

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company : شركة الكرم
Project : Electric Express Train – HSR From Qous To Arman
Delivery Date : 22/5/2023
Test Date : 28/5/2023
Location : st : from 655+850 to 655+920
Report No. : 01

RESULTS OF COMPRESSIVE STRENGTH FOR NATURAL ROCK CORES SPECIMENS
ES 7325 - 2011

Sample No.	Station	Diam. (cm)	Length Cm	Load (KN)	Compressive strength (Kg/cm ²)	Average (Kg/cm ²)	Remarks
1	655+860	10	9.8	226.80	236.05	167.84	
2	655+890	10	10.3	119.10	117.94		
3	655+910	10	10.3	151.00	149.53		

Note :- All tests are preformed according to ES 7325-2011

Signature 
مكتب معامل الاستشارات الهندسية
شارع الملك فيصل 3 - الرياض 11564
الهاتف : 33986437
الفاكس : 33986437
البريد الإلكتروني : info@cel-saudi.com

IAS
ACCREDITED



محضر اعتماد حصر كميات



التاريخ: ٢٠٢٣-١٠-١٥

اسم المشروع: مشروع القطار الكهربائي السريع (6 أكتوبر - اسوان - أبو سمبل) القطاع الخامس

قامت شركة برليانت كونسلت للاستشارات المساحية (استشارى الاعمال المساحية لهيئة الطرق والكبارى)

باعتماد الكميات المنفذة الخاصة بشركة الكرم للمقاولات العمومية

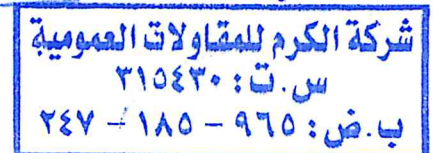
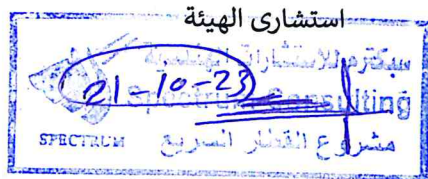
م	من المحطة رقم	الى المحطة رقم	التصنيف	الكمية بالمتر المكعب	الملاحظات
1	643+860	658+840	اعمال القطع باستخدام البلدوزر	106018.72	اعمال قطع على (RE05)
2	643+860	658+840	قطع في تربة صخرية	8260	اعمال قطع على (RE05)
3	643+860	658+840	اعمال الردم	90033.77	اعمال الردم على (RE05)

المرفقات:

1- استلام ميزانية شبكية

2- قطاعات عرضية

3- شيت اكسيل لتوضيح اعمال الحصر



Company Name : شركة الكرم
 Project : Electric Express Train – HSR From Qous To Armant
 Testing Date : 5/10/2023
 Soil type : Middle Embankment
 Location : ST from 651+820 To 651+860
 Level : - 5 M
 Report No. : 141

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+830	919	2.26	5.5	2.14	98.7%	Comply
2	651+850	1530	2.22	5.5	2.10	96.9%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature / ..



Company Name : شركة الكرم للمقاولات العمومية
 Project : Electric Express Train – HSR From Qous To Armant
 Location : St: 651+500 E= 488952.1897 N=2853742.8853
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 4/10/2023
 Reporting No. : 06-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
25	1	85.2
19	3/4	71.1
12.50	1/2	62.0
9.50	3/8	59.0
4.75	4	51.2
2.00	10	44.1
0.425	40	12.5

Signature / ...

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 مكتب معامل الاستشارات الهندسية
 مشروعات ر سوهاج وشمال
 رقم التسجيل الضريبي: 219 - 991 - 537
 في كبر الرئيسي 3 شارع الملك الأفصل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
 Project : Electric Express Train – HSR From Qous To Armant
 Location : St: 651+500 E= 488952.1897 N=2853742.8853
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 4/10/2023
 Reporting No. : 06-2

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)	9.9

Signature / ..



Company Name : شركة الكرم للمقاولات العموميه
 Project : Electric Express Train – HSR From Qous To Armant
 Location : St: 651+500 E= 488952.1897 N=2853742.8853
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 4/10/2023
 Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /...



Company Name : شركة الكرم للمقاولات العمومية
 Project : Electric Express Train – HSR From Qous To Armant
 Location : St: 651+500 E= 488952.1897 N=2853742.8853
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 4/10/2023
 Reporting No. : 06-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

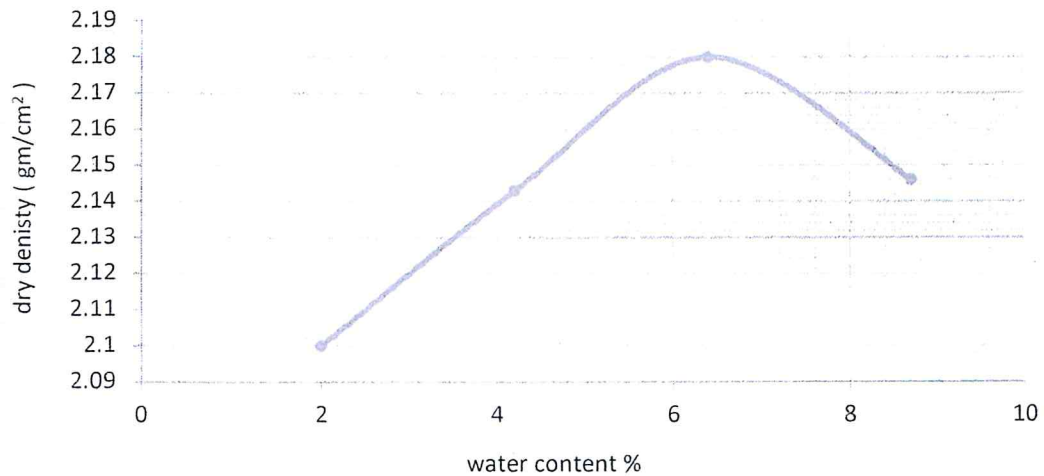
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



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 Reporting Date : 4/10/2023
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Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4%

Signature / ...



Company Name : شركة الكرم للمقاولات العمومية
 Project : Electric Express Train – HSR From Qous To Armant
 Location : St: 651+500 E= 488952.1897 N=2853742.8853
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 4/10/2023
 Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

Notes:

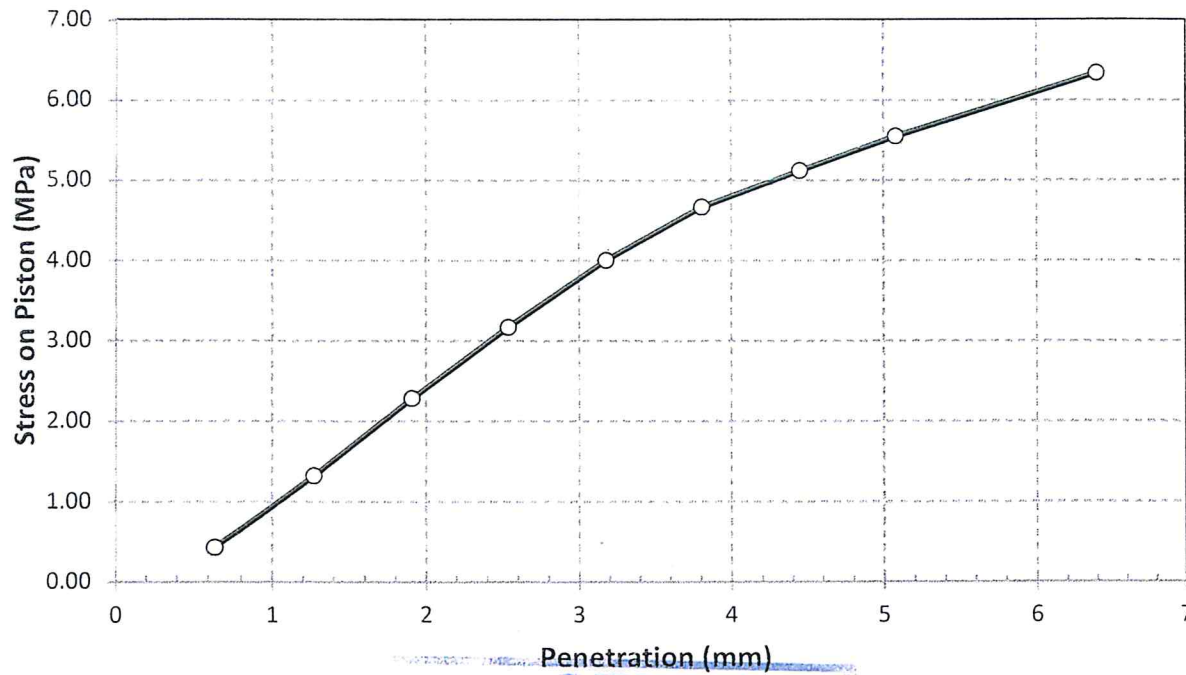
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /
 رقم التسجيل المبرمج - الزمان القامدة
 شارع النزهة 3 شارع النزهة

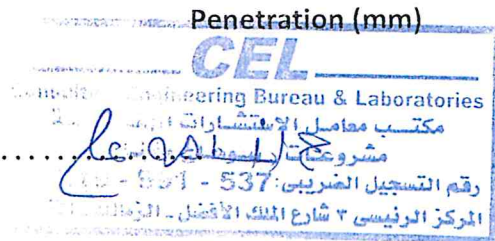
Company Name : شركة الكرم للمقاولات العمومية
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Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
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Load Penetration Curve of CBR Test

ASTM D-1883



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Company Name : شركه الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 5/10/2023
Soil type : Middle Embankment
Location : ST from 651+800 To 651+820
Level : - 4 M
Report No. : 146

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+810	1583	2.24	6	2.11	97.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature / ..



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RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
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19	3/4	71.1
12.50	1/2	62.0
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4.75	4	51.2
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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)	9.9

Signature /



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Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



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Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



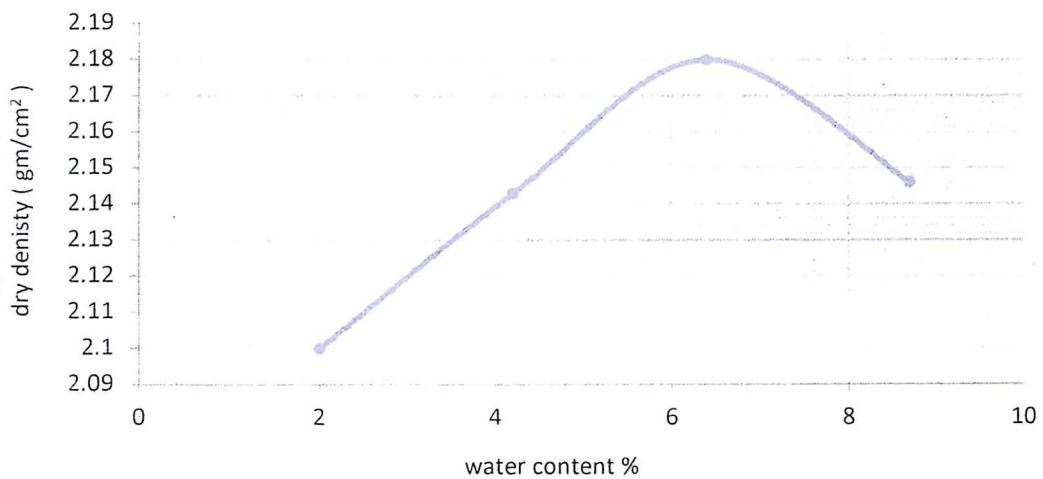
3 El Malek E Afdol Street
Zamalek, Cairo
Tel & Fax 2736723 - 27363093



ش. الملك الأفدول
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العموميه
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Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

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مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
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Type of sample : Soil Embankment
Delivery Date : 30/9/2023
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Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

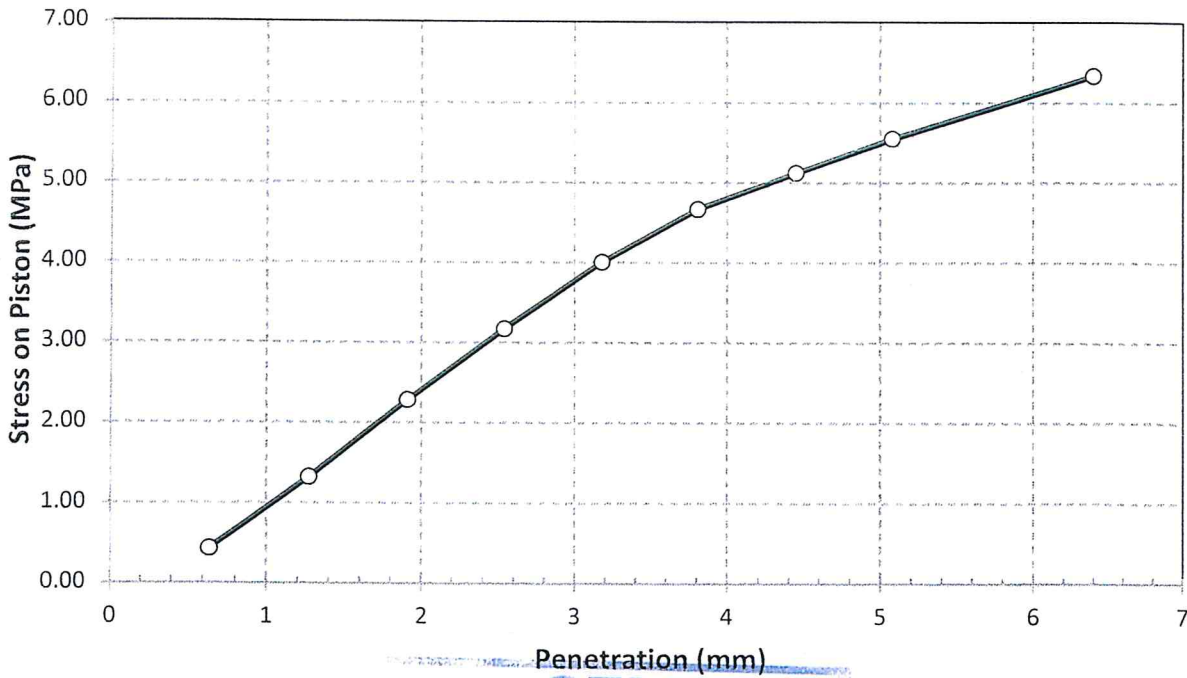
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

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Load Penetration Curve of CBR Test
ASTM D-1883



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مكتب معامل الاستشارات الهندسية

Company Name : شركه الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 5/10/2023
Soil type : Middle Embankment
Location : ST from 651+780 To 651+800
Level : - 3.5 M
Report No. : 145

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+790	1857	2.26	6.4	2.12	97.8%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
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Signature: 
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مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفندي - الزمالك - القاهرة

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Project : Electric Express Train – HSR From Qous To Armant
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This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
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مكتب معامل الاستشارات الهندسية
مشروعات ريسرچ ودراسات
رقم التسجيل الضريبي: 219 - 991 - 537
مركز الرئيسي 3 شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
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Delivery Date : 30/9/2023
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Reporting No. : 06-2

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)	9.9

Signature / ..  
مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج) وقطنة
رقم التسجيل المصري: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
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Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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مكتب معامل الاستشارات الهندسية
مشروع: سكة حديد القوس - أرمانت
رقم التسجيل الضريبي: 219 - 991 - 537
الترخيص: ٣ شارع الملك الأفضل - الزمالك - القاهرة

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Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

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مكتب معامل الاستشارات الهندسية
مشروعات (سوساج و قنا)
رقم التسجيل الضريبي: 537 - 991 - 219
مركز الزمالة - شارع الملك الأفضل - الزمالة - القاهرة

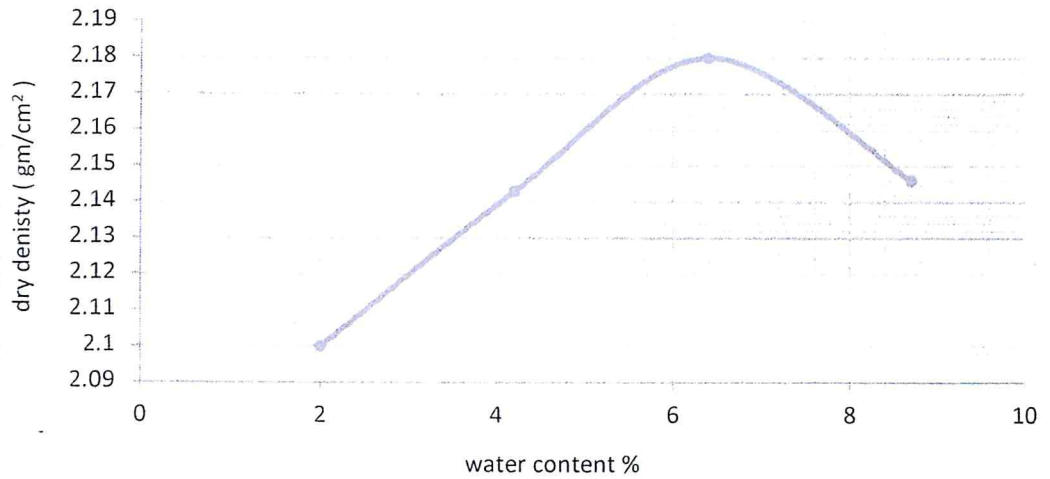
3 El Malek E Abdol Street
Zamalek, Cairo
Tel & Fax 2736723 - 27362093



ش الملك الأفضل
الزمالة - القاهرة
تليفون : فاكس : 2736723 - 27362093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

Signature / ...

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رقم التسجيل الضريبي: 219 - 991 - 537
مركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

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٢ شارع الملك الأفضل
الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

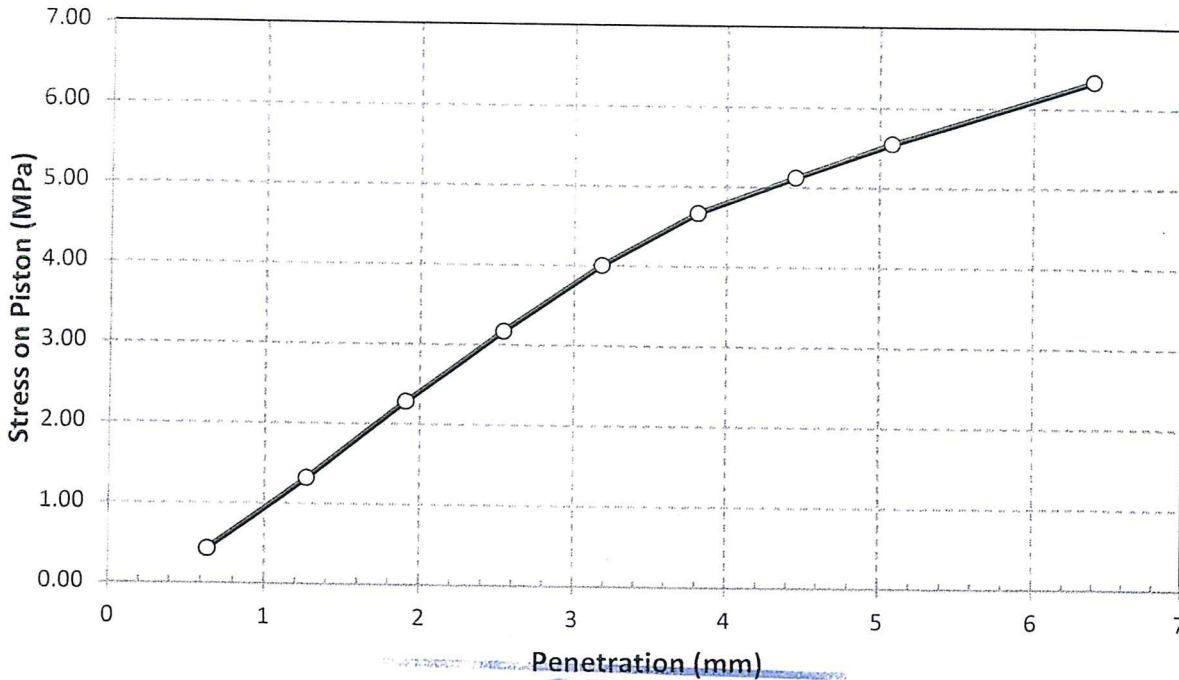
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Load Penetration Curve of CBR Test
ASTM D-1883



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مشاريع
رقم التسجيل الضريبي: 537 - 651 - 651
المركز الرئيسي ٣ شارع الملك الأفندي - الزمالك - القاهرة

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Zamalek, Cairo
Tel& Fax : 27367231 - 27363093



ش الملك الأفندي
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣١

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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company : شركة الكرم :

Project : Electric Express Train - Sector (5) - Gous to Arment.
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 648+040 to 648+100
Station : 648+050
Level : -1.5
Test Date : 19/09/2023
Repot Date : 21/09/2023
Type of soil : Original earth
Report No. : 1

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 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 300 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 300 mm loading plate, the limit values are 5.0 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.
11. Remove the loads



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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 19/09/2023
Soil type : Middle Embankment
Location : ST from 648+000 to 648+100
Level : - 1.5 M
Report No. : 57

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	648+020	1677	2.22	5.8	2.10	96.7%	Comply
2	648+040	1474	2.21	6.4	2.08	95.7%	Comply
3	648+060	1570	2.22	6	2.10	96.7%	Comply
4	648+080	1501	2.19	5.5	2.08	95.8%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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القاهرة

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ش الملك الأفضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Dear Gentleman,

Attached here with the delivered on 21 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

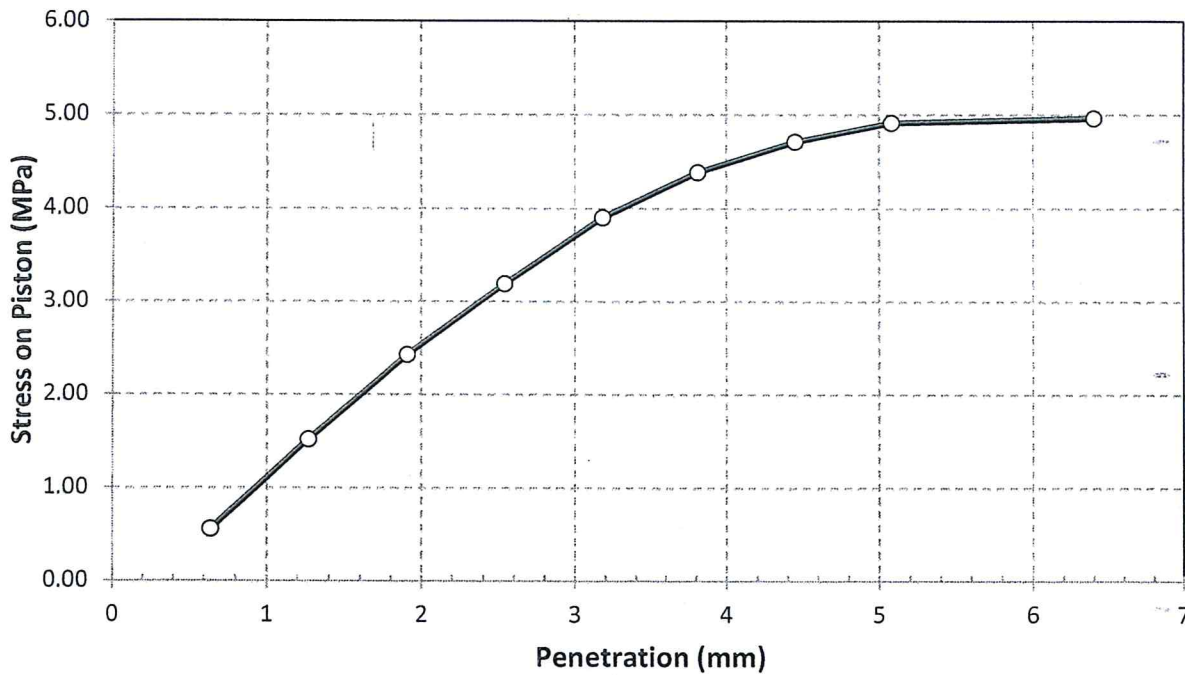
Signature / ...



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / 
219 991 437
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مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 27/09/2023
Soil type : Upper Embankment
Location : ST from 647+840 To 648+000
Level : - 1 M
Report No. : 108

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	647+880	1703	2.23	5.3	2.12	97.6%	Comply
2	647+910	1634	2.20	5.5	2.08	95.9%	Comply
3	647+940	1608	2.21	5.5	2.10	96.6%	Comply
4	647+980	1604	2.22	5.4	2.10	96.9%	Comply
5	647+980	1322	2.28	6.4	2.14	98.7%	Comply
6	647+980	1360	2.25	6	2.12	97.7%	Comply
7	647+980	1541	2.26	5.5	2.14	98.6%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٢١ - ٢٧٣٦٧٢٢٢

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Dear Gentleman,

Attached here with the delivered on 04 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.9
37.5	1.5	92.2
25	1	83.1
19	3/4	71.0
12.50	1/2	62.7
9.50	3/8	54.5
4.75	4	43.9
2.00	10	36.2
0.425	40	17.1



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

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)	2.1



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	36.2	Max 50 %	-----	-----
0.425 mm (No. 40).	17.1	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	2.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

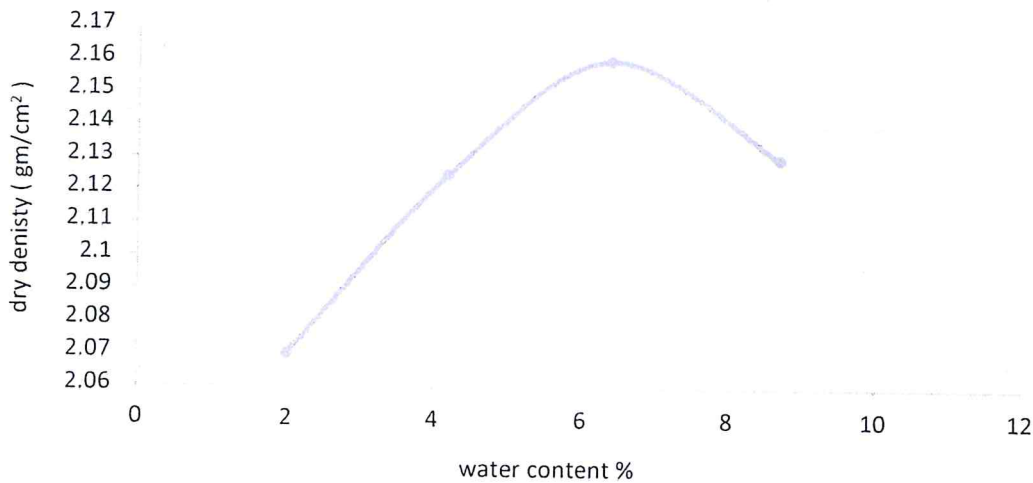
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مكتب معامل الاستشارات الهندسية
مشاريع (سويسرا و قنا)
رقم الترخيص : 219 - 991 - 537
الترخيص : 2735723 - 2735700



أشرف الملكة
البريد الإلكتروني
info@cel.com.eg

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.16
- Optimum moisture content % : 6.4 %

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رقم التسجيل الضريبي: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2


Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

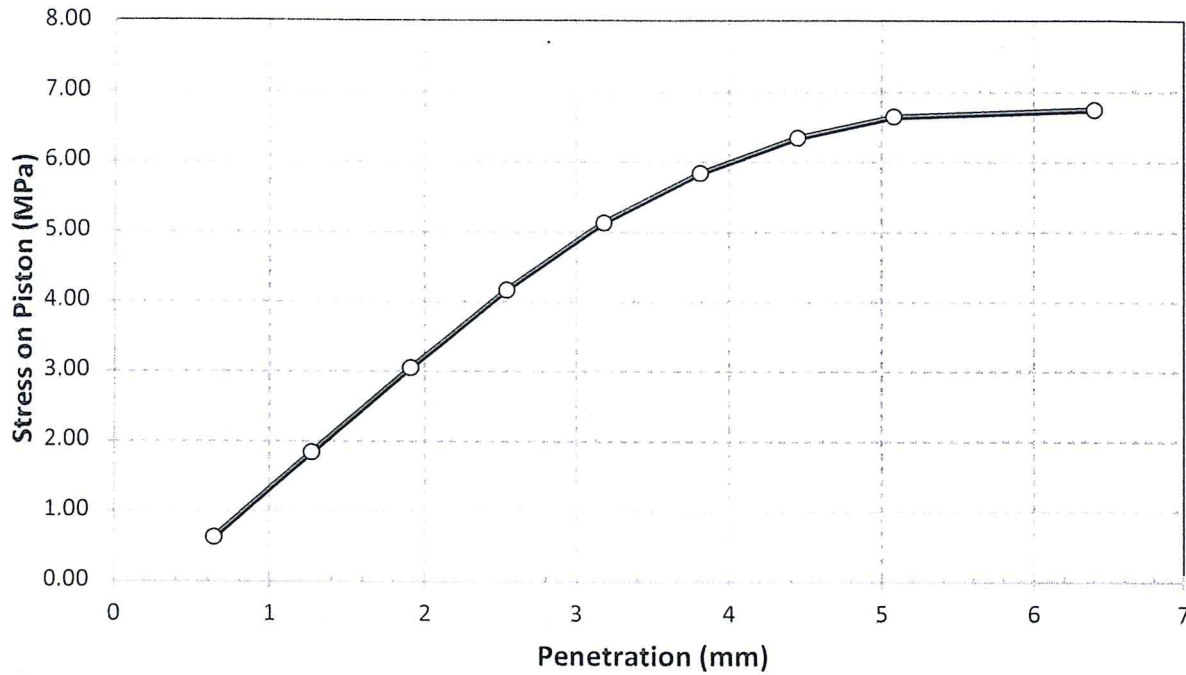
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مشروعات (بسمها) وشركاؤها
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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Load Penetration Curve of CBR Test

ASTM D-1883



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3 F. Malek E. Afrial Street

Cairo, Egypt

TEL: 011 22308300



3 شارع الملك الأفضل

القاهرة - مصر

011 22308300



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مكتب معامل الاستشارات الهندسية

Company Name	: شركة الكرم
Project	: Electric Express Train – HSR From Qous To Arman
Testing Date	: 26/09/2023
Soil type	: Upper Embankment
Location	: ST from 647+720 TO647+820
Level	: - 0.75 M
Report No.	: 105

Compaction test by using Sand – Cone Test Method ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+740	1355	2.24	6	2.12	97.6%	Comply
2	647+800	1437	2.30	6.4	2.16	99.4%	Comply

- Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

At optimum moisture content = 6.7%

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 ١٠٠٠
 ١٠٠٠

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Dear Gentleman,

Attached here with the delivered on 04 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

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مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.9
37.5	1.5	92.2
25	1	83.1
19	¾	71.0
12.50	½	62.7
9.50	3/8	54.5
4.75	4	43.9
2.00	10	36.2
0.425	40	17.1

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المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

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Zamalek, Cairo
Tels: 2746227 - 2746243



في مكتبنا
الرقم: ٢٠٢٣
المركز الرئيسي

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

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)	2.1



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	36.2	Max 50 %	-----	-----
0.425 mm (No. 40).	17.1	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	2.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

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مشروعات (سوساج و قنا)
رقم الترخيص : 537 - 991 - 219
الترخيص : 537 - 991 - 219

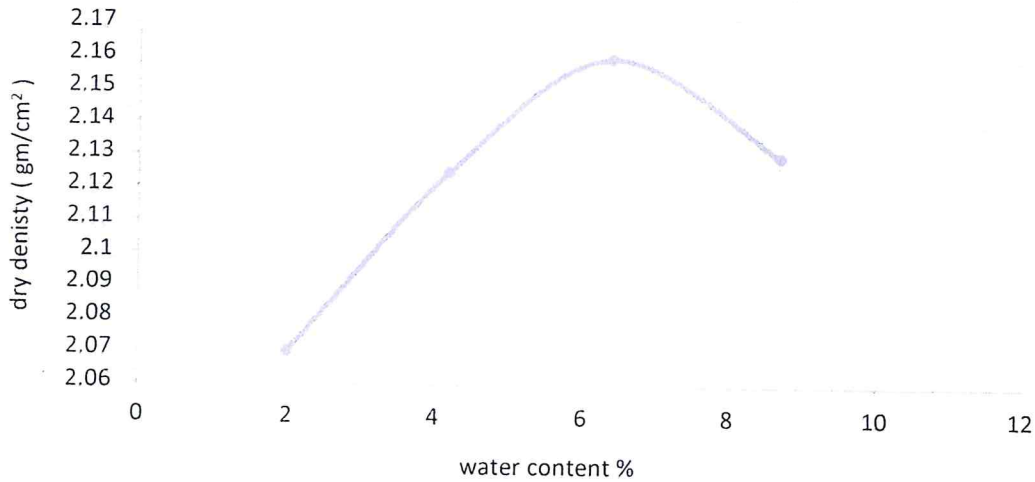
146 Fax 2795723 27367050



أشرف الملك الأكاديمي
البريد الإلكتروني :
تاريخ : 09/09/2023

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.16
- Optimum moisture content % : 6.4 %

Signature / 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشاريع (مستشارية وتنفيذ)
رقم التسجيل المبرمج: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفصل - الزمالك - القاهرة

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

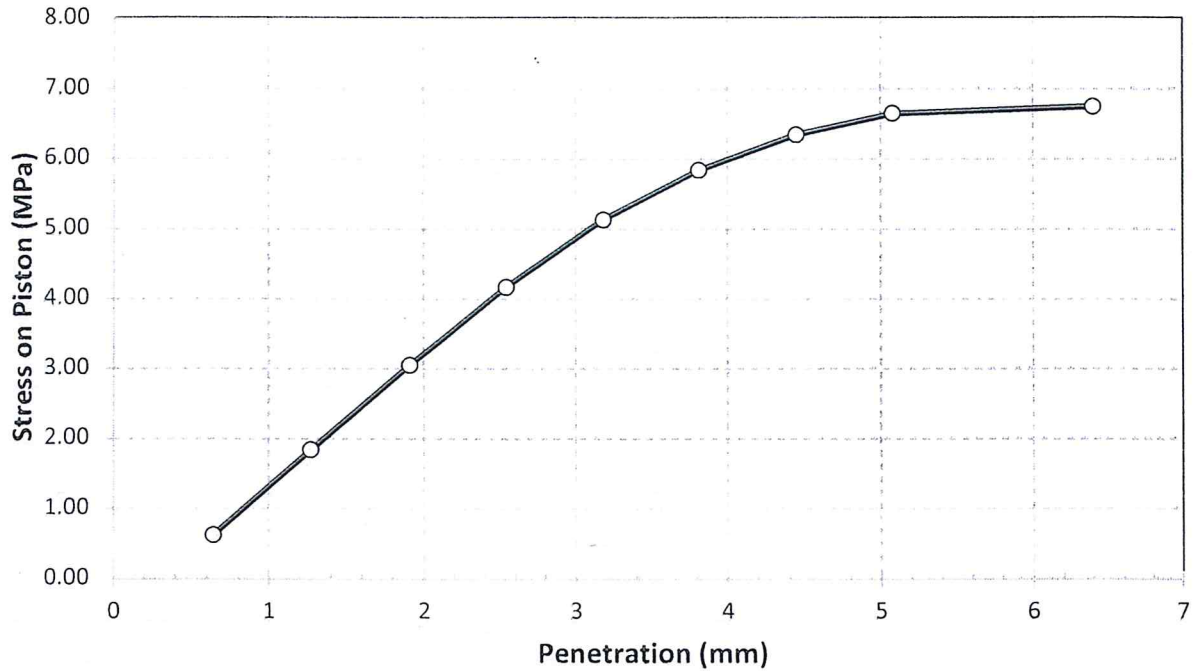
Signature / 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشاريع (بمصر) وشباب
رقم التسجيل المهنى: 537 - 991 - 219
المركز الرئيسى ٣ شارع الملك الأفصل - الزمالك - القاهرة



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 04/09/2023
Reporting Date : 09/09/2023
Reporting No. : 08-2

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / **CEL** / **08-2**
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات (سكك حديدية وقطارات)
رقم التسجيل المزدوج: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

3 F. Matok E. Afraji Street
Zamalek Camp
Tel: 011 296221 - 296222



أ. ش. الملك الأفضل
القاهرة
رقم
011 296221 - 296222

٤٦٩

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 26/09/2023
Soil type : Upper Embankment
Location : ST from 647+620 To 647+720
Level : - 0.75 M
Report No. : 107

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+650	1355	2.24	6	2.12	97.6%	Comply
2	647+690	1437	2.30	6.4	2.16	99.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
مكتب معامل الاستشارات الهندسية
مشاريع وخدمات
رقم التسجيل الضريبي: 219 - 997 - 997
الركن الرئيسي ٤ شارع الملك فيصل - الزمالة القاهرة

11/09/2023
26/09/2023



11/09/2023
26/09/2023

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Dear Gentleman,

Attached here with the delivered on 22 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.3
37.5	1.5	91.6
25	1	80.2
19	¾	70.8
12.50	½	59.8
9.50	3/8	52.2
4.75	4	41.7
2.00	10	34.3
0.425	40	16.3

CEL
مكتب معامل الاستشارات الهندسية
مشاريع الأقصر
البريد الإلكتروني: info@cel-eg.com
البريد الإلكتروني: info@cel-eg.com
3 شارع الملك الأفندي - الزمالك - القاهرة

Signature: 

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



3 شارع الملك الأفندي
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

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)	1.5

Signature 

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	34.3	Max 50 %	-----	-----
0.425 mm (No. 40).	16.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	1.5	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

CEL
مكتب معامل الاستشارات الهندسية
رقم التسجيل الرئيسي 219 591 437
المركز الرئيسي 3 شارع الملك الافضل - الزمالك - القاهرة

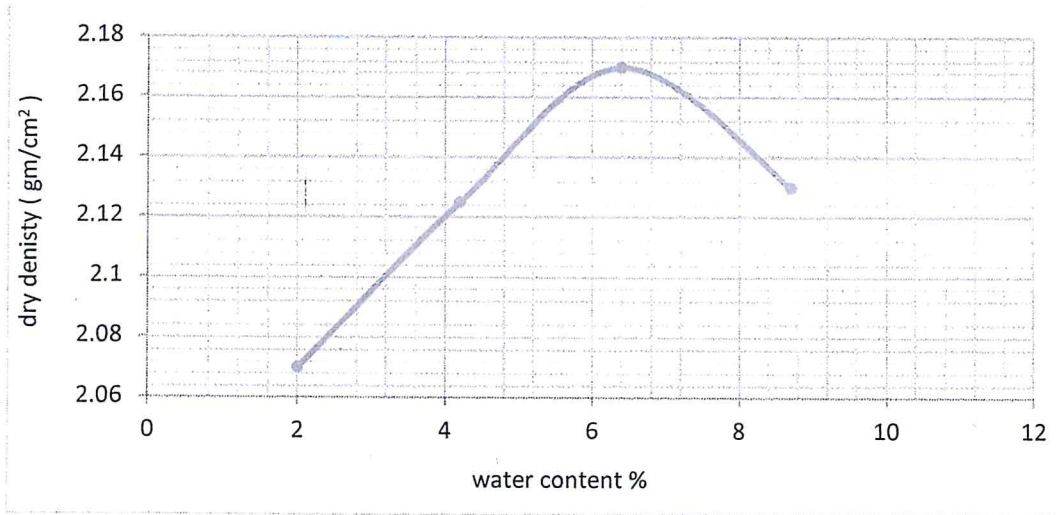
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



مكتب *ملك الافضل*
الزمالك - القاهرة
تليفون : فاكس : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.17
- Optimum moisture content % : 6.4 %

Signature / 
مكتب معامل الاستشارات الهندسية
مشروعات و الأقسام
رقم التسجيل الفردي 219.991.437
المركز الرئيسي 3 شارع الملك الافضل - الزمالة - القاهرة

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



3 شارع الملك الافضل
الزمالة - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

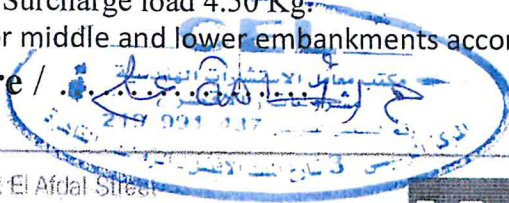
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50-Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

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

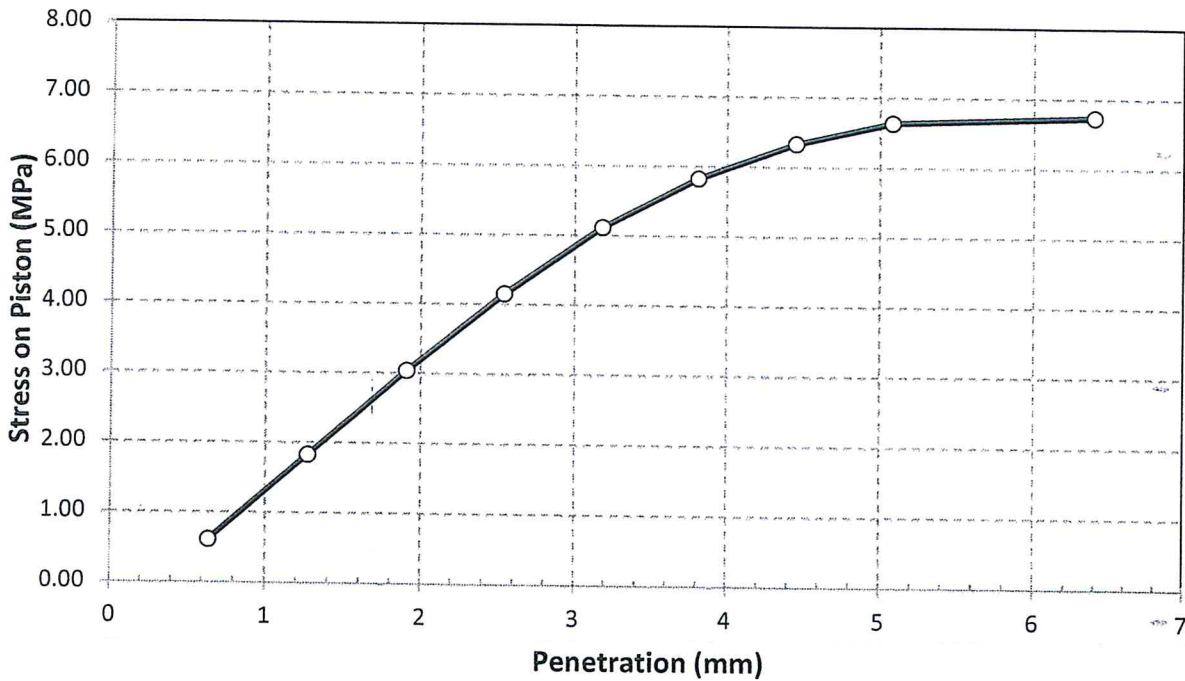


ش.مالك الأفدال
الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax: 27367231 - 27369693



3 شارع الملك الأفدر - الزمالك
القاهرة
تليفون : 27367231 - 27369693

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : ST from 647+340 TO 647+400
Level : - 1 M
Report No. : 96

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+370	1558	2.26	6.4	2.12	97.9%	Comply
2	647+390	1627	2.23	6.4	2.09	96.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Dear Gentleman ,

Attached here with the delivered on 22 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.3
37.5	1.5	91.6
25	1	80.2
19	3/4	70.8
12.50	1/2	59.8
9.50	3/8	52.2
4.75	4	41.7
2.00	10	34.3
0.425	40	16.3

CEL
مكتب معمل الاستشارات الهندسية
مشاريع القناطر
الزمن الرئيسي : 3 شارع الملك الافضل - الزمالة

Signature : *[Handwritten Signature]*

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



ش. الملك الافضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	34.3	Max 50 %	-----	-----
0.425 mm (No. 40).	16.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	1.5	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



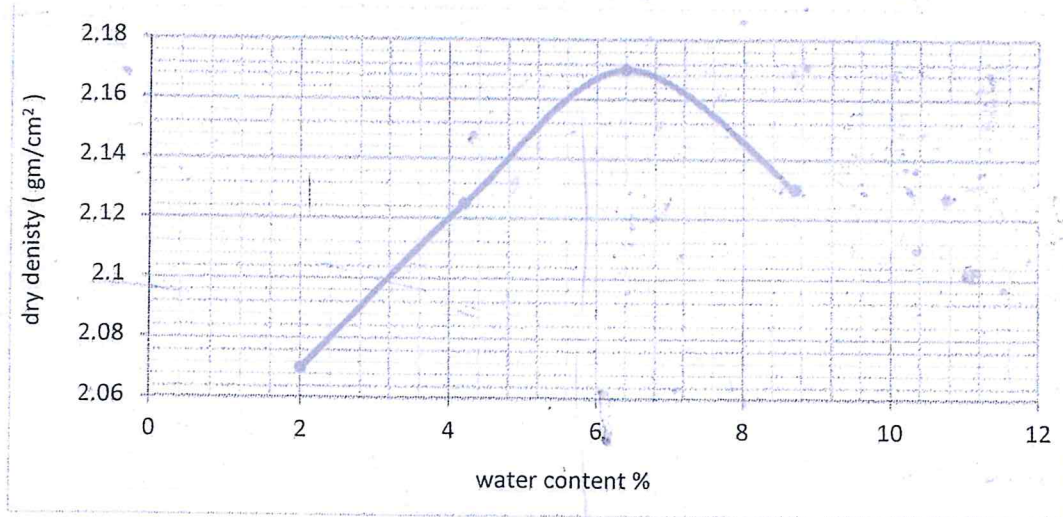
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



أش. #ملك الأفضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093 فاكس :

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.17
- Optimum moisture content % : 6.4 %

Signature / 
مكتب معامل الاستشارات الهندسية
مشروعات و الأختصاص
رقم التسجيل الفردي 219.991.437
المركز الرئيسي: 3 شارع الملك الأفندي - الزمالة - القاهرة

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



3 شارع الملك الأفندي
الزمالة - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

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

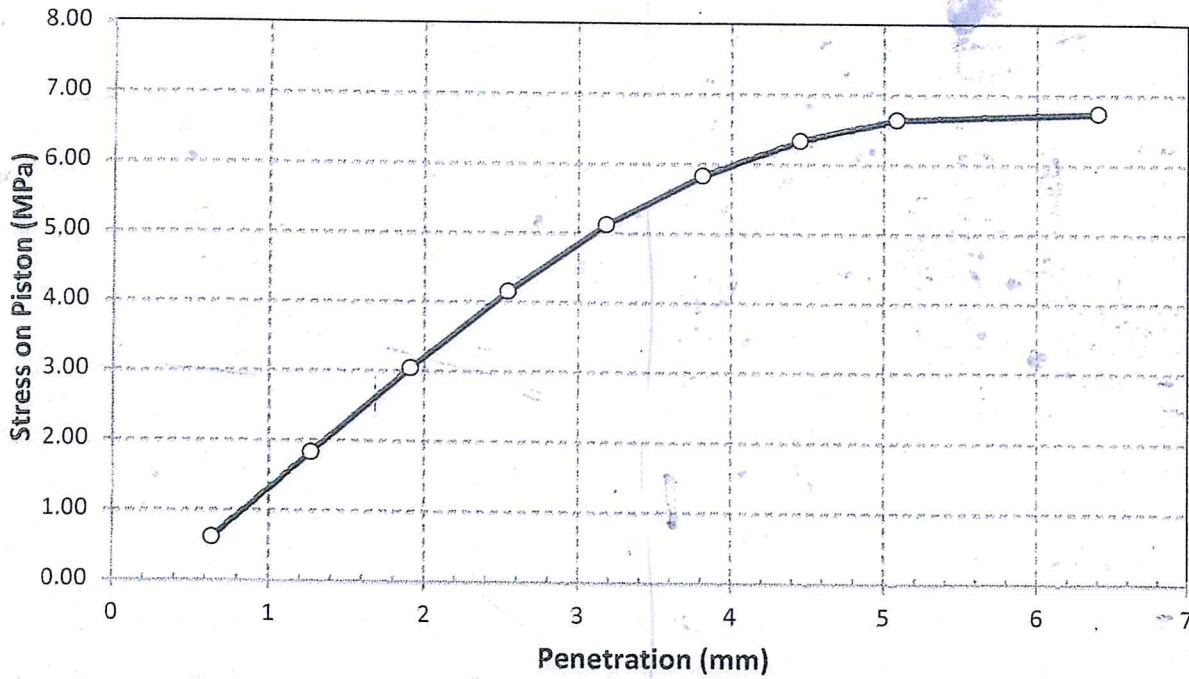


إشراك أفضل
المراتب الناجمة
تليقون ، فاكسي : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax: 27367231 - 27369093



٢ شارع الملك الافضل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٩٠٩٣

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 24/09/2023
Soil type : Uppar Embankment
Location : ST from 647+840 To 648+100
Level : - 1.25 M
Report No. : 93

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+880	1798	2.21	5.8	2.09	96.8%	Comply
2	647+900	1854	2.19	5.5	2.07	96.0%	Comply
3	647+940	1945	2.20	6.4	2.07	95.8%	Comply
4	647+980	2014	2.23	6	2.11	97.6%	Comply
5	648+000	1949	2.21	6.4	2.07	96.0%	Comply
6	648+040	1433	2.25	5.6	2.13	98.4%	Comply
7	648+080	1570	2.23	5.8	2.11	97.5%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.16 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات (سوق ج وقتنا) ٢١٥
رقم الترخيص الفني ٥٣٧ - ٩٩١ - ٢١٩ (٢٠١٩)
الذي تم

3 El Malek El Afdal Street
Zamalek, Cairo
Te& Fax 27367231 - 27363093



ش.م.م. الملك الأفدال
الزمالك القاهرة
تليفون : فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Dear Gentleman,

Attached here with the delivered on 22 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.3
37.5	1.5	91.6
25	1	80.2
19	¾	70.8
12.50	½	59.8
9.50	3/8	52.2
4.75	4	41.7
2.00	10	34.3
0.425	40	16.3

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البريد الإلكتروني: info@cel-eg.com
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3 شارع الملك الأفضل - الهرم

Signature: /

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Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



3 شارع الملك الأفضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

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)	1.5

Signature: 

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	34.3	Max 50 %	-----	-----
0.425 mm (No. 40).	16.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	1.5	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

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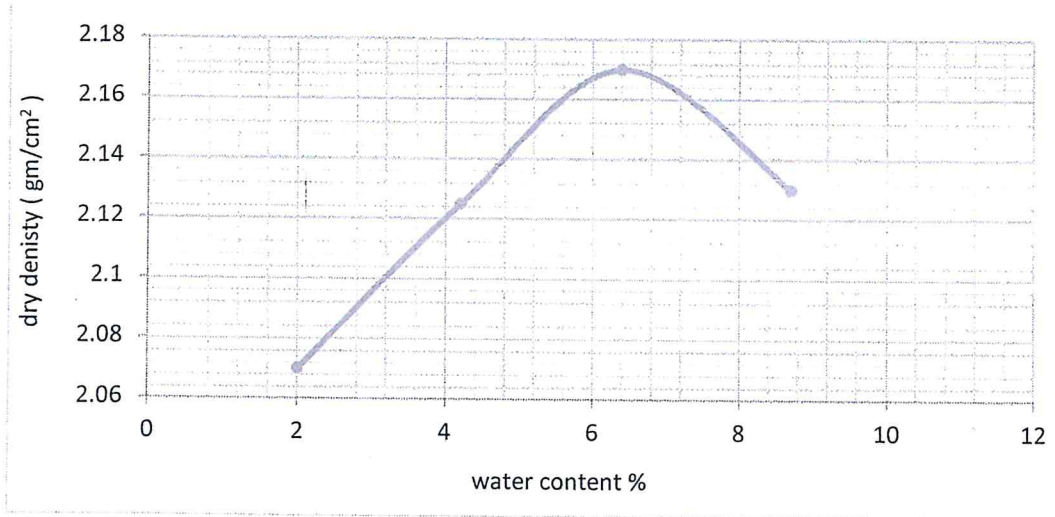
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تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.17
- Optimum moisture content % : 6.4 %

Signature / 
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مشروعات و الأختصاصات
رقم التسجيل التجاري 219.991.437
المركز الرئيسي 3 شارع الملك الأفضل - الزمالك - القاهرة

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تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50-Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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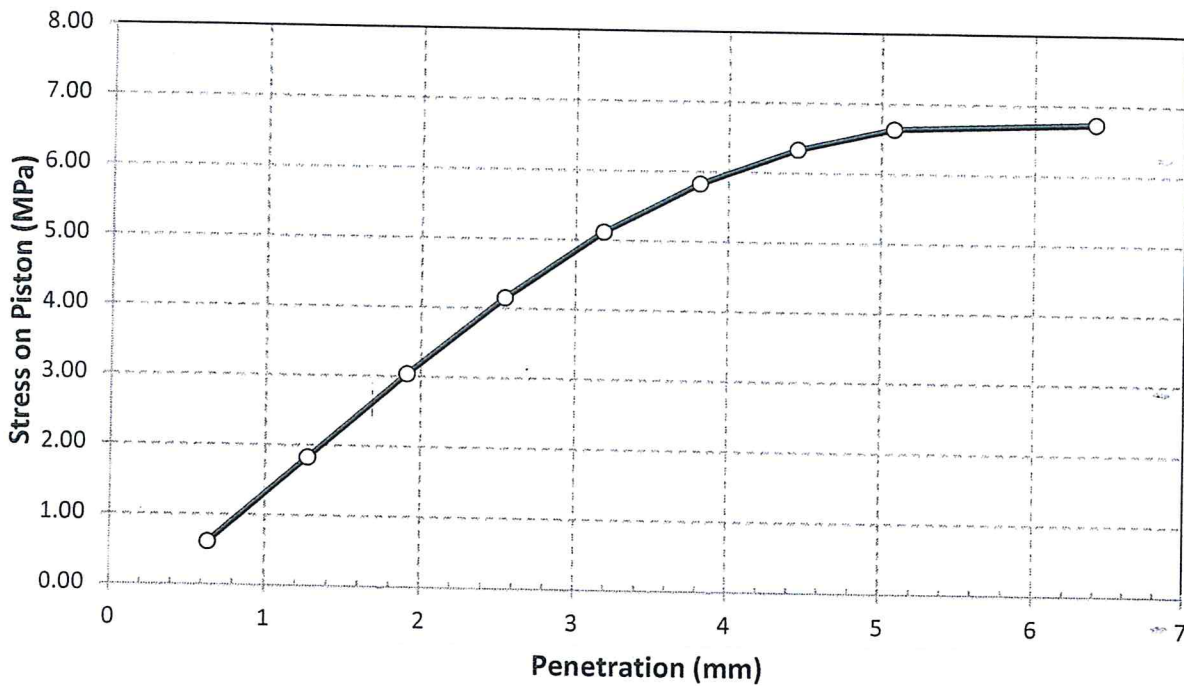


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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Load Penetration Curve of CBR Test

ASTM D-1883



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تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣١

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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 28/09/2023
Soil type : Upper Embankment
Location : ST from 650+700 to 650+800
Level : - 1.25 M
Report No. : 113

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	650+720	1738	2.20	6.4	2.07	95.2%	Comply
2	650+740	1794	2.21	5.8	2.09	96.2%	Comply
3	650+760	1559	2.22	6	2.09	96.5%	Comply
4	650+780	1561	2.19	5.6	2.07	95.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالة

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P&F Fax 27367257 27363090

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الزمالة القاهرة
تليفون : فاكس : ٢٧٣٦٧٢٥٧ ٢٧٣٦٣٠٩٠

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.5
37.5	1.5	90.8
25	1	78.3
19	3/4	72.4
12.50	1/2	58.2
9.50	3/8	51.3
4.75	4	49.3
2.00	10	44.2
0.425	40	21.5

Signature



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الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

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)	6.8

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.2	Max 50 %	-----	-----
0.425 mm (No. 40).	21.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.8	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

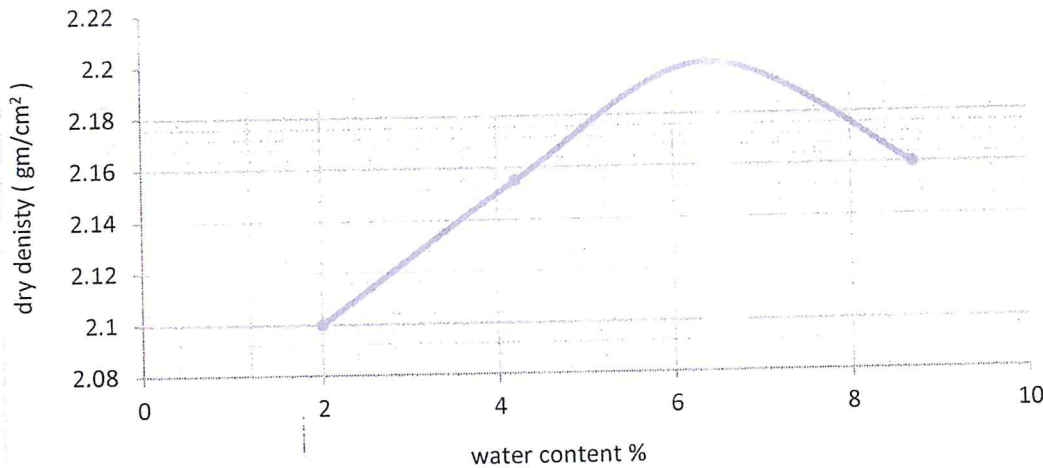
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3 شارع الملك الأفندي
الزمالك - القاهرة
تليفون - فاكس : 27367231 - 27363093

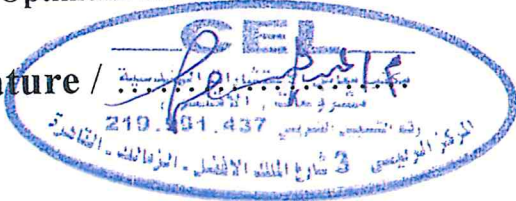
Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

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الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

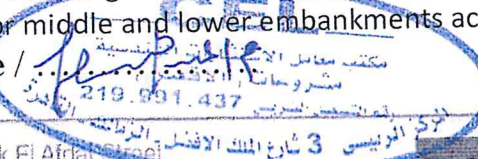
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.47
1.91	0.075	2.48
2.54	0.100	3.49
3.18	0.125	4.61
3.81	0.150	5.82
4.45	0.175	7.04
5.08	0.200	8.36
6.35	0.250	11.45

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50.6 %
	6.90	3.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

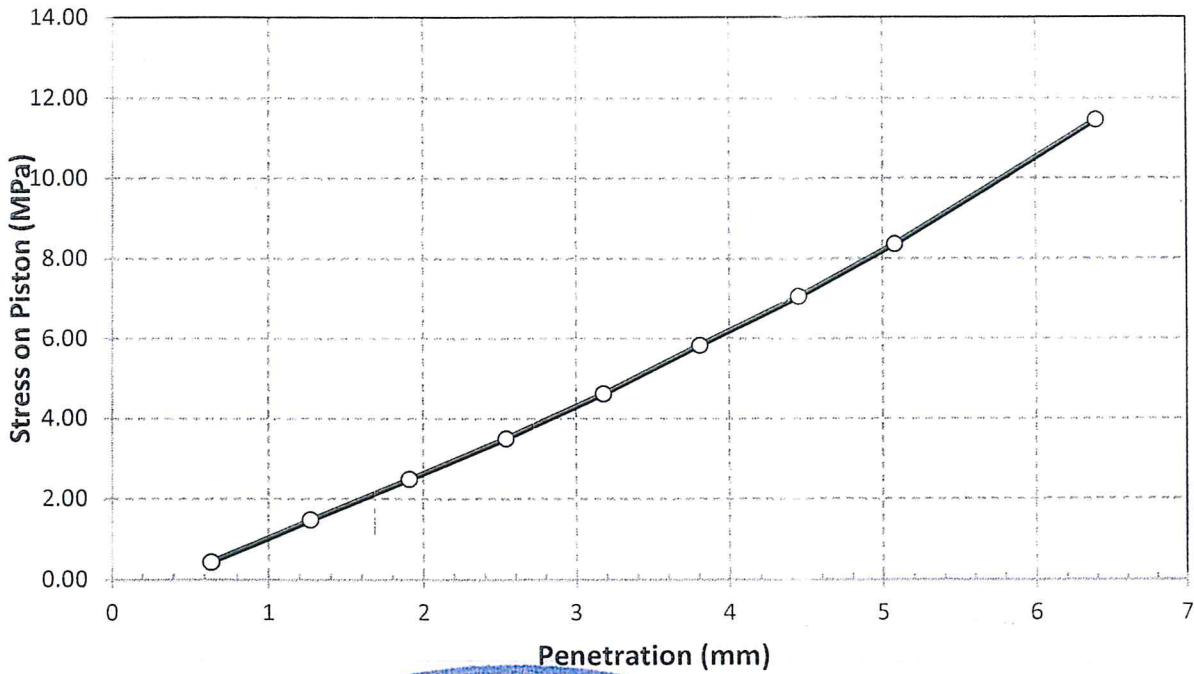
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الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Load Penetration Curve of CBR Test
ASTM D-1883



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التميز في الخدمات الهندسية
رقم التسجيل: 1999
المركز الرئيسي: 3 شارع الملك الأفندي - الزمالك - القاهرة



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company : شركة الكرم :

Project : Electric Express Train - Sector (5) - Qous to Arment.
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 651+100 to 651+120
Station : 651+110
Level : -1.5
Test Date : 26/09/2023
Report Date : 01/10/2023
Type of soil : Original Earth
Report No. : 01

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 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 300 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 300 mm loading plate, the limit values are 5.0 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.
11. Remove the loads



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مشروعات محافظات الوجه القبلي

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 : Original Earth
- Job requiremer : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
date of measurement	: 26/09/2023
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		Location	Level (m)	First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To			$F_{v1} \text{ (MPa)}$	$F_{v2} \text{ (MPa)}$	
1	651+100	651+120	: 651+110	: 1.5	86.7	170.6	1.97





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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company Name : شركة الكرم
Project : Electric Express Train - Sector (5) – Gous to Arment.
Test Date : 26/09/2023
report date : 01/10/2023
Station : 651+110
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.79	0.21	0.22
2	1.66	19.57	0.43	19.60	0.40	0.41
3	2.50	19.35	0.65	19.39	0.61	0.63
4	3.33	19.13	0.87	19.17	0.83	0.85
5	4.17	18.95	1.05	19.00	1.00	1.03
6	5.00	18.73	1.27	18.78	1.22	1.25

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.82	1.18	18.87	1.13	1.16
2	1.25	19.15	0.85	19.17	0.83	0.84
3	0.100	19.48	0.52	19.50	0.50	0.51

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.28	0.72	19.30	0.70	0.71
approximately equal	1.66	19.14	0.86	19.25	0.75	0.81
stress is reached.						
2	2.50	19.05	0.95	19.13	0.87	0.91
3	3.33	18.95	1.05	19.00	1.00	1.03
4	4.17	18.80	1.20	18.95	1.05	1.13



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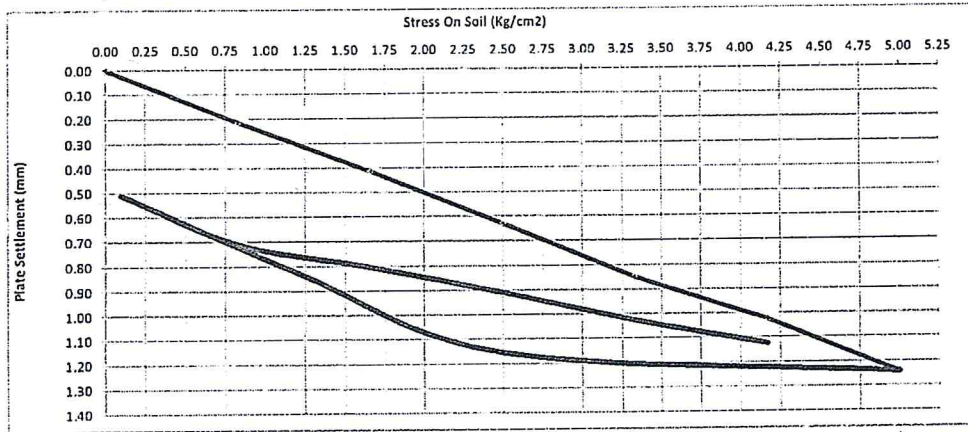


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مشروعات محافظات الوجه القبلي

Company Name : شركة الكرم
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 26/09/2023
report date : 01/10/2023
Station : 651+110
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.22	0.41	0.63	0.85	1.03	1.25

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.25	1.16	0.84	0.51

D (mm) = 300	S1 (mm) = 0.38	S2(mm) = 0.89	ΔS = 0.51
Ev1 (MPa) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	86.7		

$$Ev2/Ev1 = 1.97$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.51	0.71	0.81	0.91	1.03	1.13

D (mm) = 300	S1 (mm) = 0.79	S2(mm) = 1.05	ΔS = 0.26
Ev2 (MPa) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	170.6		

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/cm²)

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 : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 26/09/2023
Soil type : Middel Embankment
Location : ST from 651+100 To 651+120
Level : - 1.5 M
Report No. : 99

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+110	1437	2.23	5.5	2.12	97.5%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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رقم التسجيل الضريبي: 219 - 991 - 537
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Tel& Fax: 2736723 27363063



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البريد الإلكتروني: info@cel-eg.com
تلفون: 2736723 - 27363063

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature 

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.1
37.5	1.5	93.5
25	1	87.6
19	3/4	74.6
12.50	1/2	62.8
9.50	3/8	51.0
4.75	4	36.8
2.00	10	21.4
0.425	40	13.6

Signature 
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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

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)	8.2

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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الزمالة القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	21.4	Max 50 %	-----	-----
0.425 mm (No. 40).	13.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	8.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

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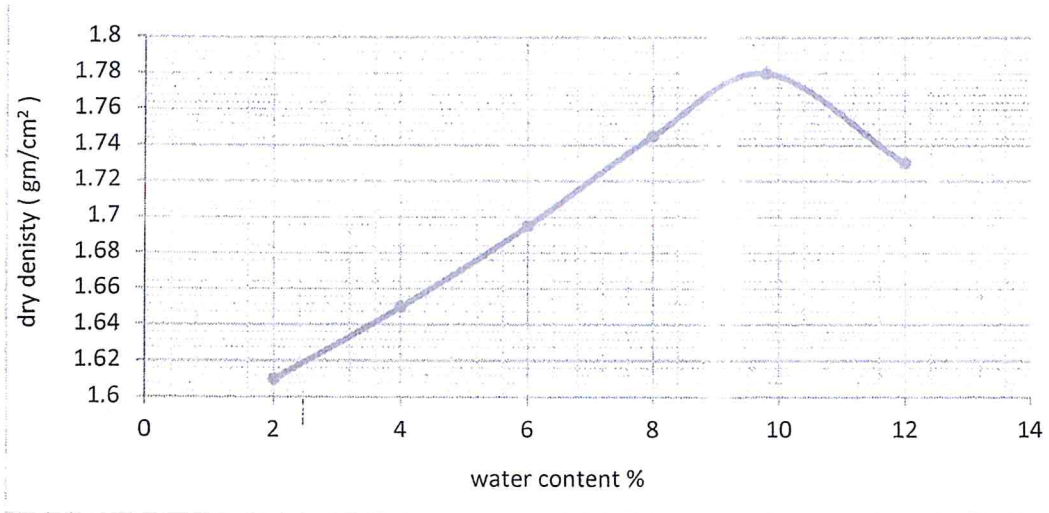
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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 1.78
- Optimum moisture content % : 9.8 %

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Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.01
2.54	0.100	1.32
3.18	0.125	1.62
3.81	0.150	1.77
4.45	0.175	1.87
5.08	0.200	1.90
6.35	0.250	1.92

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	19.1%
	6.90	1.32	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 1.78(gm /cm³)
At = 9.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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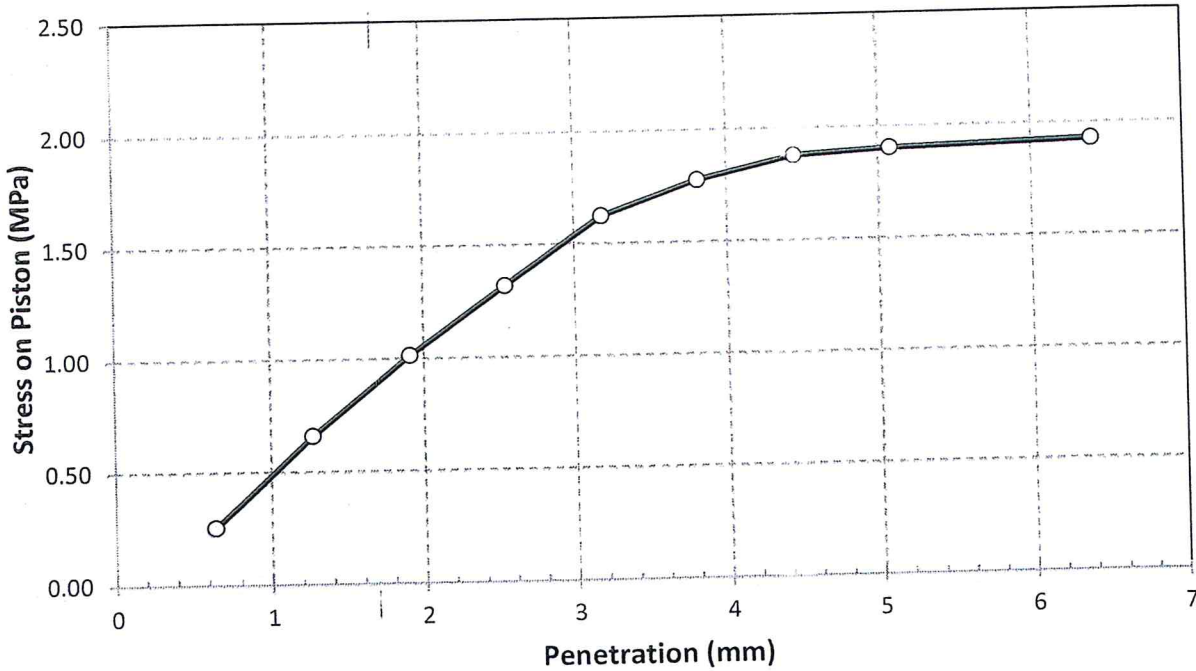


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Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Load Penetration Curve of CBR Test

ASTM D-1883



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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 28/09/2023
Soil type : Upper Embankment
Location : ST from 650+700 to 650+800
Level : - 1.25 M
Report No. : 113

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	650+720	1738	2.20	6.4	2.07	95.2%	Comply
2	650+740	1794	2.21	5.8	2.09	96.2%	Comply
3	650+760	1559	2.22	6	2.09	96.5%	Comply
4	650+780	1561	2.19	5.6	2.07	95.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

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تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.5
37.5	1.5	90.8
25	1	78.3
19	3/4	72.4
12.50	1/2	58.2
9.50	3/8	51.3
4.75	4	49.3
2.00	10	44.2
0.425	40	21.5

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887, 889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959, 961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1007, 1009, 1011, 1013, 1015, 1017, 1019, 1021, 1023, 1025, 1027, 1029, 1031, 1033, 1035, 1037, 1039, 1041, 1043, 1045, 1047, 1049, 1051, 1053, 1055, 1057, 1059, 1061, 1063, 1065, 1067, 1069, 1071, 1073, 1075, 1077, 1079, 1081, 1083, 1085, 1087, 1089, 1091, 1093, 1095, 1097, 1099, 1101, 1103, 1105, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1131, 1133, 1135, 1137, 1139, 1141, 1143, 1145, 1147, 1149, 1151, 1153, 1155, 1157, 1159, 1161, 1163, 1165, 1167, 1169, 1171, 1173, 1175, 1177, 1179, 1181, 1183, 1185, 1187, 1189, 1191, 1193, 1195, 1197, 1199, 1201, 1203, 1205, 1207, 1209, 1211, 1213, 1215, 1217, 1219, 1221, 1223, 1225, 1227, 1229, 1231, 1233, 1235, 1237, 1239, 1241, 1243, 1245, 1247, 1249, 1251, 1253, 1255, 1257, 1259, 1261, 1263, 1265, 1267, 1269, 1271, 1273, 1275, 1277, 1279, 1281, 1283, 1285, 1287, 1289, 1291, 1293, 1295, 1297, 1299, 1301, 1303, 1305, 1307, 1309, 1311, 1313, 1315, 1317, 1319, 1321, 1323, 1325, 1327, 1329, 1331, 1333, 1335, 1337, 1339, 1341, 1343, 1345, 1347, 1349, 1351, 1353, 1355, 1357, 1359, 1361, 1363, 1365, 1367, 1369, 1371, 1373, 1375, 1377, 1379, 1381, 1383, 1385, 1387, 1389, 1391, 1393, 1395, 1397, 1399, 1401, 1403, 1405, 1407, 1409, 1411, 1413, 1415, 1417, 1419, 1421, 1423, 1425, 1427, 1429, 1431, 1433, 1435, 1437, 1439, 1441, 1443, 1445, 1447, 1449, 1451, 1453, 1455, 1457, 1459, 1461, 1463, 1465, 1467, 1469, 1471, 1473, 1475, 1477, 1479, 1481, 1483, 1485, 1487, 1489, 1491, 1493, 1495, 1497, 1499, 1501, 1503, 1505, 1507, 1509, 1511, 1513, 1515, 1517, 1519, 1521, 1523, 1525, 1527, 1529, 1531, 1533, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1551, 1553, 1555, 1557, 1559, 1561, 1563, 1565, 1567, 1569, 1571, 1573, 1575, 1577, 1579, 1581, 1583, 1585, 1587, 1589, 1591, 1593, 1595, 1597, 1599, 1601, 1603, 1605, 1607, 1609, 1611, 1613, 1615, 1617, 1619, 1621, 1623, 1625, 1627, 1629, 1631, 1633, 1635, 1637, 1639, 1641, 1643, 1645, 1647, 1649, 1651, 1653, 1655, 1657, 1659, 1661, 1663, 1665, 1667, 1669, 1671, 1673, 1675, 1677, 1679, 1681, 1683, 1685, 1687, 1689, 1691, 1693, 1695, 1697, 1699, 1701, 1703, 1705, 1707, 1709, 1711, 1713, 1715, 1717, 1719, 1721, 1723, 1725, 1727, 1729, 1731, 1733, 1735, 1737, 1739, 1741, 1743, 1745, 1747, 1749, 1751, 1753, 1755, 1757, 1759, 1761, 1763, 1765, 1767, 1769, 1771, 1773, 1775, 1777, 1779, 1781, 1783, 1785, 1787, 1789, 1791, 1793, 1795, 1797, 1799, 1801, 1803, 1805, 1807, 1809, 1811, 1813, 1815, 1817, 1819, 1821, 1823, 1825, 1827, 1829, 1831, 1833, 1835, 1837, 1839, 1841, 1843, 1845, 1847, 1849, 1851, 1853, 1855, 1857, 1859, 1861, 1863, 1865, 1867, 1869, 1871, 1873, 1875, 1877, 1879, 1881, 1883, 1885, 1887, 1889, 1891, 1893, 1895, 1897, 1899, 1901, 1903, 1905, 1907, 1909, 1911, 1913, 1915, 1917, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, 1935, 1937, 1939, 1941, 1943, 1945, 1947, 1949, 1951, 1953, 1955, 1957, 1959, 1961, 1963, 1965, 1967, 1969, 1971, 1973, 1975, 1977, 1979, 1981, 1983, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045, 2047, 2049, 2051, 2053, 2055, 2057, 2059, 2061, 2063, 2065, 2067, 2069, 2071, 2073, 2075, 2077, 2079, 2081, 2083, 2085, 2087, 2089, 2091, 2093, 2095, 2097, 2099, 2101, 2103, 2105, 2107, 2109, 2111, 2113, 2115, 2117, 2119, 2121, 2123, 2125, 2127, 2129, 2131, 2133, 2135, 2137, 2139, 2141, 2143, 2145, 2147, 2149, 2151, 2153, 2155, 2157, 2159, 2161, 2163, 2165, 2167, 2169, 2171, 2173, 2175, 2177, 2179, 2181, 2183, 2185, 2187, 2189, 2191, 2193, 2195, 2197, 2199, 2201, 2203, 2205, 2207, 2209, 2211, 2213, 2215, 2217, 2219, 2221, 2223, 2225, 2227, 2229, 2231, 2233, 2235, 2237, 2239, 2241, 2243, 2245, 2247, 2249, 2251, 2253, 2255, 2257, 2259, 2261, 2263, 2265, 2267, 2269, 2271, 2273, 2275, 2277, 2279, 2281, 2283, 2285, 2287, 2289, 2291, 2293, 2295, 2297, 2299, 2301, 2303, 2305, 2307, 2309, 2311, 2313, 2315, 2317, 2319, 2321, 2323, 2325, 2327, 2329, 2331, 2333, 2335, 2337, 2339, 2341, 2343, 2345, 2347, 2349, 2351, 2353, 2355, 2357, 2359, 2361, 2363, 2365, 2367, 2369, 2371, 2373, 2375, 2377, 2379, 2381, 2383, 2385, 2387, 2389, 2391, 2393, 2395, 2397, 2399, 2401, 2403, 2405, 2407, 2409, 2411, 2413, 2415, 2417, 2419, 2421, 2423, 2425, 2427, 2429, 2431, 2433, 2435, 2437, 2439, 2441, 2443, 2445, 2447, 2449, 2451, 2453, 2455, 2457, 2459, 2461, 2463, 2465, 2467, 2469, 2471, 2473, 2475, 2477, 2479, 2481, 2483, 2485, 2487, 2489, 2491, 2493, 2495, 2497, 2499, 2501, 2503, 2505, 2507, 2509, 2511, 2513, 2515, 2517, 2519, 2521, 2523, 2525, 2527, 2529, 2531, 2533, 2535, 2537, 2539, 2541, 2543, 2545, 2547, 2549, 2551, 2553, 2555, 2557, 2559, 2561, 2563, 2565, 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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

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)	6.8

Signature /



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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الزمالك القاهرة
الهاتف : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.2	Max 50 %	-----	-----
0.425 mm (No. 40).	21.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.8	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



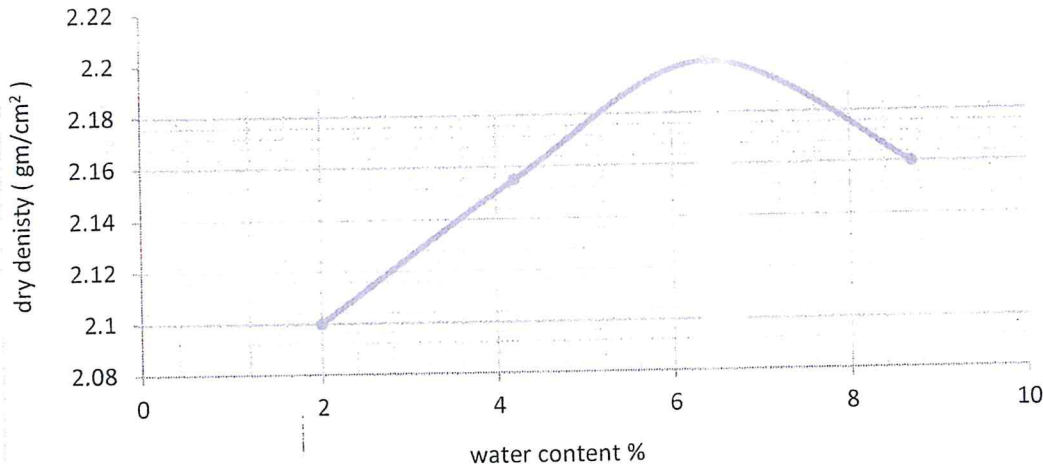
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٢١ شارع الملك الافضل
الزمالة - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



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ش.م.ك. الملكة الأميرة
الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣١

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.47
1.91	0.075	2.48
2.54	0.100	3.49
3.18	0.125	4.61
3.81	0.150	5.82
4.45	0.175	7.04
5.08	0.200	8.36
6.35	0.250	11.45

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50.6 %
	6.90	3.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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ش. الملك الأفطال
الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 28/8/2023
Soil type : Middle Embankment
Location : ST from 647+660 To 647+680
Level : - 1.5 M
Report No. : 04

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+670	1654	2.09	5.3	1.99	96.4	Comply

- Degree of compaction based on proctor test dated At
 - Max. dry density = 2.06 gm/cm³
 - At optimum moisture content = 6.4 %

Signature / 

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Dear Gentleman,

Attached here with the delivered on 22 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /.....



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.3
37.5	1.5	91.6
25	1	80.2
19	¾	70.8
12.50	½	59.8
9.50	3/8	52.2
4.75	4	41.7
2.00	10	34.3
0.425	40	16.3

CEL
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مشاريع القصر
الزمرات الرئيسية : 3 شارع الملك الافضل - الزمالة
Signature : 26/8/2023

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Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



3 شارع الملك الافضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

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)	1.5

Signature: 

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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مشاريع الطرق والبنية التحتية
219 991 444
البريد الإلكتروني: info@cel-eg.com
3 شارع الملك الأفندي - الدقي

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	34.3	Max 50 %	-----	-----
0.425 mm (No. 40).	16.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	1.5	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



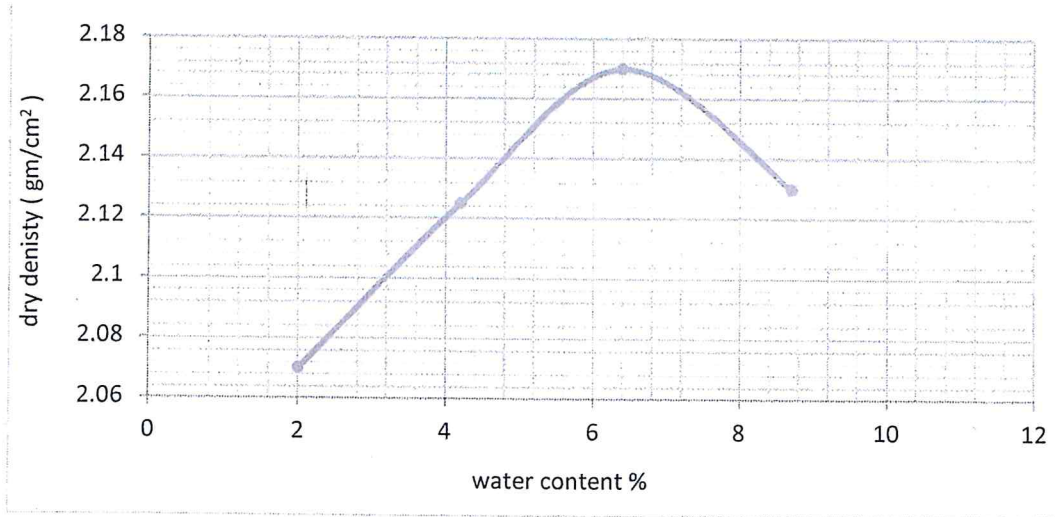
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3 شارع الملك الأفطير
الزمالك - القاهرة
تليفون : 27367231 - 27369093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.17
- Optimum moisture content % : 6.4 %

Signature / 
مكتب معامل الاستشارات الهندسية
مشروعات و الأبحاث
رقم التسجيل الفردي 219.991.437
المركز الرئيسي 3 شارع الملك الأفندي - الزمالة - القاهرة

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



3 شارع الملك الأفندي
الزمالة - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.61
1.27	0.050	1.82
1.91	0.075	3.04
2.54	0.100	4.15
3.18	0.125	5.12
3.81	0.150	5.82
4.45	0.175	6.33
5.08	0.200	6.63
6.35	0.250	6.74

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	60.2 %
	6.90	4.15	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.17 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50-Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

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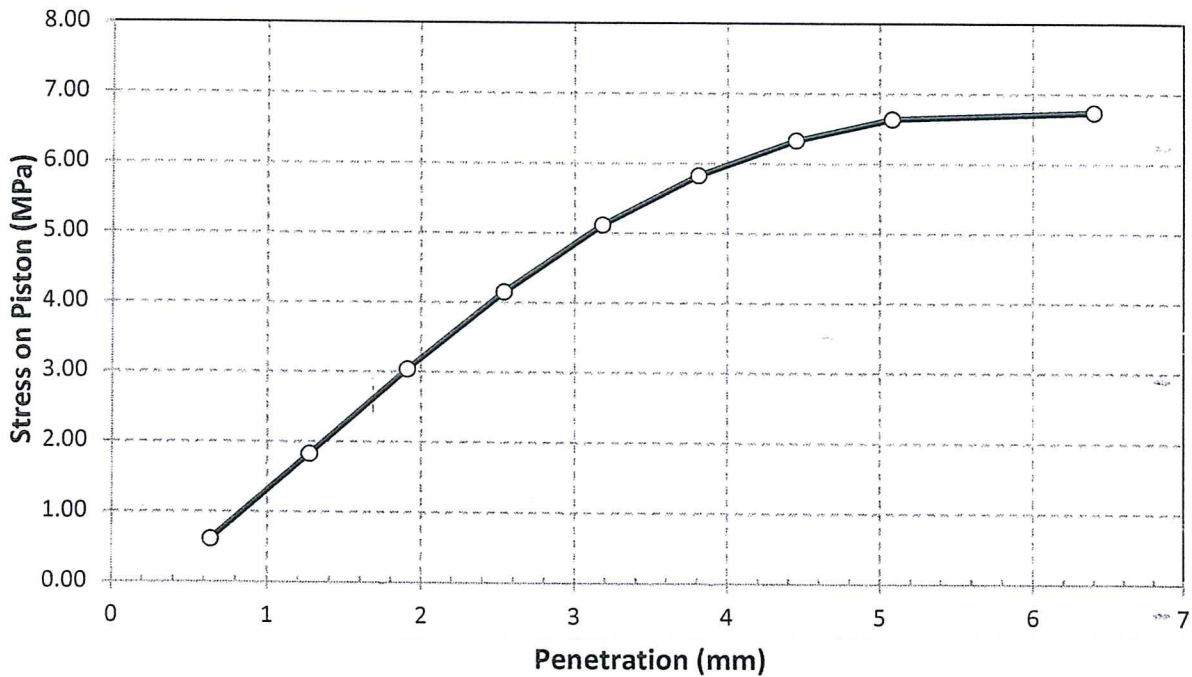


أش الملك الأفدال
الزمالك القاهرة
هاتف وفاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 22/8/2023
Reporting Date : 26/8/2023
Reporting No. : 08

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



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



3 شارع الملك الأفضل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : ST from 649+760 TO 649+840
Level : - 1 M
Report No. : 95

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	649+798	1310	2.29	6	2.16	99.6%	Comply
2	649+830	1352	2.22	6.4	2.09	96.2%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature

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مكتب معامل الاستشارات الهندسية
رقم التسجيل المهنى: 537 - 991
المركز الرئيسى ٣ شارع الملك الأفندي - الزمالك - القاهرة

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Dear Gentleman,

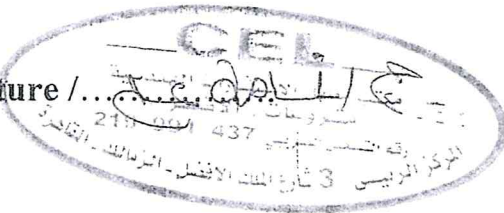
Attached here with the delivered on 21 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature / ...



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.4
37.5	1.5	90.4
25	1	79.6
19	3/4	70.6
12.50	1/2	61.7
9.50	3/8	55.4
4.75	4	45.4
2.00	10	40.3
0.425	40	20.9

Signature /

CEL
مكتب محاسن الاستشارات الهندسية
219 شارع الملك الأفطال - القاهرة
البريد الإلكتروني: 3 شارع الملك الأفطال - القاهرة

1 El Malek El Aftral Street
Cairo, Egypt
Tel: 2367231 - 27885093



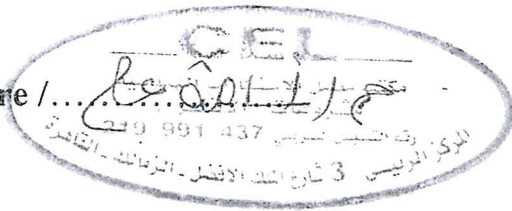
1 شارع الملك الأفطال
القاهرة - القاهرة
الهاتف: 2367231 - 27885093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

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)	2.7

Signature / ...

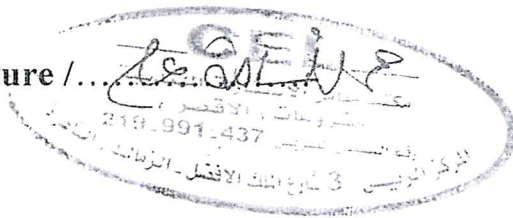


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / ...



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.3	Max 50 %	-----	-----
0.425 mm (No. 40).	20.9	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	2.7	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature



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Zamalek, Cairo

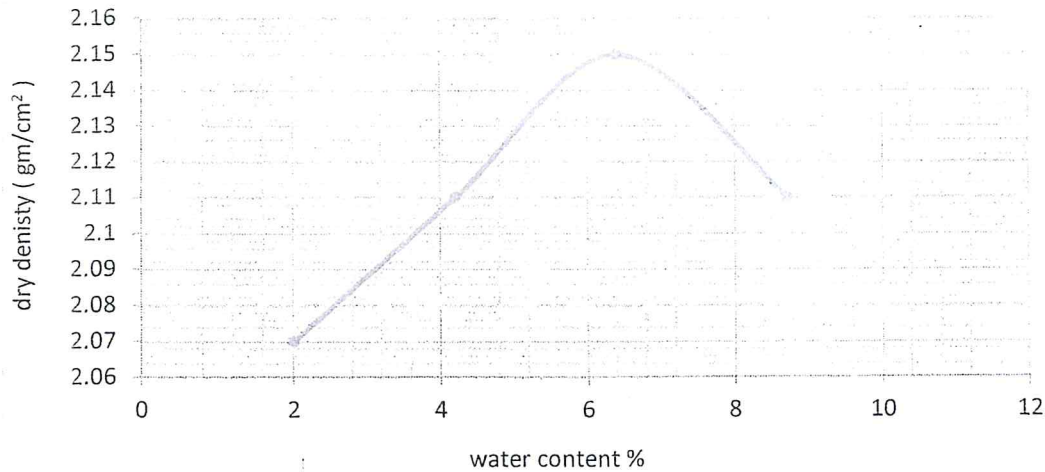
Tel: 27367231 - 27363093



إشراف محاسن الاستشارات
الهندسية القاهرة
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.15
- Optimum moisture content % : 6.4 %

Signature /

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

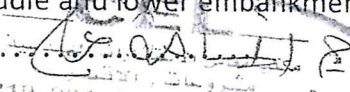
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.56
1.27	0.050	1.52
1.91	0.075	2.43
2.54	0.100	3.19
3.18	0.125	3.90
3.81	0.150	4.38
4.45	0.175	4.71
5.08	0.200	4.91
6.35	0.250	4.96

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	46.2 %
	6.90	3..19	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.15 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

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Zamalek, Cairo
Tel: 27367201 - 27369093

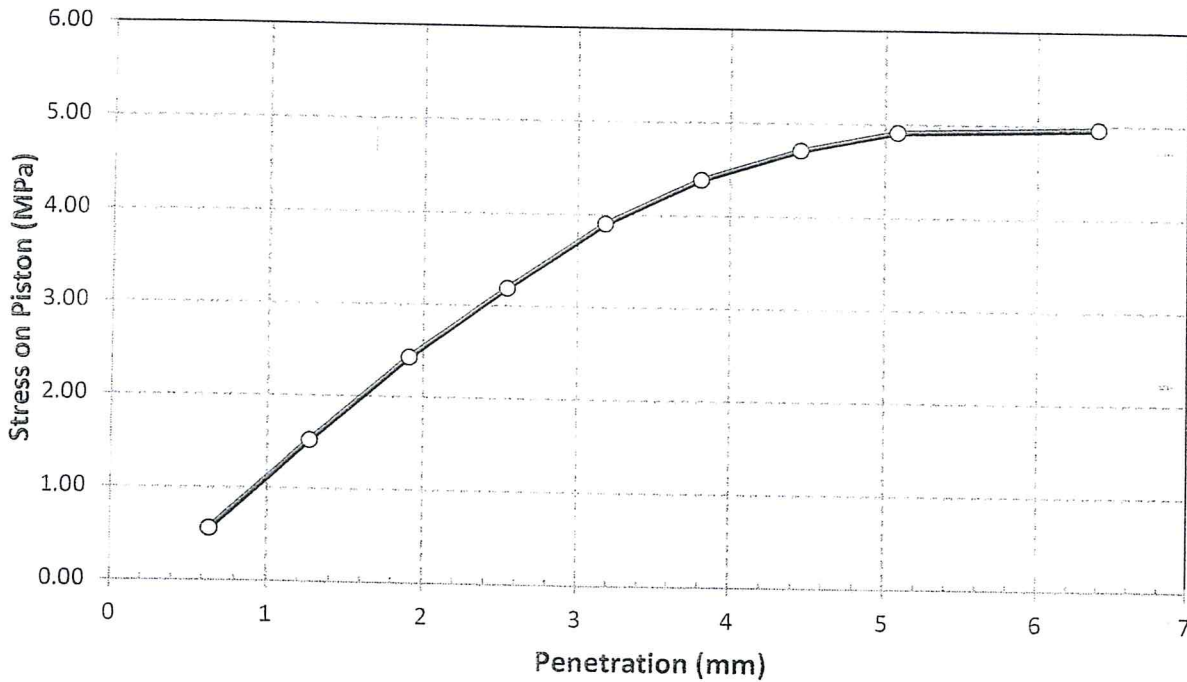


إشراف المهندس
إبراهيم العبد
مهندس
إبراهيم العبد

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / *[Signature]*
219 941 437
مكتب معامل الاستشارات الهندسية
الرياض الرئيسي 3 شارع الملك فيصل - الرياض

Compaction test by using Sand – Cone Test Method

١ من ثمن ملك الإسماعيل
الملك المعتمد
بسم الله الرحمن الرحيم

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.1
37.5	1.5	93.5
25	1	87.6
19	3/4	74.6
12.50	1/2	62.8
9.50	3/8	51.0
4.75	4	36.8
2.00	10	21.4
0.425	40	13.6

Signature 
مكتب استشارات الهندسية
مستودعات ١٠٠٠
رقم التسجيل المبرمج 219.991.437
المركز الرئيسي 3 شارع الملك الافضل - الزمالك - القاهرة

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



3 شارع الملك الافضل
الزمالك القاهرة
تليفون : ٢٧٣٦٧٠٩٢ - ٢٧٣٦٧٠٩١

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

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)	8.2

Signature /

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



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



٢ شارع الملك الافضل
الزمالة - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	21.4	Max 50 %	-----	-----
0.425 mm (No. 40).	13.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	8.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature : 
مكتب معامل الاستشارات الهندسية
شركة الكرم للمقاولات العمومية
رقم التسجيل: 219.991.437
التمثيل: 3 شارع الملك الافضل - الدقي - القاهرة

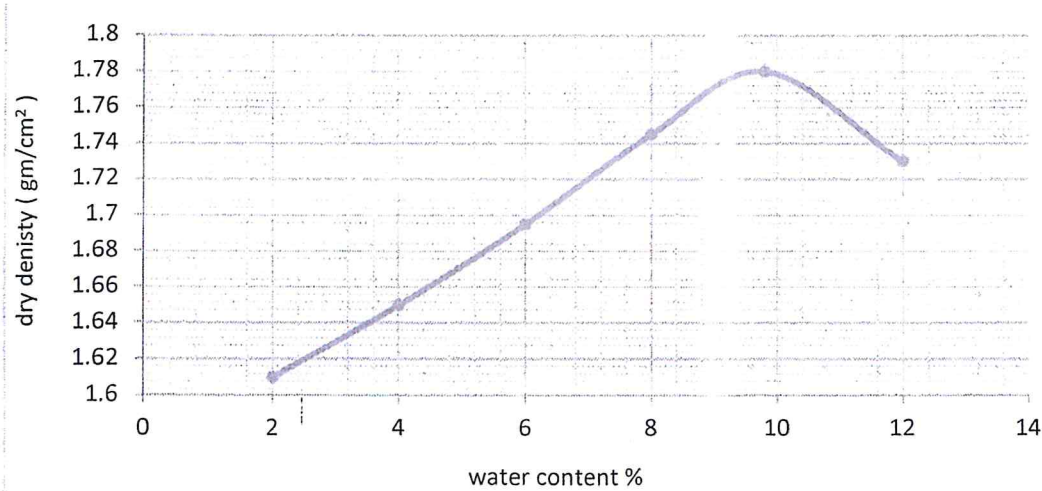
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



في الملك الافضل
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 1.78
- Optimum moisture content % : 9.8 %

Signature /


مكتب بحايل الاستشارات الهندسية
219.991.437
الزمامك - القاهرة

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



٢ في الملك الأفدال
الزمامك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.01
2.54	0.100	1.32
3.18	0.125	1.62
3.81	0.150	1.77
4.45	0.175	1.87
5.08	0.200	1.90
6.35	0.250	1.92

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	19.1%
	6.90	1.32	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 1.78(gm /cm³)
At = 9.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

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Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093

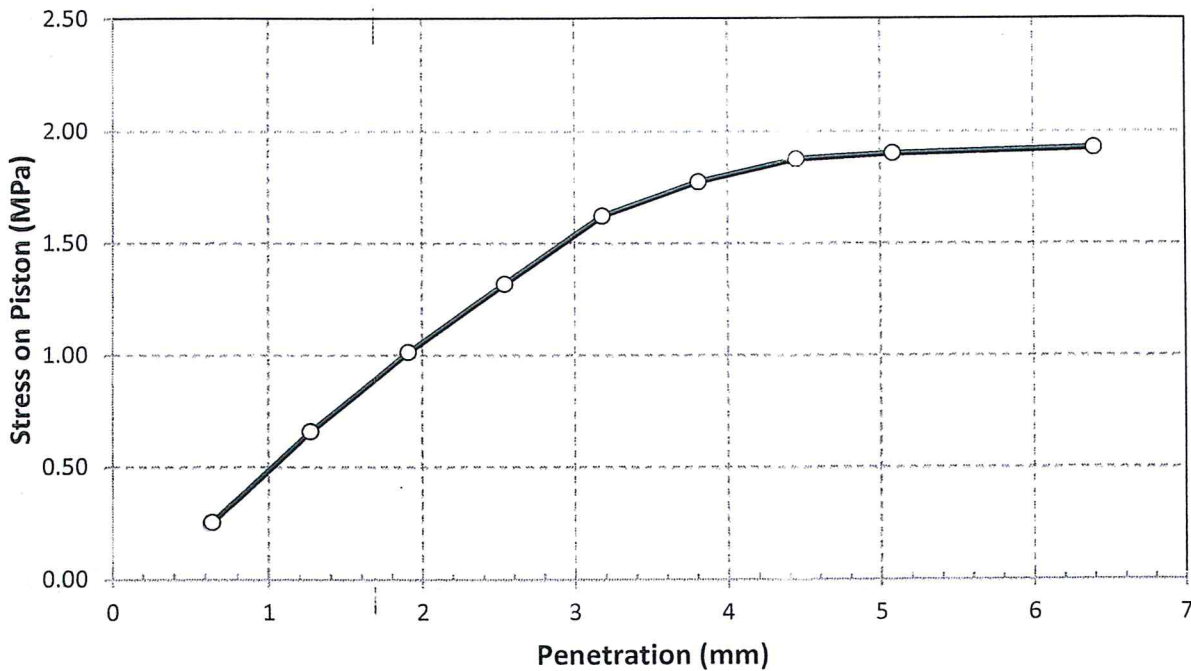


3 شارع الملك الأفدر - القاهرة
الهاتف : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St (651+800) Zone : From 651+700 To 651+940
Type of sample : Original Earth
Delivery Date : 6/8/2023
Reporting Date : 10/8/2023
Reporting No. : 04

Load Penetration Curve of CBR Test

ASTM D-1883



Signature



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



3 شارع الملك الافضل
الزمالة القاهرة
تليفون : 27367231 - 27363093

CEL
 Consulting Engineering Bureau & Laboratories
 مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
 Project : Electric Express Train – HSR From Qous To Armant
 Testing Date : 5/10/2023
 Soil type : Middle Embankment
 Location : ST from 651+760 To 651+780
 Level : - 4 M
 Report No. : 144

**Compaction test by using Sand – Cone Test Method
 ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+770	943	2.26	5.3	2.15	98.9%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature / ..



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
25	1	85.2
19	3/4	71.1
12.50	1/2	62.0
9.50	3/8	59.0
4.75	4	51.2
2.00	10	44.1
0.425	40	12.5

Signature / ... 

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات ودراسات
رقم التسجيل الضريبي: 219 - 991 - 537
مركز الرئيسي 3 شارع الملك الأفصل - الزمالة - القاهرة

3 El Maiek E. Afdal Street
Zamalek, Cairo
Tel& Fax 27367231 - 27363093



3 شارع الملك الأفصل
الزمالة - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

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)	9.9

Signature / ...  
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات (سمو) و (تصميم)
رقم التسجيل الضريبي: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفصل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



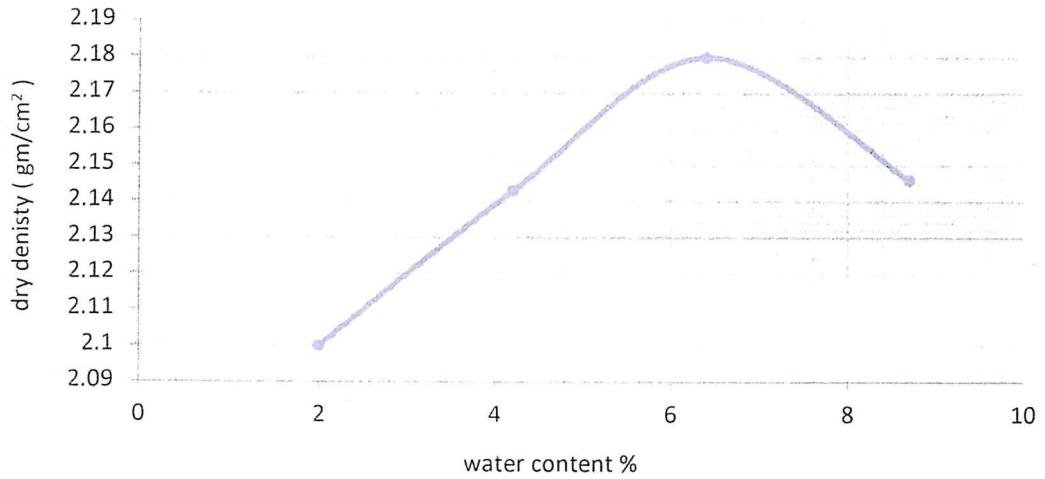
3 El Malek E. Abdol Street
Zamalek, Cairo
Tel & Fax 2736723 / 27362093



ش. الملك الأفضل
الزمالك - القاهرة
تليفون : فاكس : 2736723 / 27362093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.18
- Optimum moisture content % : 6.4 %

Signature / ...
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مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
مركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Arment
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

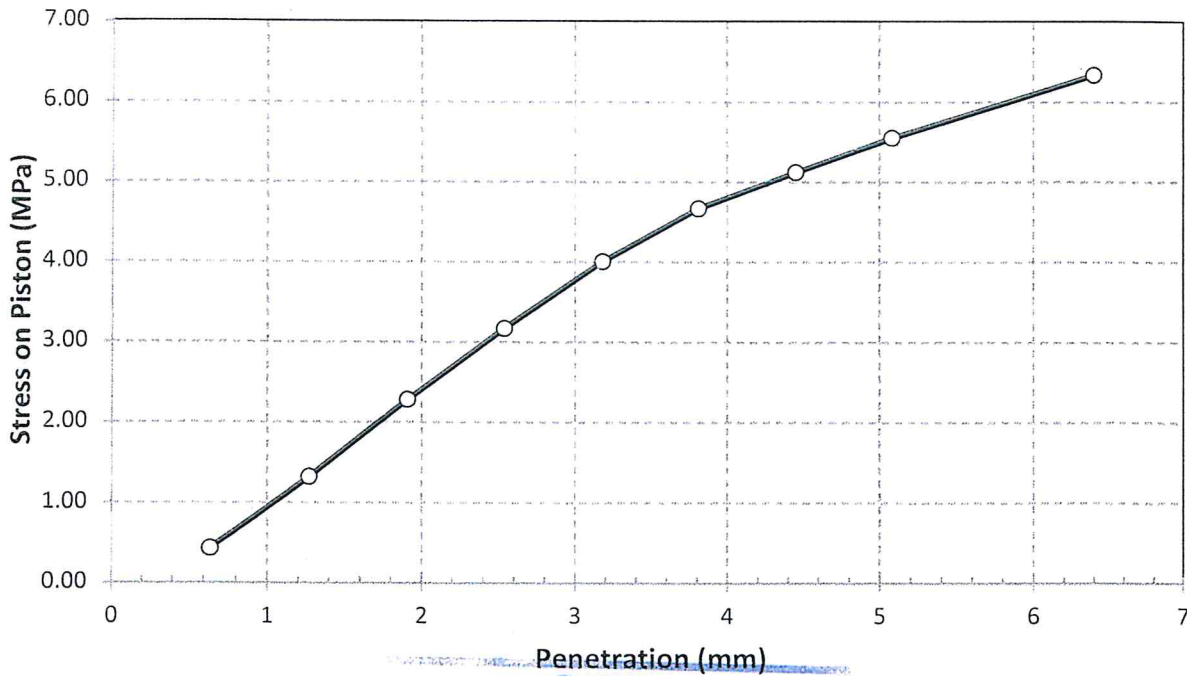
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

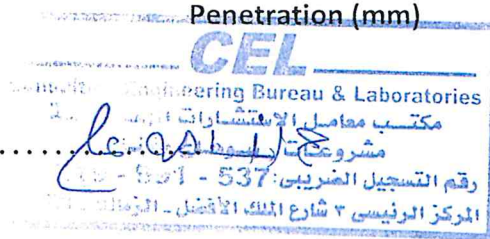
Signature / 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

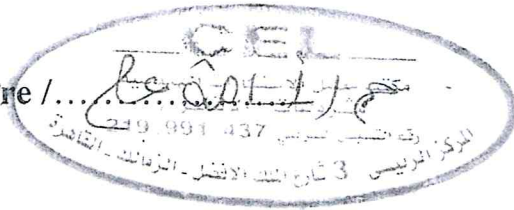


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

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)	2.7

Signature / ...



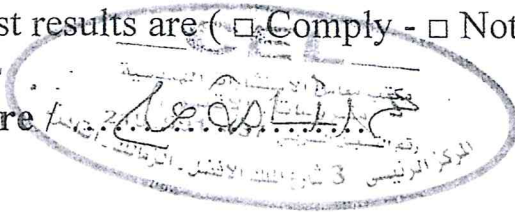
Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.3	Max 50 %	-----	-----
0.425 mm (No. 40).	20.9	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	2.7	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature



3 El Malek El Afdal Street

Zamalek, Cairo

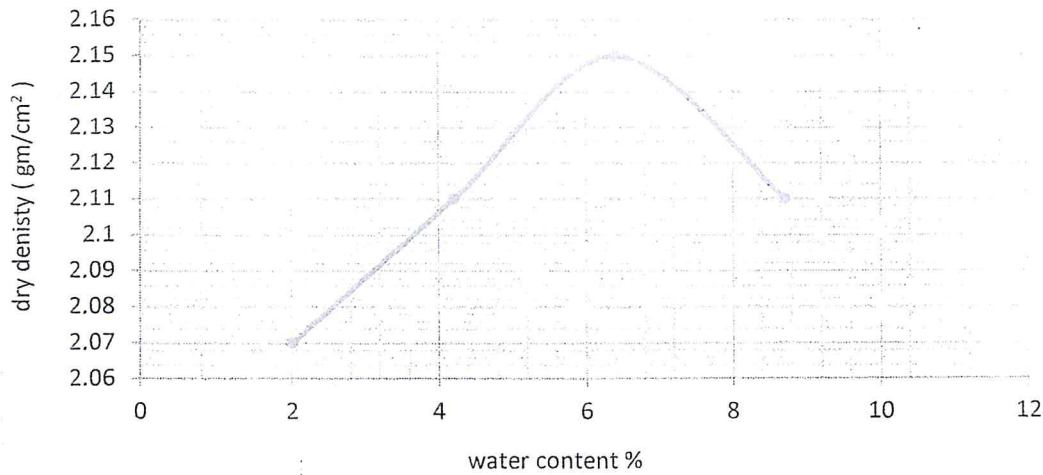
Tel/Fax: 27367231 - 27363093



إشراف محاسن الاستشارات الهندسية
المركز الرئيسي
المركز الفرعي

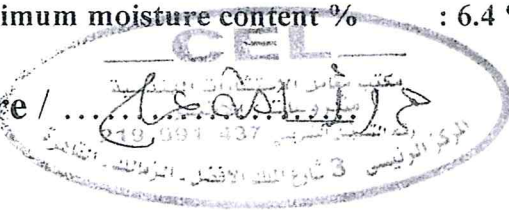
Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.15
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

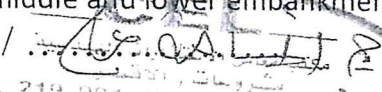
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.56
1.27	0.050	1.52
1.91	0.075	2.43
2.54	0.100	3.19
3.18	0.125	3.90
3.81	0.150	4.38
4.45	0.175	4.71
5.08	0.200	4.91
6.35	0.250	4.96

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	46.2 %
	6.90	3.19	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.15 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

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Zamalek, Cairo
Tel Fax: 27367201 - 27365093

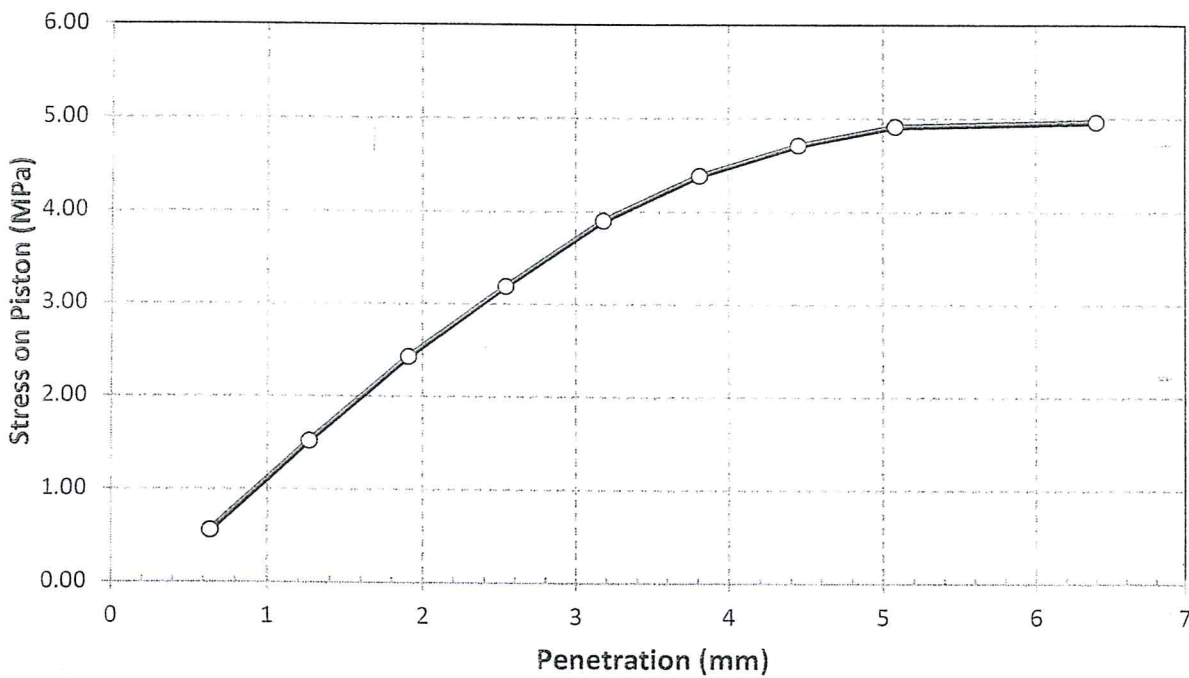


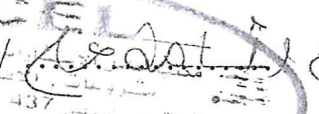
مكتب محاسن الاستشارات الهندسية
3 شارع الملك الامل
زمالك - القاهرة
تليفون - فاكس : 27367201 - 27365093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 648+100 E= 32°54'49.4" N=25°49'23.1"
Type of sample : Soil Embankment
Delivery Date : 20/8/2023
Reporting Date : 24/8/2023
Reporting No. : 07-1

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / 
219.941 437
المركز الرئيسي 3 شارع النيل - القاهرة - الجيزة

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
 Project : Electric Express Train – HSR From Qous To Armant
 Testing Date : 5/10/2023
 Soil type : Middle Embankment
 Location : ST from 651+740 To 651+760
 Level : - 5 M
 Report No. : 143

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+750	1700	2.24	6	2.11	97.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /...



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
25	1	85.2
19	3/4	71.1
12.50	1/2	62.0
9.50	3/8	59.0
4.75	4	51.2
2.00	10	44.1
0.425	40	12.5

Signature /... 

 Consulting Engineering Bureau & Laboratories
 مكتب معامل الاستشارات الهندسية
 مشروعيات (مستودعات) ومشاريع
 رقم التسجيل الضريبي: 219 - 991 - 537
 مركز الرئيسي 3 شارع الملك الأفضل - الزمالك - القاهرة

3 El Maiek El Afdal Street
Zamalek, Cairo
Tel & Fax 27367231 - 27363093



3 شارع الملك الأفضل
الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

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)	9.9

Signature / ... 

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشاريع واستشارات
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / ...



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



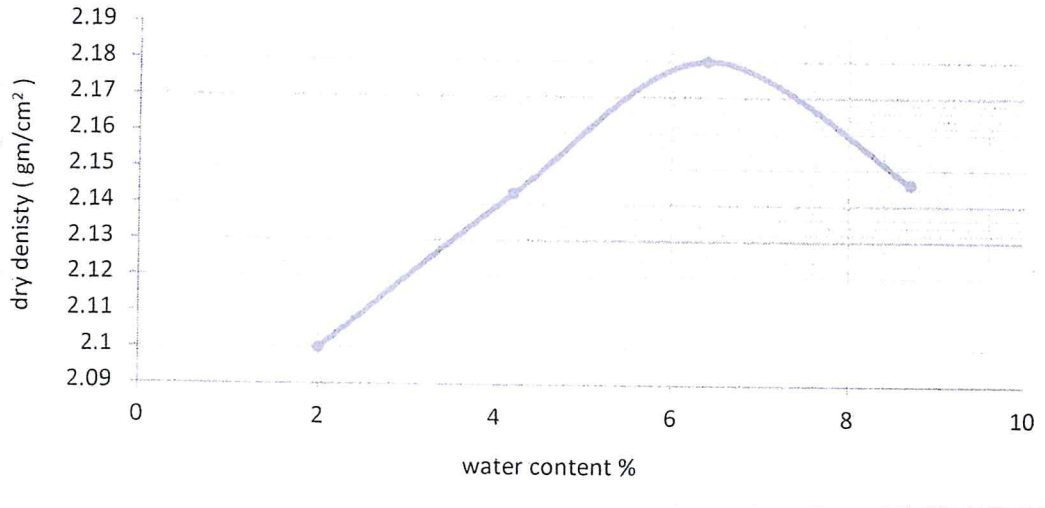
2 El Malek E Aldal Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369093



ش الملك الأفضل
الزمالك القاهرة
تليفون : فاكس : 27367231 - 27369093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

Signature /
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مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

Notes:

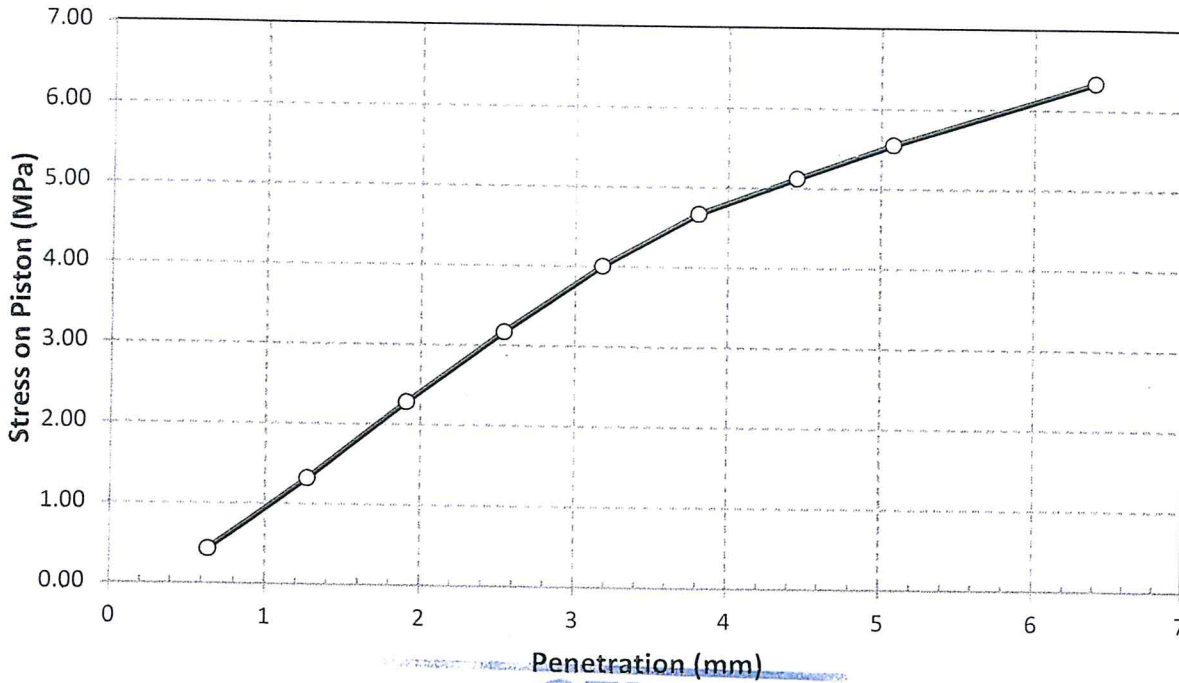
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /

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مكتب معامل الاستشارات الهندسية
مشروع: تخطيط وتصميم
رقم التسجيل الضريبي: 537 - 537 - 537
المركز الرئيسي 3 شارع الملك الأفندي - الزمالة - القاهرة

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 5/10/2023
Soil type : Middle Embankment
Location : ST from 651+720 To 651+740
Level : - 4 M
Report No. : 142

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+730	1446	2.25	6	2.12	97.8%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4%

Signature: _____



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /..



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
25	1	85.2
19	3/4	71.1
12.50	1/2	62.0
9.50	3/8	59.0
4.75	4	51.2
2.00	10	44.1
0.425	40	12.5

Signature / ...
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات ر سوهاج وشبراخيت
رقم التسجيل الضريبي: 537 - 991 - 219
مركز الرئيسي 3 شارع الملك الأفضل - الزمالك - القاهرة

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



ش الملك الأفضل
الزمالك القاهرة
تليفون : فاكس : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

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)	9.9

Signature / ..  
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات رسومات وتنفيذ
رقم التسجيل الضريبي: 537 - 991 - 219
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / ...



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



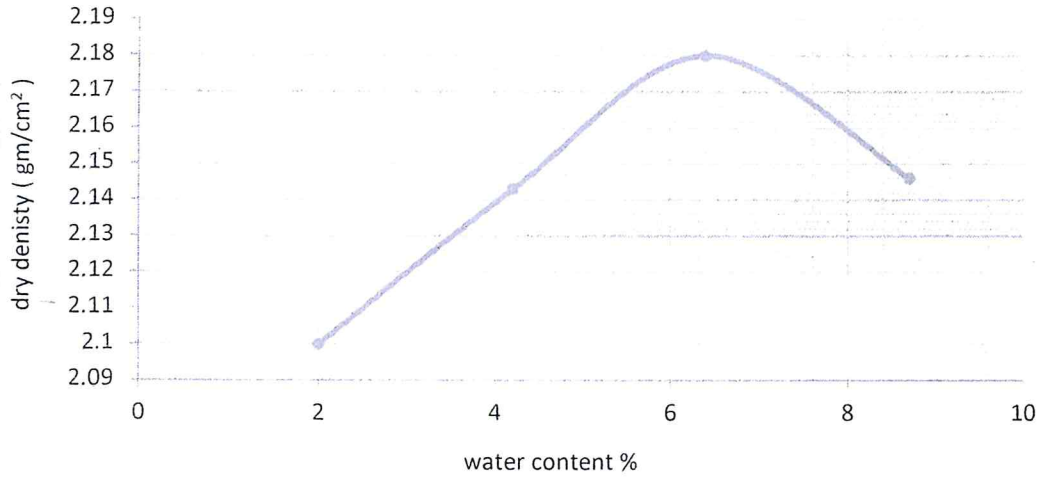
2 El Malek E Afdal Street
Zamelex, Cairo
Tel & Fax 2736723 - 27363093



2 شارع الملك الأفطال
الزمالك القاهرة
تليفون : 2736723 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

Signature /
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

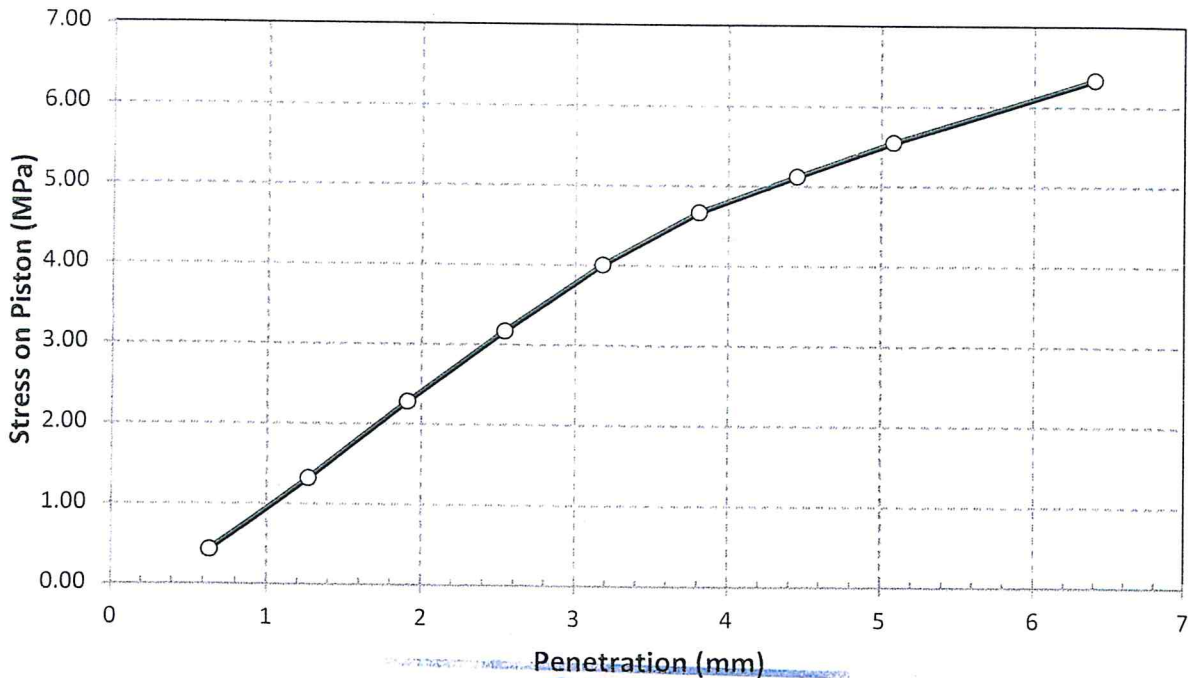
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /





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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company : شركة الكرم :

Project : Electric Express Train - Sector (5) - Qous to Arment.
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 650+940 to 650+960
Station : 650+950
Level : -1.5
Test Date : 26/09/2023
Report Date : 01/10/2023
Type of soil : Original Earth
Report No. : 01

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 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 300 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 300 mm loading plate, the limit values are 5.0 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.
11. Remove the loads



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مشروعات محافظات الوجه القبلي

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 : Original Earth
- Job requiremer : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
date of measurement	: 26/09/2023
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		Location	Level (m)	First Cycle	Second Cycle	E_{v2} / E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (MPa)}$	
1	650+940	650+960	: 650+950	: -1.5	133.0	101.5	0.76

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مشروعات محافظات الوجه القبلي

Company Name : شركة الكرم
Project : Electric Express Train - Sector (5) - Gous to Arment.
Test Date : 26/09/2023
report date : 01/10/2023
Station : 650+950
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.87	0.13	19.81	0.19	0.16
2	1.66	19.73	0.27	19.75	0.25	0.26
3	2.50	19.59	0.41	19.63	0.37	0.39
4	3.33	19.43	0.57	19.49	0.51	0.54
5	4.17	19.29	0.71	19.31	0.69	0.70
6	5.00	19.09	0.91	19.12	0.88	0.90

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.17	0.83	19.20	0.80	0.82
2	1.25	19.38	0.62	19.45	0.55	0.59
3	0.100	19.63	0.37	19.71	0.29	0.33

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.51	0.49	19.62	0.38	0.43
approximately equal	1.66	19.32	0.68	19.31	0.69	0.69
stress is reached.						
2	2.50	19.07	0.93	19.13	0.87	0.90
3	3.33	18.93	1.07	18.97	1.03	1.05
4	4.17	18.86	1.14	18.83	1.17	1.16



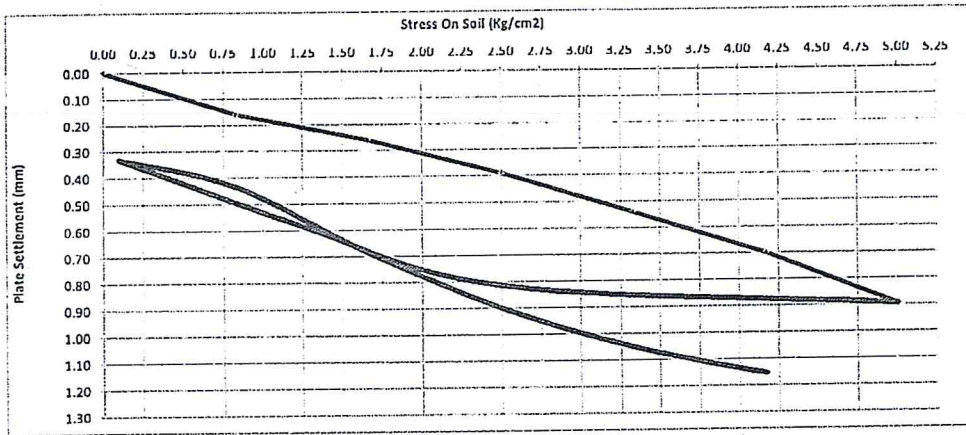
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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة الكرم :
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 26/09/2023
report date : 01/10/2023
Station : 650+950
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.16	0.26	0.39	0.54	0.70	0.90

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.90	0.82	0.59	0.33

D (mm) = 300	S1 (mm) = 0.24	S2(mm) = 0.57	ΔS = 0.33
Ev1 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	133.0		

$$Ev2/Ev1 = 0.76$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.33	0.43	0.69	0.90	1.05	1.16

D (mm) = 300	S1 (mm) = 0.64	S2(mm) = 1.07	ΔS = 0.43
Ev2 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	101.5		

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/cm²)
ΔS = Difference In settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 26/09/2023
Soil type : Upper Embankment
Location : ST from 650+940 To 650+960
Level : - 1.5 M
Report No. : 98

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	650+950	1856	2.22	5.8	2.10	96.8%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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Zamalek, Cairo
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شارع الملك فيصل
الزمالك - القاهرة
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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.5
37.5	1.5	90.8
25	1	78.3
19	3/4	72.4
12.50	1/2	58.2
9.50	3/8	51.3
4.75	4	49.3
2.00	10	44.2
0.425	40	21.5

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

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)	6.8

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.2	Max 50 %	-----	-----
0.425 mm (No. 40).	21.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.8	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

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البريد الإلكتروني : info@cel-eg.com
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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

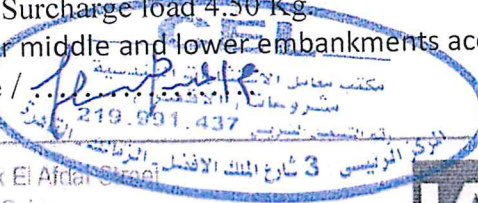
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.47
1.91	0.075	2.48
2.54	0.100	3.49
3.18	0.125	4.61
3.81	0.150	5.82
4.45	0.175	7.04
5.08	0.200	8.36
6.35	0.250	11.45

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50.6 %
	6.90	3.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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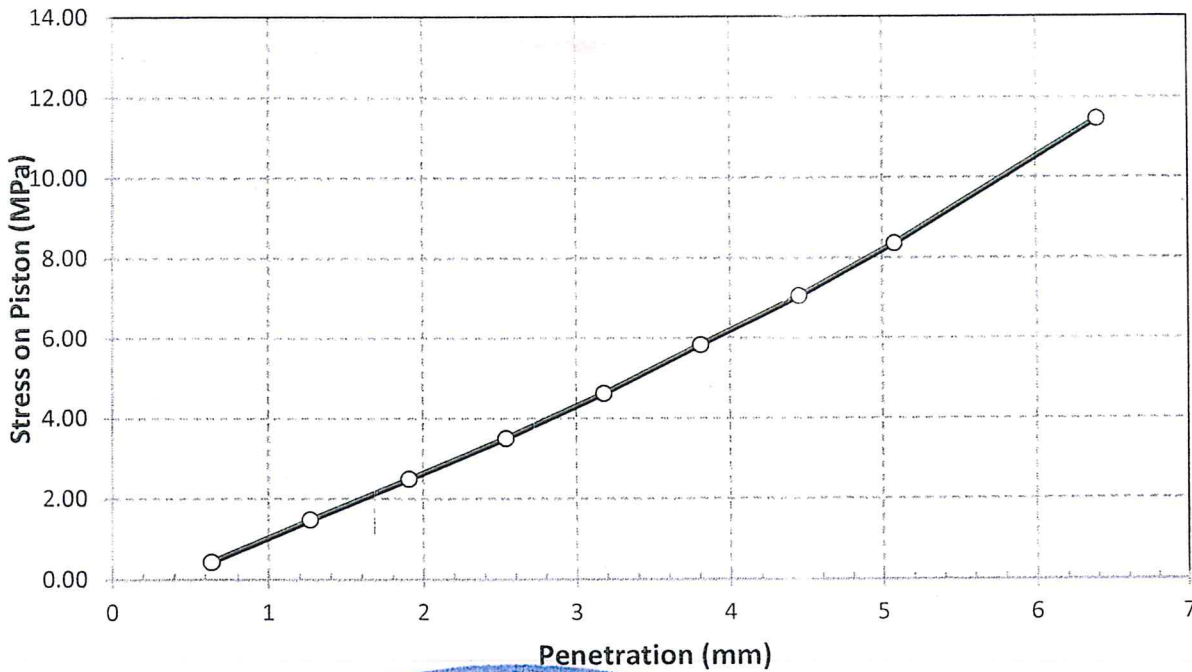
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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 650+800 E= 48947.1891 N=2854194.3005
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 04

Load Penetration Curve of CBR Test
ASTM D-1883



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Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 2/10/2023
Soil type : Middel Embankment
Location : ST from 651+680 To 651+700
Level : - 2.5 M
Report No. : 128

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+695	1497	2.26	5.5	2.14	98.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³

- At optimum moisture content = 6.4 %

Signature



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.1
25	1	85.2
19	3/4	71.1
12.50	1/2	62.0
9.50	3/8	59.0
4.75	4	51.2
2.00	10	44.1
0.425	40	12.5

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

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)	9.9

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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	44.1	Max 50 %	-----	-----
0.425 mm (No. 40).	12.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



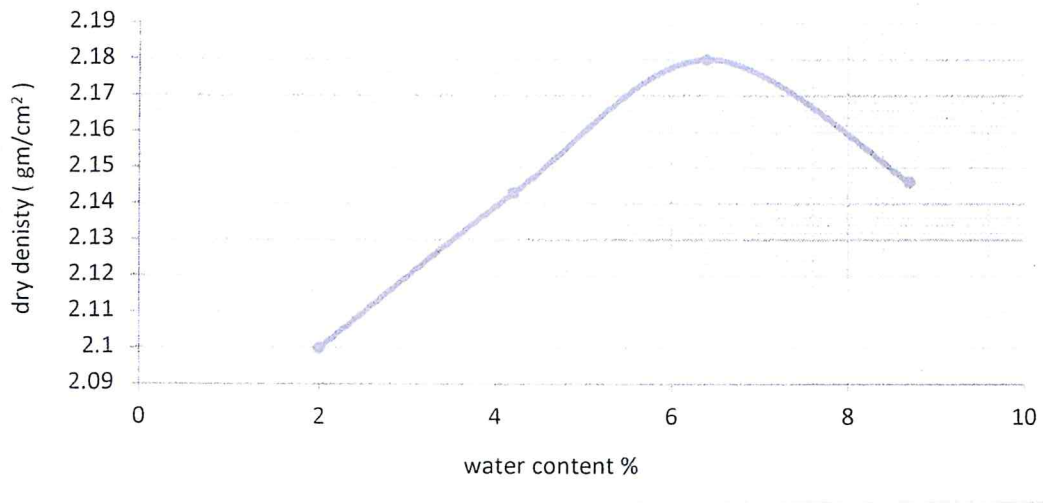
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Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

Signature / ...
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
مشروعات (سوهاج وقنا)
رقم التسجيل الضريبي: 219 - 991 - 537
المركز الرئيسي ٣ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.17
3.18	0.125	4.00
3.81	0.150	4.66
4.45	0.175	5.12
5.08	0.200	5.55
6.35	0.250	6.33

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.9 %
	6.90	3.17	

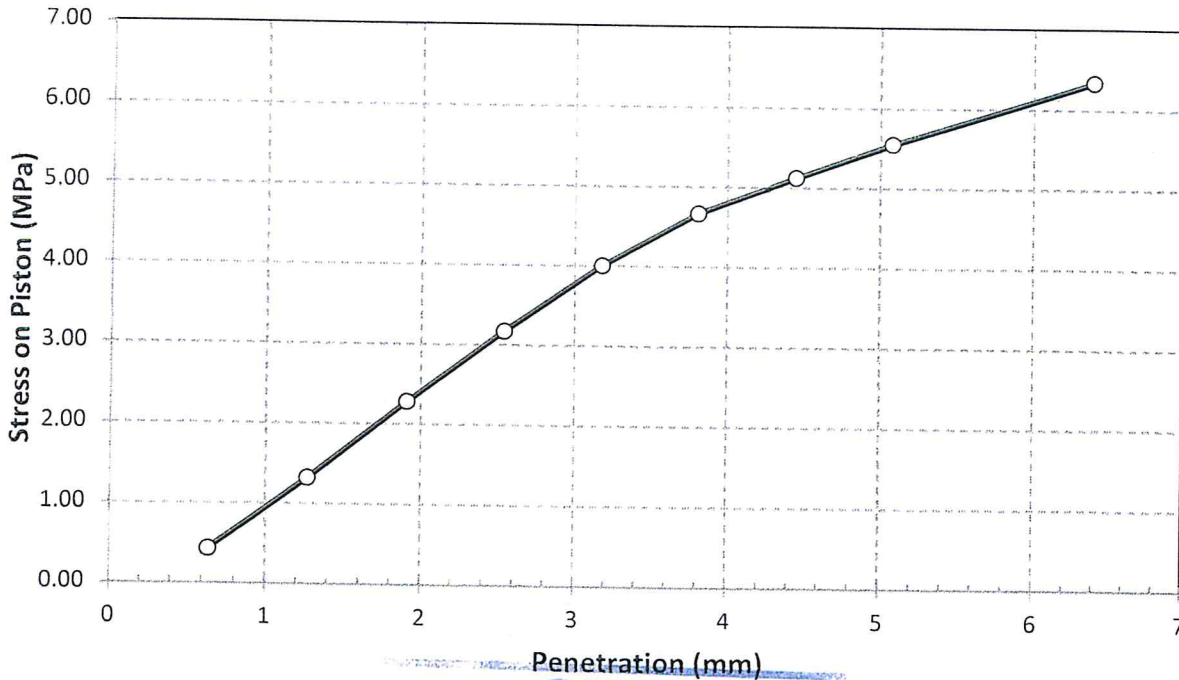
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /


Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 4/10/2023
Reporting No. : 06-2

Load Penetration Curve of CBR Test
ASTM D-1883



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مكتب معامل الاستشارات الهندسية
مشاريع تخطيط وتصميم
رقم التسجيل الضريبي: 537 - 001 - 001
المركز الرئيسي ٣ شارع الملك الأفندي - الزمالك - القاهرة

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

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ش. الملك الأفندي
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 30/09/2023
Reporting Date : 4/10/2023
Reporting No. : 08-3

Dear Gentleman,

Attached here with the delivered on 30 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 30/09/2023
Reporting Date : 4/10/2023
Reporting No. : 08-3

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)	4.1



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 30/09/2023
Reporting Date : 4/10/2023
Reporting No. : 08-3

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

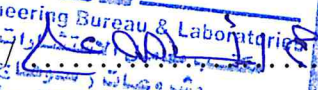


Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 30/09/2023
Reporting Date : 4/10/2023
Reporting No. : 08-3

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	35.4	Max 50 %	-----	-----
0.425 mm (No. 40).	20.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	4.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
219 - 091 - 537
رقم الهاتف الرئيسي: 219 - 091 - 537
المقر الرئيسي: شارع الملك الفضل - الزمالك - القاهرة

3 E. Malet E. Attrial Street
Zamalek - Cairo
T: 219 091 537 F: 219 091 537



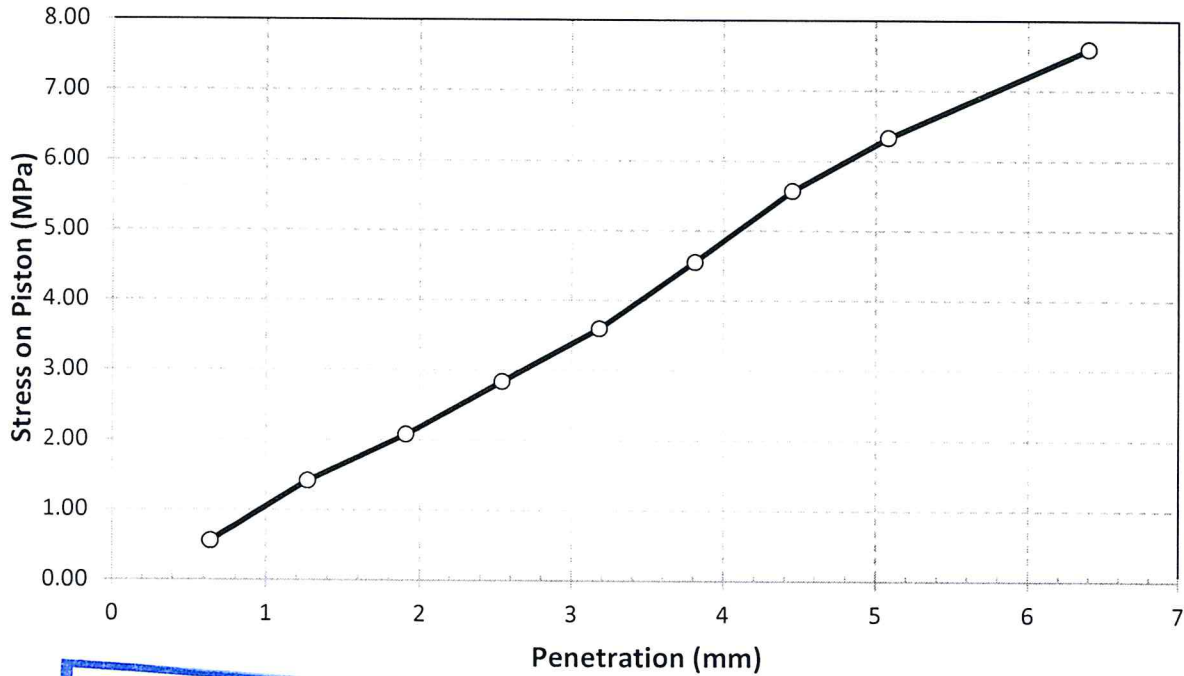
2 شارع الملك الفضل
القاهرة - الجيزة
الهاتف: 219 091 537
الفاكس: 219 091 537

[illegible]

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 647+920 E= 32°54'53.6" N=25°49'23.7"
Type of sample : Soil Embankment
Delivery Date : 30/09/2023
Reporting Date : 4/10/2023
Reporting No. : 08-3

Load Penetration Curve of CBR Test

ASTM D-1883



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رقم التسجيل المهنى: 537 - 991 - 219
المركز الرئيسى: شارع النيل - القاهرة - مصر

Mr. Mostafa Ahmed Sherif
Lab. Manager
Tel: 2790113 - 2790110



إلى السيد المهندس
الرجاء التفضل
بالتوقيع
المهندس / 

465

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مكتب معامل الاستشارات الهندسية

Company Name : شركه الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 23/09/2023
Soil type : Middel Embankment
Location : ST from 647+220 TO 647+300
Level : - 3.5 M
Report No. : 92

**Compaction test by using Sand – Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	647+840	1430	2.21	6.4	2.07	95.5%	Comply
2	647+876	1469	2.20	5.8	2.08	96.0%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

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مكتب معامل الاستشارات الهندسية
مشاريع ومقاولات
رقم التسجيل المهنى: 537 - 991 - 219
الشركه الرئيسيه ٢ شارع الملك الاسدي - الزمالك - القاهرة

111 Main E. Abadi Street
Zakia El-Dokki
Tel: 21909000 - 21909001



المكتب الهندسي
الاستشارات
مشاريع ومقاولات

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.3
37.5	1.5	93.5
25	1	80.5
19	¾	78.3
12.50	½	63.1
9.50	3/8	55.8
4.75	4	50.4
2.00	10	46.4
0.425	40	24.5

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رئيس المكتب الهندسي
الزمالك الرئيسي - 3 شارع الملك الأفضل - القاهرة
219 991 437

3 El Malek El Afridi Street
Zarialex, Cairo
Te & Fax : 27367231 - 27367093



إلى عملاءنا
الزمالك القاهرة
تليفون : 27367231 - 27367093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

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)	10.3

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مكتب معامل الاستشارات الهندسية
رقم الترخيص: 249-981-837
الركن الرئيسي 3 شارع الملك الافضل - الزمالة - القاهرة

Signature: 

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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مكتب معامل الاستشارات الهندسية
مشاريع ، الاقصر
البريد الإلكتروني : 219_992_437
Signature: 

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	46.4	Max 50 %	-----	-----
0.425 mm (No. 40).	24.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	10.3	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

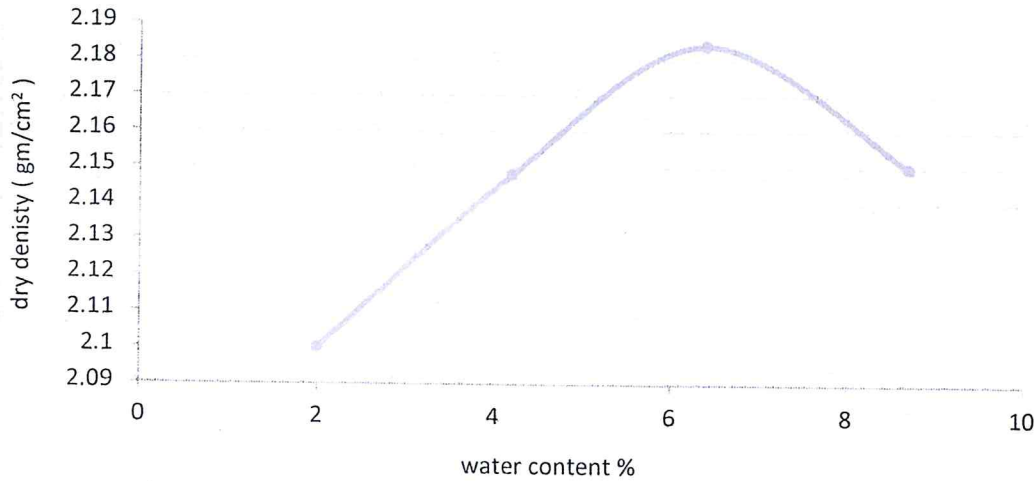
3 E-Matek El Aftal Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363093



مكتب معامل الاستشارات الهندسية
الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

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مكتب محاسن الاستشارات الهندسية
للمقاولات العامة والخاصة
219.991.437
3 شارع الملك الافضل - الزدالة - القاهرة

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



أشرف الملك الافضل
الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06


Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.19
3.18	0.125	4.05
3.81	0.150	4.71
4.45	0.175	5.27
5.08	0.200	5.55
6.35	0.250	5.72

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	46.2 %
	6.90	3.19	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50-Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

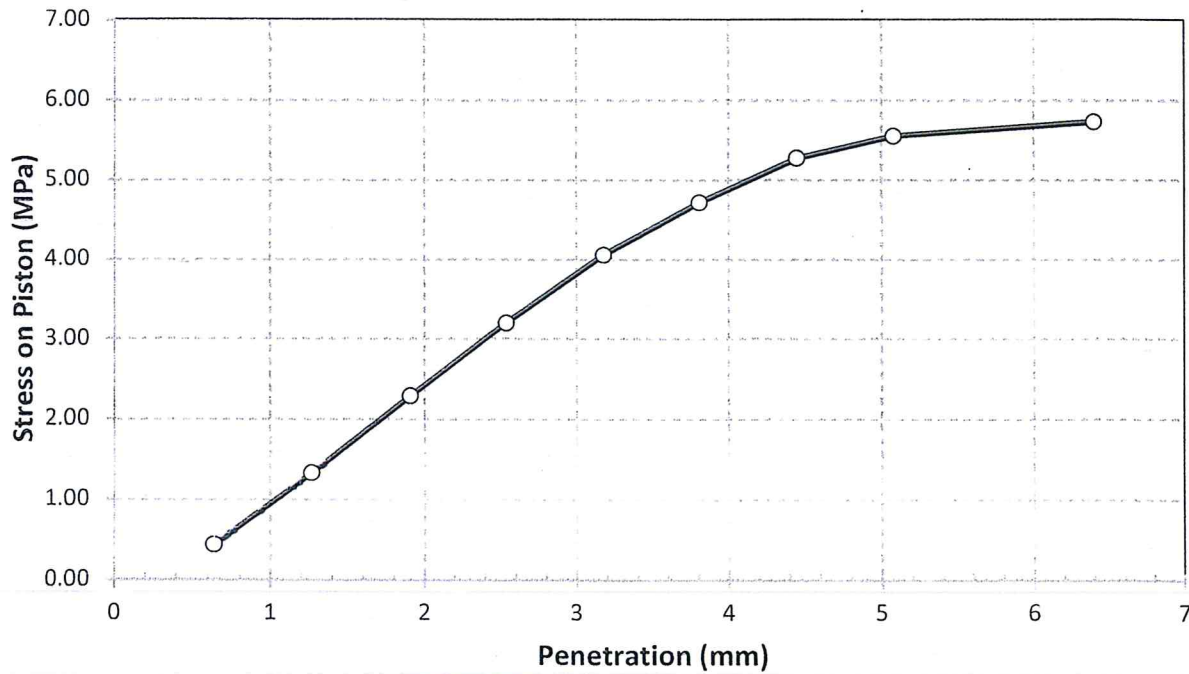
3 El Matok El Afrat Street
Zamalek, Cairo
Tel & Fax: 27367231 - 27367200



إلى السيد المهندس
الرجاء المتابعة
بالتوقيع

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /



3 El Malek El Afdal Street
Zoralek, Cairo
Tel/Fax 27367522 27367507



إلى الملك الأفطال
الزمالك القاهرة
مكتب

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 20/09/2023
Soil type : Middle Embankment
Location : ST from 651+100 To 651+120
Level : - 1.75 M
Report No. : 76-3

Compaction test by using Sand – Cone Test Method ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptanc e
1	651+110	1501	2.24	6	2.11	96.8%	Comply

- Degree of compaction based on proctor test dated At
 - Max. dry density = 2.18 gm/cm^3
 - At optimum moisture content = 6.4 %



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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركه الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 2/10/2023
Soil type : Middel Embankment
Location : ST from 651+580/651+600
Level : - 3 M
Report No. : 124

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	651+592	1524	2.30	6.4	2.16	99.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.17 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Dear Gentleman,

Attached here with the delivered on 6 / 8 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Signature /



Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.3
37.5	1.5	93.5
25	1	80.5
19	$\frac{3}{4}$	78.3
12.50	$\frac{1}{2}$	63.1
9.50	$\frac{3}{8}$	55.8
4.75	4	50.4
2.00	10	46.4
0.425	40	24.5

CEL
مكتب معامل الاستشارات الهندسية
Signature / 
رقم الترخيص: 219 991 437
المركز الرئيسي: 3 شارع الملك الأفضل - الزمالة - القاهرة

3 El Malek E Afdal Street
Zamalek, Cairo
Tel & Fax: 27367231 - 27369093



أشرف عبد الكافي
المالك القادر
تليبر : 27367231 - 27369093

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

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)	10.3

CEL
مكتب معامل الاستشارات الهندسية
Signature: 
المركز الرئيسي 3 شارع الملك الأفضل - الزمالك - القاهرة
219-9551-837

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

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مكتب معامل الاستشارات الهندسية
شروعات , الاقصر
البريد الإلكتروني : 219.991.437
Signature / 

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Soil Classification According To Project Specs :

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	46.4	Max 50 %	-----	-----
0.425 mm (No. 40).	24.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	10.3	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

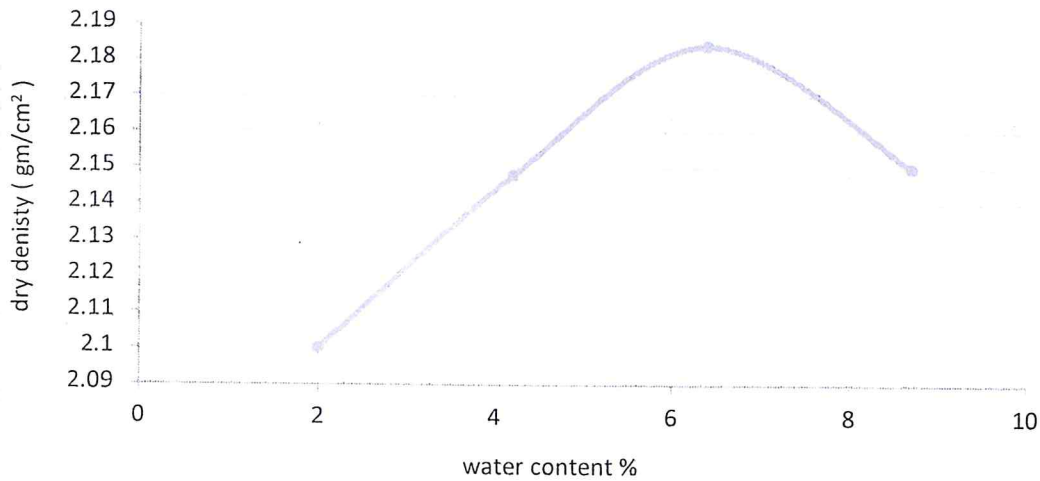
3 El Maatek E-Afrial Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363093



3 شارع الملك الافضل
الزمالة - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الكرم للمقاولات العموميه
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm²) : 2.18
- Optimum moisture content % : 6.4 %

Signature



3 El Malek El Afdel Street
Zamalek, Cairo
Tel & Fax 27367231 27363093



إلى الملك الأفدي
الملك الأفدي
تليفون ٢٧٣٦٧٢٣١ ٢٧٣٦٣٠٩٣

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06


Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.19
3.18	0.125	4.05
3.81	0.150	4.71
4.45	0.175	5.27
5.08	0.200	5.55
6.35	0.250	5.72

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	46.2 %
	6.90	3.19	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.18 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature : 

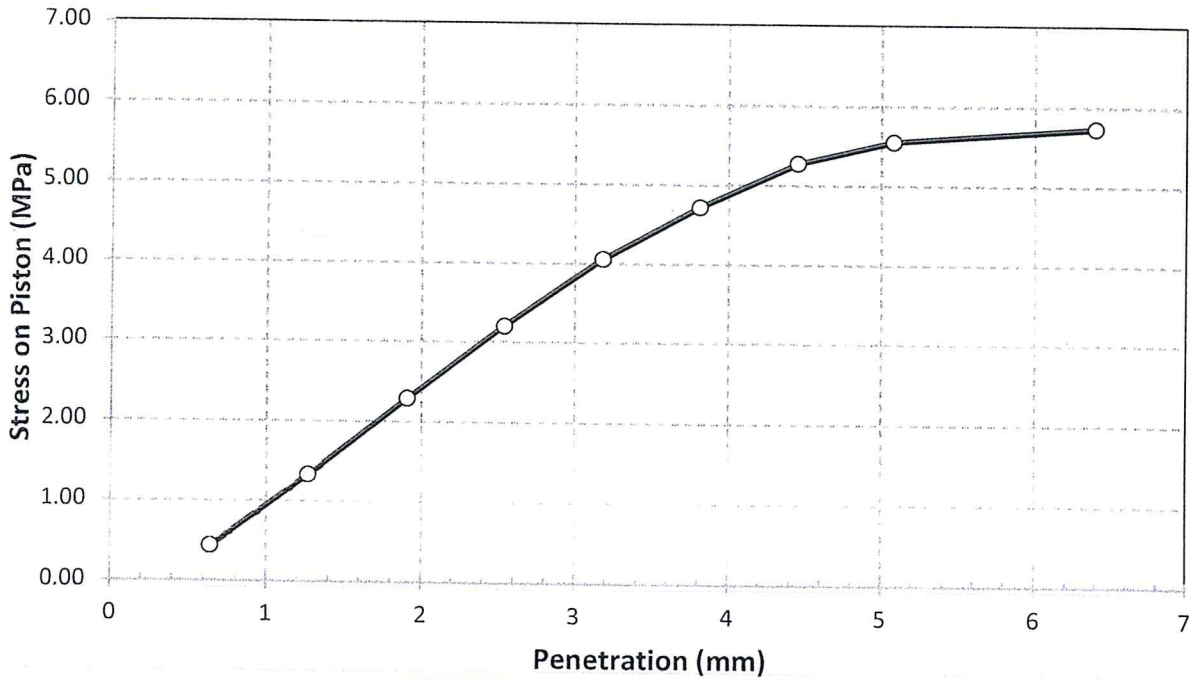
3 El Malek El Afrat Street
Zamalek, Cairo
Tel & Fax 2736723 27369000



إدارة الجودة
إدارة الموارد البشرية
إدارة المشتريات

Company Name : شركة الكرم للمقاولات العمومية
Project : Electric Express Train – HSR From Qous To Armant
Location : St: 651+500 E= 488952.1897 N=2853742.8853
Type of sample : Soil Embankment
Delivery Date : 06/08/2023
Reporting Date : 10/08/2023
Reporting No. : 06

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

