



محضر اعتماد حصر كميات



التاريخ: ٢٣/١١/٢٠٢٣

اسم المشروع: مشروع القطار الكهربائي السريع (٦ الكيلومتر - أبوسمبل) القطاع الخامس

قامت شركة برلينت كونثك للاستشارات الهندسية المسماة (استشاري الاصل المسماة لبيئة الطرق والكيلومتر)

باعتماد الكميات المنقذة الخاصة بشركة عيد الرحمن للتنمية الزراعية والعقارية والمقاولات
القطاع الذي تم الحصر فيه من الكم ٦٧١+٧٨٠ إلى ٦٧٢+٧٨٠ بطول ١ كم

عقد (٢٠٢٤/٢٠٢٣/٤٠٨) بتاريخ ٢٢/١٠/٢٠٢٣

م	من المحطة رقم	إلى المحطة رقم	التصنيف	القيمة بالمحضر المنقذ	العلامات
1	671+780	672+190	رسم التربة	58440.19	رسم على REV05
2	672+640	672+780	رسم التربة	15209.34	رسم على REV05
إجمالي القيمة				73649.53	

حضر جاري (٢)

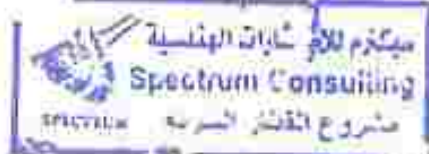
المرفقات:

استلام ميزانية شبكة

قطاعات عرضية

كشيت الحصيل موضح به الكميات

مكتب استشاري استشاري



مهندس الشركة المنقذة





توضيح أعمال الناصر



شركة عبد الرحمن للتنمية الزراعية والعقارية والمقاولات

جدول توضيح أعمال الناصر				
رقم	من المحطة	إلى المحطة	الكمية	REV
1	671+780	672+190	58440.19	REV 05
2	672+630	672+780	15209.34	REV 05
الإجمالي			73649.53	





توضيح اعمال الحصر (صفحة ١)



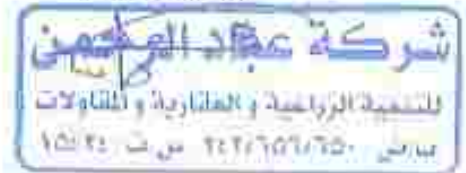
شركة عبد الرحمن للتشييد الزراعية والعقارية والمقاولات

ثبت موقع به الكميات				
الرقم	المحطة	Fill area	Fill volume	cum.Fill vol.
1	671+780.00	94.92	474.59	474.59
2	671+790.00	166.24	1305.78	1780.37
3	671+800.00	166.16	1661.99	3442.36
4	671+810.00	166.75	1664.54	5106.9
5	671+820.00	166.1	1664.25	6771.15
6	671+830.00	164.39	1652.46	8423.61
7	671+840.00	162.36	1633.74	10057.35
8	671+850.00	160.18	1612.69	11670.04
9	671+860.00	158.51	1593.48	13263.52
10	671+870.00	157.09	1578.03	14841.55
11	671+880.00	155.81	1565	16406.55
12	671+890.00	155.07	1554.91	17961.46
13	671+900.00	154.96	1550.16	19511.62
14	671+910.00	155.57	1552.67	21064.29
15	671+920.00	157.19	1563.81	22628.1
16	671+930.00	159.73	1584.81	24212.71
17	671+940.00	160.38	1600.56	25813.27
18	671+950.00	169.63	1600.06	27413.33
19	671+960.00	152.18	1559.07	28972.4
20	671+970.00	141.41	1467.97	30440.37
21	671+980.00	130.73	1380.72	31801.09

مكتب استشاري انجنيرون

استشاري العمارة

مهندس الشركة المتقنة





توضيح أعمال الحصر (صفحة ٢)



شركة عباد الرحمن للتنمية الزراعية والعقارية والمقاولات

لميثا موضع به الكميات				
الرقم	المنطقة	Fill area	Fill volume	cum.Fill vol.
22	671+690.00	124.05	1273.9	33074.99
23	672+000.00	123.28	1236.66	34311.65
24	672+010.00	123.68	1234.82	35546.47
25	672+020.00	124.62	1241.5	36787.97
26	672+030.00	121.96	1232.92	38020.89
27	672+040.00	119.14	1205.53	39226.42
28	672+050.00	117.79	1184.66	40411.08
29	672+060.00	123.03	1204.12	41615.2
30	672+070.00	127.97	1255.01	42870.21
31	672+080.00	130.99	1294.77	44164.98
32	672+090.00	127.25	1291.16	45456.14
33	672+100.00	124.52	1258.82	46714.96
34	672+110.00	128.68	1266	47980.96
35	672+120.00	135.48	1320.82	49301.78
36	672+130.00	137.21	1363.47	50665.25
37	672+140.00	133.45	1353.3	52018.55
38	672+150.00	129.83	1316.41	53334.96
39	672+160.00	129	1294.16	54629.11
40	672+170.00	128.91	1289.51	55918.62
41	672+180.00	127.7	1283.02	57201.64
42	672+190.00	120.01	1238.55	58440.19
الاجمالي			88440.19	

مكتب استشاري استشاري

استشاري المساحة

مهندس الشركة المسجلة





توضيح احصال الحصر (صفحة ٢)

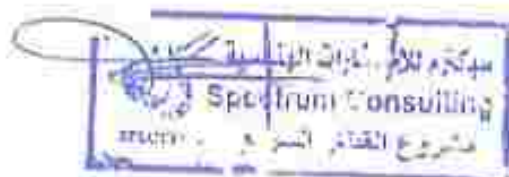


شركة عجل الرحمن للتنمية الزراعية والطارية والمقاولات

شيت موقع به الكميات				
الرقم	المساحة	Fill area	Fill volume	cum.Fill vol.
1	672+640.00	117.2	1126.3	1126.3
2	672+650.00	117.86	1175.29	2301.59
3	672+660.00	112.62	1162.41	3464
4	672+670.00	103.84	1082.31	4536.31
5	672+680.00	96.54	1001.88	5538.19
6	672+690.00	90.92	937.3	6475.49
7	672+700.00	90.35	906.38	7381.87
8	672+710.00	91.94	911.46	8293.33
9	672+720.00	94.42	931.77	9225.1
10	672+730.00	97.76	960.88	10185.98
11	672+740.00	99.22	984.91	11170.89
12	672+750.00	102.36	1007.89	12178.78
13	672+760.00	107.93	1051.41	13230.19
14	672+770.00	112.27	1100.98	14331.17
15	672+780.00	63.36	878.17	15209.34
الاجملى		15209.34		
الاجملى الكلى		73649.53		

مكتب استشارى اميكوم

استشارى المساحة



المهندس / رئيس الإدارة المركزية للمنطقة الثالثة - قنا

تحت إشراف اللجنة الوطنية

بالإضافة إلى أعمال البناء الجداري للقطار السريع (١٦ كم - أبو سبيل) القطاع الخامس وإلى الأضلاع الممتدة إلى شركة مياه
البحر للتزويد الزراعية والمقارية والمطارات

للتشريف ان لحيط علم سينتكم ان الشركة مسئلة اليها احوال في القطاع من 783+691الى 783+693بمعدل 2 كم ومن 780+671الى 780+672 بمعدل 1 كم والله لم يصفور اوامر الله ثلاث عقود هم

١- عقد من المسافة 692+783 الى 693+133 بطول ٣٥٠ كم. (٢٠٢١/٧، ٢٣=٢١) التاريخ ٢٠٢٢/٧/١٢

٧- جلد من المسافة 693+293 إلى 693+533 بطول ٠,٢٥ كم (٢,٢ (٧,٠٢3/٢=٧) متر مربع (١,٠٢7/٢=١)

٢. عدد من المسافة 693+533 الى 693+783 بطول ٠.٢٨ كم (١.٦١/٢٠.٢٢/٤+٨) بتاريخ ٢٠٢٢/١٠/١

وحيث ان هذه العقود ضمن المسافة من 691+783 الى 693+783 والشرعة أُنمت بالأعمال في التسليطة من 671+780 الى 672+780 ولم يصدر لها امر استاذ

لذا نرجو من سيادتكم الموافقة على صرف الاعمال في المساحة 671+780 الى 672+780 على أحد العقود الصادرة لنا حيث انها في نفس القطاع الخامس ولها نفس الاستشاري وذلك طبقا للمذكرة المعروضة على السيد اللواء رئيس الهيئة من السيد المهندس مدير عام تنفيذ الطرق والتي تم الموافقة عليها (مرفق)



Signature / _____

Optimum solvent %
S.E.

Fig. 7.7: (a) $(\gamma_{\text{max}}/\mu_0 B)$ versus k_0 (b) γ_{max} versus k_0

2000



Figure - Density relation of soil
Test result (Modified Proctor test)
ASTM D-1557

ASTM D-1557

Test result (Modified Project test)

[illegible]

Accounting Date: 1/6/2012

670 5400000000

[illegible]



Page 1 of 1

Signature /

1- Attached graph shows penetration resistance versus penetration magnitude.

2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm/cc)}$

At = 5.2 % optimum water content

3- Surcharge load 4.50 kg

4- CBR is 100 for middle and lower embankments according project spec page No 36.

Notes:

CBR Result	at 0.1 inch (2.54 mm) penetration	
	St. Value	Sample results
CBR 100 %	6.90	3.61
		52.3 %
penetration	mm	
	0.64	0.52
	1.27	1.57
	1.91	2.64
	2.54	3.61
	3.18	4.51
	3.81	5.17
	4.45	5.68
	5.08	5.98
	6.35	6.09
stress on piston (Mpa)	Inch	
	0.025	0.52
	0.050	1.57
	0.075	2.64
	0.100	3.61
	0.125	4.51
	0.150	5.17
	0.175	5.68
	0.200	5.98
	0.250	6.09

ASTM D 1883

Test Results of California Bearing Ratio on Best Materials

Reporting No : 01 :

Reporting Date : 07/05/2022

Delivery Date : 03/05/2022

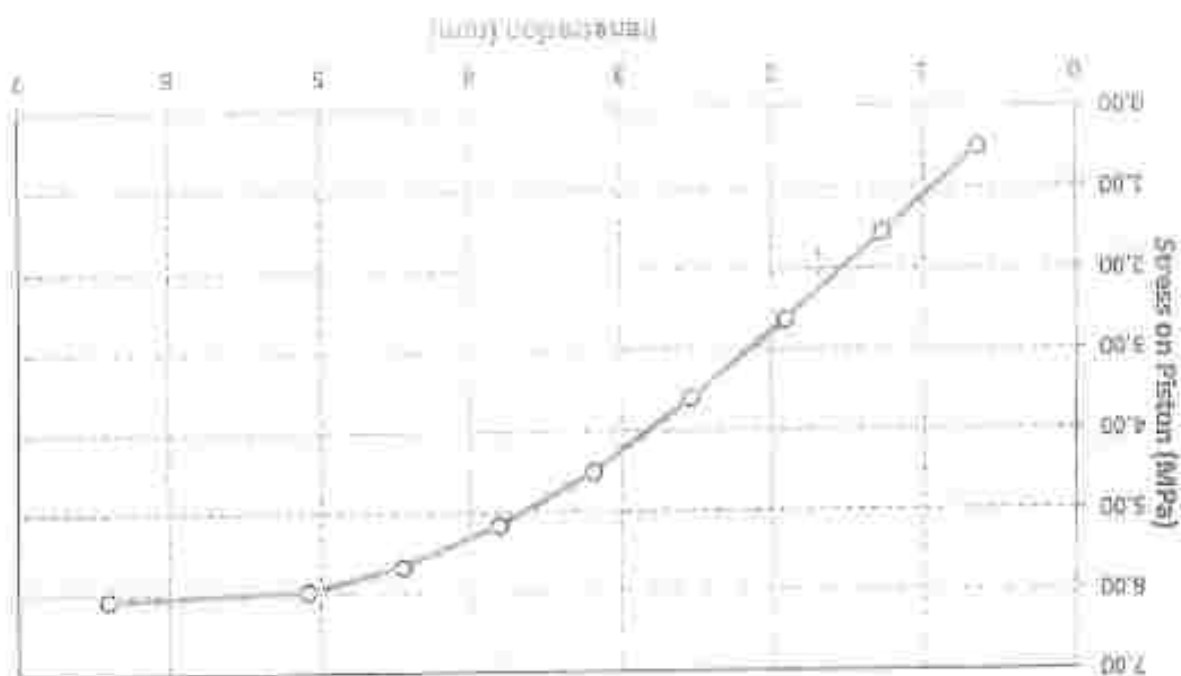
Type of sample : Soil Embankment

Location : ST-574-100, B-574-77-452, IP-45.659573

Project : Road Construction

Page 1 of 1

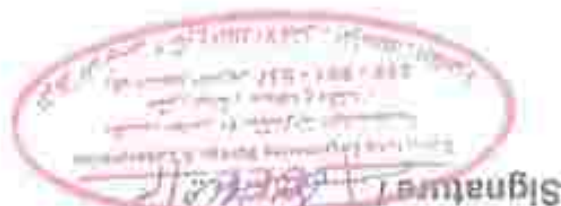
Signature: _____



Load Penetration Curve of CBR Test
ASTM D-1863

Project: _____
 Location: _____
 Type of Sample: _____
 Delivery Date: _____
 Reporting Date: _____
 Reporting To: _____

Signature: _____

Signature: 

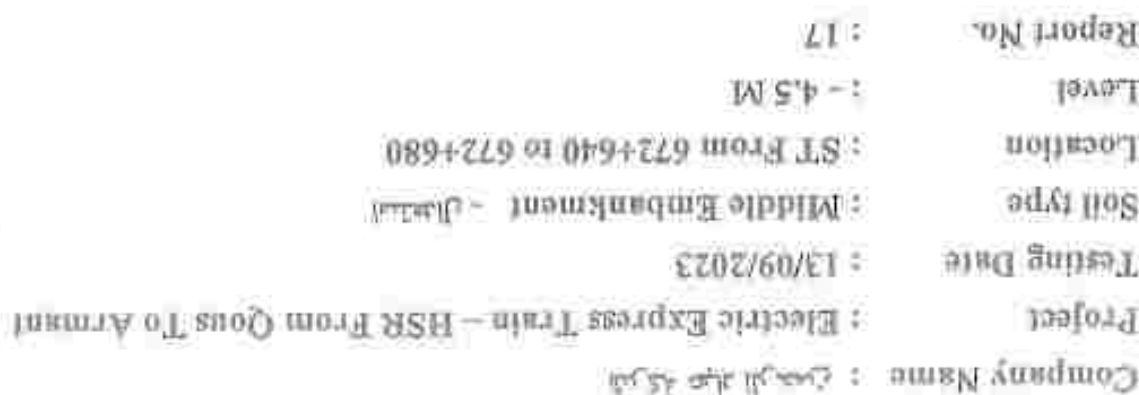
- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1601	2.24	5.8	2.12	95.9%	Comply

ASTM D-1556

Compaction test by using Sand – Cone Test Method

Company Name : 

Project : Electric Express Train – HSR From Qous To Arman

Testing Date : 13/09/2023

Soil type : Middle Embankment - (Jalal)

Location : ST From 672+640 to 672+680

Level : - 4.5 M

Report No. : 17



Signature /

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1350	2.29	6.8	2.15	97.2%	Comply
2	671+860	1821	2.27	6.4	2.13	96.6%	Comply

ASTM D-1556

Compaction test by using Sand – Cone Test Method

Company Name : شركة الجرافيك
 Project : Electric Express Train – HSR From Qous To Arman
 Testing Date : 18/09/2023
 Soil type : Middle Embankment (Subgrade)
 Location : ST From 671+780 to 671+880
 Level : - 5 M
 Report No. : 18

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 19/09/2023
Soil type : Middle Embankment
Location : ST From 671+900 to 671+980
Level : - 5 M
Report No. : 19

**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	671-930	1821	2.27	6.4	2.13	96.6%	Comply
2	671-960	1717	2.30	5.8	2.17	98.2%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature
Date: 19/09/2023
Time: 10:00 AM
Location: Lab. No. 101

Company Name : شركة الجليل
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 20/09/2023
Soil type : Middle Embankment
Location : ST From 672+080 to 672+180
Level : - 3.5 M
Report No. : 20

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	672-130	1924	2.28	6.8	2.13	96.5%	Comply
2	672-160	1683	2.28	6.4	2.15	97.1%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %



Signature



Signature /

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

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 Spec.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Materials test

This sample is representative for 5,000 M³

Attached here with the delivered on 14 / 9 / 2023

Dear Gentleman,

Company Name : *çaylak İnşaat*
 Project : *Electric Express Train - HSR From Çorlu To Armutlu*
 Location : *ST: 672+180 B=32.77+5621 N=25.6596723*
 Type of sample : *Soil Embankment*
 Delivery Date : *14/9/2023*
 Reporting Date : *19/9/2023*
 Reporting No. : *01-4*

Signature: _____

Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	28.6
2.00	10	46.9
4.75	4	60.0
9.50	3/8	69.8
12.50	1/2	71.7
19	3/4	84.1
25	1	92.5
37.5	1.5	96.1
50	2	97.5

RESULT OF SIEVE ANALYSIS According to ASTM 1122

Project: _____
Location: _____
Type of sample: _____
Delivery Date: _____
Reporting Date: _____
Reporting To: _____

Test	Percentage of material finer than Sieve Size 75 μm (No. 200)
Results (%)	9.0

Company Name	Electric Express Twin - HSR from Qom to Arumut
Location	ST: 672+180 E=32.7745621 N=25.6596723
Type of sample	Soil Embankment
Delivery Date	14/9/2023
Reporting Date	19/9/2023
Reporting No.	01-4



Page No. _____
Date _____

Signature / *[Signature]*

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

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

Location: *[Blank]*
Type of sample: *[Blank]*
Soil description: *[Blank]*
Soil name: *[Blank]*
Reporting Date: *[Blank]*
Reporting No: *[Blank]*

[Signature]
Date: *[Blank]*



Signature / _____

Max dry density (g/cm ³)	Optimum moisture content %
2.7	5.2



ASTM D-1557

Location	01/01/2000	01/01/2001	01/01/2002	01/01/2003	01/01/2004	01/01/2005	01/01/2006	01/01/2007	01/01/2008	01/01/2009	01/01/2010	01/01/2011	01/01/2012	01/01/2013	01/01/2014	01/01/2015	01/01/2016	01/01/2017	01/01/2018	01/01/2019	01/01/2020	01/01/2021	01/01/2022	01/01/2023	01/01/2024	01/01/2025	01/01/2026	01/01/2027	01/01/2028	01/01/2029	01/01/2030	01/01/2031	01/01/2032	01/01/2033	01/01/2034	01/01/2035	01/01/2036	01/01/2037	01/01/2038	01/01/2039	01/01/2040	01/01/2041	01/01/2042	01/01/2043	01/01/2044	01/01/2045	01/01/2046	01/01/2047	01/01/2048	01/01/2049	01/01/2050	01/01/2051	01/01/2052	01/01/2053	01/01/2054	01/01/2055	01/01/2056	01/01/2057	01/01/2058	01/01/2059	01/01/2060	01/01/2061	01/01/2062	01/01/2063	01/01/2064	01/01/2065	01/01/2066	01/01/2067	01/01/2068	01/01/2069	01/01/2070	01/01/2071	01/01/2072	01/01/2073	01/01/2074	01/01/2075	01/01/2076	01/01/2077	01/01/2078	01/01/2079	01/01/2080	01/01/2081	01/01/2082	01/01/2083	01/01/2084	01/01/2085	01/01/2086	01/01/2087	01/01/2088	01/01/2089	01/01/2090	01/01/2091	01/01/2092	01/01/2093	01/01/2094	01/01/2095	01/01/2096	01/01/2097	01/01/2098	01/01/2099	01/01/2100
Location	01/01/2000	01/01/2001	01/01/2002	01/01/2003	01/01/2004	01/01/2005	01/01/2006	01/01/2007	01/01/2008	01/01/2009	01/01/2010	01/01/2011	01/01/2012	01/01/2013	01/01/2014	01/01/2015	01/01/2016	01/01/2017	01/01/2018	01/01/2019	01/01/2020	01/01/2021	01/01/2022	01/01/2023	01/01/2024	01/01/2025	01/01/2026	01/01/2027	01/01/2028	01/01/2029	01/01/2030	01/01/2031	01/01/2032	01/01/2033	01/01/2034	01/01/2035	01/01/2036	01/01/2037	01/01/2038	01/01/2039	01/01/2040	01/01/2041	01/01/2042	01/01/2043	01/01/2044	01/01/2045	01/01/2046	01/01/2047	01/01/2048	01/01/2049	01/01/2050	01/01/2051	01/01/2052	01/01/2053	01/01/2054	01/01/2055	01/01/2056	01/01/2057	01/01/2058	01/01/2059	01/01/2060	01/01/2061	01/01/2062	01/01/2063	01/01/2064	01/01/2065	01/01/2066	01/01/2067	01/01/2068	01/01/2069	01/01/2070	01/01/2071	01/01/2072	01/01/2073	01/01/2074	01/01/2075	01/01/2076	01/01/2077	01/01/2078	01/01/2079	01/01/2080	01/01/2081	01/01/2082	01/01/2083	01/01/2084	01/01/2085	01/01/2086	01/01/2087	01/01/2088	01/01/2089	01/01/2090	01/01/2091	01/01/2092	01/01/2093	01/01/2094	01/01/2095	01/01/2096	01/01/2097	01/01/2098	01/01/2099	01/01/2100



Signature/ *[Signature]*

- Notes:
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of ≈ 2.21 (gm/cm³)
 - 3- $Af = 5.8$ % optimum water content
 - 4- Surcharge load 4.50 Kg
 - 5- CBR > 10 for middle and lower embankments according project specification No 35.

CBR Result	At 0.1 inch (2.54 mm) penetration	
	St. Value	Sample results
Stress (Mpa)	6.90	3.65
CBR 100 %		52.5 %

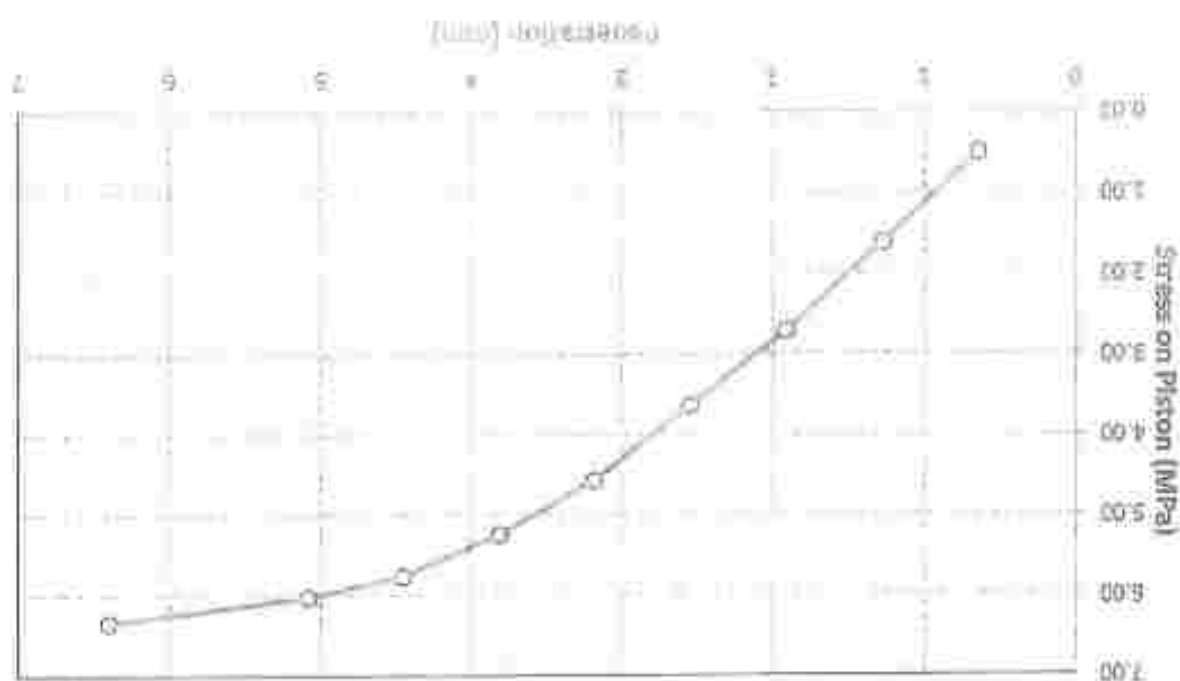
penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.51
1.27	0.050	1.63
1.91	0.075	2.72
2.54	0.100	3.65
3.18	0.125	4.57
3.81	0.150	5.25
4.45	0.175	5.77
5.08	0.200	6.04
6.35	0.250	6.35

ASTM D 1586

Test Results of California Bearing Ratio on Reg. Mortar

Reporting No: 101-6
 Reporting Date: 18/12/2023
 Drawing Date: 18/12/2023
 Type of Sample: Soil Stabilization
 Location: ST-010450 Designation: M11.0596/22

Signature: [Signature]



Load Penetration Curve of CBR Test
ASTM D-1883

Project: [Project Name]
Location: [Location]
Type of Sample: [Type of Sample]
Delivery Date: [Delivery Date]
Reporting Date: [Reporting Date]
Reporting No.: [Reporting No.]

Prepared by: [Name]
Reviewed by: [Name]
Date: [Date]



13/09/2023
13/09/2023
13/09/2023



- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+030	1568	2.30	6.4	2.16	97.7%	Comply
2	672+056	1526	2.30	6	2.17	98.0%	Comply

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

Company Name : **CEL**
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 23/09/2023
Soil type : Middle Embankment
Location : ST From 672+020 TO 672+060
Level : - 3.5 M
Report No. : 21



Company Name : شركة الجوف
Project : Electric Express Train - HSR From Gous To Arman
Testing Date : 23/09/2023
Soil type : Middle Embankment
Location : ST From 672+760 To 672+780
Level : - 4.5 M
Report No. : 21-2

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	672+770	1396	2.26	6.8	2.12	95.8%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / *[Signature]*

(Signature)
Signature

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+670	1527	2.30	6.4	2.16	97.8%	Comply
2	672+695	1494	2.31	5.8	2.18	98.7%	Comply

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

Company Name : 15 جاد الجديد
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 24/09/2023
Soil type : Middle Embankment
Location : ST From 672+640 TO 672+700
Level : - 4 M
Report No. : 22



Signature /

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture % Content	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
2	671+760	1771	2.24	5.4	2.11	95.3%	Comply
1	671+730	1624	2.30	6.4	2.16	97.9%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Company Name :
Project : Electric Express Train - HSR From Qous To Armanit
Testing Date : 26/09/2023
Soil type : Middle Embankment
Location : ST From 672+700 To 672+780
Level : - 4 M
Report No. : 24



- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	2038	2.29	6.4	2.15	97.3%	Comply
2	672+700	2018	2.24	5.8	2.12	95.9%	Comply
3	672+740	1714	2.26	5.5	2.14	96.7%	Comply
4	672+760	1759	2.22	5.6	2.11	95.3%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Report No.

42:

Level

MSE = 3.5 M

Location

: ST From 672+640 To 672+780

Soil type

: Middle Embryonism

Testing Date

2/10/2023

Project

: Electric Express Train - HSR From Goussier To Arment

Company Name

ॐ नमो भगवते वासुदेवाय :

ප්‍රධාන මණ්ඩලීය කාර්යාලයක් (විද්‍යාලීන) ප්‍රධාන මණ්ඩලයක් 2 ප්‍රධාන මණ්ඩලයක් විද්‍යාලීන මණ්ඩලයක්

730



- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+060	1679	2.22	5.8	2.10	95.1%	Comply
2	672+100	1508	2.33	6.4	2.19	99.3%	Comply
3	672+135	1370	2.31	5.5	2.19	99.2%	Comply
4	672+175	1403	2.33	5.6	2.20	99.7%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Report No. : 25
 Level : - 3 M
 Location : ST From 672+020 TO 672+180
 Soil type : Middle Embankment
 Testing Date : 27/09/2023
 Project : Electric Express Train - HSR From Qous To Arman
 Company Name : شركة الجاهلي

Company Name : شركة الجواهرية

Project : Electric Express Train - HSR From Qous To Armut
Testing Date : 30/09/2023

Soil type : Middle Embankment
Location : ST From 671+900 To 671+980

Level : - 4.5M
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	671+925	1679	2.28	6.4	2.14	96.8%	Comply
2	671+941	1499	2.28	6	2.15	97.1%	Comply
3	671+975	1506	2.34	6.4	2.20	99.4%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.21 gm/cm³

• At optimum moisture content = 5.8 %

Signature /
219-994-337
Consulting Engineering Bureau & Laboratories
Jeddah - KSA

Signature / _____

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1862	2.24	5.8	2.12	95.8%	Comply
2	671+865	1841	2.28	5.8	2.16	97.6%	Comply

ASTM D-1556

Company Name	: قنا لوجستك
Project	: Electric Express Train - HSR From Qous To Arment
Testing Date	: 25/09/2023
Soil type	: Middle Embankment
Location	: ST From 671+780 TO 671+880
Level	: - 4.5 M
Report No.	: 23



at. 07/07/16

Signature / 

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

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-1383

Materials test

This sample is representative for 5,000 m³

Attached here with the delivered on 21 / 9 / 2023

Dear Gentleman,

Company Name :  : Electric Express Train - HSR from Qow to Almaty
Project : ST: 672-180 S=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/9/2023
Reporting Date : 26/9/2023
Reporting No. : 01-5

Signature / _____

Sieve Size (mm)	Sieve Size (in)	Passing %
0.075	40	28.4
2.00	10	41.5
4.75	4	53.6
9.50	2/3	60.8
12.50	1/2	70.6
15	3/4	78.2
25	1	84.1
37.5	1.5	90.2
50	2	96.8

Percentage of material passing through sieve = 96.8%

1. Name of the project: _____
 2. Name of the student: _____
 3. Name of the teacher: _____
 4. Date of submission: _____
 5. Date of evaluation: _____
 6. Name of the institution: _____
 7. Address of the institution: _____
 8. City: _____
 9. State: _____
 10. Pin Code: _____
 11. Country: _____
 12. E-mail: _____
 13. Phone No.: _____
 14. Mobile No.: _____
 15. Fax No.: _____
 16. Web Site: _____
 17. Social Media: _____
 18. Other: _____
 19. _____
 20. _____
 21. _____
 22. _____
 23. _____
 24. _____
 25. _____
 26. _____
 27. _____
 28. _____
 29. _____
 30. _____
 31. _____
 32. _____
 33. _____
 34. _____
 35. _____
 36. _____
 37. _____
 38. _____
 39. _____
 40. _____
 41. _____
 42. _____
 43. _____
 44. _____
 45. _____
 46. _____
 47. _____
 48. _____
 49. _____
 50. _____
 51. _____
 52. _____
 53. _____
 54. _____
 55. _____
 56. _____
 57. _____
 58. _____
 59. _____
 60. _____
 61. _____
 62. _____
 63. _____
 64. _____
 65. _____
 66. _____
 67. _____
 68. _____
 69. _____
 70. _____
 71. _____
 72. _____
 73. _____
 74. _____
 75. _____
 76. _____
 77. _____
 78. _____
 79. _____
 80. _____
 81. _____
 82. _____
 83. _____
 84. _____
 85. _____
 86. _____
 87. _____
 88. _____
 89. _____
 90. _____
 91. _____
 92. _____
 93. _____
 94. _____
 95. _____
 96. _____
 97. _____
 98. _____
 99. _____
 100. _____

1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____
 11. _____
 12. _____
 13. _____
 14. _____
 15. _____
 16. _____
 17. _____
 18. _____
 19. _____
 20. _____
 21. _____
 22. _____
 23. _____
 24. _____
 25. _____
 26. _____
 27. _____
 28. _____
 29. _____
 30. _____
 31. _____
 32. _____
 33. _____
 34. _____
 35. _____
 36. _____
 37. _____
 38. _____
 39. _____
 40. _____
 41. _____
 42. _____
 43. _____
 44. _____
 45. _____
 46. _____
 47. _____
 48. _____
 49. _____
 50. _____
 51. _____
 52. _____
 53. _____
 54. _____
 55. _____
 56. _____
 57. _____
 58. _____
 59. _____
 60. _____
 61. _____
 62. _____
 63. _____
 64. _____
 65. _____
 66. _____
 67. _____
 68. _____
 69. _____
 70. _____
 71. _____
 72. _____
 73. _____
 74. _____
 75. _____
 76. _____
 77. _____
 78. _____
 79. _____
 80. _____
 81. _____
 82. _____
 83. _____
 84. _____
 85. _____
 86. _____
 87. _____
 88. _____
 89. _____
 90. _____
 91. _____
 92. _____
 93. _____
 94. _____
 95. _____
 96. _____
 97. _____
 98. _____
 99. _____
 100. _____



Signature /
[Signature]

Percentage of material finer than Sieve Size 75 μ m (No.200)	8.4
Test	Results (%)

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

Company Name : Gas, Oil & Gas
Project : Electric Exports Train - HSR From Qura To Aynah
Location : ST: 6724-180 E=32.7745621 N=25.6596723
Type of sample : Soil bankment
Delivery Date : 21/9/2023
Reporting Date : 26/9/2023
Reporting No. : 01-5



Journal of Management Inquiry 22(2) 160-175

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

STEP 6: WALK TO THE TOP OF THE HILL



Signature/Stamp of

The test shall be (a) carried out by the Company (b) the Government (c) the Government (d) the Government

TEST	Result (%)	Limits according to Project Spec			Group Classification	3.00 mm (No.10)	0.425 mm (No.40)	0.075 mm (No.200)	Liquid Limit	Plasticity Index
		(A-1-a)	(A-1-b)	(A-1-c)						
						41.5	28.4	8.4	—	—
						max 50 %	max 30 %	max 15 %	—	—
						—	—	—	—	—
						—	—	—	—	—
						max 50 %	max 30 %	max 15 %	—	—
						—	—	—	—	—
						—	—	—	—	—
						max 50 %	max 30 %	max 15 %	—	—
						—	—	—	—	—

By the Company

Signature of
Name of
Designation
Date

Signature of
Name of
Designation
Date

Signature of
Name of
Designation
Date



10

Signature /

Signature /

1. Wet density (g/cm³) : 1.21
2. Organic moisture content % : 5.8



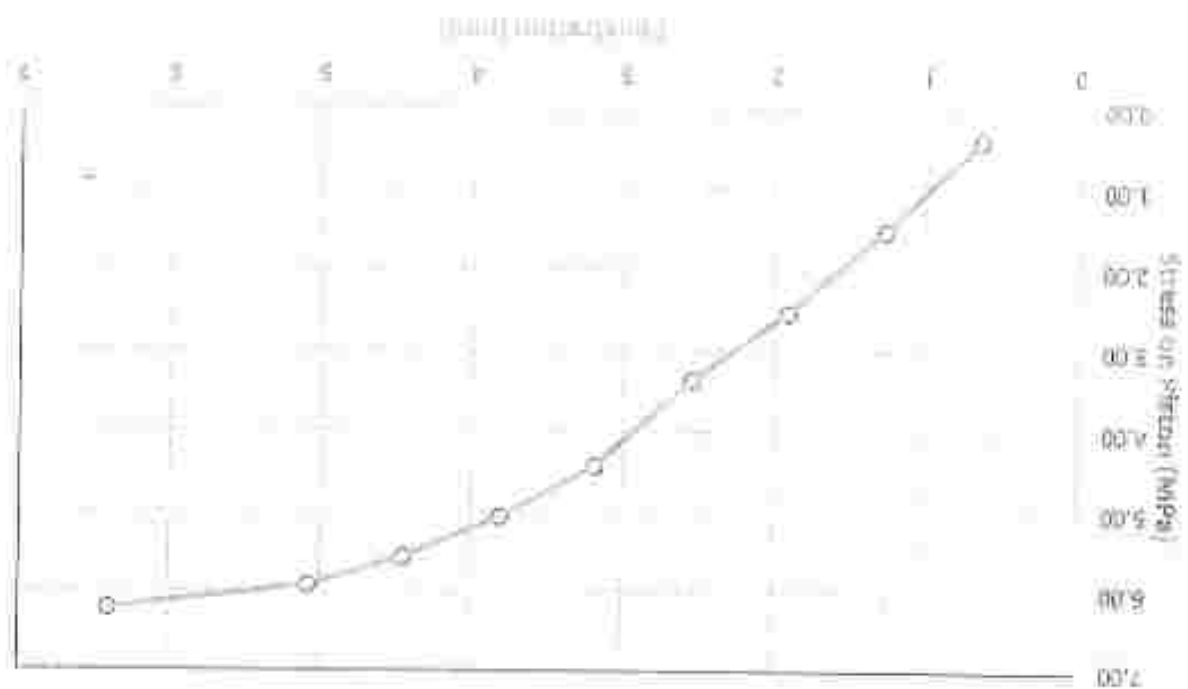
Wet Density (g/cm³) : 1.21
Organic Moisture Content (%) : 5.8

Wet Density (g/cm³) : 1.21
Organic Moisture Content (%) : 5.8

Wet Density (g/cm³) : 1.21
Organic Moisture Content (%) : 5.8

Wet Density (g/cm³) : 1.21
Organic Moisture Content (%) : 5.8

Stress-Strain Relationship



ASTM D-1883
Load-Extension Curve of CBR Test

The graph shows the relationship between stress and strain for a material. The x-axis represents stress in MPa, ranging from 0 to 7.00. The y-axis represents strain in mm/mm, ranging from 0 to 3. The curve starts at the origin (0,0) and increases non-linearly, passing through points approximately at (1.0, 0.1), (2.0, 0.2), (3.0, 0.4), (4.0, 0.6), (5.0, 0.8), (6.0, 1.0), and (7.0, 1.2).

The graph shows the relationship between stress and strain for a material. The x-axis represents stress in MPa, ranging from 0 to 7.00. The y-axis represents strain in mm/mm, ranging from 0 to 3. The curve starts at the origin (0,0) and increases non-linearly, passing through points approximately at (1.0, 0.1), (2.0, 0.2), (3.0, 0.4), (4.0, 0.6), (5.0, 0.8), (6.0, 1.0), and (7.0, 1.2).

Company Name : شركة الجاحظ

Project : Electric Express Train - HSR From Qous To Armani
Testing Date : 3/10/2023

Soil type : Middle Embankment

Location : ST From 671+780 To 672+020

Level : - 4 M

Report No. : 28

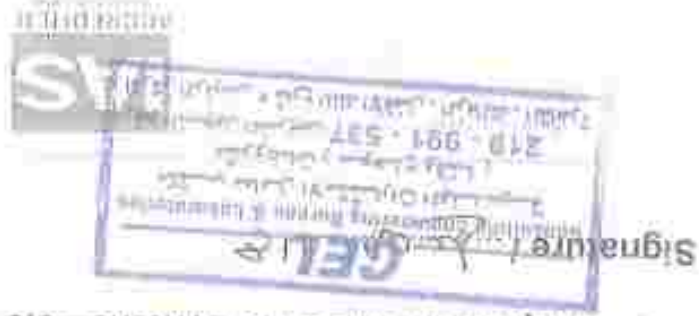
Compaction test by using Sand - Cone Test Method ASTM D - 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gml cm ³	Moisture Content %	Dry Density (gml cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1510	2.28	5.5	2.16	98.3%	Comply
2	671+870	1568	2.22	5.8	2.10	95.2%	Comply
3	671+920	1622	2.23	5.5	2.12	96.2%	Comply
4	671+960	1329	2.30	5.5	2.18	99.1%	Comply
5	672+010	1783	2.26	5.3	2.14	97.4%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 gm/cm³

• At optimum moisture content = 5.8 %





Signature / 

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

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

Materials test

This sample is representative for 5,000 M³

Attached here with the delivered on 27 / 9 / 2023

Dear Gentleman ,

Company Name : شركة الجحش
 Project : Electric Express Train – HSR From Qous To Armanat
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 27/9/2023
 Reporting Date : 1/10/2023
 Reporting No. : 01-6



Signature / *[Signature]*

Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	24.2
2.00	10	39.3
4.75	4	52.4
9.50	3/8	60.5
12.50	1/2	74.3
19	3/4	78.4
25	1	84.3
37.5	1.5	90.7
50	2	98.1

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Company Name : *[Arabic Name]*
Project : Electric Express Train - HSR From Qoue To Armani
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 27/9/2023
Reporting Date : 1/10/2023
Reporting No. : 01-6

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

CEL
Chemical Engineering Bureau & Laboratories
2000 North 17th Street, Tulsa, OK 74103

Signature/.....

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

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

Company Name : **CEL**
 Project : **Electric Express Train - HSR From Qous To Arman**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **27/9/2023**
 Reporting Date : **1/10/2023**
 Reporting No. : **01-6**

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

TEST	Results	Limits according Projects Specs			
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-f)	
2.00 mm (No.10).	39.3	Max 50 %	-----	-----	
0.425 mm (No. 40).	24.2	Max 30 %	Max 50 %	-----	
0.075 mm (No. 200).	8.6	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit		-----	-----	-----	
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %	

Company Name	: غازي ايس 45.3
Project	: Electric Express Train - HSR From Qous To Arnam
Location	: ST: 672+180 E=32.7745621 N=25.6596723
Type of sample	: Soil Embankment
Delivery Date	: 27/9/2023
Reporting Date	: 1/10/2023
Reporting No.	: 01-6

Company Name : شركة الجسر
Project : Electric Express Train - HSR From Qous To Armani
Location : ST: 672+186 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 27/9/2023
Reporting Date : 1/10/2023
Reporting No. : 01-6

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



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 5.8

Signature / 

Signature / 

- Notes:
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of ≈ 2.20 (gm/cm³)
 - 3- Surcharge load 4.50 kg.
 - 4- CBR > 10 for middle and lower embankments according project spec page No 36.

CBR Result	Stress (Mpa)	At 0.1 inch (2.54 mm) penetration	
		St. Value	Sample results
CBR 100 %		6.90	54.4 %
			3.75
mm	penetration	0.250	6.35
		0.200	5.08
		0.175	4.45
		0.150	3.81
		0.125	3.18
		0.100	2.54
		0.075	1.91
		0.050	1.27
		0.025	0.64
		Inch	
stress on piston (Mpa)			6.09
			5.98
			5.68
			5.33
			4.62
			3.75
			2.76
			1.69
			0.56

ASTM D 1883

Test Results of California Bearing Ratio on Base Materials

Company Name :  : 01-6

Reporting No. : 01-6

Reporting Date : 1/10/2023

Delivery Date : 27/9/2023

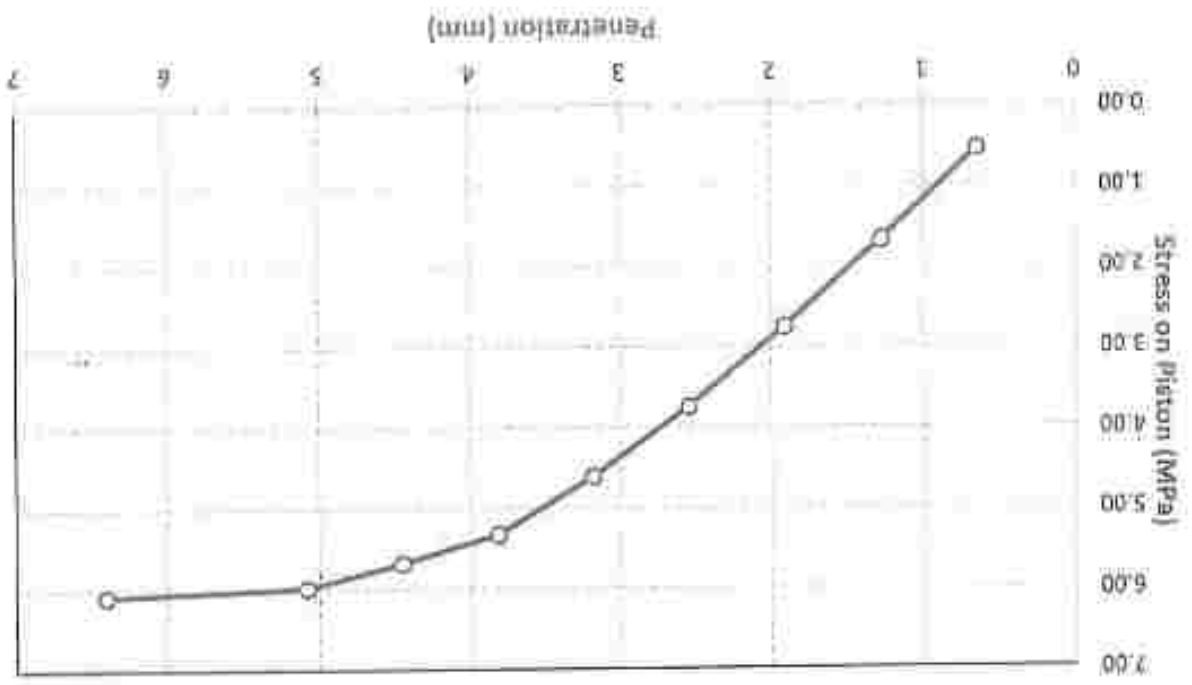
Type of sample : Soil Embankment

Location : ST: 672+180 E=32.7745621 N=25.6596723

Project : Electric Express Train - HSR From Qous To Armani

Company Name : **شركة الجول**
 Project : **Electric Express Train - HSR From Qous To Amman**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **27/9/2023**
 Reporting Date : **1/10/2023**
 Reporting No. : **01-6**

Load Penetration Curve of CBR Test
ASTM D-1883



Signature/ **محمد الجول**



- At optimum moisture content = 5.8 %
- Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1779	2.29	6.4	2.15	97.7%	Comply
2	672+690	1799	2.31	6	2.18	99.0%	Comply
3	672+730	1814	2.28	6.4	2.14	97.4%	Comply
4	672+760	1923	2.21	5.8	2.09	95.0%	Comply

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

Report No. : 23
 Level : - 3 M
 Location : ST From 672+640 To 672+780
 Soil type : Middle Embankment
 Testing Date : 9/10/2023
 Project : Electric Express Train – HSR From Qous To Arman
 Company Name : شركة الجليل



Signature /

- At optimum moisture content = 5.8 %
- Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture % Content	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+150	1483	2.23	6	2.11	95.7%	Comply
2	672+175	1532	2.25	5.8	2.13	96.8%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Report No. : 25
Level : -2.5 M
Location : ST From 672+120 To 672+180
Soil type : Middle Embankment
Testing Date : 8/10/2023
Project : Electric Express Train - HSR From Qous To Arman
Company Name : شركة الجرافيك



not responsible for the way it is taken

6. CBR according to ASTM D-1883

This sample is representative for 5,000 M³

Attached here with the delivered on 30 / 9 / 2023

Dear Gentleman,

Reporting No. : 01-7

Reporting Date : 3/10/2023

Delivery Date : 30/9/2023

Type of sample : Soil Embankment

Project	Location
: Electric Express Train - HSR From Qous To Arman	: ST: 672+180 E=32.7745621 N=25.6596723

Company Name :

සමස්ත ප්‍රතිචාරය සඳහා සහතික කර ඇත

CEL

Company Name : شركة الجول
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.2
37.5	1.5	91.2
25	1	85.2
19	3/8	78.2
12.50	1/2	71.6
9.50	3/8	64.1
4.75	4	57.0
2.00	10	42.3
0.425	40	26.8

Signature: 

Company Name : شركة الجليل
 Project : Electric Express Train - HSR From Qous To Armanat
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 µm (No.200)	8.8

Signature / 





Signature / *[Handwritten Signature]*

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

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

Company Name : *شركة الجبل*
 Project : Electric Express Train – HSR From Gous To Armaah
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

Company Name : شركة الجرجس
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

Soil Classification

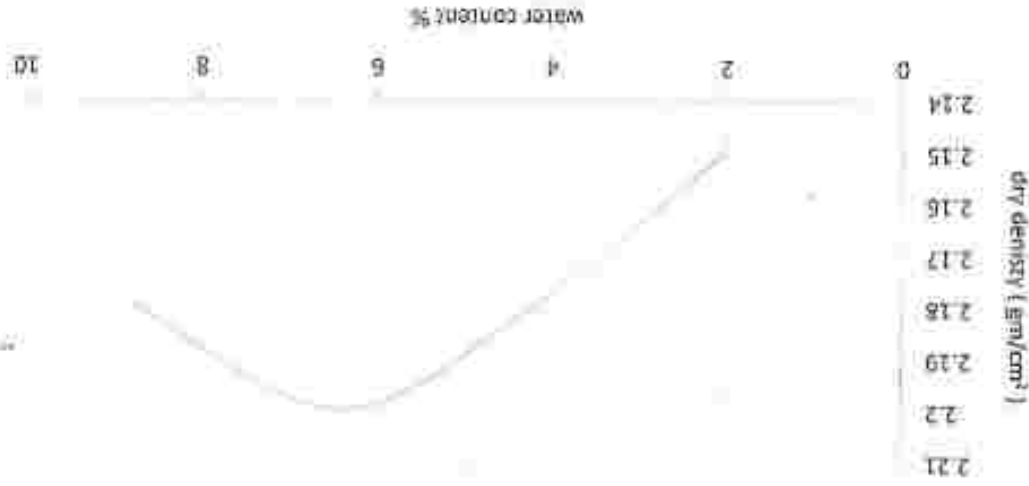
TEST	Results (%)	Limits according Projects Specs			
		Group Classification	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	42.3	Max 50 %	—	—	—
0.425 mm (No. 40)	26.8	Max 30 %	Max 50 %	—	—
0.075 mm (No. 200)	8.8	Max 15 %	Max 15 %	Max 15 %	Max 15 %
Liqud Limit					
Plasticity Index					
	0	Max 6 %	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply) with specifications limits

Signature /

Company Name : شركة الجاهلي
 Project : Electric Express Train - HSR From Qous To Armut
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

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



- * Max dry density (gm/cm³) : 2.20
- * Optimum moisture content % : 8.5

Signature / 

Company Name : شركة الجحش :
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.65
3.18	0.125	4.54
3.81	0.150	5.22
4.45	0.175	5.58
5.08	0.200	5.83
6.35	0.250	5.98

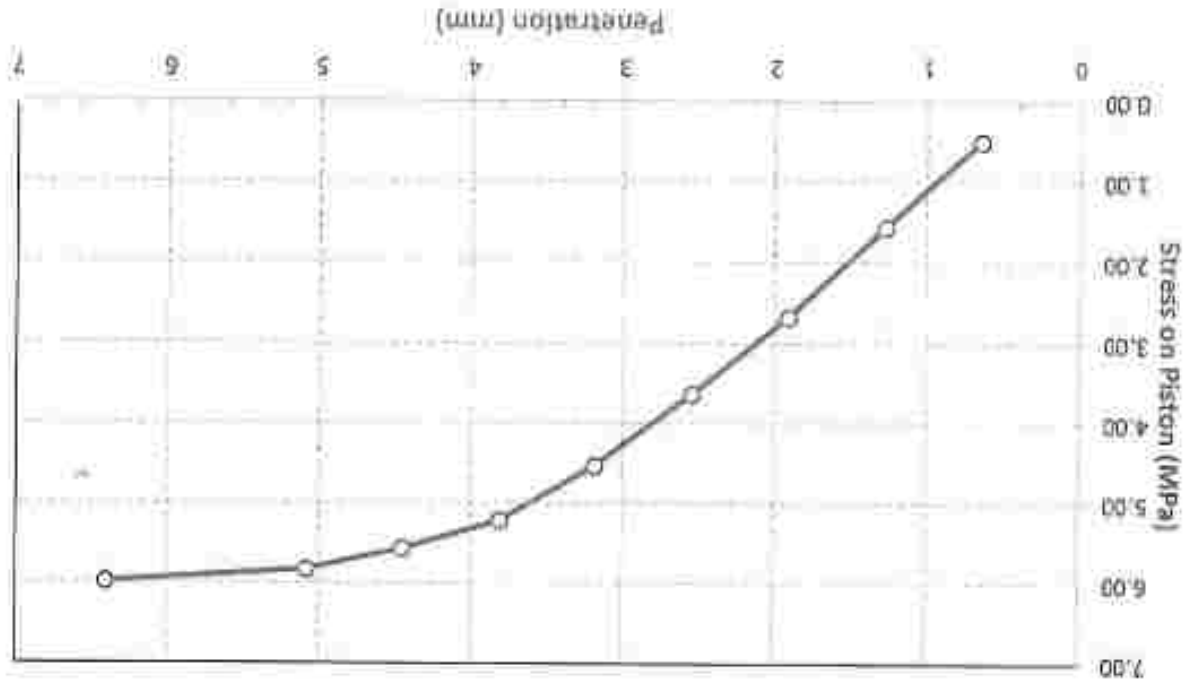
CBR Result	Stress (Mpa)	At 0.1 inch (2.54 mm) penetration	
		St. Value	Sample results
CBR 100 %		6.90	52.9 %
		3.65	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\rho = 2.20 \text{ (gm/cm}^3\text{)}$
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature / 

Load Penetration Curve of CBR Test
ASTM D-1883



Signature/ *[Signature]*

Signature /
At optimum moisture content = 5.8 %

• Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+050	1411	2.24	6.4	2.11	95.8%	Comply
2	672+080	1464	2.21	5.5	2.09	95.2%	Comply
3	672+110	1470	2.22	5.8	2.10	95.6%	Comply

ASTM D- 1556

Compaction test by using Sand – Cone Test Method

Report No. : 24
Level : -2.5 M
Location : ST From 672+020 To 672+120
Soil type : Middle Embankment
Testing Date : 9/10/2023
Project : Electric Express Train – HSR From Qous To Arman
Company Name : شركة الجوال

Company Name : شركة الجول

Project : Electric Express Train - HSR From Gous To Arman

Testing Date : 10/10/2023

Soil type : Middle Embankment

Location : ST From 671+780 To 671+900

Level : -3.5 M

Report No. : 28-2

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	671+800	1423	2.28	6	2.15	97.6%	Comply
2	671+830	1652	2.23	6.4	2.10	95.5%	Comply
3	671+860	1465	2.29	6.4	2.15	97.9%	Comply
4	671+880	1654	2.27	6	2.14	97.3%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 gm/cm³

• At optimum moisture content = 5.8 %

Signature /



Company Name : شركة الجبل

Project : Electric Express Train – HSR From Qous To Arman

Testing Date : 10/10/2023

Soil type : Middle Embankment

Location : ST From 671+900 To 672+020

Level : -3.5 M

Report No. : 27

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	671+930	1421	2.25	6.4	2.12	96.2%	Comply
2	671+960	1386	2.24	6	2.11	95.9%	Comply
3	671+990	1366	2.26	5.5	2.14	97.5%	Comply
4	671+010	1292	2.32	6.4	2.18	99.2%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 gm/cm³

• At optimum moisture content = 5.8 %

Signature /





- At optimum moisture content = 5.8 %
- Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+680	1801	2.27	5.6	2.15	97.7%	Comply
2	672+700	1784	2.26	5.5	2.14	97.4%	Comply
3	672+740	1675	2.32	6.4	2.18	99.3%	Comply

ASTM D-1556

Compaction test by using Sand – Cone Test Method

Report No. : 33
 Level : -2.5 M
 Location : ST From 672+640 To 672+780
 Soil type : Middle Embankment
 Testing Date : 14/10/2023
 Project : Electric Express Train – HSR From Qous To Arman
 Company Name : شركة الجوال





Signature

not responsible for the way it is taken

Note: The sample was brought by the client to our laboratory and the laboratory is

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

Materials test

Attached here with the delivered on 22 / 7 / 2023

Dear Gentlemen,

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01



Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	18.02
2.00	10	29.82
4.75	4	31.72
9.50	3/8	46.02
12.50	1/2	51.32
19	3/4	61.82
25	1	66.00
37.5	1.5	73.60
50	2	82.10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Company Name : شركة الجواهر
 Project : Electric Express Train = HSR From Qous To Arman
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

Signature /
CEL

Percentage of material finer than Sieve Size 75 μ m (No.200)	6.5 %
Test	Results (%)

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

Company Name : شركة الجوا
Project : Electric Express Train – HSR From Qous To Armani
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

Company Name : شركة الجبل
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

**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 / 
 Engineer / 

Company Name : شركة الجرجس
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

Soil Classification

TEST	Results (%)	Limits according Projects Specs			
		Group Classification	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	29.82	Max 50 %	-----	-----	-----
0.425 mm (No. 40).	18.02	Max 30 %	Max 50 %	-----	-----
0.075 mm (No. 200).	6.5	Max 15 %	Max 15 %	Max 15 %	Max 15 %
Liquid Limit			-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %	Max 10 %

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

Signature


Company Name : شركة الجليل
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

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



- * Max dry density (gm/cm³) : 2.24
- * Optimum moisture content % : 5.3 %

Signature/ 
CEL



4- CBR > 10 for middle and lower embankments according project spec page No.36.

3. Surcharge: 100 km

 $\text{Al} = 5.3\%$ optimum water content.

2- The sample was compacted to dry density of $\rho = 2.24 \text{ (gm/cm}^3\text{)}$.

1 - Attached graph shows penetration resistance versus penetration magnitude.

NOTES

[illegible]

ASTM D 1883

Test Results of California Bearing Ratio on Base Materials

Reporting No. : 01

Reporting Date : 29/07/2023

Delivery Date : 25/07/2023

Type of sample : Soil Embankment (Upper Embankment 0.0 m)

Location	ST: 672+140	Zone: From 671+783 To 672+180
----------	-------------	-------------------------------

Project : Electric Express Train - HSR From Qous To Arnam

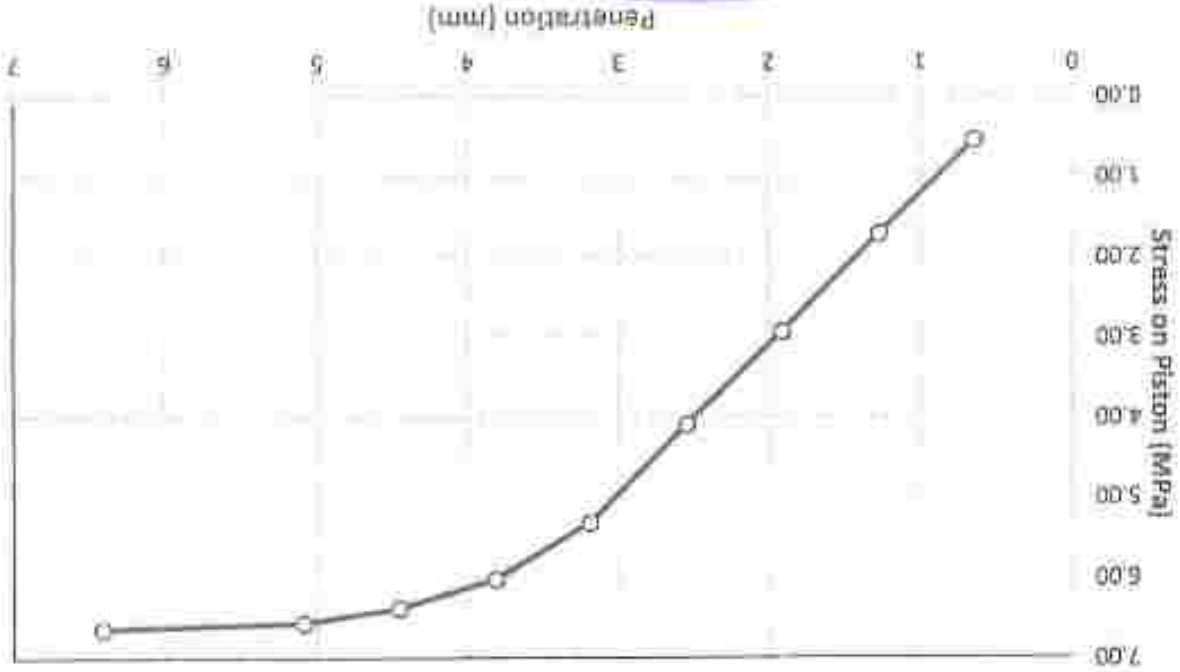
Company Name : جی ایل ایف

ಪ್ರಾಚೀನ ಸಾಹಿತ್ಯದ ಅಧ್ಯಯನದ ಮೂಲಕ
ಪ್ರಾಚೀನ ಸಾಹಿತ್ಯದ ಅಧ್ಯಯನದ ಮೂಲಕ

CEL



Signature



ASTM D-1883

Load Penetration Curve of CBR Test

Company Name : شركة الجاهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

Company Name : شركة الجوا
Project : Electric Express Train - HSR From Qous To Armani
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

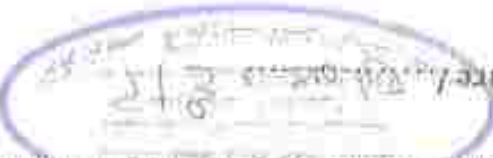
Dear Gentleman,

Attached here with the delivered on 25 / 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 / 

Signature / 
CEL

Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	18.02
2.00	10	29.82
4.75	4	31.72
9.50	3/8	46.02
12.50	1/2	51.32
19	3/4	61.82
25	1	66.00
37.5	1.5	73.60
50	2	82.10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Company Name : شركة الجوف
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

Company Name : شركة الجوا
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	6.5 %

Signature :


Company Name : شركة الجحش
Project : Electric Express Train - HSR From Qous To Armani
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

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

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

Signature / *[Signature]*
CEL

818-7673 / a.

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)	29.82	Max 50 %	-----	-----	
0.425 mm (No. 40)	18.02	Max 30 %	Max 50 %	-----	
0.075 mm (No. 200)	6.5	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit		-----	-----	-----	
Plasticity Index		0	Max 6 %	Max 6 % Max 10 %	

Company Name	: شركة مياه الشرب والري
Project	: Electric Express Train - HSR From Qos To Ararat
Location	: ST: 672+140 Zone: From 671+783 To 672+180
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 25/07/2023
Reporting Date	: 29/07/2023
Reporting No.	: 01



Signature /

- * Optimum moisture content % : 5.3 %
- * Max dry density (gm/cm³) : 2.24



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

Company Name : شركة الجحاح
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

4- CBR > 10 for middle and lower embankments according project spec page No 36.

- NOTES

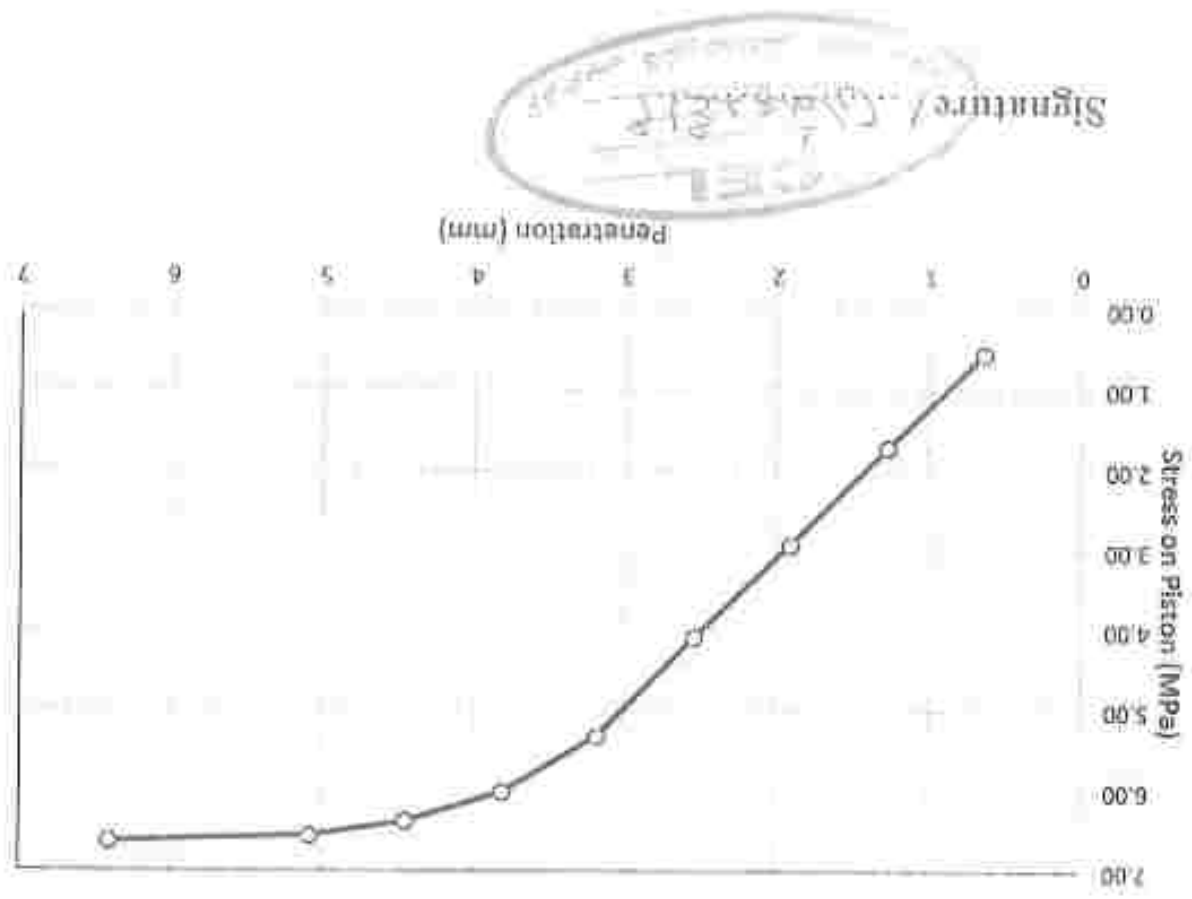
ASTM D 1883

Test Results of California Bearing Ratio on Base Materials

[illegible]

Company Name : (شركة) **CEL**
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / **CEL**
 29/07/2023

Company : **CEL** شركة استشارات الهندسة والبحوث

Project : **Electric Express Train - Guelin (B) - Gous to Arment**
Subject : **Determine the deformation and swelling characteristics of soil by the plate loading test according specifications DIN 18134-2013-04 and project requirements**
Test Location : **Station (672+100 to 672+080)**
Test Date : **30/07/2023**
Report Date : **31/07/2023**
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 (Enerpac)
- 7 Reaction loading system by roller compactor with weight approximately 15 ton.
- 8 Calibration certificates are attached

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 2 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 nominal 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. In 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



3 El Mada St Arda Street
Zamalek, Cairo
Toll. Fax : 27367231 - 27367082

طريق الدارد 3 شارع
القاهرة - جمنا
Toll. Fax : 27367231 - 27367082
www.cel-egypt.com

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

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	30/07/2023
- 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	Eval/Ev Ratio
	From	To			Ev1 (MPa)	Ev2 (MPa)		
1	672+100	672+080	572+120	-5.0	48.9	123.8	2.53	



Company Name : شركة استشارات الهندسة ومختبرات الهندسة
Project : اختبار ضغط التربة - قسم التربة
Test Date : 30/07/2023
Report Date : 31/07/2023
Location : Station (672+120)
Test No. : 01

Noncohesive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.63	19.30	0.70	18.61	0.39	0.55	0.55
2	1.00	18.91	1.09	18.10	0.90	0.89	0.89
3	2.50	18.44	1.49	18.73	1.27	1.36	1.36
4	3.93	18.10	1.80	18.35	1.67	1.74	1.74
5	4.17	17.80	2.20	17.99	2.01	2.11	2.11
6	5.00	17.36	2.66	17.60	2.40	2.53	2.53

Unloading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
1	2.50	17.43	2.67	17.69	2.31	2.44	2.44
3	1.25	17.00	2.40	17.74	2.27	2.31	2.31
3	0.100	17.83	2.17	17.93	2.07	2.12	2.12

Loading Stage (2)

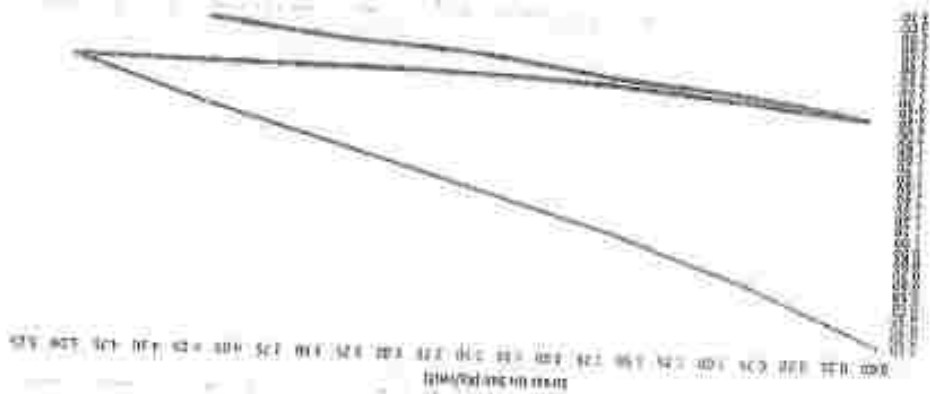
Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.63	17.58	2.41	17.81	2.19	2.30	2.30
1	1.06	17.43	2.67	17.69	2.31	2.44	2.44
2	2.50	17.30	2.70	17.45	2.55	2.63	2.63
3	3.93	17.23	2.79	17.32	2.68	2.74	2.74
4	4.17	17.09	2.91	17.10	2.90	2.91	2.91



Company Name
Project
Last Date
Report Date
Location
Test No.

اسم الشركة والمختبر
الجهة الممولة للمشروع - Section (B) - District Amman
تاريخ التقرير
تاريخ الاختبار
الموقع (نمط + رقم)
رقم الاختبار

Nondestructive Static Load Test of Soil
اختبار الحمل الساكن غير المتلف للتربة



C (mm) = 300		E _s (MPa) = 10.15 (kg/cm ²)	
Settlement (mm)	0.00	0.00	0.00
Stress (kg/cm ²)	0.00	0.00	0.00
Stress (kg)	0	586	1172.8
Load (T)	0	5	4

C (mm) = 300		E _s (MPa) = 10.15 (kg/cm ²)	
Settlement (mm)	1.12	2.30	2.43
Stress (kg/cm ²)	0.10	0.23	1.65
Stress (kg)	0	586	1172.8
Load (T)	0	5	4

2.1 = Record of information during the loading stage.
2.2 = Location of instrumentation during the loading stage.
D = Plot number (mm)
D = The distance between D.2 and D.7 from the measurement (mm) (Figure)
D.1 = The distance between D.2 and D.7 from the measurement (mm) (Figure)



Company : شركة بى اى اى

Project : Electric Express Train - Sector (5) - (Doux 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 (B71+987 to B72+087)
Test Date : 02/08/2023
Report Date : 03/08/2023
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



Test No	Station		Location	Level (m)	First Cycle	Second Cycle	Eval/ Eval Ratio
	From	To					
1	671+987	672+087	672+020	-1.0	155.1	151.4	0.98

Evaluation and representation of results

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	02/08/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

- Type of soil : Original earth
- Job requirement : $E_{v2} > 40 \text{ MPa}$

Report

- Evaluation and representation of results
- Load Settlement curve
- The test report contain 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

Company Name : شركة استشارات الهندسة والبحوث
Project : Reinforce Concrete Beam - Section (b) - Load Test
Test Date : 02/08/2023
Report Date : 05/08/2023
Location : Station (672+020)
Test No. : 01

Nondestructive Static Load Tests of Beams
DIN 18134

Loading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	20.02	0.00	1.19	20.00	0.00	0.00
1	0.83	18.81	1.39	1.48	18.82	1.20	1.30
2	1.66	18.61	1.39	1.48	18.82	1.20	1.30
3	2.50	18.52	1.48	1.59	18.80	1.31	1.40
4	3.33	18.42	1.59	1.67	18.79	1.41	1.50
5	4.17	18.20	1.60	1.67	18.83	1.62	1.74
6	5.00	17.55	2.05	1.60	18.04	1.51	1.68

Unloading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
1	2.50	18.00	1.94	1.79	18.08	1.51	1.93
2	1.25	18.31	1.79	1.71	18.29	1.71	1.75
3	0.100	18.58	1.41	1.43	18.43	1.55	1.48

Loading Stage (2)

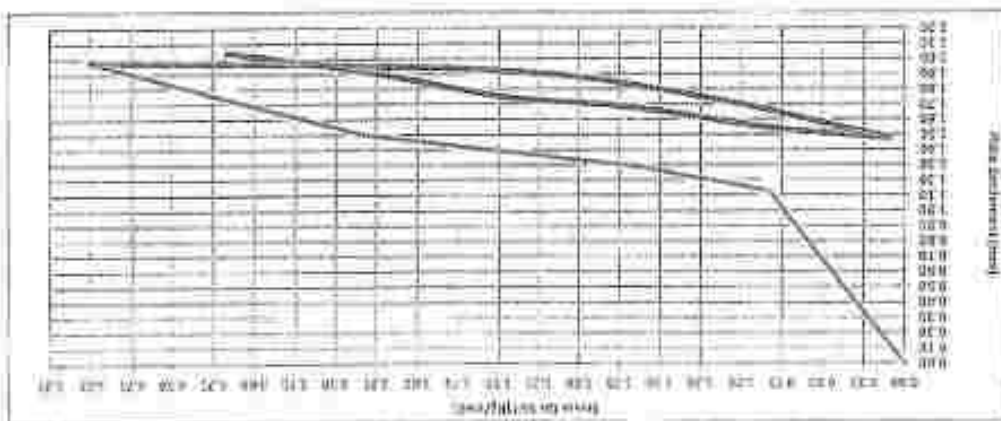
Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.03	18.50	1.60	1.61	18.41	1.58	1.55
1	1.00	18.41	1.69	1.63	18.23	1.77	1.60
2	2.50	18.38	1.61	1.60	18.20	1.80	1.76
3	3.33	18.20	1.60	1.76	17.96	2.04	1.92
4	4.17	18.10	1.80	1.81	17.81	2.18	2.06



Company Name
Project
Test Date
Report Date
Location
Test No.

1- اختبار الضغط على عمود
Electric Column Test - Compression
Date/Time
Operator
Observer
Station (RT-020)
QT

Imperial State Plate Load Test (3015)
DIN 18134



Settlement (mm)	Soils (kg/cm ²)	Stages (g)	Unloading (t)
1.94	3.50	1833	1
1.93	2.50	1750	2
1.75	1.250	864	3
1.48	0.10	71	4

Settlement (mm)	Soils (kg/cm ²)	Stages (g)	Unloading (t)
0.00	0.00	0	0
0.00	0.00	888	1
1.13	0.93	1172.8	2
1.30	1.85	1768.3	3
1.46	2.80	2553.8	4
1.50	3.32	2946.1	5
1.74	4.17	3532.5	6
1.94	5.00		

EVZ/0201 = C18

Settlement (mm)	Soils (kg/cm ²)	Stages (g)	Unloading (t)
0.00	0.00	0	0
0.00	0.00	888	1
1.13	0.93	1172.8	2
1.30	1.85	1768.3	3
1.46	2.80	2553.8	4
1.50	3.32	2946.1	5
1.74	4.17	3532.5	6
1.94	5.00		

1- Test results of settlement during the loading stage
2- Values of settlement during the unloading stage
3- The difference between 2.5 and 4.1 from the maximum loading (total figure)
4- Difference in settlement corresponding to 2.5 and 4.1 from the maximum loading (total figure)



3 El Mahdi El Afendi Street
Zamalek, Cairo
Tel. & Fax : 27367231 - 27361093



www.cel-lab.com
www.cel-lab.com
www.cel-lab.com

Company Name : شركة الهندسة والاعمال
Project :
Test Date : 02/08/2023
Report Date : 03/08/2023
Location : Station (5719520)
Test No. : 02

Nonpositive Static Load Test of Soil
DIN 18134

Loading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	0.00	20.00	0.00	20.00	0.00	0.00
1	0.85	18.88	1.01	18.95	0.05	0.05	0.05
2	1.00	18.80	1.20	19.77	0.23	0.23	0.23
3	2.50	18.50	1.31	19.61	0.39	0.39	0.39
4	3.33	18.41	1.58	19.30	0.80	0.80	1.20
5	4.17	18.11	1.88	19.09	0.95	0.95	1.42
6	5.00	17.98	2.07	18.96	1.04	1.04	1.53

Unloading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
1	2.50	18.05	1.94	19.10	0.80	0.80	1.42
2	1.25	18.20	1.80	19.30	0.70	0.70	1.25
3	0.100	18.50	1.41	19.66	0.31	0.31	0.60

Loading Stage (2)

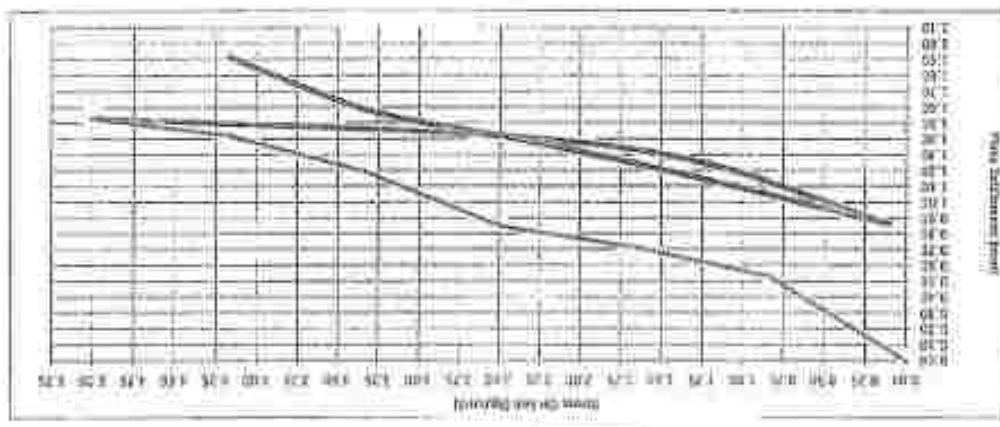
Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.05	18.41	1.55	18.50	0.50	0.50	1.05
1	1.50	18.30	1.80	18.31	0.60	0.60	1.25
2	2.50	17.85	2.05	18.11	0.79	0.79	1.43
3	3.33	17.15	2.27	18.10	0.90	0.90	1.58
4	4.17	17.33	2.57	18.11	1.10	1.10	1.90



Country: Jordan
 Project:
 Title: Data
 Report Date:
 Location:
 Test No.:

Station: 671-900
 Date: 03/01/2023
 Report No: 03/01/2023
 Prepared by: Engineer - Osama Al-Faraj
 Checked by: Engineer - Osama Al-Faraj

Design Title: Load Transfer Test
 Design No: 11134



Settlement (mm)	Load (kN)
0.00	0.00
0.10	0.10
0.20	0.20
0.30	0.30
0.40	0.40
0.50	0.50
0.60	0.60
0.70	0.70
0.80	0.80
0.90	0.90
1.00	1.00

Settlement (mm)	Load (kN)
0.00	0.00
0.10	0.10
0.20	0.20
0.30	0.30
0.40	0.40
0.50	0.50
0.60	0.60
0.70	0.70
0.80	0.80
0.90	0.90
1.00	1.00

Settlement (mm)	Load (kN)
0.00	0.00
0.10	0.10
0.20	0.20
0.30	0.30
0.40	0.40
0.50	0.50
0.60	0.60
0.70	0.70
0.80	0.80
0.90	0.90
1.00	1.00

Settlement (mm)	Load (kN)
0.00	0.00
0.10	0.10
0.20	0.20
0.30	0.30
0.40	0.40
0.50	0.50
0.60	0.60
0.70	0.70
0.80	0.80
0.90	0.90
1.00	1.00

1) = Location of instrumentation during the loading stage
 2) = Location of instrumentation during the unloading stage
 3) = This diagram shows the load transfer test results (kN/mm)
 4) = This diagram shows the load transfer test results (kN/mm)



Company : **CEL**
Project : **Electric Express Train - Sector (a) - Gous to Arment.**
Subject : **Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements**
Test Location : **Station (R71+987 to 972+087)**
Test Date : **02/08/2023**
Report Date : **03/08/2023**
Type of soil : **Original earth.**
Report No. : **1**

Dear Gentleman,

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

Apparatus

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

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the limit values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached
7. Each change in load (front 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



Test No.	Station		Location	Level (m)	First Cycle E _m (MPa)	Second Cycle E _m (MPa)	E _m /E _u Ratio
	From:	To					
1	671+987	672+087	672+020	-1.0	155.1	151.4	0.98

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	02/08/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

- Job requirement: EV2 > 40 MPa
- Type of soil : Original earth

Report

- Report
1. Evaluation and representation of results.
 2. Load Settlement curve
 3. The test report contain 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.

Consulting Engineering Bureau & Laboratories
201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

CEL

Company Name : شركة الهندسة والدراسات
Project : Electric Network from Samsat (H. Goum to Amman)
Test Date : 02/08/2023
Report Date : 03/08/2023
Location : Station (571+920)
Test No. : 02

Nonresilient Static Plate Load Test of Soil
DIN 18134

Loading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	kg/cm ²	mm	mm	mm	mm	mm
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.63	18.99	1.01	19.99	0.05	0.53
2	1.60	18.80	1.20	19.77	0.23	0.72
3	2.50	18.69	1.31	19.61	0.38	0.66
4	3.33	18.41	1.50	19.20	0.80	1.20
5	4.17	18.13	1.69	18.96	0.95	1.43
6	5.00	17.98	2.02	18.96	1.04	1.53

Unloading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	kg/cm ²	mm	mm	mm	mm	mm
1	2.50	18.66	1.94	19.10	0.80	1.42
2	1.25	18.70	1.50	18.90	0.70	1.25
3	0.160	18.99	1.41	19.09	0.31	0.66

Loading Stage (2)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	kg/cm ²	mm	mm	mm	mm	mm
0	0.83	18.41	1.88	19.50	0.50	1.05
1	1.66	18.10	1.80	18.33	0.69	1.26
2	2.50	17.95	2.06	18.21	0.79	1.42
3	3.33	17.71	2.27	18.10	0.90	1.58
4	4.17	17.38	2.87	18.18	1.10	1.92

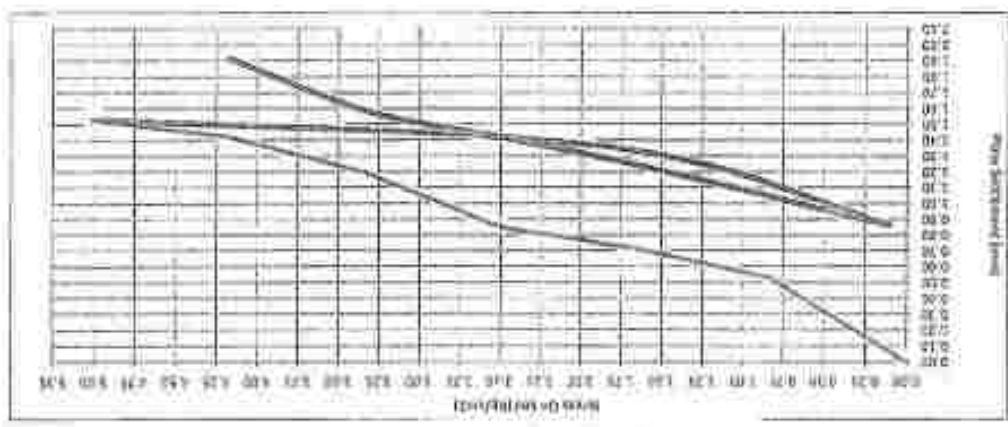


J. El Malk El Ahdal Street
Zamalek, Cairo
Tale Fax : 07367231 - 27367893

شركة الهندسة والدراسات
مكتب هندسة ودراسات
www.ceb-l.com

Company Name: **CEL**
Project: **CEL**
Test Date: **02/01/2023**
Report No: **02/01/2023**
Location: **Strain (471+520)**
Test No: **02**

Maximum Allowable Tensile Load of Bars
DIN 10124



Unit Loading (%)	1	2	3	4
Strain (mm/mm)	1.03	1.42	1.28	0.88
Stress (kg/cm²)	0.00	2.50	1.250	0.10
Strain (mm/mm)	1.03	1.42	1.28	0.88

Load (t)	0	1	2	3	4	5
Strain (mm/mm)	0.00	0.00	0.00	0.00	0.00	0.00
Stress (kg/cm²)	0.00	0.00	0.00	0.00	0.00	0.00
Strain (mm/mm)	0.00	0.00	0.00	0.00	0.00	0.00

Strain = 1.18

Load (t)	0	1	2	3	4	5
Strain (mm/mm)	0.00	0.00	0.00	0.00	0.00	0.00
Stress (kg/cm²)	0.00	0.00	0.00	0.00	0.00	0.00
Strain (mm/mm)	0.00	0.00	0.00	0.00	0.00	0.00



For a table of deformation during the loading stage.
For a table of deformation during the loading stage.
For a table of deformation during the loading stage.

Company : شركة الهندسة والبناء

Project : Electric Express Train - Sector (5) - Close 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 (672+540 to 672+700)
Test Date : 09/08/2023
Report Date : 12/08/2023
Type of soil : Original earth.
Report No. : 1 : 2

Dear Gentleman,

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

Apparatus

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

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. Tie strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the limit values are 0.0 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





Signature /

Test No.	Station		Location	E _{v1} (MPa)	E _{v2} (MPa)	Ratio E _{v1} /E _{v2}
	From	To				
1	672+640	672+740	672+650	85.0	175.3	2.06
2	672+740	672+780	672+750	81.3	229.3	2.82

Evaluation and representation of results

(Item)	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	09/08/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

- Type of soil : Original earth
- Job requirement : E_{v2} > 40 MPa

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



Loading	Stress Kg/cm ²	Dial 1		Dial 2		Average
		Settlement mm	mm	Settlement mm	mm	
0	0.83	18.88	1.12	19.19	0.81	0.97
1	1.95	18.79	1.21	19.01	0.97	1.09
2	2.50	18.72	1.28	18.93	1.08	1.18
3	3.33	18.60	1.31	18.84	1.18	1.24
4	4.17	18.60	1.40	18.78	1.30	1.35

Learning Style (2)

Loading	Stress Kg/cm ²	Dial 1		Dial 2		Average
		Settlement mm	mm	Settlement mm	mm	
1	2.50	18.67	1.33	18.66	1.26	1.27
2	1.25	18.75	1.25	18.69	1.07	1.13
3	0.100	18.93	1.07	19.30	0.76	0.89

Unloading State (1)

[illegible]

(1) Loading Stage (1)

HEADING

Neuroendocrine-Glucocortic Release: Load Tests of Solite

Test No. 102

(052+220) 809975 : 609307

report date : 4/2/08/2003

電話 090-2727-2231

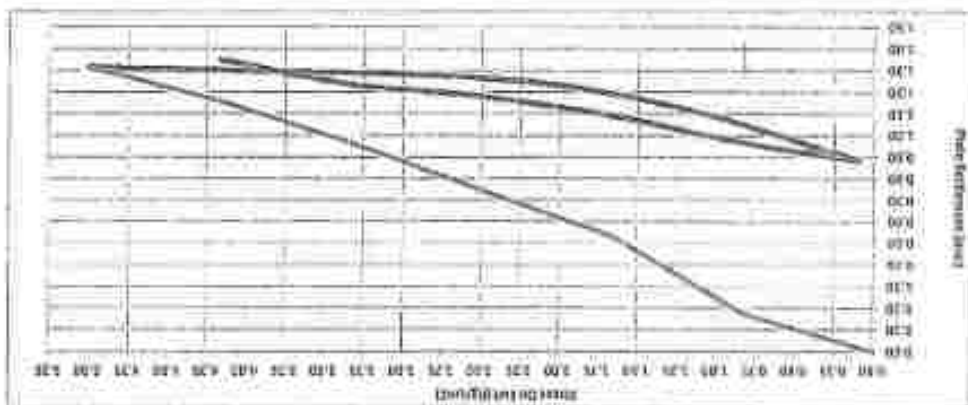
Project	Financial Express Train - Section (B) - (Good to Average)
---------	---

[illegible]

Company Name
Project
Test Date
Report Date
Location
Test No.

Client Name
Client Address
Client Phone
Client Email
Client Website

Nondestructive Static Plate Load Test of Soils
Q18.18.130



Settlement (mm)	1.02	1.27	1.13	0.85
Stress (kg/cm²)	0.00	0.00	1.00	0.10
Strain (%)	0.00	0.00	0.04	0.04
Unloading (%)	0	0	0	0

D (mm) = 300	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01
Settlement (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stress (kg/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strain (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Settlement (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stress (kg/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strain (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unloading (%)	0	0	0	0	0	0	0	0	0

D (mm) = 300	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.01
Settlement (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stress (kg/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strain (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Test = loading of specimens during the testing stage.
 Set = settlement of specimens during the testing stage.
 Str = strain of specimens during the testing stage.
 Un = unloading of specimens during the testing stage.
 D = diameter of specimens (mm).
 S = settlement of specimens (mm).
 St = stress of specimens (kg/cm²).
 Str = strain of specimens (%).
 Un = unloading of specimens (%).



3 El Malek El Agha Street
Zamalek, Cairo
Tel & Fax : 2367221 - 2366883

إدارة المصالح العامة
الطريق ٣ - المالك العجا
القاهرة - مصر
الهاتف والفاكس : ٢٣٦٦٨٨٣ - ٢٣٦٧٢٢١

Company Name : شركة المصالحات الهندسية
Project : Electric Expansion from Sadat City to Assiut
Test Date : 09/08/2023
Report Date : 12/08/2023
Location : Station (0/2+850)
Test No. : 01

Noncompressive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	20.88	0.00	10.00	0.00	10.00	0.00
1	0.53	18.58	0.42	19.78	0.24	19.78	0.33
2	1.00	19.33	0.67	19.68	0.31	19.68	0.49
3	2.50	19.05	0.95	19.50	0.50	19.50	0.73
4	3.33	18.89	1.11	19.33	0.67	19.33	0.89
5	4.17	18.50	1.70	19.05	0.95	19.05	1.33
6	5.00	18.00	2.00	18.07	1.13	18.07	1.57

Unloading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
1	2.50	18.60	1.40	18.90	1.10	18.90	1.25
2	1.25	18.93	1.07	18.95	1.04	18.95	1.06
3	0.100	19.24	0.78	19.00	1.00	19.00	0.89

Loading Stage (2)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.83	19.19	0.81	18.50	1.18	18.50	0.98
1	1.00	19.16	0.85	18.78	1.23	18.78	1.04
2	2.50	19.04	0.98	18.60	1.40	18.60	1.18
3	3.33	19.00	1.00	18.40	1.51	18.40	1.26
4	4.17	18.86	1.04	18.37	1.63	18.37	1.34



3 El Mohab El Ahdal Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363803

إدارة المصالحات الهندسية
2025
إدارة المصالحات الهندسية
www.cel-egyp.com

Signature / 

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+920	1781	2.28	6.4	2.14	96.8%	Comply
2	671+990	1746	2.29	6.4	2.15	97.5%	Comply
3	672+010	1754	2.28	6.4	2.14	96.9%	Comply

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

Company Name :  :
 Project : Electric Express Train – HSR From Qous To Arman
 Testing Date : 15/10/2023
 Soil type : Middle Embankment
 Location : ST From 671+880 To 672+020
 Level : -3 M
 Report No. : 34



Signature /

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

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

Materials test

This sample is representative for 5,000 M³

Attached here with the delivered on 5 / 10 / 2023

Dear Gentleman ,

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8



Signature /
11/01/2023

Percentage of material finer than Sieve Size 75 μ m (No.200)	9.3
Test	Results (%)

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

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

Signature / 

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

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

Company Name : **شركة الجرجس**

Project : **Electric Express Train - HSR From Qous To Armanat**

Location : **ST: 672+180 E=32.7745621 N=25.6596723**

Type of sample : **Soil Embankment**

Delivery Date : **5/10/2023**

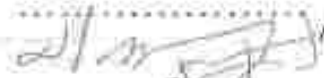
Reporting Date : **9/10/2023**

Reporting No. : **01-8**

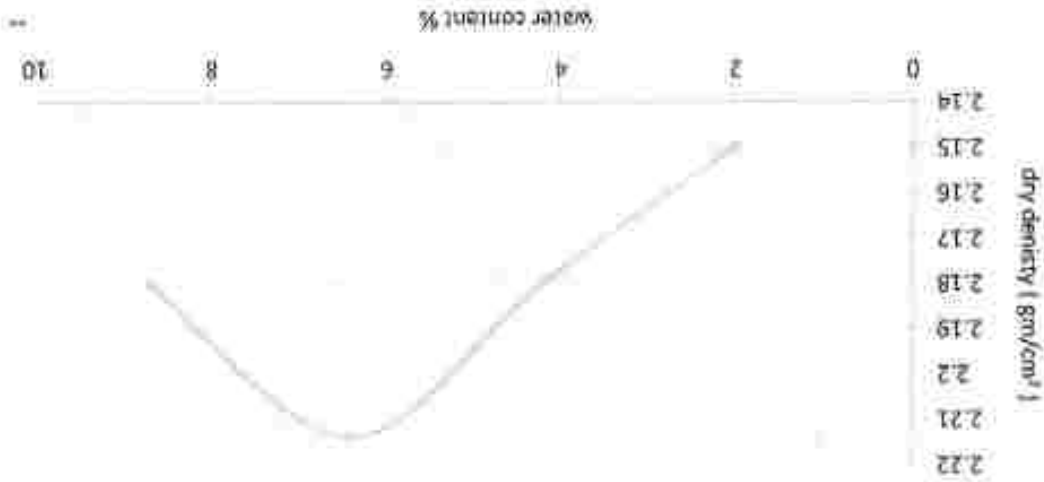
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

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).	41.5	Max 50 %	-----	-----	
0.425 mm (No. 40).	27.7	Max 30 %	Max 50 %	-----	
0.075 mm (No. 200).	9.1	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit					
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %	

Company Name : شركة الجوف
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

Signature : 

- Optimum moisture content % : 5.8
- Max dry density (gm/cm³) : 2.21

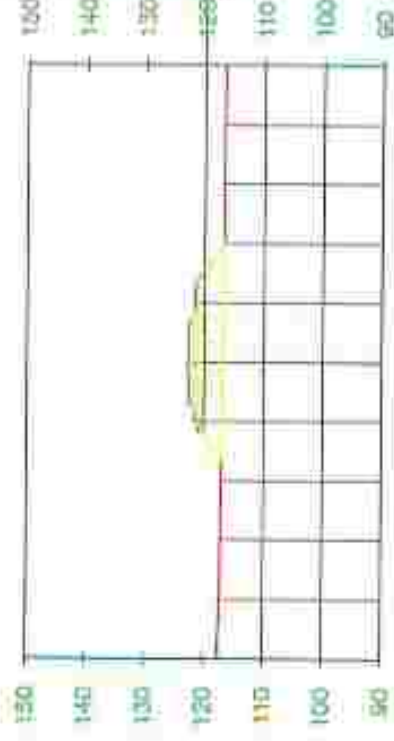


Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557

Company Name : شركة الجبل
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

672+170.00

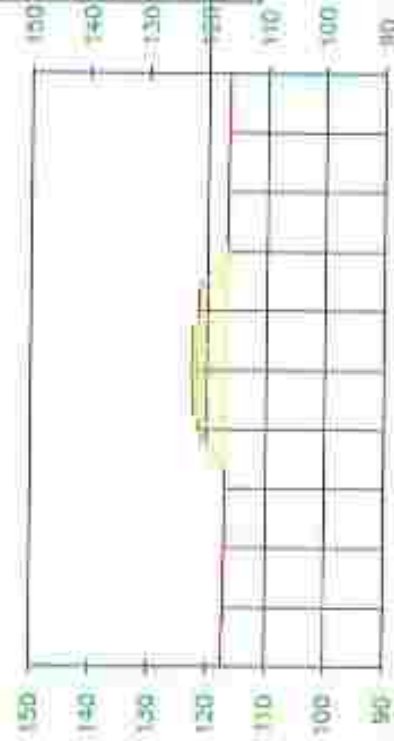
Total Volume at Station 672+170.00	
Cut Area	0.00
Fill Area	125.01
Cut Vol	0.00
Fill Vol	1255.51
Clear Cut Vol	0.00
Clear Fill Vol	55915.40
Net Vol	-55915.40



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+180.00

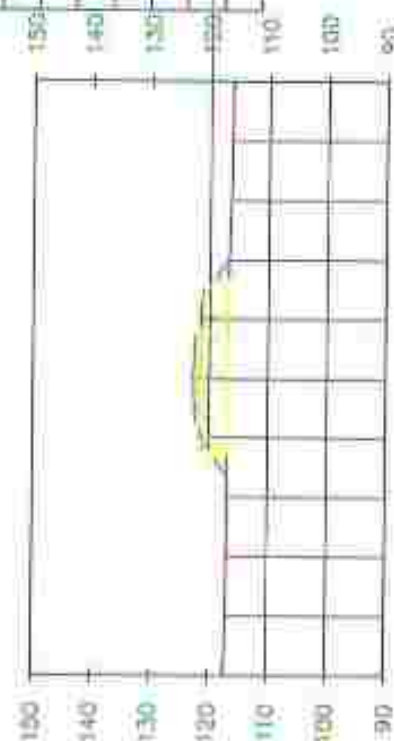
Total Volume at Station 672+180.00	
Cut Area	0.00
Fill Area	127.70
Cut Vol	0.00
Fill Vol	1283.00
Clear Cut Vol	0.00
Clear Fill Vol	57201.62
Net Vol	-57201.62



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+190.00

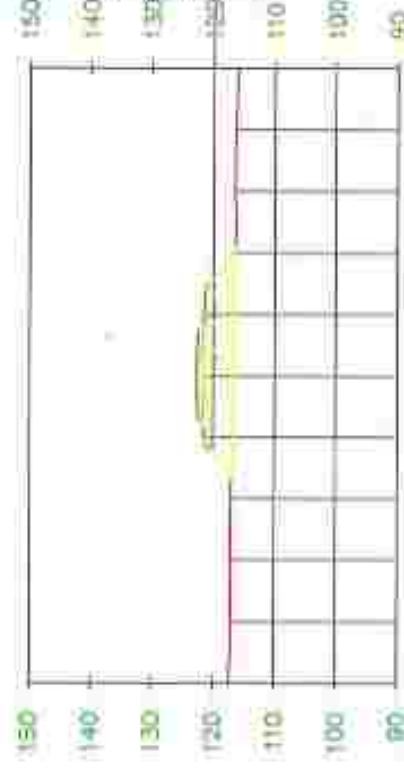
Total Volume at Station 672+190.00	
Cut Area	0.00
Fill Area	100.01
Cut Vol	0.00
Fill Vol	1336.55
Clear Cut Vol	0.00
Clear Fill Vol	52440.18
Net Vol	-52440.18



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

572+140.00

Total Volume at Station 672+140.00	
Cut Area	0.00
Fill Area	123.45
Cut Vol	0.00
Fill Vol	1253.30
Comp. Cut Vol	0.00
Comp. Fill Vol	62014.54
Net Vol	-62218.54

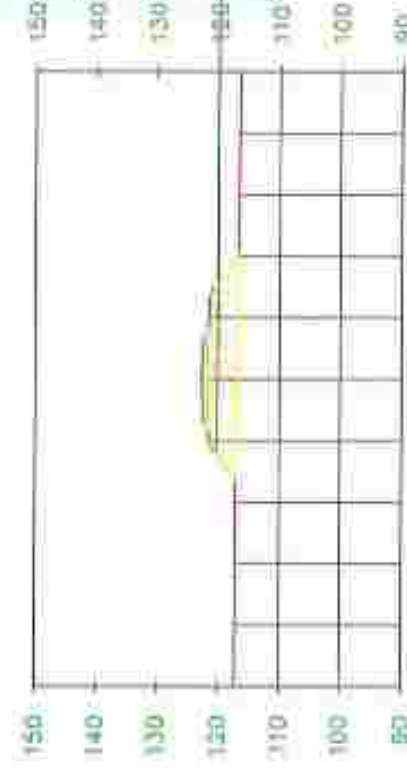


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.00	121.00
10	118.77	121.00
20	121.00	121.00
30	121.00	121.00
40	121.00	121.00
50	121.00	121.00
60	121.00	121.00
70	121.00	121.00
80	121.00	121.00
90	121.00	121.00

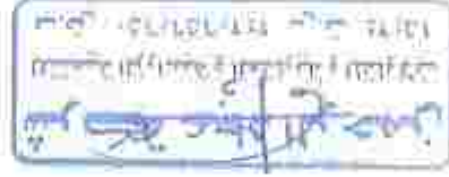


672+150.00

Total Volume at Station 672+150.00	
Cut Area	0.00
Fill Area	129.83
Cut Vol	0.00
Fill Vol	1316.41
Comp. Cut Vol	0.00
Comp. Fill Vol	53324.94
Net Vol	-53324.94

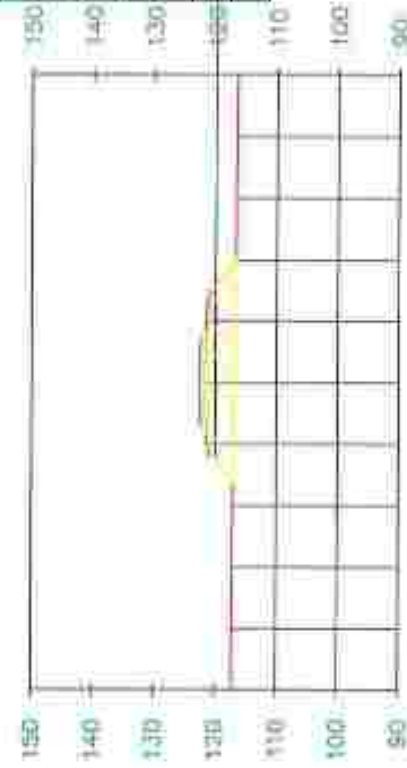


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.00	121.00
10	118.77	121.00
20	121.00	121.00
30	121.00	121.00
40	121.00	121.00
50	121.00	121.00
60	121.00	121.00
70	121.00	121.00
80	121.00	121.00
90	121.00	121.00



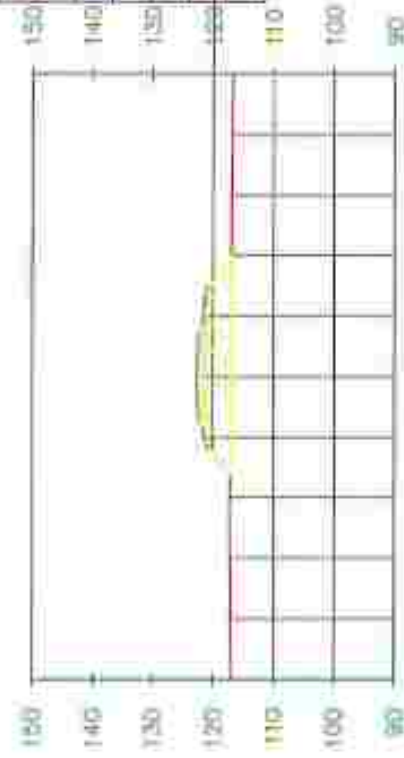
672+160.00

Total Volume at Station 672+160.00	
Cut Area	0.00
Fill Area	129.83
Cut Vol	0.00
Fill Vol	1204.15
Comp. Cut Vol	0.00
Comp. Fill Vol	54852.05
Net Vol	-54852.05



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.00	121.00
10	118.77	121.00
20	121.00	121.00
30	121.00	121.00
40	121.00	121.00
50	121.00	121.00
60	121.00	121.00
70	121.00	121.00
80	121.00	121.00
90	121.00	121.00

672+110.00

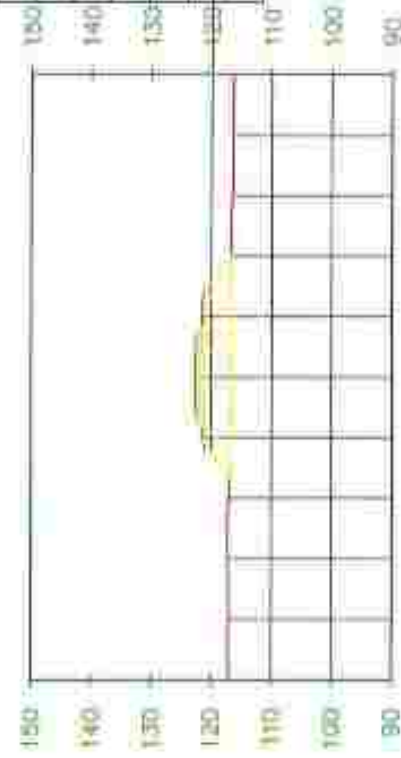


Total Volume at Station 672+110.00	
Cut Area	0.00
Fill Area	128.08
Cut Vol	0.00
Fill Vol	1266.00
Cum Cut Vol	0.00
Cum Fill Vol	1266.00
Net Vol	-47952.95

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

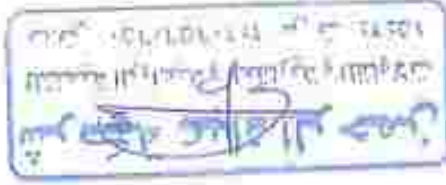


672+120.00

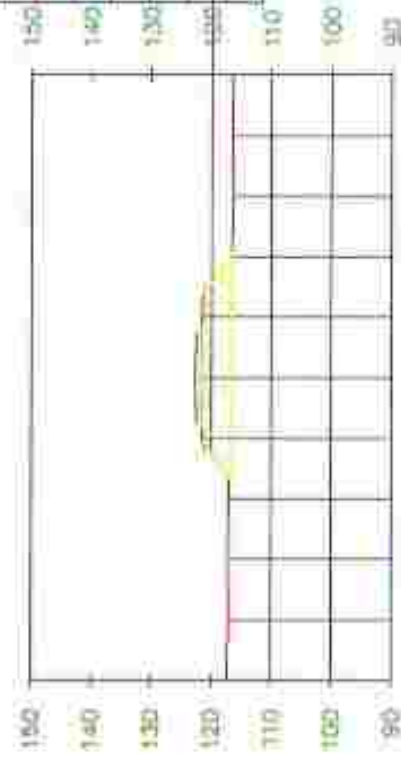


Total Volume at Station 672+120.00	
Cut Area	0.00
Fill Area	135.48
Cut Vol	0.00
Fill Vol	1320.82
Cum Cut Vol	0.00
Cum Fill Vol	40201.77
Net Vol	-48301.77

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		



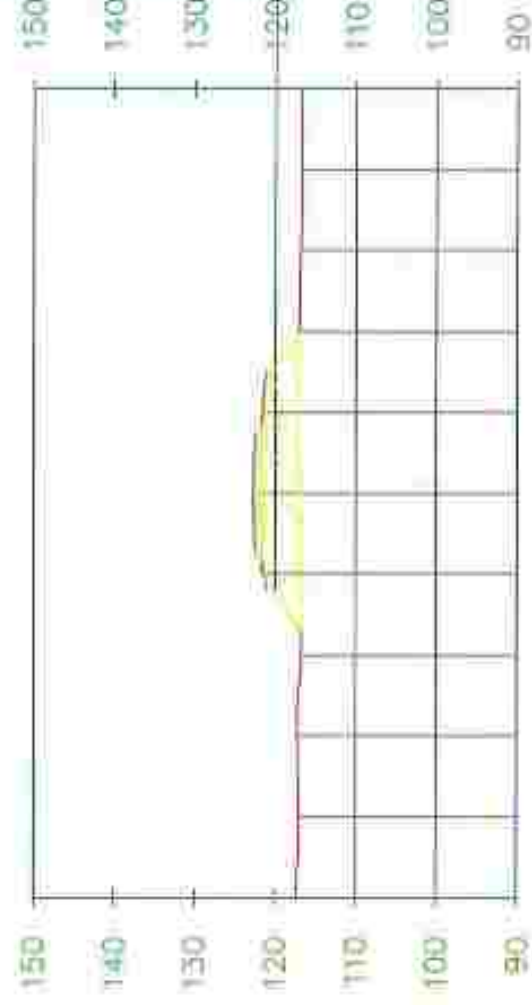
672+130.00



Total Volume at Station 672+130.00	
Cut Area	0.00
Fill Area	137.01
Cut Vol	0.00
Fill Vol	1303.47
Cum Cut Vol	0.00
Cum Fill Vol	50815.24
Net Vol	-50815.24

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+090.00



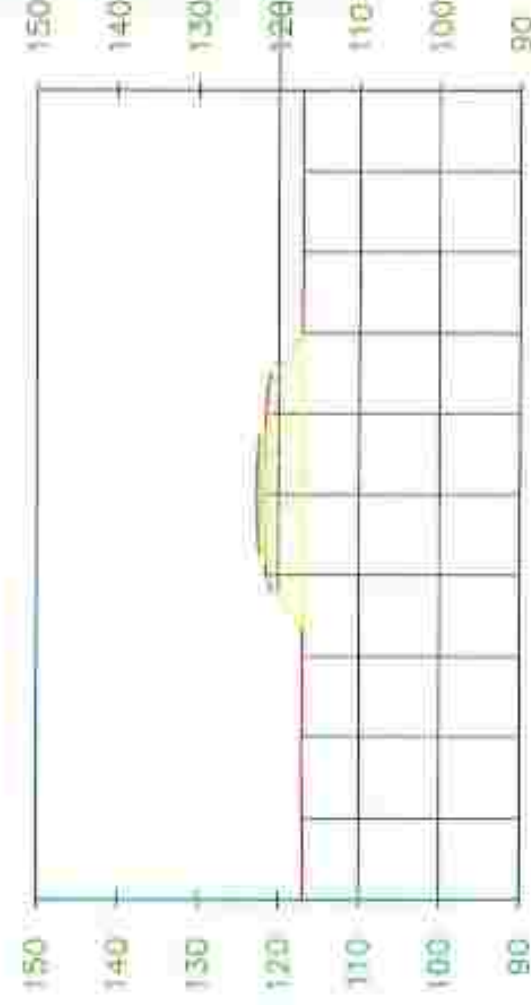
Total Volume at Station 672+090.00	
Cut Area	0.00
Fill Area	127.25
Cut Vol	0.00
Fill Vol	1291.16
Cum Cut Vol	0.00
Cum Fill Vol	45456.13
Net Vol	-45456.13



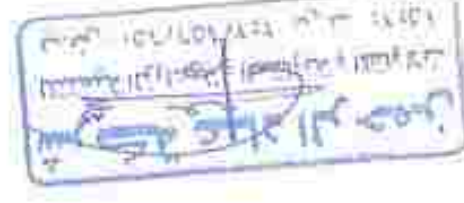
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10	121.55	
0	121.95	116.57
-10	121.51	
-20		
-30		
-40		



672+100.00

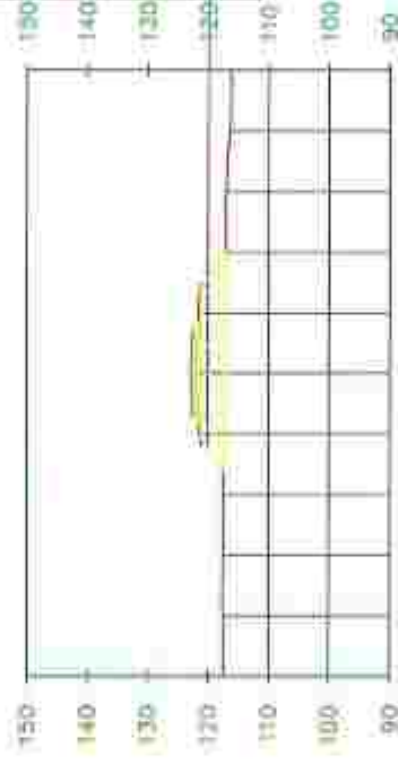


Total Volume at Station 672+100.00	
Cut Area	0.00
Fill Area	124.52
Cut Vol	0.00
Fill Vol	1258.82
Cum Cut Vol	0.00
Cum Fill Vol	46714.95
Net Vol	-46714.95



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10	121.58	
0	121.94	117.04
-10	121.50	
-20		
-30		
-40		

672+060.00



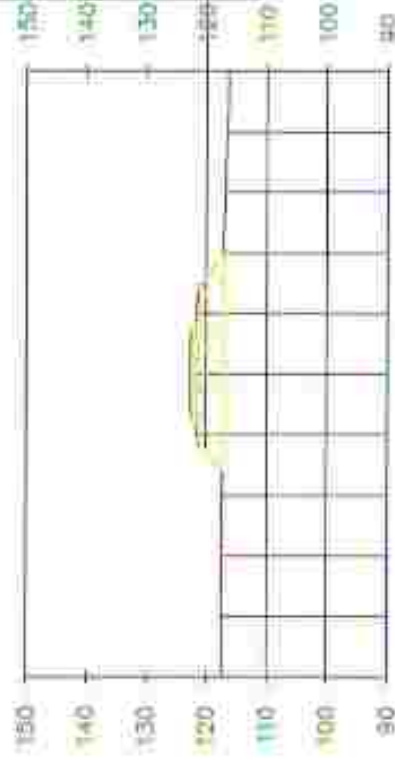
Total Volume at Station 672+060.00	
Cut Area	0.00
Fill Area	123.03
Cut Vol	0.00
Fill Vol	1204.33
Cum Cut Vol	0.00
Cum Fill Vol	41012.19
Net Vol	-41012.19

HSR Blue Line 150.00
Total Volume at Station 672+060.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150	120.00	125.00
140	120.00	125.00
130	120.00	125.00
120	120.00	125.00
110	120.00	125.00
100	120.00	125.00
90	120.00	125.00

HSR Blue Line 150.00
Total Volume at Station 672+060.00

672+070.00

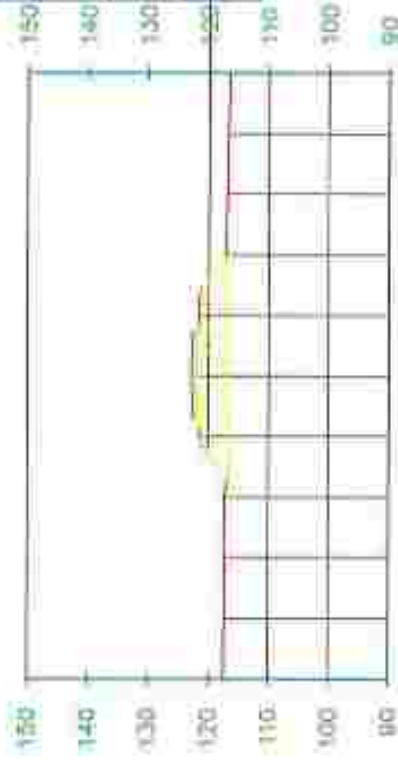


Total Volume at Station 672+070.00	
Cut Area	0.00
Fill Area	127.07
Cut Vol	0.00
Fill Vol	1255.01
Cum Cut Vol	0.00
Cum Fill Vol	42870.20
Net Vol	-42870.20

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150	120.00	125.00
140	120.00	125.00
130	120.00	125.00
120	120.00	125.00
110	120.00	125.00
100	120.00	125.00
90	120.00	125.00

HSR Blue Line 150.00
Total Volume at Station 672+070.00

672+080.00

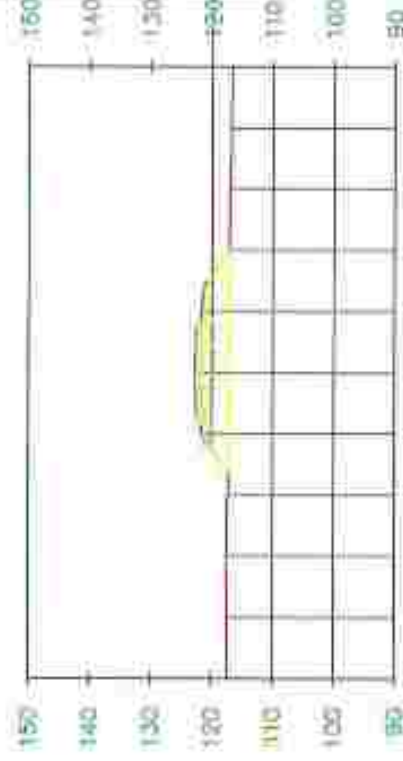


Total Volume at Station 672+080.00	
Cut Area	0.00
Fill Area	130.93
Cut Vol	0.00
Fill Vol	1294.73
Cum Cut Vol	0.00
Cum Fill Vol	44164.93
Net Vol	-44164.93

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150	120.00	125.00
140	120.00	125.00
130	120.00	125.00
120	120.00	125.00
110	120.00	125.00
100	120.00	125.00
90	120.00	125.00

[672+030.00]

Total Volume at Station 672+030.00	
Cut Area	0.00
Fill Area	121.90
Cut Vol	0.00
Fill Vol	1212.32
Cum Cut Vol	0.00
Cum Fill Vol	39020.69
Net Vol	-38920.69



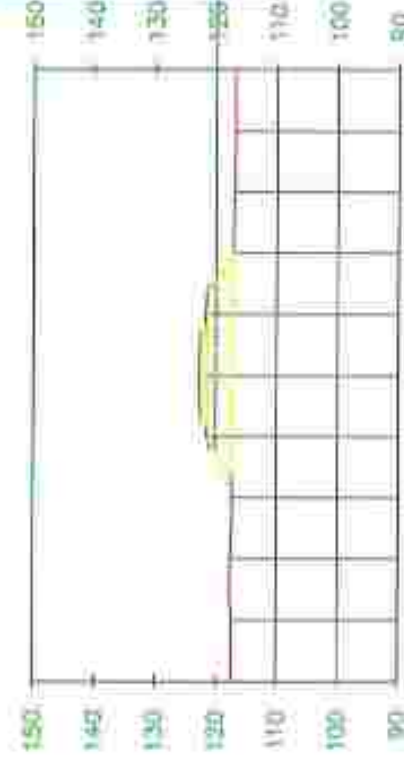
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

APPROVED FOR CONSTRUCTION
H&B, BLOOMINGDALE, ILL.
DATE: 10/10/11

APPROVED FOR CONSTRUCTION
H&B, BLOOMINGDALE, ILL.
DATE: 10/10/11

[672+040.00]

Total Volume at Station 672+040.00	
Cut Area	0.00
Fill Area	119.14
Cut Vol	0.00
Fill Vol	1205.53
Cum Cut Vol	0.00
Cum Fill Vol	39226.42
Net Vol	-39226.42

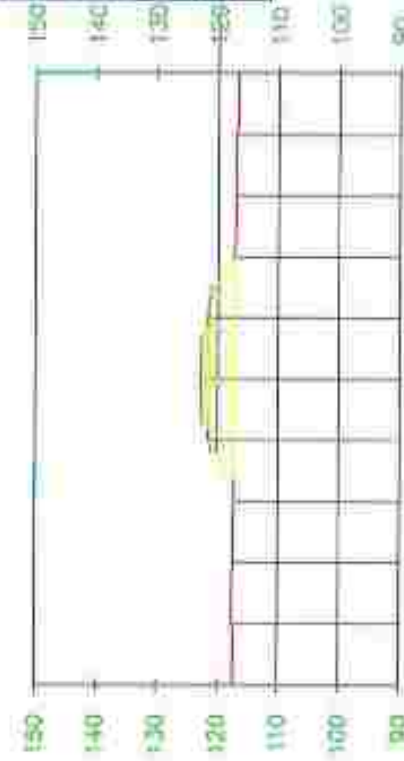


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

APPROVED FOR CONSTRUCTION
H&B, BLOOMINGDALE, ILL.
DATE: 10/10/11

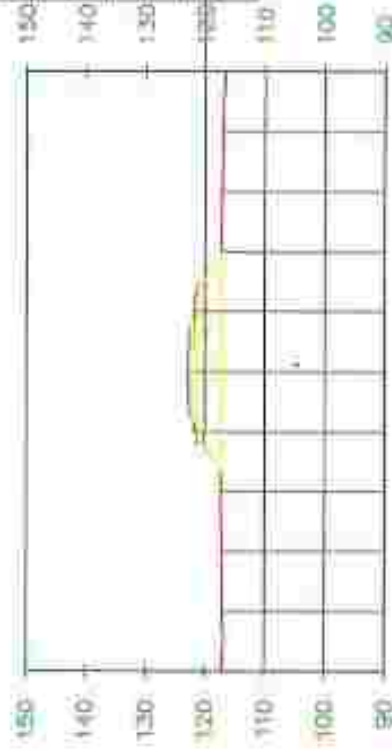
[672+050.00]

Total Volume at Station 672+050.00	
Cut Area	0.00
Fill Area	117.79
Cut Vol	0.00
Fill Vol	1181.66
Cum Cut Vol	0.00
Cum Fill Vol	40411.07
Net Vol	-40411.07



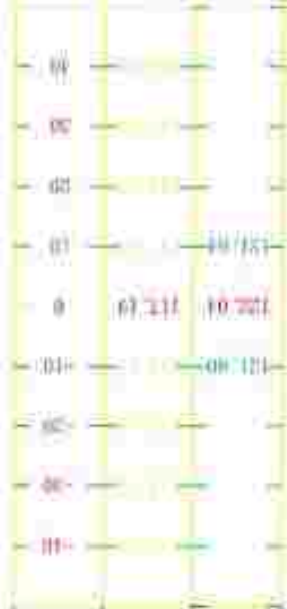
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+000.00

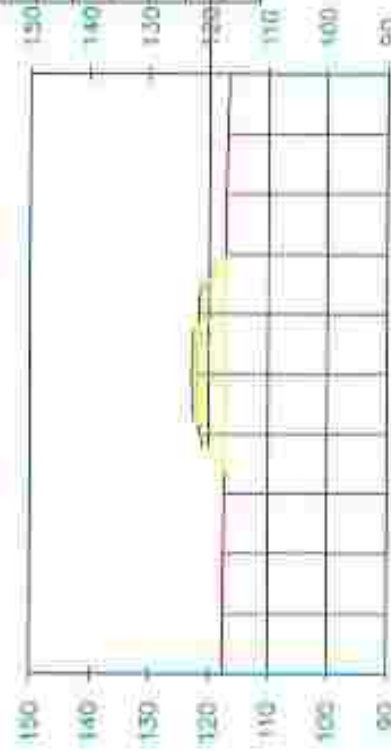


Total Volume at Station 672+000.00	
Cut Area	0.00
Fill Area	123.28
Cut Vol	0.00
Fill Vol	1230.68
Cum Cut Vol	0.00
Cum Fill Vol	34311.85
Net Vol	-34311.85

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------



672+010.00

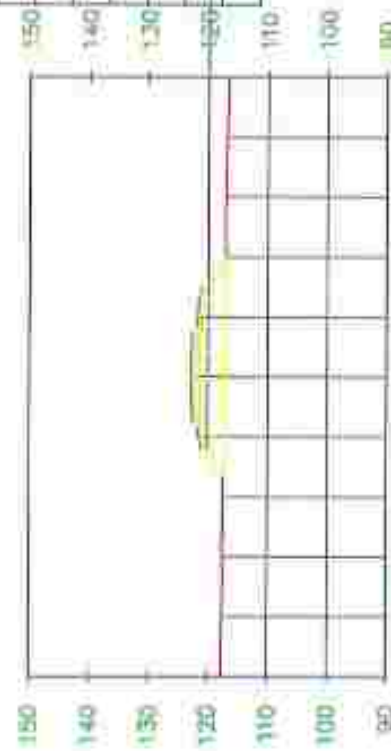


Total Volume at Station 672+010.00	
Cut Area	0.00
Fill Area	123.68
Cut Vol	0.00
Fill Vol	1234.52
Cum Cut Vol	0.00
Cum Fill Vol	35546.37
Net Vol	-35546.37

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

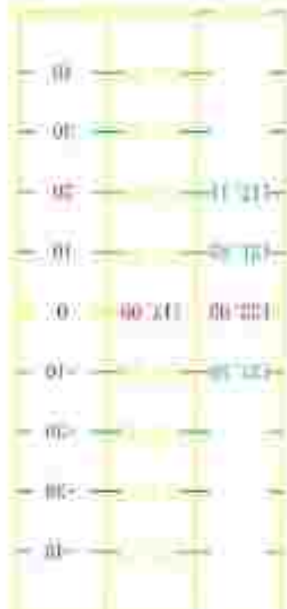


672+020.00

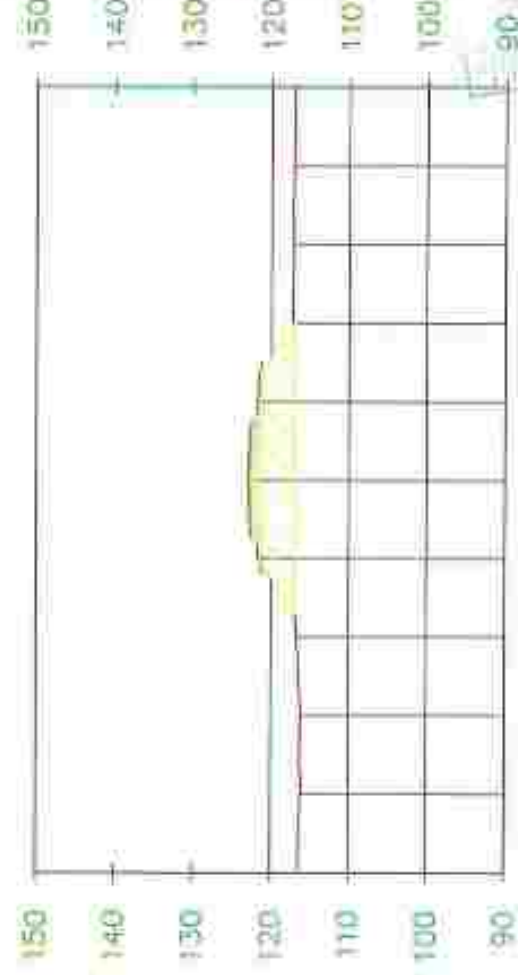


Total Volume at Station 672+020.00	
Cut Area	0.00
Fill Area	124.82
Cut Vol	0.00
Fill Vol	1241.50
Cum Cut Vol	0.00
Cum Fill Vol	36787.87
Net Vol	-36787.87

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------



671+980.00

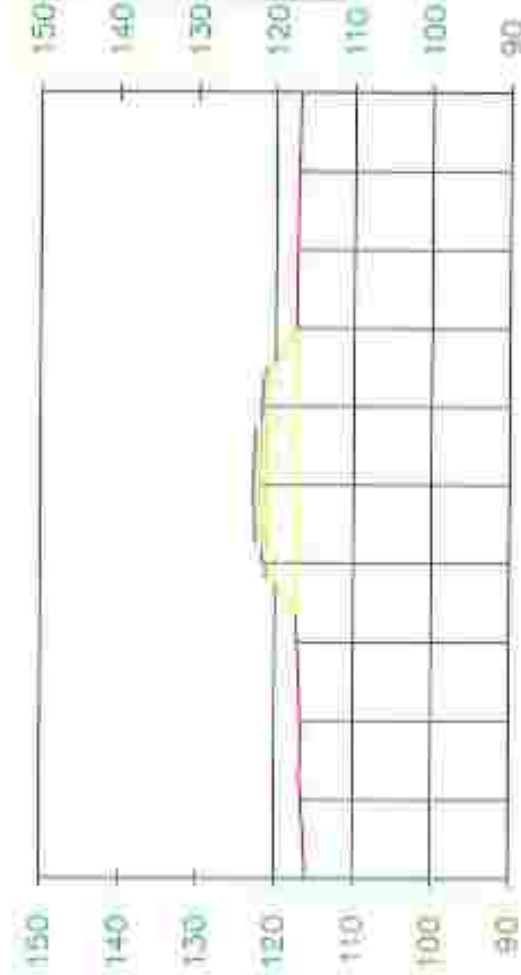


Total Volume at Station 671+980.00	
Cut Area	0.00
Fill Area	130.73
Cut Vol	0.00
Fill Vol	1350.72
Cum Cut Vol	0.00
Cum Fill Vol	31801.09
Net Vol	-31801.09



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
-40		
-30		
-20		
-10	121.65	
0	122.06	116.96
10	121.66	
20		
30		
40		

671+990.00



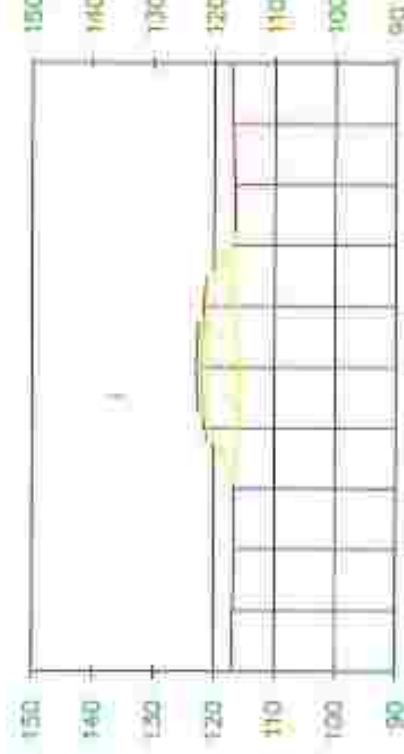
Total Volume at Station 671+990.00	
Cut Area	0.00
Fill Area	124.05
Cut Vol	0.00
Fill Vol	1273.90
Cum Cut Vol	0.00
Cum Fill Vol	33074.99
Net Vol	-33074.99



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
-40		
-30		
-20		
-10	121.61	
0	122.05	117.17
10	121.65	
20		
30		
40		

671+950.00

Total Volume at Station 671+950.00	
Cut Area	0.00
Fill Area	150.63
Cut Vol	0.00
Fill Vol	1500.06
Cum Cut Vol	0.00
Cum Fill Vol	27413.33
Net Vol	-27413.33



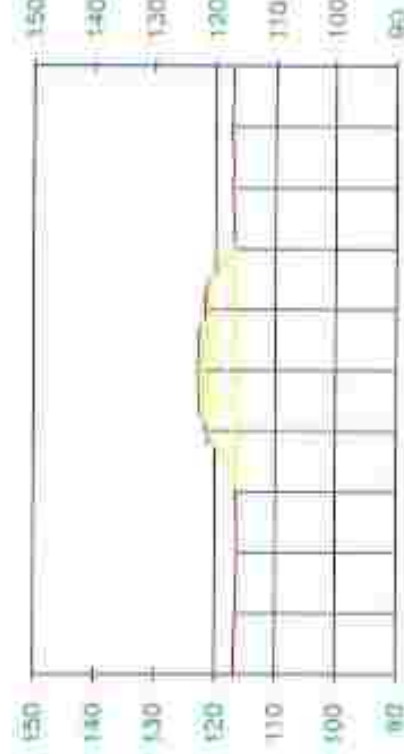
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.85	121.85
20	122.00	122.00
30	122.00	122.00
40	122.00	122.00
50	122.00	122.00
60	122.00	122.00
70	122.00	122.00
80	122.00	122.00
90	122.00	122.00
100	122.00	122.00
110	122.00	122.00
120	122.00	122.00
130	122.00	122.00
140	122.00	122.00
150	122.00	122.00

Handwritten signature and text.



671+960.00

Total Volume at Station 671+960.00	
Cut Area	0.00
Fill Area	102.18
Cut Vol	0.00
Fill Vol	1020.67
Cum Cut Vol	0.00
Cum Fill Vol	28434.00
Net Vol	-28434.00

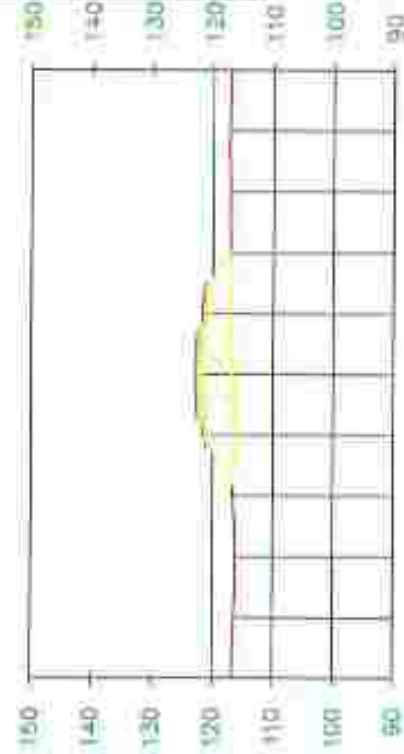


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.85	121.85
20	122.00	122.00
30	122.00	122.00
40	122.00	122.00
50	122.00	122.00
60	122.00	122.00
70	122.00	122.00
80	122.00	122.00
90	122.00	122.00
100	122.00	122.00
110	122.00	122.00
120	122.00	122.00
130	122.00	122.00
140	122.00	122.00
150	122.00	122.00

Handwritten signature and text.

671+970.00

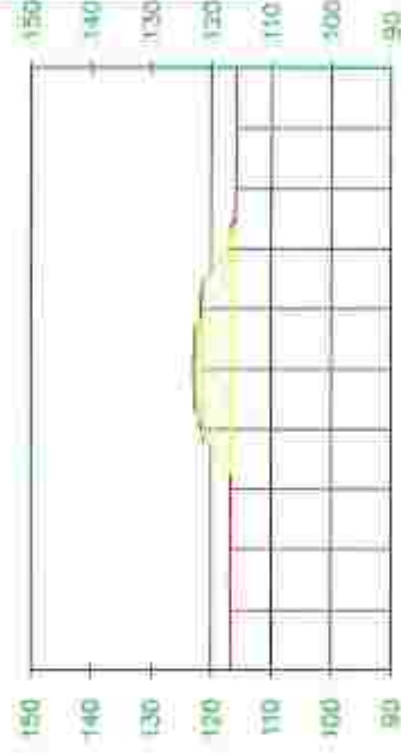
Total Volume at Station 671+970.00	
Cut Area	0.00
Fill Area	141.91
Cut Vol	0.00
Fill Vol	1419.10
Cum Cut Vol	0.00
Cum Fill Vol	30453.10
Net Vol	-30453.10



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.85	121.85
20	122.00	122.00
30	122.00	122.00
40	122.00	122.00
50	122.00	122.00
60	122.00	122.00
70	122.00	122.00
80	122.00	122.00
90	122.00	122.00
100	122.00	122.00
110	122.00	122.00
120	122.00	122.00
130	122.00	122.00
140	122.00	122.00
150	122.00	122.00

671+920.00

Total Volume at Station 671+920.00	
Cut Area	0.00
Fill Area	157.19
Cut Vol	0.00
Fill Vol	1563.92
Cum Cut Vol	0.00
Cum Fill Vol	22638.11
Net Vol	-22638.11



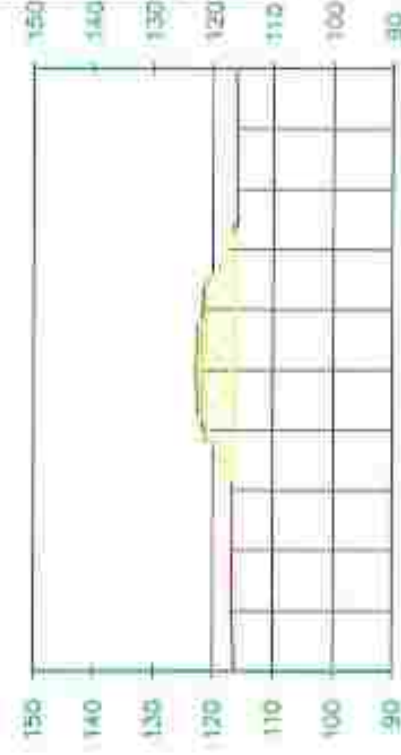
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.17	121.17
10	121.17	121.17
20	121.17	121.17
30	121.17	121.17
40	121.17	121.17
50	121.17	121.17
60	121.17	121.17
70	121.17	121.17
80	121.17	121.17
90	121.17	121.17

North Arrow
Scale: 1" = 40'

Engineering
Consulting
Firm

671+930.00

Total Volume at Station 671+930.00	
Cut Area	0.00
Fill Area	158.73
Cut Vol	0.00
Fill Vol	1564.81
Cum Cut Vol	0.00
Cum Fill Vol	24212.71
Net Vol	-24212.71

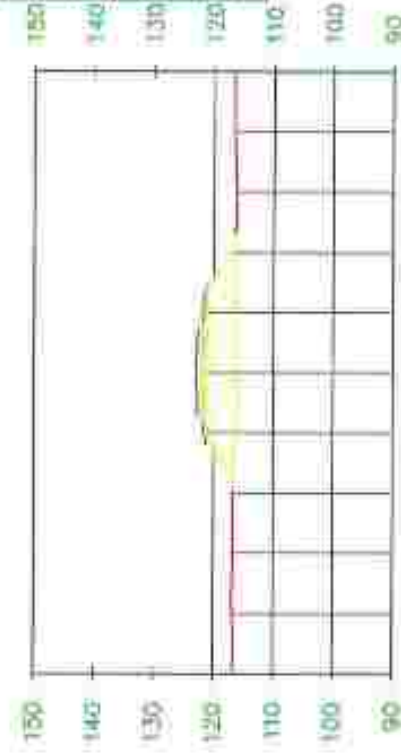


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.17	121.17
10	121.17	121.17
20	121.17	121.17
30	121.17	121.17
40	121.17	121.17
50	121.17	121.17
60	121.17	121.17
70	121.17	121.17
80	121.17	121.17
90	121.17	121.17

Engineering
Consulting
Firm

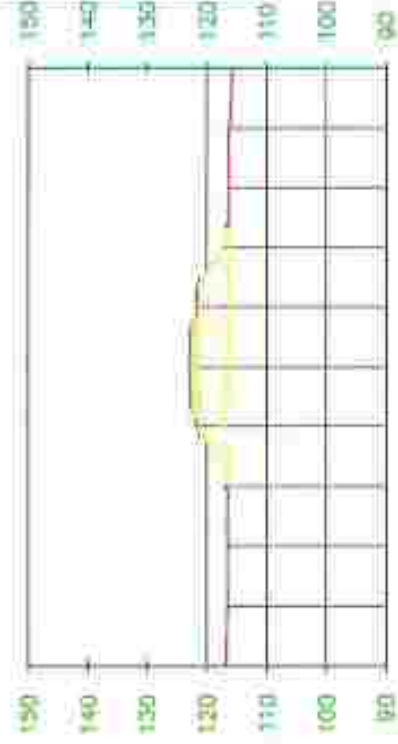
671+940.00

Total Volume at Station 671+940.00	
Cut Area	0.00
Fill Area	160.36
Cut Vol	0.00
Fill Vol	1600.58
Cum Cut Vol	0.00
Cum Fill Vol	25813.27
Net Vol	-25813.27



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.17	121.17
10	121.17	121.17
20	121.17	121.17
30	121.17	121.17
40	121.17	121.17
50	121.17	121.17
60	121.17	121.17
70	121.17	121.17
80	121.17	121.17
90	121.17	121.17

671+890.00



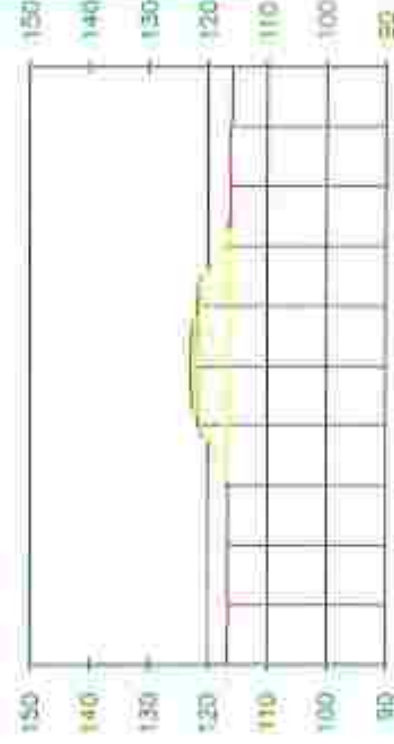
Total Volume at Station 671+890.00	
Cut Area	0.00
Fill Area	155.07
Cut Vol	0.00
Fill Vol	1554.91
Cum Cut Vol	0.00
Cum Fill Vol	17961.46
Net Vol	-17361.46

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

0	122.15	122.15
10	122.15	122.15
20	122.15	122.15
30	122.15	122.15
40	122.15	122.15
50	122.15	122.15
60	122.15	122.15
70	122.15	122.15
80	122.15	122.15
90	122.15	122.15
100	122.15	122.15
110	122.15	122.15
120	122.15	122.15
130	122.15	122.15
140	122.15	122.15
150	122.15	122.15



671+900.00



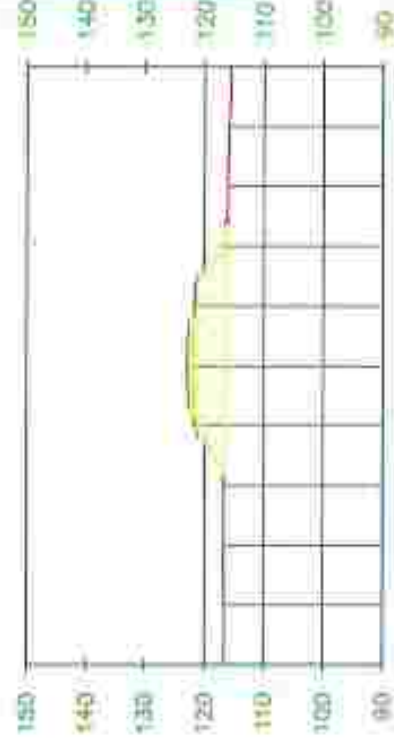
Total Volume at Station 671+900.00	
Cut Area	0.00
Fill Area	154.98
Cut Vol	0.00
Fill Vol	1553.16
Cum Cut Vol	0.00
Cum Fill Vol	18511.62
Net Vol	-13511.62

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

0	122.15	122.15
10	122.15	122.15
20	122.15	122.15
30	122.15	122.15
40	122.15	122.15
50	122.15	122.15
60	122.15	122.15
70	122.15	122.15
80	122.15	122.15
90	122.15	122.15
100	122.15	122.15
110	122.15	122.15
120	122.15	122.15
130	122.15	122.15
140	122.15	122.15
150	122.15	122.15



671+910.00

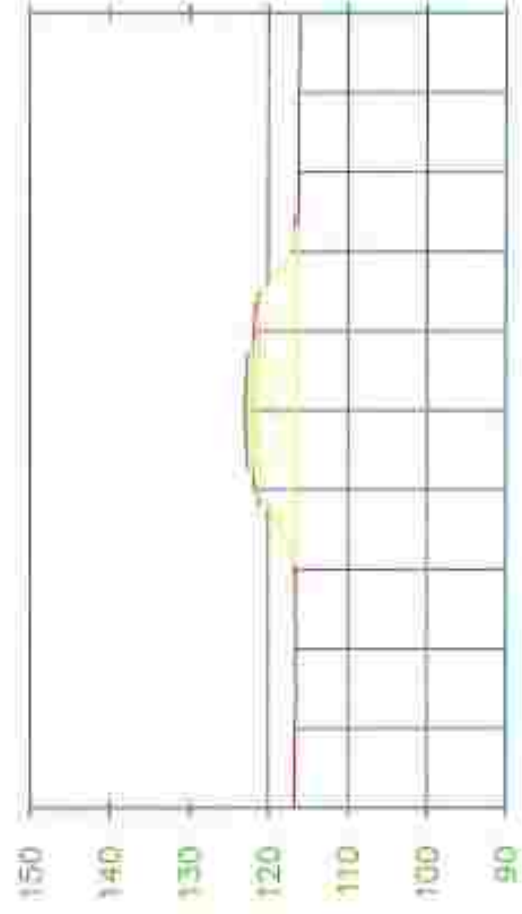


Total Volume at Station 671+910.00	
Cut Area	0.00
Fill Area	155.57
Cut Vol	0.00
Fill Vol	1551.67
Cum Cut Vol	0.00
Cum Fill Vol	21064.30
Net Vol	-21064.30

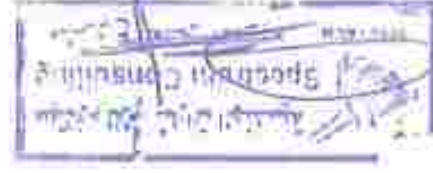
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

0	122.15	122.15
10	122.15	122.15
20	122.15	122.15
30	122.15	122.15
40	122.15	122.15
50	122.15	122.15
60	122.15	122.15
70	122.15	122.15
80	122.15	122.15
90	122.15	122.15
100	122.15	122.15
110	122.15	122.15
120	122.15	122.15
130	122.15	122.15
140	122.15	122.15
150	122.15	122.15

[671+870.00]

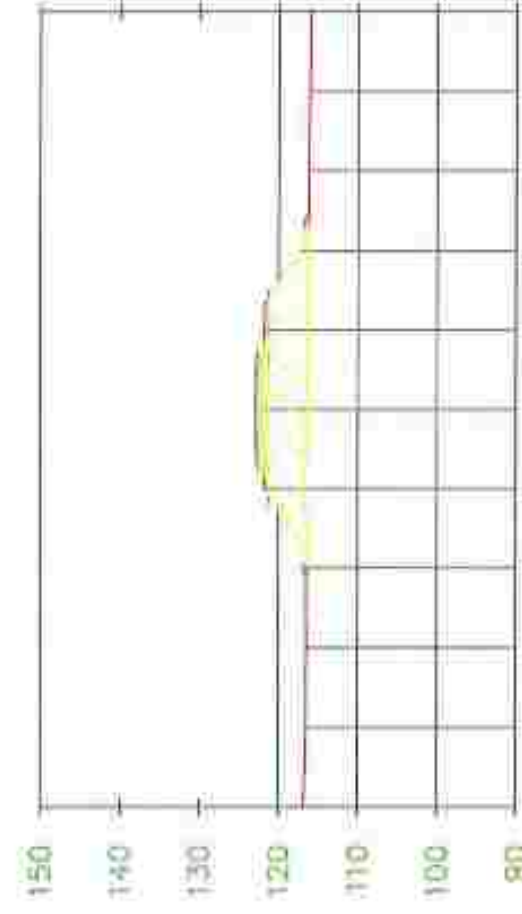


Total Volume at Station 671+870.00	
Cut Area	0.00
Fill Area	157.02
Cut Vol	0.00
Fill Vol	1578.03
Cum Cut Vol	0.00
Cum Fill Vol	14841.58
Net Vol	-14841.58

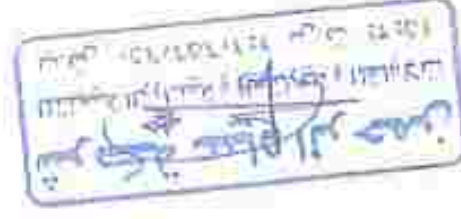


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20	117.26	
10	121.77	
0	122.17	116.47
-10	121.73	
-20		
-30		
-40		

[671+880.00]

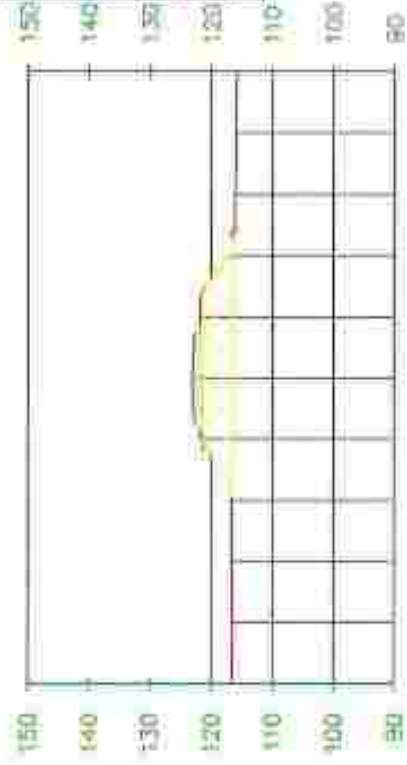


Total Volume at Station 671+880.00	
Cut Area	0.00
Fill Area	153.91
Cut Vol	0.00
Fill Vol	1545.00
Cum Cut Vol	0.00
Cum Fill Vol	16406.58
Net Vol	-16406.58



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20	117.35	
10	121.78	
0	122.16	116.48
-10	121.73	
-20		
-30		
-40		

[671+840.00]

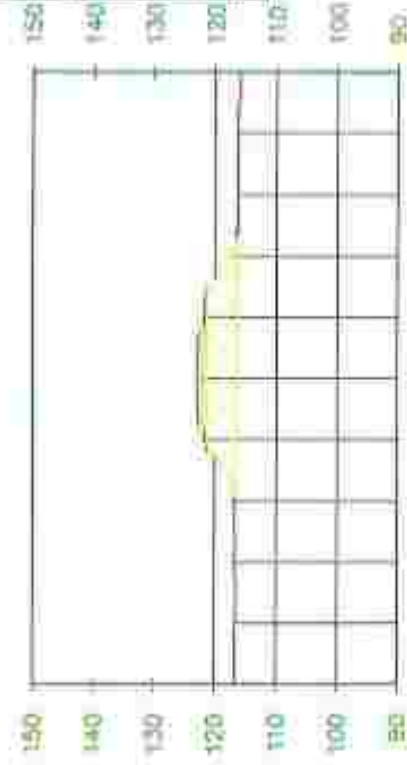


Total Volume at Station 671+840.00	
Cut Area	0.00
Fill Area	152.38
Cut Vol	0.00
Fill Vol	1633.74
Cum Cut Vol	0.00
Cum Fill Vol	1633.74
Net Vol	-1533.74

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

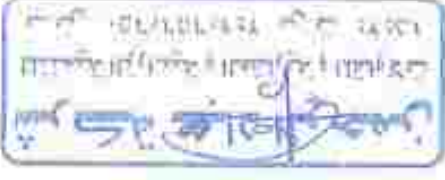


[671+850.00]

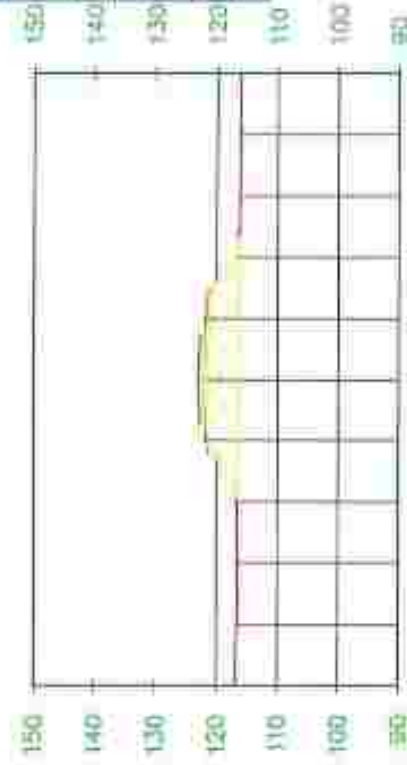


Total Volume at Station 671+850.00	
Cut Area	0.00
Fill Area	160.16
Cut Vol	0.00
Fill Vol	1612.89
Cum Cut Vol	0.00
Cum Fill Vol	1612.89
Net Vol	-1612.89

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		



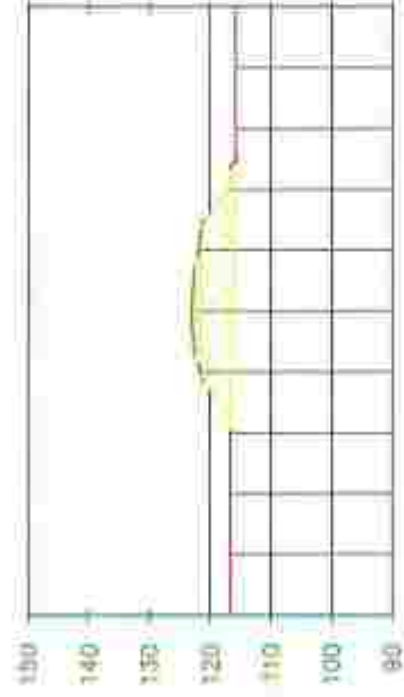
[671+860.00]



Total Volume at Station 671+860.00	
Cut Area	0.00
Fill Area	136.51
Cut Vol	0.00
Fill Vol	1483.46
Cum Cut Vol	0.00
Cum Fill Vol	1483.46
Net Vol	-1483.46

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

671+810.00



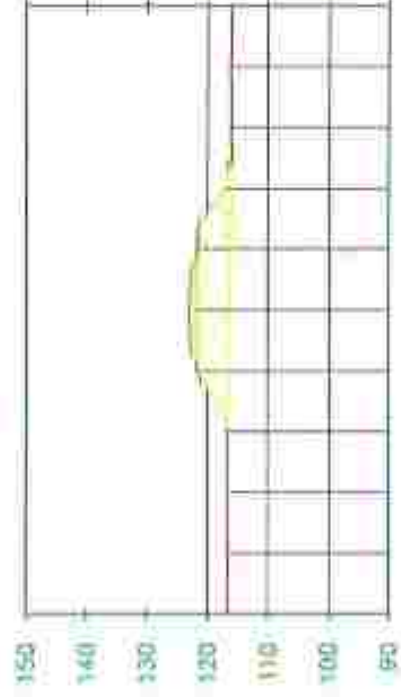
Total Volume at Station 671+810.00	
Cut Area	0.00
Fill Area	106.75
Cut Vol	0.00
Fill Vol	1594.34
Cum Cut Vol	0.00
Cum Fill Vol	9106.00
Net Vol	-9106.00

150
140
130
120
110
100
90

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.79	121.79
5	121.79	121.79
10	121.79	121.79
15	121.79	121.79
20	121.79	121.79
25	121.79	121.79
30	121.79	121.79
35	121.79	121.79
40	121.79	121.79
45	121.79	121.79
50	121.79	121.79
55	121.79	121.79
60	121.79	121.79
65	121.79	121.79
70	121.79	121.79
75	121.79	121.79
80	121.79	121.79
85	121.79	121.79
90	121.79	121.79
95	121.79	121.79
100	121.79	121.79
105	121.79	121.79
110	121.79	121.79
115	121.79	121.79
120	121.79	121.79
125	121.79	121.79
130	121.79	121.79
135	121.79	121.79
140	121.79	121.79
145	121.79	121.79
150	121.79	121.79



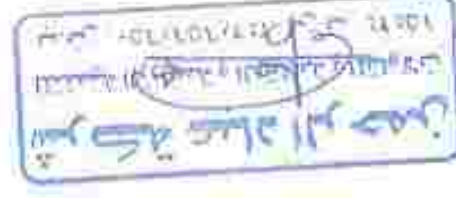
671+820.00



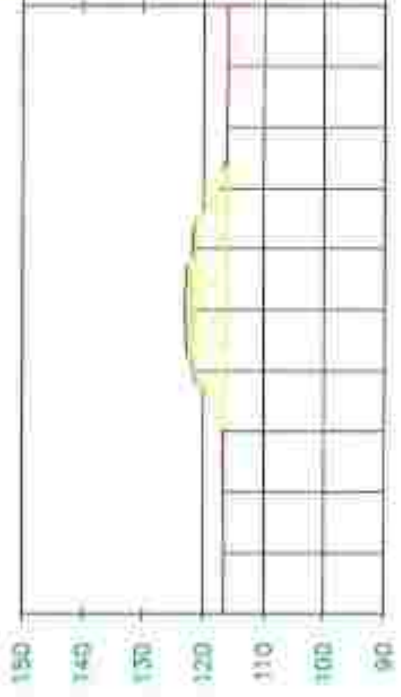
Total Volume at Station 671+820.00	
Cut Area	0.00
Fill Area	166.10
Cut Vol	0.00
Fill Vol	1654.35
Cum Cut Vol	0.00
Cum Fill Vol	6771.15
Net Vol	-6771.15

150
140
130
120
110
100
90

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.79	121.79
5	121.79	121.79
10	121.79	121.79
15	121.79	121.79
20	121.79	121.79
25	121.79	121.79
30	121.79	121.79
35	121.79	121.79
40	121.79	121.79
45	121.79	121.79
50	121.79	121.79
55	121.79	121.79
60	121.79	121.79
65	121.79	121.79
70	121.79	121.79
75	121.79	121.79
80	121.79	121.79
85	121.79	121.79
90	121.79	121.79
95	121.79	121.79
100	121.79	121.79
105	121.79	121.79
110	121.79	121.79
115	121.79	121.79
120	121.79	121.79
125	121.79	121.79
130	121.79	121.79
135	121.79	121.79
140	121.79	121.79
145	121.79	121.79
150	121.79	121.79



671+830.00

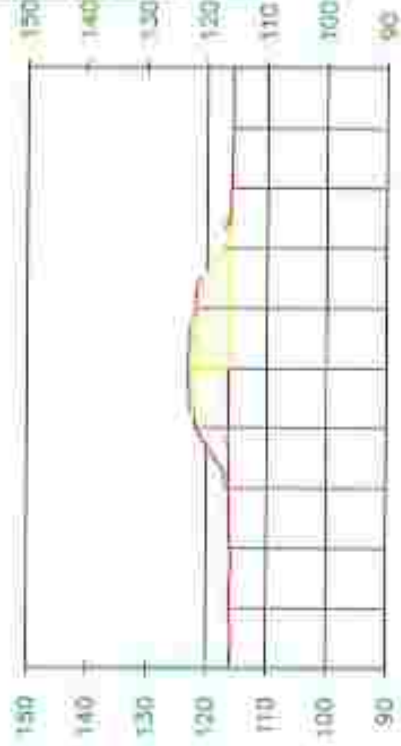


Total Volume at Station 671+830.00	
Cut Area	0.00
Fill Area	184.38
Cut Vol	0.00
Fill Vol	1652.45
Cum Cut Vol	0.00
Cum Fill Vol	6423.63
Net Vol	-6423.63

150
140
130
120
110
100
90

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	121.79	121.79
5	121.79	121.79
10	121.79	121.79
15	121.79	121.79
20	121.79	121.79
25	121.79	121.79
30	121.79	121.79
35	121.79	121.79
40	121.79	121.79
45	121.79	121.79
50	121.79	121.79
55	121.79	121.79
60	121.79	121.79
65	121.79	121.79
70	121.79	121.79
75	121.79	121.79
80	121.79	121.79
85	121.79	121.79
90	121.79	121.79
95	121.79	121.79
100	121.79	121.79
105	121.79	121.79
110	121.79	121.79
115	121.79	121.79
120	121.79	121.79
125	121.79	121.79
130	121.79	121.79
135	121.79	121.79
140	121.79	121.79
145	121.79	121.79
150	121.79	121.79

671+780.00



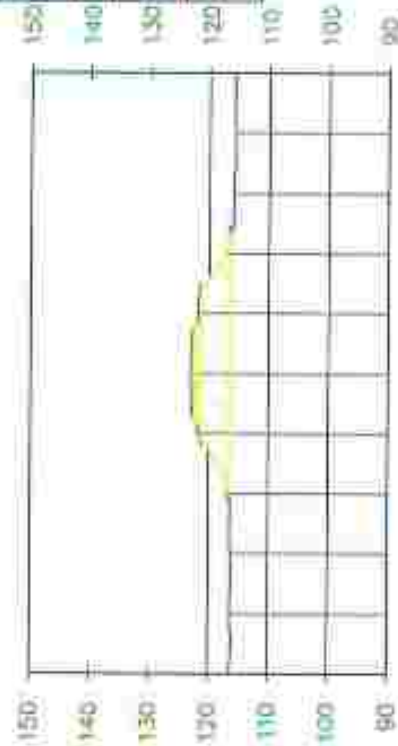
Total Volume at Station 671+780.00	
Cut Area	0.00
Fill Area	14.32
Cut Vol	0.00
Fill Vol	474.55
Cum Cut Vol	0.00
Cum Fill Vol	474.55
Net Vol	-474.55

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.00	120.00
20	120.00	120.00
30	120.00	120.00
40	120.00	120.00
50	120.00	120.00
60	120.00	120.00
70	120.00	120.00
80	120.00	120.00
90	120.00	120.00

100% Final Design - 100%
100% Final Design - 100%
100% Final Design - 100%

100% Final Design - 100%
100% Final Design - 100%
100% Final Design - 100%

671+790.00

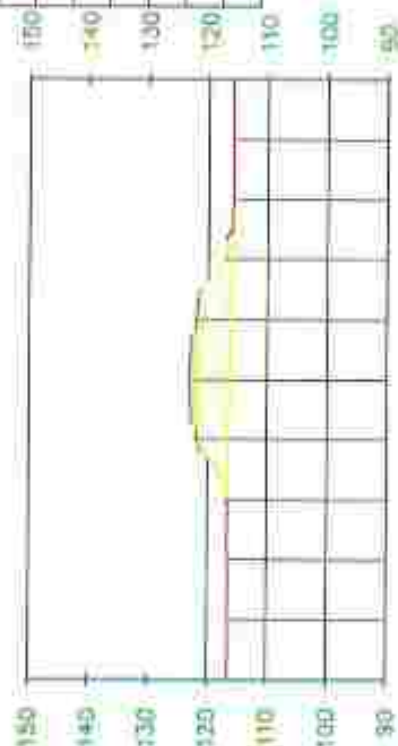


Total Volume at Station 671+790.00	
Cut Area	0.00
Fill Area	166.24
Cut Vol	0.00
Fill Vol	535.78
Cum Cut Vol	0.00
Cum Fill Vol	1780.37
Net Vol	-1780.37

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.00	120.00
20	120.00	120.00
30	120.00	120.00
40	120.00	120.00
50	120.00	120.00
60	120.00	120.00
70	120.00	120.00
80	120.00	120.00
90	120.00	120.00

100% Final Design - 100%
100% Final Design - 100%
100% Final Design - 100%

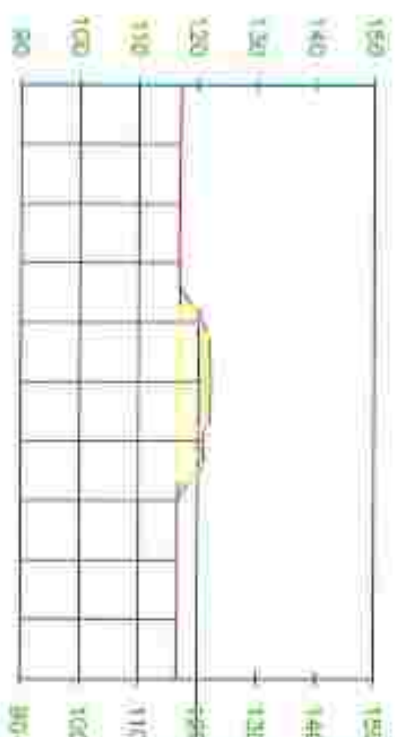
671+800.00



Total Volume at Station 671+800.00	
Cut Area	0.00
Fill Area	165.16
Cut Vol	0.00
Fill Vol	165.16
Cum Cut Vol	0.00
Cum Fill Vol	3442.58
Net Vol	-3442.58

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	120.00	120.00
10	121.00	120.00
20	120.00	120.00
30	120.00	120.00
40	120.00	120.00
50	120.00	120.00
60	120.00	120.00
70	120.00	120.00
80	120.00	120.00
90	120.00	120.00

672+630.00

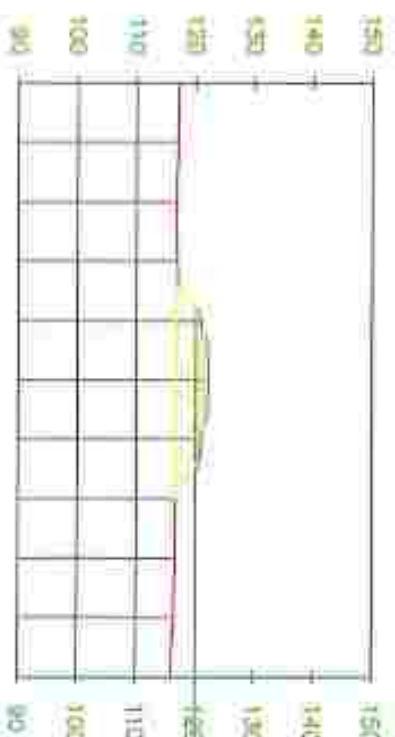


Total Volume at Station 672+630.00	
Cut Area	0.00
Fill Area	108.00
Gravel	0.00
Fill Vol	540.00
Cut Vol	0.00
Gravel Vol	0.00
Net Vol	-540.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
80		
90		
100		
110		
120		
130		
140		
150		

مختار محمد عبد الرحمن
مهندس
1507
مختار محمد عبد الرحمن

672+640.00

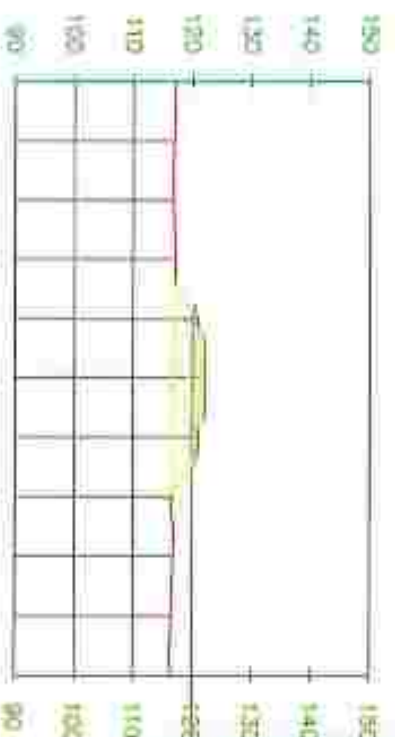


Total Volume at Station 672+640.00	
Cut Area	0.00
Fill Area	117.20
Gravel	0.00
Fill Vol	1172.00
Cut Vol	0.00
Gravel Vol	0.00
Net Vol	-1172.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
80		
90		
100		
110		
120		
130		
140		
150		

شركة عباد الرحمن
للتنفيذ والبناء والتشييد
م.ع. 1507/1506/1505
م.ع. 1507/1506/1505

672+650.00

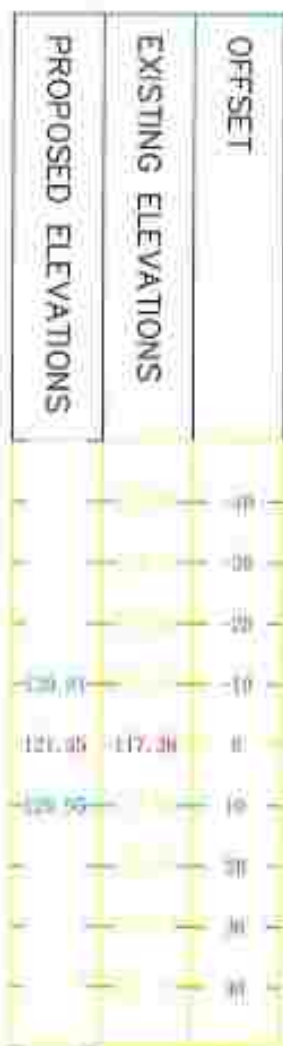


Total Volume at Station 672+650.00	
Cut Area	0.00
Fill Area	117.85
Gravel	0.00
Fill Vol	1178.50
Cut Vol	0.00
Gravel Vol	0.00
Net Vol	-1178.50

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
80		
90		
100		
110		
120		
130		
140		
150		

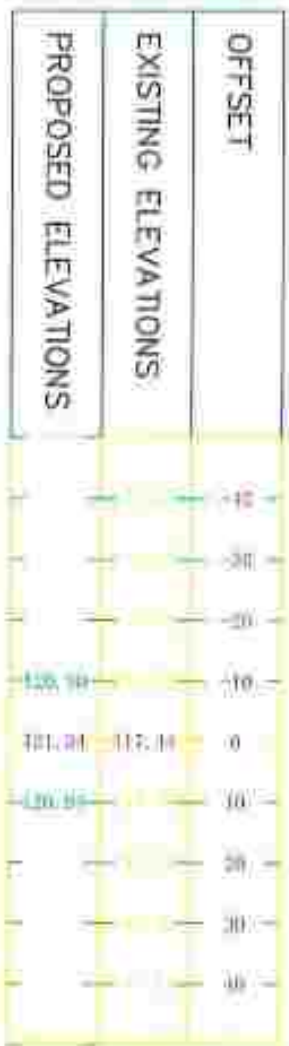
مختار محمد عبد الرحمن
مهندس
1507
مختار محمد عبد الرحمن

Total Volume at Station 672+00.00	
Cut Area	0.00
Fill Area	60.92
Gr Vol	0.00
Em Vol	337.36
Comp. Cut Vol	0.00
Comp. Fill Vol	155.55 cu
Net Vol	-155.55 cu



PROPOSED ELEVATIONS	EXISTING ELEVATIONS	OFFSET
---------------------	---------------------	--------

Total Volume at Stocking: 8722-704.00	
Cat 4-22	9.00
Flt Armo	30.35
Cat Vol	0.00
Flt Vol	306.59
Cum Cat Vol	0.00
Cum Flt Vol	306.59
Net Vol	-85962.81



PROPOSED ELEVATIONS	EXISTING ELEVATIONS	OFFSET
---------------------	---------------------	--------

Total	Volume of Solution	0.728-710.00
	Cut Area	0.00
	Fill Area	91.84
	Cut Vol	0.00
	Fill Vol	817.46
	Cum Cut Vol	0.00
	Cum Fill Vol	81733.67
	Mat Vol	-51673.38

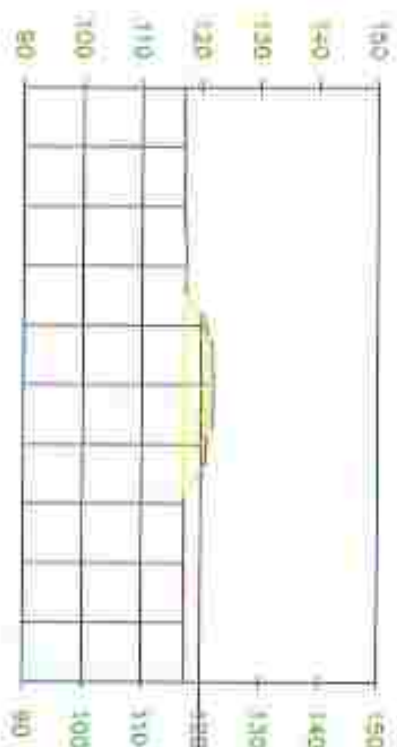


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

مكتبة عباد الرحمن
الجمعية الخيرية العامة
١٥٠٢٠ ١٥٠٢٠ ١٥٠٢٠

1157 - Blue Ink

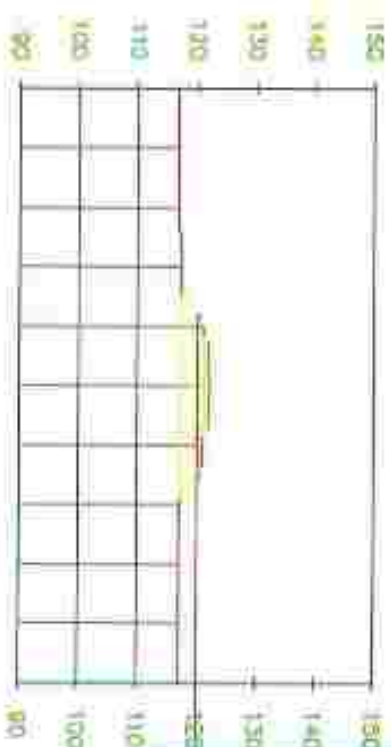
672+720.00



Total Volume at 5000th: 672+720.00	
Est. Area	0.00
Fri Area	64.42
Cur Vol	0.00
Fill Vol	923.77
Cur Cur Vol	0.00
Open Fri Vol	25503.64
Med Vol	-34805.04

1958-1959

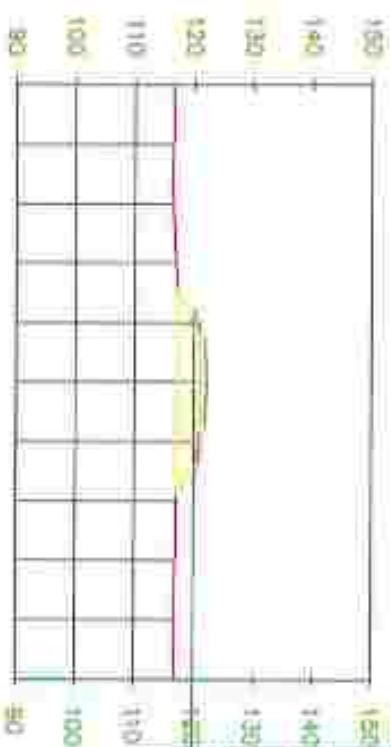
672+730.00



Total Value at Shikon 872x 720.00	
Est. Prod.	0.00
Fin. Accn.	97.78
Cur. Val.	0.00
Fin. Val.	390.89
Cur. Out. Val.	0.00
Cur. Fin. Val.	59766.57
Net Val.	-18726.57

شركة عباد الرحمن
للتنظيف الرواسية والعقود والتطبيقات
هاتف: ٥٦٧٩٠٢٤ - فاكس: ٥٦٧٩٠٢٤

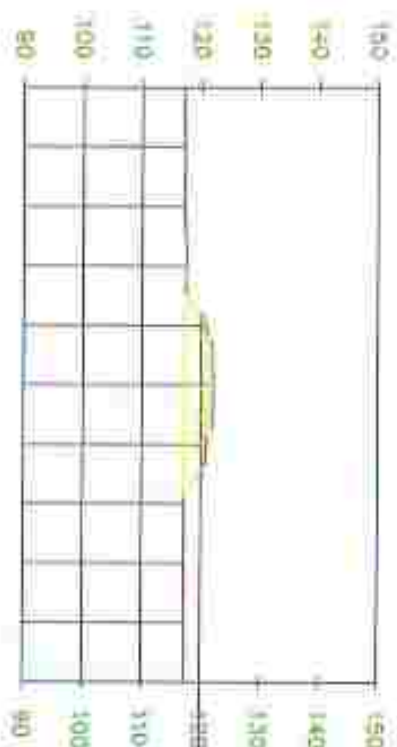
672+740.00



Thermal Venting (H. Stat) (H. W. 7.4°C/0.01)	
Gas Area	0.00
Flt Area	0.022
Out Wall	0.00
Flt Wall	0.0431
Clamp Out Wall	0.00
Sum. Flt Wall	0.070134
Flt Wall	0.005144



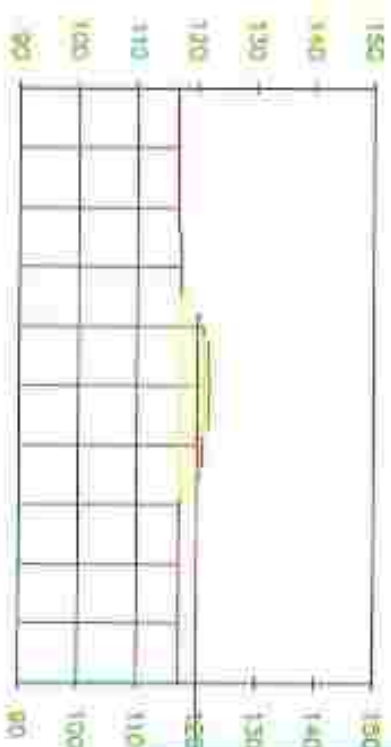
672+720.00



Total Volume at 5000ml, 672+720.00	
Cell Area	0.00
Fib Area	64.42
Cur Vol	0.00
Fib Vol	923.77
Cur Cell Vol	0.00
Disp Fib Vol	22500.64
Med Vol	-34805.04

1958-1959

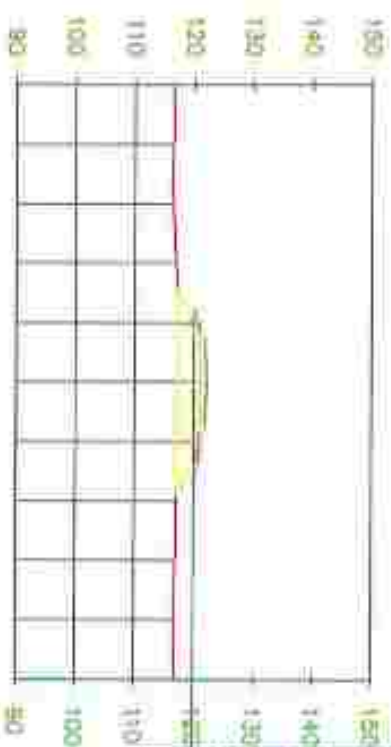
672+730.00



Total Value at Shikon 872x 720.00	
Est. Prod.	0.00
Fin. Accn.	97.78
Cur. Val.	0.00
Fin. Val.	390.89
Cur. Out. Val.	0.00
Cur. Fin. Val.	59766.57
Net Val.	-18726.57

شركة عباد الرحمن
للتنفيذ الرواسية والعقود والمقاولات
ب.ت.و ٩٥٠/٦٥٦/٢٤٣ س.ت. ١٥٤٢٠

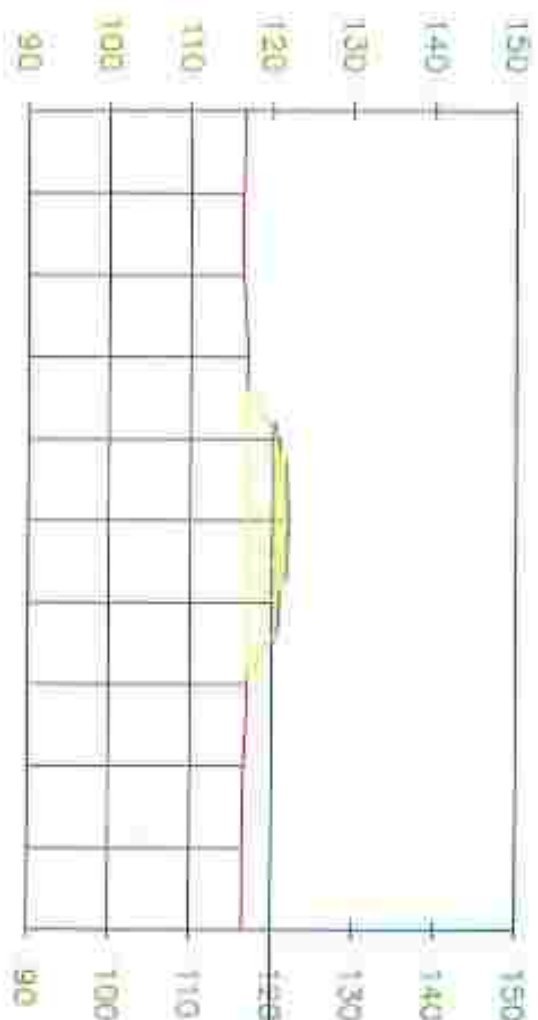
672+740.00



Thermal Venting (H. Stat) (H. 7.4.00)	
Gas Area	0.00
Flt Area	00.22
Out Wall	0.00
Flt Wall	00.31
Clm Out Wall	0.00
Sum Flt Wall	0070.54
Flt Wall	0005.14



672+750.00

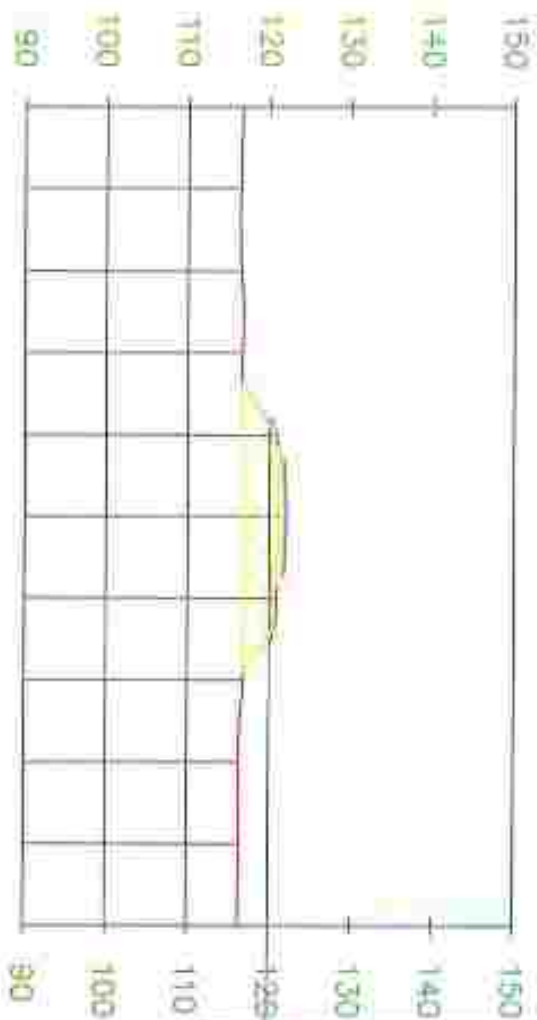


Total Volume at Station	6772+750.00
Cut Area	0.00
Fill Area	102.36
Cut Vol	0.00
Fill Vol	1007.89
Sum Cut Vol	0.00
Sum Fill Vol	77759.53
Net Vol	-77759.53

WBR - Blue List

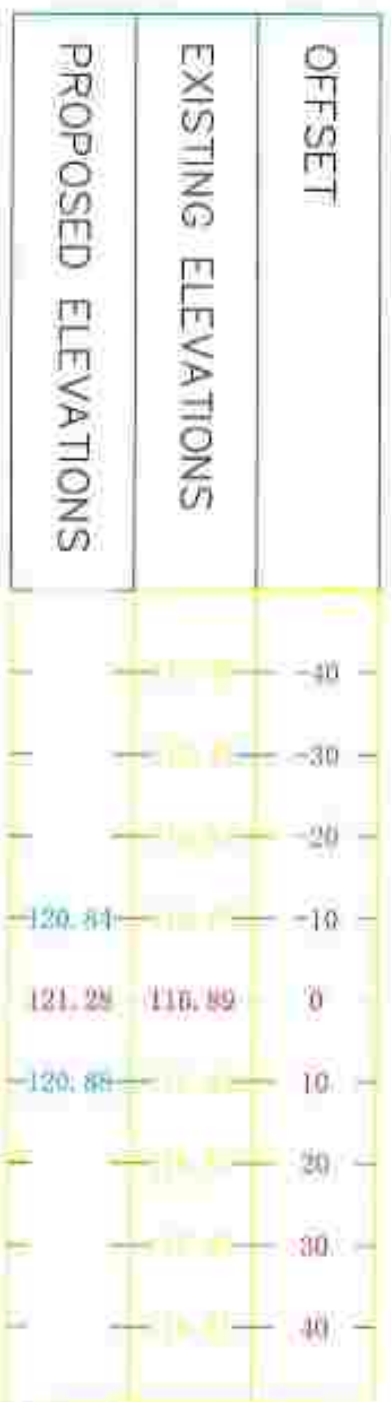


672+760.00

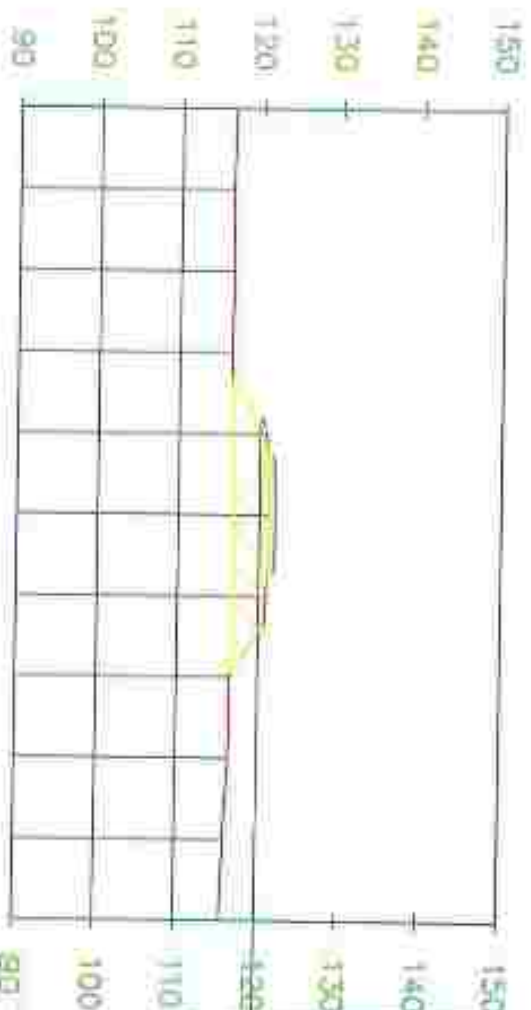


Total Volume at Station 672+760.00	
Cut Area	0.00
Fill Area	107.93
Cut Vol	0.00
Fill Vol	1051.41
Cum Cut Vol	0.00
Cum Fill Vol	722910.74
Net Vol	-722810.74

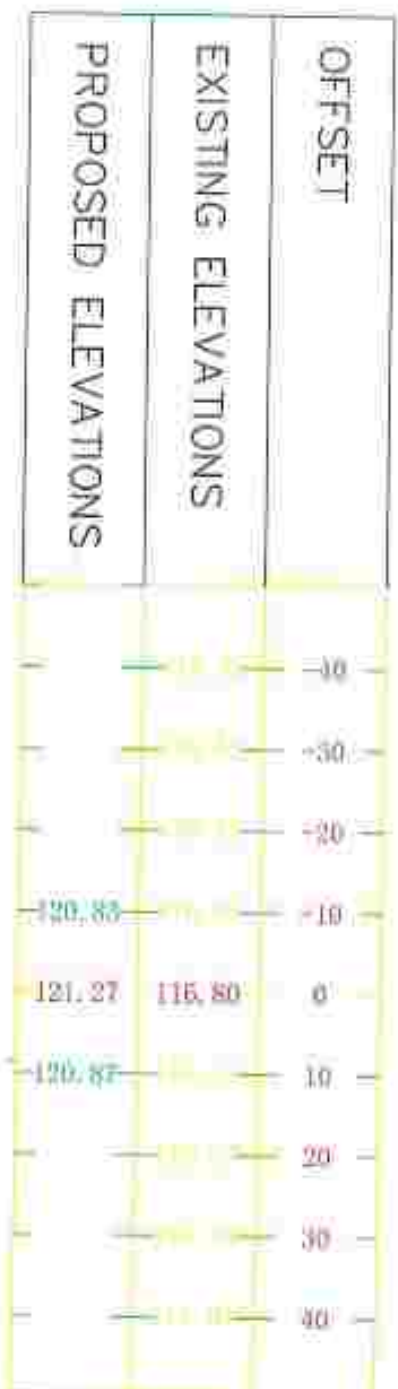
شركة عباد الرحمن
للتنفيذ والبناء والمقاولات
ج.م.س. ٧٥٨٧٦٥٦٦٥٠ - ١٥٤٦١



672+770.00

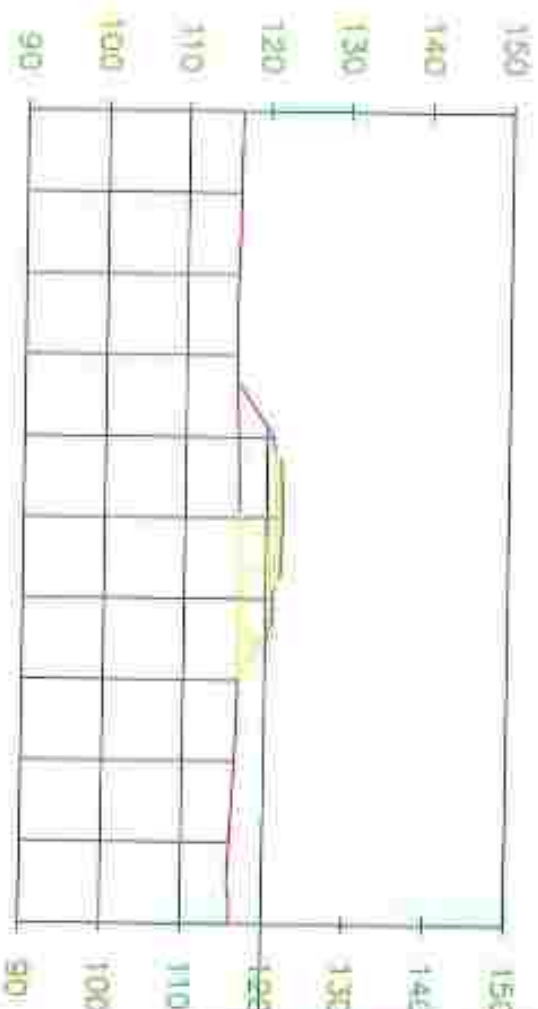


Total Volume at Station: 672+770.00	
Cut Area	0.00
Fill Area	112.27
Cut Vol	0.00
Fill Vol	1100.98
Cum Cut Vol	0.00
Cum Fill Vol	75911.73
Net Vol	-73911.73

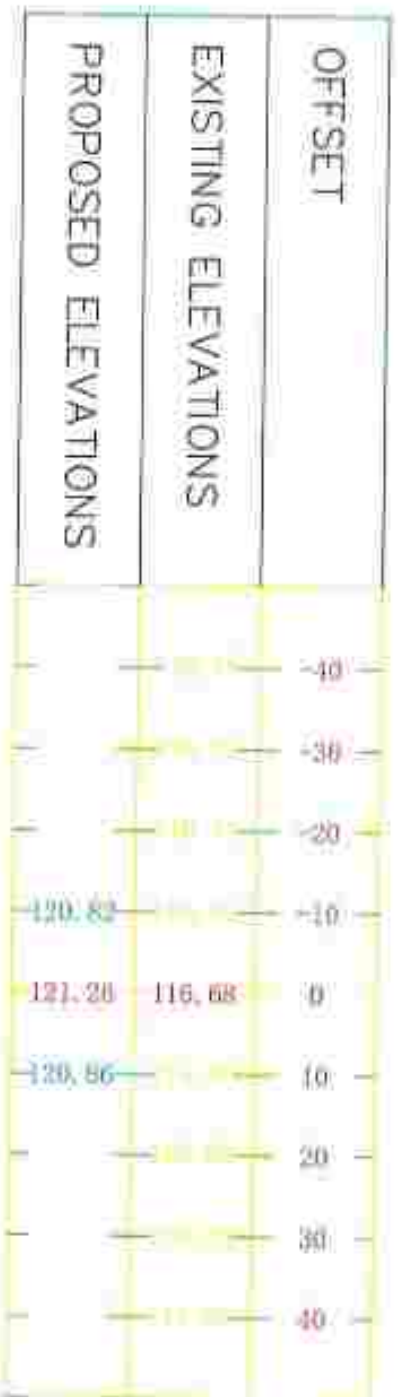
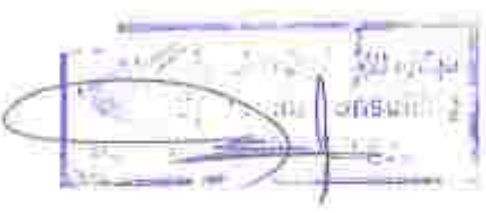


كوتنا، البصرة، العراق
HOT - Blue Line - S - M
مهندسة جاسم محمد جاسم

672+780.00



Total Volume at Station: 672+780.00	
Cut Area	0.00
Fill Area	62.36
Cut Vol	0.00
Fill Vol	578.17
Cum Cut Vol	0.00
Cum Fill Vol	74789.90
Net Vol	-74789.90



شركة جاسم محمد جاسم
للتصميم والدراسة والبناء والمقاولات
بغداد - العراق
ت. ٩١٥٦١٥٣ ف. ٩١٥٦١٥٣

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Arman
 Testing Date : 9/8/2023
 Soil type : Middle Embankment
 Location : ST From 672+080 to 672+100
 Level : - 4.5 M
 Report No. : 01

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	672+090	1525	2.26	5.3	2.15	96.4	Comply

* Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

CEL
 210, 021, 027
 2023/08/09

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

Dear Gentleman,

Attached here with the delivered on 25 / 7 / 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 /


CEL
CONSULTING ENGINEERING DESIGN CONSULTING & LABORATORY SERVICES
المشاورين والمهندسين والمصممين والمختبرات والخدمات

Company Name : شركة عباد الرحمن
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 25/7/2023
 Reporting Date : 29/6/2023
 Reporting No. : 01

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.9
37.5	1.5	89.7
25	1	82.8
19	¾	77.6
12.50	½	73.8
9.50	3/8	59.7
4.75	4	49.8
2.00	10	37.1
0.425	40	22.9

CEL
 Geotechnical Engineering, Building & Laboratories
 مهندسة الجيوتقنية، البناء والمختبرات
 Signature: 



Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	6.9

Signature: 



Consulting Engineering Bureau & Laboratories
مكتب صانعي الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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 عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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).	37.1	Max 50 %	—	—
0.425 mm (No. 40).	22.9	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	6.9	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 /



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

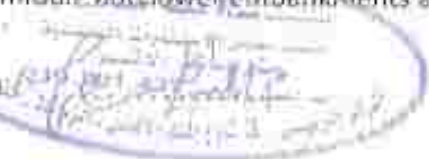
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.62
1.91	0.075	2.74
2.54	0.100	3.91
3.18	0.125	5.02
3.81	0.150	6.09
4.45	0.175	7.56
5.08	0.200	9.23
6.35	0.250	14.50

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	56.6 %
	6.90	3.91	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.23 \text{ (gm/cm}^3\text{)}$
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

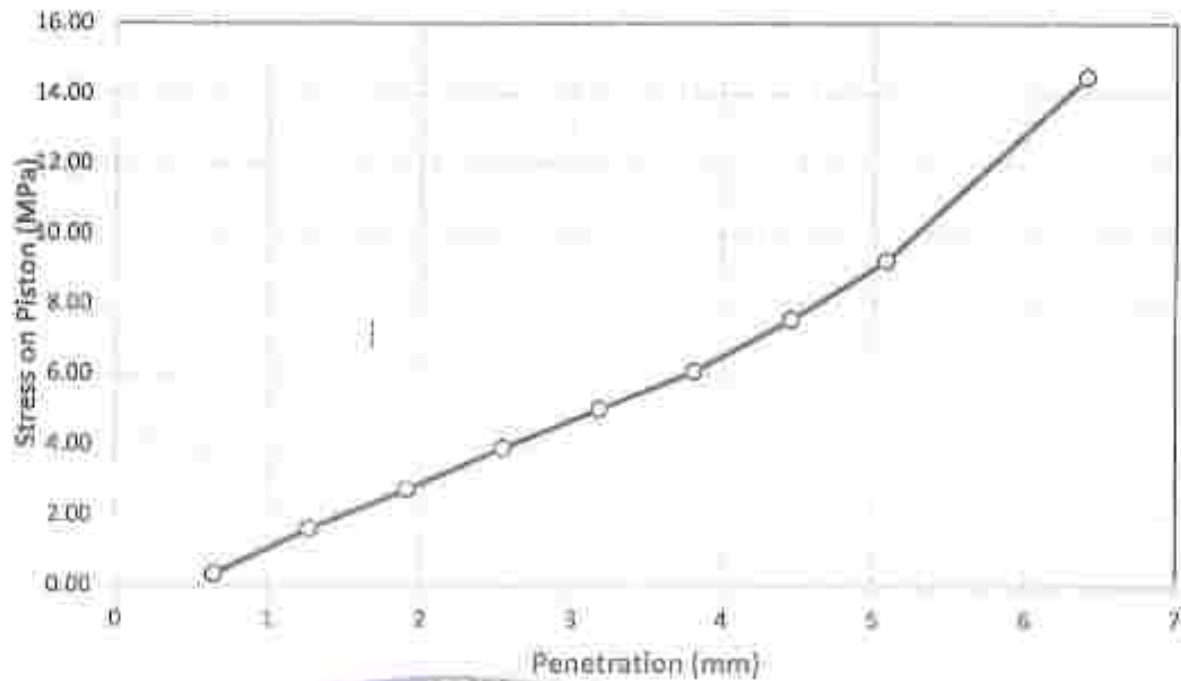
Signature: 

CEL

Geotechnical Engineering Bureau & Laboratories
مكتب الدراسات والبحوث الجيوتقنية

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Signature: [Handwritten Signature]
Date: 29/6/2023

IAS
INSTITUTE

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 9/8/2023
Soil type : Middle Embankment
Location : ST From 672+100 to 672+140
Level : - 5.0 M
Report No. : 02

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	672+120	1544	2.27	5	2.17	97.1	Comply

* Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 5.8 %

Signature: 

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Armanf
Testing Date : 9/8/2023
Soil type : Middle Embankment
Location : ST From 672+140 to 672+180
Level : - 4.5 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	672+160	1514	2.29	5.3	2.18	97.6	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 5.6 %

Signature 

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Arman
 Testing Date : 14/8/2023
 Soil type : طينة اسفندال
 Location : ST From 672+100 To 672+140
 Level : - 4.5 M
 Report No. : 06

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	672+110	1497	2.28	5.8	2.15	96.5%	Comply
2	672+130	1498	2.26	5.8	2.14	95.8%	Comply

* Degree of compaction based on proctor test dated At

- * Max. dry density = 2.23 gm/cm³
- * At optimum moisture content = 5.8 %

Signature /

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 14/8/2023
Soil type : طينة استبدال
Location : ST From 672+060 To 672+080
Level : - 5 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	672+070	1470	2.28	5.8	2.15	96.5%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 


Company Name : شركة صناد الرخمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 13/8/2023
Soil type : طبقه استبدال
Location : ST From 672+000 To 672+060
Level : - 4.5 M
Report No. : 04

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+020	1372	2.26	5.3	2.15	96.2%	Comply
2	672+040	1385	2.31	5.8	2.18	97.9%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 

Company Name : شركة عياد النجدي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 24/8/2023
Soil type : Middle Embankment
Location : ST From 672+020 To 672+180
Level : - 4 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	672+050	1807	2.24	5.3	2.12	95.7%	Comply
2	672+100	1605	2.28	5.5	2.16	97.3%	Comply
3	672+150	1635	2.25	5.8	2.13	95.8%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

16/08/2023
2023-08-16
16/08/2023



16/08/2023
16/08/2023
16/08/2023

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 05/09/2023
Soil type : Lower Embankment
Location : ST From 671+780 To 971+820
Level : - 5.5 M
Report No. : 14

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	671+830	1427	2.29	5.3	2.18	98.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /





Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

مدرجات معاضلات الوجه القبلي

Company : شركة عبد الرحمن اتشيه والمباريات

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 671+780 to 671+820
Station : 671+800
Level : -5.5
Test Date : 5/9/2023
Report Date : 5/9/2023
Type of soil : Lower Embankment
Report No. : 03

Dear Gentlemen,

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

Apparatus

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

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached)
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min
11. Remove the loads



Report

1. Evaluation and representation of results
2. Load Settlement curve
3. The last 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 : Lower Embankment
- * Job requirement : $E_{v2} > 300 \text{ kg/cm}^2 (30 \text{ Mpa})$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	05/09/2023
- 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		First Cycle	Second Cycle	E_{v2} / E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	671+780	671+820	52	110	2.11

Signature /

Company Name : شركة عبد الرحمن للتجارة والمقاولات
Project : Electric Express Train - Section (6) Qous to Arrahut
Test Date : 04/09/2023
report date : 06/09/2023
Location : station (671+800)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.80	0.20	19.73	0.27	0.23
2	1.66	19.60	0.40	19.51	0.49	0.44
3	2.50	19.40	0.60	19.34	0.66	0.63
4	3.33	19.20	0.80	19.20	0.80	0.80
5	4.17	19.00	1.00	19.12	0.88	0.94
6	5.00	18.80	1.20	18.96	1.04	1.12

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.90	1.10	19.05	0.95	1.03
2	1.25	19.05	0.95	19.25	0.75	0.85
3	0.100	19.55	0.45	19.60	0.40	0.42

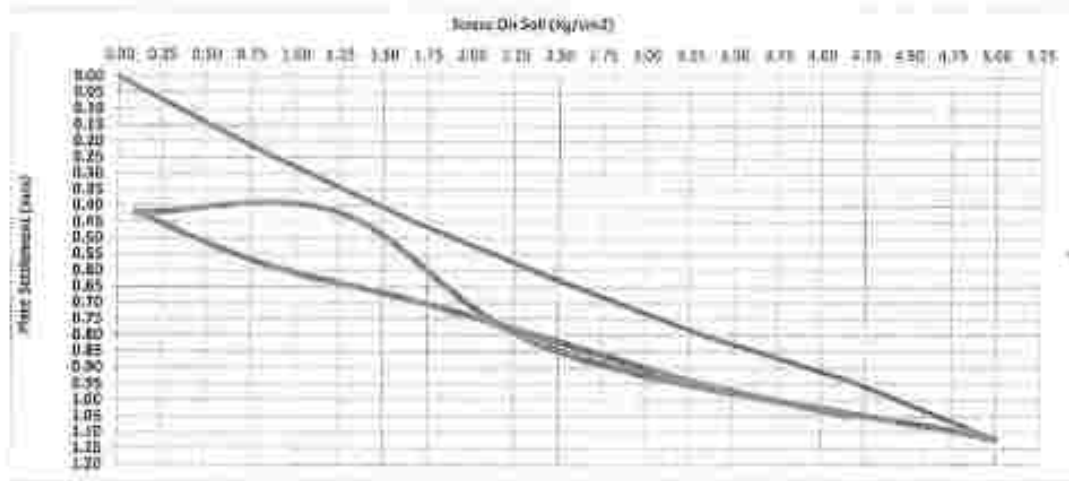
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.45	0.55	19.40	0.60	0.58
1	1.66	19.32	0.68	19.31	0.69	0.69
2	2.50	19.18	0.82	19.17	0.83	0.82
3	3.33	19.08	0.92	19.03	0.97	0.95
4	4.17	18.96	1.04	18.95	1.08	1.05



Company Name : شركة عبد الرحمن للتقنية والهندسة
Project : El-Malek El-Afzal - Design (M) Design of Asphalt
Test Date : 05/06/2023
Report Date : 05/06/2023
Location : Station (E2) 4000
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils QUN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	688	1172.8	1766.3	2352.8	2946.1	3533
Stress (Kg/cm²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.44	0.63	0.80	0.94	1.12

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	0
Stress (Kg/cm²)	5.00	2.500	1.25	0.10
Settlement (mm)	1.12	0.83	0.42	0.42

$Q_1 (mm) = 100$	$S_1 (mm) = 0.40$	$S_2 (mm) = 0.83$	$\Delta S = 0.42$
$E_{v1} (kg/cm^2) = (0.75 \cdot Q_1 \cdot \Delta S) / \Delta S$	82		

$$E_{v2}/E_{v1} = 2.1$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	884	1172.8	1766.3	2352.8	2946.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.42	0.58	0.69	0.82	0.95	1.05

$Q_2 (mm) = 800$	$S_1 (mm) = 0.42$	$S_2 (mm) = 0.82$	$\Delta S = 0.40$
$E_{v2} (kg/cm^2) = (0.75 \cdot Q_2 \cdot \Delta S) / \Delta S$	110		

E_{v1} = Modulus of deformation during the loading stage

E_{v2} = Modulus of deformation during the unloading stage

Q = Plate diameter (mm)

ΔS = The difference between S_2 and S_1 from the maximum loading (mm) (kg/cm²)

ΔS = Difference in settlement corresponding to S_2 and S_1 from the maximum loading (mm)



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	90.7
25	1	84.3
19	¾	78.4
12.50	½	74.3
9.50	3/8	60.5
4.75	4	52.4
2.00	10	39.3
0.425	40	24.2

Signature /.....



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

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)	7.8

Signature /.....

CEL Logo & Contact Info
Village, Qous
Tel: 010 2455551 2455551



Signature
Date: 21/8/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

**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 /.....

10/10/2023 10:10:10
10/10/2023 10:10:10
10/10/2023 10:10:10



10/10/2023 10:10:10
10/10/2023 10:10:10
10/10/2023 10:10:10

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

Soil Classification

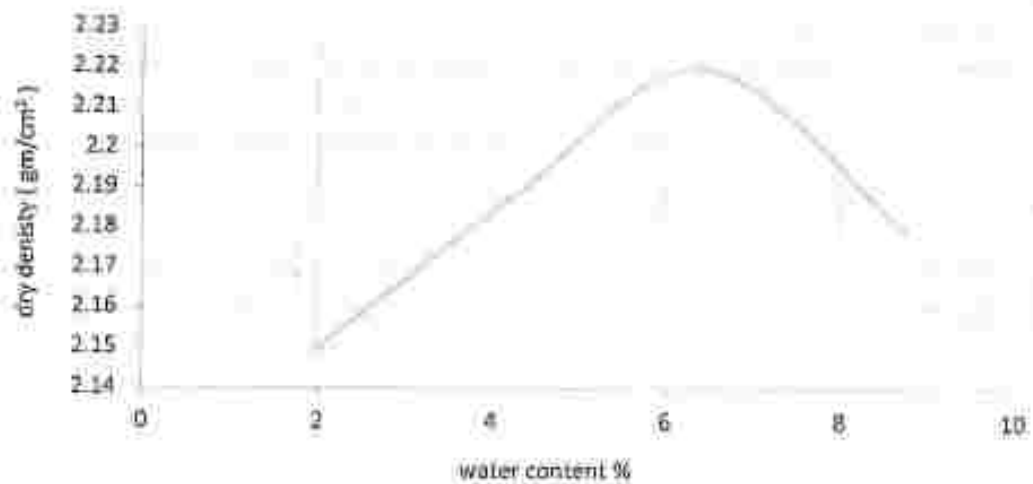
TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10).	39.3	Max 50 %	—	—
0.425 mm (No. 40).	24.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	7.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature / 

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qons To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

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



- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 6.4

Signature /

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.56
1.27	0.050	1.69
1.91	0.075	2.76
2.54	0.100	3.75
3.18	0.125	4.62
3.81	0.150	5.33
4.45	0.175	5.68
5.08	0.200	5.98
6.35	0.250	6.09

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	54.4 %
	6.90	3.75	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of =2.22 (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.

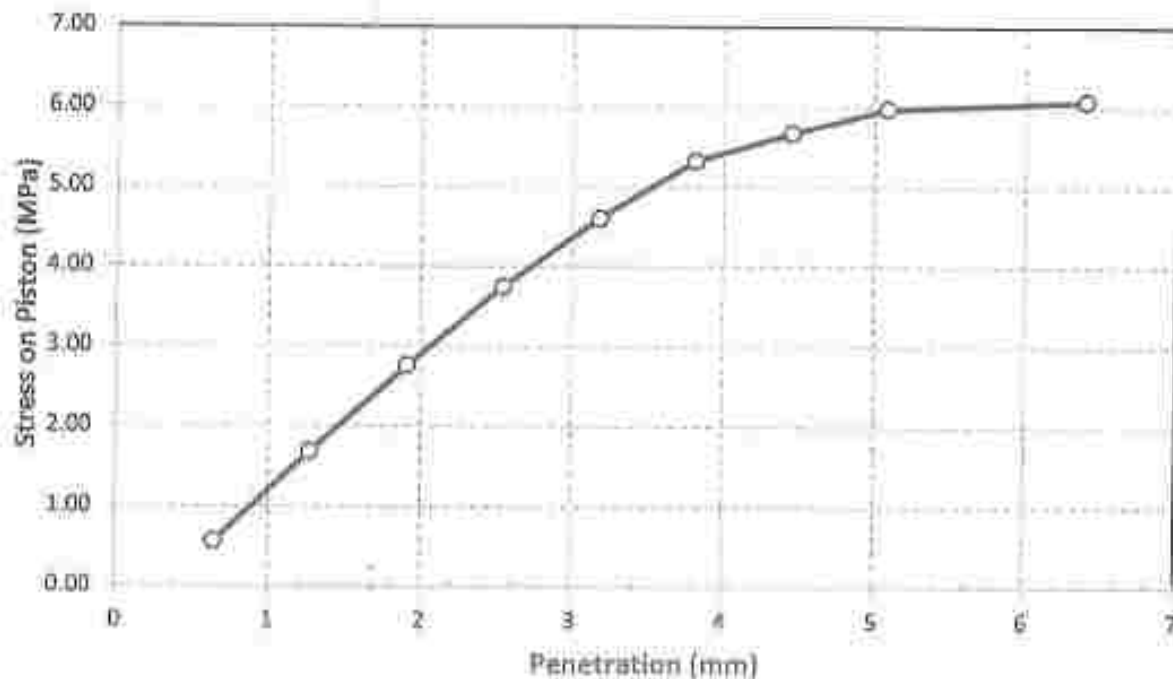
Signature / 

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature / 

Dr. H. H. H. H. H.
Dr. H. H. H. H. H.
Dr. H. H. H. H. H.

IAS
ACCREDITED
ISO 9001:2015

Dr. H. H. H. H. H.
Dr. H. H. H. H. H.
Dr. H. H. H. H. H.

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 05/09/2023
Soil type : Lower Embankment
Location : ST From 671+820 To 971+840
Level : - 6 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	671+830	1489	2.26	5.5	2.15	96.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 14/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+880
Level : -3 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	691+800	1412	2.31	6.4	2.17	98.6%	Comply
2	691+860	1468	2.25	6	2.12	96.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



Company Name : **QAS**
 Project : **Electric Express Train - HSR, 2nd Floor, 2nd Floor, 2nd Floor**
 Testing Date : **04/05/2013**
 Soil type : **Lower Embankment**
 Location : **ST From 671+860 To 971+840**
 Level : **1 - 3.5 M**
 Report No. : **111**

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1.	671+890	1472	2.28	5.3	2.16	97.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4%

Signature / _____

Company : شركة عبد الرحمن للتجارة والهندسة

Project : Electric Express Train – Sector (5) – Gous to Arment
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements
Test Location : station 671+860 to 671+920
Station : 671+900
Level : -6.5
Test Date : 4/9/2023
Report Date : 6/9/2023
Type of soil : Lower Embankment
Report No. : 01

Dear Gentleman,

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

Apparatus

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

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached)
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- * Type of soil : Lower Embankment
- * Job requirement : $E_{v2} > 300 \text{ kg/cm}^2 (30 \text{ Mpa})$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	05/09/2023
- 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		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	671+800	671+920	72	110	1.52

Signature / 

Company Name : شركة جود الرحمن للتشييد والمقاولات
Project : Electric Express Train - Section (5) Qous to Assiut
Test Date : 04/09/2023
report date : 06/09/2023
Location : Station 671+860 to 671+920
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.82	0.18	19.85	0.15	0.16
2	1.66	19.70	0.30	19.73	0.27	0.28
3	2.50	19.60	0.40	19.60	0.40	0.40
4	3.33	19.43	0.57	19.48	0.52	0.54
5	4.17	19.31	0.69	19.37	0.63	0.65
6	5.00	19.19	0.81	19.24	0.76	0.77

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.19	0.81	19.24	0.76	0.77
2	1.25	19.27	0.73	19.31	0.69	0.69
3	0.100	19.39	0.61	19.45	0.55	0.57

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.56	0.44	19.62	0.40	0.40
1	1.66	19.42	0.68	19.47	0.53	0.54
2	2.50	19.28	0.72	19.33	0.67	0.68
3	3.33	19.18	0.82	19.20	0.80	0.80
4	4.17	19.04	0.96	19.07	0.93	0.92



Company Name

Project

Test Date

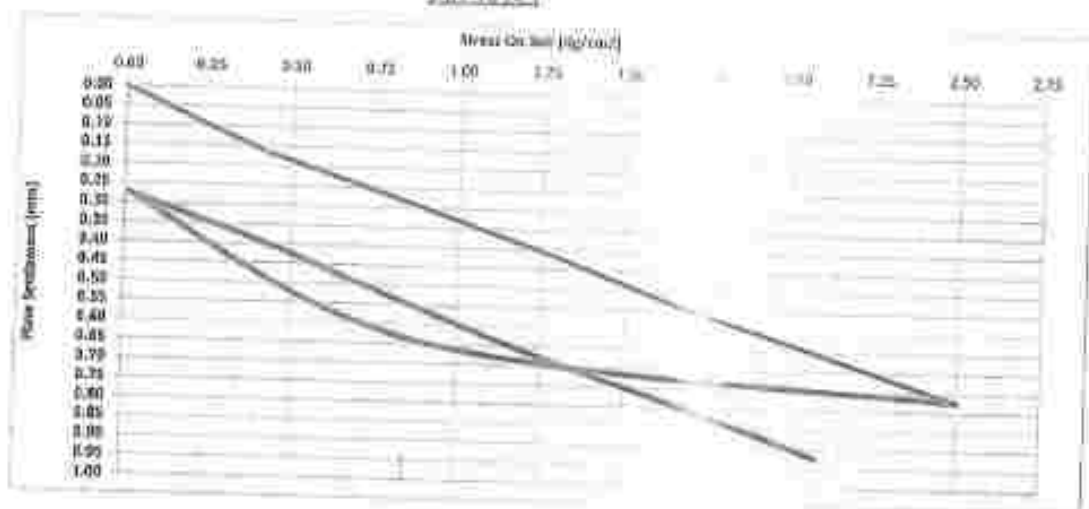
report date

Location

Test No.

شركة مياه الري الحديثة
Electric Express Y-40 - Section (B) South of Delta
04/08/2023
08/08/2023
Station 871+000 to 871+520
01

Nonrepulsive Static Plate Load Tests of Soil DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage (Kg)	0	388	1172.8	1788.3	2352.6	2946.1	3632
Stress (Kg/cm²)	0.00	0.83	1.86	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.10	0.28	0.40	0.54	0.65	0.77

$D_1 (mm) = 300$	$S_1 (mm) = 0.28$	$S_2 (mm) = 0.55$	$\Delta S = 0.30$
$E_{v1} (kg/cm²) = (0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$			72

Unloading (1)	1	2	3	4
Stage (Kg)	3632	1788	884	71
Stress (Kg/cm²)	5.00	2.500	1.25	0.10
Settlement (mm)	0.68	0.57	0.27	0.27

Loading (2)	0	1	2	3	4	5
Stage (Kg)	0	388	1172.8	1788.3	2352.6	2946.1
Stress (Kg/cm²)	0.00	0.83	1.86	2.50	3.33	4.17
Settlement (mm)	0.27	0.40	0.54	0.65	0.80	0.92

$E_{v2} / E_{v1} =$	0.8
---------------------	-----

$D_2 (mm) = 800$	$S_1 (mm) = 0.42$	$S_2 (mm) = 0.82$	$\Delta S = 0.40$
$E_{v2} (kg/cm²) = (0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$			118

E_{v1} = Modulus of deformation during the loading stage.

E_{v2} = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

$\Delta \sigma$ = The difference between 0.3 and 0.7 from the maximum loading (kg/cm²)

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



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 04/09/2023
Soil type : Lower Embankment
Location : ST From 671+920 To 971+940
Level : - 6 M
Report No. : 10

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	671+930	1272	2.26	5.5	2.15	96.7%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة عياد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 04/09/2023
Soil type : Lower Embankment
Location : ST From 671+960 To 971+980
Level : - 5.5 M
Report No. : 09

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	671+970	1441	2.28	5.3	2.16	97.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

مكتب دراسات الاستشارات الهندسية
شركة عياد الرحمن
3 شارع بنك مصر، القاهرة
0111 333 3333

Company : شركة عبد الرحمن للتجارة والمقاولات

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 671+960 to 671+980

Station : 671+970

Level : -5.5

Test Date : 4/9/2023

Report Date : 5/9/2023

Type of soil : Lower Embankment

Report No. : 02

Dear Gentlemen,

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

Apparatus

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

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Lower Embankment
- Job requirement : $E_{v2} > 300 \text{ kg/cm}^2$ (30 Mpa)

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	04/09/2023
- 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		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	671+780	671+820	68.1	82.8	0.96

Signature /

Company Name : شركة عباد الرحمن للتقنية والقياسات
Project : Electric Express Train - Section (6) Gous to Amment
Test Date : 05/09/2023
report date : 05/09/2023
Location : station (671+970)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.75	0.25	19.79	0.21	0.23
2	1.66	19.55	0.45	19.60	0.40	0.42
3	2.50	19.30	0.70	19.41	0.59	0.65
4	3.33	19.10	0.90	19.19	0.81	0.85
5	4.17	18.85	1.15	19.00	1.00	1.08
6	5.00	18.61	1.39	18.88	1.12	1.26

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.70	1.30	18.95	1.05	1.18
2	1.25	18.95	1.05	19.05	0.95	1.00
3	0.100	18.58	0.42	19.40	0.60	0.51

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.32	0.68	19.19	0.81	0.74
1	1.66	19.10	0.90	18.98	1.02	0.96
2	2.50	18.88	1.12	18.78	1.22	1.17
3	3.33	18.67	1.33	18.50	1.50	1.42
4	4.17	18.49	1.51	18.32	1.68	1.60



Company Name

Project

Test Date

Report Date

Location

Test No.

Station Express Train - Section (B) Canal de Assiout

06/05/2023

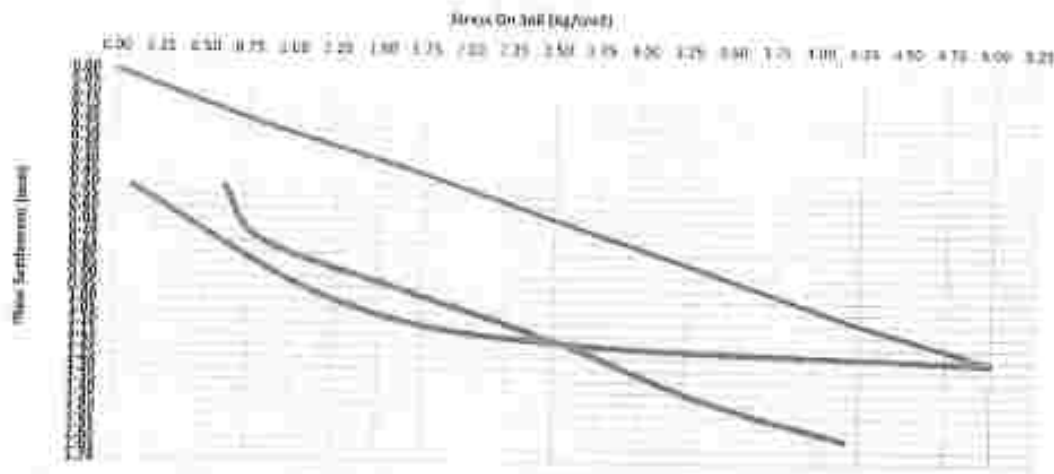
06/05/2023

Station 873+970

05

Nondestructive Static Plate Load Tests of Soils

DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage (Kg)	0	986	1172.8	1766.3	2352.6	2940.1	3533
Stress (Kg/cm²)	0.00	0.63	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.42	0.66	0.85	1.08	1.25

$Q_1 (mm) = 300$	$S_1 (mm) = 0.39$	$S_2 (mm) = 0.90$	$\Delta S = 0.51$
$E_{v1} (kg/cm^2) = (0.78 \cdot Q_1 \cdot \sigma) / \Delta S$	68.1		

Loading (2)	0	1	2	3	4	5
Stage (Kg)	0	986	1172.8	1766.3	2352.6	2940.1
Stress (Kg/cm²)	0.00	0.63	1.66	2.50	3.33	4.17
Settlement (mm)	0.51	0.74	0.86	1.17	1.42	1.90

$Q_2 (mm) = 800$	$S_1 (mm) = 0.93$	$S_2 (mm) = 1.44$	$\Delta S = 0.53$
$E_{v2} (kg/cm^2) = (0.75 \cdot Q_2 \cdot \sigma) / \Delta S$	82.8		

UnLoad (kg)	1	2	3	4
Stage (Kg)	3533	1766	984	71
Stress (Kg/cm²)	5.00	2.50	1.25	0.10
Settlement (mm)	1.25	1.18	1.00	0.51

$E_{v2}/E_{v1} =$	0.98
-------------------	------

E_{v1} = Modulus of deformation during the loading stage

E_{v2} = Modulus of deformation during the reloading stage

Q = Plate diameter (mm)

Q_1 = The difference between 0.3 and 0.7 from the maximum loading (stage) (kg/cm²)

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



3 El Maadi El Afifi Street

Zamalek, Cairo

Tel. & Fax : 27367231 - 27363093



ش. المالك الأفضل

الزمالك - القاهرة

تليفون : فاكس : 27367231 - 27363093

www.cel-egypt.com

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 04/09/2023
Soil type : Lower Embankment
Location : ST From 671+980 To 972+000
Level : - 5 M
Report No. : 12

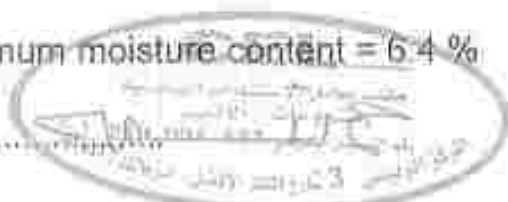
Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	671+890	1553	2.22	5	2.12	95.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 10/09/2023
Soil type : Lower Embankment
Location : ST From 672+820 To 672+840
Level : - 5.5 M
Report No. : 16

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	672+830	1519	2.27	5.5	2.15	97.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4%

Signature /



Company : شركة عبد الرحمن النجدي والشركاء

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 571+820 to 571+840
Station : 571+830
Level : -5.5
Test Date : 10/9/2023
Report Date : 10/9/2023
Type of soil : Lower Embankment
Report No. : 02

Dear Gentleman,

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

Apparatus

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

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil.
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges.
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero.
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm².
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute.
8. The load shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads.



Report

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

Report

- Type of soil : Lower Embankment
- Job requirement : $E_{v2} > 300 \text{ kg/cm}^2$ (30 Mpa)

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	10/09/2023
- 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		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	87.1+820	87.1+840	90.2	101.1	1.78

Signature /

Company Name : شركة عمار الزحمن للتشييد والمقاولات
Project : Electric Express Train - Section (5) Giza to Asyut
Test Date : 10/09/2023
report date : 10/09/2023
Location : station (671+830)
Test No. : 02

Nonrepertive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.90	0.10	19.85	0.15	0.13
2	1.66	19.70	0.30	19.60	0.40	0.35
3	2.50	19.55	0.45	19.40	0.60	0.53
4	3.33	19.30	0.70	19.19	0.81	0.75
5	4.17	19.09	0.91	19.00	1.00	0.96
6	5.00	18.89	1.11	18.82	1.18	1.15

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.10	0.90	19.06	0.94	0.92
2	1.25	19.31	0.69	19.27	0.73	0.71
3	0.100	19.59	0.41	19.56	0.44	0.43

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.50	0.60	19.30	0.70	0.60
1	1.66	19.47	0.63	19.22	0.78	0.66
2	2.50	19.35	0.65	19.18	0.82	0.73
3	3.33	19.23	0.77	18.98	1.02	0.90
4	4.17	19.11	0.89	18.87	1.13	1.01



Company Name

Project

Test Class

Report Date

Location

Test No.

شركة محامل التربة القوية ٢٠٢٢

Concrete Support Test - Section 10) Open to Support

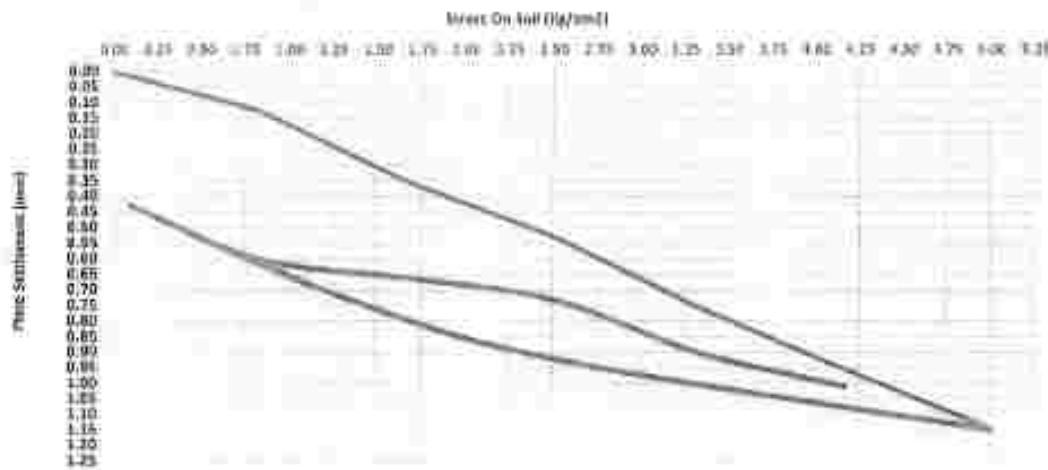
00002022

10/09/2022

Station 87+835

03

Nonrepetitive Static Plate Load Tests of Soils DIN 18134



Loading (t)	0	1	2	3	4	5	6
Stage (Kg)	0	586	1172.6	1766.3	2362.6	2948.1	3533
Stress (Kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.13	0.35	0.53	0.75	0.96	1.10

Unloading (t)	1	2	3	4
Stage (Kg)	3533	1766	884	71
Stress (Kg/cm ²)	5.00	2.500	1.25	0.10
Settlement (mm)	1.15	0.92	0.71	0.43

D (mm) = 300	S1 (mm) = 0.31	S2 (mm) = 0.88	ΔS = 0.49
Ev1 (kg/cm ²) = (0.75 * D * Δσ) / ΔS	90.2		

$$Ev2/Ev1 = 1.78$$

Loading (t)	0	1	2	3	4	5
Stage (Kg)	0	586	1172.6	1766.3	2362.6	2948.1
Stress (Kg/cm ²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.43	0.60	0.68	0.73	0.80	1.01

D (mm) = 300	S1 (mm) = 0.64	S2 (mm) = 0.92	ΔS = 0.27
Ev2 (kg/cm ²) = (0.75 * D * Δσ) / ΔS	101.1		

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δσ = The difference between 0.3 and 0.7 from the maximum loading stress (kg/cm²)

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



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armani
Testing Date : 09/09/2023
Soil type : Lower Embankment
Location : ST From 671+920 To 671+940
Level : - 5.5 M
Report No. : 15

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	671+930	1469	2.22	5.3	2.11	95.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 

Company : شركة عبد الرحمن للتجارة والمقاولات

Project : Electric Express Train – Sector (5) – Goun 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 671+920 to 671+940
Station : 671+930
Level : -5.5
Test Date : 9/9/2023
Repor Date : 10/9/2023
Type of soil : Lower Embankment
Report No. : 01

Dear Gentleman,

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

Apparatus

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

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 600 mm loading plate, the limit values are 2.5 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 % , 25 % , and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Lower Embankment
- Job requirement : $E_{v2} > 300 \text{ kg/cm}^2 (30 \text{ Mpa})$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	09/09/2023
- 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		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
I	671+920	671+940	89.7	61.8	0.69

Signature /



Company Name : شركة حديد الزحمة والسكك الحديدية
Project : Electric Express Train - Section (8) Qous to Aswan
Test Date : 09/09/2023
report date : 10/09/2023
Location : station (871+880)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.77	0.23	0.23
2	1.66	19.58	0.42	19.54	0.48	0.44
3	2.50	19.30	0.70	19.39	0.61	0.65
4	3.33	19.12	0.88	19.17	0.83	0.85
5	4.17	18.95	1.05	18.99	1.01	1.03
6	5.00	18.77	1.23	18.80	1.20	1.22

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.79	1.21	18.81	1.19	1.20
2	1.25	18.90	1.10	18.95	1.05	1.08
3	0.100	19.20	0.80	19.15	0.85	0.83

Loading Stage (2)

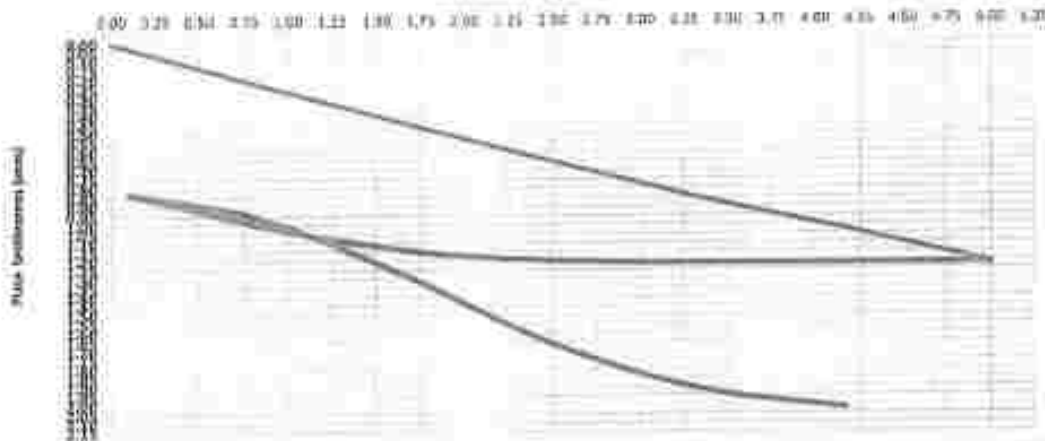
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	18.99	1.01	19.10	0.90	0.95
1	1.66	18.75	1.25	18.70	1.30	1.28
2	2.50	18.51	1.49	18.18	1.82	1.66
3	3.33	18.29	1.71	17.90	2.10	1.91
4	4.17	18.15	1.85	17.82	2.18	2.02



Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Test On Soil (kg/cm²)



Loading (1)	0	1	2	3	4	5	5
Stage (Kg)	0	586	1172.8	1759.3	2345.6	2931.9	3518.2
Stress (Kg/cm ²)	0.00	0.63	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.44	0.65	0.85	1.03	1.22

UnLoading (1)	1	2	3	4
Stage (Kg)	3533	1766	884	71
Stress (Kg/cm ²)	5.00	2.500	1.25	0.10
Settlement (mm)	1.22	1.20	1.08	0.93

D (mm) = 300	S1 (mm) = 0.48	S2 (mm) = 0.98	ΔS = 0.49
Ev1 (kg/cm ²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	86.7		

Ev2/Ev1 =	0.88
-----------	------

Loading (2)	0	1	2	3	4	5
Stage (Kg)	0	586	1172.8	1759.3	2345.6	2931.9
Stress (Kg/cm ²)	0.10	0.63	1.66	2.50	3.33	4.17
Settlement (mm)	0.83	0.95	1.25	1.00	1.31	2.02

D (mm) = 300	S1 (mm) = 1.21	S2 (mm) = 1.93	ΔS = 0.71
Ev2 (kg/cm ²) = $(0.75 \cdot D^2 \cdot \Delta S) / \Delta S$	61.8		

Ev1 = Modulus of deformation during the loading stage

Ev2 = Modulus of deformation during the Receding stage

D = Plate Diameter (mm)

ΔS = The difference between S1 and S2 from the maximum loading (mm)

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





Company Name : شركة عطاء الوطن
Project : Electric Express Train - HSR From Qom To Arman
Location : ST: 672+180 E=32.77*5621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 03/09/2023
Reporting Date : 07/09/2023
Reporting No. : 01-3

Dear Gentleman,

Attached here with the delivered on 3 / 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 /



1327

1327

Project: Water Supply System - EUPHONIA
 Location: 201.5714-135.34347/5621 N= 15.5356723
 Type of sample: Soil Sample
 Delivery Date: 05/09/2023
 Reporting Date: 07/09/2023
 Reporting No: 0123

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.9
37.5	1.5	94.5
25	1	85.5
19	3/4	77.3
12.50	1/2	72.5
9.50	3/8	63.1
4.75	4	54.2
2.00	10	41.5
0.425	40	22.4

Signature: [Signature]

Table 13.10.1

13.10.1

13.10.1





Project: Development of a soil fertility index for the
Location: ST/ 67-4180 B-411 7115001 No. 12-5596762
Type of sample: Soil Subsoil
Delivery Date: 03/09/2012
Reporting Date: 07/09/2012
Reporting No: 01.5

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)	7.4

Signature: [Signature]





Geotechnical Engineering Bureau - Laboratories
المكتب الجيوتقني - المختبرات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745623 N=35.6596723
Type of sample : Soil Embankment
Delivery Date : 03/09/2023
Reporting Date : 07/09/2023
Reporting No. : 01-3

**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

Signature /.....

مكتب الجيوتقني - المختبرات الهندسية
Geotechnical Engineering Bureau - Laboratories
الرياض - 11461
011-4444444



مكتب الجيوتقني - المختبرات الهندسية
Geotechnical Engineering Bureau - Laboratories
الرياض - 11461
011-4444444

Location:

SS1, ECR-10, DCR-10, DCR-10, DCR-10

Type of setup:

Soil Investigation

Delivery Date:

13/02/2021

Reporting Date:

03/03/2021

Reporting No:

01/3

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).	41.5	Max 50 %	—	—
0.425 mm (No. 40).	22.4	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	7.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity Index	0	Max 5 %	Max 5 %	Max 10 %

The test results are (☒ Comply ☐ No(Comply)) with specifications limits.

Signature /

[Signature]

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.60
1.91	0.075	2.72
2.54	0.100	3.68
3.18	0.125	4.58
3.81	0.150	5.24
4.45	0.175	5.61
5.08	0.200	5.86
6.35	0.250	6.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	53.3 %
	6.90	3.68	

Notes:

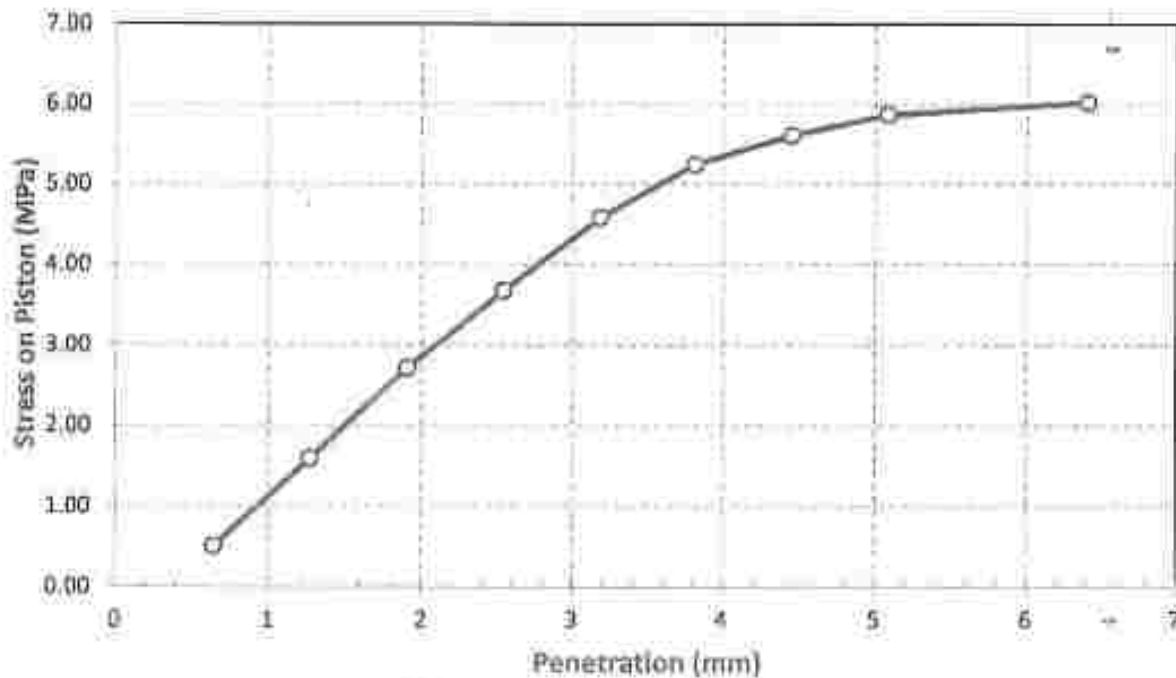
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm/cm}^3\text{)}$
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

Dr. Tarek H. AL-HADAD
Manager
10/10/2023

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

Load Penetration Curve of CBR Test ASTM D-1883



Signature

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 18/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : -2 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	672+660	1579	2.26	6.4	2.12	96.0%	Comply
2	672+680	1576	2.30	6	2.17	98.2%	Comply
3	672+700	1325	2.25	6.4	2.12	95.9%	Comply
4	672+720	1306	2.30	5.8	2.17	98.3%	Comply
5	672+740	1470	2.23	5.5	2.11	95.7%	Comply
6	672+760	1369	2.32	5.6	2.20	99.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21gm/cm³
- At optimum moisture content = 5.8 %

Signature /



Company Name : شركة عياد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 19/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+900
Level : -2.5 M
Report No. : 42

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	671+800	1323	2.26	6	2.13	96.3%	Comply
2	671+850	1328	2.26	6.4	2.13	96.2%	Comply
3	671+885	1417	2.31	6	2.18	98.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2,21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



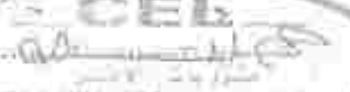
Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qina To Armut
Testing Date : 21/10/2023
Soil type : Middle Embankment
Location : ST From 671+900 To 672+020
Level : -3.5 M
Report No. : 43

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	671+920	1564	2.24	5.5	2.12	95.9%	Comply
2	671+940	1516	2.28	5.6	2.15	97.5%	Comply
3	671+960	1439	2.25	6.4	2.11	95.6%	Comply
4	671+980	1461	2.26	5.8	2.13	96.5%	Comply
5	671+000	1508	2.27	5.6	2.15	97.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 


1. Max. d. 2.21 gm/cm³
 2. Opt. Moisture
 3. At Opt. Moisture



Page 1 of 1

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qouz To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

Dear Gentleman,

Attached here with the delivered on 5 / 10 / 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 /...



Company Name : شركة عجل للهندسة
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.9
37.5	1.5	94.7
25	1	88.6
19	¾	79.1
12.50	½	72.0
9.50	3/8	64.5
4.75	4	59.4
2.00	10	42.3
0.425	40	29.7

Signature / 

CEL
11/10/2023
7 10 11/10/2023





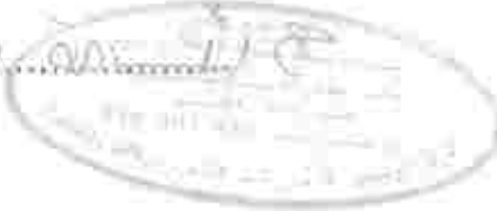
Consulting Engineering Bureau & Laboratories
المكتب الاستشاري والمختبرات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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)	9.5

Signature / 



المكتب الاستشاري والمختبرات الهندسية
شركة عبد الرحمن
الرياض - المملكة العربية السعودية
الهاتف : 011 444 1111
الفاكس : 011 444 1112





Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة عجلة الزمّن
Project : Electric Express Train - HST, From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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).	42.3	Max 50 %	—	—
0.425 mm (No. 40).	29.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

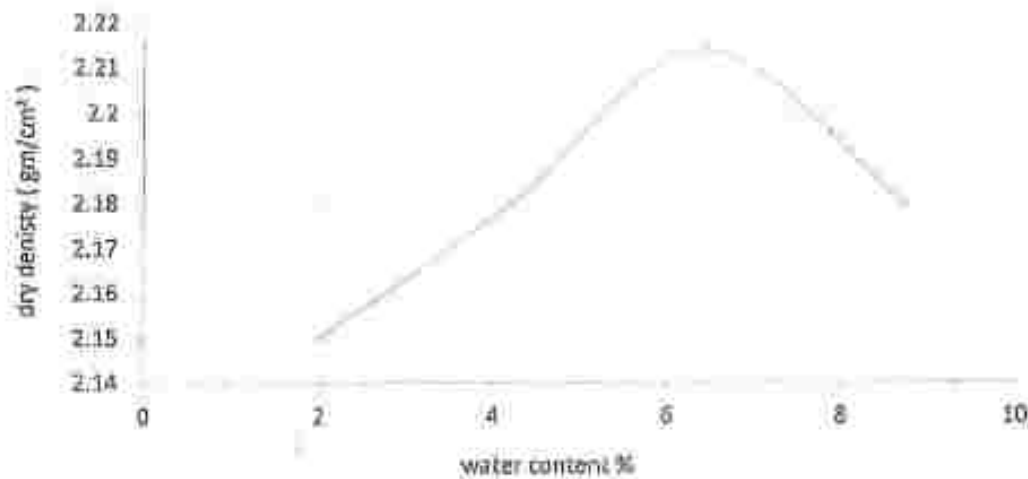
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / 



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 672+480 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 5.8

Signature /

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.65
1.91	0.075	2.76
2.54	0.100	3.80
3.18	0.125	4.64
3.81	0.150	5.33
4.45	0.175	5.68
5.08	0.200	5.86
6.35	0.250	6.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	55.1 %
	6.90	3.80	

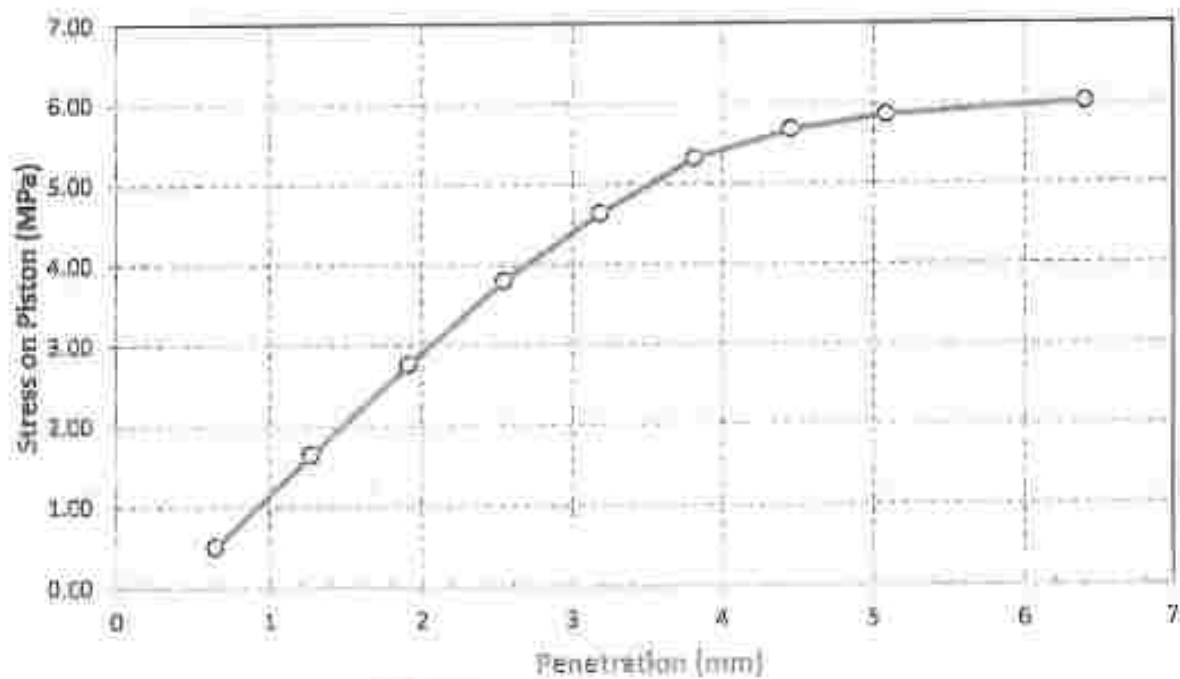
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm/cm}^3\text{)}$
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / ...

Company Name : شركة عبد الرحمن
 Project : Electric Express Train -- HSR From Qous To Ararat
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 5/10/2023
 Reporting Date : 9/10/2023
 Reporting No. : 01-9

Load Penetration Curve of CBR Test
ASTM D-1883



Signature

(Handwritten Signature)
 2023/10/09

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 23/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : -1.75 M
Report No. : 45

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	672+680	1998	2.27	6	2.15	97.1%	Comply
2	672+700	1752	2.31	5.8	2.18	98.6%	Comply
3	672+760	1443	2.25	5.6	2.13	96.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 

VERSION 1.0000
01/10/2023





Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qais To Ararat
Testing Date : 25/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+900
Level : ± 2 M
Report No. : 47

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	671+800	1817	2.29	6.4	2.15	97.2%	Comply
2	671+820	1872	2.24	6	2.11	95.7%	Comply
3	671+840	1430	2.27	6.4	2.14	96.7%	Comply
4	671+860	1401	2.28	6.4	2.12	96.1%	Comply
5	671+880	1454	2.23	6	2.10	95.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

Testing Engineer
Level: CE
License No: 2746001



Project Engineer
Level: CE
License No: 2746001



Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armini
Testing Date : 26/10/2023
Soil type : Middle Embankment
Location : ST From 671+900 To 672+020
Level : - 2 M
Report No. : 48-1

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	671+920	1310	2.28	6.4	2.14	96.9%	Comply
2	671+950	1330	2.25	5.5	2.13	96.3%	Comply
3	671+970	1330	2.27	5.8	2.15	97.2%	Comply
4	672+000	1350	2.29	5.6	2.17	98.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /


Engineer

10/10/2023
26/10/2023
26/10/2023



26/10/2023
26/10/2023
26/10/2023

Company Name : شركة ايس
Project : Electric Express Train - HSR from Qana To Amman
Testing Date : 28/10/2023
Soil type : Middle Embankment
Location : ST From 672+020 To 672+180
Level : 1-3 M
Report No. : 49

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	672+060	1516	2.28	5.8	2.15	96.9%	Comply
2	672+100	1433	2.26	5.6	2.14	96.3%	Comply
3	672+140	1507	2.27	6.4	2.14	96.2%	Comply
4	672+160	1461	2.26	6	2.13	95.9%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 5.6 %

Signature /
Date /





CEV
Civil Engineering Laboratory

Project: *San Juan de los Rios - 031*
Location: *San Juan de los Rios - 031*
Type of Sample: *Soil Embankment*
Delivery Date: *11/10/2023*
Reporting Date: *15/10/2023*
Reporting No: *01-10*

Dear Gentlemen,

Attached here with the delivered on 11/10/2023

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: *[Signature]*



Construction Engineering Services, Inc.
 10000 1st Avenue, Suite 100, San Diego, CA 92123

Job No. 10000 1st Avenue, Suite 100, San Diego, CA 92123
 Project: Highway 10000 1st Avenue, Suite 100, San Diego, CA 92123
 Location: 10000 1st Avenue, Suite 100, San Diego, CA 92123
 Type of Sample: Soil / Aggregate
 Delivery Date: 10/10/2023
 Reporting Date: 10/10/2023
 Reporting To: 10000 1st Avenue, Suite 100, San Diego, CA 92123

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (in)	Passing %
50	2	97.2
37.5	1.5	91.5
25	1	85.2
19	3/4	73.2
12.5	1/2	65.0
5.5	3/16	51.5
4.75	3/8	41.5
2.0	1/16	25.2
0.75	3/64	15.2

Remarks:



Project Name: [illegible]

Project Location: [illegible]

Location: [illegible]

Type of sample: [illegible]

Delivery Date: [illegible]

Reporting Date: [illegible]

Reporting No: [illegible]

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)	3.8

Signature: [illegible]



Centro de Estudios e Investigaciones
de Ingeniería y Tecnología

Descripción:
 Proyecto:
 Ubicación:
 Tipo de muestra:
 Fecha de entrega:
 Fecha de reporte:
 Número de reporte:

**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

Date:
 Page:





CEL
Cement and Lime Stabilization Laboratory

Client: *CEL*
 Project: *CEL*
 Location: *CEL*
 Type of sample: *Soil Embankment*
 Delivery Date: *15/10/2023*
 Reporting Date: *15/10/2023*
 Reporting No: *01-10*

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
Group Classification				
2.00 mm (No.10).	40.3	Max 50 %	—	—
0.425 mm (No. 40).	26.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	8.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results (p Comp / no Comp) with specifications limits

Signature / *CEL*

CEL
Cement and Lime Stabilization Laboratory





Department of Civil Engineering
Institute of Advanced Studies

Contract No. / Rev. No. : 01/01/2023
 Project : Design, Procurement and Construction of a 200m long 20m wide
 Embankment : CTS 27/4/180, 125/1/500, 125/1/500
 Type of sample : Soil Embankment
 Delivery Date : 11/10/2023
 Reporting Date : 15/10/2023
 Reporting No. : 01-10

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



- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 2.3

Signature/ : _____

Dr. J. S. Chavhan
 Head of Department
 Department of Civil Engineering
 Institute of Advanced Studies

IAS
 Institute of Advanced Studies



Consulting Engineering Bureau & Laboratory
 Registered & Licensed by the State of California

Project Name: **Highway**

Location: **Highway 99, near the intersection of Highway 99 and Highway 101**

Type of sample: **Soil Embankment**

Delivery Date: **15/10/2023**

Reporting Date: **15/10/2023**

Reporting No: **01-10**

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.67
1.91	0.075	2.84
2.54	0.100	3.96
3.18	0.125	4.82
3.81	0.150	5.48
4.45	0.175	5.93
5.08	0.200	6.19
6.35	0.250	6.24

CBR Result	Stress (Mpa)		CBR 100 %
	St. value	Sample results	
1" & 1.5" face (1.5" / 38mm) penetration	5.50	5.52	57.5 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- This sample was compared to dry density of $\approx 2.22 \text{ (gm/cm}^3\text{)}$
 $\approx 1 = 0.2\%$ optimum water content.
- 3- Surcharge load 6.50 Kg.

4- See 1.1 for details and how to calculate CBR according project spec page no 38.

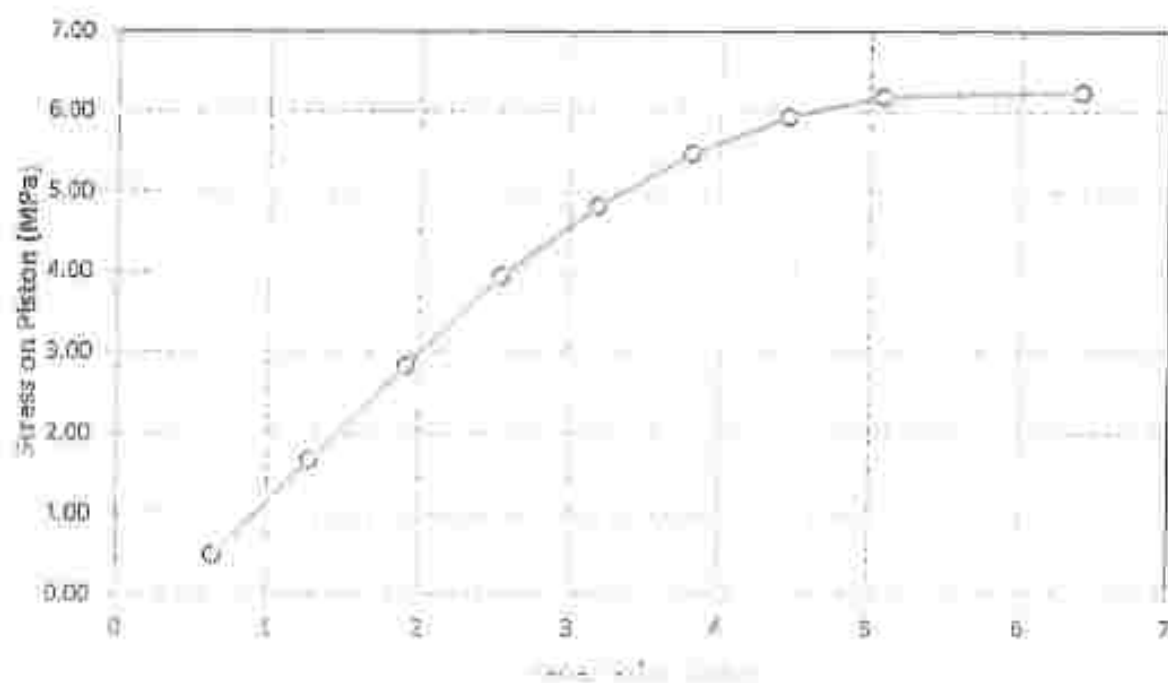
Signature:

By: **[Signature]**
 Date: **15/10/2023**
 Title: **Engineer**



Sample Name : 10-10-10-10
 Project : Electrical Express Train - B20 From (2nd Test) Pk 10
 Location : ST. 612-180 E-20/114500 (1=15.552671)
 Type of sample : Soil Embankment
 Delivery Date : 11/10/2023
 Reporting Date : 15/10/2023
 Reporting No : 01-10

Load Penetration Curve of CBR Test
ASTM D-1583



Signature

10-10-10-10
 10-10-10-10
 10-10-10-10



Company : شركة جنداء الرحمن للتشييد والتقانة

Project : Electric Express Train - Sector (B) - Oms to Assiut
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18136:2012-04 and project requirements
Test Location : Station 872+540 to 872+740
Station : 872+580
Level : -1.5
Test Date : 30/08/2023
Report Date : 04/11/2023
Type of soil : Middle Embankment
Report No. : 03

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 mm. and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Error free)
7. Reaction loading system by roller compactor with weight approximately 18 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the test values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum nominal 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, i.e. 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 results



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 : Middle Embankment
- Job requirer : EV2 > 40 MPa

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	303
date of measurement	30/10/2023
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	572+540	672+740	1 072+680	-1.5	85.3	91.7	1.04

Signature /



Company Name : شركة عبد الرحمن التوبة والمنازل
Project : Electric Buses Train - Sector (5) - South to Ayn Helwan
Test Date : 30/10/2023
report date : 04/11/2023
Station : 672+880
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.81	0.19	19.90	0.20	0.20
2	1.66	19.59	0.41	19.58	0.42	0.42
3	2.50	19.39	0.61	19.37	0.63	0.62
4	3.33	19.18	0.82	19.15	0.83	0.84
5	4.17	19.00	1.00	18.96	1.04	1.02
6	5.00	18.78	1.22	18.76	1.24	1.23

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.87	1.13	18.86	1.14	1.14
2	1.25	19.22	0.78	19.20	0.80	0.79
3	0.100	19.85	0.35	19.63	0.37	0.36

Loading Stage (2)

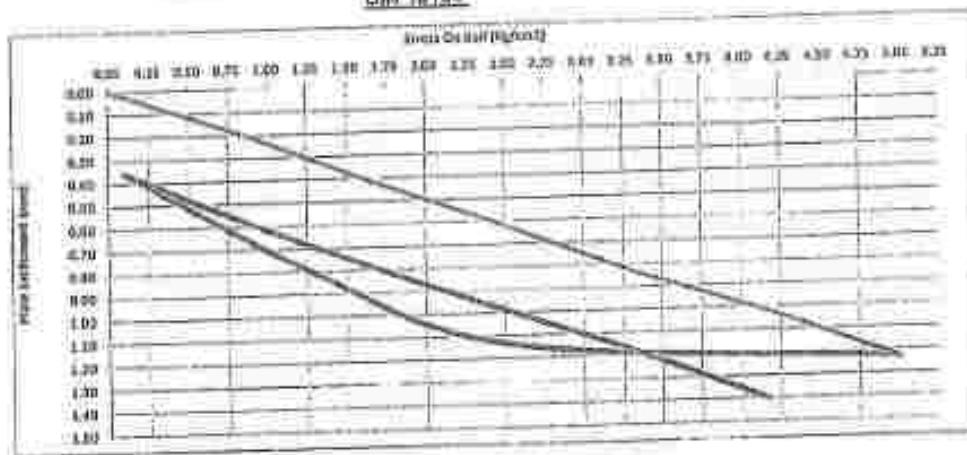
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.44	0.56	19.42	0.58	0.57
normally eqn	1.66	19.23	0.77	19.20	0.80	0.79
stress is reached.						
2	2.50	19.02	0.99	19.00	1.00	0.99
3	3.33	18.83	1.17	18.81	1.18	1.18
4	4.17	18.63	1.39	18.55	1.41	1.40



Company Name
Project
Test Date
Report Date
Station
Test No.

شركة حيد فرجين القنينة والمطرية
Electric Express Train - Sector (5) - Camp to Asmat
30/10/2022
04/11/2022
S22-090
01

Nondestructive Static Plate Load Tests of Soils QJN 18134



Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	586	1172.6	1758.3	2344.0	2929.7	3515.4
Stress (kg/cm²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.20	0.42	0.62	0.84	1.02	1.23

D (mm) = 300	S1 (mm) = 0.37	S2 (mm) = 0.87	ΔS = 0.50
Evt (MPa) = 0.75 * D² / ΔS	88.3		

Loading (T)	0	1	2	3	4	6
Stage (Kg)	0	586.309	1172.6	1758.3	2344.0	2929.7
Stress (kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.38	0.57	0.76	0.89	1.10	1.40

D (mm) = 300	S1 (mm) = 0.74	S2 (mm) = 1.32	ΔS = 0.48
Evt (MPa) = 0.75 * D² / ΔS	81.7		

Unloading (T)	1	2	3	4
Stage (Kg)	3533	1766	884	221
Stress (kg/cm²)	5.05	2.50	1.250	0.10
Settlement (mm)	1.23	1.14	0.79	0.38

$$E_v 2/E_v 1 = 1.04$$

Sv1 = Settlement or decompression during the loading stage.

Sv2 = Settlement or decompression during the reloading stage.

D = Plate diameter (mm)

ΔS = The difference between S2 and S1 from the maximum loading (mm) (kN/cm²)

ΔS = Difference in settlements corresponding to S2 and S1 from the maximum loading (mm)



Company Name : شركة عباءة الزمخني
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 30/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : - 1.5 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	672+660	1581	2.25	6	2.13	95.8%	Comply
2	672+720	1502	2.26	5.8	2.14	96.2%	Comply
3	672+765	1401	2.28	6	2.15	97.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 5.8 %

Signature /


مهندس فيدرال
مكتب الدراسات
الهندسية
30/10/2023
30/10/2023

Company : شركة حرم الرحمن للتشييد والتكليفات

Project : Electric Express Train - Sector (B) - Giza to Arment.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications EN 18134:2012-04 and project requirements
Test Location : Station 072+040 to 072+740
Station : 072+580
Level : +1.5
Test Date : 30/10/2023
Report Date : 01/11/2023
Type of soil : Middle Embankment
Report No. : 01

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 100 Bar (Enerbac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 20 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For 300 mm loading plate, the first values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum nominal stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2 %) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Middle Embankment
- Job requirerment : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
date of measurement	: 30/10/2023
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	572+640	572+740	1072+000	-1.5	80.3	91.7	1.04

Signature / 



Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية
مشاريع محافظات الوجه القبلي

Company Name : شركة عمارة الزمناك للتصميم والمقاولات
Project : Electric Business Train - Sector (B) - Giza to Arment
Test Date : 30/10/2023
Report date : 04/11/2023
Station : 672+880
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.61	0.19	19.80	0.20	0.20
2	1.66	19.59	0.41	19.58	0.42	0.42
3	2.50	19.59	0.61	19.57	0.63	0.62
4	3.33	19.18	0.82	19.15	0.85	0.84
5	4.17	19.00	1.00	18.96	1.04	1.02
6	5.00	18.78	1.22	18.76	1.24	1.23

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.87	1.13	18.86	1.14	1.14
2	1.25	19.12	0.78	19.30	0.80	0.79
3	0.100	19.65	0.35	19.65	0.37	0.36

Loading Stage (2)

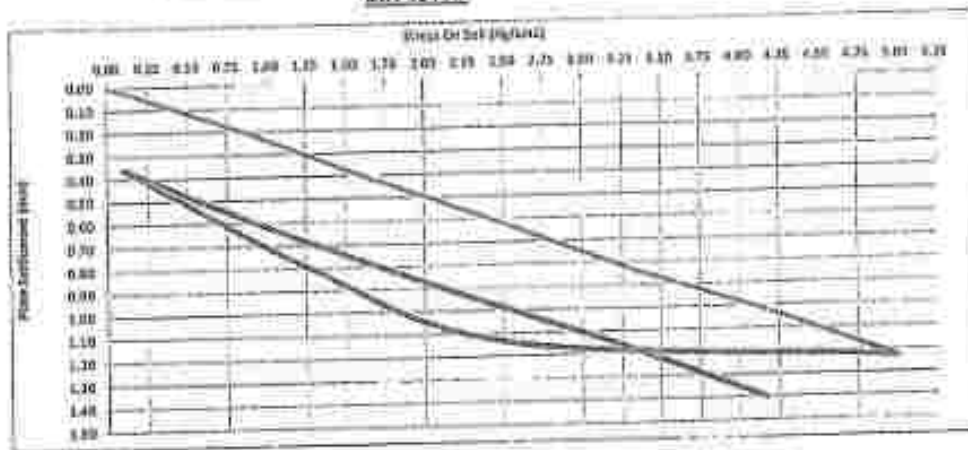
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.44	0.50	19.42	0.58	0.57
ultimately eqd.	1.66	19.23	0.77	19.20	0.80	0.79
stress is reached.						
2	2.50	18.02	0.90	18.00	1.00	0.99
3	3.33	18.83	1.17	18.81	1.19	1.18
4	4.17	18.81	1.39	18.59	1.41	1.40



Company Name
Project
Test Date
Report Date
Station
Test No.

شركة مياه عوصي للتقنية والمقاولات
Electric Express Train - Sector (B) - Cass to Asmat
30/11/2023
04/11/2023
S72+200
01

Nonrepetitive Static Plate Load Tests of Soils DIN 10138



Loading (1)	0	1	2	3	4	5	6
Stage (Kg)	0	888	1772.8	2656.3	3540.6	4424.1	5307.5
Stress (Kg/cm²)	0.00	0.88	1.88	2.50	3.30	4.17	5.00
Settlement (mm)	0.00	0.20	0.42	0.62	0.84	1.03	1.22

D (mm) =	300	B1 (mm) =	0.37	B2 (mm) =	0.87	ΔS =	0.50
E ₁ (MPa) =	0.78*0.50/0.5		80.3				

Loading (2)	0	1	2	3	4	5	6
Stage (Kg)	0	885.393	1772.8	2656.3	3540.6	4424.1	5307.5
Stress (Kg/cm²)	0.10	0.83	1.88	2.50	3.30	4.17	5.00
Settlement (mm)	0.38	0.57	0.74	0.88	1.10	1.40	

D (mm) =	300	B1 (mm) =	0.34	B2 (mm) =	1.22	ΔS =	0.48
E ₂ (MPa) =	0.73*0.50/0.5		81.7				

Unloading (1)	1	2	3	4
Stage (Kg)	3532	2780	884	77
Stress (Kg/cm²)	5.00	2.50	1.230	0.10
Settlement (mm)	1.22	1.14	0.79	0.26

$$E_{v2}/E_{v1} = 1.94$$

B₁ = Modulus of deformation during the loading stage.

B₂ = Modulus of deformation during the unloading stage.

D = Plate diameter (mm)

ΔS = The difference between B₁ and B₂ from the maximum loading (among all stages)

ΔS = Difference in settlements corresponding to B₁ and B₂ from the maximum loading (mm)



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 01/11/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+980
Level : - 1.75 M
Report No. : 53-2

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	671+820	1454	2.24	5.6	2.12	95.5%	Comply
2	671+860	1363	2.31	6.4	2.17	97.6%	Comply
3	671+910	1490	2.33	6	2.19	98.8%	Comply
4	671+970	1454	2.24	5.8	2.12	95.3%	Comply

Degree of compaction based on proctor test dated At:

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 5.8 %

Signature : 

CEL
مكتب محامل الاستشارات الهندسية
110 001, 232
الرياض - المملكة العربية السعودية
P.O. Box: 110001, 232
Riyadh - Saudi Arabia

IAS
ACCREDITED
International Accreditation Service

تم إعداد التقرير بتاريخ 01/11/2023
SAP 001
RPT 000001 001 04

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 01/11/2023
Soil type : Middle Embankment
Location : ST From 671+980 To 672+180
Level : - 1.75 M
Report No. : 53

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	672+020	1658	2.26	5.3	2.15	97.2%	Comply
2	672+070	1811	2.26	5.5	2.14	97.0%	Comply
3	672+120	1770	2.32	5	2.21	99.9%	Comply
4	672+170	1609	2.28	5	2.18	98.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



10/11/2023
Signature: _____
Date: 01/11/2023

IAS
ACCREDITED
International Accreditation Service

10/11/2023
Date: 01/11/2023

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

Dear Gentleman,

Attached here with the delivered on 18 / 10 / 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 /



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	92.6
25	1	88.6
19	¾	75.1
12.50	½	68.4
9.50	3/8	61.5
4.75	4	55.3
2.00	10	40.2
0.425	40	24.2

Signature /.....
210 501 437
مكتب استشارات الهندسية

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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)	9.7

Signature /

 210 001 437
 3 شارع 3 في مدينة العلم الجديدة

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

**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 عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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).	40.2	Max 50 %	-----	-----
0.425 mm (No. 40).	24.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

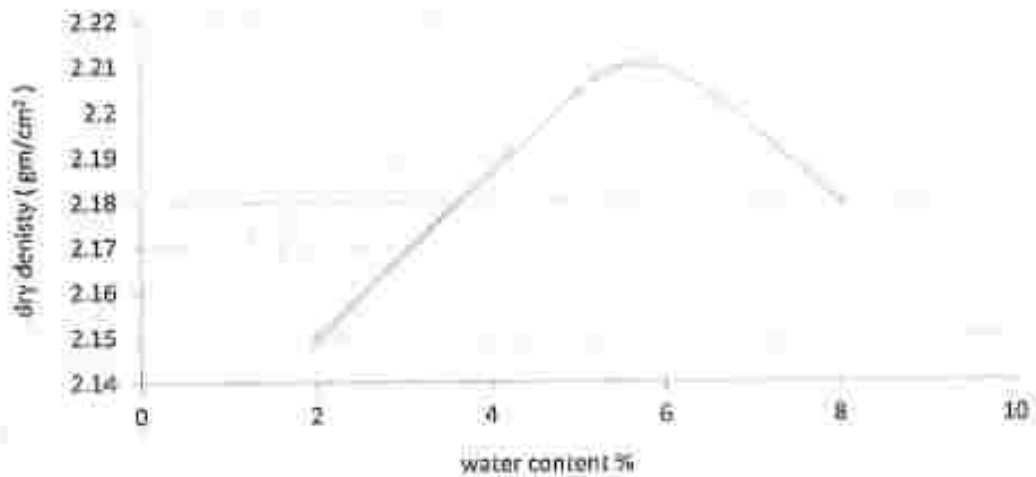
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /

CEL
مكتب محامل الاستشارات الهندسية
3 شارع النيل - القاهرة

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 5.8

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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

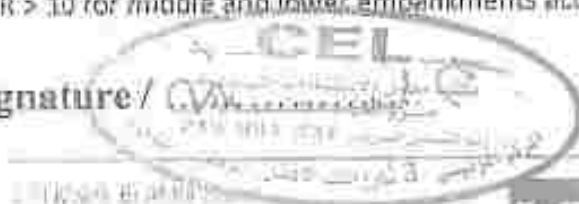
penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.67
1.91	0.075	2.89
2.54	0.100	3.91
3.18	0.125	4.77
3.81	0.150	5.38
4.45	0.175	5.73
5.08	0.200	5.88
6.35	0.250	5.93

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	56.5 %
	6.90	3.91	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $2.21 \text{ (gm/cm}^3\text{)}$
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature/



11/10/2023
ZAKARIA KHALIL
11/10/2023 11:27:45 AM



Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 05/11/2023
Soil type : Lower Embankment
Location : ST From 672+640 To 672+780
Level : -1.25 M
Report No. : 54-2

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	672+660	1322	2.28	6.4	2.15	97.2%	Comply
2	672+680	1354	2.23	6	2.10	95.1%	Comply
3	672+700	1515	2.26	5.8	2.14	96.7%	Comply
4	672+720	1524	2.25	5.6	2.13	96.3%	Comply
5	672+740	1691	2.22	5.5	2.11	95.3%	Comply
6	672+760	1632	2.30	6.4	2.17	98.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature



1st MOHAMED EL AMIN EL
Consulting Engineer
Tel: 011 2581231 2581231

IAS
ACCREDITED
For Laboratories

2023/11/05
11:20 AM
Page 1 of 1

Commission : شركة حبة الرخمن للصحة والتعليم
Project : Electric Express Train - Sector (B) - Oous 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 671+780 to 671+880
Station : 671+850
Level : 1-1.3
Test Date : 07/11/2023
Report Date : 08/11/2023
Type of soil : Original Earth
Report No. : 01

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 fix 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 (Enr/bac)
7. Reaction loading system by roller compactor with weight approximately 15 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates: 300 mm and 300 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the strain values are 0.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum sample 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 maximal 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



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 co:responding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

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

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	10/11/2025
Unusual observation made during test	NO
Description of the soil conditions below the plate after testing	No deformation.

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{v2} / E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (MPa)}$	
1	671+760	671+660	671+690	-1.5	100.0	116.9	1.17

Signature /



Company Name : شركة عبد الرحمن التعمية والمقاولات
Project : Kaunio Express Train - Sector (5) - Ques to Arment
Test Date : 07/11/2023
report date : 08/11/2023
Station : 871+880
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 15134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.80	0.20	19.87	0.13	0.16
2	1.66	19.68	0.32	19.67	0.33	0.34
3	2.50	19.43	0.57	19.49	0.51	0.54
4	3.33	19.28	0.72	19.31	0.66	0.71
5	4.17	19.07	0.93	19.10	0.90	0.91
6	5.00	18.92	1.08	18.95	1.05	1.07

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.01	0.99	19.07	0.93	0.96
2	1.25	19.30	0.70	19.28	0.71	0.71
3	0.100	19.75	0.25	19.65	0.30	0.30

Loading Stage (2)

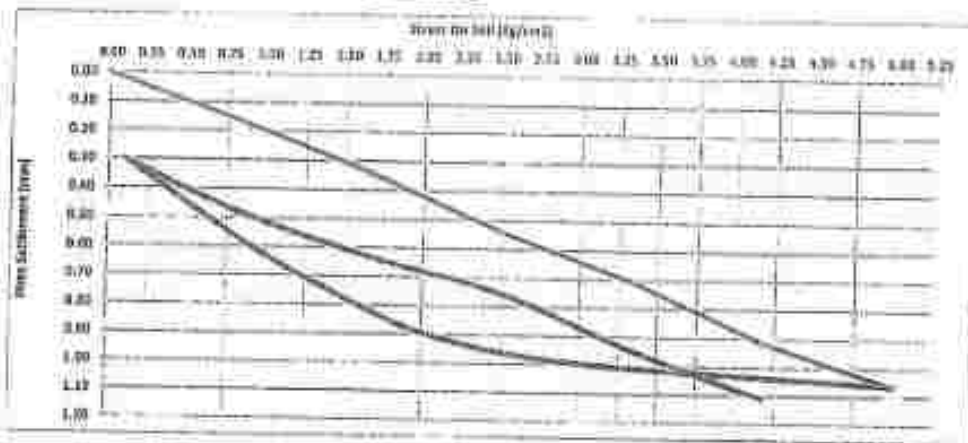
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.57	0.43	19.67	0.53	0.48
1	1.66	19.43	0.57	19.31	0.69	0.63
stress is reached.						
2	2.50	19.39	0.71	19.30	0.80	0.76
3	3.33	19.30	0.80	19.01	0.99	0.94
4	4.17	18.91	1.08	18.87	1.13	1.11



Company Name
Project
Test Date
report date
Station
Test No.

شركة عبد الرحمن للتصميم والدراسات
Electric Express Train - Sector (B) - Giza to Assiut
: 07/11/2023
: 08/11/2023
: 07+000
: 01

Nonpenetrative Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	885	1172.8	1766.3	2359.9	2946.1	3532.5
Stress (Kg/cm²)	0.00	0.83	1.66	2.80	3.33	4.17	5.02
Settlement (mm)	0.00	0.19	0.34	0.54	0.71	0.91	1.07

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm²)	5.00	2.50	1.250	0.10
Settlement (mm)	1.07	0.55	0.31	0.30

D (mm) = 300	St (mm) = 0.31	St(mm) = 0.75	ΔS = 0.44
St (MPa) = (5.78*0.44)/ΔS	100.5		

$$S_v/E_v = 1.17$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	506.395	1172.8	1766.3	2359.9	2946.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.80	3.33	4.17
Settlement (mm)	0.30	0.48	0.83	0.76	0.94	1.11

D (mm) = 300	St (mm) = 0.09	St(mm) = 0.35	ΔS = 0.36
St (MPa) = (9.78*0.36)/ΔS	118.5		

St = modulus of deformation during the loading stage.

Sv = modulus of deformation during the reloading stage.

D = Plate Diameter (mm)

ΔS = The difference between St and St from the maximum loading (stress) (kg/cm²)

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



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 05/11/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+980
Level : - 1.5 M
Report No. : 54-1

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	671+800	1474	2.26	5.6	2.14	97.0%	Comply
2	671+840	1522	2.29	6.4	2.16	97.6%	Comply
3	671+880	1319	2.29	6	2.16	97.6%	Comply
4	671+940	1328	2.27	5.8	2.15	97.2%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

(Handwritten signature and stamp)

PE ASSIN: S. ALAM (Chief)
PE ASSIN: E. ALAM
QA / QC: Z. ALAM (Chief)



(Handwritten notes and signature)

Company : شركة عبد الرحمن القبية والقطار
Project : Electric Express Train - Sector (B) - Qous to Arfana
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 871+780 to 871+880
Station : 871+850
Level : -1.5
Test Date : 07/11/2023
Report Date : 08/11/2023
Type of soil : Original Earth
Report No. : 01

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 mm. and 300 mm diameter
2. The thickness of plates 20 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 (Enerpac)
7. Reaction loading system by roller compactor with weight approximately 15 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground at 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 50 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the first values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum nominal 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 %, 20 %, 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



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The last 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 requiromer : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	900
Date of measurement	07/12/2023
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	671+760	671+880	1871+880	-1.5	100.0	116.9	1.17

Signature /



Company Name : شركة عبد الرحمن للتشييد والمقاولات
Project : El-Matki Express Train - Sector (B) - Ques el Yamen
Test Date : 07/11/2023
Report date : 08/11/2023
Station : B71+850
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.80	0.20	19.87	0.13	0.16
2	1.66	19.65	0.35	19.67	0.33	0.34
3	2.50	19.43	0.57	19.49	0.51	0.54
4	3.33	19.28	0.72	19.31	0.69	0.71
5	4.17	19.07	0.93	19.10	0.90	0.91
6	5.00	18.92	1.08	18.95	1.05	1.07

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.01	0.99	19.07	0.93	0.96
2	1.25	19.30	0.70	19.29	0.71	0.71
3	0.100	19.79	0.25	19.65	0.35	0.30

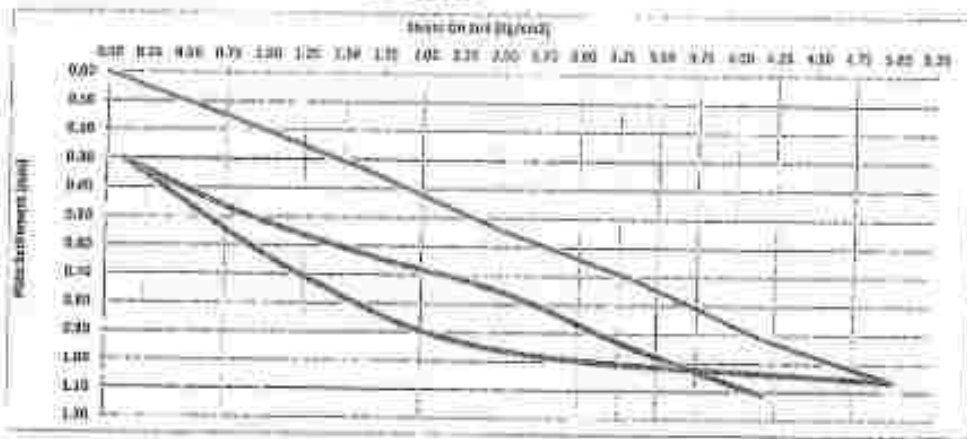
Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.57	0.43	19.47	0.53	0.48
approximately equal	1.66	19.43	0.57	19.31	0.69	0.63
stress is reached.						
2	2.50	19.25	0.71	19.20	0.80	0.76
3	3.33	19.10	0.90	19.03	0.99	0.94
4	4.17	18.91	1.08	18.87	1.13	1.11



Company Name : شركة عبد الرحمن التوبة والشبان
Project : Electric Express Train - Sector (B) - Giza to Arish
Test Date : 07/11/2023
Report Date : 08/11/2023
Station : 971-850
Test No. : 01

Nonreporting Static Plate Load Tests of Soils DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	588	1172.8	1765.3	2352.8	2940.1	3522.5
Stress (Kg/cm²)	0.00	0.03	1.00	1.80	3.33	4.17	5.30
Settlement (mm)	0.00	0.10	0.34	0.64	0.71	0.91	1.07

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm²)	3.00	2.50	1.250	0.10
Settlement (mm)	1.07	0.95	0.71	0.30

D (mm) =	300	ST (mm) =	0.31	SS (mm) =	0.73	AS =	0.04
Ev1 (MPa) =	$(8.78 \times 10^3 \times 0.04) / 0.31$						
	100.3						

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	588.395	1172.8	1765.3	2352.8	2940.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.30	0.48	0.83	0.78	0.94	1.11

$$Ev2/Ev1 = 1.17$$

D (mm) =	300	ST (mm) =	0.80	SS (mm) =	0.88	AS =	0.39
Ev2 (MPa) =	$(8.78 \times 10^3 \times 0.39) / 0.80$						
	118.3						

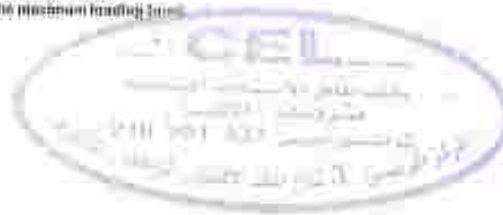
Ev1 = modulus of deformation during the loading stage.

Ev2 = modulus of deformation during the unloading stage.

D = Plate diameter (mm)

AS = The difference between SS and ST from the maximum loading (mm) (kg/cm²)

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



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 09/11/2023
Soil type : Middle Embankment
Location : ST From 671+980 To 672+180
Level : - 1.5 M
Report No. : 57

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+030	1324	2.31	6	2.18	98.8%	Comply
2	672+080	1324	2.31	6.4	2.17	98.1%	Comply
3	672+130	1558	2.28	6	2.15	97.3%	Comply
4	672+175	1347	2.27	6	2.14	96.7%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /


مهندس الاختبار
011 101 422
3 شارع الفلاحين - القاهرة

Gomhany قنطرة جبال الرحاب للتشييد والتطوير

Project : Electric Express Train - Sector (5) - Ours to Arment.
Subject : Determine the deformation and strength characteristics of soil by the
plate loading test according specifications DBI 18134:2012-04 and project requirements
Test Location : Station 671+000 to 672+000
Station : 672+000
Level : +1.6
Test Date : 08/11/2023
Report Date : 11/11/2023
Type of soil : Waste Embankment
Report No. : 01

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 20 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 tons.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds
4. The dial gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the first values are 5.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum nominal stress is reached.
7. Each stage a load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, to 30 %, 25 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2 **) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- + Type of soil : Middle Embankment
- + Job requirement : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate:	Natural Soil
Plate Diameter (mm)	300
date of measurement	09/11/2023
Unusual observation made during test	NO
Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{v2} / E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (Mpa)}$	
1	671+080	672+080	672+050	+1.5	53.1	88.9	1.67

Signature / 



Company Name : شركة هندسة الريس والكمالات
Project : Electric Express Train - Sector (S) - Giza to Asyut
Test Date : 09/11/2023
report date : 11/11/2023
Station : 672+680
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.75	0.25	19.83	0.17	0.21
2	1.66	19.59	0.42	19.69	0.40	0.41
3	2.50	19.34	0.66	19.43	0.57	0.62
4	3.33	19.10	0.90	19.18	0.82	0.86
5	4.17	18.91	1.09	18.85	1.05	1.07
6	5.00	18.74	1.26	18.70	1.22	1.24

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.85	1.15	18.83	1.17	1.16
2	1.25	19.25	0.74	19.35	0.85	0.89
3	0.100	19.70	0.30	19.83	0.17	0.24

Loading Stage (2)

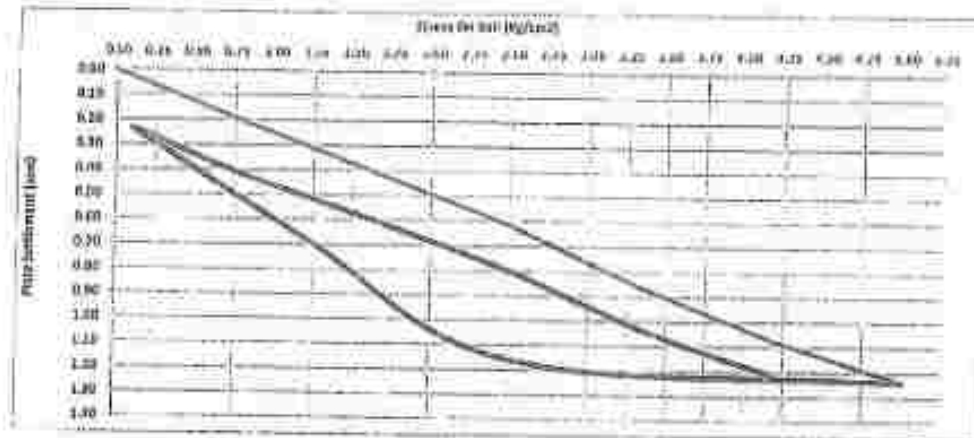
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.54	0.46	19.63	0.39	0.43
immediately after	1.66	19.39	0.01	19.43	0.60	0.61
stress is reached						
2	2.50	19.18	0.02	19.22	0.78	0.80
3	3.33	18.97	1.07	19.01	0.99	1.03
4	4.17	18.75	1.25	18.83	1.17	1.21



Company Name:
Project:
Test Date:
Report Date:
Station:
Test No.:

خبرية عبد الرحمن للتربة والاساسات
Rasheed Elgarni (Civil - Senior) - Ghada El Asmawi
09/11/2022
11/11/2022
673+380
01

Nonresonant Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage (Kg)	0	66.9	1172.6	1768.3	2352.6	2946.1	3532.6
Stress (Kgf/cm²)	0.00	0.83	1.68	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.21	0.61	0.82	0.88	1.07	1.24

Unloading (1)	1	2	3	4
Stage (Kg)	3532.6	1768.3	884.1	71
Stress (Kgf/cm²)	5.00	2.50	1.250	0.10
Settlement (mm)	1.24	1.18	0.89	0.24

D (mm) = 300	S1 (mm) = 0.27	S2 (mm) = 0.88	ΔS = 0.63
Cv1 (kPa) = $(0.75 \cdot D^2 \cdot \Delta S) / A \cdot S$	83.1		

$$Ev2/Ev1 = 1.07$$

Loading (2)	0	1	2	3	4	5
Stage (Kg)	0	650.385	1172.6	1768.3	2352.6	2946.1
Stress (Kgf/cm²)	0.10	0.83	1.68	2.50	3.33	4.17
Settlement (mm)	0.24	0.43	0.81	0.80	0.88	1.21

D (mm) = 300	S1 (mm) = 0.87	S2 (mm) = 1.87	ΔS = 0.99
Cv2 (kPa) = $(0.75 \cdot D^2 \cdot \Delta S) / A \cdot S$	83.9		

Ev1 = modulus of deformation during the loading stage.

Ev2 = modulus of deformation during the unloading stage.

D = Plate diameter (mm)

ΔS = The difference between S2 and S1 from the maximum loading (second figure)

ΔS = Difference in settlement corresponding to S2 and S1 from the maximum loading (mm)



Consent: شركة محامل التربة القيلي والمقاي: 1477

Project : Eldeha Express Train - Sector (8) - Giza to Armet.
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 872+000 to 872+180
Station : 872+125
Level : -1.5
Test Date : 09/11/2023
Report Date : 11/11/2023
Type of soil : Middle Embankment
Report No. : 01

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 700 Bar (Knerotec)
7. Reaction loading system by roller compactor with weight approximately 18 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground at 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 nominal stress is reached.
7. Each change in load (from stage to stage) shall be completed within two minutes.
8. The load shall be released in 3 steps, 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



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 : Middle Embankment
- Job requirement : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	09/11/2023
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	672+080	672+100	672+120	-1.5	96.7	181.5	1.87

Signature/

[Handwritten Signature]



Company Name : شركة عبد الرحمن للتعمية والمقاولات
 Project : Blackta Express Testin - Station (2) - Ques To Arment.
 Test Date : 09/11/2023
 report date : 11/11/2023
 Station : 672+120
 Test No. : 91

Nonrepetitive Static Plate Load Test of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	19.00	0.00	19.00	0.00	0.00
1	0.83	19.00	0.30	19.82	0.18	0.19
2	1.66	19.45	0.35	19.67	0.33	0.34
3	2.50	19.45	0.82	19.45	0.55	0.54
4	3.33	19.25	0.71	19.25	0.74	0.73
5	4.17	19.08	0.82	19.05	0.85	0.94
6	5.00	18.81	1.09	18.89	1.11	1.10

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.50	18.88	1.02	18.95	1.05	1.04
2	1.25	19.12	0.88	19.10	0.86	0.89
3	0.100	19.45	0.51	19.48	0.52	0.52

Loading Stage (2)

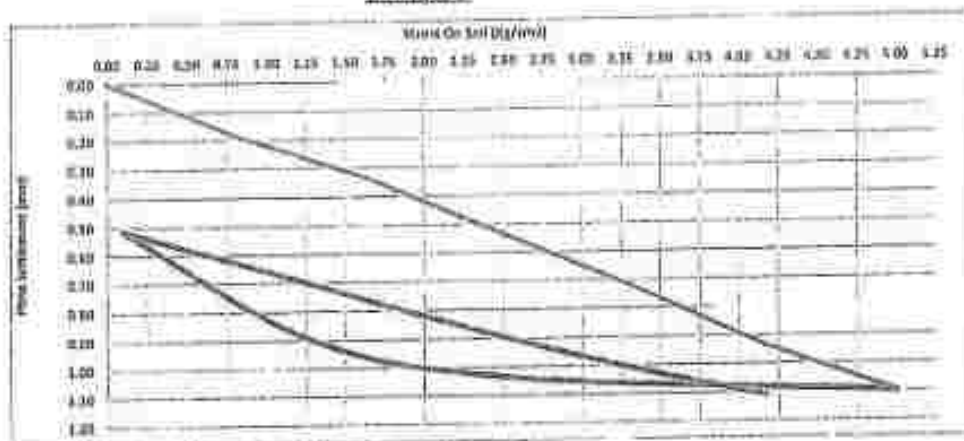
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	19.38	0.82	19.36	0.84	0.83
1	1.66	19.35	0.75	19.22	0.78	0.77
stress is reached						
2	2.50	19.12	0.88	19.09	0.91	0.90
3	3.33	19.00	1.00	18.98	1.02	1.01
4	4.17	18.50	1.10	18.88	1.12	1.11



Company Name
Project
Test Date
Report Date
Station
Test No.

كردية جريد الرصن التربة وفكروية
Electric Express Train - Sector (S) - Court to Jemad
00/11/2023
11/11/2023
072+120
01

Nonnegative Static Plate Load Tests of Soils Q14 18334



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	986	1172.8	1768.3	2352.6	2546.1	3032.0
Stress (kg/cm²)	0.00	0.63	1.86	2.90	3.33	4.17	5.00
Settlement (mm)	0.00	0.10	0.34	0.54	0.73	0.94	1.10

UnLoading (1)	1	2	3	4
Stage(Kg)	3033	1768	986	71
Stress (kg/cm²)	5.00	2.90	1.360	0.10
Settlement (mm)	1.10	1.04	0.80	0.62

D (mm) =	300	S1 (mm) =	0.11	S2(mm) =	2.77	ΔS =	0.65
E _{v1} (MPa) =	(0.78 * D² Δσ) / ΔS						

$$E_v2/E_v1 = 1.67$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	986.996	1172.8	1768.3	2352.6	2546.1
Stress (kg/cm²)	0.10	0.63	1.86	2.90	3.33	4.17
Settlement (mm)	0.02	0.63	0.77	0.90	1.01	1.11

D (mm) =	300	S1 (mm) =	0.74	S2(mm) =	1.03	ΔS =	0.29
E _{v2} (MPa) =	(0.78 * D² Δσ) / ΔS						

S₁ = Maximum of deformation during the loading stage.
S₂ = Maximum of deformation during the releasing stage.
D = Plate diameter (mm)
ΔS = The difference between S₁ and S₂ from the maximum loading (mm) (kg/cm²)
Δσ = Difference in settlements corresponding to 0.5 and 2.7 from the maximum loading point



CEL
Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 11/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 1.25 M
Report No. : 57-2

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	671+800	1399	2.32	5.3	2.20	99.6%	Comply
2	671+820	1596	2.24	5.5	2.12	95.9%	Comply
3	671+840	1764	2.22	5	2.12	95.9%	Comply
4	671+860	1550	2.27	5	2.16	97.9%	Comply
5	671+880	1443	2.33	5.6	2.20	99.6%	Comply
6	671+900	1459	2.35	6.4	2.21	99.8%	Comply
7	671+930	1416	2.28	6	2.15	97.5%	Comply
8	671+960	1538	2.28	5.8	2.16	97.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

Mr. M. El-Mohamed
General Manager
No. 144, El-Dokki, Cairo, Egypt



Mr. M. El-Mohamed
General Manager
No. 144, El-Dokki, Cairo, Egypt

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

Dear Gentleman,

Attached here with the delivered on 21 / 10 / 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 / 




Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.6
25	1	87.4
19	¾	75.3
12.50	½	67.2
9.50	3/8	61.7
4.75	4	56.3
2.00	10	40.5
0.425	40	25.3

Signature /



Volume: 01/Part 001
Drawn: 01/10/2023
Scale: 1:1000



تم إعداد
هذا التقرير
بموجب
الرقم 01/10/2023



Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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

Signature /.....



CEL
Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية
الهاتف: 2775327 - 2775328



CEL
Consulting Engineering Bureau & Laboratories
الهاتف: 2775327 - 2775328



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

**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 / 
CEL
مكتب استشارات الهندسية
25/10/2023
3/10/2023

Checked by: Mr. Tamer
Date: 25/10/2023
25/10/2023



25/10/2023
25/10/2023
25/10/2023

Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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).	40.5	Max 50 %	-----	-----
0.425 mm (No. 40).	25.3	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 %

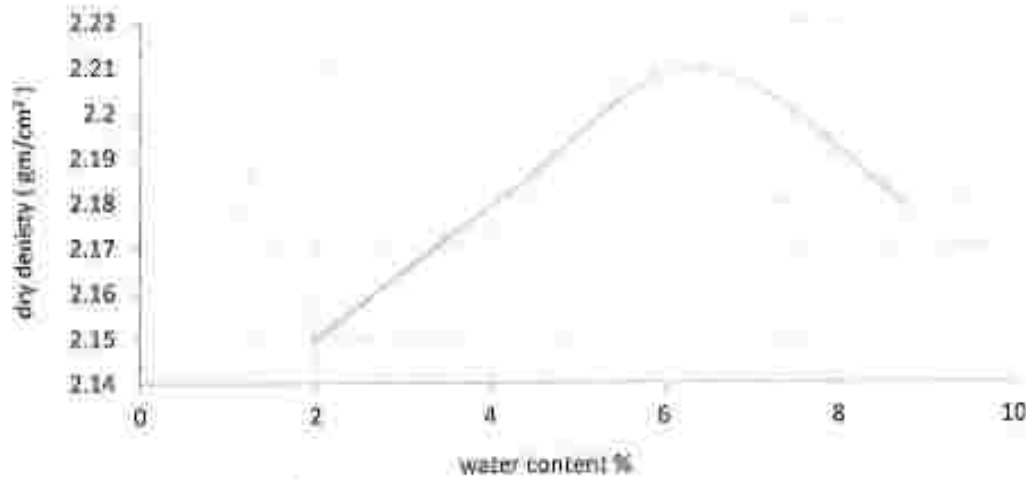
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 5.8

Signature /

[Handwritten signature]
مهندس محمد عبد الرحمن
مدير المختبر
30/10/2023
مختبر استشارات وهندسة

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.47
1.91	0.075	2.56
2.54	0.100	3.56
3.18	0.125	4.56
3.81	0.150	5.22
4.45	0.175	5.63
5.08	0.200	5.88
6.35	0.250	5.95

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.58	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of =2.21 (gm /cm³)
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

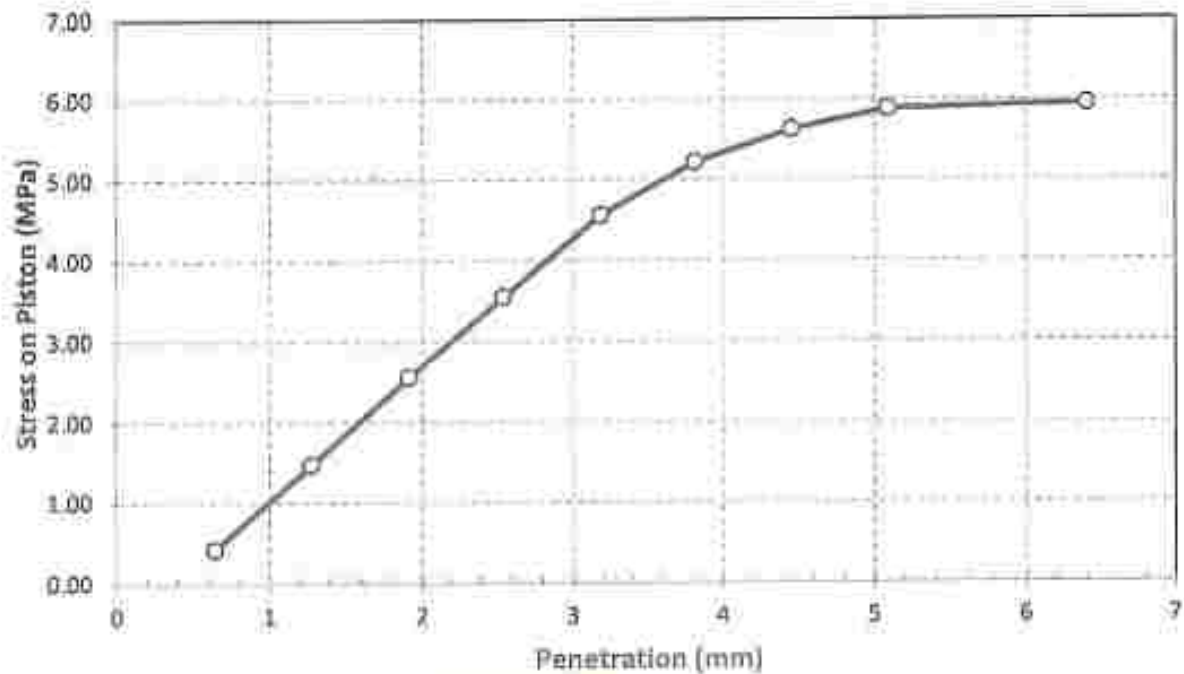
Signature /


مكتب استشارات الهندسية
الرياض - المملكة العربية السعودية
الهاتف : 011 444 1111
الفاكس : 011 444 1112
البريد الإلكتروني : info@cel.com.sa

IAS
ACCREDITED
Testing Laboratory

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /



LOCATION: E-TRAIL (2000)
STATION: 672+180
DATE: 25/10/2023



DATE: 25/10/2023
PAGE: 1/1

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 14/11/2023
Soil type : Upper Embankment
Location : ST From 672+640 To 672+780
Level : - 1. 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	672+660	1475	2.25	5.8	2.13	96.2%	Comply
2	672+680	1360	2.30	5.3	2.19	99.0%	Comply
3	672+700	1459	2.24	5	2.14	96.7%	Comply
4	672+720	1341	2.27	6	2.14	96.9%	Comply
5	672+746	1355	2.24	5.8	2.11	95.6%	Comply
6	672+773	1537	2.28	6	2.15	97.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /


219 304 1102
الاستشارات الهندسية

11/11/2023
219 304 1102
الاستشارات الهندسية

IAS
ACCREDITED


وزارة الأشغال العامة والإسكان



Consulting Engineering Bureau & Laboratories
مكتب مهندسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armut
Testing Date : 14/11/2023
Soil type : Upper Embankment
Location : ST From 671+980 To 672+180
Level : - 1.25 M
Report No. : 59

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+000	1390	2.23	5.3	2.12	95.8%	Comply
2	672+025	1712	2.26	5.5	2.14	96.8%	Comply
3	672+050	1746	2.29	5	2.18	98.8%	Comply
4	672+075	1534	2.27	5	2.16	97.9%	Comply
5	672+095	1449	2.32	5.6	2.20	99.5%	Comply
6	672+125	1398	2.31	6.4	2.18	98.4%	Comply
7	672+155	1385	2.33	6	2.19	99.3%	Comply
8	672+175	1512	2.28	5.8	2.16	97.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

Eng. H. H. H. H.
ASST. ENG.
2010/11/14/2023 17:00:00



2010/11/14/2023 17:00:00

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanf
Testing Date : 16/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 1 M
Report No. : 60

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	671+800	1807	2.24	6.4	2.10	95.1%	Comply
2	671+820	1600	2.29	6	2.16	97.6%	Comply
3	671+840	1630	2.26	5.8	2.13	96.5%	Comply
4	671+870	1415	2.32	5.6	2.19	99.3%	Comply
5	671+900	1283	2.24	5.5	2.13	96.3%	Comply
6	671+920	1477	2.27	5.5	2.15	97.3%	Comply
7	671+940	1503	2.29	5.5	2.18	98.4%	Comply
8	671+960	1620	2.22	5.5	2.10	95.0%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.29 gm/cc At optimum moisture content = 5.8 %

Signature / ...



Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arمنت
Testing Date : 6/12/2023
Soil type : Upper Embankment
Location : ST From 672+640 To 672+780
Level : -0.75 M
Report No. : 70-2

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	672+660	1271.7	2.25	5.3	2.14	96.8	Comply
2	672+680	1099.3	2.23	5.5	2.11	95.6	Comply
3	672+700	1027.6	2.24	6.0	2.11	95.5	Comply
4	672+720	1391.0	2.24	6.0	2.11	95.5	Comply
5	672+740	1627.6	2.26	5.3	2.15	97.3	Comply
6	672+760	1629.7	2.32	5.5	2.20	99.7	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / ...

Youssef El-Mohammedi
Chief Engineer
01111111111



01111111111
01111111111
01111111111



Client: *Ministry of Transport*
Project: *Construction of the new road from the city of ...*
Location: *St. John's, St. John's, St. John's*
Type of sample: *Soil Sample*
Delivery Date: *21/10/2023*
Reporting Date: *21/10/2023*
Reporting To: *Client*

Item Description

Attached herewith is delivered on 21/10/2023

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. DBR 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: _____

Ministry of Transport
St. John's, St. John's, St. John's





Construction Engineering Research & Development
 1000 West 12th Street, Suite 100, Fort Collins, CO 80521

Project Name: Highway 100
 Location: Boulder, CO
 Type of Sample: Soil
 Delivery Date: 1/10/2023
 Reporting Date: 3/10/2023
 Reporting To: OLC

RESULTS OF SIEVE ANALYSIS According to ASTM D-421

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.3
37.5	1.5	92.5
25	1	87.2
19	3/4	74.0
12.50	1/2	69.2
9.50	3/8	63.8
4.75	4	57.3
2.00	10	45.4
0.600	40	16.2

Signature: _____

1/10/2023



CEI

Construction Engineering Institute of India
Bengaluru, Karnataka, India

Job No. / ID : 18-25-10-123
 Project : Bridge No. 1234, Section 1, Phase 1
 Location : ST. 07+180, Bangalore (Hwy. 100)
 Type of sample : Soil Subsample
 Delivery Date : 27/10/2023
 Reporting Date : 31/10/2023
 Reporting No. : 01-23

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m. (No.200)	2.3

Signature /... ..

Company Name : *CEL*
 Project : *Electric Express Train - ESE from Court To Terminal*
 Location : *St. 672-180 E=52.774563 N=23.652672*
 Type of sample : *Soil Embankment*
 Delivery Date : *27/10/2023*
 Reporting Date : *31/10/2023*
 Reporting No. : *101-13*

**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: *[Signature]*





Company Name	W. J. Baker, Inc.
Address	10000 E. Highway 100, Suite 100, Denver, CO 80231
Contact	Mr. J. W. Baker, President, Phone 333-1234
Type of Receipt	Sell Embroidered
Delivery Date	10/10/2023
Reporting Date	10/10/2023
Reporting File	0013

2014-2015

TEST	Results (%)	Limits according Projects Specs		
		(#1-4)	(#1-5)	(#2-8)
Group Classification				
2.00 mm (No. 10).	43.4	Max 50 %	-----	-----
0.425 mm (No. 40).	36.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity Index	0	Max 5 %	Max 5 %	Max 10 %

The test results are (a) Corrosion: initial Corrosion) with specifications limits

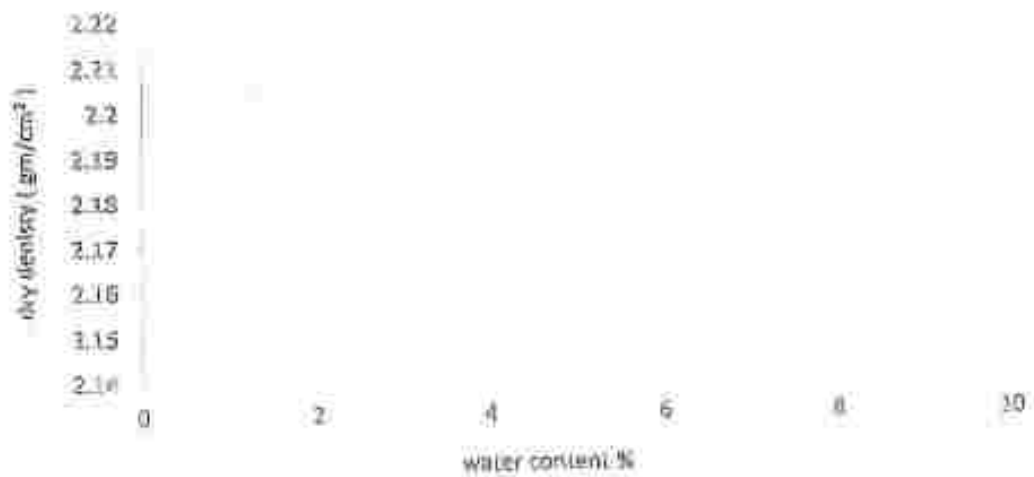
Fig. 1



Form 101 - Soil Moisture Density - 11/2010
Page 1 of 1

Project Name: [Blank]
Project Location: [Blank]
Project Number: [Blank]
Project Description: [Blank]
Delivery Date: 11/10/2023
Reporting Date: 11/10/2023
Reporting To: 01-15

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



Max Dry Density (gm/cm³): 2.21

Optimum Moisture Content (%): 2.2

Signature: [Blank]

11/10/2023

11/10/2023

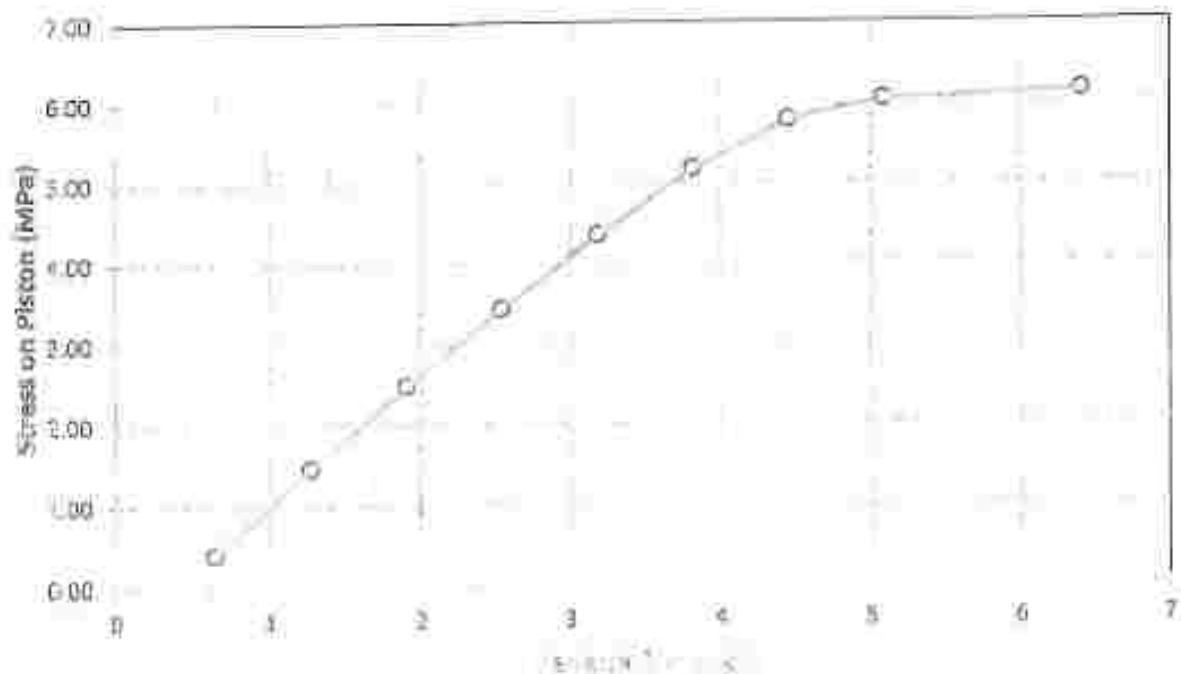


Reporting No. 10-413

Course/ID: CE 310 / 10-2023
 Date: 23/10/2023
 Location: ST-17-03-00, 10-2023, 10-2023
 Type of sample: Soil (Sandstone)
 Delivery Date: 23/10/2023
 Reporting Date: 23/10/2023
 Reporting By: V. B.

Load Penetration Curve of CBR Test

ASTM D 1586



Signature of V. B.

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 21/11/2023
Soil type : Upper Embankment
Location : ST From 671+980 To 672+180
Level : - 0.75 M
Report No. : 62

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Molsture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+000	1587	2.22	5.3	2.11	95.5%	Comply
2	672+020	1690	2.28	5.5	2.16	97.9%	Comply
3	672+040	1821	2.27	5.5	2.15	97.4%	Comply
4	672+060	1862	2.28	6	2.15	97.5%	Comply
5	672+090	1646	2.29	6.4	2.15	97.3%	Comply
6	672+110	1678	2.32	5.5	2.20	99.6%	Comply
7	672+130	1560	2.22	5	2.12	95.8%	Comply
8	672+150	1403	2.25	5.3	2.14	96.7%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³ At optimum molsture content = 5.8 %

Signature /

Handwritten signature and stamp area.





Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qouz To Armanat
Testing Date : 21/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 0.75 M
Report No. : 61

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	671+800	1340	2.24	5.5	2.12	96.0%	Comply
2	671+820	1312	2.29	5.5	2.17	98.1%	Comply
3	671+840	1505	2.32	5.8	2.19	99.1%	Comply
4	671+860	1587	2.25	5.8	2.12	96.1%	Comply
5	671+880	1440	2.24	5.3	2.12	96.1%	Comply
6	671+910	1426	2.21	5	2.11	95.4%	Comply
7	671+930	1542	2.25	5.5	2.13	96.4%	Comply
8	671+960	1676	2.27	5.5	2.15	97.2%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³ At optimum moisture content = 5.8 %

Signature / 

Engineer /
Mohamed Elmaghrabi
27/04/2024



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 16/11/2023
Soil type : Upper Embankment
Location : ST From: 671+980 To 672+180
Level : - 1 M
Report No. : 60-2

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	672+020	1695	2.27	6.4	2.14	96.7%	Comply
2	672+040	1589	2.23	6	2.10	95.2%	Comply
3	672+060	1411	2.31	5.8	2.18	98.7%	Comply
4	672+080	1414	2.29	5.6	2.17	98.0%	Comply
5	672+100	1404	2.22	5.5	2.11	95.4%	Comply
6	672+120	1566	2.21	5.5	2.10	95.0%	Comply
7	672+140	1672	2.31	5.5	2.19	99.1%	Comply
8	672+160	1635	2.30	5.5	2.18	98.5%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.25 gm/cm³ At optimum moisture content = 5.8 %

Signature / 

Lab. Name: IAS

Lab. No.:

Lab. Name: IAS

