

قائمة الكميات الواردة بالمستخلص جاري (2)

اسناد أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال سن الفلتر
لتنفيذ المسافة من الكم 310.640 إلى الكم 311.000 بطول 0.360 كم (بالأمر المباشر).

پند (1-1):

بالمتر المكعب أعمال توريد وفرش طبقة فلتر من الأحجار الصلبة المتدرجة ناتج تكسير كسارات والمطابقة للمواصفات وأقصى حجم حبيبي ما بين 20 مم إلى 75 مم ولا يزيد نسبة المار من منخل 200 عن 5% والتدرج الوارد بالاشتراطات الخاصة بالمشروع وهي أحجار مقاس سن:1:سن:2:سن:4 أو سن:6 بنسبة 1:1:1:1 ولا يقل معامل المرونة EV2 من تجربة لوح التحميل عن 50 ميجا بيسكال ولا يزيد نسبة الفاقد بجهاز لوس أنجلوس عن 45% والفئة تشمل أعمال التجارب المعملية والبند يشمل اجراء التجارب المعملية والحقن طبقاً لأصول الصناعة الممتازة وتقرير الاستشاري وتعليمات المهندس المشرف.

- لمسافة نقل 20 كم.

- الفئة شاملة قيمة المادة المحجّرة.

- يتم احتساب 1.3 جنية للكم بالزيادة أو النقصان

السعر خلال شهر مايو 2023 طبقاً للمفاوضة الخاصة بالقطاع الرابع بتاريخ 2023-12-18

تنفيذ : "شركة أورانج للاستيراد والتصدير"

عقد رقم (2024/2023/949)

		3م	0.0	مقدار العمل السابق :
الكمية (م3)	الطول (متر)	الموقع الكيلومتری		مسلسل
		من الكم	الى الكم	
14400.90	320	310+680	311+000	1
206.00	48	بربخ 310+650		2
189.80	48	بربخ 310+655		3
189.80	48	بربخ 310+670		4
189.80	48	بربخ 310+870		5
15176.30	اجمالي الكمية الهندسي بالقطاع (م3)			
18970.38	اجمالي الكمية بعد احتساب نسبة غرز 25% (م3)			
18970.38	الاجمالي خلال فترة المستخلص الحالية (م3)			

مهندس الهيئة
م / أحمد جلال عبد السلام
أحمد جلال

مهندس الاستشاري

مکتبہ ا.د. خالد قنديل

م. / هشتم محمد صبري

مكتبة أ.د./ خالد قنديل
عبدالمجيد محمد صبري

مشاربي الهندسي KK

القطاع الكهربائي السريع
هاتفك محمد صبري
مشاربي هندسي (الإلكترونية)

مهتم الاستشاري

XYZ

م / محبت خاں

مهندس الاستشاري
مكتب XYZ
م / محمد خليل
إبراهيم غرب النيل

مهندسة الشركة

م / محمد فهد القوي

مهندس الشركة
أحمد بن مسعود
ORANGE CO
EXPORT & IMPORT
٢٠١٣ / ١١ / ٢٠

قائمة الكميات الواردة بالمستخلص جاري (2)

استناد أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال من القلتر
لتنفيذ المسافة من الكم 310.640 إلى الكم 311.000 بطول 0.360 كم (بالأمر المباشر).

علاوة بند (1-1) علاوة مسافة النقل 162 كم .

السعر طبقا للمفاوضة الخاصة بالقطاع الرابع بتاريخ 2023-12-18
تنفيذ : "شركة أورانج للاستيراد والتصدير"
عقد رقم (2024/2023/949)

مقدار العمل السابق :	0.0	3م
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مستسل	الموقع الكيلومري		الطول (متر)	الكمية (3م)
	من الكم	إلى الكم		
1	310+680	311+000	320	14400.90
2	بريخ 310+650		48	206.00
3	بريخ 310+655		48	189.80
4	بريخ 310+670		48	189.80
5	بريخ 310+870		48	189.80
اجمالي الكمية الهندسي بالقطاع (3م)				
15176.30				
اجمالي الكمية بعد احتساب نسبة غور 25% (3م)				
18970.38				
الاجمالي خلال فترة المستخلص الحالية (3م)				
18970.38				

مهندس الهيئة

م / أحمد جلال عبد السلام
أحمد جلال

مكتب أ.د/ خالد قنديل

م / هشام محمد صبري



مكتب XYZ

م / محمد خليل



مهندس الشركة

م / محمد فتحي الفوق



قائمة الكميات الواردة بالمستخلص جاري (2)

اسناد أعمال الجسر الترابي للخط الأول لمشروع القطار الكهربائي السريع
(العين السخنة - العاصمة الإدارية - العلمين - مطروح)
(قطاع وادي النطرون / برج العرب) أعمال سن الفلتر
لتنفيذ المسافة من الكم 310.640 إلى الكم 311.000 بطول 0.360 كم (بالأمر المباشر).

علاوة بند (1-1) علاوة تحصيل رسوم الكارثة والموازن طبقا للائحة الشركة الوطنية.

تنفيذ : "شركة أورانج للاستيراد والتصدير"

عقد رقم (2024/2023/949)

مقدار العمل السابق :		13621.00	3م
مسلسل	الموقع الكيلومتری		الكنبة (م3)
	من الكم	إلى الكم	الطول (متر)
1	310+680	311+000	320
2	بريخ 310+650		48
3	بريخ 310+655		48
4	بريخ 310+670		48
5	بريخ 310+870		48
	اجمالي الكمية الهندسي بالقطاع (3م)		4279.50
	اجمالي الكمية بعد احتساب نسبة غرز 25% (3م)		5349.38
	الاجمالي خلال فترة المستخلص الحالية (3م)		18970.38

مهندس الهيئة
م / أحمد جلال عبد السلام
أحمد جلال

مهندس الاستشاري
مكتب أ/د/ خالد قنديل
م / هشام محمد صبري

مهندس الاستشاري
مكتب أ/د/ خالد قنديل
م / هشام محمد صبري
مشروع: القطار الكهربائي السريع
(الإسكندرية)

مهندس الاستشاري
مكتب XYZ
م / محمد خليل
مشروع: القطار الكهربائي السريع
غروب القديس

مهندس الشركة
م / محمد فتحي القوي
أورنج للاستيراد والتصدير
ORANGE
EXPORT&IMPORT
2019

القطار الكهربائي السريع

المنطقة الخامسة - غرب الدلتا

(الإسكندرية - مرسى مطروح)

السيد المهندس / رئيس قطاع التنفيذ و المناطق

تحية طيبة وبعد ،،،

بالإحالة إلى مشروع القطار الكهربائي السريع القطاع الرابع (قطاع وادي النطرون/برج العرب/الاسكندرية).

نتشرف بأن نرسل لسيادتكم المقايضة المعدلة لبنود أعمال الجسر الترابي والأعمال الصناعية للخط الأول لمسار القطار الكهربائي السريع (العين السخنة - العاصمة الإدارية - العلمين - مطروح) قطاع (وادي النطرون - برج العرب) أعمال سن الفلتر لتنفيذ المسافة من الكم ٣١٠,٦٤٠ إلى الكم ٣١١,٠٠٠ بطول ٠,٣٦٠ كم (بالأمر المباشر).

تنفيذ : "شركة أورانج للاستيراد والتصدير" .

وذلك طبقاً للأسعار بعد المفاوضة.

برجاء من سيادتكم التفضل بالموافقة والتوجيه بالازم.

و تفضلوا بقبول فائق الاحترام ،،،

أصح

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عبد مهندس /

"هاني محمد محمود طه"

المقاييس المعدلة لبيوت الأعمال لمعالجة
استناد أعمال الجسر الترابي للخط الأول لمشروع القطر الكهربائي السريع
(العين المسكنة - العاصمة الإدارية - العامين - مطروح) (قطاع وادي النطرون / برج العرب) أعمال من القنطرة
لتنفيذ المسافة من الكم 310.640 إلى الكم 311.000 بطول 0.360 كم (بالأمر المباشر).
عقد رقم (2024/2023/949)
تنفيذ "شركة أورنج للاستيراد والتصدير"

رقم البند	بيان الأعمال	الوحدة	الكمية	القيمة	الإجمالي
1	أعمال الردم				
1-1	بالمعتر المكعب أعمال توريد وفرش طبقة قلتر من الأحجار الصلبة المترجعة ناتج تكسير كميات والمطابقة للمواصفات واقصى حجم حبيبي ما بين 20مم إلى 75 مم والا يزيد نسبة المار من منخل 200 عن 5% والتدرج الوارد بالاشتراطات الخاصة بالمشروع وهي احجار مقاس 1:2:4 أو 2:4:8 بنسبة 1:1:1 والايقل معامل المرونة EV2 من تجربة لوح التحميل عن 50 ميجاباسكال والا يزيد نسبة الفاقد بجهاز لوس انجلوس عن 45% والفئة تشمل أعمال التجارب المعملية والبند يشمل اجراء التجارب المعملية والمحلية طبقا لاصول الصناعة المعمترة وتقرير الاستشاري وتعليمات المهندس المشرف . - لمسافة نقل 20 كم . - الفئة شاملة قيمة المادة المحجورية. - يتم احتساب 1.3 جنية لكل 1 كم بالزيادة او النقصان .				
	السعر خلال شهر مايو 2023 طبقاً للمفاوضة بتاريخ 2023-12-18	3م	20265.0	347.20	7,036,008.00
	علاوة مسافة النقل 162 كم . $184.6 = 1.3 * (162 - 20)$	3م	20265.0	184.60	3,740,919.00
	علاوة تحصيل رسوم الكارثة والموازن طبقا للائحه الشركة الوطنية.	3م	20265.0	25.00	506,625.00
	الاجمالي				11,283,552.00
أحد عشر مليوناً ومئتان وثلاثة وثمانون ألفاً وخمسمائة والثلثان وخمسون جنيهاً مصرياً فقط لا غير.					
يرجى العلم بان الفات المذكورة طبقاً للمفاوضة الخاصة بالقطاع الرابع بتاريخ 2023-12-18					

الهيئة العامة للطرق والكباري
مدير عام المشروعات
د/ محمد حسني قبايش

الهيئة العامة للطرق والكباري
مدير المشروع
د/ أحمد جلال عبد السلام

المكتب الاستشاري الهندسي أ.د خالد قنديل
مدير المشروع
د/ هشام محمد صبري

الشركة المتكاملة
للخدمات الهندسية
والتشييد
ORANGE
EXPORT & IMPORT
٢٠١٩

المكتب الاستشاري الهندسي
أ.د خالد قنديل
مدير المشروع
د/ هشام محمد صبري
الهيئة العامة للطرق والكباري
مدير المشروع
د/ أحمد جلال عبد السلام

رئيس الإدارة المركزية
منطقة غرب الدلتا
الاسكندرية - مرسى مطروح
عميد مهندس /
"هاني محمد محمود" ٢٠٢٣

Contractor Company	Orange for Import & Export and General Contracting Company			Designer Company		(KK) Engineering Consulting Office					
Issued by Contractor	Name	Sign		Date/Serial Number		Time					
	Eng: Mohamed Fathy	محمد قدّس الفول		28-08-2023 (OR-M.A 051)		09:30 AM					
Received by ER	Eng: Gaber Ibrahim		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				310	EW	CS	28	08	23	09	30

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

Description of Materials	Stockpile of Dolomitic Crushed Aggregates. (Filter Layer)		
Location to be Used	Station 310+450 to 310+960		
Sample only	Yes	Materials Type	Filter layers
Supplier Name	Rateb	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	Approved
Reference Photos	No	Other	
Comments by: Eng. Hesham Sabry (KK)		Comments by: Eng. Gaber Ibrahim (ER)	
١. تم إجراء الاختبارات المعملة وتم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.		1- All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng: Mohamed Fathy	محمد قدس الفول	28-08-2023	A
QA/QC *	Eng: Hesham Sabry		28/8/2023	A
GARB**	Eng: Ahmed Galal			
Employers Representative	Eng: Gaber Ibrahim			A.W.C

* Designer

** Alignment/Bridges: Culvert only

28-08-1073



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date :	28-Aug-23	Station:	310+500
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 1# & 2# & 3#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	15565	100.0	100	100
50	0	15565	100.0	75	90
10	12980	2585	16.6	15	25
4.75	1874	711	4.57	0	10
0.075	580	131	0.8	0	5
Passing	131				
Total	15565				

مهندس الجودة الاستشاري

مهندس الشركة

مهندس الشركة

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date :	28-Aug-23	Station:	310+500
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	18277	100.0	100	100
50	128	18149	99.3	75	90
10	14389	3760	20.6	15	25
4.75	2891	869	4.75	0	10
0.075	781	88	0.5	0	5
Passing	88				
Total	18277				

مهندس الجودة الاستشاري

مهندس الشركة
محمود أبو شنب



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

APRASION OF AGGREGATE BASE COARSE ASTM C-131

Date :	28-Aug-23	Station:	310+500		
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#		
رتبة تدرج الاختبار		A	B	C	D
عدد الكرات لكل رتبة		12	11	8	6
مار من	محجوز على	وزن العينات (جم)			
37.5 mm (1½ in.)	25 mm (1 in.)	1250			
25 mm (1 in.)	19 mm (¾ in.)	1250			
19 mm (¾ in.)	12.5 mm (½ in.)	1250	2500		
12.5 mm (½ in.)	9.5 mm (⅜ in.)	1250	2500		
9.5 mm (⅜ in.)	6.35 mm (¼ in.)			2500	
6.35 mm (¼ in.)	4.75 mm (No. 4)			2500	
4.75 mm (No. 4)	2.36 mm (No. 8)				5000
المجموع		5000	5000	5000	5000
حساب نسبة الفاقد بجهاز لوس انجلوس:					
وزن العينة قبل الاختبار		5000			
وزن العينة المحجوزه على مهزه رقم 12		3751			
نسبة الفاقد بجهاز لوس انجلوس		25.0%			

مهندس الجودة الاستشاري

مهندس الشركة
محمد أبو شنب

خالد

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab
From Station 305+500 To Station 311+000

Water Absorption of Coarse Aggregate (ASTM-C127)

Date :	28-Aug-23
From / To :	310+450/310+960

Station:	310+500
Sample type :	خليط من سن 1 - سن 2 - سن 3

Item	Weigh (gm)
Wt. in Air Dry Before Test (gm.)	5000
Wt. in air SSD (gm.)	5145
Wt. in Air Dry After Test (gm.)	4939
Percentage of Absorption	4.17%
Percentage of Disintegration piece	1.22%

Elongated and Flat Aggregate ASTM D-4791

Weigh of Total Sample (gm.)	5000
Weigh Elongated (gm.)	171
Weigh Flat (gm.)	356
Percentage of Elongated	3.42%
Percentage of Flat	7.12%

Natural Soft Aggregate

Weigh of Total Sample (gm.)	18277
Weigh Natural (gm.)	1201
Percentage of Natural Aggregate	6.57%

المهندس الاستشاري (K.K.)



مهندس المواد (الشركة)

محمود بوشني



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Seive Analysis of Fine and Coarse Aggregats (T-27)

Date : 29-Aug-23

From / To : 310+450 TO 310+960

Station:

310+600

Sample type :

خليط من سن 1# & 2# & 3#

Sieve size (mm)	Retained	Passing	Passing %		
				MIN	MAX
75	0	10862	100.0	100	100
50	0	10862	100.0	75	90
10	8751	2111	19.4	15	25
4.75	1523	588	5.41	0	10
0.075	491	97	0.9	0	5
Passing	97				
Total	10862				

مهندس الجودة الاستشاري

مهندس الشركة
 محمود أبو شنب



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

APRASION OF AGGREGATE BASE COARSE ASTM C-131

Date :	29-Aug-23	Station:	310+600		
From / To :	310+450 TO 310+960	Sample type :	خليط من سن 3# & 2# & 1#		
رتبة تدرج الاختبار		A	B	C	D
عدد الكرات لكل رتبة		12	11	8	6
مار من	محجوز على	وزن العينات (جم)			
37.5 mm (1½ in.)	25 mm (1 in.)	1250			
25 mm (1 in.)	19 mm (¾ in.)	1250			
19 mm (¾ in.)	12.5 mm (½ in.)	1250	2500		
12.5 mm (½ in.)	9.5 mm (⅜ in.)	1250	2500		
9.5 mm (⅜ in.)	6.35 mm (¼ in.)			2500	
6.35 mm (¼ in.)	4.75 mm (No. 4)			2500	
4.75 mm (No. 4)	2.36 mm (No. 8)				5000
المجموع		5000	5000	5000	5000

حساب نسبة الفاقد بجهاز لوس انجلوس:

وزن العينة قبل الاختبار	5000
وزن العينة المحجوزة على مهزة رقم 12	3798
نسبة الفاقد بجهاز لوس انجلوس	24.0%

مهندس الجودة الاستشاري

مهندس الشركة

محمد أبو شنب

خالد

Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein
Section - 4 From Wadi El Nnatroun To Borg Elarab "
From Station 305+500 To Station 311+000

Water Absorption of Coarse Aggregate (ASTM-C127)

Date :	29-Aug-23
From / To :	310+450/310+960

Station:	310+600
Sample type :	خليط من سن 1 - سن 2 - سن 3

Item	Weigh (gm)
Wt. in Air Dry Before Test (gm.)	5000
Wt. in air SSD (gm.)	5145
Wt. in Air Dry After Test (gm.)	4939
Percentage of Absorption	4.17%
Percentage of Disintegration piece	1.22%

Elongated and Flat Aggregate ASTM D-4791

Weigh of Total Sample (gm.)	5000
Weigh Elongated (gm.)	191
Weigh Flat (gm.)	361
Percentage of Elongated	3.82%
Percentage of Flat	7.22%

Natural Soft Aggregate

Weigh of Total Sample (gm.)	10862
Weigh Natural (gm.)	721
Percentage of Natural Aggregate	6.64%

المهندس الاستشاري (K.K)

مهندس المواد (الشركة)

محمد أبو سنبل

[Signature]

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MOHAMED MOSTAFA BADRY
ne.tel: 01090665097/01100214107

**مكتب البدرى للاستشارات**

الجيولوجية والهندسية وضبط الجودة
دكتور استشاري/محمد مصطفى بدرى
ت: ٠١١٠٠٢١٤١٠٧/٠١٠٩٠٦٦٥٠٩٧

TECHNICAL REPORT OF CRUSHED AGGREGATE

Contractor : شركة اورانج للمقاولات العمومية
Date of report: 21/11/2024
R-Code : 259

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Geology Engineering and Quality Control
 Dr. MOHAMED MOSTAFA BADRY
 Phone.tel: 01090665097/01100214107

**مكتب البدرى للاستشارات**

الجيولوجية والهندسية وضبط الجودة
 دكتور استشاري / محمد مصطفى بدرى
 ت: ٠١١٠٠٢١٤١٠٧ / ٠١٠٩٠٦٦٥٠٩٧

I. Introduction

- 1-Project : ELERICAL EXPRESS TRAIN
 2-General consultant : SYSTRA
 3-Contractor : شركة اورانج للمقاولات العمومية
 4-Sample : Crushed aggregate filter
 5-Station : St(307+800)
 6-Location : From stored material
 7-Date : 19/11/2024
 8-R-Code : 259

**II. Sample description:**

Course Aggregate mix

III. Required tests and Results:

Table (1): Physical properties for materials of course aggregates

1- Grain size analysis	Grain size analysis	As showed in appendix
2- Los Anglos test	Abrasion ratio	24.8%
3- Specific gravity (SG), absorption and degradation	S S D	2.568
	Absorption	1.57%
	Degradation	0.4%
4- Percentage of natural aggregates	Total Percentage of natural aggregate	3.04%

IV. Notes:

- Samples were bought by: Contractor.
- Samples are responsible from the person who brought it.
- The results are applying only for the present repo

Geotechnical Consultant

Dr. MB
 Dr. Mohamed Mostafa badry

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Geology Engineering and Quality Control
Dr. MOHAMED MOSTAFA BADRY
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مكتب البدرى للاستشارات

الجيولوجية والهندسية وضبط الجودة
دكتور استشاري/محمد مصطفى بدرى
ت: ٠١١٠٠٢١٤١٠٧ / ٠١٠٩٠٦٦٥٠٩٧

APPENDIX

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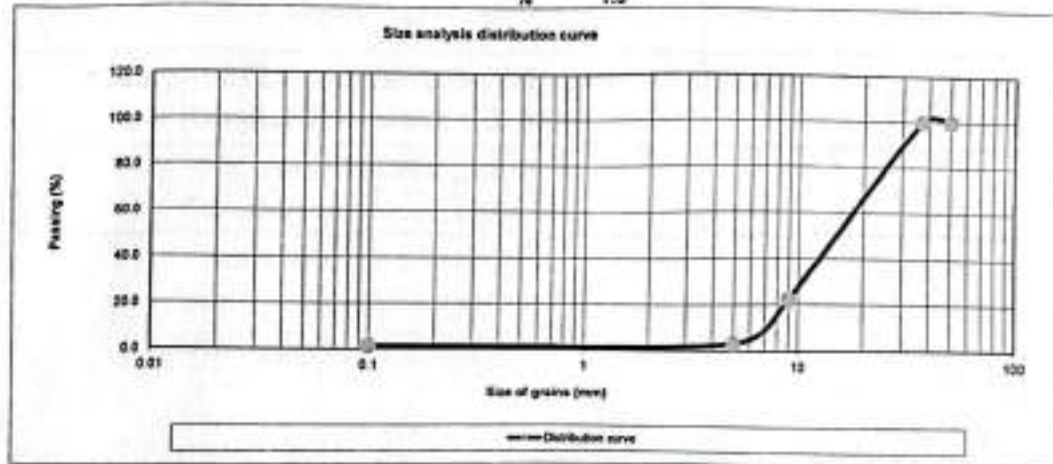
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يولوجية والهندسية وضبط الجودة
 ور استشاري/محمد مصطفى بدرى
 ٠١١٠٠٢١٤١٠٧/٠١٠٩٠٦٦٥٠٩٧

**PARTICLE SIZE DISTRIBUTION
 ANALYSIS
 ASTM C-136 / AASHTO T27**

Sieve size (mm)	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE	CUMULATIVE PERCENTAGE	STANDARD SPECIFICATION LIMITS	
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)		
75	0.00	0.00	0.00	100.0	100	100
50	0.00	0.00	0.00	100.0	75	90
10	7800.00	7800.00	78.00	22.0	15	25
No.4	1885.00	9685.00	96.85	3.15	0	10
No.200	185.00	9870.00	98.70	1.30	0	5

Total sample weight = 10000.00 pass No.200= 130.0
 % 1.3



Coarse Agg.



LBADRY CONSULTING

Technology Engineering and Quality Control
 Mr. MOHAMED MOSTAFA BADRY
 Phone: tel: 01090665097/01100214107



مكتب البدرى للاستشارات

تكنولوجيا وهندسية وضبط الجودة
 م. استشاري / محمد مصطفى بدرى
 ٠١١٠٠٢١٤١٠٧ / ٠١٠٩٠٦٦٥٠٩٧

ABRASION AND IMPACT " LOS ANGELES " TEST

(For small size coarse aggregate)

ASTM- C 131-96 / AASHTO-T-96

Results

Speed	Rotate at 30 to 33 Rpm For 500 Revolution
Trial Grading	A
Intitial Weight (W1) gms	5000
Weight of tested sample (W2) gms Retained on sieve No.12	3760
% Wear By Weight Passing on Sieve No.12	24.8%



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مكتب البدرى للاستشارات

جیولوجیة والهندسیة وضبط الجودة
 کتور استشاری/محمد مصطفی بدری
 ت: ٠١١٠٠٢١٤١٠٧/٠١٠٩٠٦٦٥٠٩٧

Absorption and specific gravity for
Coarse Aggregate
ASTM C 127 - AASHTO T 85

Weight of sample	2500
Weight of saturated - dry surface sample (B)	2529
Weight of saturated sample in water (C)	1544
Weight of dry sample after heating (A)	2490

Results:-

Saturation surface dry specific gravity = $B / (B-C)$	2.568
Bulk specific gravity = $A / (B-C)$	2.53
Apparent specific gravity = $A / (A-C)$	2.63
Absorbtion of water = $(B-A)/A*100$	1.57
Degradation of aggregate = $(2500-A)/ A*100$	0.4



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مكتب البدرى للاستشارات

الجيولوجية والهندسية وضبط الجودة
 دكتور استشاري/محمد مصطفى بدرى
 ت: ٠١١٠٠٢١٤١٠٧ / ٠١٠٩٠٦٦٥٠٩٧

Percentage of crushed aggregate

Crushed Determination

Sieve size "inch"		Mass test portion (gm)	Mass natural (gm)	Percentage of crushed portion %
Passing	Retained			
1	3/4	1680	47	97.20
3/4	1/2	790	28	96.46
1/2	3/8	500	12	97.60
3/8	no. 4	185	9	95.14
Total		3155.00	96	96.96

Percentage of cruched =	96.96	%
Percentage of natural =	3.04	%
Standard specification	≤ 8	%





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Internal inspection and laboratories sector

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Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/ Khaled Kandil
Contractor	:	شركة أورنج للإستيراد والتصدير والمقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Coarse agg. Filter layer
Station	:	ST(310+510) TO ST(310+940)
Date of Test	:	24/6/2023
QC	:	1485





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Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil.

The test to be carried out on the native soil according to German specifications DIN 18134.

Test methods :

- 1- The German standard DIN 18134 was applied to define the apparatus used, the loading system, test conditions, and procedure for plate load test.
- 2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.
- 3- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which is capable of applying and releasing the load stages.
- 4- The dial gauge used to measure the plate settlement has a resolution of 0.01mm and the lever ratio was equal to 1.
- 5- The temperature at the time of the test was 25°.
- 6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.
- 7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.
- 8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

- 1- Loading, unloading and reloading regims were applied according to DIN 18134 for the plate load test to estimate the resilient modulus
- 2- Prior to the test, the force transducer and dial gauge were set to zero, after which a load was applied corresponding to a stress of 0.01 MN/m².
- 3- In the first loading cycle, the load was increased until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was released in four stages.
- 4- Following unloading, a further second loading cycle was carried out, in which, the load was increased only to the penultimate stage of the first cycle.



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310+510

600

Table 1: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.12
2	14.14	0.050	0.23
3	21.21	0.075	0.32
4	28.28	0.100	0.44
5	35.35	0.125	0.58
6	42.42	0.150	0.69
7	49.49	0.175	0.90
8	56.56	0.200	1.08
9	63.63	0.225	1.30
10	70.7	0.250	1.52
11	56.56	0.200	1.50
12	49.49	0.175	1.43
13	35.35	0.125	1.31
14	21.21	0.075	1.23
15	1.414	0.005	1.01

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.01
16	7.07	0.025	1.07
17	14.14	0.050	1.12
18	21.21	0.075	1.22
19	28.28	0.100	1.30
20	35.35	0.125	1.40
21	42.42	0.150	1.49
22	49.49	0.175	1.53
23	56.56	0.200	1.57
24	63.63	0.225	1.61

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0,max})$ MN/m ²	0.250	0.250
a_0 (mm)	0.076	0.972
a_1 (mm/(MN/m ²))	2.061	3.864
a_2 (mm/(MN ² /m ²))	14.915	-4.215
$E_v = 1.5 \sigma / (a_1 + a_2 \cdot \sigma_{0,max})$	77.73	160.12
E_v2/E_v1	2.06	



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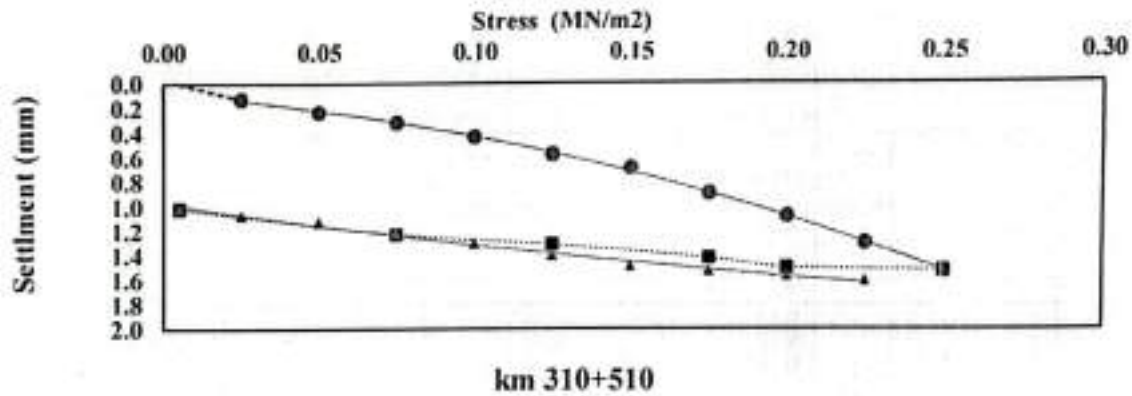


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_s Normal stress MN/m²





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310+570

600

Table 4: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.09
2	14.14	0.050	0.17
3	21.21	0.075	0.25
4	28.28	0.100	0.45
5	35.35	0.125	0.66
6	42.42	0.150	0.79
7	49.49	0.175	1.01
8	56.56	0.200	1.14
9	63.63	0.225	1.24
10	70.7	0.250	1.34
11	56.56	0.200	1.31
12	49.49	0.175	1.27
13	35.35	0.125	1.07
14	21.21	0.075	0.93
15	1.414	0.005	0.63

Table 5: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_n) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.63
16	7.07	0.025	0.71
17	14.14	0.050	0.78
18	21.21	0.075	0.88
19	28.28	0.100	0.96
20	35.35	0.125	1.04
21	42.42	0.150	1.12
22	49.49	0.175	1.17
23	56.56	0.200	1.25
24	63.63	0.225	1.32

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{n, max})$ MN/m ²	0.250	0.250
s_0 (mm)	-0.130	0.612
a_1 (mm/(MN/m ²))	6.379	3.707
a_2 (mm/(MN ² /m ⁴))	-1.273	-2.531
$E_v = 1.5 \pi / (a_1 + a_2 \cdot \sigma_{n, max})$	74.25	146.38
E_v2/E_v1	1.97	



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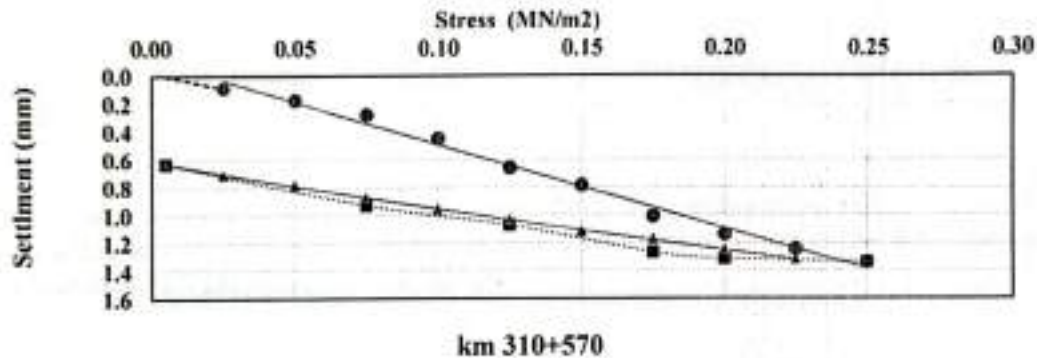


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_s Normal stress MN/m²



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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on Coarse agg. filter layer of the electric express train project at location (from km 310+510) to km (310+940) in accordance to the German standard , DIN 18134 are illustrated in table 16 .

Table 16 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
310+510	77.73	160.12	2.06
310+570	74.25	146.38	1.97
310+740	69.58	176.94	2.54
310+800	90.22	145.89	1.62
310+940	68.45	176.27	2.58

Lab Director

Eng / Eman Kandil

Geotechnical Consultant

For Dr. M.
Dr / Mohamed Mostafa Badry



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Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/Khaled Kandil
Contractor	:	شركة اورنج للإستيراد والتصدير و المقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Aggregate Filter
Station	:	ST(310+900) TO ST(310+960)
Date of Test	:	04/09/2023
QC	:	1868





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Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil.

The test to be carried out on the native soil according to German specifications DIN 18134.

Test methods :

- 1- The German standard DIN 18134 was applied to define the apparatus used, the loading system, test conditions, and procedure for plate load test.
- 2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.
- 3- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which is capable of applying and releasing the load stages.
- 4- The dial gauge used to measure the plate settlement has a resolution of 0.01mm and the lever ratio was equal to 1.
- 5- The temperature at the time of the test was 25°.
- 6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.
- 7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.
- 8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

- 1- Loading, unloading and reloading regims were applied according to DIN 18134 for the plate load test to estimate the resilient modulus
- 2- Prior to the test, the force transducer and dial gauge were set to zero, after which a load was applied corresponding to a stress of 0.01 MN/m².
- 3- In the first loading cycle, the load was increased until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was released in four stages.
- 4- Following unloading, a further second loading cycle was carried out, in which, the load was increased only to the penultimate stage of the first cycle.





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Sec (310+900) to (310+960)

SI (310+930)

600

Table 1: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MPa/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.27
3	21.21	0.075	0.42
4	28.28	0.100	0.47
5	35.35	0.125	0.74
6	42.42	0.150	0.88
7	49.49	0.175	1.09
8	56.56	0.200	1.21
9	63.63	0.225	1.34
10	70.7	0.250	1.47
11	77.77	0.280	1.45
12	84.84	0.175	1.43
13	91.91	0.175	1.32
14	98.98	0.075	1.21
15	1.414	0.005	1.63

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MPa/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.03
16	7.07	0.025	1.11
17	14.14	0.050	1.19
18	21.21	0.075	1.27
19	28.28	0.100	1.34
20	35.35	0.125	1.41
21	42.42	0.150	1.45
22	49.49	0.175	1.51
23	56.56	0.200	1.57
24	63.63	0.225	1.63

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{k,ass})$ MPa/m ²	0.250	0.250
s_0 (mm)	-0.040	1.024
s_1 (mm)(MPa/m ²)	6.026	3.453
s_2 (mm)(MPa/m ²)	0.505	-3.505
E_{avg} (MPa) ($s_1 + s_2$)	73.15	175.13
E_{avg}	2.39	





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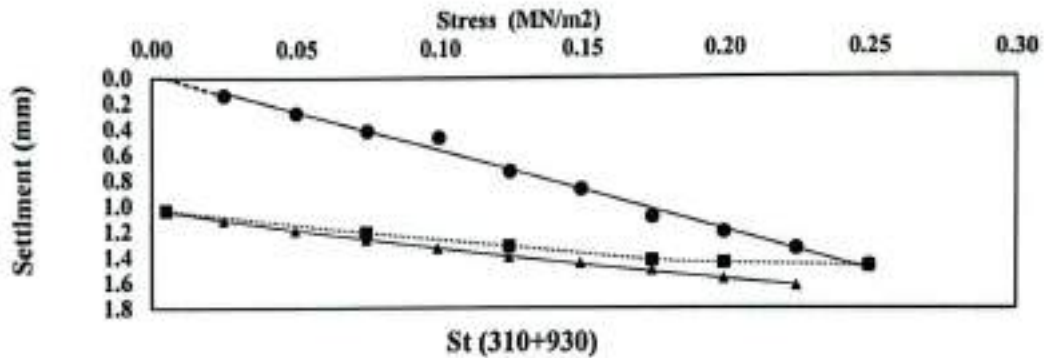


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_s Normal stress MN/m²





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Internal inspection and laboratories sector

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Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Conclusions:

The present test results which obtained from the plate loading tests of the native soil on aggregate filter layer of the electric express train project at location from St (310+900) to (310+960) in accordance to the German standard, DIN 18134 are illustrated in table 4.

Table 4 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
St (310+930)	73.15	175.13	2.39

Lab Director
Eman
Eng / Eman Kandil



Geotechnical Consultant
Dr. M.
Dr / Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	Orange for Import & Export and General Contracting Company		Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/ Serial Number	Time			
	Eng: Mohamed Fathy						
Received by ER	Eng. Gaber Ibrahim	MIR	C1	C2	C3	DD	MM
			310	EW	CS	04	09

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

Description of Materials	FILTER LAYER				
Location to be Used	From St. (310+900) To St. (310+960)				
MAR Approval No	(OR-M.A 052,053)			Date	04-09-2023 29-08-2023
Supplier Name	RATEB				
Test Requirement	P.L.T (DIN 18134)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP.	
Reference Photos	No		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	Plate load test	NUMBER	1	04-09-2023	
2					
3					
4					
Comments by : Eng. Hesham Sabry (KK)			Comments by: Eng. Gaber Ibrahim (ER)		
1. تم اختبار القطاع (Plate Loading Test) من قبل المعمل الهندسي (كومببيل). 2. تم تحقيق النتائج المطلوبة طبقاً لمواصفات المشروع.			1- P.L.T was carried- out by Comibassal Lab, Attendances of material engineer for both contractor and GARB Consultant. 2- Results report attached and acceptable with project specifications. 3- Final approval is subject to above mentioned comments.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng: Mohamed Fathy		04-09-2023	A
QA/QC *	Eng. Hesham Sabry		4/9/2023	A
GARB**	Eng. Ahmed Galal			
Employers Representative	Eng. Gaber Ibrahim			

* Designer

** Alignment / Bridges: Culvert Only



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Internal inspection and laboratories sector

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Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/Khaled Kandil
Contractor	:	شركة اورنج للإستيراد والتصدير و المقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Aggregate Filter
Station	:	ST(310+900) TO ST(310+960)
Date of Test	:	04/09/2023
QC	:	1868

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Introduction:

The Plate Load test is designed to determine the vertical deformation and strength characteristics of soil by assessing the force and amount of penetration with time when a rigid plate is made to penetrate the soil.

The test to be carried out on the native soil according to German specifications DIN 18134.

Test methods :

1- The German standard DIN 18134 was applied to define the apparatus used, the loading system, test conditions, and procedure for plate load test.

2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.

3- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which is capable of applying and releasing the load stages.

4- The dial gauge used to measure the plate settlement has a resolution of 0.01mm and the lever ratio was equal to 1.

5- The temperature at the time of the test was 25°.

6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.

7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.

8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

1- Loading, unloading and reloading regims were applied according to DIN 18134 for the plate load test to estimate the resilient modulus

2- Prior to the test, the force transducer and dial gauge were set to zero, after which a load was applied corresponding to a stress of 0.01 MN/m².

3- In the first loading cycle, the load was increased until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was released in four stages.

4- Following unloading, a further second loading cycle was carried out, in which, the load was increased only to the penultimate stage of the first cycle.



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Sec (310+900) to (310+960)

St (310+930)

600

Table 1: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.13
2	14.14	0.050	0.27
3	21.21	0.075	0.42
4	28.28	0.100	0.47
5	35.35	0.125	0.74
6	42.42	0.150	0.88
7	49.49	0.175	1.09
8	56.56	0.200	1.21
9	63.63	0.225	1.34
10	70.7	0.250	1.47
11	56.56	0.200	1.45
12	49.49	0.175	1.43
13	35.35	0.125	1.32
14	21.21	0.075	1.21
15	1.414	0.005	1.03

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	1.03
16	7.07	0.025	1.11
17	14.14	0.050	1.19
18	21.21	0.075	1.27
19	28.28	0.100	1.34
20	35.35	0.125	1.41
21	42.42	0.150	1.45
22	49.49	0.175	1.51
23	56.56	0.200	1.57
24	63.63	0.225	1.63

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
$(\sigma_{0, max})$ MN/m ²	0.250	0.250
a_0 (mm)	-0.040	1.024
a_1 (mm/(MN/m ²))	6.026	3.453
a_2 (mm/(MN ² /m ⁴))	0.505	-3.535
$E_v = 1.5 \pi / (a_1 + a_2 \cdot \sigma_{0, max})$	73.15	175.13
E_v2/E_v1	2.39	



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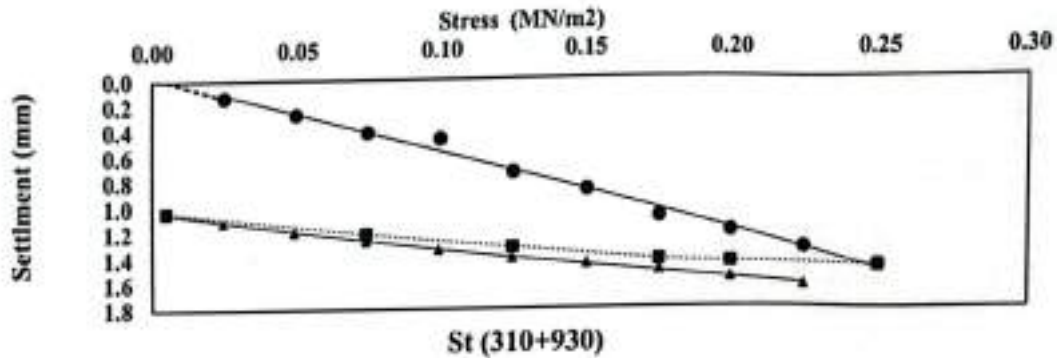


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_1 Normal stress MN/m²



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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on aggregate filter layer of the electric express train project at location from St (310+900) to (310+960) in accordance to the German standard , DIN 18134 are illustrated in table 4.

Table 4 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
St (310+930)	73.15	175.13	2.39

Lab Director

Eng / Eman Kandil



Geotechnical Consultant

Dr / Mohamed Mostafa Badry

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Technical report

of Plate Loading Test (DIN 18134)

General	:	SYSTRA
Consultant	:	Dr/ Khaled Kandil
Contractor	:	شركة اورنج للإستيراد والتصدير و المقاولات العامة
Project	:	ELECTRIC EXPRESS TRAIN
Sample	:	Coars AGG. Filter Layer
Station	:	ST(310+680) TO ST(310+850)
Date of Test	:	12/9/2023
QC	:	1240

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Introduction:

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The test to be carried out on the native soil according to German specifications DIN 18134.

Test methods :

- 1- The German standard DIN 18134 was applied to define the apparatus used, the loading system, test conditions, and procedure for plate load test.
- 2- Loading plates with a diameter of 600 mm have a thickness of 25mm and are provided with equally spaced stiffeners with even upper faces parallel to the plate bottom face to allow 300 mm plate to be placed on top of it.
- 3- The loading system consisted of a hydraulic pump connected to a hydraulic jack of 700 bar capacity, which is capable of applying and releasing the load stages.
- 4- The dial gauge used to measure the plate settlement has a resolution of 0.01mm and the lever ratio was equal to 1.
- 5- The temperature at the time of the test was 25°.
- 6- The plate was carried out on a native soil (sand-gravel). The test surface area was levelled and the plate was bedded on this surface.
- 7- The hydraulic jack was placed on the middle of, and at normal to, the loading plate beneath the reaction loading system and secured against tilting.
- 8- The reaction loading system was a heavy multi-purpose excavator (more than 20 ton).

Description of experiment:

- 1- Loading, unloading and reloading regims were applied according to DIN 18134 for the plate load test to estimate the resilient modulus
- 2- Prior to the test, the force transducer and dial gauge were set to zero, after which a load was applied corresponding to a stress of 0.01 MN/m².
- 3- In the first loading cycle, the load was increased until a normal stress of 0.25 MN/m² was reached, and the loading increment was 0.025 MN/m². The load was released in four stages.
- 4- Following unloading, a further second loading cycle was carried out, in which, the load was increased only to the penultimate stage of the first cycle.



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st(310+680) to st(310+850)

310+700

600

Table 1: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.14
2	14.14	0.050	0.25
3	21.21	0.075	0.35
4	28.28	0.100	0.47
5	35.35	0.125	0.56
6	42.42	0.150	0.67
7	49.49	0.175	0.81
8	56.56	0.200	0.94
9	63.63	0.225	1.05
10	70.7	0.250	1.15
11	56.56	0.200	1.13
12	49.49	0.175	1.11
13	35.35	0.125	0.91
14	21.21	0.075	0.79
15	1.414	0.005	0.43

Table 2: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.43
16	7.07	0.025	0.53
17	14.14	0.050	0.64
18	21.21	0.075	0.73
19	28.28	0.100	0.85
20	35.35	0.125	0.91
21	42.42	0.150	0.98
22	49.49	0.175	1.04
23	56.56	0.200	1.12
24	63.63	0.225	1.20

Table 3: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0,max}$) MN/m ²	0.250	0.250
a_0 (mm)	0.040	0.417
a_1 (mm/(MN/m ²))	4.019	4.709
a_2 (mm/(MN ² /m ⁴))	1.940	-5.847
$E_v = 1.5 \pi' / (a_0 + a_1 \cdot \sigma_{0,max})$	99.90	138.58
E_v/E_v1		1.39



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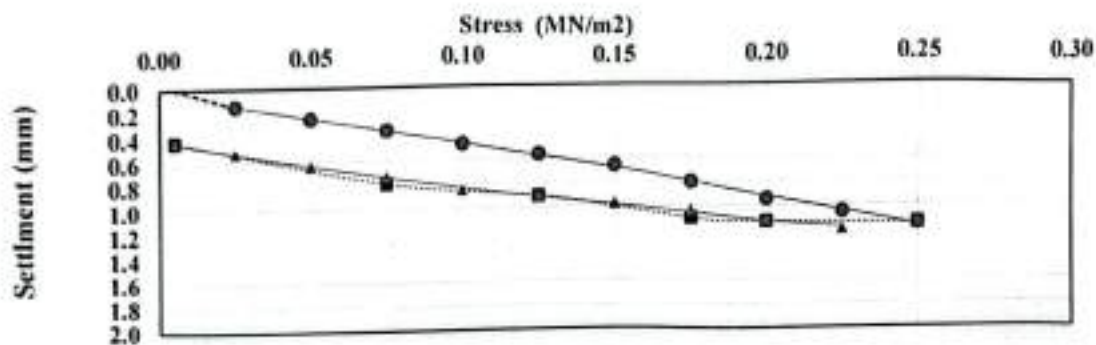


Fig. 1: Load-settlement curve, fitting curves according to Table 1 and Table 2 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_s Normal stress MN/m²





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st(310+680) to st(310+850)

310+750

600

Table 4: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.15
2	14.14	0.050	0.26
3	21.21	0.075	0.35
4	28.28	0.100	0.50
5	35.35	0.125	0.62
6	42.42	0.150	0.74
7	49.49	0.175	0.87
8	56.56	0.200	1.06
9	63.63	0.225	1.14
10	70.7	0.250	1.23
11	56.56	0.200	1.21
12	49.49	0.175	1.19
13	35.35	0.125	1.03
14	21.21	0.075	0.86
15	1.414	0.005	0.57

Table 5: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.57
16	7.07	0.025	0.67
17	14.14	0.050	0.78
18	21.21	0.075	0.90
19	28.28	0.100	1.01
20	35.35	0.125	1.09
21	42.42	0.150	1.16
22	49.49	0.175	1.22
23	56.56	0.200	1.29
24	63.63	0.225	1.38

Table 6: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{k,max}$) MN/m ²	0.250	0.250
s_k (mm)	0.016	5.473
s_1 (mm/(MN/m ²))	4.740	5.201
s_2 (mm/(MN/m ²))	1.031	-7.428
$E_v = 1.5 \sigma / (s_1 + s_2 - \sigma_{k,max})$	90.05	134.55
E_v2/E_v1	1.49	





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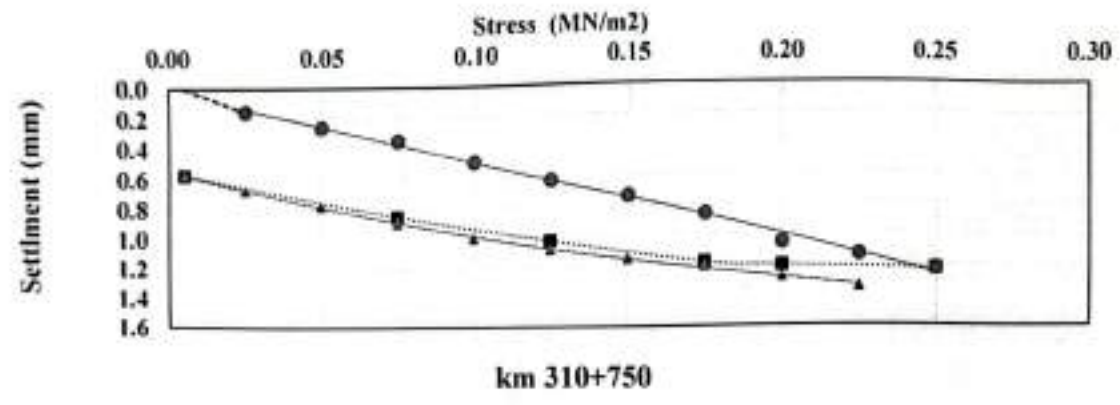


Fig. 2: Load-settlement curve, fitting curves according to Table 4 and Table 5 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_s Normal stress MN/m²





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st(310+680) to st(310+850)

310+800

600

Table 7: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.14
2	14.14	0.050	0.26
3	21.21	0.075	0.38
4	28.28	0.100	0.53
5	35.35	0.125	0.67
6	42.42	0.150	0.76
7	49.49	0.175	0.88
8	56.56	0.200	0.99
9	63.63	0.225	1.14
10	70.7	0.250	1.23
11	56.56	0.200	1.20
12	49.49	0.175	1.18
13	35.35	0.125	1.03
14	21.21	0.075	0.80
15	1.414	0.005	0.54

Table 8: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (σ_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.54
16	7.07	0.025	0.64
17	14.14	0.050	0.72
18	21.21	0.075	0.84
19	28.28	0.100	0.92
20	35.35	0.125	1.00
21	42.42	0.150	1.08
22	49.49	0.175	1.14
23	56.56	0.200	1.21
24	63.63	0.225	1.27

Table 9: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0, max}$) MN/m ²	0.250	0.250
a_0 (mm)	-0.001	0.519
a_1 (mm/(MN/m ²))	5.447	4.545
a_2 (mm/(MN ² /m ⁴))	-2.061	-5.483
$E_v = 1.5 \sigma' / (a_1 + a_2 \cdot \sigma_{0, max})$	91.25	141.75
E_{v2}/E_{v1}	1.55	





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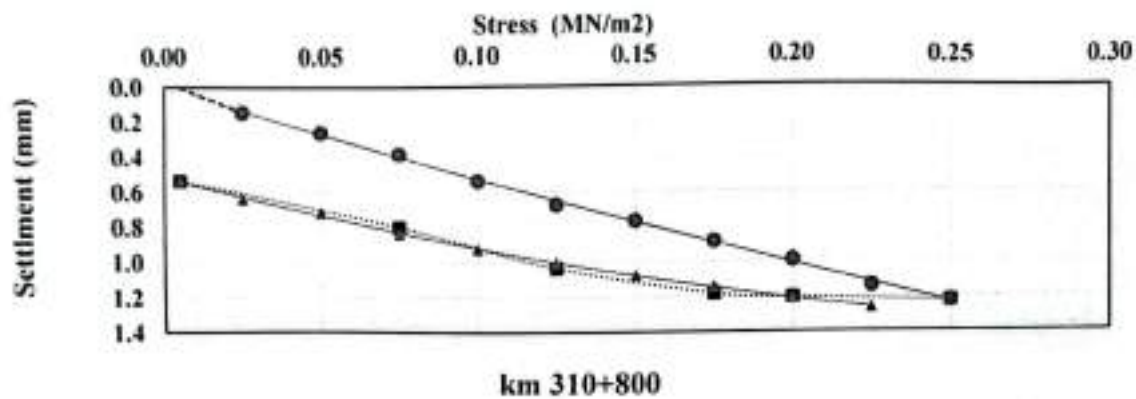


Fig. 3: Load-settlement curve, fitting curves according to Table 7 and Table 8 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_p Normal stress MN/m²





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st(310+680) to st(310+850)

310+850

600

Table 10: Measured values for first loading cycle and unloading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
0	1.414	0.005	0.00
1	7.07	0.025	0.17
2	14.14	0.050	0.26
3	21.21	0.075	0.39
4	28.28	0.100	0.48
5	35.35	0.125	0.61
6	42.42	0.150	0.74
7	49.49	0.175	0.92
8	56.56	0.200	1.05
9	63.63	0.225	1.22
10	70.7	0.250	1.40
11	56.56	0.200	1.38
12	49.49	0.175	1.35
13	35.35	0.125	1.21
14	21.21	0.075	0.99
15	1.414	0.005	0.74

Table 11: Measured values for second loading cycle

Loading stage no.	Load (F) kN	Normal stress (s_0) MN/m ²	Settlement of loading plate S (mm)
15	1.414	0.005	0.74
16	7.07	0.025	0.83
17	14.14	0.050	0.92
18	21.21	0.075	0.99
19	28.28	0.100	1.09
20	35.35	0.125	1.18
21	42.42	0.150	1.25
22	49.49	0.175	1.30
23	56.56	0.200	1.39
24	63.63	0.225	1.45

Table 12: Compilation of results

Parameters	1st loading cycle	2nd loading cycle
($\sigma_{0.005}$) MN/m ²	0.250	0.250
s_0 (mm)	0.083	0.723
a_1 (mm/(MN/m ²))	3.292	3.957
a_2 (mm/(MN ² /m ⁴))	7.856	-3.214
$E_v = 1.5 \sigma / (a_1 + a_2 \cdot \sigma_{0.005})$	85.62	142.68
Ev2/Ev1	1.67	



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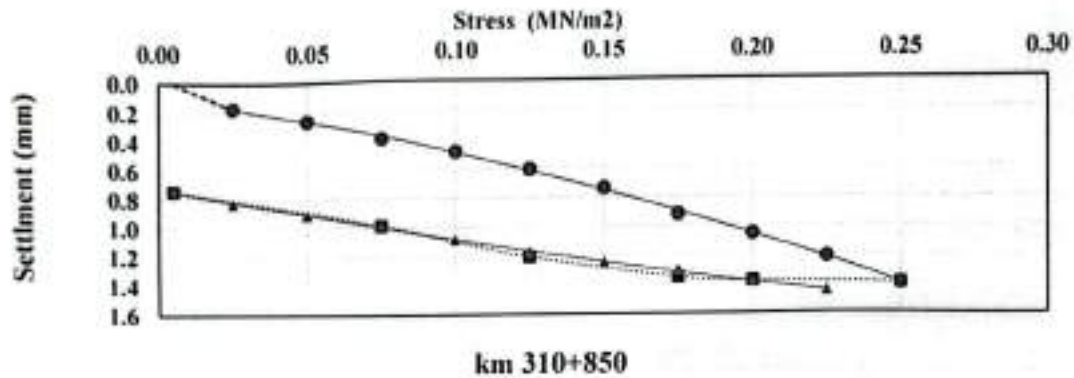


Fig. 4: Load-settlement curve, fitting curves according to Table 10 and Table 11 for the first and second loading cycles

- Measurement points from the first loading cycle
- Measurement points from the unloading cycle
- ▲ Measurement points from the second loading cycle
- S Settlement in mm
- σ_0 Normal stress MN/m²





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Conclusions:

The present test results which obtained from the plate loading tests of the native soil on Coarse agg. filter layer of the electric express train project at location (from km 310+680 to km 310+850) in accordance to the German standard , DIN 18134 are illustrated in table 13 .

Table 13 :Test results

Location	Ev1(MN/m ²)	Ev2(MN/m ²)	Ev2/Ev1 ratio
310+700	99.90	138.58	1.39
310+750	90.05	134.55	1.49
310+800	91.25	141.75	1.55
310+850	85.62	142.68	1.67

Lab Director
Eng / Eman Kandil



Geotechnical Consultant
Dr / Mohamed Mostafa Badry



Company : Orange Construction.**Project :** Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (4) – Wadi El Natroun to Borg Al Arab.**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 (St.310+880 To St.311+000) .**Test Date :** 25/12/2024**Report Date :** 26/12/2024**Type of soil :** Fill Filter (Crushed Stone) .**Test Level :** -----**Report No. :** 81:82**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/cm²
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 (2nd) 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.

1) 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 Soil : Fill Filter (Crushed Stone).

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Partly Sunny
- Plate Diameter (mm)	600
- date of measurement	25/12/2024
- 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
		E_{v1} (MPa)	E_{v2} (MPa)	
1	St.310+850	122	172	1.4
2	St.310+900	128	208	1.6

Signature / 
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Company Name : Orange Construction.
Project : Electric Express Train, Al Ain Sokhna to Marsa Matrouh Priority Sector (4) - Wadi El Natroun to Borg El Arab.
Test Date : 25/12/2024
report date : 26/12/2024
Location : St.310+950.
Test No. : 008

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement 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	19.85	0.15	19.81	0.19	0.17
2	0.83	19.67	0.33	19.71	0.29	19.73	0.27	0.30
3	1.25	19.52	0.48	19.63	0.37	19.58	0.42	0.42
4	1.67	19.40	0.60	19.44	0.56	19.36	0.64	0.60
5	2.08	19.21	0.79	19.26	0.74	19.19	0.81	0.78
6	2.50	19.12	0.88	19.11	0.89	19.05	0.95	0.91

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.12	0.88	19.11	0.89	19.05	0.95	0.91
2	1.25	19.18	0.82	19.19	0.81	19.14	0.86	0.83
3	0.625	19.31	0.69	19.33	0.67	19.28	0.72	0.69
4	0.05	19.63	0.37	19.67	0.33	19.60	0.40	0.37

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.49	0.51	19.53	0.47	19.46	0.54	0.51
1	0.83	19.39	0.61	19.39	0.61	19.31	0.69	0.64
2	1.25	19.20	0.80	19.25	0.75	19.19	0.81	0.79
3	1.67	19.14	0.86	19.16	0.82	19.11	0.89	0.86
4	2.08	19.11	0.89	19.09	0.91	19.07	0.93	0.91



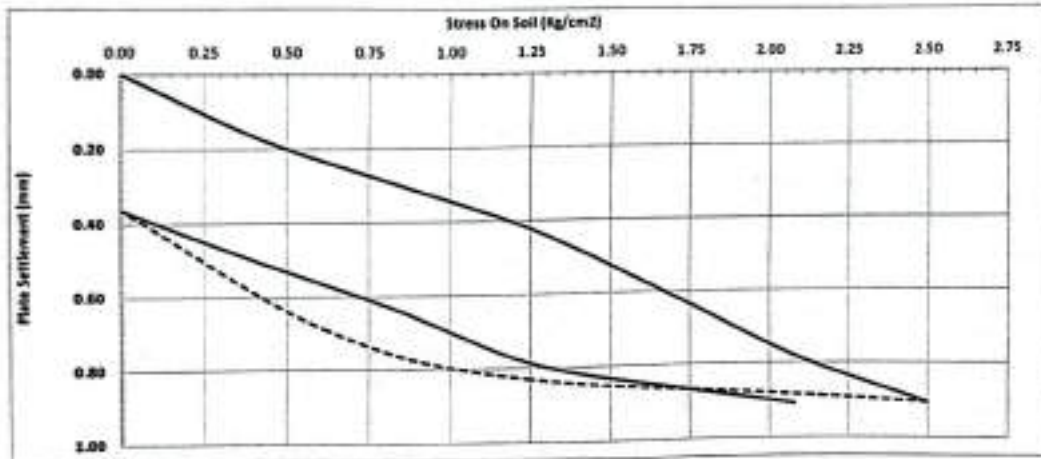
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Company Name : Orange Construction.
Project : Electric Express Train, Al Ain Sokhna to Marsa Matruh Priority Sector (4) - Wadi El Natroun to Borg El Arab.
Test Date : 25/12/2024
Report date : 26/12/2024
Location : St.310+850.
Test No. : 008

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	296.73	586.4	883.13	1179.9	1469.5	1766
Stress (Kg/cm2)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.17	0.30	0.42	0.60	0.78	0.91

UnLoading (1)	1	2	3	4
Stage(Kg)	1766	883	1768	0
Stress (Kg/cm2)	2.50	1.25	0.625	0.01
Settlement (mm)	0.91	0.83	0.69	0.37

D (mm) =	600	S1 (mm) =	0.27	S2 (mm) =	0.64	ΔS =	0.36
Ev1 (MPa) =	(0.75 * D * Δσ) / ΔS		122				

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

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	296.73	586.4	883.13	1179.9	1469.5
Stress (Kg/cm2)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.37	0.51	0.64	0.79	0.86	0.91

D (mm) =	600	S1 (mm) =	0.61	S2 (mm) =	0.67	ΔS =	0.26
Ev2 (MPa) =	(0.75 * D * Δσ) / ΔS		172				

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 (σmax) (kg/cm²)

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



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Company Name : Orange Construction.
Project : Electric Express Train, Al Ain Sokhra to Marsa Matruh Priority Sector (4) - Wadi El Nabroun to Borg El Arab
Test Date : 25/12/2024
report date : 26/12/2024
Location : St.310+900,
Test No. : 009

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.42	19.88	0.12	19.79	0.21	19.86	0.14	0.16
2	0.83	19.69	0.31	19.65	0.35	19.73	0.27	0.31
3	1.25	19.50	0.50	19.54	0.46	19.60	0.40	0.45
4	1.67	19.35	0.65	19.36	0.64	19.49	0.51	0.60
5	2.08	19.21	0.79	19.23	0.77	19.37	0.63	0.73
6	2.50	19.04	0.96	19.07	0.93	19.25	0.75	0.88

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
1	2.50	19.04	0.96	19.07	0.93	19.25	0.75	0.88
2	1.25	19.13	0.87	19.12	0.88	19.27	0.73	0.83
3	0.625	19.22	0.78	19.20	0.80	19.35	0.65	0.74
4	0.05	19.49	0.51	19.45	0.55	19.52	0.48	0.51

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Dial 3	Settlement mm	Average
0	0.42	19.37	0.63	19.39	0.61	19.40	0.60	0.61
1	0.83	19.28	0.72	19.30	0.70	19.31	0.69	0.70
2	1.25	19.18	0.82	19.21	0.79	19.23	0.77	0.79
3	1.67	19.08	0.92	19.10	0.90	19.17	0.83	0.88
4	2.08	19.04	0.96	19.02	0.98	19.07	0.93	0.96



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Company Name

: Orange Construction.

Project

: Electric Express Train, Al Ain Sokhna to Marsa Matruh Priority Sector (4) - Wadi El Natroun to Borg El Arab.

Test Date

: 25/12/2024

Report Date

: 26/12/2024

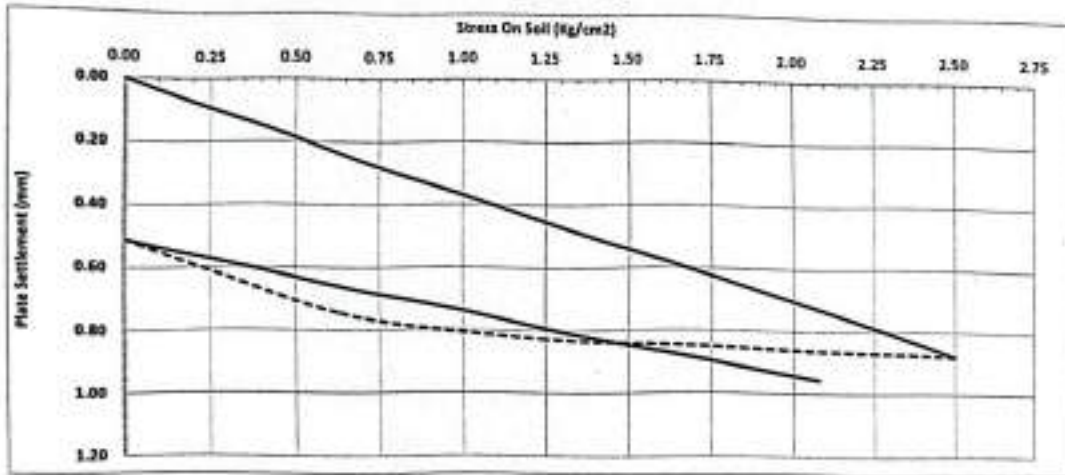
Location

: S1.310+000.

Test No.

: 009

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	296.73	586.4	883.13	1179.9	1469.5	1766
Stress (Kg/cm²)	0.00	0.42	0.83	1.25	1.67	2.08	2.50
Settlement (mm)	0.00	0.16	0.31	0.45	0.60	0.73	0.88

UnLoading (1)	1	2	3	4
Stage(Kg)	1766	883	1768	0
Stress (Kg/cm²)	2.50	1.25	0.625	0.01
Settlement (mm)	0.88	0.83	0.74	0.51

D (mm) =	600	S1 (mm) =	0.28	S2 (mm) =	0.63	ΔS =	0.35
Ev1 (MPa) =	(0.75 * D * Δσ) / ΔS						128

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

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	296.73	586.4	883.13	1179.9	1469.5
Stress (Kg/cm²)	0.01	0.42	0.83	1.25	1.67	2.08
Settlement (mm)	0.51	0.61	0.70	0.79	0.88	0.96

D (mm) =	600	S1 (mm) =	0.69	S2 (mm) =	0.90	ΔS =	0.21
Ev2 (MPa) =	(0.75 * D * Δσ) / ΔS						208

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 (σmax) (kg/cm²)

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



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Company Name : Orange Company
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. 309+000
Type of sample : Water Backfill
Delivery Date : 04-11-2023
Reporting Date : 11-11-2023
Reporting No. : 007
Sample No. : 05

Dear Gentleman,

Attached here with the Water Backfill delivered on 04-11-2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according ASTM D-1140.
3. Specific Gravity & Absorption according to ASTM C-127 & D 6473.
4. Los Anglos according to ASTM C-131.
5. Organic Content according to ASTM D-2974.

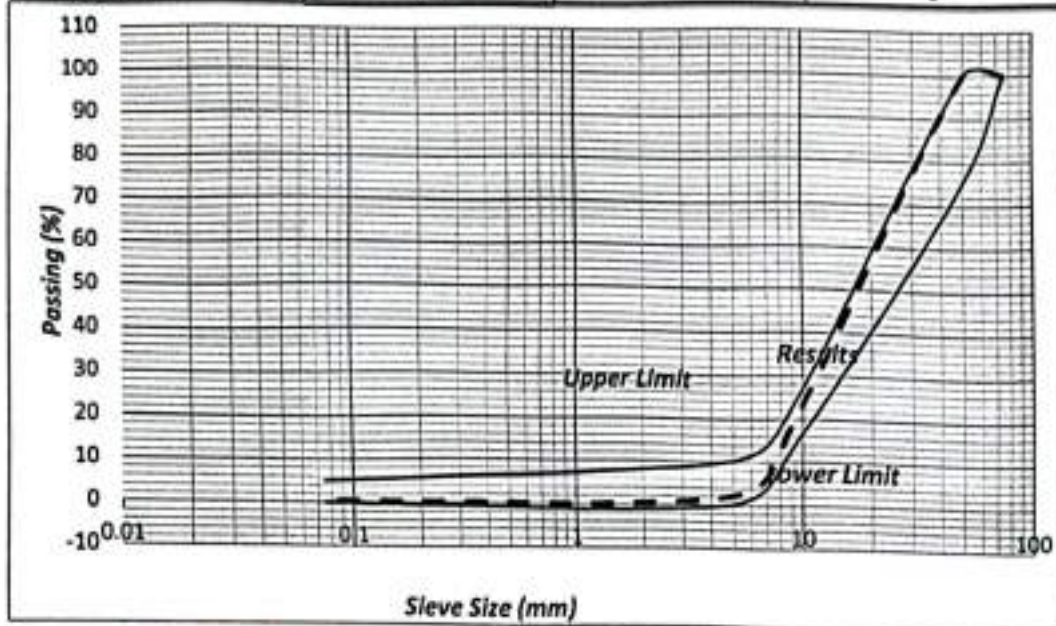
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature / 

any Name : Orange Company
ject : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
ocation : St. 309+000
Type of sample : Water Backfill
Delivery Date : 04-11-2023
Reporting Date : 11-11-2023
Reporting No. : 007
Sample No. : 05

Results of sieve analysis according to ASTM D-422.

Sieve Size (mm)	Passing %	Job specification limits (ASTM D-422)	
		Min.	Max.
75	100	100	100
50	100	75	100
10	21.3	15	25
4.75	1.9	0	10
0.075	0.4	0	5



The test results are ☒ Comply - ☐ Not Comply) with specifications limits.

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Company Name : Orange Company
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. 309+000
Type of sample : Water Backfill
Delivery Date : 04-11-2023
Reporting Date : 11-11-2023
Reporting No. : 007
Sample No. : 05

**Materials finer than 75 μ m (no.200) sieve
by washing ASTM D-1140.**

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	0.4


Signature /

Company Name : Orange Company
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. 309+000
Type of sample : Water Backfill
Delivery Date : 04-11-2023
Reporting Date : 11-11-2023
Reporting No. : 007
Sample No. : 05

Results of Specific Gravity and Absorption
of Course Aggregate
ASTM C127 & D 6473

Test	Results
Bulk Specific Gravity (OD)	2.52
Bulk Specific Gravity (SSD)	2.55
Apparent Specific Gravity.	2.66
Absorption %	2.17

Note:

- (OD) Refer to Oven Dry.
- (SSD) Refer to Saturated Surface Dry.

Signature: 
المهندس / محمد عبد الله محمد
المهندس / محمد عبد الله محمد

Company Name : Orange Company
Project : Electric Express Train, from Al Ain Sokhna to Marsa Matrouh
Location : St. 309+000
Type of sample : Water Backfill
Delivery Date : 04-11-2023
Reporting Date : 11-11-2023
Reporting No. : 007
Sample No. : 05

RESISTANCE TO DEGRADATION
OF SMALL SIZE AGGREGATE BY ABRASION
AND IMPACT IN LOS ANGELES MACHINE
ASTM C-131

Test	Results
Amount of loss by abrasion and impact (%) Coarse aggregate	33.7

- According to Project Specs:
The amount of loss by abrasion and impact for moderate weathering
- Shall not exceed 45% (when Subjected to 500 revolutions)

The test results is (☒ Comply ☐ Not Comply) with specifications limits.

Signature: 