

|                                                                                                                                                                  |                                                                                                    |                                                                                                                                                                                      |                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>ا.د. خالد قنديل | <br>SYSTRA SHAKER | <b>Electric Express Train - HSR</b><br>From El Ain El Sokhna City To El Alamein - MATROUH<br><b>Section - 7 From FOKA To MARS MATROUH</b><br>From Station 504+000 To Station 568+177 | <br>الهيئة القومية للإنفقا<br>لخطوط السكك الحديدية<br>(EG.RAIL) |
| Opreating lab                                                                                                                                                    | Mansour Lab                                                                                        |                                                                                                                                                                                      |                                                                                                                                                    |

### PARTICLE SIZE DISTRIBUTION OF SOIL

|               |             |      |      |                    |
|---------------|-------------|------|------|--------------------|
| TESTING DATE: | 11/3/2023   | code | Zone | 545+000 TO 545+500 |
| LOCATION      | K.P 545+000 | KF-4 |      |                    |
| NAME COMPANY  | EL KAFAH    |      |      |                    |

1-visual inspection test

2-Gradient test

| A-gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |         | 33315.00 |         | gm   | table classify |
|-------------------------------|-------|--------|--------|-------------------|---------|----------|---------|------|----------------|
| sieve size                    | 2     | 1.5    | 1      | 4/3               | 2/1     | 8/3      | # 4     | PASS | soil classify  |
| 0.00                          | 0.0   | 1369.0 | 6415.0 | 2816.0            | 2462.0  | 1409.0   | 2455.0  |      | A-1-b          |
| Cumulative Retained (g)       | 0.0   | 1369.0 | 7784.0 | 10600.0           | 13062.0 | 14471.0  | 16926.0 | PRO  | 2.142          |
| Cumulative Retained %         | 0.0   | 4.1    | 23.4   | 31.8              | 39.2    | 43.4     | 50.8    | WC   | 6.50           |
| Cumulative Passing %          | 100.0 | 95.9   | 76.6   | 68.2              | 60.8    | 56.6     | 49.2    | CBR  | 30.60          |

| B-soft material gradation |       |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|-------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10    | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 36.00 | 133.00 | 354.00 |              |  |        |  |    |
| Cumulative Retained %     | 7.20  | 26.60  | 70.80  |              |  |        |  |    |
| Cumulative Passing %      | 92.80 | 73.40  | 29.20  |              |  |        |  |    |

| C-General gradient   |       |      |      |      |      |      |      |      |       |       |
|----------------------|-------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2     | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0  | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 95.9 | 76.6 | 68.2 | 60.8 | 56.6 | 49.2 | 45.7 | 36.1  | 14.4  |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT ( L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|----------------------|----------------------|----------------------|
|                     | N.L                  | N.P                  | N.P                  |

Contractor

Consultant



Abdullah

**California Bearing Ratio TEST**

|                 |             |      |      |         |         |
|-----------------|-------------|------|------|---------|---------|
| Testing Date :  | 14/3/2023   | Code | Zone | 545+000 | 545+500 |
| Location :      | K.P 545+000 | KF-4 |      |         |         |
| Name of Company | EL KAFAH    |      |      |         |         |

**- : Test Results**

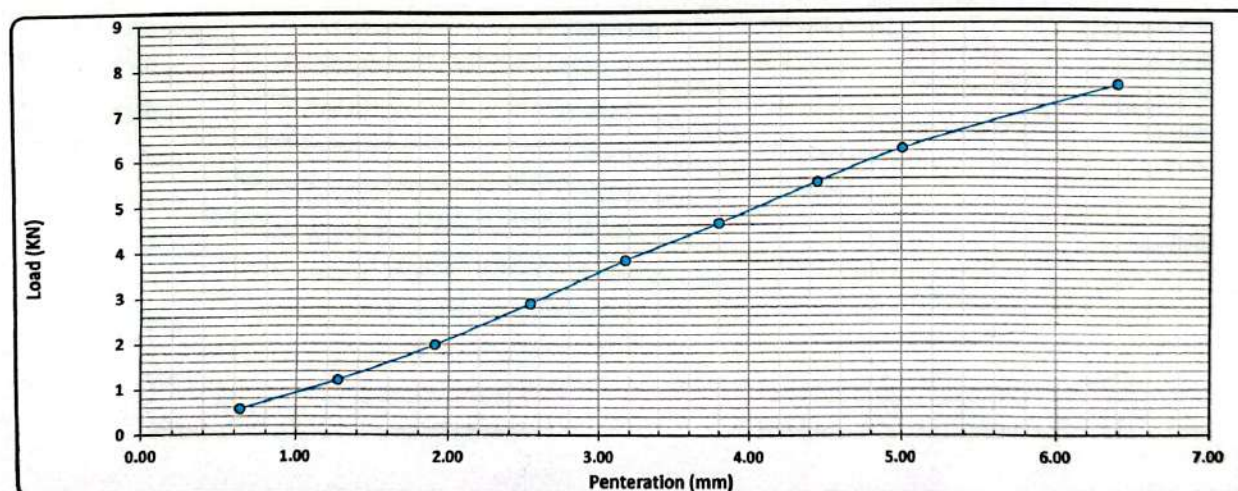
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 1     |
| Mold Vol. (cm <sup>3</sup> )         | 2104  |
| Mold WT. (gm)                        | 8077  |
| Mold WT. + Wet WT. (gm)              | 12871 |
| Wet WT. (gm)                         | 4794  |
| Wet Density (g/cm <sup>3</sup> )     | 2.279 |
| Dry Density (g/cm <sup>3</sup> )     | 2.140 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.142 |
| Compaction %                         | 100   |

| Moisture Ratio After Compacted Mold |          |
|-------------------------------------|----------|
| Tare No.                            | 13       |
| Tare WT. (gm)                       | 55.81    |
| Tare WT. +Wet WT. (gm)              | 148.4    |
| Tare WT. +Dry WT. (gm)              | 142.7613 |
| Water WT. (gm)                      | 5.6      |
| Dry WT. (gm)                        | 87.0     |
| Moisture Content %                  | 6.5      |

| Swelling            |          |
|---------------------|----------|
| Mold No.            | 1        |
| Date                | 0        |
| Initial Height (mm) | 0.00     |
| Final Height (mm)   | 0.00     |
| Difference          | 0        |
| Sample Height (mm)  | 11600.00 |
| Swelling Ratio %    | 0%       |

**Loading Reading :**

|                   |       |        |        |        |        |        |        |        |        |
|-------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Penteration (mm)  | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45   | 5.00   | 6.40   |
| Load Reading (kg) | 58.00 | 123.00 | 202.00 | 294.00 | 390.00 | 472.00 | 563.00 | 638.00 | 780.00 |
| Load (KN)         | 0.6   | 1.2    | 2.0    | 2.9    | 3.8    | 4.6    | 5.5    | 6.3    | 7.6    |



**Calculations :-**

| Penteration | Load | Standard Load | CBR   | Mold - Compaction | Compaction | CBR           |
|-------------|------|---------------|-------|-------------------|------------|---------------|
| (mm)        | (Kn) | (lb)          | ( % ) | ( % )             | ( % )      | عند نسبة 98 % |
| 2.50        | 2.88 | 13.4          | 21.6% | 100               | 98         | 21.2%         |
| 5.00        | 6.25 | 20.0          | 31.2% |                   |            | 30.6%         |

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Abdallah



operating Lab

Mansour Lab

## Proctor Test

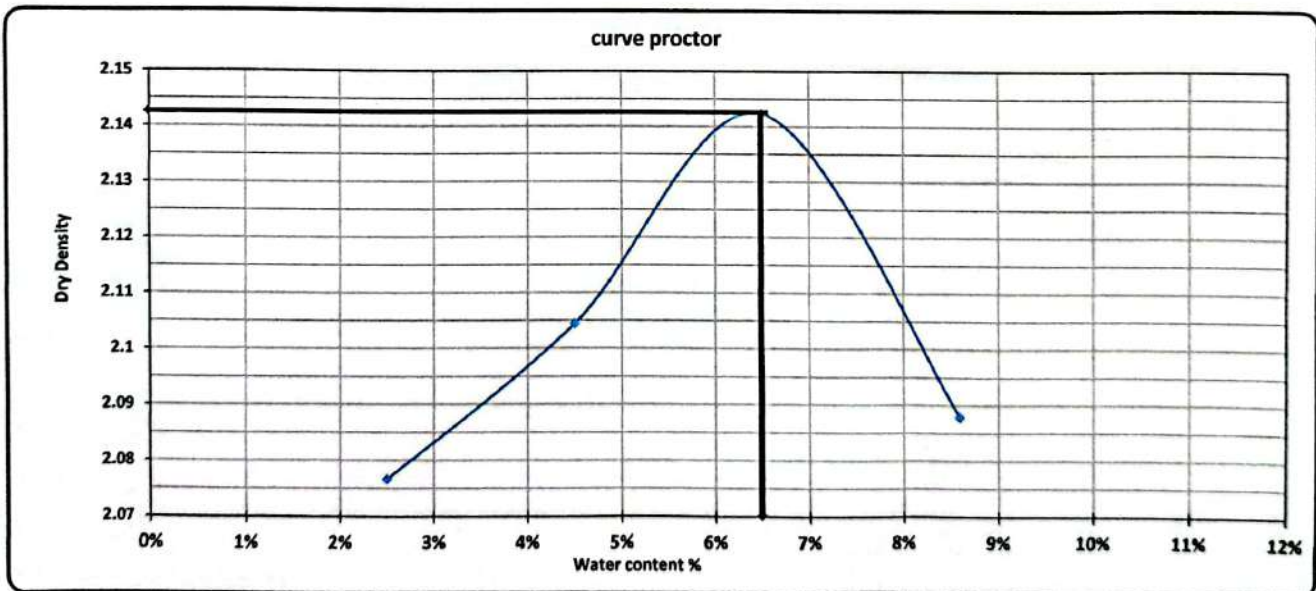
|               |             |      |      |                   |
|---------------|-------------|------|------|-------------------|
| TESTING DATE: | 13/3/2023   | code |      |                   |
| LOCATION      | K.P 545+500 | KF-4 | Zone | 545+000To 545+500 |
| NAME COMPANY  | EL KAFAH    |      |      |                   |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 5594.0 |
| Mold Volume:           | 2124.0 |

|                 |       |
|-----------------|-------|
| MAX Dry Density | 2.142 |
| Water content % | 6.5   |

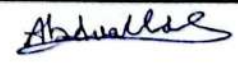
|                       |         |         |         |         |  |
|-----------------------|---------|---------|---------|---------|--|
| trial no :            | 1       | 2       | 3       | 4       |  |
| Wt. Of Mold+ wet soil | 10115.0 | 10265.0 | 10440.0 | 10410.0 |  |
| WT. WET SOIL          | 4521.0  | 4671.0  | 4846.0  | 4816.0  |  |
| Wt. Density           | 2.129   | 2.199   | 2.282   | 2.267   |  |

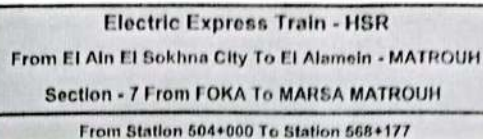
|                        |       |       |       |       |       |       |       |       |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| Tare No.               | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |  |  |
| Tare wt.               | 55.85 | 54.5  | 55.65 | 52.42 | 56.96 | 56.74 | 56.74 | 57.92 |  |  |
| Wt. Of wet soil & tare | 149.4 | 148.9 | 149.3 | 150.9 | 148.5 | 149.1 | 148.5 | 151.0 |  |  |
| Wt. Of dry soil & tare | 147.0 | 146.7 | 145.5 | 146.5 | 143.0 | 143   | 141.2 | 143.6 |  |  |
| Wt. Of water           | 2.4   | 2.2   | 3.9   | 4.4   | 5.5   | 5.7   | 7.3   | 7.4   |  |  |
| Wt. Of dry soil        | 91.2  | 92.2  | 89.8  | 94.1  | 86.1  | 86.6  | 84.5  | 85.7  |  |  |
| Water content %        | 2.6%  | 2.4%  | 4.3%  | 4.7%  | 6.4%  | 6.6%  | 8.6%  | 8.6%  |  |  |
| AV. Water content %    | 2.5%  |       | 4.5%  |       | 6.5%  |       | 8.6%  |       |  |  |
| Dry Density            | 2.077 |       | 2.104 |       | 2.142 |       | 2.088 |       |  |  |



**Contractor**
  

  
 مصر شركة منصور عمر حسن القنديل
   
 القطار للسكك
   
 مرقية - مطروح

**Consultant**
  




### 1-visual inspection test

## 2-Gradient test

### B-soft material gradation

**C-General gradient**

| ATTERBERG LIMITS | LIQUID LIMIT ( L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|------------------|----------------------|----------------------|----------------------|
|                  | NP                   | NP                   | NP                   |

Contractor

Consultant



Mallabek



|                                                                                  |                                                                                                                                                                                |                                                                                                                                                        |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Electric Express Train - HSR</b><br>From El Ain El Sokhna City To El Alamein - MATROUH<br>Section - 7 From FOKA TO MARSA MATROUH<br>From Station 504+000 To Station 568+177 | الهيئة العامة<br>للطرق والكباري والسكك الحديدية<br>(GA.P.R.R.T)<br> |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|

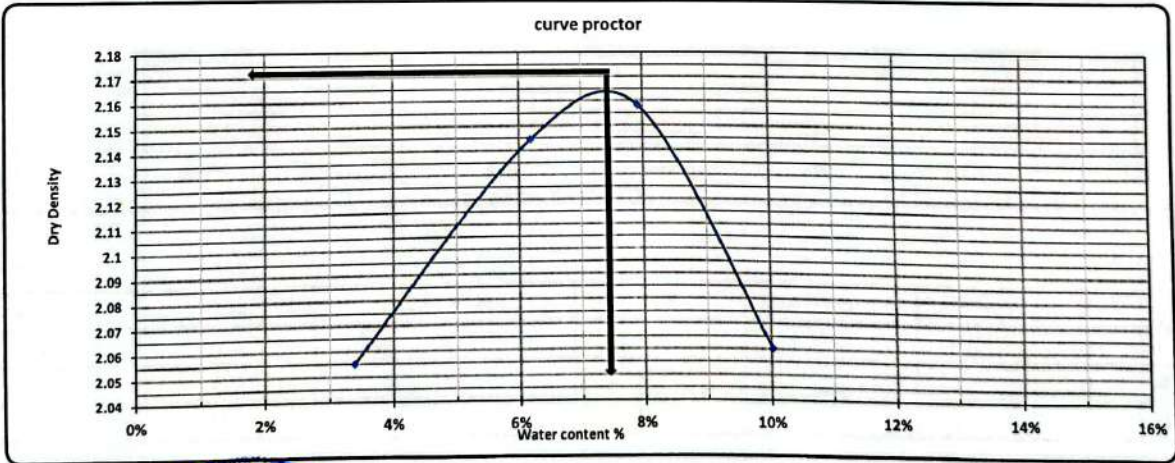
### PROCTOR TEST

|               |             |       |             |         |         |
|---------------|-------------|-------|-------------|---------|---------|
| TESTING DATE: | 2023/03/09  | code  | Station     | 545+000 | 545+500 |
| LOCATION      |             | KF(3) | Material    |         |         |
| NAME COMPANY  | شركة الكفاح |       | layer level |         |         |

|                        |        |                 |      |
|------------------------|--------|-----------------|------|
| Weight of empty mold : | 6057.0 | MAX Dry Density | 2.16 |
| Mold Volume:           | 2113.0 | Water content % | 7.4  |

|                       |         |         |        |        |  |  |
|-----------------------|---------|---------|--------|--------|--|--|
| trial no :            | 1       | 2       | 3      | 4      |  |  |
| Wt. Of Mold+ wet soil | 10547.0 | 10869.0 | 10979  | 10847  |  |  |
| WT. WET SOIL          | 4490.0  | 4812.0  | 4922.0 | 4790.0 |  |  |
| Wt. Density           | 2.125   | 2.277   | 2.329  | 2.267  |  |  |

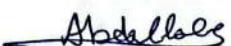
|                        |       |       |       |       |       |       |       |       |     |  |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-----|--|--|--|
|                        |       | 2.16  |       |       |       |       |       |       |     |  |  |  |
| Tare No.               | 26    | 45    | 33    | 16    | 8     | 15    | 19    | 10    | 7.4 |  |  |  |
| Tare wt.               | 55    | 41.5  | 73.6  | 34    | 45.8  | 32    | 44.5  | 43.7  |     |  |  |  |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |     |  |  |  |
| Wt. Of dry soil & tare | 147   | 146.3 | 145.5 | 143.3 | 142.2 | 141.5 | 140.2 | 140.5 |     |  |  |  |
| Wt. Of water           | 3.0   | 3.7   | 4.5   | 6.7   | 7.8   | 8.5   | 9.8   | 9.5   |     |  |  |  |
| Wt. Of dry soil        | 92.0  | 104.8 | 71.9  | 109.3 | 96.4  | 109.5 | 95.7  | 96.8  |     |  |  |  |
| Water content %        | 3.3%  | 3.5%  | 6.3%  | 6.1%  | 8.1%  | 7.8%  | 10.2% | 9.8%  |     |  |  |  |
| AV. Water content %    | 3.4%  |       | 6.2%  |       | 7.9%  |       | 10.0% |       |     |  |  |  |
| Dry Density            | 2.055 |       | 2.144 |       | 2.158 |       | 2.060 |       |     |  |  |  |



Contractor



Consultant





ENGINEERING CONSULTING OFFICE  
المكتب الاستشاري الهندسي  
أ.د. خالد شديبل



## Electric Express Train - HSR



### California Bearing Ratio TEST

|                |           |       |                   |          |
|----------------|-----------|-------|-------------------|----------|
| Testing Date : | 12-3-2023 | Code  | FROM STA :        | TO STA : |
| Location :     |           | KF(3) | : Material        |          |
| Company Name   | الكلاح    |       | : Layer Thickness |          |

#### :- Test Results

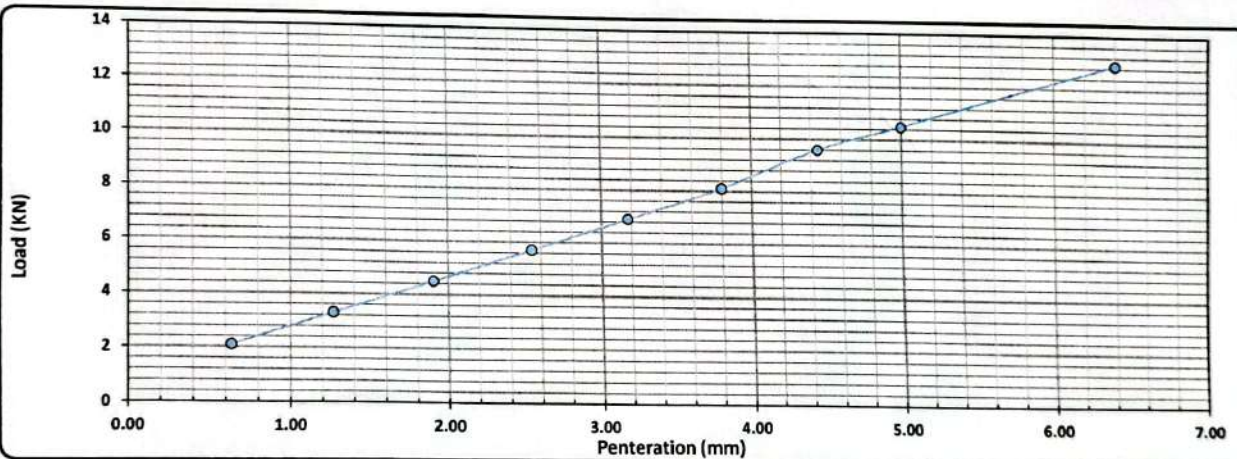
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 4     |
| Mold Vol. (cm <sup>3</sup> )         | 2140  |
| Mold WT. (gm)                        | 4900  |
| Mold WT. + Wet WT. (gm)              | 9854  |
| Wet WT. (gm)                         | 4954  |
| Wet Density (g/cm <sup>3</sup> )     | 2.315 |
| Dry Density (g/cm <sup>3</sup> )     | 2.159 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.160 |
| Compaction %                         | 99.9  |

| Moisture Ratio After Compacted Mold |      |
|-------------------------------------|------|
| Tare No.                            | 11   |
| Tare WT. (gm)                       | 46.4 |
| Tare WT. + Wet WT. (gm)             | 150  |
| Tare WT. + Dry WT. (gm)             | 143  |
| Water WT. (gm)                      | 7.0  |
| Dry WT. (gm)                        | 96.6 |
| Moisture Content %                  | 7.2  |

| Swelling            |           |
|---------------------|-----------|
| Mold No.            | 6         |
| Date                | 12-3-2023 |
| Initial Height (mm) | 3.00      |
| Final Height (mm)   | 3.00      |
| Difference          | 0.0       |
| Sample Height (mm)  | 119.00    |
| Swelling Ratio %    | 0%        |

#### Loading Reading :

|                   |       |       |       |       |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Pentration (mm)   | 0.64  | 1.27  | 1.91  | 2.54  | 3.18  | 3.80  | 4.45  | 5.00  | 6.40  |
| Load Reading (mm) | 0.070 | 0.110 | 0.150 | 0.190 | 0.230 | 0.270 | 0.320 | 0.350 | 0.430 |
| Load (KN)         | 2.1   | 3.3   | 4.5   | 5.7   | 6.9   | 8.1   | 9.6   | 10.5  | 12.9  |



#### Calculations :-

| Pentration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR           |
|------------|-------|---------------|-------|-------------------|------------|---------------|
| (mm)       | (Kn)  | (lb)          | (%)   | (%)               | (%)        | % عند نسبة ١٨ |
| 2.50       | 5.70  | 13.4          | 42.7% | 99.9              | 98         | 41.9%         |
| 5.00       | 10.50 | 20.0          | 52.4% |                   |            | 51.4%         |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name : Abdallah S. M. S. M.

Sign : Abdallah S. M. S. M.







**Electric Express Train - HSR**  
**From El Aln El Sokhna City To El Alamain - MATROUH**  
**Section - 7 From FOKA To MARSA MATROUH**  
 From Station 554+000 To Station 568+177



### PARTICLE SIZE DISTRIBUTION OF SOIL

|               |              |      |      |         |         |
|---------------|--------------|------|------|---------|---------|
| TESTING DATE: | 21/12/2023   | code | ZONE | 545+000 | 545+500 |
| LOCATION      | K.P(545+000) | KF-1 |      |         |         |
| NAME COMPANY  | EL KEFAH     |      |      |         |         |

#### 1-visual inspection test

#### 2-Gradient test

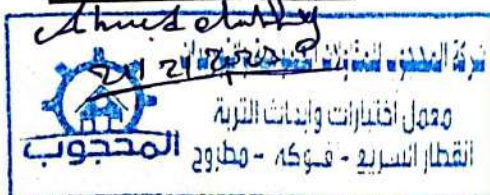
| A-gradation of bulk materials |       |        |         | SAMPLE WEIGHT [g] |         | 35354.00 |         | gm   | table classify | soil classify |
|-------------------------------|-------|--------|---------|-------------------|---------|----------|---------|------|----------------|---------------|
| sieve size                    | 2     | 1.5    | 1       | 4/3               | 2/1     | 8/3      | # 4     | PASS |                |               |
| Mass retained (g)             | 0.0   | 3201.0 | 8014.0  | 3322.0            | 3559.0  | 1695.0   | 2701.0  |      |                | A-1-a         |
| Cumulative Retained (g)       | 0.0   | 3201.0 | 11215.0 | 14537.0           | 18096.0 | 19791.0  | 22492.0 |      | PRO            | 2.170         |
| Cumulative Retained %         | 0.0   | 9.1    | 31.7    | 41.1              | 51.2    | 56.0     | 63.6    |      | WC             | 6.3%          |
| Cumulative Passing %          | 100.0 | 90.9   | 68.3    | 58.9              | 48.8    | 44.0     | 36.4    |      | CBR            | 61.3%         |

| B-soft material gradation |       |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|-------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10    | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 75.00 | 196.00 | 311.00 |              |  |        |  |    |
| Cumulative Retained %     | 15.00 | 39.20  | 62.20  |              |  |        |  |    |
| Cumulative Passing %      | 85.00 | 60.80  | 37.80  |              |  |        |  |    |

| C-General gradient   |       |      |      |      |      |      |      |      |       |       |
|----------------------|-------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2     | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0  | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 90.9 | 68.3 | 58.9 | 48.8 | 44.0 | 36.4 | 30.9 | 22.1  | 13.8  |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT ( L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|----------------------|----------------------|----------------------|
|                     | N.P                  | N.P                  | N.P                  |

Contractor



Consultant

Youssef Rajab  
25/12/2023

|                                                                                                                                                                         |                                                                                                              |                                     |                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <br><b>ENGINEERING CONSULTING OFFICE</b><br>المكتب الاستشاري الهندسي<br>10 - برج خليفة | <br><b>SVSRA</b><br>SHARJAH | <b>Electric Express Train - HSR</b> | <br>وزارة النقل<br>(MOT) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|

### California Bearing Ratio TEST

|                |              |      |  |      |         |         |
|----------------|--------------|------|--|------|---------|---------|
| Testing Date : | 2023/2/25    | Code |  | zone | 545+000 | 545+500 |
| Location :     | K.P(545+000) | KF-1 |  |      |         |         |
| Layer No. :    | EL KEFAH     |      |  |      |         |         |

#### Test Results

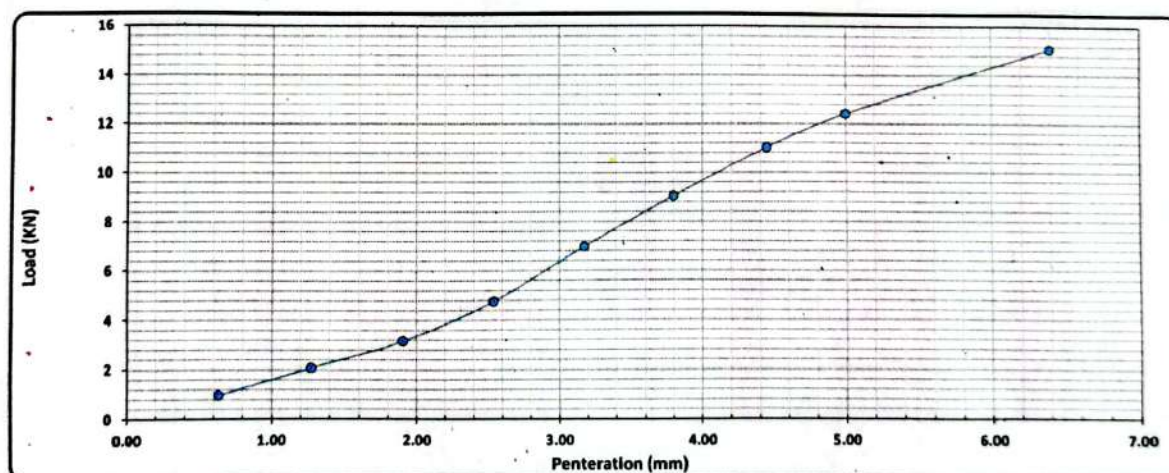
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 55    |
| Mold Vol. (cm <sup>3</sup> )         | 2151  |
| Mold WT. (gm)                        | 15700 |
| Mold WT. + Wet WT. (gm)              | 20815 |
| Wet WT. (gm)                         | 5115  |
| Wet Density (g/cm <sup>3</sup> )     | 2.378 |
| Dry Density (g/cm <sup>3</sup> )     | 2.237 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.170 |
| Compaction %                         | 98    |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 5     |
| Tare WT. (gm)                       | 31    |
| Tare WT. + Wet WT. (gm)             | 233   |
| Tare WT. + Dry WT. (gm)             | 222   |
| Water WT. (gm)                      | 11.0  |
| Dry WT. (gm)                        | 191.0 |
| Moisture Content %                  | 6.3   |

| Swelling            |    |
|---------------------|----|
| Mold No.            | 55 |
| Date                |    |
| Initial Height (mm) |    |
| Final Height (mm)   |    |
| Difference          |    |
| Sample Height (mm)  |    |
| Swelling Ratio %    |    |

#### Loading Reading :

|                   |       |        |        |        |        |        |         |         |         |
|-------------------|-------|--------|--------|--------|--------|--------|---------|---------|---------|
| Penetration (mm)  | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45    | 5.00    | 6.40    |
| Load Reading (kg) | 99.00 | 212.00 | 323.00 | 486.00 | 711.00 | 923.00 | 1124.00 | 1266.00 | 1538.00 |
| Load (KN)         | 1.0   | 2.1    | 3.2    | 4.8    | 7.0    | 9.0    | 11.0    | 12.4    | 15.1    |



#### Calculations :-

| Penetration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR           |
|-------------|-------|---------------|-------|-------------------|------------|---------------|
| (mm)        | (Kn)  | (lb)          | (%)   | (%)               | (%)        | عند نسبة 98 % |
| 2.50        | 4.76  | 13.4          | 35.7% | 99                | 98         | 35.3%         |
| 5.00        | 12.41 | 20.0          | 62.0% |                   |            | 61.3%         |

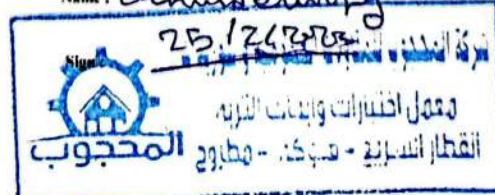
Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :



Consultant Engineer

Name :

Sign :

Youssef R. Lab  
25/2/2023





**Electric Express Train - HSR**  
**From El Ain El Sokhna City To El Alamein - MATROUH**  
**Section - 7 From FOKA TO MARSA MATROUH**  
**From Station 504+000 To Station 568+177**



## PROCTOR TEST

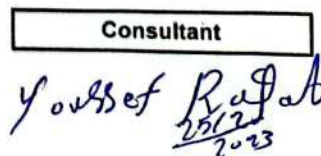
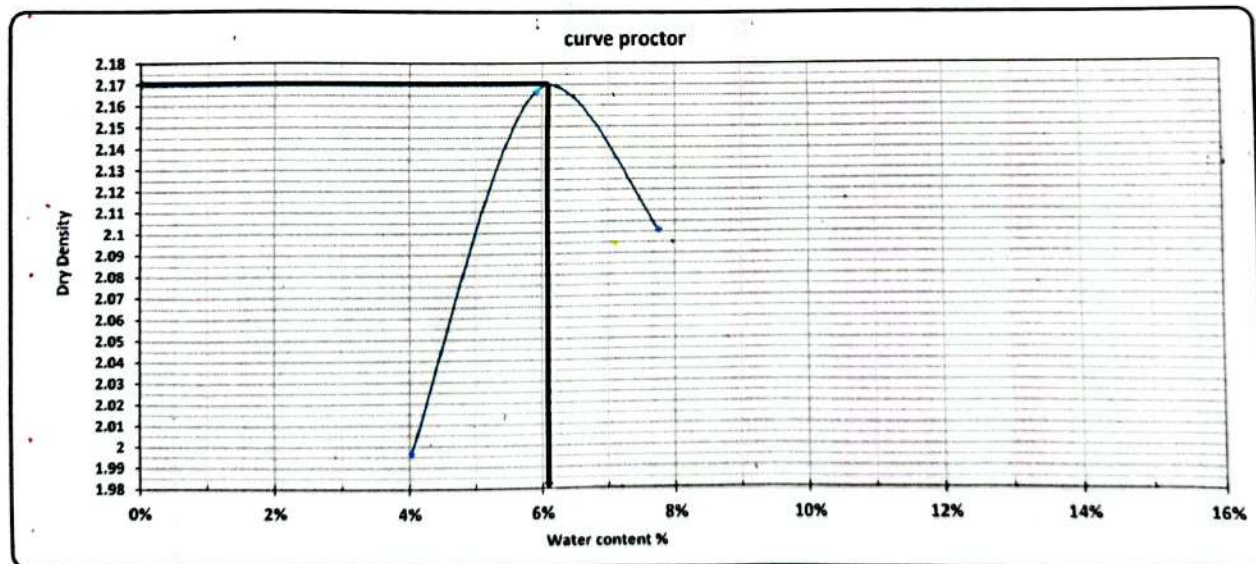
|               |              |      |      |         |         |
|---------------|--------------|------|------|---------|---------|
| TESTING DATE: | 22/2/2023    | code | ZONE | 545+000 | 545+500 |
| LOCATION      | K.P(545+000) | KF-1 |      |         |         |
| NAME COMPANY  | EL KEFAH     |      |      |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 6071.0 |
| Mold Volume:           | 2023.0 |

|                 |      |
|-----------------|------|
| MAX Dry Density | 2.17 |
| Water content % | 6.3% |

|                       |         |         |         |   |   |
|-----------------------|---------|---------|---------|---|---|
| trial no :            | 1       | 2       | 3       | 4 | 5 |
| Wt. Of Mold+ wet soil | 10273.0 | 10713.8 | 10651.1 |   |   |
| WT. WET SOIL          | 4202.0  | 4642.8  | 4580.1  |   |   |
| Wt. Density           | 2.077   | 2.295   | 2.264   |   |   |

|                        |       |       |       |       |       |       |  |  |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| Tare No.               | 1     | 2     | 3     | 4     | 5     | 6     |  |  |  |  |
| Tare wt.               | 34.12 | 30.56 | 23.23 | 28.54 | 22.77 | 30.76 |  |  |  |  |
| Wt. Of wet soil & tare | 168.8 | 156.0 | 165.2 | 156.0 | 152.0 | 168.0 |  |  |  |  |
| Wt. Of dry soil & tare | 163.4 | 151.2 | 157.2 | 148.9 | 142.9 | 157.9 |  |  |  |  |
| Wt. Of water           | 5.4   | 4.7   | 8.0   | 7.1   | 9.1   | 10.1  |  |  |  |  |
| Wt. Of dry soil        | 129.3 | 120.7 | 134.0 | 120.4 | 120.1 | 127.2 |  |  |  |  |
| Water content %        | 4.1%  | 3.9%  | 6.0%  | 5.9%  | 7.6%  | 7.9%  |  |  |  |  |
| AV. Water content %    | 4.0%  |       | 5.9%  |       | 7.8%  |       |  |  |  |  |
| Dry Density            | 1.997 |       | 2.167 |       | 2.101 |       |  |  |  |  |



## California Bearing Ratio TEST

|                |              |      |      |         |         |
|----------------|--------------|------|------|---------|---------|
| Testing Date : | 5/3/2023     | Code | zone | 545+000 | 545+500 |
| Location :     | K.P(545+000) | KF-2 |      |         |         |
| Layer No. :    | EL KEFAH     |      |      |         |         |

### -: Test Results

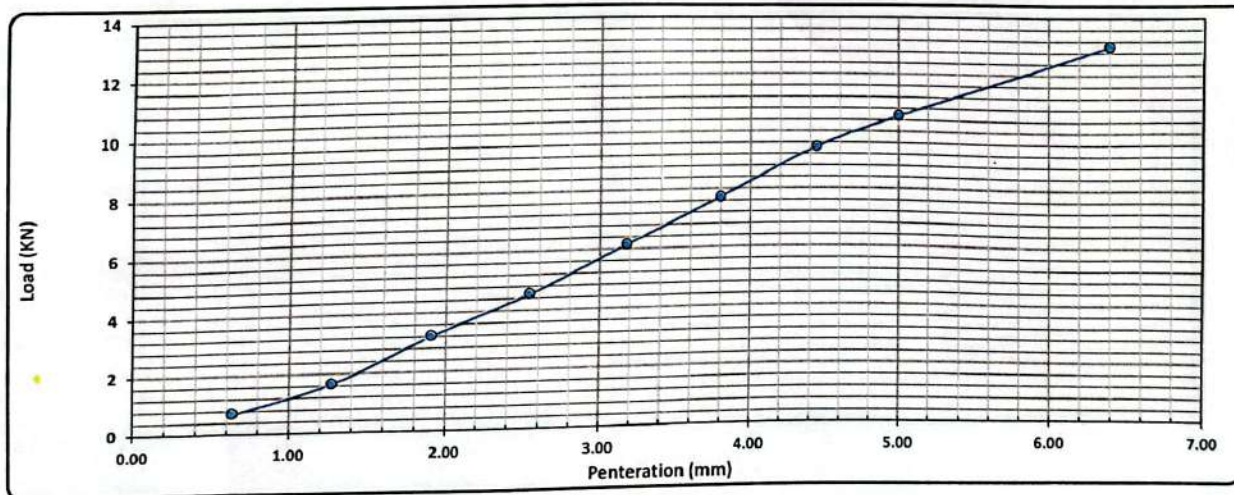
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 55    |
| Mold Vol. (cm <sup>3</sup> )         | 2151  |
| Mold WT. (gm)                        | 15700 |
| Mold WT. + Wet WT. (gm)              | 20815 |
| Wet WT. (gm)                         | 5115  |
| Wet Density (g/cm <sup>3</sup> )     | 2.378 |
| Dry Density (g/cm <sup>3</sup> )     | 2.227 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.152 |
| Compaction %                         | 98    |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 5     |
| Tare WT. (gm)                       | 31    |
| Tare WT. +Wet WT. (gm)              | 233   |
| Tare WT. +Dry WT. (gm)              | 222   |
| Water WT. (gm)                      | 11.0  |
| Dry WT. (gm)                        | 191.0 |
| Moisture Content %                  | 6.8   |

| Swelling            |    |
|---------------------|----|
| Mold No.            | 55 |
| Date                |    |
| Initial Height (mm) |    |
| Final Height (mm)   |    |
| Difference          |    |
| Sample Height (mm)  |    |
| Swelling Ratio %    |    |

### Loading Reading :

|                   |       |        |        |        |        |        |        |         |         |
|-------------------|-------|--------|--------|--------|--------|--------|--------|---------|---------|
| Pentration (mm)   | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45   | 5.00    | 6.40    |
| Load Reading (kg) | 73.00 | 170.00 | 329.00 | 465.00 | 628.00 | 788.00 | 964.00 | 1077.00 | 1328.00 |
| Load (KN)         | 0.7   | 1.7    | 3.2    | 4.6    | 6.2    | 7.7    | 9.4    | 10.6    | 13.0    |



### Calculations :-

| Pentration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR           |
|------------|-------|---------------|-------|-------------------|------------|---------------|
| (mm)       | (Kn)  | (lb)          | ( % ) | ( % )             | ( % )      | عند نسبة 98 % |
| 2.50       | 4.56  | 13.4          | 34.1% | 99                | 98         | 33.8%         |
| 5.00       | 10.55 | 20.0          | 52.7% |                   |            | 52.2%         |

Lab. Specialist

Name :

Sign :

Lab. Engineer  
 Name : *Shady A.*  
 Sign : *[Signature]*

Consultant Engineer

Name :

Sign :

*Youssef Rafab*  
 7/3/23



Youssef Ragab  
22/3  
2023



## PROCTOR TEST

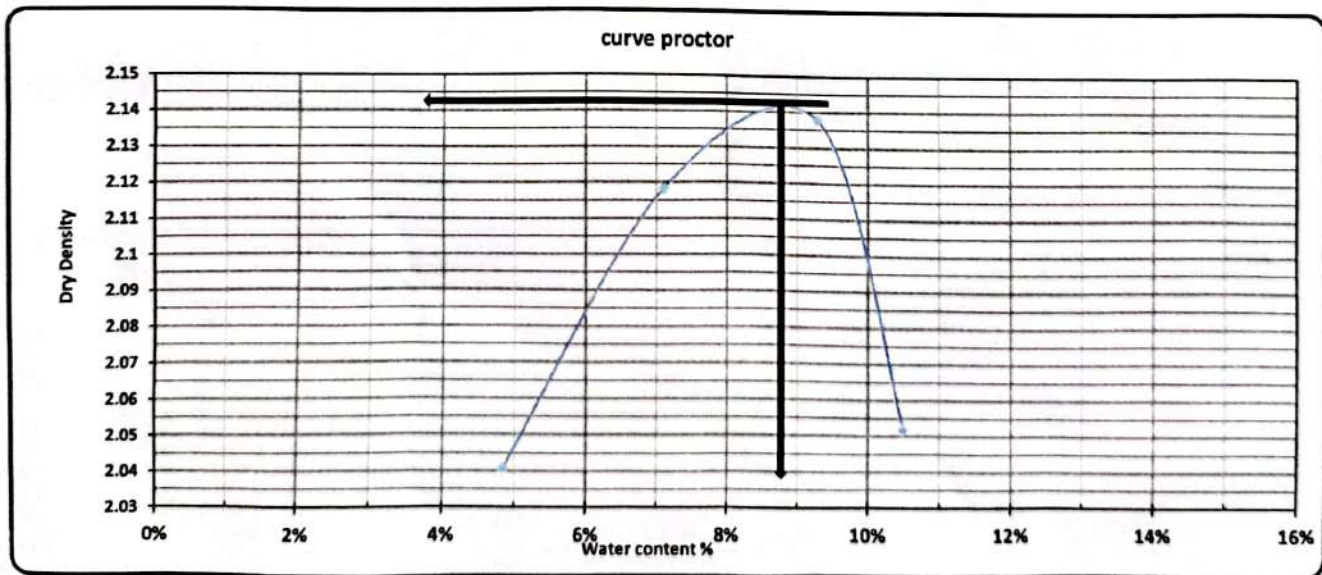
|               |               |       |         |         |         |
|---------------|---------------|-------|---------|---------|---------|
| TESTING DATE: | 18-3-2023     | code  |         |         |         |
| LOCATION      | K.P (545+200) | KF(5) | Station | 545+000 | 545+500 |
| NAME COMPANY  | شركة الكفاح   |       |         |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 6037.0 |
| Mold Volume:           | 2113.0 |

|                 |       |
|-----------------|-------|
| MAX Dry Density | 2.143 |
| Water content % | 7.9   |

|                       |         |         |        |        |  |  |
|-----------------------|---------|---------|--------|--------|--|--|
| trial no :            | 1       | 2       | 3      | 4      |  |  |
| Wt. Of Mold+ wet soil | 10557.0 | 10830.0 | 10973  | 10827  |  |  |
| WT. WET SOIL          | 4520.0  | 4793.0  | 4936.0 | 4790.0 |  |  |
| Wt. Density           | 2.139   | 2.268   | 2.336  | 2.267  |  |  |

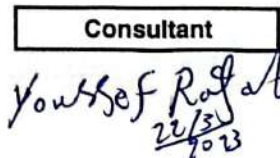
|                        |       |       |       |       |       |       |       |       |  |  |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| Tare No.               | 11    | 20    | 15    | 33    | 8     | 9     | 4     | 10    |  |  |  |  |
| Tare wt.               | 45.5  | 59.6  | 31.4  | 75.7  | 46.3  | 42    | 60.1  | 43.7  |  |  |  |  |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |  |  |  |  |
| Wt. Of dry soil & tare | 145.1 | 145.9 | 142.1 | 145.1 | 141.5 | 140.5 | 141.3 | 140.1 |  |  |  |  |
| Wt. Of water           | 4.9   | 4.1   | 7.9   | 4.9   | 8.5   | 9.5   | 8.7   | 9.9   |  |  |  |  |
| Wt. Of dry soil        | 99.6  | 86.3  | 110.7 | 69.4  | 95.2  | 98.5  | 81.2  | 96.4  |  |  |  |  |
| Water content %        | 4.9%  | 4.8%  | 7.1%  | 7.1%  | 8.9%  | 9.6%  | 10.7% | 10.3% |  |  |  |  |
| AV. Water content %    | 4.8%  |       | 7.1%  |       | 9.3%  |       | 10.5% |       |  |  |  |  |
| Dry Density            | 2.040 |       | 2.118 |       | 2.138 |       | 2.052 |       |  |  |  |  |



**Contractor**

  
معمل التربة المركزي  
قطاع فوكا - مطروح

**Consultant**

  
Youssef Raafab  
22/3/2023



## California Bearing Ratio TEST

|                |               |       |            |         |         |
|----------------|---------------|-------|------------|---------|---------|
| Testing Date : | 21-3-2023     | Code  |            |         |         |
| Location :     | K.P (545+200) | KF(5) | FROM STA : | 545+000 | 545+500 |
| Company Name : | شركة (ك) ح    |       |            |         |         |

### Test Results

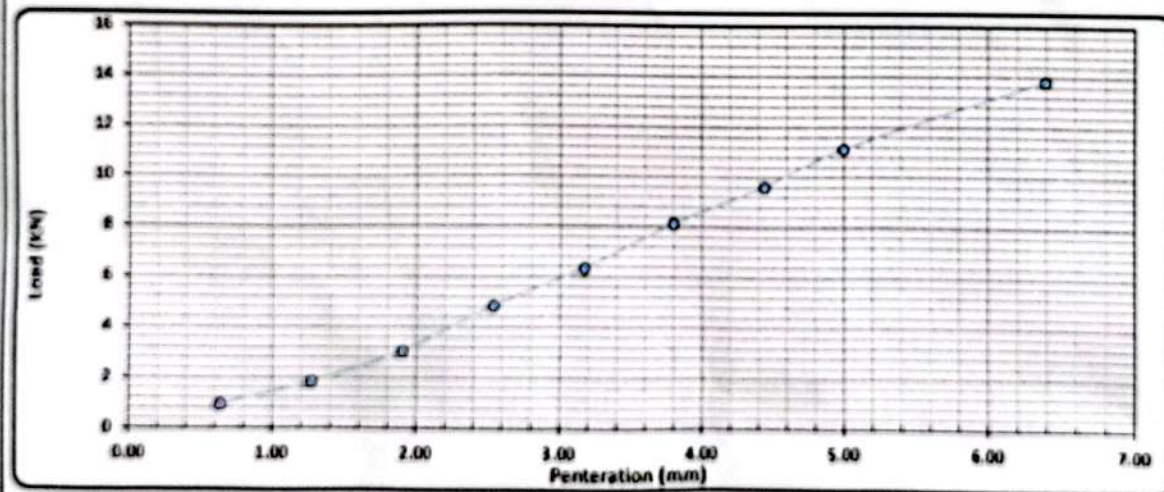
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 2     |
| Mold Vol. (cm <sup>3</sup> )         | 2122  |
| Mold WT. (gm)                        | 4803  |
| Mold WT. + Wet WT. (gm)              | 9621  |
| Wet WT. (gm)                         | 4818  |
| Wet Density (g/cm <sup>3</sup> )     | 2.270 |
| Dry Density (g/cm <sup>3</sup> )     | 2.117 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.143 |
| Compaction %                         | 98.8  |

| Moisture Ratio After Compacted Mold |      |
|-------------------------------------|------|
| Tare No.                            | 11   |
| Tare WT. (gm)                       | 46.4 |
| Tare WT. + Wet WT. (gm)             | 150  |
| Tare WT. + Dry WT. (gm)             | 143  |
| Water WT. (gm)                      | 7.0  |
| Dry WT. (gm)                        | 96.6 |
| Moisture Content %                  | 7.2  |

| Swelling            |           |
|---------------------|-----------|
| Mold No.            | 6         |
| Date                | 21-3-2023 |
| Initial Height (mm) | 6.20      |
| Final Height (mm)   | 6.20      |
| Difference          | 0.0       |
| Sample Height (mm)  | 119.00    |
| Swelling Ratio %    | 0%        |

### Loading Reading :

|                   |       |       |       |       |       |       |       |       |       |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Penetration (mm)  | 0.64  | 1.27  | 1.91  | 2.54  | 3.18  | 3.80  | 4.45  | 5.00  | 6.40  |
| Load Reading (mm) | 0.030 | 0.060 | 0.100 | 0.160 | 0.210 | 0.270 | 0.320 | 0.370 | 0.460 |
| Load (KN)         | 0.9   | 1.8   | 3.0   | 4.8   | 6.3   | 8.1   | 9.6   | 11.1  | 13.8  |



### Calculations :-

| Penetration (mm) | Load (KN) | Standard Load (lb) | CBR (%) | Mold - Compaction (%) | Compaction (%) | CBR (%) |
|------------------|-----------|--------------------|---------|-----------------------|----------------|---------|
| 2.50             | 4.80      | 13.4               | 36.0%   | 98.8                  | 98             | 35.7%   |
| 5.00             | 11.10     | 20.0               | 55.4%   |                       |                | 55.0%   |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :



Youssef Ragab  
21/3/23





**Electric Express Train - HSR**  
**From El Aln El Sokhna City To El Alamein - MATROUH**  
**Section - 7 From FOKA To MARS MATROUH**  
**From Station 504+000 To Station 568+177**



**Opreating Lab**      **AL Nuby Central Lab**

**PARTICLE SIZE DISTRIBUTION OF SOIL**

|               |               |        |      |         |         |
|---------------|---------------|--------|------|---------|---------|
| TESTING DATE: | 30-3-2023     | Code   | zone | 545+000 | 545+500 |
| LOCATION      | K,P (545+300) | KF (6) |      |         |         |
| NAME COMPANY  | الكلاح        |        |      |         |         |

**1-visual inspection test**

**2-Gradient test**

| A-gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |        | 24168.00 |         | gm   | table classifi | soil classifi |
|-------------------------------|-------|--------|--------|-------------------|--------|----------|---------|------|----------------|---------------|
| sieve size                    | 2     | 1.5    | 1      | 4/3               | 2/1    | 8/3      | # 4     | PASS |                |               |
| Mass retained (g)             | 0.0   | 2060.0 | 2320.0 | 2155.0            | 2254.0 | 2133.0   | 2210.0  |      |                |               |
| Cumulative Retained (g)       | 0.0   | 2060.0 | 4380.0 | 6535.0            | 8789.0 | 10922.0  | 13132.0 |      | PRO            | 2.150         |
| Cumulative Retained %         | 0.0   | 8.5    | 18.1   | 27.0              | 36.4   | 45.2     | 54.3    |      | WC             | 6.80          |
| Cumulative Passing %          | 100.0 | 91.5   | 81.9   | 73.0              | 63.6   | 54.8     | 45.7    |      | CBR            | 66.10         |

| B-soft material gradation |       |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|-------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10    | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 58.00 | 181.00 | 378.00 |              |  |        |  |    |
| Cumulative Retained %     | 11.60 | 36.20  | 75.60  |              |  |        |  |    |
| Cumulative Passing %      | 88.40 | 63.80  | 24.40  |              |  |        |  |    |

| C-General gradient   |       |      |      |      |      |      |      |      |       |       |
|----------------------|-------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2     | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0  | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 91.5 | 81.9 | 73.0 | 63.6 | 54.8 | 45.7 | 40.4 | 29.1  | 11.1  |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|---------------------|----------------------|----------------------|
|                     | N.L                 | N.P                  | N.P                  |



**Consultant**  
*Youssef Rafab*



Youssef Rafab



|                                     |                             |                                                          |                                                                                               |
|-------------------------------------|-----------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <br>KKR<br>KKR<br>KKR               | <br>SVSUA<br>SVSUA<br>SVSUA | <h2 style="margin: 0;">Electric Express Train - HSR</h2> | <br>وزارة النقل والبنية التحتية<br>وزارة النقل والبنية التحتية<br>وزارة النقل والبنية التحتية |
| Operating Lab : AL Nuby Central Lab |                             |                                                          |                                                                                               |

### California Bearing Ratio TEST

|                |               |        |            |         |         |
|----------------|---------------|--------|------------|---------|---------|
| Testing Date : | 29-3-2023     | Code   | FROM STA : | 545+000 | 545+500 |
| Location :     | K,P (545+300) | KF (6) |            |         |         |
| Company Name   | الكفاح        |        |            |         |         |

#### Test Results

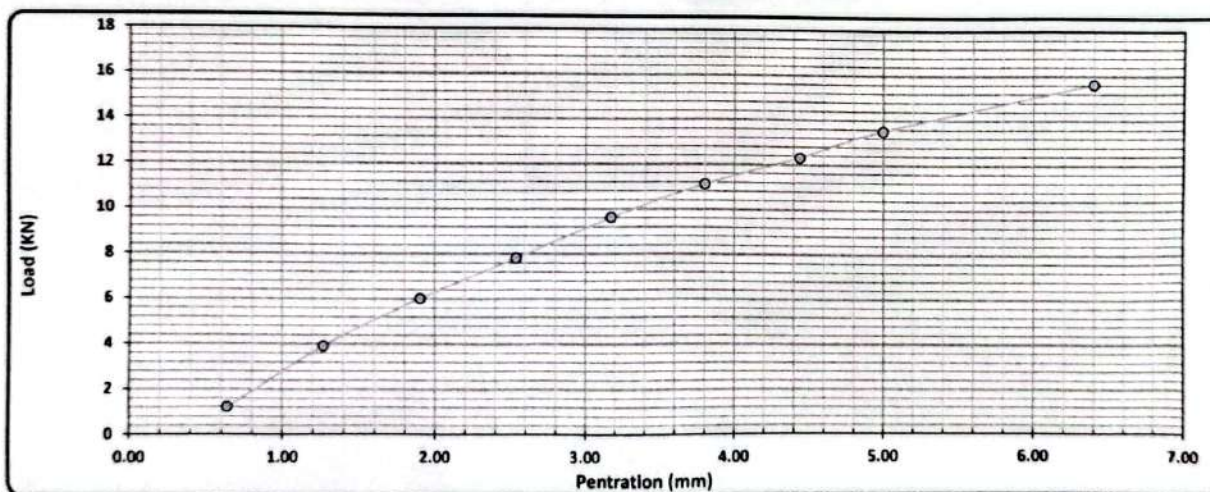
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 4     |
| Mold Vol. (cm <sup>3</sup> )         | 2140  |
| Mold WT. (gm)                        | 4900  |
| Mold WT. + Wet WT. (gm)              | 9820  |
| Wet WT. (gm)                         | 4920  |
| Wet Density (g/cm <sup>3</sup> )     | 2.299 |
| Dry Density (g/cm <sup>3</sup> )     | 2.153 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.153 |
| Compaction %                         | 100.0 |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 7     |
| Tare WT. (gm)                       | 42.8  |
| Tare WT. + Wet WT. (gm)             | 150   |
| Tare WT. + Dry WT. (gm)             | 143.2 |
| 3398                                | 6.8   |
| Dry WT. (gm)                        | 100.4 |
| Moisture Content %                  | 6.8   |

| Swelling            |           |
|---------------------|-----------|
| Mold No.            | 4         |
| Date                | 29-3-2023 |
| Initial Height (mm) | 6.00      |
| Final Height (mm)   | 6.00      |
| Difference          | 0         |
| Sample Height (mm)  | 120.00    |
| Swelling Ratio %    | 0.0%      |

#### Loading Reading :

|                   |      |      |      |      |      |      |      |      |      |
|-------------------|------|------|------|------|------|------|------|------|------|
| Petration (mm)    | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
| Load Reading (mm) | 0.04 | 0.13 | 0.20 | 0.26 | 0.32 | 0.37 | 0.41 | 0.45 | 0.52 |
| Load (KN)         | 1.2  | 3.9  | 6.0  | 7.8  | 9.6  | 11.1 | 12.3 | 13.5 | 15.6 |



#### Calculations :-

| Penetration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR            |
|-------------|-------|---------------|-------|-------------------|------------|----------------|
| (mm)        | (KN)  | (lb)          | (%)   | (%)               | (%)        | 98 عند نسبة 98 |
| 2.50        | 7.80  | 13.4          | 58.4% | 100               | 98         | 57.3%          |
| 5.00        | 13.50 | 20.0          | 67.4% |                   |            | 66.1%          |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Youssef Ragab



|                                                                                                                                                                  |                                                                                                                                               |                                                                                                                                                                                       |                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>أ.د. خالد قنديل | <br>Electric Express Train<br>القطار السريع<br>SYSTRA SHAKER | <b>Electric Express Train - HSR</b><br>From El Ain El Sokhna City To El Alamein - MATROUH<br><b>Section - 7 From FOKA To MARGA MATROUH</b><br>From Station 504+000 To Station 509+177 | <br>الهيئة العامة للقنوات<br>المجلس الأعلى للقنوات |
| Opreating Lab                                                                                                                                                    | AL Nuby Central Lab                                                                                                                           |                                                                                                                                                                                       |                                                                                                                                       |

### PARTICLE SIZE DISTRIBUTION OF SOIL

|               |               |        |      |         |         |
|---------------|---------------|--------|------|---------|---------|
| TESTING DATE: | 30-3-2023     | Code   |      |         |         |
| LOCATION      | K,P (545+300) | KF (7) | zone | 545+000 | 545+500 |
| NAME COMPANY  | الكفاح        |        |      |         |         |

#### 1-visual inspection test

#### 2-Gradient test

| A-gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |         | 34101.00 |         | gm   |     | table classify |
|-------------------------------|-------|--------|--------|-------------------|---------|----------|---------|------|-----|----------------|
| sieve size                    | 2     | 1.5    | 1      | 4/3               | 2/1     | 8/3      | # 4     | PASS |     | soil classify  |
| Mass retained (g)             | 0.0   | 2520.0 | 2652.0 | 2852.0            | 4436.0  | 4299.0   | 4180.0  |      |     | A-1-b          |
| Cumulative Retained (g)       | 0.0   | 2520.0 | 5172.0 | 8024.0            | 12460.0 | 16759.0  | 20939.0 |      | PRO | 2.145          |
| Cumulative Retained %         | 0.0   | 7.4    | 15.2   | 23.5              | 36.5    | 49.1     | 61.4    |      | WC  | 9.20           |
| Cumulative Passing %          | 100.0 | 92.6   | 84.8   | 76.5              | 63.5    | 50.9     | 38.6    |      | CBR | ✓ 59.3         |

| B-soft material gradation |       |       |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|-------|-------|--------|--------------|--|--------|--|----|
| sieve size                | 10    | 40    | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 37.80 | 42.40 | 323.50 |              |  |        |  |    |
| Cumulative Retained %     | 7.56  | 8.48  | 64.70  |              |  |        |  |    |
| Cumulative Passing %      | 92.44 | 91.52 | 35.30  |              |  |        |  |    |

| C-General gradient   |       |      |      |      |      |      |      |      |       |       |
|----------------------|-------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2     | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0  | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 92.6 | 84.8 | 76.5 | 63.5 | 50.9 | 38.6 | 35.7 | 35.3  | 13.6  |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|---------------------|----------------------|----------------------|
|                     | N.L                 | N.P                  | N.P                  |



Consultant  
Hassan  


## PROCTOR TEST

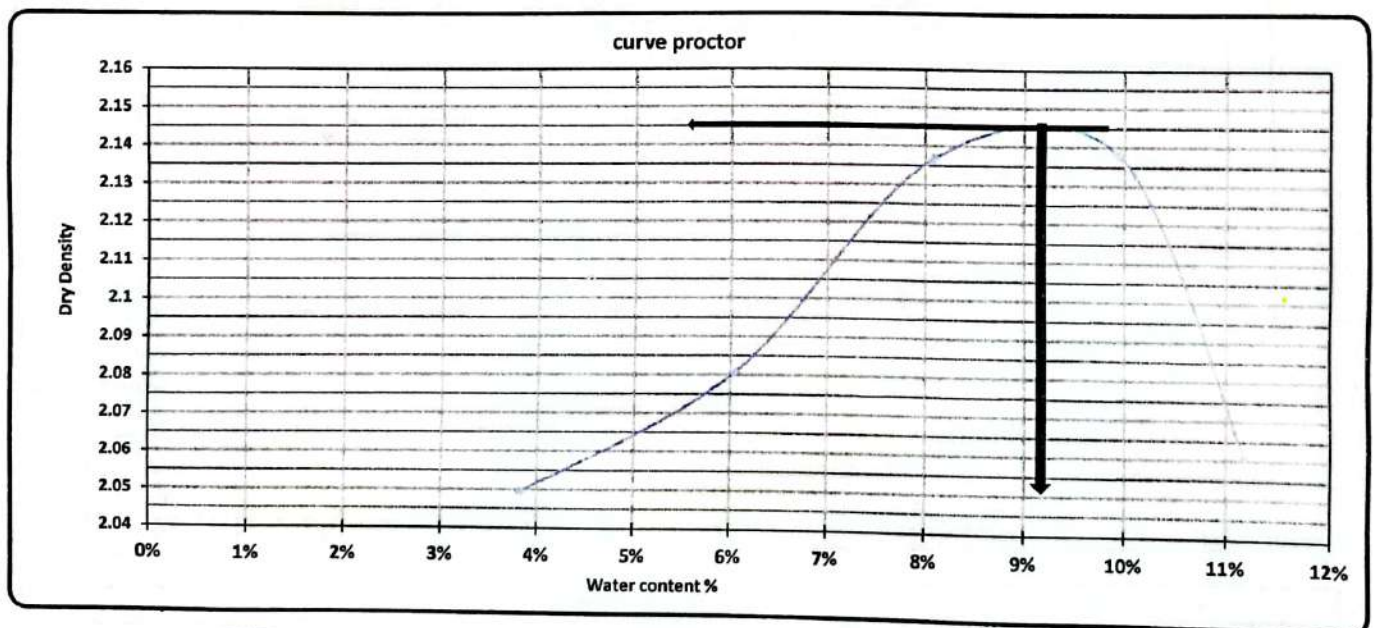
|               |               |        |      |         |         |
|---------------|---------------|--------|------|---------|---------|
| TESTING DATE: | 30-3-2023     | Code   | zone | 545+000 | 545+500 |
| LOCATION      | K,P (545+300) | KF (7) |      |         |         |
| NAME COMPANY  | الكفاح        |        |      |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 5750.0 |
| Mold Volume:           | 2169.0 |

|                 |       |
|-----------------|-------|
| MAX Dry Density | 2.145 |
| Water content % | 9.2   |

|                       |         |         |         |         |         |
|-----------------------|---------|---------|---------|---------|---------|
| trial no :            | 1       | 2       | 3       | 3       | 3       |
| Wt. Of Mold+ wet soil | 10365.0 | 10536.0 | 10759.0 | 10848.0 | 10720.0 |
| WT. WET SOIL          | 4615.0  | 4786.0  | 5009.0  | 5098.0  | 4970.0  |
| Wt. Density           | 2.128   | 2.207   | 2.309   | 2.350   | 2.291   |

|                        |       |       |       |       |       |       |       |       |       |       |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Tare No.               | 40    | 16    | 36    | 37    | 35    | 31    | 90    | 17    | 45    | 10    |
| Tare wt.               | 46.6  | 33.9  | 80.3  | 79.4  | 81.9  | 80.4  | 62.5  | 59.5  | 41.5  | 43.7  |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| Wt. Of dry soil & tare | 146.4 | 145.5 | 145.9 | 146.1 | 144.9 | 144.8 | 142.1 | 141.8 | 138.9 | 139.5 |
| Wt. Of water           | 3.6   | 4.5   | 4.1   | 3.9   | 5.1   | 5.2   | 7.9   | 8.2   | 11.1  | 10.5  |
| Wt. Of dry soil        | 99.8  | 111.6 | 65.6  | 66.7  | 63.0  | 64.4  | 79.6  | 82.3  | 97.4  | 95.8  |
| Water content %        | 3.6%  | 4.0%  | 6.2%  | 5.8%  | 8.1%  | 8.1%  | 9.9%  | 10.0% | 11.4% | 11.0% |
| AV. Water content %    | 3.8%  | 6.0%  | 8.1%  | 9.9%  | 11.2% |       |       |       |       |       |
| Dry Density            | 2.049 | 2.081 | 2.137 | 2.138 | 2.061 |       |       |       |       |       |



Consultant





## Electric Express Train - HSR

الهيئة العامة للنقل  
السلطنة السودانية

Operating Lab

AL Nuby Central Lab

### California Bearing Ratio TEST

|                |               |        |            |         |         |
|----------------|---------------|--------|------------|---------|---------|
| Testing Date : | 03-04-2023    | Code   |            |         |         |
| Location :     | K,P (545+300) |        | FROM STA : | 545+000 | 545+500 |
| Company Name   | الكفاح        | KF (7) |            |         |         |

#### - : Test Results

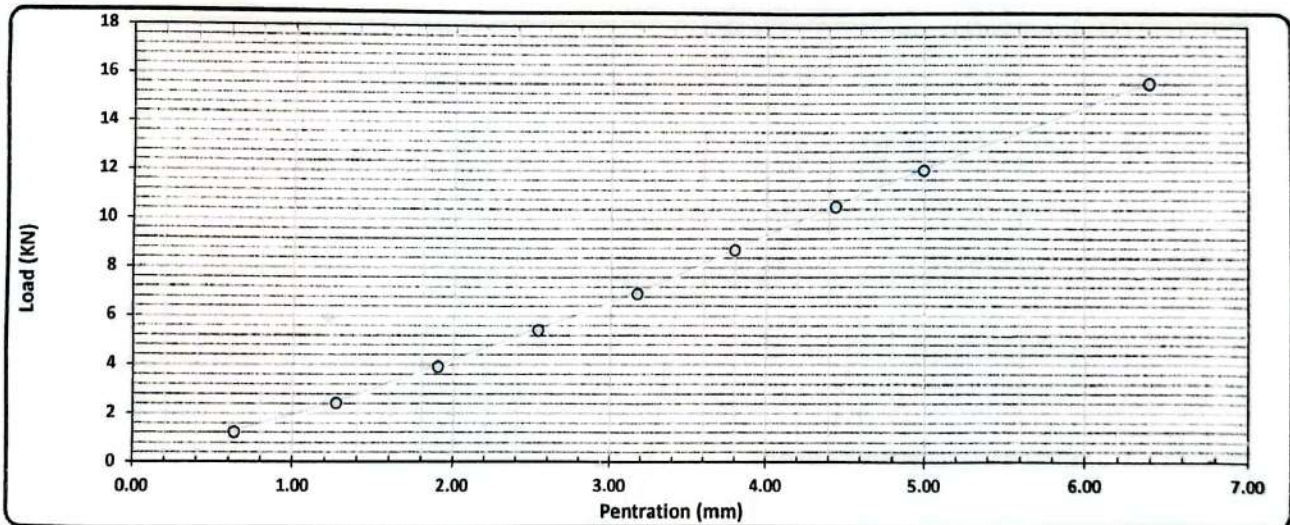
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 4     |
| Mold Vol. (cm <sup>3</sup> )         | 2140  |
| Mold WT. (gm)                        | 4900  |
| Mold WT. + Wet WT. (gm)              | 9833  |
| Wet WT. (gm)                         | 4933  |
| Wet Density (g/cm <sup>3</sup> )     | 2.305 |
| Dry Density (g/cm <sup>3</sup> )     | 2.123 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.145 |
| Compaction %                         | 99.0  |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 10    |
| Tare WT. (gm)                       | 43.7  |
| Tare WT. +Wet WT. (gm)              | 150   |
| Tare WT. +Dry WT. (gm)              | 141.6 |
| 3398                                | 8.4   |
| Dry WT. (gm)                        | 97.9  |
| Moisture Content %                  | 8.6   |

| Swelling            |            |
|---------------------|------------|
| Mold No.            | 4          |
| Date                | 03-04-2023 |
| Initial Height (mm) | 4.00       |
| Final Height (mm)   | 4.00       |
| Difference          | 0          |
| Sample Height (mm)  | 120.00     |
| Swelling Ratio %    | 0.0%       |

#### Loading Reading :

|                   |      |      |      |      |      |      |      |      |      |
|-------------------|------|------|------|------|------|------|------|------|------|
| Pentration (mm)   | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
| Load Reading (mm) | 0.04 | 0.08 | 0.13 | 0.18 | 0.23 | 0.29 | 0.35 | 0.40 | 0.52 |
| Load (KN)         | 1.2  | 2.4  | 3.9  | 5.4  | 6.9  | 8.7  | 10.5 | 12.0 | 15.6 |



#### Calculations :-

| Pentration (mm) | Load (Kn) | Standard Load (lb) | CBR (%) | Mold - Compaction (%) | Compaction (%) | CBR % عند نسبة 98 |
|-----------------|-----------|--------------------|---------|-----------------------|----------------|-------------------|
| 2.50            | 5.40      | 13.4               | 40.4%   | 99                    | 98             | 40.1%             |
| 5.00            | 12.00     | 20.0               | 59.9%   |                       |                | 59.3%             |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

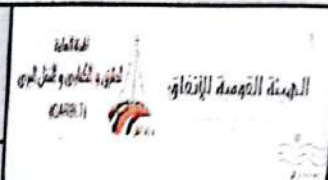
Name :

Sign :





**Electric Express Train - HSR**  
**From El Ain El Sokhna City To El Alamein - MATROUH**  
**Section - 7 From FOKA To MARSA MATROUH**  
**From Station 504+000 To Station 568+177**



## PARTICLE SIZE DISTRIBUTION OF SOIL

|               |              |      |      |         |         |
|---------------|--------------|------|------|---------|---------|
| TESTING DATE: | 5/4/2023     | code | ZONE | 545+000 | 545+500 |
| LOCATION      | K.P(545+300) | KF-8 |      |         |         |
| NAME COMPANY  | EL KEFAH     |      |      |         |         |

1-visual inspection test

2-Gradient test

| A-gradation of bulk materials |       |       |        | SAMPLE WEIGHT [g] |        | 17540.00 |         | gm   | table classify |
|-------------------------------|-------|-------|--------|-------------------|--------|----------|---------|------|----------------|
| sieve size                    | 2     | 1.5   | 1      | 4/3               | 2/1    | 8/3      | # 4     | PASS | soil classify  |
| Mass retained (g)             | 212.0 | 305.0 | 1024.0 | 1845.0            | 2845.0 | 2719.0   | 2454.0  |      | A-1-a          |
| Cumulative Retained (g)       | 212.0 | 517.0 | 1541.0 | 3386.0            | 6231.0 | 8950.0   | 11404.0 |      | PRO 2.170      |
| Cumulative Retained %         | 1.2   | 2.9   | 8.8    | 19.3              | 35.5   | 51.0     | 65.0    |      | WC 6.7%        |
| Cumulative Passing %          | 98.8  | 97.1  | 91.2   | 80.7              | 64.5   | 49.0     | 35.0    |      | CBR 54.5%      |

| B-soft material gradation |        |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|--------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10     | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 100.00 | 204.00 | 355.00 |              |  |        |  |    |
| Cumulative Retained %     | 20.00  | 40.80  | 71.00  |              |  |        |  |    |
| Cumulative Passing %      | 80.00  | 59.20  | 29.00  |              |  |        |  |    |

| C-General gradient   |      |      |      |      |      |      |      |      |       |       |
|----------------------|------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2    | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 98.8 | 97.1 | 91.2 | 80.7 | 64.5 | 49.0 | 35.0 | 28.0 | 20.7  | 10.1  |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |

| ATTERBERG LIMTS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|-----------------|---------------------|----------------------|----------------------|
|                 | N.P                 | N.P                  | N.P                  |

Contractor

Consultant

*[Signature]*  
 مهندس الاستشاري  
 محمد عبد الله  
 القحطاني

*Khaled Zaki*



## PROCTOR TEST

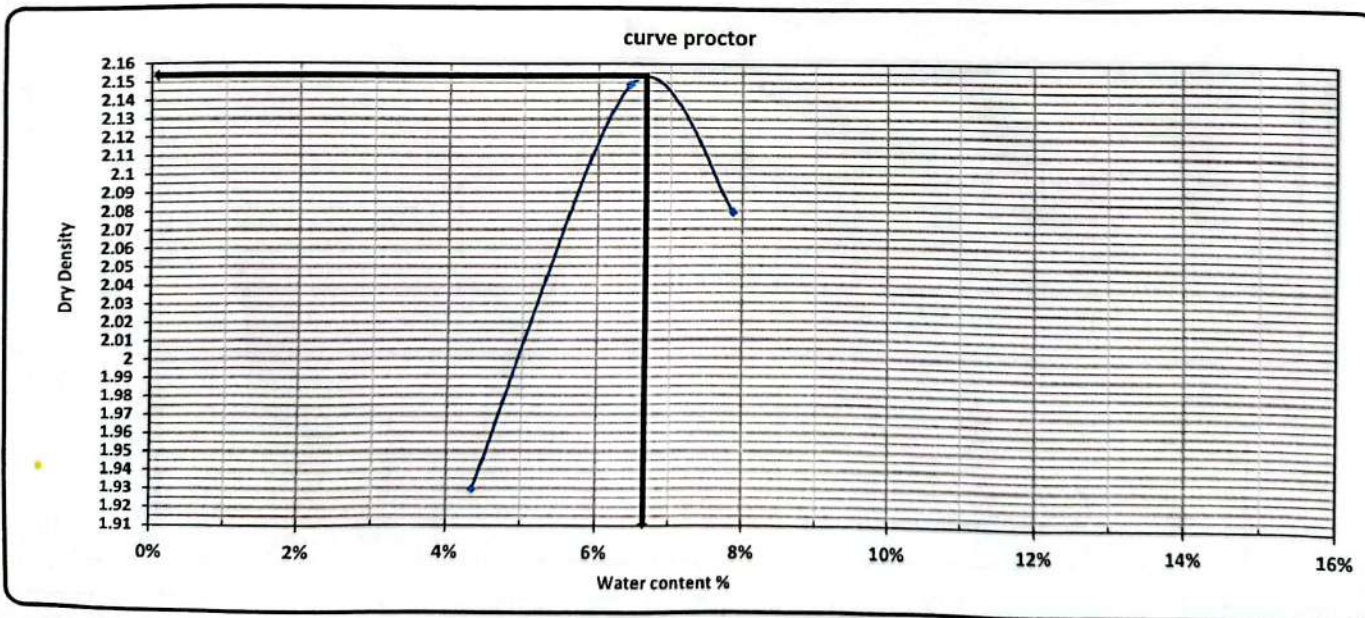
|               |               |      |      |         |         |
|---------------|---------------|------|------|---------|---------|
| TESTING DATE: | 2023/03/03    | code |      |         |         |
| LOCATION      | K.P.(545+000) | KF-2 | ZONE | 545+000 | 545+500 |
| NAME COMPANY  | EL KEFAH      |      |      |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 6050.0 |
| Mold Volume:           | 2032.0 |

|                 |       |
|-----------------|-------|
| MAX Dry Density | 2.152 |
| Water content % | 6.8%  |

|                       |         |         |         |   |   |
|-----------------------|---------|---------|---------|---|---|
| trial no :            | 1       | 2       | 3       | 4 | 5 |
| Wt. Of Mold+ wet soil | 10142.4 | 10698.0 | 10607.8 |   |   |
| WT. WET SOIL          | 4092.4  | 4648.0  | 4557.8  |   |   |
| Wt. Density           | 2.014   | 2.287   | 2.243   |   |   |

|                        |       |        |        |        |        |        |  |  |  |
|------------------------|-------|--------|--------|--------|--------|--------|--|--|--|
| Tare No.               | 1     | 2      | 3      | 4      | 5      | 6      |  |  |  |
| Tare wt.               | 20.21 | 28.87  | 30.88  | 28.86  | 29.66  | 30.57  |  |  |  |
| Wt. Of wet soil & tare | 134.9 | 155.76 | 156.87 | 160.32 | 166.87 | 166.87 |  |  |  |
| Wt. Of dry soil & tare | 130.2 | 150.32 | 148.96 | 152.65 | 157.18 | 156.61 |  |  |  |
| Wt. Of water           | 4.7   | 5.4    | 7.9    | 7.7    | 9.7    | 10.3   |  |  |  |
| Wt. Of dry soil        | 110.0 | 121.5  | 118.1  | 123.8  | 127.5  | 126.0  |  |  |  |
| Water content %        | 4.2%  | 4.5%   | 6.7%   | 6.2%   | 7.6%   | 8.1%   |  |  |  |
| AV. Water content %    | 4.4%  | 6.4%   | 7.9%   |        |        |        |  |  |  |
| Dry Density            | 1.930 | 2.149  | 2.079  |        |        |        |  |  |  |



Contractor

Shady A. Mohamed

معمل اختبارات وإعدادات التربة

القطاع السابع - فوكا - مطروح

Consultant

Youssef R. El-Sayed

21/3/2023



## California Bearing Ratio TEST

|                |              |      |      |         |         |
|----------------|--------------|------|------|---------|---------|
| Testing Date : | 5/3/2023     | Code | zone | 545+000 | 545+500 |
| Location :     | K.P(545+000) | KF-2 |      |         |         |
| Layer No. :    | EL KEFAH     |      |      |         |         |

### :- Test Results

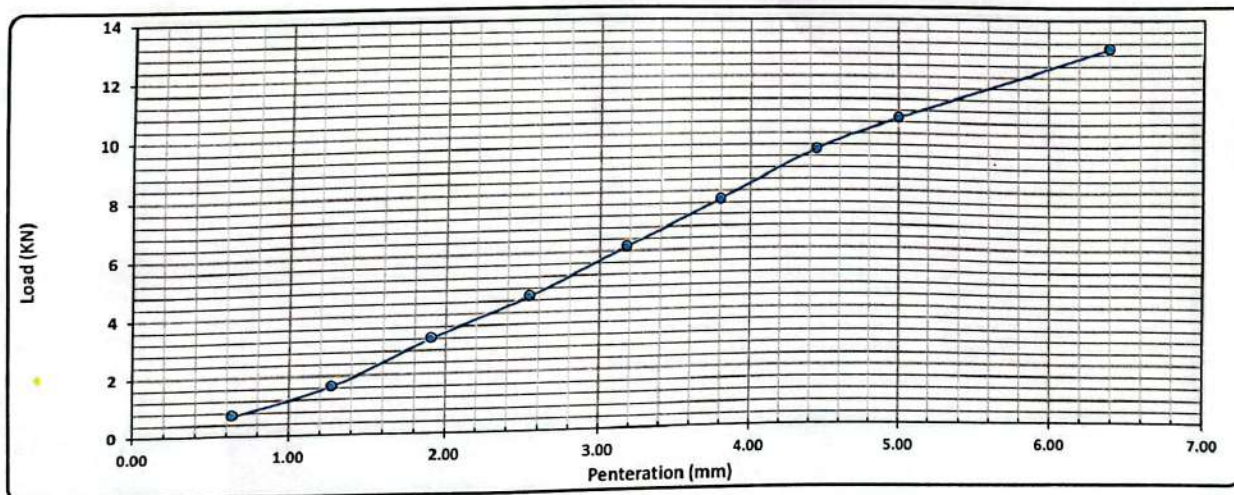
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 55    |
| Mold Vol. (cm <sup>3</sup> )         | 2151  |
| Mold WT. (gm)                        | 15700 |
| Mold WT. + Wet WT. (gm)              | 20815 |
| Wet WT. (gm)                         | 5115  |
| Wet Density (g/cm <sup>3</sup> )     | 2.378 |
| Dry Density (g/cm <sup>3</sup> )     | 2.227 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.152 |
| Compaction %                         | 98    |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 5     |
| Tare WT. (gm)                       | 31    |
| Tare WT. +Wet WT. (gm)              | 233   |
| Tare WT. +Dry WT. (gm)              | 222   |
| Water WT. (gm)                      | 11.0  |
| Dry WT. (gm)                        | 191.0 |
| Moisture Content %                  | 6.8   |

| Swelling            |    |
|---------------------|----|
| Mold No.            | 55 |
| Date                |    |
| Initial Height (mm) |    |
| Final Height (mm)   |    |
| Difference          |    |
| Sample Height (mm)  |    |
| Swelling Ratio %    |    |

### Loading Reading :

|                   |       |        |        |        |        |        |        |         |         |
|-------------------|-------|--------|--------|--------|--------|--------|--------|---------|---------|
| Pentration (mm)   | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45   | 5.00    | 6.40    |
| Load Reading (kg) | 73.00 | 170.00 | 329.00 | 465.00 | 628.00 | 788.00 | 964.00 | 1077.00 | 1328.00 |
| Load (KN)         | 0.7   | 1.7    | 3.2    | 4.6    | 6.2    | 7.7    | 9.4    | 10.6    | 13.0    |



### Calculations :-

| Pentration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR           |
|------------|-------|---------------|-------|-------------------|------------|---------------|
| (mm)       | (Kn)  | (lb)          | ( % ) | ( % )             | ( % )      | عند نسبة 98 % |
| 2.50       | 4.56  | 13.4          | 34.1% | 99                | 98         | 33.8%         |
| 5.00       | 10.55 | 20.0          | 52.7% |                   |            | 52.2%         |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :

Youssef Rafab  
7/3/23



Consultant  
Kheir al Zaki



|                                                                                                                                                                         |                                                                                                   |                                     |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>ا. د. خالد عبد الجليل | <br>SVSFA SHARAH | <b>Electric Express Train - HSR</b> | المهندس<br>المهندس الاستشاري<br>(HABIT)<br> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

### California Bearing Ratio TEST

|                |              |      |             |                |                |
|----------------|--------------|------|-------------|----------------|----------------|
| Testing Date : | 7/4/2023     | Code | <b>zone</b> | <b>545+000</b> | <b>545+500</b> |
| Location :     | K.P(545+300) | KF-8 |             |                |                |
| Layer No. :    | EL KEFAH     |      |             |                |                |

#### Test Results

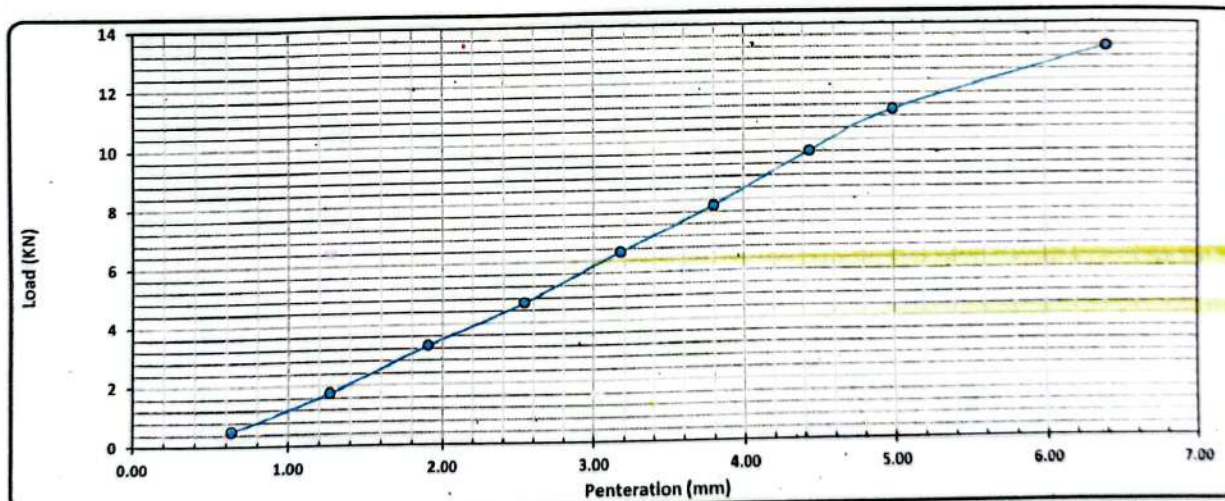
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 55    |
| Mold Vol. (cm <sup>3</sup> )         | 2151  |
| Mold WT. (gm)                        | 15700 |
| Mold WT. + Wet WT. (gm)              | 20815 |
| Wet WT. (gm)                         | 5115  |
| Wet Density (g/cm <sup>3</sup> )     | 2.378 |
| Dry Density (g/cm <sup>3</sup> )     | 2.229 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.170 |
| Compaction %                         | 98    |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 5     |
| Tare WT. (gm)                       | 31    |
| Tare WT. + Wet WT. (gm)             | 233   |
| Tare WT. + Dry WT. (gm)             | 222   |
| Water WT. (gm)                      | 11.0  |
| Dry WT. (gm)                        | 191.0 |
| Moisture Content %                  | 6.7   |

| Swelling            |          |
|---------------------|----------|
| Mold No.            | 55       |
| Date                | 7/4/2023 |
| Initial Height (mm) | 2.10     |
| Final Height (mm)   | 2.10     |
| Difference          | 0        |
| Sample Height (mm)  | 124.00   |
| Swelling Ratio %    | 0%       |

#### Loading Reading :

|                   |       |        |        |        |        |        |        |         |         |
|-------------------|-------|--------|--------|--------|--------|--------|--------|---------|---------|
| Penetration (mm)  | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45   | 5.00    | 6.40    |
| Load Reading (kg) | 51.00 | 180.00 | 335.00 | 475.00 | 641.00 | 796.00 | 981.00 | 1125.00 | 1342.00 |
| Load (KN)         | 0.5   | 1.8    | 3.3    | 4.7    | 6.3    | 7.8    | 9.6    | 11.0    | 13.2    |



#### Calculations :-

| Penetration | Load  | Standard Load | CBR   | Mold - Compaction | Compaction | CBR       |
|-------------|-------|---------------|-------|-------------------|------------|-----------|
| (mm)        | (Kn)  | (lb)          | ( % ) | ( % )             | ( % )      | نسبة 98 % |
| 2.50        | 4.66  | 13.4          | 34.9% | 99                | 98         | 34.5%     |
| 5.00        | 11.03 | 20.0          | 55.1% |                   |            | 54.5%     |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :

Khalid Zaki





**Electric Express Train - HSR**  
**From El Ain El Sokhna City To El Alamein - MATROUH**  
**Section - 7 From FOKA To MARSALA MATROUH**  
**From Station 504+000 To Station 568+177**



### PARTICLE SIZE DISTRIBUTION OF SOIL

|               |              |      |      |         |         |
|---------------|--------------|------|------|---------|---------|
| TESTING DATE: | 11/4/2023    | code |      |         |         |
| LOCATION      | K.P(545+300) |      | ZONE | 545+000 | 545+500 |
| NAME COMPANY  | EL KEFAH     | KF-9 |      |         |         |

#### 1-visual inspection test

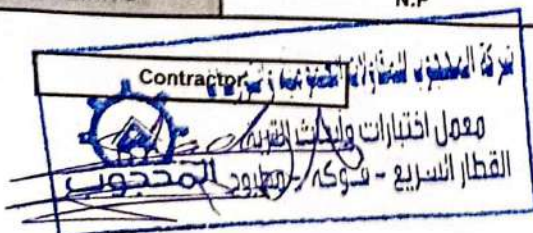
#### 2-Gradient test

| A-gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |        | 23094.00 |         | gm   | table classify |
|-------------------------------|-------|--------|--------|-------------------|--------|----------|---------|------|----------------|
| sieve size                    | 2     | 1.5    | 1      | 4/3               | 2/1    | 8/3      | # 4     | PASS | soil classify  |
| Mass retained (g)             | 564.0 | 1845.0 | 2015.0 | 1354.0            | 2019.0 | 2154.0   | 1843.0  |      | A-1-a          |
| Cumulative Retained (g)       | 564.0 | 2409.0 | 4424.0 | 5778.0            | 7797.0 | 9951.0   | 11794.0 | PRO  | 2.150          |
| Cumulative Retained %         | 2.4   | 10.4   | 19.2   | 25.0              | 33.8   | 43.1     | 51.1    | WC   | 6.40           |
| Cumulative Passing %          | 97.6  | 89.6   | 80.8   | 75.0              | 66.2   | 56.9     | 48.9    | CBR  | 41.90          |

| B-soft material gradation |        |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|--------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10     | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 121.00 | 238.00 | 351.00 |              |  |        |  |    |
| Cumulative Retained %     | 24.20  | 47.60  | 70.20  |              |  |        |  |    |
| Cumulative Passing %      | 75.80  | 52.40  | 29.80  |              |  |        |  |    |

| C-General gradient   |      |      |      |      |      |      |      |      |       |       |
|----------------------|------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2    | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 97.6 | 89.6 | 80.8 | 75.0 | 66.2 | 56.9 | 48.9 | 37.1 | 25.6  | 14.6  |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|---------------------|----------------------|----------------------|
|                     | N.P                 | N.P                  | N.P                  |



Consultant

14/4/2023  
 م. أحمد  
 م. Attia  
 14/4/2023



## PROCTOR TEST

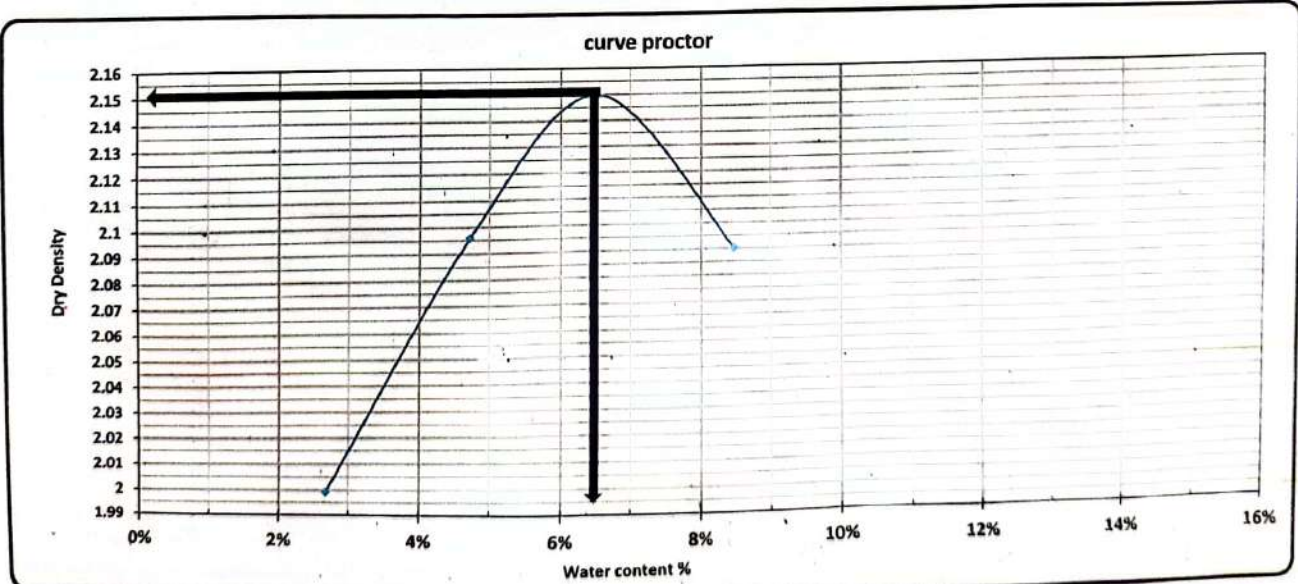
|               |              |      |      |         |         |
|---------------|--------------|------|------|---------|---------|
| TESTING DATE: | 13/4/2023    | code |      |         |         |
| LOCATION      | K.P(545+300) | KF-9 | ZONE | 545+000 | 545+500 |
| NAME COMPANY  | EL KEFAH     |      |      |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 6074.0 |
| Mold Volume:           | 2032.0 |

|                 |      |
|-----------------|------|
| MAX Dry Density | 2.15 |
| Water content % | 6.4  |

|                       |         |         |         |        |  |
|-----------------------|---------|---------|---------|--------|--|
| trial no :            | 1       | 2       | 3       | 4      |  |
| Wt. Of Mold+ wet soil | 10245.0 | 10534.0 | 10728.0 | 10681  |  |
| WT. WET SOIL          | 4171.0  | 4460.0  | 4654.0  | 4607.0 |  |
| Wt. Density           | 2.053   | 2.195   | 2.290   | 2.267  |  |

|                        |       |       |       |       |       |       |       |       |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| Tare No.               | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |  |  |
| Tare wt.               | 30.25 | 28.94 | 33.13 | 29.16 | 25.15 | 35.12 | 33.76 | 15.91 |  |  |
| Wt. Of wet soil & tare | 135.1 | 145.3 | 141.8 | 135.3 | 151.0 | 165.3 | 139.5 | 131.2 |  |  |
| Wt. Of dry soil & tare | 132.6 | 142.1 | 137.1 | 130.3 | 143.5 | 157.1 | 131.4 | 122.0 |  |  |
| Wt. Of water           | 2.5   | 3.2   | 4.7   | 5.0   | 7.5   | 8.2   | 8.1   | 9.2   |  |  |
| Wt. Of dry soil        | 102.3 | 113.1 | 104.0 | 101.1 | 118.3 | 121.9 | 97.6  | 106.1 |  |  |
| Water content %        | 2.5%  | 2.9%  | 4.5%  | 4.9%  | 6.3%  | 6.7%  | 8.3%  | 8.7%  |  |  |
| AV. Water content %    | 2.7%  | 4.7%  | 6.5%  | 8.5%  |       |       |       |       |  |  |
| Dry Density            | 1.999 | 2.096 | 2.150 | 2.090 |       |       |       |       |  |  |



**Contractor**  
معمل اختبارات التربة  
القطار السريع - فوكا - مطروح - مصر

**Consultant**  
م.ع. خالد فهد  
م.ع. خالد فهد  
14/4/2023



### California Bearing Ratio TEST

|                |               |      |            |         |         |
|----------------|---------------|------|------------|---------|---------|
| Testing Date : | 14/4/2023     | Code | FROM STA : | 545+000 | 545+500 |
| Location :     | ((K.P)545+300 | KF-9 |            |         |         |
| Layer No. :    | EL KEFAH      |      |            |         |         |

### • : Test Results

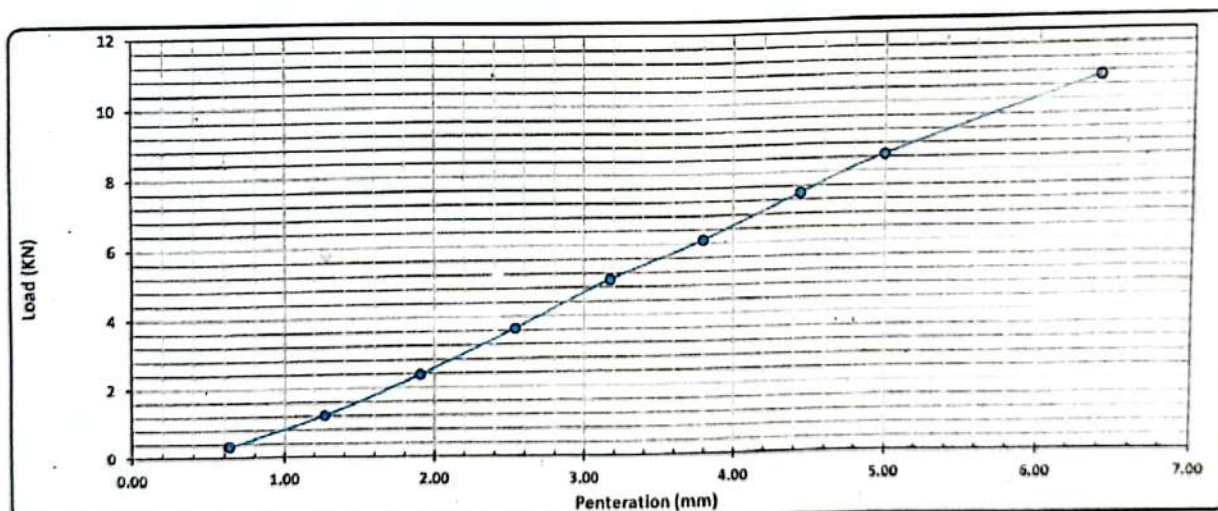
| Compaction % for Mold                |          |
|--------------------------------------|----------|
| Mold No.                             | 55       |
| Mold Vol. (cm <sup>3</sup> )         | 2151     |
| Mold WT. (gm)                        | 15700    |
| Mold WT. + Wet WT. (gm)              | 20473.58 |
| Wet WT. (gm)                         | 4774     |
| Wet Density (g/cm <sup>3</sup> )     | 2.219    |
| Dry Density (g/cm <sup>3</sup> )     | 2.086    |
| Proctor Density (g/cm <sup>3</sup> ) | 2.150    |
| Compaction %                         | 98       |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 5     |
| Tare WT. (gm)                       | 31    |
| Tare WT. +Wet WT. (gm)              | 233   |
| Tare WT. +Dry WT. (gm)              | 221   |
| Water WT. (gm)                      | 12.0  |
| Dry WT. (gm)                        | 190.0 |
| Moisture Content %                  | 6.4   |
|                                     |       |

| Swelling            |            |
|---------------------|------------|
| Mold No.            | 55         |
| Date                | 14-07-2023 |
| Initial Height (mm) | 4.70       |
| Final Height (mm)   | 4.70       |
| Difference          | 0          |
| Sample Height (mm)  | 119.00     |
| Swelling Ratio %    | 0%         |

**Loading Reading :**

|                   |       |        |        |        |        |        |        |        |         |
|-------------------|-------|--------|--------|--------|--------|--------|--------|--------|---------|
| Penetration (mm)  | 0.64  | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45   | 5.00   | 6.40    |
| Load Reading (kg) | 33.00 | 123.00 | 241.00 | 372.00 | 511.00 | 621.00 | 754.00 | 865.00 | 1088.00 |
| Load (KN)         | 0.3   | 1.2    | 2.4    | 3.6    | 5.0    | 6.1    | 7.4    | 8.5    | 10.7    |



**Calculations :-**

| Penetration | Load              | Standard Load | CBR   | Mold - Compaction | Compaction | CBR            |
|-------------|-------------------|---------------|-------|-------------------|------------|----------------|
| (mm)        | (K <sub>N</sub> ) | (lb)          | ( % ) | ( % )             | ( % )      | نسبة القوة (%) |
| 2.50        | 3.65              | 13.4          | 27.3% | 99                | 98         | 27.0%          |
| 5.00        | 8.48              | 20.0          | 42.3% |                   |            | 41.9%          |

Lab. Specialist

Name : \_\_\_\_\_

**Sign :**

T.O. Engineer  
 مرفقة المهندس المهندس المهندس  
 معمل اختبارات واختبار القيمة  
 القطار السريع - فوكه - مطروح  
 المحبوب

Consultant Engineer

Name: \_\_\_\_\_

**Sign :**

Consultant Engineer  
 [Signature]  
 14/4/2023



### Plate Load Test Results

Company Name

### Location

Taste Date

### Layer level

الكفاح

 $545+260$ 

13-4-2023

-1.5

To

 $545+400$ 

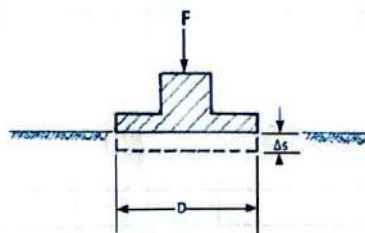
Station

 $545+280$ 

### EQUIPMENT AND TEST PROCEDURE :-

The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.

The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.

 $F = \text{load}$  $\Delta_s$  = settlement

$D$  = diameter of the plate

The diameter  $D$  of the plate is generally 0.30 m. For very coarse grained material also plates with diameter  $D = 0.60$  m and  $D = 0.762$  m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end ( $< 0.02$  mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

**Diameter = 300mm**

| Loading   | Load  | Load   | Stress | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Avg. Sett. |
|-----------|-------|--------|--------|--------|--------|--------|---------|---------|---------|------------|
| Stage No. | Bar   | KN     | MN/M2  | mm     | mm     | mm     | mm      | mm      | mm      | mm         |
| 0.000     | 0.0   | 0.000  | 0.00   | 13.55  | 15.10  |        | 0.000   | 0.000   |         | 0.000      |
| 1.000     | 2.4   | 0.707  | 0.01   | 13.40  | 15.00  |        | 0.150   | 0.100   |         | 0.125      |
| 2.000     | 18.8  | 5.652  | 0.08   | 13.10  | 14.80  |        | 0.450   | 0.300   |         | 0.375      |
| 0.080     | 37.7  | 11.304 | 0.16   | 12.85  | 14.68  |        | 0.700   | 0.420   |         | 0.560      |
| 4.000     | 58.9  | 17.663 | 0.25   | 12.65  | 14.60  |        | 0.900   | 0.500   |         | 0.700      |
| 5.000     | 77.7  | 23.315 | 0.33   | 12.40  | 14.50  |        | 1.150   | 0.600   |         | 0.875      |
| 6.000     | 98.9  | 29.673 | 0.42   | 12.25  | 14.45  |        | 1.300   | 0.650   |         | 0.975      |
| 7.000     | 117.8 | 35.325 | 0.50   | 12.05  | 14.20  |        | 1.500   | 0.900   |         | 1.200      |
| 8.000     | 58.9  | 17.663 | 0.25   | 12.15  | 14.42  |        | 1.400   | 0.680   |         | 1.040      |
| 9.000     | 29.4  | 8.831  | 0.12   | 12.25  | 14.46  |        | 1.300   | 0.640   |         | 0.970      |
| 9.000     | 2.4   | 0.707  | 0.01   | 12.80  | 14.78  |        | 0.750   | 0.320   |         | 0.535      |
| 10.000    | 2.4   | 0.707  | 0.01   | 12.80  | 14.78  |        | 0.750   | 0.320   |         | 0.535      |
| 11.000    | 18.8  | 5.652  | 0.08   | 12.50  | 14.62  |        | 1.050   | 0.480   |         | 0.765      |
| 12.000    | 37.7  | 11.304 | 0.16   | 12.37  | 14.50  |        | 1.180   | 0.600   |         | 0.890      |
| 13.000    | 58.9  | 17.663 | 0.25   | 12.25  | 14.40  |        | 1.300   | 0.700   |         | 1.000      |
| 14.000    | 77.7  | 23.315 | 0.33   | 12.14  | 14.30  |        | 1.410   | 0.800   |         | 1.105      |
| 15.000    | 98.9  | 29.673 | 0.42   | 12.02  | 14.20  |        | 1.530   | 0.900   |         | 1.215      |

|                    |         |         |         |     |
|--------------------|---------|---------|---------|-----|
|                    |         | s       | ΔS      | Δσ  |
| 0.7 σ <sub>1</sub> | 0.35    | 0.77813 | 0.24125 | 0.2 |
| 0.3 σ <sub>1</sub> | 0.15    | 0.53688 |         |     |
| 0.7σ <sub>2</sub>  | 0.35    | 1.12944 | 0.13442 | 0.2 |
| 0.3σ <sub>2</sub>  | 0.15    | 0.99502 |         |     |
| D (mm)             | 300     |         |         |     |
| Ev <sub>1</sub>    | 186.53  |         |         |     |
| Ev <sub>2</sub>    | 334.77  |         |         |     |
| Area ( Sq.m)       | 0.97065 |         |         |     |

|         |      |  |  |
|---------|------|--|--|
| Ev2/Ev1 | 1.79 |  |  |
|---------|------|--|--|

$$E_s = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

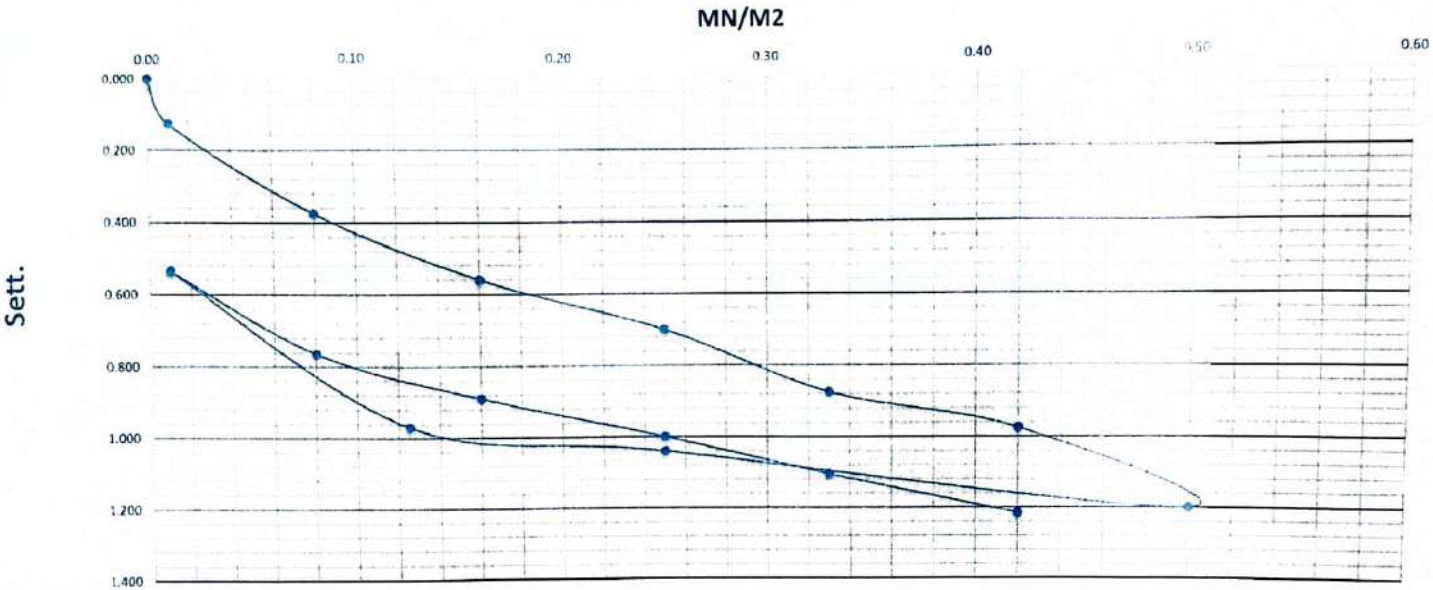
$E_{\text{c}}$  = deformation modulus

 $\Delta\sigma$  = load increment $\Delta s$  = settlement increment

$D$  = diameter of the plate, generally 0.30 m



For this calculation  $\Delta\sigma$  and  $\Delta s$  are usually taken from the load span between  $0.3 \sigma_{max}$  and  $0.7 \sigma_{max}$ .



Lab. Specialist

Name :

Sign :

Lab. Engineer

Name

Sign :



Consultant Engineer

Name :

Sign :

Michael Zaki

## Plate Load Test Results

Layer:

-1.5

Station:

545+400

TO

545+500

Date:

11/4/2023

COMPANY

EL KEFAH

SAMPLE LOCATION

545+450

| Loading   | Load  | Load   | Stress            | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Avg. Sett. |
|-----------|-------|--------|-------------------|--------|--------|--------|---------|---------|---------|------------|
| Stage No. | Bar   | KN     | MN/M <sup>2</sup> | mm     | mm     | mm     | mm      | mm      | mm      | mm         |
| 0.000     | 0.0   | 0.000  | 0.00              | 16.20  | 15.80  |        | 0.000   | 0.000   |         | 0.000      |
| 1.000     | 2.4   | 0.707  | 0.01              | 15.91  | 15.60  |        | 0.290   | 0.200   |         | 0.245      |
| 2.000     | 18.8  | 5.652  | 0.08              | 15.55  | 15.45  |        | 0.650   | 0.350   |         | 0.500      |
| 0.080     | 37.7  | 11.304 | 0.16              | 15.10  | 15.40  |        | 1.100   | 0.400   |         | 0.750      |
| 4.000     | 58.9  | 17.663 | 0.25              | 14.75  | 15.21  |        | 1.450   | 0.590   |         | 1.020      |
| 5.000     | 77.7  | 23.315 | 0.33              | 14.54  | 14.90  |        | 1.660   | 0.900   |         | 1.280      |
| 6.000     | 98.9  | 29.673 | 0.42              | 14.15  | 14.70  |        | 2.050   | 1.100   |         | 1.575      |
| 7.000     | 117.8 | 35.325 | 0.50              | 13.90  | 14.42  |        | 2.300   | 1.380   |         | 1.840      |
| 8.000     | 58.9  | 17.663 | 0.25              | 14.00  | 14.60  |        | 2.200   | 1.200   |         | 1.700      |
| 9.000     | 29.4  | 8.831  | 0.12              | 14.15  | 14.75  |        | 2.050   | 1.050   |         | 1.550      |
| 9.000     | 2.4   | 0.707  | 0.01              | 14.65  | 15.15  |        | 1.550   | 0.650   |         | 1.100      |
| 10.000    | 2.4   | 0.707  | 0.01              | 14.65  | 15.15  |        | 1.550   | 0.650   |         | 1.100      |
| 11.000    | 18.8  | 5.652  | 0.08              | 14.59  | 15.00  |        | 1.610   | 0.800   |         | 1.205      |
| 12.000    | 37.7  | 11.304 | 0.16              | 14.48  | 14.90  |        | 1.720   | 0.900   |         | 1.310      |
| 13.000    | 58.9  | 17.663 | 0.25              | 14.30  | 14.80  |        | 1.900   | 1.000   |         | 1.450      |
| 14.000    | 77.7  | 23.315 | 0.33              | 14.15  | 14.72  |        | 2.050   | 1.080   |         | 1.565      |
| 15.000    | 98.9  | 29.673 | 0.42              | 14.00  | 14.59  |        | 2.200   | 1.210   |         | 1.705      |

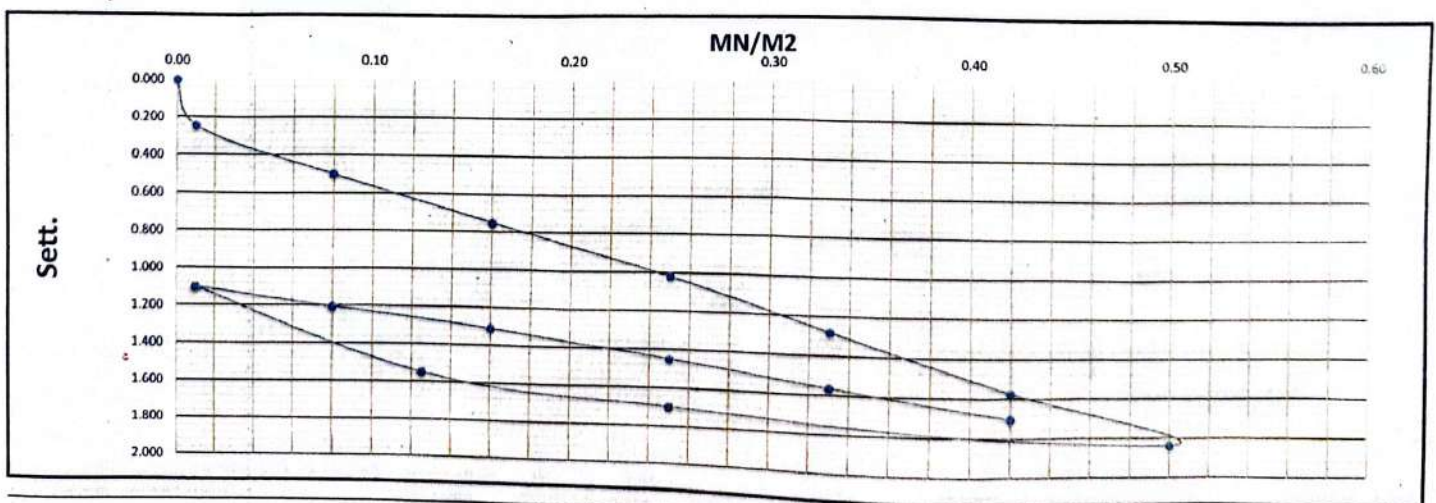
|                    |         | s       | ΔS      | Δσ  |
|--------------------|---------|---------|---------|-----|
| 0.7 σ <sub>1</sub> | 0.35    | 1.34313 | 0.62438 | 0.2 |
| 0.3 σ <sub>1</sub> | 0.15    | 0.71875 |         |     |
| 0.7 σ <sub>2</sub> | 0.35    | 1.59611 | 0.2861  | 0.2 |
| 0.3 σ <sub>2</sub> | 0.15    | 1.31001 |         |     |
| D (mm)             | 300     |         |         |     |
| E <sub>v1</sub>    | 72.07   |         |         |     |
| E <sub>v2</sub>    | 157.29  |         |         |     |
| Area (Sq.m)        | 0.07065 |         |         |     |

|                                  |      |  |  |
|----------------------------------|------|--|--|
| E <sub>v2</sub> /E <sub>v1</sub> | 2.18 |  |  |
|----------------------------------|------|--|--|

LOAD

UN LOAD

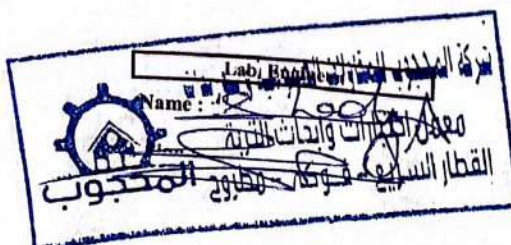
RE LOAD



Lab. Specialist

Name :

Sign :



Consultant Engineer

Name : Khalid Zaki

Sign :



## Plate Load Test Results

Layer: -1.5  
Station: 545+100 TO 545+200  
Date: 11/4/2023

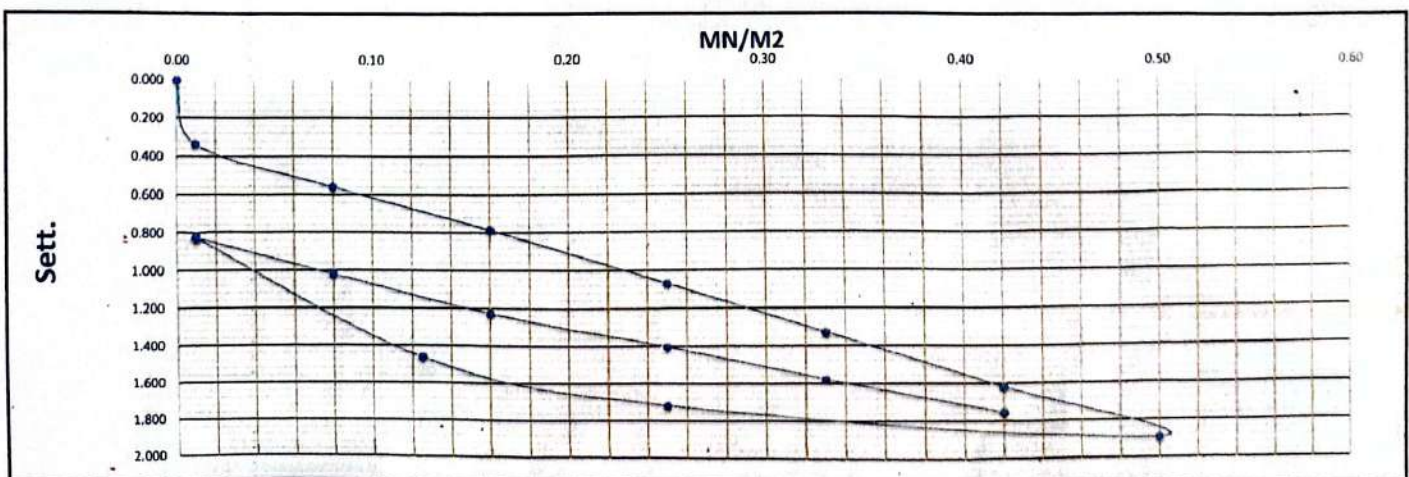
|                 |          |
|-----------------|----------|
| COMPANY         | EL KEFAH |
| SAMPLE LOCATION | 545+150  |

| Loading   | Load  | Load   | Stress | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Avg. Sett. |
|-----------|-------|--------|--------|--------|--------|--------|---------|---------|---------|------------|
| Stage No. | Bar   | KN     | MN/M2  | mm     | mm     | mm     | mm      | mm      | mm      | mm         |
| 0.000     | 0.0   | 0.000  | 0.00   | 18.41  | 17.83  |        | 0.000   | 0.000   |         | 0.000      |
| 1.000     | 2.4   | 0.707  | 0.01   | 18.15  | 17.42  |        | 0.260   | 0.410   |         | 0.335      |
| 2.000     | 18.8  | 5.652  | 0.08   | 17.90  | 17.22  |        | 0.510   | 0.610   |         | 0.560      |
| 0.080     | 37.7  | 11.304 | 0.16   | 17.74  | 16.93  |        | 0.670   | 0.900   |         | 0.785      |
| 4.000     | 58.9  | 17.663 | 0.25   | 17.50  | 16.60  |        | 0.910   | 1.230   |         | 1.070      |
| 5.000     | 77.7  | 23.315 | 0.33   | 17.18  | 16.40  |        | 1.230   | 1.430   |         | 1.330      |
| 6.000     | 98.9  | 29.673 | 0.42   | 16.92  | 16.08  |        | 1.490   | 1.750   |         | 1.620      |
| 7.000     | 117.8 | 35.325 | 0.50   | 16.63  | 15.82  |        | 1.780   | 2.010   |         | 1.895      |
| 8.000     | 58.9  | 17.663 | 0.25   | 16.78  | 16.02  |        | 1.630   | 1.810   |         | 1.720      |
| 9.000     | 29.4  | 8.831  | 0.12   | 17.02  | 16.29  |        | 1.390   | 1.540   |         | 1.465      |
| 9.000     | 2.4   | 0.707  | 0.01   | 17.67  | 16.92  |        | 0.740   | 0.910   |         | 0.825      |
| 10.000    | 2.4   | 0.707  | 0.01   | 17.67  | 16.92  |        | 0.740   | 0.910   |         | 0.825      |
| 11.000    | 18.8  | 5.652  | 0.08   | 17.50  | 16.70  |        | 0.910   | 1.130   |         | 1.020      |
| 12.000    | 37.7  | 11.304 | 0.16   | 17.32  | 16.46  |        | 1.090   | 1.370   |         | 1.230      |
| 13.000    | 58.9  | 17.663 | 0.25   | 17.17  | 16.26  |        | 1.240   | 1.570   |         | 1.405      |
| 14.000    | 77.7  | 23.315 | 0.33   | 16.99  | 16.09  |        | 1.420   | 1.740   |         | 1.580      |
| 15.000    | 98.9  | 29.673 | 0.42   | 16.81  | 15.92  |        | 1.600   | 1.910   |         | 1.755      |

|                    |         | s       | ΔS      | Δσ  |
|--------------------|---------|---------|---------|-----|
| 0.7 σ <sub>1</sub> | 0.35    | 1.37938 | 0.6225  | 0.2 |
| 0.3 σ <sub>1</sub> | 0.15    | 0.75688 |         |     |
| 0.7 σ <sub>2</sub> | 0.35    | 1.61889 | 0.40387 | 0.2 |
| 0.3 σ <sub>2</sub> | 0.15    | 1.21502 |         |     |
| D (mm)             | 300     |         |         |     |
| Ev <sub>1</sub>    | 72.29   |         |         |     |
| Ev <sub>2</sub>    | 111.42  |         |         |     |
| Area (Sq.m)        | 0.07065 |         |         |     |

|         |      |  |  |
|---------|------|--|--|
| Ev2/Ev1 | 1.54 |  |  |
|---------|------|--|--|

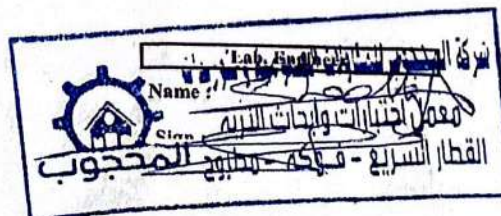
LOAD  
UN LOAD  
RE LOAD



Lab. Specialist

Name :

Sign :



Consultant Engineer

Name : Mohamed Zaki

Sign :



### Plate Load Test Results

Company Name

شركة الكفاح

### Location

$$545 + 260$$

|    |  |
|----|--|
| To |  |
|----|--|

$$545 + 400$$

Station

545+320

Taste Date

13-04-2023

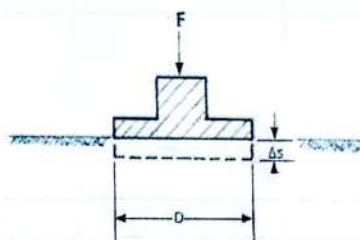
**layer level**

**-1.5**

### EQUIPMENT AND TEST PROCEDURE :-

The basis of the given equation is Boussinesq's theory of the relationship between the modulus of elasticity and the settlement of a circular rigid plate with the diameter D.

The load is applied to a circular rigid steel bearing plate by a hydraulic jack in several steps. The settlement under each load step is recorded. The following sketch shows the principle of the test.

 $F = \text{load}$ 

4s = settlement

$D$  = diameter of the plate

The diameter  $D$  of the plate is generally 0.30 m. For very coarse grained material also plates with diameter  $D = 0.60$  m and  $D = 0.762$  m are used

The load is applied in 6 load increments of equal size. Under each load step the settlement must come to a noticeable end ( $< 0.02$  mm/minute). After the maximum load is reached the unloading procedure can begin. After that, the plate is reloaded in 5 steps. A loaded truck, an excavator or a roller usually serve as counterweight for the hydraulic jack

Diameter = 300mm

| Loading   | Load  | Load   | Stress | Dial 1 | Dial 2 | Dial 3 | Sett. 1 | Sett. 2 | Sett. 3 | Avg. Sett. |
|-----------|-------|--------|--------|--------|--------|--------|---------|---------|---------|------------|
| Stage No. | Bar   | KN     | MN/M2  | mm     | mm     | mm     | mm      | mm      | mm      | mm         |
| 0.000     | 0.0   | 0.000  | 0.00   | 15.12  | 15.10  |        | 0.000   | 0.000   |         | 0.000      |
| 1.000     | 2.4   | 0.707  | 0.01   | 14.88  | 14.87  |        | 0.240   | 0.233   |         | 0.236      |
| 2.000     | 18.8  | 5.652  | 0.08   | 14.51  | 14.75  |        | 0.610   | 0.353   |         | 0.482      |
| 0.080     | 37.7  | 11.304 | 0.16   | 14.32  | 14.60  |        | 0.800   | 0.503   |         | 0.652      |
| 4.000     | 58.9  | 17.663 | 0.25   | 14.16  | 14.45  |        | 0.960   | 0.653   |         | 0.807      |
| 5.000     | 77.7  | 23.315 | 0.33   | 14.00  | 14.30  |        | 1.120   | 0.803   |         | 0.961      |
| 6.000     | 98.9  | 29.673 | 0.42   | 13.92  | 14.10  |        | 1.200   | 1.003   |         | 1.102      |
| 7.000     | 117.8 | 35.325 | 0.50   | 13.88  | 14.00  |        | 1.240   | 1.103   |         | 1.172      |
| 8.000     | 58.9  | 17.663 | 0.25   | 13.92  | 14.02  |        | 1.200   | 1.083   |         | 1.142      |
| 9.000     | 29.4  | 8.831  | 0.12   | 13.95  | 14.06  |        | 1.170   | 1.043   |         | 1.107      |
| 9.000     | 2.4   | 0.707  | 0.01   | 14.22  | 14.22  |        | 0.900   | 0.888   |         | 0.894      |
| 10.000    | 2.4   | 0.707  | 0.01   | 14.22  | 14.22  |        | 0.900   | 0.883   |         | 0.891      |
| 11.000    | 18.8  | 5.652  | 0.08   | 14.16  | 14.12  |        | 0.960   | 0.983   |         | 0.972      |
| 12.000    | 37.7  | 11.304 | 0.16   | 14.06  | 14.02  |        | 1.060   | 1.083   |         | 1.072      |
| 13.000    | 58.9  | 17.663 | 0.25   | 13.95  | 13.96  |        | 1.170   | 1.143   |         | 1.157      |
| 14.000    | 77.7  | 23.315 | 0.33   | 13.85  | 13.88  |        | 1.270   | 1.223   |         | 1.247      |
| 15.000    | 98.9  | 29.673 | 0.42   | 13.72  | 13.80  |        | 1.400   | 1.303   |         | 1.352      |

|                 |         | s       | $\Delta S$ | $\Delta \sigma$ |
|-----------------|---------|---------|------------|-----------------|
| 0.7 $\sigma_1$  | 0.35    | 1.04025 | 0.41       | 0.2             |
| 0.3 $\sigma_1$  | 0.15    | 0.63025 |            |                 |
| 0.7 $\sigma_2$  | 0.35    | 1.26983 | 0.21833    | 0.2             |
| 0.3 $\sigma_2$  | 0.15    | 1.05151 |            |                 |
| D (mm)          | 300     |         |            |                 |
| Ev <sub>1</sub> | 109.76  |         |            |                 |
| Ev <sub>2</sub> | 206.11  |         |            |                 |
| Area ( Sq.m)    | 0.07065 |         |            |                 |

|         |      |  |  |
|---------|------|--|--|
| Ev2/Ev1 | 1,88 |  |  |
|---------|------|--|--|

$$E_y = 0.75 \cdot D \cdot \Delta\sigma / \Delta s$$

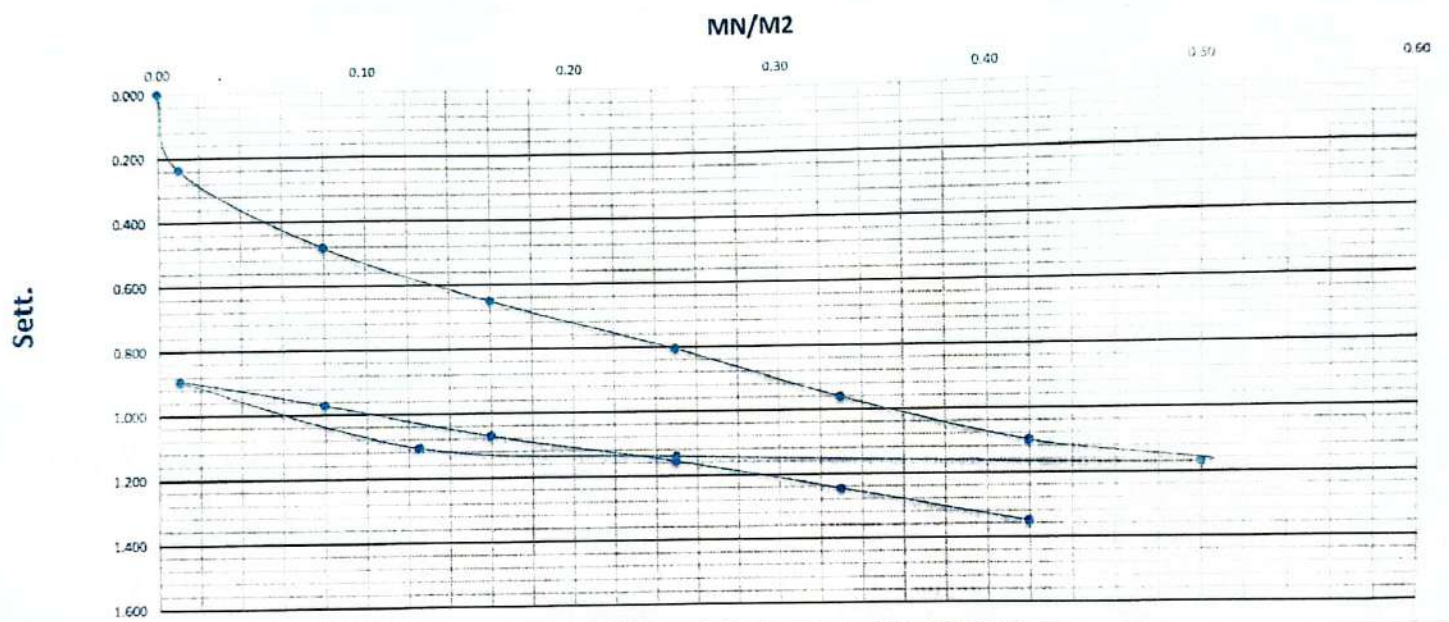
$E_s$  = deformation modulus

 $\Delta\sigma$  = load increment $\Delta s$  = settlement increment

$D$  = diameter of the plate, generally 0.30 m



For this calculation  $\Delta\sigma$  and  $\Delta s$  are usually taken from the load span between  $0.3 \sigma_{max}$  and  $0.7 \sigma_{max}$ .



Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name : *Chalceet Zaki*

Sign :

*[Handwritten signature]*





**Electric Express Train - HSR**  
**From El Ain El Sokhna City To El Alamein - MATROUH**  
**Section - 7 From FOKA To MARSA MATROUH**  
**From Station 504+000 To Station 568+177**



**Operating Lab**      **AL Nuby Central Lab**

**PARTICLE SIZE DISTRIBUTION OF SOIL**

|               |               |         |      |         |         |
|---------------|---------------|---------|------|---------|---------|
| TESTING DATE: | 16-4-2023     | Code    | zone | 545+000 | 545+500 |
| LOCATION      | K,P (545+300) | KF (10) |      |         |         |
| NAME COMPANY  | الكفاح        |         |      |         |         |

1-visual inspection test

2-Gradient test

| A-gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |        | 21084.00 |         | gm   | table classify |
|-------------------------------|-------|--------|--------|-------------------|--------|----------|---------|------|----------------|
| sieve size                    | 2     | 1.5    | 1      | 4/3               | 2/1    | 8/3      | # 4     | PASS | soil classify  |
| Mass retained (g)             | 0.0   | 1633.0 | 1753.0 | 1935.0            | 3546.0 | 3423.0   | 3654.0  |      | A-1-a          |
| Cumulative Retained (g)       | 0.0   | 1633.0 | 3386.0 | 5321.0            | 8867.0 | 12290.0  | 15944.0 | PRO  | 2.180          |
| Cumulative Retained %         | 0.0   | 7.7    | 16.1   | 25.2              | 42.1   | 58.3     | 75.6    | WC   | 6.50           |
| Cumulative Passing %          | 100.0 | 92.3   | 83.9   | 74.8              | 57.9   | 41.7     | 24.4    | CBR  | 80.70          |

| B-soft material gradation |       |        |        | WT.OF sample |  | 500.00 |  | gm |
|---------------------------|-------|--------|--------|--------------|--|--------|--|----|
| sieve size                | 10    | 40     | 200    |              |  |        |  |    |
| Cumulative Retained (g)   | 71.00 | 195.70 | 311.20 |              |  |        |  |    |
| Cumulative Retained %     | 14.20 | 39.14  | 62.24  |              |  |        |  |    |
| Cumulative Passing %      | 85.80 | 60.86  | 37.76  |              |  |        |  |    |

| C-General gradient   |       |      |      |      |      |      |      |      |       |       |
|----------------------|-------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2     | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0  | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 100.0 | 92.3 | 83.9 | 74.8 | 57.9 | 41.7 | 24.4 | 20.9 | 14.8  | 9.2   |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |
|                      |       |      |      |      |      |      |      |      |       |       |

| ATTERBERG LIMITS | LIQUID LIMIT (L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|------------------|---------------------|----------------------|----------------------|
|                  | N.L                 | N.P                  | N.P                  |



**Consultant**  
 Mohamed Zaki



## PROCTOR TEST

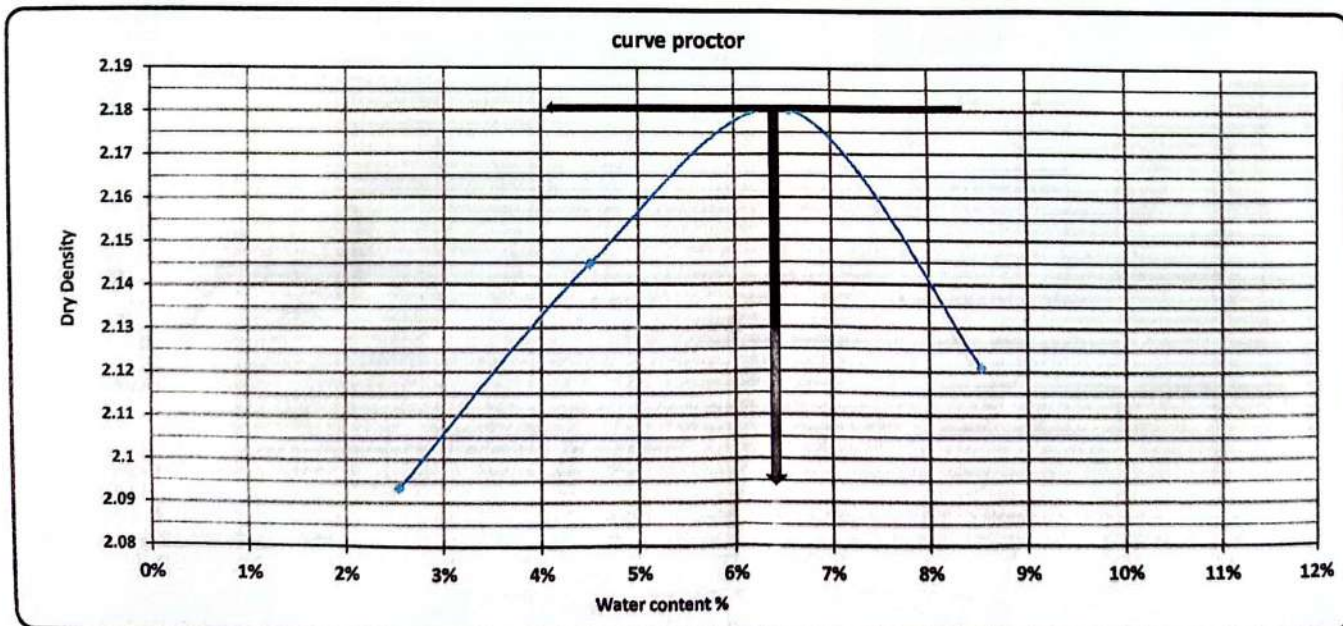
|               |               |         |      |         |         |
|---------------|---------------|---------|------|---------|---------|
| TESTING DATE: | 16-4-2023     | Code    | zone | 545+000 | 545+500 |
| LOCATION      | K,P (545+300) | KF (10) |      |         |         |
| NAME COMPANY  | الكفاح        |         |      |         |         |

|                        |        |
|------------------------|--------|
| Weight of empty mold : | 6033.0 |
| Mold Volume:           | 2113.0 |

|                 |      |
|-----------------|------|
| MAX Dry Density | 2.18 |
| Water content % | 6.5  |

|                       |         |         |         |         |  |
|-----------------------|---------|---------|---------|---------|--|
| trial no :            | 1       | 2       | 3       | 3       |  |
| Wt. Of Mold+ wet soil | 10569.0 | 10769.0 | 10943.0 | 10897.0 |  |
| WT. WET SOIL          | 4536.0  | 4736.0  | 4910.0  | 4864.0  |  |
| Wt. Density           | 2.147   | 2.241   | 2.324   | 2.302   |  |

|                        |       |       |       |       |       |       |       |       |  |  |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| Tare No.               | 32    | 4     | 20    | 40    | 7     | 45    | 33    | 11    |  |  |
| Tare wt.               | 74.4  | 60.1  | 60.9  | 46.4  | 42.8  | 41.5  | 73.6  | 46.1  |  |  |
| Wt. Of wet soil & tare | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 | 150.0 |  |  |
| Wt. Of dry soil & tare | 148.1 | 147.8 | 146.2 | 145.5 | 143.2 | 143.5 | 144.1 | 141.7 |  |  |
| Wt. Of water           | 1.9   | 2.2   | 3.8   | 4.5   | 6.8   | 6.5   | 5.9   | 8.3   |  |  |
| Wt. Of dry soil        | 73.7  | 87.7  | 85.3  | 99.1  | 100.4 | 102.0 | 70.5  | 95.6  |  |  |
| Water content %        | 2.6%  | 2.5%  | 4.5%  | 4.5%  | 6.8%  | 6.4%  | 8.4%  | 8.7%  |  |  |
| AV. Water content %    | 2.5%  |       | 4.5%  |       | 6.6%  |       | 8.5%  |       |  |  |
| Dry Density            | 2.093 |       | 2.145 |       | 2.180 |       | 2.121 |       |  |  |



**Contractor**

م. عبد العزيز حسن  
م. محمد عبد الله  
م. محمد عبد الله  
م. محمد عبد الله  
م. محمد عبد الله

**Consultant**

Ichahed Zaki  
طاهر



California Bearing Ratio TEST

|                |               |         |            |         |         |
|----------------|---------------|---------|------------|---------|---------|
| Testing Date : | 19-4-2023     | Code    | FROM STA : | 545+000 | 545+500 |
| Location :     | K,P (545+300) | KF (10) |            |         |         |
| Company Name   | الكفاح        |         |            |         |         |

:- Test Results

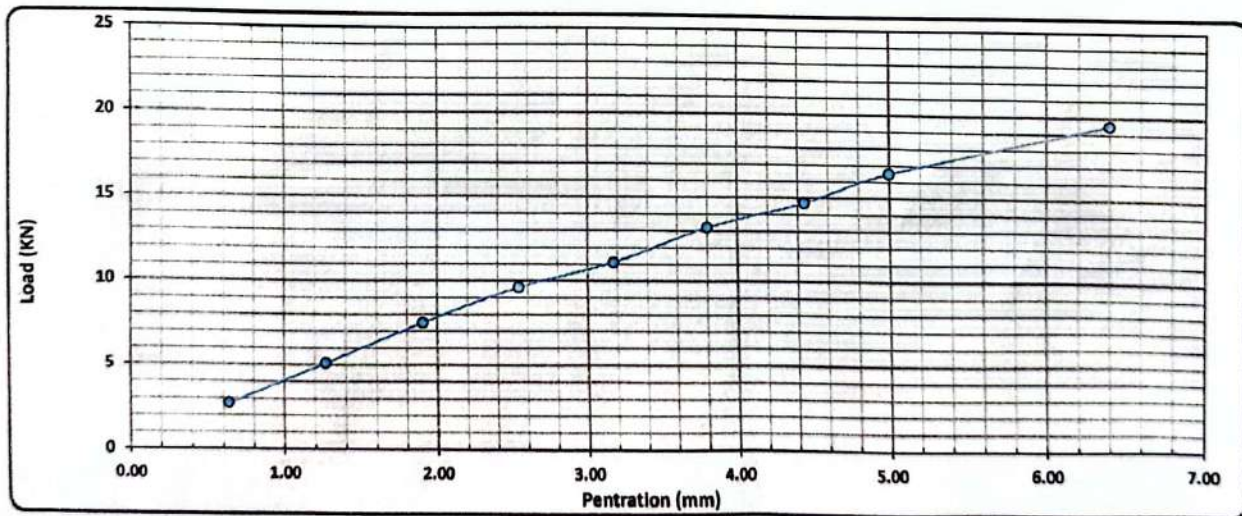
| Compaction % for Mold                |       |
|--------------------------------------|-------|
| Mold No.                             | 4     |
| Mold Vol. (cm <sup>3</sup> )         | 2140  |
| Mold WT. (gm)                        | 4900  |
| Mold WT. + Wet WT. (gm)              | 9870  |
| Wet WT. (gm)                         | 4970  |
| Wet Density (g/cm <sup>3</sup> )     | 2.322 |
| Dry Density (g/cm <sup>3</sup> )     | 2.181 |
| Proctor Density (g/cm <sup>3</sup> ) | 2.180 |
| Compaction %                         | 100.0 |

| Moisture Ratio After Compacted Mold |       |
|-------------------------------------|-------|
| Tare No.                            | 8     |
| Tare WT. (gm)                       | 46.8  |
| Tare WT. + Wet WT. (gm)             | 150   |
| Tare WT. + Dry WT. (gm)             | 143.7 |
| Wt. water                           | 6.3   |
| Dry WT. (gm)                        | 96.9  |
| Moisture Content %                  | 6.5   |

| Swelling            |           |
|---------------------|-----------|
| Mold No.            | 4         |
| Date                | 19-4-2023 |
| Initial Height (mm) | 6.00      |
| Final Height (mm)   | 6.00      |
| Difference          | 0         |
| Sample Height (mm)  | 120.00    |
| Swelling Ratio %    | 0.0%      |

Loading Reading :

|                   |      |      |      |      |      |      |      |      |      |
|-------------------|------|------|------|------|------|------|------|------|------|
| Petration (mm)    | 0.64 | 1.27 | 1.91 | 2.54 | 3.18 | 3.80 | 4.45 | 5.00 | 6.40 |
| Load Reading (mm) | 0.09 | 0.17 | 0.25 | 0.32 | 0.37 | 0.44 | 0.49 | 0.55 | 0.65 |
| Load (KN)         | 2.7  | 5.1  | 7.5  | 9.6  | 11.1 | 13.2 | 14.7 | 16.5 | 19.5 |



Calculations :-

| Penetration (mm) | Load (Kn) | Standard Load (lb) | CBR (%) | Mold - Compaction (%) | Compaction (%) | CBR % عند نسبة 98 |
|------------------|-----------|--------------------|---------|-----------------------|----------------|-------------------|
| 2.50             | 9.60      | 13.4               | 71.9%   | 100                   | 98             | 70.5%             |
| 5.00             | 16.50     | 20.0               | 82.4%   |                       |                | 80.7%             |

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Signature of Consultant Engineer: Khalid Zakari



|                                                                                                                                                                  |                                                                                                    |                                                                                                                                                                                |                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>ا.د. خالد قنديل | <br>SVSTRA SHAKER | <b>Electric Express Train - HSR</b><br>From El Ain El Sokhna City To El Alamein - MATROUH<br>Section - 7 From FOKA To MARSA MATROUH<br>From Station 504+000 To Station 568+177 | <br>الهيئة العامة للقناة<br>(S.A.E.C.) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|

### PARTICLE SIZE DISTRIBUTION OF SOIL

|                        |            |                 |  |      |         |         |
|------------------------|------------|-----------------|--|------|---------|---------|
| TESTING DATE           | 3/5/2023   | code            |  | ZONE | 545+000 | 545+500 |
| Location               | K.P545+300 | KF-11           |  |      |         |         |
| NAME COMPANY           | AL-Kfaah   |                 |  |      |         |         |
| visual inspection test | operate by | Gomaa Bader Lab |  |      |         |         |

#### Gradient test

| -gradation of bulk materials |       |        |        | SAMPLE WEIGHT [g] |         | 20182.00 |         | gm   | table classify |       |
|------------------------------|-------|--------|--------|-------------------|---------|----------|---------|------|----------------|-------|
| sieve size                   | 2     | 1.5    | 1      | 4/3               | 2/1     | 8/3      | # 4     | PASS | soil classify  |       |
| Mass retained (g)            | 340.0 | 1850.0 | 7046.0 | 1918.0            | 2206.0  | 660.0    | 1260.0  |      |                |       |
| Cumulative Retained (g)      | 340.0 | 2190.0 | 9236.0 | 11154.0           | 13360.0 | 14020.0  | 15280.0 |      | PRO            | 2.164 |
| Cumulative Retained %        | 1.7   | 10.9   | 45.8   | 55.3              | 66.2    | 69.5     | 75.7    |      | WC             | 6.7%  |
| Cumulative Passing %         | 98.3  | 89.1   | 54.2   | 44.7              | 33.8    | 30.5     | 24.3    |      | CBR            | 57.1% |

| -soft material gradation |       |        | WT.OF sample |  | 500.00 |  | gm |
|--------------------------|-------|--------|--------------|--|--------|--|----|
| sieve size               | 10    | 40     | 200          |  |        |  |    |
| Cumulative Retained (g)  | 77.89 | 168.76 | 284.22       |  |        |  |    |
| Cumulative Retained %    | 15.58 | 33.75  | 56.84        |  |        |  |    |
| Cumulative Passing %     | 84.42 | 66.25  | 43.16        |  |        |  |    |

| C-General gradient   |      |      |      |      |      |      |      |      |       |       |
|----------------------|------|------|------|------|------|------|------|------|-------|-------|
| sieve size(in)       | 2    | 1.5  | 1    | 3/4  | 1/2  | 3/8  | # 4  | # 10 | # 40  | # 200 |
| sieve size(mm)       | 50.0 | 37.5 | 25.0 | 19.0 | 12.5 | 9.5  | 4.75 | 2.00 | 0.425 | 0.075 |
| Cumulative Passing % | 98.3 | 89.1 | 54.2 | 44.7 | 33.8 | 30.5 | 24.3 | 20.5 | 16.1  | 10.5  |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |
|                      |      |      |      |      |      |      |      |      |       |       |

| ATTERBERG<br>LIMITS | LIQUID LIMIT ( L.L.) | PLASTIC LIMIT (P.L.) | PLASTIC INDEX (P.I.) |
|---------------------|----------------------|----------------------|----------------------|
|                     | 24.8%                | 21.2%                | 3.6%                 |

Contractor

Consultant

المعمل المركزي  
شركة جمعه بدر نوح

Abdallah S.M.



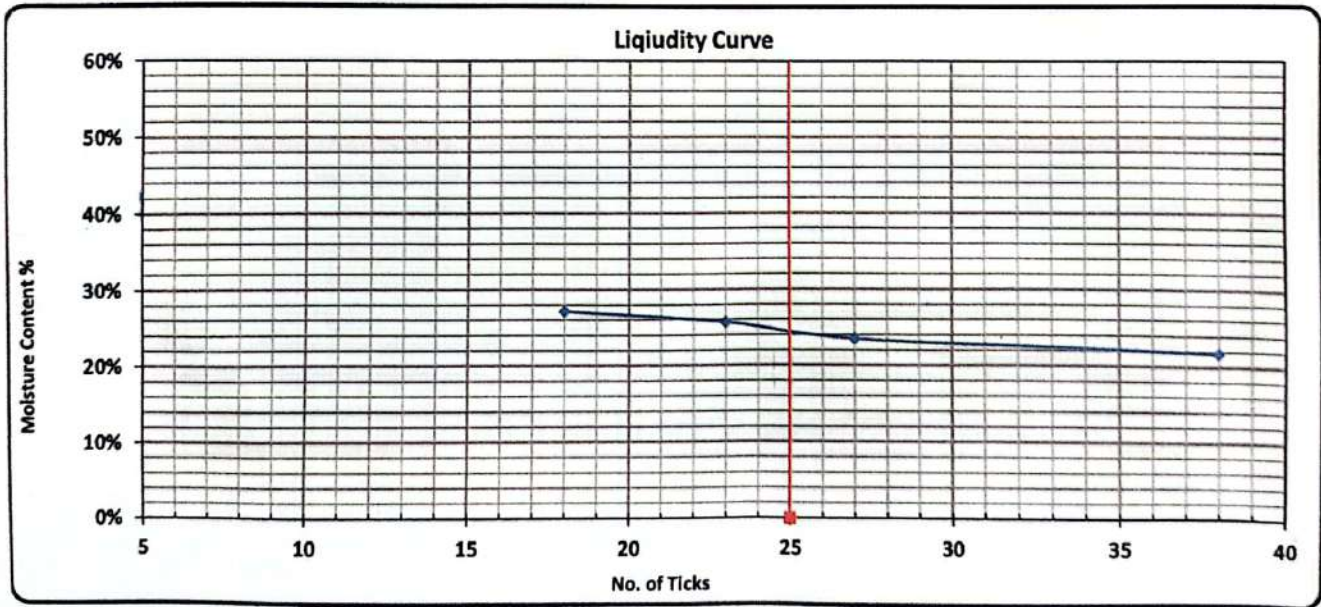
|                                                                                                                                                                    |                                                                                              |                                     |                                                                                                                                    |                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>أ.د. نادر النجار | <br>SVS TRA | <b>Electric Express Train - HSR</b> | <br>الميناء<br>لنقل و البنية التحتية<br>(GAREL) | <br>الهيئة العامة للإحصاء<br>MINISTRY OF PLANNING |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|

### Plasticity and Liquidity Test -Atterberg Limits

|               |            |       |                 |         |         |
|---------------|------------|-------|-----------------|---------|---------|
| TESTING DATE: | 3/5/2023   | code  | ZONE            | 545+000 | 545+500 |
| location      | K.P545+300 | KF-11 |                 |         |         |
| NAME COMPANY  | AL-Kfaah   |       |                 |         |         |
| operate by    |            |       | Gomaa Bader Lab |         |         |

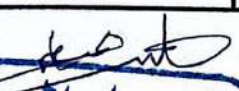
#### Testing Results :-

| Test                    | Liquidity Limit |       |       |       | Plastic Limit |       |
|-------------------------|-----------------|-------|-------|-------|---------------|-------|
| No. of Ticks            | 38              | 27    | 23    | 18    | -             | -     |
| Tare No.                | 13              | 10    | 8     | 2     | M             | B     |
| Tare WT. (gm)           | 26.46           | 26.42 | 25.80 | 22.79 | 11.25         | 11.95 |
| Tare WT. + Wet WT. (gm) | 48.81           | 50.41 | 47.52 | 41.38 | 11.89         | 12.68 |
| Tare WT. + Dry WT. (gm) | 44.83           | 45.86 | 43.09 | 37.42 | 11.78         | 12.55 |
| Water WT. (gm)          | 3.98            | 4.55  | 4.43  | 3.96  | 0.11          | 0.13  |
| Dry WT. (gm)            | 18.37           | 19.44 | 17.29 | 14.63 | 0.53          | 0.60  |
| Moisture Content %      | 21.7%           | 23.4% | 25.6% | 27.1% | 20.8%         | 21.7% |
| Average %               |                 |       |       |       | 21.2%         |       |



| L.L   | P.L   | P.I  |
|-------|-------|------|
| 24.8% | 21.2% | 3.6% |

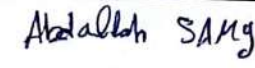
|                 |               |                     |
|-----------------|---------------|---------------------|
| Lab. Specialist | Lab. Engineer | Consultant Engineer |
|-----------------|---------------|---------------------|

Name : 

المعمل المركزي  
شركة جمعه بدر نوح

Name :

Sign :

Name : 

Sign : 



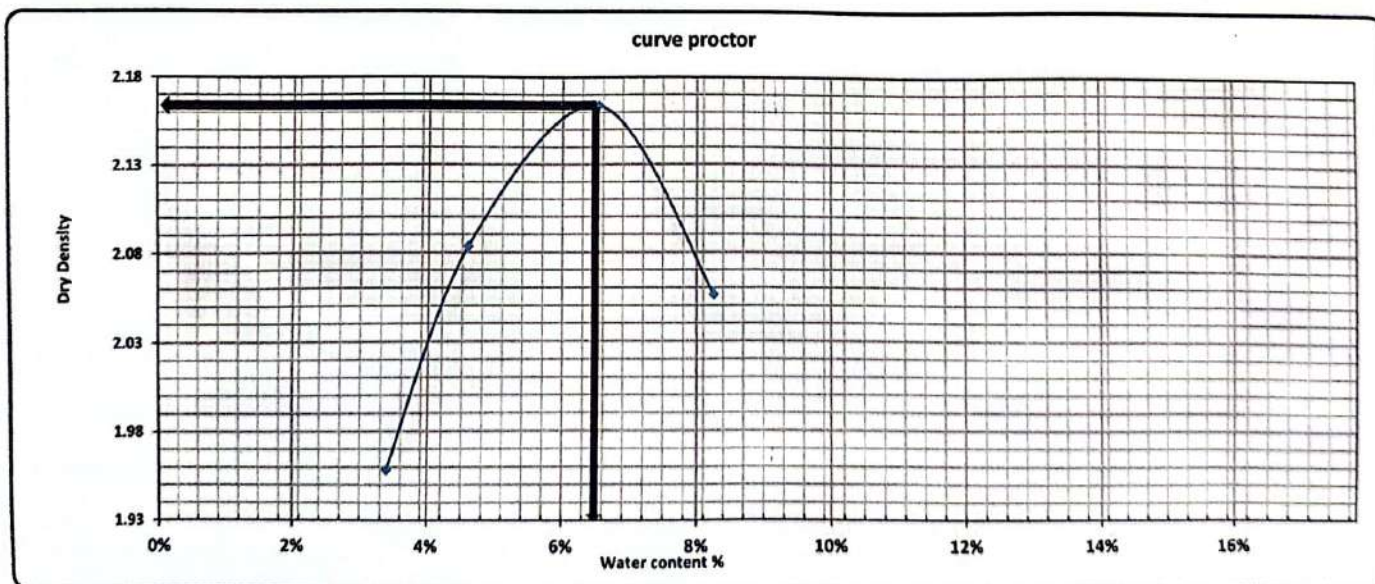
|                                                                                                                                                                       |                                                                                                    |                                                                                                                                                                                                     |                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>KK<br>ENGINEERING CONSULTING OFFICE<br>المكتب الاستشاري الهندسي<br>أد. خالد كنعان | <br>SYSTRA SHAKER | <b>Electric Express Train - HSR</b><br><b>From El Ain El Sokhna City To El Alamein - MATROUH</b><br><b>Section - 7 From FOKA TO MARSA MATROUH</b><br><b>From Station 504+000 To Station 568+177</b> | الهيئة العامة<br>لطرق و الكباري و النقل البري<br>(GARBLT)<br><br>الهيئة القومية للإزفاق<br>NATIONAL AUTHORITY FOR TRANSPORT<br>ROAD |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## PROCTOR TEST

|                        |            |                 |                 |         |         |
|------------------------|------------|-----------------|-----------------|---------|---------|
| TESTING DATE           | 4/5/2023   | code            | ZONE            | 545+000 | 545+500 |
| location               | K.P545+300 | KF-11           |                 |         |         |
| NAME COMPANY           | AL-Kfaah   |                 |                 |         |         |
|                        | operate by | Gomaa Bader Lab |                 |         |         |
| Weight of empty mold : | 6070.0     |                 | MAX Dry Density | 2.164   |         |
| Mold Volume:           | 2104.9     |                 | Water content % | 6.70    |         |

|                       |         |         |         |        |  |  |
|-----------------------|---------|---------|---------|--------|--|--|
| trial no :            | 1       | 2       | 3       | 4      |  |  |
| Wt. Of Mold+ wet soil | 10340.0 | 10665.0 | 10931.0 | 10764  |  |  |
| WT. WET SOIL          | 4270.0  | 4595.0  | 4861.0  | 4694.0 |  |  |
| Wt. Density           | 2.029   | 2.183   | 2.309   | 2.230  |  |  |

|                        |        |        |        |        |        |        |        |        |  |  |  |  |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|--|
| Tare No.               | 6      | 6      | 9      | 9      | 12     | 12     | 13     | 13     |  |  |  |  |
| Tare wt.               | 22.97  | 22.97  | 27.2   | 27.2   | 27.36  | 27.36  | 26.46  | 26.46  |  |  |  |  |
| Wt. Of wet soil & tare | 140.20 | 140.20 | 123.85 | 123.85 | 115.12 | 115.12 | 137.67 | 137.67 |  |  |  |  |
| Wt. Of dry soil & tare | 136.13 | 136.13 | 119.43 | 119.43 | 109.58 | 109.58 | 128.99 | 128.99 |  |  |  |  |
| Wt. Of water           | 4.1    | 4.1    | 4.4    | 4.4    | 5.5    | 5.5    | 8.7    | 8.7    |  |  |  |  |
| Wt. Of dry soil        | 113.2  | 113.2  | 92.2   | 92.2   | 82.2   | 82.2   | 102.5  | 102.5  |  |  |  |  |
| Water content %        | 3.6%   | 3.6%   | 4.8%   | 4.8%   | 6.7%   | 6.7%   | 8.5%   | 8.5%   |  |  |  |  |
| AV. Water content %    | 3.6%   |        | 4.8%   |        | 6.7%   |        | 8.5%   |        |  |  |  |  |
| Dry Density            | 1.958  |        | 2.083  |        | 2.164  |        | 2.056  |        |  |  |  |  |



Contractor

المعمل المركزي  
شركة جمعه بدر نوح

Consultant

Abdallah S. M. M.





## Electric Express Train - HSR



### California Bearing Ratio TEST

|              |            |                 |  |      |         |         |
|--------------|------------|-----------------|--|------|---------|---------|
| TESTING DATE | 6/5/2023   | code            |  | ZONE | 545+000 | 545+500 |
| location     | K.P545+300 | KF-11           |  |      |         |         |
| NAME COMPANY | AL-Kfaah   |                 |  |      |         |         |
|              | operate by | Gomas Bader Lab |  |      |         |         |

#### -: Test Results

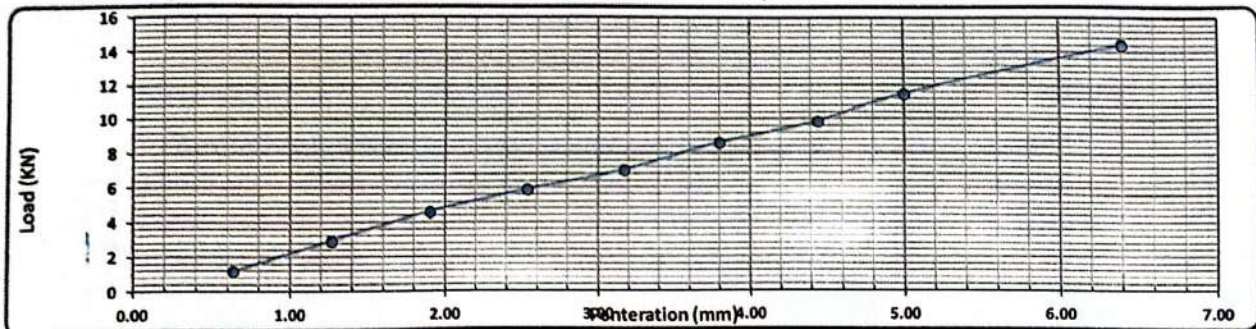
| Compaction % for Mold                |        |
|--------------------------------------|--------|
| Mold No.                             | 2      |
| Mold Vol. (cm <sup>3</sup> )         | 2177.5 |
| Mold WT. (gm)                        | 16444  |
| Mold WT. + Wet WT. (gm)              | 21409  |
| Wet WT. (gm)                         | 4965   |
| Wet Density (g/cm <sup>3</sup> )     | 2.280  |
| Dry Density (g/cm <sup>3</sup> )     | 2.144  |
| Proctor Density (g/cm <sup>3</sup> ) | 2.164  |
| Compaction %                         | 99     |

| Moisture Ratio After Compacted Mold |        |
|-------------------------------------|--------|
| Tare No.                            | 23     |
| Tare WT. (gm)                       | 23.46  |
| Tare WT. + Wet WT. (gm)             | 162.46 |
| Tare WT. + Dry WT. (gm)             | 154.16 |
| Wt. Of water                        | 8.3    |
| Dry WT. (gm)                        | 130.7  |
| Moisture Content %                  | 6.4    |

| Swelling            |        |
|---------------------|--------|
| Mold No.            | 2      |
| Date                | 24h    |
| Initial Height (mm) | 3.73   |
| Final Height (mm)   | 3.79   |
| Difference          | 0      |
| Sample Height (mm)  | 181.00 |
| Swelling Ratio %    | 0%     |

#### Loading Reading :

|                   |        |        |        |        |        |        |         |         |         |
|-------------------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| penetration       | 0.64   | 1.27   | 1.91   | 2.54   | 3.18   | 3.80   | 4.45    | 5.00    | 6.40    |
| Load Reading (kg) | 117.00 | 293.00 | 467.00 | 597.00 | 712.00 | 873.00 | 1000.00 | 1167.00 | 1467.00 |
| Load (KN)         | 1.1    | 2.9    | 4.6    | 5.9    | 7.0    | 8.6    | 9.8     | 11.4    | 14.4    |



#### Calculations :-

| Penetration (mm) | Load (KN) | Standard Load (lb) | CBR (%) | Mold - Compaction (%) | Compaction (%) | CBR % 100 |
|------------------|-----------|--------------------|---------|-----------------------|----------------|-----------|
| 2.50             | 5.85      | 13.4               | 43.8%   | 99                    | 100            | 44.2%     |
| 5.00             | 11.44     | 20.0               | 57.1%   |                       |                | 57.6%     |



Consultant Engineer

Name :

Sign :

Abdullah S. Al...



# MATERIAL INSPECTION REQUEST



الهيئة العامة للطرق والمواصلات



ENGINEERING CONSULTING OFFICE  
المكتب الاستشاري الهندسي  
أ.د. خالد شحيد



|                      |                      |      |               |                  |    |    |    |    |      |    |    |
|----------------------|----------------------|------|---------------|------------------|----|----|----|----|------|----|----|
| Contractor Company   | AL-KFAH Company      |      |               | Designer Company |    |    |    |    |      |    |    |
| Contractor Reference | KF-11                |      |               |                  |    |    |    |    |      |    |    |
| Issued by Contractor | Name                 | Sign | Date 7/5/2023 | Time             |    |    |    |    |      |    |    |
|                      | Eng/Mohamed Algaafry |      |               |                  |    |    |    |    |      |    |    |
| Received by ER       |                      |      | MIR           | C1               | C2 | C3 | DD | MM | YY   | HH | MM |
|                      |                      |      |               |                  |    |    | 7  | 5  | 2023 |    |    |

| CODE-1   | S1 to S21<br>Station Reference | D1 to S3<br>Depot Reference | Kp XXX Note<br>For Kilometer point only Start Km is used |
|----------|--------------------------------|-----------------------------|----------------------------------------------------------|
| CODE - 2 | Work Activity                  |                             |                                                          |
| CODE - 3 | Sub Element of Activity        |                             |                                                          |

|                                                                |                                                                                                                                                                                   |       |              |              |      |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|--------------|------|
| Description of Materials                                       | <b>REPLACEMENT FILL MATERIAL RESULTS</b>                                                                                                                                          |       |              |              |      |
| Location to be Used                                            | 545+000 to 545+100 level (-0.5 )<br>545+000 to 545+200 level (-0.25)<br>545+260 to 545+500 level (-0.25)<br>545+260 to 545+500 level (Ferma)<br>545+000 to 545+200 level (Ferma ) |       |              |              |      |
| MAR Approval No                                                |                                                                                                                                                                                   |       |              | Date         |      |
| Supplier Name                                                  |                                                                                                                                                                                   |       |              |              |      |
| Test Requirement                                               | Specification                                                                                                                                                                     |       |              | Clause       |      |
| Reference Photos                                               | Yes attached / No                                                                                                                                                                 | Other |              |              |      |
| Item                                                           | Description                                                                                                                                                                       | Unit  | Quantity     | Arrival Date | Note |
| 1                                                              | SEIVE ANALYSIS                                                                                                                                                                    | M^3   | 5000         | 3/5/2023     |      |
| 2                                                              | Atterberg Limits                                                                                                                                                                  | M^3   | 5000         | 3/5/2023     |      |
| 3                                                              | Proctor                                                                                                                                                                           | M^3   | 5000         | 4/5/2023     |      |
| 4                                                              | CBR                                                                                                                                                                               | M^3   | 5000         | 6/5/2023     |      |
| Comments by:                                                   |                                                                                                                                                                                   |       | Comments by: |              |      |
| A sample has been taken by KK Office to ( Elnoby central lab ) |                                                                                                                                                                                   |       |              |              |      |

## APPROVAL STATUS

|                          |                       |      |      |         |
|--------------------------|-----------------------|------|------|---------|
| Organisation             | Name                  | Sign | Date | A-AWC-R |
| Contractor               | Eng/ Mohamed Algaafry |      |      |         |
| QA/QC *                  | Abdallah SAMY         |      |      |         |
| GARB**                   |                       |      |      |         |
| Employers Representative |                       |      |      |         |

\* Designer

\*\* Alignment / Bridges; Culvert Only



# MATERIAL APPROVAL REQUEST



|                      |                       |      |      |                  |      |    |    |    |      |   |    |
|----------------------|-----------------------|------|------|------------------|------|----|----|----|------|---|----|
| Contractor Company   | EL KFAH COMPANY       |      |      | Designer Company |      |    |    |    |      |   |    |
| Contractor Reference | KF-11                 |      |      |                  |      |    |    |    |      |   |    |
| Issued by Contractor | Name                  | Sign | Date | 7/5/2023         | Time |    |    |    |      |   |    |
|                      | Eng/ Mohamed Algaafry |      |      |                  |      |    |    |    |      |   |    |
| Received by ER       |                       |      |      |                  |      |    |    |    |      |   |    |
|                      |                       |      | MAR  | C1               | C2   | C3 | DD | MM | YY   | H | MM |
|                      |                       |      |      |                  |      |    | 7  | 5  | 2023 |   |    |

|          |                                |                             |                                                          |
|----------|--------------------------------|-----------------------------|----------------------------------------------------------|
| CODE-1   | S1 to S21<br>Station Reference | D1 to S3<br>Depot Reference | Kp XXX Note<br>For Kilometer point only Start Km is used |
| CODE - 2 | Work Activity                  |                             |                                                          |
| CODE - 3 | Sub Element of Activity        |                             |                                                          |

|                          |                                                                                                                                                                                  |                      |                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------|
| Description of Materials | Soil ( A-1-a )                                                                                                                                                                   |                      |                            |
| Location to be Used      | 545+000 to 545+100 level (-0.5 )<br>545+000 to 545+200 level (-0.25)<br>545+260 to 545+500 level (-0.25)<br>545+260 to 545+500 level (Ferma)<br>545+000 to 545+200 level (Ferma) |                      |                            |
| Item                     | Specification                                                                                                                                                                    | Test Req             | Test result attachment     |
| 1                        | ASTM D 75                                                                                                                                                                        | Aggregate Sampling   | According to specification |
| 2                        | ASTM D 136                                                                                                                                                                       | Sieve Analysis       | According to specification |
| 3                        | ASTM D 1440                                                                                                                                                                      | Passing Sieve No 200 | 10.5                       |
| 4                        | ASTM D 4318                                                                                                                                                                      | ATTERBERG Limit      | 3.6                        |
| 5                        | ASTM D 2974                                                                                                                                                                      | W.C                  | 6.7                        |
| 6                        | ASTM D 1557                                                                                                                                                                      | Proctor              | 2.16                       |
| 7                        | ASTM D 1883                                                                                                                                                                      | CBR                  | 57.1                       |
| Comments by:             |                                                                                                                                                                                  | Comments by:         |                            |
|                          |                                                                                                                                                                                  |                      |                            |

| APPROVAL STATUS          |                       |      |      |         |
|--------------------------|-----------------------|------|------|---------|
| Organisation             | Name                  | Sign | Date | A-AWC-R |
| Contractor               | Eng/ Mohamed Algaafry |      |      |         |
| QA/QC *                  |                       |      |      |         |
| GARB**                   |                       |      |      |         |
| Employers Representative |                       |      |      |         |



## محضر استلام موقع

عملية : إسناد اعمال الجسر الترابي لمسار القطار الكهربائي السريع الخط الاول  
( العين السخنة - العلمين ) (قطاع فوكة / مطروح ) لتنفيذ اعمال تشكيل الجسور  
المسافة من الكم ٥٤٥,٠٠٠ الي الكم ٥٤٥,٢٥٠ بطول ٠,٢٥ كم (بالامر المباشر)  
(المنطقة الخامسة - غرب الدلتا).

تنفيذ: شركة الكفاح للمقاولات

إشراف : المنطقة الخامسة - منطقة غرب الدلتا

طبقاً للعقد رقم ( ٢٠٢٤/٢٠٢٣/٢٤٣ ) بتاريخ ٢٠٢٣/٨/٢٢

إنه في يوم الاربعاء الموافق ٢٠٢٣/٨/٢٣ اجتمع كل من:-

- |                                             |                                               |
|---------------------------------------------|-----------------------------------------------|
| ١- السيد المهندس / محمد حسني فياض           | مدير المشروعات - الهيئة العامة للطرق والكباري |
| ٢- السيد المهندس / إبراهيم عبد الله الحناوي | مهندس العملية - الهيئة العامة للطرق والكباري  |
| ٣- السيد المهندس / محمد محسن فياض           | مدير المشروع - شركة الكفاح للمقاولات          |

وذلك للمرور على مسار العملية المذكورة عاليه لإستلام الموقع وقد  
تبين ان الموقع لا يوجد به عوائق ظاهرية .

ويسمح بالبدء في التنفيذ وبناء عليه يعتبر تاريخ ٢٠٢٣/٨/٢٣ هو تاريخ استلام الموقع وبدء  
الأعمال بالعملية .

واقفل المحضر على ذلك ووقع الحضور

التوقيعات

٣- محمد حسني فياض

٢- إبراهيم عبد الله الحناوي

١- محمد محسن فياض

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عميد . مهندس /

"هاني محمد محمود طه"