

**REPUBLIC OF KENYA**

**MINISTRY OF ROADS AND TRANSPORT**

**STATE DEPARTMENT OF ROADS**

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Ref No. M.1455/35/L/10 Date: 18th January, 2023

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| **Laboratory Test Report** |

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| **1. Customer’s Details:** DIRECTOR URBAN ROADS PLANNING AND DESIGN  **E-mail:** Not provided  **Address:** Not provided Phone: 0723300590  **2. Customer Contact:** 0723300590 6. Job Card No. 1300/S/2022  **3. Sample Description:** Alignment Soils 7. Date fee paid: 16/12/2022  **4. Sampled by:** Client. 8. GOK MR No.4115663  **5. Date Sample received:** 16/12/2022 9. Date Analysis started:03/01/2023  **10. Additional information provided by the customer:** Design of Ruiru Toll Station Area Roads.     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | TEST RESULTS | | | | | | | | | | | | | | | | | **Sample No.** | **Reference** | **Grading** | | | | | | **Atterberg Limits** | | | | | **Compaction T99** | | **CBR** | | | % Passing BS Sieve Size (mm) | | | | | | LL | PL | PI | LS | PM |  | OMC( % ) | 4days Soak  (%) | Swell(%) | | 20 | 10 | 5 | 2 | 0.425 | 0.075 | % | % | % | % |  | MDD Kg/m3 | | 501/S/22 | Km 0+200 LHS Golf Avenue Rd. | 100 | 90 | 85 | 55 | 50 | 42 | 56 | 39 | 17 | 9 | 850 | 1560 | 19.4 | 18 | 1.0 | | **SOIL COMPOSITION: Gravel = 45%, Sand = 13%, Silt/clay =42%** | | | | | | | | | | | | | | | | 502/S/22 | Km 0+700 LHS Golf Avenue Rd | 100 | 80 | 57 | 42 | 29 | 23 | 38 | 22 | 16 | 8 | 464 | 1558 | 19.4 | 27 | 0.35 | | **SOIL COMPOSITION: Gravel = 58%, Sand = 19%, Silt/clay =23%** | | | | | | | | | | | | | | | | 503/S/22 | Km 2+800 RHS Bensam Rd | 100 | 71 | 50 | 39 | 29 | 25 | 45 | 27 | 18 | 9 | 522 | 1464 | 21.8 | 35 | 1.0 | | **SOIL COMPOSITION: Gravel = 61%, Sand = 14%, Silt/clay =25%** | | | | | | | | | | | | | | | | 504/S/22 | Km 0+010 RHS Bensam Rd | 100 | 98 | 94 | 92 | 87 | 83 | 58 | 36 | 22 | 11 | 1914 | 1430 | 22.0 | 3 | 1.2 | | **SOIL COMPOSITION: Gravel = 8%, Sand = 9%, Silt/clay =83%** | | | | | | | | | | | | | | | | 505/S/22 | Km 0+510 LHS Bensam Rd | 100 | 100 | 80 | 64 | 46 | 38 | 46 | 24 | 22 | 11 | 1012 | 1602 | 20.0 | 25 | 1.2 | | **SOIL COMPOSITION: Gravel = 36%, Sand = 26 %, Silt/clay =38%** | | | | | | | | | | | | | | | | 506/S/22 | Km 2+400 LHS Bensam Rd | 100 | 95 | 82 | 66 | 45 | 34 | 55 | 37 | 18 | 9 | 810 | 1688 | 15.6 | 25 | 0.35 | | **SOIL COMPOSITION: Gravel = 34%, Sand = 32%, Silt/clay =34%** | | | | | | | | | | | | | | | | 507/S/22 | Km 2+000 RHS Bensam Rd | 100 | 100 | 100 | 96 | 91 | 88 | 64 | 31 | 33 | 17 | 3003 | 1235 | 29.2 | 1 | 3 | | **SOIL COMPOSITION: Gravel = 4%, Sand = 8%, Silt/clay =88%** | | | | | | | | | | | | | | | |

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|  | TEST RESULTS | | | | | | | | | | | | | | | |
| **Sample No.** | **Reference** | **Grading** | | | | | | **Atterberg Limits** | | | | | **Compaction T99** | | **CBR** | |
| % Passing BS Sieve Size (mm) | | | | | | LL | PL | PI | LS | PM |  | OMC( % ) | 4days Soak  (%) | Swell(%) |
| 20 | 10 | 5 | 2 | 0.425 | 0.075 | % | % | % | % |  | MDD Kg/m3 |
| 508/S/22 | Km 1+000 RHS Bensam Rd | 100 | 91 | 75 | 60 | 38 | 26 | 35 | 24 | 11 | 6 | 418 | 1546 | 15.6 | 30 | 0.2 |
| **SOIL COMPOSITION: Gravel = 40%, Sand = 34%, Silt/clay =26%** | | | | | | | | | | | | | | |
| 509/S/22 | Km 1+500 LHS Bensam Rd | 100 | 100 | 100 | 99 | 90 | 85 | 63 | 35 | 27 | 14 | 2430 | 1304 | 29.5 | 2 | 2.8 |
| **SOIL COMPOSITION: Gravel =1%, Sand = 14%, Silt/clay =85%** | | | | | | | | | | | | | | |
| 510/S/22 | Km 0+050 RHS Matangi Link Rd | 100 | 97 | 90 | 72 | 40 | 32 | 41 | 23 | 17 | 9 | 680 | 1629 | 17.1 | 23 | 1.0 |
| **SOIL COMPOSITION: Gravel = 28%, Sand = 40%, Silt/clay =32%** | | | | | | | | | | | | | | |
| 511/S/22 | Km 0+550 LHS Matangi Link Rd | 100 | 100 | 100 | 93 | 81 | 77 | 60 | 32 | 28 | 14 | 2268 | 1295 | 30.1 | 1 | 3.0 |
| **SOIL COMPOSITION: Gravel = 7%, Sand = 16%, Silt/clay =77%** | | | | | | | | | | | | | | |
| 512/S/22 | Km 2+500 RHS Matangi Link Rd | 100 | 97 | 94 | 87 | 75 | 70 | 63 | 34 | 29 | 13 | 2025 | 1304 | 28.9 | 2 | 3.0 |
| **SOIL COMPOSITION: Gravel = 13%, Sand = 17%, Silt/clay =70%** | | | | | | | | | | | | | | |
| 513/S/22 | Km 0+850 RHS Church Avenue Rd | 100 | 100 | 100 | 99 | 94 | 88 | 46 | 28 | 18 | 9 | 1692 | 1333 | 27.0 | 6 | 1.0 |
| **SOIL COMPOSITION: Gravel = 1%, Sand = 11%, Silt/clay =88%** | | | | | | | | | | | | | | |
| 514/S/22 | Km 0+350 LHS Church Avenue Rd | 100 | 100 | 100 | 80 | 63 | 59 | 58 | 39 | 19 | 9 | 1197 | 1476 | 23.4 | 19 | 1.2 |
| **SOIL COMPOSITION: Gravel = 20%, Sand = 21%, Silt/clay =59%** | | | | | | | | | | | | | | |
| 515/S/22 | Km 1+500 LHS Church Avenue Rd | 100 | 100 | 92 | 79 | 56 | 45 | 60 | 42 | 18 | 9 | 1008 | 1510 | 22.5 | 20 | 1.2 |
| **SOIL COMPOSITION: Gravel = 21%, Sand = 34%, Silt/clay =45%** | | | | | | | | | | | | | | |

**Eng. J. M. Mbarua**

**For: CHIEF ENGINEER (MATERIALS)**

**OiC Soils Laboratory CSE Soils Laboratory**

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