

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة.. وبعد،،

بالإحالة إلى مشروع القطار الكهربائي فائق السرعة (الحمام - العلمين) (القطاع الخامس ب)
نتشرف بأن نرفق لسيادتكم طيه المقايسة المعدلة للقطاع الآتي:

مسلسل	اسم الشركة	بداية القطاع (كم)	نهاية القطاع (كم)	المقايسة	القيمة المالية
1	عصام فكري للمقاولات واستغلال المحاجر	376+000	377+000	أعمال تشكيل الجسر الترايبي	11.000.000 مليون جنيه

برجاء من سيادتكم التفضل بالأحاطه والتوجيه بالازم

وتفضلوا بقبول فائق الاحترام والتقدير،،،

رئيس الإدارة المركزية

المنطقة الخامسة - غرب الدلتا

عميد مهندس/

"هاني محمد محمود طه"

مشروع القطار الكهربائي فائق السرعة قطاع (الحمام-العلمين)

أعمال تشكيل الجسر الترابي

المقايضة المعدلة لبتود الأعمال تنفيذ شركة عصام فكري للمقاولات وإستغلال المحاجر

القطاع من المحطة 376+000 إلى 377+000

رقم البند	بيان الأعمال	الوحدة	الكمية	القيمة	الإجمالي
1	أعمال الحفر				
1-1	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية لجميع أنواع التربة عدا التربة الصخرية وتسوية السطح بالآلات التسوية والرش بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراست للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى (ومعمل على البند تحميل ونقل التربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتعلات طبقاً لاصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف وفي حالة زيادة مسافة نقل ناتج الحفر عن 500 متر من محور الطريق يتم حساب 0.80 جنيه لكلومتر للزيادة أو النقص .	م ³	10000	20	200,000
1-2	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية في التربة المتوسطة عدا التربة الصخرية (باستخدام البلدوزر) وتسوية السطح بالآلات التسوية والرش بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراست للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى (ومعمل على البند تحميل ونقل التربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتعلات طبقاً لاصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف وفي حالة زيادة مسافة نقل ناتج الحفر عن 500 متر من محور الطريق يتم حساب 0.8 جنيه لكلومتر للزيادة	م ³	10000	23	230,000
3	أعمال الردم				
3-1	بالمتر المكعب أعمال توريد وتشغيل التربة صالحة للردم ومطابقة للمواصفات والتشغيل باستخدام المعدات بسمك لا يزيد عن 50 سم حتى منسوب 2 متر و بسمك لا يزيد عن 25 سم لاستكمال المنسوب التصميمي لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل عن 15%) و رشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراست للوصول إلى أقصى كثافة جافة (95% من الكثافة الجافة القصوى) ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتعلات طبقاً لاصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف - مسافة النقل 2 كم - يتم احتساب علوة 1.4 جنيه لكل 1 كم بالزيادة أو النقصان - السعر يشمل عمل تشوينات وتخلوط واختبارات ونقل لمواقع العمل حتى مسافة 2 كم - السعر يشمل قيمة المادة المحجورة	م ³	44674.558	85	3,797,337
	علوة مسافة نقل للتربة لمسافة 108 كم = 1.4*108 = 148.4 جنيه	م ³	35739.646	148.4	5,303,764
	علوة مسافة نقل للرمل لمسافة 73 كم = 1.4*71 = 99.4 جنيه	م ³	8934.912	99.4	888,130
	علوة تحصيل رسوم الكارثة والموازين طبقاً للائحة الشركة الوطنية	م ³	44674.558	13	580,769
	الإجمالي				11,000,000

(أحد عشر مليوناً جنيه مصري فقط لا غير)

مدير عام مشروعات الهيئة

مدير المشروع الهيئة

مدير المشروع الاستشاري

مدير المشروع المقاول

م/أحمد حسني فياض

م / مارجريت مجدي

م/عبد العزيز مصطفى

م / أحمد عبد النبي

رئيس الإدارة المركزية

منطقة غرب الدلتا

الاسكندرية - مرسى مطروح

عميد مهندس /

" هاني محمد محمود طه "



MATERIAL APPROVAL REQUEST										

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING				Designer Company	SPECTRUM Engineering Consulting Office			
Issued by Contractor	Name	Eng. Mohamed Elssa			Date/Serial Number	30/1/2023			
	Sign				M.A.R. QT - Job Mix	10:00			
	Received by GARB CONSULTANT	Eng. Mazen Essamy				MA			

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

Description of Materials	Job Mix for fill layers materials.		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY GIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab is Approved. 2-This Sample Representative (5000 m3) only.		1-All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4-J.M.F for B.O. Q	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		2023/01/30	AWC

* Designer

** Alignment/Bridges/ Culvert only

12/02



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والتحليل (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015
Accredited by
Egyptian General Authority for Petroleum
Under No: 34/29.11.2011

قطاع النفط والغاز الداخلي والخارجي
معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

SOIL REPORTS FOR ELECTRIC EXPRESS TRAIN PROJECT

Contractor	:	شركة عصام فكري للمقاولات
Date	:	31/01/2023
QC	:	414



حاصلة على شهادة الأيزو ISO 9001:2015
Accredited by:
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ١١٠٢٩ / ٢٠١١

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Sample : upper embankment (ferma)
Station : ST(376+0.00) : (377+0.00)
Date of Test : 31/01/2023
QC : 414

II- Sample description:

Gravel and sand : (80:20)

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.093
	OMC	7.6%
3- Liquid limit, plastic limit and plasticity index	LL	25.8%
	PL	23.8%
	PI	2.0%
4- California bearing ratio (CBR)	CBR ratio	55%

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015
Accredited by:
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

APPENDIX



COMIBASSAL International Controllers

المستقلة المتعارضة الائتلافية لأعمال الوزن والمراجعة والتحليل (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015
Accredited by:
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

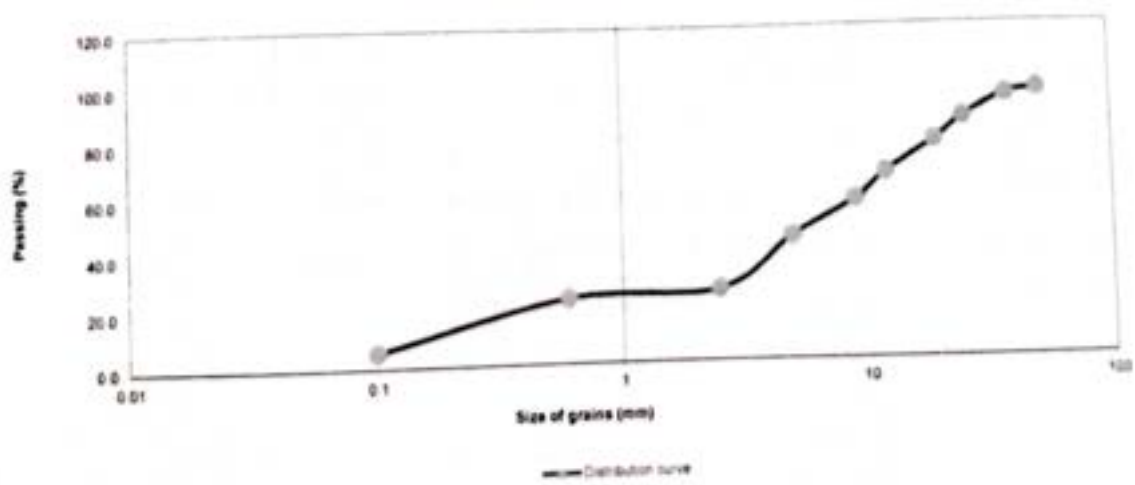
معتد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢١

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	635.00	635.00	4.29	95.7	
1 1/2	275.00	910.00	6.14	93.9	
1	1175.00	2085.00	14.07	85.9	
3/4	1225.00	3310.00	22.34	77.7	
1/2	1670.00	4980.00	33.61	66.4	
3/8	1415.00	6395.00	43.17	56.8	
No.4	1860.00	8255.00	55.72	44.3	
No.10	210.00	210.00	42.00	25.7	
No.40	235.00	235.00	47.00	23.5	
No.200	435.00	435.00	87.00	5.8	

Total sample weight = 14815.00 pass No 4= 6560.0 Total fine aggregates weight = 500 gm

Size analysis distribution curve



Soil classification: A - 1 - a





COMIBASSAL International Controllers

الجمعية التعاونية للإنشائية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015

حاصلة على شهادة الأيزو 9001:2015
Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفقيش الداخلي والمعامل

مستند لدى الهيئة المصرية العامة للبحوث
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Modified Proctor Test Report ASTM - D 1557

Mould Number :-
Volume of mould = 2120 cm³
Weight of mould = 6360 g
G.S = 2.55 g/cm³

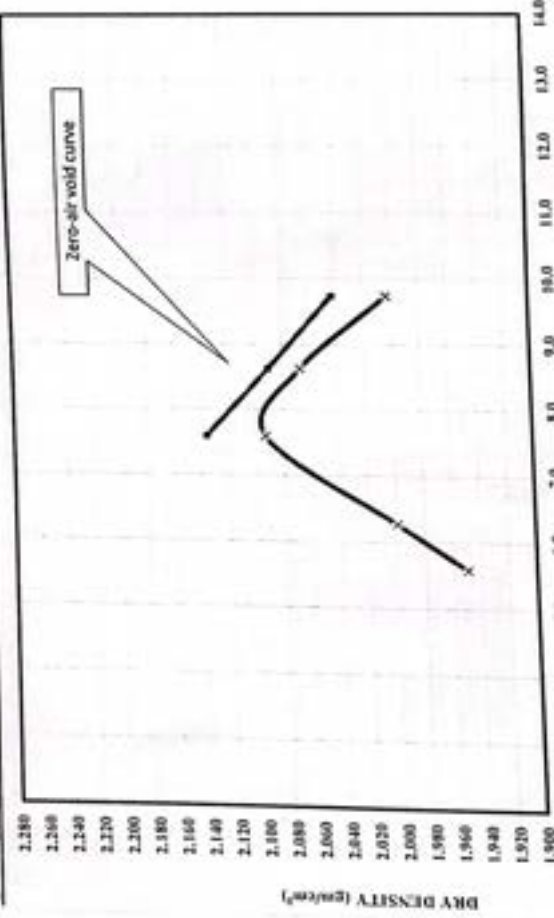
A- Density Calculations :-

	1	2	3	4	5
Weight.of wet soil+mould (g)	10725	10865	11135	11120	11020
Weight.of mould (g)	6360	6360	6360	6360	6360
Weight.of wet soil (g)	4365	4505	4775	4760	4660
Volume of mould (cm ³)	2120	2120	2120	2120	2120
Wet density (g/cm ³)	2.059	2.125	2.252	2.245	2.198
Dry density (g/cm ³)	1.950	2.000	2.093	2.067	2.003
Zero-air Void curve			2.136	2.090	2.043

B- Moisture Calculations :-

Weight.of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight.of dry soil+container (g)	241.0	240.0	238.0	236.5	235.0
Weight.of container (g)	80.0	80.5	80.0	80.0	81.0
moisture content(%)	5.6	6.3	7.6	8.6	9.7

C - Dry density-Moisture relationship:-



MOISTURE CONTENT(%)

M.D.D= 2.093 g/cm³
7.6 %





COMIBASSAL International Controllers

الجمعية التعاونية الانشائية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015 شهادة الأيزو

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

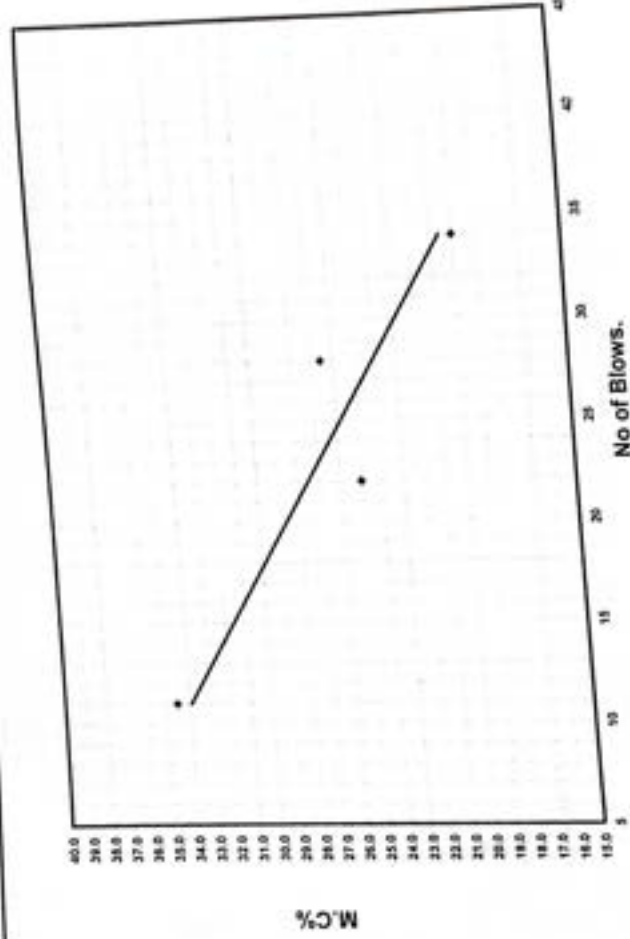
قطاع التفتيش الداخلي والمعامل

مستند لدى الهيئة المصرية العامة للقياس
تحت رقم ٢٠١١/١١٠٢٩/٢٤ للبيروت

Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit					
NO of B.	34	28	22	11		
Container No	W	R	H	J	L	V
Mass of wet soil +container	100.00	114.00	89.00	50.00	62.00	50.00
Mass of dry soil +container	98.50	107.50	86.50	41.00	57.00	48.20
Mass of container	91.00	83.00	76.50	15.00	33.00	41.50
Mass of moisture	1.50	6.50	2.50	9.00	5.00	1.80
Mass of dry soil	7.50	24.50	10.00	26.00	24.00	6.70
Moisture content	20.00	26.53	25.00	34.62	20.83	26.87



Results:
Liquid Limit (L.L.) : 25.8 %
Plastic Limit (P.L.) : 23.8 %
Plasticity Index (P.I.): 2.0 %



ISO 9001:2015

Accredited by:

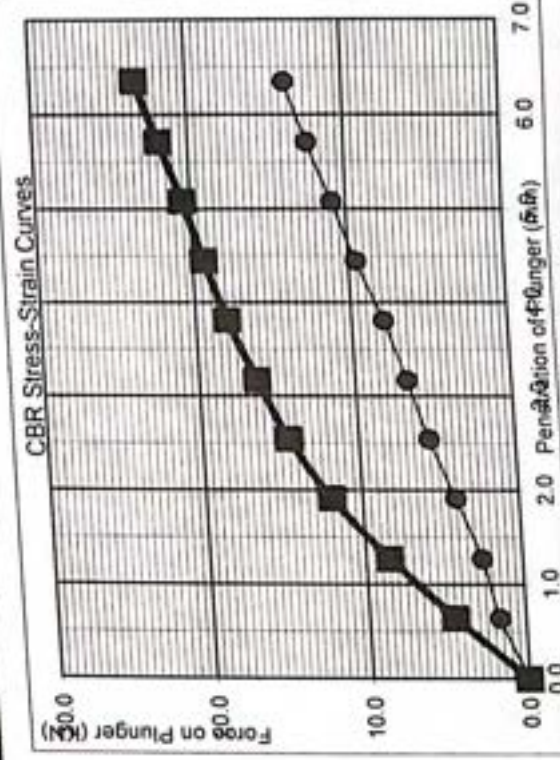
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتد لدى الهيئة المصرية العامة للبريد
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Report Of CBR Test- ASTM - D 1883

NO OF BLOWS		56			Swell %
MOULD NO		1			
WT OF MOULD+SOIL		11770		Start	56 0.00
WT OF MOULD		7000		End	0.00
WT OF SOIL		4770		Swell	0.00
VOLUME OF MOULD		2120			
WET DENSITY		2.250			4.54Kg 2.093
			MC before soaking	Weight of Rammer	
TIN NO		1		MDD	% 7.6
WT OF WET SOIL+TIN		250.00		OMC	
WT OF DRY SOIL+TIN		238			
WT OF WATER		12.00			
WT OF TIN		81			
WT OF DRY SOIL		157			
MOISTURE CONTENT		7.6			
DRY DENSITY		2.090		Capacity (KN)	50
CBR					
Pen mm	97		Bearing (KN)	standard	56
0.00	56		56	0.0	
0.64	0		0.0	4.5	
1.27	170		1.7	8.5	
1.91	265		2.6	12.0	
2.54	415		4.1	14.5	42
3.17	565		5.5	16.3	
3.81	685		6.7	18.0	
4.45	815		8.0	19.3	
5.08	975		9.6	20.5	55
5.71	1115		10.9	21.9	
6.35	1265		12.4	23.3	
	1400		13.7		





ISO 9001:2015 حاصلة على شهادة الأيزو

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2017

قطاع التفتيش الداخلي والمعامل

معتد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ١١٠٢٩ / ٢٠١١

Report :	214 - 2 - Center
Date :	12/02/2023

CHEMICAL ANALYSIS

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Project : Electric express train
Sample : FERMA - MIX (20 : 80)
Station : ST (376 + 0.00) : (377 + 0.00)
Date of Test : 31-1-2023

Temperature : 18 °C

Humidity : 50%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



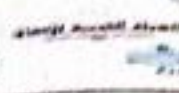
LAB DIRECTOR
CH/ Mostafa Asker

Moustaf

MATERIAL APPROVAL REQUEST



الهيئة العامة
للمرور والتهيئة
(GARBU)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company			(SPECTRUM) Engineering Consulting Office				
Issued by Contractor	Name	Sign		Date/Serial Number			Time				
	Eng. Mohamed Elssa			10/4/2023			10:00				
				M.A.R. QT-8							
Received by GARBI CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	GO	MM	YY	HH	MM
				376	FW	C5	11	4	23	10	0

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

Description of Materials	Fill Layer Total Quantity (40000 m ³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARBU Consultant.	
2-This Sample Representative (5000 m ³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

13/4

* Designer
** Alignment/Bridges: Culvert only

Electrical Express Train From Borg Al arab to Alamein

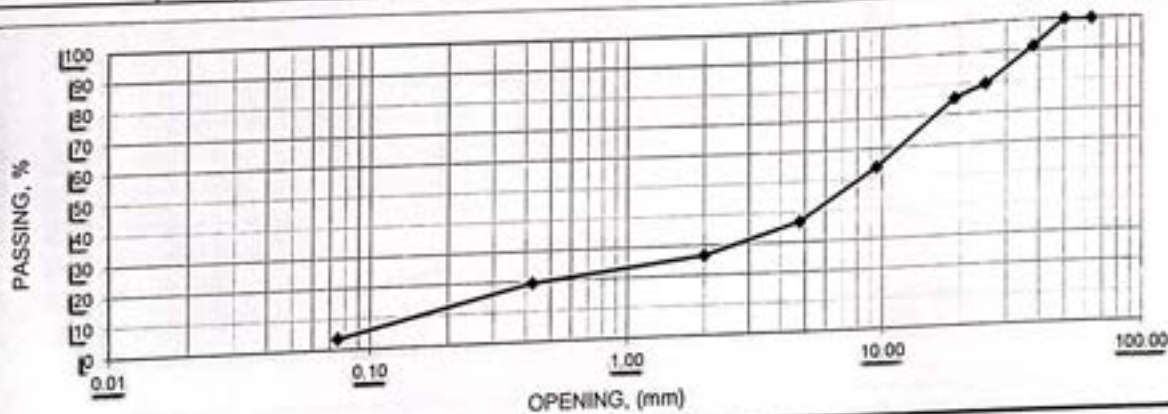
Company:	عصام فكرى	Sample No:	8
description:		Sample Date :	11/4/2023
Station Represented :	توريدات المحجر	Report Date:	11/4/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	91.4	79.6	75.4	54.0	36.8	26.7	19.5	3.7



Atterberg Limits	L.L.	26.0	P.L.	23.5	P.I.	2.5	(Max. 6)
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SOIL CLASSIFICATION : A-1-A

GARP Consultant Engineer's Comments :

Lab Contractor Eng.:-

spectrum Consultant Eng.:-



الهيئة العامة للتخطيط
والبنية التحتية



Electrical Express Train From Borg Alarab to Alamein
From Station 376+000 To Station 377+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lbf/ft³

Sampling Date : 11/4/2023

Testing Date :

11/4/2023

Source of Soil

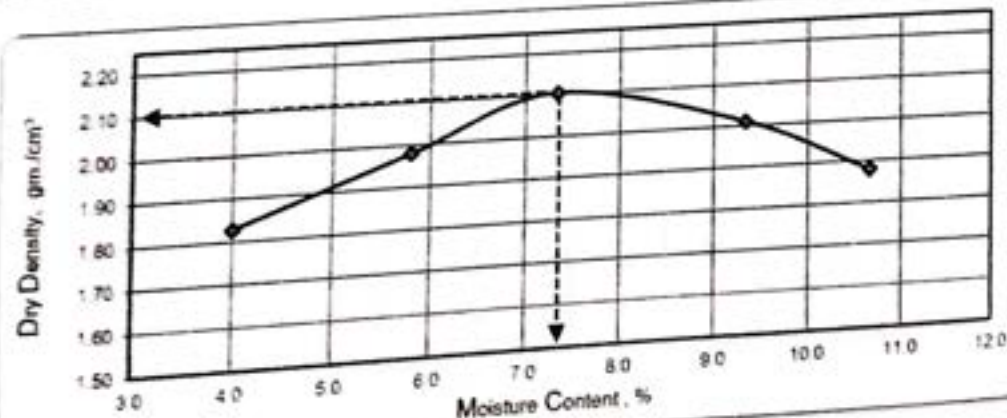
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould. gm	6522	Volume of PROCTOR Mould. cm ³		2148
-----------------------------	------	--	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould. gm	10,605	11,021	11,372	11,242	10,991
Wet Density. gm/cm ³	1.901	2.095	2.258	2.197	2.081
Weight of Wet Soil Portion. gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying. gm	144.0	141.3	139.0	136.0	134.0
Moisture Content, %	4.0	5.8	7.3	9.3	10.7
Dry Density. gm/cm ³	1.828	1.980	2.104	2.010	1.880



Max. Dry Density =

2.104 gm/cm³

Optimum Moisture Content = 7.3%

CONSULTANT COMMENTS

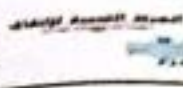
Lab contractor Eng. :-

spectrum Consultant Eng. :-

MATERIAL APPROVAL REQUEST



الهيئة العامة
للمواصلات
(GARBI)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		11/4/2023	10:00							
			M.A.R. QT -8 rev-1								
Received by GARBI CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	CO	MM	YY	HH	MM
				376	EW	CS	12	4	23	10	0

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

Description of Materials	Fill Layer Total Quantity (40000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab Is Approved. 2-This Sample Representative (5000 m3) only.		1- All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- Adjust 2-L	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

16/4



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/E9-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Sample : FERMA
Station : St(376+820)
Date of Test : 12/04/2023
QC : 967-2

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.119
	OMC	5.9%
3- Liquid limit, plastic limit and plasticity index	LL	26.3%
	PL	24.5%
	PI	1.8%
4- California bearing ratio (CBR)	CBR ratio	49%

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

For. Dr. M-

Dr. Mohamed Mostafa Badry





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

APPENDIX



COMIBASSAL International Controllers

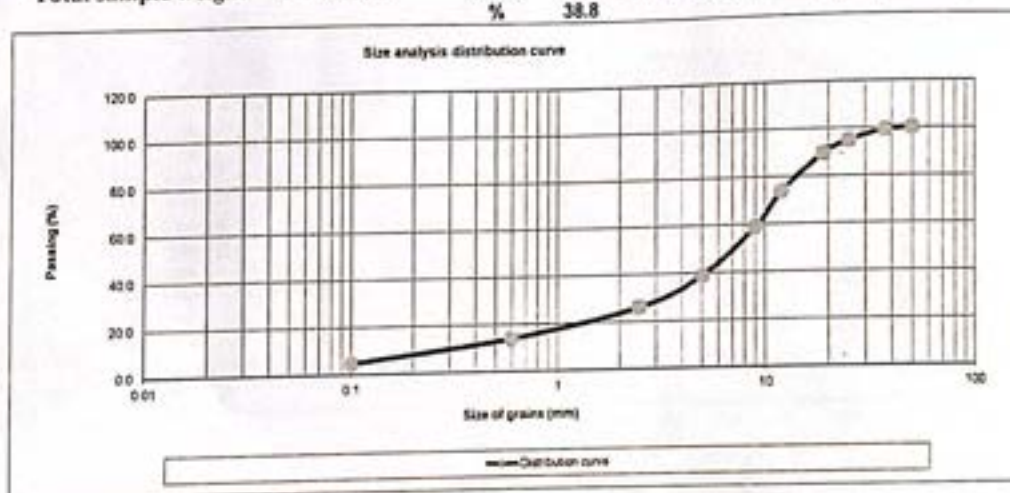
Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	65.00	65.00	0.72	99.3	
1	396.00	461.00	5.11	94.9	
3/4	478.00	939.00	10.41	89.6	
1/2	1426.00	2365.00	26.22	73.8	
3/8	1358.00	3723.00	41.28	58.7	
No.4	1796.00	5519.00	61.19	38.8	
No.10	165.00	165.00	33.00	26.0	
No.40	322.00	322.00	64.40	13.8	
No.200	442.00	442.00	88.40	4.5	

Total sample weight = 9019.00 pass No.4 = 3500.0 Total fine aggregates weight = 500 gm
% 38.8



Soil classification: A - 1 - a





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 2
Volume of mould = 2198 cm³
Weight of mould = 5924 g
G.S = 2.5 g/cm³

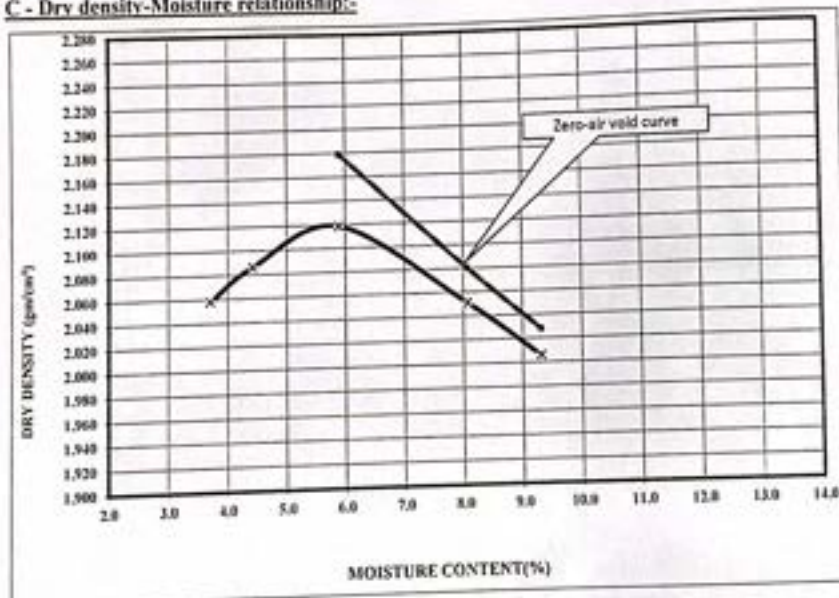
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10615	10712	10855	10796	10743
Weight of mould (g)	5924	5924	5924	5924	5924
Weight of wet soil (g)	4691	4788	4931	4872	4819
Volume of mould (cm ³)	2198	2198	2198	2198	2198
Wet density (g/cm ³)	2.134	2.178	2.243	2.217	2.192
Dry density (g/cm ³)	2.058	2.086	2.119	2.051	2.006
Zero-air Void curve			2.179	2.080	2.028

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	244.0	242.8	240.6	237.6	236.2
Weight of container (g)	82.0	80.0	81.0	84.0	88.0
moisture content(%)	3.7	4.4	5.9	8.1	9.3

C - Dry density-Moisture relationship:-



M.D.D= 2.119 gm/cm³
O.M.C= 5.9 %





COMIBASSAL International Controllers

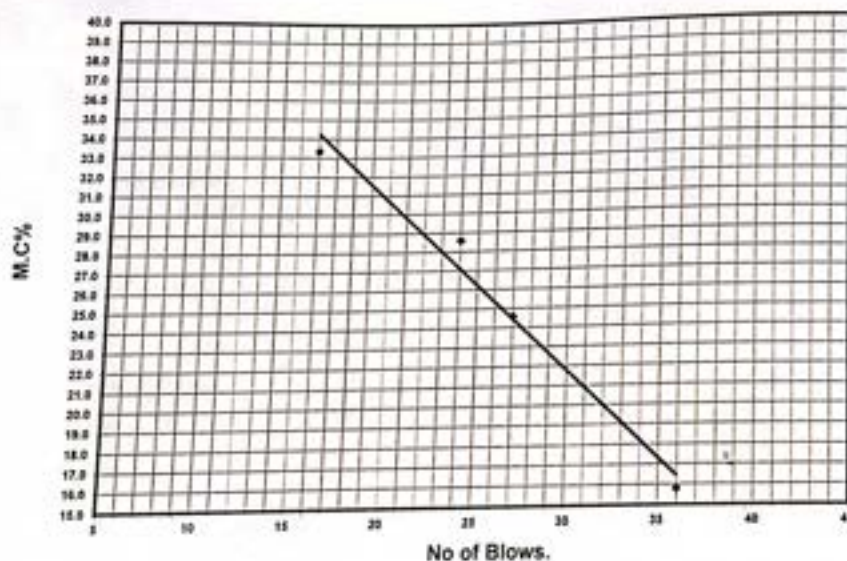
Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit				Plastic Limit	
NO of B.	36	27	24	16		
Container No	j	c	s	m	F	J
Mass of wet soil + container	99.00	111.90	100.00	50.00	63.10	47.90
Mass of dry soil + container	97.50	106.00	96.00	42.00	57.00	46.20
Mass of container	88.00	82.00	82.00	18.00	32.40	39.20
Mass of moisture	1.50	5.90	4.00	8.00	6.10	1.70
Mass of dry soil	9.50	24.00	14.00	24.00	24.60	7.00
Moisture content	15.79	24.58	28.57	33.33	24.80	24.29



Results:

Liquid Limit (L.L.) : 26.3 %
Plastic Limit (P.L.) : 24.5 %
Plasticity Index (P.I.): 1.8 %



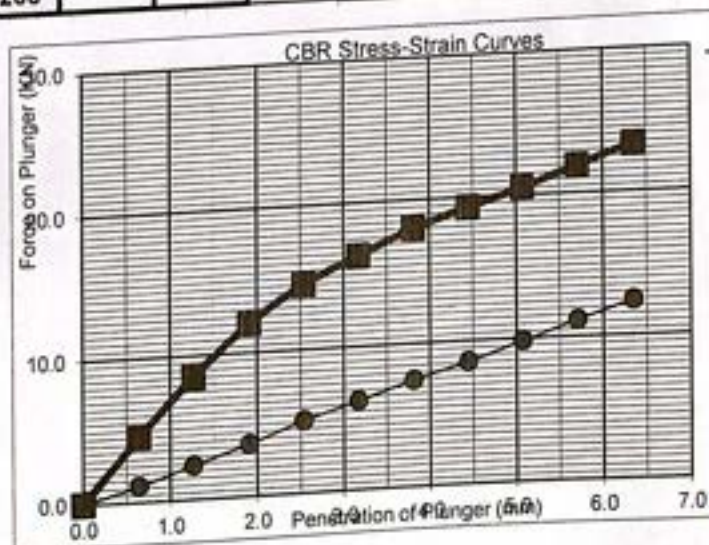


International Controllers Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56				Swell %	
MOULD NO	1				56	
WT OF MOULD+SOIL	11950			Start	0.00	
WT OF MOULD	7025			End	0.00	
WT OF SOIL	4925			Swell	0.00	
VOLUME OF MOULD	2198					
WET DENSITY	2.241					
	MC before soaking			Weight of Rammer	4.54Kg	
TIN NO	1			MDD	Kg/m3	2.119
WT OF WET SOIL+TIN	250.00			OMC	%	5.9
WT OF DRY SOIL+TIN	241					
WT OF WATER	9.00			PROVING RING		
WT OF TIN	88			Div/KN	0.0210	
WT OF DRY SOIL	153					
MOISTURE CONTENT	5.9			Capacity (KN)	50	
DRY DENSITY	2.116					
Pen	Reading (Div)		Bearing (KN)		CBR	
mm	56		56	standar	56	
0.00	0		0.0	0.0		
0.64	113		1.1	4.5		
1.27	243		2.4	8.5		
1.91	372		3.6	12.0		
2.54	516		5.1	14.5	38	
3.17	634		6.2	16.3		
3.81	762		7.5	18.0		
4.45	872		8.5	19.3		
5.08	1002		9.8	20.5	49	
5.71	1136		11.1	21.9		
6.35	1268		12.4	23.3		





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031708/1A

Report	:	351 - 5 - Center
Date	:	16/04/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عصام فكري للمقاولات
Project	:	Electric express train
Sample	:	FERMA
Station	:	ST (376 + 820)
Date of Test	:	12-4-2023

Temperature : 20 °C

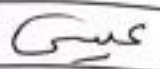
Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

M. Asker

Contractor Company		ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company		[SPECTRUM] Engineering Consulting Office	
Issued by Contractor	Name	Sign		Date/Serial Number		Time	
	Eng. Mohamed Eissa			1/4/2023		10:00	
Received by GARB CONSULTANT	Eng. Mazen Essamy	Sign		M.A.R. QT -7			
			MAR	C1	C2	C3	DO
				376	EW	CS	2
				MM	YY	HH	MM
				4	23	10	0

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

Description of Materials	Fill Layer Total Quantity (35000 m ³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Site Laboratory is Approved. 2-This Sample Representative (5000 m ³) only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Adjust L.L. 4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		3-4-2023	AWC

Electrical Express Train From Borg Al arab to Alamein

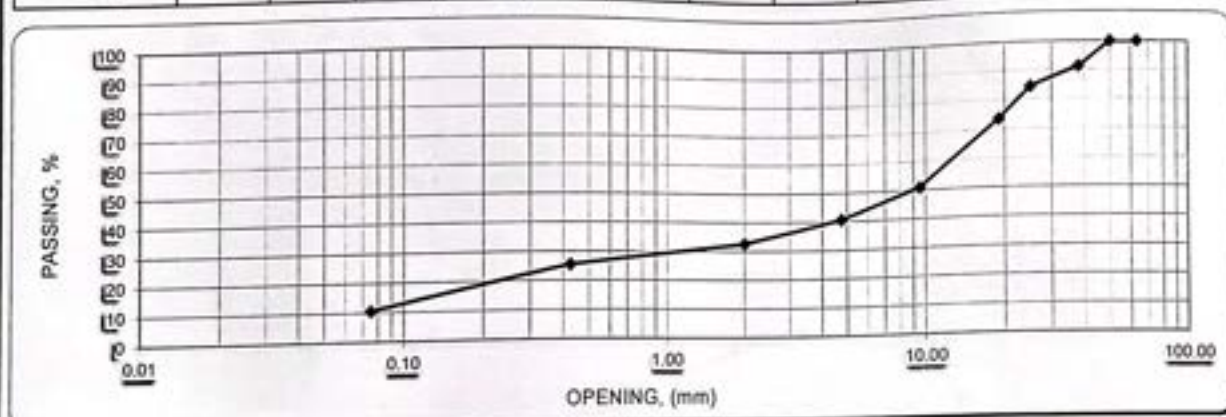
Company:	ESSAM FEKRY	Sample No:	7
description:		Sample Date :	2/4/2023
Station Represented :	توريدات المحجر	Report Date:	2/4/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material	
---------------------------	--

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	91.4	84.6	73.6	51.0	40.8	32.8	25.6	10.6



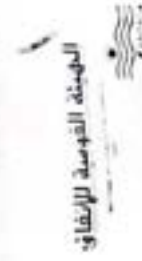
Atterberg Limits	L.L.	26.0		P.L.	24.4	P.I.	1.6	(Max. 6)
------------------	------	------	--	------	------	------	-----	----------

SOIL CLASSIFICATION :	A-1-A
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GARP Consultant Engineer's Comments :

Lab Contractor Eng.:-

spectrum Consultant Eng.:-



Electrical Express Train From Borg Alarab to Alamein
From Station 376+000 To Station 377+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lb/ft³

Sampling Date :2/4/2023

Testing Date : 2/4/2023

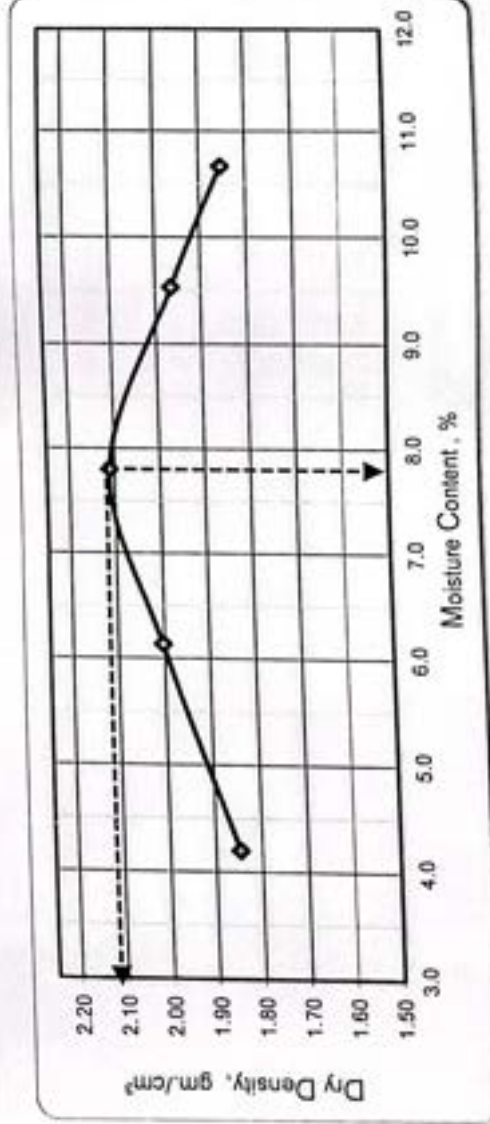
Source of Soil

توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³					2148
Point No.	1	2	3	4	5		
Weight of Soil + Mould, gm	10,657	11,089	11,413	11,146	10,929		
Wet Density, gm/cm ³	1.925	2.126	2.277	2.153	2.052		
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0		
Weight after Drying, gm	143.7	140.8	138.3	135.7	134.0		
Moisture Content, %	4.2	6.1	7.8	9.5	10.7		
Dry Density, gm/cm ³	1.847	2.003	2.112	1.965	1.854		



Max. Dry Density = 2.112 gm/cm³ Optimum Moisture Content = 7.8%

CONSULTANT COMMENTS

Lab contractor Eng.:-

spectrum-Consultant Eng.:-

MATERIAL APPROVAL REQUEST



الهيئة العامة
للمواصلات و
البنية التحتية
(GARB)



الهيئة العامة
للمواصلات و
البنية التحتية
(GARB)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	[SPECTRUM] Engineering Consulting Office							
Issued by Contractor	Name	Eng. Mohamed Eissa	Sign	Date/Serial Number		Time					
				04/04/23		10:00					
Received by GARB CONSULTANT	Eng. Mazen Essamy	MAR	MAR	C1	C2	C3	DO	MM	YY	HH	MM
				376	EW	CS	5	4	23	10	0

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

Description of Materials	Fill Layer Total Quantity (35000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab is Approved. 2-This Sample Representative (5000 m3) only.		1- All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		16-4-2023	AWC

* Designer

** Alignment/Bridges: Culvert only



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031709/1A

I- Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عصام فكري للمقاولات
Sample :	FERMA
Station :	St(376+700)
Date of Test :	05/04/2023
QC :	967-1

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.114
	OMC	6.0%
3- Liquid limit, plastic limit and plasticity index	LL	27.0%
	PL	25.5%
	PI	1.5%
4- California bearing ratio (CBR)	CBR ratio	52%

LAB DIRECTOR

Eng / Eman kandil

Eman.



Geotechnical consultant

For. Dr. M-

Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by - Egyptian General Authority for Petroleum under No. 34/28-15-2011
Accredited by - Egyptian Accreditation Council (EGAC) under No. 031708/EA

APPENDIX



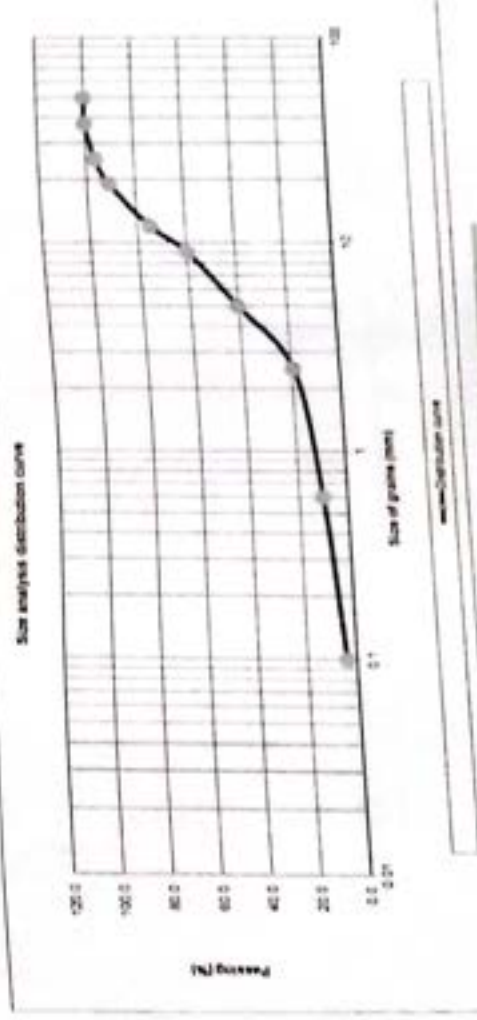
COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt General Authority for Accreditation Council (EGAC) under No. 031708/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS	
					PASSING (%)	
2	0.00	0.00	0.00	100.0		
1 1/2	0.00	0.00	0.00	100.0		
1	362.00	362.00	3.78	96.2		
3/4	521.00	883.00	9.22	90.8		
1/2	1523.00	2406.00	25.12	74.9		
3/8	1436.00	3842.00	40.12	59.9		
No.4	1864.00	5706.00	59.58	40.4		
No.10	263.00	263.00	52.60	19.2		
No.40	376.00	376.00	75.20	10.0		
No.200	452.00	452.00	90.40	3.9		

Total sample weight = 9577.00 PASS No.4 = 3871.0 Total fine aggregates weight = 500 gm



Soil classification: A - 1 - a





COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Modified Proctor Test Report ASTM - D 1557

Mould Number :- 2
Volume of mould = 2198 cm³
Weight of mould = 5924 g
G.S = 2.5 g/cm³

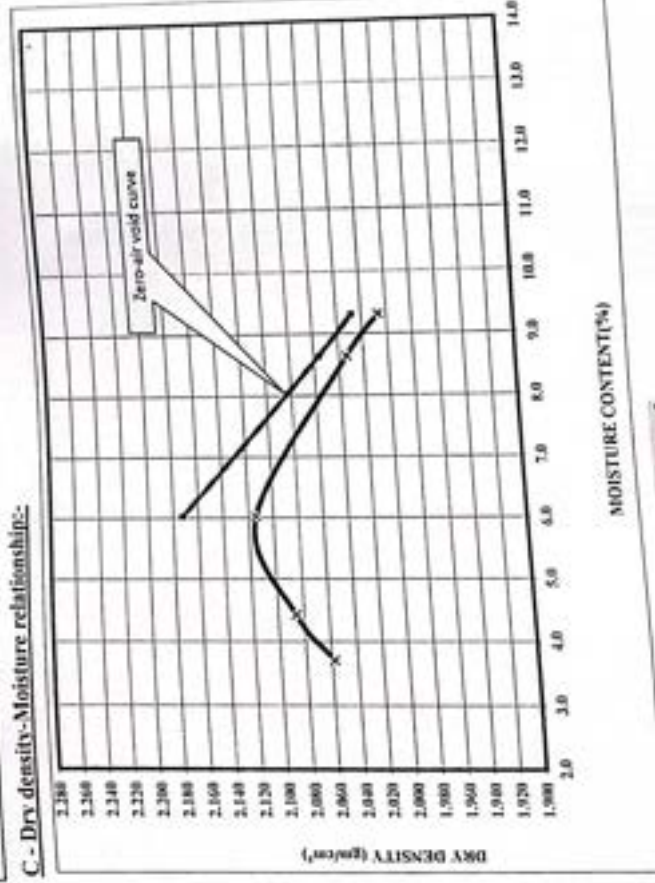
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10615	10712	10850	10780	10745
Weight of mould (g)	5924	5924	5924	5924	5924
Weight of wet soil (g)	4691	4788	4926	4856	4821
Volume of mould (cm ³)	2198	2198	2198	2198	2198
Wet density (g/cm ³)	2.134	2.178	2.241	2.209	2.193
Dry density (g/cm ³)	2.058	2.086	2.114	2.034	2.007
Zero-air Voids curve			2.173	2.056	2.028

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	244.0	242.8	240.4	236.8	236.2
Weight of container (g)	82.0	80.0	81.0	84.0	88.0
moisture content (%)	3.7	4.4	6.0	8.6	9.3

C - Dry density-Moisture relationship:-



M.D.D= 2.114 gm/cm³
O.M.C= 6.0 %





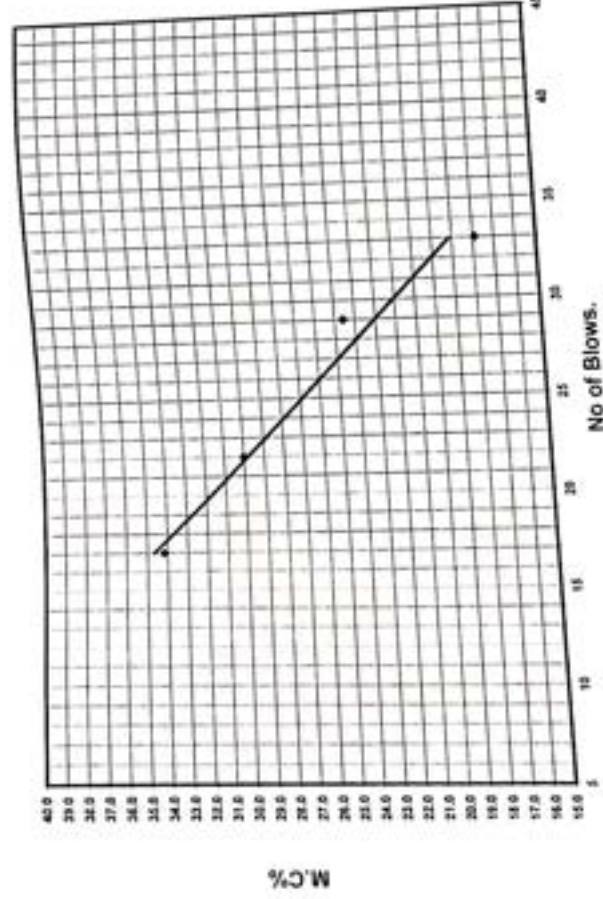
Accredited by : Egypton General Authority for Petroleum under No. 34/20-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Inspection and laboratories sector

Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit					
NO of B.	33	29	22	17	Plastic Limit	
Container No	a	b	c	d	F	J
Mass of wet soil + container	99.20	111.90	100.20	50.20	63.20	48.00
Mass of dry soil + container	97.50	106.00	96.00	42.00	57.00	46.20
Mass of container	88.00	82.00	82.00	18.00	32.40	39.20
Mass of moisture	1.70	5.90	4.20	8.20	6.20	1.80
Mass of dry soil	9.50	24.00	14.00	24.00	24.60	7.00
Moisture content	17.89	24.58	30.00	34.17	25.20	25.71



Results:
Liquid Limit (L.L.) : 27 %
Plastic Limit (P.L.) : 25.5 %
Plasticity Index (P.I.): 1.5 %



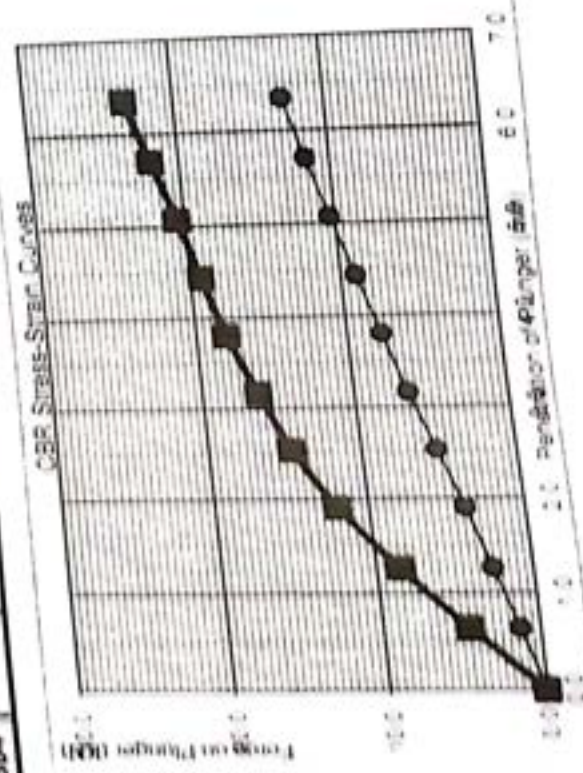


COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by Egyptian General Authority for Petroleum under No. 34/25-11-2011
Accredited by Egyptian Accreditation Council (EGAC) under No. 031706/LA

Report Of CBR Test - ASTM - D 1683

INC OF BLOWS	55	Swell %
MOLD NO	1	55
WT OF MOLD-SOIL	11540	Start 0.00
WT OF MOLD	1025	End 0.00
WT OF SOIL	4915	Swell 0.00
VOLUME OF MOLD	2198	
WET DENSITY	2.236	4.54Kg
MC before soaking		Weight of Rammer 2.114
TIN NO	1	MDD Kg/m3 2.114
WT OF WET SOIL-TIN	250.00	OMC % 6.0
WT OF DRY SOIL-TIN	241	PROVING RING
WT OF WATER	9.00	DIV/KN 0.0210
WT OF TIN	88	Capacity (KN) 50
WT OF DRY SOIL	153	
MOISTURE CONTENT	5.9	
DRY DENSITY	2.112	
		CBR
Psi	Reading (DIV)	Soaking (KN)
55	55	standard 55
0	0.0	0.0
1.00	1.3	4.5
1.54	2.6	8.5
1.77	3.6	12.0
1.91	5.1	14.5
2.14	6.5	16.3
2.17	7.8	18.0
3.31	9.0	19.3
4.45	10.3	20.5
5.08	11.6	21.9
5.71	12.8	23.3
6.35		





COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031708/1A

Report :	351 - 4 - Center
Date :	16/04/2023

CHEMICAL ANALYSIS

General Consultant :
Consultant :
Contractor : شركة عصم فكري للتقنيات
Project : Electric express train
Sample : FERMA
Station : ST (376 + 700)
Date of Test : 5-4-2023

Temperature : 20 °C

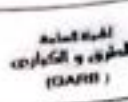
Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker
Moustaf

MATERIAL APPROVAL REQUEST



Contractor Company	ESSAM FERRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed Elssa	Date/Serial Number	25/3/2023	
	Sign		M.A.R. QT-6	Time: 10:00	
Received by GARB CONSULTANT	Eng. Mazen Essamy		U1	C2	C3
			376	EW	CS
			26	3	23
			10	0	

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

Description of Materials	Fill Layer Total Quantity (30000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant.	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	
		4- Adjust L-L	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		28/3	AWC

* Designer

** Alignment/Bridges: Culvert only

Electrical Express Train From Borg Al arab to Alamein

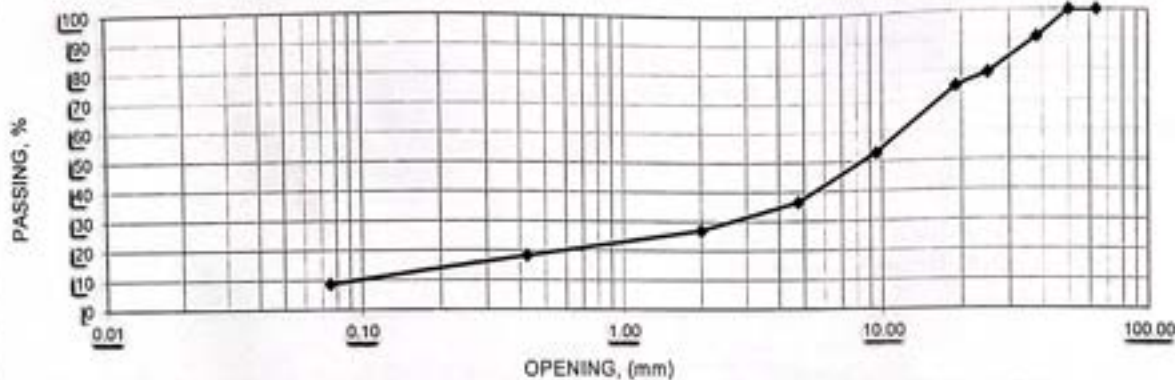
Company:	ESSAM FEKRY	Sample No:	6
description:		Sample Date :	26/3/2023
Station Represented :	توريدات المحجر	Report Date:	26/3/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	91.0	79.2	75.0	53.0	36.6	27.1	18.3	8.8



Atterberg Limits

L.L.

26.0

P.L.

24

P.I.

2.0

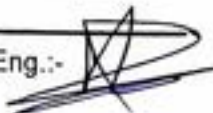
(Max. 6)

SOIL CLASSIFICATION :

A-1-A

GARP Consultant Engineer's Comments :

Lab Contractor Eng.:-



spectrum Consultant Eng.:-



Electrical Express Train From Borg Alarab to Alamein
From Station 376+000 To Station 377+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. height, Producing a compactive effort of 56000 ft-lbf/ft³

Sampling Date : 26/3/2023

Testing Date : 26/3/2023

Source of Soil

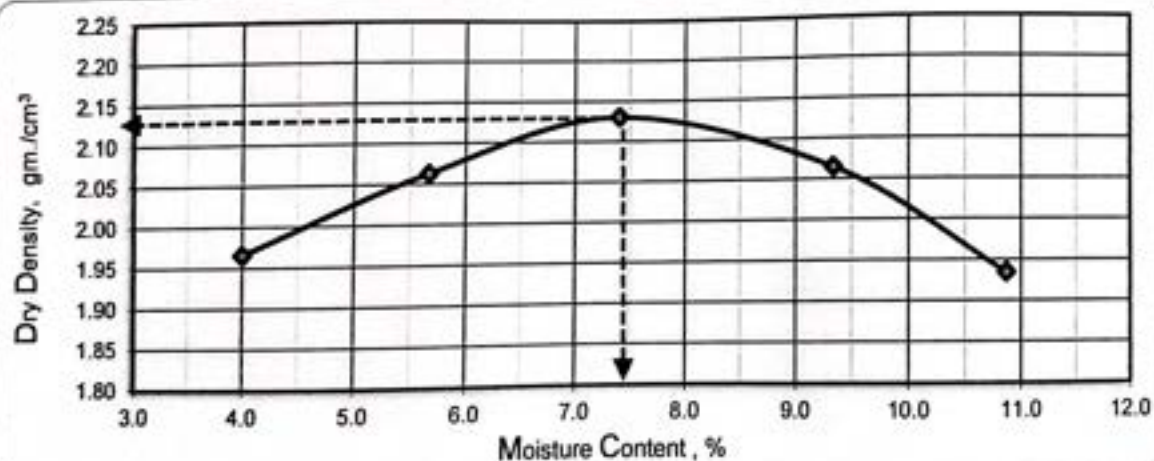
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³	2148
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	10,913	11,204	11,436	11,371	11,128
Wet Density, gm/cm ³	2.044	2.180	2.288	2.257	2.144
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying, gm	144.0	141.5	138.9	136.0	133.7
Moisture Content, %	4.0	5.7	7.4	9.3	10.9
Dry Density, gm/cm ³	1.966	2.063	2.130	2.065	1.934



Max. Dry Density =

2.130

gm/cm³

Optimum Moisture Content = 7.4%

CONSULTANT COMMENTS

Lab contractor Eng.:- *Abdelaziz*

spectrum Consultant Eng.:- *[Signature]*

MATERIAL APPROVAL REQUEST								

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	[SPECTRUM] Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed Eissa	Date/Serial Number	27/3/2023	
	Sign		M.A.R. QT-6 rev-1		
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	376	EW

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

Description of Materials	Fill Layer Total Quantity (30000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-43.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab is Approved. 2-This Sample Representative (5000 m³) only.		1- All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- Adjust 2 - L	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif			Awc

* Designer
 ** Alignment/Bridges: Culvert only

10/4



COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Sample : FERMA
Station : St(376+520)
Date of Test : 28/03/2023
QC : 790-2

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.112
	OMC	6.1%
3- Liquid limit, plastic limit and plasticity index	LL	26 %
	PL	24.3%
	PI	1.7%
4- California bearing ratio (CBR)	CBR ratio	51%

LAB DIRECTOR
Eng / Eman kandil



Geotechnical consultant
For Dr. H.
Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers **Internal inspection and laboratories sector**

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

APPENDIX



COMIBASSAL International Controllers

Internal inspection and laboratories sector

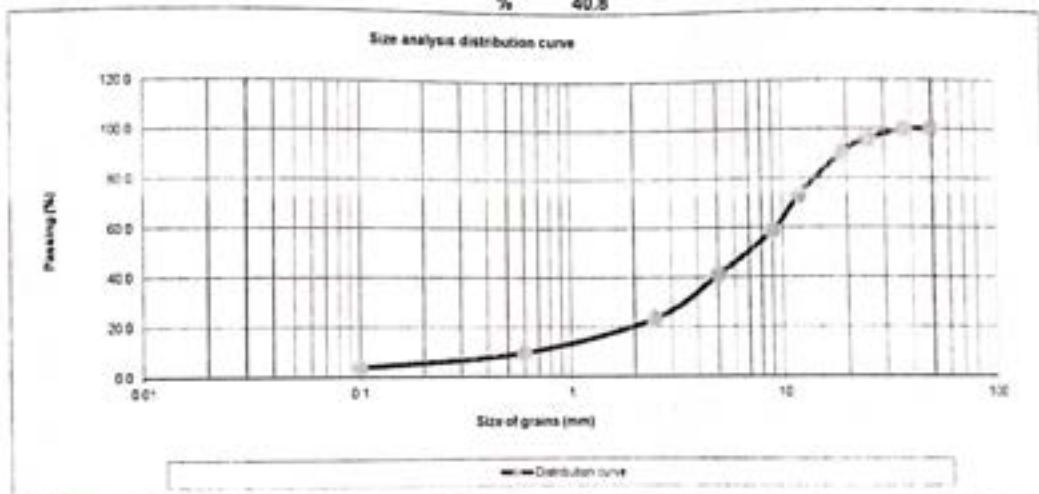
Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS

ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	0.00	0.00	0.00	100.0	
1	350.00	350.00	4.07	95.9	
3/4	490.00	840.00	9.77	90.2	
1/2	1476.00	2316.00	26.94	73.1	
3/8	1240.00	3556.00	41.36	58.6	
No.4	1532.00	5088.00	59.18	40.8	
No.10	215.00	215.00	43.00	23.3	
No.40	384.00	384.00	76.80	9.5	
No.200	455.00	455.00	91.00	3.7	

Total sample weight = 8598.00 pass No.4= 3510.0 Total fine aggregates weight = 500 gm
% 40.8



Soil classification: A - 1 - a





COMIBASSA International Controllers Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Modified Proctor Test Report ASTM - D 1557

Mould Number :- 2
Volume of mould = 2198 cm³
Weight of mould = 5924 g
G.S = 2.5 g/cm³

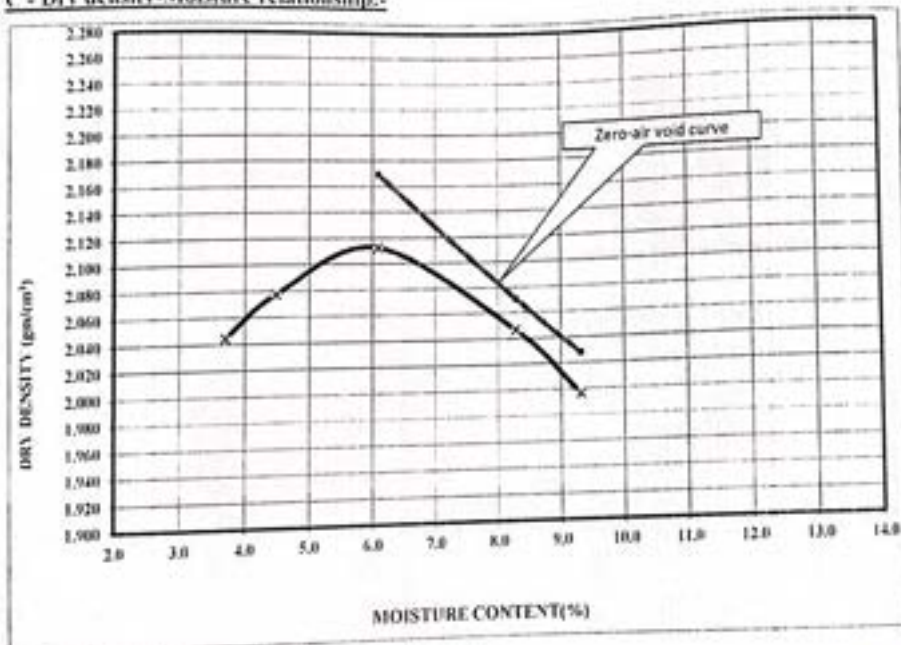
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10584	10695	10850	10795	10720
Weight of mould (g)	5924	5924	5924	5924	5924
Weight of wet soil (g)	4660	4771	4926	4871	4796
Volume of mould (cm ³)	2198	2198	2198	2198	2198
Wet density (g/cm ³)	2.120	2.171	2.241	2.216	2.182
Dry density (g/cm ³)	2.044	2.077	2.112	2.047	1.996
Zero-air Void curve			2.170	2.071	2.028

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	244.0	242.7	240.3	237.3	236.2
Weight of container (g)	82.0	80.0	81.0	84.0	88.0
moisture content (%)	3.7	4.5	6.1	8.3	9.3

C - Dry density-Moisture relationship:-



M.D.D = 2.112 gm/cm³
O.M.C = 6.1 %





Report Of CBR Test - ASTM - D 1883

CBR Stress-Strain Curves

Penetration of Plunger (mm)	Force on Plunger (kN) - Square Markers	Force on Plunger (kN) - Circular Markers
0.0	0.0	0.0
0.5	5.0	1.0
1.0	9.0	2.0
1.5	12.0	3.0
2.0	15.0	4.0
2.5	18.0	5.0
3.0	20.0	6.0
3.5	22.0	7.0
4.0	24.0	8.0
4.5	26.0	9.0
5.0	28.0	10.0
5.5	29.0	11.0
6.0	30.0	12.0



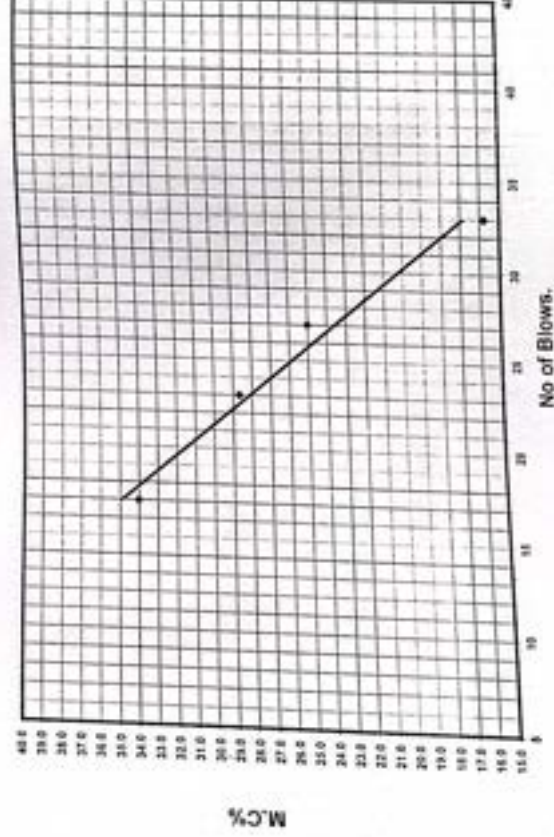


COMIBASSAL International Controllers **Internal inspection and laboratories sector**

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
 Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Liquid and Plastic Limits Test ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit					
NO of B.	33	27	23	17		
Container No	a	b	c	d	f	j
Mass of wet soil +container	99.00	112.00	100.40	50.30	63.00	47.90
Mass of dry soil +container	97.50	106.00	96.30	42.10	57.00	46.20
Mass of container	88.00	82.00	82.00	18.00	32.40	39.20
Mass of moisture	1.50	6.00	4.10	8.20	6.00	1.70
Mass of dry soil	9.50	24.00	14.30	24.10	24.60	7.00
Moisture content	15.79	25.00	28.67	34.02	24.39	24.29



Results:
 Liquid Limit (L.L.) : 26 %
 Plastic Limit (P.L.) : 24.3 %
 Plasticity Index (P.I.): 1.7 %





COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031708/1A

Report :	351 - 3 - Center
Date :	10/04/2023

CHEMICAL ANALYSIS

General Consultant :
Consultant : SYSTRA
Contractor : SPECTRUM
Project : شركة عصام فكري للمقاولات
Sample : Electric express train
Station : FERMA
Date of Test : ST (376 + 520)
28-3-2023

Temperature : 20 °C

Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Moustafa

MATERIAL APPROVAL REQUEST



الهيئة العامة
للمرور والبنية التحتية
(GARBU)



الهيئة العامة
للتخطيط والتنمية الاقتصادية
(MPEDE)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	[SPECTRUM] Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Eissa		14/3/2023 M.A.R. QT-5	10:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	D0	MM	YY	HH	MM
				376	EW	CS	15	3	23	10	0

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

Description of Materials	Fill Layer Total Quantity (25000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CS21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges/Culvert only

18/3



الهيئة القومية للإنفاق



Electrical Express Train From Borg Al arab to Alamein

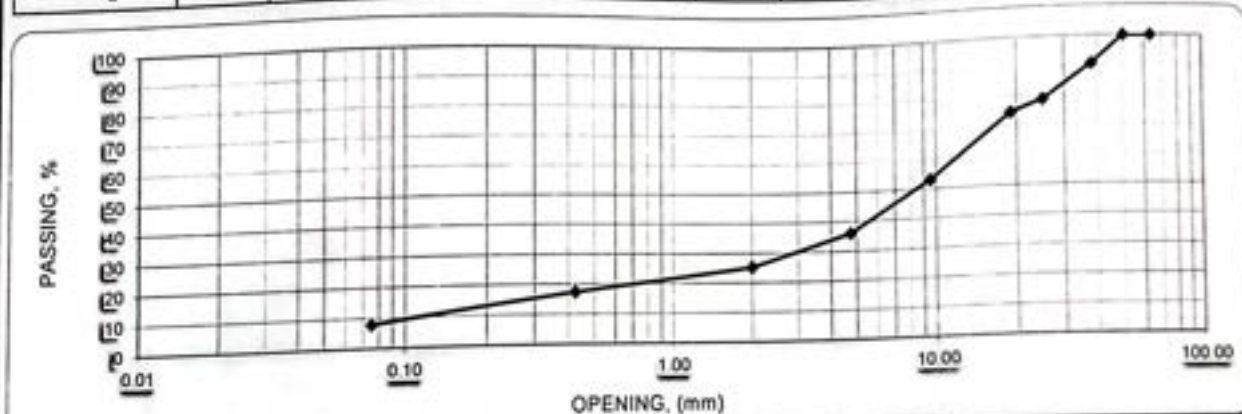
Company:	ESSAM FEKRY	Sample No:	5
description:		Sample Date :	15/3/2023
Station Represented :	توريدات المحجر	Report Date:	15/3/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material	
---------------------------	--

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	90.6	78.8	74.6	53.2	36.2	25.3	17.4	8.0



Atterberg Limits	L.L.	27.0		P.L.	24.9	P.I.	2.1	(Max. 6)
------------------	------	------	--	------	------	------	-----	----------

SOIL CLASSIFICATION :	A-1-A
-----------------------	-------

GARP Consultant Engineer's Comments :

Lab Contractor Eng.:-

spectrum Consultant Eng.:-



Electrical Express Train From Borg Alarab to Alamein
From Station 347+500 To Station 349+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lb. rammer dropped from 18 in. high. Producing a compactive effort of 56000 ft-lb/ft³

Sampling Date : 15/3/2023

Testing Date : 15/3/2023

Source of Soil

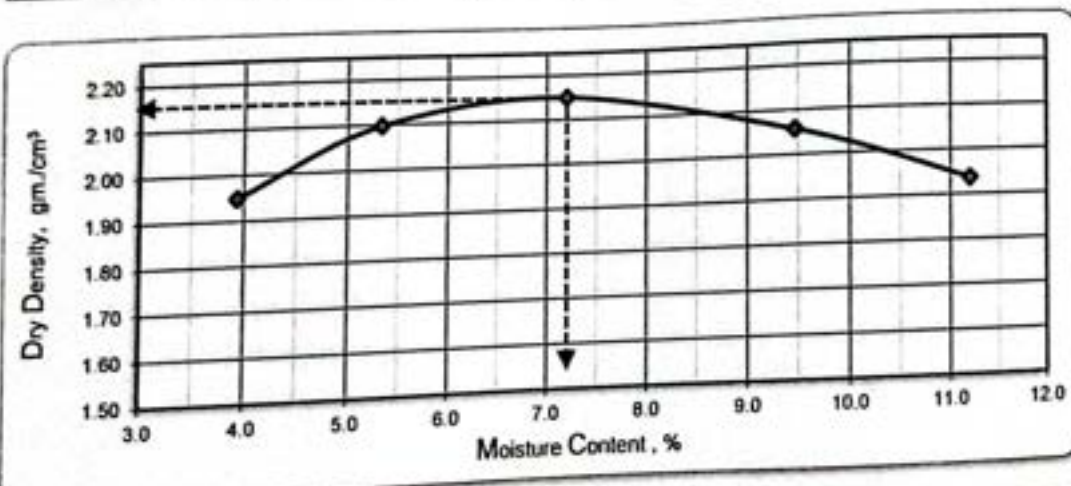
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³	2148
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	10,873	11,268	11,473	11,360	11,148
Wet Density, gm/cm ³	2.026	2.209	2.305	2.252	2.154
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying, gm	144.1	142.0	139.2	135.8	133.2
Moisture Content, %	3.9	5.3	7.2	9.5	11.2
Dry Density, gm/cm ³	1.949	2.098	2.150	2.058	1.937



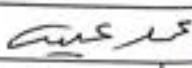
Max. Dry Density = 2.150 gm/cm³ Optimum Moisture Content = 7.2%

CONSULTANT COMMENTS

Lab contractor Eng. :-

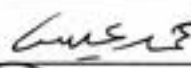
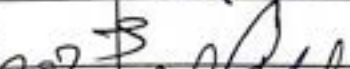
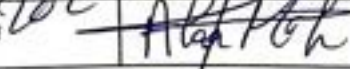
spectrum Consultant Eng. :-

MATERIAL APPROVAL REQUEST					
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Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	[SPECTRUM] Engineering Consulting Office																
Issued by Contractor	Name	Sign	Date/Serial Number	Time																
	Eng. Mohamed Elssa		17/3/2023	10:00																
			M.A.R. QT -5 rev-1																	
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	<table border="1" style="font-size: 8px;"> <tr> <td>C1</td><td>C2</td><td>C3</td><td>DO</td><td>MM</td><td>YY</td><td>HH</td><td>MM</td> </tr> <tr> <td>376</td><td>EW</td><td>CS</td><td>18</td><td>3</td><td>23</td><td>10</td><td>0</td> </tr> </table>	C1	C2	C3	DO	MM	YY	HH	MM	376	EW	CS	18	3	23	10	0
C1	C2	C3	DO	MM	YY	HH	MM													
376	EW	CS	18	3	23	10	0													

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

Description of Materials	Fill Layer Total Quantity (25000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab is Approved. 2-This Sample Representative (5000 m3) only.		1- All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

10/4



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031708/LA

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Sample : FERMA
Station : St(376+300)
Date of Test : 18/03/2023
QC : 790-1

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.118
	OMC	6.2%
3- Liquid limit, plastic limit and plasticity index	LL	27%
	PL	24.5%
	PI	2.5%
4- California bearing ratio (CBR)	CBR ratio	49%

LAB DIRECTOR

Eng / Eman kandil



Geotechnical consultant

For. Dr. M.
Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031708/1A

APPENDIX



COMIBASSAL International Controllers

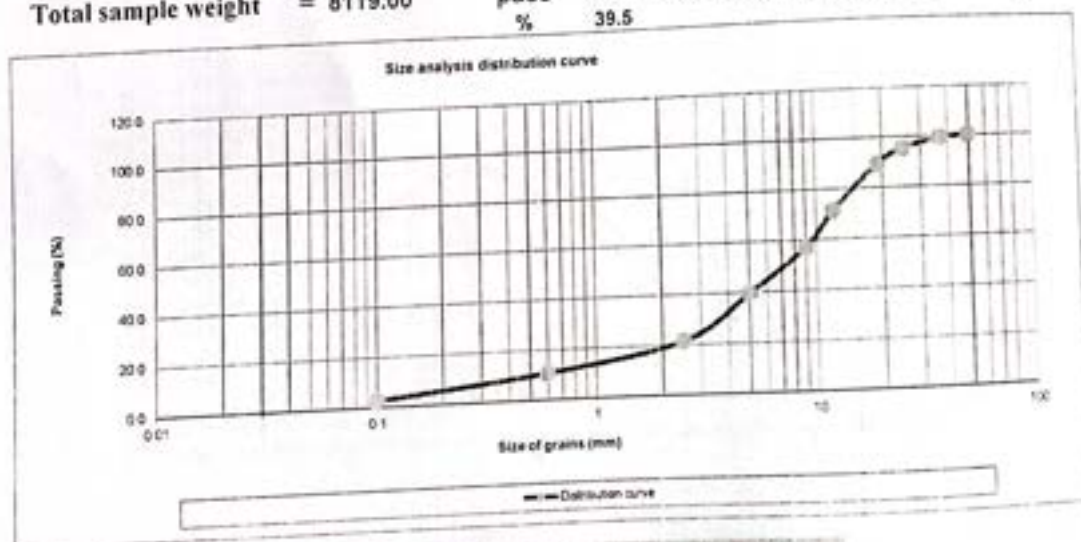
Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
	(gm)	RETAINED (gm)	RETAINED (%)	PASSING (%)	
2	0.00	0.00	0.00	100.0	
1 1/2	57.00	57.00	0.70	99.3	
1	323.00	380.00	4.68	95.3	
3/4	485.00	865.00	10.65	89.3	
1/2	1465.00	2330.00	28.70	71.3	
3/8	1151.00	3481.00	42.87	57.1	
No.4	1428.00	4909.00	60.46	39.5	
No.10	230.00	230.00	46.00	21.3	
No.40	366.00	366.00	73.20	10.6	
No.200	469.00	469.00	93.80	2.5	

Total sample weight = 8119.00 pass No.4 = 3210.0 Total fine aggregates weight = 500 gm
% 39.5



Soil classification: A - 1 - a





COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031708/1A

Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 2
Volume of mould = 2198 cm³
Weight of mould = 5924 g
G.S = 2.5 g/cm³

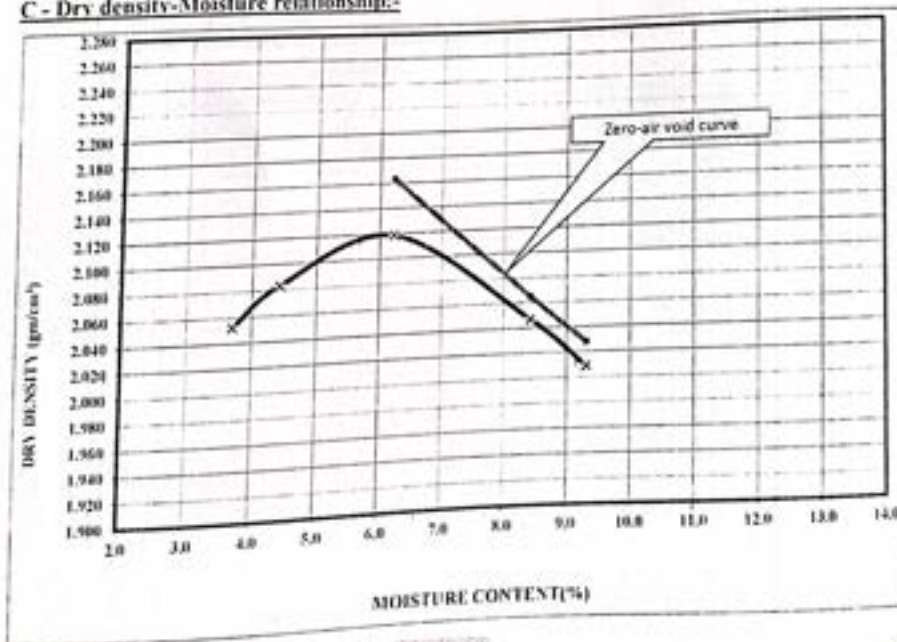
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10602	10705	10870	10802	10750
Weight of mould (g)	5924	5924	5924	5924	5924
Weight of wet soil (g)	4678	4781	4946	4878	4826
Volume of mould (cm ³)	2198	2198	2198	2198	2198
Wet density (g/cm ³)	2.128	2.175	2.250	2.219	2.196
Dry density (g/cm ³)	2.052	2.083	2.118	2.047	2.009
Zero-air Void curve			2.163	2.065	2.028

B- Moisture Calculations :-

Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	244.0	242.8	240.1	237.1	236.2
Weight of container (g)	82.0	80.0	81.0	84.0	88.0
moisture content (%)	3.7	4.4	6.2	8.4	9.3

C - Dry density-Moisture relationship:-



M.D.D=
O.M.C=

2.118 gm/cm³
6.2 %



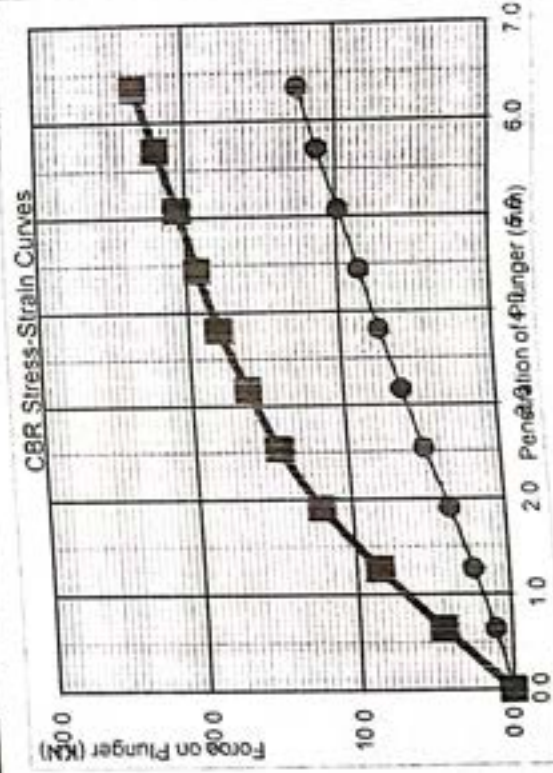


COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031708/1A

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56		Swell %	
	1	56	Start	End
MOULD NO	11950		0.00	
WT OF MOULD+SOIL	7025		0.00	
WT OF MOULD	4925		0.00	
WT OF SOIL	2198			
VOLUME OF MOULD	2.241			
WET DENSITY	MC before soaking	Weight of Rammer	4.54Kg	
	1	MDD Kg/m3	2.118	
TIN NO		OMC %	6.2	
WT OF WET SOIL+TIN	250.00			
WT OF DRY SOIL+TIN	241			
WT OF WATER	9.00			
WT OF TIN	88			
WT OF DRY SOIL	153			
MOISTURE CONTENT	5.9			
DRY DENSITY	2.116			
		Capacity (KN)	50	
CBR				
Pen	Reading (Div)	Bearing (KN)	standard	56
mm	56	56	0.0	
0.00	0	0.0	4.5	
0.64	110	1.1	8.5	
1.27	240	2.4	12.0	
1.91	370	3.6	14.5	38
2.54	510	5.0	16.3	
3.17	630	6.2	18.0	
3.81	760	7.5	19.3	
4.45	875	8.6	20.5	49
5.08	1005	9.9	21.9	
5.71	1145	11.2	23.3	
6.35	1270	12.5		



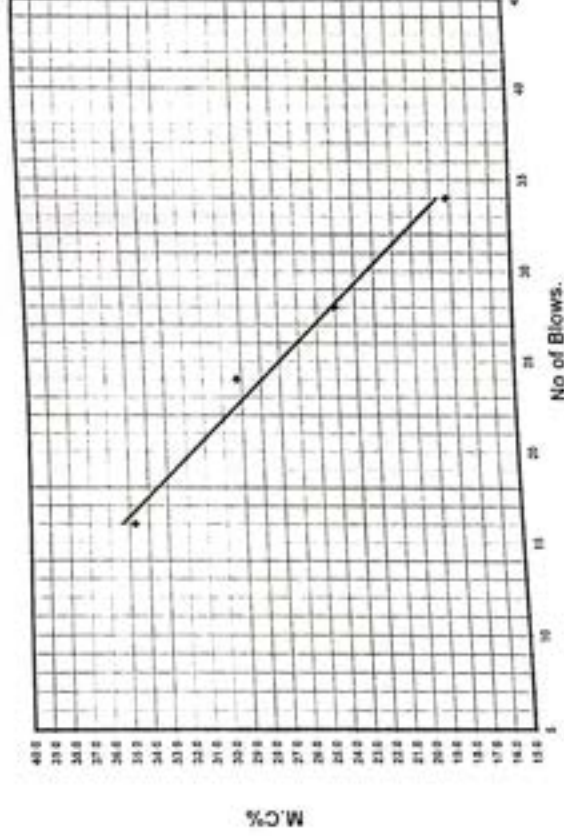


COMIBASSAL International Controllers Internal inspection and laboratories sector

Accredited by : Egypton General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

Liquid and Plastic Limits Test ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit			Plastic Limit		
NO of B.	34	28	24	16		
Container No	j	c	s	m	F	J
Mass of wet soil +container	101.00	112.50	102.30	53.50	61.58	50.50
Mass of dry soil +container	99.00	106.20	97.30	45.00	55.80	48.40
Mass of container	88.00	80.00	80.20	20.50	30.70	40.30
Mass of moisture	2.00	6.30	5.00	8.50	5.78	2.10
Mass of dry soil	11.00	26.20	17.10	24.50	25.10	8.10
Moisture content	18.18	24.05	29.24	34.69	23.03	25.93



Results:
Liquid Limit (L.L.) : 27 %
Plastic Limit (P.L.) : 24.5 %
Plasticity Index (P.I.): 2.5 %





COASTAL International Controllers Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031709/LA

Report	:	351 - 2 - C enter
Date	:	16/04/2023

CHEMICAL ANALYSIS

General Consultant	:	SYSTRA
Consultant	:	SPECTRUM
Contractor	:	شركة عصام للفحولات
Project	:	Electric express train
Sample	:	FERVA
Station	:	ST (376 + 300)
Date of Test	:	18-3-2023

Temperature : 20 °C

Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Moustaf

MATERIAL APPROVAL REQUEST										

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company	(SPECTRUM) Engineering Consulting Office																
Issued by Contractor	Name	Sign		Date/Serial Number	Time																
	Eng. Mohamed Eissa			24/2/2023 M.A.R. QT-4	10:00																
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	<table border="1"> <tr> <td>C1</td> <td>C2</td> <td>C3</td> <td>CO</td> <td>MM</td> <td>YY</td> <td>MM</td> <td>MM</td> </tr> <tr> <td>376</td> <td>EW</td> <td>C5</td> <td>25</td> <td>2</td> <td>23</td> <td>10</td> <td>0</td> </tr> </table>	C1	C2	C3	CO	MM	YY	MM	MM	376	EW	C5	25	2	23	10	0	
C1	C2	C3	CO	MM	YY	MM	MM														
376	EW	C5	25	2	23	10	0														

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

Description of Materials	Fill Layer Total Quantity (20000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CS21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved. 2-This Sample Representative (5000 m3) only.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant. 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		2023/2/24	AWC

* Designer

** Alignment/Bridges/Culvert only

Electrical Express Train From Borg Al arab to Alamein

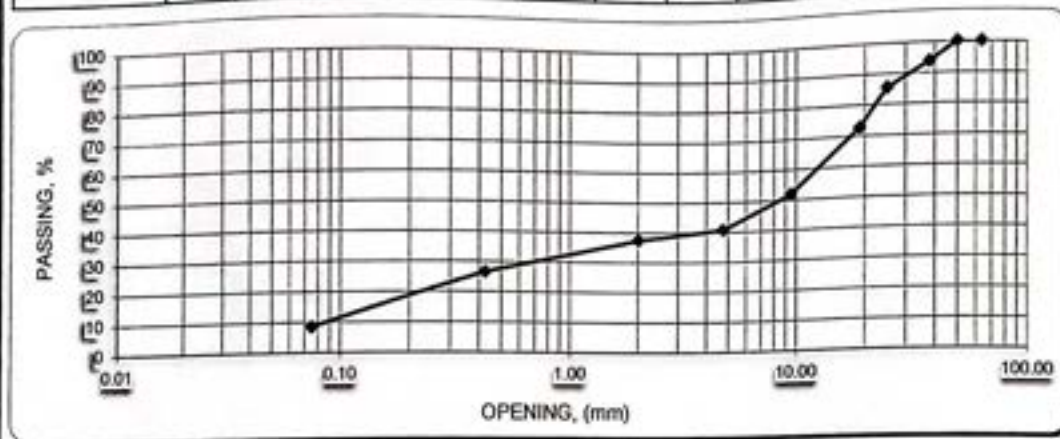
Company:	ESSAM FEKRY	Sample No:	4
description:		Sample Date :	25/2/2023
Station Represented :	توريدات المحجر	Report Date:	25/2/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 / AASHTO :T-90-80)

Source of Tested Material	
---------------------------	--

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	93.6	85.4	72.5	51.7	40.7	37.4	26.5	8.4



Atterberg Limits	L.L.	27.0	P.L.	24.5	P.I.	2.5	(Max. 6)
------------------	------	------	------	------	------	-----	----------

SOIL CLASSIFICATION :	A-1-A
-----------------------	-------

GARP Consultant Engineer's Comments :

Lab Contractor Eng.:-

spectrum Consultant Eng.:-



الهيئة القومية للإزفاق



Electrical Express Train From Borg Alarab to Alamein
From Station 390+000 To Station 391+600

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lbf/ft³

Sampling Date : 25/2/2023

Testing Date : 25/2/2023

Source of Soil

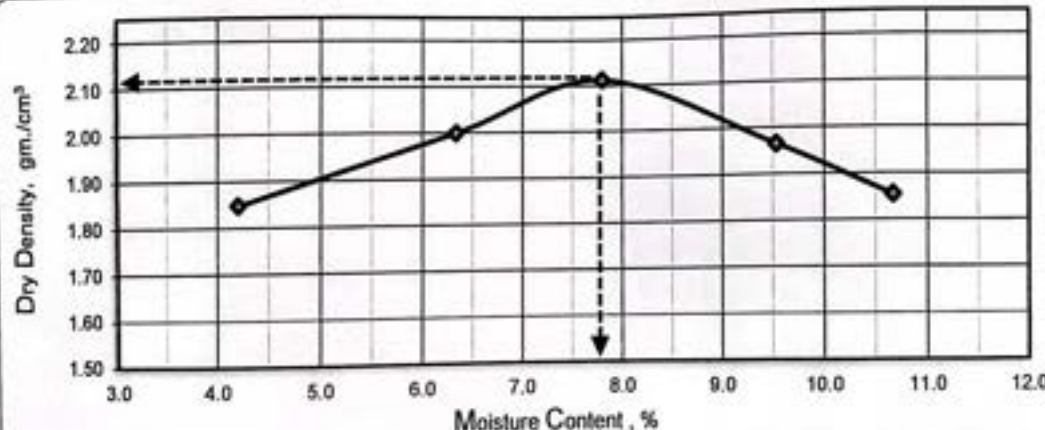
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³	2148
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	10,657	11,089	11,413	11,146	10,929
Wet Density, gm/cm ³	1.925	2.126	2.277	2.153	2.052
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying, gm	143.7	140.5	138.3	135.7	134.0
Moisture Content, %	4.2	6.3	7.8	9.5	10.7
Dry Density, gm/cm ³	1.847	2.000	2.112	1.965	1.854



Max. Dry Density = 2.112 gm/cm³

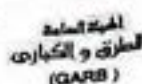
Optimum Moisture Content = 7.8%

CONSULTANT COMMENTS

Lab contractor Eng. :-

spectrum Consultant Eng. :-

MATERIAL APPROVAL REQUEST



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time						
	Eng. Mohamed Elssa		4/2/2023	10:00						
Received by GARB CONSULTANT	Eng. Mazen Essamy	MAR	M.A.R. QT -2							
			C1	C2	C3	DD	MM	YY	HH	MM
			376	EW	CS	5	2	23	10	0

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

Description of Materials	Fill Layer Total Quantity (10000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant.	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	
		4- Adjust L.L	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			AWC

* Designer

** Alignment/Bridges: Culvert only

07/07



الهيئة القومية للإنفاق

NATIONAL AUTHORITY FOR TOLL



Electrical Express Train From Borg Al arab to Alamein

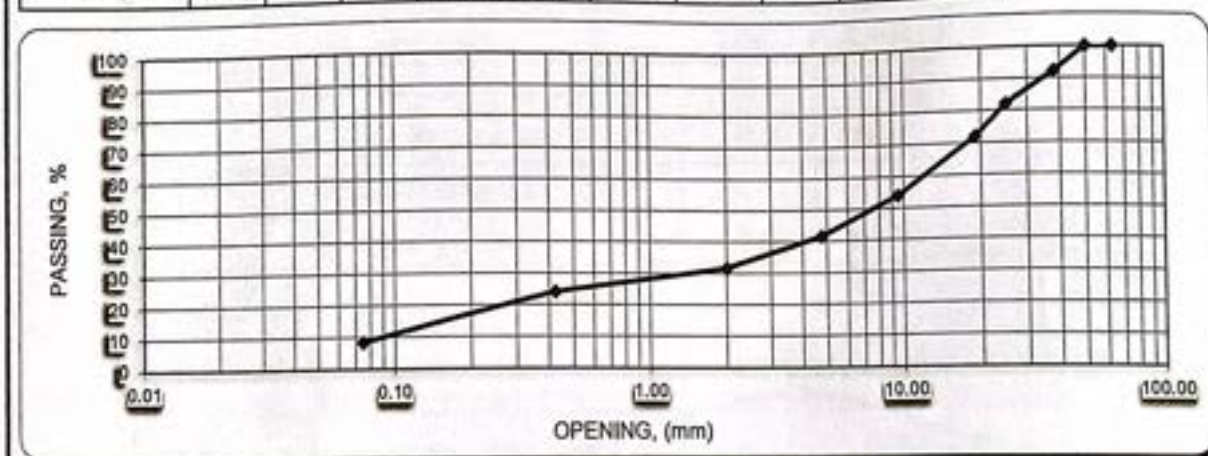
Company:	ESSAM FEKRY	Sample No:	2
description:		Sample Date :	5/2/2023
Station Represented :	توريدات المحجر	Report Date:	5/2/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material	
---------------------------	--

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	92.2	82.0	72.0	54.0	41.6	31.6	24.1	8.3



Atterberg Limits	L.L.	27.0		P.L.	24.1	P.I.	2.9	(Max. 6)
------------------	------	------	--	------	------	------	-----	----------

SOIL CLASSIFICATION :	A-1-A
-----------------------	-------

GARP Consultant Engineer's Comments :

Lab Contractor Eng :-

spectrum Consultant Eng.:-

Electrical Express Train From Borg Alarab to Alamein
From Station 376+000 To Station 377+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lb. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lb/ft³

Sampling Date : 5/2/2023

Testing Date : 5/2/2023

Source of Soil

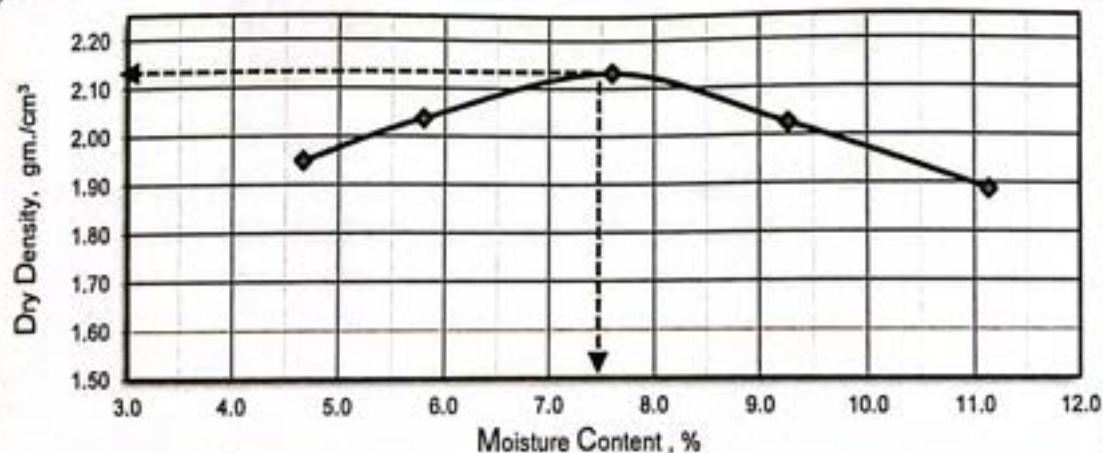
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³	2148
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	10,904	11,152	11,450	11,275	11,028
Wet Density, gm/cm ³	2.040	2.155	2.294	2.213	2.098
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying, gm	143.0	141.3	138.6	136.1	133.3
Moisture Content, %	4.7	5.8	7.6	9.3	11.1
Dry Density, gm/cm ³	1.949	2.037	2.132	2.025	1.888



Max. Dry Density =

2.132 gm/cm³

Optimum Moisture Content = 7.6%

CONSULTANT COMMENTS

Lab contractor Eng. :-

spectrum Consultant Eng. :-

MATERIAL APPROVAL REQUEST							
	المجلس الأعلى للمواصلات والبنية التحتية (GARB)						

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	[SPECTRUM] Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number	Time			
	Eng. Mohamed Elsa		6/2/2023	10:00			
Received by GARB CONSULTANT	Eng. Mazen Essamy	Sign	M.A.R. QT - 2 rev-1	C1	C2	C3	CD
			376	EW	CS	7	MM

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

Description of Materials	Fill Layer Total Quantity (10000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY GVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab Is Approved. 2-This Sample Representative [5000 m³] only.		1- All tests were carried-out by third Party lab (COMIBASSAL) 2-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments. 4- Adjust L.L	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elsa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		2023/06/02	AWC

* Designer

** Alignment/Bridges: Culvert only

12/3



COMIBASSAL International Controllers

الجمعية التعاونية لعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترو
تحت رقم ٢٠١١/١١٠٢٩/٢٤

I- Introduction

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عصام فكري للمقاولات
Sample :	FERMA
Station :	St(376+200)
Date of Test :	07/02/2023
QC :	611

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.128
	OMC	5.95%
3- Liquid limit, plastic limit and plasticity index	LL	27%
	PL	24.8%
	PI	2.2%
4- California bearing ratio (CBR)	CBR ratio	53%

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

Dr. Mohamed Mostafa Badry

For. Dr. M



COMIBASSAL International Controllers

الجمعية التعاونية الإنتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ١١٠٢٩ / ٢٠١١

APPENDIX



COMIBASSAL International Controllers

الجمعية التعاونية للتحكم في الجودة لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015 حاصلة على شهادة الأيزو

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قطاع التفتيش الداخلي والمعامل

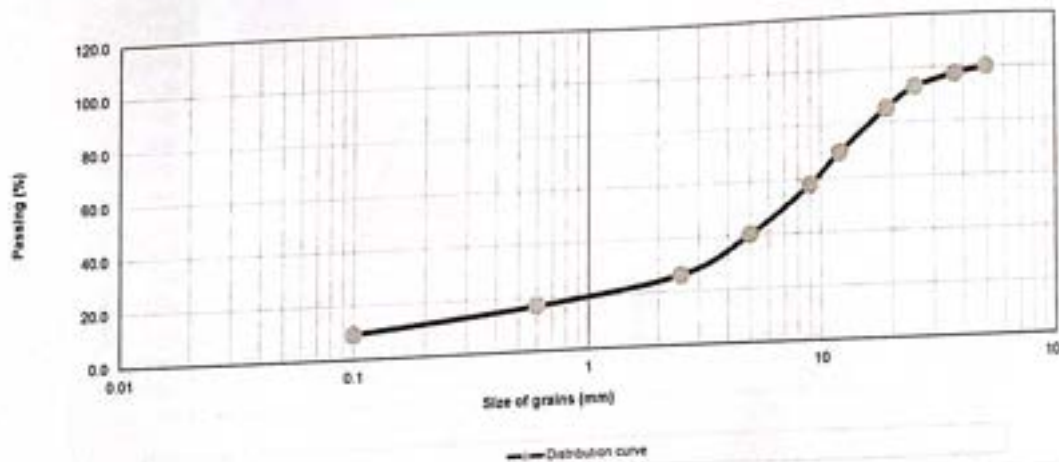
معتمد لدى الهيئة المصرية العامة للبترو
تحت رقم ٢٠١١/١١٠٢٩/٢٤

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	0.00	0.00	0.00	100.0	
1 1/2	215.00	215.00	2.42	97.6	
1	415.00	630.00	7.09	92.9	
3/4	670.00	1300.00	14.64	85.4	
1/2	1410.00	2710.00	30.52	69.5	
3/8	1020.00	3730.00	42.00	58.0	
No.4	1571.00	5301.00	59.70	40.3	
No.10	175.00	175.00	35.00	26.2	
No.40	290.00	290.00	58.00	16.9	
No.200	385.00	385.00	77.00	9.3	

Total sample weight = 8880.00 pass No.4 = 3579.0 Total fine aggregates weight = 500 gm
% 40.3

Size analysis distribution curve



Soil classification: A - 1 - a





COMIBASSAL International Controllers

الجمعية التعاونية لخدمات المعايرة الدولية (كوميباسال)

ISO 9001:2015 حاصلة على شهادة الأيزو

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Modified Proctor Test Report ASTM - D 1557

Mould Number :-

2

Volume of mould =

2188 cm³

Weight of mould =

7020 g

G.S =

2.55 g/cm³

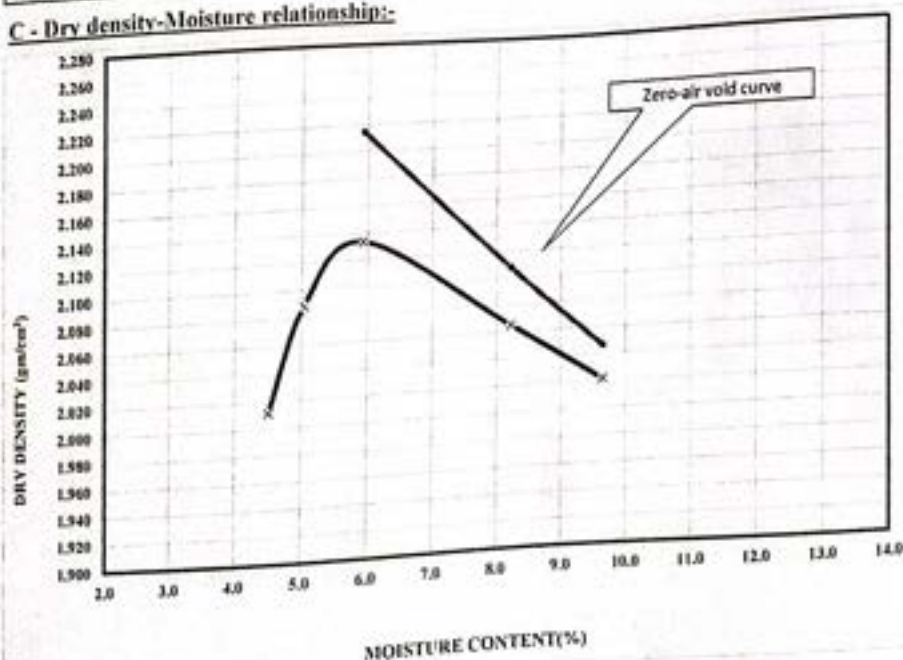
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	11620	11820	11965	11910	11870
Weight of mould (g)	7020	7020	7020	7020	7020
Weight of wet soil (g)	4600	4800	4945	4890	4850
Volume of mould (cm ³)	2188	2188	2188	2188	2188
Wet density (g/cm ³)	2.102	2.194	2.260	2.235	2.217
Dry density (g/cm ³)	2.012	2.088	2.133	2.065	2.022
Zero-air Void curve			2.215	2.108	2.046

B- Moisture Calculations :-

	250.0	250.0	250.0	250.0	250.0
Weight of wet soil (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil (g)	239.2	238.0	236.0	231.0	228.0
moisture content %	4.5	5.0	5.9	8.2	9.6

C - Dry density-Moisture relationship:-



M.D.D= 2.128 gm/cm³
O.M.C= 5.95 %





COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015
حاصلة على شهادة الأيزو

Accredited by:

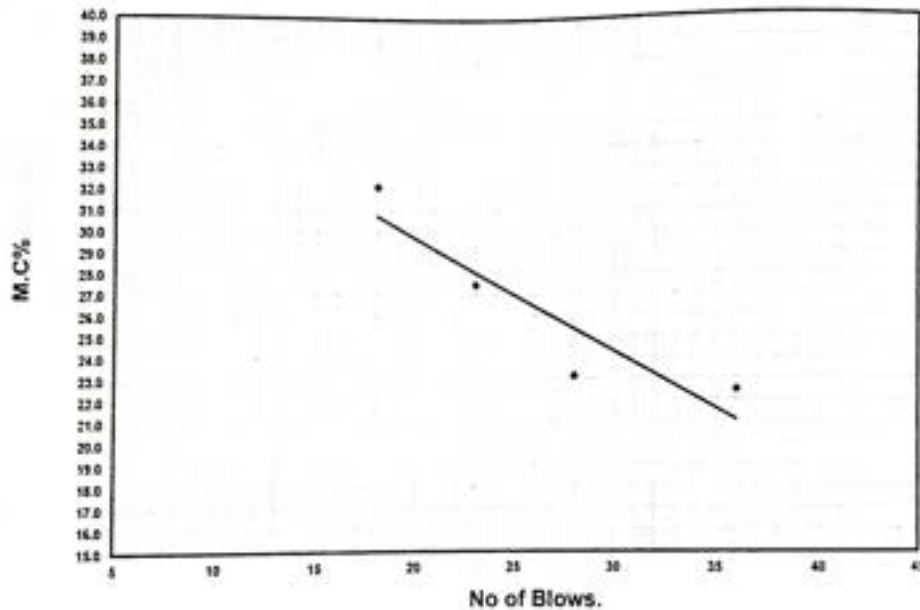
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٣٤

Liquid and Plastic Limits Test ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit				Plastic Limit	
NO of B.	36	28	23	18		
Container No	j	e	s	m	F	J
Mass of wet soil (g)	48.00	50.00	51.00	37.00	35.00	30.00
Mass of dry soil (g)	39.20	40.60	40.00	28.00	27.00	25.00
Mass of moisture(g)	8.80	9.40	11.00	9.00	8.00	5.00
Moisture content %	22.45	23.15	27.50	32.14	29.63	20.00



Results:

Liquid Limit (L.L.) : 27 %.

Plastic Limit (P.L.) : 24.8 %.

Plasticity Index (P.I.): 2.2 %.



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميبيصل)

ISO 9001:2015 شهادة الأيزو
Accredited

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

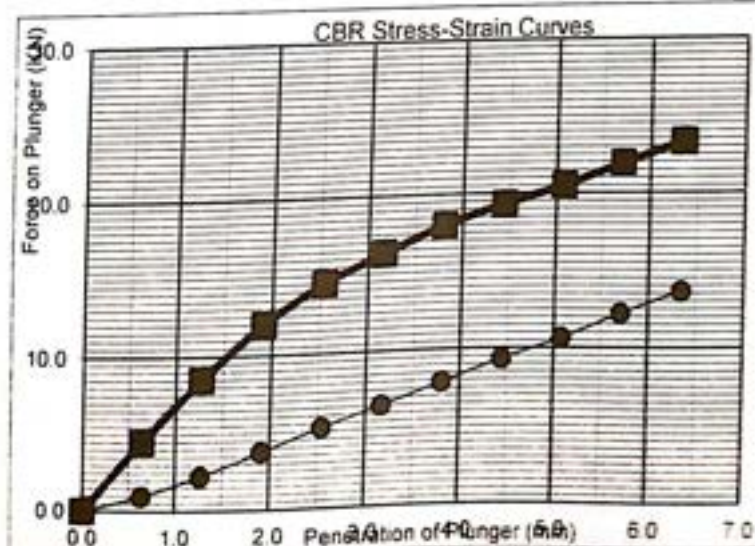
قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبريد
تحت رقم ٢٤/٢٩/١١٠٢٩

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56			Swell %		
MOULD NO	2				56	
WT OF MOULD+SOIL	11950			Start	0.00	
WT OF MOULD	7020			End	0.00	
WT OF SOIL	4930			Swell	0.00	
VOLUME OF MOULD	2188					
WET DENSITY	2.253					
	MC before soaking			Weight of Rammer		4.54Kg
TIN NO	1			MDD	Kg/m3	2.128
WT OF WET SOIL+TIN	250.00					
WT OF DRY SOIL+TIN	240.1			OMC	%	5.950
WT OF WATER	9.90			PROVING RING		
WT OF TIN	81			Div/KN		0.0210
WT OF DRY SOIL	159.1					
MOISTURE CONTENT	6.2					
DRY DENSITY	2.121			Capacity (KN)		50

Pen mm	Reading (Div)			Bearing (KN)			CBR		
	56			56			standar	56	
0.00	0			0.0			0.0		
0.64	100			1.0			4.5		
1.27	230			2.3			8.5		
1.91	385			3.8			12.0		
2.54	535			5.2			14.5	40	
3.17	665			6.5			16.3		
3.81	805			7.9			18.0		
4.45	952			9.3			19.3		
5.08	1085			10.6			20.5	53	
5.71	1246			12.2			21.9		
6.35	1392			13.6			23.3		





IOGPE International Controllers

الجمعية التعاونية الإنتاجية لأعمال الوزن والمراجعة والتحليل الدولية (كوميبيسل)

حاصلة على شهادة الأيزو
Accredited by:
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Report	:	295 - 3 - Center
Date	:	12/03/2023

CHEMICAL ANALYSIS

General Consultant :
Consultant :
Contractor :
Project :
Sample :
Station :
Date of Test :

SYSTRA
SPECTRUM
شركة عصام فكري للمقاولات
Electric express train
FERMA
ST (376 + 200)
7-2-2023

Temperature : 20 °C

Humidity : 40%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Mostafa

MATERIAL APPROVAL REQUEST



المجلس الأعلى
للطرق والكباري
(GARB)



المجلس الأعلى
للطرق والكباري
(GARB)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Eissa		23/01/2023	10:00							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				376	EW	CS	24	1	23	10	0

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

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved.		1-All tests were carried-out by material engineer for both contractor and GARB Consultant.	
2-This Sample Representative (5000 m³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Adjust L.L.	
		4-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		25-1-2023	AWC

* Designer

** Alignment/Bridges/Culvert only



الهيئة القومية للإنفاق



Electrical Express Train From Borg Al arab to Alamein

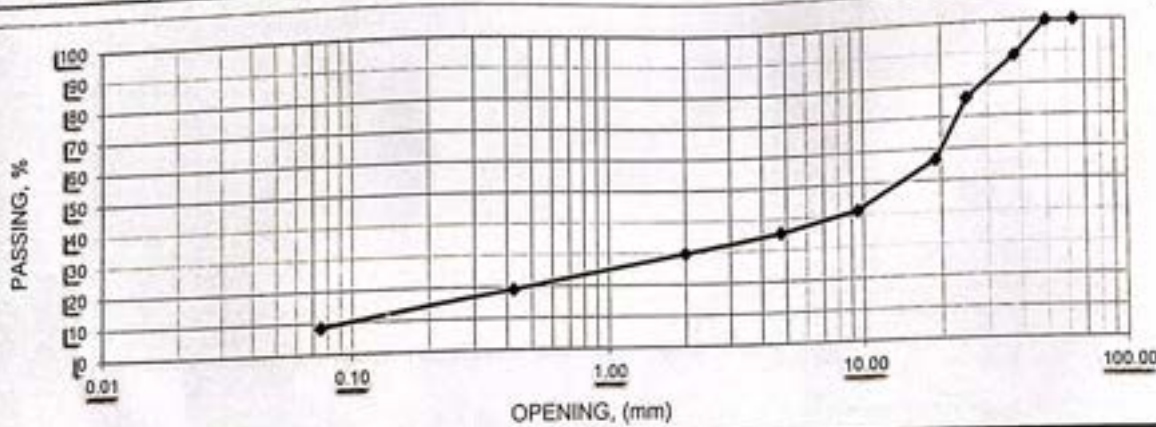
Company:	ESSAM FEKRY	Sample No:	1
description:		Sample Date :	24/01/2023
Station Represented :	توريدات المحجر	Report Date:	24/01/2023

SOIL CLASSIFICATION / ATTERBERGS LIMITS

(ASTM:D-424 // AASHTO :T-90-80)

Source of Tested Material

Sieve No.	2.5 in.	2.0 in.	1.5 in.	1.0 in.	3/4 in.	3/8 in.	No.4	No.10	No.40	No.200
Opening (mm)	63.50	50.00	38.00	25.00	19.00	9.50	4.75	2.00	0.425	0.075
Passing, %	100.0	100.0	89.1	76.0	56.8	41.6	35.6	29.9	19.2	8.5



Atterberg Limits	L.L.	27.0		P.L.	23.4	P.I.	3.6	(Max. 6)
------------------	------	------	--	------	------	------	-----	----------

SOIL CLASSIFICATION :

A-1-A

GARP Consultant Engineer's Comments :

Lab Contractor Eng.:

spectrum Consultant Eng.:-



الهيئة العامة للإذاعة



Electrical Express Train From Borg Alarab to Alamein
From Station 376+000 To Station 377+000

Laboratory Compaction Characteristics (Proctor) of Soil Sample

ASTM D 1557 - Method "C" 6 in. mold, 5 equal layers, each compacted by 56 blows
Using 10 lbf. rammer dropped from 18 in. high, Producing a compactive effort of 56000 ft-lbf/ft³

Sampling Date : 24/01/2023

Testing Date : 24/01/2023

Source of Soil

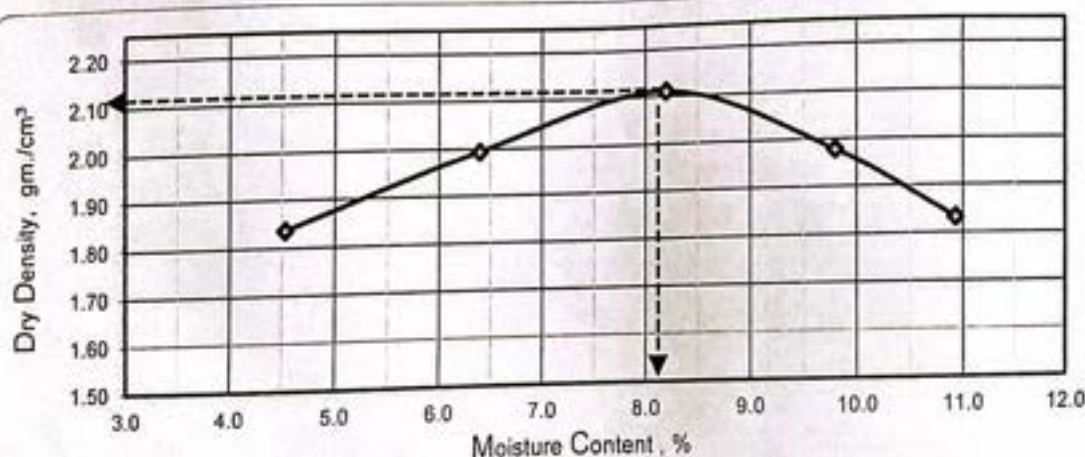
توريدات المحجر

Classification, according to AASHTO M145

A-1-a

Weight of PROCTOR Mould, gm	6522	Volume of PROCTOR Mould, cm ³	2148
-----------------------------	------	--	------

Point No.	1	2	3	4	5
Weight of Soil + Mould, gm	10,646	11,079	11,429	11,186	10,889
Wet Density, gm/cm ³	1.920	2.122	2.284	2.171	2.033
Weight of Wet Soil Portion, gm	150.0	150.0	150.0	150.0	150.0
Weight after Drying, gm	143.2	140.4	137.7	135.3	133.6
Moisture Content, %	4.5	6.4	8.2	9.8	10.9
Dry Density, gm/cm ³	1.837	1.994	2.111	1.978	1.833



Max. Dry Density =

2.111 gm/cm³

Optimum Moisture Content = 8.2%

CONSULTANT COMMENTS

A.C Lab contractor Eng. :-

Name :-

Signature :-

spectrum Consultant Eng. :-

Name :-

Signature :-

MATERIAL APPROVAL REQUEST



المجلس الأعلى
للمطرق والكباري
(GARF)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		24/01/2023	10:00							
			M.A.R. QT (AS-1)								
Received by GARF CONSULTANT	Eng. Mazen Essamy		MAR	C1	C2	C3	DO	MM	YY	HH	MM
				376	EW	CS	25	1	23	10	0

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

Description of Materials	AS BUILT FILL Layer.		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Prequalification reference	A-1-A ,A-1-B	Test Samples Results	
Reference Photos	No/Yes	Other	UIR AS(01)
Comments by: Eng. Mazen Essamy (SPECTRUM) 1-Quality test Result By Site Laboratory is Approved. 2-This Sample Representative [5000 m3] only.		Comments by: Eng. Alaa Abd-Allatif (ER) 1-All tests were carried-out by material engineer for both contractor and GARF Consultant. 2-Results of tests attached to determine the proctor to maintenance work. 3-Final approval is subject to above mentioned comments	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		26-1-2023	Awc

* Designer

** Alignment/Bridges: Culvert only



Essam Fekry
Quarries Exploitation Co.



مكتب أ.د/ محمد نبيل
Electrical Express Train From Borg Alarab to Alamein
From Station 325+393 To Station 394+600

الهيئة العامة للإسكان



PROJECT : Electric express train Date: 25-Jan-2023
CONTRACTOR: Essam Fekry Quarries Exploitation Co. Sampled by: Eng/Mostafa Fahmi
CONSULTANT: SPECTRUM Sample No.: 1
DESCRIPTION: Sewy Stockpile As-built (376+000 : 377+000) REQ No.: QT (AS-1)

SIEVE ANALYSIS

AASHTO T 27 (ASTM - 204)

Weight of Sample (grams):

Original wt., gm.: 3819 Oven Dry Wt., gm.: 3590.00 Wash Oven Dry Wt., gm.: 3320.00

Sieve Size	Weight Retained gms.	Cum. Wt. Passing gms.	Cum. Passing percent	Cum. Retained percent	Retained Percent	Specifications % Passing	Remarks
No. 4	2166.00	1424.00	39.67				
No. 10	2300.00	1290.00	35.93				
No. 40	2887.00	703.00	19.58				
No. 200	3319.00	271.00	7.55				
Pan	3320.00						
Wash Passing No.200	271.00						
Total:	3590.00						

Plasticity Check

AASHTO D4318 - 19e1

Test	Symbol	Liquid Limit	Plastic Limit
Number of Blows	N	N.P.	N.P.
Container Number			
Wet Soil + Can (gm)	A		
Dry Soil + Can (gm)	B		
Mass of Water	C		
Mass of Can	D		
Mass of Dry Soil	E		
Moisture Content %	F		
Limits	Liquid Limit		Plastic Limit
Plastic Index (PI)	PI = LL - PL	0.00	0.00
Moisture Content % = $\frac{A - B}{B - D} \times 100$			

Moisture Curve



Organic Materials: 0% By Weight

Plasticity: As shown in figure.

Remarks: According to table 5-1 AASHTO soil classification, the materials can be classified as:

1- Group Symbol: A-1-a

2- General rating as subgrade: Excellent to good.



CONSULTANT



Essam Fekry
Quarries Exploitation Co.



مكتب أ.د/ محمد نبيل
Electrical Express Train From Borg Alarab to
Alamein
From Station 325+393 To Station 394+600

الهيئة العامة للغذاء والدواء

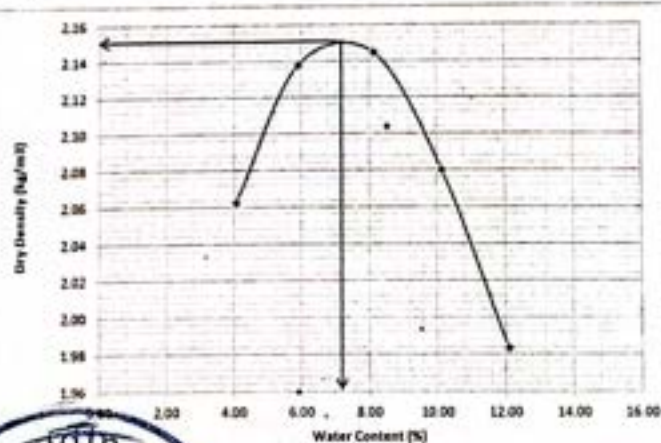


Compaction Proctor Test

PROJECT :	Electric express train	Date :	25-Jan-2023
CONTRACTOR :	Essam Fekry Quarries Exploitation Co.	Sampled by :	Eng/Mostafa Fahmi
CONSULTANT :	SPECTRUM	Sample No. :	1
DESCRIPTION :	Sewy Stockpile AS-BUILT (376+000 : 377+000)	Res. No. :	QT (AS-1)

Weight of the mould (kg)=	5.333 Kg	D=	15.46 cm	Water increase rate = 2%
mould Volume (c.m.)=	0.2142 m3	H=	11.41 cm	

Trials		1		2		3		4		5	
Water content determination	Container Number	1	2	3	4	5	6	7	8	10	11
	Wet Soil + Can (gm)	183.54	181.50	231.65	192.84	181.66	183.51	178.94	155.99	174.64	158.12
	Dry Soil + Can(gm)	178.10	174.89	218.89	184.58	170.45	152.83	164.32	144.65	160.11	142.94
	Mass of Water	5.44	6.61	12.76	8.26	11.21	10.68	14.62	10.94	14.53	15.28
	Mass of Can	25.17	26.32	23.82	28.03	25.34	28.07	28.73	29.79	27.98	27.09
	Mass of Dry Soil	152.93	148.37	195.07	156.55	145.11	124.76	135.59	114.86	132.13	115.75
	Moisture Content %	3.56	4.59	6.54	5.28	7.73	8.58	10.78	9.52	11.00	13.20
	Average W.C%	4.07		5.91		8.14		10.15		12.10	
	Optimum W.C%	7.20									
Unit weight determination	Wet Soil+mould (Kg)	9.93		10.18		10.30		10.24		10.10	
	Wet Soil(Kg)	4.60		4.85		4.97		4.91		4.76	
	Bulk density(Kg/m3)	2.15		2.26		2.32		2.29		2.22	
	Dry density(Kg/m3)	2.062		2.138		2.144		2.080		1.983	
	Max. Dry Density	2.150									



Standard

Maximum Dry Density. 2.150 gm/cm3

Optimum Water Content 7.20 %

CONSULTANT

[Signature]

MATERIAL APPROVAL REQUEST



المينistry of Transport and Public Works
الدولة الفلسطينية



المينistry of Transport and Public Works
الدولة الفلسطينية



Contractor Company	ESSAM FERRY COMPANY FOR GENERAL CONTRACTING		Designer Company	SPECTRUM Engineering Consulting Office			
Issued by Contractor	Name Eng. Mohamed Eissa	Sign 	Date/Serial Number 30/1/2023 M.A.R. 01 - 1 rev 1	Time 10:00			
Received by GARB CONSULTANT	Eng. Mazen Essamy		MAR	CI 176	CI EW	CI C1	CI 31
				MM 1	YY 23	MM 10	MM 0

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

Description of Materials	Fill Layer Total Quantity (5000 m³)		
Location to be Used	From Station (376+000) to Station (377+000)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	EL-SEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG23-41.2) VERSION 2 BY ENVECON GROUP
Prequalification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by: Eng. Mazen Essamy (SPECTRUM)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Third Party Lab is Approved.		1-All tests were carried-out by third Party lab (COMIBASSAL)	
2-This Sample Representative (5000 m3) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments.	

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Eissa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		12-2-2023	AWC

* Designer

** Alignment/Bridges: Culvert only



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ٢٩ / ١١٠٢٩ / ٢٠١١

I- Introduction

General Consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Sample : upper embankment (ferma)
Station : ST(376+0.00) : (377+0.00)
Date of Test : 31/01/2023
QC : 413

II- Sample description:

Gravel and sand

III- Required tests

- 1- Grain size analysis and classification
- 2- Modified compaction and optimum moisture content (Proctor test)
- 3- Liquid limit, plastic limit and plasticity index
- 4- California bearing ratio (CBR)

IV- Results

1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction and optimum moisture content (Proctor test)	MDD	2.102
	OMC	7.6%
3- Liquid limit, plastic limit and plasticity index	LL	26.3%
	PL	23.8%
	PI	2.5%
4- California bearing ratio (CB)	CBR ratio	54%

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لاعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ١١٠٢٩ / ٢٠١١

APPENDIX



COMIBASSAL International Controllers

الهيئة العامة للتحكم في أعمال الوزن والمراجعة والبطيرة الدولية (كوميباسال)

ISO 9001:2015 حاصلة على شهادة الأيزو
Accredited by:
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

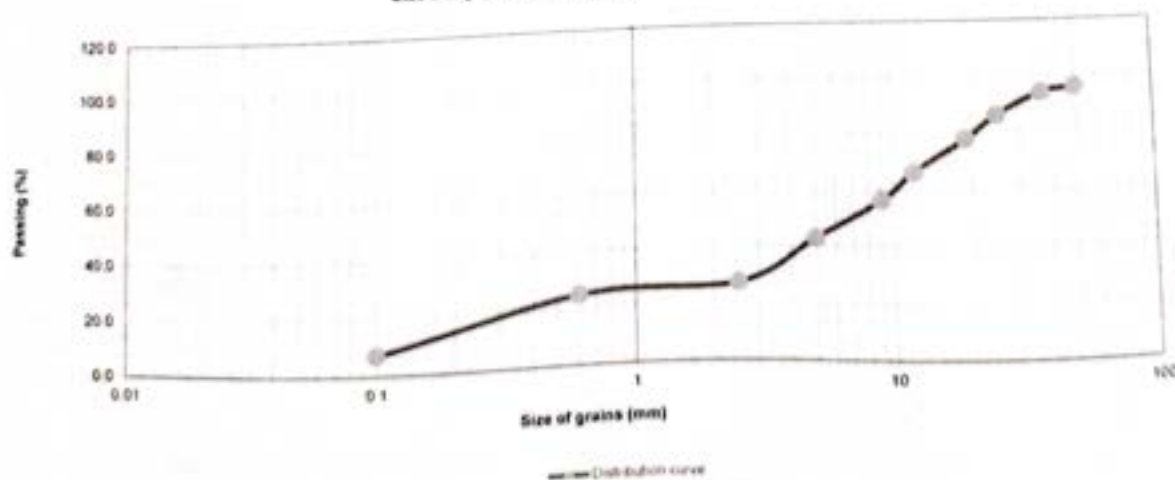
قطاع البترول الداخلي والخارجي
معمل لدى الهيئة العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩ / ٢١

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED (gm)	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
2	615.00	615.00	4.26	95.7	
1 1/2	255.00	870.00	6.03	94.0	
1	1145.00	2015.00	13.96	86.0	
3/4	1205.00	3220.00	22.31	77.7	
1/2	1685.00	4905.00	33.99	66.0	
3/8	1415.00	6320.00	43.80	56.2	
No.4	1895.00	8215.00	56.93	43.1	
No.10	180.00	180.00	36.00	27.6	
No.40	210.00	210.00	42.00	25.0	
No.200	415.00	415.00	83.00	7.3	

Total sample weight = 14430.00 pass No.4 = 6215.0 Total fine aggregates weight = 500 gm

Size analysis distribution curve



Soil classification: A - 1 - a



COMIBASSAL International Controllers

الجمعية التعاونية الإنتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميبسال)

ISO 9001:2015 حاصلة على شهادة الأيزو

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤Modified Proctor Test Report
ASTM - D 1557

Mould Number :-

2
2120 cm³

Volume of mould =

6360 g

Weight of mould =

2.55 g/cm³

G.S =

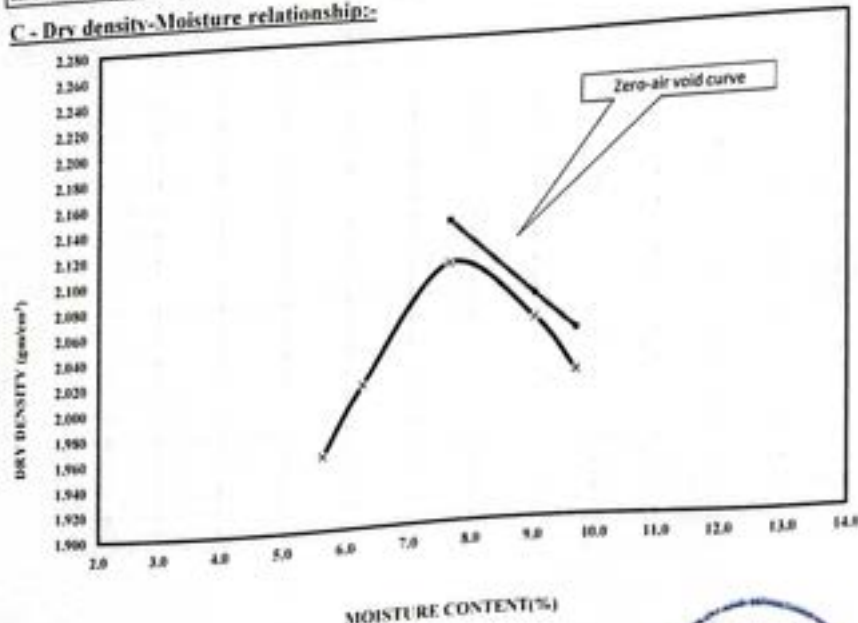
A- Density Calculations :-

	1	2	3	4	5
Weight of wet soil+mould (g)	10745	10891	11155	11109	11040
Weight of mould (g)	6360	6360	6360	6360	6360
Weight of wet soil (g)	4385	4531	4795	4749	4680
Volume of mould (cm ³)	2120	2120	2120	2120	2120
Wet density (g/cm ³)	2.068	2.137	2.262	2.240	2.208
Dry density (g/cm ³)	1.958	2.012	2.102	2.055	2.013
Zero-air Void curve			2.135	2.074	2.045

B- Moisture Calculations :-

	250.0	250.0	250.0	250.0	250.0
Weight of wet soil+container (g)	250.0	250.0	250.0	250.0	250.0
Weight of dry soil+container (g)	241.0	240.0	238.0	236.0	235.0
Weight of container (g)	81.0	80.0	80.5	80.5	80.0
moisture content (%)	5.6	6.3	7.6	9.0	9.7

C - Dry density-Moisture relationship:-



M.D.D= 2.102 gm/cm³
O.M.C= 7.6 %



COMIBASSAL International Controllers

الجمعية التعاونية الانتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

حاصلة على شهادة الأيزو ISO 9001:2015

Accredited by:

Egyptian General Authority for Petroleum
Under No: 34/29.11.2011

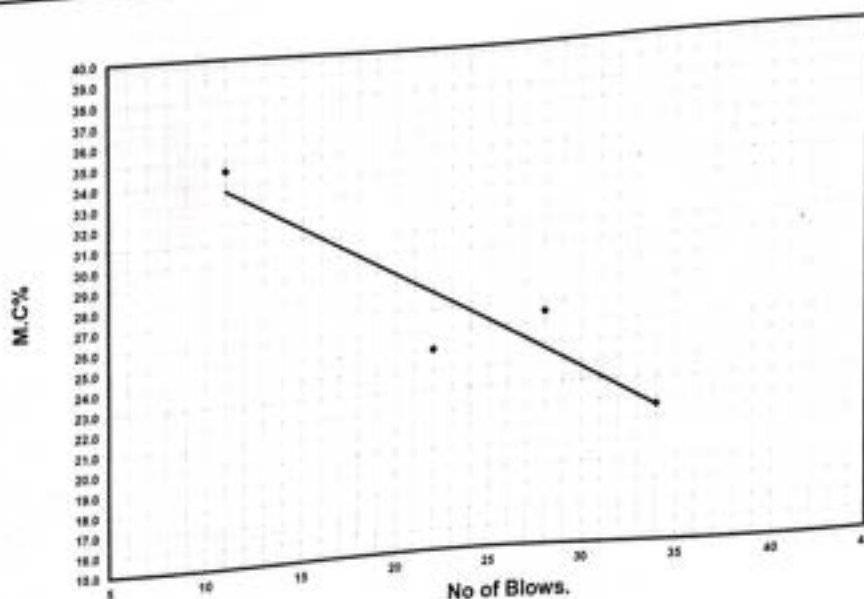
قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Liquid and Plastic Limits Test

ASTM - D 4318

Test No	1	2	3	4	5	6
Type of test	Liquid Limit				Plastic Limit	
NO of B.	34	28	22	11		
Container No	W	R	H	J	L	V
Mass of wet soil + container	100.00	114.00	89.00	50.00	63.00	51.00
Mass of dry soil + container	98.40	107.50	86.50	41.00	58.00	49.20
Mass of container	91.00	83.00	76.50	15.00	34.00	42.50
Mass of moisture	1.60	6.50	2.50	9.00	5.00	1.80
Mass of dry soil	7.40	24.50	10.00	26.00	24.00	6.70
Moisture content	21.62	26.53	25.00	34.62	20.83	26.87



Results:
Liquid Limit (L.L) : 26.3 %
Plastic Limit (P.L) : 23.8 %
Plasticity Index (P.I): 2.5 %





COMIBASSAL International Controllers

الجمعية التعاونية للإنتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015 حاصلة على شهادة الأيزو

Accredited by:

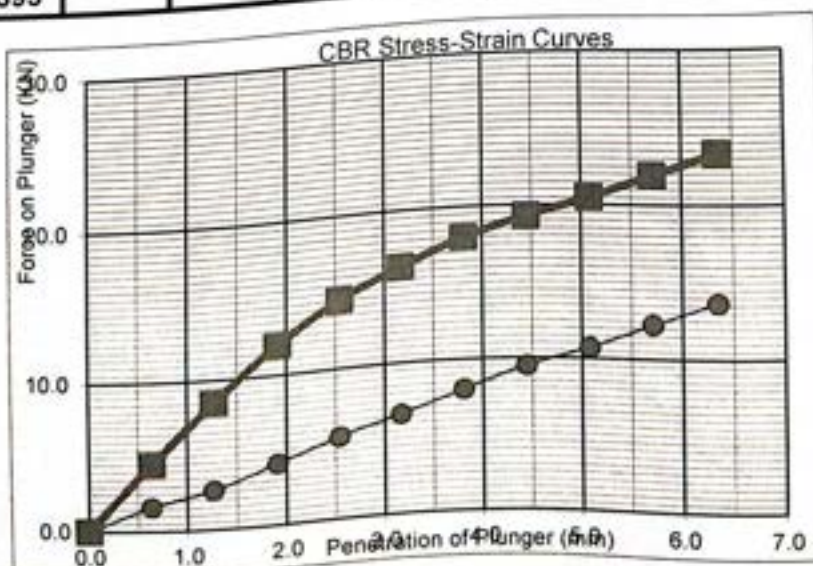
Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٠١١/١١٠٢٩/٢٤

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS		56	Swell %	
MOULD NO		1	56	
WT OF MOULD+SOIL		11795	Start	0.00
WT OF MOULD		7000	End	0.00
WT OF SOIL		4795	Swell	0.00
VOLUME OF MOULD		2120		
WET DENSITY		2.262		
		MC before soaking	Weight of Rammer	
			MDD	Kg/m3 4.54Kg
TIN NO		1	OMC	% 7.6
WT OF WET SOIL+TIN		250.00	PROVING RING	
WT OF DRY SOIL+TIN		238	Div/KN	
WT OF WATER		12.00	Capacity (KN)	
WT OF TIN		81		
WT OF DRY SOIL		157		
MOISTURE CONTENT		7.6		
DRY DENSITY		2.101		
		Bearing (KN)		CBR
Pen mm		97	56	standar
0.00		56	0.0	0.0
0.64		165	1.6	4.5
1.27		270	2.6	8.5
1.91		420	4.1	12.0
2.54		560	5.5	14.5
3.17		675	6.6	16.3
3.81		820	8.0	18.0
4.45		970	9.5	19.3
5.08		1095	10.7	20.5
5.71		1250	12.3	21.9
6.35		1395	13.7	23.3





COMIBASSAL International Controllers

الجمعية التعاونية الإنتاجية لأعمال الوزن والمراجعة والخبرة الدولية (كوميباسال)

ISO 9001:2015 حاصلة على شهادة الأيزو

Accredited by:

Egyptian General Authority for Petroleum
Under No.: 34/29.11.2011

قطاع التفتيش الداخلي والمعامل

معتمد لدى الهيئة المصرية العامة للبترول
تحت رقم ٢٤ / ١١٠٢٩ / ٢٠١١

Report :	214 - 1 - Center
Date :	12/02/2023

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة عصام فكري للمقاولات
Project :	Electric express train
Sample :	FERMA
Station :	ST (376 + 0.00) : (377 + 0.00)
Date of Test :	31-1-2023

Temperature : 18 °C

Humidity : 50%

ANALYSIS	RESULTS	METHOD REFERENCE
ORGANIG MATTER	NEGATIVE	ASTM D 2974



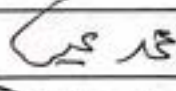
LAB DIRECTOR
CH/ Mostafa Asker

Moustafa

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	SPECTRUM Engineering Consulting Office	
Issued by Contractor	Name	Eng. Mohamed Elssa	Date/Serial Number	18/4/2023	
	Sign			Time: 2:00 PM	
Received by GARB CONSULTANT	Name	Eng. Mazen Essamy	MAR	376	176
	Sign			EW	CS
			DO	19	4
			NM	23	2
			HM	0	

CODE 1	S1 to S25	D1 to S3	Kp XXX Note
CODE 2	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 3	Work Activity		
CODE 4	Sub Element of Activity		

Description of Materials	Fill Layer (Ferma Level).				
Location to be Used	From	376+580	TO	376+700	
MAR & UIR Approval No	UIR F-45	Date		17/4/2023	
	M.A.R. QT-8			10/4/2023	
Supplier Name	ELSEWY	Arabianco			
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	19/4/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
1-The Compaction Test Result F.D.T. (ASTM D 1556) by third party lab (COMIBASSAL) is Approved.			1-F.D.T was carried- out by third party lab (COMIBASSAL). 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		30-4-2023	AWC

* Designer

** Element Review / Follow up

Report NO. : 982/01/center
Date : 30/04/2023

Field Deter. Of Density Of Soil In Place Report
ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام لمكري للمقاولات
Project : Electric express train
Sample : Ferma
Date of test : 18 -04- 2023

Results :

Points NO.	1	2	3	4	5	6
Description	St (376+380)	St (376+420)	St (376+460)	St (376+520)	St (376+560)	St (376+620)
Initial wt. (gm)	10950	7280	9820	6270	8180	7270
Wt. after filling the cone and the hole (gm)	7910	4140	6670	3100	5110	4190
Wt. of wet Sample (gm)	2460	2440	2540	2480	2430	2500
Wt. of sand filling hole (gm)	1532	1622	1632	1652	1552	1562
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518	1518
Density of standard sand (Ys) (gm/cm ³)	1.42					
Volume of hole (cm ³)	1078.87	1142.25	1149	1163.4	1093.0	1100.0
Wt. of wet Sample (gm)	200					
Wt. of sample after drying (gm)	189.5	188.4	190	188.9	189.8	188.0
Wet Density (Ywet) (gm/cm ³)	2.280	2.136	2.210	2.132	2.223	2.273
Moisture ratio (%)	5.5	6.2	5.3	5.9	5.4	6.4
Dry Density (Ydry) (gm/cm ³)	2.160	2.012	2.098	2.013	2.110	2.136
(Ymax.dry) (gm/cm ³)	2.119					
Compaction Ratio (%)	102	95	99	95	100	101

Lab director

Eng : Eman. E. Kandil



Geotechnical consultant

For Dr. M.

Dr. Mohamed Mostafa Badry



COMIBASSAL International Contractors

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Report NO. : 982/02/center
Date : 30/04/2023

Field Deter. Of Density Of Soil In Place Report ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Project : Electric express train
Sample : Ferma
Date of test : 18-04-2023

Results :

Points NO.	7	8	9	10	11	12
Description	St (376+680)	St (376+720)	St (376+780)	St (376+820)	St (376+880)	St (376+920)
Initial wt. (gm)	10720	7320	9190	8375	7520	11400
Wt. after filling the cone and the hole (gm)	7510	4190	6070	5260	4380	8320
Wt. of wet Sample (gm)	2540	2450	2560	2460	2510	2470
Wt. of sand filling hole (gm)	1692	1612	1602	1597	1622	1562
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518	1518
Density of standard sand (γ_s) (gm/cm ³)	1.42					
Volume of hole (cm ³)	1191.55	1135.21	1128	1124.6	1142.3	1100.0
Wt. of wet Sample (gm)	200					
Wt. of sample after drying (gm)	188.6	188.2	189	188.9	189.2	188.0
Wet Density (γ_{wet}) (gm/cm ³)	2.132	2.158	2.269	2.187	2.197	2.245
Moisture ratio (%)	6.0	6.3	5.8	5.9	5.7	6.4
Dry Density (γ_{dry}) (gm/cm ³)	2.010	2.031	2.145	2.066	2.079	2.111
($\gamma_{max, dry}$) (gm/cm ³)	2.119					
Compaction Ratio (%)	95	96	101	97	98	100

Lab director

Eman
Eng : Eman. E. Kandil

Geotechnical consultant

For Dr. M.
Dr. Mohamed Mostafa Badry

MATERIAL INSPECTION REQUEST								

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company	[SPECTRUM] Engineering Consulting Office		
Issued by Contractor	Name	Sign		Date/Serial Number	Time		
	Eng. Mohamed Elssa			18/4/2023 (F.D.T 44 rev-1)	2:00 PM		
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	C2	C3	C4	MM
				376	EW	C5	19
				4	23	2	0

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

Description of Materials	Fill Layer [Ferma Level].				
Location to be Used	From	376+700	TO	376+820	
MAR & UIR Approval No	UIR F-44	Date		17/4/2023	
	M.A.R. QT-7			1/4/2023	
Supplier Name	ELSEWY		Arabianco		
Test Requirement	F.D.T.(ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	20/4/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) by third party lab (COMIBASSAL) is Approved.	1-F.D.T was carried- out by third party lab (COMIBASSAL). 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		30-4-2023	Awc

* Designer
** Alignment/Bridges: Culvert only



Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/28-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Report NO. : 982/02/center
Date : 30/04/2023

Field Detr. Of Density Of Soil In Place Report ASTM - D 1556

General consultant :
Consultant :
Contractor :
Project :
Sample :
Date of test :
Results :

SYSTRA
SPECTRUM
شركة عصام فكري للمقاولات
Electric express train
Ferma
18-04-2023

Points NO.	7	8	9	10	11	12
Description	St (376+680)	St (376+720)	St (376+780)	St (376+820)	St (376+880)	St (376+920)
Initial wt. (gm)	10720	7320	9190	8375	7520	11400
Wt. after filling the cone and the hole (gm)	7510	4190	6070	5260	4380	8320
Wt. of wet Sample (gm)	2540	2450	2560	2460	2510	2470
Wt. of sand filling hole (gm)	1692	1612	1602	1597	1622	1562
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518	1518
Density of standered sand (Ys) (gm/cm ³)	1.42					
Volume of hole (cm ³)	1191.55	1135.21	1128	1124.6	1142.3	1100.0
Wt. of wet Sample (gm)	200					
Wt. of sample after drying (gm)	188.6	188.2	189	188.9	189.2	188.0
Wet Density (Ywet) (gm/cm ³)	2.132	2.158	2.269	2.187	2.197	2.245
Moisture ratio (%)	6.0	6.3	5.8	5.9	5.7	6.4
Dry Density (Ydry) (gm/cm ³)	2.010	2.031	2.145	2.066	2.079	2.111
(Ymax.dry) (gm/cm ³)	2.119					
Compaction Ratio (%)	95	96	101	97	98	100

Lab director

Eman
Eng : Eman. E. Kandil



Geotechnical consultant

For. Dr. M.
Dr. Mohamed Mostafa Badry



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egyptian General Authority for Petroleum under No. 34/E9-11-2011
Accredited by : Egyptian Accreditation council (EGAC) under No. 031706/1A

Report NO. : 982/02/center
Date : 30/04/2023

Field Detr. Of Density Of Soil In Place Report ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Project : Electric express train
Sample : Ferma
Date of test : 18-04-2023

Results :

Points NO.	7	8	9	10	11	12
Description	St (376+680)	St (376+720)	St (376+780)	St (376+820)	St (376+880)	St (376+920)
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Volume of hole (cm ³)	1191.55	1135.21	1128	1124.6	1142.3	1100.0
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Wet Density (Ywet) (gm/cm ³)	2.132	2.158	2.269	2.187	2.197	2.245
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(Ymax.dry) (gm/cm ³)	2.119					
Compaction Ratio (%)	95	96	101	97	98	100

Lab director

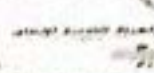
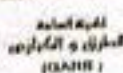
Eman
Eng : Eman. E. Kandil

Geotechnical consultant

For. Dr. M.
Dr. Mohamed Mostafa Badry



MATERIAL INSPECTION REQUEST



Contractor Company	ESSAM FERRY COMPANY FOR GENERAL CONTRACTING			Designer Company	[SPECTRUM] Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	Eng. Mohamed Elssa			17/4/2023 [F.D.T 42 rev-1]	2:00 PM						
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	CI	C2	C3	SO	MM	YY	MM	DD
				376	EW	CS	IR	4	23	2	0

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

Description of Materials	Fill Layer (Ferma Level).				
Location to be Used	From	376+820	TO	376+920	
MAR & UIR Approval No	UIR F-42	Date	15/4/2023		
	M.A.R. QT-7		1/4/2023		
Supplier Name	ELSEWY	Arabianco			
Test Requirement	F.D.T.(ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CHVECON GROUP		
Reference Photos	No/Yes	Other			
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	2	18/4/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) by third party lab (COMIBASSAL) is Approved.	1-F.D.T was carried- out by third party lab (COMIBASSAL). 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		30-4-2023	Awc

* Designer

** Alignment/Bridges/ Culvert only

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company	(SPECTRUM) Engineering Consulting Office				
Issued by Contractor	Name	Sign		Date/Serial Number	Time				
	Eng. Mohamed Elssa			29/3/2023 (F.D.T 31)	2:00 PM				
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR		DD	MM	YY	HH	MM
					12/5	12/5	12/5	12/5	12/5

CODE-1	S1 to S21	D1 to D3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
	Work Activity		
Sub Element of Activity			

Description of Materials	Fill Layer (-0.5m from Ferma Level).				
Location to be Used	From	376+420	TO	376+580	
MAR & UIR Approval No	UIR F-31	Date		28/3/2023	
	M.A.R. QT-6			25/3/2023	
Supplier Name	ELSEWY		Arabianco		
Test Requirement	F.D.T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY OVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	4	31/3/2023	
2					
3					
4					
Comments by: Eng. Mazen Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.			1-F.D.T was carried-out by material engineer for both contractor and GARB Consultant		
			2-Results report attached and acceptable with project specifications.		
			3-Final approval is subject to above mentioned comments.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		31-3-2023	Awc

* Designer
 ** Alignment/Bridges: Culvert only



الهيئة القومية للإنشاء



Electrical Express Train From Borg Al arab to Alamein

Activity : Earth Work

نتائج اختبارات المعمل

31/3/2023

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	عصام فكري	Layer NO:	M-0.5
Description :	IR-F31	Layer Thickness:	FOT 31
Station Represented :	(376+420) (376+580)M-0.5	Sample Date :	30/3/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.13	7.4	95%	1.480

Compaction Testing Results & Calculations

Hole No.	1	2	3	4
Stations	376+420	376+470	376+520	376+570
Wt. of Sand before Test, gm	7000	7500	7000	6500
Wt. of Sand After Test, gm	3223	3815	3385	2845
Wt. of Sand in Cone + hole, gm	3777	3685	3615	3655
Wt. of Sand in Cone	1336	1336	1336	1336
Wt. of Sand at hole, gm	2441	2349	2279	2319
Volume of the Hole, cm ³	1649	1587	1540	1567
Wt. of Soil from Hole, gm	3641	3529	3395	3470
Bulk Density of Soil, gm/cm ³	2.208	2.223	2.205	2.215
Moisture Content, %	6	6	6	5.5
Dry Density, gm/cm ³	2.077	2.098	2.086	2.099
Compaction, (%)	97.5%	98.5%	97.9%	98.6%

Acceptance Criteria

Comply

Not Comply

CONSULTANT COMMENTS

Lab Contractor Eng.:-

spectrum Consultant Eng.:-

MATERIAL INSPECTION REQUEST						
	الهيئة العامة للطرق و البنية التحتية (GARF)					

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	SPECTRUM Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		2/4/2023 (F.D.T 32)	2:00 PM							
Received by GARF CONSULTANT	Eng. Mazen Essamy		MR	C1	C2	C3	DD	MM	YY	HH	MM
				376	EW	CS	3	4	23	2	0

CODE 1	S1 to S21	D1 to D3	Kp XXX Note
	Station Reference	Depot Reference	For Kilometer point only Start Km is used
CODE 2	Work Activity		
CODE 3	Sub Element of Activity		

Description of Materials	Fill Layer (-0.5m from Ferma Level).			
Location to be Used	From	376+580	TO	376+700
MAR & UIR Approval No	UIR F-32REV1	Date	1/4/2023	
	M.A.R. QT-6		25/3/2023	
Supplier Name	ELSEWY	Arabianco		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (EG23-41.2) VERSION 2 BY CIVEDON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	4/4/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allah (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARF Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allah		4-4-2023	Awc

* Designer

** Alignment/Bridges/Culvert only



الهيئة القومية للإتقان



Electrical Express Train From Borg Al arab to Alamein

Activity : Earth Work

نتائج اختبارات العمل

4/4/2023

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	عصام كروي	Layer NO:	M-0.5
Description :	IR-F32REV1	Layer Thickness:	FOT 32
Station Represented :	(376+580) (376+700)M-0.5	Sample Date :	3/4/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.13	7.4	95%	1.480

Compaction Testing Results & Calculations

Hole No	1	2	3	
Stations	376+580	376+630	376+680	
Wt. of Sand before Test, gm	6000	5700	5500	
Wt. of Sand After Test, gm	2250	1960	1780	
Wt. of Sand in Cone + hole, gm	3750	3750	3720	
Wt. of Sand in Cone	1336	1336	1336	
Wt. of Sand at hole, gm	2414	2414	2384	
Volume of the Hole, cm ³	1631	1631	1611	
Wt. of Soil from Hole, gm	3635	3640	3490	
Bulk Density of Soil, gm/cm ³	2.229	2.232	2.167	
Moisture Content, %	6	6	6	
Dry Density, gm/cm ³	2.097	2.105	2.050	
Compaction, (%)	98.4%	98.8%	96.2%	

Acceptance Criteria

Comply

Not Comply

CONSULTANT COMMENTS

Lab Contractor Eng.:-

spectrum Consultant Eng.:-

MATERIAL INSPECTION REQUEST					
	الهيئة العامة للطرق والكباري (GARB) الهيئة العامة للطرق والكباري (GARB)				

Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company	[SPECTRUM] Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		2/4/2023 (F.D.T 33)	2:00 PM							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	C1	C2	C3	DO	MM	YY	HR	MM
				376	EW	CS	3	4	23	2	0

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

Description of Materials	Fill Layer (-1 m from Forma Level).				
Location to be Used	From	376+700	TO	376+820	
MAR & UIR Approval No	UIR F-33REV1		Date	1/4/2023	
	M.A.R. QT-6			25/3/2023	
Supplier Name	ELSEWY		Arabianco		
Test Requirement	F.D.T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY ONECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	3	4/4/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		4-4-2023	AWC

* Designer
** Alignment/Bridges Culvert only



الهيئة القومية للإسقاط



Electrical Express Train From Borg Al arab to Alamein

Activity : Earth Work

نتائج اختبارات العمل

4/4/2023

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	عصام قري	Layer NO:	M-1
Description :	IR-F33REV1	Layer Thickness:	FDT 33
Station Represented :	(376+700) (376+820)M-1	Sample Date :	3/4/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.13	7.4	95%	1.480

Compaction Testing Results & Calculations

Hole No.	1	2	3	
Stations	376+700	376+750	376+800	
Wt. of Sand before Test, gm	7000	6500	6000	
Wt. of Sand After Test, gm	3280	2750	2320	
Wt. of Sand in Cone + hole, gm	3720	3750	3680	
Wt. of Sand in Cone	1336	1336	1336	
Wt. of Sand at hole, gm	2384	2414	2344	
Volume of the Hole, cm ³	1611	1631	1584	
Wt. of Soil from Hole, gm	3690	3620	3490	
Bulk Density of Soil, gm/cm ³	2.229	2.219	2.204	
Moisture Content, %	6	6	6	
Dry Density, gm/cm ³	2.097	2.094	2.085	
Compaction, (%)	98.4%	98.3%	97.9%	

Acceptance Criteria

Comply

Not Comply

CONSULTANT COMMENTS

Lab Contractor Eng.:-

spectrum Consultant Eng.:-

MATERIAL INSPECTION REQUEST										

Contractor Company	ESSAM FERRY COMPANY FOR GENERAL CONTRACTING				Designer Company	SPECTRUM Engineering Consulting Office																
Issued by Contractor	Name	Sign	Date/Serial Number	Time																		
	Eng. Mohamed Elssa		5/4/2023 (F.D.T. IS)	2:00 PM																		
Received by GARB CONSULTANT	Eng. Maren Essamy		MR	<table border="1"> <tr> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> <td>CS</td> </tr> <tr> <td>376</td> <td>EW</td> <td>CS</td> <td>4</td> <td>4</td> <td>23</td> <td>2</td> <td>0</td> </tr> </table>	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	376	EW	CS	4	4	23	2	0
CS	CS	CS	CS	CS	CS	CS	CS	CS	CS													
376	EW	CS	4	4	23	2	0															

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

Description of Materials	Fill Layer (Ferma Level).				
Location to be Used	From	376+360	TO	376+420	
MAR & UIR Approval No	UIR F-35REV1		Date	2/4/2023	
	M.A.R. QT-6			25/3/2023	
Supplier Name	ELSEWY		Arabianco		
Test Requirement	F D T (ASTM D 1556)		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes		Other		
Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	2	5/4/2023	
2					
3					
4					
Comments by: Eng. Maren Essamy (SPECTRUM)			Comments by: Eng. Alaa Abd-Allatif (ER)		
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.			1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.		

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Maren Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		5-4-2023	Awc

* Designer



الهيئة القومية للإنتفاق



Electrical Express Train From Borg Al arab to Alamein

Activity : Earth Work

نتائج اختبارات المعمل

5/4/2023

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	عصام فكرى	Layer NO:	FERMA
Description :	IR-F35REV1	Layer Thickness:	FDT 35
Station Represented :	(376+360) (376+420) FERMA	Sample Date :	4/4/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.13	7.4	95%	1.480

Compaction Testing Results & Calculations

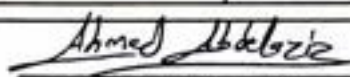
Hole No.	1	2		
Stations	376+360	376+410		
Wt. of Sand before Test, gm	9000	8500		
Wt. of Sand After Test, gm	5330	4820		
Wt. of Sand in Cone + hole, gm	3670	3680		
Wt. of Sand in Cone	1336	1336		
Wt. of Sand at hole, gm	2334	2344		
Volume of the Hole, cm ³	1577	1584		
Wt. of Soil from Hole, gm	3490	3540		
Bulk Density of Soil, gm/cm ³	2.213	2.235		
Moisture Content, %	6	6		
Dry Density, gm/cm ³	2.082	2.109		
Compaction, (%)	97.7%	99.0%		

Acceptance Criteria

Comply

Not Comply

CONSULTANT COMMENTS


Lab Contractor Eng.:-


spectrum Consultant Eng.:-

MATERIAL INSPECTION REQUEST



الهيئة العامة
للمطرق و البنى التحتية
(GARB)



الهيئة العامة
للمطرق و البنى التحتية
(GARB)



Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING			Designer Company	[SPECTRUM] Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		17/4/2023	2:00 PM							
			(F.D.T 35 rev-1)								
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	C1	C2	C3	DD	MM	YY	HH	MM
				376	EW	CS	18	4	23	2	0

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

Description of Materials	Fill Layer (Ferma Level).		
Location to be Used	From	376+360	TO 376+420
MAR & UIR Approval No	UIR F-35REV1	Date	2/4/2023
	M.A.R. QT-6		25/3/2023
Supplier Name	ELSEWY	Arabianco	
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2 VERSION 2 BY CIVECON GROUP)
Reference Photos	No/Yes	Other	

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	2	18/4/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) by third party lab (COMIBASSAL) is Approved.	1-F.D.T was carried- out by third party lab (COMIBASSAL). 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Margrit Magdi			
Employers Representative	Eng. Alaa Abd-Allatif		30-4-2023	Awc



COMIBASSAL International Controllers

Internal inspection and laboratories sector

Accredited by : Egypt General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypt Accreditation council (EGAC) under No. 031706/1A

Report NO. : 982/01/center
Date : 30/04/2023

Field Detr. Of Density Of Soil In Place Report ASTM - D 1556

General consultant : SYSTRA
Consultant : SPECTRUM
Contractor : شركة عصام فكري للمقاولات
Project : Electric express train
Sample : Ferma
Date of test : 18 -04- 2023

Results :

Points NO.	1	2	3	4	5	6
Description	St (376+380)	St (376+420)	St (376+460)	St (376+520)	St (376+560)	St (376+620)
Initial wt. (gm)	10960	7280	9820	6270	8180	7270
Wt. after filling the cone and the hole (gm)	7910	4140	6670	3100	5110	4190
Wt. of wet Sample (gm)	2460	2440	2540	2480	2430	2500
Wt. of sand filling hole (gm)	1532	1622	1632	1652	1552	1562
Wt. of sand filling cone (gm)	1518	1518	1518	1518	1518	1518
Density of standered sand (Ys) (gm/cm ³)	1.42					
Volume of hole (cm ³)	1078.87	1142.25	1149	1163.4	1093.0	1100.0
Wt. of wet Sample (gm)	200					
Wt. of sample after drying (gm)	189.5	188.4	190	188.9	189.8	188.0
Wet Density (Ywet) (gm/cm ³)	2.280	2.136	2.210	2.132	2.223	2.273
Moisture ratio (%)	5.5	6.2	5.3	5.9	5.4	6.4
Dry Density (Ydry) (gm/cm ³)	2.160	2.012	2.098	2.013	2.110	2.136
(Ymax.dry) (gm/cm ³)	2.119					
Compaction Ratio (%)	102	95	99	95	100	101

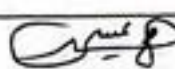
Lab director

Eman
Eng : Eman. E. Kandil

Geotechnical consultant

For Dr. M
Dr. Mohamed Mostafa Badry



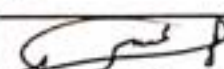
Contractor Company	ESSAM FEKRY COMPANY FOR GENERAL CONTRACTING		Designer Company	(SPECTRUM) Engineering Consulting Office							
Issued by Contractor	Name	Sign	Date/Serial Number	Time							
	Eng. Mohamed Elssa		27/3/2023 (F.D.T 29)	2:00 PM							
Received by GARB CONSULTANT	Eng. Mazen Essamy		MIR	CL	CA	CB	DD	MM	YY	HH	MM
				376	EW	CS	28	3	23	2	0

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

Description of Materials	Fill Layer (Ferma Level).			
Location to be Used	From	376+000	TO	376+080
MAR & UIR Approval No	UIR F-29	Date	26/3/2023	
	M.A.R. QT-5		14/3/2023	
Supplier Name	ELSEWY	Arabianco		
Test Requirement	F.D.T (ASTM D 1556)	Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP	
Reference Photos	No/Yes	Other		

Item	Description	Unit	Quantity	Arrival Date	Note
1	SAND CONE TEST	NUMBER	2	29/3/2023	
2					
3					
4					

Comments by: Eng. Mazen Essamy (SPECTRUM)	Comments by: Eng. Alaa Abd-Allatif (ER)
1-The Compaction Test Result F.D.T. (ASTM D 1556) is Approved.	1-F.D.T was carried- out by material engineer for both contractor and GARB Consultant 2-Results report attached and acceptable with project specifications. 3-Final approval is subject to above mentioned comments.

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	Eng. Mohamed Elssa			A
QA/QC *	Eng. Mazen Essamy			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		29-3-2023	AWC



الهيئة القومية للإنفاق



Electrical Express Train From Borg Al arab to Alamein

Activity : Earth Work

نتائج اختبارات المعمل

29/3/2023

Density and Unit Weight of Soil in Place by the Sand-Cone Method – ASTM D 1556

Company:	عصام فكرى	Layer NO:	Ferma
Description :	IR-F29	Layer Thickness:	FDT 29
Station Represented :	(376+000) (376+080) Ferma	Sample Date :	28/3/2023

Modified Proctor Testing Results

Max. Dry Density, gm/cm ³	Optimum Moisture Content, %	Degree of Compaction Required, %	Bulk Density of Specified Sand, gm/cm ³
2.15	7.2	95%	1.480

Compaction Testing Results & Calculations

Hole No.	1	2		
Stations	376+000	376+050		
Wt. of Sand before Test, gm	7000	6500		
Wt. of Sand After Test, gm	3350	2850		
Wt. of Sand in Cone + hole, gm	3650	3650		
Wt. of Sand in Cone	1336	1336		
Wt. of Sand at hole, gm	2314	2314		
Volume of the Hole, cm ³	1564	1564		
Wt. of Soil from Hole, gm	3510	3520		
Bulk Density of Soil, gm/cm ³	2.245	2.251		
Moisture Content, %	6	6		
Dry Density, gm/cm ³	2.112	2.124		
Compaction, (%)	98.2%	98.8%		

Acceptance Criteria

Comply

Not Comply

CONSULTANT COMMENTS

Lab Contractor Eng.:-

spectrum Consultant Eng.:-