



مشروع القطار الكهربائي السريع
المقايسة المعدلة لبنود الاعمال للقطاع السابع (فوكه - مطروح) - شركة المحجوب - اتجاه فوكه
القطاع من المحطة 548+000 إلى المحطة 559+000

رقم البند	بيان الأعمال	الوحدة	الكمية	الفئة	الاجمالي
1	اعمال الازالة و التطهير				
1-1	بالمتر المسطح اعمال تطهير الموقع من الاشجار والمزروعات و المخلفات فى مناطق الدلتا ذات الطبيعة الزراعية الكثيفة و التخلص منها بالمقالب العمومية تمهيدا لاعمال الرفع المساحى لكامل حدود المشروع طبقا للشروط والمواصفات و تعليمات المهندس المشرف.	م2	122,000	5.00	610,000
2	اعمال الحفر				
2-2	بالمتر المكعب اعمال حفر باستخدام المعدات الميكانيكية فى التربة المتماسكة عدا التربة الصخرية (باستخدام البلدوزر) و تسوية السطح باللات التسوية و الرش بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة و الدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) و محمل على البند تحميل ونقل الاتربة الزائدة لمسافة 500 متر من محور الطريق و يتم التنفيذ طبقا للمناسيب التصميمية و القطاعات العرضية النموذجية و الرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقا لاصول الصناعة و مواصفات الهيئة العامة للطرق و الكبارى و تعليمات المهندس المشرف. يتم احتساب علاوة 1 جنيه لكل 1 كم بالزيادة.	م3	177,000.00	20.10	3,557,700
3	اعمال الردم				
3-1	بالمتر المكعب اعمال توريد و تشغيل اتربة صالحة للردم و مطابقة للمواصفات و التشغيل باستخدام الات التسوية بسمك لا يزيد عن 50 سم حتى منسوب -2 متر و بسمك لا يزيد عن 25 سم لاستكمال المنسوب التصميمى لتشكيل الجسر و الاكتاف (نسبة تحمل كالفورنيا لا تقل عن 15%) و رشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة و الدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (95% من الكثافة الجافة القصوى) و يتم التنفيذ طبقا للمناسيب التصميمية و القطاعات العرضية النموذجية و الرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقا لاصول الصناعة و مواصفات الهيئة العامة للطرق و الكبارى و تعليمات المهندس المشرف. فى حالة طلب جهاز الإشراف زيادة نسبة الدمك عن 95 % يحسب زيادة 1 جنية على زيادة نسبة الدمك لكل 1 % - مسافة النقل 2 كم ويتم احتساب علاوة 1.4 جنيه لكل 1 كم بالزيادة أو النقصان السعر يشمل عمل تشوينات و تخليط و اختيارات و نقل لموقع العمل حتى مسافة 2 كم السعر يشمل قيمة المادة المحجorie طبقا لافادة المنطقة بهذا القطاع (7) من الكم 504 إلى 568	م3	48,328.14	85.00	4,107,892
	علاوة مسافة النقل 166 كم	م3	48,328.14	229.60	11,096,142
	علاوة تحصيل رسوم الكارثة و الموازين طبقا للائحة الشركة الوطنية	م3	48,328.14	13.00	628,266
	الاجمالي				20,000,000
	(عشرون مليون جنيها لا غير)				

مدير المشروع المالك
م / إبراهيم الحناوي

مدير المشروع الإستشاري
م / خالد فوزي

مدير المشروع المقاول
م/ مختار طربان

يعتمد
رئيس الإدارة المركزية
منطقة غرب الدلتا
الإسكندرية - مرسى مطروح
عقيد مهندس /
"هانى محمد محمود طه"



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein - MATROUH
Section - 7 From FOKA To MARSА MATROUH
 From Station 504+000 To Station 568+177



PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	19/8/2023	code	ZONE	549+000	552+000
LOCATION	550+500	MT-SB-5	MATERIAL	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		LAYER THICKNESS	3000 M3	

1-visual Inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		56371.00		gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	1332.0	7710.0	4793.0	10595.0	3165.0	7650.0		A-1-a	
Cumulative Retained (g)	0.0	1332.0	9042.0	13835.0	24430.0	27595.0	35245.0		PRO	2.255
Cumulative Retained %	0.0	2.4	16.0	24.5	43.3	49.0	62.5		WC	6.6%
Cumulative Passing %	100.0	97.6	84.0	75.5	56.7	51.0	37.5		CBR	89.4%
B-soft material gradation				WT.OF sample		500.00		gm	S.G	2.582
sieve size	10	40	200						LA	24.30
Cumulative Retained (g)	180.00	323.00	424.00							
Cumulative Retained %	36.00	64.60	84.80							
Cumulative Passing %	64.00	35.40	15.20							
C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	97.6	84.0	75.5	56.7	51.0	37.5	24.0	13.3	5.7
REMARKS	50-97			20-75		15-60		0-35		0-7

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant



mohamed elsaied
 m-elsaied

17-8-2023

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد قنديل	 KVSTA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 7 From FOKA TO MARS MATROUH From Station 504+000 To Station 568+177		 الهيئة العامة للإعانة المخطط والمطور الاقتصادي (GASOL)

PROCTOR TEST

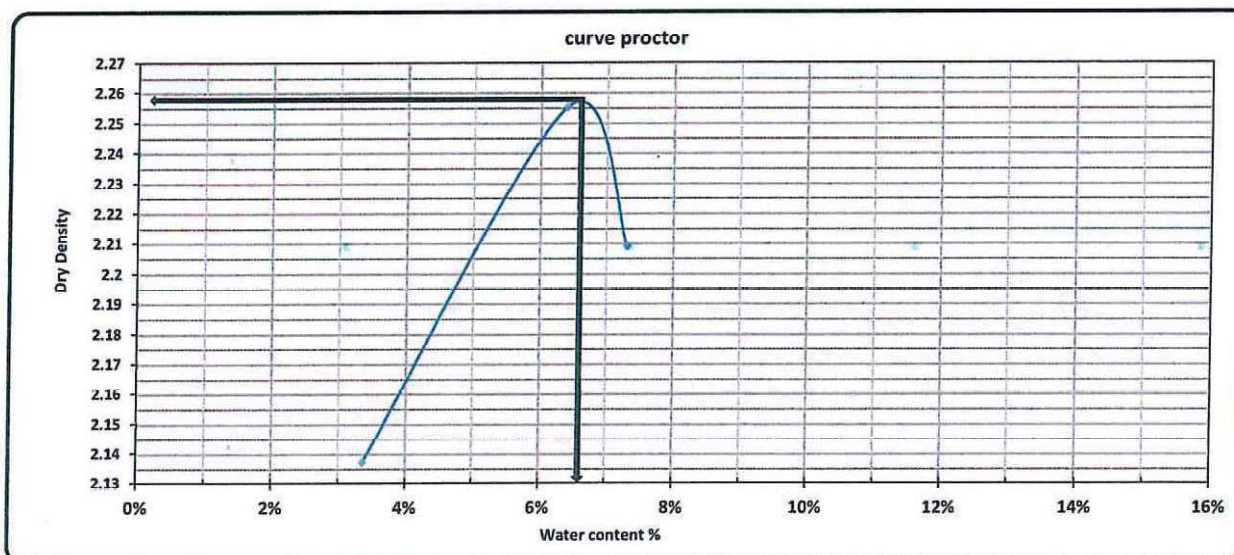
TESTING DATE:	14/8/2023	code	ZONE	549+000	552+000
LOCATION	550+500	MH-SB-5	MATERIAL	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		LAYER THICKNESS	3000 M3	

Weight of empty mold :	6058.0
Mold Volume:	2032.0

MAX Dry Density	2.255
Water content %	6.6%

trial no :	1	2	3		
Wt. Of Mold+ wet soil	10547	10934	10875		
WT. WET SOIL	4489	4876	4817		
Wt. Density	2.209	2.400	2.371		

Tare No.	1	2	3	4	5	6				
Tare wt.	23.18	22.78	30.52	33.92	22.86	34.13				
Wt. Of wet soil & tare	144.9	176.41	170.14	175.34	156.28	174.57				
Wt. Of dry soil & tare	140.47	171.96	161.62	166.96	147.03	165.18				
Wt. Of water	4.4	4.4	8.5	8.4	9.3	9.4				
Wt. Of dry soil	117.3	149.2	131.1	133.0	124.2	131.1				
Water content %	3.8%	3.0%	6.5%	6.3%	7.4%	7.2%				
AV. Water content %	3.4%		6.4%		7.3%					
Dry Density	2.137		2.255		2.209					



Contractor  معمل اختبارات وإبحاث التربة القطار انسيوي - فوكه - مطروح

Consultant

mohamed elsaref

m-elsaref

17-8-2023

California Bearing Ratio TEST

Testing Date :	2023/8/15	Code	FROM STA :	549+000	552+000
Location :	K.P(550+500)	MH SB-5	: Material	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		: Layer Thickness	20 CM	

- : Test Results

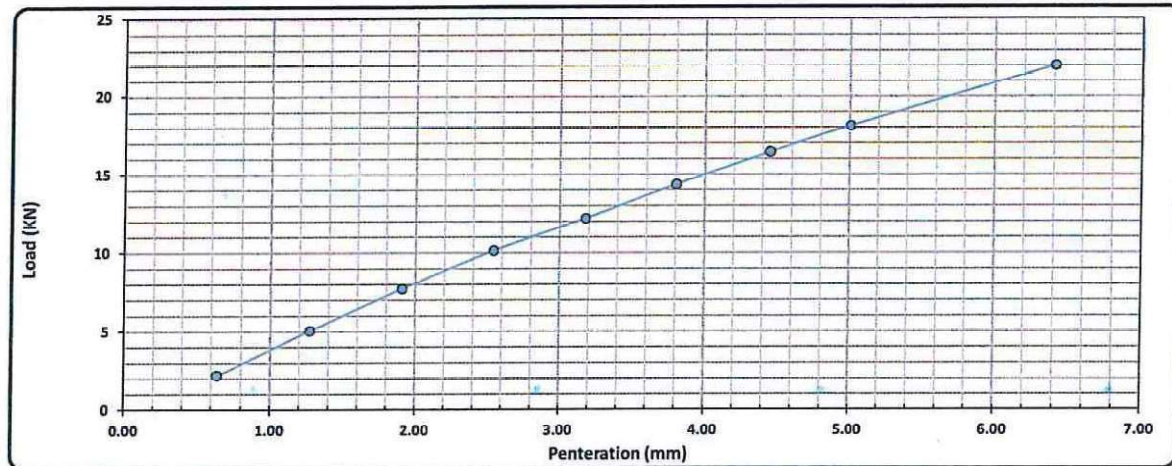
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7350
Mold WT. + Wet WT. (gm)	12390
Wet WT. (gm)	5040
Wet Density (g/cm ³)	2.343
Dry Density (g/cm ³)	2.198
Proctor Density (g/cm ³)	2.255
Compaction %	100

Moisture Ratio After Compacted Mold	
Tare No.	5
Tare WT. (gm)	31
Tare WT. +Wet WT. (gm)	160
Tare WT. +Dry WT. (gm)	152
Water WT. (gm)	7.8
Dry WT. (gm)	121.2
Moisture Content %	6.6

Swelling	
Mold No.	4
Date	2023/8/15
Initial Height (mm)	4.10
Final Height (mm)	4.10
Difference	0
Sample Height (mm)	120.00
Swelling Ratio %	0%

Loading Reading :

Penteration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (kg)	223.00	512.00	784.00	1032.00	1242.00	1462.00	1673.00	1845.00	2241.00
Load (KN)	2.2	5.0	7.7	10.1	12.2	14.3	16.4	18.1	22.0



Calculations :-

Penteration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(KN)	(lb)	(%)	(%)	(%)	عند نسبة 99
2.50	10.11	13.4	75.8%	100	99	75.0%
5.00	18.08	20.0	90.3%			89.4%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

mohamed elsaied


17-8-2023

EL Mahgoub company

Express Electric Trian project



**Absorbtion & Aggregate specific gravity
AASHTO-T85**

Testing date :-	15/8/2023
location :-	K.P(550+500)
material :-	sub ballast

Weight of sample	2000	gm
Weight of saturated -dry surface sample (B)	2015.50	gm
Weight of saturated sample in water (C)	1244.40	gm
Weight of dry sample aftr heating (A)	1991.00	gm

Results:-

Bulj spicific gravity = $A / (B-C)$	2.582	
Apparent spicific gravity = $A / (A-C)$	2.667	
Asorbton = $(B-A)/A$	1.231	

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before	Weight of sample before test (gm)	Abrasion ratio (%)
5000	3785	24.30

Lab Engineer/



mohamed elsaied

m-elsaied

17-8-2023



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein - MATROUH
Section - 7 From FOKA To MARSA MATROUH
From Station 504+000 To Station 568+177



PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	13/8/2023	code	ZONE	549+000	552+000
LOCATION	K.P 550+500	MH-SB-4	MATERIAL	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		LAYER THICKNESS	2000 M3	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		53451.00	gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify
Mass retained (g)	0.0	1527.0	9580.0	4911.0	12197.0	4513.0	5451.0		A-1-a
Cumulative Retained (g)	0.0	1527.0	11107.0	16018.0	28215.0	32728.0	38179.0		PRO 2.240
Cumulative Retained %	0.0	2.857	20.8	30.0	52.8	61.2	71.4		WC 6.6%
Cumulative Passing %	100.0	97.1	79.2	70.0	47.2	38.8	28.6		CBR 88.3%
B-soft material gradation				WT.OF sample		500.00	gm		S.G 2.563
sieve size	10	40	200						LA 25.76
Cumulative Retained (g)	197.00	328.00	420.00						
Cumulative Retained %	39.40	65.60	84.00						
Cumulative Passing %	60.60	34.40	16.00						

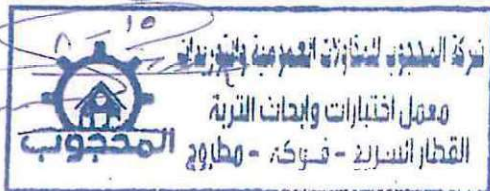
C-General gradient

sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	97.1	79.2	70.0	47.2	38.8	28.6	17.3	9.8	4.6
REMARKS		50-97		20-75		15-60		0-35		0-7

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant



mohamed elsaied

m.elsaied

17-8-2023

PROCTOR TEST

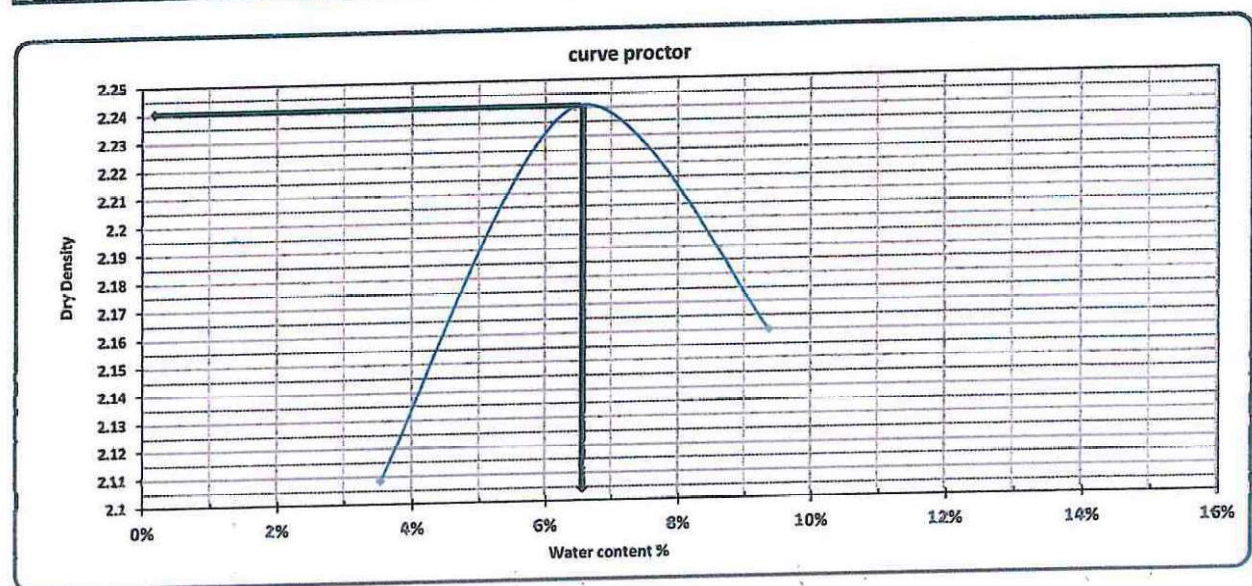
TESTING DATE:	14/8/2023	code	ZONE	549+000	552+000
LOCATION	K.P 550+500	MH-SB-4	MATERIAL	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		QUANTITY	2000 M3	

Weight of empty mold :	6077.0
Mold Volume:	2032.0

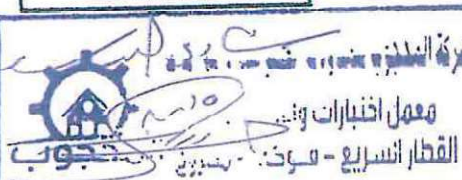
MAX Dry Density	2.24
Water content %	6.6%

trial no :	1	2	3		
Wt. Of Mold+ wet soil	10513	10923	10877		
WT. WET SOIL	4436	4846	4800		
Wt. Density	2.183	2.385	2.362		

Tare No.	1	2	3	4	5	6				
Tare wt.	23.54	25.43	31.67	33.45	34.76	28.43				
Wt. Of wet soil & tare	133.7	145.86	132.82	141.56	138.65	132.64				
Wt. Of dry soil & tare	130.20	141.40	126.82	134.87	129.86	123.59				
Wt. Of water	3.4	4.5	6.0	6.7	8.8	9.0				
Wt. Of dry soil	106.7	116.0	95.1	101.4	95.1	95.2				
Water content %	3.2%	3.8%	6.3%	6.6%	9.2%	9.5%				
AV. Water content %	3.5%		6.5%		9.4%					
Dry Density	2.108		2.240		2.160					



Contractor



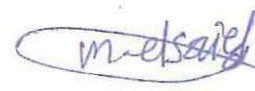
 شركة النظم الهندسية

 معمل اختبارات وقياس

 القطار السريع - م.ف.

Consultant

 Mohamed elsaied



 17-8-2023

	Electric Express Train - HSR	
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California Bearing Ratio TEST

Testing Date :	2023/8/15	Code	FROM STA :	549+000	552+000
Location :	K.P(550+500)	MH SB-4	: Material	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		: Layer Thickness	20 CM	

:- Test Results

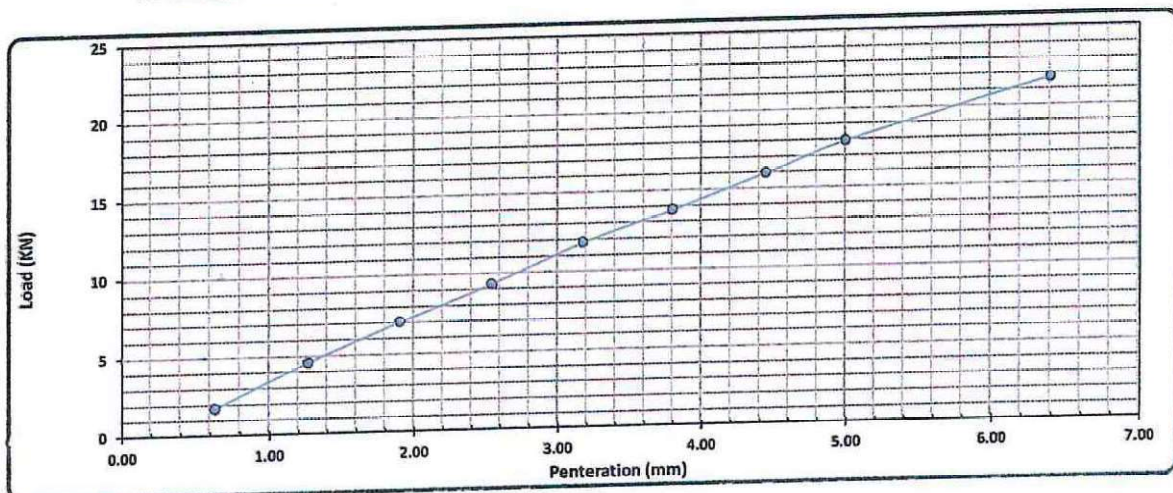
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7350
Mold WT. + Wet WT. (gm)	12390
Wet WT. (gm)	5040
Wet Density (g/cm ³)	2.343
Dry Density (g/cm ³)	2.198
Proctor Density (g/cm ³)	2.240
Compaction %	98

Tare No.	5
Tare WT. (gm)	31
Tare WT. + Wet WT. (gm)	160
Tare WT. + Dry WT. (gm)	152
Water WT. (gm)	7.8
Dry WT. (gm)	121.2
Moisture Content %	6.6

Mold No.	4
Date	2023/8/15
Initial Height (mm)	5.50
Final Height (mm)	5.50
Difference	0
Sample Height (mm)	121.00
Swelling Ratio %	0%

Loading Reading :

Penetration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (kg)	176.00	462.00	711.00	943.00	1198.00	1399.00	1623.00	1823.00	2213.00
Load (KN)	1.7	4.5	7.0	9.2	11.7	13.7	15.9	17.9	21.7



Calculations :-

Penetration (mm)	Load (KN)	Standard Load (lb)	CBR (%)	Mold - Compaction (%)	Compaction (%)	CBR % عند نسبة 98
2.50	9.24	13.4	69.2%	99	98	68.5%
5.00	17.87	20.0	89.2%			88.3%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name : Mohamed elsaied

Sign :

M. elsaied

17-8-2023

EL Mahgoub company

Express Electric Trian project



**Absorbtion & Aggregate specific gravity
AASHTO-T85**

Testing date :-	15/8/2023
location :-	K.P(550+500)
material :-	sub ballast

Weight of sample	2000	gm
Weight of saturated -dry surface sample (B)	2018.40	gm
Weight of saturated sample in water (C)	1243.20	gm
Weight of dry sample aftr heating (A)	1987.00	gm

Results:-

Bulj spicific gravity = $A / (B-C)$	2.563	
Apparent spicific gravity = $A / (A-C)$	2.671	
Asorbton = $(B-A)/A$	1.580	

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before	Weight of sample before test (gm)	Abrasion ratio (%)
5000	3712	25.76

Lab Engineer/



mohamed elszaid
m-elszaid
17-8-2023



Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein - MATROUH
Section - 7 From FOKA To MARSA MATROUH
From Station 504+000 To Station 568+177



PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	08/02/2023	code	ZONE	549+000	552+000
LOCATION	K.P(548+600)	MH SB-3	MATERIAL	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		LAYER THICKNESS	+20CM	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		24591.00		gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	393.0	3493.0	2726.0	3839.0	2060.0	2204.0		A-1-a	
Cumulative Retained (g)	0.0	393.0	3886.0	6612.0	10451.0	12511.0	14715.0		PRO	2.238
Cumulative Retained %	0.0	1.6	15.8	26.9	42.5	50.9	59.8		WC	6.6%
Cumulative Passing %	100.0	98.4	84.2	73.1	57.5	49.1	40.2		CBR	86.7%
B-soft material gradation				WT.OF sample		500.00		gm	S.G	2.587
sieve size	10	40	200						LA	25.40
Cumulative Retained (g)	150.00	299.00	417.00							
Cumulative Retained %	30.00	59.80	83.40							
Cumulative Passing %	70.00	40.20	16.60							
C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	98.4	84.2	73.1	57.5	49.1	40.2	28.1	16.1	6.7
REMARKS		50-97		20-75		15-60		0-35		0-7

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant

Youssef Ragab
2-23



 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فهد	 SVS TRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 7 From FOKA TO MARSA MATROUH From Station 504+000 To Station 568+177	 الهيئة العامة للنقل وزارة النقل والاقتصاد (CAPILL)
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PROCTOR TEST

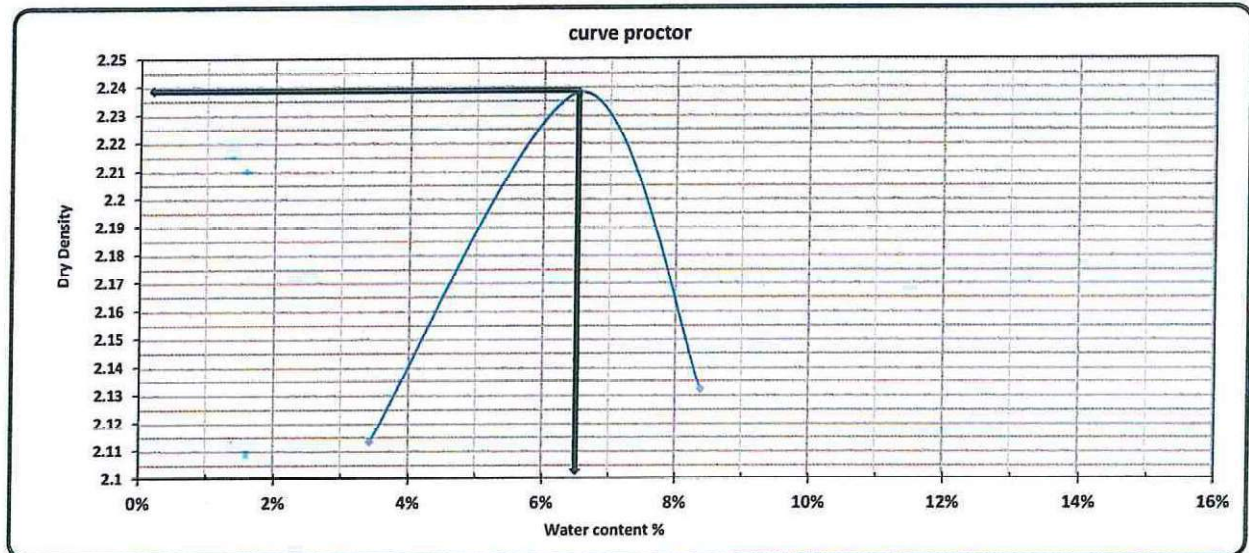
TESTING DATE:	11/8/2023	code	Station	549+000	552+000
LOCATION	K.P(548+600)	MH SB-3	Material	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		layer thickness	20 CM	

Weight of empty mold :	6070.0
Mold Volume:	2032.0

MAX Dry Density	2.238
Water content %	6.6%

trial no :	1	2	3		
Wt. Of Mold+ wet soil	10512	10915	10766		
WT. WET SOIL	4442	4845	4696		
Wt. Density	2.186	2.384	2.311		

Tare No.	1	2	3	4	5	6			
Tare wt.	21.21	27.23	23.81	27.32	32.83	22.9			
Wt. Of wet soil & tare	145.2	133.43	139.4	125.4	123.32	155.3			
Wt. Of dry soil & tare	141.23	129.81	132.47	119.24	116.48	144.81			
Wt. Of water	4.0	3.6	6.9	6.2	6.8	10.5			
Wt. Of dry soil	120.0	102.6	108.7	91.9	83.6	121.9			
Water content %	3.3%	3.5%	6.4%	6.7%	8.2%	8.6%			
AV. Water content %	3.4%		6.5%		8.4%				
Dry Density	2.113		2.238		2.132				



Contractor



Consultant

Youssef Ragab
2023

California Bearing Ratio TEST

Testing Date :	2023/8/12	Code	FROM STA :	549+000	552+000
Location :	K.P(548+600)	MH SB-3	: Material	SUB BALLAST	
NAME COMPANY	EL MAHGOUB		: Layer Thickness	20 CM	

- : Test Results

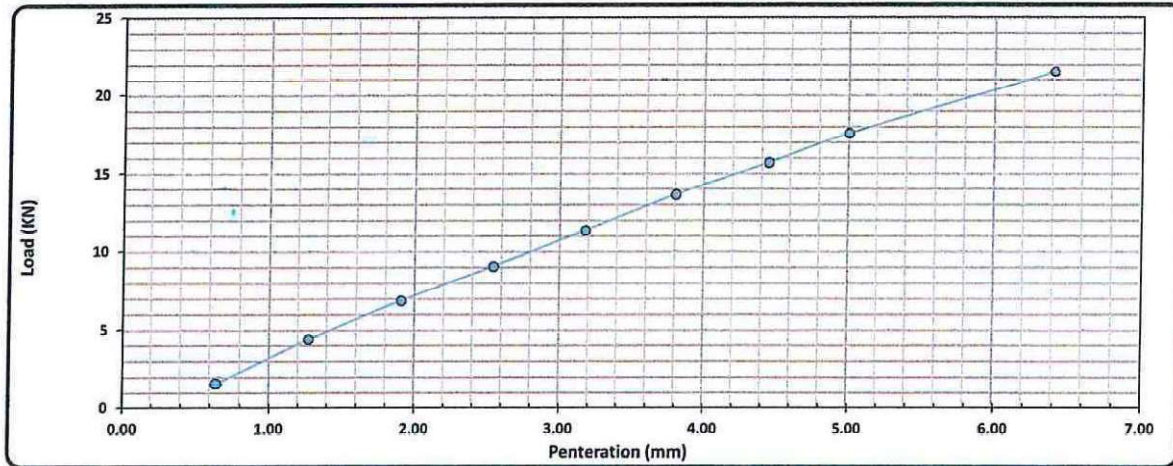
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7350
Mold WT. + Wet WT. (gm)	12390
Wet WT. (gm)	5040
Wet Density (g/cm ³)	2.343
Dry Density (g/cm ³)	2.198
Proctor Density (g/cm ³)	2.238
Compaction %	98

Moisture Ratio After Compacted Mold	
Tare No.	5
Tare WT. (gm)	31
Tare WT. +Wet WT. (gm)	160
Tare WT. +Dry WT. (gm)	152
Water WT. (gm)	7.8
Dry WT. (gm)	121.2
Moisture Content %	6.6

Swelling	
Mold No.	4
Date	2023/8/12
Initial Height (mm)	4.10
Final Height (mm)	4.10
Difference	0
Sample Height (mm)	120.00
Swelling Ratio %	0%

Loading Reading :

Penetration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (kg)	156.00	445.00	699.00	921.00	1156.00	1389.00	1598.00	1789.00	2190.00
Load (KN)	1.5	4.4	6.9	9.0	11.3	13.6	15.7	17.5	21.5



Calculations :-

Penetration (mm)	Load (Kn)	Standard Load (lb)	CBR (%)	Mold - Compaction (%)	Compaction (%)	CBR
2.50	9.03	13.4	67.6%	99	98	عند نسبة 98 % 66.9%
5.00	17.53	20.0	87.6%			86.7%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name :

Sign :



Youssef Rajab

Youssef
12/8
7-23

EL Mahgoub company

Express Electric Trian project



**Absorbtion & Aggregate specific gravity
AASHTO-T85**

Testing date :-	10\8\2023
location :-	K.P(548+600)
material :-	sub ballast

Weight of sample	2000	gm
Weight of saturated -dry surface sample (B)	2016	gm
Weight of saturated sample in water (C)	1249.6	gm
Weight of dry sample aftr heating (A)	1982.6	gm

Results:-

Bulj spcific gravity = $A / (B-C)$	2.587	
Apparent spcific gravity = $A / (A-C)$	2.705	
Asorbtion = $(B-A)/A$	1.685	

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before	Weight of sample before test (gm)	Abrasion ratio (%)
5000	3730	25.40

Lab Engineer/



Youssef Ragab
12/8/23

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد قنديل	 SYSTRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 7 From FOKA To MARSA MATROUH From Station 504+000 To Station 568+177		الهيئة العامة لقانون وتنظيم النقل (CAPREL)	 الهيئة العامة للنقل والبحري

Operating Lab.	AL Nuby Central Lab
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	02-08-2023	Code	Zone	549+000	552+000
LOCATION	K,P (550+000)	MH (S.B-2)	Material	Sub Ballast	
NAME COMPANY	EL MAHGOUP		Layer Thickness	20	

1-visual inspection test

2-Gradient test

								Table classify	
4-gradation of bulk materials				SAMPLE WEIGHT [g]		29354.00	gm	Soil Classify	A-1-a
sieve size	2	1.6	1	4/3	2/1	8/3	# 4	PASS	
Mass retained (g)	0.0	114.0	1450.0	5891.0	3658.0	2165.0	5293.0		WC
Cumulative Retained (g)	0.0	114.0	1564.0	7455.0	11113.0	13278.0	18571.0		CBR
Cumulative Retained %	0.0	0.4	5.3	25.4	37.9	45.2	63.3		Los Angles
Cumulative Passing %	100.0	99.6	94.7	74.6	62.1	54.8	36.7		Specific gravity

1-soft material gradation				WT.OF sample		500.00	gm
sieve size	10	40	200				
Cumulative Retained (g)	98.00	275.00	414.00				
Cumulative Retained %	19.60	55.00	82.80				
Cumulative Passing %	80.40	45.00	17.20				

General gradient										
sieve size(in)	2	1.6	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	99.6	94.7	74.6	62.1	54.8	36.7	29.5	16.5	6.3
Limits		100-75	100-50	70-75		60-15		0-35	30-0	0-7

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor Engineer :-

Name :

Sign :

Lab. Engineer :-

Name :

Sign :



Consultant Engineer :-

Name : Youssef Ragob

Sign : Youssef 8/8/2023

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي إ.م. قنديل	 SIDA شركة شركة	Electric Express Train - HSR		 الهيئة العامة للنقل Ministry of Transport Ministry of Transport
		From El Ain El Sokhna City To El Alamein - MATROUH		
		Section - 7 From FOKA TO MARSA MATROUH		
		From Station 504+000 To Station 568+177		

Operating Lab.	AL Nuby Central Lab
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PROCTOR TEST

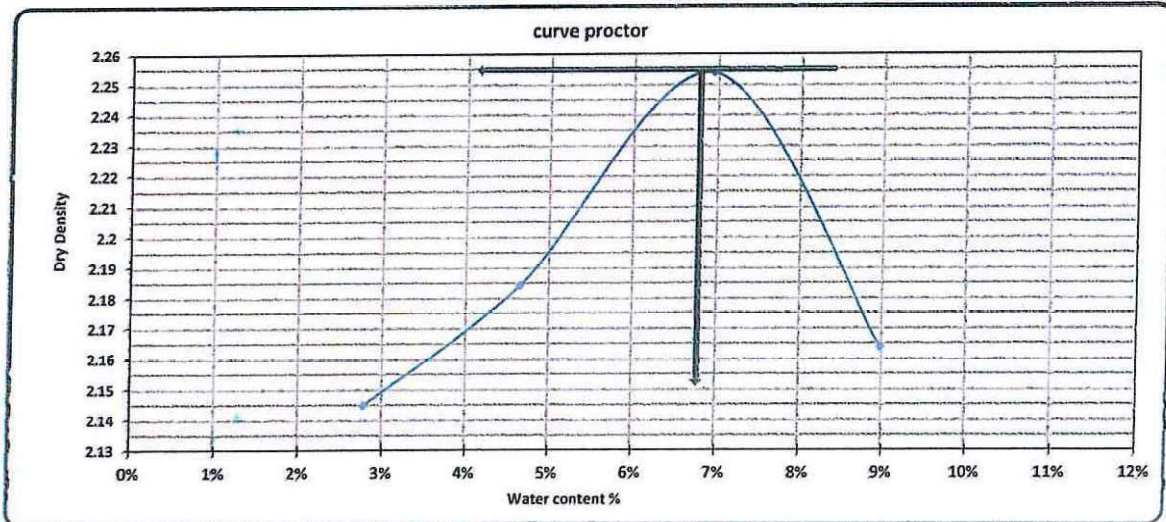
TESTING DATE:	03-08-2023	Code			
LOCATION	K,P (550+000)	MH (S.B-2)	zone	549+000	552+000
NAME COMPANY	EL MAHGOUP				

Weight of empty mold :	6290.0
Mold Volume:	2142.0

MAX Dry Density	2.255
Water content %	6.8

trial no :	1	2	3	4	
Wt. Of Mold+ wet soil	11012.0	11186.0	11453.0	11341	
WT. WET SOIL	4722.0	4896.0	5163.0	5051.0	
Wt. Density	2.204	2.286	2.410	2.358	

Tare No.	18	10	7	32	22	26	16	33		
Tare wt.	77.8	43.7	42.9	74.4	54.1	55	34	73.6		
Wt. Of wet soil & tare	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0		
Wt. Of dry soil & tare	148.0	147.2	145.3	146.6	143.8	143.8	140.6	143.6		
Wt. Of water	2.0	2.8	4.7	3.4	6.2	6.2	9.4	6.4		
Wt. Of dry soil	70.2	103.5	102.4	72.2	89.7	88.8	106.6	70.0		
Water content %	2.8%	2.7%	4.6%	4.7%	6.9%	7.0%	8.8%	9.1%		
AV. Water content %	2.8%		4.6%		6.9%		9.0%			
Dry Density	2.145		2.184		2.254		2.164			



Contractor Engineer :-

Name :

Sign :

Lab. Engineer :-

Name :

Sign :



Consultant Engineer :-

Name : Youssef Rafab

Sign :

Youssef
8/8/2023

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فنديل	 Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 7 From FOKA To MARSA MATROUH From Station 504+000 To Station 568+177	

Operating Lab. AL Nuby Central Lab

**Absorbition & Aggregate specific gravity
AASHTO-T85**

TESTING DATE:	03-08-2023	code			
LOCATION	K,P (550+000)	mm (S.B-2)	zone	549+000	552+000
NAME COMPANY	EL MAHGOUP				

Weight of sample	2500.0	gm
Weight of saturated -dry surface sample (B)	2510.0	gm
Weight of saturated sample in water (C)	1551.7	gm
Weight of dry sample after heating (A)	2467.0	gm

Results:-

Bulk Specific gravity = A / (B-C)	2.574	
Apparent specific gravity = A / (A-C)	2.695	
Absorbition = (B-A)/A	1.743	%

Los Anglos abrasion AASHTO-T96

Weight of sample before test (gm)	Weight of sample after test (gm)	Abrasion ratio (%)
5000	3690	26.2

Contractor Engineer :-

Name :

Sign :

Lab. Engineer :-

Name :

Sign :



Consultant Engineer :-

Name : Youssef Rajab

Sign : Youssef
8/8/2023

 KAYE CONSULTING OFFICE المكتب الاستشاري والهندسي د. خالد خليل	 CVSIFA SHARAF	Electric Express Train - HSR		 وزارة النقل والمواصلات والبحر (SAR)
		From El Ain El Sokhna City To El Alamein - MATROUH		
		Section - 7 From FOKA To MARSA MATROUH		
		From Station 504+000 To Station 568+177		

Operating Lab: AL Nuby Central Lab

California Bearing Ratio TEST

Testing Date :	05-08-2023	Code	FROM STA :	549+000	552+000
Location :	K,P (550+000)	MH (S.B-2)			
Company Name	EL MAHGOUP				

- : Test Results

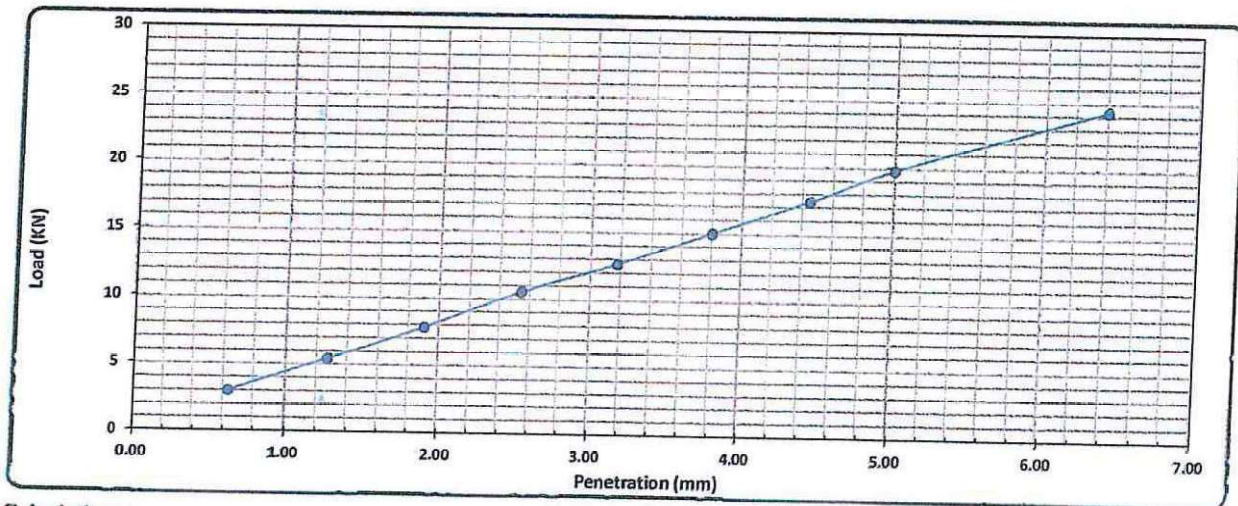
Compaction % for Mold	
Mold No.	1
Mold Vol. (cm ³)	2122
Mold WT. (gm)	4803
Mold WT. + Wet WT. (gm)	10305
Wet WT. (gm)	5502
Wet Density (g/cm ³)	2.593
Dry Density (g/cm ³)	2.435
Proctor Density (g/cm ³)	2.255
Compaction %	108.0

Moisture Ratio After Compacted Mold	
Tare No.	32
Tare WT. (gm)	74.4
Tare WT. + Wet WT. (gm)	150
Tare WT. + Dry WT. (gm)	145.4
Wet WT	4.6
Dry WT. (gm)	71.0
Moisture Content %	6.5

Swelling	
Mold No.	1
Date	05-08-2023
Initial Height (mm)	4.00
Final Height (mm)	4.00
Difference	0
Sample Height (mm)	120.00
Swelling Ratio %	0.0%

Loading Reading :

Penetration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (mm)	0.10	0.18	0.26	0.35	0.42	0.50	0.58	0.66	0.81
Load (KN)	3.0	5.4	7.8	10.5	12.6	15.0	17.4	19.8	24.3



Calculations :-

Penetration (mm)	Load (KN)	Standard Load (lb)	CBR (%)	Mold - Compaction (%)	Compaction (%)	CBR (%)
2.50	10.50	13.4	78.7%	108	98	71.4%
5.00	19.80	20.0	98.9%			89.7%

Contractor Engineer

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Youssef Ragab

Youssef
8/8/2023

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	12/6/2023	code	ZONE	549+000	552+000
LOCATION	k.p(549+200)	MH-5	Material	PERPARED	
NAME COMPANY	EL MAHGOUB		layer thickness	25 cm	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		36464.00	gm		table classify
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify
Mass retained (g)	0.0	1583.0	5309.0	4044.0	6038.0	2394.0	4008.0		A-1-a
Cumulative Retained (g)	0.0	1583.0	6892.0	10936.0	16974.0	19368.0	23376.0	PRO	2.183
Cumulative Retained %	0.0	4.3	18.9	30.0	46.6	53.1	64.1	WC	6.2%
Cumulative Passing %	100.0	95.7	81.1	70.0	53.4	46.9	35.9	CBR	52.0%

B-soft material gradation				WT.OF sample		500.00	gm
sieve size	10	40	200				
Cumulative Retained (g)	189.00	295.00	365.00				
Cumulative Retained %	37.80	59.00	73.00				
Cumulative Passing %	62.20	41.00	27.00				

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	95.7	81.1	70.0	53.4	46.9	35.9	22.3	14.7	9.7
REMARKS		97-50		75-20		60-15		0-35		0-12

ATTEBERG LIMTS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant

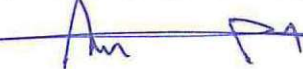




 شركة المصنوع للمشاريع الهندسية والتوريدات

 معمل اختبارات وأبحاث التربة

 القطار السريع - فوكه - مطروح





Electric Express Train - HSR
From El Ain El Sokhna City To El Alamein - MATROUH
Section - 7 From FOKA TO MARSA MATROUH
From Station 504+000 To Station 568+177



PROCTOR TEST

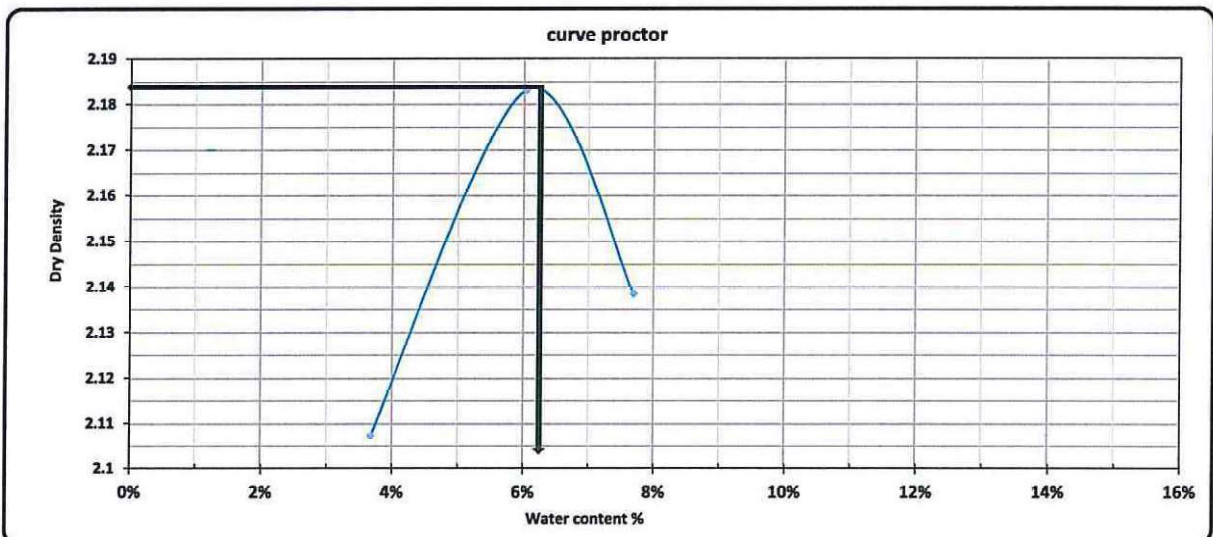
TESTING DATE:	13/6/2023	code	Station	549+000	552+000
LOCATION	k.p(549+200)	MH-5	Material	PERPARED	
NAME COMPANY	EL MAHGOUB		layer thickness	25 cm	

Weight of empty mold :	6083.0
Mold Volume:	2032.0

MAX Dry Density	2.183
Water content %	6.2%

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10523.0	10787.0	10763.0		
WT. WET SOIL	4440.0	4704.0	4680.0		
Wt. Density	2.185	2.315	2.303		

Tare No.	1	2	3	4	5	6	7	8		
Tare wt.	30.12	28.77	30.78	34.98	29.45	28.96				
Wt. Of wet soil & tare	167.9	160.9	166.2	157.0	160.9	156.3				
Wt. Of dry soil & tare	163.3	155.9	158.7	149.8	151.7	147.0				
Wt. Of water	4.6	5.0	7.5	7.2	9.2	9.3				
Wt. Of dry soil	133.1	127.1	128.0	114.8	122.3	118.0				
Water content %	3.5%	3.9%	5.8%	6.2%	7.5%	7.9%				
AV. Water content %	3.7%		6.0%		7.7%					
Dry Density	2.107		2.183		2.139					



Contractor



Consultant

[Signature]

California Bearing Ratio TEST

Testing Date :	14/6/2023	Code	FROM STA :	549+000	552+000
Location :	k.p(549+200)	MH-5	: Material	PERPARED	
Layer No. :	EL MAHJOUB		: Layer Thickness	25 cm	

- : Test Results

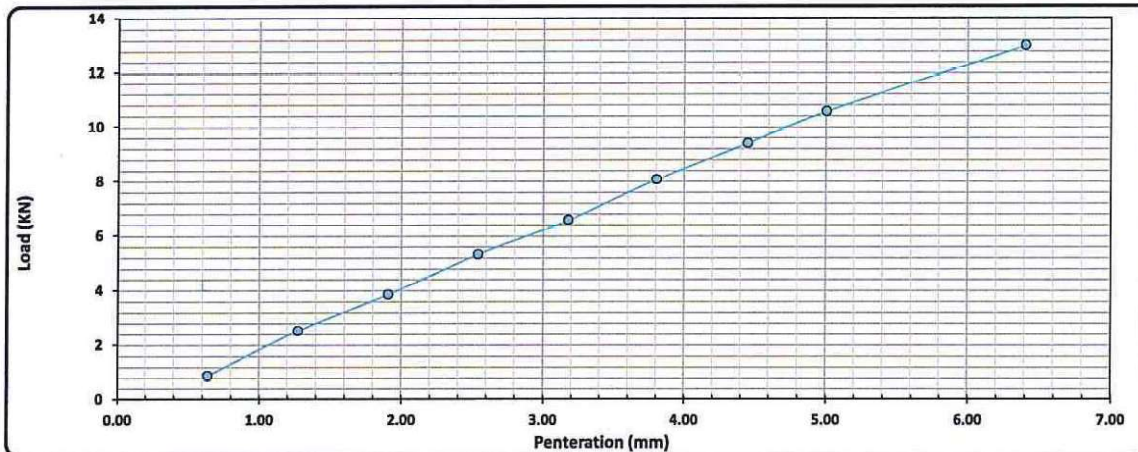
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7810
Mold WT. + Wet WT. (gm)	12790
Wet WT. (gm)	4980
Wet Density (g/cm ³)	2.315
Dry Density (g/cm ³)	2.180
Proctor Density (g/cm ³)	2.183
Compaction %	100

Mositure Ratio After Compacted Mold	
Tare No.	5
Tare WT. (gm)	34
Tare WT. +Wet WT. (gm)	160
Tare WT. +Dry WT. (gm)	152
Water WT. (gm)	8.0
Dry WT. (gm)	118.0
Moisture Content %	6.2

Swelling	
Mold No.	3
Date	14-6-2023
Intial Height (mm)	3.65
Final Height (mm)	3.65
Difference	0
Sample Height (mm)	122.00
Swelling Ratio %	0%

Loading Reading :

Penteration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (kg)	88.00	256.00	392.00	542.00	670.00	821.00	956.00	1076.00	1324.00
Load (KN)	0.9	2.5	3.8	5.3	6.6	8.0	9.4	10.5	13.0



Calculations :-

Penteration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(Kn)	(lb)	(%)	(%)	(%)	عند نسبة 98 %
2.50	5.31	13.4	39.8%	100	98	39.0%
5.00	10.54	20.0	52.7%			51.7%

Lab. Specialist

Lab. Engineer

Consultant Engineer

Name :

Name :

Name :

Sign :

Sign :

Sign :



EL Mahgoub company

Express Electric Trian project



**Absorbition & Aggregate specific gravity
AASHTO-T85**

Testing date :-	12\6\2023
location :-	k.p(548+500)
material :-	prepared subgrade
NAME COMPANY	EL MAHGOUB

Weight of sample		gm
Weight of saturated -dry surface sample (B)		gm
Weight of saturated sample in water (C)		gm
Weight of dry sample aftr heating (A)		gm

Results:-

Bulj spcific gravity = $A / (B-C)$		
Apparent spcific gravity = $A / (A-C)$		
Asorbition = $(B-A)/A$		

Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before	Weight of sample before test (gm)	Abrasion ratio (%)
5000	3264	34.72

Lab Engineer/



 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فهد	 SVSTRA SHAKER	Electric Express Train - HSR From El Ain El Sokhna City To El Alamein - MATROUH Section - 7 From FOKA To MARSА MATROUH From Station 504+000 To Station 568+177	 الهيئة القومية للإتفاق القانون والحوكمة (GAPSLT)
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PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	4/6/2023	code	ZONE	549+000	552+000
LOCATION	k.p(550+500)	MH-4	Material	PERPARED	
NAME COMPANY	EL MAHGOUB		layer thickness	25 cm	

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		30484.00		gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	1544.0	5118.0	2613.0	3064.0	2407.0	4460.0		A-1-a	
Cumulative Retained (g)	0.0	1544.0	6662.0	9275.0	12339.0	14746.0	19206.0		PRO	2.186
Cumulative Retained %	0.0	5.1	21.9	30.4	40.5	48.4	63.0		WC	6.3%
Cumulative Passing %	100.0	94.9	78.1	69.6	59.5	51.6	37.0		CBR	50.4%

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	166.00	288.00	368.00					
Cumulative Retained %	33.20	57.60	73.60					
Cumulative Passing %	66.80	42.40	26.40					

C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	94.9	78.1	69.6	59.5	51.6	37.0	24.7	15.7	9.8
REMARKS		97-50		75-20		60-15		0-35		0-12

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	N.P	N.P	N.P

Contractor

Consultant