

## محضر استلام موقع

مشروع: أعمال الجسر الترابي والأعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة - العاصمة الإدارية - العلمين - مطروح) لتنفيذ المسافة من الكم 411+600 الى الكم 412+600 بطول 1 كم اتجاه سيدي كرير قطاع (العلمين - فوكة)

تنفيذ: شركة إعمار للإستثمار العقاري والمقاولات العامة.

إشراف: المنطقة الخامسة - منطقة غرب الدلتا

طبقاً للعقد رقم (2023/2022/685) بتاريخ 2022/11/07

إنه في يوم الثلاثاء الموافق 2022/11/08 اجتمع كل من:-

- 1- السيد المهندس /إبراهيم عبد الله الحناوي مدير مشروع - الهيئة العامة للطرق والكباري
- 2- السيد المهندس / أحمد محمد حسن مدير مشروع-شركة إعمار للإستثمار العقاري والمقاولات العامة

وذلك للمرور على مسار العملية المذكورة عاليه لاستلام الموقع :-  
وقد تبين أن الموقع خالياً من العوائق الظاهرية ويسمح بالبداية في التنفيذ وبناء عليه يعتبر تاريخ 2022/11/08 هو تاريخ استلام الموقع وبداية الأعمال بالعملية واقفل المحضر على ذلك ووقع الحضور

التوقيعات

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

معيد . مهندس /

"هاني محمد محمود طه"

2-

1-

**محضر استلام ابتدائي**  
**لعملية: أعمال الجسر الترابي والأعمال الصناعية لمشروع القطار الكهربائي السريع**  
**(العين السخنة -العاصمة الادارية -العلمين - مطروح )**

لتنفيذ المسافة من الكم 411+600 الى الكم 412+600 بطول 1 كم اتجاه سيدي كرير قطاع (العلمين-فوكة)

**تنفيذ شركة :إعمار للإستثمار العقاري والمقاولات العامة**  
**إشراف :المنطقة الخامسة غرب الدلتا(الإسكندرية\_مطروح)**  
**استشاري الهيئة للمشروع : سجاك (د سعد الجيوشي )**

انه في يوم الأربعاء الموافق 2023/11/1 وبناءً علي قرار السيد العميد مهندس/رئيس الإدارة المركزية لمنطقة غرب الدلتا رقم (121) بتاريخ 2022/09/14 والخاص بأعمال الاستلام الابتدائي للأعمال عاليه.

فقد اجتمعت اللجنة المشكلة من كلاً من :-

- |                               |                                                          |          |
|-------------------------------|----------------------------------------------------------|----------|
| (1) المهندس/ محمد حسني فياض   | مدير عام مشروعات الهيئة                                  | (رئيساً) |
| (2) المهندس/إبراهيم الحناوي   | مدير مشروع القطاع من المنطقة                             | (عضواً)  |
| (3) المهندس/عبدالله عبدالمحسن | معمل المنطقة المشرفة                                     | (عضواً)  |
| (4) المهندس / مصطفى نجم       | مكتب: سجاك (د سعد الجيوشي ) استشاري الهيئة               | (عضواً)  |
| (5) المهندس/محمد خليل         | مكتب ( اكس واي زد) استشاري المساحة بالمشروع              | (عضواً)  |
| (6) المهندس/ أحمد محمد حسن    | الشركة المنفذة إعمار للإستثمار العقاري والمقاولات العامة | (عضواً)  |

وقد بدأت اللجنة أعمالها بالإطلاع علي ملف العملية وكراسة الشروط والمواصفات وعقد العملية ثم انتقلت اللجنة علي الطبيعة للمرور علي الأعمال المنفذة ومعاينتها ظاهرياً وتم أخذ عينات أتربة من الجسر لإجراء التجارب اللازمة عليها بمعمل المنطقة وتحديد نسبة الحيوود وقد أسفر الفحص والمعاينة الظاهرية عن التالي:-

الأعمال المنفذة والمطلوب تسليمها أعمال الحفر وأعمال الأتربة لتشكيل مسار الجسر الترابي

أولاً:- حالة السطح العلوي للجسر المنفذ:-

الأعمال مقبولة بصفة عامة وتم التأكد من الوصول للمناسيب وتحقيق الميل الجانبية للقطاع

### توصيات اللجنة :-

- (1) علي مندوب معمل المنطقة تحديد مدي الحيود بالعينات عن المواصفة العامة للمشروع وتحديد قيمة الخصم .
  - (2) علي السادة استشاري القطاع (سجك (د سعد الجبوشي )) مراجعة الحصر والتأكد من الكميات المنفذة طبقاً لطلبات الاستلام وموافقة اللجنة بالكميات والتجارب التي أجريت علي الأعمال أثناء التنفيذ.
  - (3) قام مندوب استشاري المساحة بالتأكد علي المناسيب المنفذة طبقاً للتصميم المعتمد.
  - (4) علي استشاري القطاع (سجك (د سعد الجبوشي )) متابعة سلوك الأعمال خلال فترة الضمان وابلاغ الشركة بأي عيوب تظهر لأصلحها فوراً.
- وعليه تري اللجنة قبول الأعمال حيث لا يوجد ما يعيق الاستلام الابتدائي للأعمال عاليه ويعتبر تاريخ المحضر هو تاريخ النهو الفعلي وبدء فترة الضمان للأعمال.
- وعلي ذلك جري التوقيع.

### التوقيعات :-

(6) 

(5) محمد خليل

(4) 

(3) 

(2) 

(1) 

يعتمد

رئيس الادارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عميد مهندس /  
هاني محمد محمود طه "



## التقييم الفني



مشروع : أعمال الجسر الترابي والأعمال الصناعية لمشروع القطار الكهربائي السريع  
(العين السخنة -العاصمة الادارية -العلمين - مطروح )

لتنفيذ المسافة من الكم 411+600 الى الكم 412+600 بطول 1 كم اتجاه سيدي كير

قطاع (العلمين-فوكة)

تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

إشراف : المنطقة الخامسة قطاع غرب الدلتا

### الحسابات المالية ومفصل التقييم وقيمة الخصومات:

أنه في يوم الاثنين الموافق 2023/11/13 وبناء على القرار الإداري 121 بتاريخ 2022/9/14 الصادر من السيد عميد مهندس رئيس الإدارة المركزية / منطقة غرب الدلتا ومحضر الإستلام الابتدائي للعملية المؤرخ في 2023/11/1 تم عمل التقييم الفني للعملية عاليه.

وقد اجتمعت اللجنة المشكلة من كلا من:

- |                |                                                          |                              |
|----------------|----------------------------------------------------------|------------------------------|
| (رئيساً للجنة) | مدير عام المشروعات                                       | 1) المهندس/ محمد حسني فياض   |
| (عضواً)        | ممثل الهيئة                                              | 2) المهندس/إبراهيم الحناوي   |
| (عضواً)        | معمل المنطقة المشرفة                                     | 3) المهندس/عبدالله عبدالمحسن |
| (عضواً)        | مكتب: سجاك ( د سعد الجبوشي ) استشاري الهيئة              | 4) المهندس / مصطفى نجم       |
| (عضواً)        | مكتب ( اكس واي زد) استشاري المساحة بالمشروع              | 5) المهندس/محمد خليل         |
| (عضواً)        | الشركة المنفذة إعمار للإستثمار العقاري والمقاولات العامة | 6) المهندس/ أحمد محمد حسن    |

وبعد الإطلاع على محضر الاستلام الابتدائى للعملية وملفات التجارب المعملية تم حساب الخصومات المالية وجاءت كالاتى :

\*الخصم على طبقة الأتربة : لا يوجد خصم

\*الخصم على اختبارات الدمك بطبقة التربة : لا يوجد خصم

\*الخصم على النقص فى السمك لطبقة الأتربة : لا يوجد خصم

\*الخصم طبقا لمحضر الاستلام الإبتدائي :-

من الفحص البصري :-

\*الخصم على سطح الطريق  $0.006 \times 5699687 = 34199$  جنيه

\*الخصم على إختبارات التصنيف والتدرج وال CBR لطبقة الأتربة : لا يوجد خصم

\*القيمة المالية للخصم للجنة الإستلام الإبتدائي : 34199 جنيهاً ( أربعة وثلاثون ألفاً ومائة وتسعة وتسعون جنيه مصري )

التوقيعات :

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عبد . مهندس /  
هاني محمد محمود طه



6-

5- محمد خليل

4-

3-

2-

1-

قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح ) لتنفيذ المسافة من الكم ٦٠٠+١١ الى الكم ٦٠٠+١٢ بطول ١ كم  
اتجاه سيدي كيرير قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ١-٤ ) اعمال توريد وفرش طبقة الأساس ( PREPARED SUBGRADE )

تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٨٠٣٧,٢٣ م ٣

| الكمية  | بيان الاعمال                                   |
|---------|------------------------------------------------|
| ٧٢٠٠    | مستخلص جاري ١                                  |
| ٧٦٣٠    | مستخلص جاري ٢                                  |
| ٤٠٧,٢٣  | كميات لم تدرج في المستخلص السابق               |
| ٤٠٧,٢٣  | اجمالي الكميات خلال فترة المستخلص الحالية (٣م) |
| ٨٠٣٧,٢٣ | الاجمالي الكلي (٣م)                            |

مدير مشروع الهيئة

م / إبراهيم الحناوى

مهندس الاستشاري

مكتب د/سعد الجيوشي

م/مصطفى نجم

التوقيع  
٢٠١٣-٥-٢٠

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

محمد خليل

مهندس الشركة

م / أحمد محمد حسن

أحمد محمد حسن

قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين -  
مطروح ) لتنفيذ المسافة من الكم ٤١١+٦٠٠ الي الكم ٤١٢+٦٠٠ بطول ١ كم  
اتجاه سيدي كيرير قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ١-٤ ) علاوة مسافة النقل ١٣٠ كم

تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٨٠٣٧,٢٣ م ٣

| الكمية  | بيان الاعمال                                    |
|---------|-------------------------------------------------|
| ٧٢٠٠    | مستخلص جاري ١                                   |
| ٧٦٣٠    | مستخلص جاري ٢                                   |
| ٤٠٧,٢٣  | كميات لم تدرج في<br>المستخلص السابق             |
| ٤٠٧,٢٣  | اجمالي الكميات خلال فترة المستخلص الحالية (م ٣) |
| ٨٠٣٧,٢٣ | الاجمالي الكلي (م ٣)                            |

مدير مشروع الهيئة  
م / إبراهيم الحناوى

مهندس الاستشاري  
مكتب د/سعد الجيوشي  
م/مصطفى نجم

مهندس الاستشاري  
مكتب XYZ  
م / محمد خليل

مهندس الشركة  
م / أحمد محمد حسن

قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح ) لتنفيذ المسافة من الكم ٤١١+٦٠٠ الي الكم ٤١٢+٦٠٠ بطول ١ كم  
اتجاه سيدي كرير قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ١-٤ ) علاوة تحصيل رسوم الكارثة والموازن طبقا للائحة الشركة الوطنية  
تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٨٠٣٧,٢٣ م ٣

| بيان الاعمال                                    | الكمية  |
|-------------------------------------------------|---------|
| مستخلص جاري ١                                   | ٧٢٠٠    |
| مستخلص جاري ٢                                   | ٧٦٣٠    |
| كميات لم تدرج في المستخلص السابق                | ٤٠٧,٢٣  |
| اجمالي الكميات خلال فترة المستخلص الحالية (م ٣) | ٤٠٧,٢٣  |
| الاجمالي الكلي (م ٣)                            | ٨٠٣٧,٢٣ |

مدير مشروع الهيئة

م / إبراهيم الحناوى

مهندس الاستشاري

مكتب د/سعد الجيوشي

م/مصطفى نجم

م / مصطفى نجم

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

م / محمد خليل

مهندس الشركة

م / أحمد محمد حسن

م / أحمد محمد حسن

قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح ) لتنفيذ المسافة من الكم ٦٠٠+١١ الى الكم ٦٠٠+١٢ بطول ١ كم  
اتجاه سيدي كرير قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ٢-٤ ) اعمال توريد وفرش طبقة الأساس ( SUB BALLAST )

تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٤٨٤٢,٨٤ م ٣

| الكمية  | بيان الاعمال                                   |
|---------|------------------------------------------------|
| ٢٦٠٠    | مستخلص جاري ١                                  |
| ٤٦٠٠    | مستخلص جاري ٢                                  |
| ٢٤٢,٨٤  | كميات لم تدرج في المستخلص السابق               |
| ٢٤٢,٨٤  | اجمالي الكميات خلال فترة المستخلص الحالية (٣م) |
| ٤٨٤٢,٨٤ | الاجمالي الكلي (٣م)                            |

مدير مشروع الهيئة

م / إبراهيم الحناوي

مهندس الاستشاري

مكتب د/ سعد الجيوشي

م/مصطفى نجم

م/مصطفى نجم

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

محمد خليل

مهندس الشركة

م / أحمد محمد حسن

أحمد محمد حسن

قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح ) لتنفيذ المسافة من الكم ٦٠٠+١١ الى الكم ٦٠٠+١٢ بطول ١ كم  
اتجاه سيدي كرير قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ٢-٤ ) علاوة مسافة النقل ١٣٠ كم

تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٤٨٤٢,٨٤ م ٣

| الكمية  | بيان الاعمال                                    |
|---------|-------------------------------------------------|
| ٢٦٠٠    | مستخلص جاري ١                                   |
| ٤٦٠٠    | مستخلص جاري ٢                                   |
| ٢٤٢,٨٤  | كميات لم تدرج في المستخلص السابق                |
| ٢٤٢,٨٤  | اجمالي الكميات خلال فترة المستخلص الحالية (م ٣) |
| ٤٨٤٢,٨٤ | الاجمالي الكلي (م ٣)                            |

مدير مشروع الهيئة

م / إبراهيم الحناوى

مهندس الاستشاري

مكتب د/ سعد الجيوشي

م / مصطفى نجم

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

مهندس الشركة

م / أحمد محمد حسن

٢٠٢٣-٥-٣٠



قائمة الكميات الواردة بالمستخلص ختامي ( ٣ )

اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي السريع (العين السخنة -العاصمة الادارية -العلمين - مطروح ) لتنفيذ المسافة من الكم ٦٠٠+١١ الى الكم ٦٠٠+١٢ بطول ١ كم  
اتجاه سيدي كبريت قطاع (العلمين-فوكة)

رقم البند و بيانه : ( ٢-٤ ) علاوة تحصيل رسوم الكارثة والموازن طبقا للائحة الشركة الوطنية  
تنفيذ : شركة إعمار للإستثمار العقاري والمقاولات العامة

مقدار العمل السابق : ٢م ٤٨٤٢,٨٤

| بيان الاعمال                                   | الكمية  |
|------------------------------------------------|---------|
| مستخلص جاري ١                                  | ٢٦٠٠    |
| مستخلص جاري ٢                                  | ٤٦٠٠    |
| كميات لم تدرج في المستخلص السابق               | ٢٤٢,٨٤  |
| اجمالي الكميات خلال فترة المستخلص الحالية (٣م) | ٢٤٢,٨٤  |
| الاجمالي الكلي (٣م)                            | ٤٨٤٢,٨٤ |

مدير مشروع الهيئة

م / إبراهيم الحناوي

مهندس الاستشاري

مكتب د/سعد الجيوشي

م/مصطفى نجم

البريد الإلكتروني  
2023-5-20

مهندس الاستشاري

مكتب XYZ

م / محمد خليل

محمد خليل

مهندس الشركة

م / أحمد محمد حسن

مشروع القطار السريع (العلمين - فوكة) القطاع السادس

شركة إعمار للاستثمار العقاري والمقاولات العامة

محضر تحديد مسافة نقل سن

(نقل سن)

انه في يوم الخميس الموافق :- 2022/10/6

- بناء على طلب شركة إعمار للاستثمار العقاري و المقاولات العامة لتحديد مسافة نقل سن من كسارة العروبة

على طريق وادي النظرون للمشروع المذكور أعلاه.

تم زيارة الكسارة من قبل:-

- |                                    |                                                     |
|------------------------------------|-----------------------------------------------------|
| 1- السيد المهندس / ابراهيم الحناوي | ممثل الهيئة العامة للطرق والكباري                   |
| 2- السيد المهندس / مصطفى نجم       | مدير مشروع الاستشاري مكتب د. سعد الجيوشي            |
| 3- السيد المهندس / محمد خليل       | ممثل استشاري المساحة مكتب (XYZ)                     |
| 4- السيد المهندس / أحمد محمد حسن   | ممثل شركة إعمار للاستثمار العقاري والمقاولات العامة |

احداثي الكسارة :  $30^{\circ}44'19.50''N$   $29^{\circ}50'06.90''E$

احداثي منتصف القطاع :  $30^{\circ}53'33.18''N$   $28^{\circ}49'33.7''E$

وتبين ان الكسارة علي مسافة 130 كم من منتصف قطاع الشركة

وعلي ذلك تم توقيع...

4-   
3-   
2-   
1- 

## معله اضافيه

### واردة من المنطقة الخامسة - غرب الدلتا

اسم العمل: تنفيذ اعمال الجسر الترابى والاعمال الصناعية بقطاع العاصمة الادارية  
ضمن مشروع انشاء القطار الكهربائى السريع (العين السخنة - العاصمة  
الادارية - العلمين - مطروح) قطاع العلمين فوكه فى المسافة من الكم ٤١١,٦٠٠ الى  
الكم ٤١٢,٦٠٠ بطول اكم اتجاه سيدى كرير

اسم الشركة المنفذة: شركة اعمار للاستثمار العقارى والمقاولات العامة

عقد العملية رقم: (٢٠٢٣/٢٠٢٢/٦٨٥)

قيمة التعاقدية: ٥,٧ مليون جنيه

تاريخ بدء العمل: ٢٠٢٢/١١/٨

تاريخ النهو طبقا للتعاقد: ٢٠٢٣/٧/٧

المطلوب: مد مدته المشروع ٦ اشهر ليصبح تاريخ النهو ٢٠٢٤/١/٧

المبررات: ورد خطاب المنطقة المشرفة والمرفق به خطاب الشركة المنفذه بشأن مد مدته العملية (٦ اشهر) للاسباب الاتيه

- بناءً على قرار مجلس الوزراء بالجلسة رقم (٢٥٤) بتاريخ ٢٠٢٣/٨/٣٠ بمد جميع التعاقدات  
الجارى تنفيذها لمدة (٦ اشهر) وذلك لمواجهة الاثار السلبية المترتبة على تداعيات الازمات  
العالمية الحالية والى طلب الشركة المنفذه المقدم بمبررات منحها تلك المدة وموافقة المنطقة  
المشرفة بعد دراستها الطلب على منحها تلك المدة

- تغير سعر صرف الدولار بشكل مفاجى اثر على ترتيبات الاعمال

- الصعوبة فى الحصول على المواد الخام

- الصعوبة فى الحصول على قطع غيار المعدات اللازمة

إعداد مهندس:

مدير عام (صيانة/التنفيذ)

رئيس الادارة المركزية للشئون المالية:

رأى الإدارة القانون:

رئيس الادارة المركزية لتنفيذ وصيانه

رئيس قطاع التنفيذ والمناطق:

أوافق و يعتمد

التوقيع  
لواء مهندس / حسام الدين مصطفى  
رئيس الهيئة العامة للطرق والكبارى

مع منغ العملية المرء المقرر  
- مجلس الوزراء مع عدم تعيين صغار  
- تأخير من الشركة لعدم توافر  
- صاير ذلك ١٠٢٠ ت  
دائى

السيد العميد // رئيس الإدارة المركزية للشئون المالية والإدارية

تحية طيبة وبعد ،،،

بالإحالة الى عملية اعمال الجسر الترابى بقطاعات المشروع ضمن مشروع القطار الكهربائى السريع قطاع ( العين السخنة - مطروح ) المسافة من الكم ٤١١,٦٠٠ الى الكم ٤١٢,٦٠٠ بطول ١ كم اتجاه سيدى كرير .

تنفيذ شركة اعمار للاستثمار العقارى والمقاولات العامة  
عقد رقم ( ٢٠٢٣/٢٠٢٢/٦٨٥ )

نتشرف بالاحاطة بانه يوجد عدد ( ٤ ) عمال بالمنطقة بالعملية  
عاليه طبقا لكراسة الشروط .

برجاء التكرم بالاحاطة والتنبيه باللازم ،،،

وتفضلوا بقبول فائق الاحترام ،،،،

رئيس الإدارة المركزية

منطقة عمر بن الخطاب

(بالإسكندرية مرسى مطروح)

عقيد مهندس / هانى محمود طه

**Company : Emar Construction Co.**

**Project :** Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (6)  
- Alamein to Foka  
**Subject :** Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements  
**Test Location :** Station 411+600 to 411+750  
**Test Date :** 06/12/2022  
**Report Date :** 07/12/2022  
**Type of soil :** Prepared subgrade  
**Test level :** ----  
**Report No. :** 65:70

**Dear Gentleman,**

According to the above mentioned subject the test performed as follows:-

**Apparatus**

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Enerbac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached

**Test Procedure**

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm<sup>2</sup>
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
9. Following unloading, a further (2<sup>nd</sup>) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads





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#### Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The test report content the following:-
  - location of test site - Dimension of loading plate
  - Measuring device used - Type of soil
  - Type of Bedding material below the plate -Weathering condition
  - Time and date of measurements - Unusual observation made during test
  - Dial gauge reading and corresponding normal stress - Loading-settlement curve
  - Description of the soil condition below the plate after testing

#### Report

- Type of layer : Prepared subgrade
- Job requirement :  $E_{v2} > 800 \text{ Kg/cm}^2$  (80 MPa).

| Item                                                               | Descriptions   |
|--------------------------------------------------------------------|----------------|
| - Type of bedding material below the plate                         | Natural Soil   |
| - Weather condition                                                | Sunny          |
| - Plate Diameter (mm)                                              | 600            |
| - date of measurement                                              | 06/12/2022     |
| - Unusual observation made during test                             | NO             |
| - Description of the soil conditions below the plate after testing | No deformation |

#### Evaluation and representation of results

| Test No. | Station |         | First Cycle                       | Second Cycle                      | $E_{v2}/E_{v1}$ Ratio |
|----------|---------|---------|-----------------------------------|-----------------------------------|-----------------------|
|          | From    | To      | $E_{v1} \text{ (kg/cm}^2\text{)}$ | $E_{v2} \text{ (kg/cm}^2\text{)}$ |                       |
| 1        | 411+600 | 411+625 | 1500                              | 1500                              | 1.0                   |
| 2        | 411+625 | 411+650 | 1667                              | 2045                              | 1.2                   |
| 3        | 411+650 | 411+675 | 1800                              | 2813                              | 1.6                   |
| 4        | 411+675 | 411+700 | 1364                              | 1607                              | 1.2                   |
| 5        | 411+700 | 411+725 | 1406                              | 1875                              | 1.3                   |
| 6        | 411+725 | 411+750 | 1406                              | 2143                              | 1.5                   |

Signature /

  
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رقم التسجيل الضريبي : 219 - 991 - 537  
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# CEL

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مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+600 to 411+625  
Test No. : 01

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134

**Data sheet**

### Loading Stage (1)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.90  | 0.10             | 19.66  | 0.34             | 19.82  | 0.18             | 0.21    |
| 2       | 0.83             | 19.78  | 0.22             | 19.60  | 0.40             | 19.72  | 0.28             | 0.30    |
| 3       | 1.25             | 19.63  | 0.37             | 19.48  | 0.52             | 19.60  | 0.40             | 0.43    |
| 4       | 1.67             | 19.50  | 0.50             | 19.37  | 0.63             | 19.46  | 0.54             | 0.56    |
| 5       | 2.08             | 19.36  | 0.64             | 19.26  | 0.74             | 19.32  | 0.68             | 0.69    |
| 6       | 2.50             | 19.23  | 0.77             | 19.18  | 0.82             | 19.21  | 0.79             | 0.79    |

### Unloading Stage (1)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.23  | 0.77             | 19.18  | 0.82             | 19.21  | 0.79             | 0.79    |
| 2       | 1.25             | 19.26  | 0.74             | 19.23  | 0.77             | 19.25  | 0.75             | 0.75    |
| 3       | 0.625            | 19.32  | 0.68             | 19.28  | 0.72             | 19.30  | 0.70             | 0.70    |
| 4       | 0.01             | 19.62  | 0.38             | 19.52  | 0.48             | 19.45  | 0.55             | 0.47    |

### Loading Stage (2)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.51  | 0.49             | 19.43  | 0.57             | 19.32  | 0.68             | 0.58    |
| 1       | 0.83             | 19.40  | 0.60             | 19.33  | 0.67             | 19.21  | 0.79             | 0.69    |
| 2       | 1.25             | 19.29  | 0.71             | 19.21  | 0.79             | 19.12  | 0.88             | 0.79    |
| 3       | 1.67             | 19.16  | 0.84             | 19.04  | 0.96             | 19.00  | 1.00             | 0.93    |
| 4       | 2.08             | 19.02  | 0.98             | 18.92  | 1.08             | 18.85  | 1.15             | 1.07    |

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Signature \ .....

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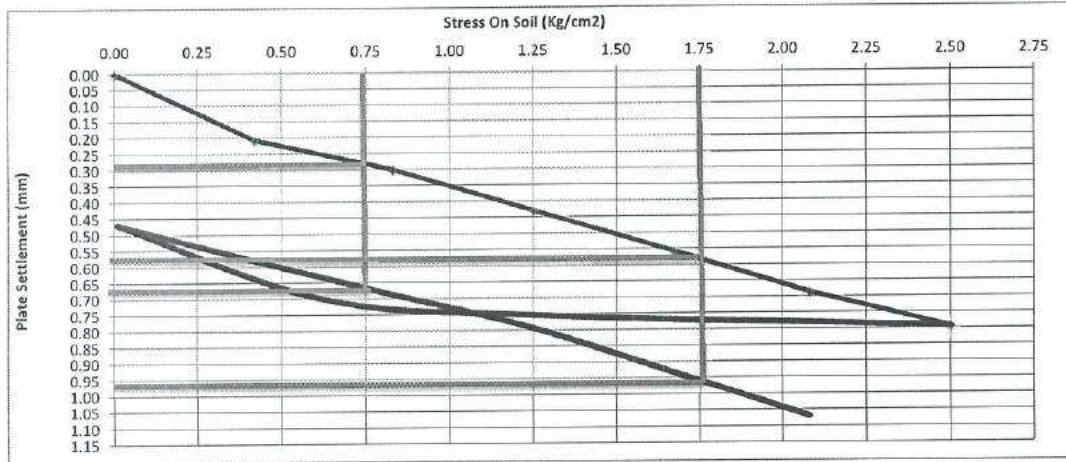
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# CEL

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مكتب معامل الإستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+600 to 411+625  
Test No. : 01

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.21    | 0.30   | 0.43   | 0.56   | 0.69   | 0.79 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.79 | 0.75 | 0.70  | 0.47 |

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.28 | S2(mm) = 0.58 | ΔS = 0.30 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |               |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.47 | 0.58    | 0.69   | 0.79   | 0.93   | 1.07   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.0 |
|-----------|-----|

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.67 | S2(mm) = 0.97 | ΔS = 0.30 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |               |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

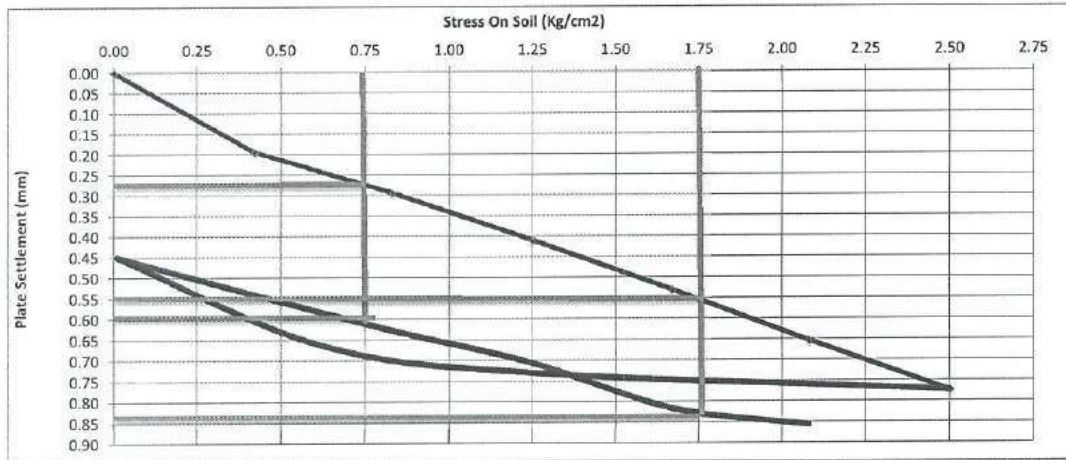
Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



: 02

**DIN 18134**



DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

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مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+650 to 411+675  
Test No. : 03

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.92  | 0.08             | 19.78  | 0.22             | 19.90  | 0.10             | 0.13    |
| 2       | 0.83             | 19.83  | 0.17             | 19.65  | 0.35             | 19.84  | 0.16             | 0.23    |
| 3       | 1.25             | 19.66  | 0.34             | 19.54  | 0.46             | 19.79  | 0.21             | 0.34    |
| 4       | 1.67             | 19.58  | 0.42             | 19.45  | 0.55             | 19.70  | 0.30             | 0.42    |
| 5       | 2.08             | 19.47  | 0.53             | 19.35  | 0.65             | 19.61  | 0.39             | 0.52    |
| 6       | 2.50             | 19.38  | 0.62             | 19.24  | 0.76             | 19.53  | 0.47             | 0.62    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.38  | 0.62             | 19.24  | 0.76             | 19.53  | 0.47             | 0.62    |
| 2       | 1.25             | 19.42  | 0.58             | 19.31  | 0.69             | 19.56  | 0.44             | 0.57    |
| 3       | 0.625            | 19.47  | 0.53             | 19.42  | 0.58             | 19.60  | 0.40             | 0.50    |
| 4       | 0.01             | 19.63  | 0.37             | 19.72  | 0.28             | 19.75  | 0.25             | 0.30    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.55  | 0.45             | 19.58  | 0.42             | 19.68  | 0.32             | 0.40    |
| 1       | 0.83             | 19.50  | 0.50             | 19.46  | 0.54             | 19.60  | 0.40             | 0.48    |
| 2       | 1.25             | 19.45  | 0.55             | 19.40  | 0.60             | 19.54  | 0.46             | 0.54    |
| 3       | 1.67             | 19.38  | 0.62             | 19.33  | 0.67             | 19.49  | 0.51             | 0.60    |
| 4       | 2.08             | 19.30  | 0.70             | 19.25  | 0.75             | 19.40  | 0.60             | 0.68    |

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219-997-997  
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العنوان: 3 شارع الملك الأفدال - الزمالك

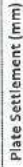
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: Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
: 06/12/2022  
: 07/12/2022  
: Station 411+650 to 411+675  
: 03

DIN 18134





Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+675to 411+700  
Test No. : 04

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.85  | 0.15             | 19.70  | 0.30             | 19.86  | 0.14             | 0.20    |
| 2       | 0.83             | 19.76  | 0.24             | 19.62  | 0.38             | 19.78  | 0.22             | 0.28    |
| 3       | 1.25             | 19.63  | 0.37             | 19.50  | 0.50             | 19.60  | 0.40             | 0.42    |
| 4       | 1.67             | 19.48  | 0.52             | 19.35  | 0.65             | 19.49  | 0.51             | 0.56    |
| 5       | 2.08             | 19.34  | 0.66             | 19.24  | 0.76             | 19.32  | 0.68             | 0.70    |
| 6       | 2.50             | 19.20  | 0.80             | 19.16  | 0.84             | 19.23  | 0.77             | 0.80    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.20  | 0.80             | 19.16  | 0.84             | 19.23  | 0.77             | 0.80    |
| 2       | 1.25             | 19.24  | 0.76             | 19.21  | 0.79             | 19.28  | 0.72             | 0.76    |
| 3       | 0.625            | 19.32  | 0.68             | 19.26  | 0.74             | 19.35  | 0.65             | 0.69    |
| 4       | 0.01             | 19.65  | 0.35             | 19.52  | 0.48             | 19.71  | 0.29             | 0.37    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.55  | 0.45             | 19.47  | 0.53             | 19.60  | 0.40             | 0.46    |
| 1       | 0.83             | 19.42  | 0.58             | 19.38  | 0.62             | 19.49  | 0.51             | 0.57    |
| 2       | 1.25             | 19.30  | 0.70             | 19.27  | 0.73             | 19.32  | 0.68             | 0.70    |
| 3       | 1.67             | 19.18  | 0.82             | 19.19  | 0.81             | 19.20  | 0.80             | 0.81    |
| 4       | 2.08             | 19.08  | 0.92             | 19.10  | 0.90             | 19.06  | 0.94             | 0.92    |

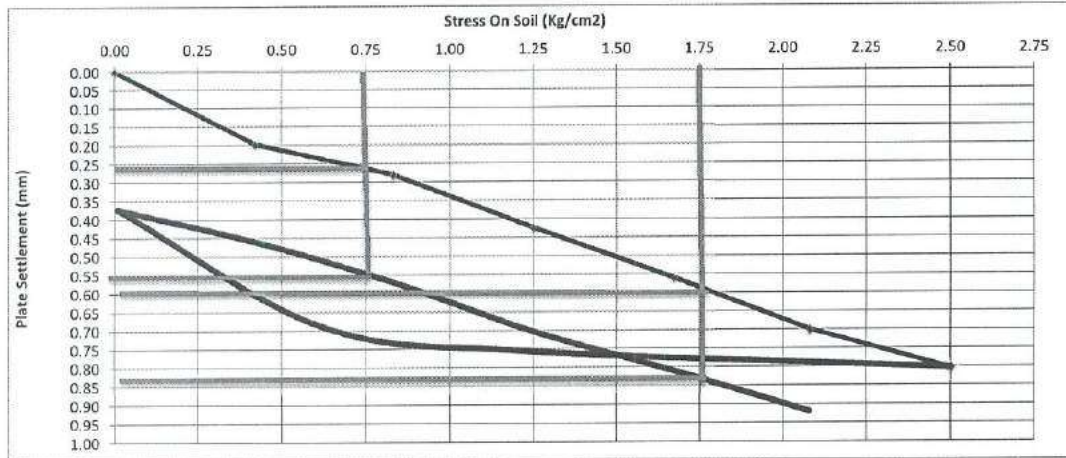
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**Consulting Engineering Bureau & Laboratories**  
مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+675to 411+700  
Test No. : 04

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.20    | 0.28   | 0.42   | 0.56   | 0.70   | 0.80 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.80 | 0.76 | 0.69  | 0.37 |

|                               |     |          |      |         |      |      |      |
|-------------------------------|-----|----------|------|---------|------|------|------|
| D (mm) =                      | 600 | S1 (mm)= | 0.27 | S2(mm)= | 0.60 | ΔS = | 0.33 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS |     |          | 1364 |         |      |      |      |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.37 | 0.46    | 0.57   | 0.70   | 0.81   | 0.92   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.2 |
|-----------|-----|

|                               |     |          |      |         |      |      |      |
|-------------------------------|-----|----------|------|---------|------|------|------|
| D (mm) =                      | 600 | S1 (mm)= | 0.55 | S2(mm)= | 0.83 | ΔS = | 0.28 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS |     |          | 1607 |         |      |      |      |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الإستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+700 to 411+725  
Test No. : 05

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.80  | 0.20             | 19.70  | 0.30             | 19.90  | 0.10             | 0.20    |
| 2       | 0.83             | 19.68  | 0.32             | 19.60  | 0.40             | 19.73  | 0.27             | 0.33    |
| 3       | 1.25             | 19.57  | 0.43             | 19.49  | 0.51             | 19.60  | 0.40             | 0.45    |
| 4       | 1.67             | 19.42  | 0.58             | 19.36  | 0.64             | 19.45  | 0.55             | 0.59    |
| 5       | 2.08             | 19.30  | 0.70             | 19.24  | 0.76             | 19.31  | 0.69             | 0.72    |
| 6       | 2.50             | 19.18  | 0.82             | 19.12  | 0.88             | 19.16  | 0.84             | 0.85    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.18  | 0.82             | 19.12  | 0.88             | 19.16  | 0.84             | 0.85    |
| 2       | 1.25             | 19.22  | 0.78             | 19.16  | 0.84             | 19.18  | 0.82             | 0.81    |
| 3       | 0.625            | 19.27  | 0.73             | 19.21  | 0.79             | 19.23  | 0.77             | 0.76    |
| 4       | 0.01             | 19.52  | 0.48             | 19.48  | 0.52             | 19.37  | 0.63             | 0.54    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.41  | 0.59             | 19.40  | 0.60             | 19.28  | 0.72             | 0.64    |
| 1       | 0.83             | 19.32  | 0.68             | 19.29  | 0.71             | 19.19  | 0.81             | 0.73    |
| 2       | 1.25             | 19.20  | 0.80             | 19.17  | 0.83             | 19.09  | 0.91             | 0.85    |
| 3       | 1.67             | 19.08  | 0.92             | 19.07  | 0.93             | 19.00  | 1.00             | 0.95    |
| 4       | 2.08             | 18.92  | 1.08             | 18.90  | 1.10             | 18.87  | 1.13             | 1.10    |

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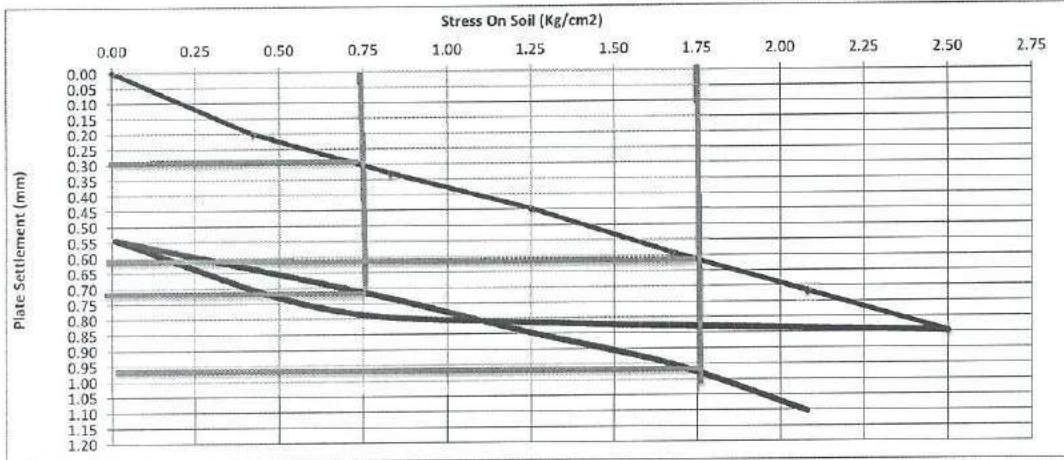
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# CEL

**Consulting Engineering Bureau & Laboratories**  
مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+700 to 411+725  
Test No. : 05

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.20    | 0.33   | 0.45   | 0.59   | 0.72   | 0.85 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.85 | 0.81 | 0.76  | 0.54 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.30 | S2 (mm) = 0.62 | ΔS = 0.32 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1406           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.54 | 0.64    | 0.73   | 0.85   | 0.95   | 1.10   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.3 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.72 | S2 (mm) = 0.96 | ΔS = 0.24 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1875           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

ΔS = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

# CEL

**Consulting Engineering Bureau & Laboratories**  
مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+725 to 411+750  
Test No. : 06

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

### Loading Stage (1)

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00                         | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42                         | 19.72  | 0.28             | 19.80  | 0.20             | 19.68  | 0.32             | 0.27    |
| 2       | 0.83                         | 19.61  | 0.39             | 19.67  | 0.33             | 19.58  | 0.42             | 0.38    |
| 3       | 1.25                         | 19.50  | 0.50             | 19.53  | 0.47             | 19.43  | 0.57             | 0.51    |
| 4       | 1.67                         | 19.35  | 0.65             | 19.40  | 0.60             | 19.31  | 0.69             | 0.65    |
| 5       | 2.08                         | 19.21  | 0.79             | 19.28  | 0.72             | 19.16  | 0.84             | 0.78    |
| 6       | 2.50                         | 19.08  | 0.92             | 19.16  | 0.84             | 19.03  | 0.97             | 0.91    |

### Unloading Stage (1)

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50                         | 19.08  | 0.92             | 19.16  | 0.84             | 19.03  | 0.97             | 0.91    |
| 2       | 1.25                         | 19.12  | 0.88             | 19.19  | 0.81             | 19.08  | 0.92             | 0.87    |
| 3       | 0.625                        | 19.17  | 0.83             | 19.24  | 0.76             | 19.13  | 0.87             | 0.82    |
| 4       | 0.01                         | 19.38  | 0.62             | 19.46  | 0.54             | 19.32  | 0.68             | 0.61    |

### Loading Stage (2)

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42                         | 19.30  | 0.70             | 19.37  | 0.63             | 19.26  | 0.74             | 0.69    |
| 1       | 0.83                         | 19.21  | 0.79             | 19.26  | 0.74             | 19.18  | 0.82             | 0.78    |
| 2       | 1.25                         | 19.16  | 0.84             | 19.20  | 0.80             | 19.11  | 0.89             | 0.84    |
| 3       | 1.67                         | 19.03  | 0.97             | 19.09  | 0.91             | 19.00  | 1.00             | 0.96    |
| 4       | 2.08                         | 18.93  | 1.07             | 18.96  | 1.04             | 18.89  | 1.11             | 1.07    |

  
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 العنوان: ٣ شارع الملك الأفطل - الزمالك

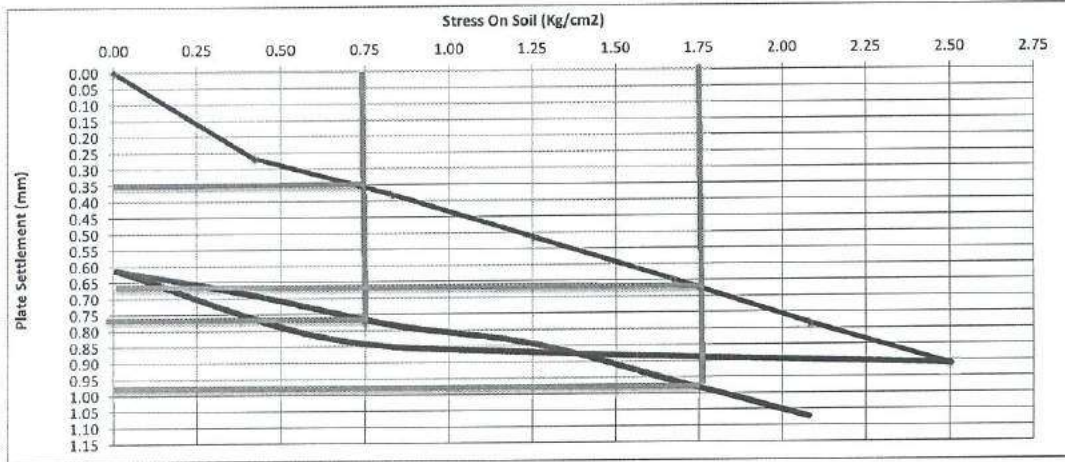
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# CEL

**Consulting Engineering Bureau & Laboratories**  
مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 06/12/2022  
report date : 07/12/2022  
Location : Station 411+725 to 411+750  
Test No. : 06

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.27    | 0.38   | 0.51   | 0.65   | 0.78   | 0.91 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.91 | 0.87 | 0.82  | 0.61 |

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 0.35 | S2(mm)= 0.67 | ΔS = 0.32 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1406          |              |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.61 | 0.69    | 0.78   | 0.84   | 0.96   | 1.07   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.5 |
|-----------|-----|

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 0.77 | S2(mm)= 0.98 | ΔS = 0.21 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 2143          |              |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

**Company : Emar Construction Co.**

**Project :** Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (6)  
- Alamein to Foka  
**Subject :** Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements  
**Test Location :** Station 411+950 to 411+750  
**Test Date :** 04/12/2022  
**Report Date :** 05/12/2022  
**Type of soil :** Prepared subgrade  
**Test level :** ----  
**Report No. :** 57:64

Dear Gentleman,

According to the above mentioned subject the test performed as follows:-

### Apparatus

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Enerbac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached

### Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm<sup>2</sup>
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
9. Following unloading, a further (2<sup>nd</sup>) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



## Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The test report content the following:-
  - location of test site - Dimension of loading plate
  - Measuring device used - Type of soil
  - Type of Bedding material below the plate -Weathering condition
  - Time and date of measurements - Unusual observation made during test
  - Dial gauge reading and corresponding normal stress - Loading-settlement curve
  - Description of the soil condition below the plate after testing

## Report

- Type of layer : Prepared subgrade
- Job requirement :  $E_{v2} > 800 \text{ Kg/cm}^2$  (80 MPa).

| Item                                                               | Descriptions   |
|--------------------------------------------------------------------|----------------|
| - Type of bedding material below the plate                         | Natural Soil   |
| - Weather condition                                                | Sunny          |
| - Plate Diameter (mm)                                              | 600            |
| - date of measurement                                              | 04/12/2022     |
| - Unusual observation made during test                             | NO             |
| - Description of the soil conditions below the plate after testing | No deformation |

## Evaluation and representation of results

| Test No. | Station |         | First Cycle                       | Second Cycle                      | $E_{v2}/E_{v1}$ Ratio |
|----------|---------|---------|-----------------------------------|-----------------------------------|-----------------------|
|          | From    | To      | $E_{v1} \text{ (kg/cm}^2\text{)}$ | $E_{v2} \text{ (kg/cm}^2\text{)}$ |                       |
| 1        | 411+925 | 411+950 | 1500                              | 2250                              | 1.5                   |
| 2        | 411+900 | 411+925 | 333                               | 726                               | 2.2                   |
| 3        | 411+875 | 411+850 | 900                               | 1731                              | 1.9                   |
| 4        | 411+850 | 411+875 | 529                               | 1286                              | 2.4                   |
| 5        | 411+825 | 411+850 | 563                               | 1125                              | 2.0                   |
| 6        | 411+800 | 411+825 | 1125                              | 1250                              | 1.1                   |
| 7        | 411+775 | 411+800 | 789                               | 1500                              | 1.9                   |
| 8        | 411+750 | 411+775 | 1000                              | 1286                              | 1.3                   |

Signature: 991 537  
 رقم الترخيص: 991 537  
 المهندس: الأستاذ الدكتور أحمد - الزمالة

**Company Name** : Emar Construction Co.  
**Project** : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
**Test Date** : 04/12/2022  
**report date** : 06/12/2022  
**Location** : Station 411+925 to 411+950  
**Test No.** : 1

# **Nonrepetitive Static Plate Load Tests of Soils**

## **DIN 18134**

## Data sheet

### Loading Stage (1)

| Loading | Stress             | Dial 1 | Settlement | Dial 2 | Settlement | Dial 3 | Settlement | Average |
|---------|--------------------|--------|------------|--------|------------|--------|------------|---------|
|         | Kg/cm <sup>2</sup> |        | mm         |        | mm         |        | mm         |         |
| 0       | 0.00               | 20.00  | 0.00       | 20.00  | 0.00       | 20.00  | 0.00       | 0.00    |
| 1       | 0.42               | 19.90  | 0.10       | 19.80  | 0.20       | 19.85  | 0.15       | 0.15    |
| 2       | 0.83               | 19.75  | 0.25       | 19.65  | 0.35       | 19.70  | 0.30       | 0.30    |
| 3       | 1.25               | 19.62  | 0.38       | 19.49  | 0.51       | 19.60  | 0.40       | 0.43    |
| 4       | 1.67               | 19.50  | 0.50       | 19.38  | 0.62       | 19.47  | 0.53       | 0.55    |
| 5       | 2.08               | 19.40  | 0.60       | 19.30  | 0.70       | 19.37  | 0.63       | 0.64    |
| 6       | 2.50               | 19.30  | 0.70       | 19.20  | 0.80       | 19.28  | 0.72       | 0.74    |

### Unloading Stage (1)

| Loading | Stress | Dial 1 | Settlement | Dial 2 | Settlement | Dial 3 | Settlement | Average |
|---------|--------|--------|------------|--------|------------|--------|------------|---------|
|         | Kg/cm2 |        | mm         |        | mm         |        | mm         |         |
| 1       | 2.50   | 19.30  | 0.70       | 19.20  | 0.80       | 19.28  | 0.72       | 0.74    |
| 2       | 1.25   | 19.32  | 0.68       | 19.25  | 0.75       | 19.30  | 0.70       | 0.71    |
| 3       | 0.625  | 19.45  | 0.55       | 19.40  | 0.60       | 19.43  | 0.57       | 0.57    |
| 4       | 0.01   | 19.70  | 0.30       | 19.60  | 0.40       | 19.65  | 0.35       | 0.35    |

### Loading Stage (2)

| Loading | Stress | Dial 1 | Settlement | Dial 2 | Settlement | Dial 3 | Settlement | Average |
|---------|--------|--------|------------|--------|------------|--------|------------|---------|
|         | Kg/cm2 |        | mm         |        | mm         |        | mm         |         |
| 0       | 0.42   | 19.65  | 0.35       | 19.55  | 0.45       | 19.60  | 0.40       | 0.40    |
| 1       | 0.83   | 19.55  | 0.45       | 19.40  | 0.60       | 19.50  | 0.50       | 0.52    |
| 2       | 1.25   | 19.43  | 0.57       | 19.33  | 0.67       | 19.40  | 0.60       | 0.61    |
| 3       | 1.67   | 19.37  | 0.63       | 19.26  | 0.74       | 19.32  | 0.68       | 0.68    |
| 4       | 2.08   | 19.30  | 0.70       | 19.20  | 0.80       | 19.24  | 0.76       | 0.75    |

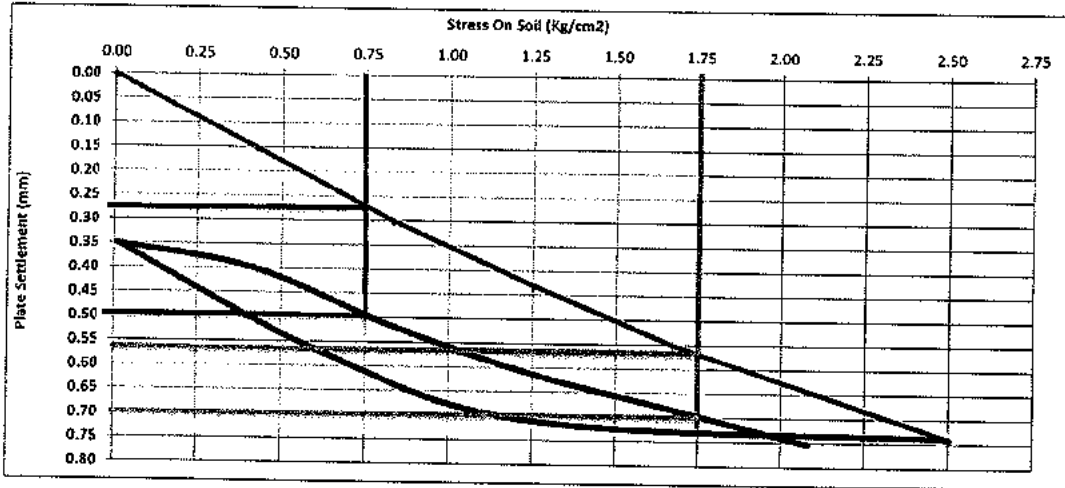
**Signature**

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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+925 to 411+950  
Test No. : 1

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.15    | 0.30   | 0.43   | 0.55   | 0.64   | 0.74 |

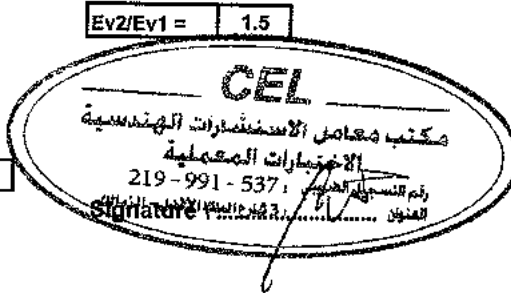
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.74 | 0.71 | 0.57  | 0.35 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.27 | S2 (mm) = 0.57 | ΔS = 0.30 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.35 | 0.40    | 0.52   | 0.61   | 0.68   | 0.75   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.5 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.50 | S2 (mm) = 0.70 | ΔS = 0.20 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 2250           |                |           |



Ev1 = Modulus of deformation during the loading stage.  
Ev2 = Modulus of deformation during the Reloading stage.  
D = Plate diameter (mm)  
Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)  
DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+900 to 411+925  
Test No. : 02

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.71  | 0.29             | 19.62  | 0.38             | 19.57  | 0.43             | 0.37    |
| 2       | 0.83             | 19.22  | 0.78             | 18.92  | 1.08             | 18.98  | 1.02             | 0.96    |
| 3       | 1.25             | 18.73  | 1.27             | 18.26  | 1.74             | 18.31  | 1.69             | 1.57    |
| 4       | 1.67             | 18.28  | 1.72             | 17.67  | 2.33             | 17.72  | 2.28             | 2.11    |
| 5       | 2.08             | 17.91  | 2.09             | 17.43  | 2.57             | 17.22  | 2.78             | 2.48    |
| 6       | 2.50             | 17.50  | 2.50             | 16.61  | 3.39             | 16.66  | 3.34             | 3.08    |

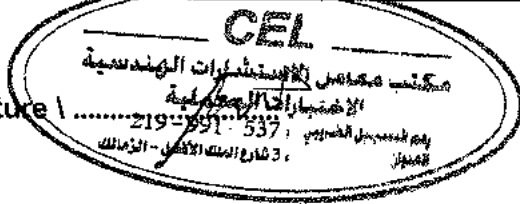
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 17.50  | 2.50             | 16.61  | 3.39             | 16.66  | 3.34             | 3.08    |
| 2       | 1.25             | 17.69  | 2.31             | 16.92  | 3.08             | 16.93  | 3.07             | 2.82    |
| 3       | 0.625            | 17.98  | 2.02             | 17.34  | 2.66             | 17.27  | 2.73             | 2.47    |
| 4       | 0.01             | 18.58  | 1.42             | 18.19  | 1.81             | 18.09  | 1.91             | 1.71    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 18.39  | 1.61             | 17.88  | 2.12             | 17.86  | 2.14             | 1.96    |
| 1       | 0.83             | 18.16  | 1.84             | 17.58  | 2.42             | 17.55  | 2.45             | 2.24    |
| 2       | 1.25             | 17.92  | 2.08             | 17.22  | 2.78             | 17.20  | 2.80             | 2.55    |
| 3       | 1.67             | 17.74  | 2.26             | 16.95  | 3.05             | 16.96  | 3.04             | 2.78    |
| 4       | 2.08             | 17.58  | 2.44             | 16.74  | 3.26             | 16.76  | 3.24             | 2.98    |

Signature

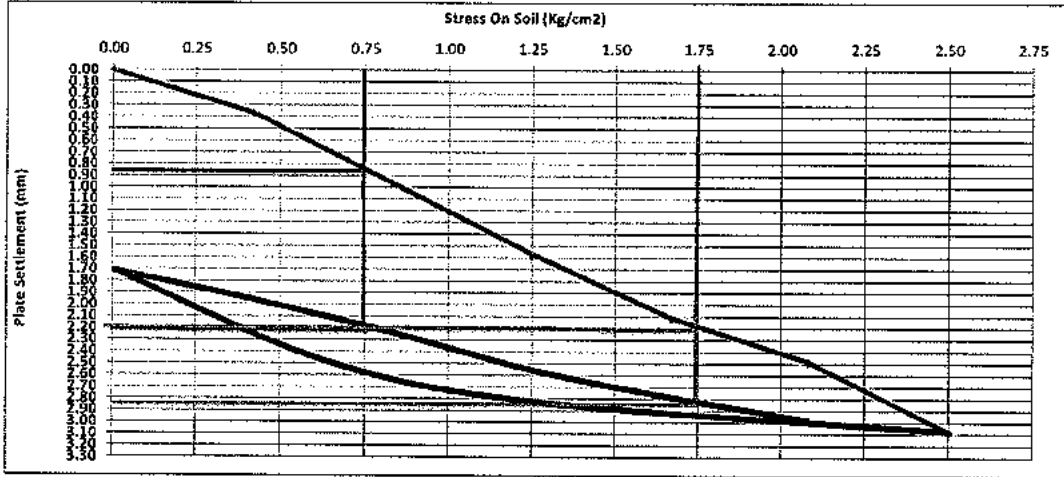


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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (5) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+900 to 411+925  
Test No. : 02

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.37    | 0.96   | 1.57   | 2.11   | 2.48   | 3.08 |

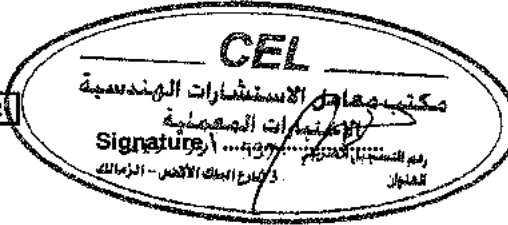
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 3.08 | 2.62 | 2.47  | 1.71 |

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.85 | S2(mm) = 2.20 | ΔS = 1.35 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 333            |               |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 1.71 | 1.96    | 2.24   | 2.55   | 2.78   | 2.98   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 2.2 |
|-----------|-----|

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 2.20 | S2(mm) = 2.82 | ΔS = 0.62 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 726            |               |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+875 to 411+900  
Test No. : 3

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.80  | 0.20             | 19.85  | 0.15             | 19.90  | 0.10             | 0.15    |
| 2       | 0.83             | 19.60  | 0.40             | 19.60  | 0.40             | 19.72  | 0.28             | 0.36    |
| 3       | 1.25             | 19.37  | 0.63             | 19.42  | 0.58             | 19.50  | 0.50             | 0.57    |
| 4       | 1.67             | 19.15  | 0.85             | 19.23  | 0.77             | 19.30  | 0.70             | 0.77    |
| 5       | 2.08             | 18.90  | 1.10             | 19.08  | 0.92             | 19.15  | 0.85             | 0.96    |
| 6       | 2.50             | 18.75  | 1.25             | 18.95  | 1.05             | 19.05  | 0.95             | 1.08    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 18.75  | 1.25             | 18.95  | 1.05             | 19.05  | 0.95             | 1.08    |
| 2       | 1.25             | 18.80  | 1.20             | 19.00  | 1.00             | 19.10  | 0.90             | 1.03    |
| 3       | 0.625            | 18.95  | 1.05             | 19.15  | 0.85             | 19.25  | 0.75             | 0.88    |
| 4       | 0.01             | 19.30  | 0.70             | 19.45  | 0.55             | 19.60  | 0.40             | 0.55    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.20  | 0.80             | 19.40  | 0.60             | 19.45  | 0.55             | 0.65    |
| 1       | 0.83             | 19.10  | 0.90             | 19.30  | 0.70             | 19.40  | 0.60             | 0.73    |
| 2       | 1.25             | 18.97  | 1.03             | 19.18  | 0.82             | 19.30  | 0.70             | 0.85    |
| 3       | 1.67             | 18.90  | 1.10             | 19.10  | 0.90             | 19.15  | 0.85             | 0.95    |
| 4       | 2.08             | 18.80  | 1.18             | 19.00  | 1.00             | 19.00  | 1.00             | 1.06    |

Signature

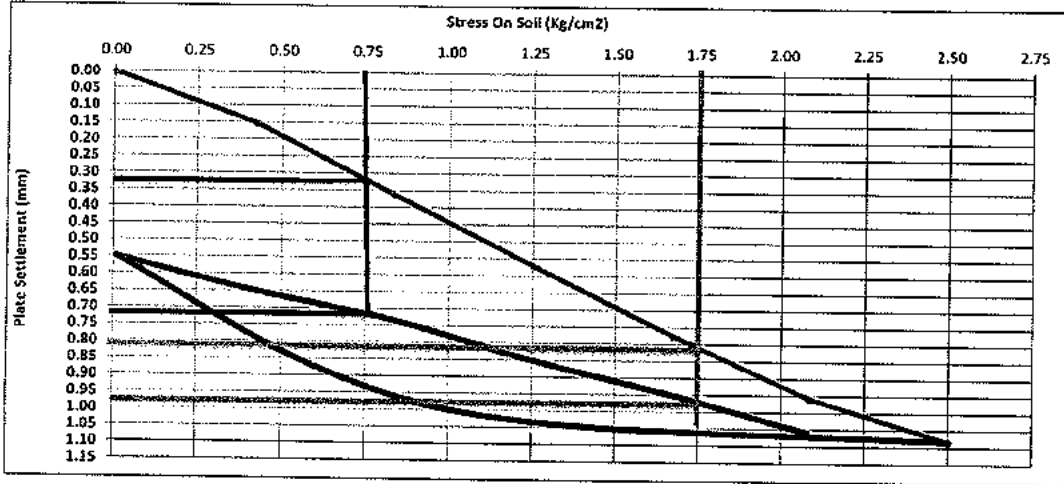
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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+875 to 411+900  
Test No. : 3

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.15    | 0.36   | 0.57   | 0.77   | 0.96   | 1.08 |

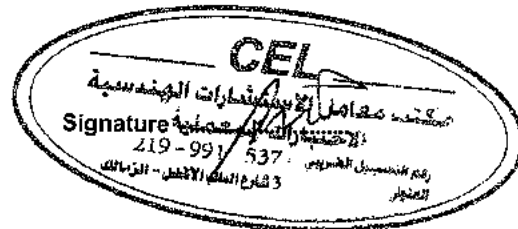
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.08 | 1.03 | 0.88  | 0.55 |

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.32 | S2(mm) = 0.82 | ΔS = 0.50 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 900            |               |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.55 | 0.65    | 0.73   | 0.85   | 0.95   | 1.06   |

Ev2/Ev1 = 1.9

|                               |                |               |           |
|-------------------------------|----------------|---------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.72 | S2(mm) = 0.98 | ΔS = 0.26 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1731           |               |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+850 to 411+875  
Test No. : 04

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134

### Data sheet

#### Loading Stage (1)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.79  | 0.21             | 19.54  | 0.46             | 19.72  | 0.28             | 0.32    |
| 2       | 0.83             | 19.53  | 0.47             | 18.96  | 1.04             | 19.24  | 0.76             | 0.76    |
| 3       | 1.25             | 19.22  | 0.78             | 18.42  | 1.58             | 18.91  | 1.09             | 1.15    |
| 4       | 1.67             | 18.98  | 1.02             | 18.05  | 1.95             | 18.56  | 1.44             | 1.47    |
| 5       | 2.08             | 18.80  | 1.20             | 17.78  | 2.22             | 18.32  | 1.68             | 1.70    |
| 6       | 2.50             | 18.59  | 1.41             | 17.46  | 2.54             | 18.07  | 1.93             | 1.96    |

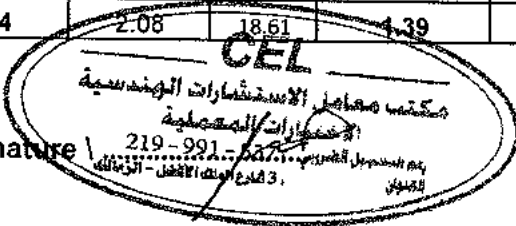
#### Unloading Stage (1)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 18.59  | 1.41             | 17.46  | 2.54             | 18.07  | 1.93             | 1.96    |
| 2       | 1.25             | 18.69  | 1.31             | 17.65  | 2.35             | 18.22  | 1.78             | 1.81    |
| 3       | 0.625            | 18.80  | 1.20             | 17.92  | 2.08             | 18.45  | 1.55             | 1.61    |
| 4       | 0.01             | 19.12  | 0.88             | 18.53  | 1.47             | 18.92  | 1.08             | 1.14    |

#### Loading Stage (2)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.03  | 0.97             | 18.29  | 1.71             | 18.79  | 1.21             | 1.30    |
| 1       | 0.83             | 18.92  | 1.08             | 18.07  | 1.93             | 18.61  | 1.39             | 1.47    |
| 2       | 1.25             | 18.84  | 1.16             | 17.89  | 2.11             | 18.44  | 1.56             | 1.61    |
| 3       | 1.67             | 18.73  | 1.27             | 17.71  | 2.29             | 18.28  | 1.72             | 1.76    |
| 4       | 2.08             | 18.61  | 1.39             | 17.55  | 2.45             | 18.16  | 1.84             | 1.89    |

Signature



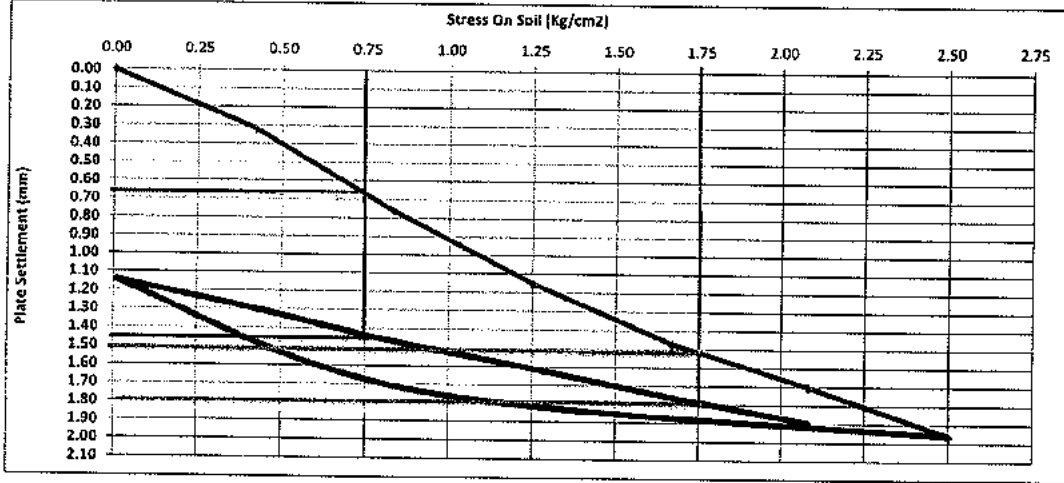
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 04/12/2022  
 report date : 06/12/2022  
 Location : Station 411+850 to 411+875  
 Test No. : 04

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.32    | 0.76   | 1.15   | 1.47   | 1.70   | 1.96 |

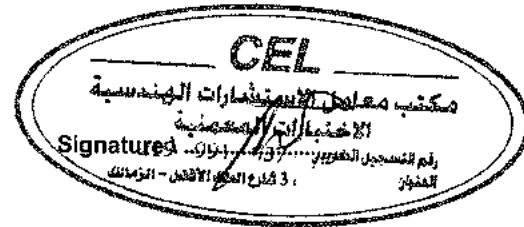
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.96 | 1.81 | 1.61  | 1.14 |

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 0.65 | S2(mm)= 1.50 | ΔS = 0.85 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 529           |              |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 1.14 | 1.30    | 1.47   | 1.61   | 1.76   | 1.89   |

$$Ev2/Ev1 = 2.4$$

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 1.45 | S2(mm)= 1.80 | ΔS = 0.35 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1286          |              |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

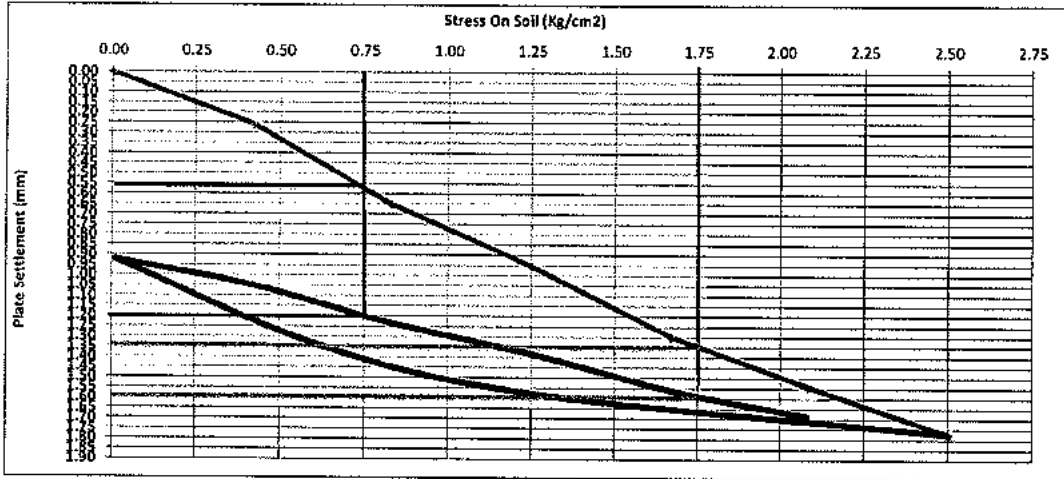
DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

## Data sheet

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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (5) – Alamein to Foka  
 Test Date : 04/12/2022  
 report date : 06/12/2022  
 Location : Station 411+825 to 411+850  
 Test No. : 05

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.26    | 0.65   | 0.95   | 1.30   | 1.54   | 1.77 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.77 | 1.58 | 1.35  | 0.92 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.55 | S2 (mm) = 1.35 | ΔS = 0.80 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 563            |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.92 | 1.05    | 1.23   | 1.38   | 1.56   | 1.69   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 2.0 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 1.20 | S2 (mm) = 1.60 | ΔS = 0.40 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1125           |                |           |



Ev1 = Modulus of deformation during the loading stage.  
 Ev2 = Modulus of deformation during the Reloading stage.  
 D = Plate diameter (mm)  
 Δσ = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)  
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+800 to 411+825  
Test No. : 06

**Nonrepetitive Static Plate Load Tests of Soils**

**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.82  | 0.18             | 19.63  | 0.37             | 19.72  | 0.28             | 0.28    |
| 2       | 0.83             | 19.67  | 0.33             | 19.64  | 0.36             | 19.50  | 0.50             | 0.40    |
| 3       | 1.25             | 19.49  | 0.51             | 19.46  | 0.54             | 19.25  | 0.75             | 0.60    |
| 4       | 1.67             | 19.36  | 0.64             | 19.32  | 0.68             | 19.09  | 0.91             | 0.74    |
| 5       | 2.08             | 19.24  | 0.76             | 19.19  | 0.81             | 18.94  | 1.06             | 0.88    |
| 6       | 2.50             | 19.08  | 0.92             | 19.03  | 0.97             | 18.72  | 1.28             | 1.06    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.08  | 0.92             | 19.03  | 0.97             | 18.72  | 1.28             | 1.06    |
| 2       | 1.25             | 19.21  | 0.79             | 19.20  | 0.80             | 18.96  | 1.04             | 0.88    |
| 3       | 0.625            | 19.34  | 0.66             | 19.36  | 0.64             | 19.22  | 0.78             | 0.69    |
| 4       | 0.01             | 19.66  | 0.34             | 19.68  | 0.32             | 19.41  | 0.59             | 0.42    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.52  | 0.48             | 19.56  | 0.44             | 19.23  | 0.77             | 0.56    |
| 1       | 0.83             | 19.40  | 0.60             | 19.44  | 0.56             | 19.09  | 0.91             | 0.69    |
| 2       | 1.25             | 19.26  | 0.74             | 19.31  | 0.69             | 18.81  | 1.19             | 0.87    |
| 3       | 1.67             | 19.14  | 0.86             | 19.18  | 0.82             | 18.70  | 1.30             | 0.99    |
| 4       | 2.08             | 19.01  | 0.99             | 19.06  | 0.94             | 18.59  | 1.41             | 1.11    |

Signature

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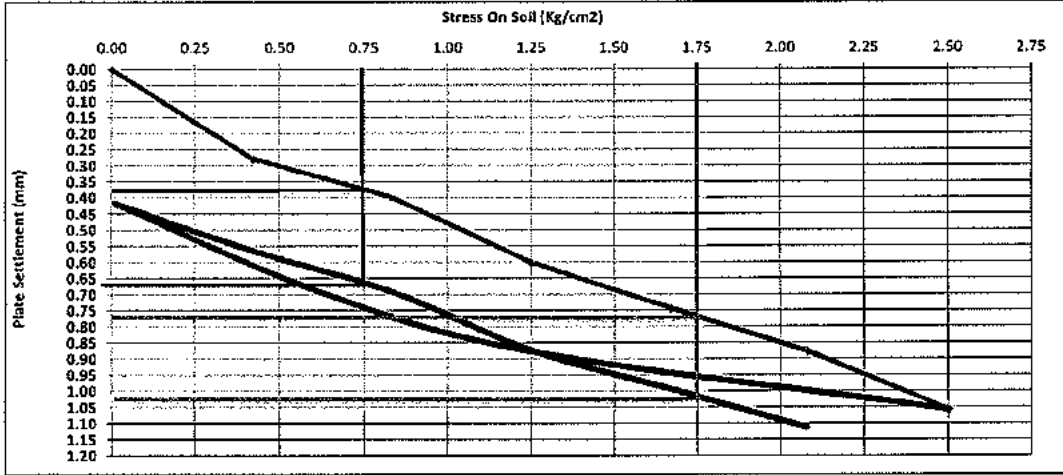
3 El Malek El Afdal Street  
Zamalek, Cairo.  
Tel. & Fax : 27367231 - 27363093



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الزمالك - القاهرة  
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣  
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 04/12/2022  
 report date : 06/12/2022  
 Location : Station 411+800 to 411+825  
 Test No. : 06

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.28    | 0.40   | 0.60   | 0.74   | 0.88   | 1.06 |

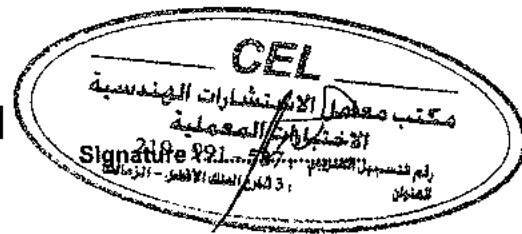
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.06 | 0.88 | 0.69  | 0.42 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.37 | S2 (mm) = 0.77 | ΔS = 0.40 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1125           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.42 | 0.56    | 0.69   | 0.87   | 0.99   | 1.11   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.1 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.57 | S2 (mm) = 1.03 | ΔS = 0.38 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1250           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) ~ Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+775 to 411+800  
Test No. : 07

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.91  | 0.09             | 19.72  | 0.28             | 19.72  | 0.28             | 0.22    |
| 2       | 0.83             | 19.71  | 0.29             | 19.46  | 0.54             | 19.47  | 0.53             | 0.45    |
| 3       | 1.25             | 19.53  | 0.47             | 19.16  | 0.84             | 19.20  | 0.80             | 0.70    |
| 4       | 1.67             | 19.36  | 0.64             | 18.88  | 1.12             | 18.94  | 1.06             | 0.94    |
| 5       | 2.08             | 19.21  | 0.79             | 18.64  | 1.36             | 18.73  | 1.27             | 1.14    |
| 6       | 2.50             | 19.09  | 0.91             | 18.43  | 1.57             | 18.52  | 1.48             | 1.32    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.09  | 0.91             | 18.43  | 1.57             | 18.52  | 1.48             | 1.32    |
| 2       | 1.25             | 19.16  | 0.84             | 18.55  | 1.45             | 18.66  | 1.34             | 1.21    |
| 3       | 0.625            | 19.27  | 0.73             | 18.73  | 1.27             | 18.83  | 1.17             | 1.06    |
| 4       | 0.01             | 19.51  | 0.49             | 19.15  | 0.85             | 19.18  | 0.82             | 0.72    |

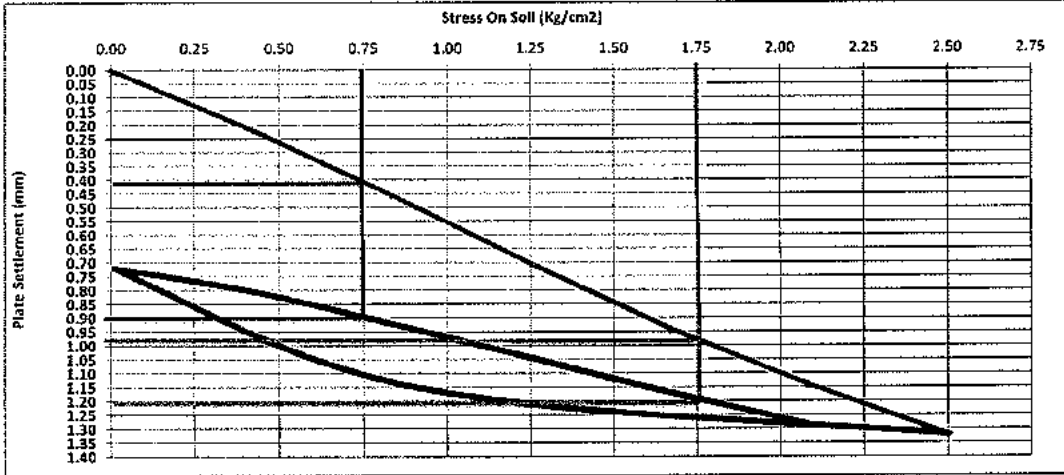
**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.46  | 0.54             | 19.03  | 0.97             | 19.10  | 0.90             | 0.80    |
| 1       | 0.83             | 19.38  | 0.62             | 18.88  | 1.12             | 18.98  | 1.02             | 0.92    |
| 2       | 1.25             | 19.28  | 0.72             | 18.74  | 1.26             | 18.85  | 1.15             | 1.04    |
| 3       | 1.67             | 19.16  | 0.84             | 18.60  | 1.40             | 18.73  | 1.27             | 1.17    |
| 4       | 2.08             | 19.08  | 0.92             | 18.46  | 1.54             | 18.61  | 1.39             | 1.28    |

Signature / .....  
مكتب معامل الاستشارات الهندسية  
الاستشارات الهندسية  
رقم التسجيل المهنى: ٢٠٠٧/٩٩١٠٠٠٠  
٣ شارع الملك الأفطح - الدقي - القاهرة

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+775 to 411+800  
Test No. : 07

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.22    | 0.45   | 0.70   | 0.94   | 1.14   | 1.32 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.32 | 1.21 | 1.06  | 0.72 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.40 | S2 (mm) = 0.97 | ΔS = 0.57 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 789            |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.72 | 0.80    | 0.92   | 1.04   | 1.17   | 1.28   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.9 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.90 | S2 (mm) = 1.20 | ΔS = 0.30 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

ΔS = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 04/12/2022  
report date : 06/12/2022  
Location : Station 411+750 to 411+775  
Test No. : 08

## Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Data sheet

### Loading Stage (1)

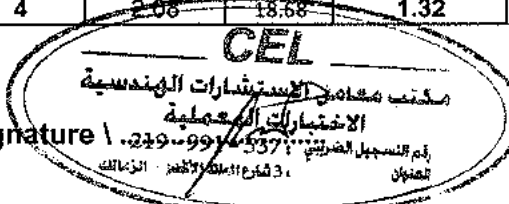
| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.82  | 0.18             | 19.76  | 0.24             | 19.82  | 0.18             | 0.20    |
| 2       | 0.83             | 19.59  | 0.41             | 19.53  | 0.47             | 19.64  | 0.36             | 0.41    |
| 3       | 1.25             | 19.41  | 0.59             | 19.36  | 0.64             | 19.46  | 0.54             | 0.59    |
| 4       | 1.67             | 19.24  | 0.76             | 19.17  | 0.83             | 19.23  | 0.77             | 0.79    |
| 5       | 2.08             | 19.12  | 0.88             | 18.98  | 1.02             | 19.04  | 0.96             | 0.95    |
| 6       | 2.50             | 18.97  | 1.03             | 18.75  | 1.25             | 18.86  | 1.14             | 1.14    |

### Unloading Stage (1)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 18.97  | 1.03             | 18.75  | 1.25             | 18.86  | 1.14             | 1.14    |
| 2       | 1.25             | 19.06  | 0.94             | 18.83  | 1.17             | 18.92  | 1.08             | 1.06    |
| 3       | 0.625            | 19.19  | 0.81             | 18.96  | 1.04             | 19.14  | 0.86             | 0.90    |
| 4       | 0.01             | 19.34  | 0.66             | 19.18  | 0.82             | 19.34  | 0.66             | 0.71    |

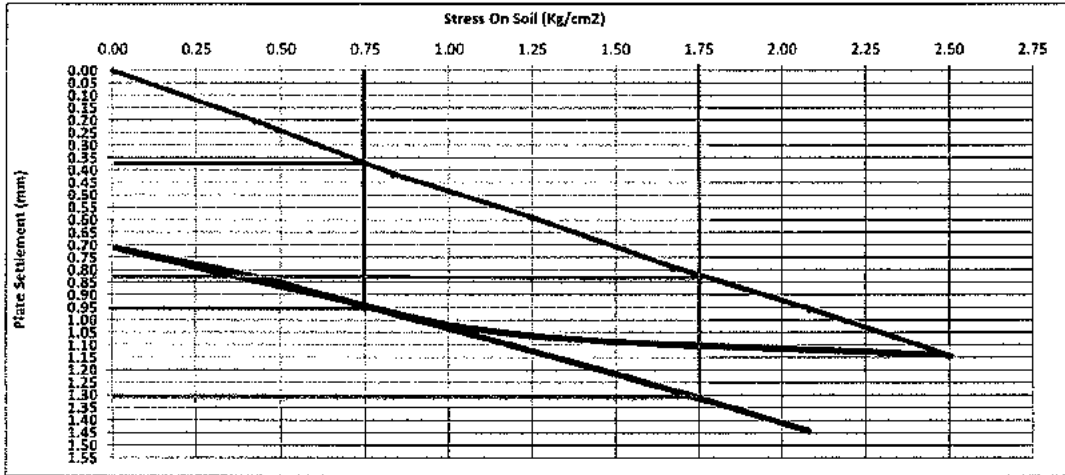
### Loading Stage (2)

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.22  | 0.78             | 19.09  | 0.91             | 19.21  | 0.79             | 0.83    |
| 1       | 0.83             | 19.09  | 0.91             | 18.92  | 1.08             | 19.07  | 0.93             | 0.97    |
| 2       | 1.25             | 18.94  | 1.06             | 18.78  | 1.22             | 18.91  | 1.09             | 1.12    |
| 3       | 1.67             | 18.81  | 1.19             | 18.57  | 1.43             | 18.78  | 1.22             | 1.28    |
| 4       | 2.08             | 18.68  | 1.32             | 18.34  | 1.66             | 18.65  | 1.35             | 1.44    |

Signature \_\_\_\_\_  
  
 مكتب معامل الاستشارات الهندسية  
 الاختبارات العملية  
 رقم التسجيل الضريبي: ٢٧٣٦٧٢٣١  
 ٣ شارع الملك الأفدر - الزمالك  
 القاهرة

Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 04/12/2022  
 report date : 06/12/2022  
 Location : Station 411+750 to 411+775  
 Test No. : 08

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.20    | 0.41   | 0.59   | 0.79   | 0.95   | 1.14 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.14 | 1.06 | 0.90  | 0.71 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.37 | S2 (mm) = 0.82 | ΔS = 0.45 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1000           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.71 | 0.83    | 0.97   | 1.12   | 1.28   | 1.44   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.3 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.95 | S2 (mm) = 1.30 | ΔS = 0.35 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1286           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



## Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The test report content the following:-
  - location of test site - Dimension of loading plate
  - Measuring device used - Type of soil
  - Type of Bedding material below the plate -Weathering condition
  - Time and date of measurements - Unusual observation made during test
  - Dial gauge reading and corresponding normal stress - Loading-settlement curve
  - Description of the soil condition below the plate after testing

## Report

- Type of layer : Prepared Subgrade
- Job requirement:  $E_{v2} > 800 \text{ Kg/cm}^2$  (80 MPa).

| Item                                                               | Descriptions   |
|--------------------------------------------------------------------|----------------|
| - Type of bedding material below the plate                         | Natural Soil   |
| - Weather condition                                                | Sunny          |
| - Plate Diameter (mm)                                              | 600            |
| - date of measurement                                              | 20/11/2022     |
| - Unusual observation made during test                             | NO             |
| - Description of the soil conditions below the plate after testing | No deformation |

## Evaluation and representation of results

| Test No. | Station |         | First Cycle                       | Second Cycle                      | $E_{v2}/E_{v1}$<br>Ratio |
|----------|---------|---------|-----------------------------------|-----------------------------------|--------------------------|
|          | From    | To      | $E_{v1} \text{ (kg/cm}^2\text{)}$ | $E_{v2} \text{ (kg/cm}^2\text{)}$ |                          |
| 1        | 411+950 | 411+975 | 1607                              | 1957                              | 1.2                      |
| 2        | 411+975 | 412+00  | 1875                              | 2647                              | 1.4                      |
| 3        | 412+00  | 412+025 | 1452                              | 1607                              | 1.1                      |
| 4        | 412+025 | 412+050 | 1406                              | 1731                              | 1.2                      |
| 5        | 412+050 | 412+075 | 1406                              | 2143                              | 1.5                      |
| 6        | 412+075 | 412+100 | 1500                              | 1500                              | 1.0                      |

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التأهيل: 2013-2023



Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) - Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 411+950 to 411+975  
Test No. : 01

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00                         | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42                         | 19.82  | 0.18             | 19.90  | 0.10             | 19.70  | 0.30             | 0.19    |
| 2       | 0.83                         | 19.73  | 0.27             | 19.81  | 0.19             | 19.58  | 0.42             | 0.29    |
| 3       | 1.25                         | 19.59  | 0.41             | 19.74  | 0.26             | 19.44  | 0.56             | 0.41    |
| 4       | 1.67                         | 19.43  | 0.57             | 19.68  | 0.32             | 19.30  | 0.70             | 0.53    |
| 5       | 2.08                         | 19.28  | 0.72             | 19.62  | 0.38             | 19.14  | 0.86             | 0.65    |
| 6       | 2.50                         | 19.19  | 0.81             | 19.54  | 0.46             | 18.95  | 1.05             | 0.77    |

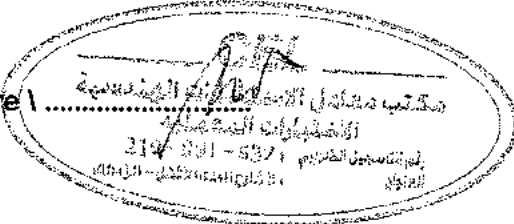
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50                         | 19.19  | 0.81             | 19.54  | 0.46             | 18.95  | 1.05             | 0.77    |
| 2       | 1.25                         | 19.25  | 0.75             | 19.57  | 0.43             | 18.99  | 1.01             | 0.73    |
| 3       | 0.625                        | 19.33  | 0.67             | 19.60  | 0.40             | 19.08  | 0.92             | 0.66    |
| 4       | 0.01                         | 19.52  | 0.48             | 19.78  | 0.22             | 19.35  | 0.65             | 0.45    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm <sup>2</sup> | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42                         | 19.45  | 0.55             | 19.70  | 0.30             | 19.23  | 0.77             | 0.54    |
| 1       | 0.83                         | 19.35  | 0.65             | 19.62  | 0.38             | 19.15  | 0.85             | 0.63    |
| 2       | 1.25                         | 19.28  | 0.72             | 19.56  | 0.44             | 19.04  | 0.96             | 0.71    |
| 3       | 1.67                         | 19.20  | 0.80             | 19.49  | 0.51             | 18.86  | 1.14             | 0.82    |
| 4       | 2.08                         | 19.13  | 0.87             | 19.42  | 0.58             | 18.88  | 1.12             | 0.86    |

Signature 1



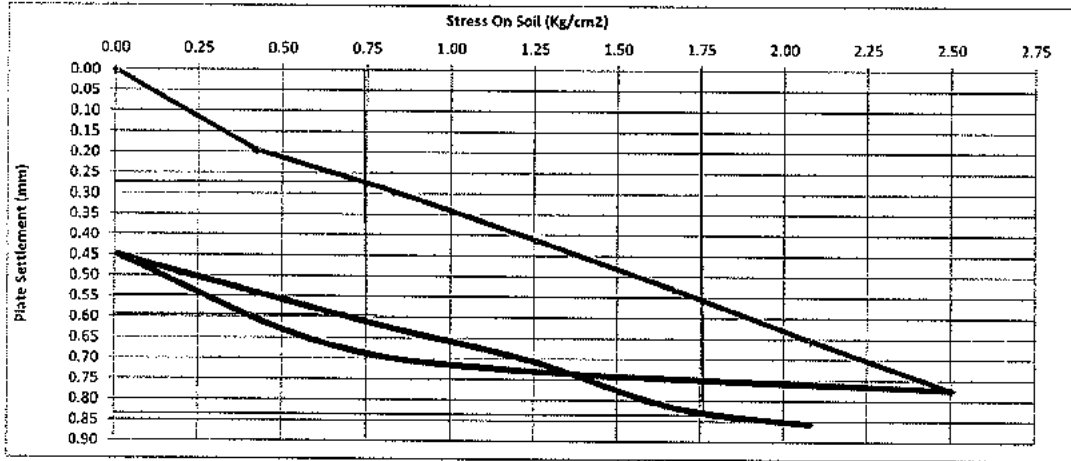
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 20/11/2022  
 report date : 21/11/2022  
 Location : Station 411+950 to 411+975  
 Test No. : 01

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.19    | 0.29   | 0.41   | 0.53   | 0.65   | 0.77 |

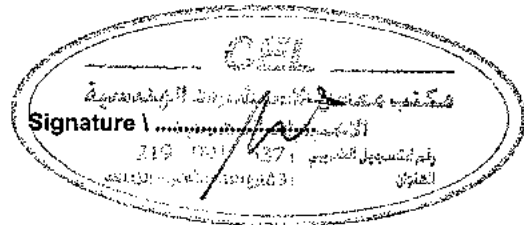
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.77 | 0.73 | 0.66  | 0.45 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.27 | S2 (mm) = 0.55 | ΔS = 0.28 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1607           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.45 | 0.54    | 0.63   | 0.71   | 0.82   | 0.86   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.2 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.60 | S2 (mm) = 0.83 | ΔS = 0.23 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1957           |                |           |



Ev1 = Modulus of deformation during the loading stage.  
 Ev2 = Modulus of deformation during the Reloading stage.  
 D = Plate diameter (mm)  
 Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)  
 ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 411+975 to 412+00  
Test No. : 02

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.92  | 0.08             | 19.78  | 0.22             | 19.90  | 0.10             | 0.13    |
| 2       | 0.83             | 19.83  | 0.17             | 19.65  | 0.35             | 19.84  | 0.16             | 0.23    |
| 3       | 1.25             | 19.66  | 0.34             | 19.54  | 0.46             | 19.79  | 0.21             | 0.34    |
| 4       | 1.67             | 19.58  | 0.42             | 19.45  | 0.55             | 19.70  | 0.30             | 0.42    |
| 5       | 2.08             | 19.47  | 0.53             | 19.35  | 0.65             | 19.61  | 0.39             | 0.52    |
| 6       | 2.50             | 19.38  | 0.62             | 19.24  | 0.76             | 19.53  | 0.47             | 0.62    |

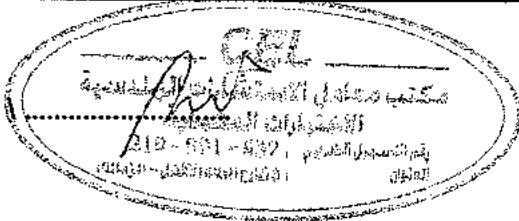
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.38  | 0.62             | 19.24  | 0.76             | 19.53  | 0.47             | 0.62    |
| 2       | 1.25             | 19.42  | 0.58             | 19.31  | 0.69             | 19.56  | 0.44             | 0.57    |
| 3       | 0.625            | 19.47  | 0.53             | 19.42  | 0.58             | 19.60  | 0.40             | 0.50    |
| 4       | 0.01             | 19.63  | 0.37             | 19.72  | 0.28             | 19.75  | 0.25             | 0.30    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.55  | 0.45             | 19.58  | 0.42             | 19.68  | 0.32             | 0.40    |
| 1       | 0.83             | 19.50  | 0.50             | 19.46  | 0.54             | 19.60  | 0.40             | 0.48    |
| 2       | 1.25             | 19.45  | 0.55             | 19.40  | 0.60             | 19.54  | 0.46             | 0.54    |
| 3       | 1.67             | 19.38  | 0.62             | 19.33  | 0.67             | 19.49  | 0.51             | 0.60    |
| 4       | 2.08             | 19.30  | 0.70             | 19.25  | 0.75             | 19.40  | 0.60             | 0.68    |

Signature



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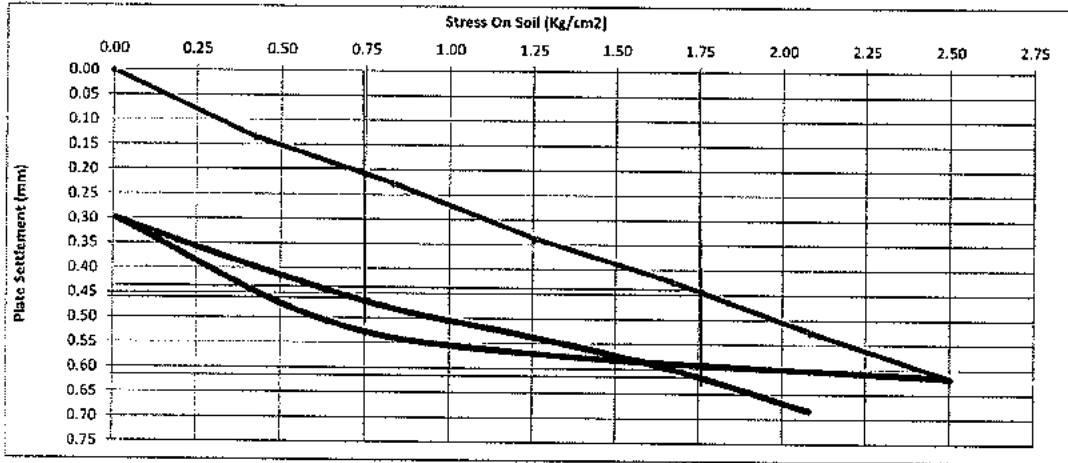
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# CEL

**Consulting Engineering Bureau & Laboratories**  
مكتب معامل الاستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 411+975 to 412+00  
Test No. : 02

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.13    | 0.23   | 0.34   | 0.42   | 0.52   | 0.62 |

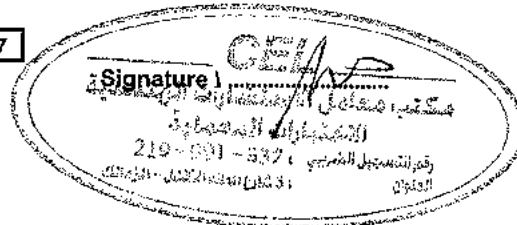
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.62 | 0.57 | 0.50  | 0.30 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.20 | S2 (mm) = 0.44 | ΔS = 0.24 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1875           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.30 | 0.40    | 0.48   | 0.54   | 0.60   | 0.68   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.4 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.45 | S2 (mm) = 0.62 | ΔS = 0.17 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 2647           |                |           |



Ev1 = Modulus of deformation during the loading stage.  
Ev2 = Modulus of deformation during the Reloading stage.  
D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)  
DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الإستشارات الهندسية

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Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 412+00 to 412+025  
Test No. : 03

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.85  | 0.15             | 19.70  | 0.30             | 19.86  | 0.14             | 0.20    |
| 2       | 0.83             | 19.76  | 0.24             | 19.62  | 0.38             | 19.78  | 0.22             | 0.28    |
| 3       | 1.25             | 19.63  | 0.37             | 19.50  | 0.50             | 19.60  | 0.40             | 0.42    |
| 4       | 1.67             | 19.48  | 0.52             | 19.35  | 0.65             | 19.49  | 0.51             | 0.56    |
| 5       | 2.08             | 19.34  | 0.66             | 19.24  | 0.76             | 19.32  | 0.68             | 0.70    |
| 6       | 2.50             | 19.20  | 0.80             | 19.16  | 0.84             | 19.23  | 0.77             | 0.80    |

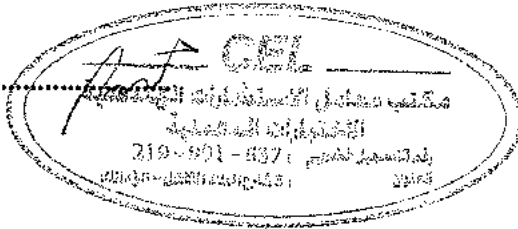
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.20  | 0.80             | 19.16  | 0.84             | 19.23  | 0.77             | 0.80    |
| 2       | 1.25             | 19.24  | 0.76             | 19.21  | 0.79             | 19.28  | 0.72             | 0.76    |
| 3       | 0.625            | 19.32  | 0.68             | 19.26  | 0.74             | 19.35  | 0.65             | 0.69    |
| 4       | 0.01             | 19.65  | 0.35             | 19.52  | 0.48             | 19.71  | 0.29             | 0.37    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.55  | 0.45             | 19.47  | 0.53             | 19.60  | 0.40             | 0.46    |
| 1       | 0.83             | 19.42  | 0.58             | 19.38  | 0.62             | 19.49  | 0.51             | 0.57    |
| 2       | 1.25             | 19.30  | 0.70             | 19.27  | 0.73             | 19.32  | 0.68             | 0.70    |
| 3       | 1.67             | 19.18  | 0.82             | 19.19  | 0.81             | 19.20  | 0.80             | 0.81    |
| 4       | 2.08             | 19.08  | 0.92             | 19.10  | 0.90             | 19.06  | 0.94             | 0.92    |

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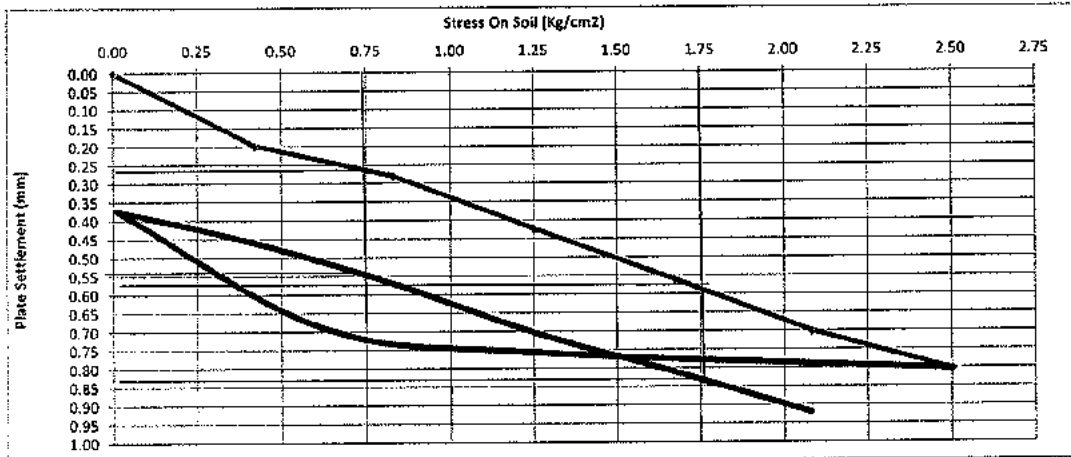
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 20/11/2022  
 report date : 21/11/2022  
 Location : Station 412+00 to 412+025  
 Test No. : 03

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.20    | 0.28   | 0.42   | 0.56   | 0.70   | 0.80 |

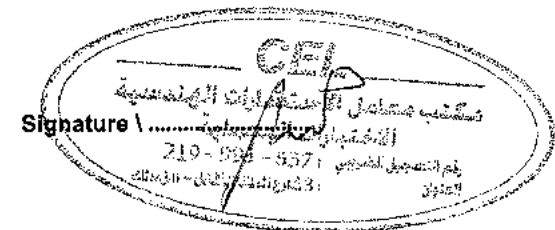
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.80 | 0.76 | 0.69  | 0.37 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.27 | S2 (mm) = 0.58 | ΔS = 0.31 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1452           |                |           |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.1 |
|-----------|-----|

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.37 | 0.46    | 0.57   | 0.70   | 0.81   | 0.92   |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.55 | S2 (mm) = 0.83 | ΔS = 0.28 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1607           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الإستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) - Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 412+025to 412+050  
Test No. : 04

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.80  | 0.20             | 19.70  | 0.30             | 19.90  | 0.10             | 0.20    |
| 2       | 0.83             | 19.68  | 0.32             | 19.60  | 0.40             | 19.73  | 0.27             | 0.33    |
| 3       | 1.25             | 19.57  | 0.43             | 19.49  | 0.51             | 19.60  | 0.40             | 0.45    |
| 4       | 1.67             | 19.42  | 0.58             | 19.36  | 0.64             | 19.45  | 0.55             | 0.59    |
| 5       | 2.08             | 19.30  | 0.70             | 19.24  | 0.76             | 19.31  | 0.69             | 0.72    |
| 6       | 2.50             | 19.18  | 0.82             | 19.12  | 0.88             | 19.16  | 0.84             | 0.85    |

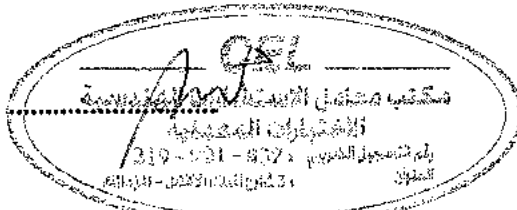
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.18  | 0.82             | 19.12  | 0.88             | 19.16  | 0.84             | 0.85    |
| 2       | 1.25             | 19.22  | 0.78             | 19.16  | 0.84             | 19.18  | 0.82             | 0.81    |
| 3       | 0.625            | 19.27  | 0.73             | 19.21  | 0.79             | 19.23  | 0.77             | 0.76    |
| 4       | 0.01             | 19.52  | 0.48             | 19.48  | 0.52             | 19.37  | 0.63             | 0.54    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.41  | 0.59             | 19.40  | 0.60             | 19.28  | 0.72             | 0.64    |
| 1       | 0.83             | 19.32  | 0.68             | 19.29  | 0.71             | 19.19  | 0.81             | 0.73    |
| 2       | 1.25             | 19.20  | 0.80             | 19.17  | 0.83             | 19.09  | 0.91             | 0.85    |
| 3       | 1.67             | 19.08  | 0.92             | 19.07  | 0.93             | 19.00  | 1.00             | 0.95    |
| 4       | 2.08             | 18.92  | 1.08             | 18.90  | 1.10             | 18.87  | 1.13             | 1.10    |

Signature



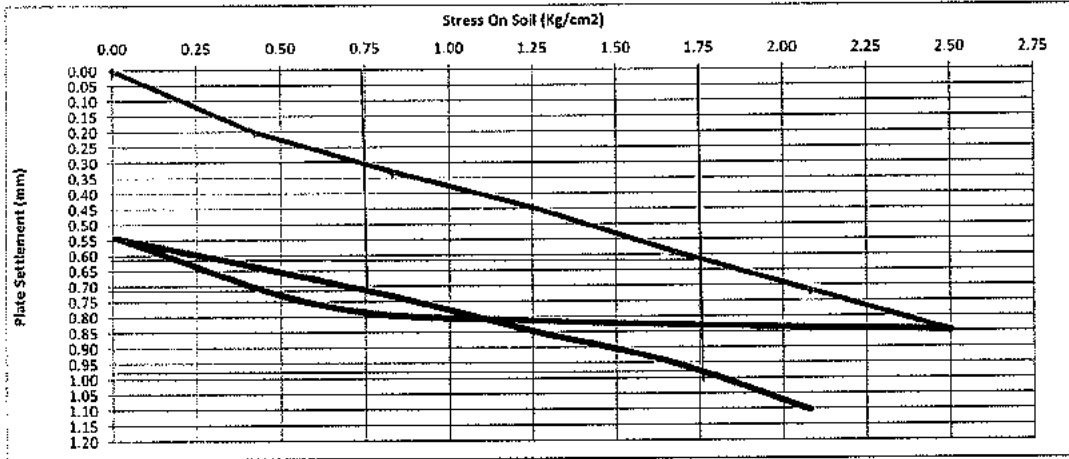
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 20/11/2022  
 report date : 21/11/2022  
 Location : Station 412+025to 412+050  
 Test No. : 04

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.20    | 0.33   | 0.45   | 0.59   | 0.72   | 0.85 |

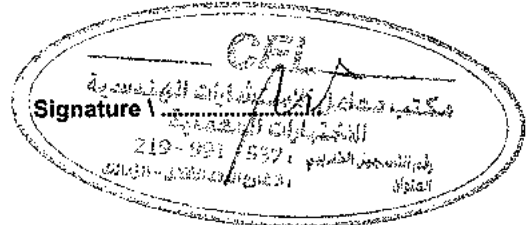
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.85 | 0.81 | 0.76  | 0.54 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.30 | S2 (mm) = 0.82 | ΔS = 0.32 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1406           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.54 | 0.64    | 0.73   | 0.85   | 0.95   | 1.10   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.2 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.72 | S2 (mm) = 0.98 | ΔS = 0.26 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1731           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) -- Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 412+050 to 412+075  
Test No. : 05

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.72  | 0.28             | 19.80  | 0.20             | 19.68  | 0.32             | 0.27    |
| 2       | 0.83             | 19.61  | 0.39             | 19.67  | 0.33             | 19.58  | 0.42             | 0.38    |
| 3       | 1.25             | 19.50  | 0.50             | 19.53  | 0.47             | 19.43  | 0.57             | 0.51    |
| 4       | 1.67             | 19.35  | 0.65             | 19.40  | 0.60             | 19.31  | 0.69             | 0.65    |
| 5       | 2.08             | 19.21  | 0.79             | 19.28  | 0.72             | 19.16  | 0.84             | 0.78    |
| 6       | 2.50             | 19.08  | 0.92             | 19.16  | 0.84             | 19.03  | 0.97             | 0.91    |

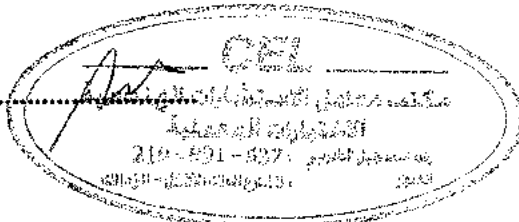
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.08  | 0.92             | 19.16  | 0.84             | 19.03  | 0.97             | 0.91    |
| 2       | 1.25             | 19.12  | 0.88             | 19.19  | 0.81             | 19.08  | 0.92             | 0.87    |
| 3       | 0.825            | 19.17  | 0.83             | 19.24  | 0.76             | 19.13  | 0.87             | 0.82    |
| 4       | 0.01             | 19.38  | 0.62             | 19.46  | 0.54             | 19.32  | 0.68             | 0.61    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.30  | 0.70             | 19.37  | 0.63             | 19.26  | 0.74             | 0.69    |
| 1       | 0.83             | 19.21  | 0.79             | 19.26  | 0.74             | 19.18  | 0.82             | 0.78    |
| 2       | 1.25             | 19.16  | 0.84             | 19.20  | 0.80             | 19.11  | 0.89             | 0.84    |
| 3       | 1.67             | 19.03  | 0.97             | 19.09  | 0.91             | 19.00  | 1.00             | 0.96    |
| 4       | 2.08             | 18.93  | 1.07             | 18.96  | 1.04             | 18.89  | 1.11             | 1.07    |

Signature \



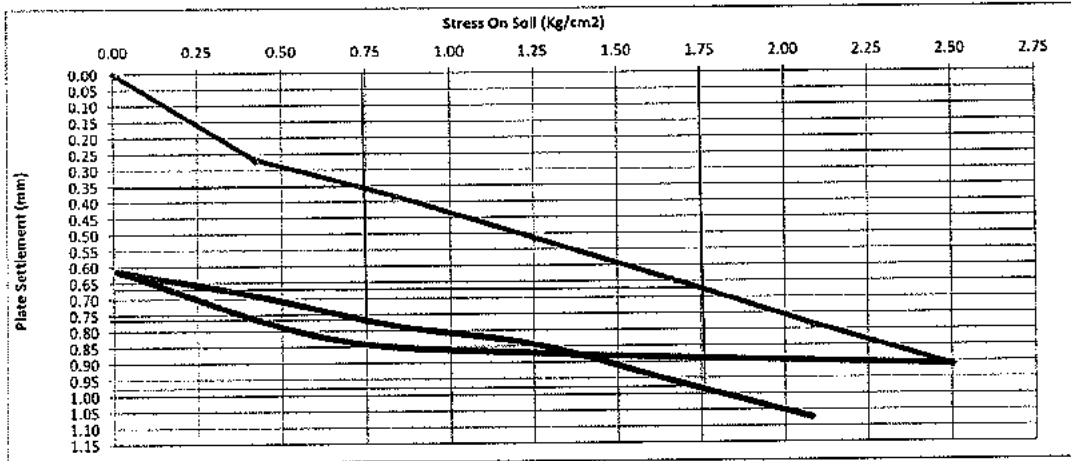
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Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 20/11/2022  
 report date : 21/11/2022  
 Location : Station 412+050 to 412+075  
 Test No. : 05

#### Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.27    | 0.38   | 0.51   | 0.65   | 0.78   | 0.91 |

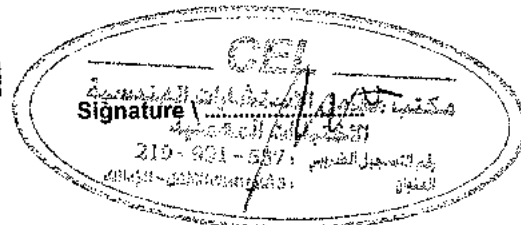
| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.91 | 0.87 | 0.82  | 0.61 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.35 | S2 (mm) = 0.67 | ΔS = 0.32 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1406           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.61 | 0.69    | 0.78   | 0.84   | 0.96   | 1.07   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.5 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.77 | S2 (mm) = 0.98 | ΔS = 0.21 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 2143           |                |           |



Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Company Name : Emar Construction Co.  
 Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
 Test Date : 20/11/2022  
 report date : 21/11/2022  
 Location : Station 412+075 to 412+100  
 Test No. : 06

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.90  | 0.10             | 19.66  | 0.34             | 19.82  | 0.18             | 0.21    |
| 2       | 0.83             | 19.78  | 0.22             | 19.60  | 0.40             | 19.72  | 0.28             | 0.30    |
| 3       | 1.25             | 19.63  | 0.37             | 19.48  | 0.52             | 19.60  | 0.40             | 0.43    |
| 4       | 1.67             | 19.50  | 0.50             | 19.37  | 0.63             | 19.46  | 0.54             | 0.56    |
| 5       | 2.08             | 19.36  | 0.64             | 19.26  | 0.74             | 19.32  | 0.68             | 0.69    |
| 6       | 2.50             | 19.23  | 0.77             | 19.18  | 0.82             | 19.21  | 0.79             | 0.79    |

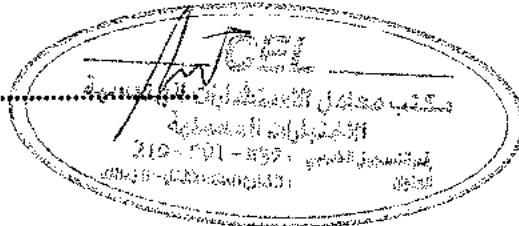
**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.23  | 0.77             | 19.18  | 0.82             | 19.21  | 0.79             | 0.79    |
| 2       | 1.25             | 19.26  | 0.74             | 19.23  | 0.77             | 19.25  | 0.75             | 0.75    |
| 3       | 0.625            | 19.32  | 0.68             | 19.28  | 0.72             | 19.30  | 0.70             | 0.70    |
| 4       | 0.01             | 19.62  | 0.38             | 19.52  | 0.48             | 19.45  | 0.55             | 0.47    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.51  | 0.49             | 19.43  | 0.57             | 19.32  | 0.68             | 0.58    |
| 1       | 0.83             | 19.40  | 0.60             | 19.33  | 0.67             | 19.21  | 0.79             | 0.69    |
| 2       | 1.25             | 19.29  | 0.71             | 19.21  | 0.79             | 19.12  | 0.88             | 0.79    |
| 3       | 1.67             | 19.16  | 0.84             | 19.04  | 0.96             | 19.00  | 1.00             | 0.93    |
| 4       | 2.08             | 19.02  | 0.98             | 18.92  | 1.08             | 18.85  | 1.15             | 1.07    |

Signature \ .....

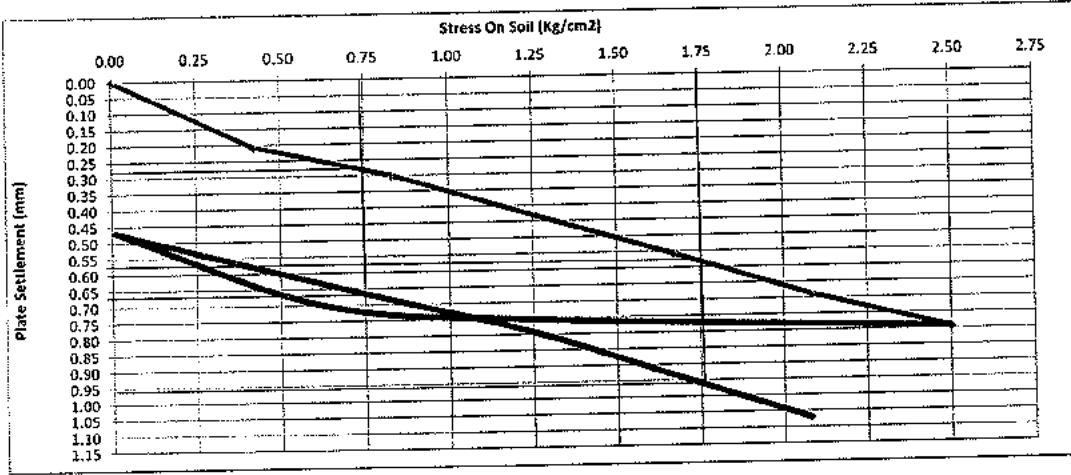


# CEL

**Consulting Engineering Bureau & Laboratories**  
مكتب معاميل الإستشارات الهندسية

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 20/11/2022  
report date : 21/11/2022  
Location : Station 412+075 to 412+100  
Test No. : 06

## Nonrepetitive Static Plate Load Tests of Soils DIN 18134



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.21    | 0.30   | 0.43   | 0.56   | 0.69   | 0.79 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 0.79 | 0.75 | 0.70  | 0.47 |

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.28 | S2 (mm) = 0.58 | ΔS = 0.30 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |                |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.47 | 0.58    | 0.69   | 0.79   | 0.93   | 1.07   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.0 |
|-----------|-----|

|                               |                |                |           |
|-------------------------------|----------------|----------------|-----------|
| D (mm) = 600                  | S1 (mm) = 0.67 | S2 (mm) = 0.97 | ΔS = 0.30 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1500           |                |           |

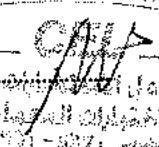
Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)

Signature:   
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**Company : Emar Construction Co.**

**Project** : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (6)  
- Alamein to Foka  
**Subject** : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements  
**Test Location:** Station 412+100 to 412+350  
**Test Date** : 21/11/2022  
**Report Date** : 22/11/2022  
**Test layer** : Prepared Subgrade.  
**Report No.** : 43:52

**Dear Gentleman,**

According to the above mentioned subject the test performed as follows:-

### Apparatus

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Enerbac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached

### Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm<sup>2</sup>
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load.
9. Following unloading, a further (2<sup>nd</sup>) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



### Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The test report content the following:-
  - location of test site - Dimension of loading plate
  - Measuring device used - Type of soil
  - Type of Bedding material below the plate -Weathering condition
  - Time and date of measurements - Unusual observation made during test
  - Dial gauge reading and corresponding normal stress - Loading-settlement curve
  - Description of the soil condition below the plate after testing

### Report

- **Type of layer** : Prepared Subgrade
- **Job requirement:**  $E_{v2} > 800 \text{ Kg/cm}^2$  (80 MPa).

| Item                                                               | Descriptions   |
|--------------------------------------------------------------------|----------------|
| - Type of bedding material below the plate                         | Natural Soil   |
| - Weather condition                                                | Sunny          |
| - Plate Diameter (mm)                                              | 600            |
| - date of measurement                                              | 21/11/2022     |
| - Unusual observation made during test                             | NO             |
| - Description of the soil conditions below the plate after testing | No deformation |

### Evaluation and representation of results

| Test No. | Station |         | First Cycle                       | Second Cycle                      | $E_{v2}/E_{v1}$ Ratio |
|----------|---------|---------|-----------------------------------|-----------------------------------|-----------------------|
|          | From    | To      | $E_{v1} \text{ (kg/cm}^2\text{)}$ | $E_{v2} \text{ (kg/cm}^2\text{)}$ |                       |
| 1        | 412+100 | 412+125 | 1250                              | 2045                              | 1.6                   |
| 2        | 412+125 | 412+150 | 726                               | 1800                              | 2.5                   |
| 3        | 412+150 | 412+175 | 1216                              | 2500                              | 2.1                   |
| 4        | 412+175 | 412+200 | 672                               | 1023                              | 1.5                   |
| 5        | 412+200 | 412+225 | 900                               | 1800                              | 2.0                   |
| 6        | 412+225 | 412+250 | 818                               | 1286                              | 1.6                   |
| 7        | 412+250 | 412+275 | 1286                              | 1154                              | 0.9                   |
| 8        | 412+275 | 412+300 | 1000                              | 2045                              | 2.0                   |
| 9        | 412+300 | 412+325 | 1184                              | 1875                              | 1.6                   |
| 10       | 412+325 | 412+350 | 818                               | 1875                              | 2.3                   |

Signature / .....

مكتب معامل الاستشارات الهندسية  
الاختبارات المعملية  
رقم التسجيل الضريبي : 337 - 991 - 19  
العنوان : 3 شارع الملك الأفضل - الزمالك

Company Name : Emar Construction Co.  
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
Test Date : 21/11/2022  
report date : 22/11/2022  
Location : Station 412+100 to 412+125  
Test No. : 01

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**

**Data sheet**

**Loading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 20.00  | 0.00             | 0.00    |
| 1       | 0.42             | 19.85  | 0.15             | 19.79  | 0.21             | 19.78  | 0.22             | 0.19    |
| 2       | 0.83             | 19.50  | 0.50             | 19.45  | 0.55             | 19.55  | 0.45             | 0.50    |
| 3       | 1.25             | 19.45  | 0.55             | 19.30  | 0.70             | 19.40  | 0.60             | 0.62    |
| 4       | 1.67             | 19.20  | 0.80             | 19.15  | 0.85             | 19.30  | 0.70             | 0.78    |
| 5       | 2.08             | 19.15  | 0.85             | 19.05  | 0.95             | 19.20  | 0.80             | 0.87    |
| 6       | 2.50             | 19.00  | 1.00             | 18.85  | 1.15             | 19.10  | 0.90             | 1.02    |

**Unloading Stage (1)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 1       | 2.50             | 19.00  | 1.00             | 18.85  | 1.15             | 19.10  | 0.90             | 1.02    |
| 2       | 1.25             | 19.09  | 0.91             | 18.93  | 1.07             | 19.14  | 0.86             | 0.95    |
| 3       | 0.625            | 19.22  | 0.78             | 19.05  | 0.95             | 19.25  | 0.75             | 0.83    |
| 4       | 0.01             | 19.45  | 0.55             | 19.32  | 0.68             | 19.55  | 0.45             | 0.56    |

**Loading Stage (2)**

| Loading | Stress<br>Kg/cm2 | Dial 1 | Settlement<br>mm | Dial 2 | Settlement<br>mm | Dial 3 | Settlement<br>mm | Average |
|---------|------------------|--------|------------------|--------|------------------|--------|------------------|---------|
| 0       | 0.42             | 19.39  | 0.61             | 19.25  | 0.75             | 19.50  | 0.50             | 0.62    |
| 1       | 0.83             | 19.25  | 0.75             | 19.15  | 0.85             | 19.33  | 0.67             | 0.76    |
| 2       | 1.25             | 19.15  | 0.85             | 19.05  | 0.95             | 19.25  | 0.75             | 0.85    |
| 3       | 1.67             | 19.10  | 0.90             | 18.98  | 1.02             | 19.15  | 0.85             | 0.92    |
| 4       | 2.08             | 18.98  | 1.02             | 18.85  | 1.15             | 19.05  | 0.95             | 1.04    |

Signature \   
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3 شارع النيل - القاهرة : العنوان



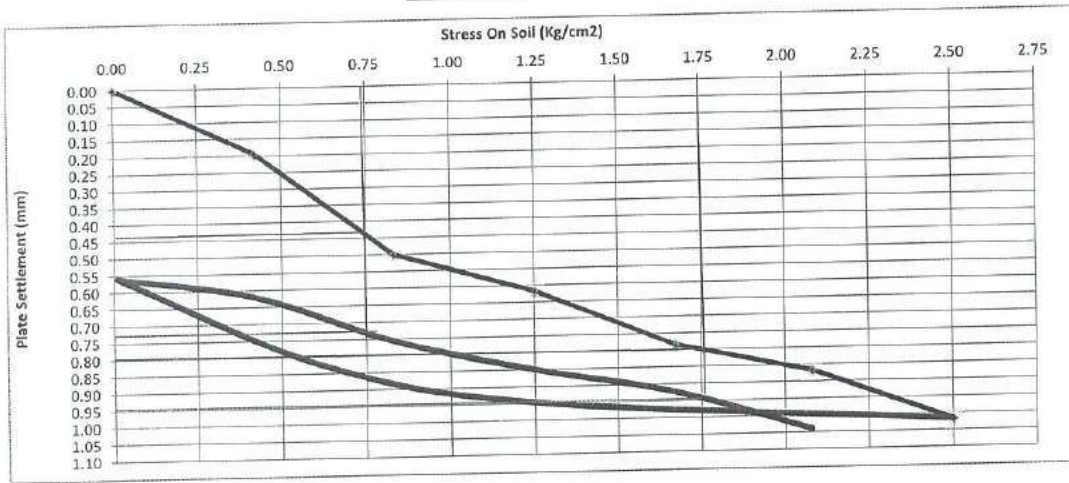
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مكتب معامل الاستشارات الهندسية

Company Name  
Project  
Test Date  
report date  
Location  
Test No.

: Emar Construction Co.  
: Electric Express Train, from Al Ain Sokhna to Marsa Matrouh Priority Sector (6) – Alamein to Foka  
: 21/11/2022  
: 22/11/2022  
: Station 412+100 to 412+125  
: 01

**Nonrepetitive Static Plate Load Tests of Soils**  
**DIN 18134**



| Loading (1)     | 0    | 1       | 2      | 3      | 4      | 5      | 6    |
|-----------------|------|---------|--------|--------|--------|--------|------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 | 7065 |
| Stress (Kg/cm2) | 0.00 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   | 2.50 |
| Settlement (mm) | 0.00 | 0.19    | 0.50   | 0.62   | 0.78   | 0.87   | 1.02 |

| UnLoading (1)   | 1    | 2    | 3     | 4    |
|-----------------|------|------|-------|------|
| Stage(Kg)       | 7065 | 3533 | 1768  | 0    |
| Stress (Kg/cm2) | 2.50 | 1.25 | 0.625 | 0.01 |
| Settlement (mm) | 1.02 | 0.95 | 0.83  | 0.56 |

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 0.44 | S2(mm)= 0.80 | ΔS = 0.36 |
| Ev1 (kg/cm2) = (0.75*D*Δσ)/ΔS | 1250          |              |           |

| Loading (2)     | 0    | 1       | 2      | 3      | 4      | 5      |
|-----------------|------|---------|--------|--------|--------|--------|
| Stage(Kg)       | 0    | 1186.92 | 2345.6 | 3532.5 | 4719.4 | 5878.1 |
| Stress (Kg/cm2) | 0.01 | 0.42    | 0.83   | 1.25   | 1.67   | 2.08   |
| Settlement (mm) | 0.56 | 0.62    | 0.76   | 0.85   | 0.92   | 1.04   |

|           |     |
|-----------|-----|
| Ev2/Ev1 = | 1.6 |
|-----------|-----|

|                               |               |              |           |
|-------------------------------|---------------|--------------|-----------|
| D (mm) = 600                  | S1 (mm)= 0.73 | S2(mm)= 0.95 | ΔS = 0.22 |
| Ev2 (kg/cm2) = (0.75*D*Δσ)/ΔS | 2045          |              |           |

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm<sup>2</sup>)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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## نموذج رقم ٢

بشأن : حصر المواد المحجّرة الواردة بالمستخلص

القيد : ..... / ..... / ٢٠٢٣ المنطقة .....

التاريخ ..... / ..... / ٢٠٢٣

الى السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،

نتشرف بان نرفق طيبة المستخلص الختامى الخاص بعملية

( اعمال الجسر الترابى والاعمال الصناعية للقطار الكهربائى السريع )

تنفيذ شركة / اعمار للاستثمار العقارى عقد رقم / ( ٢٠٢٣/٢٠٢٢/٦٨٥ )

يرجى التفضل بالاحاطة والتنبيه باتخاذ ما يلزم مع التفضل من سيادتكم

بالعلم ان المواد المحجّرة المستخدمة بيانها كالاتى :-

| م | نوع المادة المحجّرة | الوحدة | الكمية   | الجهة الحصول على الخامة |
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| ١ | سن                  | ٣م     | ١٢٨٨٠.٠٧ | كسارة ( العروبة )       |
| ٢ | اتربة               | ٣م     |          | محجّررقم / تصريح / بدون |
| ٣ | رمل                 | ٣م     |          | محجّررقم / تصريح / بدون |

هذا وقد تمت مراجعة ( البونات المائية / التصريح ) للكميات التى تم الحصول عليها من

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يرجى التكرم من سيادتكم بالعلم والاحاطة والتنبيه باتخاذ اللازم ،،،

وتفضلوا بقبول فائق الاحترام ،،،

( ٧١١٨ )

التوقيع

عميد مهندس / هانى محمد محمود طه

رئيس الادارة المركزية

للمنطقة الخامسة - غرب الدلتا

في حالة وجود كميات تم الحصول عليها بدون ارفاق البونات المائية يتم تسجيل كلا منها منفصلا .

## نموذج رقم ٢

بشأن : حصر المواد المحجّرة الواردة بالمستخلص

القيّد : ...../...../..... ٢٠٢٣ المنطقة .....

التاريخ ...../...../..... ٢٠٢٣

الى السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،

نتشرف بان نرفق طيبة المستخلص الختامى الخاص بعملية

( اعمال الجسر الترابى والاعمال الصناعية للقطار الكهربائى السريع ).

تنفيذ شركة / اعمار للاستثمار العقارى عقد رقم / ( ٢٠٢٣/٢٠٢٢/٦٨٥ )

يرجى التفضل بالاحاطة والتنبيه باتخاذ ما يلزم مع التفضل من سيادتكم  
بالعلم ان المواد المحجّرة المستخدمة بيانها كالاتى :-

| م | نوع المادة المحجّرة | الوحدة | الكمية   | الجهة الحصول على الخامة  |
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| ٣ | رمل                 | ٣م     |          | محجّر رقم / تصريح / بدون |

هذا وقد تمت مراجعة ( البونات المائية / التصريح ) للكميات التى تم الحصول عليها  
من

( كسارات / محاجر / تشوينات ) معتمدة ووجدت مطابقة للكميات بالمستخلص .

يرجى التكرم من سيادتكم بالعلم والاحاطة والتنبيه باتخاذ اللازم ،،،

وتفضلوا بقبول فائق الاحترام ،،،

( التوقيع )

عميد مهندس / هانى محمد محمود طه

رئيس الادارة المركزية

للمنطقة الخامسة - غرب الدلتا

في حالة وجود كميات تم الحصول عليها بدون ارفاق البونات المائية يتم تسجيل كلا منها منفصلا .

## إفادة

بالإشارة لمشروع اعمال الجسر الترابي و الاعمال الصناعية لمشروع القطار الكهربائي  
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العقد رقم: 2023/2022/685 إتجاه سيدي كرير.

في المسافة من 411+600 إلي 412+600

مقاوله شركة : إعمار للإستثمار العقاري والمقاولات العامة

اشراف استشاري : مكتب د.سعد الجبوشي

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يرجي العلم بأنه قد تم توريد المواد المحجرية بالمشروع ببونات رسمية معتمدة و قام  
استشاري المشروع بمراجعة جميع البونات و التأكد من الكميات المدرجة و ذلك تحت  
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م/محمد حسني فياض

مدير مشروع الهيئة

م/إبراهيم الخناوي

مدير مشروع الاستشاري

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