| I. Plasticidad | 36.9% |
| H. Natural | 61.7% |
| I. Liquidez | 0.74 |

| |
|------------------|
| C _U = |
| C _G = |

| | |
|---------|-----|
| % Grava | 4% |
| % Arena | 27% |
| % Finos | 69% |

SUCS MH
AASHTO A-2-6 (26)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 19 - 01

Prof.: 1.0 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84 Coordenadas UTM: 728 497 E 9 718 749 N

Solicitado por: GADICC

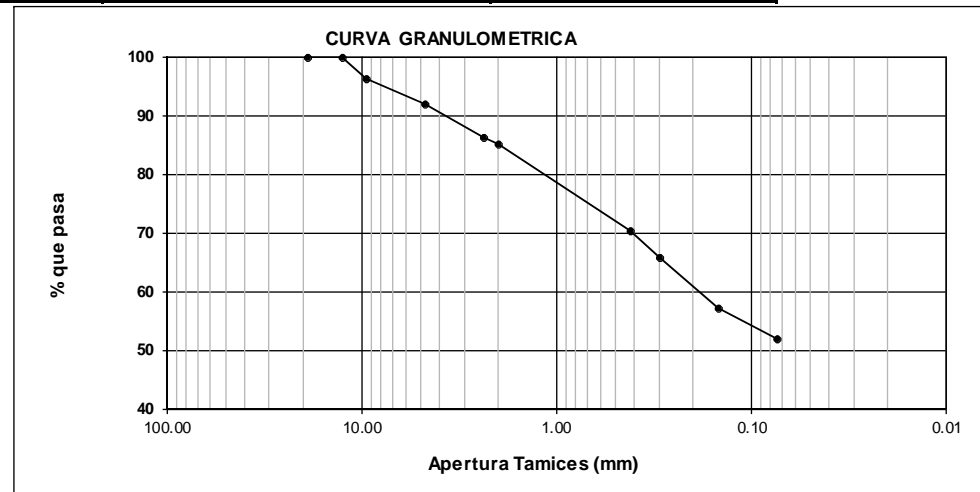
Fecha: 18-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 201 | 196 | 173 | 149 | 153 | 144 | 183 | 133 | 120 | 129 | 176 |
| Muestra húmeda + tarro (gr) | 31.05 | 31.27 | 32.69 | 29.47 | 32.03 | 16.35 | 16.66 | 18.12 | 118.56 | 114.27 | 109.12 |
| Muestra seca + tarro (gr) | 25.53 | 25.82 | 26.47 | 24.07 | 25.97 | 16.02 | 16.44 | 17.83 | 94.87 | 90.64 | 87.68 |
| Peso de tarro (gr) | 15.62 | 15.67 | 15.15 | 14.47 | 15.61 | 14.91 | 15.68 | 16.88 | 16.98 | 15.90 | 16.36 |
| Peso de agua (gr) | 5.52 | 5.45 | 6.22 | 5.40 | 6.06 | 0.33 | 0.22 | 0.29 | 23.69 | 23.63 | 21.44 |
| Peso muestra seca (gr) | 9.91 | 10.15 | 11.32 | 9.60 | 10.36 | 1.11 | 0.76 | 0.95 | 77.89 | 74.74 | 71.32 |
| Porcentaje de humedad | 55.7% | 53.7% | 54.9% | 56.3% | 58.5% | 29.7% | 28.9% | 30.5% | 30.41% | 31.62% | 30.06% |
| Número de golpes | 36 | 31 | 27 | 22 | 16 | 29.7% | | | 30.70% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 382.6 |
| Peso seco después de lavado (gr) | 183.5 |
| Peso seco total después del ensayo | 183.5 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 14.1 | 14.1 | 14.1 | 3.7 | 96.3 |
| Nº 4 | 4.76 | 16.3 | 16.3 | 30.4 | 7.9 | 92.1 |
| Nº 8 | 2.38 | 21.3 | 21.3 | 51.7 | 13.5 | 86.5 |
| Nº 10 | 2.00 | 4.7 | 4.7 | 56.4 | 14.7 | 85.3 |
| Nº 40 | 0.42 | 56.4 | 56.4 | 112.8 | 29.5 | 70.5 |
| Nº 50 | 0.297 | 17.3 | 17.3 | 130.1 | 34.0 | 66.0 |
| Nº 100 | 0.149 | 33.7 | 33.7 | 163.8 | 42.8 | 57.2 |
| Nº 200 | 0.075 | 19.7 | 19.7 | 183.5 | 48.0 | 52.0 |
| FONDO | | 0.0 | 199.1 | 382.6 | 100.0 | |



| | |
|-------------------------|-------|
| D₁₀ = | |
| D₃₀ = | |
| D₆₀ = | 0.186 |

| | |
|------------------------|--|
| C_U = | |
| C_G = | |

| | |
|----------------|-----|
| % Grava | 8% |
| % Arena | 40% |
| % Finos | 52% |

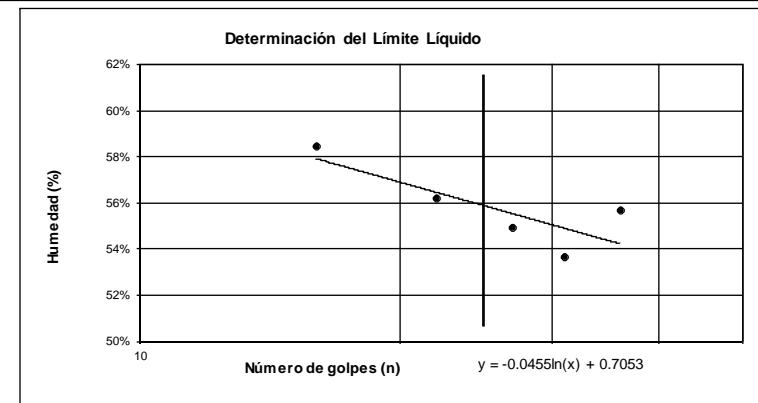
| | |
|-----------------------|-------|
| L. Líquido | 55.9% |
| L. Plástico | 29.7% |
| I. Plasticidad | 26.2% |
| H. Natural | 30.7% |
| I. Liquidez | 0.04 |

SUCS MH

AASHTO A-2-6 (11)

P. Williams

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 19 - 02

Prof.: 3.0 m

Proyecto: Deslizamiento Quilloac

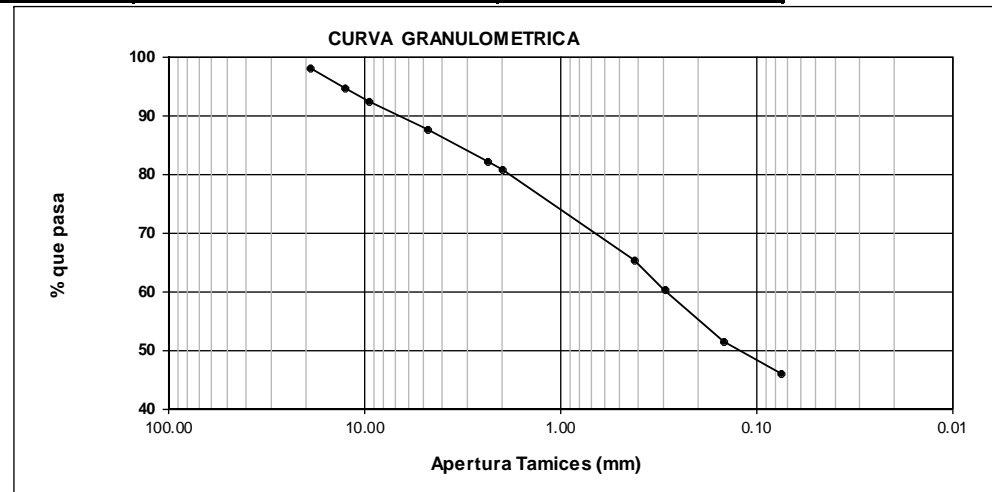
Datum: WGS84 Coordenadas UTM: 728 497 E 9 718 749 N

Solicitado por: GADICC

Fecha: 18-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 195 | 109 | 146 | 117 | 189 | 103 | 154 | 136 | 112 | 110 | 121 |
| Muestra húmeda + tarro (gr) | 31.49 | 30.04 | 31.49 | 31.44 | 27.53 | 15.95 | 14.47 | 17.08 | 122.18 | 128.95 | 102.79 |
| Muestra seca + tarro (gr) | 26.09 | 24.87 | 25.95 | 25.68 | 23.05 | 15.60 | 14.10 | 16.78 | 96.21 | 101.94 | 81.74 |
| Peso de tarro (gr) | 14.79 | 14.43 | 15.36 | 15.26 | 15.23 | 14.53 | 12.99 | 15.86 | 15.68 | 15.01 | 15.44 |
| Peso de agua (gr) | 5.40 | 5.17 | 5.54 | 5.76 | 4.48 | 0.35 | 0.37 | 0.30 | 25.97 | 27.01 | 21.05 |
| Peso muestra seca (gr) | 11.30 | 10.44 | 10.59 | 10.42 | 7.82 | 1.07 | 1.11 | 0.92 | 80.53 | 86.93 | 66.30 |
| Porcentaje de humedad | 47.8% | 49.5% | 52.3% | 55.3% | 57.3% | 32.7% | 33.3% | 32.6% | 32.25% | 31.07% | 31.75% |
| Número de golpes | 37 | 33 | 28 | 24 | 19 | 32.9% | | | 31.69% | | |

| FRACCION FINA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | |
| Peso seco antes de lavado (gr) | | 379.7 | | | | |
| Peso seco después de lavado (gr) | | 204.8 | | | | |
| Peso seco total después del ensayo | | 204.8 | | | | |
| Error | | 0.00% | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3/4" | 19.10 | 6.6 | 6.6 | 6.6 | 1.7 | 98.3 |
| 1/2" | 12.70 | 12.8 | 12.8 | 19.4 | 5.1 | 94.9 |
| 3/8" | 9.52 | 9.3 | 9.3 | 28.7 | 7.6 | 92.4 |
| Nº 4 | 4.76 | 17.4 | 17.4 | 46.1 | 12.1 | 87.9 |
| Nº 8 | 2.38 | 21.5 | 21.5 | 67.6 | 17.8 | 82.2 |
| Nº 10 | 2.00 | 5.0 | 5 | 72.6 | 19.1 | 80.9 |
| Nº 40 | 0.42 | 58.8 | 58.8 | 131.4 | 34.6 | 65.4 |
| Nº 50 | 0.297 | 19.0 | 19 | 150.4 | 39.6 | 60.4 |
| Nº 100 | 0.149 | 33.2 | 33.2 | 183.6 | 48.4 | 51.6 |
| Nº 200 | 0.075 | 21.0 | 21 | 204.6 | 53.9 | 46.1 |
| FONDO | | 0.2 | 175.1 | 379.7 | 100.0 | |



| |
|-------------------------|
| D ₁₀ = |
| D ₃₀ = |
| D ₆₀ = 0.288 |

| |
|------------------|
| C _u = |
| C _c = |

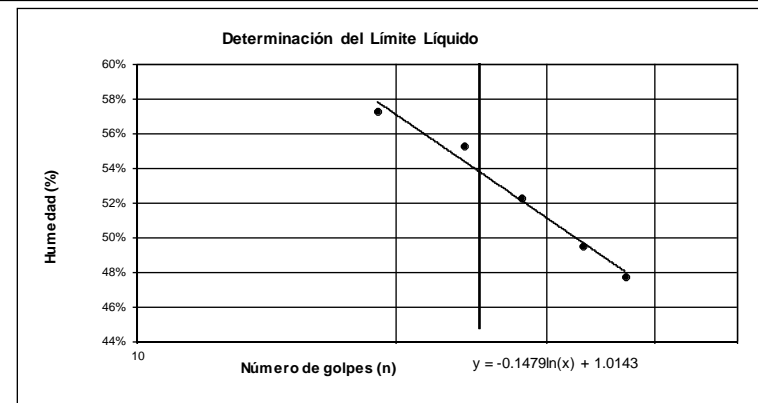
| | |
|---------|-----|
| % Grava | 12% |
| % Arena | 42% |
| % Finos | 46% |

| | |
|----------------|-------|
| L. Líquido | 53.8% |
| L. Plástico | 32.9% |
| I. Plasticidad | 20.9% |
| H. Natural | 31.7% |
| I. Liquidez | -0.06 |

SUCS SM
AASHTO A-2-6 (6)

P. Villalobos

JEFE DE LABORATORIO



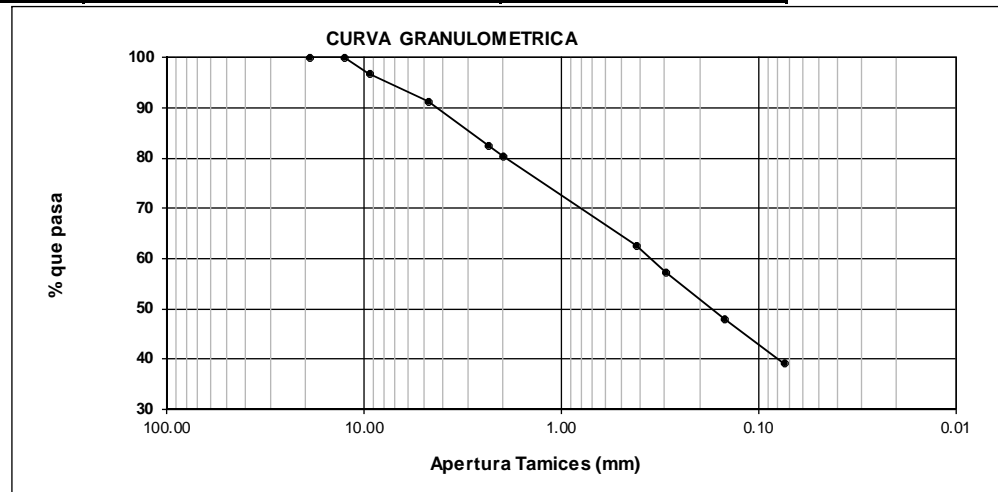
CLASIFICACION DE SUELOS - ASTM 2487

Muestra: PCA # 20 - 01 Prof.: 1.0 m
Datum: WGS84 Coordenadas UTM: 728 325 E 9 719 262 N

Proyecto: Deslizamiento Quilloac
Solicitado por: GADICC
Fecha: 30-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 204 | 108 | 173 | 114 | 135 | 125 | 182 | 180 | 186 | 184 | 152 |
| Muestra húmeda + tarro (gr) | 30.38 | 29.50 | 30.48 | 30.13 | 28.57 | 16.12 | 16.81 | 17.45 | 169.40 | 143.95 | 137.92 |
| Muestra seca + tarro (gr) | 24.98 | 25.38 | 25.62 | 25.50 | 23.44 | 15.92 | 16.58 | 17.29 | 137.57 | 120.42 | 111.38 |
| Peso de tarro (gr) | 12.94 | 16.19 | 15.16 | 16.04 | 13.30 | 15.13 | 15.68 | 16.67 | 16.24 | 15.09 | 15.53 |
| Peso de agua (gr) | 5.40 | 4.12 | 4.86 | 4.63 | 5.13 | 0.20 | 0.23 | 0.16 | 31.83 | 23.53 | 26.54 |
| Peso muestra seca (gr) | 12.04 | 9.19 | 10.46 | 9.46 | 10.14 | 0.79 | 0.90 | 0.62 | 121.33 | 105.33 | 95.85 |
| Porcentaje de humedad | 44.9% | 44.8% | 46.5% | 48.9% | 50.6% | 25.3% | 25.6% | 25.8% | 26.23% | 22.34% | 27.69% |
| Número de golpes | 35 | 31 | 26 | 22 | 18 | 25.6% | | | 25.42% | | |

| FRACCION FINA | | | | | | |
|---|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| Peso para lavado de material que pasa #4 (gr) | | 500 | | | | |
| Peso seco antes de lavado (gr) | | 398.7 | | | | |
| Peso seco después de lavado (gr) | | 242.0 | | | | |
| Peso seco total después del ensayo | | 242.0 | | | | |
| Error | | 0.00% | | | | |
| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 12.8 | 12.8 | 12.8 | 3.2 | 96.8 |
| Nº 4 | 4.76 | 22.1 | 22.1 | 34.9 | 8.8 | 91.2 |
| Nº 8 | 2.38 | 35.0 | 35 | 69.9 | 17.5 | 82.5 |
| Nº 10 | 2.00 | 7.7 | 7.7 | 77.6 | 19.5 | 80.5 |
| Nº 40 | 0.42 | 71.5 | 71.5 | 149.1 | 37.4 | 62.6 |
| Nº 50 | 0.297 | 21.2 | 21.2 | 170.3 | 42.7 | 57.3 |
| Nº 100 | 0.149 | 36.6 | 36.6 | 206.9 | 51.9 | 48.1 |
| Nº 200 | 0.075 | 35.0 | 35 | 241.9 | 60.7 | 39.3 |
| FONDO | | 0.1 | 156.8 | 398.7 | 100.0 | |



| | |
|-------------------|-------|
| D ₁₀ = | |
| D ₃₀ = | |
| D ₆₀ = | 0.354 |
| C _U = | |
| C _G = | |

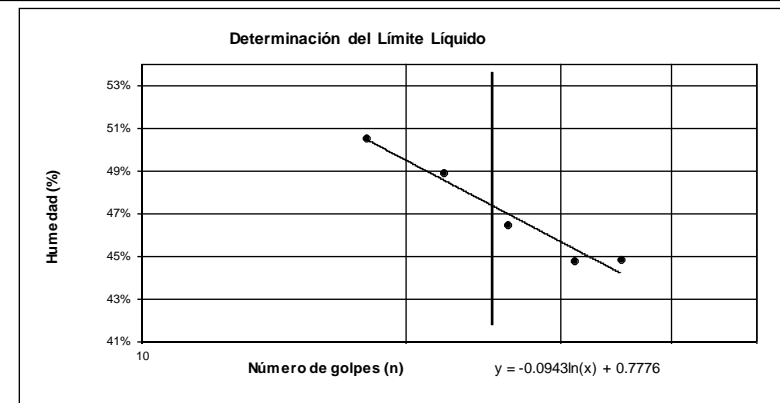
| | |
|----------------|-------|
| L. Líquido | 47.4% |
| L. Plástico | 25.6% |
| I. Plasticidad | 21.8% |
| H. Natural | 25.4% |
| I. Liquidez | -0.01 |

| | |
|---------|-----|
| % Grava | 9% |
| % Arena | 52% |
| % Finos | 39% |

SUCS SC
AASHTO A-2-6 (4)

P. Williams

JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487
Muestra: PCA # 20 - 02

Prof. : 3.0 m

Proyecto: Deslizamiento Quilloac

Datum: WGS84 **Coordenadas U'** 728 325 E 9 719 262 N

Solicitado por: GADICC

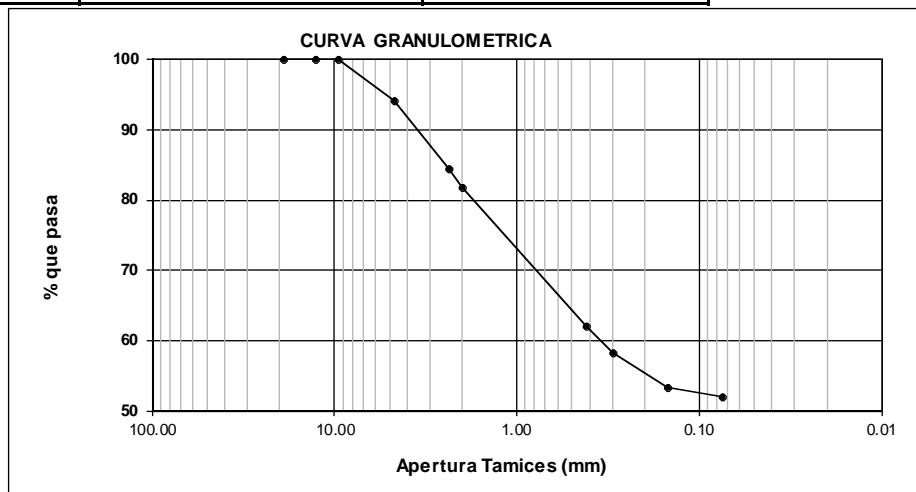
Fecha: 30-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| | 176 | 185 | 129 | 179 | 148 | 196 | 104 | 154 | 139 | 192 | 138 |
| Número de tarro | 176 | 185 | 129 | 179 | 148 | 196 | 104 | 154 | 139 | 192 | 138 |
| Muestra húmeda + tarro (gr) | 30.22 | 29.88 | 31.11 | 31.30 | 30.92 | 16.74 | 15.82 | 14.03 | 131.20 | 144.46 | 153.90 |
| Muestra seca + tarro (gr) | 26.02 | 25.60 | 26.36 | 26.20 | 25.92 | 16.53 | 15.62 | 13.82 | 108.95 | 118.28 | 126.89 |
| Peso de tarro (gr) | 16.36 | 15.84 | 15.90 | 15.14 | 15.22 | 15.67 | 14.85 | 12.99 | 14.26 | 13.96 | 16.03 |
| Peso de agua (gr) | 4.20 | 4.28 | 4.75 | 5.10 | 5.00 | 0.21 | 0.20 | 0.21 | 22.25 | 26.18 | 27.01 |
| Peso muestra seca (gr) | 9.66 | 9.76 | 10.46 | 11.06 | 10.70 | 0.86 | 0.77 | 0.83 | 94.69 | 104.32 | 110.86 |
| Porcentaje de humedad | 43.5% | 43.9% | 45.4% | 46.1% | 46.7% | 24.4% | 26.0% | 25.3% | 23.50% | 25.10% | 24.36% |
| Número de golpes | 36 | 32 | 27 | 23 | 18 | 25.2% | | | 24.32% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 402.2 |
| Peso seco después de lavado (gr) | 192.9 |
| Peso seco total después del ensayo | 192.9 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| Nº 4 | 4.76 | 23.7 | 23.7 | 23.7 | 5.9 | 94.1 |
| Nº 8 | 2.38 | 38.4 | 38.4 | 62.1 | 15.4 | 84.6 |
| Nº 10 | 2.00 | 10.6 | 10.6 | 72.7 | 18.1 | 81.9 |
| Nº 40 | 0.42 | 79.3 | 79.3 | 152 | 37.8 | 62.2 |
| Nº 50 | 0.297 | 15.8 | 15.8 | 167.8 | 41.7 | 58.3 |
| Nº 100 | 0.149 | 19.7 | 19.7 | 187.5 | 46.6 | 53.4 |
| Nº 200 | 0.075 | 5.4 | 5.4 | 192.9 | 48.0 | 52.0 |
| FONDO | | 0.0 | 209.3 | 402.2 | 100.0 | |



| |
|-------------------------------|
| D₁₀ = |
| D₃₀ = |
| D₆₀ = 0.346 |

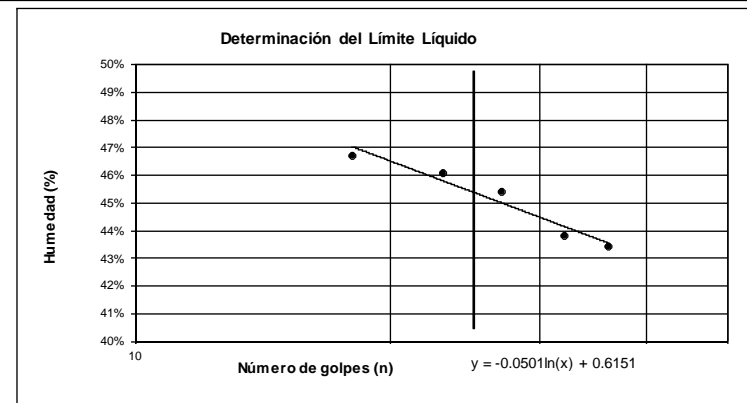
| |
|------------------------|
| C_u = |
| C_G = |

| | |
|----------------|-----|
| % Grava | 6% |
| % Arena | 42% |
| % Finos | 52% |

| | |
|-----------------------|-------|
| L. Líquido | 45.4% |
| L. Plástico | 25.2% |
| I. Plasticidad | 20.2% |
| H. Natural | 24.3% |
| I. Liquidez | -0.05 |

SUCS CL
AASHTO A-2-6 (8)


JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

 Muestra: PCA # 21 - 01
 Datum: WGS84

 Prof.: 1.0 m
 Coordenadas UTM: 728 584 E 9 719 857 N

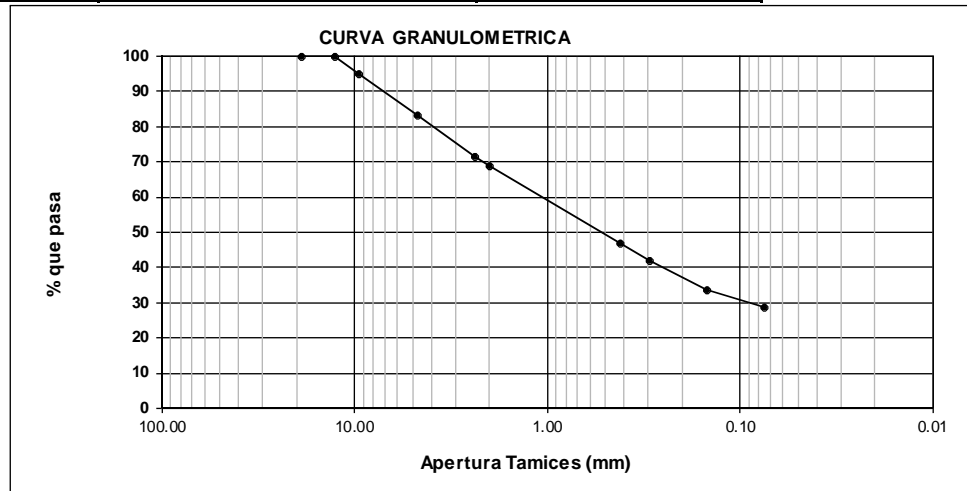
 Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 30-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM.NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------------|--------|--------|
| | 198 | 98 | 195 | 178 | 137 | 146 | 112 | 123 | 147 | 197 | 201 |
| Número de tarro | 198 | 98 | 195 | 178 | 137 | 146 | 112 | 123 | 147 | 197 | 201 |
| Muestra húmeda + tarro (gr) | 29.41 | 30.95 | 30.07 | 29.79 | 28.08 | 16.89 | 17.48 | 17.19 | 177.45 | 178.28 | 162.25 |
| Muestra seca + tarro (gr) | 24.82 | 25.88 | 25.08 | 24.77 | 23.40 | 16.55 | 17.08 | 16.86 | 140.00 | 140.15 | 128.21 |
| Peso de tarro (gr) | 14.29 | 14.74 | 14.79 | 14.63 | 14.17 | 15.35 | 15.69 | 15.70 | 17.26 | 13.77 | 15.61 |
| Peso de agua (gr) | 4.59 | 5.07 | 4.99 | 5.02 | 4.68 | 0.34 | 0.40 | 0.33 | 37.45 | 38.13 | 34.04 |
| Peso muestra seca (gr) | 10.53 | 11.14 | 10.29 | 10.14 | 9.23 | 1.20 | 1.39 | 1.16 | 122.74 | 126.38 | 112.60 |
| Porcentaje de humedad | 43.6% | 45.5% | 48.5% | 49.5% | 50.7% | 28.3% | 28.8% | 28.4% | 30.51% | 30.17% | 30.23% |
| Número de golpes | 37 | 34 | 25 | 19 | 14 | 28.5% | | | 30.30% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 383.7 |
| Peso seco después de lavado (gr) | 273.5 |
| Peso seco total después del ensayo | 273.5 |
| Error | 0.00% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 18.7 | 18.7 | 18.7 | 4.9 | 95.1 |
| Nº 4 | 4.76 | 45.1 | 45.1 | 63.8 | 16.6 | 83.4 |
| Nº 8 | 2.38 | 44.9 | 44.9 | 108.7 | 28.3 | 71.7 |
| Nº 10 | 2.00 | 10.1 | 10.1 | 118.8 | 31.0 | 69.0 |
| Nº 40 | 0.42 | 84.1 | 84.1 | 202.9 | 52.9 | 47.1 |
| Nº 50 | 0.297 | 19.2 | 19.2 | 222.1 | 57.9 | 42.1 |
| Nº 100 | 0.149 | 32.7 | 32.7 | 254.8 | 66.4 | 33.6 |
| Nº 200 | 0.075 | 18.6 | 18.6 | 273.4 | 71.3 | 28.7 |
| FONDO | | 0.1 | 110.3 | 383.7 | 100.0 | |



| | |
|-------------------|-------|
| D ₁₀ = | |
| D ₃₀ = | 0.090 |
| D ₆₀ = | 1.051 |

| | |
|------------------|--|
| C _U = | |
| C _G = | |

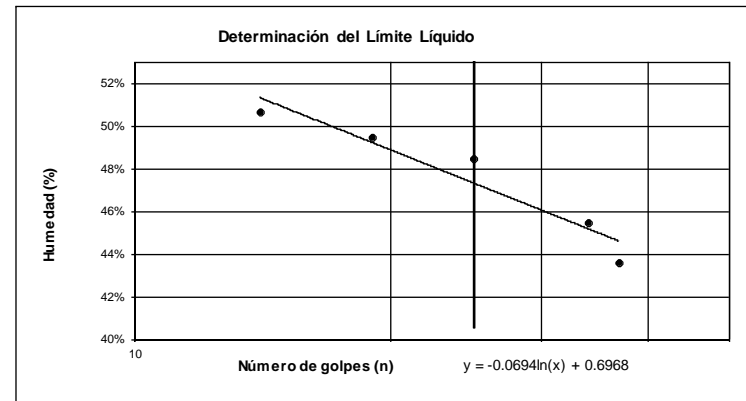
| | |
|---------|-----|
| % Grava | 17% |
| % Arena | 55% |
| % Finos | 29% |

| | |
|----------------|-------|
| L. Líquido | 47.3% |
| L. Plástico | 28.5% |
| I. Plasticidad | 18.8% |
| H. Natural | 30.3% |
| I. Liquidez | 0.09 |

SUCS SM
 AASHTO A-2-6 (0)



JEFE DE LABORATORIO



CLASIFICACION DE SUELOS - ASTM 2487

 Muestra: PCA # 21 - 02
 Datum: WGS84

 Prof.: 2.5 m
 Coordenadas UTM: 728 584 E 9 719 857 N

 Proyecto: Deslizamiento Quilloac
 Solicitado por: GADICC
 Fecha: 30-sep-14

| | LIMITE LIQUIDO | | | | | LIMITE PLASTICO | | | HUM. NATURAL | | |
|-----------------------------|----------------|-------|-------|-------|-------|-----------------|-------|-------|--------------|--------|--------|
| Número de tarro | 194 | 120 | 144 | 106 | 118 | 127 | 117 | 189 | 126 | 109 | 116 |
| Muestra húmeda + tarro (gr) | 31.11 | 31.79 | 30.90 | 30.30 | 29.65 | 18.22 | 16.63 | 16.90 | 176.37 | 171.33 | 155.24 |
| Muestra seca + tarro (gr) | 26.01 | 26.64 | 25.21 | 24.76 | 23.95 | 17.89 | 16.32 | 16.52 | 141.33 | 136.33 | 121.88 |
| Peso de tarro (gr) | 16.08 | 16.98 | 14.91 | 15.14 | 14.24 | 16.79 | 15.25 | 15.22 | 15.52 | 14.43 | 14.96 |
| Peso de agua (gr) | 5.10 | 5.15 | 5.69 | 5.54 | 5.70 | 0.33 | 0.31 | 0.38 | 35.04 | 35.00 | 33.36 |
| Peso muestra seca (gr) | 9.93 | 9.66 | 10.30 | 9.62 | 9.71 | 1.10 | 1.07 | 1.30 | 125.81 | 121.90 | 106.92 |
| Porcentaje de humedad | 51.4% | 53.3% | 55.2% | 57.6% | 58.7% | 30.0% | 29.0% | 29.2% | 27.85% | 28.71% | 31.20% |
| Número de golpes | 37 | 33 | 28 | 24 | 19 | 29.4% | | | 29.25% | | |

FRACCION FINA

| | |
|---|-------|
| Peso para lavado de material que pasa #4 (gr) | 500 |
| Peso seco antes de lavado (gr) | 386.8 |
| Peso seco después de lavado (gr) | 238.5 |
| Peso seco total después del ensayo | 238.4 |
| Error | 0.04% |

| Tamiz | Apertura Tamiz (mm) | Peso ret. parcial (gr) | Peso ret. correg. (gr) | Peso ret. acumu. (gr) | % retenido | % que pasa |
|--------|---------------------|------------------------|------------------------|-----------------------|------------|------------|
| 3/4" | 19.10 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 1/2" | 12.70 | 0.0 | 0 | 0 | 0.0 | 100.0 |
| 3/8" | 9.52 | 17.8 | 17.8 | 17.8 | 4.6 | 95.4 |
| Nº 4 | 4.76 | 30.3 | 30.3 | 48.1 | 12.4 | 87.6 |
| Nº 8 | 2.38 | 30.1 | 30.1 | 78.2 | 20.2 | 79.8 |
| Nº 10 | 2.00 | 7.2 | 7.2 | 85.4 | 22.1 | 77.9 |
| Nº 40 | 0.42 | 77.1 | 77.2 | 162.6 | 42.0 | 58.0 |
| Nº 50 | 0.297 | 23.6 | 23.6 | 186.2 | 48.1 | 51.9 |
| Nº 100 | 0.149 | 32.3 | 32.3 | 218.5 | 56.5 | 43.5 |
| Nº 200 | 0.075 | 20.0 | 20 | 238.5 | 61.7 | 38.3 |
| FONDO | | 0.0 | 148.3 | 386.8 | 100.0 | |

D₁₀ =
 D₃₀ =
 D₆₀ = 0.493

C_U =
 C_G =

% Grava 12%
 % Arena 49%
 % Finos 38%

L. Líquido 56.3%
 L. Plástico 29.4%
 I. Plasticidad 26.9%
 H. Natural 29.3%
 I. Liquidez -0.01

SUCS SC

AASHTO A-2-6 (5)



JEFE DE LABORATORIO

