

مشروع نظام الكبريتي فائق السرعة قطار (برج العرب - العبد)
المقاييس التقريبية لعدد الأعمال تنفيذ شركة الزنكوكي المقاولات العامة وعضف الطرق
القطار من المحطة 333+800 إلى 334+400 أعمال الحفر وتشكيل الجسور

رقم البند	بيان الأعمال	الوحدة	المقدرة	القيمة	الاجمعي
1	اصلاح الطرق بشتر المكعب اصالح حجر باستخدام المعدات الميكانيكية لتجديد التربة عدا التربة الصخرية و تسوية الصلح بآلات الشويبة والفرش بآلية الاسفلت ترصوف في نسبة الخرطبة المطلوبة وذلك الجديد بآليات الترصوف في أقصى كلفة جافة (95% من كلفة الجافة القصوى) ومعمل على البند تعمل على الآلية الزائدة بمساحة 500 متر من محور الطريق ويتم تنفيذ تلك التكاليف التصميمية والقواعد العرفية المتوالية والرسومات التنفيذية المصنوعة وذلك بجميع مشكلات طبقات الاسفلت المصنوعة ومواصلات الجبهة العامة لتطرق والتكبار وتعليقات المهندس المشرف وفي حدة زائدة مسافة لكل نتائج الحفر عن 500 متر من محور الطريق يتم حساب 1 جنيه لتكثير متر زائدة	م ²	60,030.05	20.00	1,200,001
1-1					
1-2	بشتر المكعب اصالح حجر باستخدام المعدات الميكانيكية في التربة المتفتتة عدا التربة الصخرية (استخدام البانور) وتسوية الصلح بآلات الشويبة والفرش بآلية الاسفلت ترصوف في نسبة الخرطبة المطلوبة وذلك الجديد بآليات الترصوف في أقصى كلفة جافة (95% من كلفة الجافة القصوى) ومعمل على البند تعمل على الآلية الزائدة بمساحة 500 متر من محور الطريق ويتم تنفيذ تلك الطبقات بآليات الخرطبة والفرش بآلية الاسفلت ترصوف في أقصى كلفة جافة (95% من كلفة الجافة القصوى) ومواصلات الجبهة العامة لتطرق والتكبار وتعليقات المهندس المشرف وفي حدة زائدة مسافة لكل نتائج الحفر عن 500 متر من محور الطريق يتم حساب 1 جنيه لتكثير متر زائدة	م ²	1,000.00	23.00	23,000
	التمشيد السلك اصالح حجر بمعدات الميكانيكية في تربة صخرية	م ³	100.00	54.00	5,400
	بند جديد (300-200) كعبلمتر	م ³	100.00	65.50	6,550
	بند جديد (400-300) كعبلمتر	م ³	100.00	75.00	7,600
1-3	1- تعمل على البند الثاني 2- توريد حربة مطبقة للواصلات وتنفيذها باستخدام 10 حربة مسك 25 من 25 سم 3- تستعمل الحشوب التصميمي لتثبيت الجدران والاسفلت (نسبة تحمل كاتيفورنيا لا تقل عن 10 %) 4- رصها بآليات الترصوف في نسبة الخرطبة المطلوبة وذلك الجديد بآليات الترصوف في أقصى كلفة جافة (95% من كلفة الجافة القصوى) ويتم تنفيذ تلك التكاليف التصميمية والقواعد العرفية المتوالية والرسومات التنفيذية المصنوعة وذلك بجميع مشكلات طبقات الاسفلت المصنوعة ومواصلات الجبهة العامة لتطرق والتكبار وتعليقات المهندس المشرف وفي حدة زائدة مسافة لكل نتائج الحفر عن 500 متر من محور الطريق يتم حساب 1 جنيه لتكثير متر زائدة				
3	اصلاح التربة بشتر المكعب اصالح تربة ورمل وكل تربة مكافئة للواصلات وتنفيذها باستخدام آلات تسوية مسك 25 زائد عن 50 سم على متوسط 2- متر و مسك 14 زائد عن 25 سم لاستعمال الحشوب التصميمي لتثبيت الحصر والاسفلت (نسبة تحمل كاتيفورنيا لا تقل عن 10 %) 5- رصها بآليات الترصوف في نسبة الخرطبة المطلوبة وذلك الجديد بآليات الترصوف في أقصى كلفة جافة (95% من كلفة الجافة القصوى) ويتم تنفيذ تلك التكاليف التصميمية والقواعد العرفية المتوالية والرسومات التنفيذية المصنوعة وذلك بجميع مشكلات طبقات الاسفلت المصنوعة ومواصلات الجبهة العامة لتطرق والتكبار وتعليقات المهندس المشرف وفي حدة زائدة مسافة لكل نتائج الحفر عن 500 متر من محور الطريق يتم حساب 1 جنيه لتكثير متر زائدة		82,375.13	85.00	5,301,835
3-1	مسكة نقل حقل 2 م د 90 و يتم احصاء حقل 1,4 حبه لكل كم بآلية أو باليد المر شامل عمل تنويرات وتخطيط واعتمادات و مل لتوزيع العمل على مساه 2 كم .	م ³			
	عذرة مسافة النقل 152 كم (152 - 2 = 150) 210 = 1.4 * 150 =		49,900.10	210.00	10,479,022
	عذرة مسافة النقل 126 كم (126 - 2 = 124) 173.6 = 1.4 * 124 =		12,475.03	173.50	2,165,665
	عذرة تحميل رسوم الكرامة والموالين طبقا لنسخة شركة كركية		62,375.13	13.00	810,877
					20,000,000

(مشروطين مليون جنيه فقط لا غير)

(عشرین مہینہ جنیبا فقط لا غیر)

رئيس اللجنة المركزية

مدير عام مشروعات المنطقة
الخامسة

مهندس الهيئة

الدنيا

سینڈرز پبٹر ٹرسٹی مطروح

عبد مہدی / ہانی محمد محمود طہ

ملحوظة : أعمار السود بفرنسا حسب النفاوس

جامعة للطرق والكبارى والبنى

المرتب : **المستشار** / الهندسي
(أ) : **مدير** / السيد سيف
بـ : **المهندس** / م / السيد سيف
شروع: **القفاطار الكهربائي** / السريع
القطاع الخامس : ...
KK

مكتبة مقاولات عمومية
ب. ضيف ٢٣٦-٢٣٧
١٩٧٩/٨/٠٥
مضف ٠٧/٠٠/١٩٧٩

باسم محمد عبده عمر التركلوني
يكتب مقاولات عمومية
ب ض ٢١٦ / ١٦٦ / ٢٠٢
م ض ٠٧ / ٠٠ / ٢١٠ / ١٥٧٤ / ٥
س ت ١٦٦٧١٩

بيان بكميات السيفيل (ردم تراب)

Fill Report							
Volume Summary							
Net	Fill	Cut	2d Area	Fill Factor	Cut Factor	Type	Name
(Cu. M.)	(Cu. M.)	(Cu. M.)	(sq.m)				
551<fill>	551.00	0	5.51	1.000	1.000	fill	IR 1
680<fill>	680.00	0	8.50	1.000	1.000	fill	IR 2
1260<fill>	1260.00	0	10.50	1.000	1.000	fill	IR 3-1
1089.6<fill>	1089.60	0	6.81	1.000	1.000	fill	IR 3
804<fill>	804.00	0	8.04	1.000	1.000	fill	IR 4-1
742.4<fill>	742.40	0	9.28	1.000	1.000	fill	IR 5
726<fill>	726.00	0	7.26	1.000	1.000	fill	IR 6
497.4<fill>	497.40	0	8.29	1.000	1.000	fill	IR 4
793.8<fill>	793.80	0	5.67	1.000	1.000	fill	IR 7-1
1231.2<fill>	1231.20	0	6.84	1.000	1.000	fill	IR 7
334.4<fill>	334.40	0	8.36	1.000	1.000	fill	IR 8
548<fill>	548.00	0	6.85	1.000	1.000	fill	IR 8-1
706<fill>	706.00	0	7.06	1.000	1.000	fill	IR 9
742.4<fill>	742.40	0	9.28	1.000	1.000	fill	IR 10
1238.6<fill>	1238.60	0	5.63	1.000	1.000	fill	IR 11-1
458.4<fill>	458.40	0	7.64	1.000	1.000	fill	IR 12
908.6<fill>	908.60	0	4.13	1.000	1.000	fill	IR 11
716<fill>	716.00	0	7.16	1.000	1.000	fill	IR 13
374.8<fill>	374.80	0	9.37	1.000	1.000	fill	IR 14
439.2<fill>	439.20	0	5.49	1.000	1.000	fill	IR 15
350<fill>	350.00	0	3.50	1.000	1.000	fill	IR 16
594<fill>	594.00	0	2.70	1.000	1.000	fill	IR 17
330<fill>	330.00	0	5.50	1.000	1.000	fill	IR 18
490<fill>	490.00	0	4.90	1.000	1.000	fill	IR 19
348<fill>	348.00	0	5.80	1.000	1.000	fill	IR 20
460<fill>	460.00	0	4.60	1.000	1.000	fill	IR 21
594<fill>	594.00	0	2.70	1.000	1.000	fill	IR 22
594<fill>	594.00	0	2.70	1.000	1.000	fill	IR 23
352<fill>	352.00	0	8.80	1.000	1.000	fill	IR 24
457<fill>	457.00	0	4.57	1.000	1.000	fill	IR 25
349.2<fill>	349.20	0	5.82	1.000	1.000	fill	IR 26
600.6<fill>	600.60	0	2.73	1.000	1.000	fill	IR 27
712.8<fill>	712.80	0	3.24	1.000	1.000	fill	IR 17-1
350<fill>	350.00	0	3.50	1.000	1.000	fill	IR 28
414<fill>	414.00	0	6.90	1.000	1.000	fill	IR 6-3
768<fill>	768.00	0	6.40	1.000	1.000	fill	IR 11-3
410<fill>	410.00	0	4.10	1.000	1.000	fill	IR 29
342<fill>	342.00	0	5.70	1.000	1.000	fill	IR 30
449<fill>	449.00	0	4.49	1.000	1.000	fill	IR 31
412<fill>	412.00	0	4.12	1.000	1.000	fill	IR 32
339<fill>	339.00	0	5.65	1.000	1.000	fill	IR 33
339<fill>	339.00	0	5.65	1.000	1.000	fill	IR 34
429<fill>	429.00	0	4.29	1.000	1.000	fill	IR 35
381<fill>	381.00	0	3.81	1.000	1.000	fill	IR 36
514.8<fill>	514.80	0	2.34	1.000	1.000	fill	IR 37
503.8<fill>	503.80	0	2.29	1.000	1.000	fill	IR 38
410<fill>	410.00	0	4.10	1.000	1.000	fill	IR 39
330<fill>	330.00	0	5.50	1.000	1.000	fill	IR 40
341<fill>	341.00	0	3.41	1.000	1.000	fill	IR 41
315<fill>	315.00	0	5.25	1.000	1.000	fill	IR 42
464.2<fill>	464.20	0	2.11	1.000	1.000	fill	IR 43
317.4<fill>	317.40	0	5.29	1.000	1.000	fill	IR 44
324<fill>	324.00	0	5.40	1.000	1.000	fill	IR 45
536.8<fill>	536.80	0	2.44	1.000	1.000	fill	IR 46

Totals				
Net	Fill	Cut	2d Area	
(Cu. M.)	(Cu. M.)	(Cu. M.)	(sq.m)	
29763.4<fill>	29763.40	0	297.97	Total

بيان بكميات السيفيل (حفر)

Cut Report

Volume Summary

Net (Cu. M.)	Fill (Cu. M.)	Cut (Cu. M.)	2d Area (sq.m)	Fill Factor	Cut Factor	Type	Name
5726.6<Cut>	0	5726.60	26.03	1.000	1.000	cut	IR 1
2640<Cut>	0	2640.00	33.00	1.000	1.000	cut	IR 2
1627.6<Cut>	0	1627.60	40.69	1.000	1.000	cut	IR 3
1134<Cut>	0	1134.00	11.34	1.000	1.000	cut	IR 4
2118<Cut>	0	2118.00	17.65	1.000	1.000	cut	IR 5
2400<Cut>	0	2400.00	12.00	1.000	1.000	cut	IR 6-1
1800<Cut>	0	1800.00	7.50	1.000	1.000	cut	IR 6
660<Cut>	0	660.00	16.50	1.000	1.000	cut	IR 6-2
1650<Cut>	0	1650.00	7.50	1.000	1.000	cut	IR 6-3
720<Cut>	0	720.00	12.00	1.000	1.000	cut	IR 7
750<Cut>	0	750.00	7.50	1.000	1.000	cut	IR 5-1
684<Cut>	0	684.00	8.55	1.000	1.000	cut	IR 7-1
1260<Cut>	0	1260.00	9.00	1.000	1.000	cut	IR 4-1
540<Cut>	0	540.00	9.00	1.000	1.000	cut	IR 7-2
600<Cut>	0	600.00	7.50	1.000	1.000	cut	IR 6-4
3618<Cut>	0	3618.00	12.06	1.000	1.000	cut	asbuilt 1
4820.4<Cut>	0	4820.40	40.17	1.000	1.000	cut	asbuilt 2

Totals

Net (Cu. M.)	Fill (Cu. M.)	Cut (Cu. M.)	2d Area (sq.m)	
32748.6<cut>	0	32748.60	277.99	Total

MATERIAL APPROVAL REQUEST	شركة الزنكلوني المقاولات العامة	ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي د.أ. محمد فهد	الهيئة العامة للطرق والكباري (GARB)	مؤسسة الطرق للتنفيذ	المصنعة (المصنعة للبناء)	مؤسسة الطرق للتنفيذ	SYSTRA

Contractor Company	Al-ZANKALONY CO. for General Contracting			Designer Company	(kk) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number			Time					
	أحمد جمال دوسا		2023-04-29			08:00					
			MAR 001								
Received by GARB CONSULTANT	Eng. Abdallah Omar	Abdallah Omar	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				16	EW	CS	30	04	23	08	00

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	Quality Test for Bed Excavation		
Location to be Used	Station (16+440 : 16+540) Station (16+600+ 16+960)		
Sample only	Yes	Materials Type	Bed Excavation
Supplier Name		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	Other	
Comments by: Eng. Abdallah Omar (KK)		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-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	أحمد جمال دوسا			A
QA/QC *	Eng. Abdallah Omar	Abdallah Omar		A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer
 ** Alignment/Bridges: Culvert only

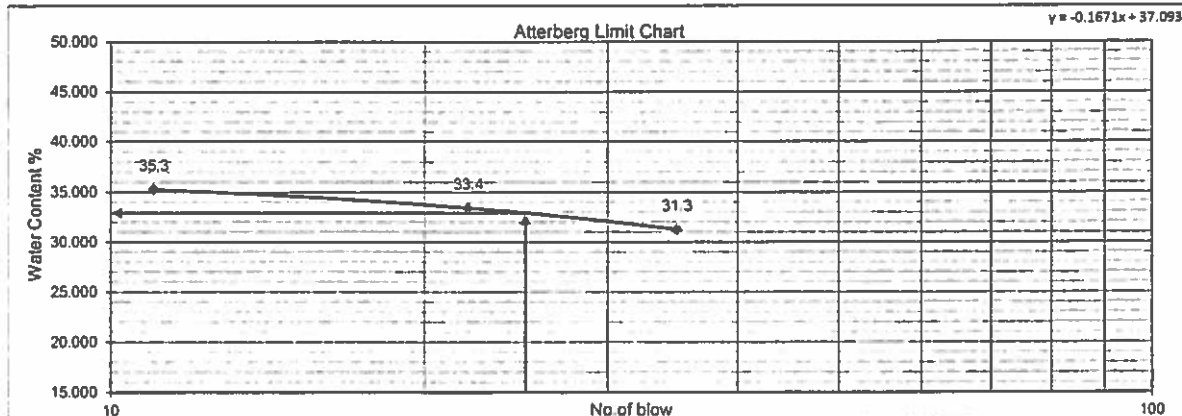
Project	Electrical Express Train From Borg Alarab to Alamein (EET)				Date	29-Apr-23
Station	From	016+440	TO	016+540		
		016+600		016+960	Request No.	QT 1
	Soil Classification (AASHTO M 145)					

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coarse sample =	4826		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	0	100.0	
1"	0	100.0	
3/4"	0	100.0	
3/8"	214	95.6	
4	798	83.46	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	36	77.46	
40	99	66.94	
200	248	42.07	

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	11	22	35			
Number of plate	A-7	A-19	A-26	A-11	A-15	A-14
Wt. Of plate	32.26	31.26	32.26	32.14	32.12	31.26
wt. of plate + wt. of wet sample	80.90	83.60	129.69	35.75	35.09	33.62
wt. of plate + wt. of dry sample	68.22	70.49	106.49	35.04	34.52	33.16
wt. of water	12.7	13.1	23.2	0.7	0.6	0.5
wt. of dry sample	36.0	39.2	74.2	2.9	2.4	1.9
moisture content	35.3	33.4	31.3	24.4	23.6	24.2
The Limits	Liquid Limit			Plastic Limite		24.08





الهيئة القومية للإنفاق



شركة المراكب
للمحولات العامة

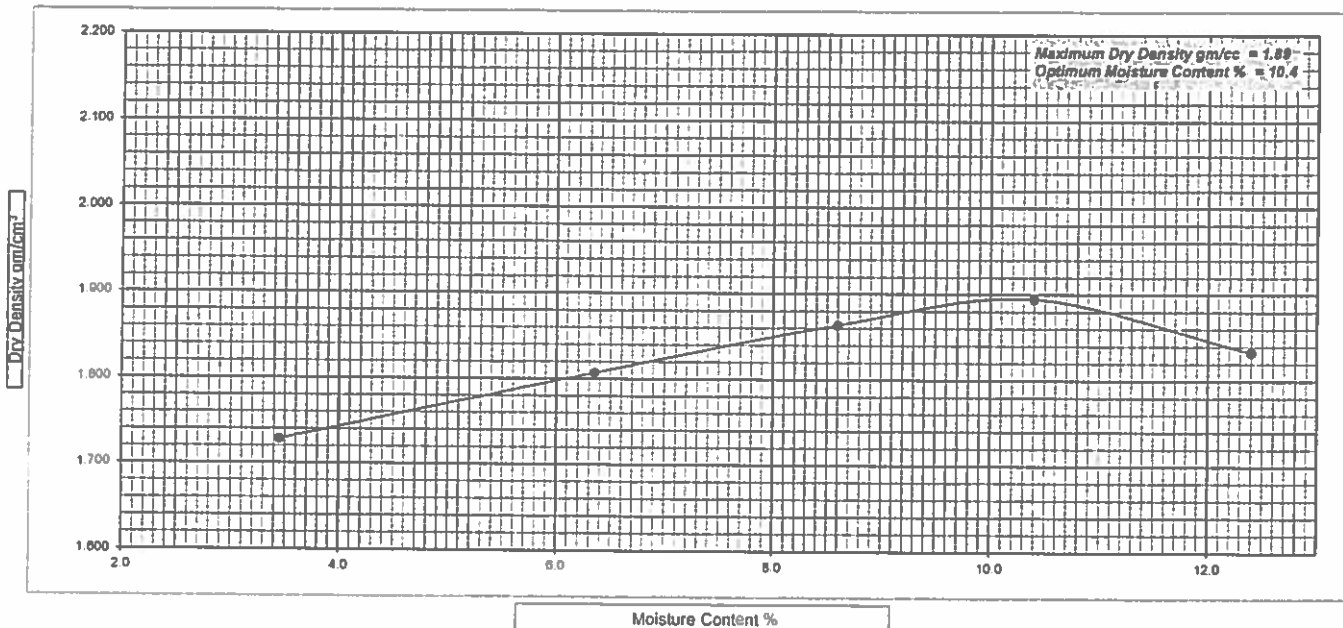
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	29-Apr-23	
Station	From	016+600	To	016+960	Request NO.	QT 1

MOISTURE - DENSITY RELATIONSHIP OF SOILS ASTM D.1557

MOISTURE CONTENT													
CONTAINER NUMBER				A-9	A-2	A-10	A-13	A-7	A-25	A-19	A-30	A-31	A-1
A	TARE MASS	gms.		31.45	31.66	32.41	31.41	31.62	32.45	32.45	31.26	32.14	32.12
B	MASS WET SOIL & TARE ,	gms.		159.9	176.9	175.0	176.6	177.6	200.9	175.0	166.7	182.9	217.0
C	MASS DRY SOIL & TARE	gms.		155.7	172.0	166.7	167.8	165.9	187.7	161.8	153.7	166.4	196.4
D	MASS OF WATER	gms.	B-C	4.2	4.9	8.3	8.9	11.7	13.2	13.2	13.0	16.5	20.5
E	MASS OF DRY SOIL	gms.	C-A	124.3	140.4	134.3	136.4	134.3	155.3	129.4	122.5	134.3	164.3
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.4	3.5	6.2	6.5	8.7	8.5	10.2	10.6	12.3	12.5
AVERAGE		%		3.5		6.4		8.6		10.4		12.4	
DRY DENSITY													
TRIAL NUMBER				1		2		3		4		5	
G	MASS OF MOLD & WET SOIL	gms.		9598		9888		10110		10256		10189	
H	MASS OF MOLD	gms.		5728		5728		5728		5728		5728	
I	MASS OF WET SOIL	gms.	G-H	3870		4160		4382		4528		4461	
J	VOLUME OF MOLD	cm³		2165		2165		2165		2165		2165	
K	WET DENSITY	g/cm³	$\frac{I}{J}$	1.788		1.921		2.024		2.091		2.061	
L	DRY DENSITY	g/cm³	$\frac{K}{100 + F}$	1.73		1.81		1.86		1.89		1.83	



Eng. / CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

1.10

**MATERIAL
APPROVAL
REQUEST**

شركة الزكالي
للتنفيذ العامة



الهيئة العامة
للتأهيل والكباري
(GARB)



المجلس الأعلى
للمواصلات
والمواصلات



Contractor Company	Al-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign	Date/Serial Number	Time			
	أحمد جمال دودا		2023-04-27 MAR 002	08:00			
Received by GARB CONSULTANT	Eng. Abdallah Omar	Sign	MAR 333	C1	EW	CS	DD
				29	04	23	08

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 (5000 m³)		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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	أحمد جمال دودا			A
QA/QC *	Eng. Abdallah Omar			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

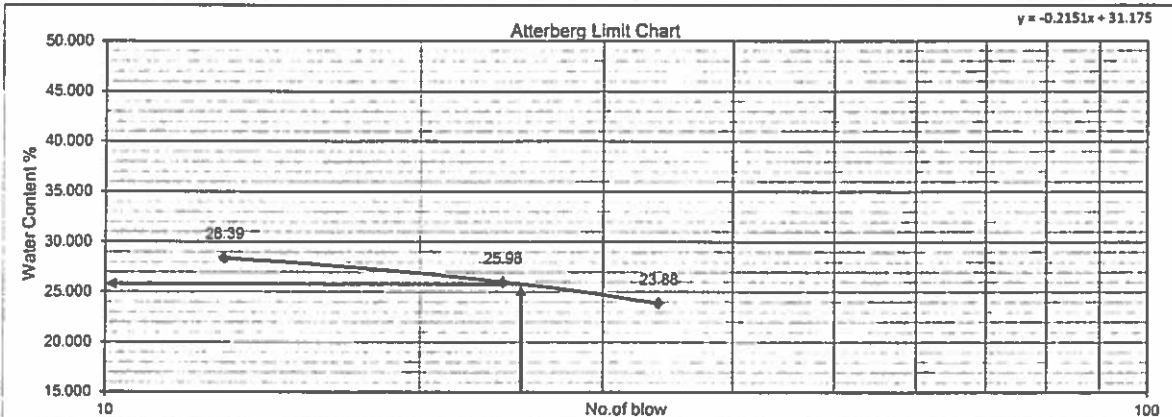
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني-المشون	Request NO.	2
Station	5000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

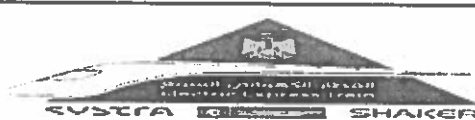
wt. of coars sample =	15598		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	100	99.4	
1"	789	94.9	
3/4"	841	94.6	
3/8"	5632	63.9	
4	8598	44.88	
wt. of fines sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	37.07	50 max
40	219	25.22	30 max
200	378	10.95	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	13	24	34	A-15	A-3	A-18
Number of plate	A-19	A-15	A-10			
Wt. Of plate	32.26	32.14	32.19	30.5	31.56	32.22
wt. of plate + wt. of wet sample	79.2	76.6	73.8	33.83	34.84	34.84
wt. of plate + wt. of dry sample	68.82	67.43	65.78	33.25	34.26	34.37
wt. of water	10.38	9.17	8.02	0.58	0.58	0.47
wt. of dry sample	36.56	35.29	33.59	2.75	2.7	2.15
moisture content	28.39	25.98	23.88	21.09	21.48	21.86
The Limits	Liquid Limit			Plastic Limite		21.48



Liquid Limit	25.80	
plasticity index	4.3	6 max
Group Classification	A-1-a	A-1-a & A-1-b



الهيئة القومية للاتفاق



شركة التكتول
للمقاولات العامة

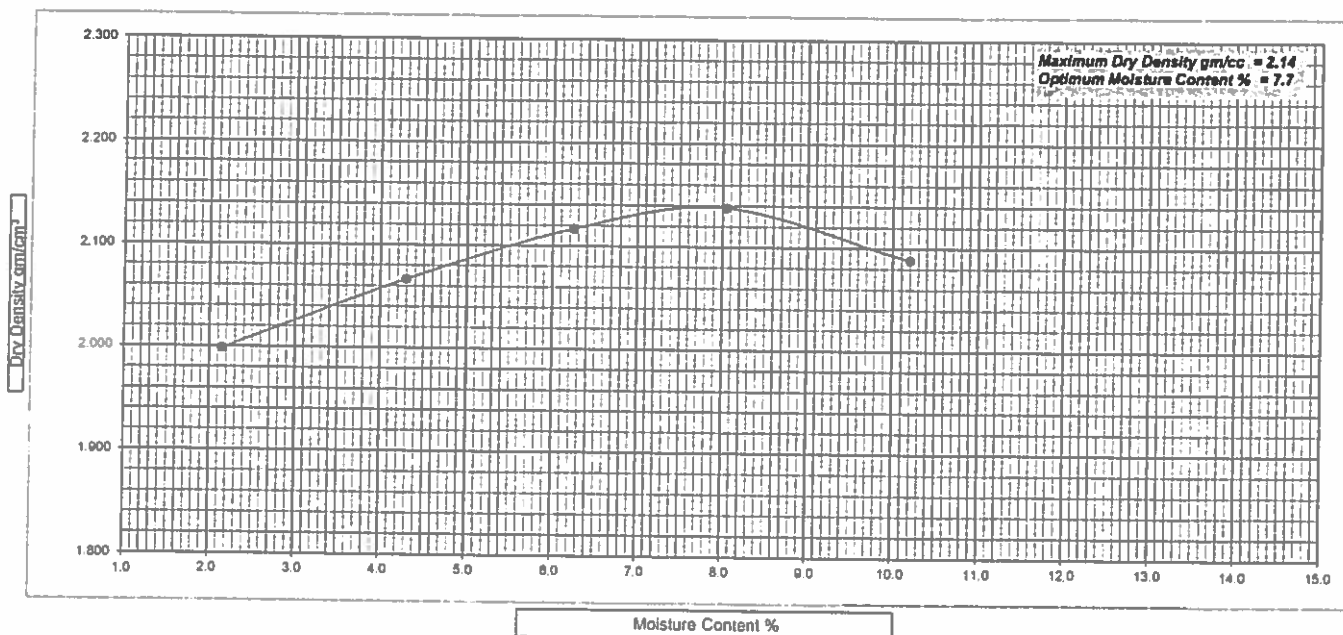
مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	29-Apr-23
Station	From	5000 m ³	To	Request NO.	QT 2

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T160-74)

MOISTURE CONTENT													
CONTAINER NUMBER				7	5	14	28	16	1	2	10	9	3
A	TARE MASS	gms.		32.45	33.21	31.45	32.41	31.36	32.85	32.41	34.15	23.36	32.45
B	MASS WET SOIL & TARE	gms.		163.6	170.4	190.2	161.4	176.6	159.8	176.8	191.5	195.2	175.5
C	MASS DRY SOIL & TARE	gms.		160.8	167.6	183.8	156.0	168.2	152.3	166.0	179.8	179.3	162.2
D	MASS OF WATER	gms.	B-C	2.8	2.8	6.4	5.4	8.5	7.5	10.8	11.7	15.9	13.2
E	MASS OF DRY SOIL	gms.	C-A	128.4	134.4	152.4	123.6	136.8	119.5	133.6	145.7	156.0	129.8
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	2.2	2.1	4.2	4.4	6.2	6.3	8.1	8.0	10.2	10.2
AVERAGE		%		2.2		4.3		6.3		8.1		10.2	
DRY DENSITY													
TRIAL NUMBER				1		2		3		4		5	
G	MASS OF MOLD & WET SOIL	gms.		10148		10395		10598		10730		10711	
H	MASS OF MOLD	gms.		5729		5729		5729		5729		5729	
I	MASS OF WET SOIL	gms.	G-H	4419		4666		4869		5001		4982	
J	VOLUME OF MOLD	cm ³		2165		2165		2165		2165		2165	
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.041		2.155		2.249		2.310		2.301	
L	DRY DENSITY	g/cm ³	$\frac{K}{100 - F}$	1.998		2.066		2.117		2.138		2.088	



Eng. / CONSULTANT

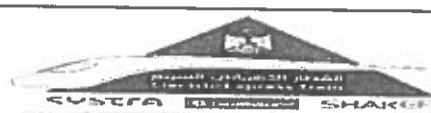
Abdallah. Omar

Eng. / CONTRACTOR

IP



وزارة النقل
المصلحة العامة للنقل والبنية التحتية



المكتب الوطني للمهندسين
الهيئة القومية للإنشاءات

الهيئة القومية للإنشاءات



شركة البترول
المحركات العامة

مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein	Station	From	TO
Date	2023-04-29			
Request NO.	QT 2 5000 m³			

California Bearing Ratio ASTM D 1883

Molding Moisture Content				Density Determination			
Test No.		1	2	Test No.		1	
Can No.		12	10	Mold Volume	cm³	2152	
A Mass, Can	g	32.85	32.15	Mass Sample + Mold	g	11923	
B Mass, Wet Soil + Can	g	179.3	154.60	Mass Mold	g	6967	
C Mass, Dry Soil + Can	g	169.2	145.74	Mass Sample	g	4956	
D Mass, Moisture	g	10.1	8.86	Unit Wet Mass	g	2.303	
E Mass, Dry Soil	g	136.4	113.59	Percent Moisture	%	7.6	
F Moisture %	%	7.4	7.8	Unit Dry Mass	cm³	2.140	
AVERAGE	%	7.60		Cross sectional area of plunger=		19.35	cm²

Penetration (mm)	0.64	1.27	1.90	2.54	3.18	3.81	4.45	5.08	6.35	7.62
Dial Read.	0.06	0.14	0.22	0.29	0.34	0.39	0.43	0.47	0.53	0.57
Total Load KN	1.28	2.98	4.68	6.17	7.23	8.3	9.15	10	11.7	12.55
Unit Load kg/cm2	130.56	303.98	477.36	629.34	737.46	846.6	933.3	1020	1193.4	1280.1

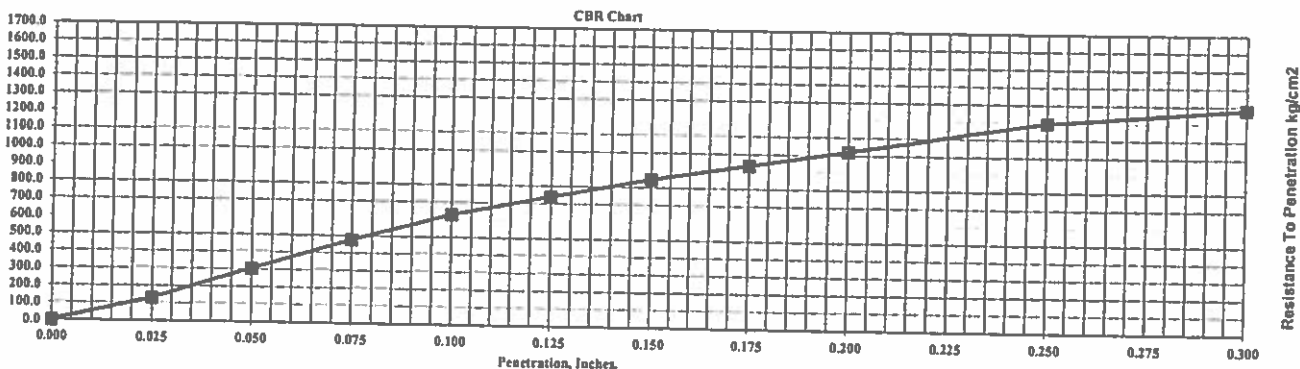
46%

50

Swell		
Date Molded		2023-05-03
Mold No.		1
Final Height	mm	4.32
Initial Height	mm	4.31
Difference	mm	0.01
Sample Length	mm	116.43
Percent Swell	%	0.01

Remarks:

- Max-Dry Density 2.140 g/cc
- Optimum Moisture Content 7.7 %
- No. of Blows 56
- CBR at 100% of max. density 50.0 %



Eng. / CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

Said

MATERIAL APPROVAL REQUEST	شركة الزنكلوني المقاولات العامة		ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي إ. د. خالد شعيب	الهيئة العامة للطرق والكباري (GARB)	مركز الطرق	الهيئة العامة للإسكان	مركز الطرق	الهيئة العامة للإسكان

Contractor Company	Al-ZANKALONY CO. for General Contracting			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	أحمد جمال دويش	[Signature]		2023-04-20	08:00						
				MAR 2-1							
Received by GARB CONSULTANT	(KK) Khaleel Zak	[Signature]	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				333	EW	CS	20	04	23	08	00

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 (333+800) to Station (334+400)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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: (KK)		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	أحمد جمال دويش	[Signature]		A
QA/QC *	(KK) Khaleel Zak	[Signature]		A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif	[Signature]	15-6-2023	AWC

* Designer
 ** Alignment/Bridges Culvert only



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 : Dr/ Khaled Kandil
Contractor : شركة الزنكلوني للمقاولات
Sample : FERMA
Station : St(333+800) to st(334+400)
Date of Test : 29/04/2023
QC : 1163-1

II- Sample description:

Gravel and sand

III- Required tests and Results

Required Tests		Results
1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction (Proctor test)	MDD	2.100
	OMC	9.5%
3- Liquid limit, plastic limit and plasticity index	LL	NP
	PL	NP
	PI	NP
4- California bearing ratio (CBR)	CBR ratio	40%

IV- Notes

- 1- Samples were brought by : Consultant
- 2- Samples are responsible from the Person who brought it.
- 3- The results are applying only for the present report.

LAB DIRECTOR

Eng / Eman kandil



Geotechnical consultant

For Dr. M.
Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Merghem

Tel: 002 03 4704595 - 002 034701191

Email : civdept@comibassal.com

WebSite : www.comibassal.com



49 El Horria Ave. Alex, Egypt

Tel: 002 033920176 - 002 033931482

Fax :002 033900476

Email : internal-inspection@comibassal.com



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

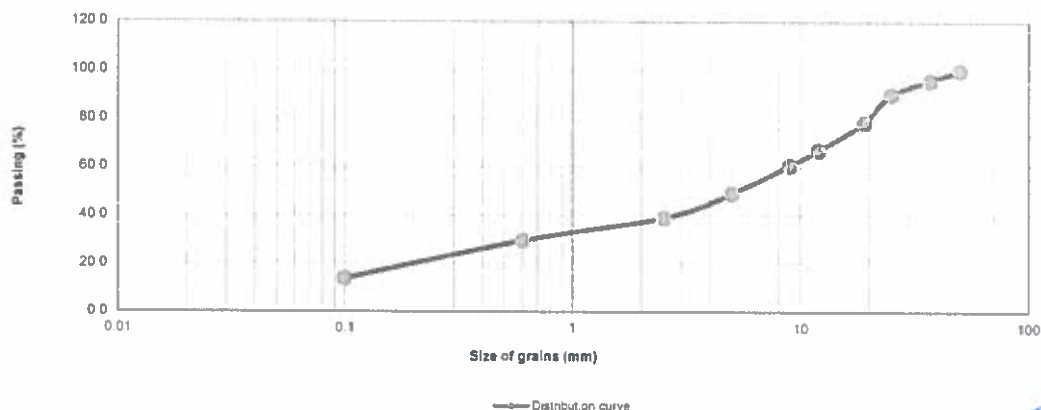
Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

PARTICLE SIZE DISTRIBUTION ANALYSIS ASTM C-136 / AASHTO T27

	WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED (gm)	CUMULATIVE PERCENTAGE RETAINED (%)	CUMULATIVE PERCENTAGE PASSING (%)	STANDARD SPECIFICATION LIMITS
	(gm)				
2	0.00	0.00	0.00	100.0	
1 1/2	404.00	404.00	4.04	96.0	
1	586.00	990.00	9.90	90.1	
3/4	1181.00	2171.00	21.71	78.3	
1/2	1156.00	3327.00	33.27	66.7	
3/8	614.00	3941.00	39.41	60.6	
No.4	1160.00	5101.00	51.02	49.0	
No.10	103.00	103.00	20.60	38.9	
No.40	199.00	199.00	39.80	29.5	
No.200	360.00	360.00	72.00	13.7	

Total sample weight = 9999.00 pass No 4= 4898.0 Total fine aggregates weight = 500 gm
% 49.0

Size analysis distribution curve



Soil classification: A - 1- a (sample is non plastic)





COMIBASSAL International Controllers

Internal inspection and laboratories sector

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

Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 2
Volume of mould = 2188 cm³
Weight of mould = 5925 g
G.S = 2.67 g/cm³

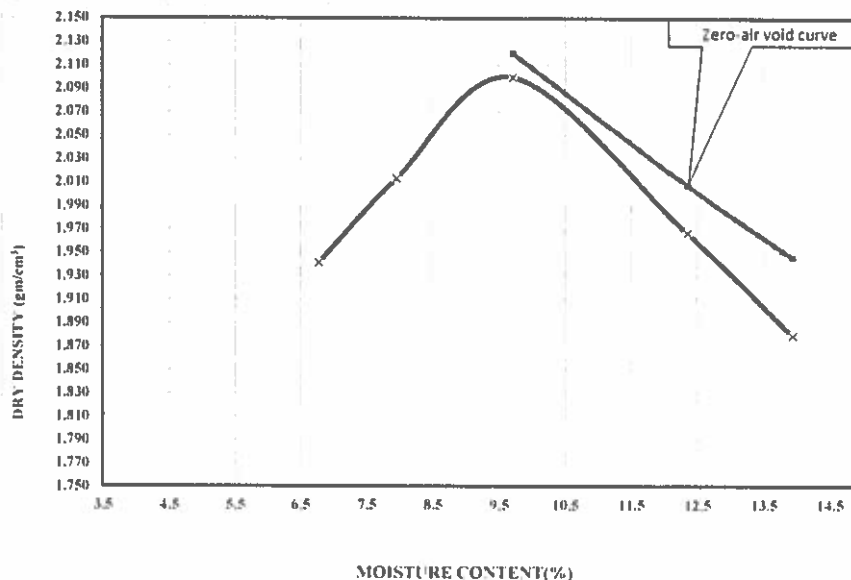
A- Density Calculations :-

	1	2	3	4	5
Weight.of wet soil+mould (g)	10460	10680	10965	10760	10610
Weight.of mould (g)	5925	5925	5925	5925	5925
Weight.of wet soil (g)	4535	4755	5040	4835	4685
Volume of mould (cm ³)	2188	2188	2188	2188	2188
Wet density (g/cm ³)	2.073	2.173	2.303	2.210	2.141
Dry density (g/cm ³)	1.941	2.013	2.100	1.967	1.879
Zero-air Void curve			2.120	2.008	1.946

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)	238.0	236.0	233.0	229.0	227.0
Weight.of container (g)	61.0	60.0	58.0	59.0	62.0
moisture content(%)	6.8	8.0	9.7	12.4	13.9

C - Dry density-Moisture relationship:-



M.D.D= 2.100 gm/cm³
O.M.C= 9.5 %





COMIBASSAL International Controllers

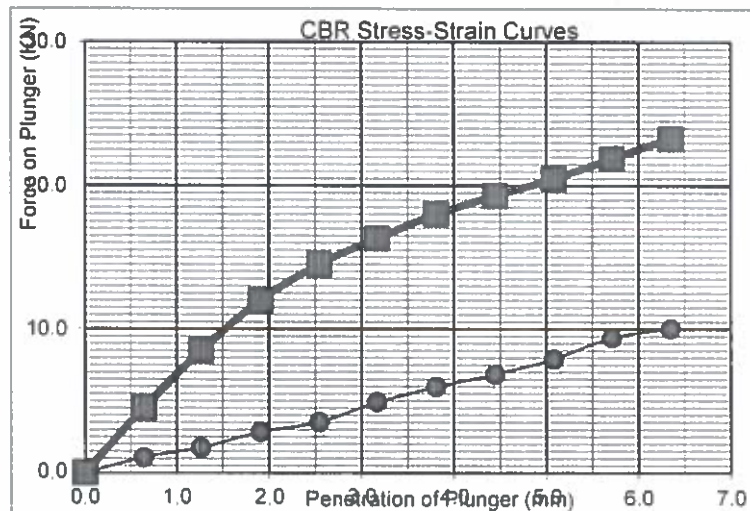
Internal inspection and laboratories sector

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

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56					
MOULD NO	2					
WT OF MOULD+SOIL	11954					
WT OF MOULD	7020					
WT OF SOIL	4934					
VOLUME OF MOULD	2188					
WET DENSITY	2.255					
	MC before soaking			Weight of Rammer	4.54Kg	
TIN NO	1			MDD	Kg/m3	2.100
WT OF WET SOIL+TIN	250.00			OMC	%	9.50
WT OF DRY SOIL+TIN	240.1					
WT OF WATER	9.90					
WT OF TIN	81					
WT OF DRY SOIL	159.1					
MOISTURE CONTENT	6.2					
DRY DENSITY	2.123					

Pen mm	Reading (Div)	Bearing (KN)	standar	CBR
0.00	0	0.0	0.0	56
0.64	110	1.1	4.5	
1.27	180	1.8	8.5	
1.91	290	2.8	12.0	
2.54	360	3.5	14.5	27
3.17	502	4.9	16.3	
3.81	610	6.0	18.0	
4.45	701	6.9	19.3	
5.08	810	7.9	20.5	40
5.71	960	9.4	21.9	
6.35	1025	10.0	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. 031706/1A

Report :	561 - 2 - Center
Date :	15-06-23

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة الزنكلوني للمقاولات
Project :	Electric express train
Sample :	Mix Aggregate Filter
Station :	ST (333 +800) ; (334 + 400)
Date of Test :	29-4-2023

Temperature : 25 °C

Humidity : 45%

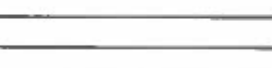
ANALYSIS	RESULTS	TEST METHOD
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

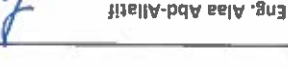
Mostafa



Contractor Company	Al-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office		Time	08:00			
	Name			Date/Serial Number			2023-05-08			
Issued by Contractor	 Eng. Abdallah Omar		 MAR 2-2	 MAR 2-2	 MAR 2-2	 MAR 2-2	 MAR 2-2	 MAR 2-2	 MAR 2-2	 MAR 2-2

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

Description of Materials	Fill Layer Total Quantity (5000 m³) مليون 5		Location to be Used		From Station (333+940) to Station (334+540)	
	Sample only	Yes	Materials Type	Fill layers	Supplier Name	ELSEWY
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. Abdallah Omar (KK) 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		 A		QA/QC *		 A		GARB**		 A	
Employers Representative		 Eng. Alaa Abd-Allatif		 Eng. Mohammed Fayad		 Eng. Alaa Abd-Allatif		 16-5-2023		 AWC	

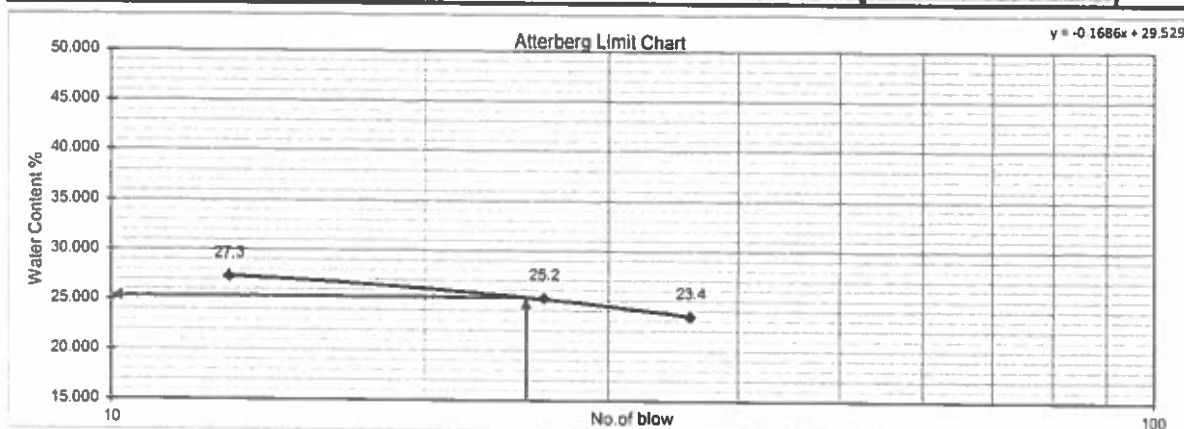
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	9-May-23
Company	شركة الزنكوني-المشون	Request NO.	QT 2-2
Station	5000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	17410		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	85	99.5	
1"	883	94.9	
3/4"	901	94.8	
3/8"	6632	61.9	
4	9769	43.89	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	36.25	50 max
40	219	24.67	30 max
200	356	12.64	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

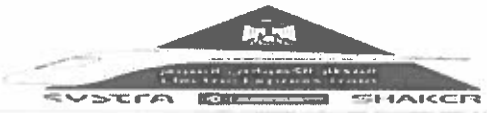
test	Liquid Limit			Plastic Limite		
Number of blows	13	26	36			
Number of plate	2	14	13	12	10	23
Wt. Of plate	31.63	32.63	32.41	32.48	31.45	32.15
wt. of plate+wt. of wet sample	82.04	85.68	78.42	36.33	35.23	36.34
wt. of plate + wt. of dry sample	71.23	74.99	69.69	35.68	34.59	35.63
wt. of water	10.8	10.7	8.7	0.6	0.6	0.7
wt. of dry sample	39.6	42.4	37.3	3.2	3.1	3.5
moisture content	27.3	25.2	23.4	20.2	20.5	20.5
The Limits	Liquid Limit			Plastic Limite		
				20.39		



Liquid Limit	25.31	
plasticity Index	4.9	6 max
Group Classification	A-1-a	A-1-a & A-1-b



وزارة النقل
المكتب العام للطرق والجسور



الجمعية المصرية للمهندسين
في الطرق والجسور



الهيئة القومية للإتفاق



مكتب أ.د/ خالد قنديل

Electrical Express Train From Borg Alarab to Alamein



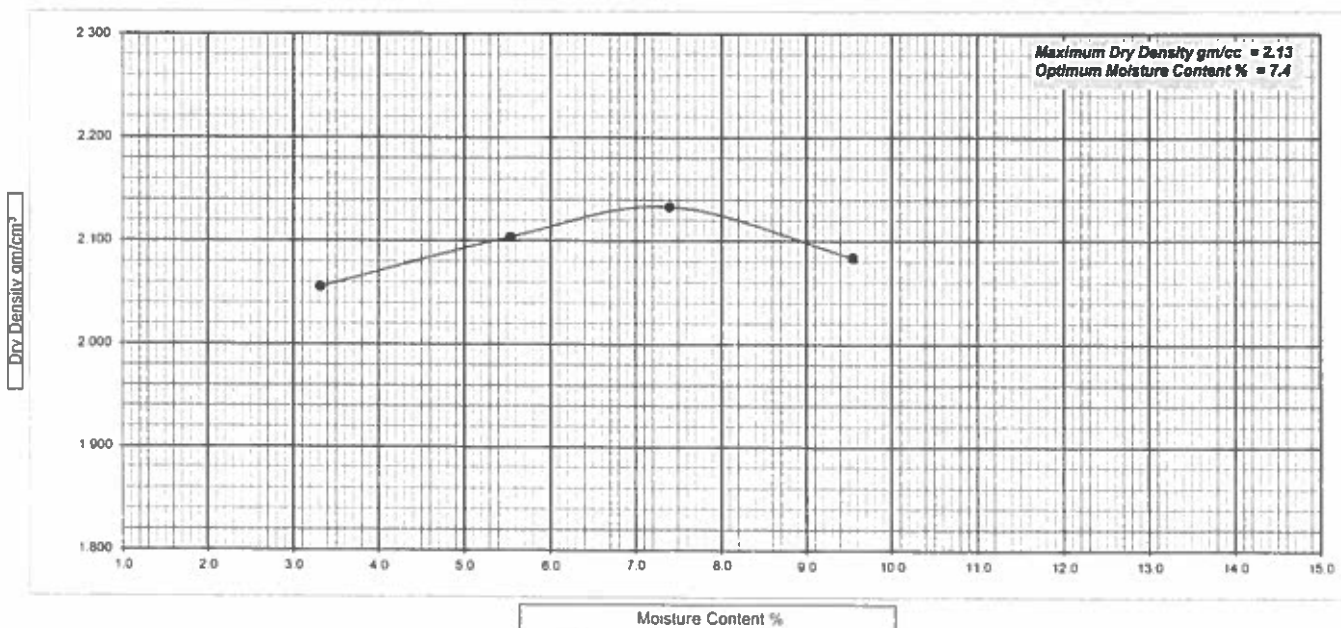
المكتب الاستشاري للمهندسين
أ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	10-May-23
Station	From	5000 m ²	To	Request NO.	QT 2-2

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

CONTAINER NUMBER		2	3	15	27	13	23	11	16		
A	TARE MASS	gms.	31.41	32.36	32.41	32.48	32.41	31.63	32.14	32.42	
B	MASS WET SOIL & TARE	gms.	200.1	177.4	175.2	182.8	176.3	192.3	191.1	182.0	
C	MASS DRY SOIL & TARE	gms.	194.8	172.6	167.8	174.8	166.7	181.0	177.4	168.8	
D	MASS OF WATER	gms. B-C	5.3	4.8	7.4	8.0	9.7	11.4	13.7	13.2	
E	MASS OF DRY SOIL	gms. C-A	163.4	140.3	135.4	142.3	134.3	149.4	145.3	136.4	
F	MOISTURE CONTENT	% $\frac{D}{E} \times 100$	3.2	3.4	5.5	5.6	7.2	7.6	9.4	9.7	
AVERAGE		%	3.3		5.5		7.4		9.6		

TRIAL NUMBER		1	2	3	4		
G	MASS OF MOLD & WET SOIL	gms.	10326	10535	10689	10671	
H	MASS OF MOLD	gms.	5729	5729	5729	5729	
I	MASS OF WET SOIL	gms. G-H	4597	4806	4960	4942	
J	VOLUME OF MOLD	cm ³	2165	2165	2165	2165	
K	WET DENSITY	g/cm ³ $\frac{I}{J}$	2.123	2.220	2.291	2.283	
L	DRY DENSITY	g/cm ³ $\frac{K}{100 - F}$	2.055	2.103	2.133	2.084	



Eng. / CONSULTANT

Abdallah H. May

Eng. / CONTRACTOR

Signature

Contractor Company AL-ZANKALONY CO. for General Contracting	Name	Sign	Date/Serial Number	Time
Issued by Contractor				
Received by GARB CONSULTANT				

CODE-1	S1 to S21	D1 to S3	Kp XXX Note
	Station Reference		
	Depot Reference		
Work Activity			
Sub Element of Activity			

Description of Materials	Fill Layer Total Quantity (5000 m³) عالى		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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	مهندس د.عبدالله			A
QA/QC	Eng. Abdallah Omar			
GARB	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer
** Alignment/Bridges - Culvert only

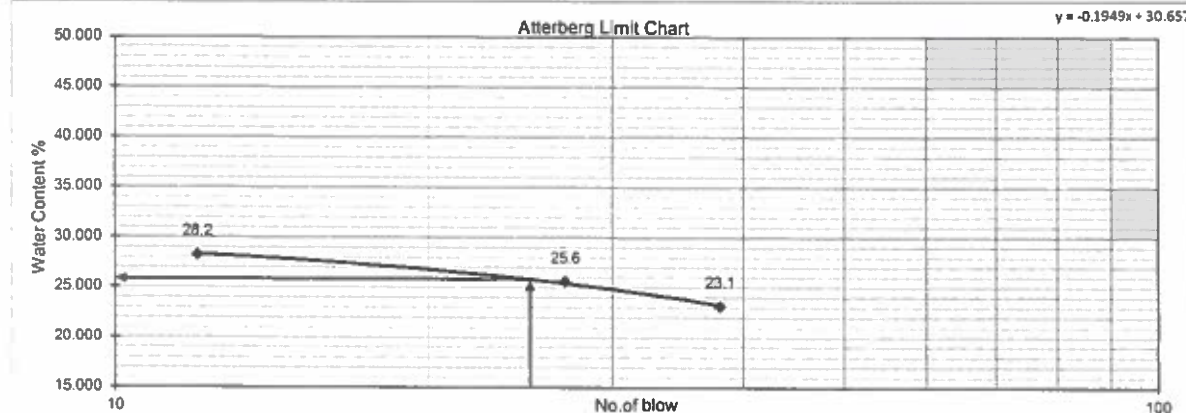
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	21-May-23
Company	شركة الزنكوني - القطاع	Request NO.	QT 2-3
Station	5000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	10839		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	183	98.3	
1 "	1430	86.8	
3/4"	3065	71.7	
3/8"	6109	43.6	
4	7371	32.00	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	53	28.60	50 max
40	165	21.44	30 max
200	369	8.38	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

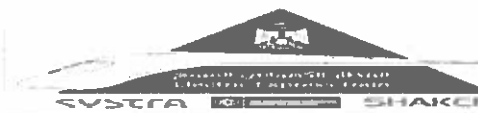
test	Liquid Limit			Plastic Limite		
Number of blows	12	27	38			
Number of plate	13	4	14	15	7	10
Wt. Of plate	32.04	31.78	32.2	30.88	33.35	32.48
wt. of plate + wt. of wet sample	61.29	60.84	64.84	34.30	37.03	35.70
wt. of plate + wt. of dry sample	54.85	54.92	58.71	33.69	36.38	35.12
wt. of water	6.4	5.9	6.1	0.6	0.6	0.6
wt. of dry sample	22.8	23.1	26.5	2.8	3.0	2.6
moisture content	28.2	25.6	23.1	21.6	21.3	22.0
The Limits	Liquid Limit			Plastic Limite		
	25.78			21.65		



Liquid Limit	25.78	
plasticity Index	4.1	6 max
Group Classification	A-1-a	A-1-a & A-1-b



مزاود النقل
الهيئة العامة للطرق والمواصلات



SYSTRA



الهيئة القومية للإنشاء



مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

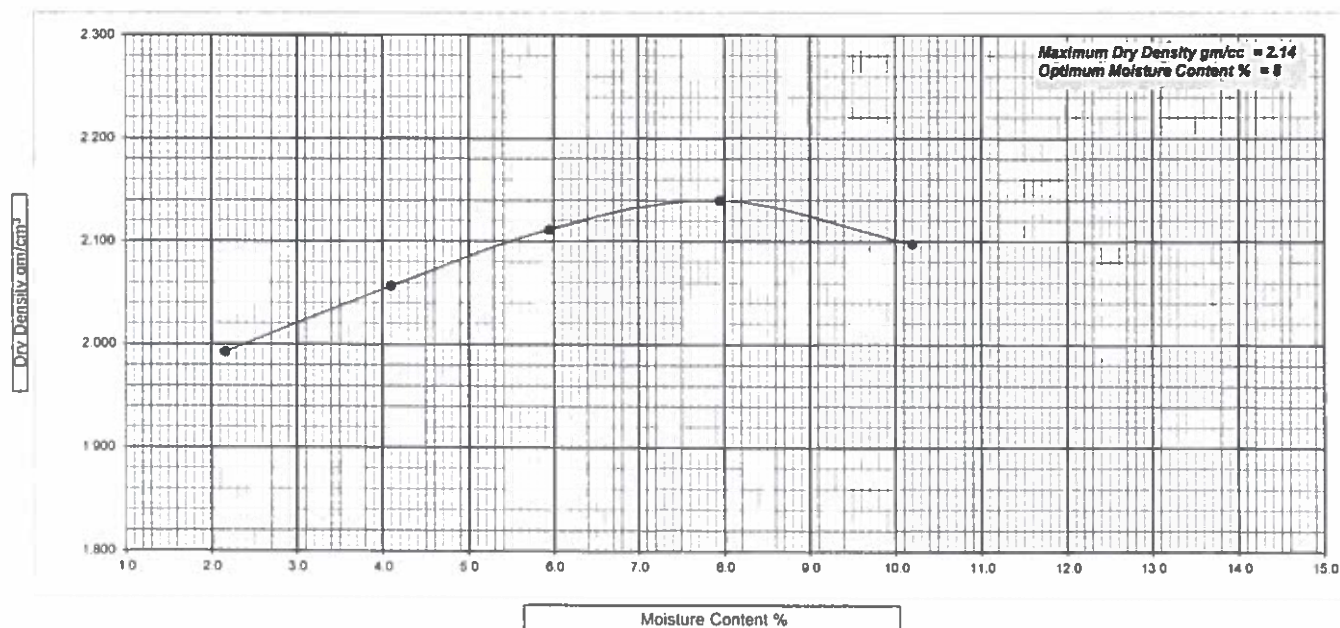


ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	22-May-23
Station	From	5000 m ³	To	Request NO.	QT 2-3

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				19	18	30	21	26	23	20	12	18	13
A	TARE MASS	gms		32.15	31.6	31.26	32.58	32.46	31.45	32.63	31.26	32.85	32.42
B	MASS WET SOIL & TARE	gms		187.8	182.0	172.3	174.7	162.5	182.0	194.2	169.7	195.2	180.4
C	MASS DRY SOIL & TARE	gms		184.4	178.9	166.9	168.9	155.1	173.7	182.3	159.5	180.1	166.8
D	MASS OF WATER	gms	B-C	3.4	3.1	5.4	5.7	7.5	8.3	12.0	10.1	15.2	13.6
E	MASS OF DRY SOIL	gms	C-A	152.2	147.3	135.6	136.4	122.6	142.3	149.6	128.3	147.2	134.4
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	2.2	2.1	4.0	4.2	6.1	5.8	8.0	7.9	10.3	10.1
AVERAGE		%		2.2		4.1		6.0		8.0		10.2	
DRY DENSITY													
TRIAL NUMBER				1		2		3		4		4	
G	MASS OF MOLD & WET SOIL	gms.		10136		10363		10572		10730		10735	
H	MASS OF MOLD	gms.		5729		5729		5729		5729		5729	
I	MASS OF WET SOIL	gms.	G-H	4407		4634		4843		5001		5006	
J	VOLUME OF MOLD	cm ³		2165		2165		2165		2165		2166	
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.036		2.140		2.237		2.310		2.311	
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	1.992		2.056		2.111		2.140		2.097	



Eng. / CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

[Signature]

**MATERIAL
APPROVAL
REQUEST**

شركة الزنكلوني
المقاولات العامة



الهيئة العامة
للطرق والكباري
(GARB)



المعهد العالي للتكنولوجيا
بجامعة القاهرة



Contractor Company		Al-ZANKALONY CO. for General Contracting			Designer Company		(KK) Engineering Consulting Office					
Issued by Contractor	Name	Sign		Date/Serial Number			Time					
	أحمد جمال وهدي			2023-05-08			08:00					
				MAR 2-2								
Received by GARB CONSULTANT		Eng. Abdallah Omar		MAR	C1	C2	C3	DD	MM	YY	HH	MM
					333	EW	CS	09	05	23	08	00

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 (5000 m³) مشون		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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	أحمد جمال وهدي			A
QA/QC *	Eng. Abdallah Omar			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

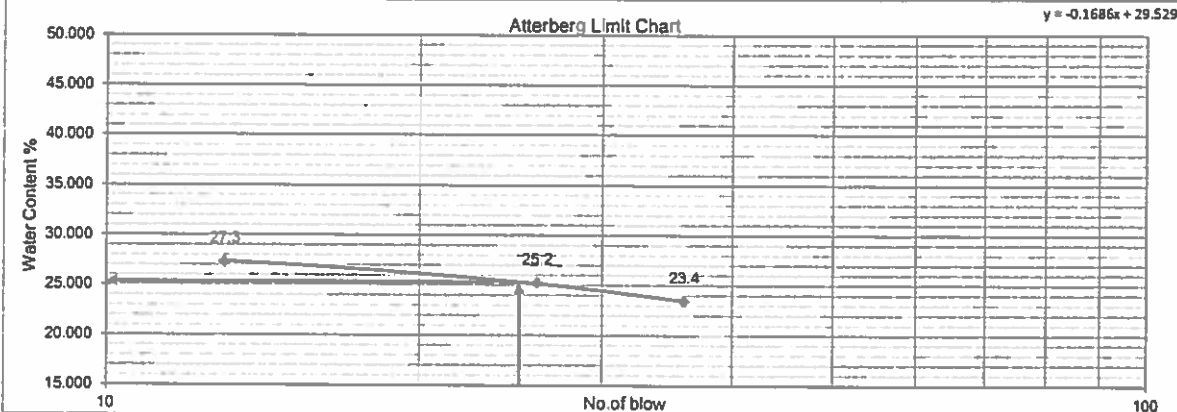
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	7-May-23
Company	شركة الزنكوني - المشون		
Station	5000 m ²	Request NO.	QT 2-2
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	17410		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	85	99.5	
1"	883	94.9	
3/4"	901	94.8	
3/8"	6632	61.9	
4	9769	43.89	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	36.25	50 max
40	219	24.67	30 max
200	356	12.64	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	13	26	36			
Number of plate	2	14	13	12	10	23
Wt. Of plate	31.63	32.63	32.41	32.48	31.45	32.15
wt. of plate + wt. of wet sample	82.04	85.68	78.42	36.33	35.23	36.34
wt. of plate + wt. of dry sample	71.23	74.99	69.69	35.68	34.59	35.63
wt. of water	10.8	10.7	8.7	0.6	0.6	0.7
wt. of dry sample	39.6	42.4	37.3	3.2	3.1	3.5
moisture content b	27.3	25.2	23.4	20.2	20.5	20.5
The Limits	Liquid Limit			Plastic Limite		20.39



Liquid Limit	25.31	
plasticity Index	4.9	6 max
Grou Classification	A-1-a	A-1-a & A-1-b



الهيئة القومية للإنفاق



شركة التكتيكات
للمقاولات العامة

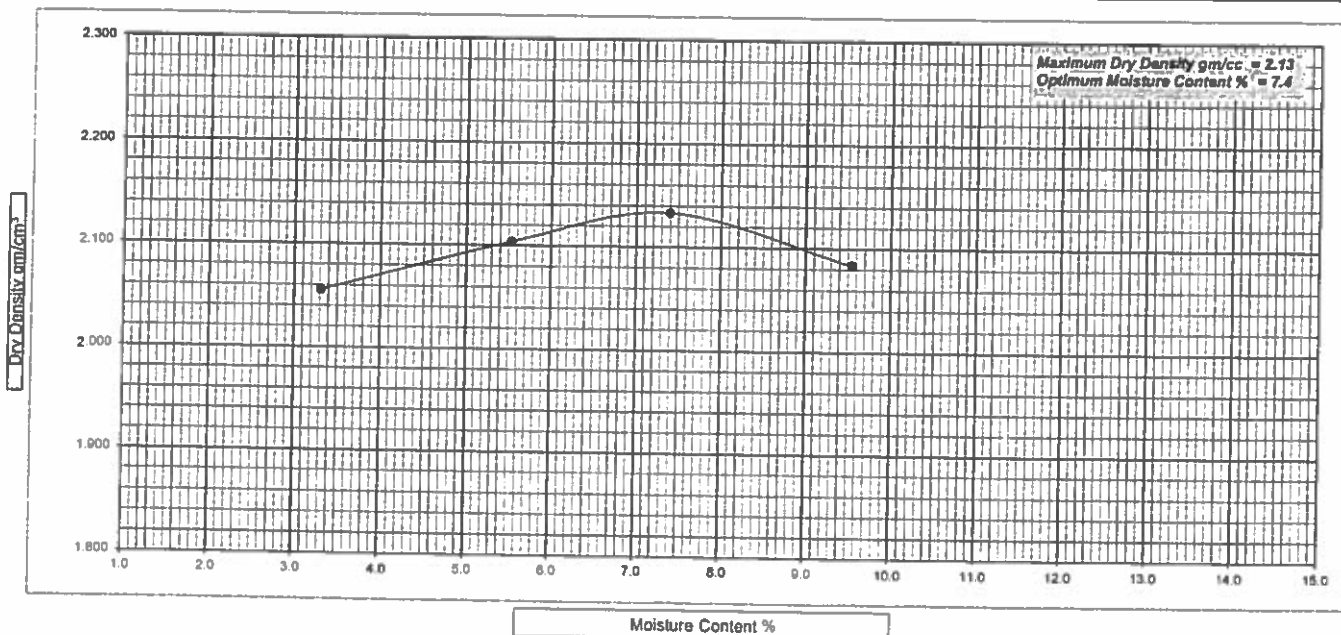
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
إ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	8-May-23
Station	From	5000 m ³	To	Request NO.	QT 2-2

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

CONTAINER NUMBER			MOISTURE CONTENT									
			2	3	15	27	13	23	11	16		
A	TARE MASS	gms.	31.41	32.36	32.41	32.48	32.41	31.63	32.14	32.42		
B	MASS WET SOIL & TARE	gms.	200.1	177.4	175.2	182.8	176.3	192.3	191.1	182.0		
C	MASS DRY SOIL & TARE	gms.	194.8	172.6	167.8	174.8	166.7	181.0	177.4	168.8		
D	MASS OF WATER	gms. B-C	5.3	4.8	7.4	8.0	9.7	11.4	13.7	13.2		
E	MASS OF DRY SOIL	gms. C-A	163.4	140.3	135.4	142.3	134.3	149.4	145.3	136.4		
F	MOISTURE CONTENT	% $\frac{D}{E} \times 100$	3.2	3.4	5.5	5.6	7.2	7.6	9.4	9.7		
AVERAGE			3.3	5.5	7.4	9.6						
TRIAL NUMBER			DRY DENSITY									
			1	2	3	4						
G	MASS OF MOLD & WET SOIL	gms.	10326	10535	10689	10671						
H	MASS OF MOLD	gms.	5729	5729	5729	5729						
I	MASS OF WET SOIL	gms. G-H	4597	4806	4960	4942						
J	VOLUME OF MOLD	cm ³	2165	2165	2165	2165						
K	WET DENSITY	g/cm ³ $\frac{I}{J}$	2.123	2.220	2.291	2.283						
L	DRY DENSITY	g/cm ³ $\frac{K}{100 + F}$	2.055	2.103	2.133	2.084						



Eng. / CONSULTANT

Abdallah H. Mery

Eng. / CONTRACTOR

Signature of Contractor

MATERIAL APPROVAL REQUEST

شركة الزنكلوني
للحلول العامة

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.ع. خالد فهد

الهيئة العامة
للطرق والكباري
(GARB)



المشروع: إنشاء جسر على نهر
في منطقة...



Contractor Company	Al-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office	
Issued by Contractor	Name	Sign	Date/Serial Number	Time	
	أحمد جمال وهداية		2023-05-21 MAR 2-3	08:00	
Received by GARB CONSULTANT	Eng. Abdallah Omar	MAR	EW	CS	DD
			22	05	23

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 (5000 m³) القطاع		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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	أحمد جمال وهداية			A
QA/QC *	Eng. Abdallah Omar			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

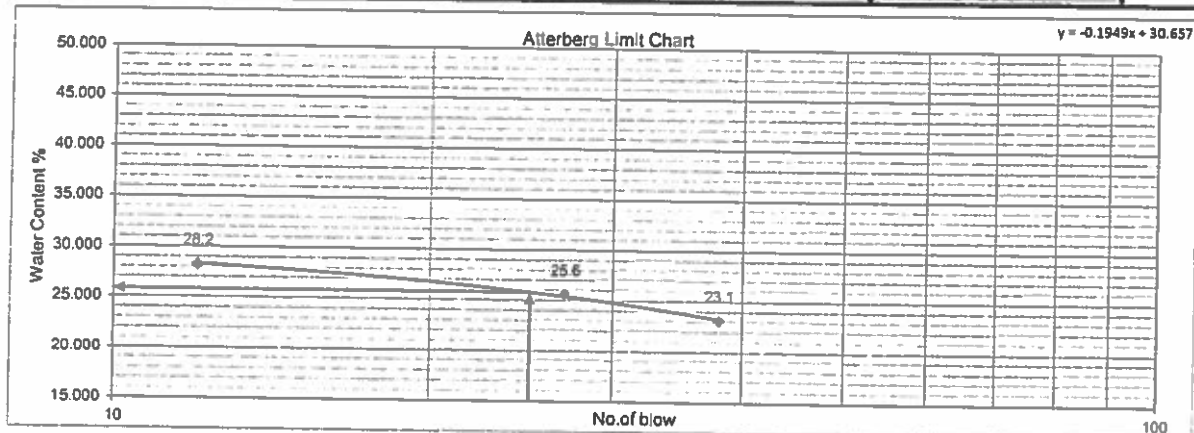
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	21-May-23
Company	شركة الزنكلوني - القطاع	Request NO.	QT 2-3
Station	5000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

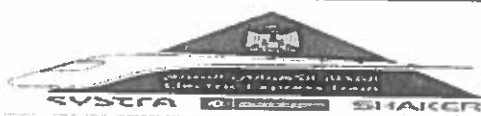
wt. of coarse sample =	10839		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	183	98.3	
1"	1430	86.8	
3/4"	3065	71.7	
3/8"	6109	43.6	
4	7371	32.00	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	53	28.60	50 max
40	165	21.44	30 max
200	369	8.38	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	12	27	38			
Number of plate	13	4	14	15	7	10
Wt. Of plate	32.04	31.78	32.2	30.88	33.35	32.48
wt. of plate + wt. of wet sample	61.29	60.84	64.84	34.30	37.03	35.70
wt. of plate + wt. of dry sample	54.85	54.92	58.71	33.69	36.38	35.12
wt. of water	6.4	5.9	6.1	0.6	0.6	0.6
wt. of dry sample	22.8	23.1	26.5	2.8	3.0	2.6
moisture content	28.2	25.6	23.1	21.6	21.3	22.0
The Limits	Liquid Limit			Plastic Limite		
	25.78			21.65		



Liquid Limit	25.78	
plasticity index	4.1	6 max
Group Classification	A-1-a	A-1-a & A-1-b



الهيئة القومية للإنفاق



شركة نقل القاهرة
المقاولات العامة

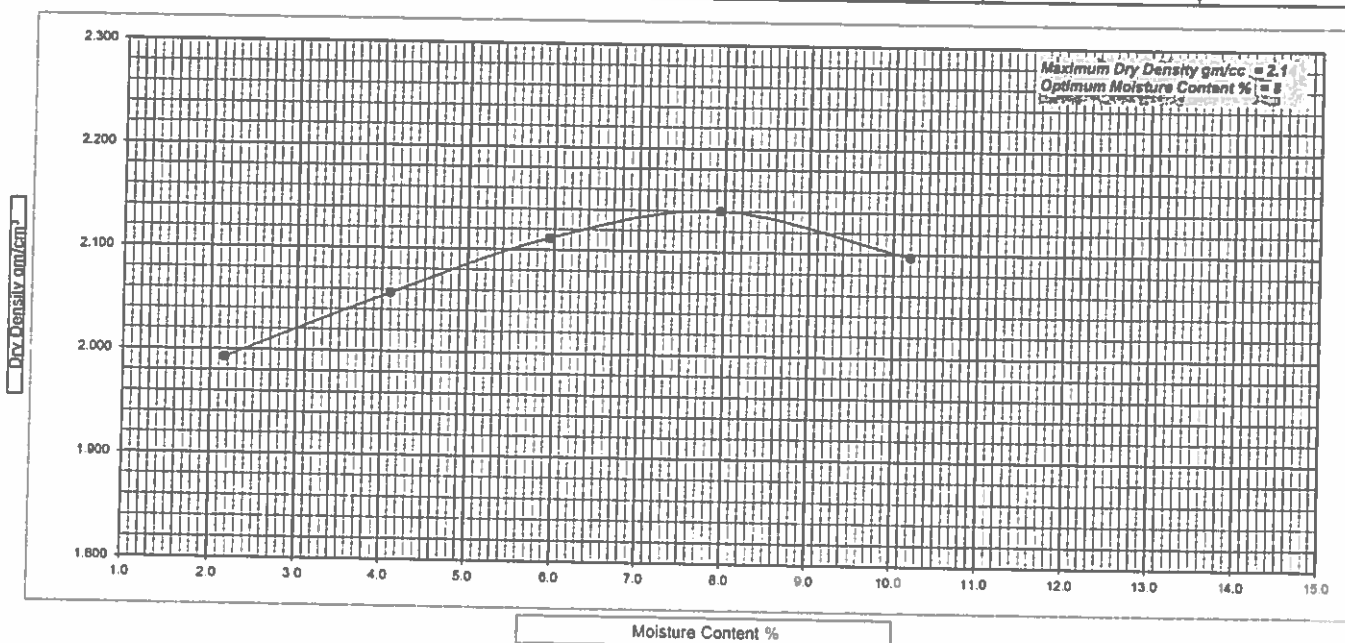
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	22-May-23
Station	From	5000 m ³	To	Request NO.	QT 2-3

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

CONTAINER NUMBER			MOISTURE CONTENT									
			19	18	30	21	26	23	20	12	18	13
A	TARE MASS	gms.	32.15	31.6	31.26	32.58	32.46	31.45	32.63	31.26	32.85	32.42
B	MASS WET SOIL & TARE	gms.	187.8	182.0	172.3	174.7	162.5	182.0	194.2	169.7	195.2	180.4
C	MASS DRY SOIL & TARE	gms.	184.4	178.9	166.9	168.9	155.1	173.7	182.3	159.5	180.1	166.8
D	MASS OF WATER	gms. B-C	3.4	3.1	5.4	5.7	7.5	8.3	12.0	10.1	15.2	13.6
E	MASS OF DRY SOIL	gms. C-A	152.2	147.3	135.6	136.4	122.6	142.3	149.6	128.3	147.2	134.4
F	MOISTURE CONTENT	% $\frac{D}{E} \times 100$	2.2	2.1	4.0	4.2	6.1	5.8	8.0	7.9	10.3	10.1
AVERAGE			2.2	4.1	6.0	8.0	10.2					
TRIAL NUMBER			DRY DENSITY									
			1	2	3	4	4					
G	MASS OF MOLD & WET SOIL	gms.	10136	10363	10572	10730	10735					
H	MASS OF MOLD	gms.	5729	5729	5729	5729	5729					
I	MASS OF WET SOIL	gms. G-H	4407	4634	4843	5001	5006					
J	VOLUME OF MOLD	cm ³	2165	2165	2165	2165	2166					
K	WET DENSITY	g/cm ³ $\frac{I}{J}$	2.036	2.140	2.237	2.310	2.311					
L	DRY DENSITY	g/cm ³ $\frac{K}{100 - P}$	1.992	2.056	2.111	2.140	2.097					



Eng. / CONSULTANT

Abdullah H. Omar

Eng. / CONTRACTOR

[Signature]

**MATERIAL
APPROVAL
REQUEST**

شركة الزنكلوني
المقاولات العامة

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
د. خالد عبد الله

الهيئة العامة
للطرق والكباري
(GARB)



المركز القومي للمقاولات
مركز الدراسات والبحوث



Contractor Company	Al-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number		Time					
	أحمد جمال وهدي		2023-04-29		08:00					
			MAR 003							
Received by GARB CONSULTANT	Eng. Abdallah Omar		C1	C2	C3	DD	MM	YY	HH	MM
			334	EW	CS	30	04	23	08	00

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	JOB MIX مواد ترابيه + تجارب التحسين بالرمل		
Location to be Used	From Station (334+040) to Station (334+560)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
1-Quality test Result By Site Laboratory is Approved. تم اخذ عينه ترابيه شركة الزنكلوني م. مديري مشروع م. أحمد جمال وهدي م. محمد صافي لحساب نسبة التحسين بالرمل فأصبح النسبة التي فيها التربة تكون مطابقة للمواصفة Soil %75, Sand %25 هذا		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	أحمد جمال وهدي			A
QA/QC *	Eng. Abdallah Omar			AWC
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

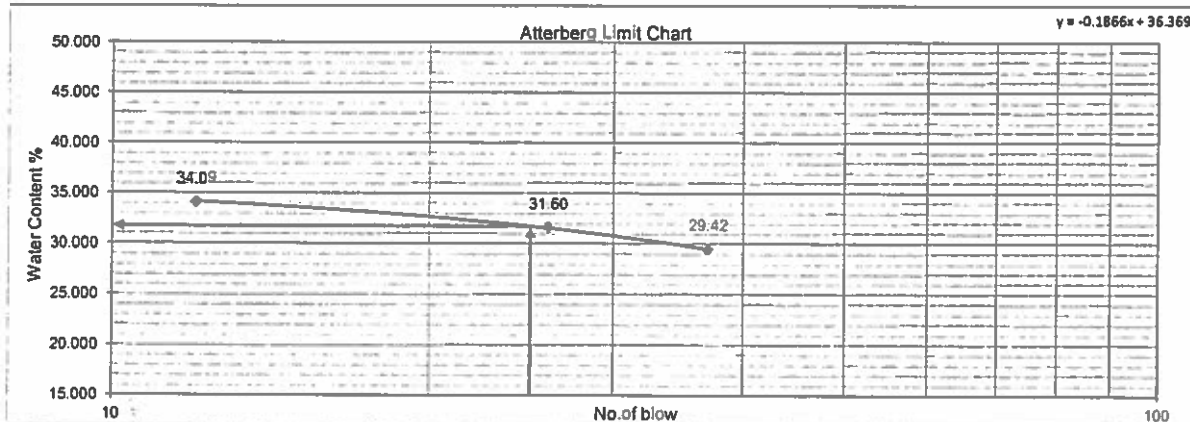
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	17410		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	85	99.5	
1"	883	94.9	
3/4"	901	94.8	
3/8"	6632	61.9	
4"	9769	43.89	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	36.25	50 max
40	219	24.67	30 max
200	356	12.64	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	12	26	37			
Number of plate	A-13	A-2	A-15	A-1	A-5	A-14
Wt. Of plate	32.02	32.82	30.85	30.5	31.56	32.22
wt. of plate + wt. of wet sample	73.24	73.05	64.99	33.83	34.84	34.84
wt. of plate + wt. of dry sample	62.76	63.39	57.23	33.27	34.25	34.37
wt. of water	10.48	9.66	7.76	0.56	0.59	0.47
wt. of dry sample	30.74	30.57	26.38	2.77	2.69	2.15
moisture content	34.09	31.60	29.42	20.22	21.93	21.86
The Limits	Liquid Limit			Plastic Limite		21.34



Liquid Limit	31.70	
plasticity index	10.4	6 max
Group Classification	A-2-6	A-1-a & A-1-b



الهيئة القومية للإنفاق



شركة الزنكوني
المكبرات العامة

مكتب إ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
إ.د. خالد قنديل

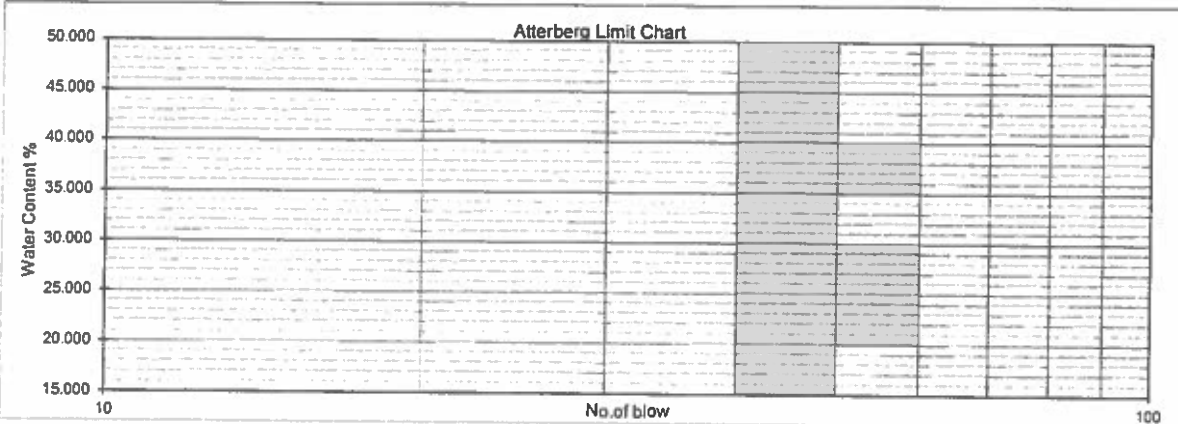
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =			
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"			
1.5"			
1"			
3/4"			
3/8"			
4"			
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	10	98.00	50 max
40	189	62.20	30 max
200	481	3.80	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt. Of plate		
wt. of plate + wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index	A-3	A-1-a & A-1-b
Group Classification		

Eng. / CONSULTANT

A b S allah . omay

Eng. / CONTRACTOR

5

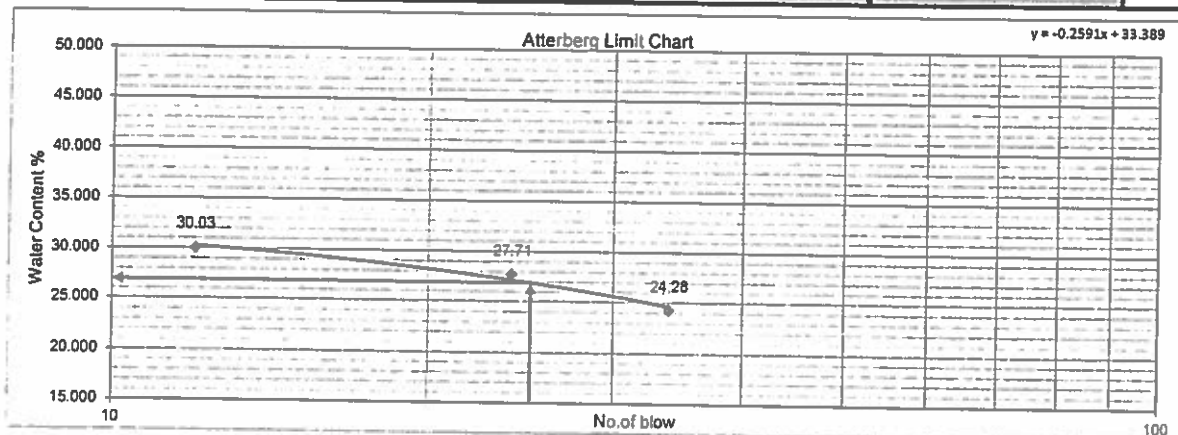
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع +20% رمل		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	10880		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	0	100.0	
1"	370	96.6	
3/4"	1262	88.4	
3/8"	4190	61.5	
4	5700	47.61	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	55	42.37	50 max
40	257	23.14	30 max
200	404	9.14	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	12	24	34			
Number of plate	A-13	A-2	A-15	A-1	A-5	A-14
Wt. Of plate	32.02	32.82	30.85	30.5	31.56	32.22
wt. of plate + wt. of wet sample	73.24	73.05	64.99	33.83	34.84	34.84
wt. of plate + wt. of dry sample	63.72	64.32	58.32	33.27	34.27	34.38
wt. of water	9.52	8.73	6.67	0.56	0.57	0.46
wt. of dry sample	31.7	31.5	27.47	2.77	2.71	2.16
moisture content	30.03	27.71	24.28	20.22	21.03	21.30
The Limits	Liquid Limit			Plastic Limite		20.85



Liquid Limit	26.91	
plasticity index	6.1	6 max
Group Classification	A-2-A	A-1-a & A-1-b

A-2-u

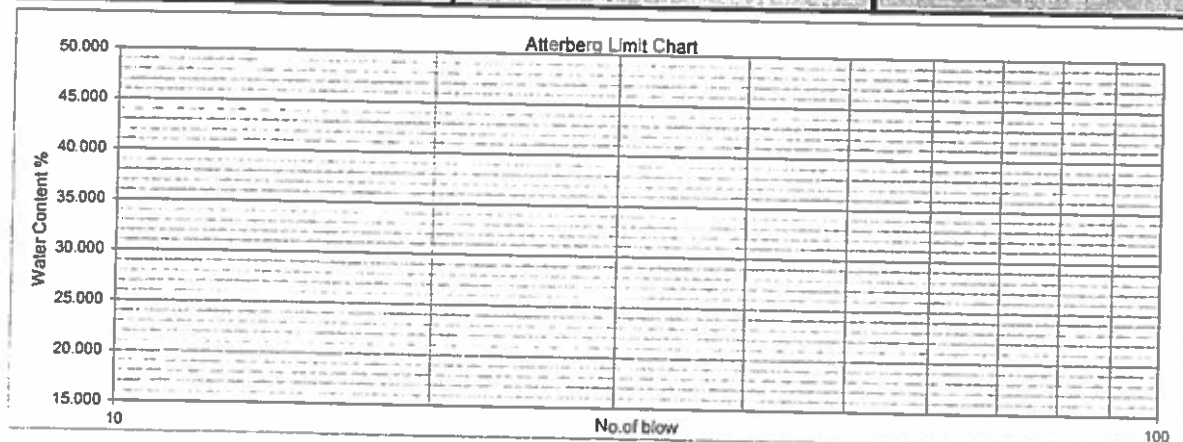
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكلوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع +25% رمل		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	11319		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits%
2"	0	100.0	
1.5"	0	100.0	
1"	376	96.7	
3/4"	982	91.3	
3/8"	3195	71.8	
4	4999	55.84	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits%
10	50	50.25	50 max
40	216	31.71	30 max
200	403	10.83	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt. Of plate		
wt. of plate + wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index	NP	A-1-a & A-1-b
Group Classification	A-1-A	

MATERIAL APPROVAL REQUEST										
	شركة الزنكلون للخدمات العامة		ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي إ. خالد شاذلي		الهيئة العامة للطرق والكباري (GAR)		الوزارة للتنمية الاقتصادية		وزارة الإسكان والتخطيط العمراني	

Contractor Company	AI-ZANKALONY CO. for General Contracting			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	إبراهيم دويش			2023-04-29 MAR 003-1	08:00						
Received by GARB CONSULTANT	(KK) Khaled Zakir		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				334	EW	CS	30	04	23	08	00

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	JOB MIX		
Location to be Used	From Station (334+040) to Station (334+560)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. (KK)		Comments by: Eng. Alaa Abd-Allatif (ER)	
approved			

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	إبراهيم دويش			A
QA/QC *	(KK) Khaled Zakir			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		15-6-2023	Awc

* Designer
** Alignment/Bridges Culvert only



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 : Dr/ Khaled Kandil
Contractor : شركة الزنكلوني للمقاولات
Sample : Crushed stone and sand Mix (80:20)
Station : St(333+800) to st(334+400)
Date of Test : 29/04/2023
QC : 1163-2

II- Sample description:

Crushed stone and sand Mix (80:20)

III- Required tests and Results

Required Tests		Results
1- Grain size analysis and classification	Grain size analysis	As showed in appendix
	Classification	A-1-a
2- Modified compaction (Proctor test)	MDD	2.133
	OMC	8.5%
3- Liquid limit, plastic limit and plasticity index	LL	Np
	PL	Np
	PI	Np
4- California bearing ratio (CBR)	CBR ratio	41%

IV- Notes

- 1- Samples were brought by : Consultant
- 2- Samples are responsible from the Person who brought it.
- 3- The results are applying only for the present report.

LAB DIRECTOR

Eng / Eman kandil

Eman



Geotechnical consultant

For Dr. M. Badry
Dr. Mohamed Mostafa Badry

Kilo 23 Alexandria - Cairo Desert Road - Merghem

Tel: 002 03 4704595 - 002 034701191

Email : civdept@comibassal.com

WebSite : www.comibassal.com



49 El Horria Ave. Alex, Egypt

Tel: 002 033920176 - 002 033931482

Fax : 002 033900476

Email : internal-inspection@comibassal.com



COMIBASSAL International Controllers Internal inspection and laboratories sector

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

APPENDIX





COMIBASSAL International Controllers

Internal inspection and laboratories sector

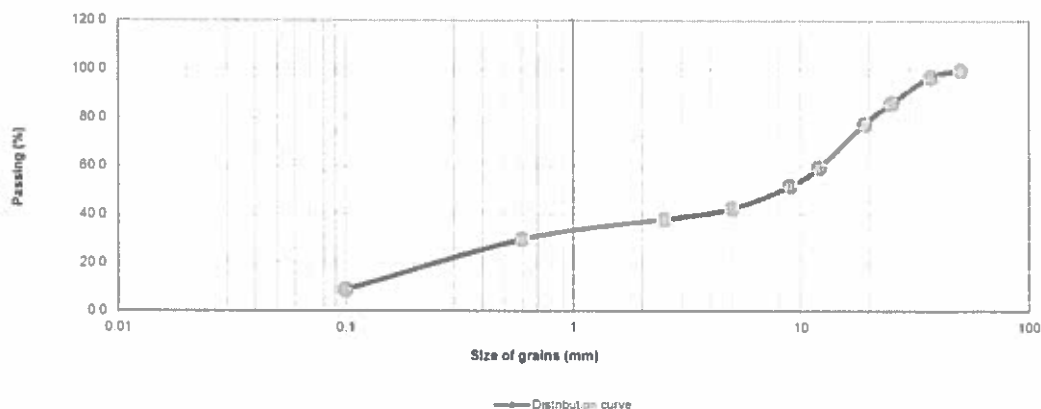
Accredited by : Egypton General Authority for Petroleum under No. 34/29-11-2011
Accredited by : Egypton Accreditation council (EGAC) under No. 031706/1A

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	298.00	298.00	2.98	97.0	
1	1082.00	1380.00	13.80	86.2	
3/4	882.00	2262.00	22.62	77.4	
1/2	1811.00	4073.00	40.74	59.3	
3/8	751.00	4824.00	48.25	51.8	
No.4	924.00	5748.00	57.49	42.5	
No.10	53.00	53.00	10.60	38.0	
No.40	150.00	150.00	30.00	29.8	
No.200	396.00	396.00	79.20	8.8	

Total sample weight = 9998.00 pass No 4= 4250.0 Total fine aggregates weight = 500 gm
% 42.5

Size analysis distribution curve



Soil classification: A - 1 - a (Sample is non Plastic)





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

Modified Proctor Test Report

ASTM - D 1557

Mould Number :- 2
Volume of mould = 2188 cm³
Weight of mould = 5657 g
G.S = 2.65 g/cm³

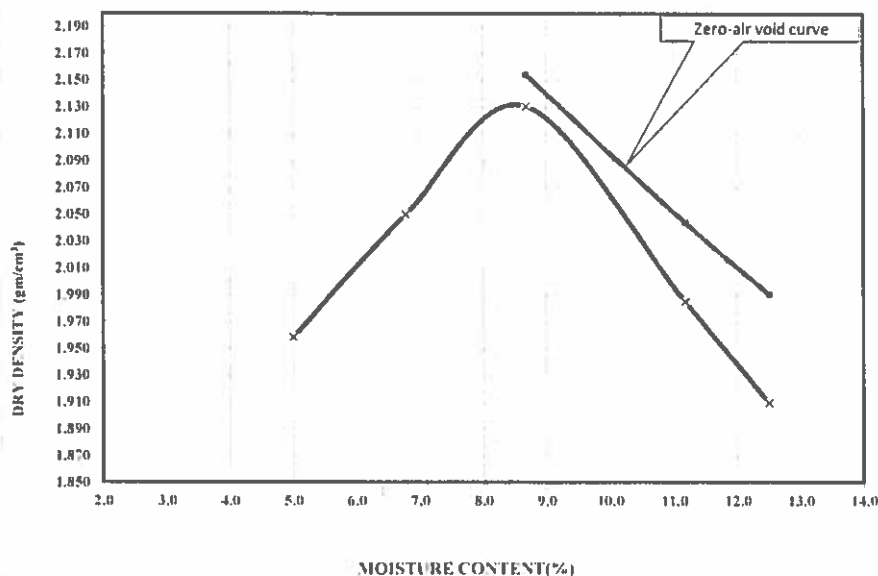
A- Density Calculations :-

	1	2	3	4	5
Weight.of wet soil+mould (g)	11760	12050	12327	12089	11960
Weight.of mould (g)	7260	7260	7260	7260	7260
Weight.of wet soil (g)	4500	4790	5067	4829	4700
Volume of mould (cm ³)	2188	2188	2188	2188	2188
Wet density (g/cm ³)	2.057	2.189	2.316	2.207	2.148
Dry density (g/cm ³)	1.959	2.050	2.131	1.985	1.909
Zero-air Void curve			2.154	2.044	1.991

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)	242.0	239.2	236.5	233.3	233.0
Weight.of container (g)	82.0	80.0	81.0	84.0	97.0
moisture content(%)	5.0	6.8	8.7	11.2	12.5

C - Dry density-Moisture relationship:-



M.D.D= 2.133 gm/cm³
O.M.C= 8.5 %





COMIBASSAL International Controllers

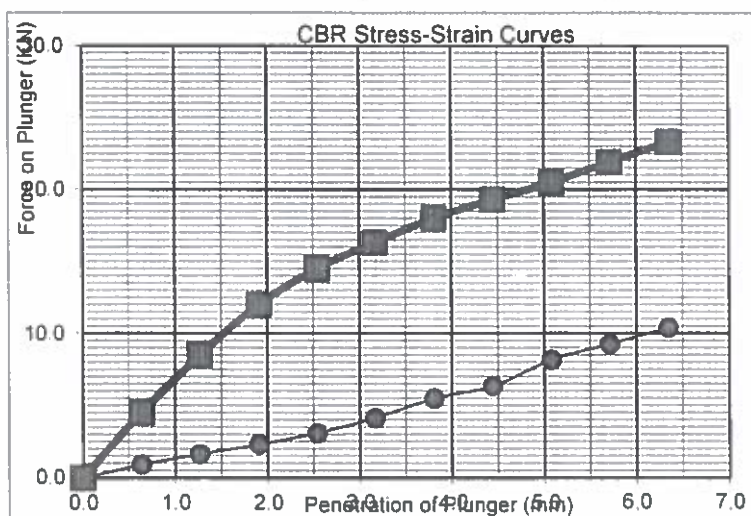
Internal inspection and laboratories sector

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

Report Of CBR Test - ASTM - D 1883

NO OF BLOWS	56					
MOULD NO	2					
WT OF MOULD+SOIL	12022					
WT OF MOULD	7020					
WT OF SOIL	5002					
VOLUME OF MOULD	2188					
WET DENSITY	2.286					
	MC before soaking			Weight of Rammer	4.54Kg	
TIN NO	1			MDD	Kg/m3	2.133
WT OF WET SOIL+TIN	250.00					
WT OF DRY SOIL+TIN	238			OMC	%	8.500
WT OF WATER	12.00					
WT OF TIN	81					
WT OF DRY SOIL	157					
MOISTURE CONTENT	7.6					
DRY DENSITY	2.124					

Pen	Reading (Div)	Bearing (KN)	standar	CBR
mm	56	56	56	56
0.00	0	0.0	0.0	
0.64	92	0.9	4.5	
1.27	165	1.6	8.5	
1.91	235	2.3	12.0	
2.54	315	3.1	14.5	23
3.17	422	4.1	16.3	
3.81	560	5.5	18.0	
4.45	648	6.4	19.3	
5.08	833	8.2	20.5	41
5.71	945	9.3	21.9	
6.35	1060	10.4	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. 031706/1A

Report :	489 - 1 - Center
Date :	15/06/2023

CHEMICAL ANALYSIS

General Consultant :	SYSTRA
Consultant :	SPECTRUM
Contractor :	شركة التكنولوجيا للمقاولات
Project :	Electric express train
Sample :	FERMA
Station :	ST (333 + 800) ; (334 + 400)
Date of Test :	29-4-2023

Temperature : 24 °C

Humidity : 40%

ANALYSIS	RESULTS	TEST METHOD
ORGANIG MATTER	NEGATIVE	ASTM D 2974



LAB DIRECTOR
CH/ Mostafa Asker

Moustafa



**MATERIAL
APPROVAL
REQUEST**

شركة الزنكالي
للطرق والبنى التحتية

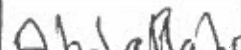
ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد شمس الدين

المهنة العامة
للطرق والكباري
(GARB)



المهندسين المعماريين والبنائيين
م.أ.د. محمد العبدالله



Contractor Company		Al-ZANKALONY CO. for General Contracting		Designer Company				(KK) Engineering Consulting Office			
Issued by Contractor	Name	Sign		Date/Serial Number				Time			
	أحمد جمال وهدي			2023-05-22				08:00			
				MAR 004							
Received by GARB CONSULTANT	Eng. Abdallah Omar	 MAR		C1	C2	C3	DD	MM	YY	HH	MM
				333	EW	CS	23	05	23	08	00

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 (10000 m³)		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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	أحمد جمال وهدي			A
QA/QC *	Eng. Abdallah Omar			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

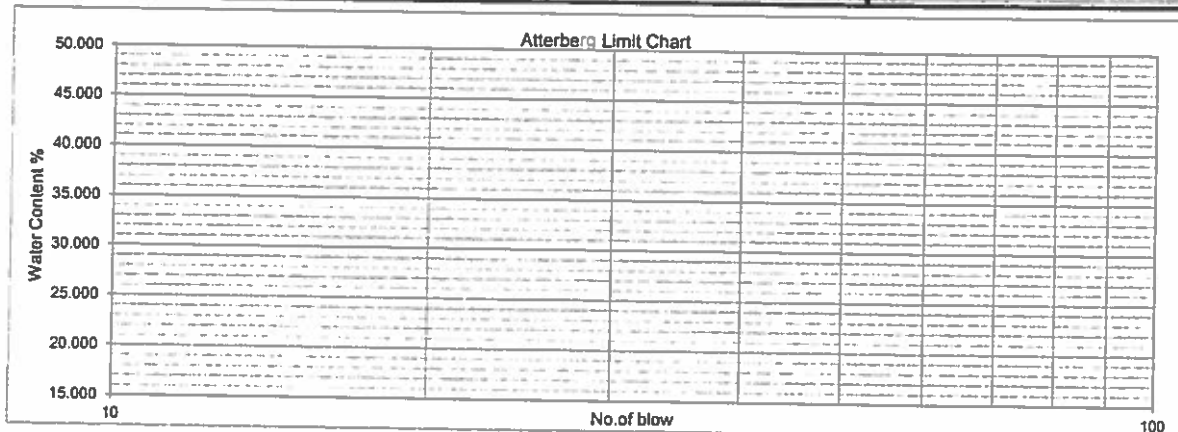
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	22-May-23
Company	شركة الزينكوني - المشون	Request NO.	QT 4
Station	10000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	30198		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	609	98.0	
1"	3808	87.4	
3/4"	8113	73.1	
3/8"	17214	43.0	
4	20825	31.04	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	53	27.75	50 max
40	172	20.36	30 max
200	362	8.57	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

Test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt. Of plate		
wt. of plate + wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index	NP	6 max
Group Classification	A-1-a	A-1-a & A-1-b



الهيئة القومية للإنفاق



شركة للدراسات
المحركات العامة

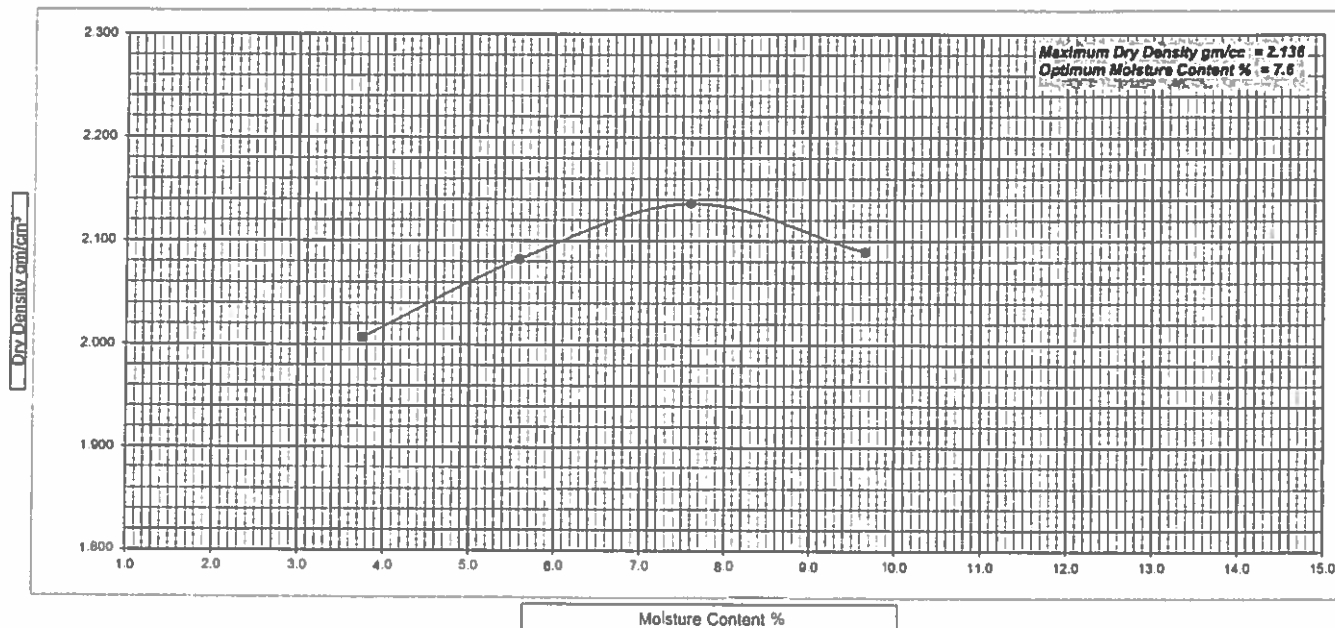
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	22-May-23
Station	From	5000 m ³	To	Request NO.	QT 4

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T.180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				2	13	10	1	2	14	6	7		
A	TARE MASS	gms.		32.45	32.49	32.2	32.47	31.39	32.56	32.41	32.6		
B	MASS WET SOIL & TARE .	gms.		173.0	180.0	204.4	189.2	219.2	182.1	173.0	199.6		
C	MASS DRY SOIL & TARE	gms.		167.7	174.9	195.5	180.7	205.7	171.8	160.7	184.9		
D	MASS OF WATER	gms.	B-C	5.3	5.1	8.9	8.5	13.6	10.3	12.3	14.8		
E	MASS OF DRY SOIL	gms.	C-A	135.3	142.4	163.3	148.3	174.3	139.3	128.3	152.3		
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.9	3.6	5.5	5.7	7.8	7.4	9.6	9.7		
AVERAGE		%		3.8		5.6		7.6		9.7			
DRY DENSITY													
TRIAL NUMBER				1		2		3		4			
G	MASS OF MOLD & WET SOIL	gms.		10236		10489		10705		10689			
H	MASS OF MOLD	gms.		5729		5729		5729		5729			
I	MASS OF WET SOIL	gms.	G-H	4507		4760		4976		4960			
J	VOLUME OF MOLD	cm ³		2165		2165		2165		2165			
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.082		2.199		2.298		2.291			
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	2.007		2.082		2.136		2.089			



Eng. / CONSULTANT
Abdallah. o may

Eng. / CONTRACTOR
SIP

**MATERIAL
APPROVAL
REQUEST**

المركبة للتطوير
المكثرات العامة



الهيئة العامة
للطرق والكباري
(GARB)



الهيئة العامة للتطوير
المكثرات العامة



Contractor Company	AI-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign	Date/Serial Number	Time						
	أحمد جمال وهدهد		2023-06-05 MAR 4-2	08:00						
Received by GARB CONSULTANT	Eng. Mohamed hassan	Sign	Code	DD	MM	YY	HH	MM		
			333	EW	CS	06	06	23	08	00

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 m ³) مشون		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Mohamed hassan (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)		
المصبة هي من مطبوعة للمواصفات P.I → 13.8 تم الضبط في الموقع وضابطة نسبة الخلط			

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	أحمد جمال وهدهد			A
QA/QC *	Eng. Mohamed hassan			
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer

** Alignment/Bridges: Culvert only

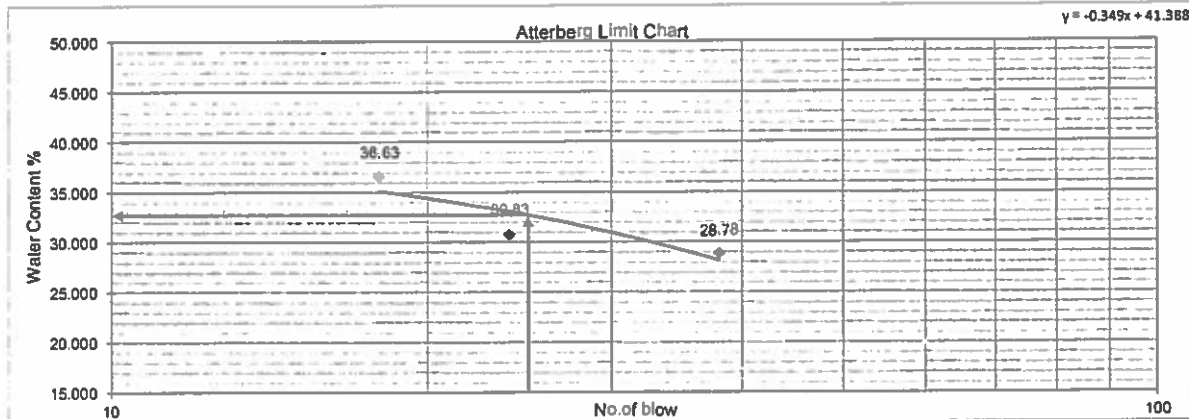
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	5-Jun-23
Company	شركة الزنكوني-المشون	Request NO.	QT 4-2
Station	Soil Classification (AASHTO M 145)		

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	17797		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"	0	100.0	
1.5"	424	97.6	
1"	2137	88.0	
3/4"	3871	78.2	
3/8"	7936	55.4	
4	9836	44.73	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	52	40.08	50 max
40	158	30.60	30 max
200	365	12.08	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	18	24	38			
Number of plate	A-10	A-2	A-7	A-3	A-11	
Wt. Of plate	31.46	32.83	33.16	32.35	31.93	
wt. of plate + wt. of wet sample	48.58	59.65	52.67	33.96	33.08	
wt. of plate + wt. of dry sample	43.99	53.33	48.31	33.7	32.9	
wt. of water	4.59	6.32	4.36	0.26	0.18	
wt. of dry sample	12.53	20.5	15.15	1.35	0.97	
moisture content	36.63	30.83	28.78	19.26	18.56	
The Limits	Liquid Limit			Plastic Limite		18.91



Liquid Limit	32.66	
plasticity index	13.8	6 max
Group Classification	A-2-6	A-1-a & A-1-b

MATERIAL APPROVAL REQUEST						
	المملكة العربية السعودية الهيئة العامة للطرق والكبارى (GARB)					

Contractor Company	Al-ZANKALONY CO. for General Contracting			Designer Company	(KK) Engineering Consulting Office						
Issued by C	Name	Sign	Date/Serial Number	Time							
	أحمد جمال وهدنة		2023-06-07 MAR 5	08:00							
Received by 'GARB CONSULTANT'	(KK)	Khaled Zaki	MAR	C1	C2	C3	DD	MM	YY	HH	MM
				333	EW	CS	08	06	23	08	00

	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 (15000 m³) مشون		
to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Pregualification reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Comments by (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)		
1- Quality test 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	أحمد جمال وهدنة			A
QA/QC *	(KK)	Khaled Zaki		
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

* Designer
 ** Alignment/Profile Report only



الهيئة القومية للإنفاق



شركة الزنكلوني
المقاولات العامة

مكتب ا.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
ا.د. خالد قنديل

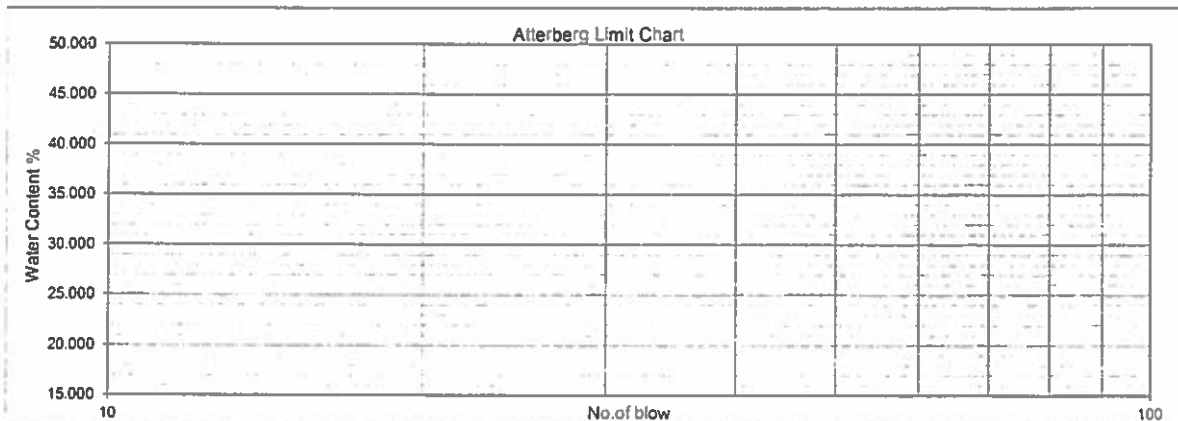
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	7-Jun-23
Company	شركة الزنكلوني-المشون	Request NO.	5
Station	15000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	24312		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	385	98.4	
1 "	2771	88.6	
3/4"	5948	75.5	
3/8"	10562	56.6	
4	13560	44.23	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	56	39.27	50 max
40	167	29.45	30 max
200	376	10.97	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	N.P	N.P
Number of plate		
Wt. Of plate		
wt. of plate+wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



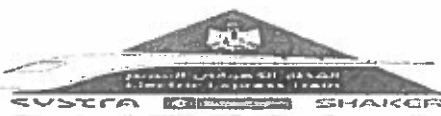
Liquid Limit	NP	6 max
plasticity index		
Group Classification	A-1-a	A-1-a & A-1-b

Eng. / CONSULTANT

Signature of Consultant

Eng. / CONTRACTOR

Signature of Contractor



الهيئة القومية للإنفاق



شركة الاستشارات
للمقاولات العامة

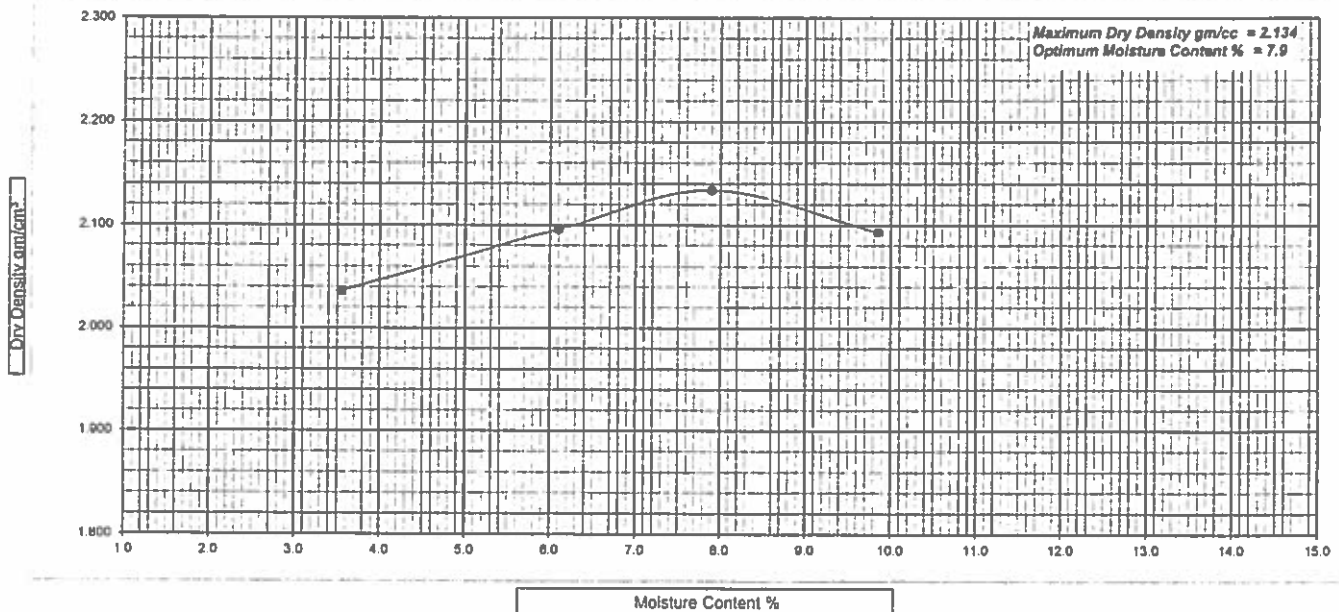
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	31-May-23
Station	From	15000 m ³	To	Request NO.	QT 5

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T.180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				5	7	12	13	22	21	4	3		
A	TARE MASS	gms.		31.28	31.26	32.96	32.41	31.29	32.48	32.26	31.26		
B	MASS WET SOIL & TARE ,	gms.		178.6	169.3	194.4	182.4	161.3	191.0	207.2	208.5		
C	MASS DRY SOIL & TARE	gms.		173.5	164.6	185.2	173.7	151.5	179.7	191.6	192.5		
D	MASS OF WATER	gms.	B-C	5.1	4.7	9.1	8.8	9.7	11.3	15.6	16.0		
E	MASS OF DRY SOIL	gms.	C-A	142.2	133.4	152.3	141.3	120.2	147.2	159.4	161.2		
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.6	3.5	6.0	6.2	8.1	7.7	9.8	9.9		
AVERAGE		%		3.6		6.1		7.9		9.9			
DRY DENSITY													
TRIAL NUMBER				1		2		3		4			
G	MASS OF MOLD & WET SOIL	gms.		10015		10263		10432		10426			
H	MASS OF MOLD	gms.		5489		5489		5489		5489			
I	MASS OF WET SOIL	gms.	G-H	4526		4774		4943		4937			
J	VOLUME OF MOLD	cm ³		2147		2147		2147		2147			
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.108		2.224		2.302		2.299			
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	2.036		2.096		2.134		2.093			



Eng. / CONSULTANT

Charbel Zayab

Eng. / CONTRACTOR

Signature of Contractor

MATERIAL
APPROVAL
REQUEST



Contractor	Al-ZANKALONY CO. for General Contracting		Designer Company		(KK) Engineering Consulting Office						
Received by CONSULTANT	Name	Sign	Date/Serial Number			Time					
	أحمد طاهر	[Signature]	2023-07-08			08:00					
			MAR 6								
	(KK) Khaled	[Signature]	MR	C1	C2	C3	DD	MM	YY	HH	MM
				333	EW	CS	09	07	23	08	00

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 (20000 m ³) مشون		
to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	Data Sheet provided	Yes attached
Spec in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (CG21-41.2) VERSION 2 BY CIVECON GROUP
Preparation reference		Test Samples Results	
Reference Photos	No/Yes	Other	
Remarks (KK)	Comments by: Eng. Alaa Abd-Allatif (ER)		
Quality test	1-All tests were carried-out by material engineer for both contractor and GARB Consultant.		
This Sample	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	أحمد طاهر	[Signature]		A
QC	(KK) Khaled	[Signature]		
GB	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			

Signature only

شركة الزنكوني
للمقاولات

مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

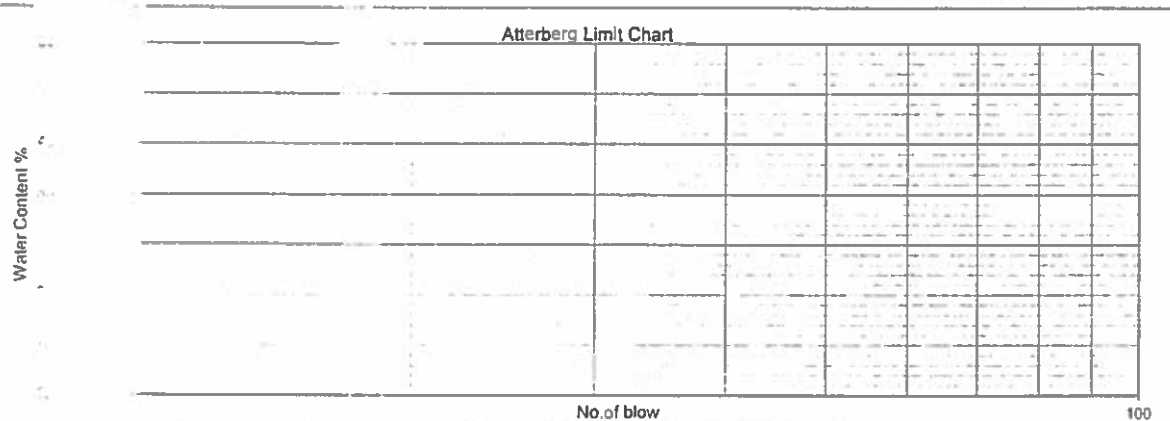
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	9-Jul-23
Company	شركة الزنكوني-المشون	Request NO.	6
Volume	20000 m ³		
	Soil Classification (AASHTO M 145)		

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of sample =	32581		
Sieve Size (mm)	total retain (gm)	pass%	Specs Limits %
75	0	100.0	
150	720	97.8	
300	2139	93.4	
475	3835	88.2	
750	10067	69.1	
1060	14005	57.01	
Sample =	500		
Sieve Size (mm)	total retain (gm)	total pass%	Specs Limits %
75	65	49.60	50 max
150	168	37.86	30 max
300	370	14.82	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limit
Number of blows	N.P	N.P
Number of plate		
Wt. Of plate		
plate+wt.of wet sample		
plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limit



Liquid Limit	NP	6 max
plasticity index	NP	6 max
Group Classification	A-1-b	A-1-a & A-1-b



الهيئة القومية للإنفاق



مكتب خالد قنديل
المقاولات العامة

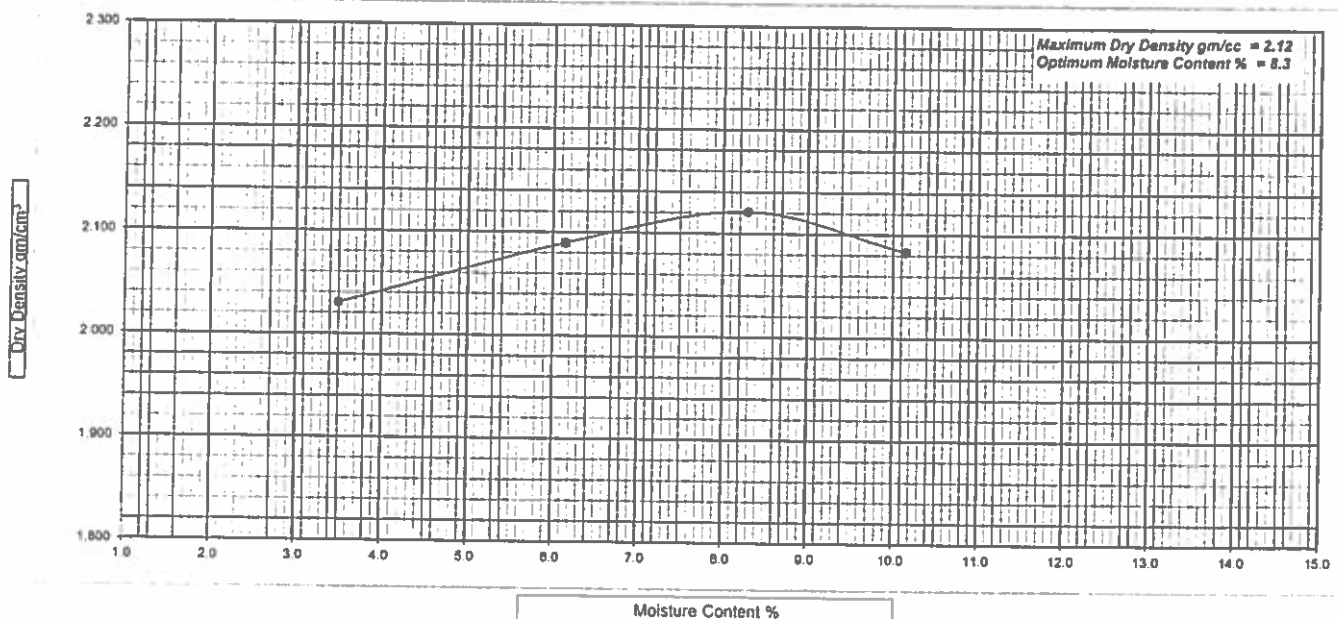
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
10 - 11 - 12 - 13 - 14 - 15

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	9-Jun-23
Station	From	20000 m ³	To	Request NO.	QT 6

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				5	7	12	13	22	21	4	3		
A	TARE MASS	gms.		32.36	31.45	32.55	31.36	31.63	32.45	32.45	32.44		
B	MASS WET SOIL & TARE ,	gms.		167.4	189.5	183.6	180.4	218.1	209.5	187.4	183.2		
C	MASS DRY SOIL & TARE	gms.		163.0	184.1	174.9	171.7	204.0	195.8	173.1	169.4		
D	MASS OF WATER	gms.	B-C	4.4	5.5	8.7	8.7	14.1	13.7	14.3	13.8		
E	MASS OF DRY SOIL	gms.	C-A	130.6	152.6	142.4	140.3	172.3	163.4	140.6	137.0		
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.4	3.6	6.1	6.2	8.2	8.4	10.2	10.1		
AVERAGE		%		3.5		6.2		8.3		10.2			
DRY DENSITY													
TRIAL NUMBER				1	2	3	4						
G	MASS OF MOLD & WET SOIL	gms.		10000	10251	10421	10415						
H	MASS OF MOLD	gms.		5489	5489	5489	5489						
I	MASS OF WET SOIL	gms.	G-H	4511	4762	4932	4926						
J	VOLUME OF MOLD	cm ³		2147	2147	2147	2147						
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.101	2.218	2.297	2.294						
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	2.030	2.089	2.121	2.083						



Eng. / CONSULTANT

Khaled Zaki
فيلسوف

Eng. / CONTRACTOR

Signature of Contractor

Description of Materials	Location to be Used		Station (16+440 : 16+540) Station (16+600+ 16+960)	
	Sample only	Yes	Materials Type	Bed Excavation
Supplier Name		Data Sheet provided	Yes attached	
Reference in BoQ		Specification	EARTHWORK SPECIFICATIONS & TESTING REPORT (G21-41.2) VERSION 2 BY CIVECON GROUP	
Pregualification reference		Test Samples Results		
Reference Photos	NO	Other		
Comments by: Eng. Abdallah Omar (KK)		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-Results report attached and acceptable with the project specifications. 3-Final approval is subject to above mentioned comments		

CODE-1	Station Reference	Depot Reference	For Kilometer point only Start km is used
CODE-2	Work Activity		
	Sub Element of Activity		
CODE-3			

Contractor Company	AL-ZANKALONY CO. for General Contracting	Designer Company	(kk) Engineering Consulting Office
Name Sign		Date/Serial Number	
Issued by Contractor 		2023-04-28 MAR 001	
Received by GARB CONSULTANT Eng. Abdallah Omar 		16 EW CS 29 04 23 08 00	



وزارة النقل
الهيئة العامة للطرق والكباري



القطار الكهربائي السريع
Electric Express Train
SYSTRA | EBR | SHAKER

الهيئة القومية للإنفاق



وزارة المالية

شركة الزنكولبي
المقاولات العامة

مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د/ خالد قنديل

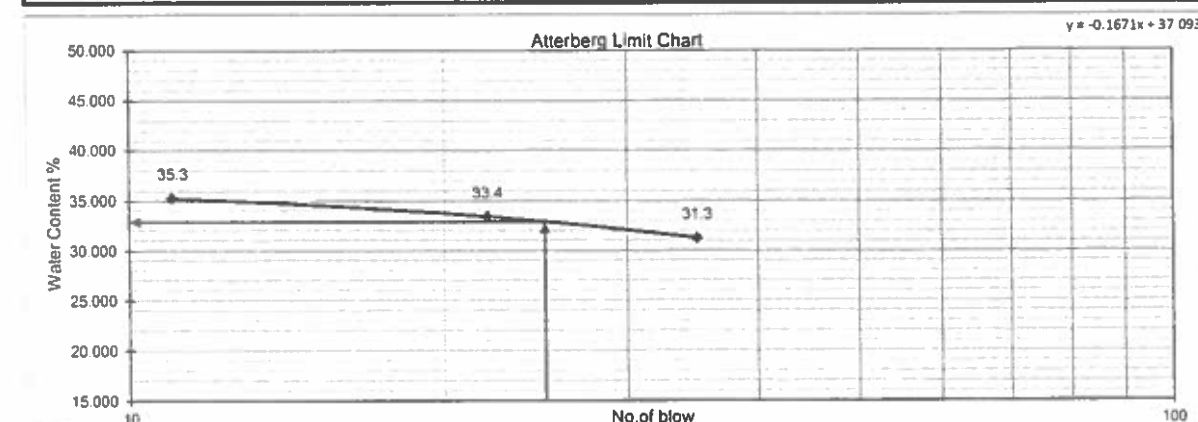
Project	Electrical Express Train From Borg Alarab to Alamein (EET)				Date	29-Apr-23
Station	From	016+440	TO	016+540	Request No.	QT 1
		016+600		016+960		
	Soil Classification (AASHTO M 145)					

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt.of coars sample =	4826		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	0	100.0	
1 "	0	100.0	
3/4"	0	100.0	
3/8"	214	95.6	
4	798	83.46	
wt .of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	36	77.46	
40	99	66.94	
200	248	42.07	

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	11	22	35			
Number of plate	A-7	A-19	A-26	A-11	A-15	A-14
Wt . Of plate	32.26	31.26	32.26	32.14	32.12	31.26
wt.of plate+wt.of wet sample	80.90	83.60	129.69	35.75	35.09	33.62
wt. of plate + wt. of dry sample	68.22	70.49	106.49	35.04	34.52	33.16
wt. of water	12.7	13.1	23.2	0.7	0.6	0.5
wt. of dry sample	36.0	39.2	74.2	2.9	2.4	1.9
moisture content	35.3	33.4	31.3	24.4	23.6	24.2
The Limits	Liquid Limit			Plastic Limite		24.08



Liquid Limit	32.92	
plasticity index	8.8	
Group Classification	A-4	

Eng. /CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

IP



الهيئة القومية للإنفاق



شركة الزكفراني
المقاولات العامة

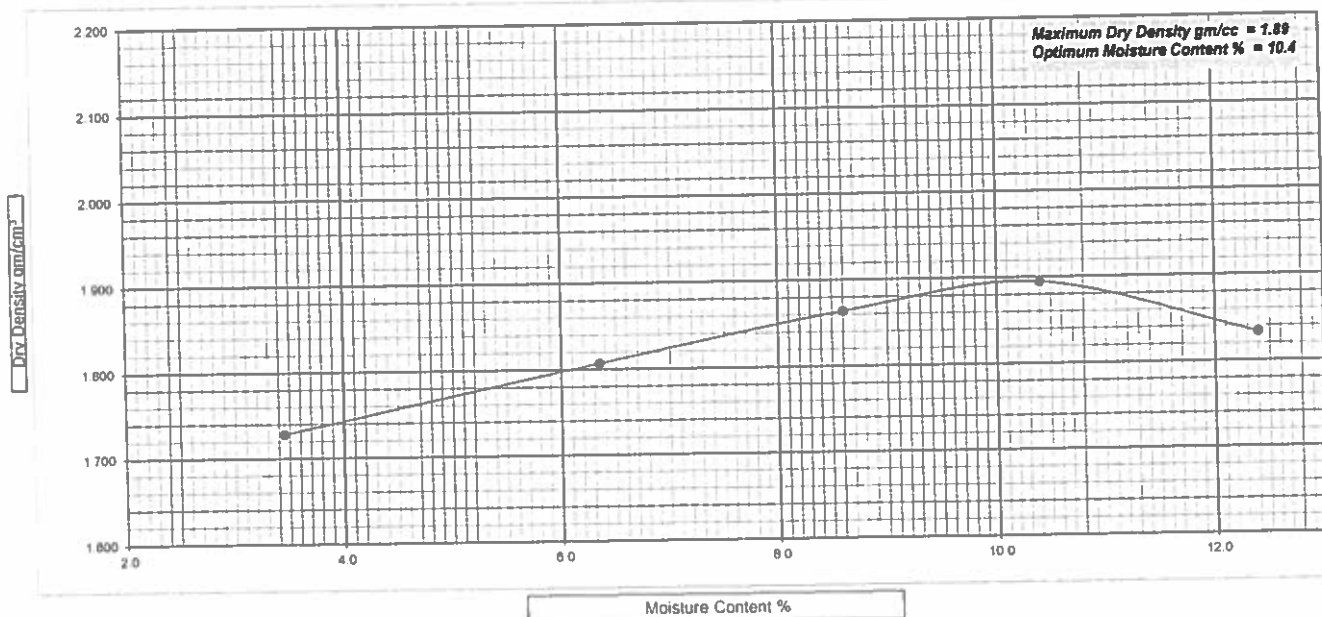
مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	29-Apr-23
Station	From	016+600	To	016+960	Request NO. QT 1

MOISTURE - DENSITY RELATIONSHIP OF SOILS ASTM D 1557

MOISTURE CONTENT													
CONTAINER NUMBER				A-9	A-2	A-10	A-13	A-7	A-25	A-19	A-30	A-31	A-1
A	TARE MASS	gms.		31.45	31.66	32.41	31.41	31.62	32.45	32.45	31.26	32.14	32.12
B	MASS WET SOIL & TARE	gms.		159.9	176.9	175.0	176.6	177.6	200.9	175.0	166.7	182.9	217.0
C	MASS DRY SOIL & TARE	gms.		155.7	172.0	166.7	167.8	165.9	187.7	161.8	153.7	166.4	196.4
D	MASS OF WATER	gms.	B-C	4.2	4.9	8.3	8.9	11.7	13.2	13.2	13.0	16.5	20.5
E	MASS OF DRY SOIL	gms.	C-A	124.3	140.4	134.3	136.4	134.3	155.3	129.4	122.5	134.3	164.3
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.4	3.5	6.2	6.5	8.7	8.5	10.2	10.6	12.3	12.5
AVERAGE		%		3.5		6.4		8.6		10.4		12.4	
DRY DENSITY													
TRIAL NUMBER				1	2	3	4	5					
G	MASS OF MOLD & WET SOIL	gms.		9598	9888	10110	10256	10189					
H	MASS OF MOLD	gms.		5728	5728	5728	5728	5728					
I	MASS OF WET SOIL	gms.	G-H	3870	4160	4382	4528	4461					
J	VOLUME OF MOLD	cm ³		2165	2165	2165	2165	2165					
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	1.788	1.921	2.024	2.091	2.061					
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	1.73	1.81	1.86	1.89	1.83					



Eng. / CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

Signature

MATERIAL APPROVAL REQUEST

شركة الزنكلوني
المقاولات العامة

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ. خالد غنيم

الهيئة العامة
للطرق والكباري
(GARB)



المصالح الهندسية العامة
مركز التصميم



Contractor Company	Al-ZANKALONY CO. for General Contracting			Designer Company	(KK) Engineering Consulting Office						
Issued by Contractor	Name	Sign		Date/Serial Number	Time						
	أحمد جمال دويدا			2023-04-27 MAR 002	08:00						
Received by GARB CONSULTANT	Eng. Abdallah Omar		MAR	C1	C2	C3	DD	MM	YY	HH	MM
				333	EW	CS	29	04	23	08	00

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 (5000 m³)		
Location to be Used	From Station (333+940) to Station (334+540)		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK) 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 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	أحمد جمال دويدا			A
QA/QC *	Eng. Abdallah Omar			A
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		3-5-2023	Awc

* Designer

** Alignment/Bridges : Culvert only

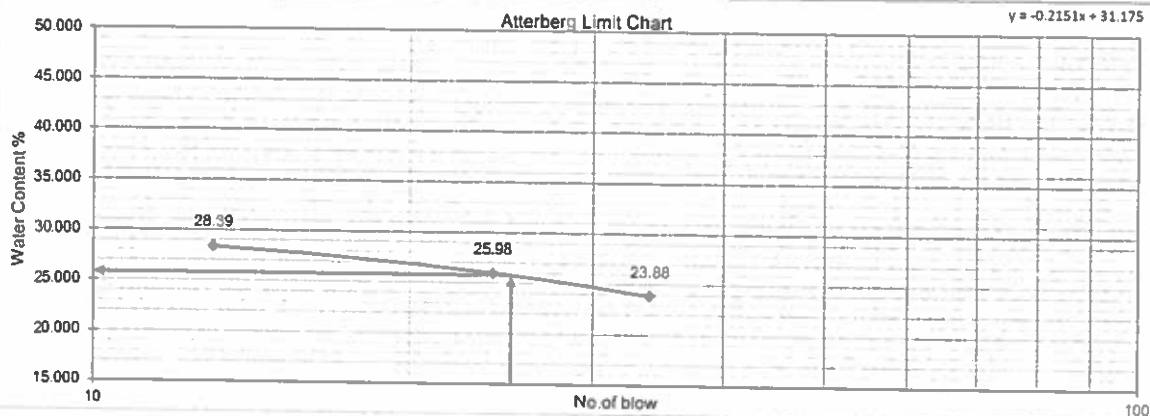
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكواني -المشون	Request NO.	2
Station	5000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	15598		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	100	99.4	
1 "	789	94.9	
3/4"	841	94.6	
3/8"	5632	63.9	
4	8598	44.88	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	37.07	50 max
40	219	25.22	30 max
200	378	10.95	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	13	24	34			
Number of plate	A-19	A-15	A-10	A-15	A-3	A-18
Wt. Of plate	32.26	32.14	32.19	30.5	31.56	32.22
wt. of plate+wt. of wet sample	79.2	76.6	73.8	33.83	34.84	34.84
wt. of plate + wt. of dry sample	68.82	67.43	65.78	33.25	34.26	34.37
wt. of water	10.38	9.17	8.02	0.58	0.58	0.47
wt. of dry sample	36.56	35.29	33.59	2.75	2.7	2.15
moisture content	28.39	25.98	23.88	21.09	21.48	21.86
The Limits	Liquid Limit			Plastic Limite		21.48

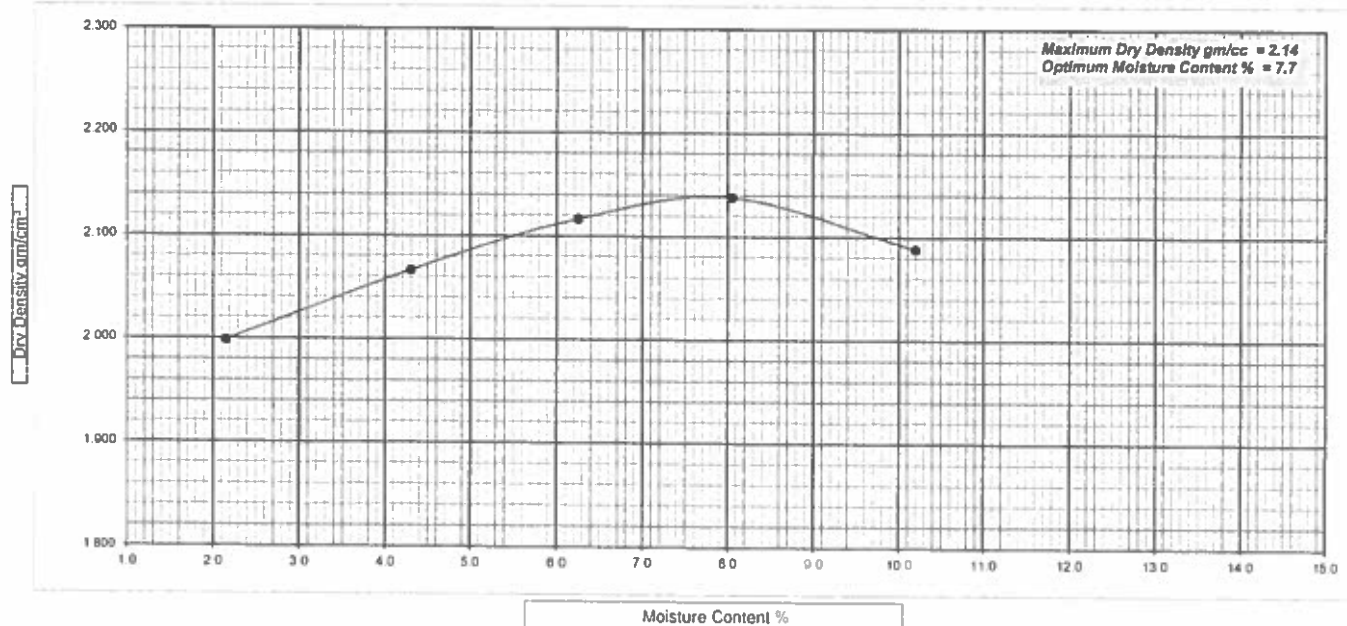


Liquid Limit	25.80	
plasticity index	4.3	6 max
Group Classification	A-1-a	A-1-a & A-1-b

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	29-Apr-23
Station	From	5000 m ³	To	Request NO.	QT 2

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

CONTAINER NUMBER			MOISTURE CONTENT									
			7	5	14	28	16	1	2	10	9	3
A	TARE MASS	gms.	32.45	33.21	31.45	32.41	31.36	32.85	32.41	34.15	23.36	32.45
B	MASS WET SOIL & TARE	gms.	163.6	170.4	190.2	161.4	176.6	159.8	176.8	191.5	195.2	175.5
C	MASS DRY SOIL & TARE	gms.	160.8	167.6	183.8	156.0	168.2	152.3	166.0	179.8	179.3	162.2
D	MASS OF WATER	gms. B-C	2.8	2.8	6.4	5.4	8.5	7.5	10.8	11.7	15.9	13.2
E	MASS OF DRY SOIL	gms. C-A	128.4	134.4	152.4	123.6	136.8	119.5	133.6	145.7	156.0	129.8
F	MOISTURE CONTENT	% $P_w \times 100$	2.2	2.1	4.2	4.4	6.2	6.3	8.1	8.0	10.2	10.2
AVERAGE			2.2	2.1	4.3	4.4	6.3	6.3	8.1	8.0	10.2	10.2
TRIAL NUMBER			DRY DENSITY									
			1	2	3	4	5					
G	MASS OF MOLD & WET SOIL	gms.	10148	10395	10598	10730	10711					
H	MASS OF MOLD	gms.	5729	5729	5729	5729	5729					
I	MASS OF WET SOIL	gms. G-H	4419	4666	4869	5001	4982					
J	VOLUME OF MOLD	cm ³	2165	2165	2165	2165	2165					
K	WET DENSITY	g/cm ³ $\frac{G}{J}$	2.041	2.155	2.249	2.310	2.301					
L	DRY DENSITY	g/cm ³ $\frac{K}{100 + F}$	1.998	2.066	2.117	2.138	2.088					



Eng. / CONSULTANT

Abdallah.omar

Eng. / CONTRACTOR

ip



الهيئة القومية للإسفلت

شركة البترول
للخدمات العامة

مكتب أ/د خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ/د خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein	Station	From	TO
Date	2023-04-29			
Request NO.	QT 2 5000 m³			

California Bearing Ratio ASTM D 1883

Molding Moisture Content				Density Determination			
Test No.	1	2	Test No.	1			
Can No.	12	10	Mold Volume cm³		2152		
A Mass, Can	g 32.85	32.15	Mass Sample + Mold	g	11923		
B Mass, Wet Soil + Can	g 179.3	154.60	Mass Mold	g	6967		
C Mass, Dry Soil + Can	g 169.2	145.74	Mass Sample	g	4956		
D Mass, Moisture	g 10.1	8.86	Unit Wet Mass	g	2 303		
E Mass, Dry Soil	g 136.4	113.59	Percent Moisture	%	7.6		
F Moisture %	% 7.4	7.8	Unit Dry Mass cm³		2.140		
AVERAGE	% 7.60		Cross sectional area of plunger=		19.35	cm²	

Penetration (mm)	0.64	1.27	1.90	2.54	3.18	3.81	4.45	5.08	6.35	7.62
Dial Read.	0.06	0.14	0.22	0.29	0.34	0.39	0.43	0.47	0.53	0.57
Total Load KN	1.28	2.98	4.68	6.17	7.23	8.3	9.15	10	11.7	12.55
Unit Load kg/cm²	130.56	303.96	477.36	629.34	737.46	846.6	933.3	1020	1193.4	1280.1

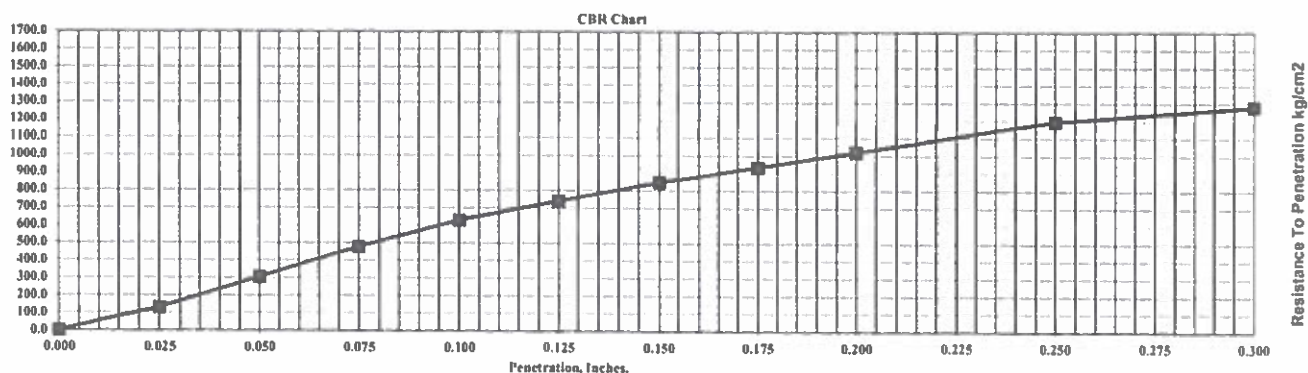
46%

50

Swell		
Date Molded		2023-05-03
Mold No.		1
Final Height	mm	4.32
Initial Height	mm	4.31
Difference	mm	0.01
Sample Length	mm	116.43
Percent Swell	%	0.01

Remarks:

- Max-Dry Density 2.140 g/cc
- Optimum Moisture Content 7.7 %
- No. of Blows 56
- CBR at 100% of max. density 50.0 %

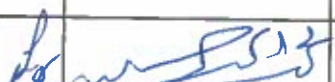


Eng. / CONSULTANT

Abdallah Omar

Eng. / CONTRACTOR

5

APPROVAL STATUS				
Organisation	Name	Sign	Date	A-AWC-R
Contractor	م' 209 د' 25			A
QA/QC *	Eng. Abdallah Omar			AWC
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif		30-4-2023	AWC

•• Alignment/Bridges: Culvert only

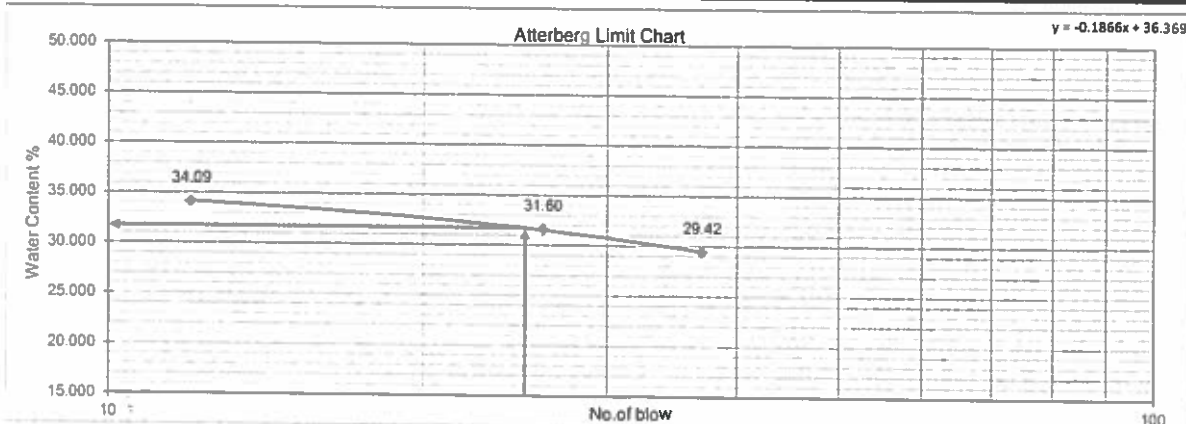
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع		
	Soil Classification (AASHTO M 145)		

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	17410		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	85	99.5	
1 "	883	94.9	
3/4"	901	94.8	
3/8"	6632	61.9	
4	9769	43.89	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	87	36.25	50 max
40	219	24.67	30 max
200	356	12.64	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	12	26	37			
Number of plate	A-13	A-2	A-15	A-1	A-5	A-14
Wt. Of plate	32.02	32.82	30.85	30.5	31.56	32.22
wt. of plate+wt. of wet sample	73.24	73.05	64.99	33.83	34.84	34.84
wt. of plate + wt. of dry sample	62.76	63.39	57.23	33.27	34.25	34.37
wt. of water	10.48	9.66	7.76	0.56	0.59	0.47
wt. of dry sample	30.74	30.57	26.38	2.77	2.69	2.15
moisture content	34.09	31.60	29.42	20.22	21.93	21.86
The Limits	Liquid Limit			Plastic Limite		21.34



Liquid Limit	31.70	
plasticity index	10.4	6 max
Group Classification	A-2-4	A-1-a & A-1-b

A-2-6

Eng. / CONSULTANT

Eng. / CONTRACTOR

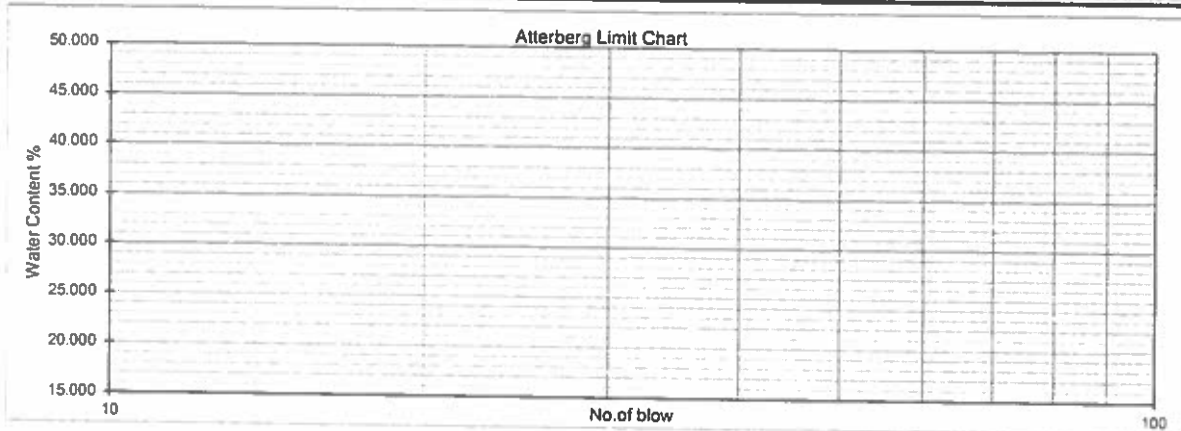
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوبي	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =			
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2"			
1.5"			
1"			
3/4"			
3/8"			
4			
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	10	98.00	50 max
40	189	62.20	30 max
200	481	3.80	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt. Of plate		
wt. of plate + wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index	NP	6 max
Group Classification	A-3	A-1-a & A-1-b



وزارة النقل
المعهد العامة للطرق والمواصلات



النقل السريع الكهربائي
Electrical Express Train

الهيئة القومية للإنفاق



شركة الزنكوني
المقاولات العامة

مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

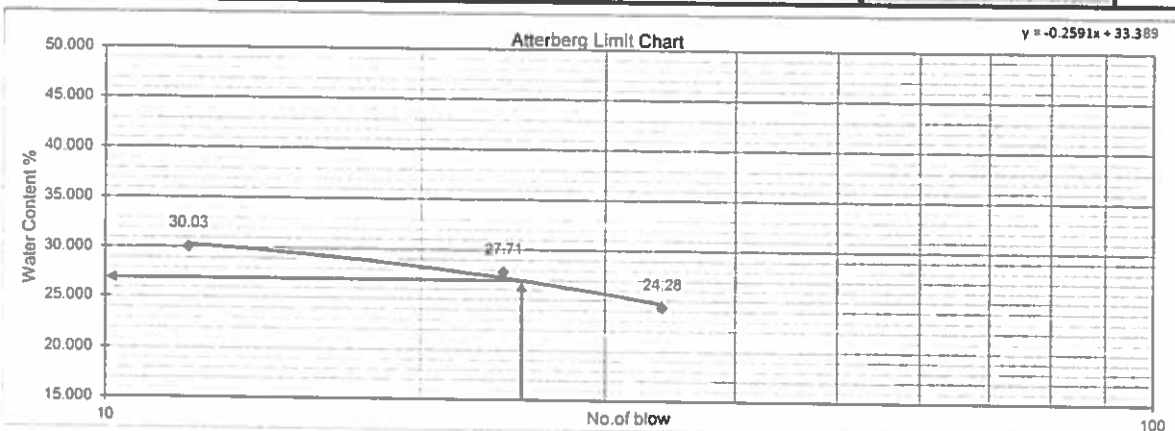
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكوني	Request NO.	2
Station	عينه من توريد محجر السيوي بالموقع +20% رمل		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	10880		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	0	100.0	
1 "	370	96.6	
3/4"	1262	88.4	
3/8"	4190	61.5	
4	5700	47.61	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	55	42.37	50 max
40	257	23.14	30 max
200	404	9.14	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit			Plastic Limite		
Number of blows	12	24	34			
Number of plate	A-13	A-2	A-15	A-1	A-5	A-14
Wt. Of plate	32.02	32.82	30.85	30.5	31.56	32.22
wt. of plate+wt. of wet sample	73.24	73.05	64.99	33.83	34.84	34.84
wt. of plate + wt. of dry sample	63.72	64.32	58.32	33.27	34.27	34.38
wt. of water	9.52	8.73	6.67	0.56	0.57	0.46
wt. of dry sample	31.7	31.5	27.47	2.77	2.71	2.16
moisture content	30.03	27.71	24.28	20.22	21.03	21.30
The Limits	Liquid Limit			Plastic Limite		20.85



Liquid Limit	26.91	
plasticity index	6.1	6 max
Group Classification	A-2-A	A-1-a & A-1-b

A-2-4

Eng. / CONSULTANT

Abdallah Omar

Page 3 of 4

Eng. / CONTRACTOR



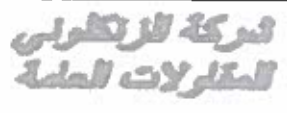
وزارة النقل
الهيئة العامة للطرق والكباري



SYSTRA SHAKER



الهيئة القومية للإنفاق



شركة الزنكواني
القطارات السريعة

مكتب أ.د/ خالد قنديل

Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

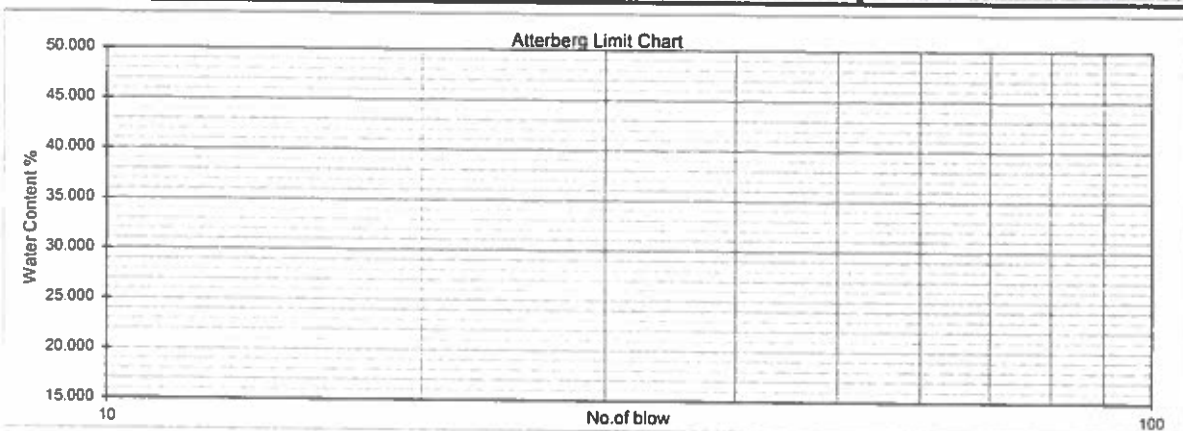
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	29-Apr-23
Company	شركة الزنكواني	Request NO.	2
Station	عينه من توريد مجر السيوي بالموقع +25% رمل		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coarse sample =	11319		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	0	100.0	
1 "	376	96.7	
3/4"	982	91.3	
3/8"	3195	71.8	
4	4999	55.84	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	50	50.25	50 max
40	216	31.71	30 max
200	403	10.83	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt. Of plate		
wt. of plate + wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity index		
Group Classification	A-1-A	A-1-a & A-1-b

Eng. / CONSULTANT

A. Abdallah Omar

Eng. / CONTRACTOR

[Signature]

MATERIAL APPROVAL REQUEST

مادة
موافقة



الهيئة العامة
للطرق والكباري (GARB)



الهيئة العامة
للطرق والكباري



Contractor Company	Al-ZANKALONY CO. for General Contracting		Designer Company	(KK) Engineering Consulting Office		Issued by Contractor	Name	Sign	Date/Serial Number	Time	Received by GARB CONSULTANT	Eng. Abdallah Omar	333	EW	CS	Z3	DD	MM	YY	HH	MM

CODE-1	51 to 521	D1 to 53	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 (10000 m ³)		
	Location to be Used		
Sample only	Yes	Materials Type	Fill layers
Supplier Name	ELSEWY	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. Abdallah Omar (KK)		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 m ³) only.		2-Results report attached and acceptable with the project specifications.	
		3-Final approval is subject to above mentioned comments	

Organisation	Name	Sign	Date	A-AWC-R
Contractor	~10000 m ³ !			A
QA/QC *	Eng. Abdallah Omar			H
GARB**	Eng. Mohammed Fayad			
Employers Representative	Eng. Alaa Abd-Allatif			
APPROVAL STATUS				

** Designer
Alignment/Bridges: Culvert only



وزارة النقل
الهيئة العامة للطرق والكباري



المشروع الكهربائي السريع
Electrical Express Train

الهيئة القومية للإنفاق



شركة الزنكلوني
المقاولات العامة

مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

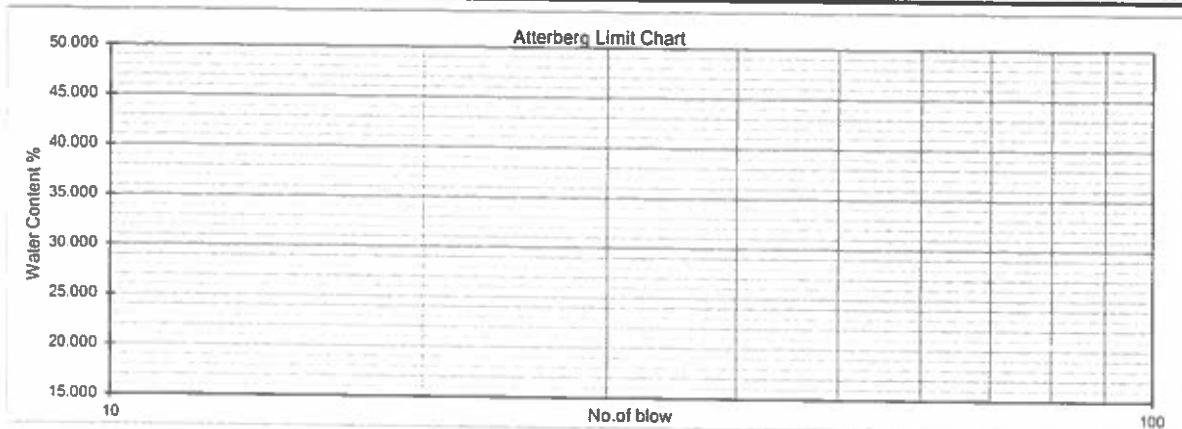
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	22-May-23
Company	شركة الزنكلوني -المشون		
Station	10000 m³	Request NO.	QT 4
	Soil Classification (AASHTO M 145)		

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt.of coars sample =	30198		
Sieve "Inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	609	98.0	
1 "	3808	87.4	
3/4"	8113	73.1	
3/8"	17214	43.0	
4	20825	31.04	
wt .of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	53	27.75	50 max
40	172	20.36	30 max
200	362	8.57	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	NP	NP
Number of plate		
Wt . Of plate		
wt.of plate+wt.of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index		
Group Classification	A-1-a	A-1-a & A-1-b



الهيئة القومية للإنفاق



شركة القرائن
المقاولات العامة

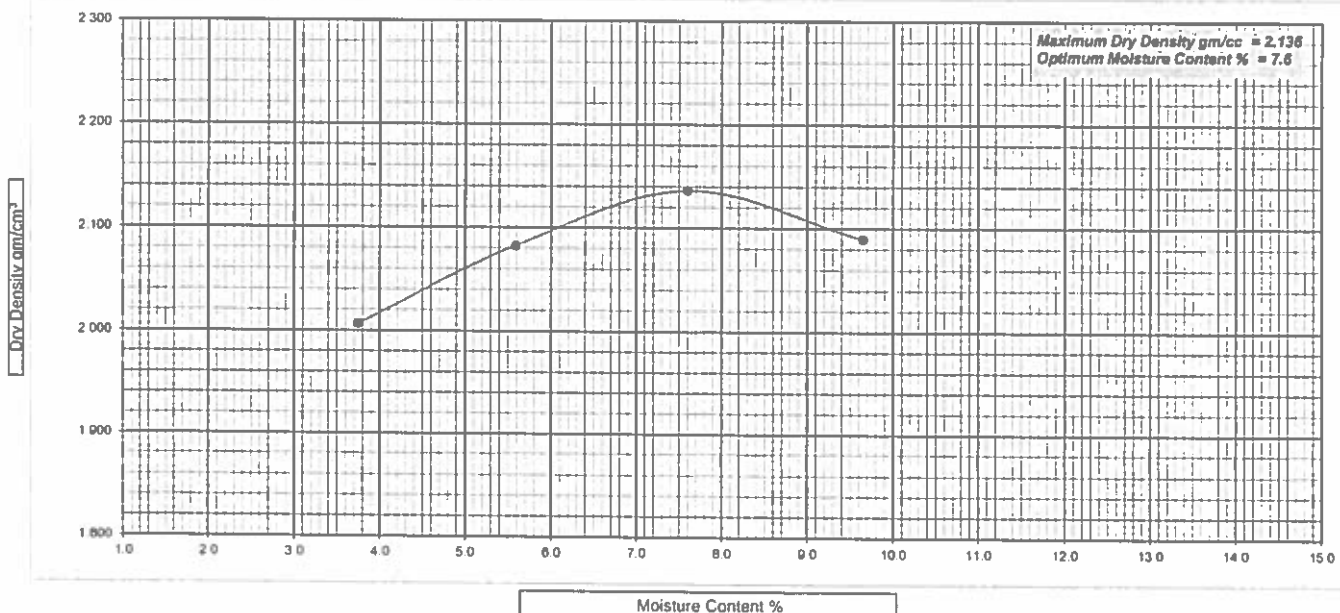
مكتب أ.د. خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. شحات

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	23-May-23
Station	From	5000 m ³	To	Request NO.	QT 4

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				2	13	10	1	2	14	6	7		
A	TARE MASS	gms.		32.45	32.49	32.2	32.47	31.39	32.56	32.41	32.6		
B	MASS WET SOIL & TARE	gms.		173.0	180.0	204.4	189.2	219.2	182.1	173.0	199.6		
C	MASS DRY SOIL & TARE	gms.		167.7	174.9	195.5	180.7	205.7	171.8	160.7	184.9		
D	MASS OF WATER	gms.	B-C	5.3	5.1	8.9	8.5	13.6	10.3	12.3	14.8		
E	MASS OF DRY SOIL	gms.	C-A	135.3	142.4	163.3	148.3	174.3	139.3	128.3	152.3		
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.9	3.6	5.5	5.7	7.8	7.4	9.6	9.7		
AVERAGE		%		3.8		5.6		7.6		9.7			
DRY DENSITY													
TRIAL NUMBER				1		2		3		4			
G	MASS OF MOLD & WET SOIL	gms.		10236		10489		10705		10689			
H	MASS OF MOLD	gms.		5729		5729		5729		5729			
I	MASS OF WET SOIL	gms.	G-H	4507		4760		4976		4960			
J	VOLUME OF MOLD	cm ³		2165		2165		2165		2165			
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.082		2.199		2.298		2.291			
L	DRY DENSITY	g/cm ³	$\frac{K}{1 + \frac{F}{100}}$	2.007		2.082		2.136		2.089			



Eng. / CONSULTANT
Abdallah. Omar

Eng. / CONTRACTOR
[Signature]

Contractor Company		AI-ZANKALONY CO. for General Contracting		Designer Company		(KK) Engineering Consulting Office	
Name		Sign		Date/Serial Number		Time	
 ٢٠٢٣/٠٦/٠٧		 ٢٠٢٣/٠٦/٠٧		MAR 5		08:00	
(KK)		MAR		333		00	
Received by (Name)		Khalid 96		EW		08	
CONSULTANT				CS		06	
				DD		MM	
				YY		HH	
				MM		MM	



وزارة النقل
الهيئة العامة للطرق والمواصلات



SYSTRA SHAKER



الهيئة القومية للإنفاق



شركة الزنكوني
المقاولات العامة

مكتب أ.د. خالد قنديل

Electrical Express Train From Borg Alarab to Alamein



ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د. خالد قنديل

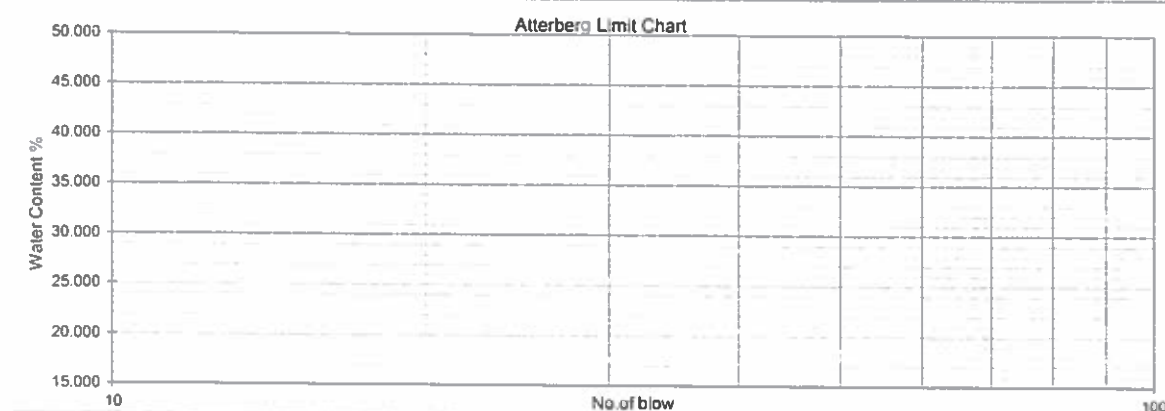
Project	Electrical Express Train From Borg Alarab to Alamein (EET)	Date	8-Jun-23
Company	شركة الزنكوني - المشون	Request NO.	5
Station	15000 m ³		
Soil Classification (AASHTO M 145)			

1- Sieve Analysis of Fine and Coarse Aggregates ASTM C 136

wt. of coars sample =	24312		
Sieve "inch"	total retain (gm)	pass%	Specs Limits %
2 "	0	100.0	
1.5"	385	98.4	
1 "	2771	88.6	
3/4"	5948	75.5	
3/8"	10562	56.6	
4	13560	44.23	
wt. of fine sample =	500		
Sieve No.	total retain (gm)	total pass%	Specs Limits %
10	56	39.27	50 max
40	167	29.45	30 max
200	376	10.97	15 max

2- Liquid Limit, Plastic Limit, and Plasticity Index ASTM D 4318

test	Liquid Limit	Plastic Limite
Number of blows	N.P	N.P
Number of plate		
Wt. Of plate		
wt. of plate+wt. of wet sample		
wt. of plate + wt. of dry sample		
wt. of water		
wt. of dry sample		
moisture content		
The Limits	Liquid Limit	Plastic Limite



Liquid Limit	NP	6 max
plasticity Index	NP	6 max
Group Classification	A-1-a	A-1-a & A-1-b

Eng. / CONSULTANT

[Signature]

Eng. / CONTRACTOR

[Signature]



الهيئة القومية للإنفاق



شركة شاكير
المقاولات العامة

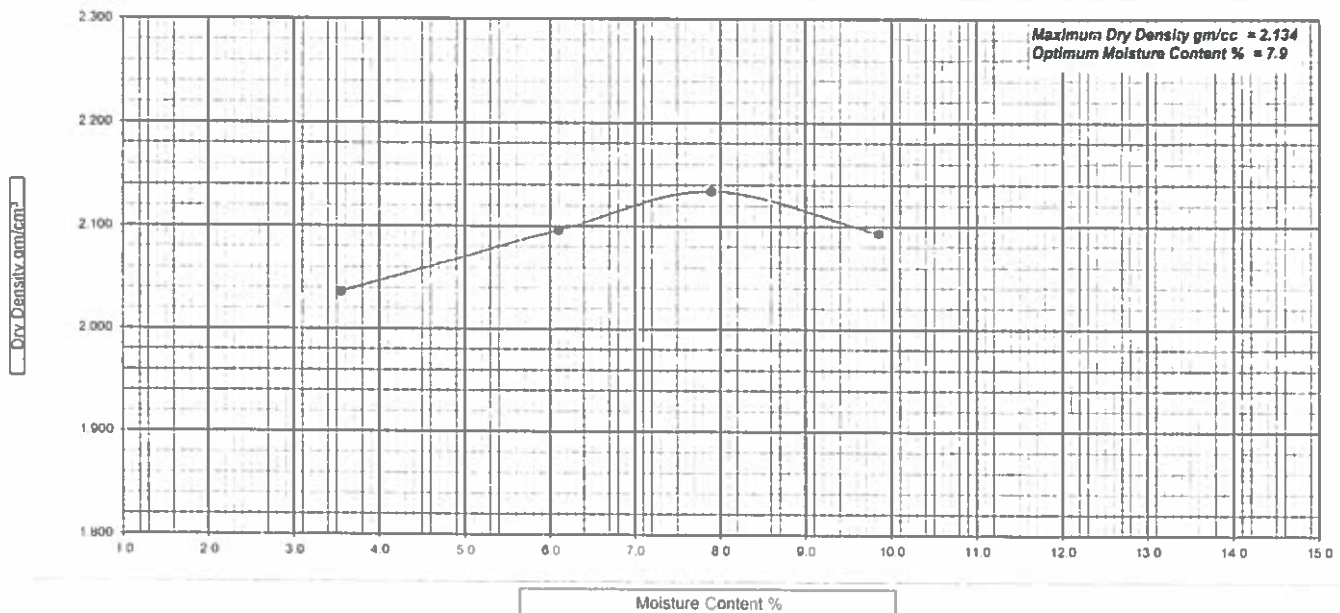
مكتب أ.د/ خالد قنديل
Electrical Express Train From Borg Alarab to Alamein

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي
أ.د/ خالد قنديل

Project	Electrical Express Train From Borg Alarab to Alamein (EET)			Date	9-Jun-23
Station	From	15000 m ³	To	Request NO.	QT 5

MOISTURE - DENSITY RELATIONSHIP OF SOILS AASHTO (T180-74)

MOISTURE CONTENT													
CONTAINER NUMBER				5	7	12	13	22	21	4	3		
A	TARE MASS	gms.		31.28	31.26	32.96	32.41	31.29	32.48	32.26	31.26		
B	MASS WET SOIL & TARE	gms.		178.6	169.3	194.4	182.4	161.3	191.0	207.2	208.5		
C	MASS DRY SOIL & TARE	gms.		173.5	164.6	185.2	173.7	151.5	179.7	191.6	192.5		
D	MASS OF WATER	gms.	B-C	5.1	4.7	9.1	8.8	9.7	11.3	15.6	16.0		
E	MASS OF DRY SOIL	gms.	C-A	142.2	133.4	152.3	141.3	120.2	147.2	159.4	161.2		
F	MOISTURE CONTENT	%	$\frac{D}{E} \times 100$	3.6	3.5	6.0	6.2	8.1	7.7	9.8	9.9		
AVERAGE		%		3.6		6.1		7.9		9.9			
DRY DENSITY													
TRIAL NUMBER				1		2		3		4			
G	MASS OF MOLD & WET SOIL	gms.		10015		10263		10432		10426			
H	MASS OF MOLD	gms.		5489		5489		5489		5489			
I	MASS OF WET SOIL	gms.	G-H	4526		4774		4943		4937			
J	VOLUME OF MOLD	cm ³		2147		2147		2147		2147			
K	WET DENSITY	g/cm ³	$\frac{I}{J}$	2.108		2.224		2.302		2.299			
L	DRY DENSITY	g/cm ³	$\frac{K}{100 + F}$	2.036		2.096		2.134		2.093			



Eng. / CONSULTANT

Khaleel Zakar

Eng. / CONTRACTOR

[Signature]