

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 16/7/2023
Soil type : Soil Embankment
Location : ST From 641+000 To 641+140
Level : -4.0 M
Report No. : 03

**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	641+020	1500	2.19	5	2.08	97.8%	Comply
2	641+100	1432	2.19	5.3	2.08	97.5%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

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Signature
219.937.437
المركز الرئيسي - 3 شارع الملك فيصل - القاهرة

3 El Malek El Aktal Street
Zamalek, Cairo
Tel& Fax - 27367201 - 27363693



إدارة المخابر
القاهرة
27367201 - 27363693

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Dear Gentleman ,

Attached here with the delivered on 18 / 5 / 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

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

Signature 
مكتب معامل الاستشارات الهندسية
مشاريع وخدمات الاستشارات
210/991.437
القاهرة - شارع الملك الامل - الزمالة - القاهرة

3 E Malek El Afdal Street
Zerzales, Cairo
Tel/Fax : 27367501 - 27363550



شركة المعاملات الهندسية
القاهرة - شارع الملك الامل
210/991.437 - 27363550

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	98.8
19	¾	96.2
12.50	½	92.2
9.50	3/8	88.8
4.75	4	82.4
2.00	10	74.4
0.425	40	38.5

Signature /



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Zornalok, Cairo
Tel & Fax: 22367531 - 22363663



شركة المعامل الهندسية
أرمانت - القاهرة
تليفون : 22367531 - 22363663

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	10.7

Signature



3 El Malek El Ahdal Street
Zakaria, Cairo
Tel & Fax: 27367231 - 27369693



إلى السيد المهندس
إلى السيد المهندس
إلى السيد المهندس

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

**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:  مكتبة محمد عبد الحليم
مشاريع واستشارات الهندسية
219-891-437
المركز الرئيسي 3 شارع الملك الأفطى - القاهرة

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	74.4	Max 50 %	-----	-----
0.425 mm (No. 40).	38.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	10.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature


مهندس مسئول
219-901-437
3 شارع الملك الافضل - القاهرة

3 El Malek El Aldai Street
Zamalek, Cairo
Tel& Fax 27367211 - 27363093



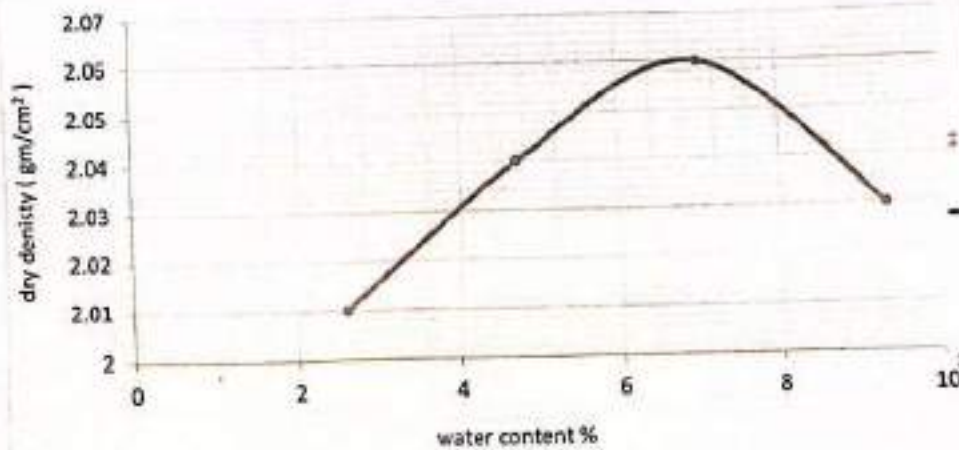
شركة الهندسة الاستشارية
المعتمدة
بمصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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



- Max dry density (gm/cm³) : 2.06
- Optimum moisture content % : 7.0 %

Signature

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مكتب معامل الاستشارات الهندسية
3 شارع الملك فيصل - الرياض
تليفون : 3690319
فاكس : 3690319

3 E Malek E Abdel Street
Zamalek, Cairo
Tel & Fax 27367231 - 27363000

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ACCREDITED
Testing Laboratory

أشرف العالم الاندس
إبراهيم النافذ
مهندس

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
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Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
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12.50	½	92.2
9.50	3/8	88.8
4.75	4	82.4
2.00	10	74.4
0.425	40	38.5

CEL
مكتب معامل الاستشارات الهندسية
مشروعات الري والقنوات
219, 991, 437
Signature: 

8 El Malek El Akdat Street
Zamalek, Cairo
Tel & Fax: 27397551 - 27397550



شركة الذهبى للاستشارات
الهندسية
مكتب معامل الاستشارات الهندسية

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	10.7

Signature: 
مكتب معامل الاستشارات الهندسية
3 شارع الملك الافضل - الدقي - القاهرة
البريد الإلكتروني: info@cel-eg.com
الهاتف: 0111 433 4333

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.22
1.27	0.050	0.61
1.91	0.075	1.01
2.54	0.100	1.46
3.18	0.125	1.74
3.81	0.150	1.85
4.45	0.175	1.76
5.08	0.200	1.58
6.35	0.250	1.19

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	21.2 %
	6.90	1.46	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.06 (gm /cm³)
At = 7.0 % optimum water content.
- 3- Surcharge Load = 150 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature : 

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Dear Gentleman,

Attached here with the delivered on 18 / 5 / 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

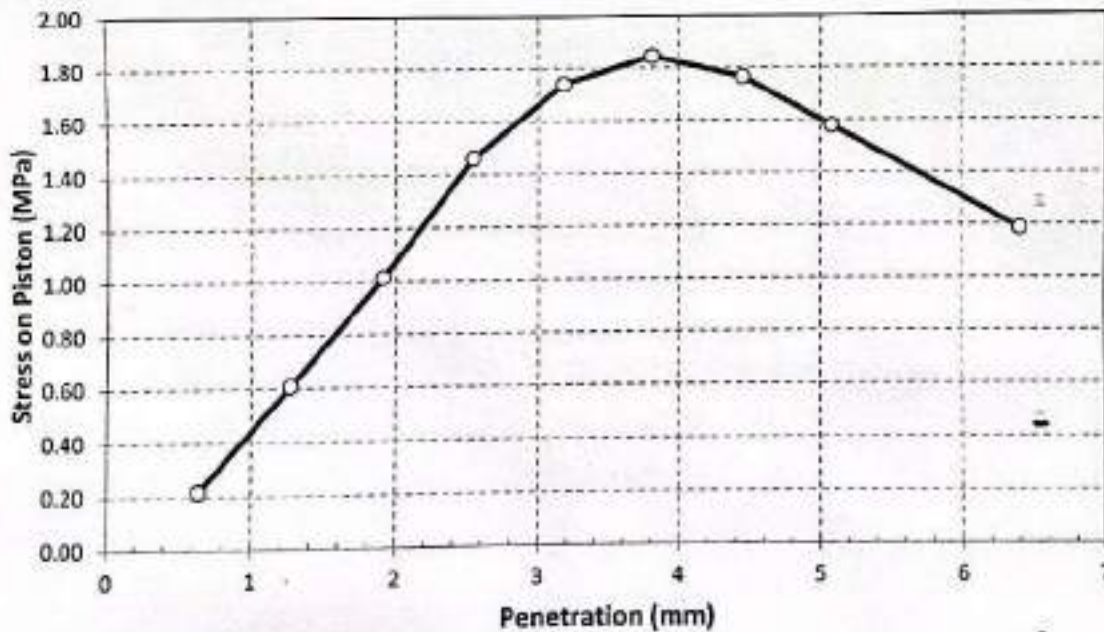
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /

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مكتب معامل الاستشارات الهندسية
شركة الذهبى
الزكى الرئيس 3 شارع الملك الافضل - الزمالة - القاهرة

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Load Penetration Curve of CBR Test
ASTM D-1883



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Zamalek, Cairo
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الممثل
إدارة القاهرة
27367231 - 27363093
القاهرة - مصر

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 20/7/2023
Soil type : Middle Embankment
Location : St From 641+100 To 641+160
Level : -3.5 M
Report No. : 08

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	641+110	1472	2.13	5.3	2.02	98.0%	Comply
2	641+140	1471	2.10	5.8	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 = 7.0 %

Signature: 
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437

3 El Maak El Ahd Street
Zamalek, Cairo
Tel & Fax : 0236720 / 02365300

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Testing Laboratory

إدارة المختبر
مختبر التربة
مختبر البترول
مختبر المياه

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

**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
Signature: 
رقم التسجيل: 19951.437
المركز الرئيسي: 3 شارع الملكة العاتكة - القاهرة

Location Name	Contractor Company	Designer Company
From 641+000 to 641+100	EL-ZAHABY contraction	(SPECTRUM) Engineering Consulting Office
Name	Sign	Date

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	74.4	Max 50 %	-----	-----
0.425 mm (No. 40).	38.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	10.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

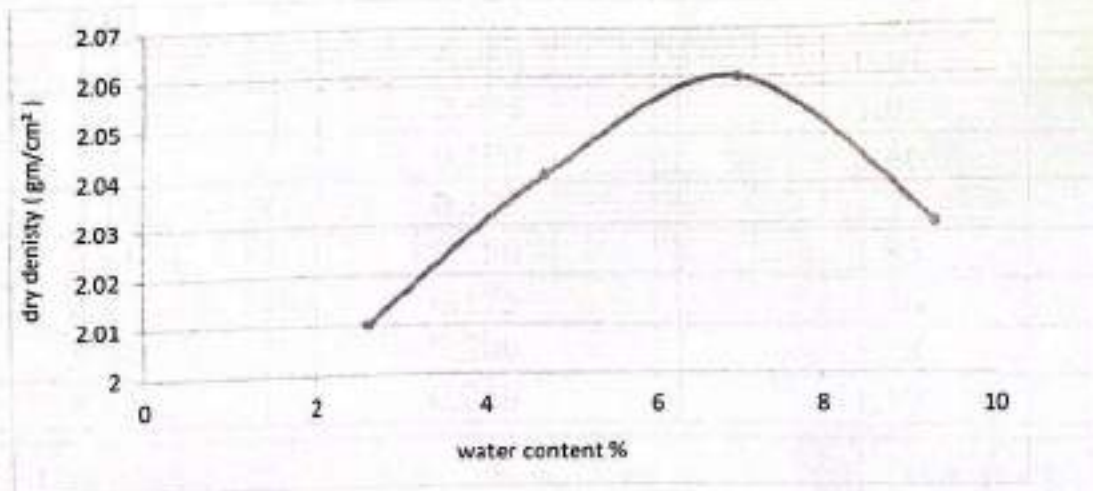
The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature

CEL
مكتب معامل الاستشارات الهندسية
3 شارع الملك الافضل - الهرم - القاهرة
2493999

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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



- Max dry density (gm/cm³) : 2.06
- Optimum moisture content % : 7.0 %

Signature

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Tel & Fax : 27367631 - 27367693



مكتب الاستشارات الهندسية
مركز التحليل
مكتب معامل الاستشارات الهندسية

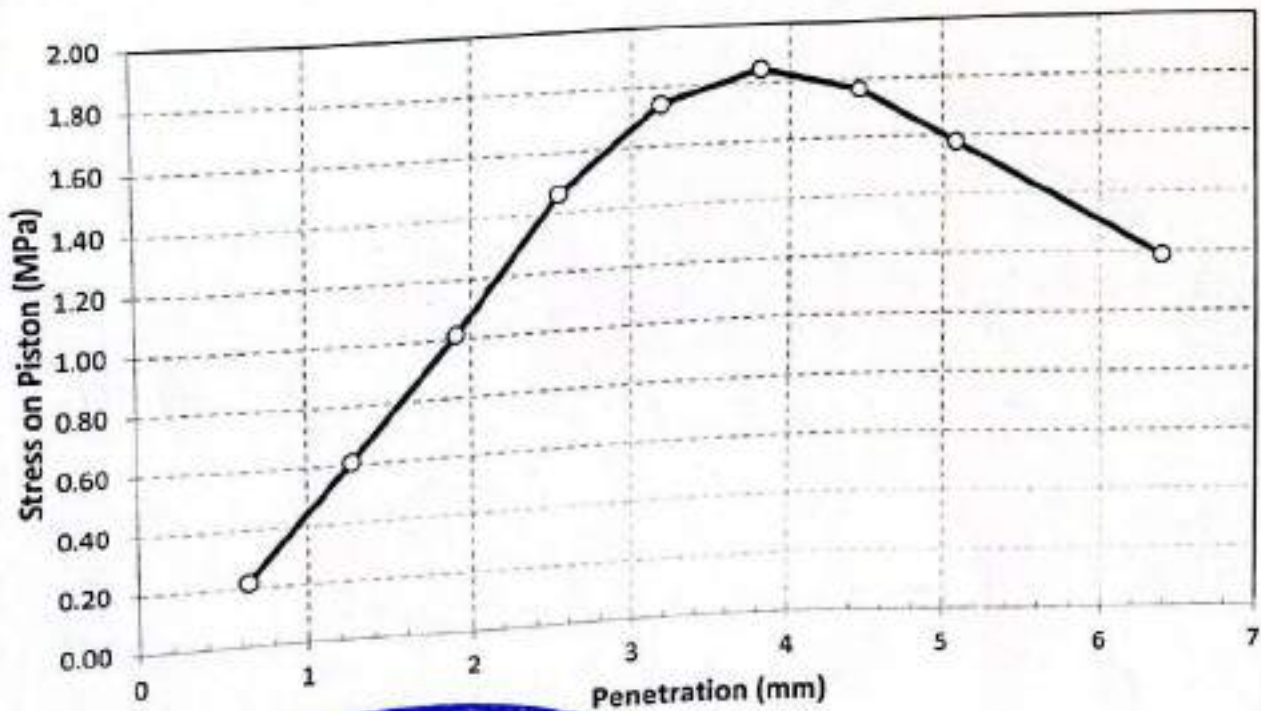
CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Load Penetration Curve of CBR Test ASTM D-1883



Signature

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مكتب معامل الاستشارات الهندسية
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IAS

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 19/7/2023
Soil type : Middle Embankment
Location : ST From 641+000 To 641+100
Level : -3.5 M
Report No. : 07

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	641+030	1380	2.09	5.8	1.98	96.1%	Comply
2	641+070	1526	2.10	5.3	1.99	96.7%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.06 gm/cm³
- At optimum moisture content = 7.0 %

Signature :



3 El Malek El Akda Street
Zamalek, Cairo
Tel & Fax : 27397251 / 27397243



Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.22
1.27	0.050	0.61
1.91	0.075	1.01
2.54	0.100	1.46
3.18	0.125	1.74
3.81	0.150	1.85
4.45	0.175	1.76
5.08	0.200	1.58
6.35	0.250	1.19

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	1.46	21.2 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.06 (gm /cm³)
- 3- At 7.0 % optimum water content.
- 4- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

3 E Mylek E Atadol Street
Zurich, Cairo
Tel: 27307231 - 27307230



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 25/7/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.5 M
Report No. : 11

**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	641+240	1557	2.10	5.8	1.99	95.4%	Comply
2	641+280	1767	2.10	5.8	1.98	95.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 7.0 %

Signature /

3 El Mark El Akki Street
Zamalek, Giza
Tel. Fax : 27366251 - 27366313



* في مكتبنا
 * في مكتبنا
 * في مكتبنا

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Dear Gentleman ,

Attached here with the delivered on 20 / 7 / 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

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

Signature /

مكتب معامل الاستشارات الهندسية
التحاليل الكيميائية
المركز الرئيسي 3 شارع البنك الاهلى - الزقازيق - مصر
2019

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	97.3
19	3/4	95.4
12.50	1/2	91.6
9.50	3/8	87.4
4.75	4	81.5
2.00	10	71.3
0.425	40	36.8

Signature 

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Zamalek, Cairo
Tel & Fax: 27367231 - 27369693



شركة الهندسة والاستشارات
مكتب معامل الاستشارات الهندسية
2023/7/24

Company Name : شركة الذهبي
 Project : Electric Express Train – HSR From Qous To Armant
 Location : (ST: 641+100) E=32.9226620 N=25.8862030
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 20/7/2023
 Reporting Date : 24/7/2023
 Reporting No. : 05-2

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)	11.4


 مكتبة معامل الاستشارات الهندسية
 3 شارع النيل - القاهرة - مصر
 Signature / *[Handwritten Signature]*
 المهندس / *[Handwritten Name]*

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10).	71.3	Max 50 %	-----	-----
0.425 mm (No. 40).	36.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

3 E. Malek E. Afdal Street
Zamalek, Cairo
Tel & Fax: 2/3652211 - 2/3630093



ش.م.ب. الهندسة والاستشارات
البريد الإلكتروني: cel@cel.net.eg
www.cel.net.eg

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

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: 
Mohamed Elmaghrabi
310-901-437
3 شارع 1000 الاقصر - الأقصر

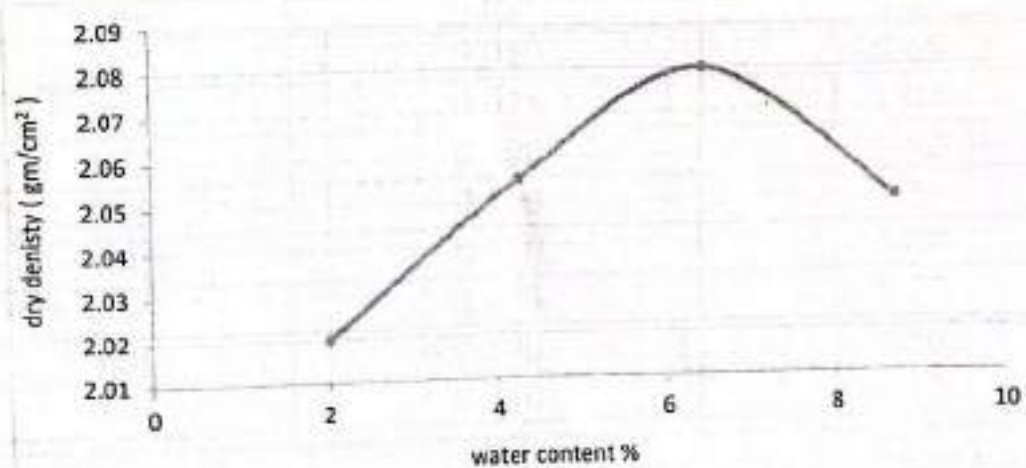
3 E Malek El Afoua Street
Zakaria, Cairo
Tel & Fax: 27362131 - 27362180



أشرف المهندس الإحصائي
أحمد محمد
أحمد محمد
أحمد محمد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

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



- Max dry density (gm/cm³) : 2.08
- Optimum moisture content % : 6.4 %

Signature

3 El Maialek El Ahtal Street
Zamalek, Cairo
Tel & Fax: 27367237 - 27363093



شركة الهندسة
المصرية
للدراسات والدراسات
والدراسات

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

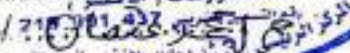
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.07
2.54	0.100	1.52
3.18	0.125	1.78
3.81	0.150	1.88
4.45	0.175	1.77
5.08	0.200	1.56
6.35	0.250	1.12

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value	Sample results	
At 0.1 inch (2.54 mm) penetration	6.90	1.52	22 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.08 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 450 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature : 

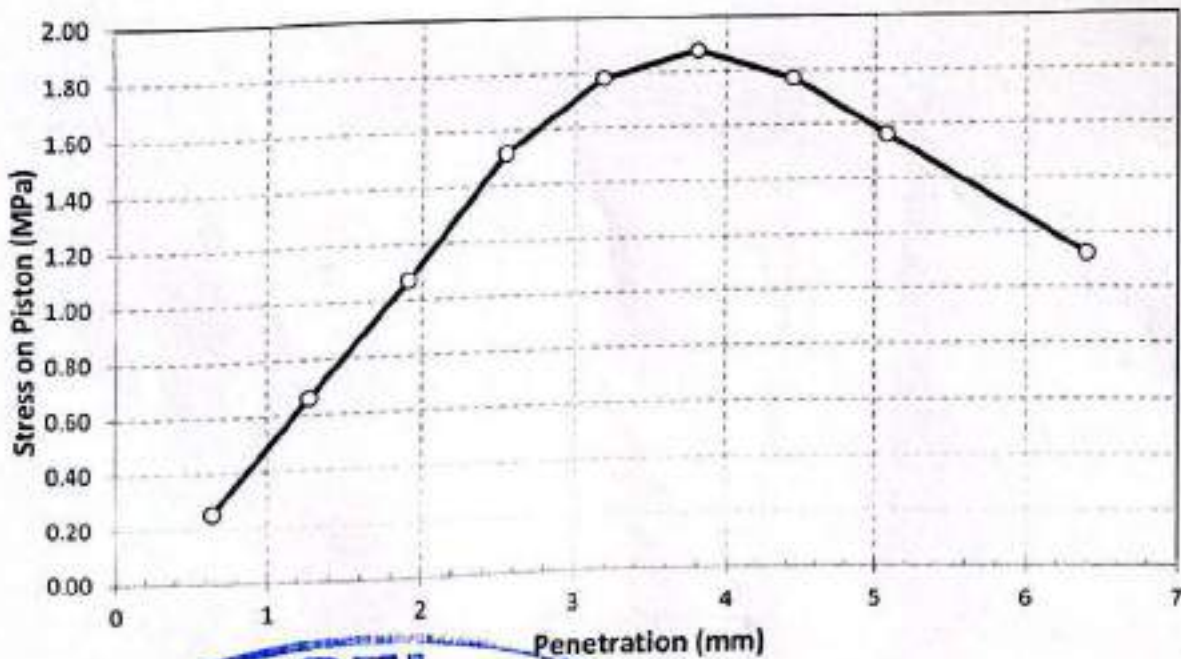
3 E. Magdy E. Atja El-Sher
Zamalek, Cairo
Tel & Fax: 23367221 - 23367603



مركز الاختبارات
البيانات
البيانات

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test
ASTM D-1883



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مكتب معامل الاستشارات الهندسية
شروعات الاعمال
219 9000 0000
Signature: [Signature]

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 18/7/2023
Soil type : Soil Embankment
Location : ST: From 641+240 To 641+300
Level : -5.0 M
Report No. : 05

**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	641+260	1505	2.17	5.8	2.05	99.7%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.06 gm/cm³
- At optimum moisture content = 7.0 %

Signature: 
مكتب معامل الاستشارات الهندسية
219, 991.437
شارع الملك الافضل - الهرم - الجيزة
البريد الإلكتروني: info@cel.com.eg

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Zamalek, Cairo
Tel & Fax: 27366231 - 27366603



مكتب معامل الاستشارات الهندسية
الهرم - الجيزة
Tel: 27366231 - 27366603
Fax: 27366231

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 26/7/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+100
Level : -3.0 M
Report No. : 13

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	641+040	1923	2.09	5.5	1.98	95.3%	Comply
2	641+080	1298	2.17	5.8	2.05	98.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

3 E. Malek E. Abd El Shady
Zorobela, Cairo
Tel & Fax : (202) 6325 - 4558/5940



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 01/08/2023
Soil type : Middle Embankment
Location : St From 641+100 To 641-160
Level : -3 M
Report No. : 22

**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	641+120	1414	2.13	5.8	2.01	96.8%	Comply
2	641+140	1446	2.14	5.8	2.03	97.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 6.4 %

Signature

مكتب معامل الاستشارات الهندسية
عبد الرحمن محمد
إبراهيم
3 شارع الملك الافندي - الهرم - القاهرة

5 El Malek El Afendi Street
Zamalek, Cairo
Tel: 22962701 - 22962700



شركة الاستشارات
الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 05/08/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.0 M
Report No. : 26

**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	641+250	1574	2.19	6.4	2.06	96.7%	Comply
2	641+280	1581	2.13	5.2	2.03	95.2%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

Signature /


مكتبة محمد المصطفى
مهندس استشاري
219.991.437
الرقم القومي 3 شارع الملك الافضل - الزمالة - القاهرة

3 El Malak E Afadl Street
Zamalek, Cairo
Tel/Fax: 22664722 - 22669660



شركة الاستشارات
الهندسية
مكتبة محمد المصطفى
219.991.437

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman ,

Attached here with the delivered on 22 / 7 / 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

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

Signature /



3 El Mark El Afia Street
Zakaria, Cairo
Tel & Fax: 27367231 - 27367693



إشراف المهندس
إشراف المهندس
إشراف المهندس
إشراف المهندس

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	¾	90.0
12.50	½	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

CEL
مكتب معامل الاستشارات الهندسية
Signature: *[Handwritten Signature]*
21/07/2023
رقم الترخيص 3 شارع النيل - القاهرة - الجيزة

3 El Malek El Afrik Street
Zakaria, Cairo
Tel: 22767521 - 22767599



مركز التحليلات
البيئية
مركز التحليلات
البيئية

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

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)	11.3


Signature

3 E Males El Akl Street
Zarqa, Gao
Tel & Fax: 2756720 - 2756303

IAS
ACCREDITED
Testing Laboratory

المعتمد
الاعتماد
التفويض

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

**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

CEL
مكتب معامل الاستشارات الهندسية
Signature: 
219 09 432
تميز القياس 3 شارب لنت افضل - التوافق

SE. Mady El-Abedi Street
Zamalek, Cairo
Toll Free: 177552000 177552001



المرادف للمعيار
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المرادف للمعيار



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10).	72.91	Max 50 %	-----	-----
0.425 mm (No. 40).	39.87	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature

YE HANKE E APKJ EHHG
Zuradon, G0000
To A 3-04 2734720 2734720

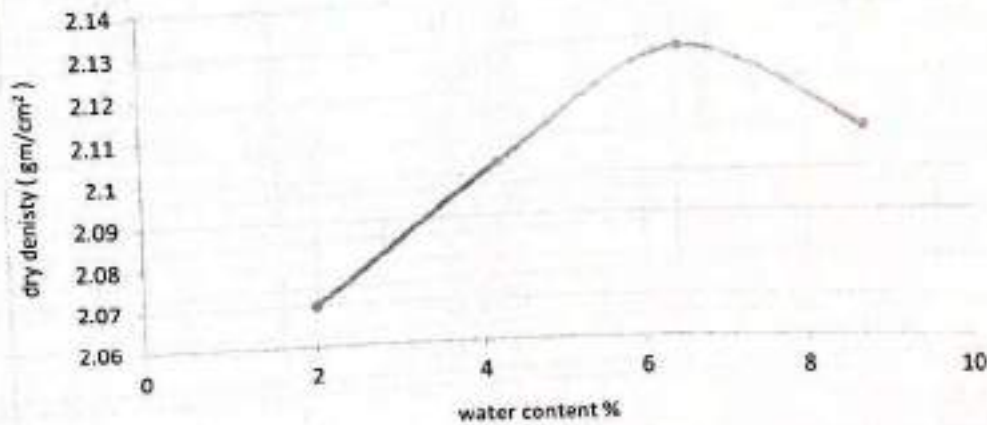


CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

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



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

3 El Malek El Attou Street
Zewail, Cairo
Tel & Fax: 2296750 - 22963293



شركة المعامل الهندسية
الزمالك - القاهرة
الهاتف : 22967500 - 22963293

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

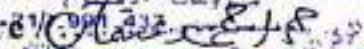
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.90	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (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 : 

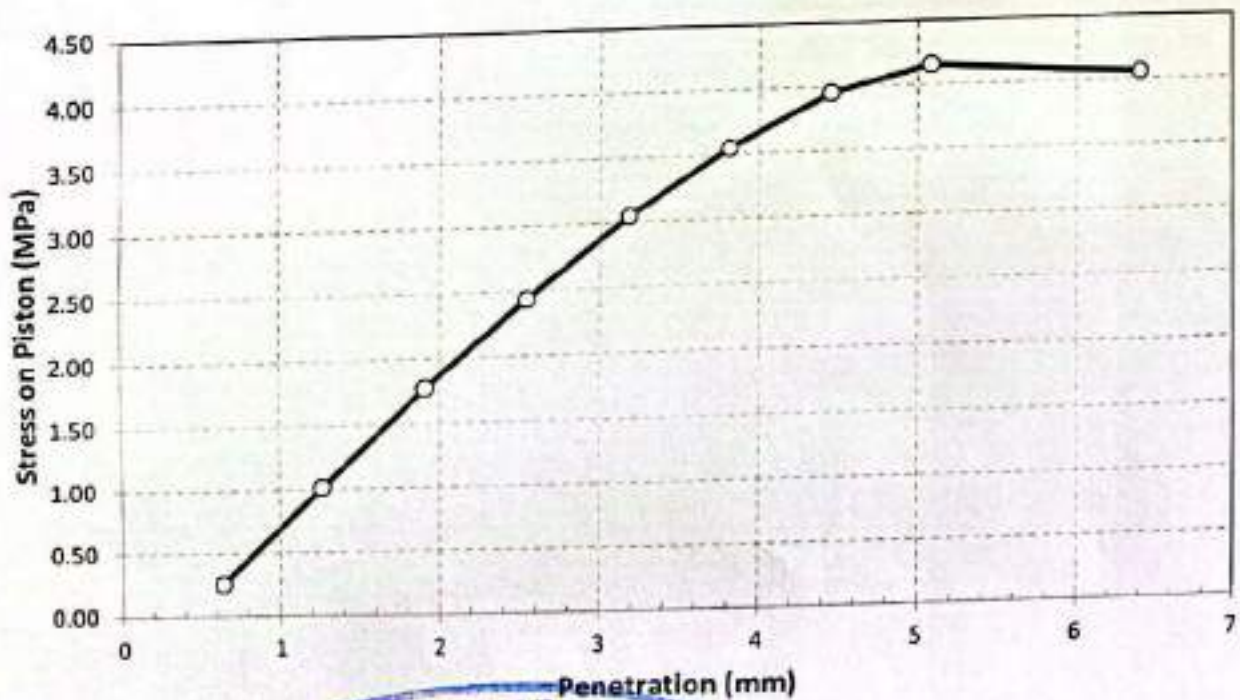
1E MCH E 07/01/2007
Zurab, Cairo
Tel & Fax: 2736753 - 2736350



إدارة المختبر
المعامل الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test
ASTM D-1883



Signature

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شركة الذهبي
الرياض - المملكة العربية السعودية
الهاتف : 011 444 1111
الفاكس : 011 444 1112
البريد الإلكتروني : info@cel-saudi.com


Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 12/08/2023
Soil type : Middle Embankment
Location : St From 641+180 To 641+300
Level : - 3.5 M
Report No. : 32

**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	641+200	1352	2.17	5.5	2.06	96.1%	Comply
2	641+250	1488	2.20	5.5	2.09	97.6%	Comply
3	641+280	1369	2.20	5.5	2.09	97.5%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 

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



شركة المالك الأخضر
الرياضة القاهرة
الهاتف : 27367231 - 27363093

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26 / 7 / 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

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

Signature


مكتب معامل الاستشارات الهندسية
شارع الملك الاكبر 3 شارع الملك الاكبر - الزمالة - القاهرة
رقن التليفون 210.991.437

S. E. Monek E. Attia Street
Zamalek, Cairo
Tel: Fax 2138/201 22/969050



شركة الاستشارات الهندسية
مكتب معامل الاستشارات الهندسية
شارع الملك الاكبر 3 شارع الملك الاكبر - الزمالة - القاهرة

CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	½	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature / ...



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 Consulting Engineering Bureau & Laboratories
 مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
 Project : Electric Express Train – HSR From Qous To Armant
 Location : (ST: 641+100) E=32.9226620 N=25.8862030
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 26/7/2023
 Reporting Date : 30/7/2023
 Reporting No. : 05-4

**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 الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	70.1	Max 50 %	-----	-----
0.425 mm (No. 40).	35.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



3 El Maadi E 4th St
Zamalek, Cairo
Tel & Fax: 27367527 - 27363593



المعتمد
مركز القاهره
القياسي
27367527 - 27363593

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

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

Signature



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	36 %
	6.90	2.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (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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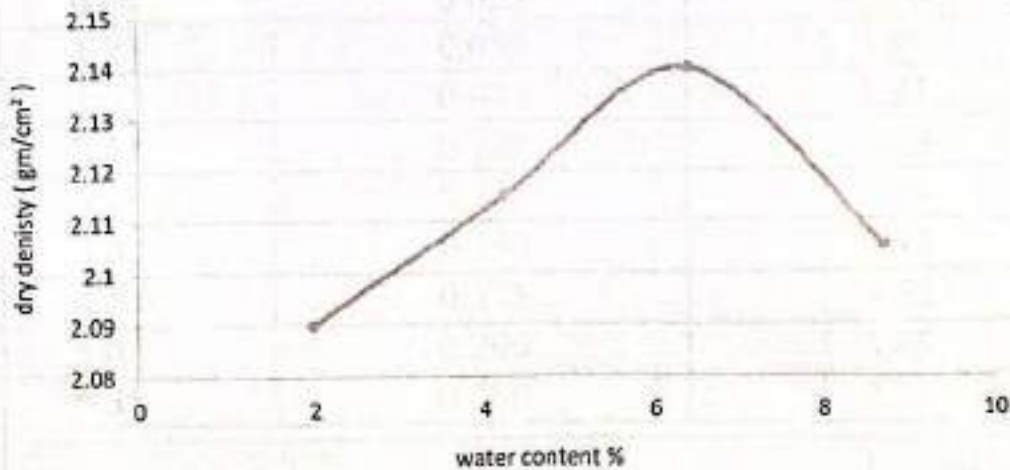
CEL

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

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



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

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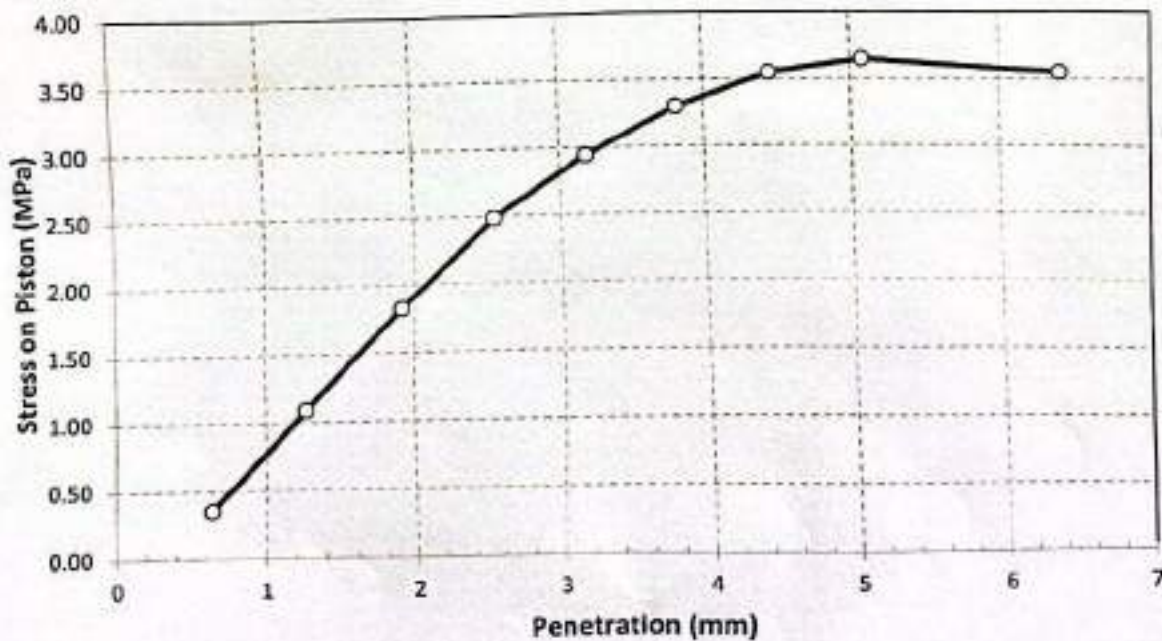
CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test

ASTM D-1883



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شركة الذهبي

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مكتب معامل الاستشارات الهندسية

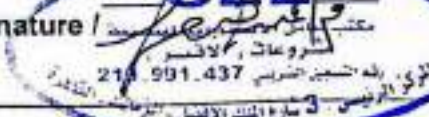
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 15/08/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : - 3.0 M
Report No. : 35

**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	641+200	1370	2.19	5.8	2.07	96.7%	Comply
2	641+220	1506	2.18	5.8	2.06	96.2%	Comply
3	641+280	1378	2.23	5.8	2.11	98.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

Signature : 
218 991 437

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Zamalek, Cairo
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٢ شارع الملك الادل
الزمالك القاهرة
هاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Dear Gentleman,

Attached here with the delivered on 4 / 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

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

Signature



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Zamalek, Cairo.
Tel& Fax 27367231 27367293



إشعار العميل
إشعار العميل
إشعار العميل

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	89.6
25	1	83.4
19	¾	82.3
12.50	½	81.3
9.50	3/8	80.9
4.75	4	72.6
2.00	10	56.3
0.425	40	31.4

Signature

[Handwritten Signature]



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شركة الذهبى للاستشارات
الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

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)	13.8

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تليفون : 27367231 - 27363093

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

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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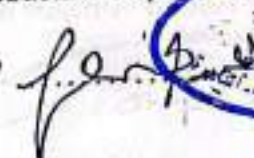
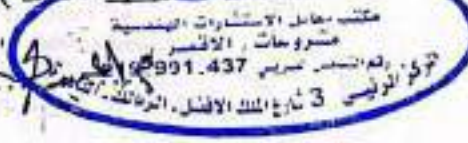
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10).	56.3	Max 50 %	-----	-----
0.425 mm (No. 40).	31.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	13.8	Max 15 %	Max 15 %	Max 15 %
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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شركة معامل الاستشارات الهندسية
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هاتف - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٩٠٩٣

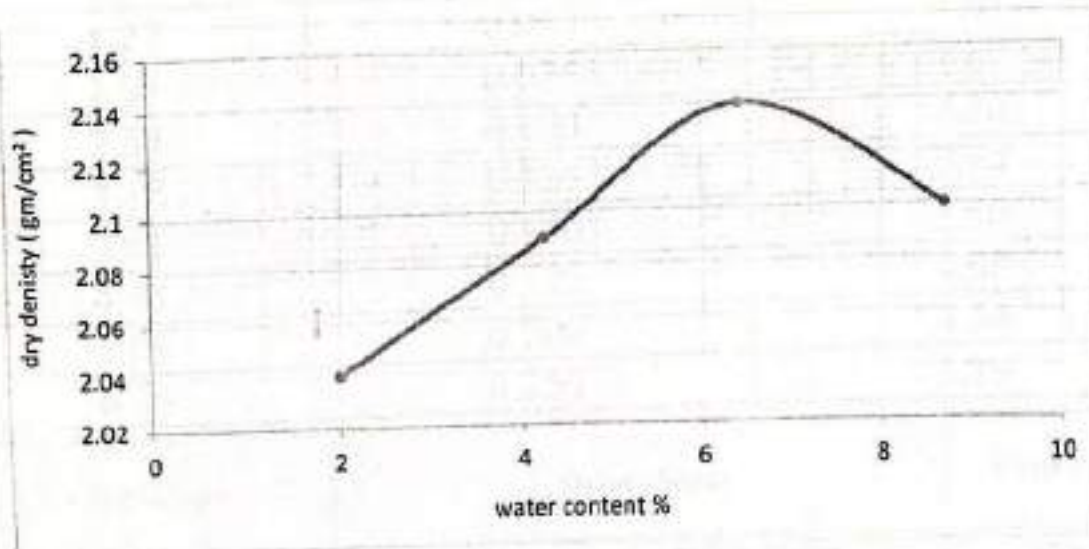
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Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

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



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature



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ش.م.ب. المعامل الاستشارية
القاهرة - مصر
219.901.437 - 219.901.437

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.26
1.27	0.050	1.01
1.91	0.075	1.67
2.54	0.100	2.28
3.18	0.125	2.94
3.81	0.150	3.50
4.45	0.175	4.08
5.08	0.200	4.54
6.35	0.250	5.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	33.1 %
	6.90	2.28	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load = 50 Kg
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

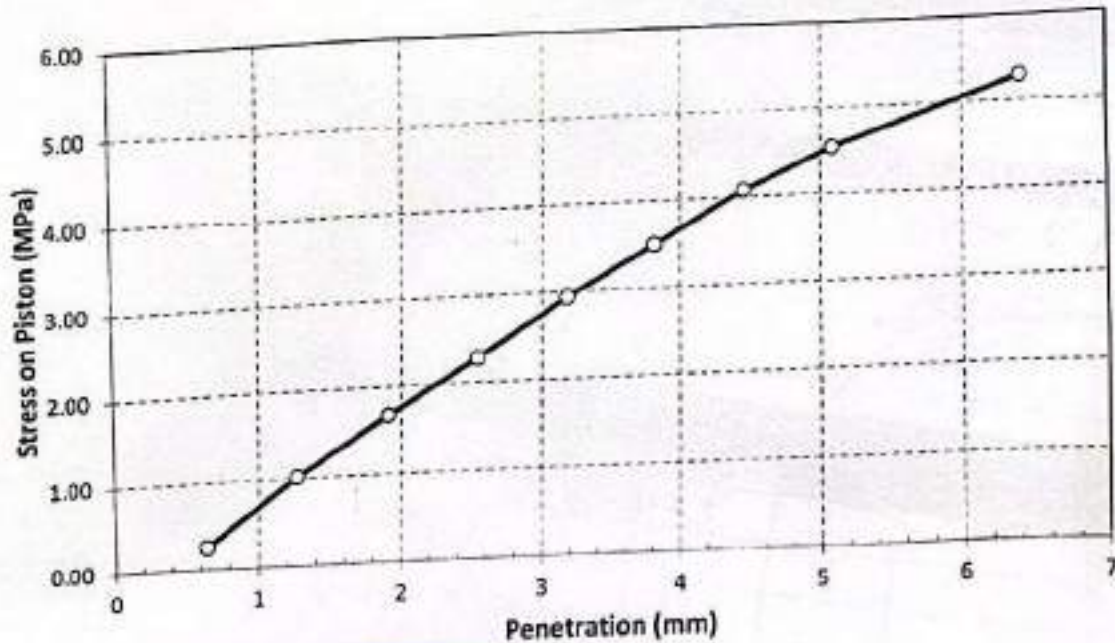
Signature

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Tel & Fax : 27367231 - 27363693



Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature 
مهندس محمد عبد الله السيد
مكتب الاستشارات الهندسية
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فاكس : 991.437 - 991.437

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شركة الملك فيصل
للإستشارات الهندسية
مكتب - القاهرة
تليفون : 991.437 - 991.437

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 14/08/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+160
Level : - 2.5 M
Report No. : 34

**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	641+020	1410	2.21	5.8	2.09	97.8%	Comply
2	641+070	1376	2.20	5.8	2.08	97.2%	Comply
3	641+150	1570	2.26	5.8	2.13	99.6%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature / 

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* في المكتب الاستشاري
الزراعة القاهرة
للمقاولات والبناء

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 20/08/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+160
Level : - 2.0 M
Report No. : 39

**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	641+030	1344	2.24	5.8	2.12	99.0%	Comply
2	641+080	1438	2.23	5.8	2.11	98.6%	Comply
3	641+120	1408	2.22	5.8	2.09	97.9%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

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Zamalek, Cairo.
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شركة الملك الأفدال
الزمالك - القاهرة
الهاتف : 27367231 - 27363093



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Dear Gentleman,

Attached here with the delivered on 4 / 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

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

Signature



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Zamalek, Cairo.
Tel & Fax: 27367211 - 27369093



شركة التأمين
البحرية العامة
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Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97
25	1	90
19	¾	85.4
12.50	½	77.2
9.50	3/8	73.3
4.75	4	69.6
2.00	10	58.5
0.425	40	40.7

Signature /.....

 The stamp is an oval shape with the CEL logo at the top. Below the logo, there is Arabic text: "مكتب الاستشارات الهندسية", "219 991 437", and "شارع الملك فيصل - القاهرة".

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الزمالك - القاهرة
تليفون - فاكس : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

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)	14.0

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القاهرة - القاهرة
تليفون - فاكس : 27367231 - 27363093

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

**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

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تليفون : 27367201 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.45
1.27	0.050	1.00
1.91	0.075	1.52
2.54	0.100	2.11
3.18	0.125	2.53
3.81	0.150	2.96
4.45	0.175	3.39
5.08	0.200	3.71
6.35	0.250	4.33

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	30.6%
	6.90	2.11	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (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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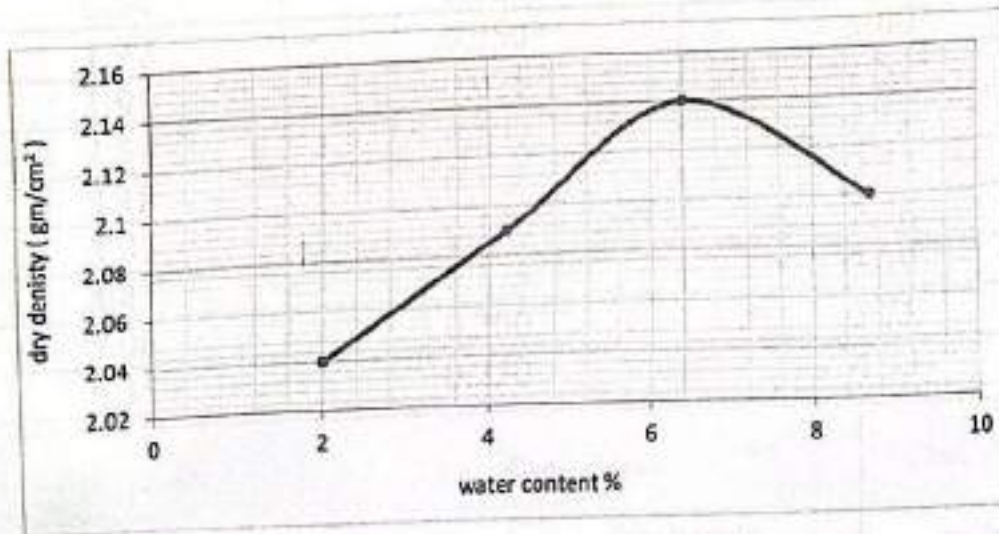
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Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

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



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10).	58.5	Max 50 %	-----	-----
0.425 mm (No. 40).	40.7	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	14.0	Max 15 %	Max 15 %	Max 15 %
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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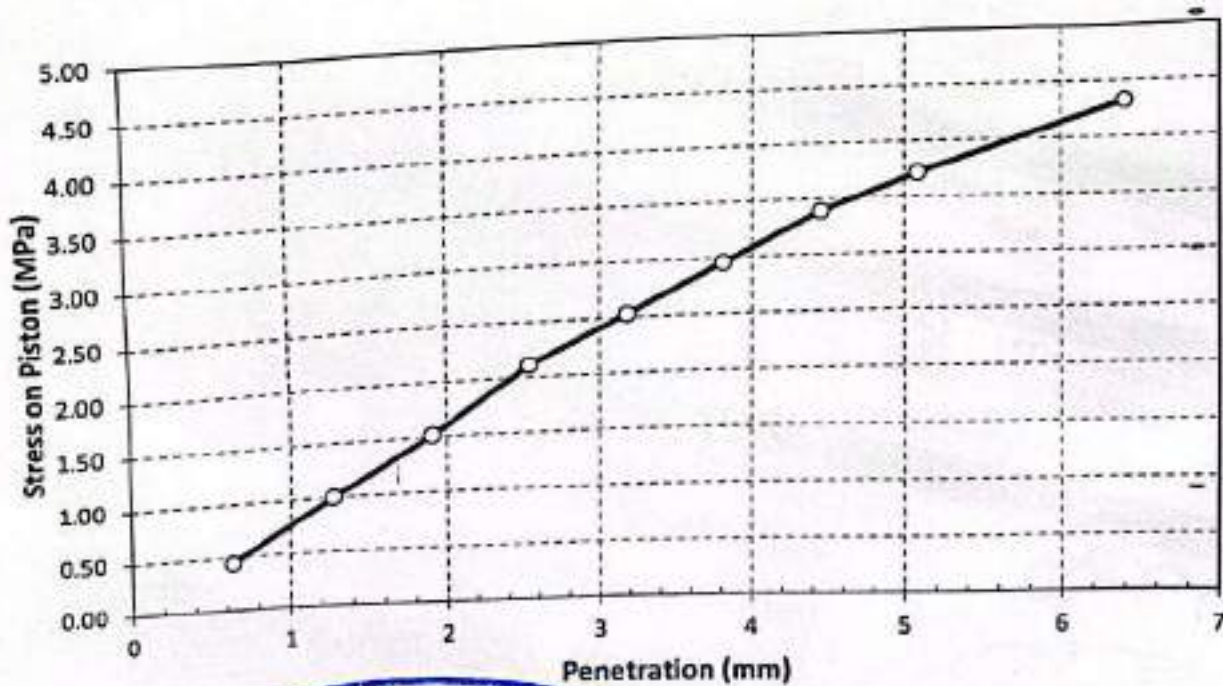
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البريد الإلكتروني: info@cel.com.eg
الهاتف: 219 991 437 - 219 991 438

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Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Load Penetration Curve of CBR Test ASTM D-1883



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27367231 - 27363093


Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 20/08/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : - 2.5 M
Report No. : 40

**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	641+190	1497	2.21	5.8	2.08	96.9%	Comply
2	641+240	1486	2.19	5.8	2.07	96.3%	Comply
3	641+280	1508	2.21	5.8	2.09	97.0%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.15 gm/cm³
- At optimum moisture content = 6.4 %

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هاتف - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant -
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Dear Gentleman,

Attached here with the delivered on 14 / 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

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

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.5
25	1	88.3
19	¾	77.8
12.50	½	70.3
9.50	3/8	66.7
4.75	4	61.6
2.00	10	47.8
0.425	40	28.1

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رقم الترخيص الهندسي 437
المركز الرئيسي 3 شارع الملك الافضل - الهرم - القاهرة

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

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)	13.5

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

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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مهندس محامل الاستشارات الهندسية
3 شارع الملك الافضل - القاهرة

3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax: 27367231 - 27363063



ش الملك الافضل
القاهرة - القاهرة
تليفون - فاكس : 27367231 - 27363063

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10).	47.8	Max 50 %	-----	-----
0.425 mm (No. 40).	28.1	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	13.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

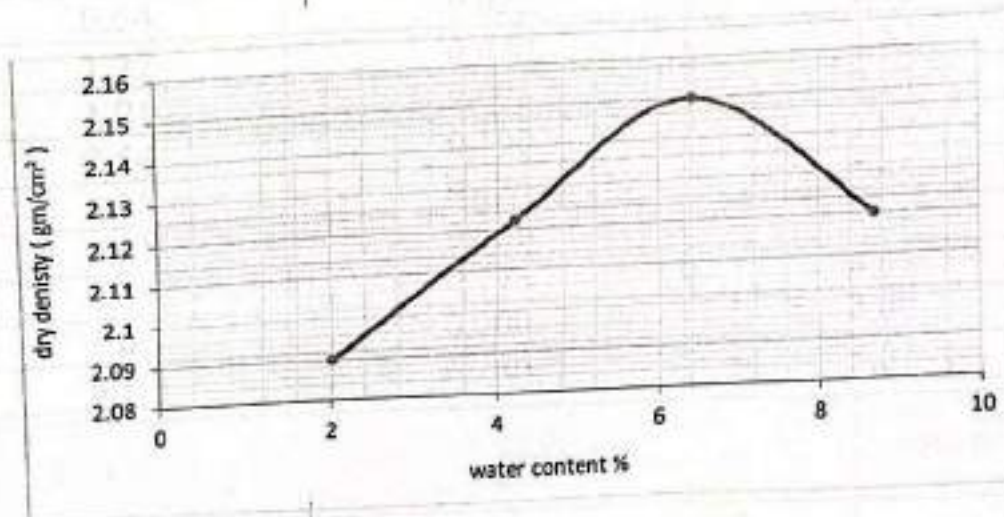
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شركة المعامل الاستشارية
الزمالك - القاهرة
الهاتف - الفاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

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 %

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

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

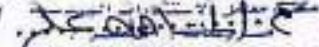
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.75
1.27	0.050	1.52
1.91	0.075	2.23
2.54	0.100	2.99
3.18	0.125	3.65
3.81	0.150	4.21
4.45	0.175	4.67
5.08	0.200	4.97
6.35	0.250	5.07

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	43.4 %
	6.90	2.99	

Notes:

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

Signature / 

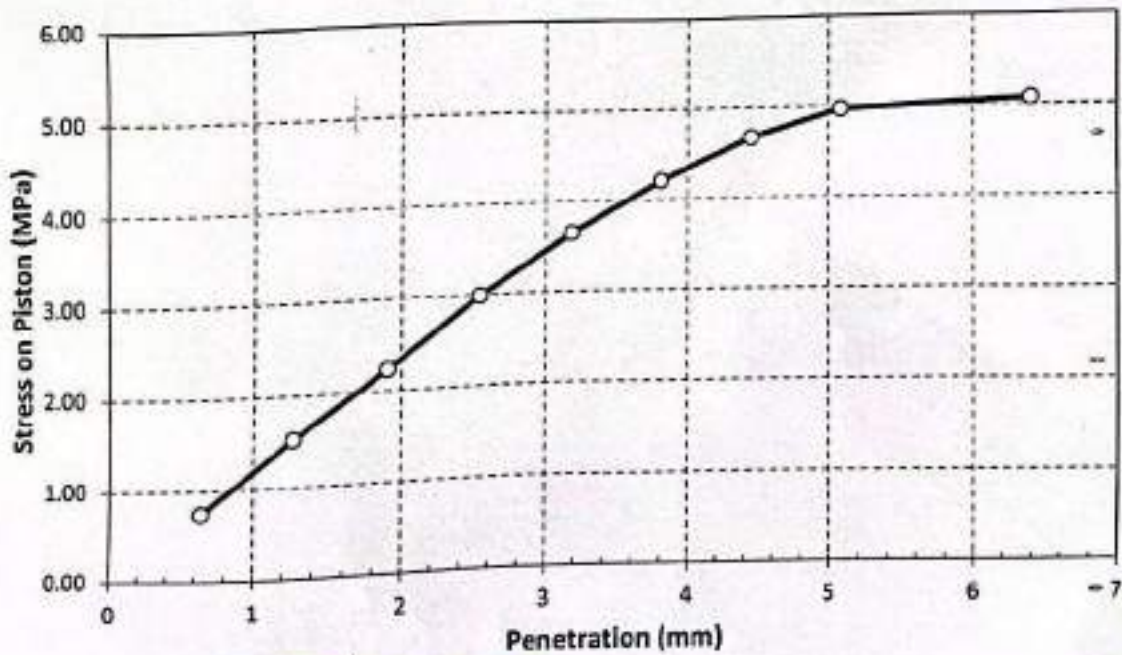
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Tel& Fax: 27367231 - 27363093



شركة المالك الأفراط
الزمالك - القاهرة
الهاتف - فاكس : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Load Penetration Curve of CBR Test
ASTM D-1883



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219 437 191
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Tel & Fax : 27367231 - 27363093



ش.م.ك. المعامل الاستشاري
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 03/09/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+160
Level : - 1.75 M
Report No. : 52

**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	641+030	1644	2.29	5.5	2.17	98.4%	Comply
2	641+060	1058	2.22	5.3	2.11	95.8%	Comply
3	641+090	1065	2.23	5.5	2.12	96.3%	Comply
4	641+120	1404	2.20	5.5	2.09	95.0%	Comply
5	641+150	1647	2.20	5.3	2.09	95.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %
-

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٢ ش الملك الافدال
الزمالك - القاهرة
تليفون - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٦٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Dear Gentleman,

Attached here with the delivered on 24 / 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

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

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Consulting Engineering Bureau & Laboratories
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رقم التسجيل المهنى: 537 - 991 - 219
الرمز المهنى: 2 شارع الملك «ألف» - الزمالة - القاهرة

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Tel & Fax : 27367231 - 27363093



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الزمالة - القاهرة
هاتف : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.4
25	1	92.3
19	¾	89.1
12.50	½	80.6
9.50	3/8	70.6
4.75	4	59.4
2.00	10	40.9
0.425	40	25.1

Signature: 
ممثل المكتب
مشاريع واستشارات
رقم التسجيل المميز 537 - 901 - 213
البريد الإلكتروني: شارع الملكة اللفيل - الزمالك - القاهرة

3 El Malek El Aldal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27353083



٧ شارع الملكة اللفيل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٥٣٠٨٣

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

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)	12.5



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٢ في الملك الأفدال
الزمالك - القاهرة
الهاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

**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



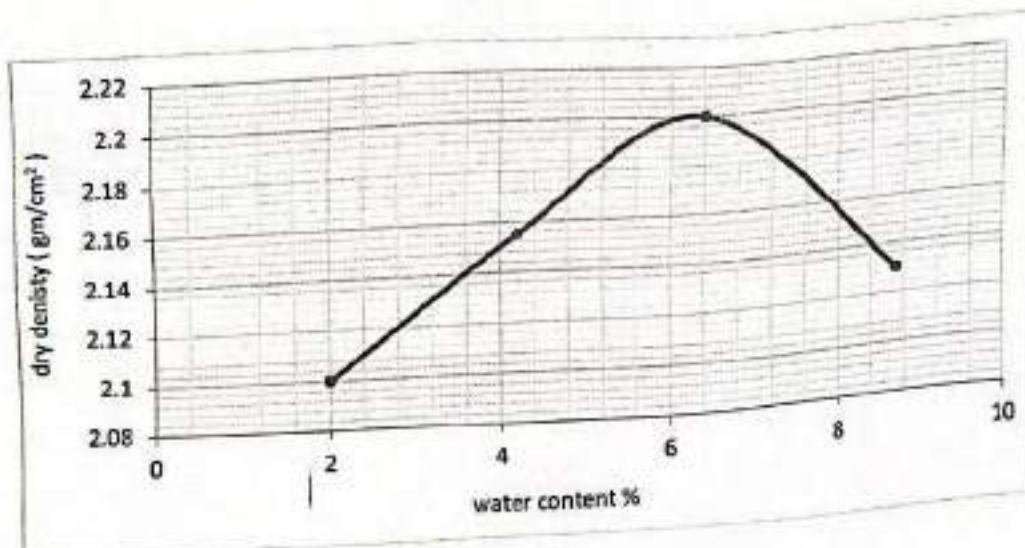
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Tel& Fax : 27367231 - 27363093



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الزمالك - القاهرة
التليفون : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

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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رقم التسجيل المميز 219 - 551 - 557
الوحدة الأولى بشارع الملك فهد الخامس - القاهرة - 11511

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Tel & Fax : 27367231 - 27363083



شارع الملك الأفدال
الزمالك - القاهرة
تليفون - فاكس : 27367231 - 27363083

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Soil Classification

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).	40.9	Max 50 %	-----	-----
0.425 mm (No. 40).	25.1	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	12.5	Max 15 %	Max 15 %	Max 15 %
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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٢ شارع الملك الأفطال
الزمالك - القاهرة
هاتف وفاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

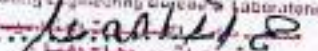
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.42
1.91	0.075	2.43
2.54	0.100	3.45
3.18	0.125	4.41
3.81	0.150	5.12
4.45	0.175	5.73
5.08	0.200	6.04
6.35	0.250	6.24

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50 %
	6.90	3.45	

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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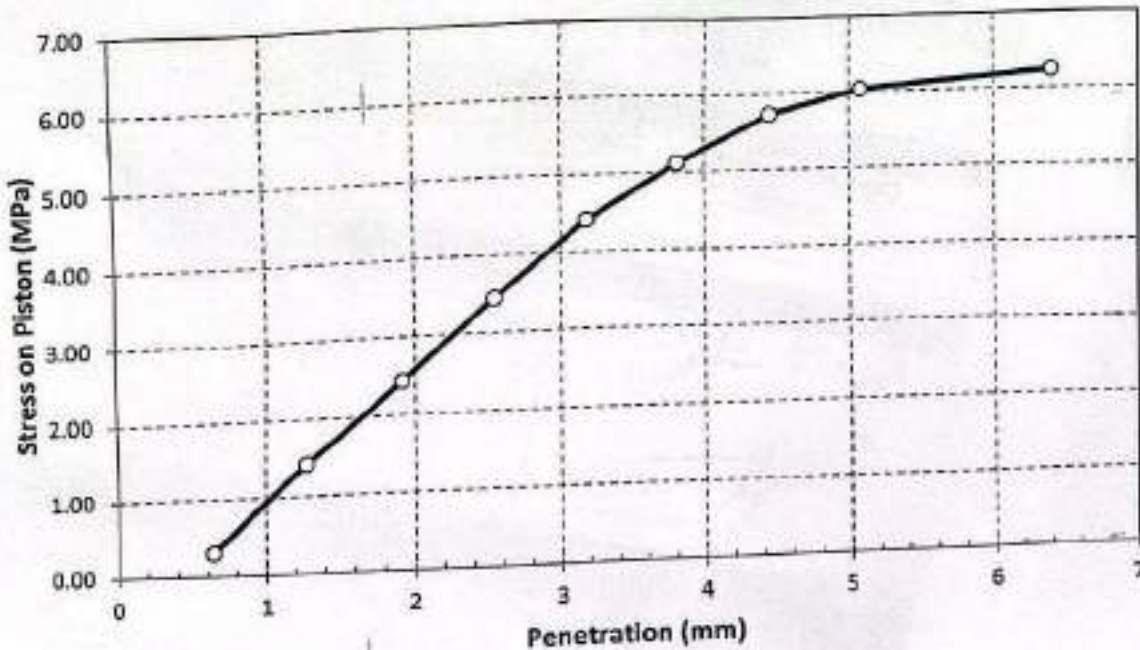
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الهاتف : 27367231 - 27363093

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Load Penetration Curve of CBR Test ASTM D-1883



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تليفون : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 07/09/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : -2 M
Report No. : 58

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	641+180	1792	2.25	5.5	2.13	96.6%	Comply
2	641+230	1698	2.24	5.3	2.13	96.3%	Comply
3	641+260	1374	2.25	5.5	2.14	96.6%	Comply
4	641+290	1058	2.22	5.5	2.10	95.1%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 6.4 %

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مهندس محمد عبد الحليم
رقم الترخيص الهندسي 219 - 991 - 537

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Zamalek, Cairo.
Tel & Fax : 27367201 - 20365003

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ACCREDITED
Testing Laboratory

ش.م.م. الملك فيصل
القاهرة - القاهرة
تليفون : 27367201 / 20365003

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31 / 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

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

Signature /



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ش. المعالى الأفطلى
الزمالك - القاهرة
تليفون : ٢٧٣٦٣٦٩٣ - ٢٧٣٦٧٢٣١

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature



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٢ شارع الملك الافدال
الزمالك، القاهرة
الهاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

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)	11.9

Signature /



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القاهرة - القاهرة
شماره - فاكس : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**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



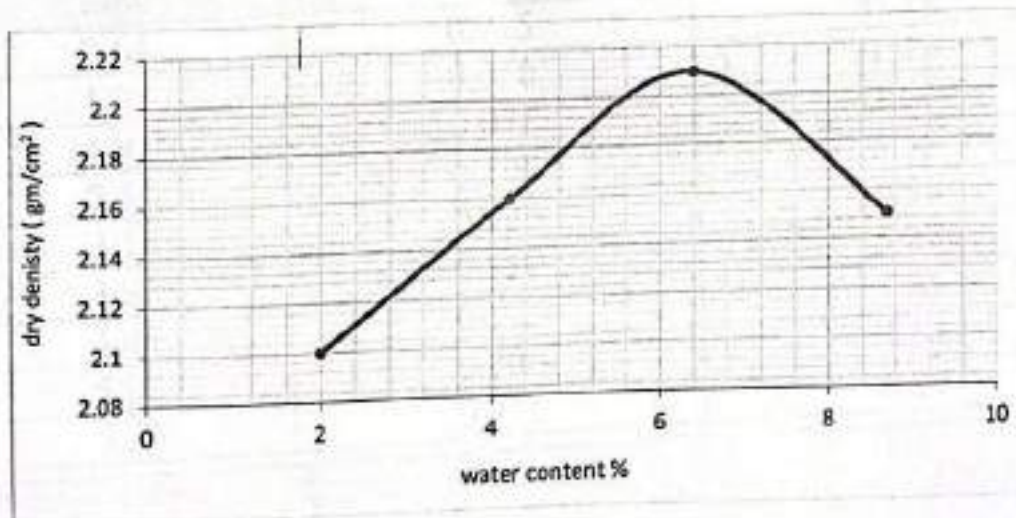
3 El Malek El Afdal Street
Zamalek, Cairo.
Te & Fax : 27367231 - 27363093



3 شارع الملك الافدال
الزمالك - القاهرة
الهاتف - الفاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

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الزمالك - القاهرة
الهاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.21 (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

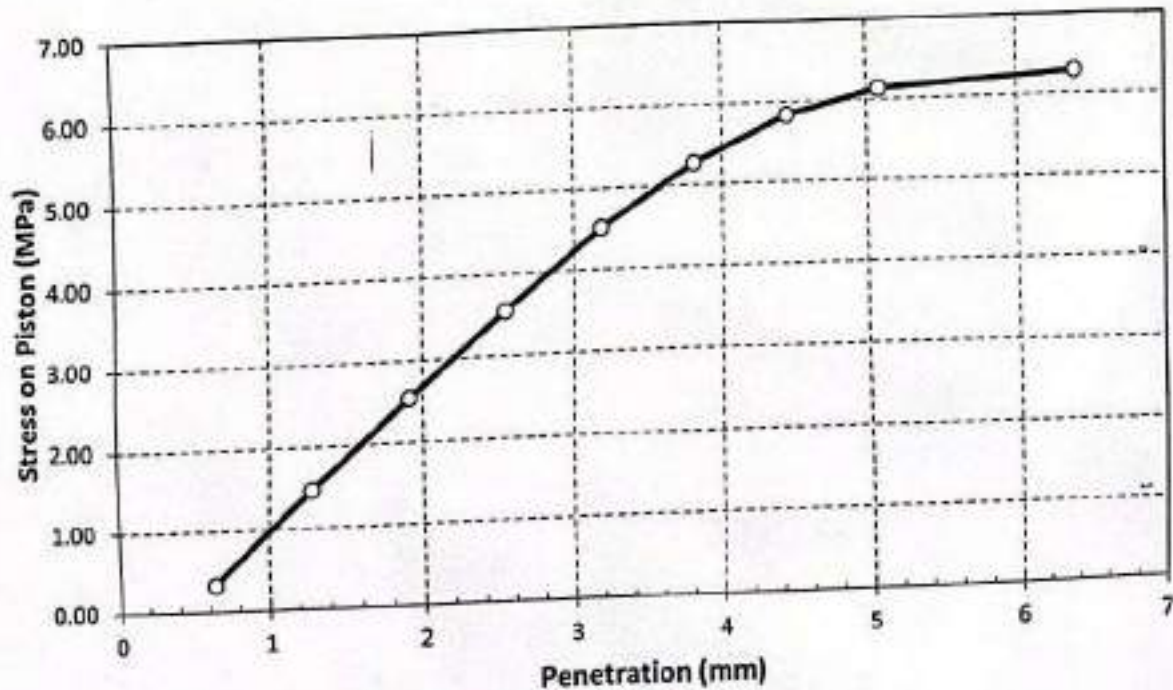
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Zamalek, Cairo
Tel & Fax : 27367231 - 27367232



شركة الذهبى الهندسية
الزمالك - القاهرة
الهاتفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣٢

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test
ASTM D-1883



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مكتب معامل الاستشارات الهندسية
رقم التسجيل المزدوج: 537 - 591 - 218
القاهرة - شارع الملك الأفندي - الزمالك

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



٢ شارع الملك الأفندي
الزمالك - القاهرة
تليفون : فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

CEL
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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 12/09/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : -2 M
Report No. : 58

**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	641+180	1792	2.25	5.5	2.13	97.0%	Comply
2	641+230	1698	2.24	5.3	2.13	96.8%	Comply
3	641+260	1374	2.25	5.5	2.14	97.1%	Comply
4	641+290	1058	2.22	5.5	2.10	95.6%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

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شركة الملك الناصر
الزمالك القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Dear Gentleman ,

Attached here with the delivered on 7 / 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

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

Signature /



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

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

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).	41.2	Max 50 %	-----	-----
0.425 mm (No. 40).	28.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.8	Max 15 %	Max 15 %	Max 15 %
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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شروعات و صيانة و قنلة
رقم التسجيل المبرر 537 - 991 - 219
الشارع الرئيسى 3 شارع الملك - بالاس - الزمالة - القاهرة

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أشرف الملك الأفدال
الزمالة - القاهرة
الهاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٠٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	90.1
19	¾	84.2
12.50	½	77.2
9.50	3/8	71.5
4.75	4	59.9
2.00	10	46.3
0.425	40	28.0

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شارع الملك الاقنيل
الزمالك القاهرة
الهاتف : 27367231 - 27363063

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

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)	9.6

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3 شارع الملك الافدال
الزمالك - القاهرة
هاتفون - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

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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زمالك - القاهرة
هاتف - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Soil Classification

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).	46.3	Max 50 %	-----	-----
0.425 mm (No. 40).	28.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.6	Max 15 %	Max 15 %	Max 15 %
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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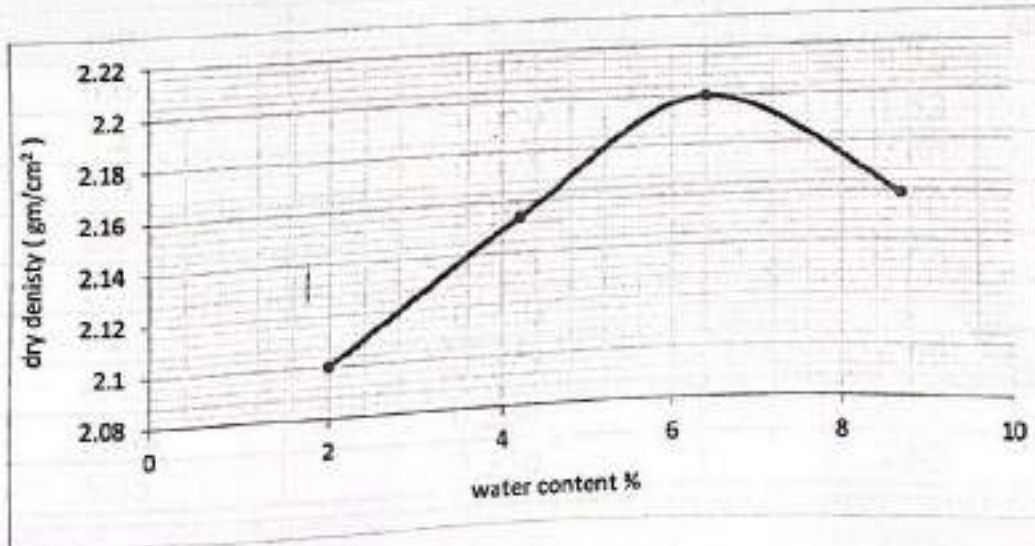
ش. الملك الأفدال
الزمالك - القاهرة
الهاتف - فاكس : ٢١٩٥٥١٥٣٧ - ٢١٩٥٥١٥٣٧

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

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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ش. الملك الأفجل
الزمالك - القاهرة
تليفون - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.60
2.54	0.100	3.60
3.18	0.125	4.56
3.81	0.150	5.31
4.45	0.175	6.09
5.08	0.200	6.56
6.35	0.250	7.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52.1 %
	6.90	3.60	

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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من الملك الافضل
لزمالك - القاهرة
الهاتف - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 16/09/2023
Soil type : Middle Embankment
Location : St From 641+200 to 641+300
Level : -1.5 M
Report No. : 63


**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	641+220	1826	2.24	6	2.11	95.9%	Comply
2	641+240	1440	2.23	6.4	2.10	95.2%	Comply
3	641+260	1633	2.23	6	2.11	95.7%	Comply
4	641+280	1042	2.28	5.8	2.16	98.1%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.19 gm/cm³

At optimum moisture content = 6.4 %

Signature: 



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ش. الملك الأهلى
الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٠٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 12 / 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

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


Signature
219 - 991 - 537
القاهرة - الجيزة - الأقصر - الزمالة - القاهرة

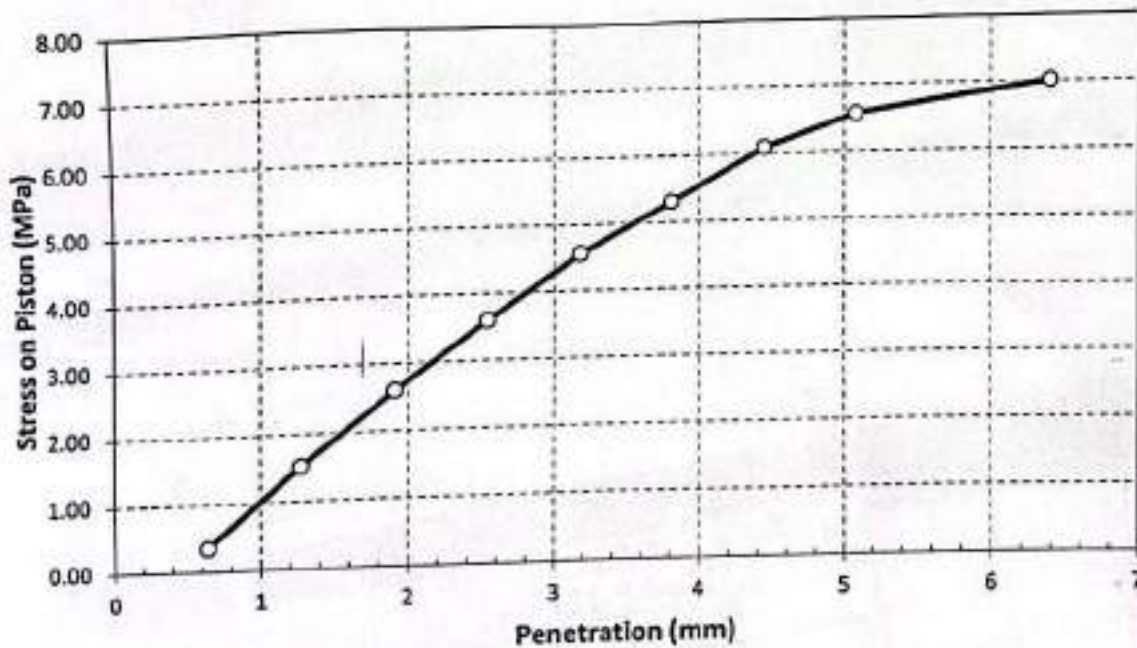
3 El Malek El Aldal Street
Zamalek, Cairo.
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شركة الذهبى للاستشارات
القاهرة - الجيزة - الأقصر
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Load Penetration Curve of CBR Test
ASTM D-1883



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الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**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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في المكتب الرئيسي
للإملاك - القاهرة
تليفون - فاكس : ٢٧٣٦٧١٢١ - ٢٧٣٦٠٩١

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5



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3 شارع الملك الأفطلى
الزمالك - القاهرة
الهاتف - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

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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Signature: 
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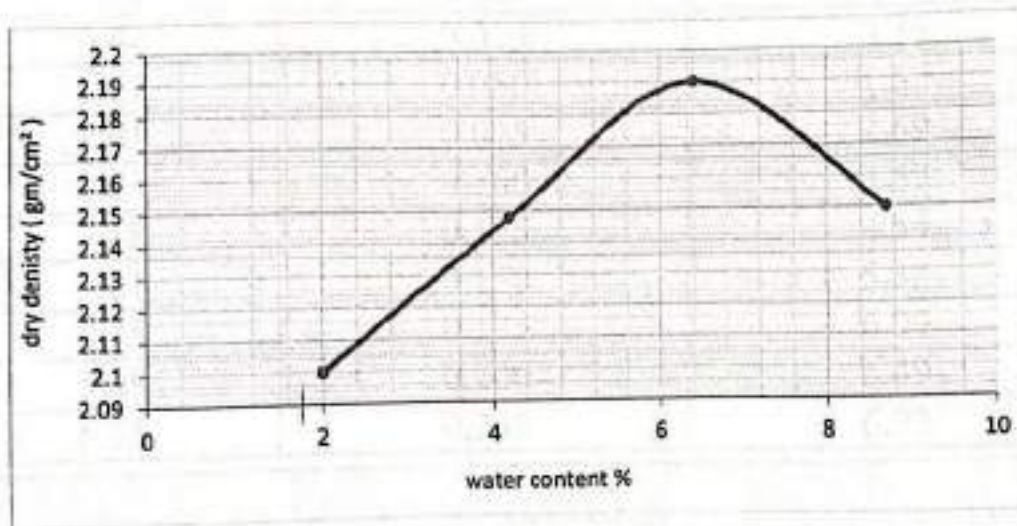
3 El Malek El Afdal Street
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3 شارع الملك الأفدال
للمالك - القاهرة
هاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

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



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature

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٢٢ شارع الملك الأفندي
الزمالك - القاهرة
الهاتف : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

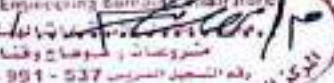
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.19(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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رقم التسجيل المهنى 537 - 991 - 219

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Zamalek, Cairo,
Tel & Fax : 27367231 - 27369063



شركة الملك الافريت
الزمالك - القاهرة
تليفون : 27367231 - 27369063

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

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).	45.9	Max 50 %	-----	-----
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
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
شروعات و سوانج وقتة
رقم الترخيص 219 - 991 - 537
القصر الرئيسى ٢ شارع الملك الافضل - الزمالك - القاهرة

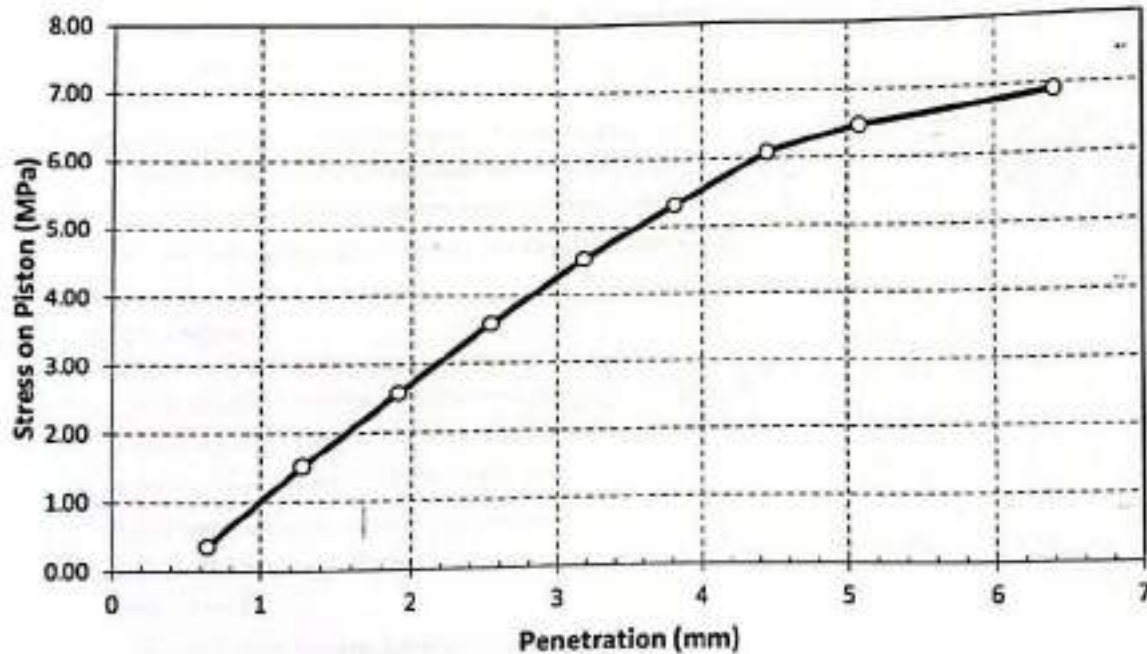
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٢ ش الملك الافضل
الزمالك - القاهرة
تليفون - فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٦٩٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test
ASTM D-1883



CEL
Consulting Engineering Bureau & Laboratories
Signature: *[Handwritten Signature]*
رقم التسجيل الموحّد: 249 - 991 - 537
المركز الرئيسي: 3 شارع الملك «الأقمل» - الزمالك - القاهرة

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



2 من الملك الأقمل
الزمالك - القاهرة
الهاتف : ٢٧٣٦٣٠٩١ - ٢٧٣٦٧٢٣١

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 requiremet : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
date of measurement	: 16/09/2023
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} (MPa)	E_{v2} (Mpa)	
1	841+200	841+300	841+240	-1.5	33.9	140.7	4.15

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



٣ ش الملك الأفصل
 الزمالك - القاهرة
 تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٢
www.cel-egypt.com

Company : شركة الذهبى للمقاولات والتوريدات المعمورة

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 641+200 to 641+300
Station : 641+240
Level : +1.5
Test Date : 10/09/2023
Report Date : 19/09/2023
Type of soil : Original earth
Report No. : 1

Dear Gentlemen,

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 Procedures:

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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www.cel-egypt.com

Company Name : شركة الأهرام للمطالعات والتوريدات المعمارية
Project : Electric Express Train - Sector (B) - Qous to Asment
Test Date : 16/09/2023
report date : 19/09/2023
Station : 641+240
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.30	0.70	19.21	0.79	0.74
2	1.66	18.65	1.35	18.55	1.45	1.40
3	2.50	18.03	1.97	17.86	2.14	2.06
4	3.33	17.65	2.35	17.35	2.65	2.50
5	4.17	17.08	2.92	17.18	2.82	2.87
6	5.00	16.53	3.47	16.20	3.80	3.64

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.50	17.63	2.37	16.33	3.67	3.02
2	1.25	17.75	2.25	16.58	3.42	2.84
3	0.100	17.95	2.06	17.08	2.92	2.49

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	17.82	2.18	16.83	3.17	2.68
1	1.66	17.78	2.22	16.62	3.38	2.80
stress is reached.						
2	2.50	17.64	2.38	16.45	3.55	2.90
3	3.33	17.58	2.42	16.31	3.69	3.06
4	4.17	17.43	2.57	16.12	3.89	3.23



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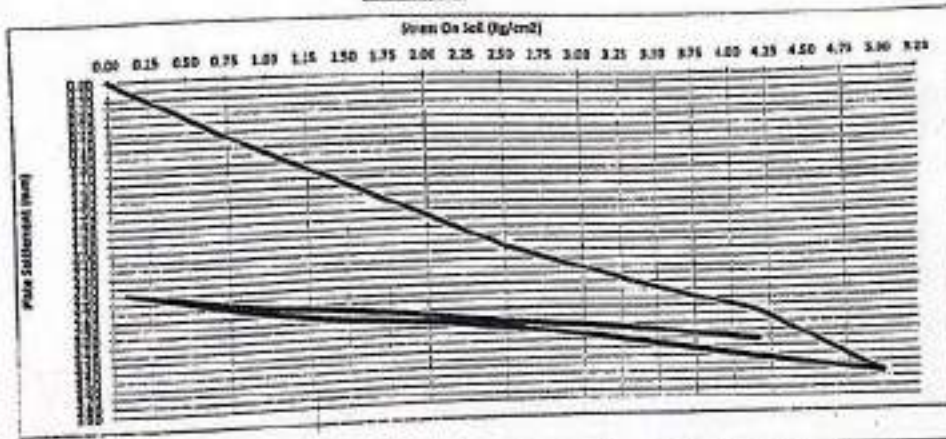


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الزمالة - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
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Company Name
Project
Test Date
report date
Station
Test No.

شركة الأجيال للمقاولات والتوريدات العمرية :
Electric Express Train - Sector (5) - Qous to Arment
16/09/2023
19/09/2023
641+240
1

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	0.74	1.40	2.01	2.50	2.87	3.84

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)	3.84	3.02	2.84	2.49

D (mm) = 300	S1 (mm) = 1.27	S2(mm) = 2.67	ΔS = 1.30
Ev1 (MPa) = 18.75 D³ ΔS / JAS	33.9		

Ev2/Ev1 = 4.15

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)	2.49	2.68	2.86	2.96	3.16	3.23

D (mm) = 100	S1 (mm) = 2.71	S2(mm) = 1.09	ΔS = 0.11
Ev2 (MPa) = 18.75 D³ ΔS / JAS	140.7		

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
D1 = The difference between 0.3 and 0.7 from the maximum loading (stress) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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ش الملك الأفطال
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CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

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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Zakaria, Cairo
Tel& Fax: 27367231 - 27369093



شركة الهندسة
التملك القاهرة
شعار : الملكة ايفلين
27367231 - 27369093

CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

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 E Ahdal Street
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Tel & Fax : 27367531 - 27363063



شركة الهندسة
البريد الإلكتروني
27367531 - 27363063



محضر اعتماد كميات



التاريخ: 15/10/2023
اسم المشروع: مشروع القطر الكهربائي السريع (6 أكتوبر - أسوان - أبو سمبل) القطاع الخامس

قامت شركة برليات كونفولت للاستشارات الهندسية المساحية (استشاري الأعمال المساحية لهيئة الطرق والكباري)

باعتماد الكميات الملقة الخاصة بشركة الزهبي للمقاولات

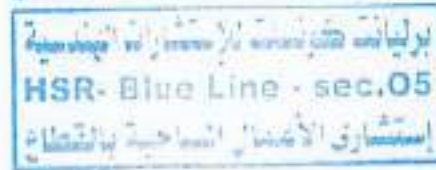
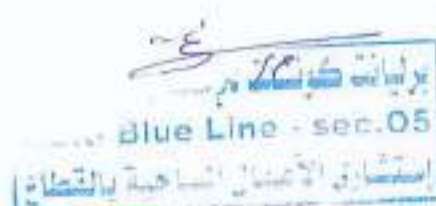
م	من المحطة رقم	إلى المحطة رقم	التصنيف	الكمية بالمتر المكعب	الملاحظات
1	841+000	641+240	أعمال الردم	24219.3	أعمال ردم على (REV05)
إجمالي الكمية				24219.3	

حضر جاري (1)
المرفقات:
استلام ميزانية شبكية
قطاعات عرضية
شيت اكسيل موضح به الكميات

استشاري / مكتب سبكتروم



استشاري المساحة / مكتب برليات



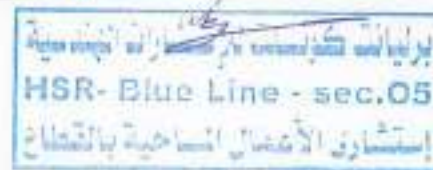
مهندس الشركة المنفذة

شركة الزهبي



حصر كميات الردم مستخلص جاري (1) شركة الذهبى
(637+952-643+863) مشروع القطار السريع القطاع
الخامس (قوص / ارمنت)

Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
641+000.00	94.49	944.87	944.87
641+020.00	95.4	1,898.90	2,843.77
641+040.00	95.55	1,909.51	4,753.27
641+060.00	94.56	1,901.11	6,654.38
641+080.00	94.19	1,887.53	8,541.91
641+100.00	90.48	1,846.67	10,388.58
641+120.00	100.47	1,909.43	12,298.01
641+140.00	92.09	1,925.51	14,223.52
641+160.00	89.85	1,819.36	16,042.88
641+180.00	89.88	1,797.28	17,840.16
641+200.00	92.52	1,824.02	19,664.17
641+220.00	117.16	2,096.84	21,761.01
641+240.00	128.67	2,458.27	24,219.28
اجمالي الكمية بالمتر المكعب		24219.3	





OWNER
Ministry of Transportation
National Authority for Tunnels (NAT)

OWNER
General Authority for Roads, Bridges and Transport

Project Name
ELECTRIC EXPRESS TRAIN (HIGH-SPEED RAIL) SECTION (FROM QUS TO ARMAUT)
STATION 637+952 - STATION 715+824.88

KEY PLAN



SECTION (FROM QUS TO ARMAUT)
STATION 637+952 - STATION 715+824.88

NO	DATE	Drawing Name	Drawn By
1	10/2023	SEC-5-SEC	Abdelhakim

*All dimensions are in meters

List of cross-sec Expression

Existing Ground Level	
Proposed Sub-Ballast Level	

Owner Consultant



GEOTECH Consultant



Contractor



Drawing Name
Cross-sec for HSR OCTOBER - ASWAN section 5
EL-ZAHABY COMPANY
from km 637+952 to 643+863

Drawing scale
H.C. (1:1000)
V.L. (1:100)

Drawing NO
HSR - SEC 5 - cross-sec- (1)







Owner
Ministry of Transportation
National Authority for Tunnels (NAT)

Owner
General Authority for Roads, Bridges and Transport

Project Name
ELECTRIC EXPRESS TRAIN (HSR-SPED KAL)
SECTION (FROM QUS TO ARMAN)
STATION 629+120.00 - STATION 715+020.00

KEY PLAN

SECTION (FROM QUS TO ARMAN)
STATION 629+120.00 - STATION 715+020.00

NO.	DATE	Drawing Name	Drawn/Checked
0001	01/01/2020	HSR-SEC-5	El-Zahaby

*All dimensions are in meters.

List of cross-section Expression

Color	Description
Green	Existing Ground Level
Red	Proposed Sub-ballast level

Owner Consultant
GARR T Consultants

Contractor
EL-ZAHABY

Drawing Name
cross-section for HSR OCTOBRE - ASWAN section 5
EL-ZAHABY COMPANY
from km 637+952 to 643+863

Drawing scale
HZ (1:1000)
V (1:100)

Drawing NO
HSR - SEC 5 - cross-sec- (1)



OWNER
Ministry of Transportation
National Authority for Tunnels (NAT)

OWNER
General Authority for Road, Bridge and Transport

Project Name
ELECTRIC EXPRESS TRAIN (HIGH-SPEED RAIL)
SECTION (FROM QUS TO ARBAMUT)
STATION 628+130.33 - STATION 710+624.43

KEY PLAN



SECTION (FROM QUS TO ARBAMUT)
STATION 628+130.33 - STATION 710+624.43

NO.	DATE	Drawing Name	Revised Details
5/2025		CROSS-SEC	

*All dimensions are in meters

List of cross-sec Expression

Existing Ground Level
Proposed Sub-hallast level

OWNER consultant	
GRABIT Consultant	
Contractor	EL-ZAHABY

Drawing Name
cross-sec for HSR OCTOBRE - ASWAN section 5
EL-ZAHABY COMPANY
from km 637+952 to 643+863

Drawing scale
H2 (1:10000)
V2 (1:1000)

Drawing NO
HSR - SEC 5 - cross-sec- (1)





مقايضة معدلة



أعمال إنشاء الجسر الترابي للطريق الكهرطاسي السريع (أوسمبل)

من محطة 110.13 + 629 حتى محطة 624.63 + 715 بطول 86.5145 كم

تنفيذ شركة / الذهبي يوسف للمقاولات العمومية من محطة 640+578.67 حتى 641+235.34 بطول 656.67 م

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الوحدة	الإجمالي
1	أعمال الإنشاء والتجهيز				
1-1	بشمار المسطح أعمال تجهيز الموقع من الإنشاء والعمارة والمطبات في مناطق ذات الطبيعة الزراعية الكثيفة بحجم حتى 30 سم و التخلص منها بالمقالب العمومية وذلك لمسافة حتى 500 متر تمهيدا لأعمال الرفع المسامي لتكامل حدود المشروع طبقا للشروط والمواصفات وتعليمات المهندس المشرف. يتم احتساب علاوة 0.30 جنيه لكل 1 كم.	2م	8,333	6.00	50,000
1-2	بشمار المكعب أعمال تكشير وإزالة المسطحات المنهارة بالأسفل العالي في الأماكن التي يحددها المهندس المشرف ونقل ناتج التكشير خارج الموقع وتوسط مسافة النقل حتى 10 كم وعمل ما يلزم تجهيز العمل طبقا لكراسة الشروط والمواصفات وتعليمات المهندس المشرف. وفي حالة زيادة مسافة نقل ناتج التكشير عن 10 كم من محور الطريق يتم حساب 1 جنيه لكل كيلومتر لزيادة في التخلص.	3م	89	61.00	5,429
2	أعمال الحفر				
2-1	بشمار المكعب أعمال حفر باستخدام المعدات الميكانيكية لتسوية أنواع التربة بما فيها التربة الصخرية وتسوية السطح بالآلات التوسية وإزالة التربة الصخرية للوصول إلى سعة الرطوبة المطلوبة ولتأكد الجيد بالخراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ومعمل على التربة لتعمل ونقل التربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقا للمواصفات التصميمية والمواصفات العرضية المتوسطة والرسومات التفصيلية المعتمدة والتد بجمع مستحاثات طبقا لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة 1 جنيه لكل مسافة نقل ناتج الحفر وتصبح 1.1 جنيه لكل إنشاء من 4/5/2023 -علاوة زيادة السو لار 0.6 جنيه لكل إنشاء من 4/5/2023	3م	77	23.00	1,778
	علاوة مسافة النقل 1 كم	3م	77	1.10	85
	علاوة زيادة السو لار	3م	77	0.60	46
2-2	بشمار المكعب أعمال حفر باستخدام المعدات الميكانيكية في التربة المشايكة جدا التربة الصخرية (بإستخدام البلووزر) بتوسية السطح بالآلات التوسية وإزالة التربة الصخرية للوصول إلى سعة الرطوبة المطلوبة ولتأكد الجيد بالخراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ومعمل على التربة لتعمل ونقل التربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقا للمواصفات التصميمية والمواصفات العرضية المتوسطة والرسومات التفصيلية المعتمدة والتد بجمع مستحاثات طبقا لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة 1 جنيه لكل مسافة نقل ناتج الحفر وتصبح 1.1 جنيه لكل إنشاء من 4/5/2023 -علاوة زيادة السو لار 0.7 جنيه لكل إنشاء من 4/5/2023	3م	7,760	26.00	201,760
	علاوة مسافة النقل 1 كم	3م	7,760	1.10	8,536
	علاوة زيادة السو لار	3م	7,760	0.70	5,432

Handwritten signature



 		 		مقاييس معدلة
<p>أعمال إنشاء الجسر الثاني للقطار الكهربائي السريع (أكتوبر / أوسبيل)</p> <p>من محطة 110+629 حتى محطة 624.63 + 715 بطول 86.5145 كم</p> <p>تتعلق شركة / الذهبى يوسف للمقاولات العمومية من محطة 640+578.67 الى 641+235.34 بطول 656.67 م</p>				
رقم البند	بيان الأعمال	الكمية	سعر الوحدة	الأجمالي
6	أعمال إنشائه المبدئية			
1-6	بالمسح مسطح توريد وتركيب طبقه من السطح الصخري هو تشكيل مسود الداعل لا يقل عن 10% ويتم تنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والتد بصيغ مستعمله طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	2م		
1-1-6	تأثير وزن لا يقل عن 200 متر	11	31.00	344
2-1-6	تأثير وزن لا يقل عن 300 متر	11	43.00	478
3-1-6	تأثير وزن لا يقل عن 400 متر	96	60.00	3,333
2-8	بالمسح مسطح توريد وتركيب طبقه من السطح الصخري هو جريد مسود الداعل لا يقل عن 10% ويتم تنفيذ طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والتد بصيغ مستعمله طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	2م		
1-2-6	تأثير فود شد 20 كاريون في الاتجاهين	11	44.00	489
2-2-6	تأثير فود شد 30 كاريون في الاتجاهين	83	47.00	3,885
7	الاطلاعات الخدمية / الوصف الخدمي			
1-7	بالمسح المسطح أصل توريد وصب خرسانة خابية بسك 15 سم لإرتفاع 10 متر والتي لمعالجة الانكساف والعيول الجارية تكون من 0.8 م من دولوميت مشروح 3م 0.4 م حش والإصاف طبقا لتعليمات الاستشاري (غير مسك) على أن يكون السطح نظيف ومحمول وأقل من خالي من التوائف والطفلة والأحلاج والشود الغريبة مع وضع فوم (بالقفل) بسك 2سم إسطا لتعليمات الاستشاري) والتد يتم تجهيز واستعمال حاسب القرية لمعالجة أسفل البلاطة للوصول إلى التسليم الصحيحه على أن تحقق الخرسانة إجهاد لا يقل عن 250 كغم / سم2 وتتطلب السطح وعلى المواصفات المطلوب من الترميم والتفقد طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والتد بصيغ مستعمله طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	2م	12,573	433.00
2-7	بالمسح المسطح أصل توريد وصب خرسانة خابية لكافة قديمه سطحه وطويه للكتاف والبول المادية تكون من 0.8 م من دولوميت مشروح 3م 0.4 م حش والإصاف طبقا لتعليمات الاستشاري (غير مسك) على أن يكون السطح نظيف ومحمول وأقل من خالي من التوائف والطفلة والأحلاج والشود الغريبة مع وضع فوم (بالقفل) بسك 2سم إسطا لتعليمات الاستشاري) والتد يتم تجهيز واستعمال حاسب القرية لمعالجة أسفل البلاطة للوصول إلى التسليم الصحيحه على أن تحقق الخرسانة إجهاد لا يقل عن 250 كغم/سم2 وعلى المواصفات المطلوب من الترميم والتفقد طبقا لاصول الصناعة والرسومات التفصيلية المعتمدة والتد بصيغ مستعمله طبقا لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	3م	1,405	2,685.00
الأجمالي				19,959,324



مهندس هيئة الطرق والكباري
(المعلقة الثامنة - قنا)
المهندس /
التوقيع /

مدير المشروع (الاستشاري)
المهندس /
التوقيع /

مهندس الشركة المعلقة
المهندس /
التوقيع /



تلفون شركة / الذهبى يوسف للمقاولات المعمارية من محطة 040*578.67 الى 041*235.34 بطول 656.07 م

