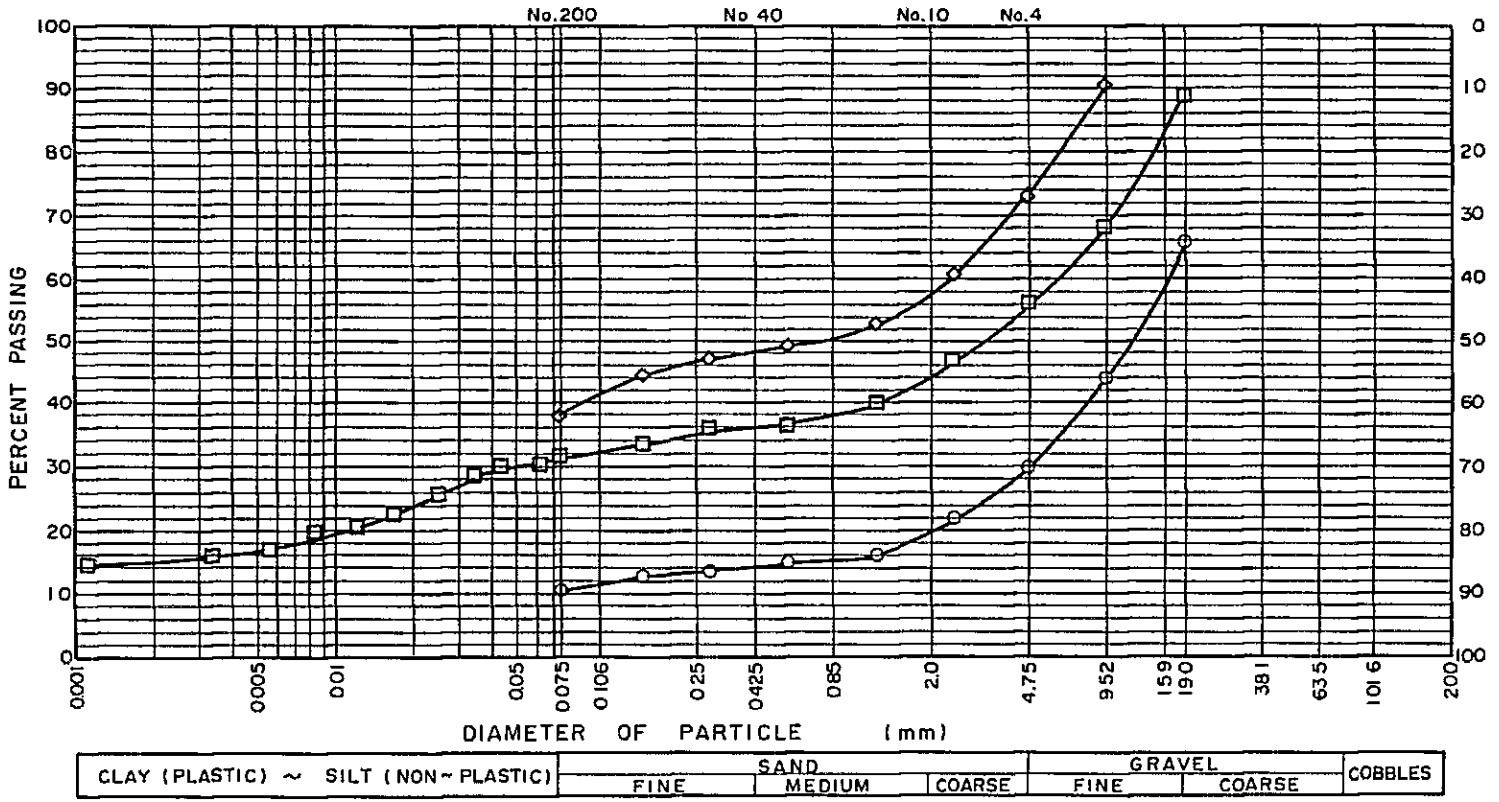



| SAMPLE NO. | 0.1 T0 | 1.0 2.0 | 2.0 2.5 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 66 | 89 | |
| mm 4.75 (%) | 73 | 30 | 56 | |
| mm 0.075 (%) | 38 | 11 | 32 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

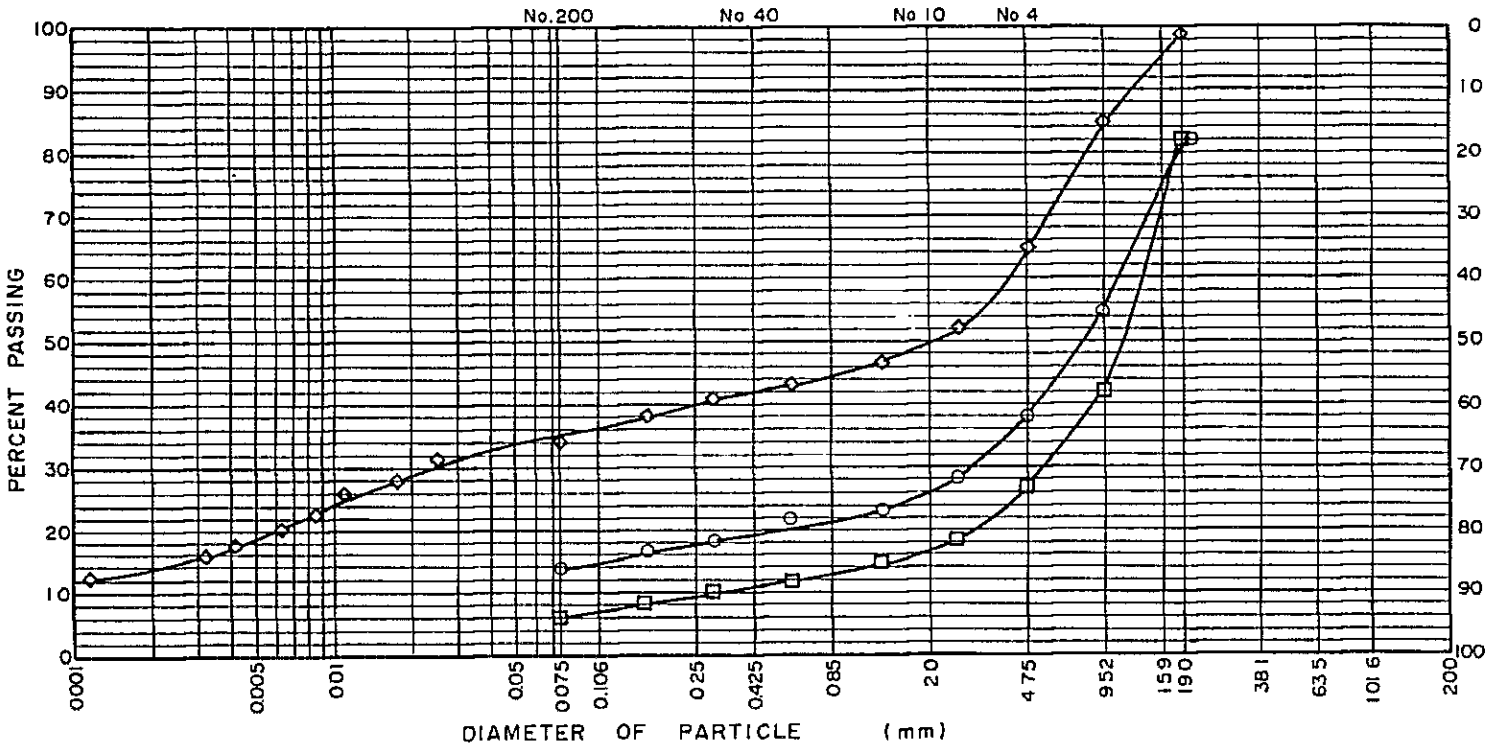
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-1 | ◇ | 0.10-1.00 | GC | A-6 (2) | | 2.61 | 37.6 | 19.9 | 17.7 | |
| | ○ | 1.00-2.00 | GP-GM | A-1-a(0) | | | | | | |
| | □ | 2.00-2.50 | GC | A-2-6(1) | | | | | | |
| | | | | | | | 33.9 | 19.6 | 14.3 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (1) Gradation Analysis Curve (P – 1)




| SAMPLE NO | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 2.5 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 99 | 82 | 82 | |
| mm 4.75 (%) | 65 | 38 | 27 | |
| mm 0.075 (%) | 34 | 14 | 6 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

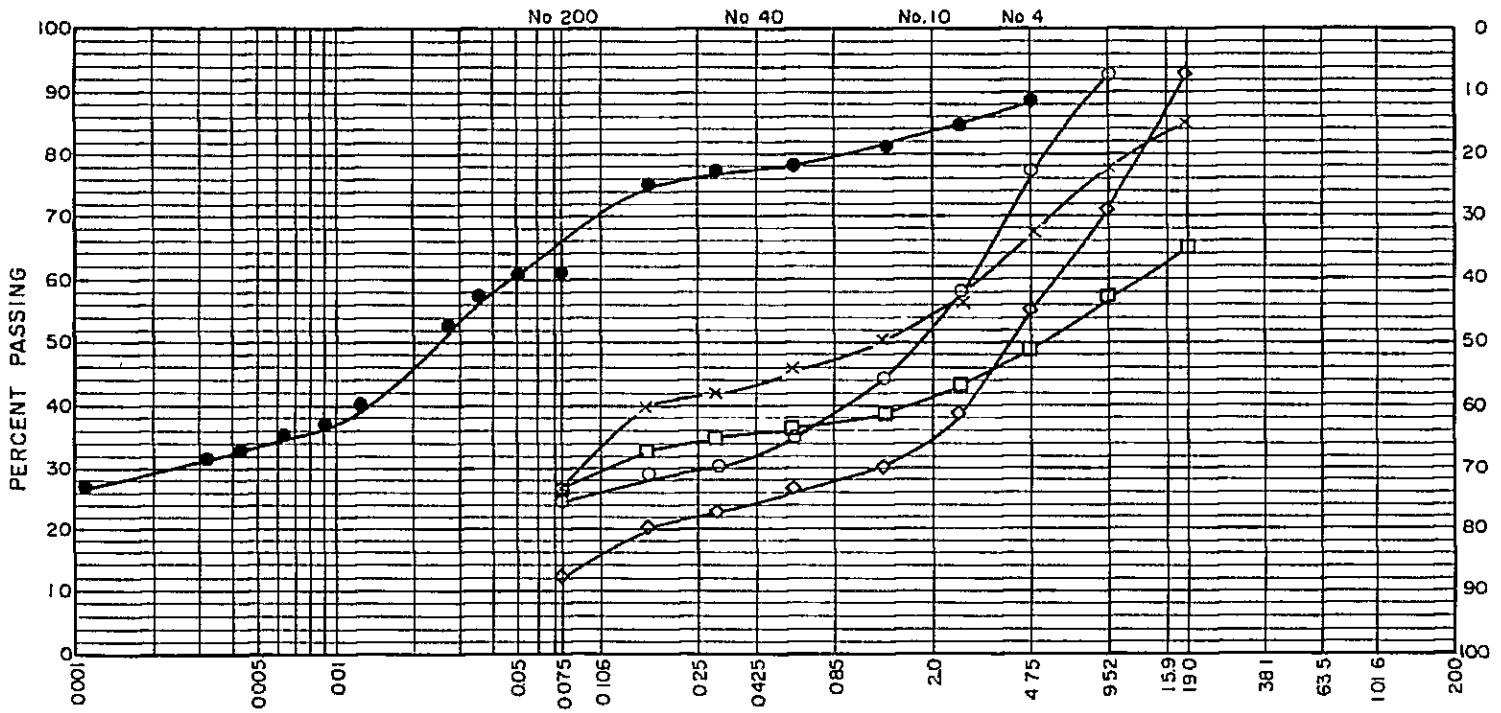
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-2 | ◇ | 0.20 - 1.00 | GC | A-2-6 (1) | | | 36.8 | 21.5 | 15.3 | |
| | ○ | 1.00 - 2.00 | — | A-1-a (0) | | | — | — | — | |
| | □ | 2.00 - 2.50 | GW-GC | A-2-6 (0) | | | 31.8 | 19.0 | 12.8 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (2) Gradation Analysis Curve (P-2)




| SAMPLE NO | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 93 | 100 | 65 | 85 | 100 |
| mm 4.75 (%) | 55 | 77 | 48 | 67 | 88 |
| mm 0.075 (%) | 13 | 25 | 27 | 27 | 61 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

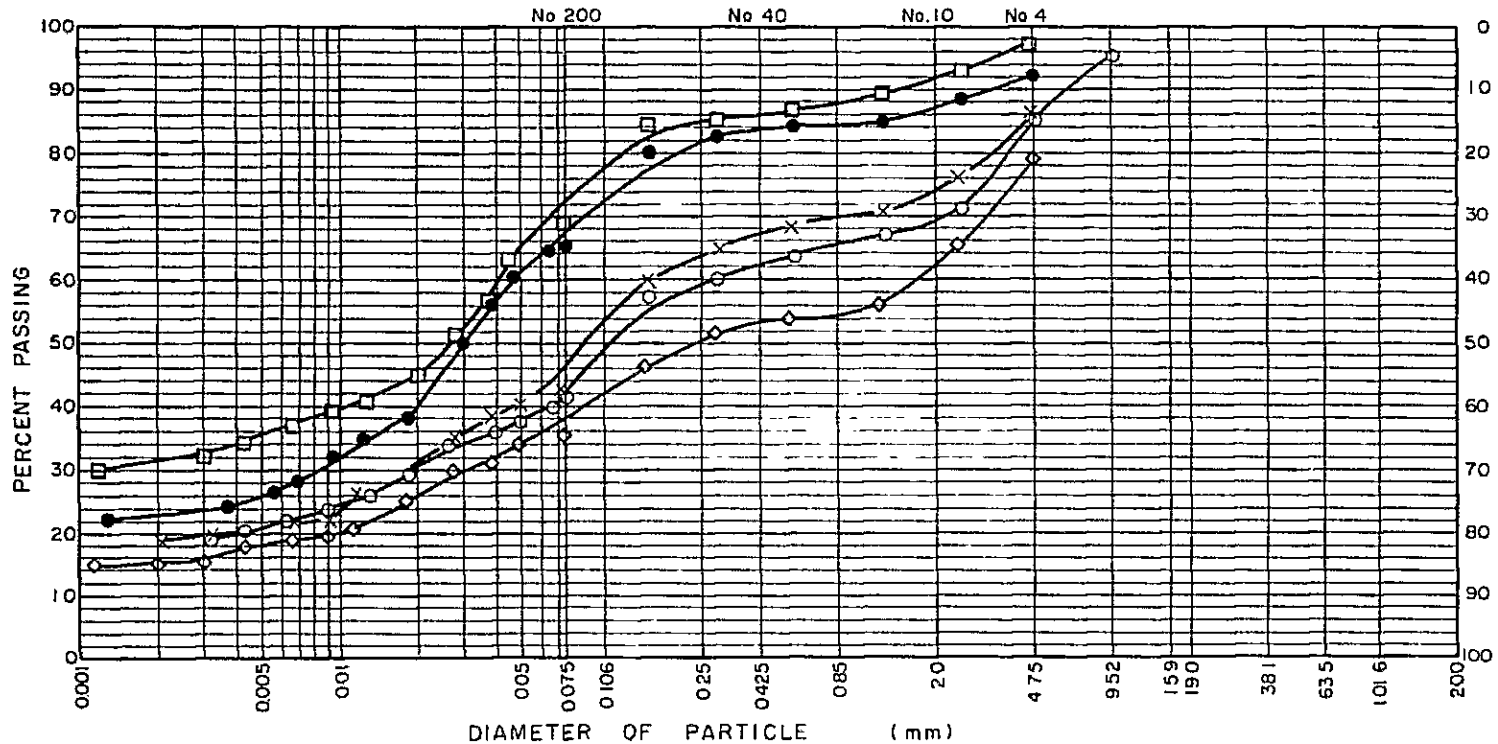
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-3 | ◇ | 0.20 - 1.00 | GM-GC | A-2-6 (0) | | | 20.1 | 16.0 | 4.1 | |
| | ○ | 1.00 - 2.00 | SM | A-2-7 (0) | | | 50.9 | 38.3 | 12.6 | |
| | □ | 2.00 - 3.00 | GM-GC | A-2-6 (0) | | | 21.6 | 16.7 | 4.9 | |
| | × | 3.00 - 4.10 | SC | A-2-6 (0) | | | 24.5 | 14.8 | 9.7 | |
| | ● | 4.00 - 5.00 | CL | A-6 (6) | | | 30.6 | 18.2 | 12.4 | |
| | | | | | | | | | | |

2-1-2 (3) Gradation Analysis Curve (P-3)




| SAMPLE NO | 1 2 ~ 10 | 10 ~ 20 | 20 ~ 30 | 30 ~ 40 | 40 ~ 50 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 100 | 100 | 100 | 100 | 100 |
| mm 4.75 (%) | 78 | 85 | 97 | 86 | 92 |
| mm 0.075 (%) | 35 | 42 | 69 | 43 | 66 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

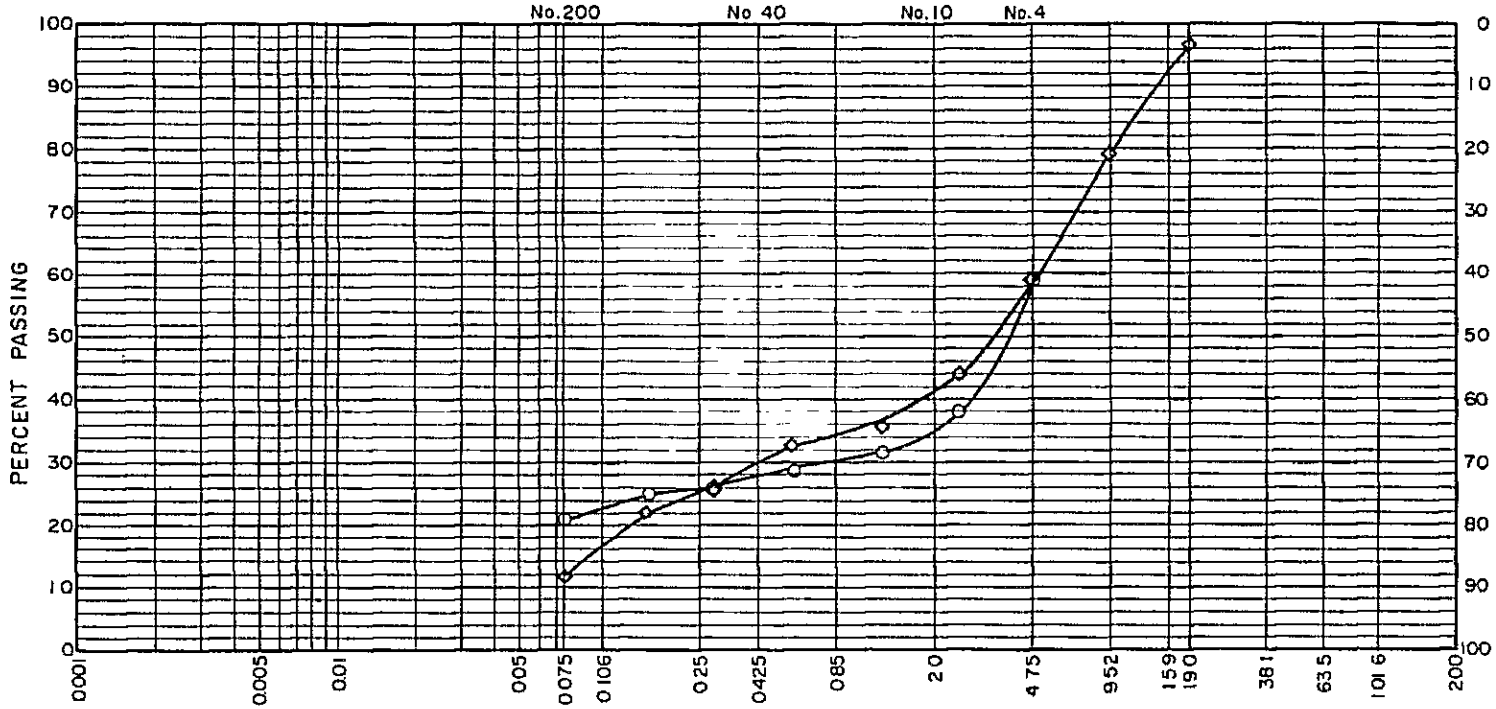
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-4 | ◇ | 0.20-1.00 | SC | A-2-6 (1) | | | 32.4 | 18.9 | 13.5 | |
| | ○ | 1.00-2.00 | SC | A-6 (2) | | | 34.2 | 21.9 | 12.3 | |
| | □ | 2.00-3.00 | CL | A-6 (12) | | | 35.8 | 16.2 | 19.6 | |
| | × | 3.00-4.00 | SL | A-6 (2) | | | 35.6 | 23.6 | 12.0 | |
| | ○ | 4.00-5.00 | CL | A-6 (7) | | | 30.2 | 19.2 | 11.0 | |
| | | | | | | | | | | |

2-1-2(4) Gradation Analysis Curve (P-4)




| SAMPLE NO | P-5A 0.3 ~ 1.0 | P-5B 0.3 ~ 1.0 | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 96 | 100 | | |
| mm 4.75 (%) | 59 | 59 | | |
| mm 0.075(%) | 12 | 22 | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

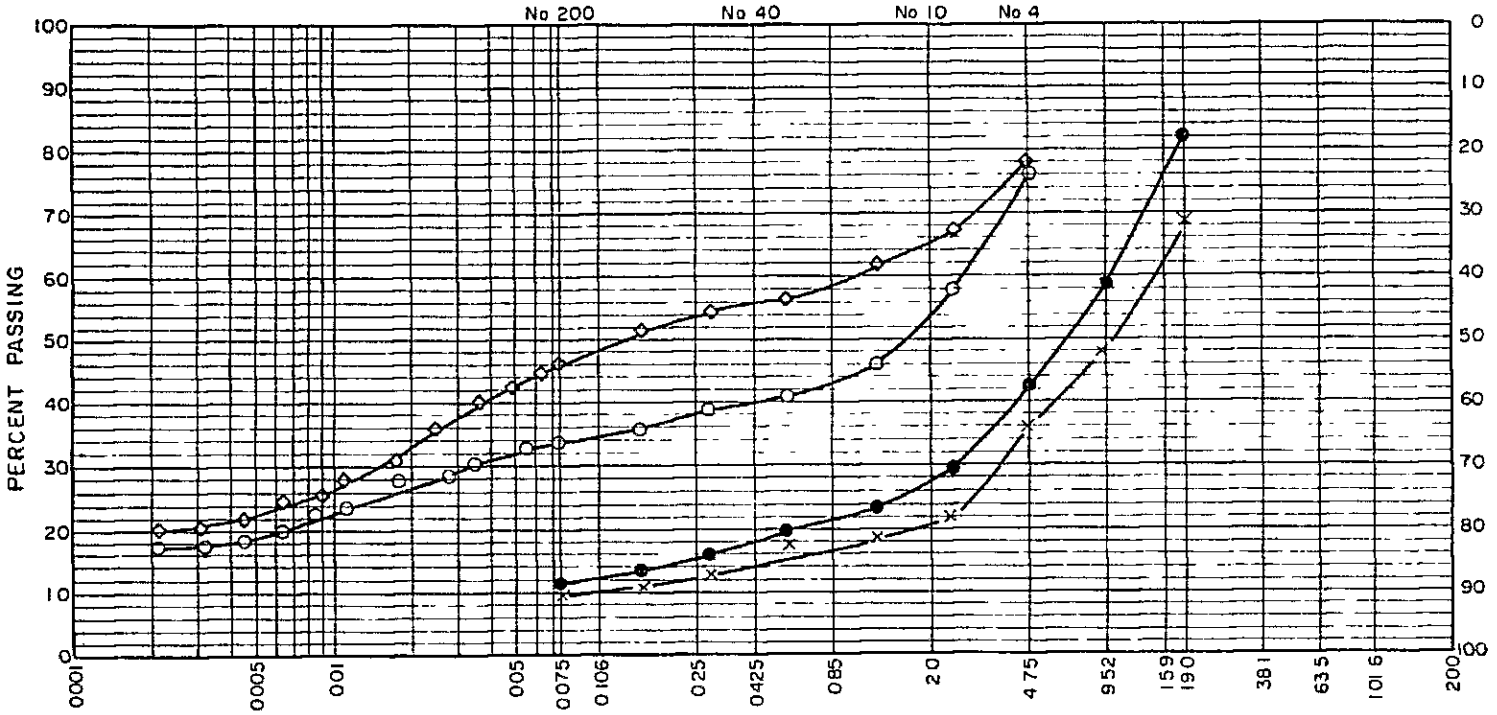
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-5A | ◇ | 0.30-1.00 | SP-SC | A-2-6(0) | | | 35.3 | 22.1 | 13.2 | |
| P-5B | ○ | 0.30-1.00 | SC | A-2-6(0) | | | 36.4 | 23.3 | 13.1 | |

2-1-2(5) Gradation Analysis Curve (P-5)




| SAMPLE NO | #3 ~ #10 | #10 ~ #20 | #30 ~ #40 | #40 ~ #50 |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 100 | 69 | 82 |
| mm 4.75 (%) | 78 | 76 | 36 | 43 |
| mm 0.075 (%) | 46 | 34 | 10 | 12 |
| $D_{60}$ (mm) | | | 150 | |
| $D_{30}$ (mm) | | | 38 | |
| $D_{10}$ (mm) | | | 0.075 | |
| Cu | | | 200 | |
| Cc | | | 13 | |

$$Cu = \frac{D_{60}}{D_{10}}$$

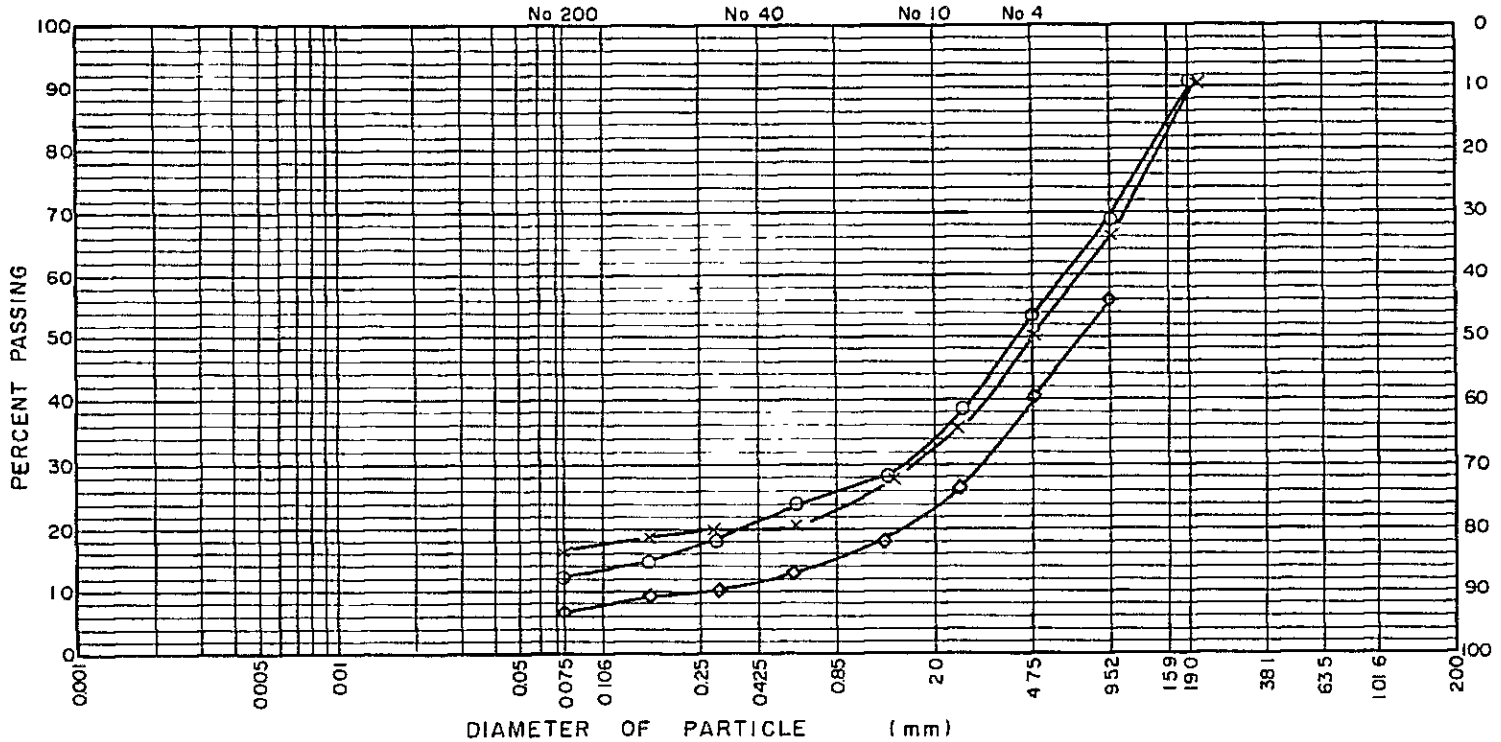
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-6 | ◇ | 0.30 - 1.00 | SC | A-6 (4) | | | 37.0 | 21.1 | 15.9 | |
| | ○ | 1.00 - 2.00 | SM | A-2-6 (0) | | 2.68 | 34.0 | 27.2 | 6.8 | |
| | × | 3.00 - 4.00 | GM-GC | A-2-6 (0) | | | 39.8 | 21.0 | 18.8 | |
| | ● | 4.00 - 5.00 | GP-GC | A-2-6 (1) | | | 38.9 | 21.3 | 17.6 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2(6) Gradation Analysis Curve (P-6)




| SAMPLE NO | 0.2 ~ 1.8 | 1.8 ~ 2.0 | 30 ~ 40 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 92 | 92 | |
| mm 4.75 (%) | 41 | 53 | 50 | |
| mm 0.075 (%) | 7 | 13 | 16 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

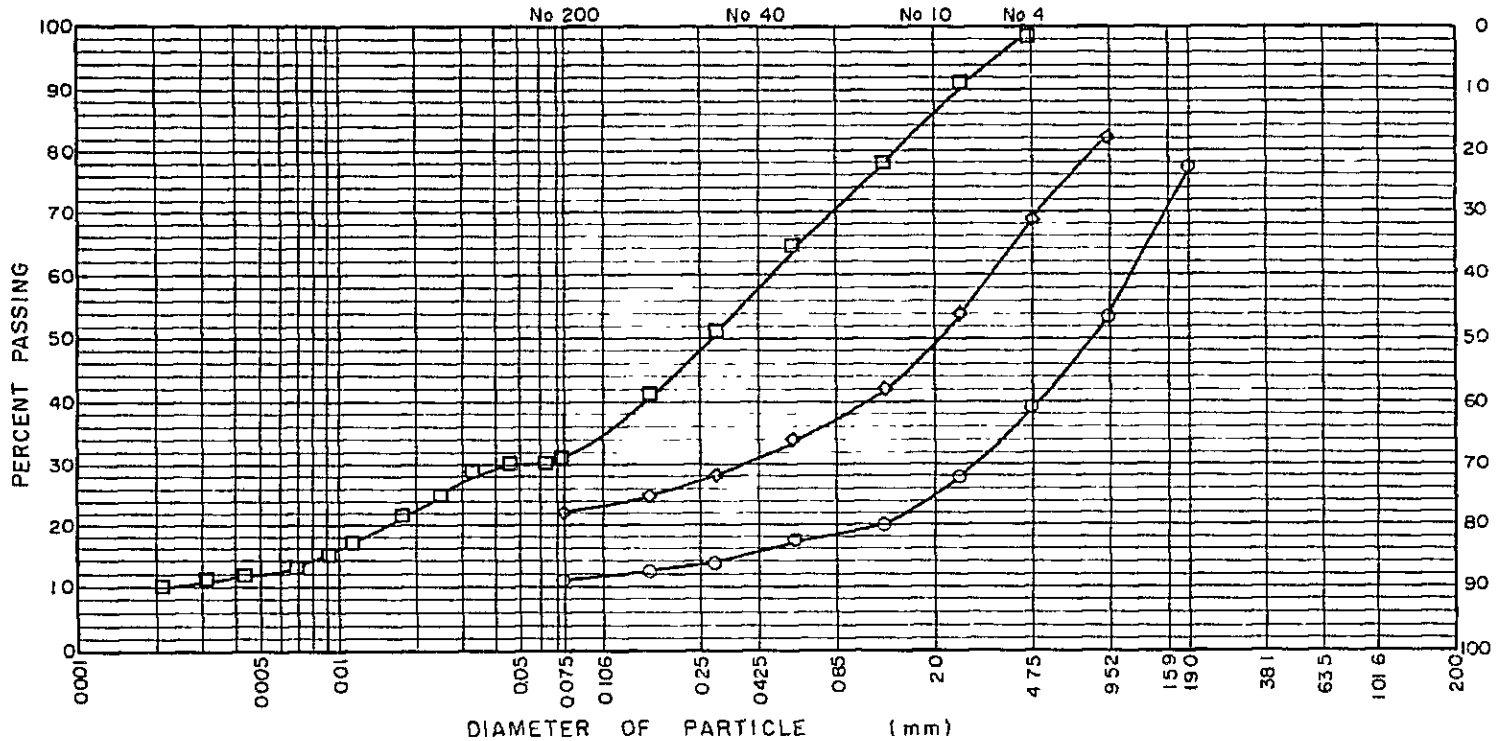
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-7 | ◇ | 0.20 - 1.00 | GW-GC | A-2-6(0) | | | 40.2 | 22.1 | 18.1 | |
| | ○ | 1.00 - 2.00 | SC | A-2-6(0) | | | 37.7 | 24.0 | 13.7 | |
| | □ | 2.00 - 3.00 | — | | | | — | — | — | |
| | × | 3.00 - 4.00 | GM | A-2-7(0) | | | 41.4 | 29.4 | 12.0 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (7) Gradation Analysis Curve (P-7)




| SAMPLE NO | 1.2 ~ 1.8 | 1.8 ~ 2.0 | 2.0 ~ 3.0 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 77 | 100 | |
| mm 4.75 (%) | 68 | 39 | 99 | |
| mm 0.075 (%) | 22 | 11 | 31 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

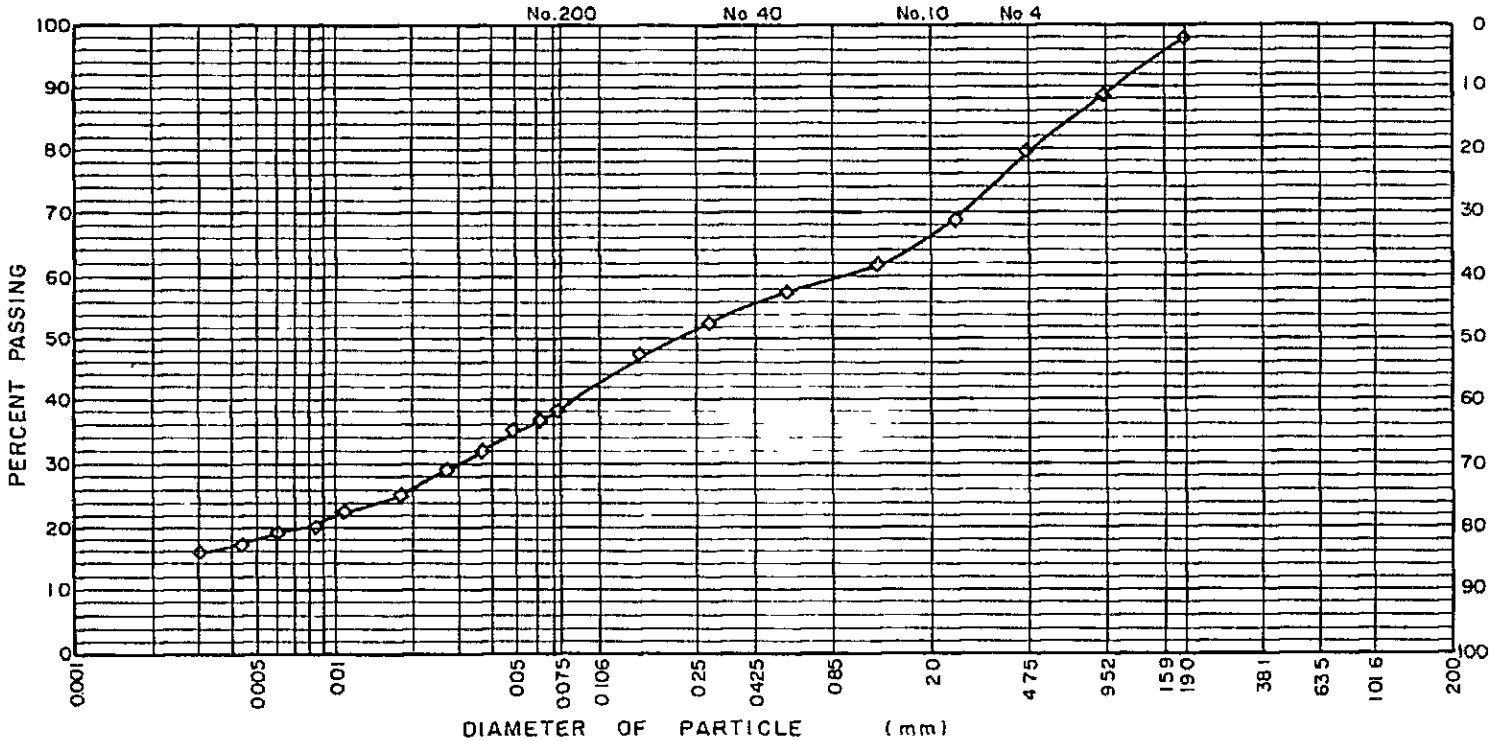
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COFFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-8 | ◇ | 0.20-1.00 | SC | A-2-7 (1) | | | 49.4 | 28.0 | 21.4 | |
| | ○ | 1.00-2.00 | GP-GC | A-2-6 (0) | | | 35.7 | 20.1 | 15.6 | |
| | □ | 2.00-3.00 | SC | A-2-6 (0) | | | 26.8 | 17.1 | 9.1 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (8) Gradation Analysis Curve (P-8)




| SAMPLE NO | 1.2 ~ 1.0 | | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 98 | | | |
| mm 4.75 (%) | 81 | | | |
| mm 0.075 (%) | 38 | | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

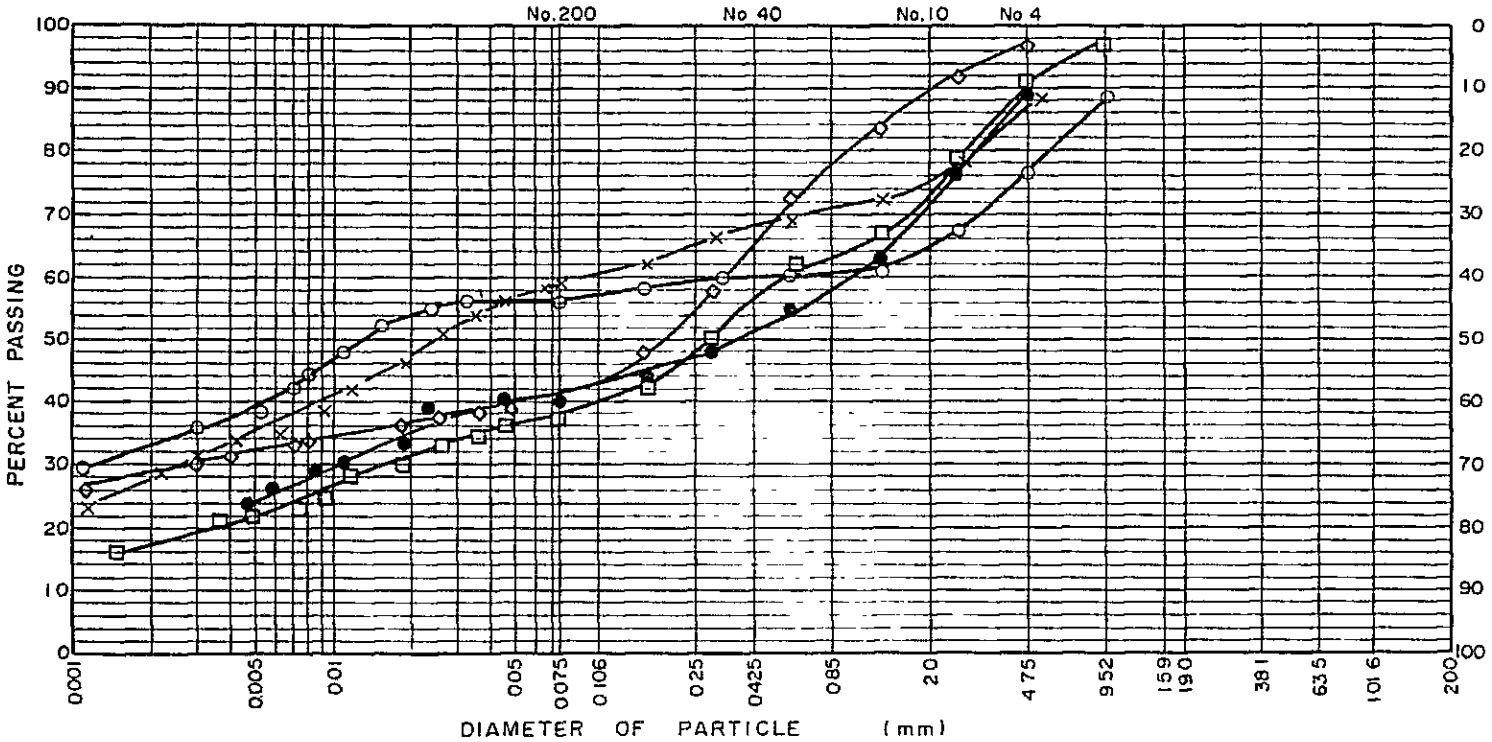
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-9 | ◇ | 0.20-1.00 | SC | A-6 (1) | | | 31.3 | 22.3 | 9.0 | |
| | ○ | 1.00-2.00 | | | | | 23.8 | 14.9 | 8.9 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (9) Grodation Analysis Curve (P-9)




| SAMPLE NO | 1.3 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 100 | 100 | 100 | 100 | 100 |
| mm 4.75 (%) | 97 | 76 | 90 | 88 | 88 |
| mm 0.075 (%) | 38 | 56 | 37 | 59 | 40 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

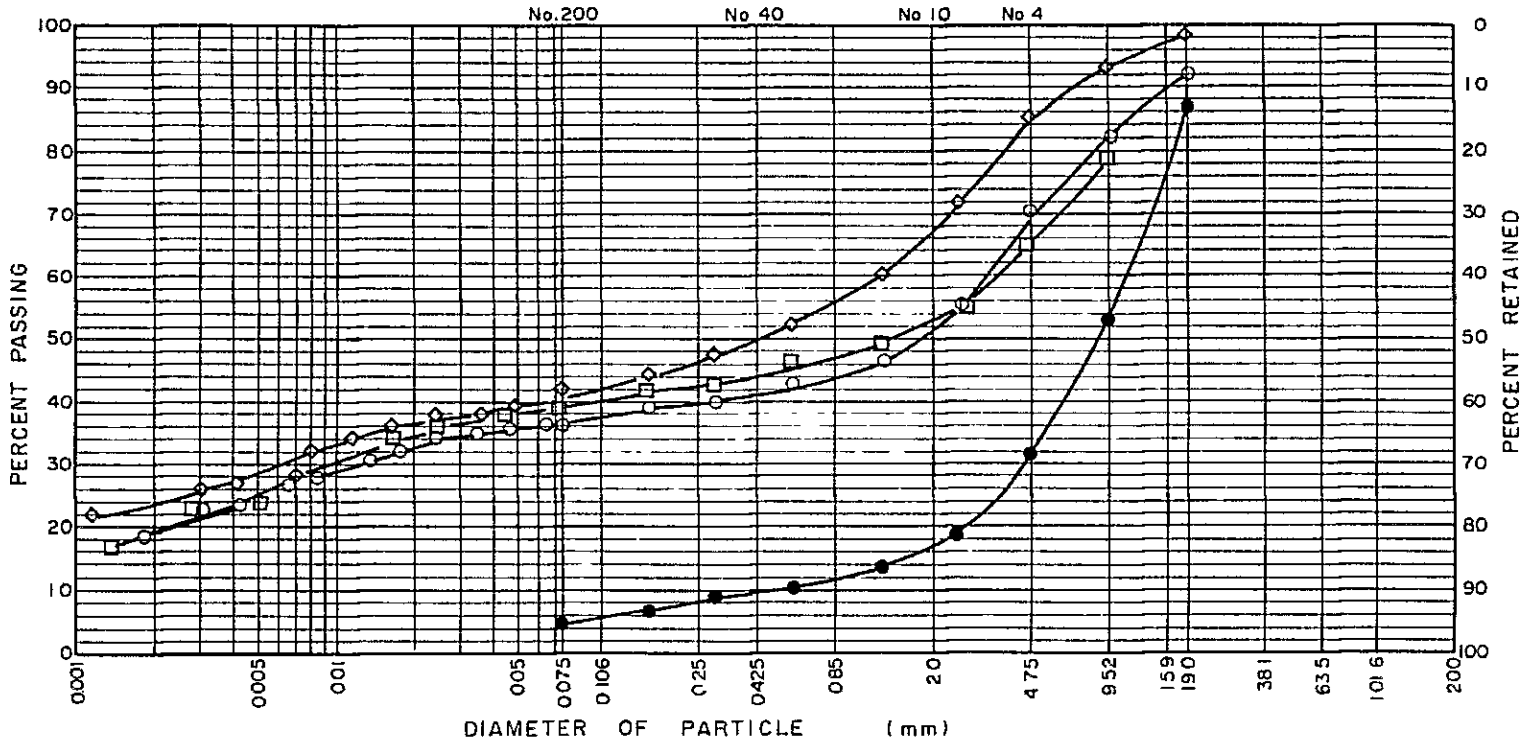
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-10 | ◇ | 0.38~1.10 | SM | A-7-6 (1) | | | 49.3 | 43.2 | 6.1 | |
| | ○ | 1.00~2.00 | CL | A-7-6 (7) | | | 41.0 | 34.7 | 16.3 | |
| | □ | 2.00~3.00 | SC | A-6 (2) | | 2.68 | 39.1 | 23.1 | 16.0 | |
| | × | 3.00~4.00 | CL | A-6 (7) | | | 37.1 | 22.7 | 14.4 | |
| | ● | 4.00~5.00 | SC | A-6 (3) | | | 37.0 | 20.2 | 16.8 | |
| | | | | | | | | | | |

2-1-2 (10) Gradation Analysis Curve (P-10)




| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NO. | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|
| MAX. GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 98 | 92 | 100 | 87 |
| mm 4.75 (%) | 85 | 70 | 65 | 32 |
| mm 0.075 (%) | 42 | 36 | 39 | 5 |
| $D_{60}$ (mm) | | | | 1.20 |
| $D_{30}$ (mm) | | | | 0.48 |
| $D_{10}$ (mm) | | | | 0.05 |
| Cu | | | | 24 |
| Cc | | | | 3.8 |

$$Cu = \frac{D_{60}}{D_{10}}$$

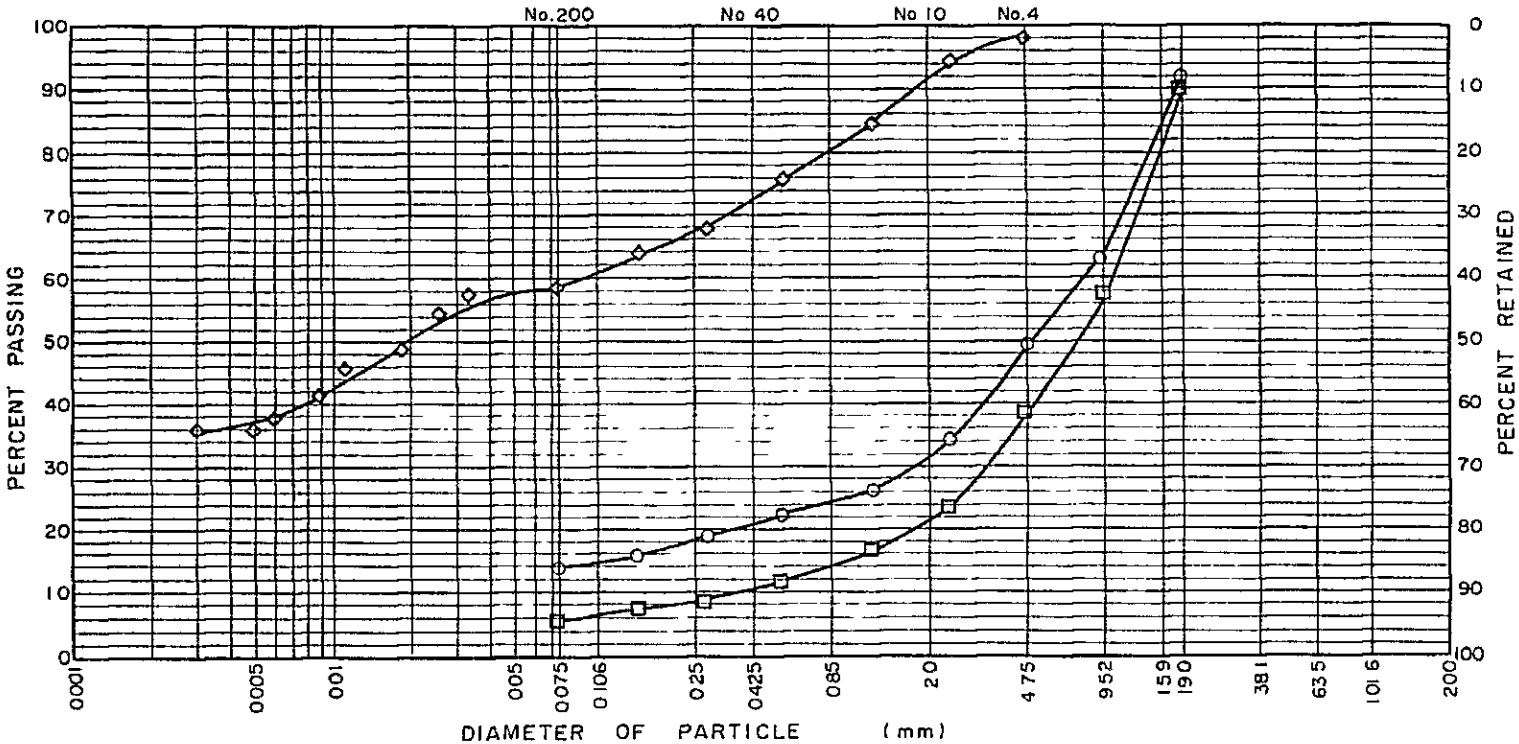
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-11 | ◇ | 0.21 - 1.00 | SM | A-7-6 (3) | | | 51.6 | 38.3 | 13.3 | |
| | ○ | 1.01 - 2.00 | SC | A-7-6 (1) | | | 42.2 | 25.0 | 17.2 | |
| | □ | 2.00 - 3.00 | GC | A-7-6 (4) | | | 45.1 | 24.1 | 21.0 | |
| | × | 3.00 - 4.00 | | | | | 34.9 | 22.3 | 12.6 | |
| | ● | 4.00 - 5.00 | GW-GC | A-2-6 (0) | | | 34.4 | 15.6 | 18.8 | |
| | | | | | | | | | | |

2-1-2(11) Gradation Analysis Curve (P-11)




| SAMPLE NO | 03 ~ 10 | 11 ~ 20 | 20 ~ 30 | |
|---|---|---|---|---|
| MAX. GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 92 | 90 | |
| mm 4.75 (%) | 99 | 52 | 39 | |
| mm 0.075 (%) | 59 | 14 | 6 | |
| $D_{60}$ (mm) | | | 1.18 | |
| $D_{30}$ (mm) | | | 3.3 | |
| $D_{10}$ (mm) | | | 0.33 | |
| Cu | | | 3.3 | |
| Cc | | | 3.0 | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-12 | ◇ | 0.30-1.00 | ML | A-7-6 (7) | | 2.67 | 41.8 | 26.8 | 15.0 | |
| | ○ | 1.00-2.00 | GC | A-2-6 (0) | | | 32.8 | 18.3 | 14.5 | |
| | □ | 2.00-3.00 | GW-GC | A-1-a (0) | | | — | — | — | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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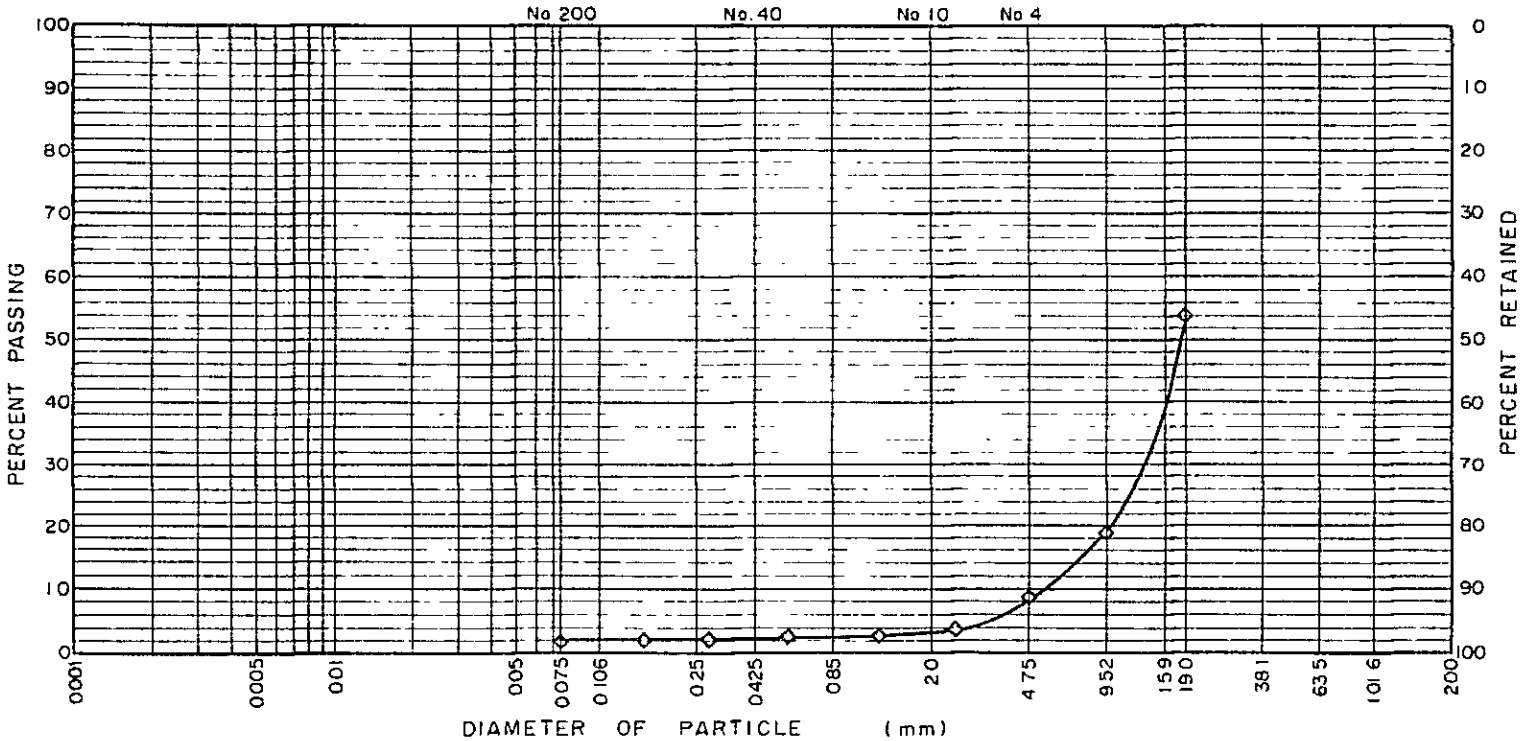
2-1-2 (12) Gradation Analysis Curve (P-12)




| SAMPLE NO | P-13 ~ 14 | | | |
|---|---|---|---|---|
| MAX GRAIN SIZE | | | | |
| mm (%) | | | | |
| mm 19.0 (%) | 54 | | | |
| mm 4.75 (%) | 9 | | | |
| mm 0.075 (%) | 2 | | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | SAMPLE DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|
| P-13 ◇ | 0.30-1.40 | GW | A-2-6(0) | | | 37.0 | 21.7 | 15.3 | |
| | | | | | | | | | |
| | | | | | | | | | |
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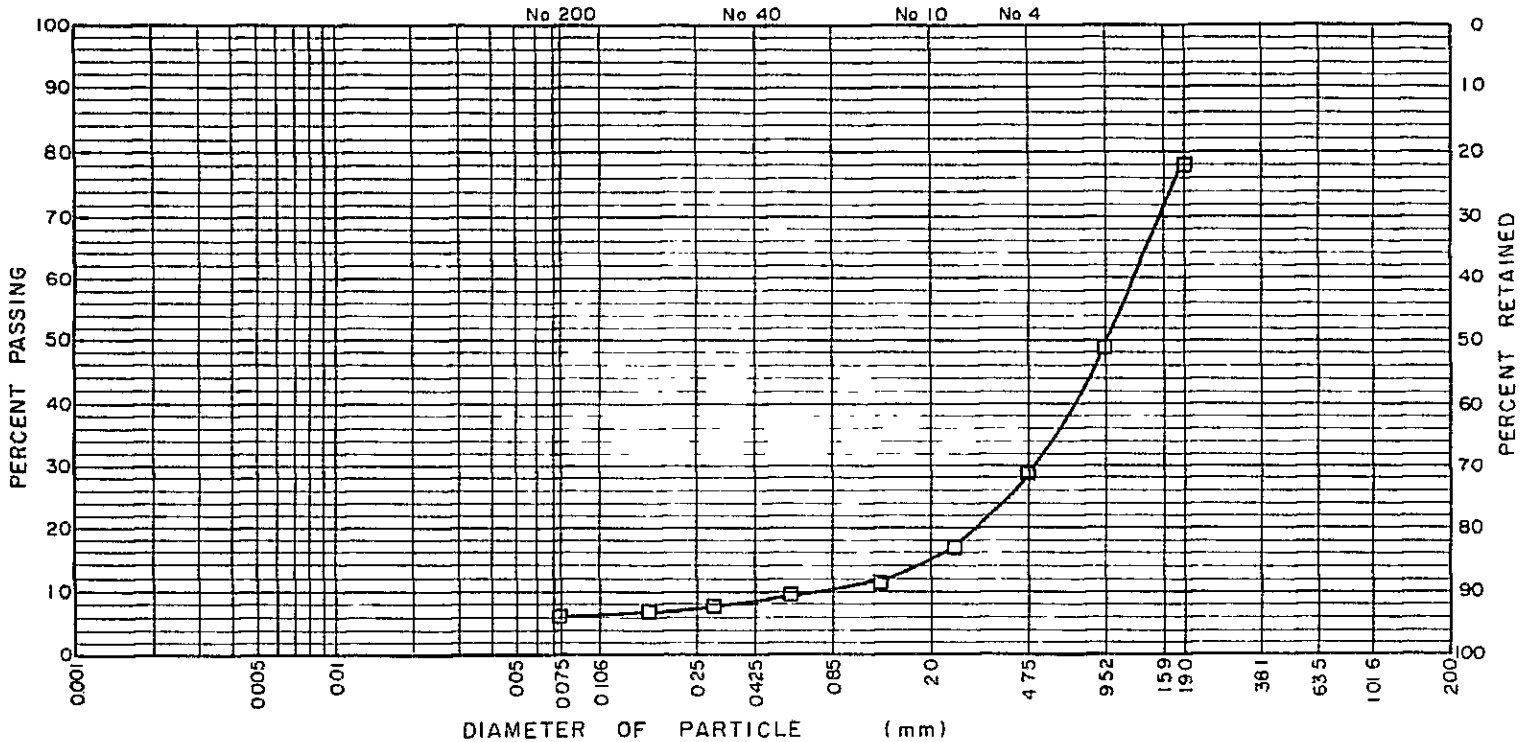
2-1-2(13) Gradation Analysis Curve (P-13)




| SAMPLE NO | 00 ~ 10 | | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 78 | | | |
| mm 4.75 (%) | 29 | | | |
| mm 0.075 (%) | 7 | | | |
| $D_{60}$ (mm) | 13.0 | | | |
| $D_{30}$ (mm) | 5.1 | | | |
| $D_{10}$ (mm) | 1.6 | | | |
| Cu | 22 | | | |
| Cc | 3.2 | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-14 | ◇ | 0.00-1.00 | GW-GM | A-2-7(0) | | | 48.0 | 28.3 | 19.7 | |
| | ○ | 1.00-2.00 | | | | | 30.4 | 22.6 | 7.8 | |
| | □ | 2.00-3.10 | | | | 2.71 | 31.7 | 21.6 | 10.1 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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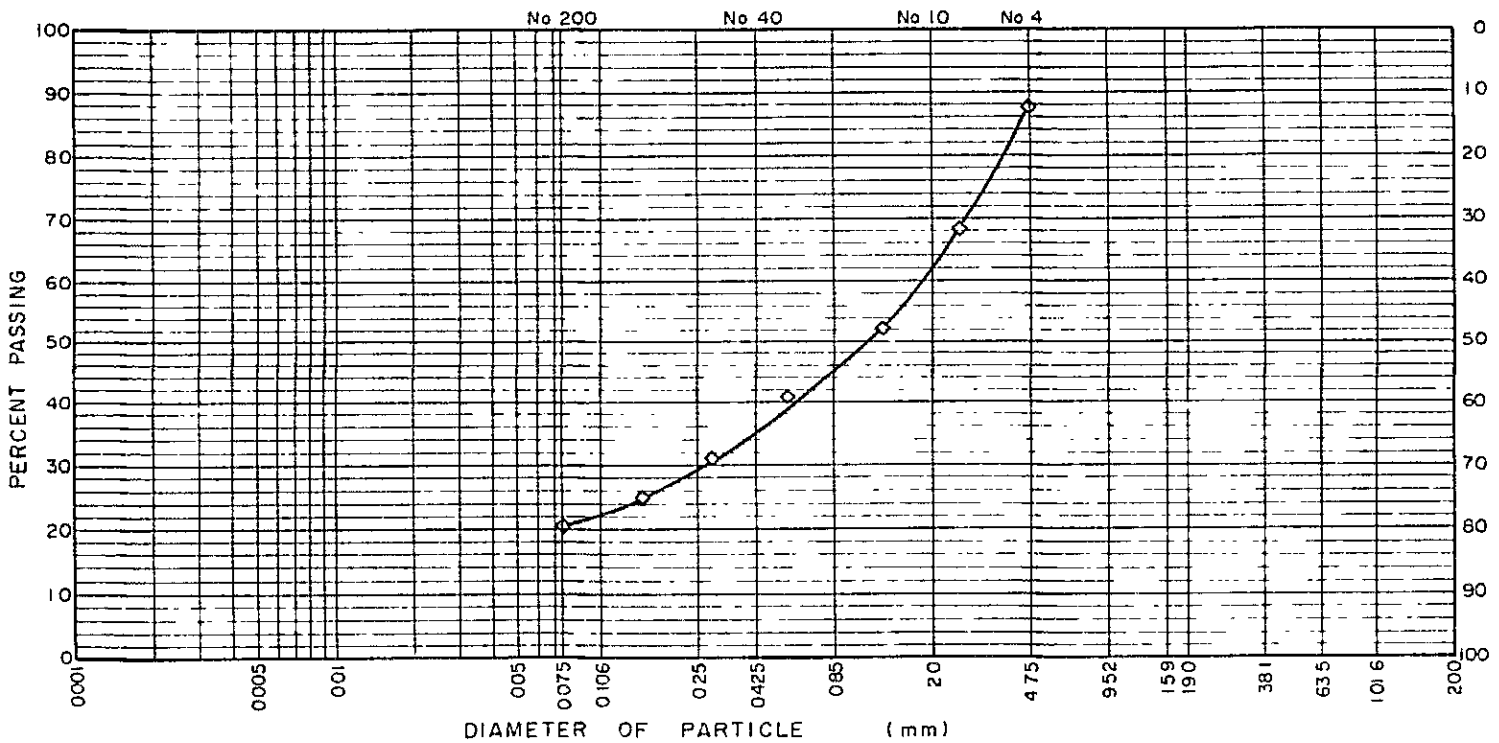
2-1-2(14) Grodation Analysis Curve (P-14)




| SAMPLE NO | C-2 ~ 1.0 | | | |
|---|---|---|---|---|
| MAX GRAIN SIZE | | | | |
| mm (%) | | | | |
| mm 19.0 (%) | 100 | | | |
| mm 4.75 (%) | 87 | | | |
| mm 0.075 (%) | 20 | | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE | | SOIL CLASSIFICATION | | SPECIFIC GRAVITY | | ATTERBERG LIMITS | | | |
|---|---|---|---|---|---|---|---|---|---|
| NUMBER | DEPTH (m) | UNIFIED SYSTEM | REVISED P.R. SYSTEM | | | LL | PL | PI | SL |
| P-15 ◇ | 0.20-1.00 | SC | A-2-7(1) | | 2.71 | 58.7 | 33.1 | 25.6 | |
| | | | | | | | | | |
| | | | | | | | | | |
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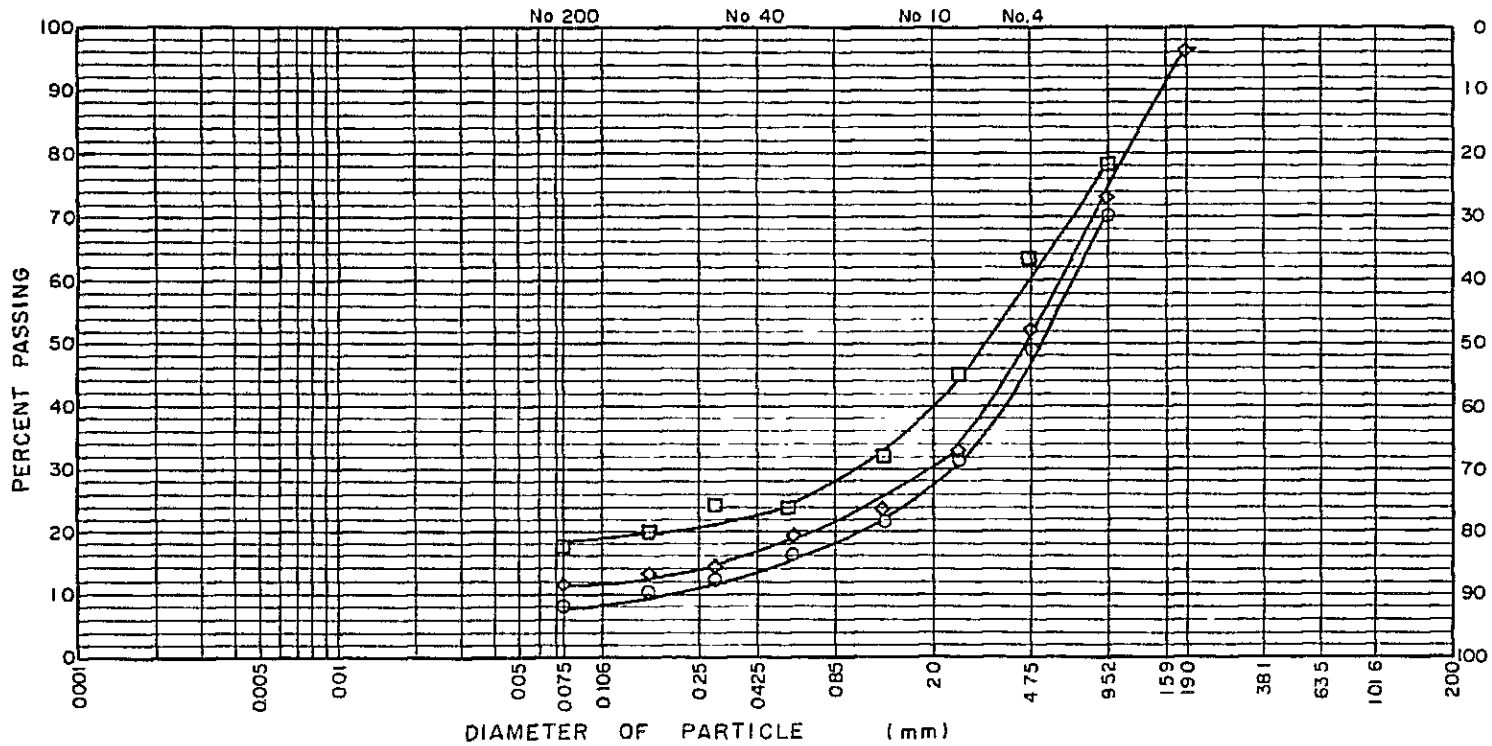
| | | | | | | | | | |

2-1-2 (15) Gradation Analysis Curve (P-15)




| SAMPLE NO | 0.2 ~ 1.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 96 | 100 | 100 | |
| mm 4.75 (%) | 52 | 49 | 63 | |
| mm 0.075 (%) | 12 | 9 | 18 | |
| $D_{60}$ (mm) | | 7.0 | | |
| $D_{30}$ (mm) | | 2.2 | | |
| $D_{10}$ (mm) | | 0.15 | | |
| Cu | | 47 | | |
| Cc | | 4.6 | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

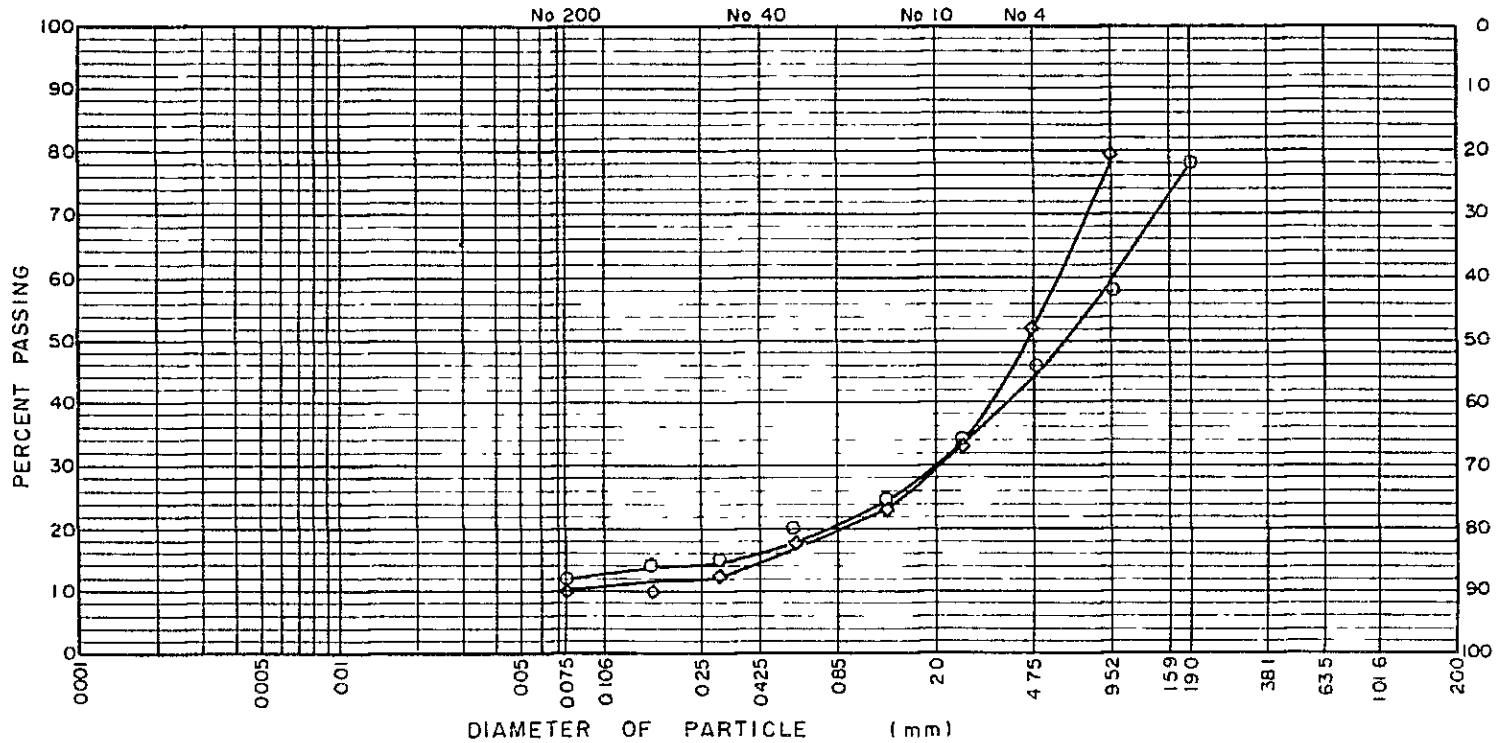
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-16 | ◇ | 0.20 ~ 1.00 | GM | A-2-7 (0) | | | 52.4 | 32.0 | 20.4 | |
| | ○ | 2.00 ~ 3.00 | GP-GC | A-2-6 (0) | | | 40.4 | 23.3 | 17.1 | |
| | □ | 3.00 ~ 4.00 | SC | A-2-6 (0) | | 2.75 | 39.3 | 22.0 | 17.3 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (16) Gradation Analysis Curve (P-16)




| SAMPLE NO | 00 ~ 10 | 10 ~ 20 | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 78 | | |
| mm 4.75 (%) | 62 | 46 | | |
| mm 0.075 (%) | 11 | 12 | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

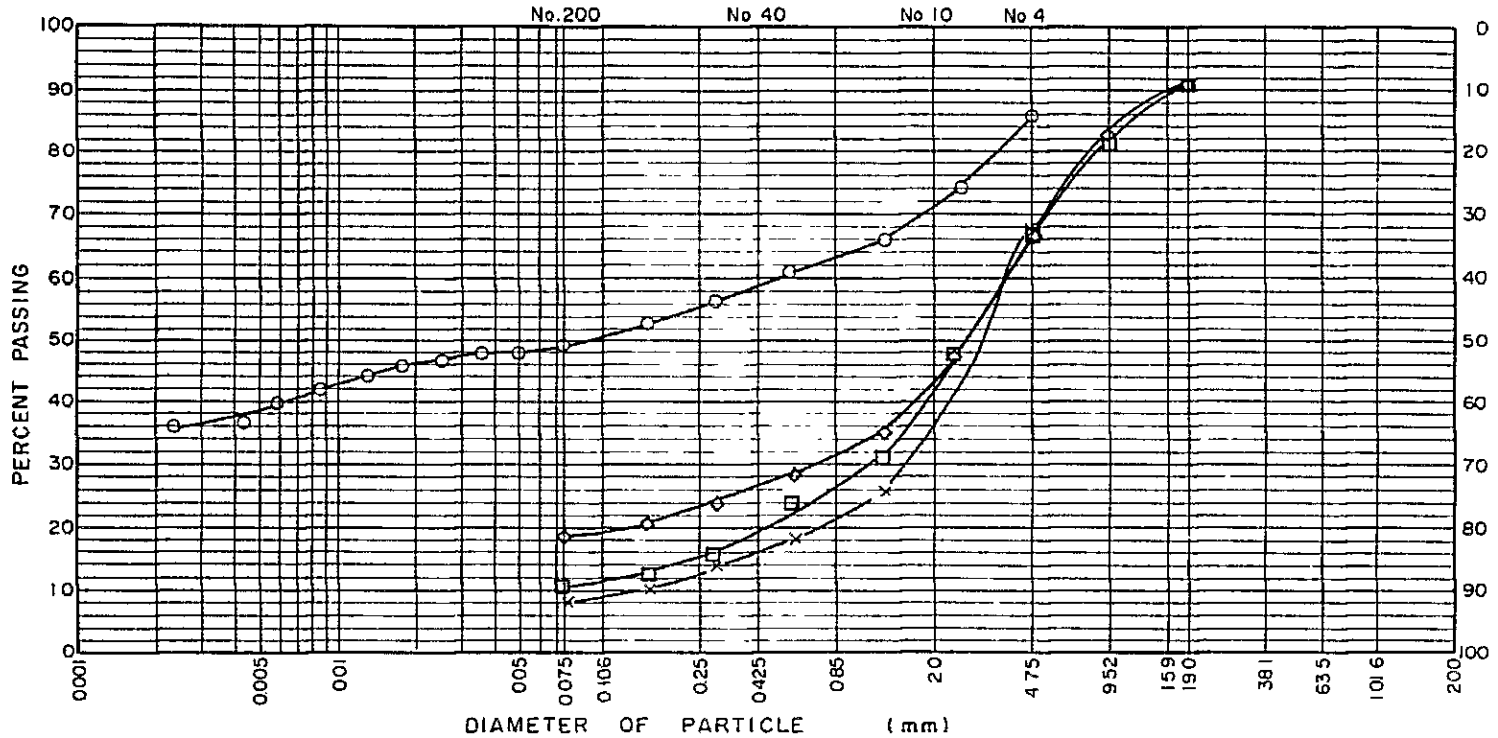
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE | | | SOIL CLASSIFICATION | | SPECIFIC GRAVITY | | ATTERBERG LIMITS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | | DEPTH (m) | UNIFIED SYSTEM | REVISED P.R. SYSTEM | | | LL | PL | PI | SL |
| P-17 | ◇ | 0.00 - 1.00 | GW-GC | A-2-6(0) | | | 36.5 | 23.7 | 12.8 | |
| | ○ | 1.00 - 2.00 | GW-GM | A-2-6(0) | | | 34.6 | 24.6 | 10.0 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (17) Gradation Analysis Curve (P-17)




| SAMPLE NO | 0.4 ~ 1.0 | 1.0 ~ 2.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 91 | 100 | 91 | 100 |
| mm 4.75 (%) | 66 | 86 | 66 | 68 |
| mm 0.075 (%) | 19 | 49 | 11 | 9 |
| $D_{60}$ (mm) | | | | 4.5 |
| $D_{30}$ (mm) | | | | 1.5 |
| $D_{10}$ (mm) | | | | 0.12 |
| Cu | | | | 38 |
| Cc | | | | 4.2 |

$$Cu = \frac{D_{60}}{D_{10}}$$

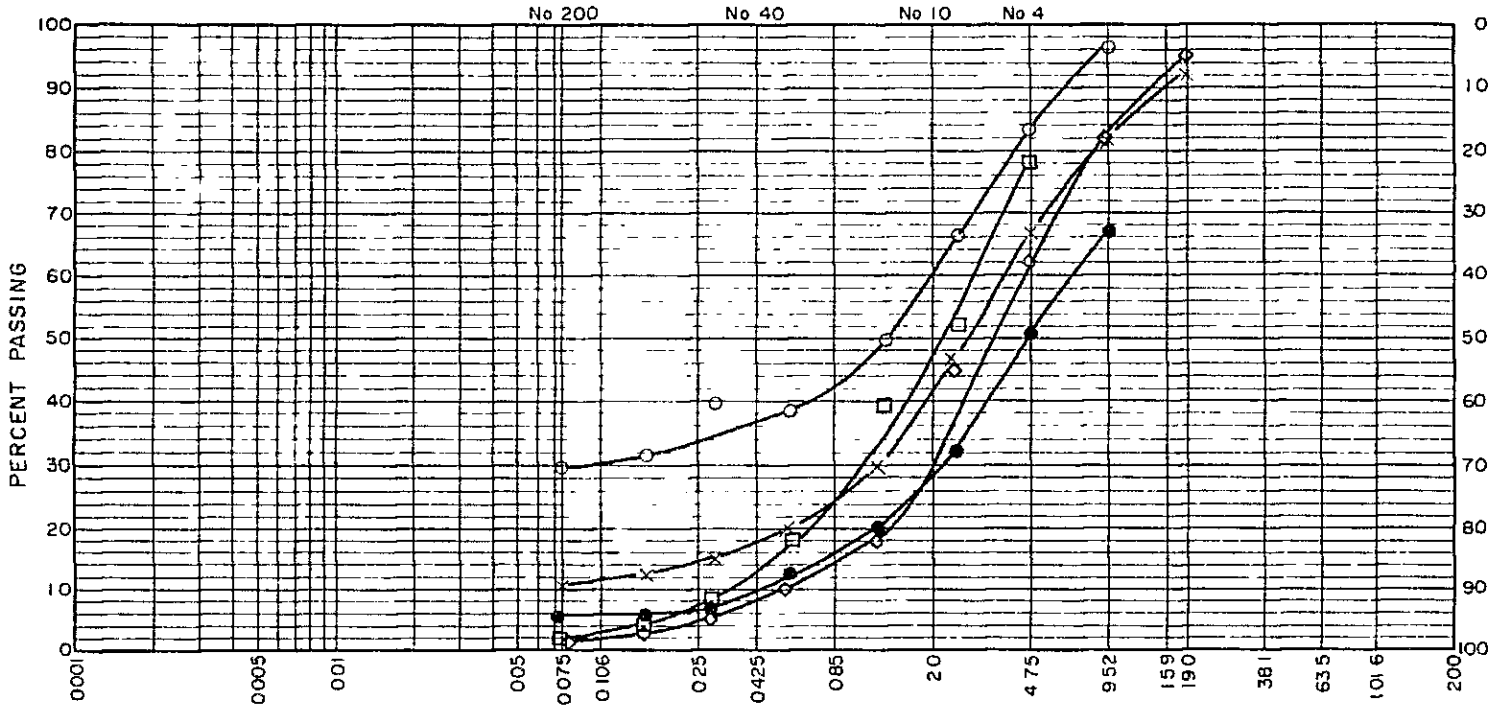
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-18 | ◇ | 0.40-1.00 | SC | A-2-7 (1) | | | 44.8 | 25.5 | 19.3 | |
| | ○ | 1.00-2.00 | SM | A-7-6 (10) | | | 59.8 | 33.4 | 26.4 | |
| | □ | 3.00-4.00 | SP-SC | A-2-6 (0) | | | 36.0 | 23.5 | 12.5 | |
| | × | 4.00-5.00 | SP-SC | A-2-6 (0) | | | 34.6 | 22.8 | 11.8 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (18) Gradation Analysis Curve (P-18)




| SAMPLE NO | 0.3 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 94 | 100 | 100 | 92 | 100 |
| mm 4.75 (%) | 61 | 83 | 78 | 67 | 50 |
| mm 0.075 (%) | 2 | 29 | 2 | 11 | 6 |
| $D_{60}$ (mm) | 4.5 | | 2.9 | | 7.0 |
| $D_{30}$ (mm) | 2.0 | | 1.1 | | 2.2 |
| $D_{10}$ (mm) | 0.5 | | 0.34 | | 0.43 |
| Cu | 9 | | 8.5 | | 16.3 |
| Cc | 1.8 | | 1.2 | | 1.6 |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

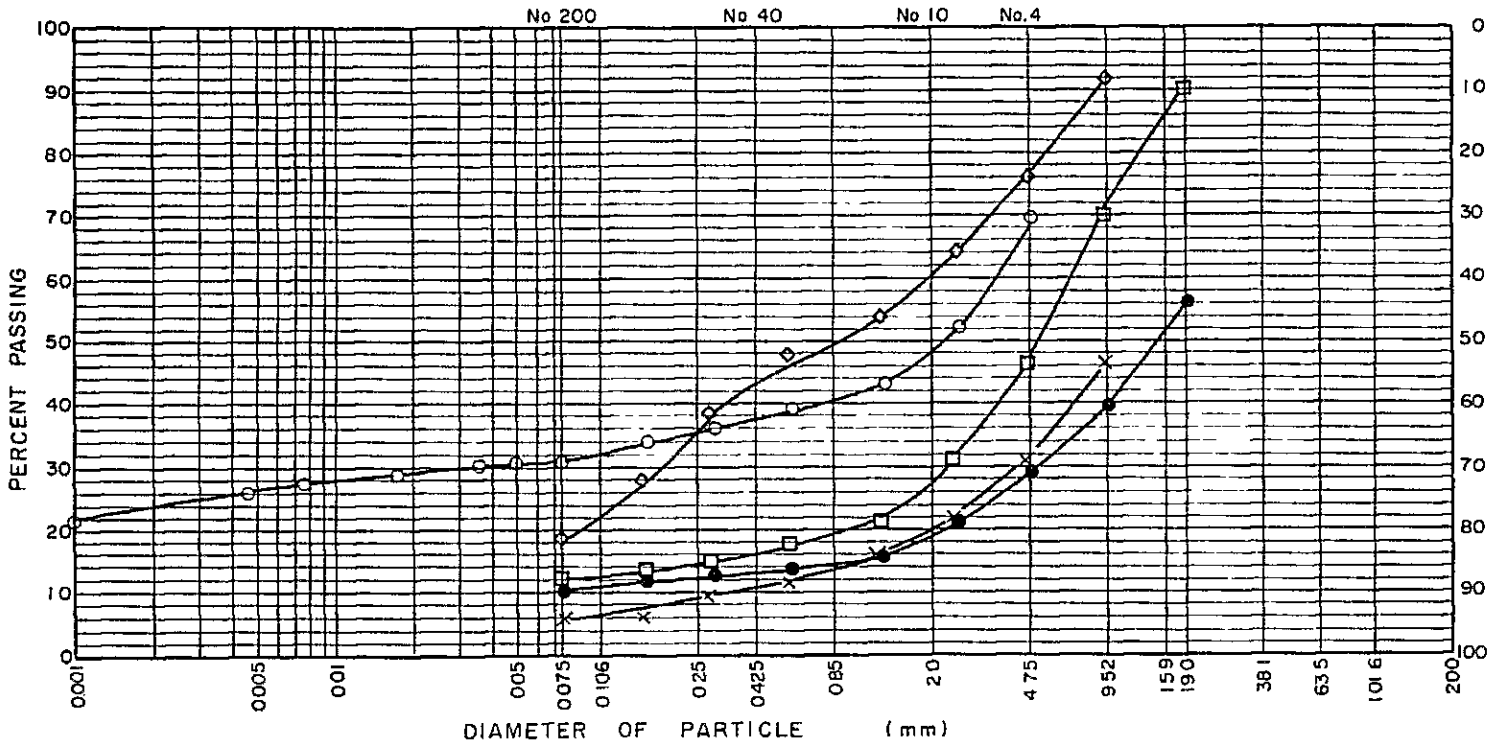
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | UNIFIED SYSTEM | REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-19 | ◇ | 0.30 ~ 1.00 | SW | A-2-6 (0) | | | 33.8 | 25.1 | 8.7 | |
| | ○ | 1.00 ~ 2.00 | SC | A-2-7 (1) | | | 41.6 | 23.2 | 18.4 | |
| | □ | 2.00 ~ 3.00 | SW | A-2-6 (0) | | | 31.5 | 19.3 | 12.2 | |
| | × | 3.00 ~ 4.00 | SP-SC | A-2-6 (0) | | | 33.9 | 21.3 | 13.6 | |
| | ● | 4.00 ~ 5.00 | GW-GC | A-2-6 (0) | | | 33.2 | 19.6 | 13.6 | |

2-1-2 (19) Grodation Analysis Curve (P-19)




| SAMPLE NO | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 100 | 100 | 90 | 100 | 56 |
| mm 4.75 (%) | 76 | 69 | 46 | 31 | 29 |
| mm 0.075 (%) | 19 | 31 | 12 | 6 | 10 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

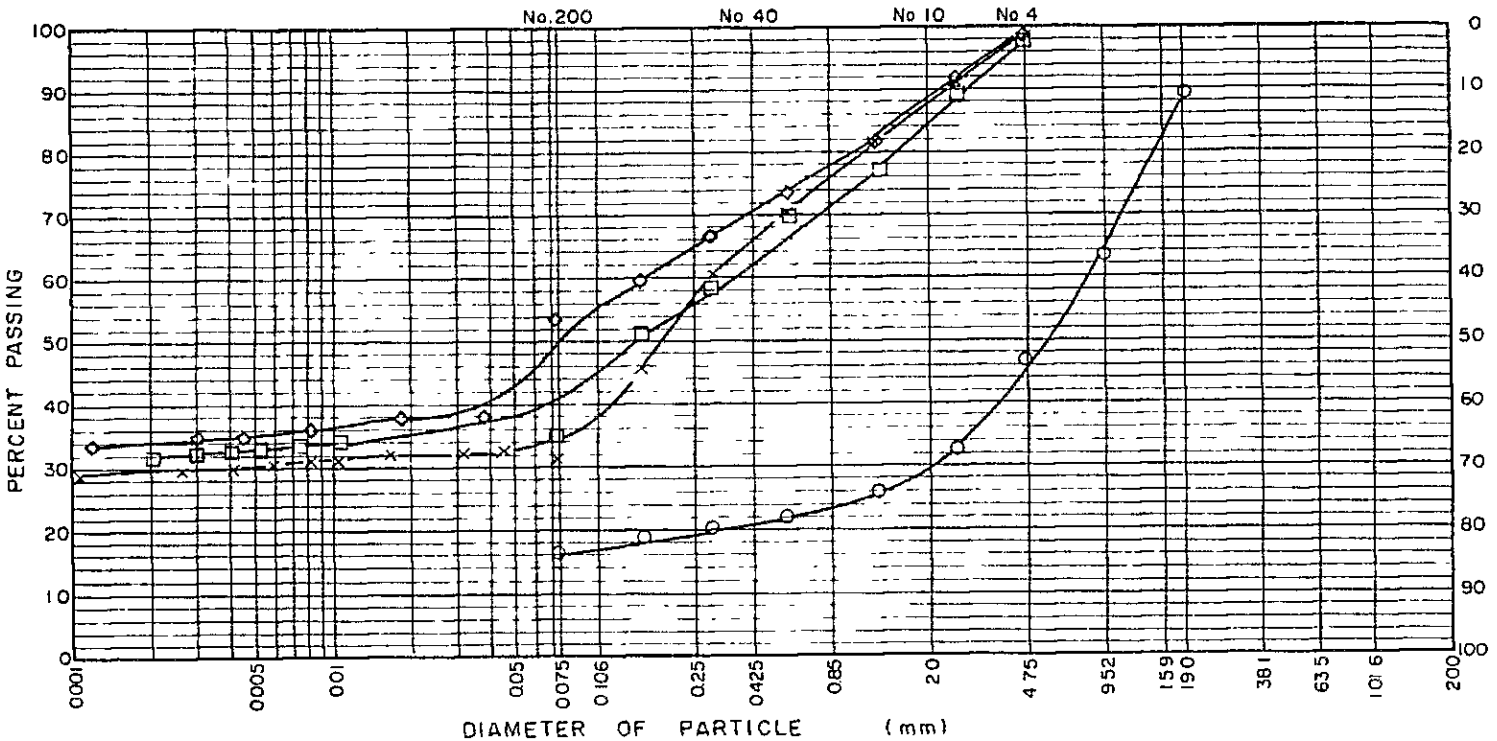
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-20 | ◇ | 0.20 - 1.00 | SM | A-2-7 (0) | | 2.66 | 51.6 | 42.2 | 9.4 | |
| | ○ | 1.00 - 2.00 | SM | A-2-7 (2) | | | 58.2 | 36.0 | 22.2 | |
| | □ | 2.00 - 3.00 | GW-GC | A-2-7 (0) | | | 46.5 | 24.5 | 22.0 | |
| | × | 3.00 - 4.00 | GW-GC | A-2-7 (0) | | | 42.3 | 23.4 | 18.9 | |
| | ● | 4.00 - 5.00 | GW-GC | A-2-6 (0) | | | 37.8 | 22.0 | 15.8 | |
| | | | | | | | | | | |

2-1-2 (20) Gradation Analysis Curve (P-20)




| SAMPLE NO | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 |
|---|---|---|---|---|
| MAX GRAIN SIZE | | | | |
| mm (%) | | | | |
| mm 19.0 (%) | 100 | 89 | 100 | 100 |
| mm 4.75 (%) | 98 | 46 | 98 | 98 |
| mm 0.075(%) | 53 | 16 | 34 | 31 |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

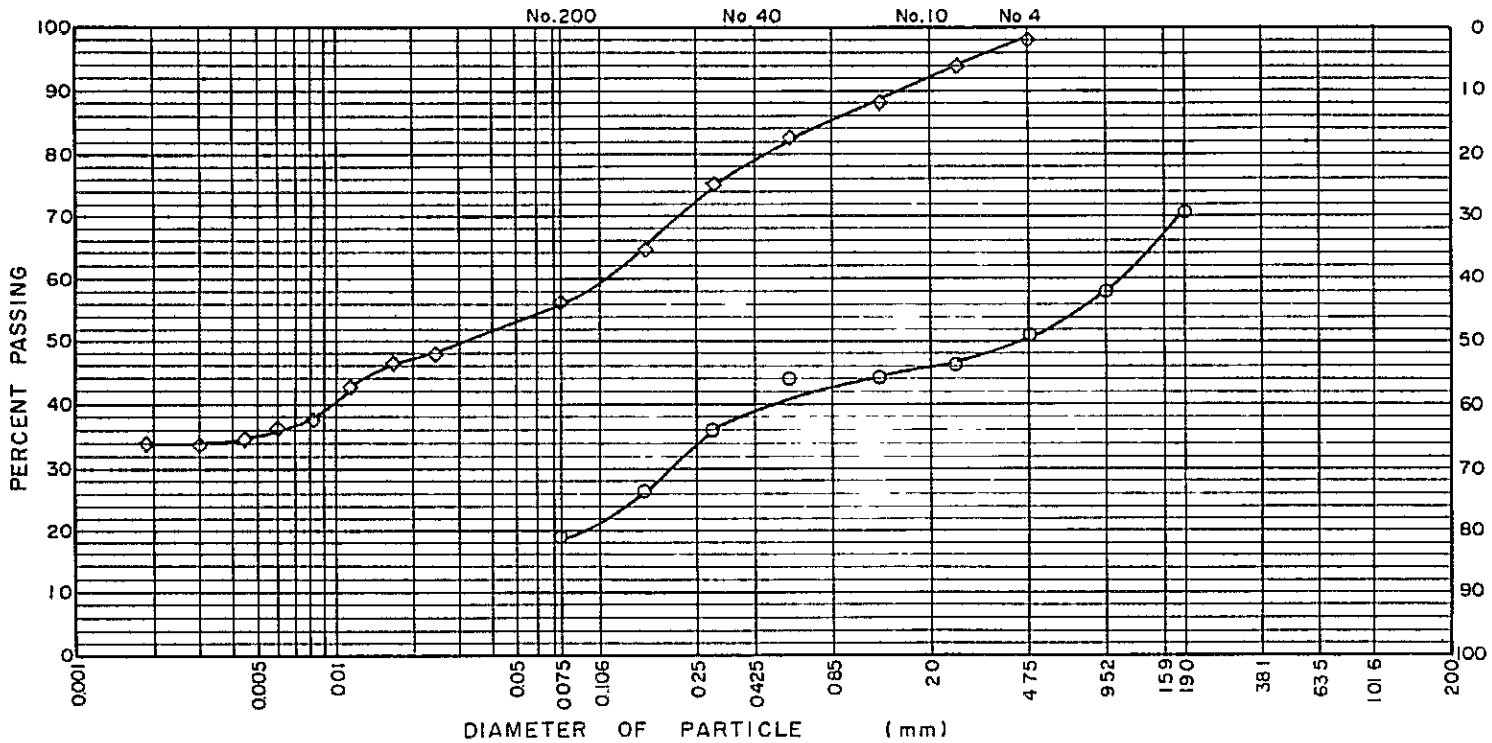
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-21 | ◇ | 0.20-1.00 | MH | A-7-6(11) | | | 59.4 | 39.2 | 20.2 | |
| | ○ | 1.00-2.00 | GC | A-2-6(0) | | | 34.5 | 22.3 | 12.2 | |
| | □ | 2.00-3.00 | MH | A-7-6(10) | | | 57.8 | 36.4 | 21.4 | |
| | × | 3.00-4.00 | SM | A-2-7(1) | | | 57.3 | 39.0 | 18.3 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (21) Gradation Analysis Curve (P-21)




| SAMPLE NO | 0 2 ~ 1.0 | 1 0 ~ 2.0 | | |
|---|---|---|---|---|
| MAX GRAIN SIZE | | | | |
| mm (%) | | | | |
| mm 19.0 (%) | 100 | 70 | | |
| mm 4.75 (%) | 98 | 51 | | |
| mm 0075 (%) | 56 | 19 | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

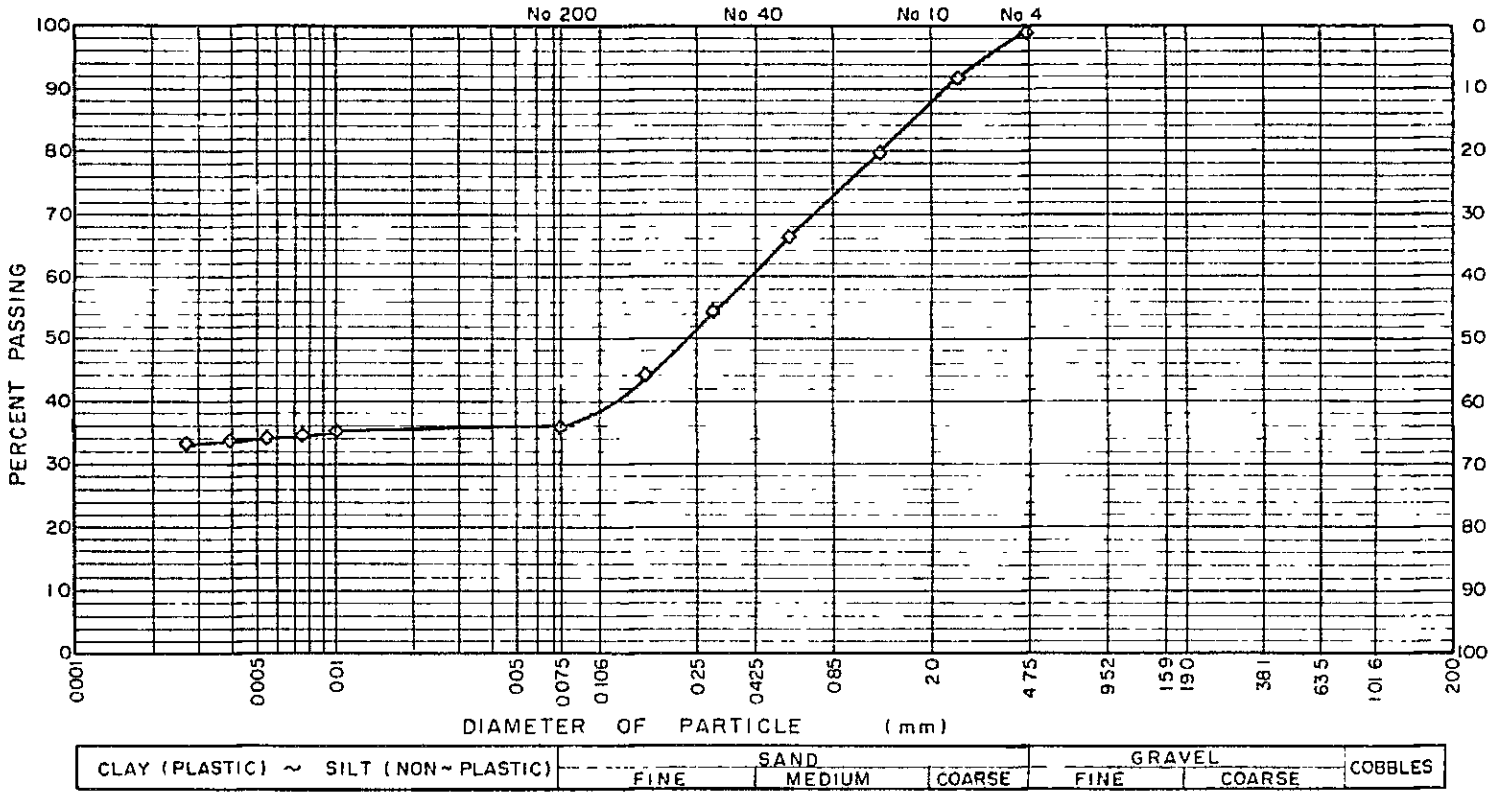
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-22 | ◇ | 0.20-1.00 | MH | A-7-6(8) | | | 61.0 | 47.3 | 13.7 | |
| | ○ | 1.00-2.00 | CM | A-2-6(0) | | | 27.1 | 22.1 | 5.0 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (22) Gradation Analysis Curve (P-22)




| SAMPLE NO | 0 2 ~ 1 0 | | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19 0 (%) | 100 | | | |
| mm 4 75 (%) | 99 | | | |
| mm 0 075(%) | 36 | | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

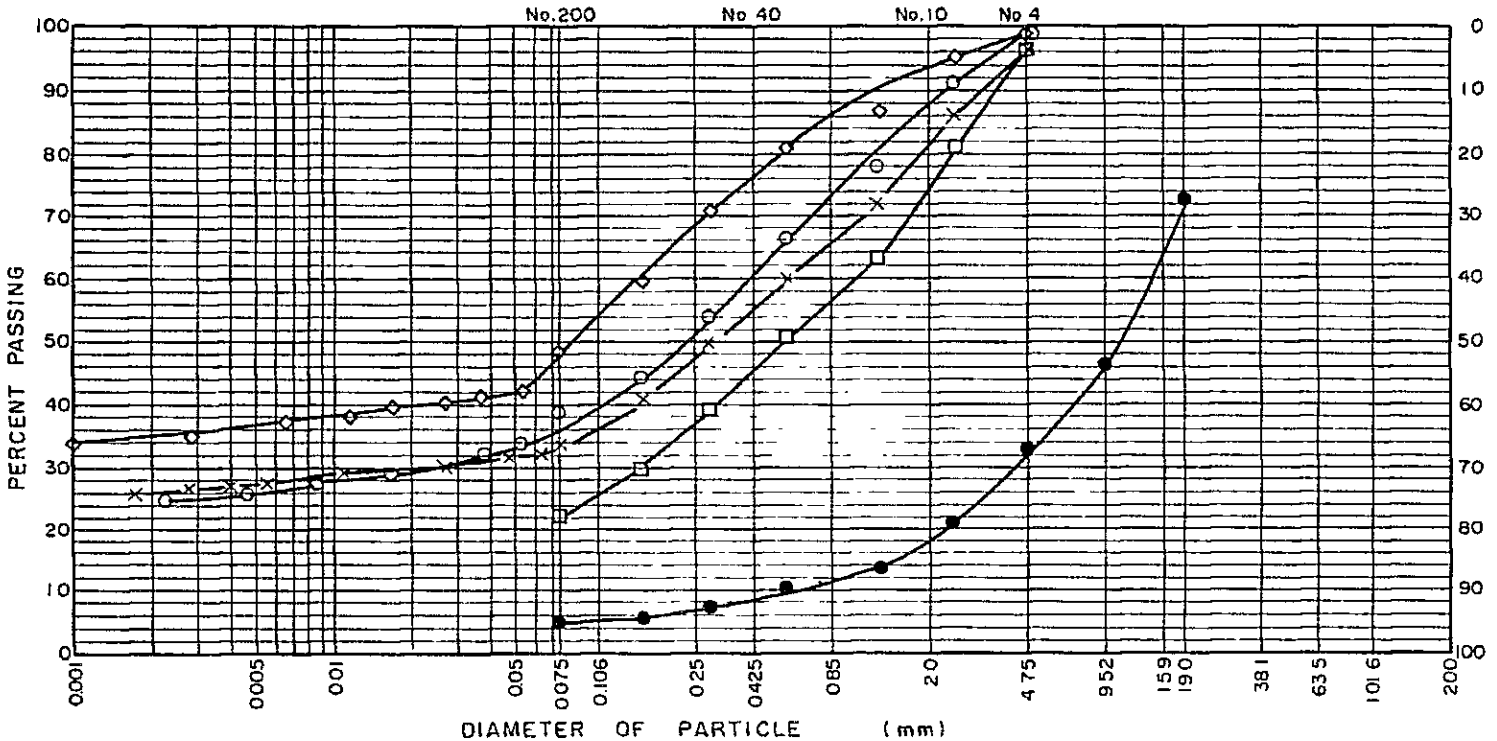
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | SAMPLE DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|
| P-23B ◇ | 0 20-1 00 | SM | A-7-6(4) | | 2.65 | 60 5 | 34 0 | 26 5 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

2-1-2 (23) Gradation Analysis Curve (P-23B)




| SAMPLE NO | 0.2 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | 101 | 100 | 100 | 100 | 72 |
| mm 4.75 (%) | 99 | 99 | 96 | 96 | 33 |
| mm 0.075 (%) | 49 | 39 | 22 | 34 | 5 |
| $D_{60}$ (mm) | | | | | 1.51 |
| $D_{30}$ (mm) | | | | | 0.43 |
| $D_{10}$ (mm) | | | | | 0.06 |
| Cu | | | | | 25 |
| Cc | | | | | 2.1 |

$$Cu = \frac{D_{60}}{D_{10}}$$

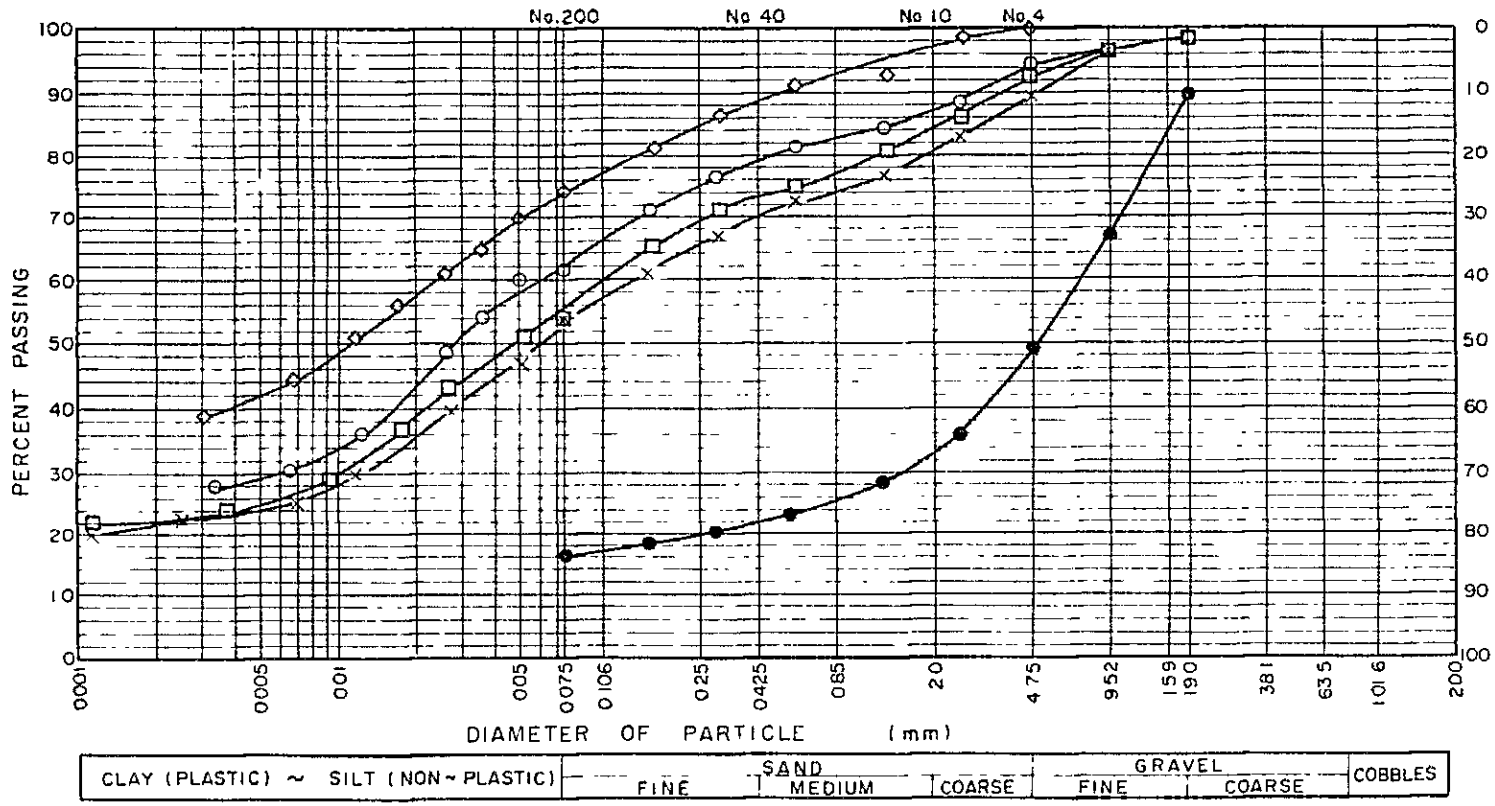
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-24 | ◇ | 0.20-1.00 | SM | A-7-6 (8) | | | 63.2 | 43.5 | 19.7 | |
| | ○ | 1.00-2.00 | SM | A-7-6 (7) | | | 71.0 | 36.4 | 34.6 | |
| | □ | 2.00-3.00 | SM | A-2-7 (1) | | | 53.2 | 33.9 | 19.3 | |
| | × | 3.00-4.00 | SM | A-2-7 (2) | | | 61.1 | 38.3 | 22.8 | |
| | ● | 4.00-5.00 | GW-GM | A-2-7 (0) | | | 48.6 | 31.9 | 16.8 | |
| | | | | | | | | | | |

2-1-2 (24) Gradation Analysis Curve (P-24)




| SAMPLE NO | 0 2 ~ 1 0 | 1 0 ~ 2 0 | 2 0 ~ 3 0 | 3 0 ~ 4 0 | 4 0 ~ 5 0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | | |
| mm 19.0 (%) | | 98 | 98 | 100 | 79 |
| mm 4.75 (%) | 100 | 93 | 92 | 89 | 49 |
| mm 0.075 (%) | 14 | 61 | 54 | 54 | 16 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

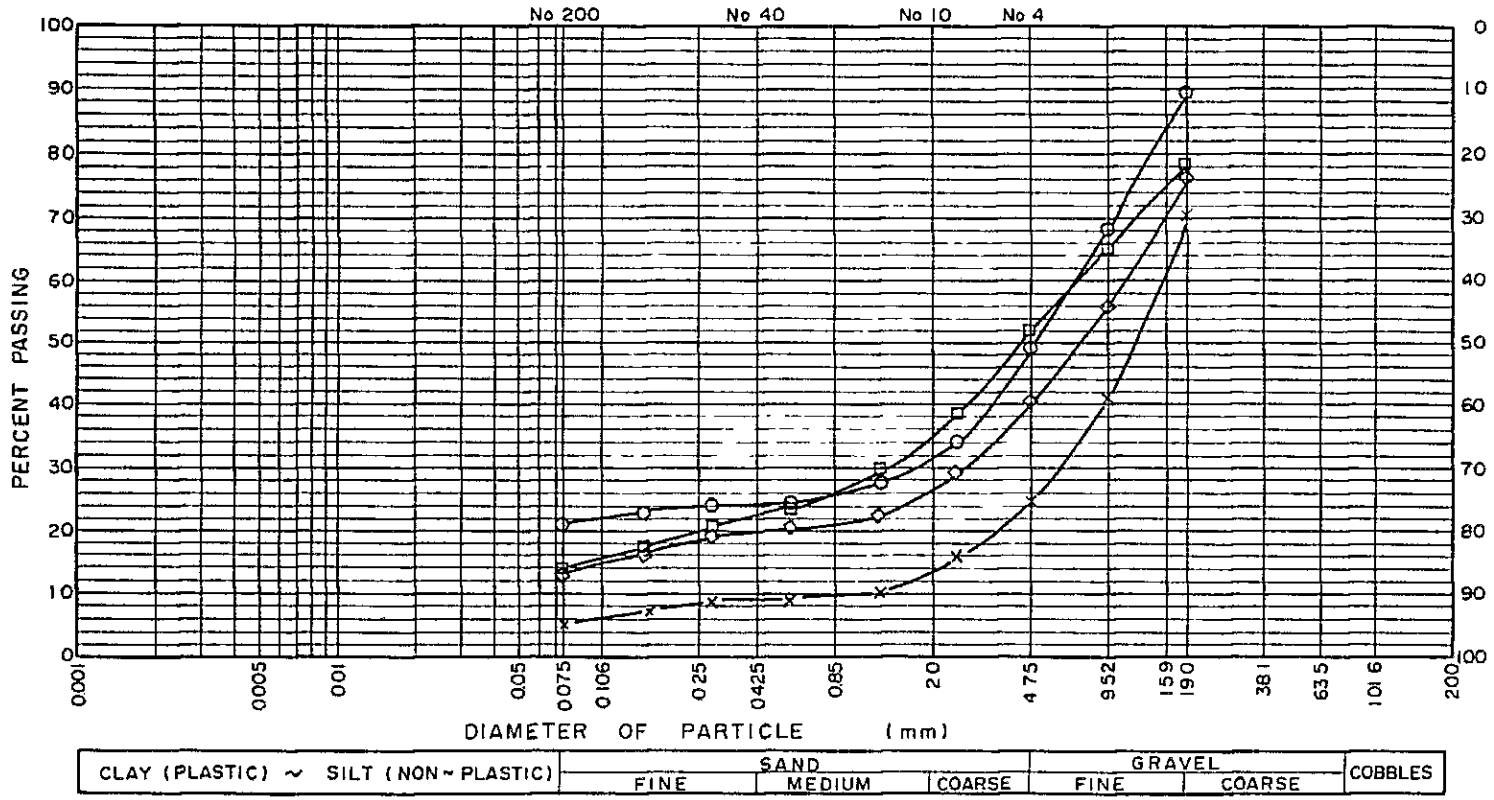
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-25 | ◇ | 0.20-1.00 | CL | A-7-6 (14) | | | 44.8 | 25.5 | 19.3 | |
| | ○ | 1.00-2.00 | CL | A-6 (5) | | | 29.2 | 19.0 | 10.2 | |
| | □ | 2.00-3.00 | CL | A-6 (4) | | | 30.1 | 19.5 | 10.6 | |
| | × | 3.00-4.00 | CL | A-6 (5) | | | 29.1 | 15.8 | 12.3 | |
| | ● | 4.00-5.00 | GC | A-2-6 (0) | | | 38.2 | 22.7 | 15.5 | |

2-1-2(25) Gradation Analysis Curve (P-25)




| SAMPLE NO | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| 19.0 mm (%) | 76 | 89 | 78 | 71 |
| 4.75 mm (%) | 41 | 49 | 52 | 25 |
| 0.075 mm (%) | 14 | 21 | 14 | 6 |
| $D_{60}$ (mm) | | | | 1.58 |
| $D_{30}$ (mm) | | | | 0.62 |
| $D_{10}$ (mm) | | | | 0.85 |
| Cu | | | | 1.9 |
| Cc | | | | 2.9 |

$$Cu = \frac{D_{60}}{D_{10}}$$

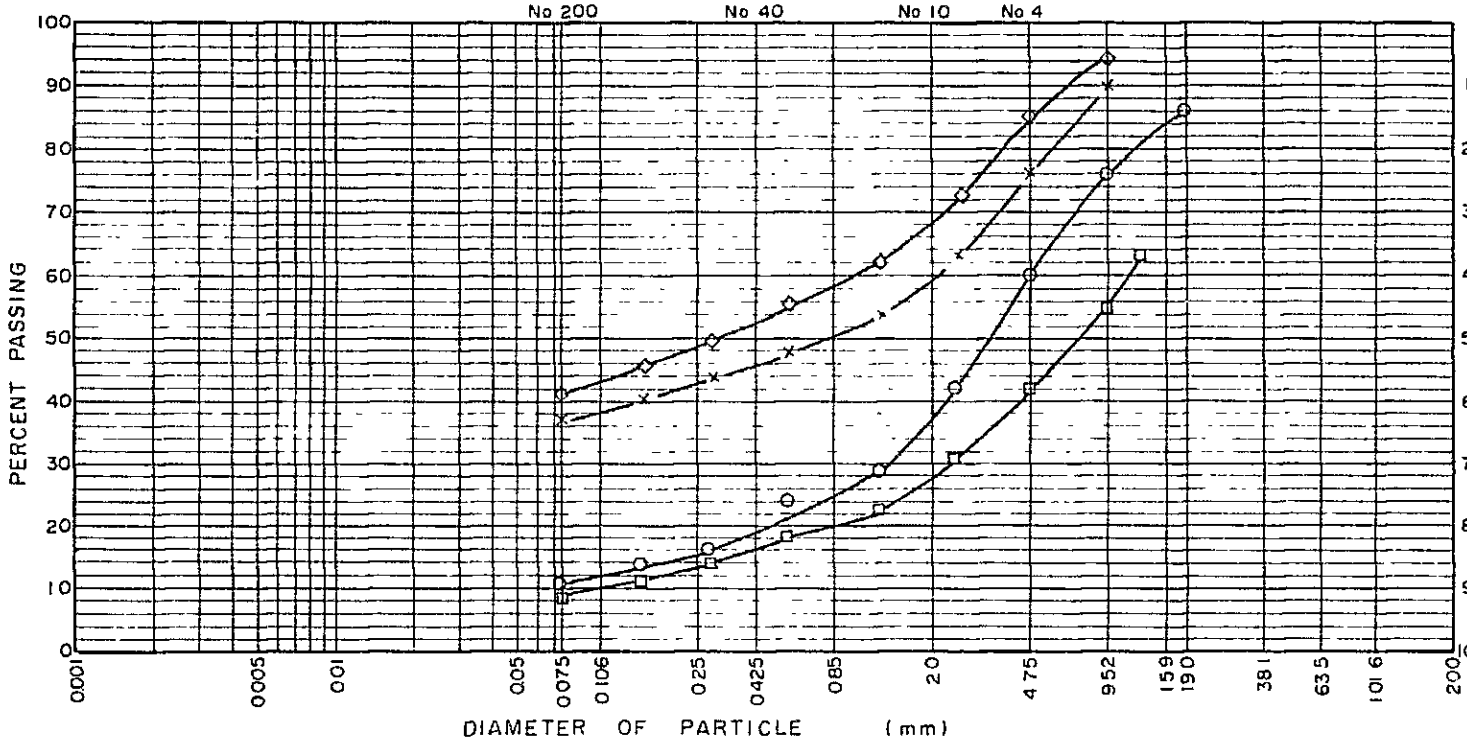
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-26 | ◇ | 1.00-2.00 | GC | A-2-6(0) | | | 30.3 | 16.8 | 13.5 | |
| | ○ | 2.00-3.00 | GC | A-2-6(0) | | | 34.2 | 20.8 | 13.4 | |
| | □ | 3.00-4.00 | GC | A-2-6(0) | | | 30.7 | 17.8 | 12.9 | |
| | × | 4.00-5.00 | GW-GC | A-2-6(0) | | | 31.8 | 19.5 | 11.3 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (26) Gradation Analysis Curve (P-26)




| SAMPLE NO | 10 ~ 20 | 20 ~ 30 | 30 ~ 40 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 86 | 100 | |
| mm 4.75 (%) | 86 | 60 | 42 | |
| mm 0.075 (%) | 41 | 11 | 9 | |
| $D_{60}$ (mm) | | | 120 | |
| $D_{30}$ (mm) | | | 2.2 | |
| $D_{10}$ (mm) | | | 0.092 | |
| Cu | | | 130 | |
| Cc | | | 44 | |

$$Cu = \frac{D_{60}}{D_{10}}$$

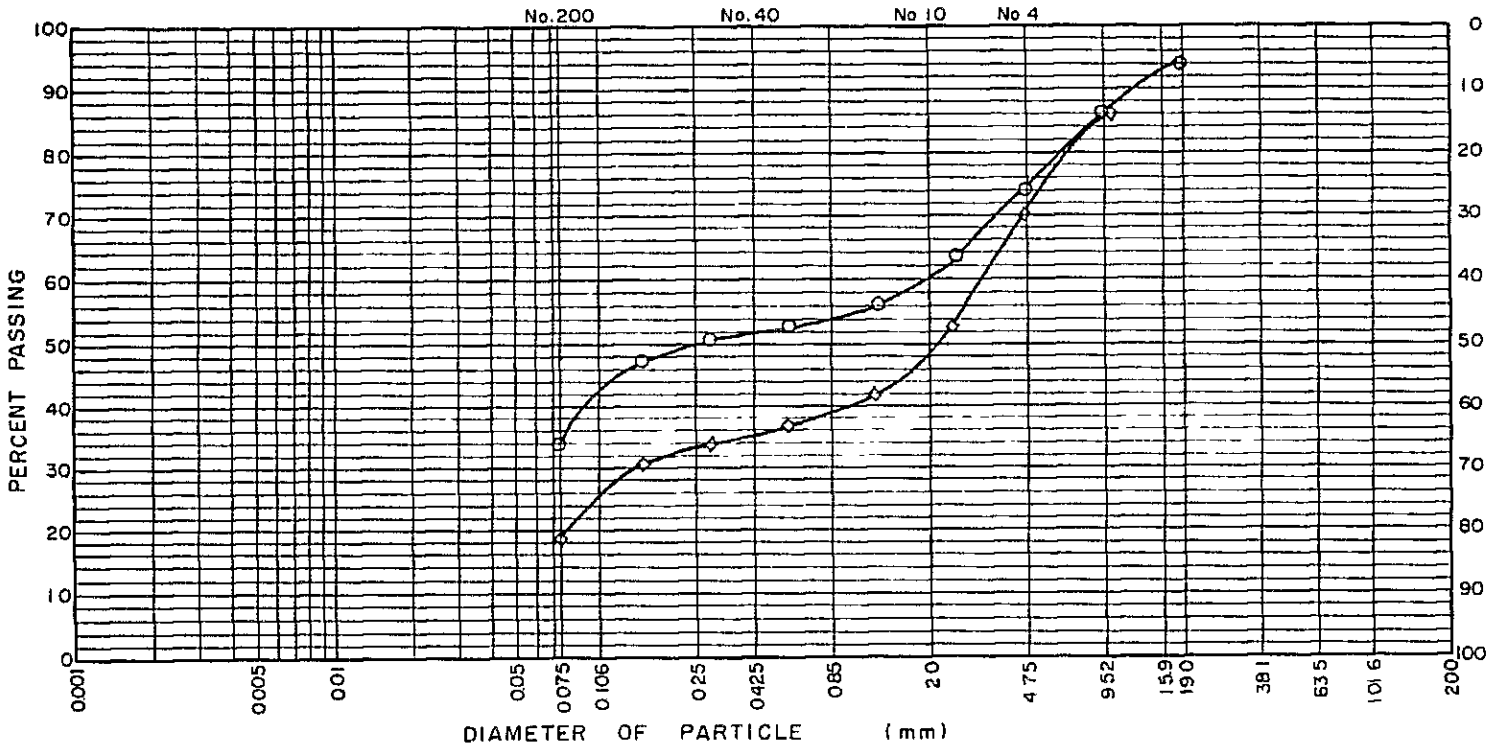
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-27 | ◇ | 1.00 - 2.00 | SC | A-7-6 (3) | | | 40.6 | 22.8 | 17.8 | |
| | ○ | 2.00 - 3.00 | SC | A-2-6 (0) | | | 38.6 | 23.1 | 15.5 | |
| | □ | 3.00 - 4.00 | SP-SM | A-2-6 (0) | | 2.74 | 33.3 | 24.0 | 9.3 | |
| | × | MIXED | — | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2-1-2 (27) Gradation Analysis Curve ( P- 27 )




| SAMPLE NO | 03 ~ 10 | 10 ~ 25 | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 94 | | |
| mm 4.75 (%) | 70 | 74 | | |
| mm 0.075 (%) | 19 | 34 | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

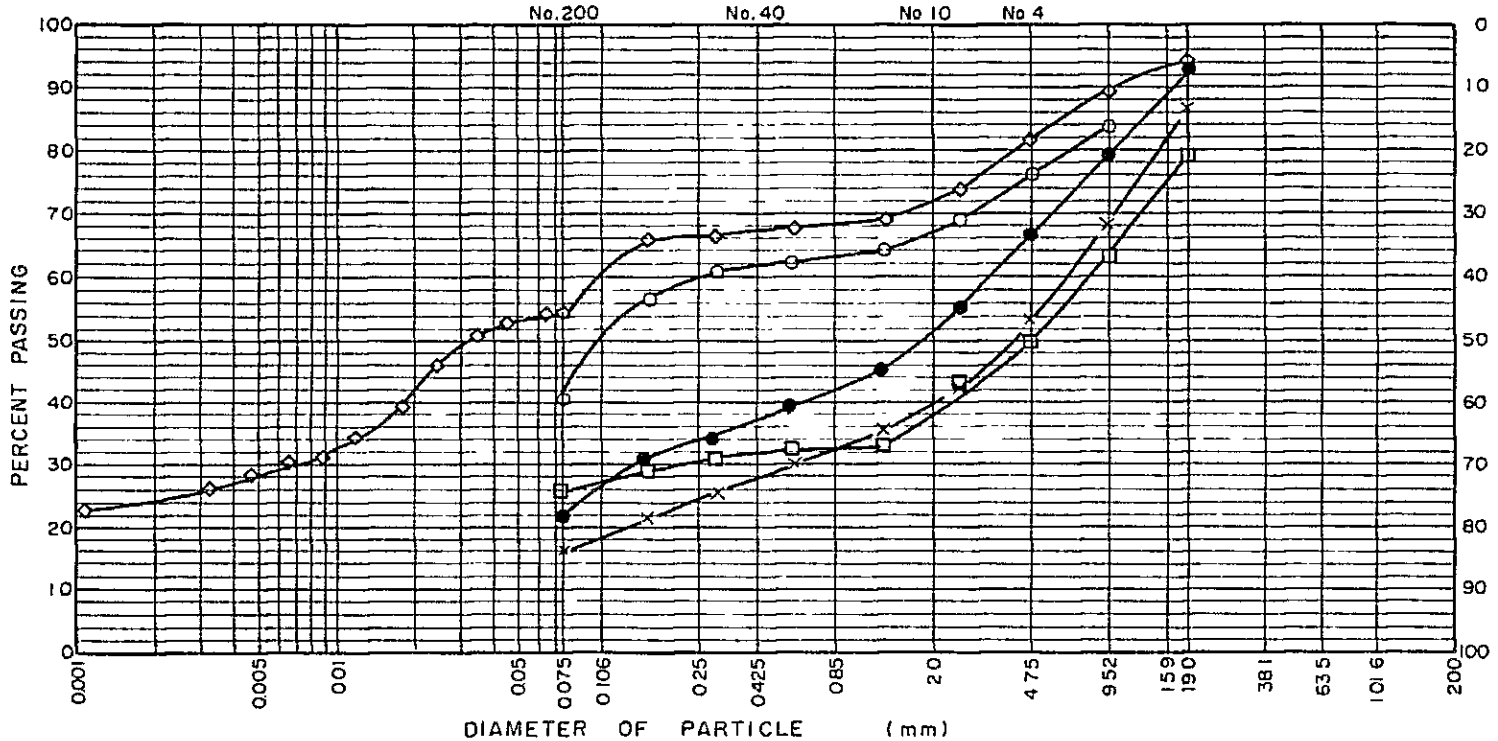
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE | | SOIL CLASSIFICATION | | SPECIFIC GRAVITY | | ATTERBERG LIMITS | | | |
|---|---|---|---|---|---|---|---|---|---|
| NUMBER | DEPTH (m) | UNIFIED SYSTEM | REVISED P.R. SYSTEM | | | LL | PL | PI | SL |
| P-28 | 0.30-1.00 | SC | A-2-6(0) | | | 37.1 | 23.3 | 13.8 | |
| | 1.00-2.50 | SC | A-2-6(0) | | | 27.6 | 15.4 | 12.2 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

2-1-2 (28) Gradation Analysis Curve (P-28)




| SAMPLE NO | 0.3 ~ 1.0 | 1.0 ~ 2.0 | 2.0 ~ 3.0 | 3.0 ~ 4.0 | 4.0 ~ 5.0 |
|---|---|---|---|---|---|
| MAX GRAIN SIZE | | | | | |
| mm 19.0 (%) | | | | | |
| mm 4.75 (%) | 94 | 100 | 79 | 86 | 93 |
| mm 0.075 (%) | 81 | 76 | 50 | 53 | 66 |
| mm (%) | 54 | 40 | 26 | 16 | 22 |
| $D_{60}$ (mm) | | | | | |
| $D_{30}$ (mm) | | | | | |
| $D_{10}$ (mm) | | | | | |
| Cu | | | | | |
| Cc | | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

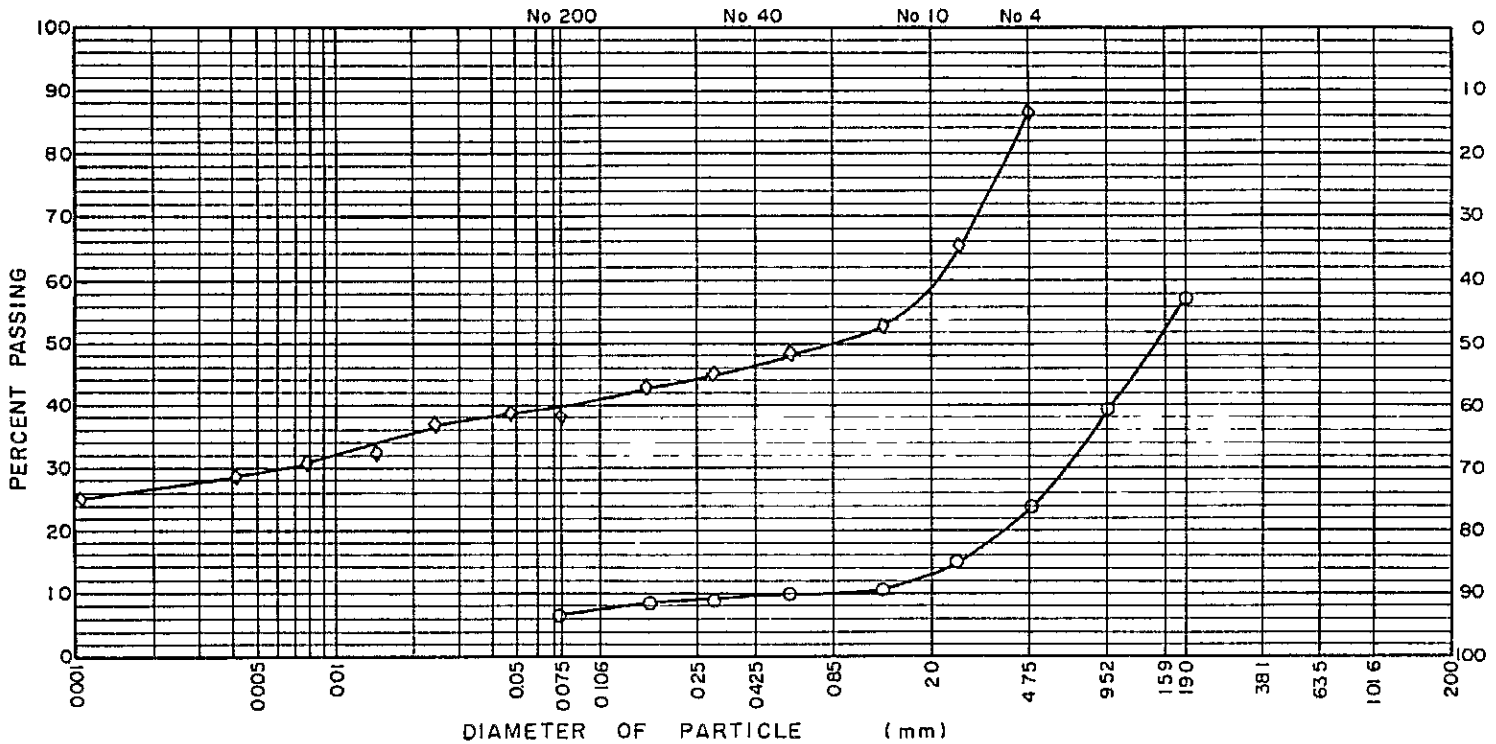
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-29 | ◇ | 0.31 - 1.00 | SC | A-6 (6) | | | 34.3 | 18.3 | 16.0 | |
| | ○ | 1.00 - 2.00 | — | | | | — | — | — | |
| | □ | 2.00 - 3.00 | GC | A-2-6 (1) | | 2.66 | 36.4 | 20.6 | 15.8 | |
| | × | 3.00 - 4.00 | GC | A-2-6 (0) | | | 33.3 | 18.4 | 14.9 | |
| | ● | 4.00 - 5.00 | SC | A-2-6 (0) | | | 39.3 | 22.7 | 16.6 | |
| | | | | | | | | | | |

2-1-2 (29) Gradation Analysis Curve (P-29)




| SAMPLE NO | 03 ~ 10 | 20 ~ 30 | | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 57 | | |
| mm 4.75 (%) | 86 | 24 | | |
| mm 0.075 (%) | 38 | 7 | | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-30 | D | 0.30 - 1.00 | SM | | | | 65.7 | 44.2 | 21.5 | |
| | O | 2.00 - 3.00 | GW - GM | | | | 39.2 | 27.1 | 12.1 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

2 - 1 - 2 (30) Gradation Analysis Curve (P - 30)

| | |
|---|---|
| Project | Upper Ouae Yai |
| Soil sample | Brown Silty Clay and Decomposed Rock |
| Pit No P - 1 | Depth 0.0 - 2.5 m |
| Max grain size | 19.0 mm (3/4" sieve) |

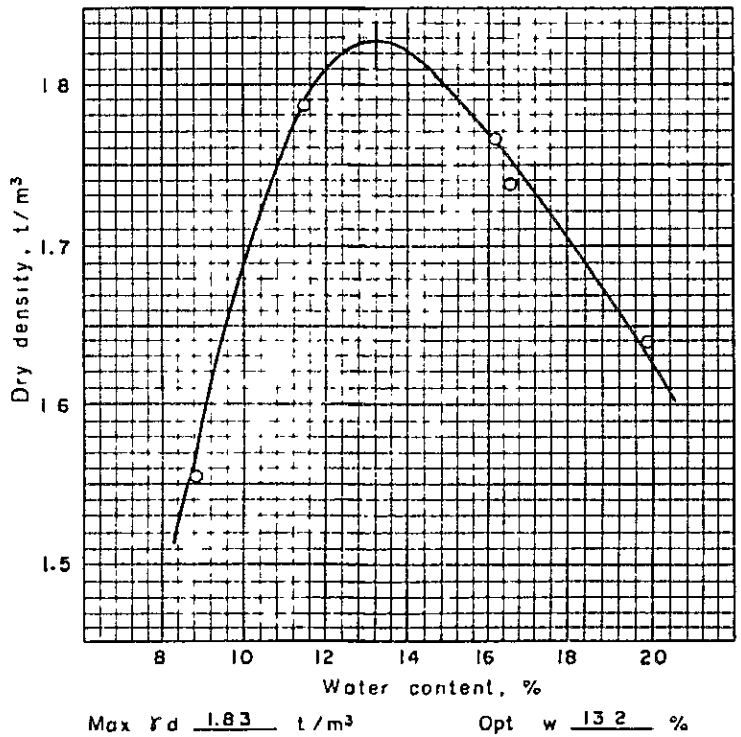
| | |
|---|---|
| Date | 15 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3 942 | 3 600 | 3 885 | 3.915 | 3 860 | |
| Wt mold, kg | 2 005 | 2.005 | 2 005 | 2.005 | 2 005 | |
| Wt compacted soil, kg | 1 937 | 1 595 | 1 880 | 1.910 | 1 855 | |
| Wet density, t/m³ | 2 052 | 1 689 | 1 992 | 2 023 | 1.965 | |
| Dry density, t/m³ | 1.766 | 1 554 | 1.787 | 1.737 | 1 640 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | D-2 | V-33 | L-28 | E-41 | V-1 | |
| Wt container + wet soil, gm | 270.50 | 333 13 | 232 91 | 294 38 | 405 76 | |
| Wt container + dry soil, gm | 235 00 | 308 79 | 210 55 | 254 68 | 340 79 | |
| Wt water, Ww gm | 35 50 | 24 34 | 22 36 | 39 70 | 64 97 | |
| Wt. container, gm | 15.50 | 29 82 | 15.56 | 13 86 | 13 30 | |
| Wt dry soil, Ws, gm | 219 50 | 278 97 | 194 99 | 240 82 | 327 49 | |
| Water content, w % | 16.17 | 8 72 | 11 46 | 16 48 | 19 84 | |




Max γd 1.83 t/m³ Opt w 13.2 %

2-1-3 (1) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Silty Clay and Decomposed Rock |
| Pit No. P - 2 | Depth 0.0 – 3.0 m |
| Max. grain size | 19.0 mm ( 3/4" Sieve) |

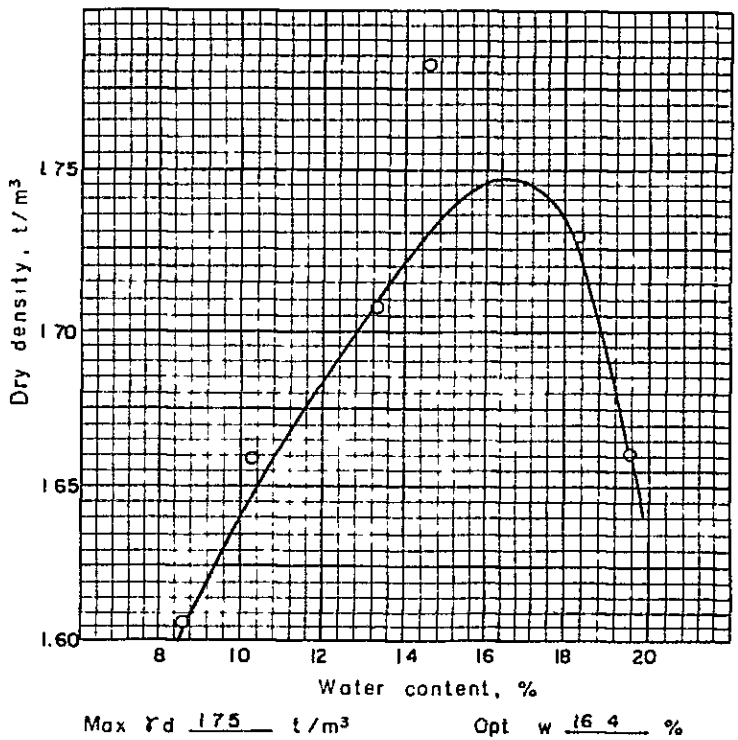
| | |
|---|---|
| Date | 11 - 4 - 79 |
| Type of test | Standard Proctor |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 932 | 3 650 | 3 730 | 3 829 | 3 930 | 3 879 |
| Wt mold, kg | 2.005 | 2.005 | 2 005 | 2 005 | 2.005 | 2.005 |
| Wt compacted soil, kg | 1 927 | 1 645 | 1 725 | 1.824 | 1 925 | 1 874 |
| Wet density, t/m³ | 2.041 | 1.743 | 1 827 | 1 932 | 2 039 | 1 985 |
| Dry density, t/m³ | 1 729 | 1 606 | 1 658 | 1 706 | 1 781 | 1 661 |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Container No. | F-41 | F-4 | F-13 | F-50 | B-50 | E-12 |
| Wt. container + wet soil, gm | 272.14 | 232.82 | 214.59 | 209.65 | 264.38 | 295.89 |
| Wt. container + dry soil, gm | 232.70 | 216.76 | 196.00 | 186.96 | 232.90 | 208.32 |
| Wt water, Ww. gm | 39.44 | 17.06 | 18.59 | 22.69 | 31.48 | 37.57 |
| Wt container, gm | 13.86 | 15.24 | 13.97 | 15.43 | 15.43 | 15.90 |
| Wt. dry soil, Ws, gm | 218.84 | 200.52 | 182.03 | 171.53 | 217.47 | 192.42 |
| Water content, w % | 18.02 | 8.50 | 10.21 | 13.23 | 14.47 | 19.52 |




Max $\gamma_d$ 1.75 t/m³ Opt w 16.4 %

2-1-3 (2) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Silty Clay With Decomposed Rock | |
| Pit No. P – 3 | Depth 0.0 – 5.0 m |
| Max. grain size 4.75 mm (No.4 sieve) | |

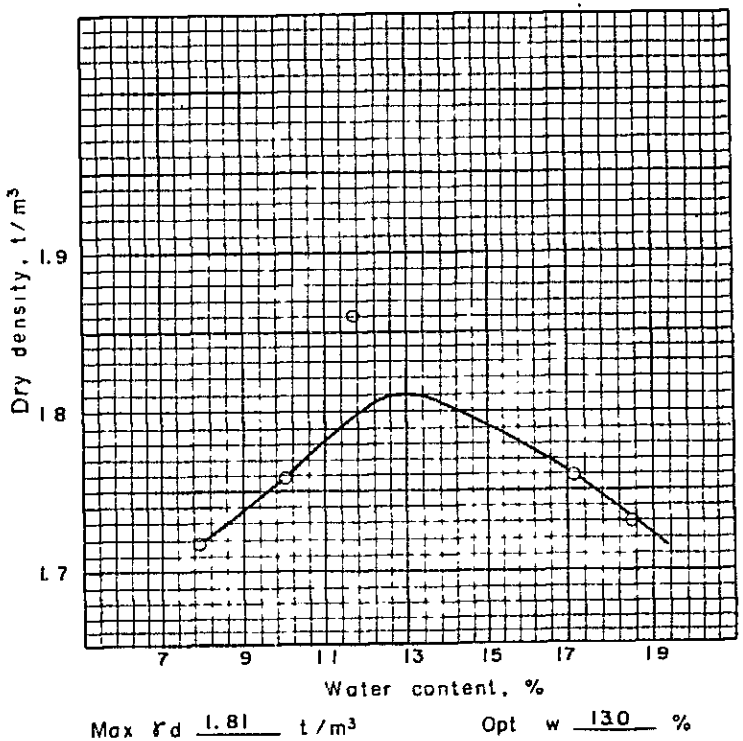
| | |
|---|---|
| Date 16 – 4 – 79 | |
| Type of test Standard Proctor | |
| Mold Volume 944 cm³ | Weight 2.005kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3 753 | 3 830 | 3 940 | 3 968 | 3 948 | |
| Wt mold, kg | 2 005 | 2 005 | 2.005 | 2 005 | 2.005 | |
| Wt. compacted soil, kg | 1 748 | 1 825 | 1 935 | 1 963 | 1 943 | |
| Wet density, t/m³ | 1 852 | 1 933 | 2.049 | 2.079 | 2.058 | |
| Dry density, t/m³ | 1 717 | 1 758 | 1 730 | 1 860 | 1.759 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | V-12 | E-28 | F-17 | E-4 | E-11 | |
| Wt container + wet soil, gm | 360.38 | 255 70 | 336 67 | 296 23 | 311.60 | |
| Wt container + dry soil, gm | 336 39 | 233 94 | 286 50 | 266 66 | 268.64 | |
| Wt water, Ww gm | 23 99 | 21 76 | 50.17 | 29.57 | 42 96 | |
| Wt container, gm | 30 78 | 15.38 | 14 59 | 15.24 | 16.33 | |
| Wt dry soil, Ws, gm | 305 61 | 218 56 | 271 91 | 251 42 | 252.31 | |
| Water content, w % | 7.85 | 9.96 | 18 45 | 11.76 | 17.02 | |




Max $\gamma_d$ 1.81 t/m³ Opt w 13.0 %

2-1-3 (3) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Silty Clay and Decomposed Rock | |
| Pit No. P - 4 | Depth 0.0 - 5.0 m |
| Max. grain size 4.15mm (No. 4 Sieve) | |

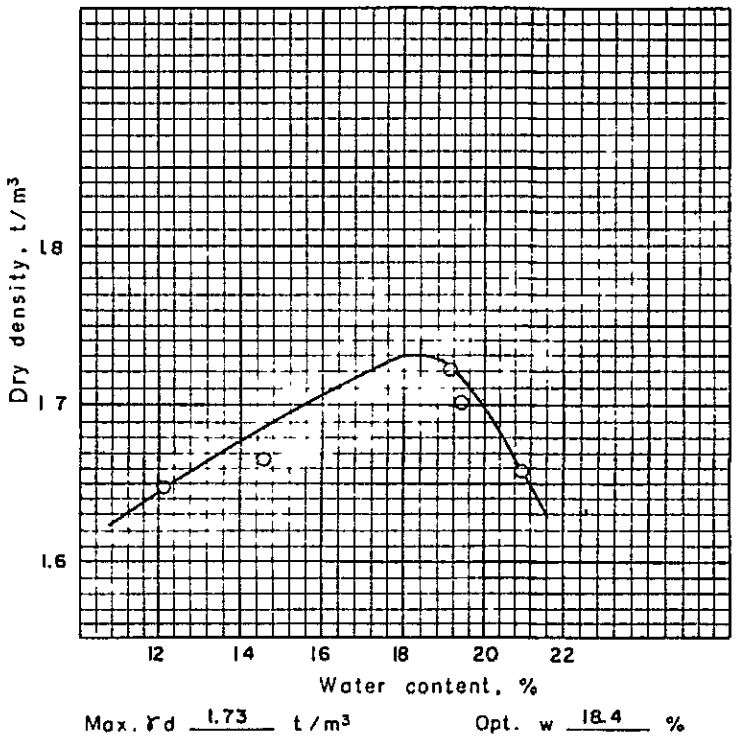
| | |
|---|---|
| Date 19 - 3 - 79 | |
| Type of test Standard Proctor | |
| Mold · Volume 944 cm | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.750 | 3 800 | 3 942 | 3 925 | 3 900 | |
| Wt mold, kg | 2.005 | 2.005 | 2 005 | 2 005 | 2.005 | |
| Wt. compacted soil, kg | 1745 | 1.795 | 1.937 | 1.920 | 1.895 | |
| Wet density, t/m³ | 1.849 | 1 901 | 2.052 | 2 034 | 2 007 | |
| Dry density, t/m³ | 1 649 | 1.660 | 1.722 | 1 703 | 1 659 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | Z-10 | E-30 | E-16 | Z-11 | V-3 | |
| Wt. container + wet soil, gm | 281 95 | 191 52 | 217 75 | 318 59 | 368 48 | |
| Wt. container + dry soil, gm | 253 60 | 168 94 | 185 19 | 261 51 | 310 21 | |
| Wt water, Ww gm | 28 35 | 22 58 | 32 56 | 47 08 | 58 27 | |
| Wt. container, gm | 20 05 | 13 31 | 15 33 | 18 90 | 32 20 | |
| Wt. dry soil, Ws, gm | 233 55 | 155.63 | 169 86 | 242.61 | 278 01 | |
| Water content, w % | 12.14 | 14 51 | 19 17 | 19 41 | 20 96 | |




Max. γd 1.73 t/m³ Opt. w 18.4 %

2-1-3 (4) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Gravel |
| Pit No P - 5A | Depth 0.0 - 1.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

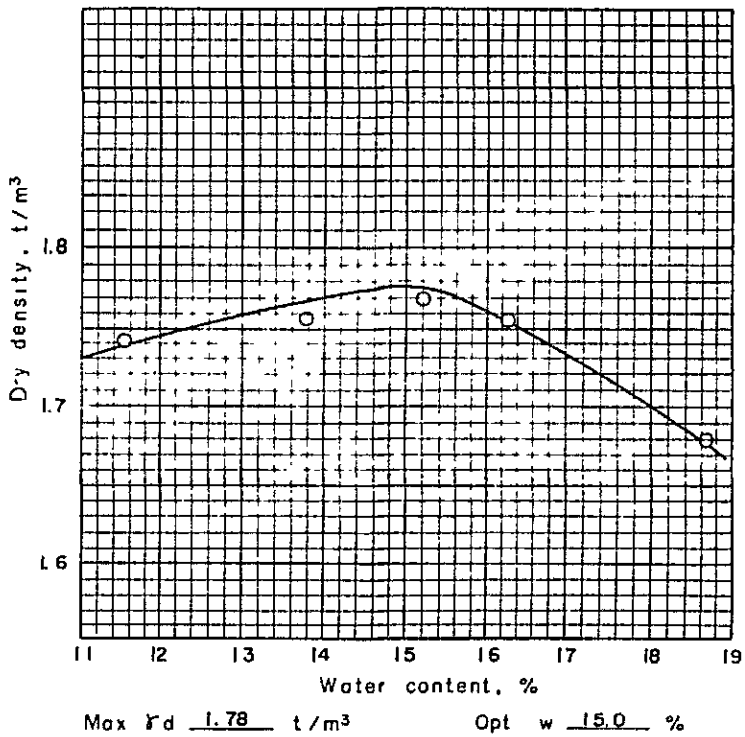
| | |
|---|---|
| Date | 19 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.890 | 3 838 | 3 930 | 3.930 | 3 885 | |
| Wt mold, kg | 2 005 | 2 005 | 2 005 | 2 005 | 2 005 | |
| Wt compacted soil, kg | 1 885 | 1 833 | 1 925 | 1 925 | 1 880 | |
| Wet density, t/m³ | 1 997 | 1 942 | 2 039 | 2 039 | 1 992 | |
| Dry density, t/m³ | 1 755 | 1 742 | 1.770 | 1 754 | 1 679 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | E-16 | V-10 | V-35 | Z-2 | V-15 | |
| Wt container + wet soil, gm | 247 89 | 294 72 | 401.41 | 349.35 | 376 10 | |
| Wt container + dry soil, gm | 219 74 | 267 61 | 352.47 | 302.94 | 321 63 | |
| Wt. water, Ww gm | 28.15 | 27 11 | 48 94 | 46.41 | 54 47 | |
| Wt. container, gm | 15 33 | 31.45 | 30 30 | 17.10 | 29 80 | |
| Wt. dry soil, Ws, gm | 204 41 | 236.16 | 322 17 | 285.84 | 291 83 | |
| Water content, w % | 13.77 | 11. 48 | 15.19 | 16 24 | 18 66 | |




Max γd 1.78 t/m³ Opt w 15.0 %

2 - 1 - 3 (5) Compaction Test

| | |
|---|---|
| Project | Upper Quar Yai |
| Soil sample | Brown Clayey Grauel |
| Pit No. P - 58 | Depth 0.0 - 2.0 m |
| Max. grain size | 19.0 mm ( 3/4" Sieve ) |

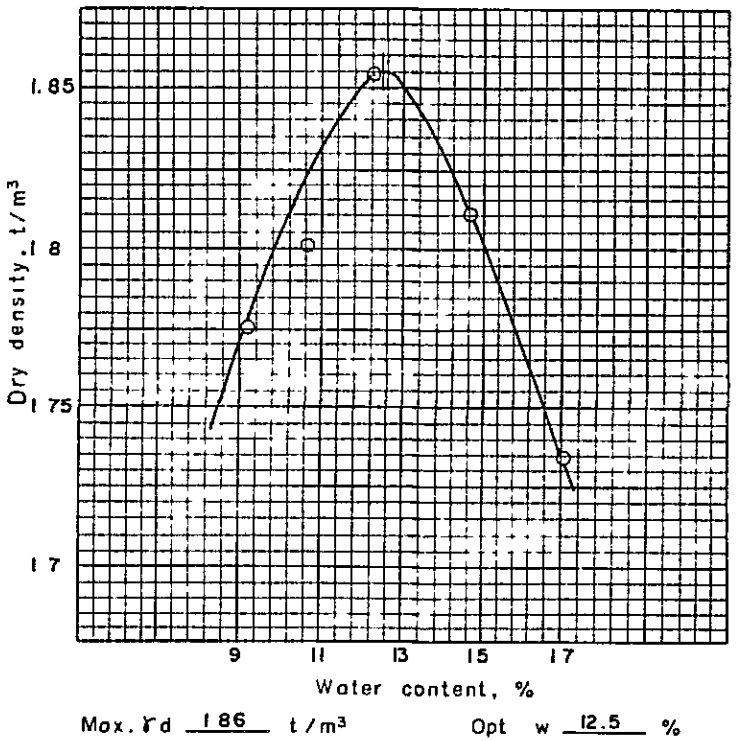
| | | | |
|---|---|---|---|
| Date | 22- 3-79 | | |
| Type of test | Standard Proctor | | |
| Mold Volume | 944 cm² | Weight | 2.005kg |
| Specific gravity, Gs | | | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.965 | 3 835 | 3 885 | 3 970 | 3.922 | |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.960 | 1.830 | 1.880 | 1.965 | 1 917 | |
| Wet density, t/m³ | 2.076 | 1.939 | 1 992 | 2.082 | 2 031 | |
| Dry density, t/m³ | 1 811 | 1.776 | 1.801 | 1 854 | 1 736 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | X-17 | D-6 | N-3 | T-1 | T-7 | |
| Wt. container + wet soil, gm | 432.74 | 317 17 | 308 85 | 331 12 | 304 62 | |
| Wt container + dry soil, gm | 380 29 | 291.62 | 280 69 | 296 38 | 262.52 | |
| Wt. water, Ww gm | 52.45 | 25 55 | 28 16 | 34 74 | 42 10 | |
| Wt container, gm | 21 26 | 13 60 | 14.80 | 13.30 | 14 50 | |
| Wt dry soil, Ws, gm | 359 03 | 278 02 | 265.89 | 283.08 | 248.02 | |
| Water content, w % | 14 61 | 9.19 | 10.59 | 12.27 | 16 97 | |




Max. γd 1 86 t/m³ Opt w 12.5 %

2 - 1 - 3 (6) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Silty Clay and Decomposed Rock | |
| Pit No P - 6 | Depth 0 - 5.0 m |
| Max. grain size 19.0 mm (3/4" sieve) | |

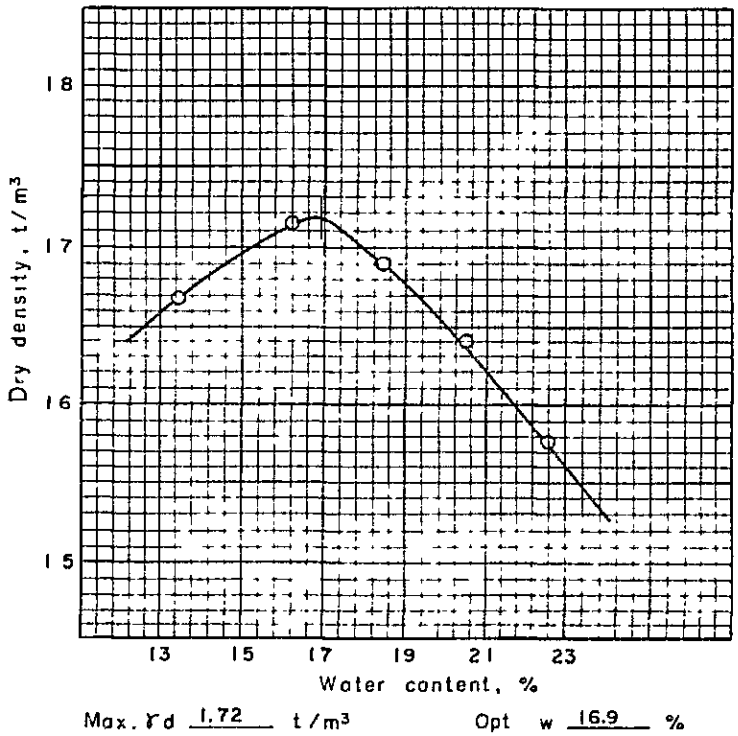
| | |
|---|---|
| Date 21 - 3 - 79 | |
| Type of test Standard Proctor | |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.830 | 3.870 | 3.790 | 3.885 | 3.895 | |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.825 | 1.865 | 1.785 | 1.880 | 1.890 | |
| Wet density, t/m³ | 1.933 | 1.976 | 1.891 | 1.992 | 2.002 | |
| Dry density, t/m³ | 1.577 | 1.640 | 1.666 | 1.714 | 1.689 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | V-9 | F-27 | F-29 | X-4 | E-37 | |
| Wt. container + wet soil, gm | 414.07 | 263.26 | 240.62 | 269.44 | 214.38 | |
| Wt container + dry soil, gm | 343.38 | 221.19 | 213.79 | 234.64 | 183.32 | |
| Wt water, Ww gm | 70.69 | 42.07 | 26.83 | 34.80 | 31.06 | |
| Wt container, gm | 30.30 | 15.72 | 14.89 | 20.20 | 15.59 | |
| Wt dry soil, Ws, gm | 313.08 | 205.47 | 198.90 | 214.44 | 167.73 | |
| Water content, w % | 22.58 | 20.48 | 13.49 | 16.23 | 18.52 | |




Max. γd 1.72 t/m³ Opt w 16.9 %

2-I-3 (7) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Gravel |
| Pit No P-7 | Depth 0.0 - 4.5 m |
| Max. grain size | 19.0mm (3/4" sieve) |

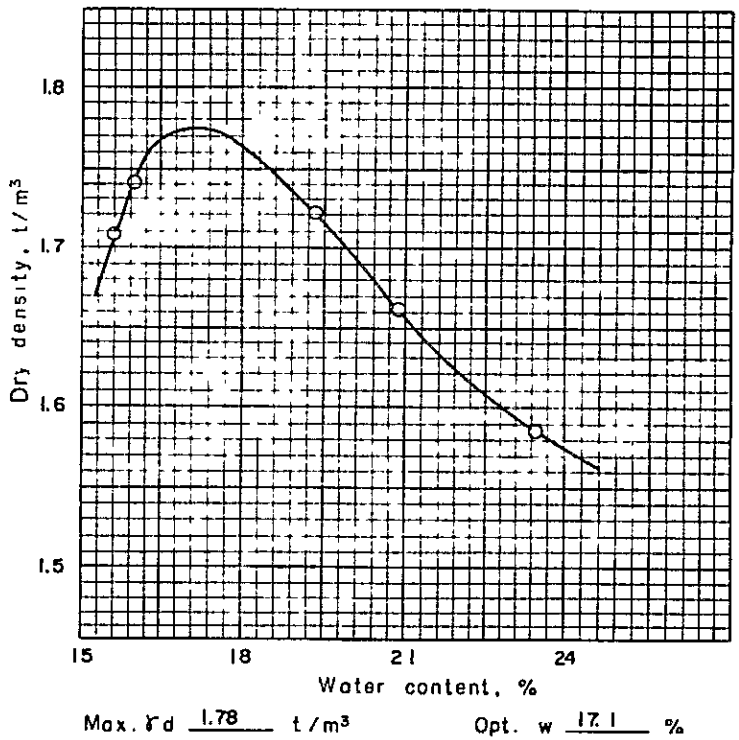
| | |
|---|---|
| Date | 14-3-79 |
| Type of test | Standard - Procter |
| Mold : Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.870 | 3.910 | 3.900 | 3.944 | 3.855 | |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.865 | 1.905 | 1.895 | 1.939 | 1.850 | |
| Wet density, t/m³ | 1.976 | 2.018 | 2.007 | 2.054 | 1.959 | |
| Dry density, t/m³ | 1.709 | 1.740 | 1.661 | 1.721 | 1.587 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-14 | D-5 | X-18 | E-60 | E-44 | |
| Wt. container + wet soil, gm | 220.34 | 281.11 | 271.45 | 278.11 | 279.16 | |
| Wt container + dry soil, gm | 192.80 | 244.19 | 228.15 | 235.58 | 229.31 | |
| Wt water, Ww gm | 27.54 | 36.92 | 43.30 | 42.53 | 49.85 | |
| Wt container, gm | 16.61 | 13.60 | 20.40 | 15.69 | 16.57 | |
| Wt dry soil, Ws, gm | 176.19 | 230.59 | 207.75 | 219.89 | 212.74 | |
| Water content, w % | 15.63 | 16.01 | 20.84 | 19.34 | 23.43 | |




Max. γd 1.78 t/m³ Opt. w 17.1 %

2-1-3 (8) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Gravel |
| Pit No P - 8 | Depth 0.0 - 3.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

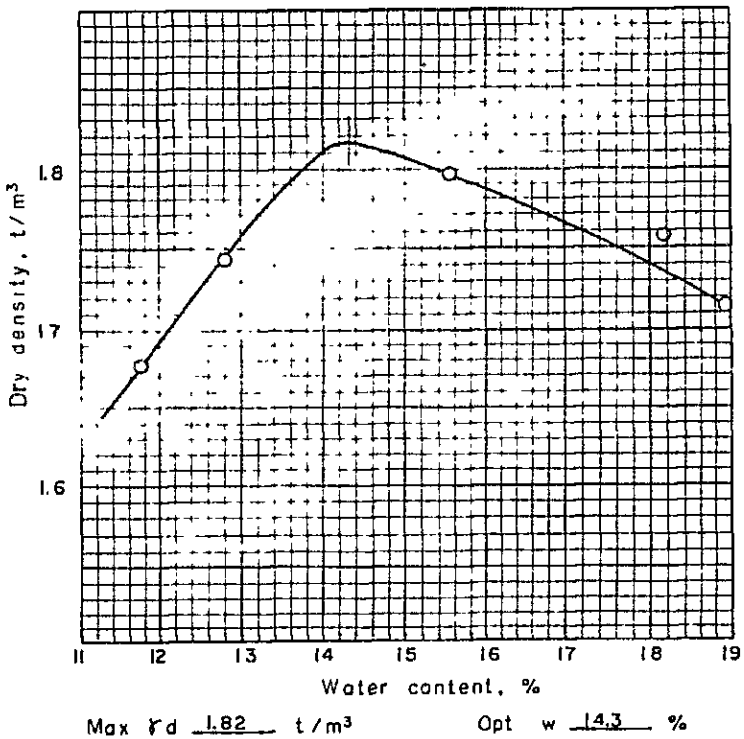
| | |
|---|---|
| Date | 21 - 3 - 79 |
| Type of test | Standard Procter |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.930 | 3 965 | 3.775 | 3 862 | 3.965 | |
| Wt. mold, kg | 2 005 | 2 005 | 2 005 | 2 005 | 2. 005 | |
| Wt. compacted soil, kg | 1 925 | 1 960 | 1 770 | 1 857 | 1. 960 | |
| Wet density, t/m³ | 2 039 | 2 076 | 1 875 | 1 967 | 2 076 | |
| Dry density, t/m³ | 1 715 | 1 757 | 1 678 | 1. 744 | 1. 797 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | E-20 | E-60 | E-12 | E-1 | E-24 | |
| Wt container + wet soil, gm | 272.06 | 266 69 | 237 01 | 232 37 | 241. 59 | |
| Wt container + dry soil, gm | 231 49 | 228 15 | 213 73 | 207 65 | 211 15 | |
| Wt. water, Ww gm | 40.57 | 38 54 | 23 28 | 24 72 | 30 44 | |
| Wt container, gm | 16 46 | 15 69 | 15 90 | 14 37 | 14 96 | |
| Wt dry soil, Ws, gm | 215 03 | 212.46 | 197 83 | 193.28 | 196 19 | |
| Water content, w % | 18 87 | 18 14 | 11 77 | 12 79 | 15 52 | |




Max γd 1.82 t/m³ Opt w 14.3 %

2-1-3 (9) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Clayey Sand | |
| Pit No. P-9 | Depth 0.0-2.0 mm |
| Max. grain size 4.75mm (No. 4 sieve) | |

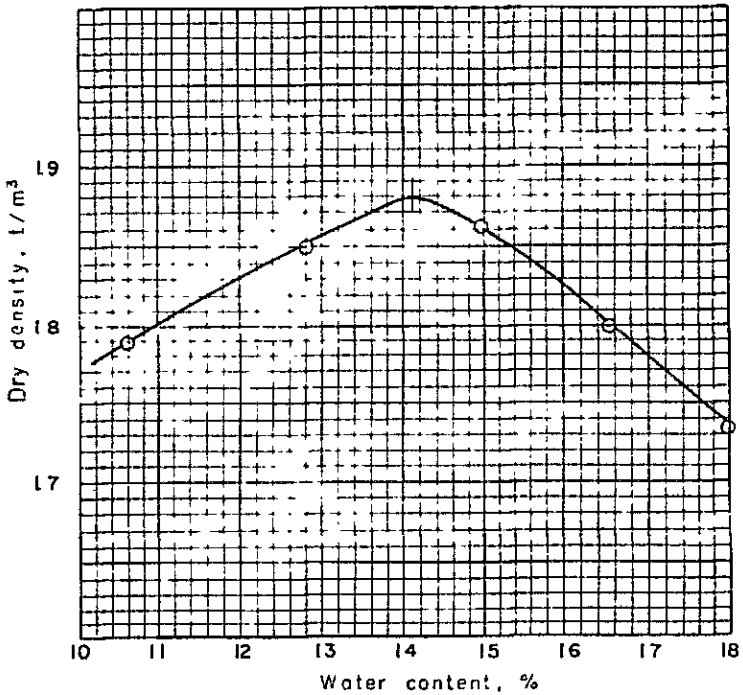
| | |
|---|---|
| Date 21-3-79 | |
| Type of test Standard Proctor | |
| Mold Volume 944 cm³ | Weight 2.005kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.940 | 3.985 | 3.874 | 3.975 | 4.025 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.935 | 1.980 | 1.869 | 1.970 | 2.020 | |
| Wet density, t/m³ | 2.050 | 2.097 | 1.980 | 2.087 | 2.140 | |
| Dry density, t/m³ | 1.737 | 1.800 | 1.790 | 1.850 | 1.862 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-9 | E-44 | E-14 | E-15 | E-25 | |
| Wt. container + wet soil, gm | 269.16 | 280.82 | 236.31 | 213.34 | 251.13 | |
| Wt container + dry soil, gm | 230.49 | 243.37 | 215.26 | 190.71 | 220.37 | |
| Wt. water, Ww. gm | 38.67 | 37.45 | 21.05 | 22.63 | 30.76 | |
| Wt. container, gm | 15.99 | 16.57 | 16.61 | 13.86 | 14.38 | |
| Wt dry soil, Ws, gm | 214.50 | 226.80 | 198.65 | 176.85 | 205.99 | |
| Water content, w % | 18.03 | 16.51 | 10.59 | 12.79 | 14.92 | |




Max. γd 1.88 t/m³ Opt w 14.1 %

2-1-3 (10) Compaction Test

| Project | Upper Quae Yai | |
|---|---|---|
| Soil sample | Brown Silty Clay Decomposed Gravel | |
| Pit No. P-10 | Depth 0.0 - 5.0 m | |
| Max. grain size | 4.75 mm ( No.4 sieve ) | |

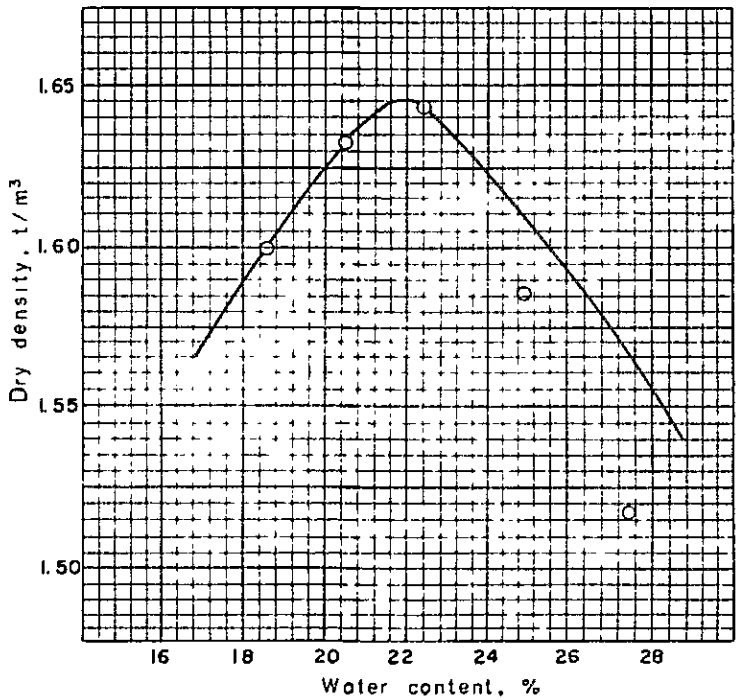
| Date | 5-3-79 | |
|---|---|---|
| Type of test | Standard Procter | |
| Mold · Volume | 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.796 | 3.903 | 3 830 | 3 875 | 3 863 | |
| Wt. mold, kg | 2 005 | 2.005 | 2.005 | 2.005 | 2 005 | |
| Wt compacted soil, kg | 1.791 | 1 898 | 1 825 | 1 870 | 1.858 | |
| Wet density, t/m³ | 1 897 | 2 011 | 1 933 | 1 981 | 1 968 | |
| Dry density, t/m³ | 1.600 | 1 644 | 1 517 | 1 586 | 1 683 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-29 | E-4 | E-1 | E-8 | E-23 | |
| Wt. container + wet soil, gm | 201.66 | 285 66 | 289 05 | 224 75 | 198.90 | |
| Wt. container + dry soil, gm | 172.39 | 236.26 | 229 90 | 183 06 | 167 69 | |
| Wt water, Ww. gm | 29 27 | 49 40 | 59 15 | 41 69 | 31 21 | |
| Wt. container, gm | 14 89 | 15 24 | 14 37 | 15.79 | 15.56 | |
| Wt dry soil, Ws, gm | 157 50 | 221 02 | 215.53 | 167.27 | 152.13 | |
| Water content, w % | 18.58 | 22 35 | 27.44 | 24 92 | 20.52 | |




Max γd 1.65 t/m³ Opt w 22.0 %

2-1-3 (II) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Light Brown Lateric Clay And Decomposed Rock | |
| Pit No P - II | Depth 0.0 - 5.0 m |
| Max. grain size 19.0 mm (3/4" sieve) | |

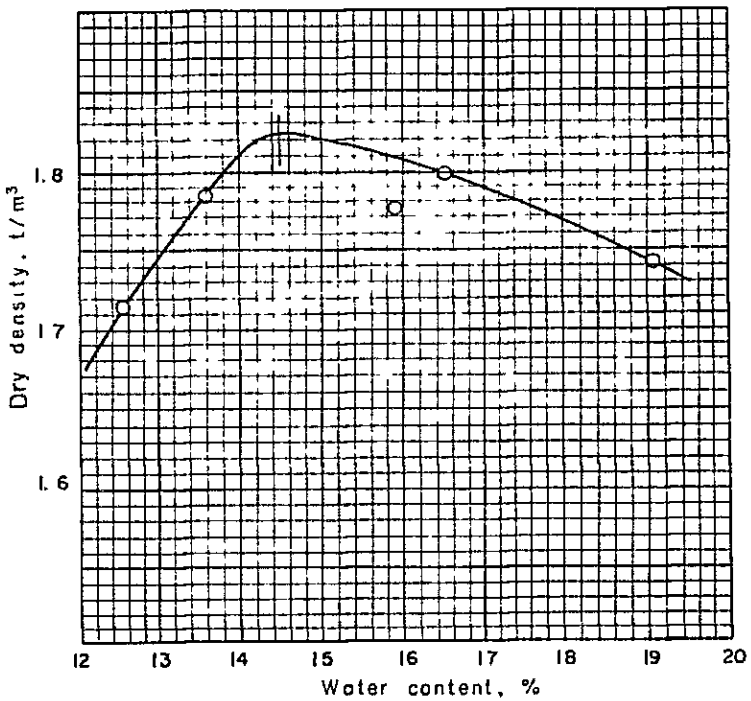
| | |
|---|---|
| Date 14 - 3 - 79 | |
| Type of test Standard Proctor | |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 918 | 3.828 | 3 948 | 3 963 | 3.745 | 3 982 |
| Wt. mold, kg | 2 005 | 2.005 | 2.005 | 2 005 | 2 005 | 2.005 |
| Wt. compacted soil, kg | 1 913 | 1 823 | 1 943 | 1 958 | 1.740 | 1 977 |
| Wet density, t/m³ | 2.026 | 1.931 | 2.058 | 2.074 | 1 843 | 2.094 |
| Dry density, t/m³ | 1 784 | 1 715 | 1 776 | 1.742 | 1.661 | 1.798 |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Container No | E-37 | E-1 | V-36 | E-25 | E-29 | E-50 |
| Wt. container + wet soil, gm | 245 12 | 262.57 | 266.71 | 269 98 | 272.55 | 293 99 |
| Wt container + dry soil, gm | 217 66 | 234 86 | 234 29 | 229 08 | 247.08 | 254 56 |
| Wt water, Ww gm | 27 46 | 27.71 | 32 42 | 40 90 | 25.47 | 39 43 |
| Wt container, gm | 15 59 | 14 87 | 30.70 | 14 38 | 15 72 | 15.43 |
| Wt dry soil, Ws, gm | 202.07 | 220.49 | 203.59 | 214 70 | 231.36 | 239 13 |
| Water content, w % | 13 59 | 12.57 | 15 92 | 19 05 | 11 00 | 16 49 |




Max. γd 1.83 t/m³ Opt w 14.5 %

2-1-3 (12) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Silty Clay and Decomposed Rock |
| Pit No P - 12 | Depth 0.0 - 5.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

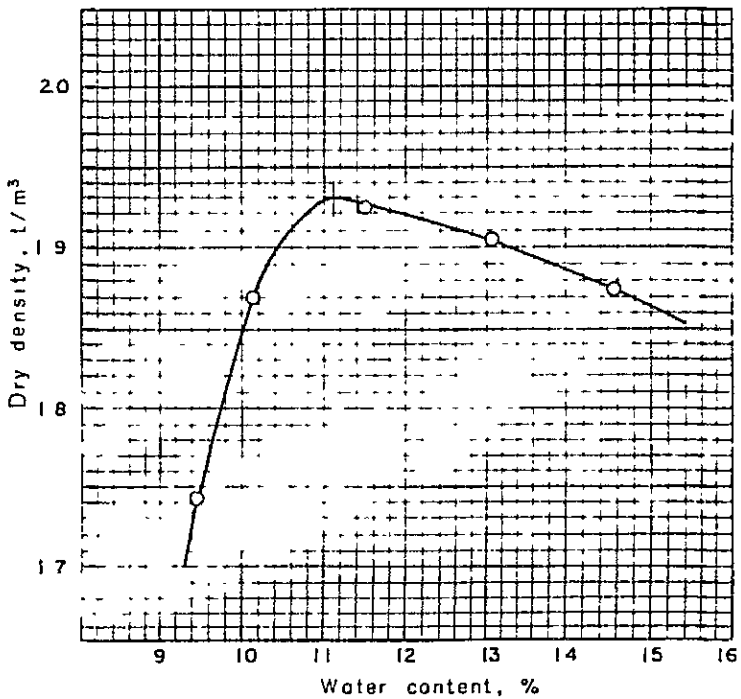
| | |
|---|---|
| Date | 19 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 4.040 | 3.805 | 4.035 | 4.035 | 3.950 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt compacted soil, kg | 2.035 | 1.800 | 2.030 | 2.030 | 1.945 | |
| Wet density, t/m³ | 2.156 | 1.907 | 2.150 | 2.150 | 2.060 | |
| Dry density, t/m³ | 1.907 | 1.742 | 1.928 | 1.876 | 1.870 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | V-20 | D-2 | M-16 | X-100 | Y-1 | |
| Wt container + wet soil, gm | 445.70 | 291.74 | 324.39 | 363.37 | 297.73 | |
| Wt container + dry soil, gm | 397.67 | 267.79 | 292.51 | 319.16 | 271.49 | |
| Wt water, Ww gm | 48.03 | 23.95 | 31.88 | 44.21 | 26.24 | |
| Wt container, gm | 29.80 | 15.50 | 15.70 | 16.30 | 13.30 | |
| Wt dry soil, Ws, gm | 367.87 | 252.29 | 276.81 | 302.86 | 258.19 | |
| Water content, w % | 13.06 | 9.49 | 11.52 | 14.59 | 10.16 | |




Max γd 1.93 t/m³ Opt w 11.1 %

2-1-3 (13) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Decomposed Rock |
| Pit No. P - 13 | Depth 00 - 14 m |
| Max grain size | 19.0 mm (3/4" sieve) |

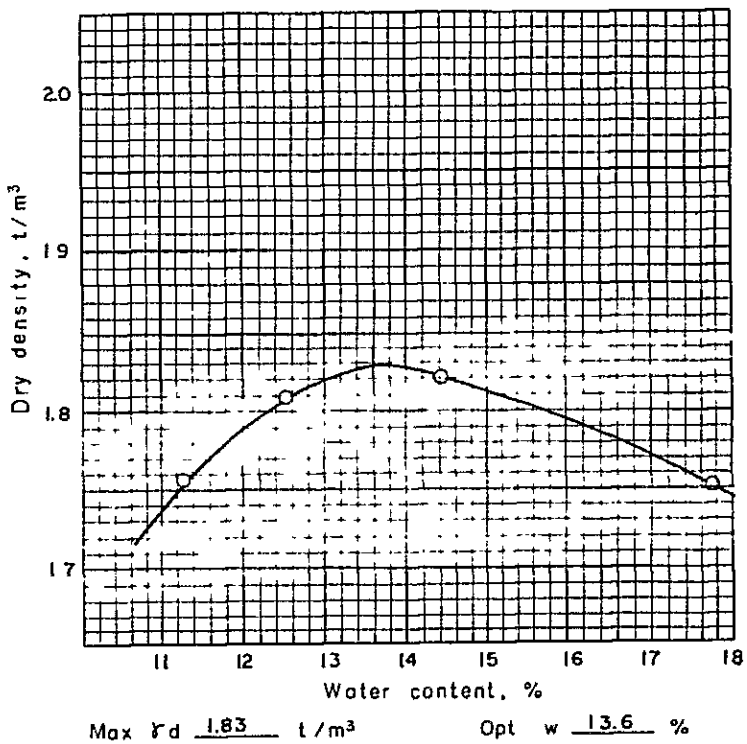
| | | |
|---|---|---|
| Date | 14 - 3 - 79 | |
| Type of test | Standard Proctor | |
| Mold Volume | 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 928 | 3 848 | 3 972 | 3.952 | | |
| Wt. mold, kg | 2.005 | 2 005 | 2.005 | 2 005 | | |
| Wt. compacted soil, kg | 1 923 | 1.843 | 1.967 | 1 947 | | |
| Wet density, t/m³ | 2.037 | 1 952 | 2.084 | 2.063 | | |
| Dry density, t/m³ | 1 810 | 1.755 | 1 821 | 1 752 | | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | | |
|---|---|---|---|---|---|---|
| Container No | E-9 | E-24 | E-20 | E-15 | | |
| Wt. container + wet soil, gm | 233 09 | 246.81 | 239 07 | 225 79 | | |
| Wt container + dry soil, gm | 208 90 | 223.40 | 211.02 | 193.85 | | |
| Wt. water, Ww. gm | 24 19 | 2341 | 28.05 | 31 94 | | |
| Wt. container, gm | 15 99 | 14 96 | 16 46 | 13.86 | | |
| Wt. dry soil, Ws, gm | 192.91 | 208.44 | 194.56 | 179 99 | | |
| Water content, w % | 12.54 | 11 23 | 14 42 | 17.75 | | |




Max γd 1.83 t/m³ Opt w 13.6 %

2 - 1 - 3 (14) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Decomposed Rock |
| Pit No P - 14 | Depth 0 - 3.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

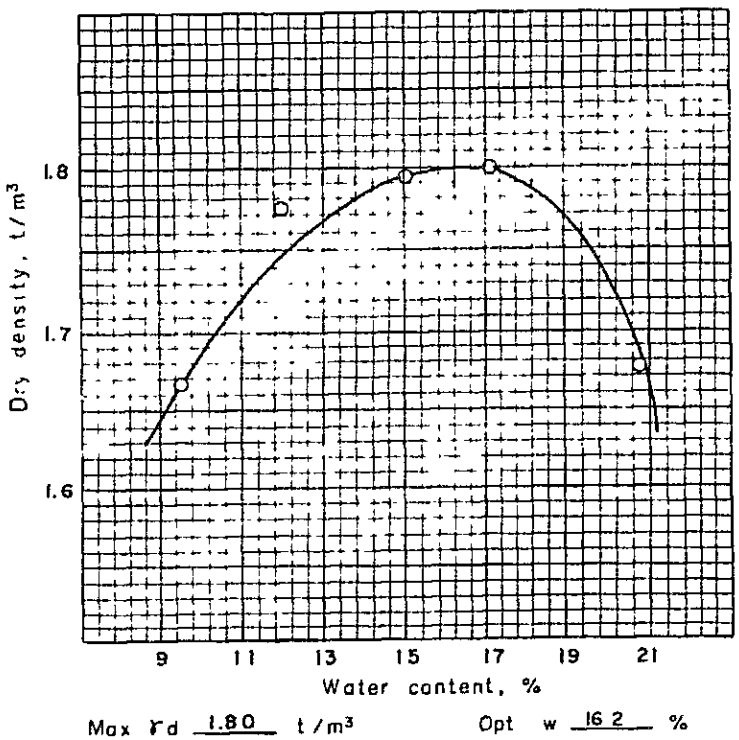
| | |
|---|---|
| Date | 15 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.952 | 3.730 | 3.880 | 3.992 | 3.918 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.949 | 1.725 | 1.875 | 1.987 | 1.913 | |
| Wet density, t/m³ | 2.063 | 1.827 | 1.986 | 2.105 | 2.026 | |
| Dry density, t/m³ | 1.793 | 1.669 | 1.774 | 1.797 | 1.677 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | V-15 | X-100 | V-20 | E-12 | V-10 | |
| Wt container + wet soil, gm | 403.33 | 305.92 | 333.95 | 259.29 | 431.09 | |
| Wt container + dry soil, gm | 354.49 | 280.90 | 301.56 | 223.71 | 362.26 | |
| Wt. water, Ww gm | 48.84 | 25.02 | 32.39 | 35.58 | 68.83 | |
| Wt container, gm | 29.80 | 16.30 | 29.80 | 15.90 | 31.45 | |
| Wt. dry soil, Ws, gm | 324.69 | 264.60 | 271.76 | 207.81 | 330.81 | |
| Water content, w % | 15.04 | 9.46 | 11.92 | 17.12 | 20.81 | |




Max $\gamma_d$ 1.80 t/m³ Opt w 16.2 %

2-1-3 (15) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Reddish Brown Clayey Sand | |
| Pit No. P - 15 | Depth 00 - 1.00 m |
| Max. grain size 4.75 mm (No 4 sieve) | |

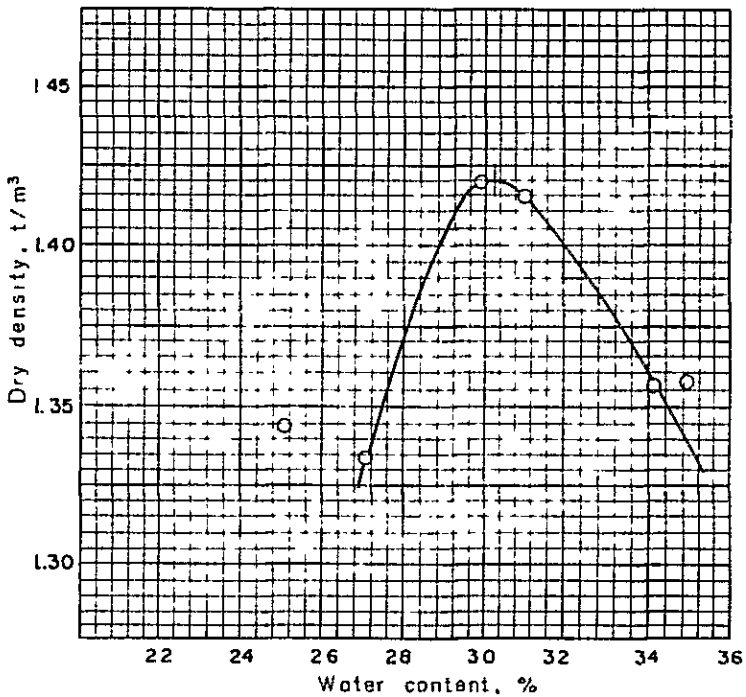
| | |
|---|---|
| Date 27-3-79 | |
| Type of test Standard Proctor | |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.591 | 3 611 | 3.745 | 3.725 | 3.754 | 3 735 |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 |
| Wt. compacted soil, kg | 1.586 | 1.606 | 1 740 | 1.720 | 1 749 | 1 730 |
| Wet density, t/m³ | 1.680 | 1.701 | 1 843 | 1 822 | 1.853 | 1 833 |
| Dry density, t/m³ | 1. 344 | 1 339 | 1.419 | 1. 357 | 1 415 | 1 359 |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Container No. | E-9 | E-26 | E-44 | E-29 | E-17 | E-11 |
| Wt. container + wet soil, gm | 179.56 | 197 89 | 182.27 | 203 89 | 198 86 | 198 66 |
| Wt container + dry soil, gm | 146 83 | 158.95 | 144 15 | 155 68 | 155 32 | 151 53 |
| Wt water, Ww gm | 32.73 | 38 94 | 38 12 | 48 21 | 43 54 | 47 13 |
| Wt container, gm | 15 99 | 14.99 | 16. 57 | 14 89 | 14.59 | 16. 33 |
| Wt. dry soil, Ws, gm | 130.84 | 143 96 | 127. 58 | 140. 79 | 140.73 | 135 20 |
| Water content, w % | 25 02 | 27. 05 | 29. 88 | 34. 24 | 30.94 | 34 86 |




Max. γd 1.42 t/m³ Opt. w 30.2 %

2-1-3 (16) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Gravel |
| Pit No P - 16 | Depth 0.0 - 4.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

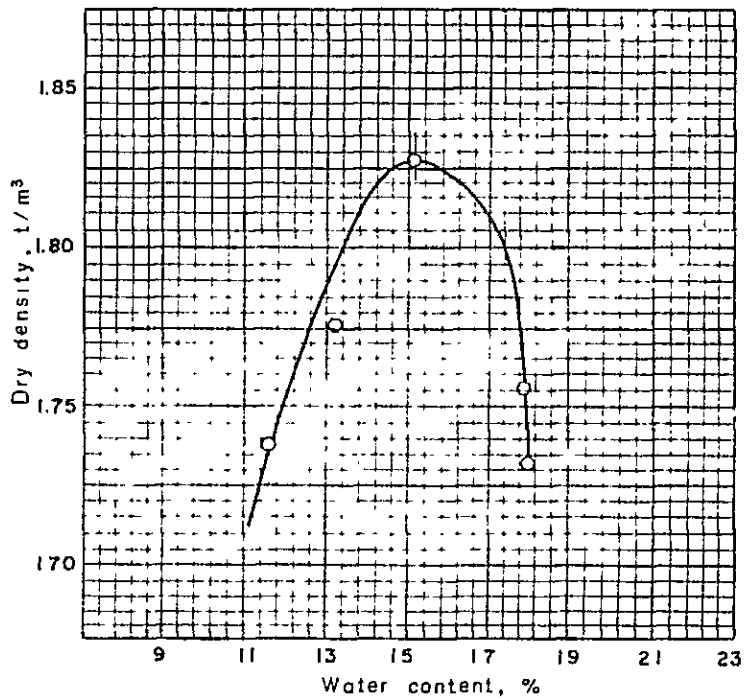
| | |
|---|---|
| Date | 27 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3 989 | 3.957 | 3 903 | 3 835 | 3 935 | |
| Wt mold, kg | 2 005 | 2.005 | 2.005 | 2.005 | 2 005 | |
| Wt compacted soil, kg | 1 984 | 1 952 | 1 898 | 1 830 | 1 930 | |
| Wet density, t/m³ | 2 102 | 2.068 | 2 011 | 1 939 | 2.044 | |
| Dry density, t/m³ | 1 826 | 1 756 | 1. 775 | 1. 737 | 1. 732 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-38 | E-39 | E-47 | E-43 | E-46 | |
| Wt. container + wet soil, gm | 223 12 | 226 68 | 229 69 | 258 11 | 247.00 | |
| Wt container + dry soil, gm | 195.68 | 194.65 | 204. 35 | 232. 75 | 211. 46 | |
| Wt water, Ww gm | 27.44 | 32 03 | 25 34 | 25 36 | 35 54 | |
| Wt container, gm | 14 35 | 14. 73 | 13 86 | 14 12 | 14 07 | |
| Wt dry soil, Ws, gm | 181 33 | 179. 92 | 190 49 | 218. 63 | 197 39 | |
| Water content, w % | 15 13 | 17 80 | 13. 90 | 11. 60 | 18. 00 | |




Max. γd 1.83 t/m³ Opt w 15.2 %

2 - 1 - 3 (17) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Clayey Gravel | |
| Pit No P – 17 | Depth 0 – 3.0 m |
| Max. grain size 19.0mm ( 5/4" sieve ) | |

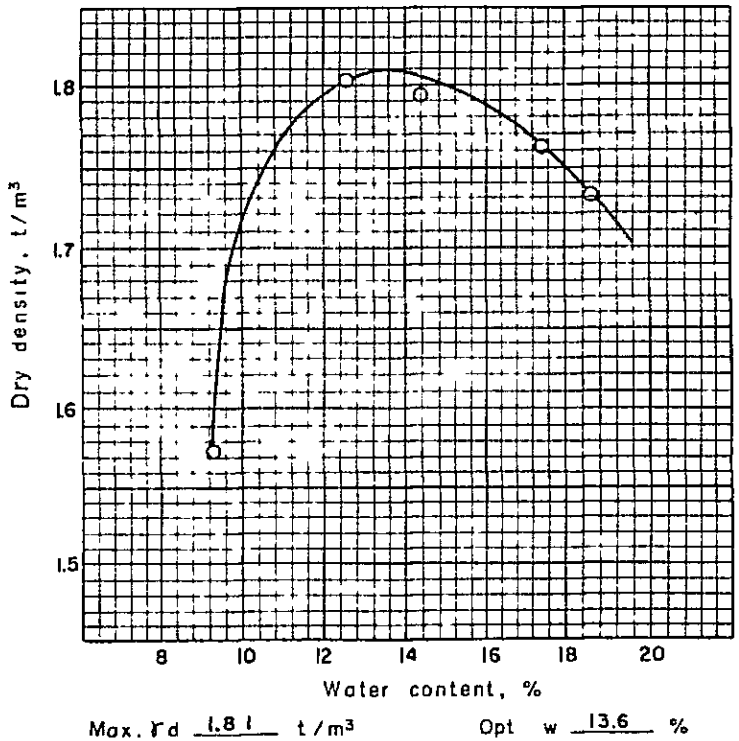
| | | |
|---|---|---|
| Date 23 – 3 – 79 | | |
| Type of test Standard Proctor | | |
| Mold Volume 944 cm³ | Weight 2.005 kg | |
| Specific gravity, Gs | | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 944 | 3.920 | 3 945 | 3.958 | 3 631 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.939 | 1915 | 1.940 | 1 953 | 1 626 | |
| Wet density, t/m³ | 2.054 | 2.029 | 2.055 | 2.069 | 1.722 | |
| Dry density, t/m³ | 1.733 | 1 802 | 1.796 | 1.763 | 1.576 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | X- 7 | X-13 | V-12 | V- 11 | X-16 | |
| Wt. container + wet soil, gm | 381 92 | 301 06 | 338.29 | 371.52 | 346 67 | |
| Wt container + dry soil, gm | 325.08 | 269 43 | 299.60 | 321 22 | 319.14 | |
| Wt. water, Ww. gm | 56 84 | 31.63 | 38.69 | 50.30 | 27. 53 | |
| Wt container, gm | 1797 | 17 90 | 30. 78 | 30.90 | 21. 30 | |
| Wt. dry soil, Ws, gm | 307. 11 | 251. 53 | 268. 82 | 290.32 | 297. 84 | |
| Water content, w % | 18.51 | 12. 58 | 14 39 | 17.33 | 9 24 | |




Max. γd 1.81 t/m³ Opt w 13.6 %

2-1-3 (18) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Sand and Decomposed Rock |
| Pit No P - 18 | Depth 0 - 5.0 m |
| Max. grain size | 19.0 mm (3/4" sieve) |

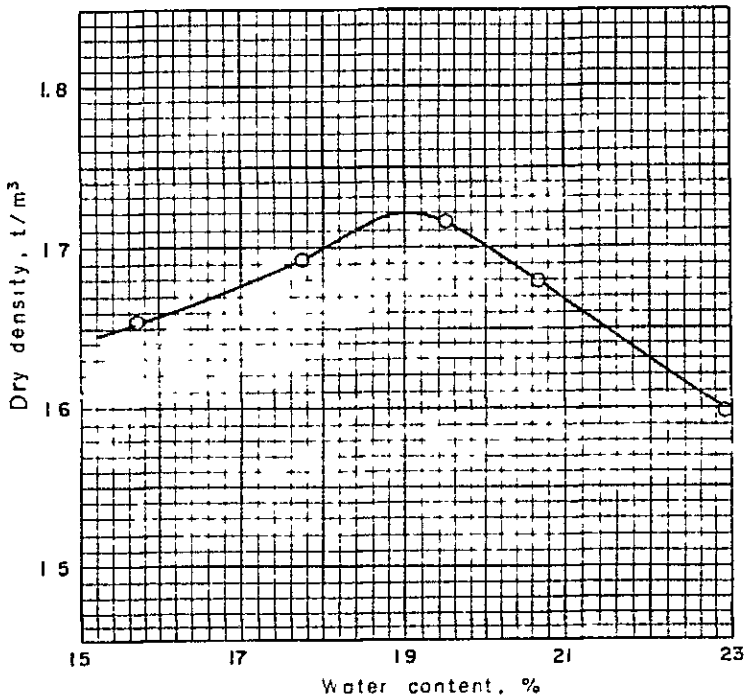
| | | | |
|---|---|---|---|
| Date | 19- 3-79 | | |
| Type of test | Standard Proctor | | |
| Mold · Volume | 944 cm³ | Weight | 2.005 kg |
| Specific gravity, Gs | | | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3812 | 3885 | 3940 | 3918 | 3862 | |
| Wt mold, kg | 2005 | 2005 | 2005 | 2005 | 2005 | |
| Wt compacted soil, kg | 1807 | 1880 | 1.935 | 1913 | 1857 | |
| Wet density, t/m³ | 1914 | 1992 | 2050 | 2026 | 1967 | |
| Dry density, t/m³ | 1.654 | 1692 | 1.715 | 1.679 | 1.599 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-26 | E-58 | E-25 | E-41 | E-8 | |
| Wt container + wet soil, gm | 223.18 | 189.80 | 215.89 | 214.33 | 245.74 | |
| Wt container + dry soil, gm | 194.92 | 163.49 | 183.19 | 180.12 | 202.81 | |
| Wt water, Ww gm | 28.26 | 26.31 | 32.70 | 34.31 | 42.95 | |
| Wt container, gm | 14.99 | 15.29 | 15.56 | 13.86 | 15.79 | |
| Wt dry soil, Ws, gm | 179.93 | 148.20 | 167.63 | 166.16 | 187.02 | |
| Water content, w % | 15.71 | 17.75 | 19.51 | 20.65 | 22.95 | |




Max γd 1.72 t/m³ Opt w 19.0 %

2-1-3 (19) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Brown Latentic Clay and Decomposed Rock | |
| Pit No P - 19 | Depth 0.0 - 5.0m |
| Max grain size 19.0mm (3/4" Sieve) | |

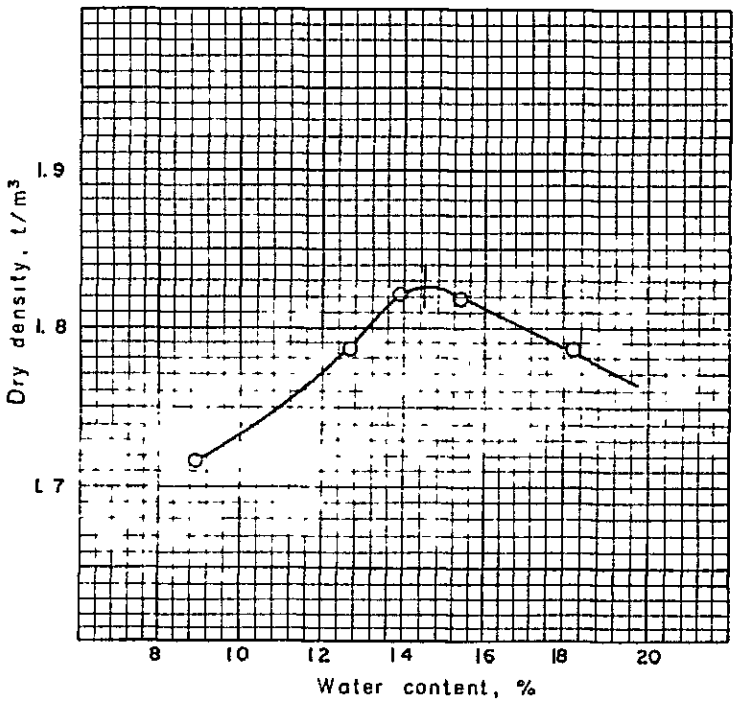
| | |
|---|---|
| Date 15 - 3 - 79 | |
| Type of test Standard Proctor | |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.768 | 3.905 | 3.963 | 3.985 | 4.000 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.763 | 1.900 | 1.958 | 1.980 | 1.995 | |
| Wet density, t/m³ | 1.868 | 2.013 | 2.074 | 2.097 | 2.113 | |
| Dry density, t/m³ | 1.715 | 1.786 | 1.820 | 1.818 | 1.788 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | E-26 | E-28 | E-8 | E-30 | E-29 | |
| Wt. container + wet soil, gm | 276.92 | 238.65 | 228.82 | 196.78 | 288.87 | |
| Wt container + dry soil, gm | 255.49 | 213.43 | 202.77 | 172.41 | 246.78 | |
| Wt water, Ww. gm | 21.43 | 25.22 | 26.05 | 24.37 | 42.09 | |
| Wt container, gm | 14.99 | 15.29 | 15.79 | 13.31 | 14.89 | |
| Wt. dry soil, Ws, gm | 240.50 | 198.14 | 186.98 | 159.10 | 231.89 | |
| Water content, w % | 8.91 | 12.73 | 13.93 | 15.32 | 18.15 | |




Max. $\gamma_d$ 1.83 t/m³ Opt w 14.5 %

2 - 1 - 3 (20) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Sand and Decomposed |
| Pit No P-20 | Depth 0 - 5.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

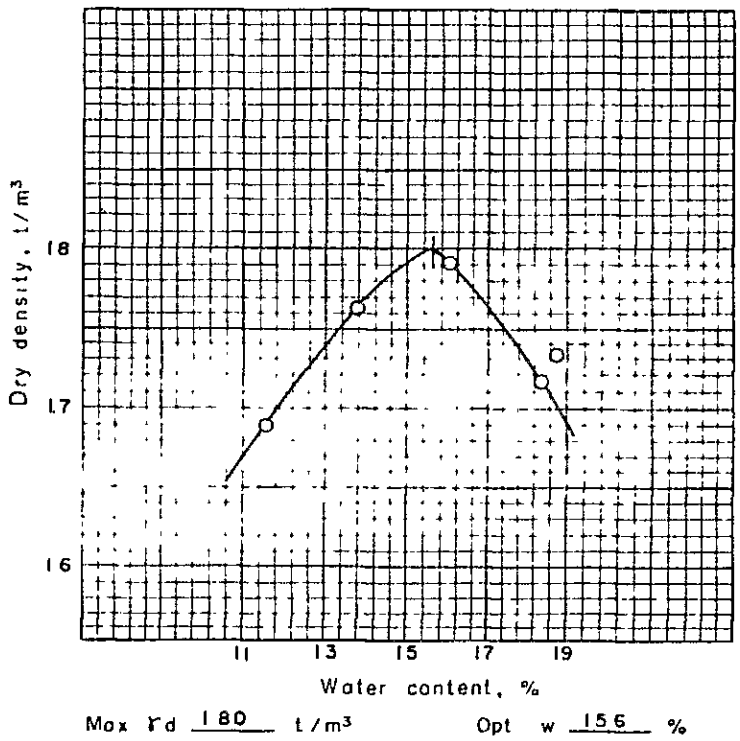
| | |
|---|---|
| Date | 28 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3 966 | 3 948 | 3 924 | 3 898 | 3 785 | |
| Wt mold, kg | 2 005 | 2 005 | 2 005 | 2 005 | 2 005 | |
| Wt compacted soil, kg | 1 961 | 1 943 | 1 919 | 1 893 | 1 780 | |
| Wet density, t/m³ | 2 077 | 2 058 | 2 033 | 2 005 | 1 886 | |
| Dry density, t/m³ | 1 790 | 1 734 | 1 718 | 1 762 | 1 690 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | E-32 | E-34 | E-35 | E-42 | E-53 | |
| Wt container + wet soil, gm | 228 90 | 265 12 | 270 82 | 214.33 | 241 35 | |
| Wt container + dry soil, gm | 199.62 | 225 53 | 231 15 | 190 27 | 225 03 | |
| Wt water, Ww gm | 29 28 | 39.59 | 39 67 | 24 06 | 24 32 | |
| Wt container, gm | 16 89 | 13 94 | 14 98 | 16.12 | 15 94 | |
| Wt dry soil, Ws, gm | 182.73 | 211. 59 | 216 17 | 174 15 | 209 09 | |
| Water content, w % | 16.02 | 18. 71 | 18.35 | 13 82 | 11. 63 | |




Max γd 1 80 t/m³ Opt w 15 6 %

2-1-3 (21) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Reddish Brown Silty Clay With Some Gravel |
| Pit No. P-21 | Depth 0.0 – 2.0 m |
| Max. grain size | 4.75 mm (No.4 sieve) |

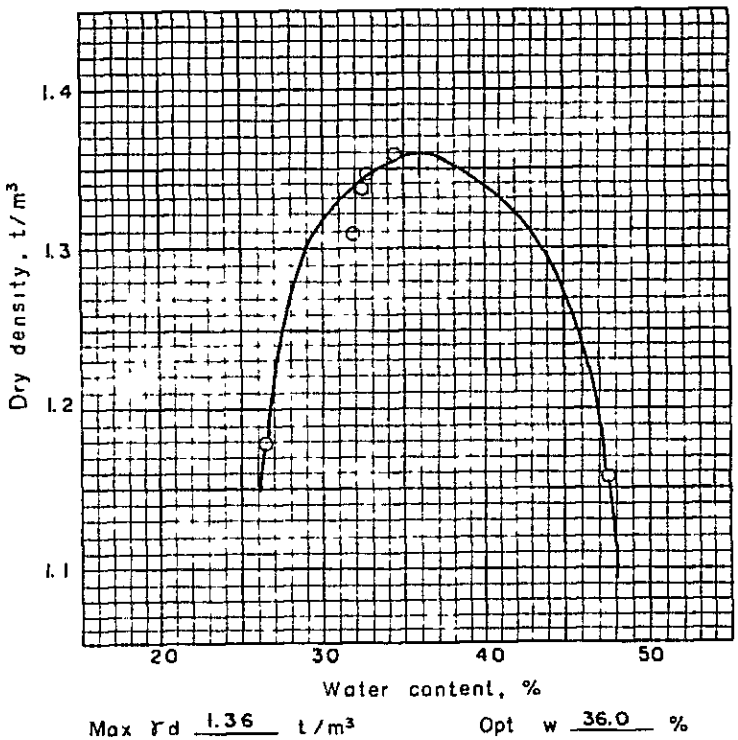
| | |
|---|---|
| Date | 12 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.410 | 3.673 | 3.632 | 3.690 | 3.730 | 3.616 |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 |
| Wt. compacted soil, kg | 1.405 | 1.668 | 1.627 | 1.685 | 1.725 | 1.611 |
| Wet density, t/m³ | 1.488 | 1.767 | 1.724 | 1.785 | 1.827 | 1.706 |
| Dry density, t/m³ | 1.178 | 1.337 | 1.308 | 1.344 | 1.358 | 1.158 |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Container No. | D-5 | V-36 | D-3 | V-2 | Z-19 | V-13 |
| Wt. container + wet soil, gm | 188.73 | 253.29 | 248.65 | 311.62 | 284.42 | 395.22 |
| Wt container + dry soil, gm | 152.19 | 199.11 | 192.18 | 242.41 | 219.48 | 278.55 |
| Wt. water, Ww. gm | 36.54 | 54.18 | 56.47 | 69.21 | 64.94 | 116.67 |
| Wt. container, gm | 13.60 | 30.70 | 14.80 | 31.70 | 31.23 | 32.00 |
| Wt. dry soil, Ws, gm | 138.59 | 168.41 | 177.38 | 210.71 | 188.25 | 246.55 |
| Water content, w % | 26.35 | 32.17 | 31.83 | 32.84 | 34.49 | 47.32 |




Max γd 1.36 t/m³ Opt w 36.0 %

2-1-3 (22) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Reddish Brown Silty Clay With Some Gravel |
| Pit No P – 22 | Depth 0.0 – 2.5 m |
| Max. grain size | 19.0 mm ( 3/4" Sieve) |

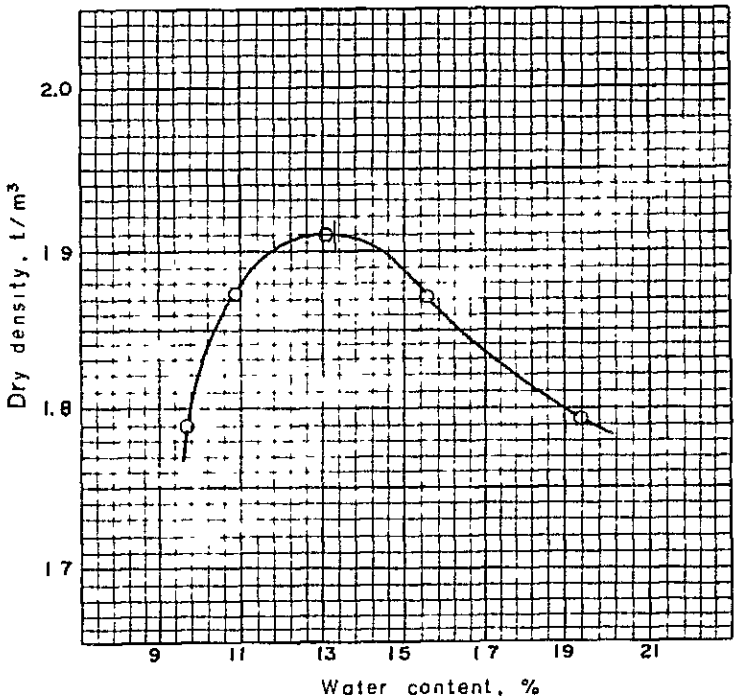
| | |
|---|---|
| Date | 5 – 3 – 79 |
| Type of test | Standard Proctor |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.857 | 3.965 | 4.047 | 4.057 | 4.025 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt compacted soil, kg | 1.852 | 1.960 | 2.042 | 2.052 | 2.020 | |
| Wet density, t/m³ | 1.962 | 2.076 | 2.163 | 2.174 | 2.140 | |
| Dry density, t/m³ | 1.790 | 1.873 | 1.911 | 1.881 | 1.793 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-2 | E-24 | E-25 | E-27 | E-30 | |
| Wt container + wet soil, gm | 218.05 | 276.05 | 261.25 | 249.65 | 268.65 | |
| Wt container + dry soil, gm | 200.24 | 250.48 | 232.52 | 218.16 | 227.30 | |
| Wt water, Ww. gm | 17.81 | 25.57 | 28.73 | 31.49 | 41.35 | |
| Wt container, gm | 15.34 | 14.96 | 14.38 | 15.72 | 13.31 | |
| Wt dry soil, Ws, gm | 184.90 | 235.52 | 218.14 | 202.44 | 213.99 | |
| Water content, w % | 9.63 | 10.86 | 13.17 | 15.56 | 19.32 | |




Max. γd 1.91 t/m³ Opt w 13.3 %

2-1-3 (23) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Reddish Brown Silty Clay |
| Pit No. P - 23A | Depth 0.0 - 1.0 m |
| Max. grain size | 4.75 mm (No. 4 sieve) |

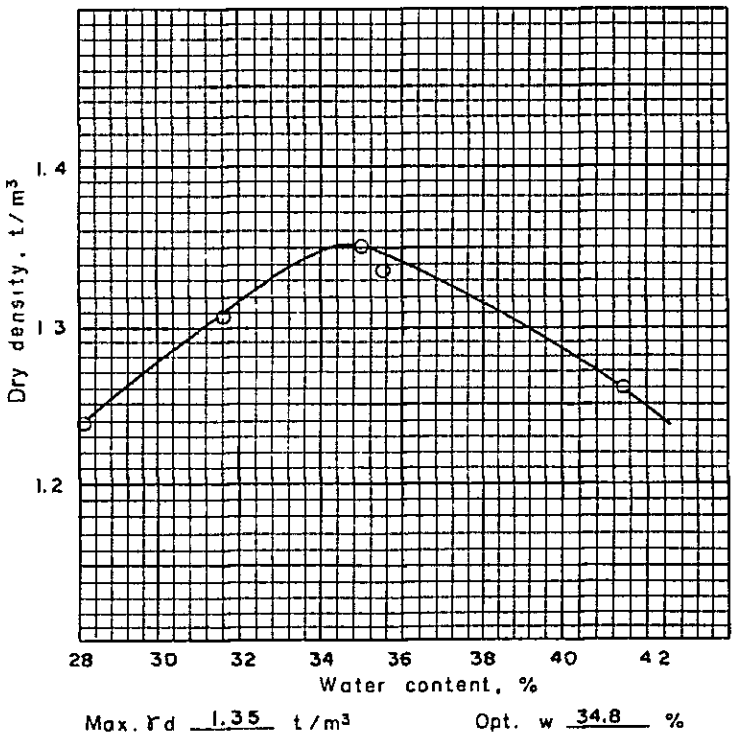
| | |
|---|---|
| Date | 13 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3504 | 3628 | 3715 | 3724 | 3685 | |
| Wt. mold, kg | 2005 | 2.005 | 2005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1499 | 1623 | 1710 | 1719 | 1680 | |
| Wet density, t/m³ | 1.588 | 1719 | 1811 | 1.821 | 1.780 | |
| Dry density, t/m³ | 1239 | 1306 | 1336 | 1.350 | 1260 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-58 | E-4 | E-11 | E-30 | E-28 | |
| Wt. container + wet soil, gm | 182.15 | 218.67 | 219.82 | 254.07 | 245.59 | |
| Wt. container + dry soil, gm | 145.49 | 169.80 | 166.46 | 191.78 | 178.29 | |
| Wt. water, Ww. gm | 36.66 | 48.87 | 53.36 | 62.29 | 67.30 | |
| Wt. container, gm | 15.29 | 15.24 | 16.33 | 13.31 | 15.38 | |
| Wt. dry soil, Ws, gm | 130.20 | 154.56 | 150.13 | 178.47 | 162.91 | |
| Water content, w % | 28.15 | 31.62 | 35.54 | 34.90 | 41.31 | |




Max. γd 1.35 t/m³ Opt. w 34.8 %

2 - 1 - 3 (24) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Reddish Brown Silty Soil | |
| Pit No. P - 23 B | Depth 0.0 - 2.0 m |
| Max. grain size 4.75 mm (No.4 sieve) | |

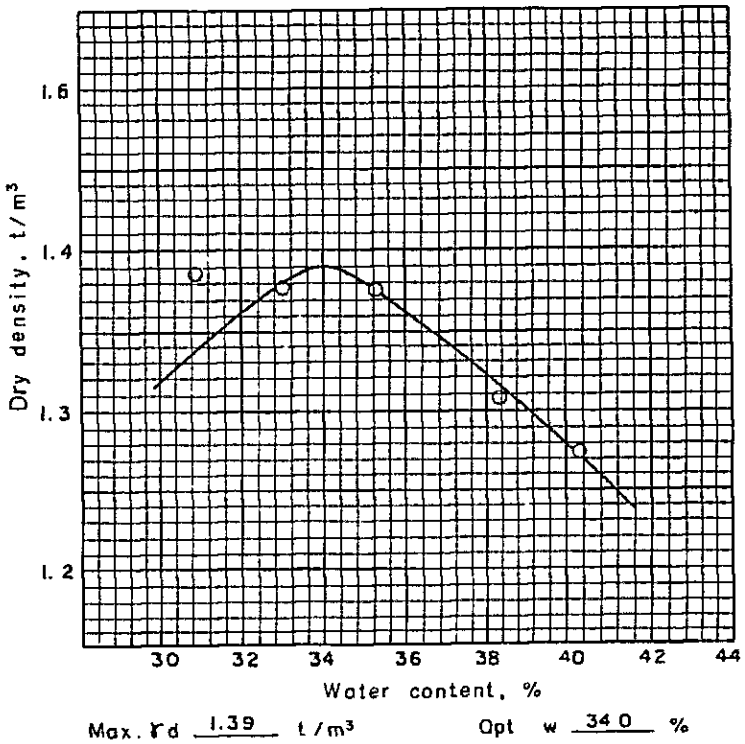
| | |
|---|---|
| Date 21 - 3 - 79 | |
| Type of test Standard Procter | |
| Mold : Volume 944 cm³ | Weight 2.005kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.735 | 3.715 | 3.715 | 3.760 | 3.695 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.730 | 1.710 | 1.710 | 1.755 | 1.690 | |
| Wet density, t/m³ | 1.833 | 1.811 | 1.811 | 1.859 | 1.790 | |
| Dry density, t/m³ | 1.378 | 1.309 | 1.385 | 1.374 | 1.277 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-8 | E-30 | E-23 | E-58 | E-26 | |
| Wt. container + wet soil, gm | 225.77 | 267.30 | 177.96 | 205.99 | 272.15 | |
| Wt. container + dry soil, gm | 173.72 | 196.82 | 139.70 | 156.25 | 198.42 | |
| Wt. water, Ww. gm | 52.05 | 70.48 | 38.26 | 49.74 | 73.73 | |
| Wt container, gm | 15.79 | 13.31 | 15.56 | 15.29 | 14.99 | |
| Wt. dry soil, Ws, gm | 157.93 | 183.51 | 124.14 | 140.96 | 183.43 | |
| Water content, w % | 33.0 | 38.4 | 30.8 | 35.3 | 40.2 | |




Max. γd 1.39 t/m³ Opt w 34.0 %

2-1-3 (25) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Reddish Brown Silty Clay With Some Gravel |
| Pit No. P - 24 | Depth 0.0 – 5.0 m |
| Max grain size | 4.75 mm (No. 4 sieve) |

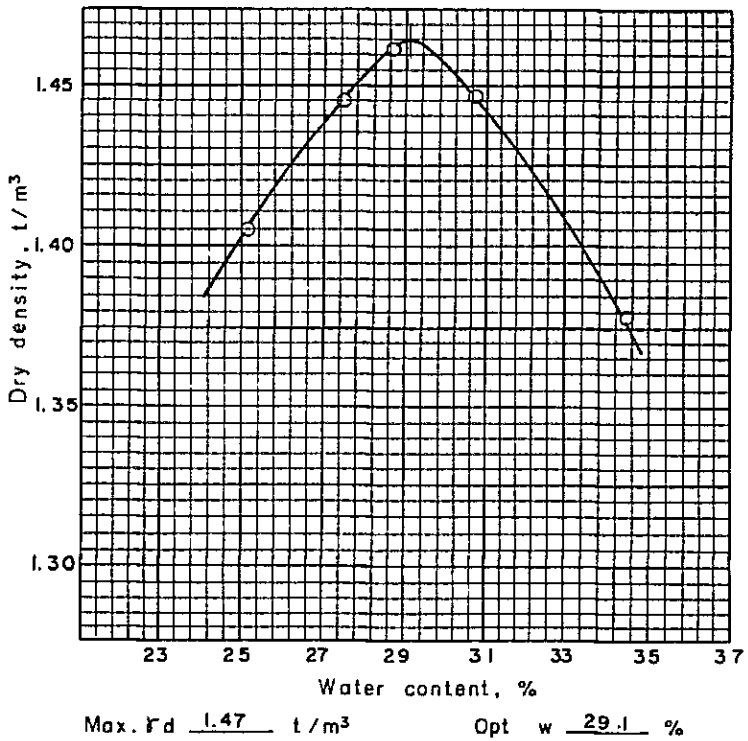
| | |
|---|---|
| Date | 5 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.665 | 3.745 | 3.780 | 3.790 | 3.755 | |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt. compacted soil, kg | 1.660 | 1.740 | 1.775 | 1.785 | 1.750 | |
| Wet density, t/m³ | 1.758 | 1.843 | 1.880 | 1.891 | 1.854 | |
| Dry density, t/m³ | 1.405 | 1.445 | 1.461 | 1.446 | 1.379 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | E-15 | E-28 | E-16 | E-37 | E-26 | |
| Wt container + wet soil, gm | 206.57 | 194.58 | 229.02 | 201.87 | 263.02 | |
| Wt. container + dry soil, gm | 167.83 | 155.90 | 181.35 | 158.02 | 199.45 | |
| Wt. water, Ww gm | 38.74 | 38.68 | 47.67 | 43.85 | 63.57 | |
| Wt container, gm | 13.86 | 15.38 | 15.33 | 15.59 | 14.99 | |
| Wt. dry soil, Ws, gm | 153.97 | 140.52 | 166.02 | 142.43 | 184.46 | |
| Water content, w % | 25.16 | 27.53 | 28.71 | 30.79 | 34.46 | |




Max. γd 1.47 t/m³ Opt w 29.1 %

2-1-3(26) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Yellowish Brown Silty Clay With Some Decomposed Rock | |
| Pit No P-25 | Depth 0.0 – 5.0 mm |
| Max grain size 4.75mm (No.4 sieve) | |

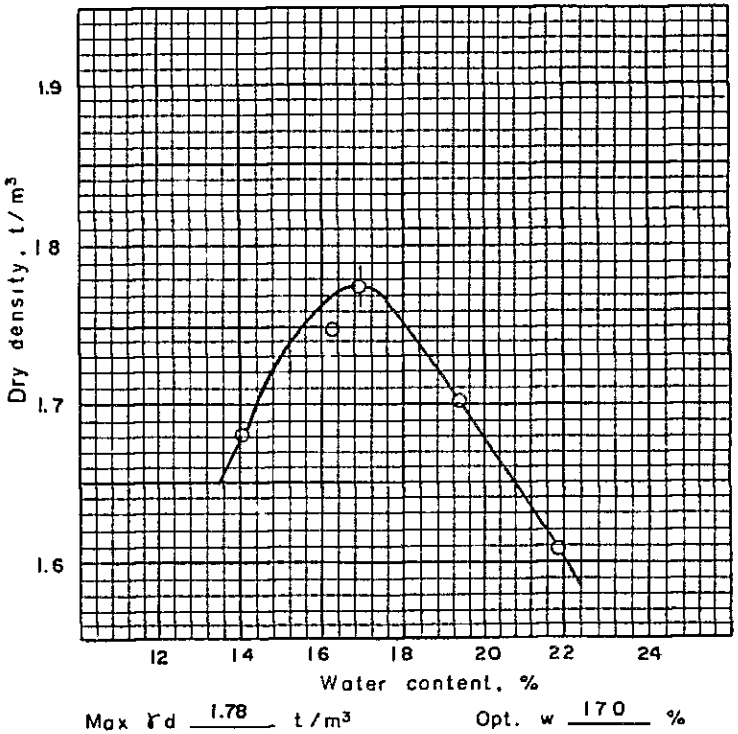
| | |
|---|---|
| Date 22-3-79 | |
| Type of test Standard Proctor | |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.858 | 3.925 | 3.815 | 3.925 | 3.965 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt compacted soil, kg | 1.853 | 1.920 | 1.810 | 1.920 | 1.960 | |
| Wet density, t/m³ | 1.963 | 2.034 | 1.917 | 2.034 | 2.076 | |
| Dry density, t/m³ | 1.610 | 1.704 | 1.681 | 1.748 | 1.775 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-43 | E-39 | E-41 | E-38 | E-46 | |
| Wt container + wet soil, gm | 309.50 | 296.19 | 238.31 | 250.37 | 245.28 | |
| Wt container + dry soil, gm | 256.38 | 250.52 | 210.70 | 217.20 | 211.78 | |
| Wt water, Ww, gm | 53.12 | 45.67 | 27.61 | 33.17 | 33.50 | |
| Wt container, gm | 14.12 | 14.73 | 13.86 | 14.35 | 14.07 | |
| Wt dry soil, Ws, gm | 242.26 | 235.79 | 196.84 | 202.85 | 197.71 | |
| Water content, w % | 21.93 | 19.37 | 14.03 | 16.35 | 16.94 | |




Max γd 1.78 t/m³ Opt. w 17.0 %

2-1-3 (27) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Light Yellowish Brown Clayey Gravel |
| Pit No. P - 26 | Depth 0 - 5.0 m |
| Max. grain size | 19.0 mm (3/4" sieve) |

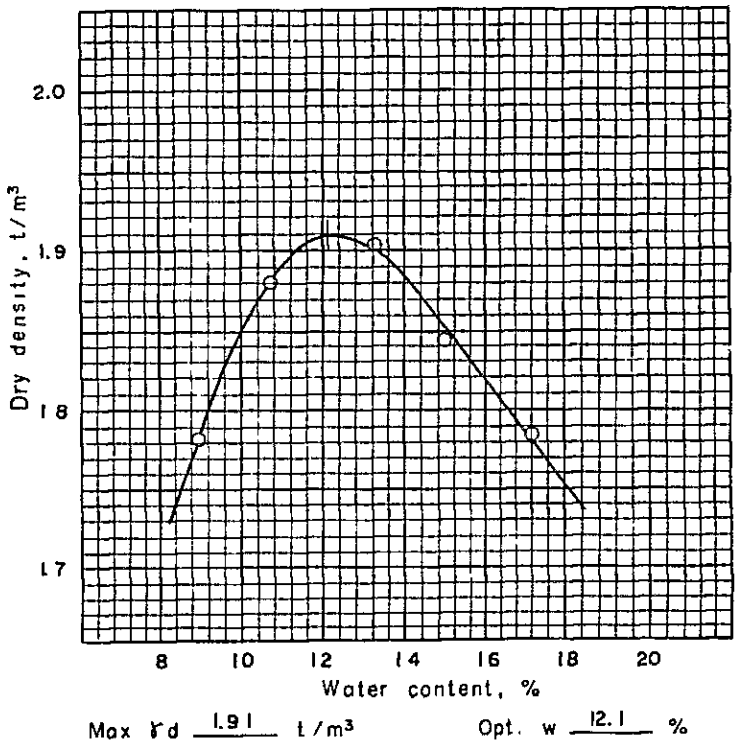
| | | | |
|---|---|---|---|
| Date | 2 - 3 - 79 | | |
| Type of test | Standard Proctor | | |
| Mold · Volume | 944 cm³ | Weight | 2.005 kg |
| Specific gravity, Gs | | | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 840 | 3 970 | 4039 | 4 008 | 3.982 | |
| Wt mold, kg | 2 005 | 2.005 | 2 005 | 2.005 | 2 005 | |
| Wt. compacted soil, kg | 1.835 | 1 965 | 2 034 | 2.003 | 1 977 | |
| Wet density, t/m³ | 1.944 | 2.082 | 2.155 | 2122 | 2.094 | |
| Dry density, t/m³ | 1.784 | 1 880 | 1.903 | 1 846 | 1.787 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | V-12 | D-3 | H-1 | D-2 | V-10 | |
| Wt. container + wet soil, gm | 388 82 | 324.63 | 398.18 | 384 08 | 449 06 | |
| Wt. container + dry soil, gm | 359 35 | 294 56 | 353 20 | 336 09 | 387 74 | |
| Wt. water, Ww gm | 29.47 | 30 07 | 44 98 | 47 99 | 61 32 | |
| Wt. container, gm | 31 45 | 14.80 | 13 30 | 15 50 | 30 30 | |
| Wt. dry soil, Ws, gm | 327 90 | 279.76 | 339 90 | 320.59 | 357 44 | |
| Water content, w % | 8 99 | 10.75 | 13 23 | 14 97 | 17.16 | |




Max γd 1.91 t/m³ Opt. w 12.1 %

2 - 1 - 3 (28) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Light Yellowish Brown Clayey Sand With Some Gravel |
| Pit No P - 27 | Depth 0.0 - 5.0 m |
| Max grain size | 19.0 mm (3/4" sieve) |

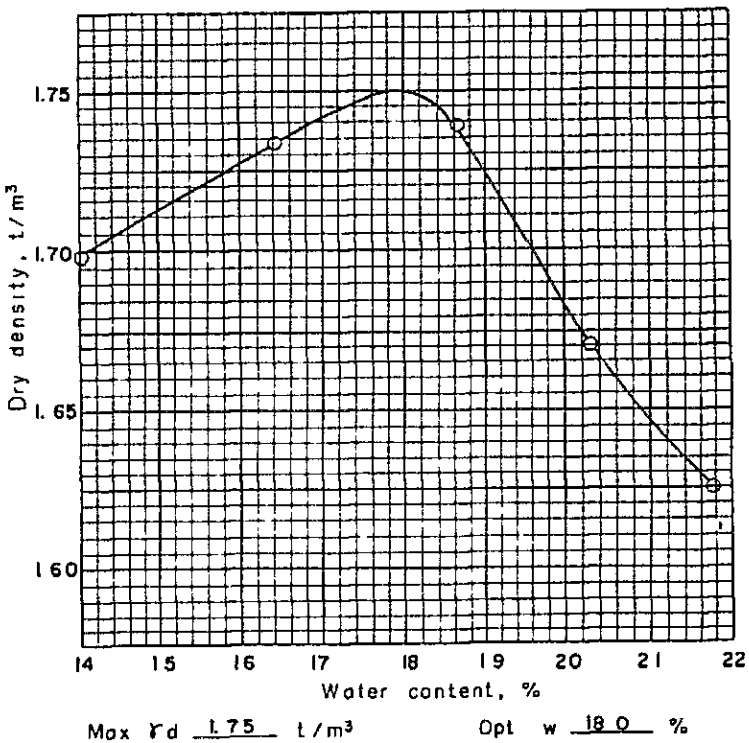
| | |
|---|---|
| Date | 2 - 3 - 79 |
| Type of test | Standard Proctor |
| Mold : Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3.833 | 3.910 | 3.953 | 3.902 | 3.875 | |
| Wt mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt compacted soil, kg | 1.828 | 1.905 | 1.948 | 1.897 | 1.870 | |
| Wet density, t/m³ | 1.936 | 2.018 | 2.064 | 2.010 | 1.981 | |
| Dry density, t/m³ | 1.698 | 1.733 | 1.739 | 1.672 | 1.627 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No | V-23 | X-16 | V-29 | V-13 | V-3 | |
| Wt container + wet soil, gm | 397.41 | 250.56 | 320.02 | 402.77 | 349.08 | |
| Wt container + dry soil, gm | 352.42 | 218.22 | 274.76 | 340.33 | 292.48 | |
| Wt water, Ww gm | 44.99 | 32.34 | 45.26 | 62.44 | 56.60 | |
| Wt container, gm | 31.54 | 21.30 | 32.28 | 32.00 | 32.20 | |
| Wt dry soil, Ws, gm | 320.88 | 196.92 | 242.48 | 308.33 | 260.28 | |
| Water content, w % | 14.02 | 16.42 | 18.67 | 20.25 | 21.75 | |




Max γd 1.75 t/m³ Opt w 18.0 %

2-1-3 (29) Compaction Test

| | |
|---|---|
| Project Upper Quae Yai | |
| Soil sample Yellowish Brown Clayey Sand With Some | |
| Pit No. P - 28 | Depth 0 - 2.5 m |
| Max. grain size 19.0 mm (3/4" sieve) | |

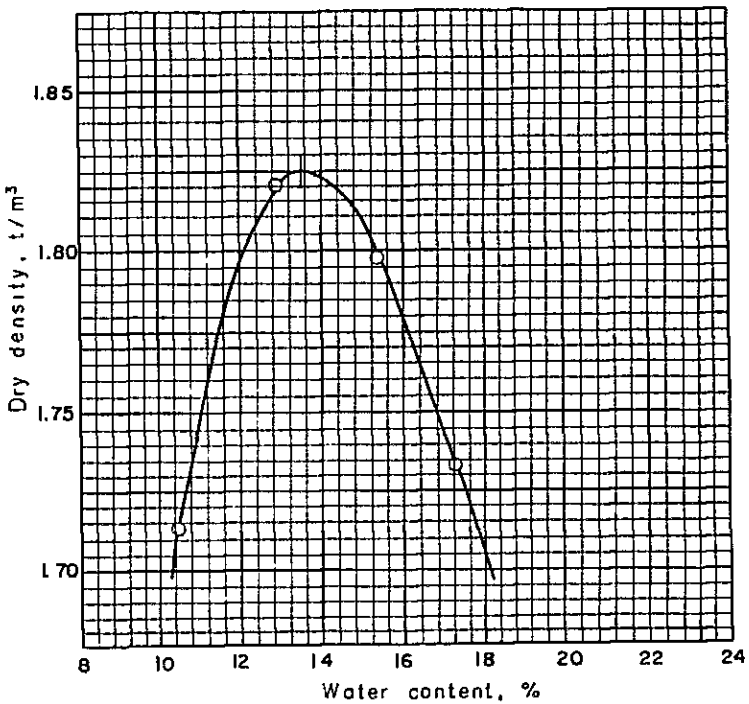
| | |
|---|---|
| Date 28 - 3 - 79 | |
| Type of test Standard Proctor | |
| Mold · Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3.965 | 3.925 | 3.920 | 3.945 | 3.792 | |
| Wt. mold, kg | 2.005 | 2.005 | 2.005 | 2.005 | 2.005 | |
| Wt compacted soil, kg | 1.960 | 1.920 | 1.915 | 1.940 | 1.787 | |
| Wet density, t/m³ | 2.076 | 2.034 | 2.029 | 2.055 | 1.893 | |
| Dry density, t/m³ | 1.798 | 1.734 | 1.734 | 1.820 | 1.714 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-16 | E-19 | E-18 | E-56 | E-47 | |
| Wt container + wet soil, gm | 231.80 | 240.06 | 233.96 | 203.89 | 244.90 | |
| Wt. container + dry soil, gm | 202.85 | 207.01 | 201.78 | 182.37 | 223.35 | |
| Wt. water, Ww. gm | 28.95 | 33.05 | 32.18 | 21.52 | 21.55 | |
| Wt. container, gm | 15.33 | 15.81 | 14.53 | 16.02 | 16.83 | |
| Wt. dry soil, Ws, gm | 187.52 | 191.20 | 187.25 | 166.35 | 206.52 | |
| Water content, w % | 15.44 | 17.29 | 17.19 | 12.94 | 10.43 | |




Max. γd 1.83 t/m³ Opt. w 13.5 %

2-1-3 (30) Compaction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Yellow Brown With Some Gravel Clayey Sand |
| Pit No P - 29 | Depth 0.0 - 5.0 m |
| Max grain size | 19.0 mm ( 3/4" sieve ) |

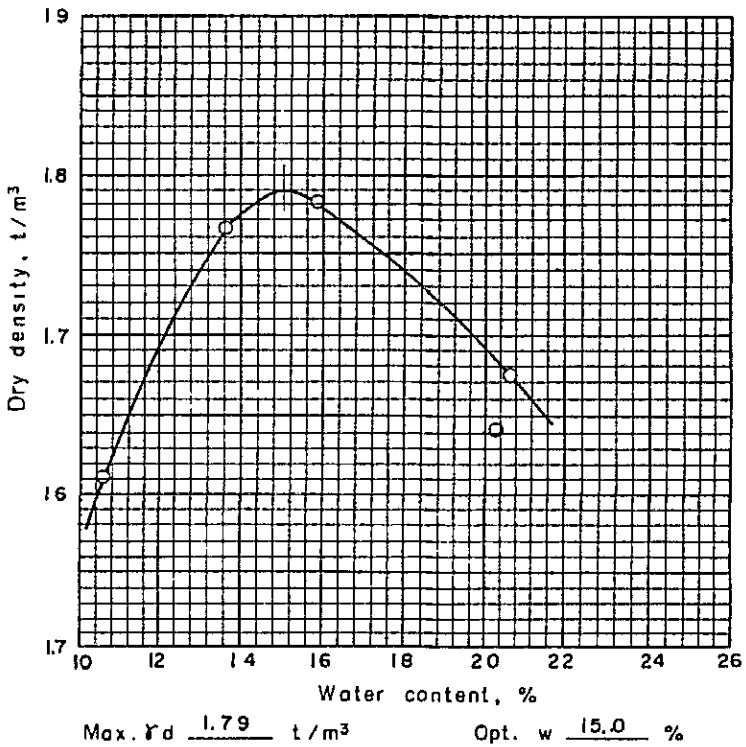
| | |
|---|---|
| Date | 13-3-79 |
| Type of test | Standard Proctor |
| Mold Volume 944 cm³ | Weight 2.005 kg |
| Specific gravity, Gs | |

DENSITY

| Determination No | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt mold + soil, kg | 3 687 | 3.900 | 3 955 | 3 915 | 3 871 | |
| Wt mold, kg | 2.005 | 2 005 | 2.005 | 2 005 | 2 005 | |
| Wt compacted soil, kg | 1 682 | 1 895 | 1 950 | 1 910 | 1 866 | |
| Wet density, t/m³ | 1 782 | 2.007 | 2.066 | 2 023 | 1 977 | |
| Dry density, t/m³ | 1 612 | 1.766 | 1 782 | 1 678 | 1 643 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-16 | E-29 | E-23 | E-26 | E-8 | |
| Wt container + wet soil, gm | 207 89 | 249.73 | 249 27 | 248.23 | 287 11 | |
| Wt. container + dry soil, gm | 189 55 | 221 53 | 217 10 | 208.40 | 241.22 | |
| Wt. water, Ww. gm | 18.34 | 28.20 | 32.17 | 39.83 | 45 89 | |
| Wt. container, gm | 15 33 | 14 89 | 15 56 | 14 99 | 15.79 | |
| Wt. dry soil, Ws, gm | 174 22 | 206.64 | 201.54 | 193.41 | 225.43 | |
| Water content, w % | 10.53 | 13 65 | 15 96 | 20.59 | 20.35 | |




Max. γd 1.79 t/m³ Opt. w 15.0 %

2 - 1 - 3 (31) Compction Test

| | |
|---|---|
| Project | Upper Quae Yai |
| Soil sample | Brown Clayey Gravel |
| Pit No. P - 30 | Depth 0.0 - 3.0 m m |
| Max. grain size | 19.0 mm (3/4" sieve) |

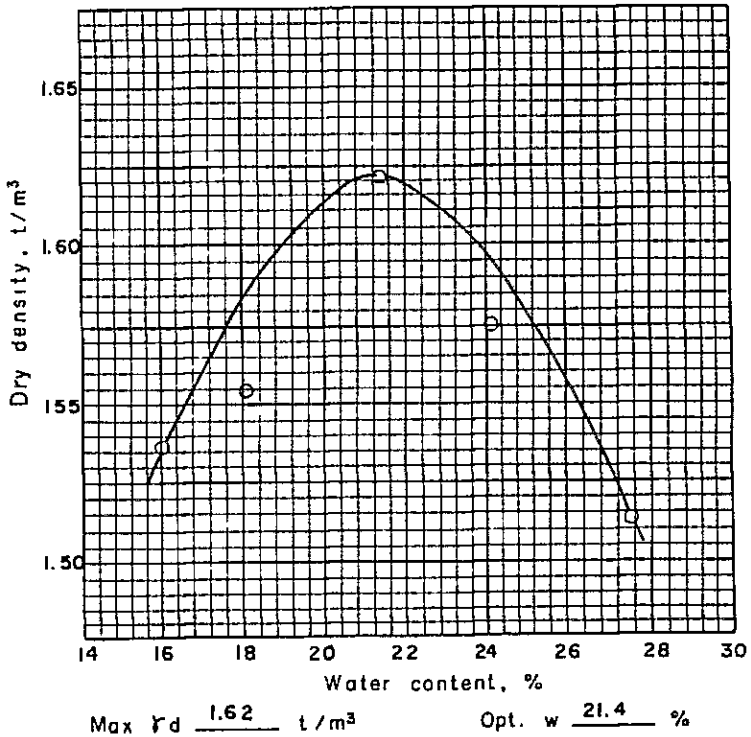
| | | |
|---|---|---|
| Date | 27- 3 - 79 | |
| Type of test | Standard Proctor | |
| Mold Volume | 944 cm$^3$ | Weight 2.005 kg |
| Specific gravity, Gs | | |

DENSITY

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Wt. mold + soil, kg | 3 739 | 3 863 | 3 851 | 3 828 | 3 688 | |
| Wt mold, kg | 2 005 | 2 005 | 2 005 | 2 005 | 2 005 | |
| Wt. compacted soil, kg | 1 734 | 1 858 | 1 846 | 1 823 | 1 683 | |
| Wet density, t/m$^3$ | 1 837 | 1 968 | 1 956 | 1 931 | 1 783 | |
| Dry density, t/m$^3$ | 1 555 | 1 621 | 1 575 | 1514 | 1 537 | |
| Void ratio e | | | | | | |
| Porosity n | | | | | | |

WATER CONTENT

| Determination No. | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| Container No. | E-60 | E-8 | E-23 | E-1 | E-25 | |
| Wt. container + wet soil, gm | 225 47 | 210 00 | 232 35 | 238 43 | 235 57 | |
| Wt. container + dry soil, gm | 193 25 | 175 71 | 190 12 | 190 03 | 205 06 | |
| Wt. water, Ww. gm | 32 22 | 34 29 | 42 23 | 48 40 | 30 51 | |
| Wt. container, gm | 15 69 | 15 79 | 15 56 | 14 30 | 14 38 | |
| Wt dry soil, Ws, gm | 177 56 | 159 92 | 174 56 | 175 73 | 190 68 | |
| Water content, w % | 18 15 | 21 44 | 24 19 | 27 54 | 16 00 | |




Max $\gamma_d$ 1.62 t/m$^3$ Opt. w 21.4 %

2-1-3 (32) Compaction Test

## 2-2-1 Results of Soil Tests for Representative Samples

| Area No. | Sample No. | Depth (m) | Soil Classification: Unified System | Soil Classification: Revised P.R. System | Water Content as received (%) | Specific Gravity | Atterberg Limits: L L (%) | Atterberg Limits: P L (%) | Atterberg Limits: P I | Gradation: -38.1mm (1 1/2") (%) | Gradation: -19.0mm (3/4") (%) | Gradation: -4.75mm (No.4) (%) | Gradation: -2.0mm (No.10) (%) | Gradation: -0.425mm (No.40) (%) | Gradation: -0.075mm (No.200) (%) | Compaction*1 & Permeability (I): Optumum Water Content (%) | Compaction*1 & Permeability (I): Maximum Dry Density (t/m$^3$) | Compaction*1 & Permeability (I): Coefficient of Permeability (cm/sec.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ( Fine Materials ) | | | | | | | | | | | | | | | | | | |
| | P – 10 | 2.5 | SC | A-7-6(2) | 14.5 | 2.71 | 42.2 | 23.2 | 19.0 | | 100 | 90 | 76 | 52 | 37 | 20.0 | 1.680 | $2.8\times10^{-6}$ |
| | P – 25 | 3.0 | CL | A-6 (5) | 12.2 | 2.61 | 30.8 | 17.2 | 13.6 | 100 | 98 | 92 | 84 | 74 | 54 | 17.8 | 1.773 | $1.3\times10^{-6}$ |
| | P – 27 | 1.5 | SC | A-7-6(3) | 14.8 | 2.64 | 40.6 | 22.8 | 17.8 | | 100 | 86 | 70 | 52 | 41 | – | – | – |
| ( Medium Materials ) | | | | | | | | | | | | | | | | | | |
| | P – 19 | 1.5 | SC | A-2-6(1) | 9.9 | 2.67 | 36.2 | 22.1 | 14.1 | | 100 | 83 | 60 | 37 | 29 | 18.5 | 1.790 | $2.6\times10^{-6}$ |
| | P – 26 | 2.5 | GC | A-2-6(0) | 7.2 | 2.70 | 34.2 | 20.8 | 13.4 | 100 | 89 | 49 | 31 | 24 | 21 | – | – | – |
| | P – 29 | 4.5 | SC | A-2-6(0) | 14.8 | 2.71 | 37.0 | 19.8 | 17.2 | 100 | 93 | 66 | 52 | 36 | 22 | 15.2 | 1.792 | $3.3\times10^{-6}$ |
| ( Coarse Materials ) | | | | | | | | | | | | | | | | | | |
| | P – 20 | 4.5 | GW-GC | A-2-6(0) | 10.4 | 2.77 | 36.4 | 21.5 | 14.9 | 100 | 56 | 29 | 19 | 13 | 10 | 17.2 | 1.753 | $4.5\times10^{-6}$ |
| | P – 25 | 4.7 | GC | A-2-6(0) | 12.0 | 2.65 | 28.1 | 15.7 | 12.4 | 100 | 89 | 49 | 32 | 21 | 16 | 14.6 | 1.880 | $1.3\times10^{-6}$ |
| | P – 27 | 3.7 | GP–GM | A-2-6(0) | 15.6 | 2.64 | 33.3 | 24.0 | 9.3 | | 100 | 42 | 27 | 15 | 9 | – | – | – |

| Sample No. | Compaction** & Permeability (II): Optimum Water Content (%) | Compaction** & Permeability (II): Maximum Dry Density (t/m$^3$) | Compaction** & Permeability (II): Coefficient of Permeability (cm/sec.) | Triaxial Compression Strength ($\overline{CIU}$) *4: Water Content (%) | Total Stress: C (kg/cm$^2$) | Total Stress: $\phi$ (deg.) | Effective Stress: $\overline{C}$ (kg/cm$^2$) | Effective Stress: $\overline{\phi}$ (deg.) |
|---|---|---|---|---|---|---|---|---|
| P–10 | 17.5 | 1.812 *2 | – | – | – | – | – | – |
| P–25 | 14.0 | 1.910 *2 | – | – | – | – | – | – |
| P–27 | 12.2 | 1.923 *3 | $3.8\times10^{-8}$ | 12.2 | 1.2 | 22.5 | 0.78 | 27.0 |
| P–19 | 14.0 | 1.904 *2 | – | – | – | – | – | – |
| P–26 | 11.2 | 2.010 *3 | $2.1\times10^{-8}$ | 11.2 | 0.5 | 19.6 | 0.96 | 20.9 |
| P–29 | 12.4 | 1.910 *2 | – | – | – | – | – | – |
| P–20 | 13.6 | 1.910 *2 | – | – | – | – | – | – |
| P–25 | 12.2 | 1.968 *2 | – | – | – | – | – | – |
| P–27 | 11.3 | 1.952 *3 | $2.0\times10^{-7}$ | 11.3 | 2.2 | 17.8 | 1.32 | 27.0 |

*1 ASTM D 698–70 METHOD C

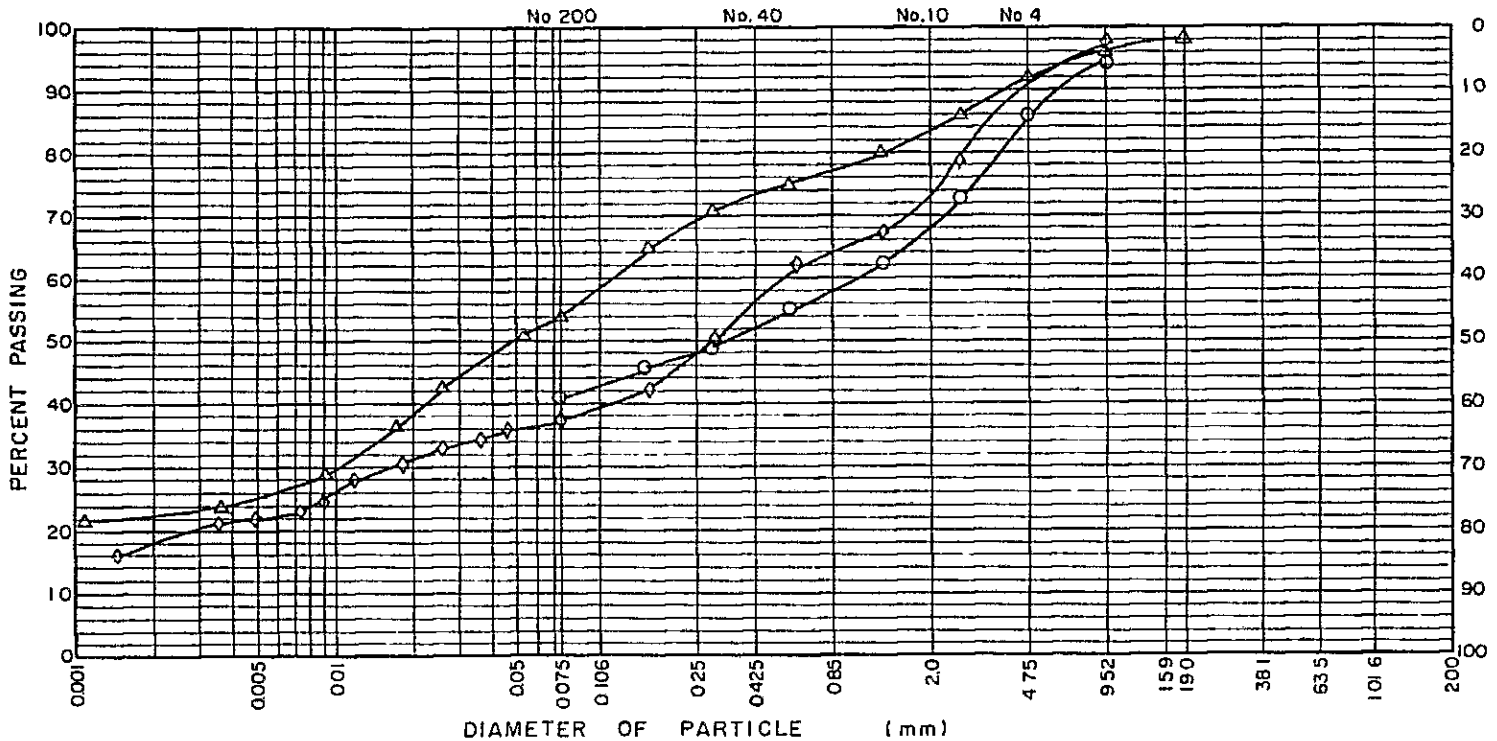
*2 ASTM D 1557–70 METHOD C

*3 ASTM D 1557–70 METHOD B

*4 •Specimens were compacted by ASTM D 1557–70 METHOD B and they were at optimum water Content, maximum dry density.

•In permeability tests, falling head permeability tests were performed on specimens compacted by ASTM D 698–70. METHOD C (*1) and constant head permeability tests were performed on specimens compacted by ASTM D 1557–70 METHOD B (*3).

•Coefficient of permeability is at optimum water content.




| SAMPLE NO | P-10 | P-25 | P-27 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 98 | 100 | |
| mm 4.75 (%) | 90 | 92 | 86 | |
| mm 0.075 (%) | 37 | 54 | 41 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

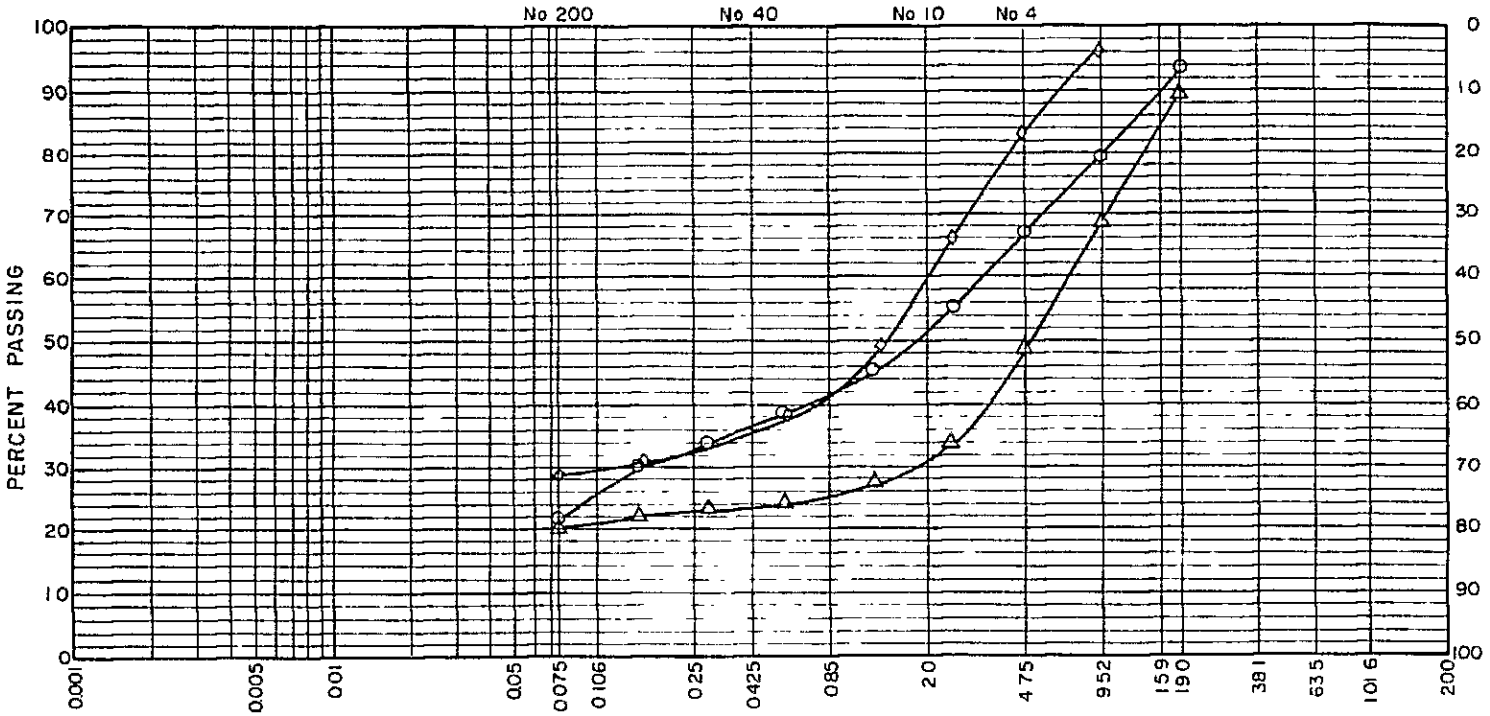
COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-10 | ○ | 2.5 | SC | A-7-6(2) | | 2.71 | 42.2 | 23.2 | 19.0 | — |
| P-25 | △ | 3.0 | CL | A-6 (5) | | 2.61 | 30.8 | 17.2 | 13.6 | — |
| P-27 | ○ | 1.5 | SC | A-7-6(3) | | 2.64 | 40.6 | 22.8 | 17.8 | — |

2-2-2 (1) Gradation Analysis Curves (Representative Samples of Fine Materials)




| SAMPLE NO | P-19 | P-26 | P-29 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 100 | 89 | 93 | |
| mm 4.75 (%) | 83 | 49 | 66 | |
| mm 0.075 (%) | 29 | 21 | 22 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

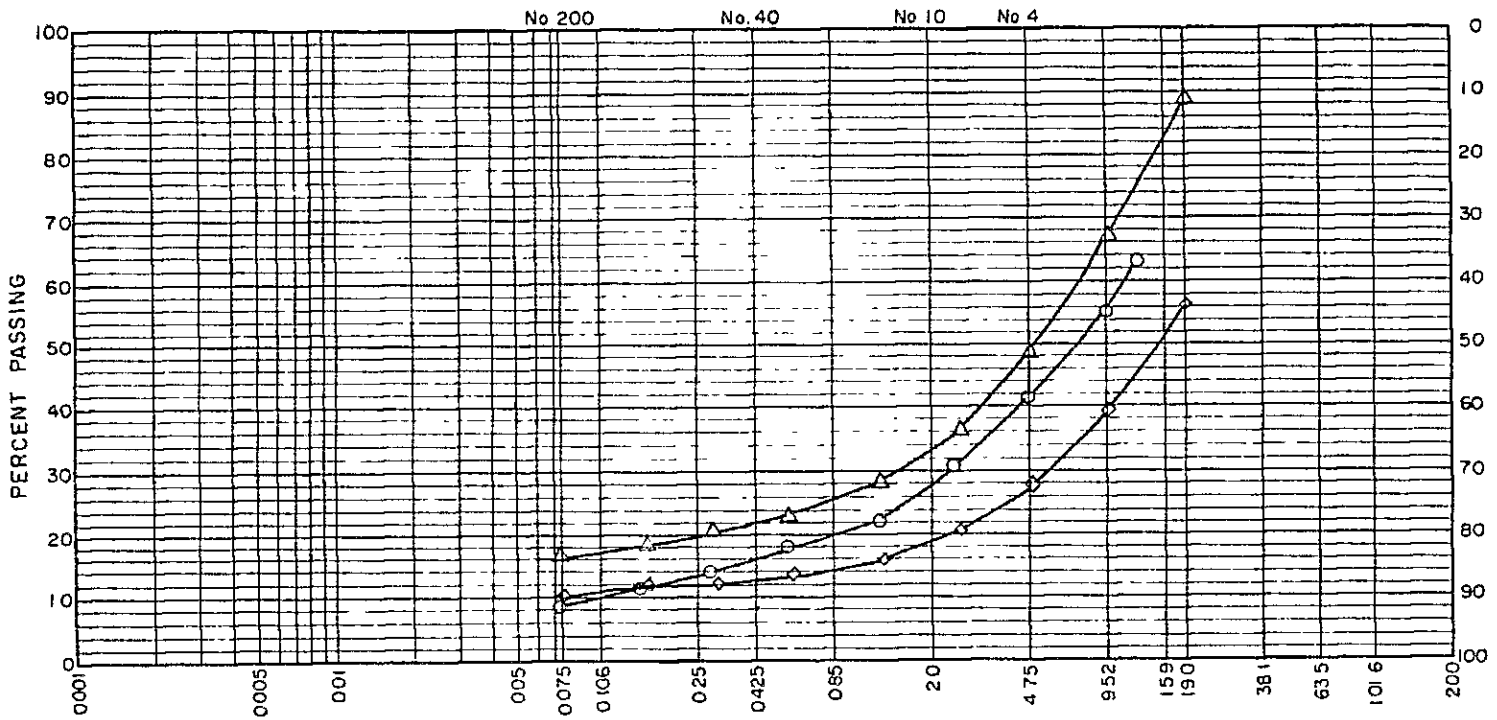
$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

| CLAY (PLASTIC) ~ SILT (NON-PLASTIC) | SAND | | | GRAVEL | | COBBLES |
|---|---|---|---|---|---|---|
| | FINE | MEDIUM | COARSE | FINE | COARSE | |

| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-19 | ◇ | 1.5 | SC | A-2-6(1) | | 2.67 | 36.2 | 22.1 | 14.1 | – |
| P-26 | △ | 2.5 | SC | A-2-6(0) | | 2.70 | 34.2 | 21.8 | 13.4 | – |
| P-29 | ○ | 4.5 | SC | A-2-6(0) | | 2.71 | 37.0 | 19.6 | 17.4 | – |

2-2-2(2) Gradation Analysis Curves (Representative Samples of Medium Materials)




| SAMPLE NO | P-20 | P-25 | P-27 | |
|---|---|---|---|---|
| MAX GRAIN SIZE mm (%) | | | | |
| mm 19.0 (%) | 56 | 89 | | |
| mm 4.75 (%) | 29 | 49 | 42 | |
| mm 0075 (%) | 10 | 16 | 9 | |
| $D_{60}$ (mm) | | | | |
| $D_{30}$ (mm) | | | | |
| $D_{10}$ (mm) | | | | |
| Cu | | | | |
| Cc | | | | |

$$Cu = \frac{D_{60}}{D_{10}}$$

COEFFICIENT OF UNIFORMITY

$$Cc = \frac{(D_{30})^2}{(D_{60}) \times (D_{10})}$$

COEFFICIENT OF CURVATURE

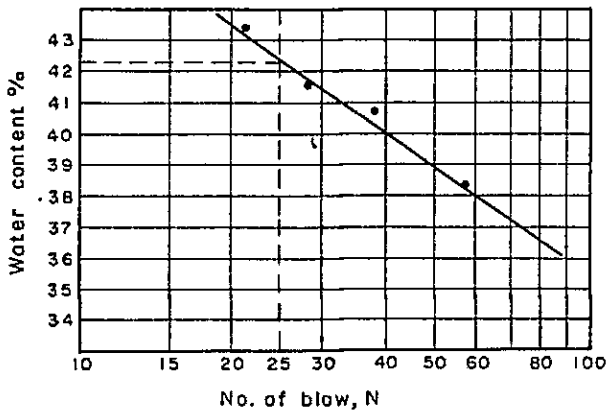
| SAMPLE NUMBER | | DEPTH (m) | SOIL CLASSIFICATION UNIFIED SYSTEM | SOIL CLASSIFICATION REVISED P.R. SYSTEM | SPECIFIC GRAVITY | | ATTERBERG LIMITS LL | PL | PI | SL |
|---|---|---|---|---|---|---|---|---|---|---|
| P-20 | ◇ | 4.5 | GW-GC | A-2-6(0) | | 2.77 | 36.4 | 21.5 | 14.9 | - |
| P-25 | △ | 4.7 | GC | A-2-6(0) | | 2.65 | 28.1 | 15.7 | 12.4 | - |
| P-27 | ○ | 3.7 | GP-GM | A-2-6(0) | | 2.64 | 33.3 | 24.0 | 9.3 | - |

2-2-2 (3) Gradation Analysis Curves (Representative Samples of Coarse Materials)

| | | | |
|---|---|---|---|
| Project | Upper Quae Yai | | |
| Soil sample | | | |
| Pit No. | P – 10 | Depth | 2.50 m |
| Date | 79-6-22 | | |

**Liquid Limit Determination**

| Container No. | AL-13 | AL-18 | AL-19 | AL-21 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 47.11 | 45.11 | 43.99 | 44.87 |
| Wt. container + dry soil, gm | 41.60 | 40.22 | 39.39 | 40.13 |
| Wt. container, gm | 28.85 | 28.54 | 28.09 | 27.78 |
| Wt. dry soil, gm | 12.75 | 11.68 | 11.30 | 12.35 |
| Wt. water, gm | 5.51 | 4.89 | 4.60 | 4.74 |
| Water content, w % | 43.22 | 41.87 | 40 71 | 38.38 |
| No. of blows, N | 21 | 29 | 39 | 58 |




Liquid limit % 42.2

Plastic limit % 23.2

Plasticity index Ip. 19.0

**Plastic Limit Determination**

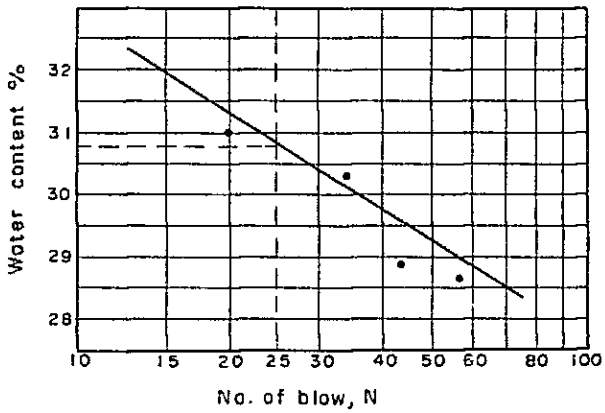
| Container No. | V-16 | V-19 | V-20 |
|---|---|---|---|
| Wt. container + wet soil, gm | 13.78 | 14.55 | 13.93 |
| Wt. container + dry soil, gm | 13.15 | 13.73 | 13.25 |
| Wt. container, gm | 10.42 | 10 29 | 10.25 |
| Wt. dry soil, gm | 2.73 | 3.44 | 3.00 |
| Wt. water, gm | 0.63 | 0.82 | 0.68 |
| Water content, w % | 23.1 | 23.8 | 22.7 |

2-2-3 (1) Atterberg Limits (Representative Samples of Fine Materials)

| | | | |
|---|---|---|---|
| Project | Upper Quae Yai | | |
| Soil sample | | | |
| Pit No | P - 25 | Depth | 3.00 m |
| Date | 79-6-22 | | |

**Liquid Limit Determination**

| Container No | AL-5 | AL-8 | AL-9 | AL-10 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 47.50 | 49.38 | 47.75 | 47.69 |
| Wt. container + dry soil, gm | 42.93 | 44.47 | 43.43 | 43.39 |
| Wt. container, gm | 28.19 | 28.27 | 28.49 | 28.33 |
| Wt. dry soil, gm | 14.74 | 16 20 | 14.94 | 15.06 |
| Wt. water, gm | 4 57 | 4.91 | 4.32 | 4.30 |
| Water content, w % | 31.00 | 30.31 | 28.92 | 28.55 |
| No. of blows, N | 20 | 33 | 42 | 59 |




Liquid limit % 30.8

Plastic limit % 17.2

Plasticity index Ip. 13.6

**Plastic Limit Determination**

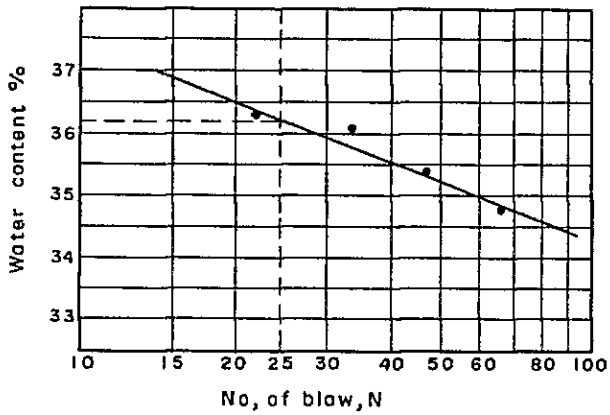
| Container No. | V-9 | V-10 | V-11 |
|---|---|---|---|
| Wt. container + wet soil, gm | 14.33 | 15.34 | 14.67 |
| Wt. container + dry soil, gm | 13.73 | 14.61 | 14.04 |
| Wt. container, gm | 10.27 | 10.45 | 10.27 |
| Wt. dry soil, gm | 3 46 | 4.16 | 3.77 |
| Wt. water, gm | 0.60 | 0.73 | 0.63 |
| Water content, w % | 17.3 | 17.5 | 16.7 |

2-2-3 (2) Atterberg Limits (Representative Samples of Fine Materials)

| | | | |
|---|---|---|---|
| Project | Upper Quae Yai | | |
| Soil sample | | | |
| Pit No. | P - 19 | Depth | 1.50 m |
| Date | 79-6-22 | | |

**Liquid Limit Determination**

| Container No. | AL-4 | AL-43 | AL-45 | AL-47 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 43.97 | 44.90 | 47.43 | 45.76 |
| Wt. container + dry soil, gm | 39.87 | 40.40 | 42.48 | 41.32 |
| Wt. container, gm | 28.62 | 27.92 | 28.15 | 28.59 |
| Wt. dry soil, gm | 11.25 | 12.48 | 13.97 | 12.73 |
| Wt. water, gm | 4.10 | 4.50 | 4.95 | 4.44 |
| Water content, w % | 36.44 | 36.06 | 35.43 | 34.88 |
| No. of blows, N | 22 | 34 | 48 | 69 |




Liquid limit % 36.2

Plastic limit % 22.1

Plasticity index Ip. 14.1

**Plastic Limit Determination**

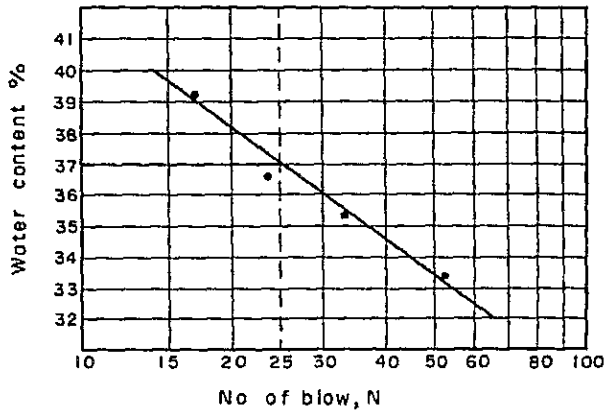
| Container No. | V-1 | V-4 | V-7 |
|---|---|---|---|
| Wt. container + wet soil, gm | 14.47 | 14.90 | 14.60 |
| Wt. container + dry soil, gm | 13.75 | 14.10 | 13.85 |
| Wt. container, gm | 10.42 | 10.54 | 10.46 |
| Wt. dry soil, gm | 3.33 | 3.56 | 3.39 |
| Wt. water, gm | 0.72 | 0.80 | 0.75 |
| Water content, w % | 21.60 | 22.50 | 22.1 |

2-2-3 (3) Atterberg Limits (Representative Samples of Medium Materials)

| | | | |
|---|---|---|---|
| Project | Upper Quae Yai | | |
| Soil sample | | | |
| Pit No. | P - 29 | Depth | 4.50 m |
| Date | 79-6-22 | | |

Liquid Limit Determination

| Container No. | AL-33 | AL-37 | AL-40 | AL-46 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 45.55 | 47.10 | 45.54 | 45.72 |
| Wt. container + dry soil, gm | 40.86 | 42.01 | 40.97 | 41.39 |
| Wt. container, gm | 28.84 | 28.13 | 27.97 | 28.37 |
| Wt. dry soil, gm | 12.02 | 13.88 | 13.00 | 13.02 |
| Wt. water, gm | 4.69 | 5.09 | 4.57 | 4.33 |
| Water content, w % | 39.02 | 36.67 | 35.15 | 33.26 |
| No. of blows, N | 17 | 23 | 32 | 52 |




Liquid limit % 37.0

Plastic lunit % 19.8

Plasticity index Ip. 17.2

Plastic Limit Determination

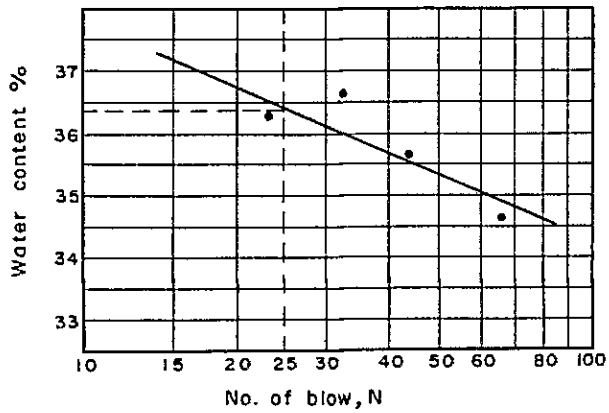
| Container No. | V-39 | V-42 | V-46 |
|---|---|---|---|
| Wt. container + wet soil, gm | 13.35 | 14.19 | 14.54 |
| Wt. container + dry soil, gm | 12.80 | 13.60 | 13.81 |
| Wt. container, gm | 10.06 | 10.56 | 10.12 |
| Wt. dry soil, gm | 2.74 | 3.04 | 3.69 |
| Wt. water, gm | 0.55 | 0.59 | 0.73 |
| Water content, w % | 20.1 | 19.4 | 19.8 |

2-2-3 (4) Atterberg Limits (Representative Samples of Medium Materials)

| | | | |
|---|---|---|---|
| Project | Upper Quae Yai | | |
| Soil sample | | | |
| Pit No. | P - 20 | Depth | 4.50 m |
| Date | 79-6-22 | | |

**Liquid Limit Determination**

| Container No. | AL-16 | AL-20 | AL-26 | AL-41 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 45.20 | 44.91 | 45.35 | 45.75 |
| Wt. container + dry soil, gm | 40.60 | 40.53 | 40.87 | 41.33 |
| Wt. container, gm | 27.96 | 28.57 | 28.29 | 28.56 |
| Wt. dry soil, gm | 12.64 | 11.96 | 12.58 | 12.77 |
| Wt. water, gm | 4.60 | 4.38 | 4.48 | 4.42 |
| Water content, w % | 36.39 | 36.62 | 35.61 | 34.61 |
| No. of blows, N | 23 | 32 | 45 | 67 |




Liquid limit % 36.4

Plastic limit % 21.5

Plasticity index Ip. 14.9

**Plastic Limit Determination**

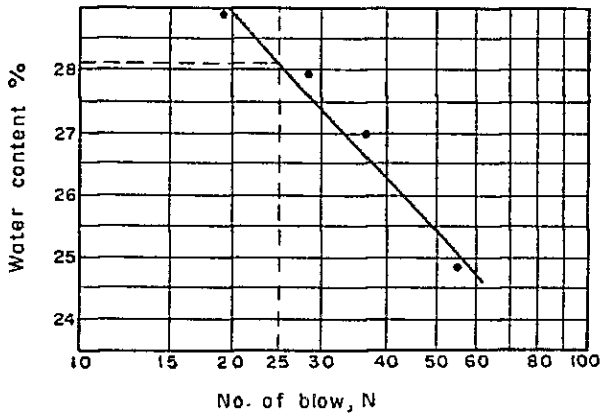
| Container No. | V-2 | V-3 | V-6 |
|---|---|---|---|
| Wt. container + wet soil, gm | 13.33 | 14.02 | 14.86 |
| Wt. container + dry soil, gm | 12.83 | 13.37 | 14.04 |
| Wt. container, gm | 10.31 | 10.39 | 10.44 |
| Wt. dry soil, gm | 2.52 | 2.98 | 3.60 |
| Wt. water, gm | 0.50 | 0.65 | 0.82 |
| Water content, w % | 19.8 | 21.8 | 22.8 |

2-2-3 (5) Atterberg Limits (Representative Samples of Coarse Materials)

| Project | Upper Quae Yai | | |
|---|---|---|---|
| Soil sample | | | |
| Pit No | P - 25 | Depth | 4.70 m |
| Date | 79-6-22 | | |

**Liquid Limit Determination**

| Container No. | AL-23 | AL-24 | AL-29 | AL-32 |
|---|---|---|---|---|
| Wt. container + wet soil, gm | 50.33 | 47.03 | 46.49 | 44.32 |
| Wt. container + dry soil, gm | 45.41 | 42.97 | 42.72 | 41.10 |
| Wt. container, gm | 28.44 | 28.46 | 28.73 | 28.14 |
| Wt dry soil, gm | 16.97 | 14.51 | 13.99 | 12.96 |
| Wt. water, gm | 4.92 | 4 06 | 3.77 | 3.22 |
| Water content, w % | 28.99 | 27.98 | 26.95 | 24.85 |
| No. of blows, N | 19 | 28 | 36 | 54 |




Liquid limit % 28.1

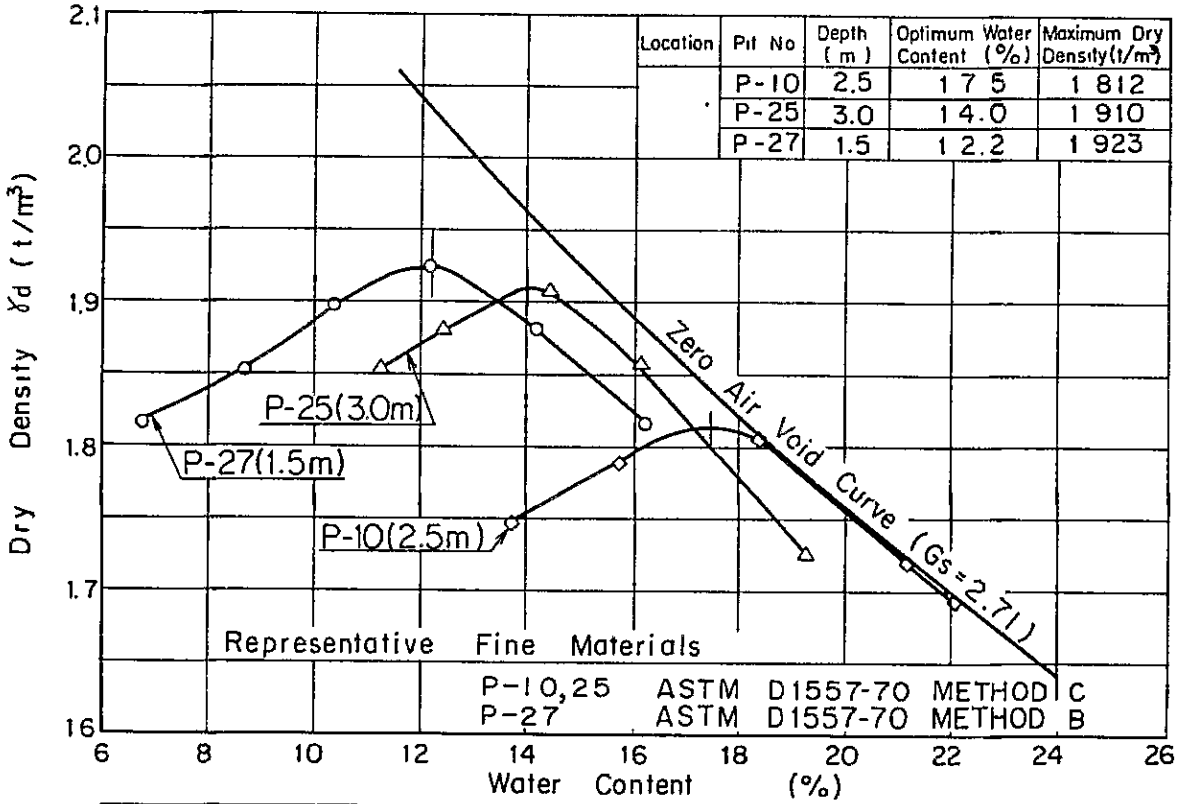
Plastic limit % 15.7

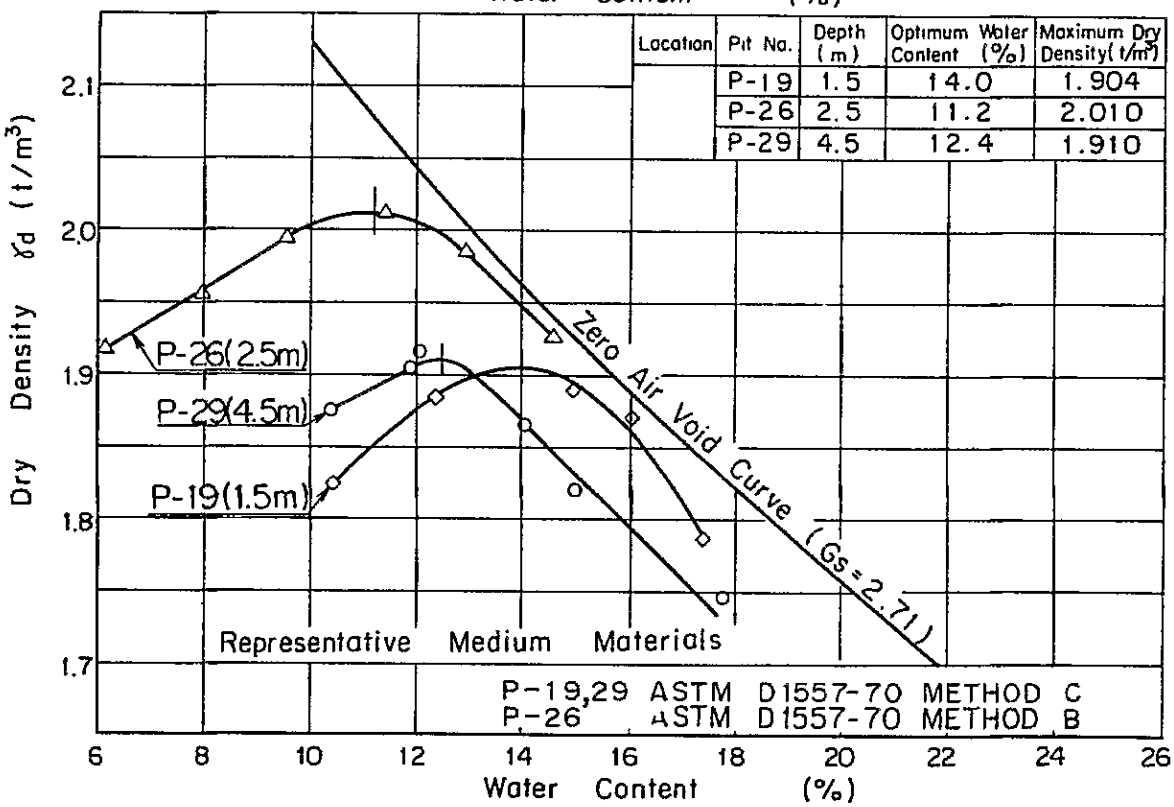
Plasticity index Ip 12.4

**Plastic Limit Determination**

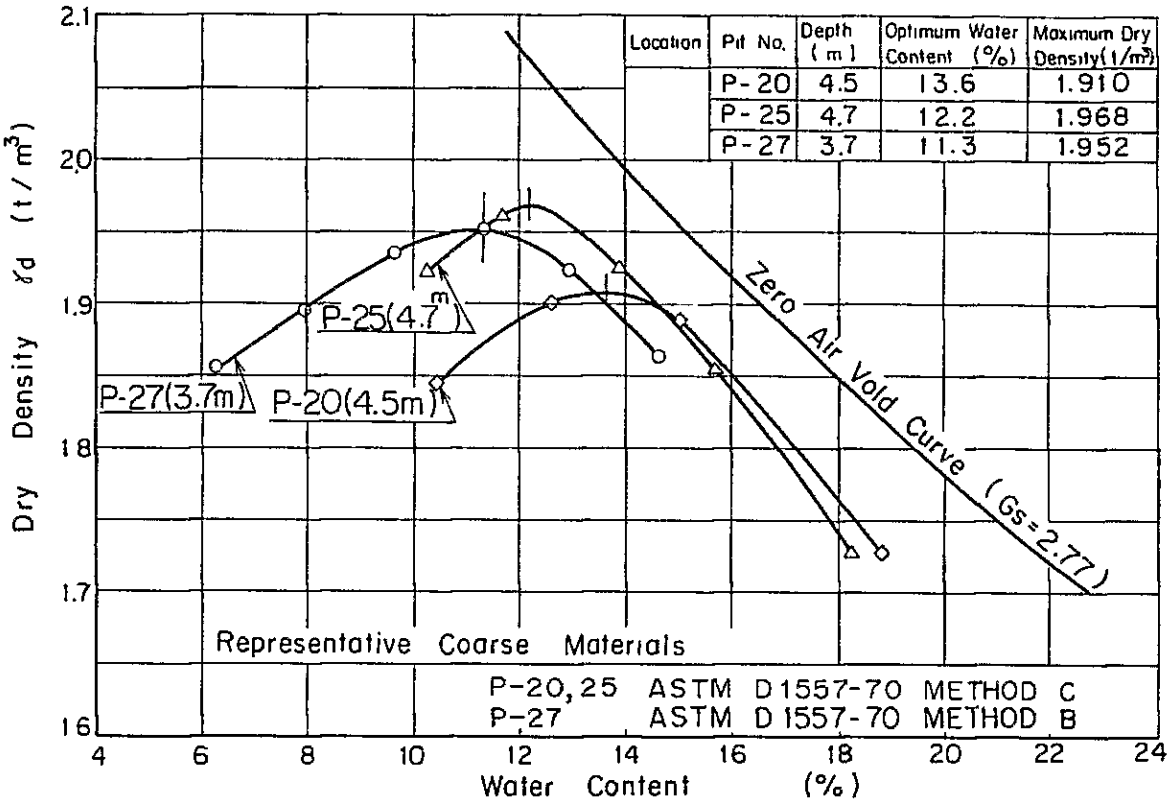
| Container No. | V-22 | V-29 | V-32 |
|---|---|---|---|
| Wt. container + wet soil, gm | 14.20 | 14.20 | 14.97 |
| Wt. container + dry soil, gm | 13.69 | 13.66 | 14 38 |
| Wt. container, gm | 10.48 | 10.20 | 10.59 |
| Wt dry soil. gm | 3.21 | 3.46 | 3.79 |
| Wt water, gm | 0.51 | 0.54 | 0.59 |
| Water content, w % | 15.9 | 15.6 | 15.6 |

2-2-3 (6) Atterberg Limits (Representative Samples of Coarse Materials)



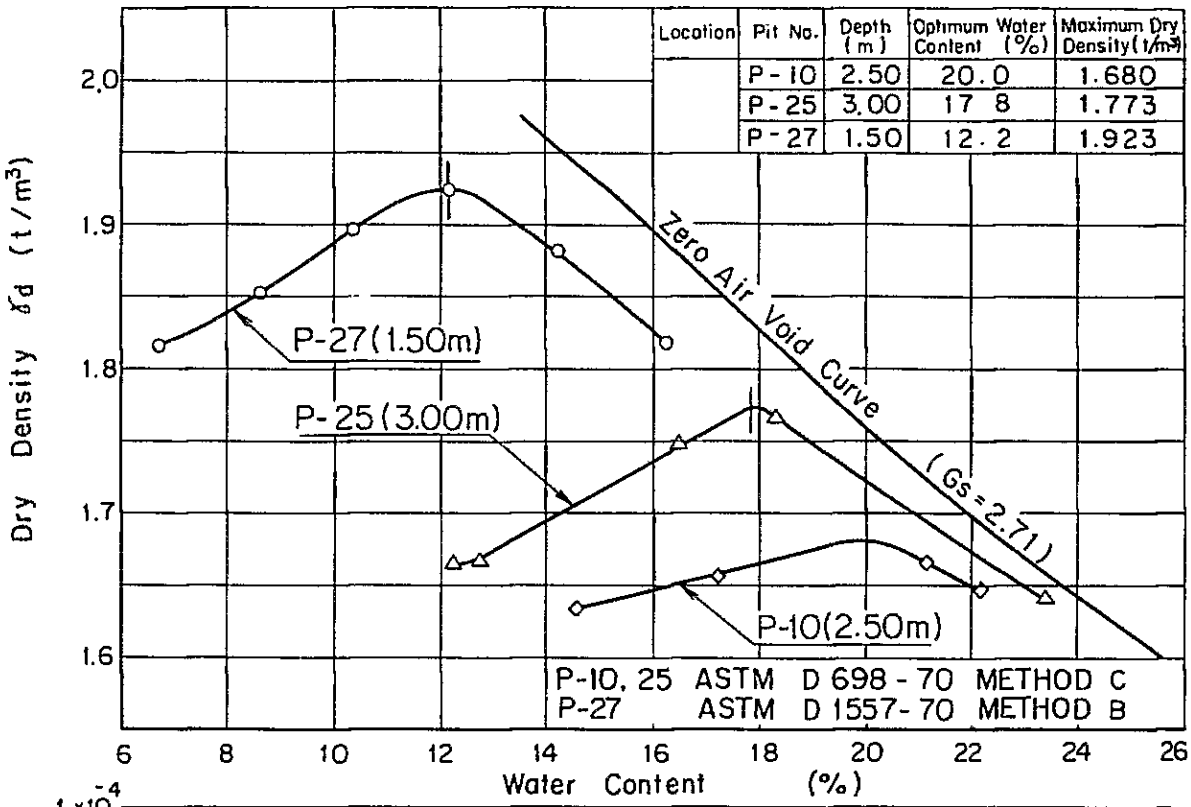



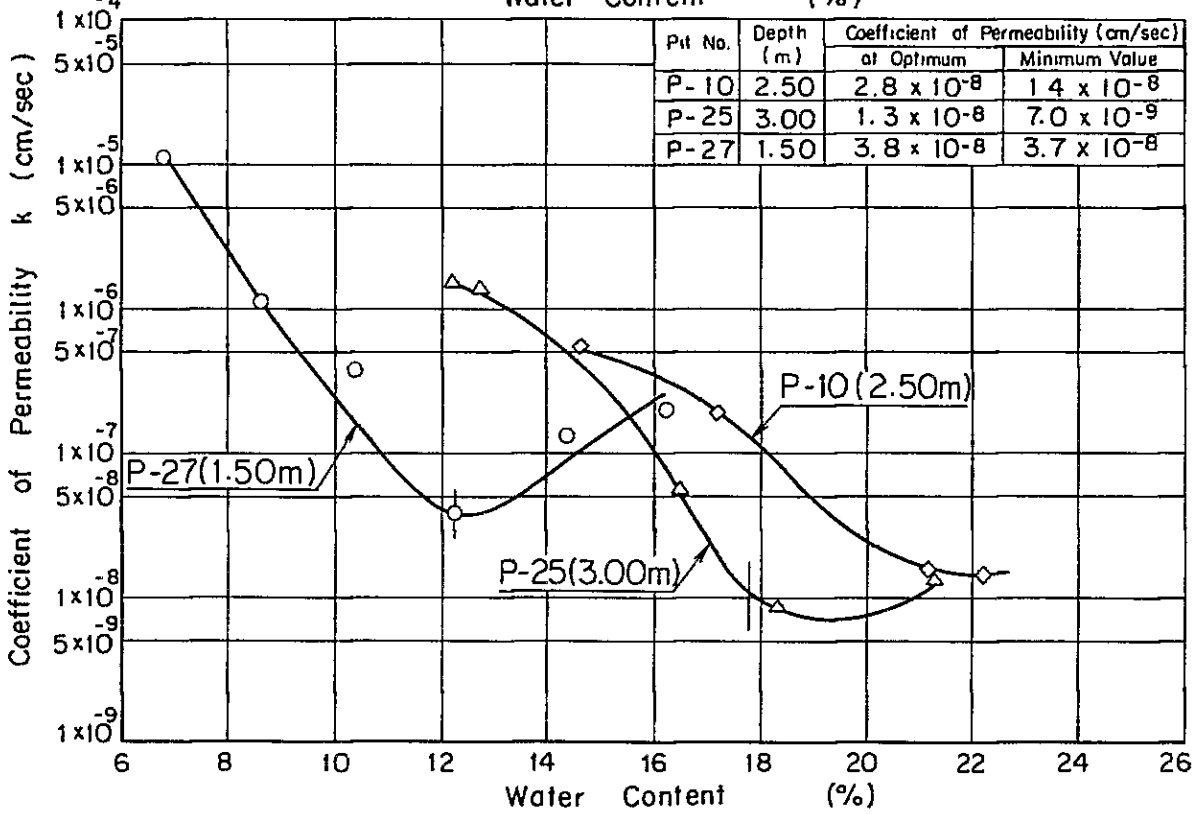

## 2-2-4 (1) Compaction Test




| Location | Pit No | Depth (m) | Optimum Water Content (%) | Maximum Dry Density(t/m³) |
|---|---|---|---|---|
| | | | | |

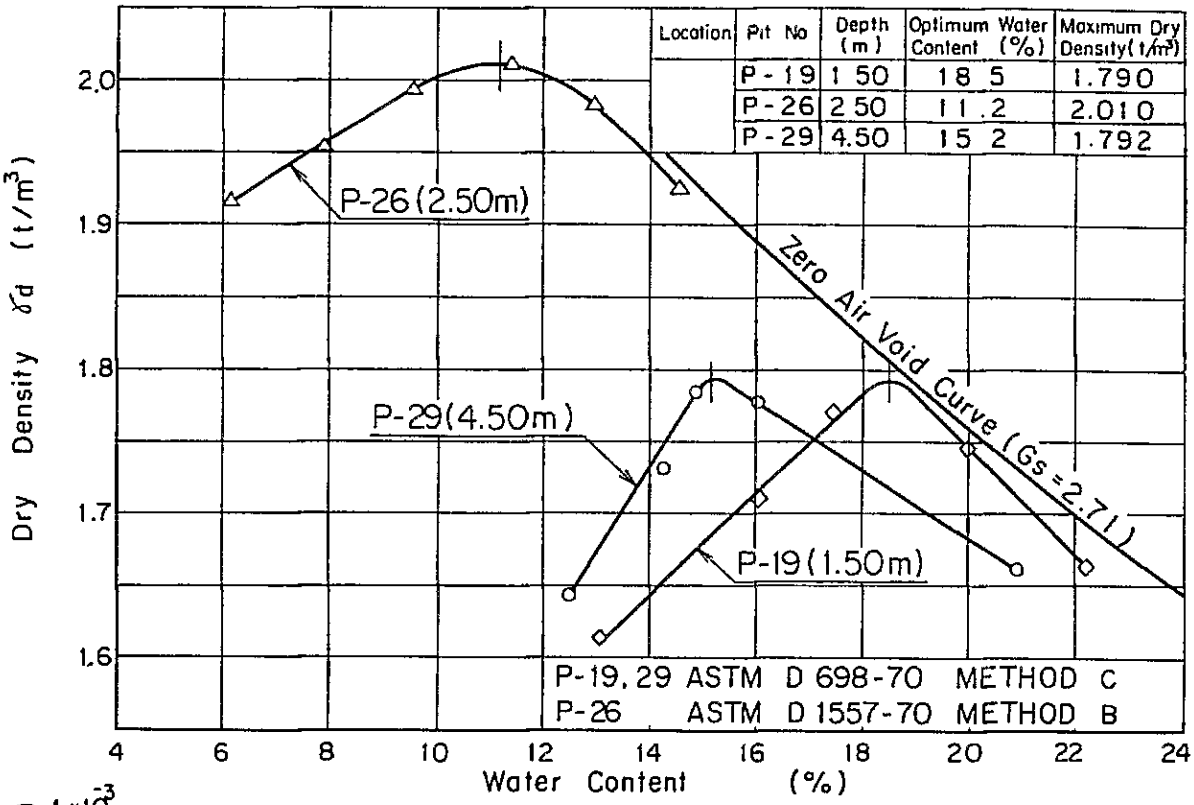
## 2-2-4 (2) Compaction Test



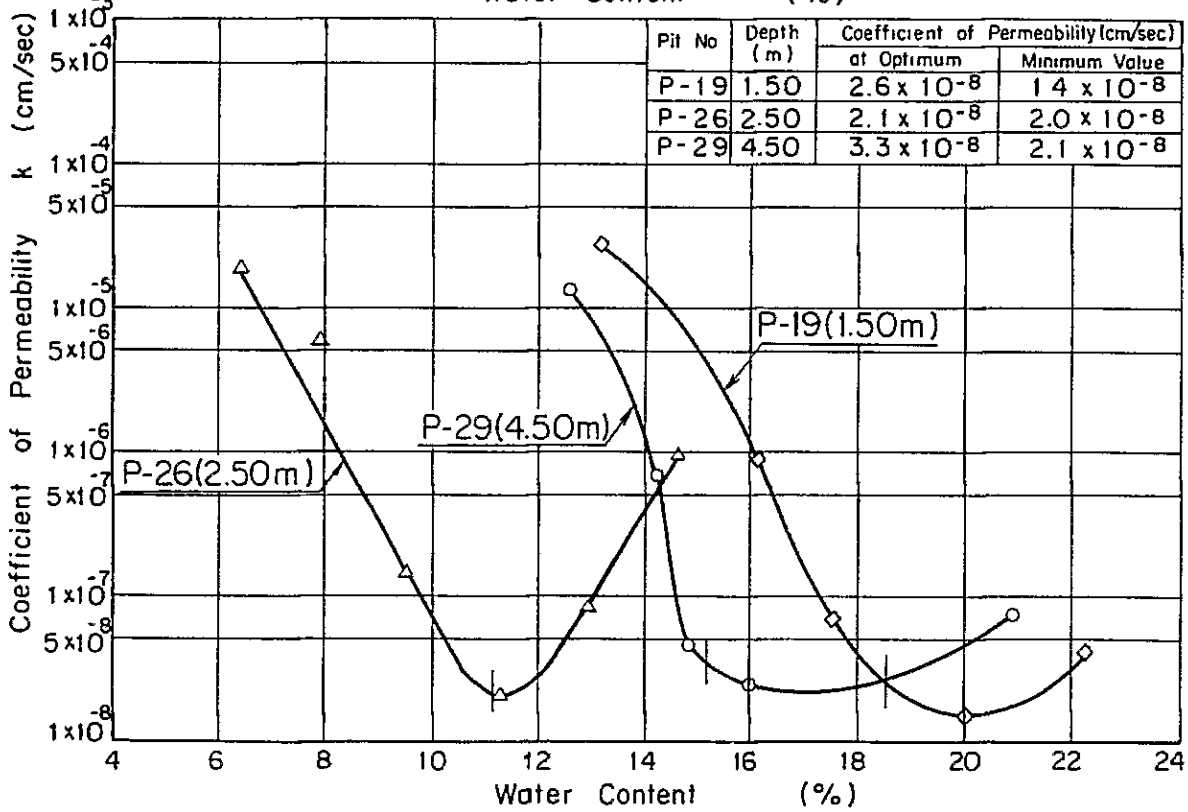




## 2-2-5 (1) Compaction and Permeability Test

( Representative Samples of Fine Materials )



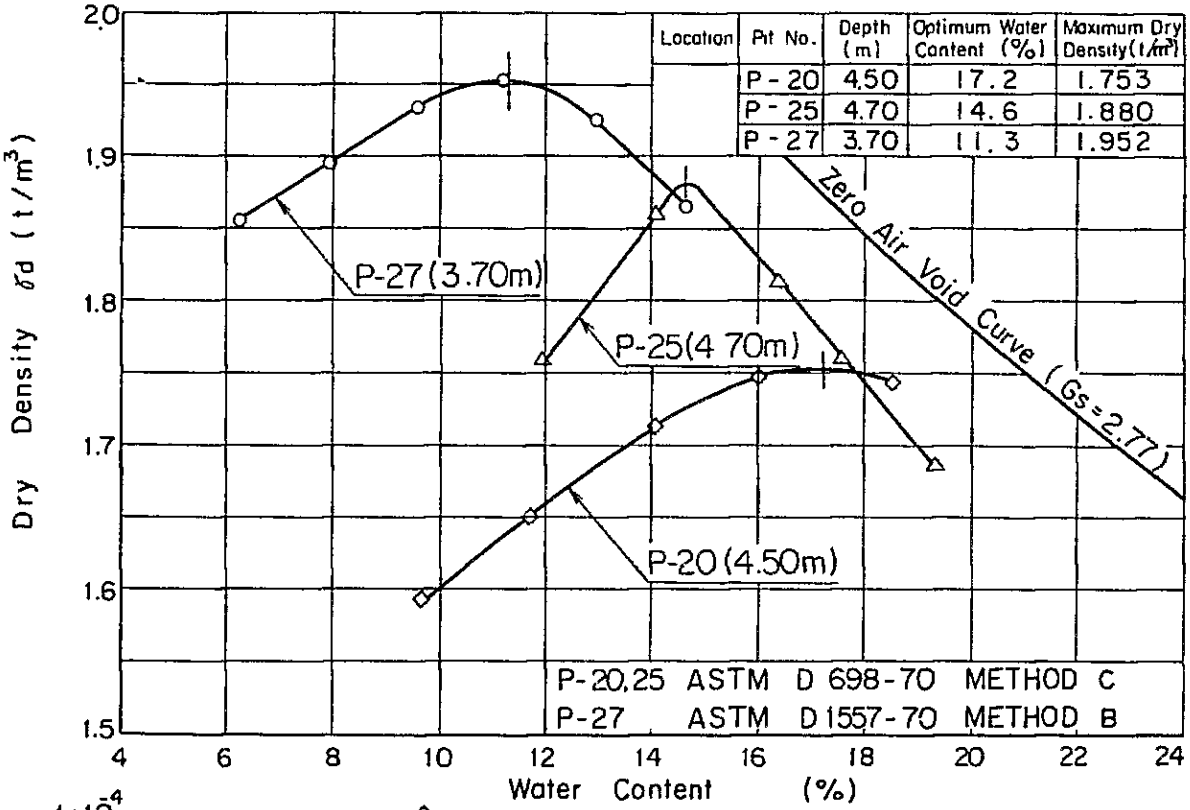

| Location | Pit No | Depth (m) | Optimum Water Content (%) | Maximum Dry Density (t/m³) |
|---|---|---|---|---|
| | P-19 | 1.50 | 18.5 | 1.790 |
| | P-26 | 2.50 | 11.2 | 2.010 |
| | P-29 | 4.50 | 15.2 | 1.792 |

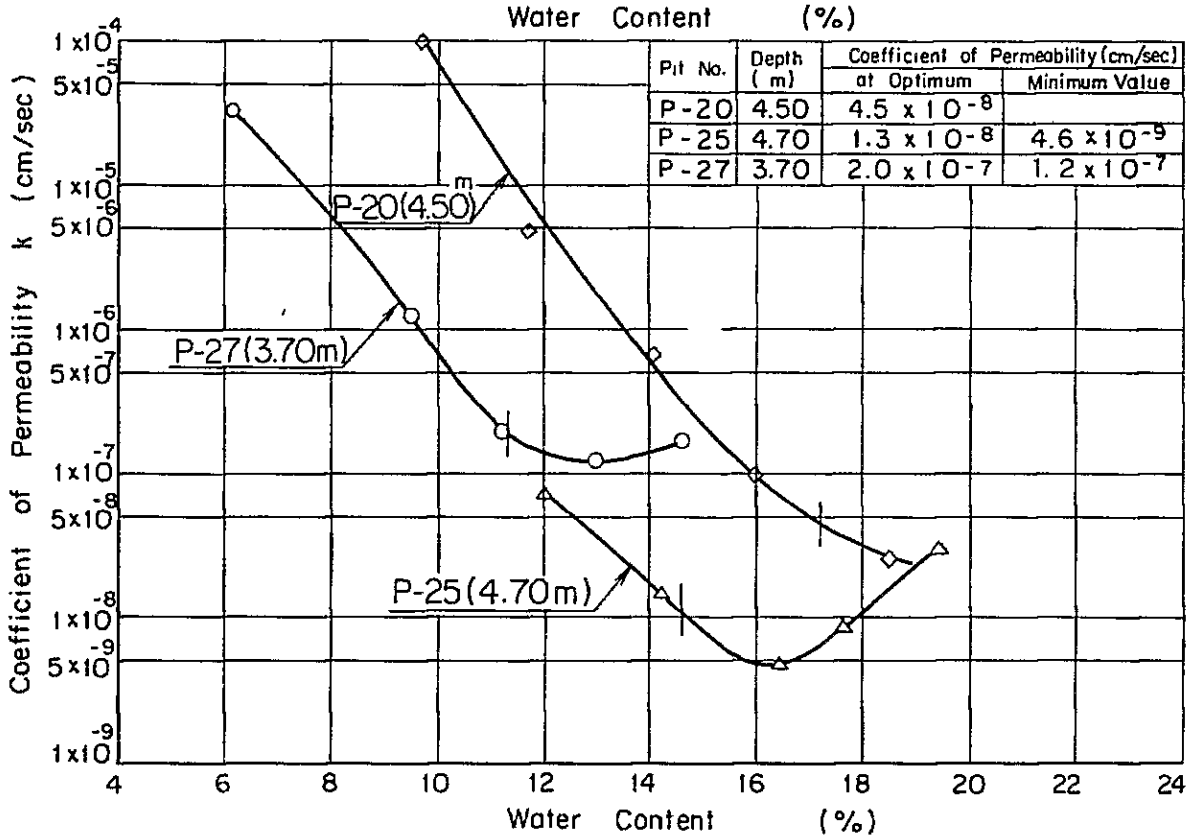



| Pit No | Depth (m) | Coefficient of Permeability (cm/sec) at Optimum | Minimum Value |
|---|---|---|---|
| P-19 | 1.50 | $2.6 \times 10^{-8}$ | $1.4 \times 10^{-8}$ |
| P-26 | 2.50 | $2.1 \times 10^{-8}$ | $2.0 \times 10^{-8}$ |
| P-29 | 4.50 | $3.3 \times 10^{-8}$ | $2.1 \times 10^{-8}$ |

## 2-2-5 (2) Compaction and Permeability Test

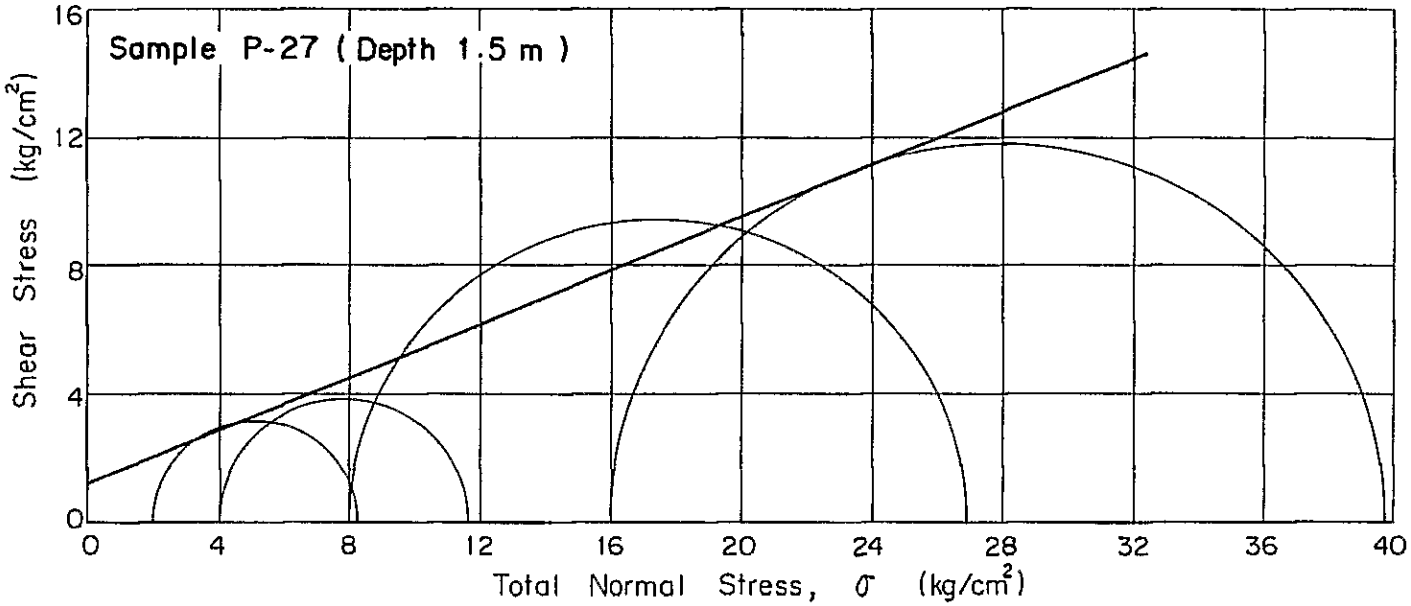
( Representative Samples of Medium Moterials )



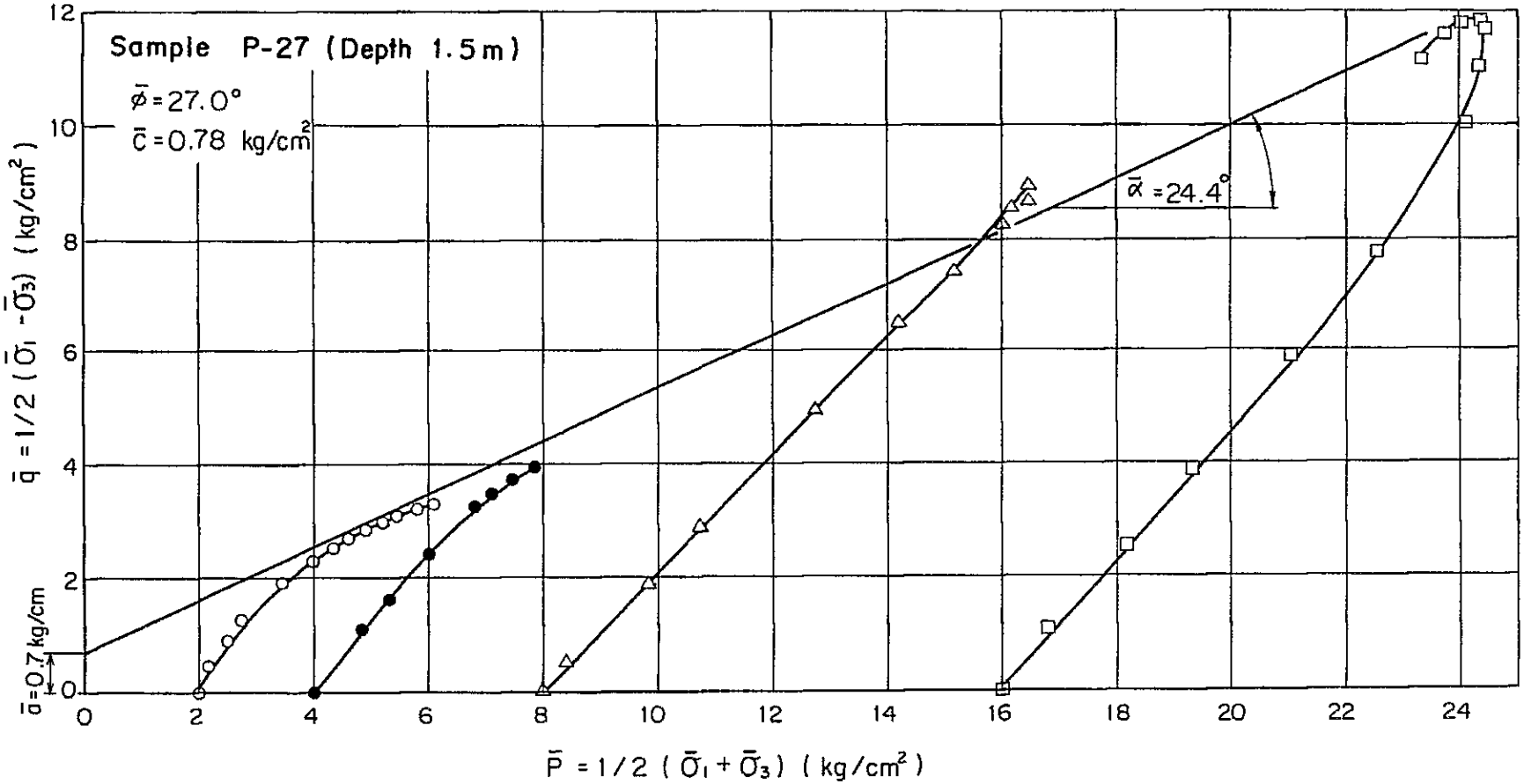

## 2-2-5 (3) Compaction and Permeability Test

( Representative Samples of Coarse Materials )



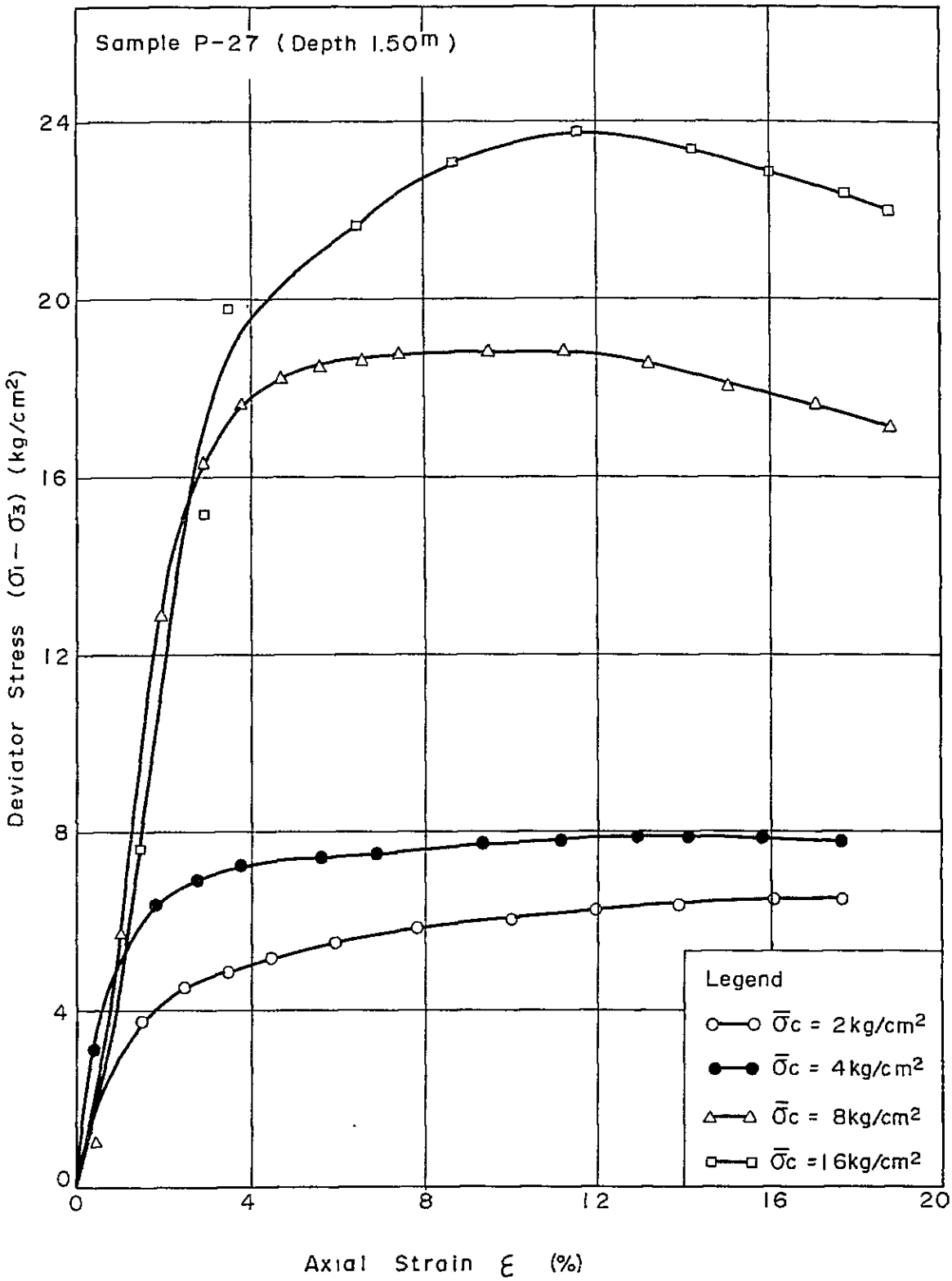

| Pit No. | Depth ( m ) | Initial Specimen Data | | Shear Values | | |
|---|---|---|---|---|---|---|
| | | Water Content (%) | Dry Density ( t/m³ ) | C (kg/cm²) | tan φ | φ ( deg ) |
| P - 27 | 1.50 | 14.9 | 1.792 | 1.2 | 0.414 | 22.5 |

2-2-6 (1) Mohr's Envelope in Terms of Total Streeses for $\overline{CIU}$ Triaxial Tests.
( Representative Sample of Fine Materials )



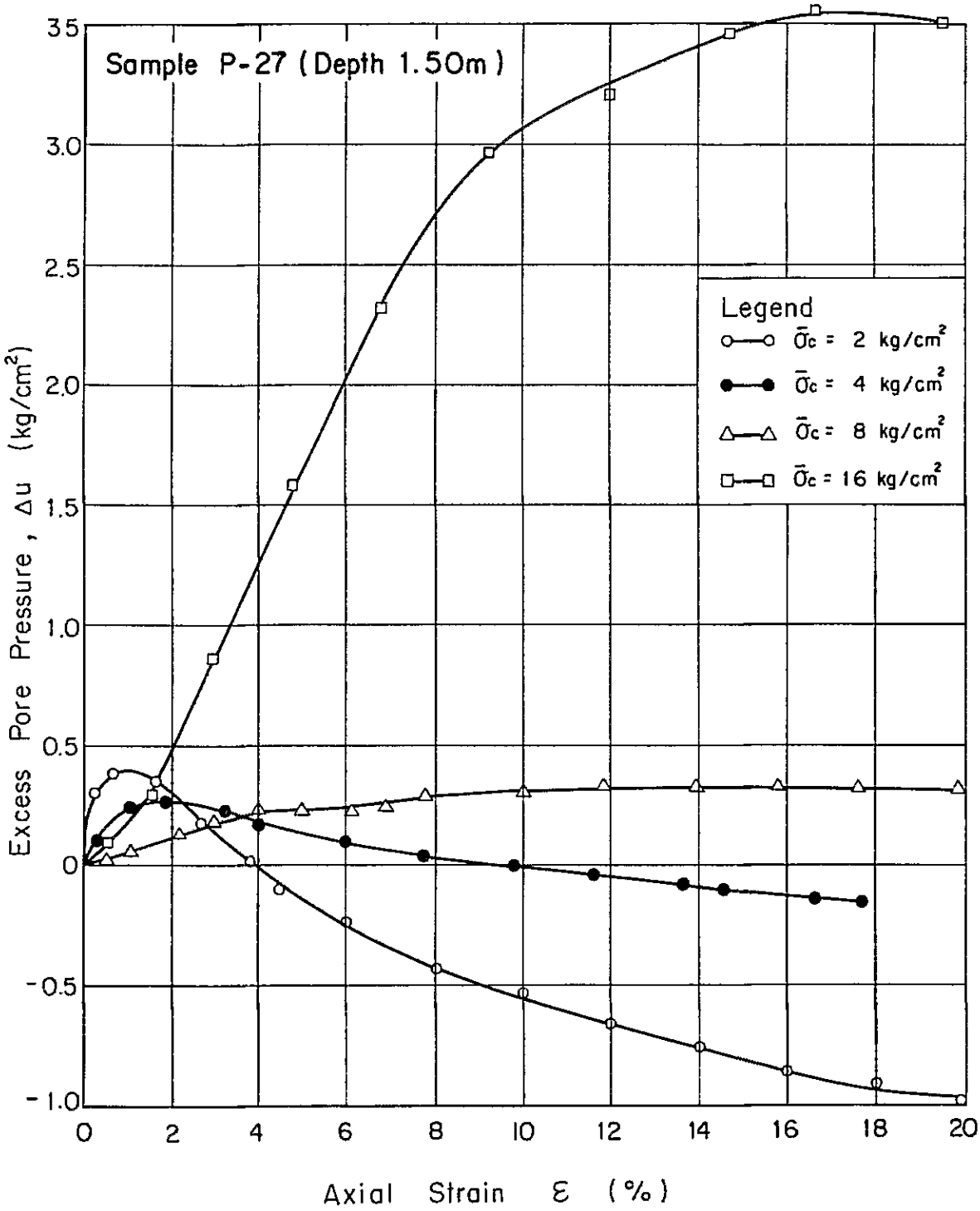

2-2-6 (2) Effective Stress Paths and Strength Envelope for $\overline{CIU}$ Triaxial Tests

( Representative Samples of Fine Materials )



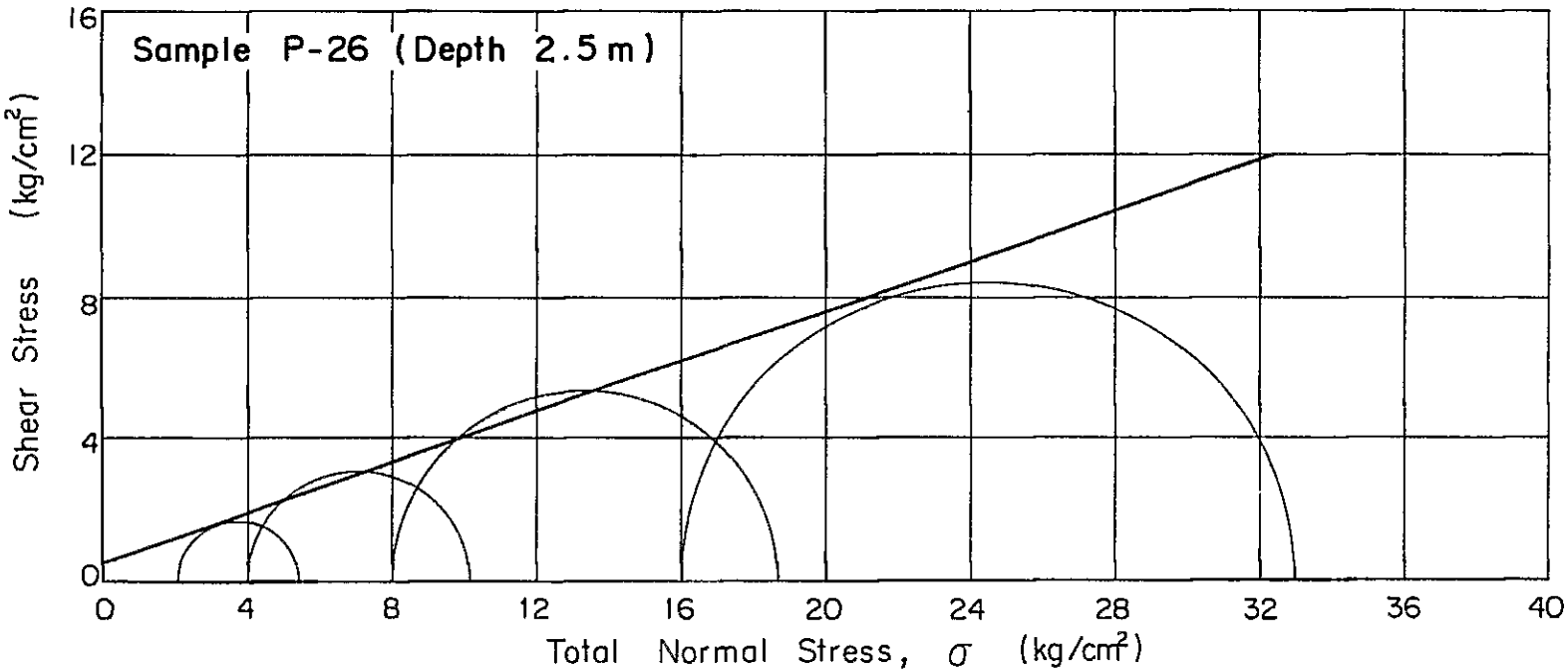

## 2-2-6(3) Deviator Stress vs. Axial Strain for $\overline{CIU}$ Triaxial Tests

(Representative Samples of Fin Materials )




## 2-2-6 (4) Excess Pore Pressure vs. Axial Strain for $\overline{CIU}$ Triaxial Tests.

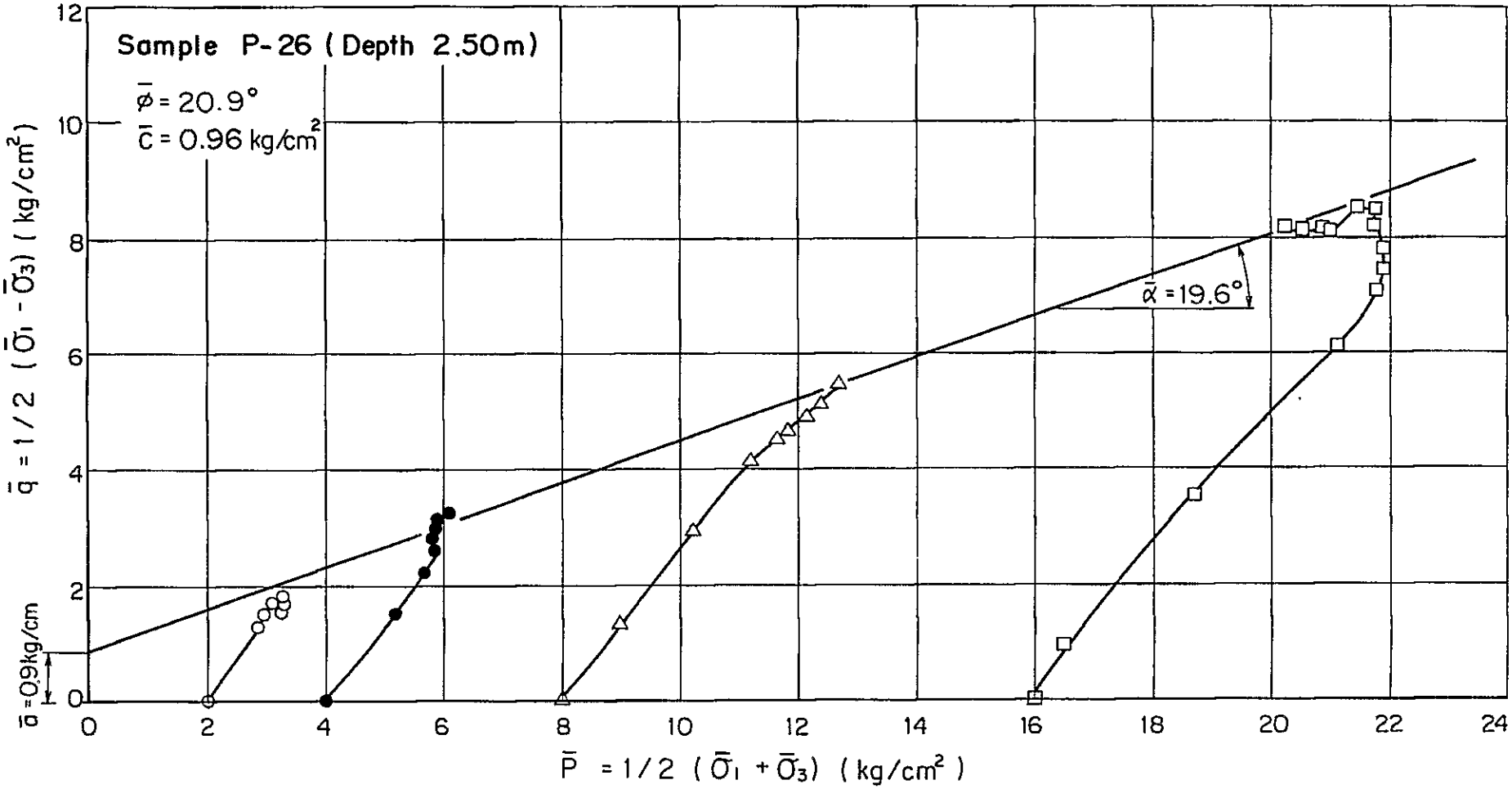
( Representative Samples of Fine Materials )




| Pit No | Depth (m) | Initial Specimen Data | | Shear Values | | |
|---|---|---|---|---|---|---|
| | | Water Content (%) | Dry Density (t/m³) | C (kg/cm²) | tan φ | φ (deg) |
| P - 26 | 2.50 | 119 | 1.872 | 0.5 | 0.356 | 19.6 |

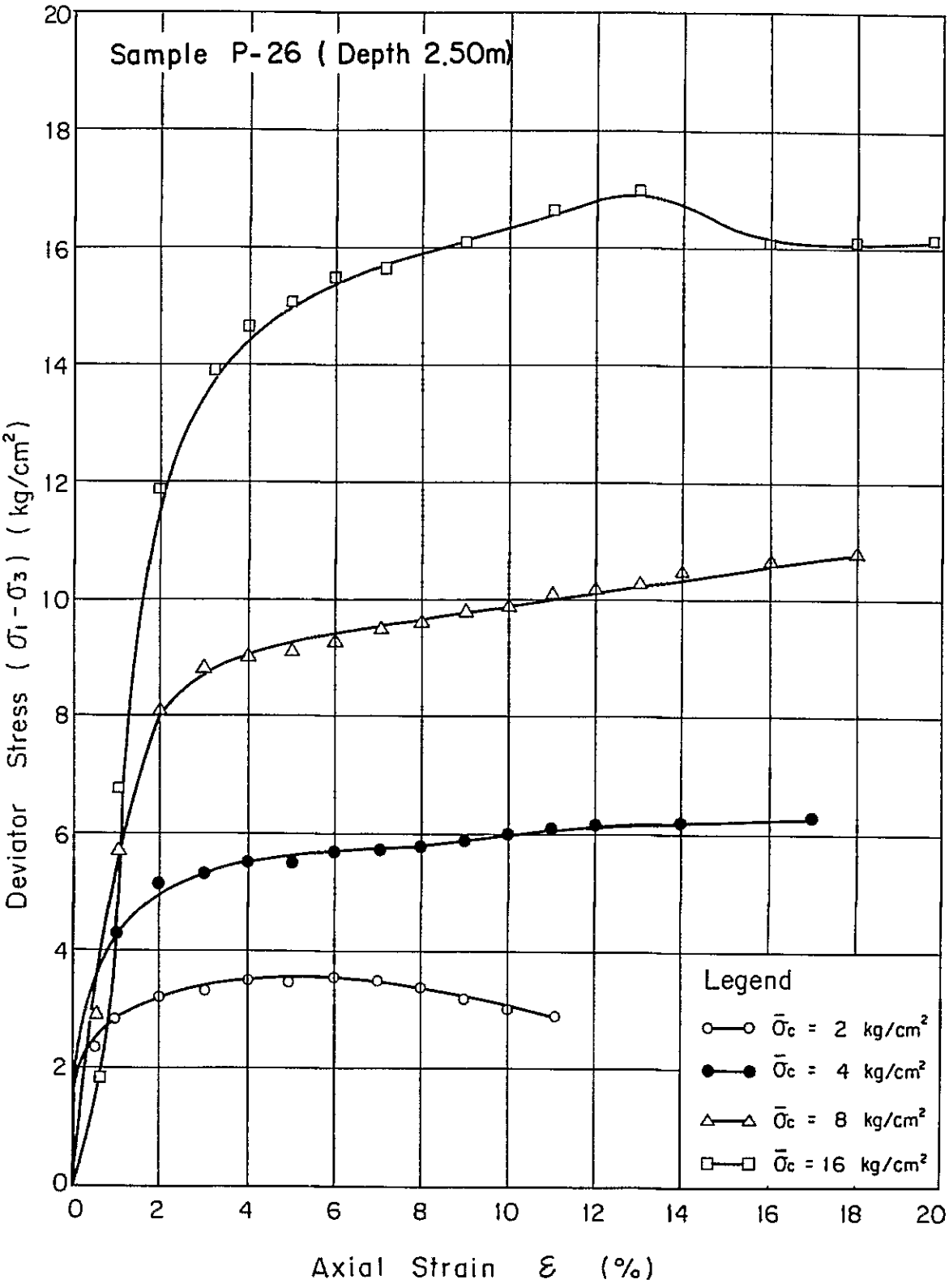
## 2-2-6 (5) Mohr's Envelope in Terms of Total Streeses for $\overline{CIU}$ Triaxial Tests.

( Representative Samples of Medium Materials )



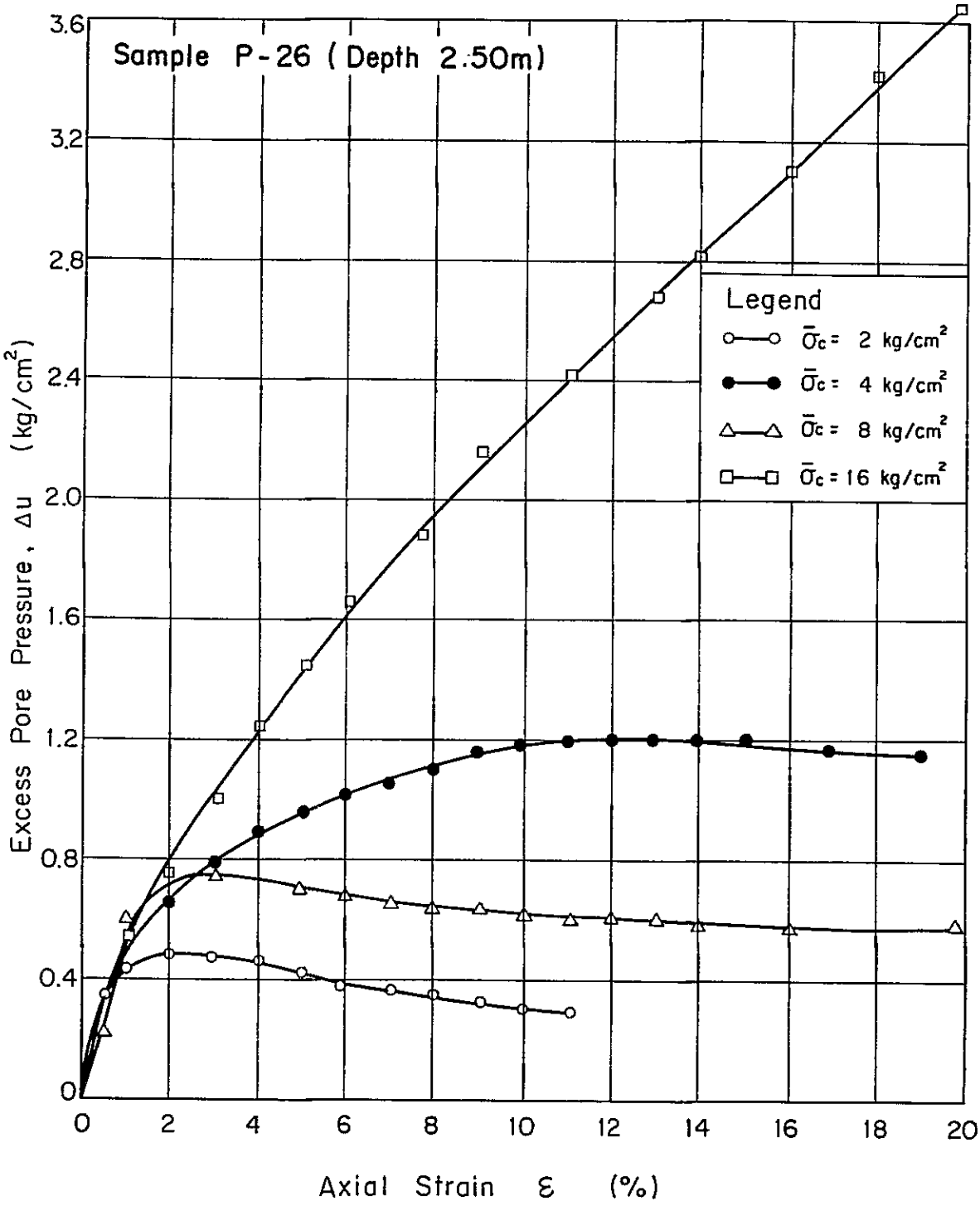

2-2-6(6) Effective Stress Paths and Strength Envelope for $\overline{CIU}$ Triaxial Tests

( Representative Samples of Medium Materials )



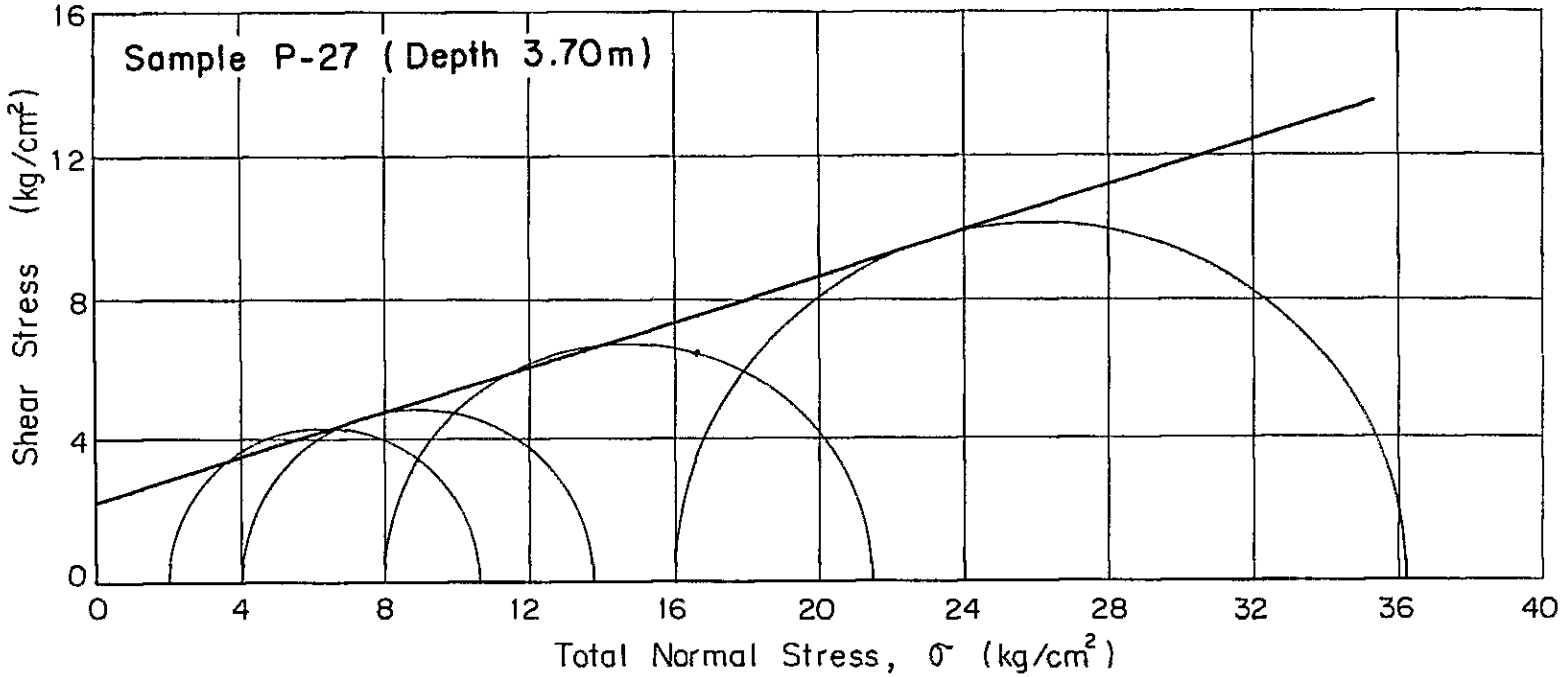

## 2-2-6 (7) Deviator Stress vs. Axial Strain for $\overline{CIU}$ Triaxial Tests

( Representative Samples of Medium Materials )




**2-2-6 (8) Excess Pore Pressure vs. Axial Strain for $\overline{CIU}$ Triaxial Tests.**

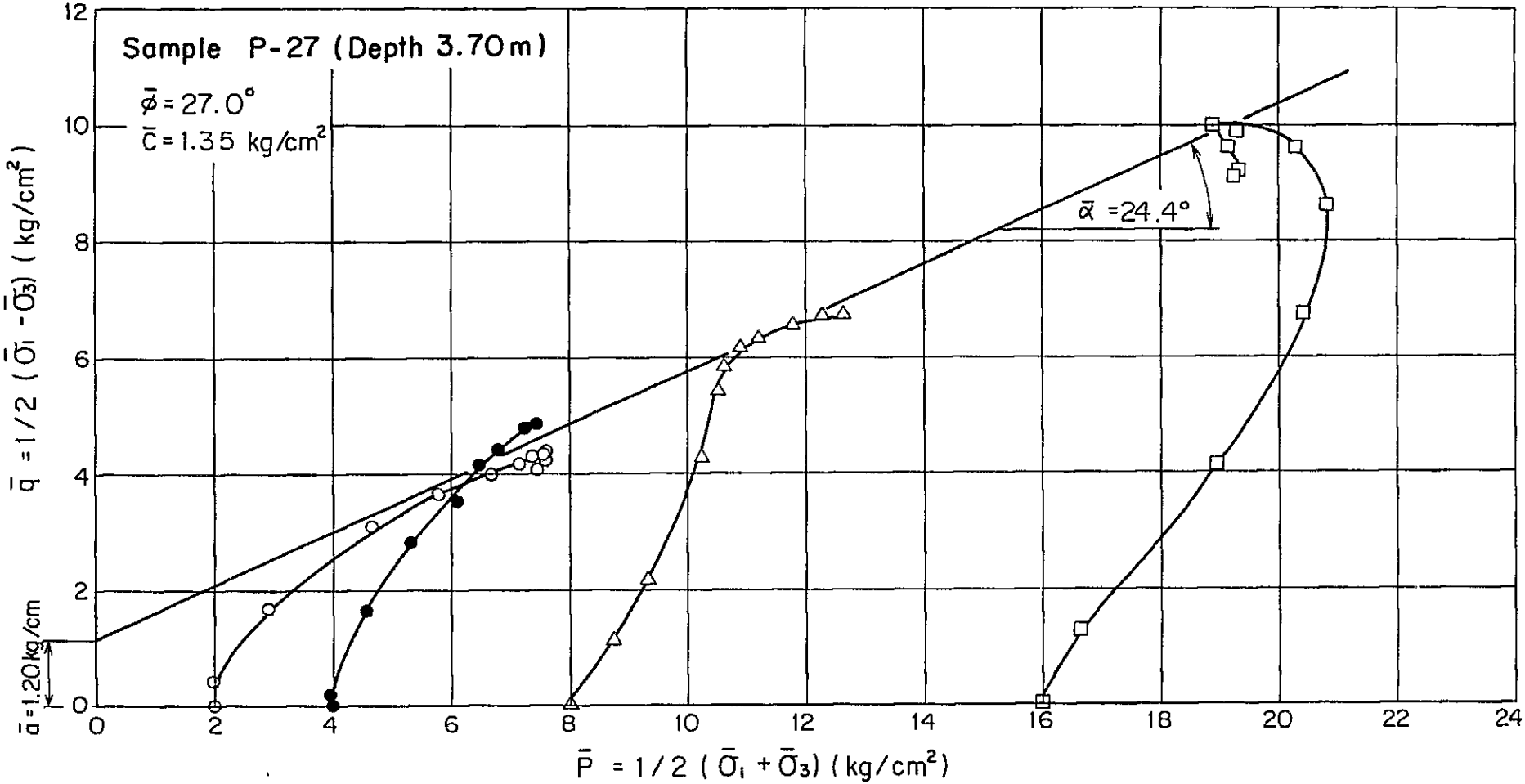
( Representative Samples of Medium Materials )




| Pit No. | Depth ( m ) | Initial Specimen Data | | Shear Values | | |
|---|---|---|---|---|---|---|
| | | Water Content (%) | Dry Density (t/m³) | C ( kg/cm²) | tan φ | φ ( deg ) |
| P - 27 | 3.70 | 13.6 | 1.757 | 2.2 | 0.321 | 17.8 |

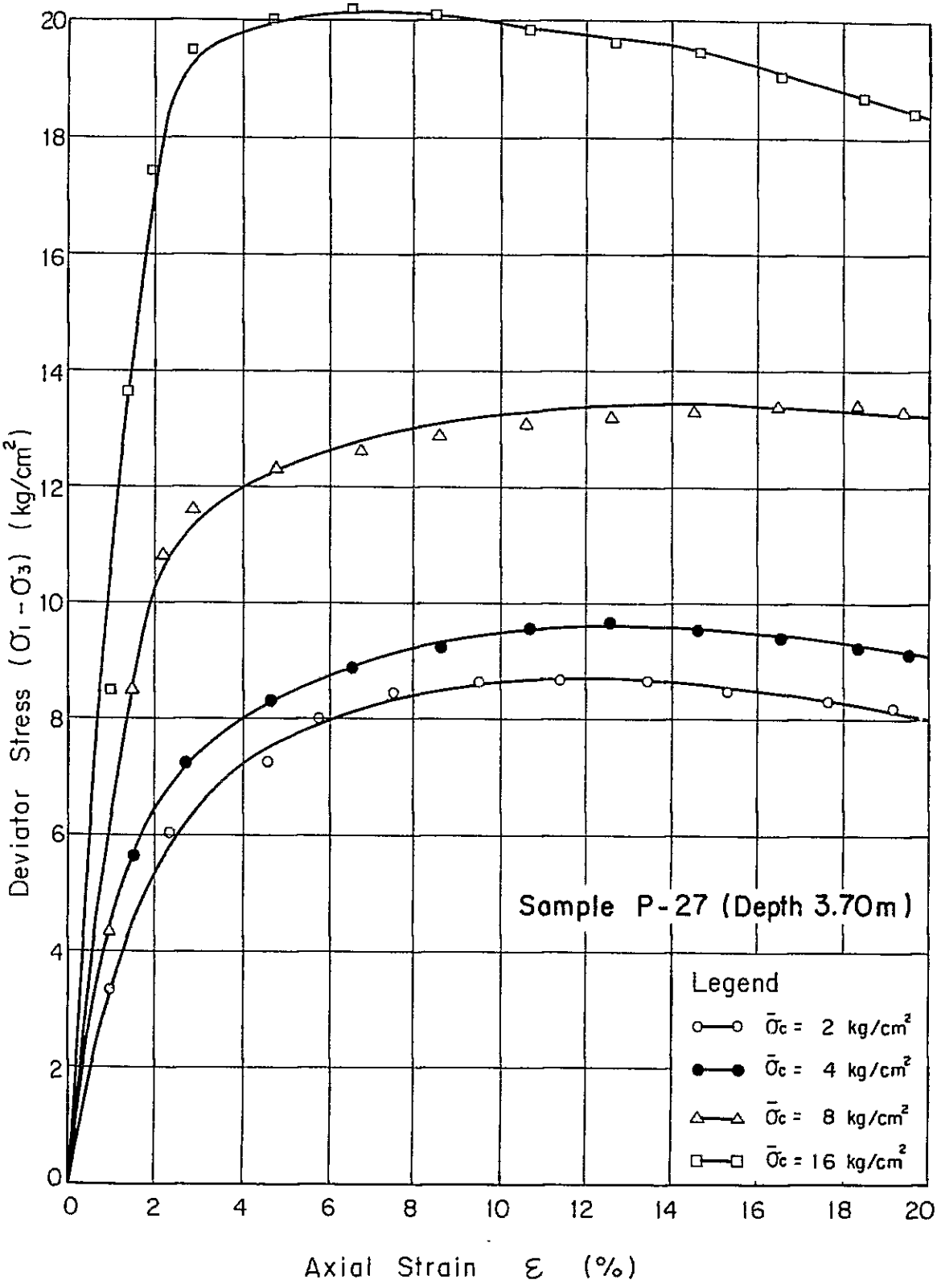
## 2-2-6 (9) Mohr's Envelope in Terms of Total Streeses for $\overline{CIU}$ Triaxial Tests.

( Representative Samples of Coarse Materials )



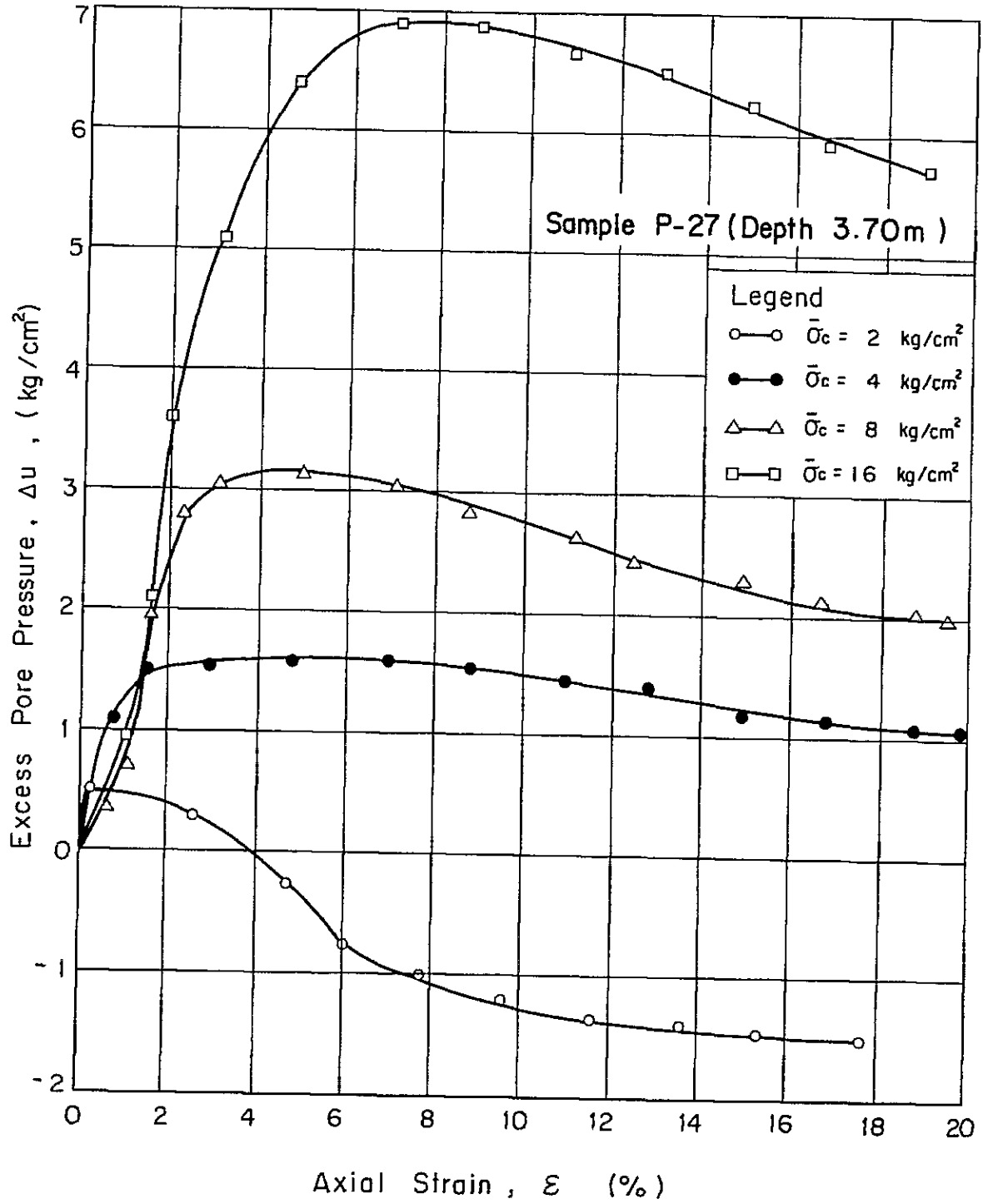

2-2-6 (10) Effective Stress Paths and Strength Envelope for $\overline{CIU}$ Triaxial Tests

( Representative Samples of Coarse Materials )




**2-2-6 (11) Deviator Stress vs. Axial Strain for $\overline{CIU}$ Triaxial Tests.**

( Representative Samples of Coarse Materials )




**2-2-6 (12) Excess Pore Pressure vs. Axial Strain for $\overline{CIU}$ Triaxial Tests.**

( Representative Samples of Coarse Materials )