

**REPUBLIC OF KENYA**

**MINISTRY OF ROADS AND TRANSPORT**

**STATE DEPARTMENT OF ROADS**

Telegraphic Address: “MINWORKS”, Nairobi Materials Testing & Research Division Telephone: Nairobi 0202554950 Machakos Road, Industrial Area Fax: 554877 P.O. Box 11873 – 00400 E-mail: [chiefengineer@mtrd.go.ke](mailto:chiefengineer@mtrd.go.ke) **NAIROBI**

Ref No. M.2425/35/L/10 Date: 31st MAY, 2023

|  |
| --- |
| **Laboratory Test Report** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Customer’s Details:** CAS CONSUTANTS LTD  **E-mail: casconsultant@africaonline.co.ke**  **Address:** P.O BOX 20023-00200 NRB Phone: 0722829554  **2. Customer Contact:** 0722829554 6. Job Card No. 2390/S/2023  **3. Sample Description:** Alignment Soils 7. Date fee paid: 28/04/2023  **4. Sampled by:** Client. 8. GOK MR No.4052850  **5. Date Sample received:** 20/04/2023 9. Date Analysis started:08/05/2023  **10. Additional information provided by the customer:** Kithimani-Wamunyu-Ukia  **KeNHA/RD/DHPD/3297/2021.**     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | 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 | | 925/S/22 | 1+000 Wamunyu-Itangini | 100 | 95 | 79 | 60 | 53 | 44 | 38 | 20 | 18 | 9 | 954 | 1826 | 11.7 | 45 | 0.3 | | **SOIL COMPOSITION: Gravel = 40%, Sand = 16%, Silt/clay =44%** | | | | | | | | | | | | | | | | 926/S/22 | Km30+000 Wamunyu-Itangini | 100 | 97 | 88 | 75 | 60 | 54 | 41 | 25 | 16 | 8 | 960 | 1696 | 13.7 | 40 | 0.3 | | **SOIL COMPOSITION: Gravel = 25%, Sand = 21%, Silt/clay =54%** | | | | | | | | | | | | | | | | 927/S/22 | 24+000 Ukia -Emali | 100 | 100 | 100 | 90 | 88 | 68 | NON-PLASTIC | | | | | 1803 | 10.6 | 8 | 0.2 | | **SOIL COMPOSITION: Gravel = 10%, Sand =22 %, Silt/clay =68%** | | | | | | | | | | | | | | | | 928/S/22 | 31+000 Ukia -Emali | 100 | 100 | 94 | 86 | 78 | 70 | 28 | 22 | 7 | 4 | 546 | 1701 | 10.9 | 5 | 0.4 | | **SOIL COMPOSITION: Gravel = 14%, Sand = 16%, Silt/clay =70%** | | | | | | | | | | | | | | | | 929/S/22 | 14+000 Matiliku-Ukia | 100 | 98 | 87 | 76 | 59 | 45 | 40 | 27 | 13 | 6 | 988 | 1680 | 11.4 | 11 | 0.3 | | **SOIL COMPOSITION: Gravel = 24%, Sand = 31%, Silt/clay =45%** | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 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 |
| 930/S/22 | 3+000 Kithimani-Makutano | 100 | 89 | 65 | 45 | 32 | 20 | 39 | 33 | 6 | 3 | 192 | 1467 | 17.0 | 40 | 0.2 |
| **SOIL COMPOSITION: Gravel = 55%, Sand = 25%, Silt/clay =20%** | | | | | | | | | | | | | | |
| 931/S/22 | 6+000 Kithimani-Makutano | 100 | 96 | 78 | 56 | 45 | 35 | 39 | 32 | 7 | 4 | 315 | 1813 | 9.8 | 45 | 0.2 |
| **SOIL COMPOSITION: Gravel =44%, Sand =23 %, Silt/clay =33%** | | | | | | | | | | | | | | |

**Eng. J. M. Mbarua**

**For: CHIEF ENGINEER (MATERIALS)**

**OiC Soils Laboratory CSE Soils Laboratory**

**………………. …………………….**