

أعمال الجسر الترابي لمشروع القطار الكهربائي السريع

قطاع فوكة / مطروح

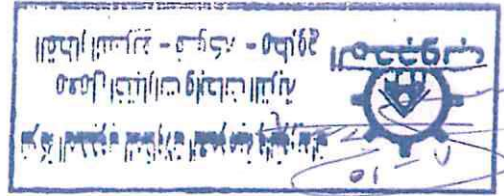
في المسافة من كم ٥٤٨+٠٠٠ الى كم ٥٥٩+٠٠٠ بطول ١١ كم (اتجاه برج العرب)

رقم التنفيذ	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الإجمالي
١	أعمال الردم				
١-١	بالمتر المكعب أعمال توريد وتشغيل اترية صالحة للردم و مطابقة للمواصفات و التشغيل باستخدام الات التسوية بسبك لايزيد عن ٥٠سم حتى منسوب (-٢ متر) و بسبك لايزيد عن ٢٥سم لاستكمال المنسوب التصميمي لتشكيل الجسر الترابي و الاكتاف (نسبة تحمل كاليفورنيا لا تقل عن ١٥%) و رشها بالمياه الاصلوية للوصول الى نسبة الرطوبة المطلوبة و الدمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (٩٥ % من الكثافة الجافة القصوى) و يتم التنفيذ طبقا للمناسيب التصميمية و القطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقا لاصول الصناعة و مواصفات الهيئة العامة للطرق و الكبارى وتعليمات المهندس المشرف . - فى حالة طلب جهاز الاشراف زيادة نسبة الدمك عن ٩٥% يحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١% . - مسافة النقل حتى ٢ كم ويتم احتساب علاوة ١,٤ جنيه للكم بالزيادة او النقصان . - السعر يشمل عمل تشوينات وتخليط واختبارات ونقل لموقع العمل حتى مسافة ٢ كم. - السعر يشمل قيمة المادة الحجرية طبقا لافادة المنطقة بهذا القطاع (٧) من الكم ٥٠٤ الى الكم ٥٦٨ .	م ^٣	٦١٠٥٠,٠٦	٨٥	٥١٨٩٢٥٥
	علاوة مسافة النقل ١٦٦ كم	م ^٣	٦١٠٥٠,٠٦	٢٢٩,٦٠	١٤٠١٧٠٩٤
	علاوة تحصيل رسوم الكارثة والموازين طبقا لللائحة الشركة الوطنية	م ^٣	٦١٠٥٠,٠٦	١٣	٧٩٣٦٥١



م. ك. ك. ك.





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17-8-2023

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Consultant

Contractor

ATTERBERG LIMITS	N.P	N.P	N.P
	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTIC INDEX (PI)

REMARKS	Cumulative Passing %	sieve size(mm)	sieve size(in)	# 4	# 10	# 40	# 200
	100.0	50.0	2	1.5	1	3/4	1/2
	97.1	37.5	19.0	12.5	9.5	4.75	2.00
	79.2	25.0	7.5	4.75	2.00	0.425	0.075
	70.0	19.0	7.5	4.75	2.00	0.425	0.075
	47.2	12.5	7.5	4.75	2.00	0.425	0.075
	38.8	9.5	7.5	4.75	2.00	0.425	0.075
	28.6	7.5	7.5	4.75	2.00	0.425	0.075
	17.3	2.00	7.5	4.75	2.00	0.425	0.075
	9.8	0.425	7.5	4.75	2.00	0.425	0.075
	4.6	0.075	7.5	4.75	2.00	0.425	0.075
	0.7		7.5	4.75	2.00	0.425	0.075

C-General gradient

sieve size	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %
10	197.00	39.40	60.60
40	328.00	65.60	34.40
200	420.00	84.00	16.00

B-soft material gradation

sieve size	Mass retained (g)	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %
2	0.0	1527.0	0.0	100.0
1.5	1527.0	1527.0	2.857	97.1
1	9580.0	11107.0	20.8	79.2
4/3	4911.0	16018.0	30.0	70.0
2/1	12197.0	28215.0	52.8	47.2
8/3	4513.0	32728.0	61.2	38.8
# 4	5451.0	38179.0	71.4	28.6
PASS				

A-gradation of bulk materials

SAMPLE WEIGHT [g]	53451.00
gm	

table classify	soil classify	A-1-a	PRO	WC	CBR	S.G	LA
			2.240	6.6%	88.3%	2.563	25.76

2-Gradient test

1-visual inspection test

TESTING DATE:	13/02/2023	LOCATION	K.P 550+500	NAME COMPANY	EL MAHGOUB
code		ZONE	549+000	MATERIAL	SUB BALLAST
LAYER THICKNESS			552+000		2000 M3

PARTICLE SIZE DISTRIBUTION OF SOIL

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

ENGINEERING CONSULTING OFFICE

المهندسين الاستشاريين

SVS TRA SHAKER

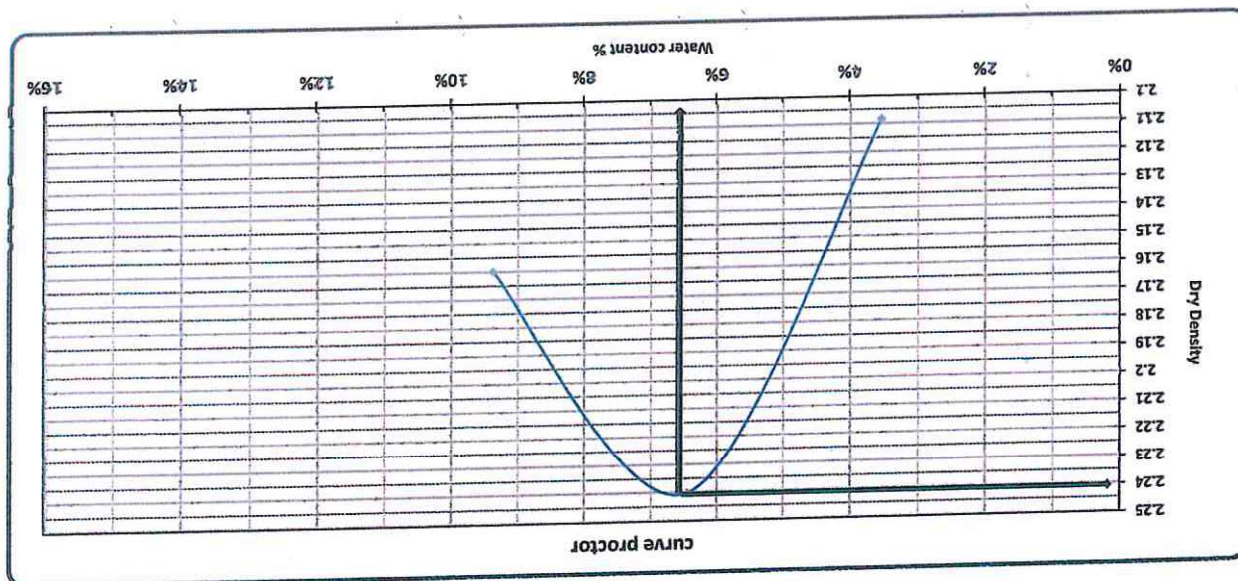
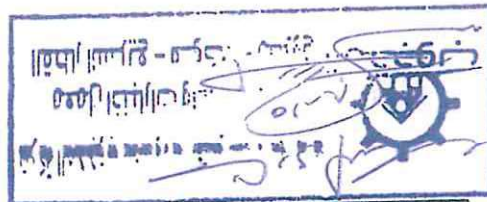
17-8-2023

mohamed elsayed

mohamed elsayed

Consultant

Contractor



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

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

Weight of empty mold :	Mold Volume:
6077.0	2032.0

MAX Dry Density	Water content %
2.24	9.6%

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

PROCTOR TEST

From Station 504+000 To Station 558+177	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 558+177			

California Bearing Ratio TEST

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

:- Test Results

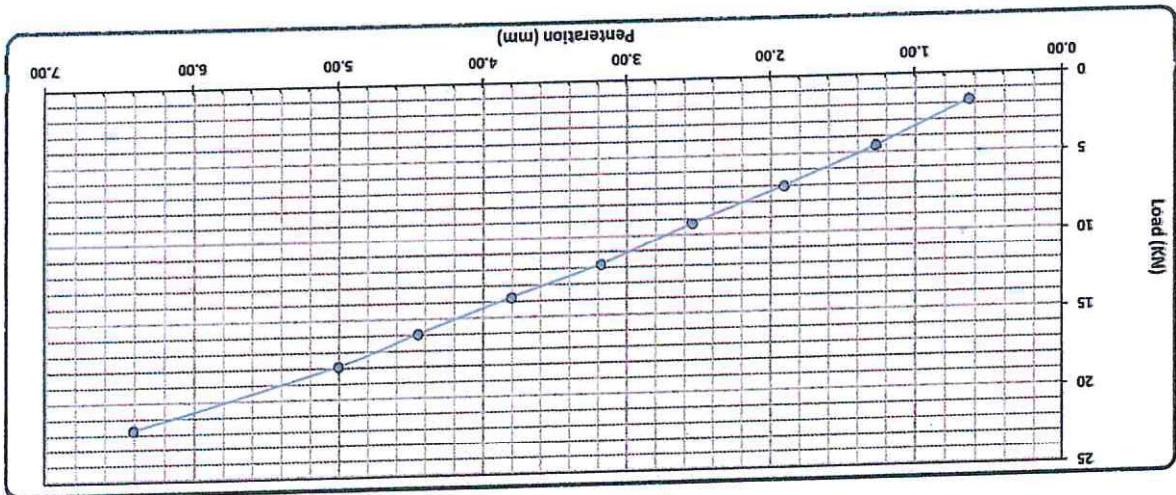
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7350
Mold WT. + Wet WT. (gm)	12390
Wet WT. (gm)	5040
Wet Density (g/cm ³)	2.343
Dry Density (g/cm ³)	2.198
Proctor Density (g/cm ³)	2.240
Compaction %	98

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	2023/8/15
Initial Height (mm)	5.50
Final Height (mm)	5.50
Difference	0
Sample Height (mm)	121.00
Swelling Ratio %	0%

Loading Reading :

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



Calculations :-

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

Lab. Specialist

Lab. Engineer

Consultant Engineer

Sign :

Name :

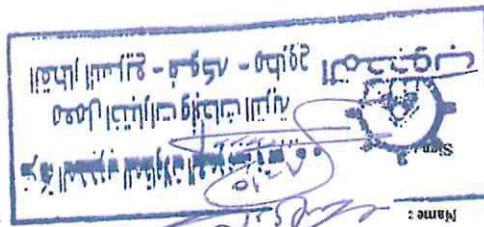
Name :

Sign :

Consultant Engineer

Lab. Engineer

Lab. Specialist



Name : Mohamed Elsayed

Signature

17-8-2023



Absorption & Aggregate specific gravity
AASHTO-T85

Testing date :-	15/01/2023
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 after heating (A)	1987.00	gm

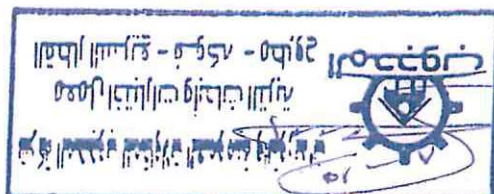
Results:-

Bul' spific gravity = $A / (B-C)$	2.563
Apparent spific gravity = $A / (A-C)$	2.671
Absorbtion = $(B-A)/A$	1.580

Los Anglos abrasion
AASHTO-T96

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

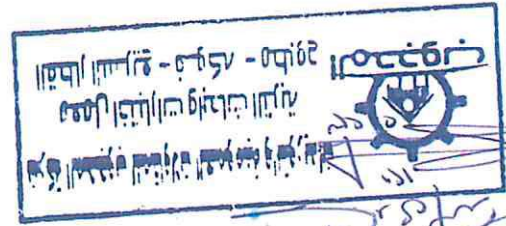
Results:-



[Signature]

Lab Engineer/

17-8-2023
[Signature]
Mohamed Elsayed



Youssef R. 16/9/23

Consultant

Contractor

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

sieve size(in)	sieve size(mm)	Cumulative Passing %	REMARKS
2	50.0	100.0	
1.5	37.5	98.4	50-97
1	25.0	84.2	20-75
3/4	19.0	73.1	15-60
1/2	12.5	57.5	
3/8	9.5	49.1	
# 4	4.75	40.2	0-35
# 10	2.00	28.1	
# 40	0.425	16.1	
# 200	0.075	6.7	0-7

C-General gradient

sieve size	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %
10	150.00	30.00	70.00
40	299.00	59.80	40.20
200	417.00	83.40	16.60

B-soft material gradation			
WT.OF sample	gm	LA	25.40
	500.00	S.G	2.587
		CBR	86.7%
		WC	6.6%
		PRO	2.238
		A-1-a	
		soil classify	
		table classify	

A-gradation of bulk materials			
sieve size	Mass retained (g)	Cumulative Retained (g)	Cumulative Retained %
2	0.0	393.0	393.0
1.5	393.0	3493.0	3886.0
1	2726.0	10451.0	6612.0
4/3	3839.0	12511.0	42.5
2/1	2060.0	14715.0	50.9
8/3	2204.0		59.8
# 4			40.2
PASS			
gm	24591.00		

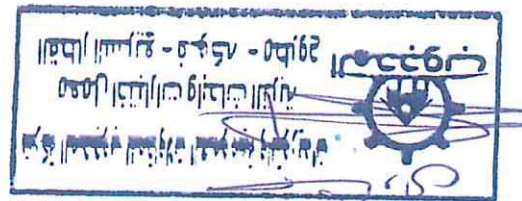
2-Gradient test

1-visual inspection test

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

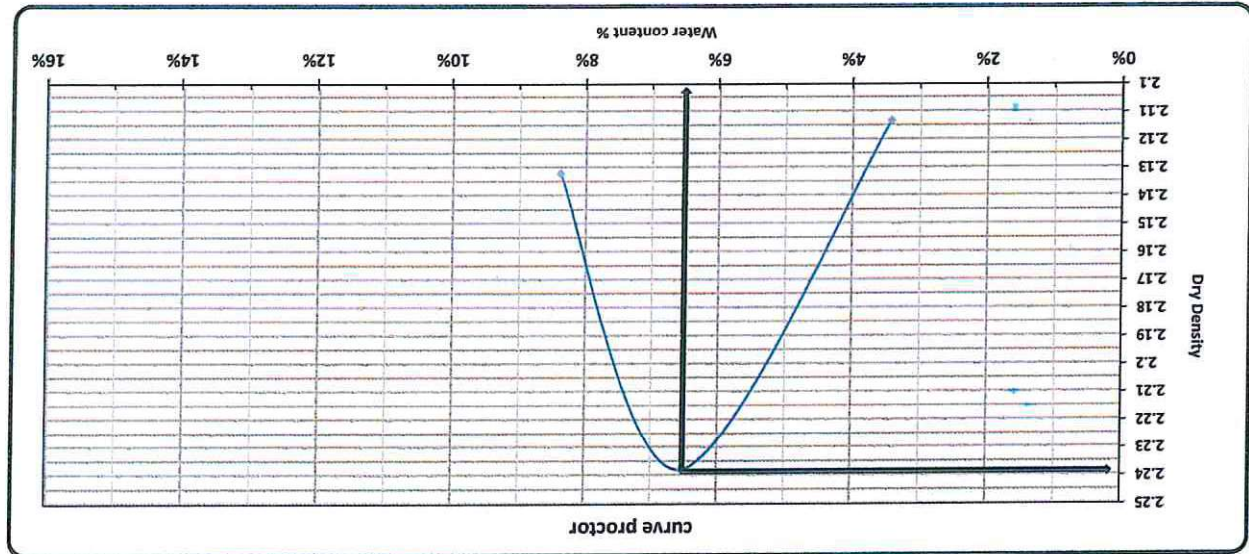
PARTICLE SIZE DISTRIBUTION OF SOIL

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		ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي SYSTEMA SHAKER



Contractor

Consulant



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%	2.132		
Dry Density	2.113	2.238	2.132			

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

Weight of empty mold :	6070.0
Mold Volume:	2032.0
MAX Dry Density	2.238
Water content %	6.6%

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	

PROCTOR TEST

Electric Express Train - HSR	From El Ain El Sokhna City To El Alamein - MATROUH	Section - 7 From FOKA TO MARSAA MATROUH	From Station 504+000 To Station 568+177
ENGINEERING CONSULTING FIRM	SVSTRA	SHAKER	

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

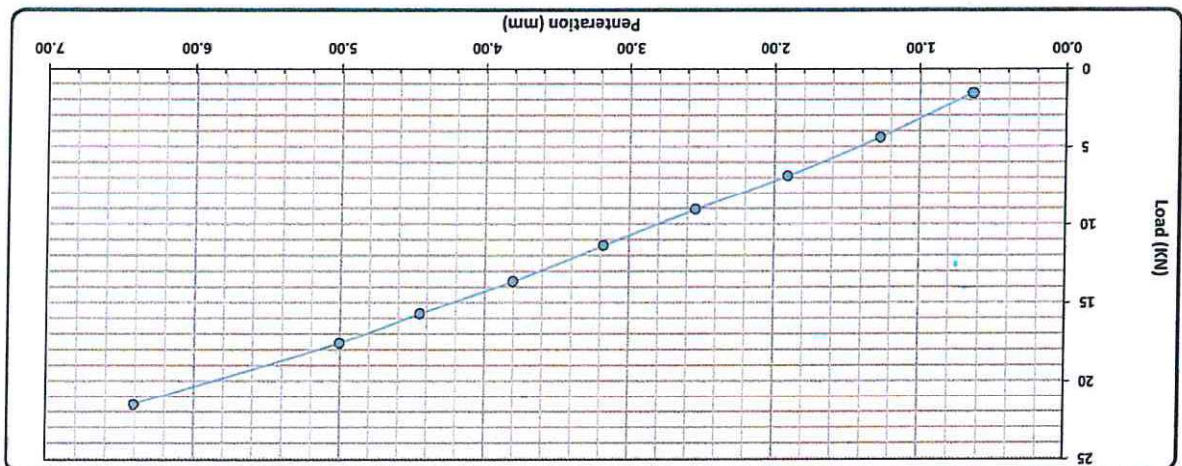
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7350
Mold WT. + Wet WT. (gm)	12390
Wet WT. (gm)	5040
Wet Density (g/cm ³)	2.343
Dry Density (g/cm ³)	2.198
Proctor Density (g/cm ³)	2.238
Compaction %	98

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



Calculations :-

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

Lab. Specialist

Lab. Engineer

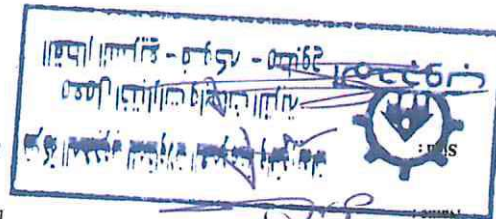
Consultant Engineer

Name :

Name :

Sign :

Sign :





Absorption & 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 after heating (A)	1982.6	gm

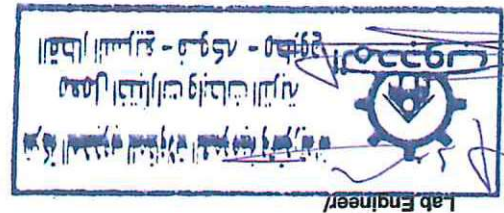
Results:-

Bul/ spicific gravity = A / (B-C)	2.587	
Apparent spicific gravity = A/(A-C)	2.705	
Asorbtion = (B-A)/A	1.685	

Los Anglos abrasion
AASHTO-T96

Results:-

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



100% Passed
12/8/2023

Operating Lab. AL Nuby Central Lab

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	02-08-2023	Code	MH (S.B-2)	Layer Thickness	20
LOCATION	K.P (650+000)	Material	Sub Ballast	Zone	649+000
NAME COMPANY	EL MAHGOUP				652+000

2-Gradient test

Table classify

4-gradation of bulk materials									
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	PRO
Mass retained (g)	0.0	114.0	1450.0	5891.0	3658.0	2165.0	5293.0	WC	6.80
Cumulative Retained (g)	0.0	114.0	1564.0	7455.0	11113.0	13278.0	18571.0	CBR	89.70
Cumulative Retained %	0.0	0.4	5.3	25.4	37.9	45.2	63.3	Los Angles	26.20
Cumulative Passing %	100.0	99.6	94.7	74.6	62.1	54.8	36.7	Specific gravity	2.574

1-soft material gradation				
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(mm)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425
Cumulative Passing %	100.0	99.6	94.7	74.6	62.1	54.8	36.7	29.5	16.5
Limits		100-75	100-50	70-75	60-15	0-35	30-0	0-7	

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

Contractor Engineer :-

Lab. Engineer :-

Name: /oussief R.ghob

Sign: /oussief R.ghob

Director Engineer :-

Lab. Engineer :-

Name: /oussief R.ghob

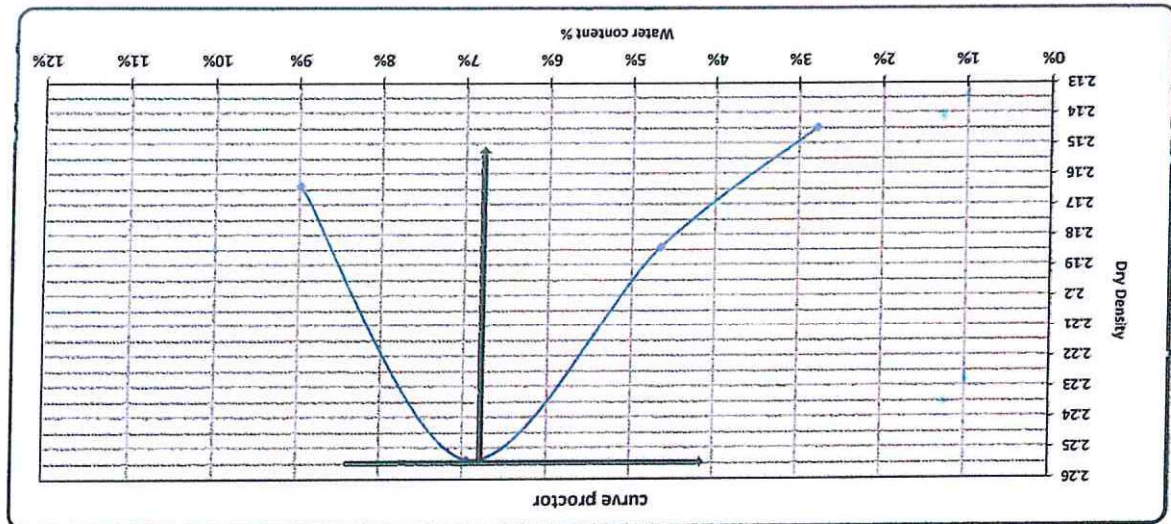
Sign: /oussief R.ghob

TESTING DATE:	03-08-2023	Code	MM (S.B-2)	zone	645+000	652+000
LOCATION	K.P (650+000)	EL MAHGOUP				
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	140.6	143.6	
Wt. Of water	2.0	2.8	4.7	3.4	6.2	9.4	6.4	
Wt. Of dry soil	70.2	103.5	102.4	72.2	89.7	106.6	70.0	
Water content %	2.8%	2.7%	4.6%	4.7%	6.9%	8.8%	9.1%	
AV. Water content %	2.8%	4.6%	4.6%	6.9%	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 :

Sign :

Name: _____

Name :

Name _____

Lab. Engineer :-

Lab. Engineer :-

Name: /o ussef Rajab
Sign: /o ussef Rajab
2025

Name :
Sign :

Name :
Sign :

Name :
Sign :

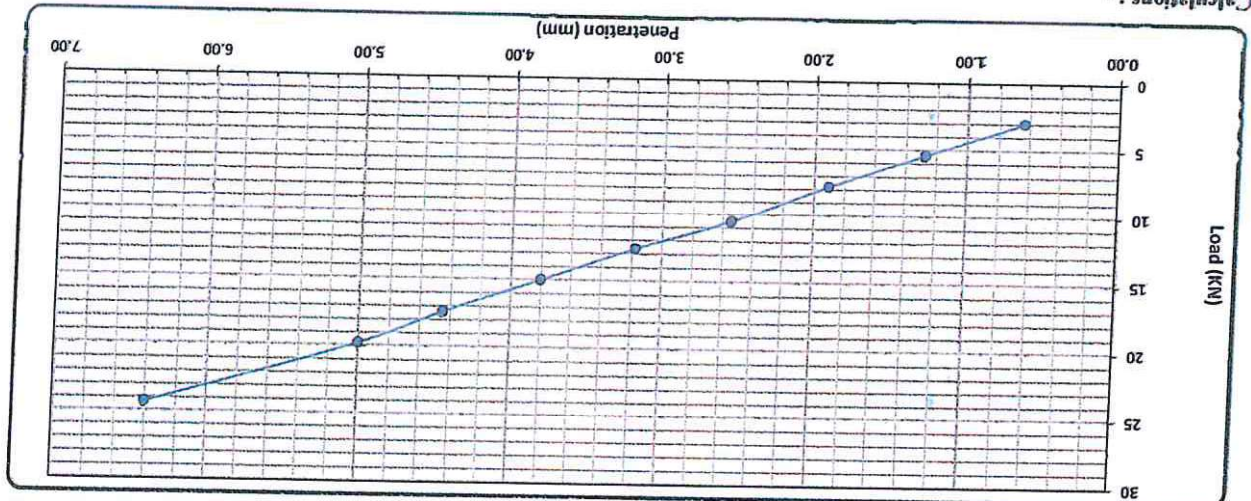
Contractor Engineer

Lab Engineer

Consultant Engineer

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

Calculations :-



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

Loading Reading :

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

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

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

:- Test Results

Company Name	Location	Company Name	Location
EL MAHGOUP	K.P (550+000)	FROM STA :	549+000
05-08-2023	Code		552+000

California Bearing Ratio TEST

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

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

1-Visual inspection test

2-Gradient test

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

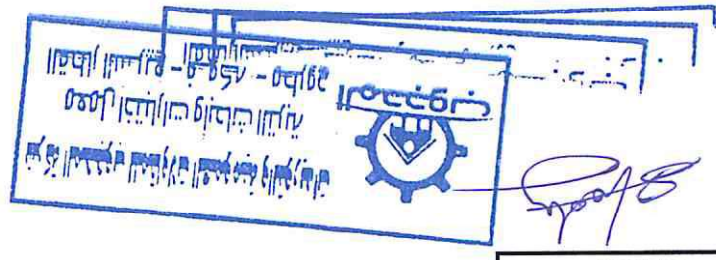
B-soft material gradation					WT.OF sample		500.00	gm
sieve size	10	40	200					
Cumulative Retained (g)	189.00	295.00	365.00					
Cumulative Retained %	37.80	59.00	73.00					
Cumulative Passing %	62.20	41.00	27.00					

C-General gradient									
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425
Cumulative Passing %	100.0	95.7	81.1	70.0	53.4	46.9	35.9	22.3	14.7
REMARKS									

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



Consultant



Contractor

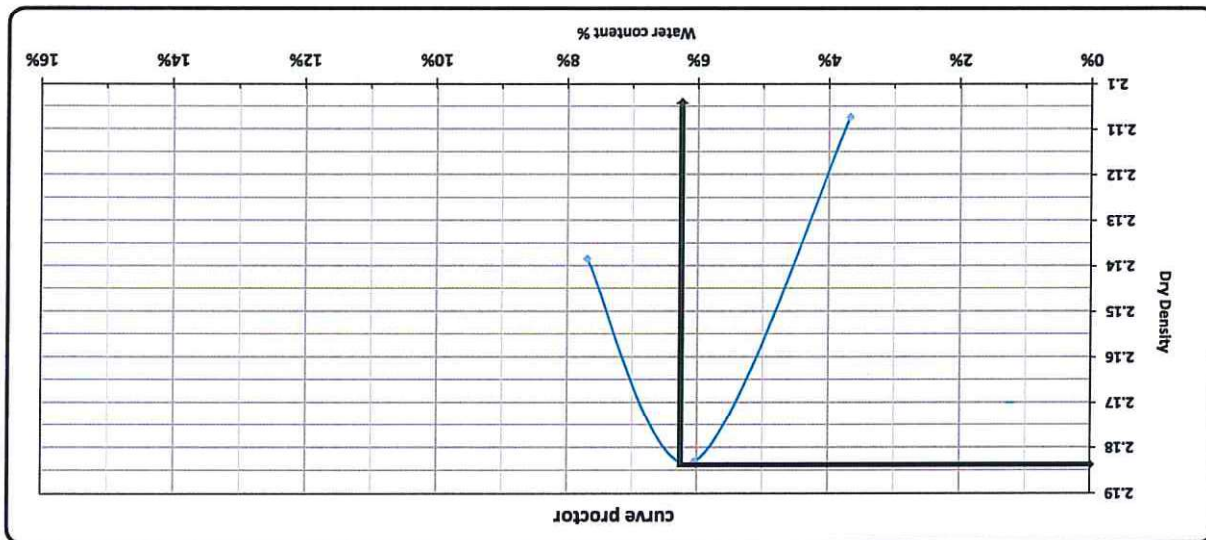
PARTICLE SIZE DISTRIBUTION OF SOIL

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Consultant



Contractor



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%		2.139	
Dry Density	2.107		2.183		2.139			

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		

Weight of empty mold :	6083.0
Mold Volume:	2032.0
MAX Dry Density	2.183
Water content %	6.2%

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

PROCTOR TEST

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

ENGINEERING CONSULTING OFFICE

STATE OF KUWAIT

MINISTRY OF TRANSPORT AND PUBLIC WORKS

California Bearing Ratio TEST

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

-: Test Results

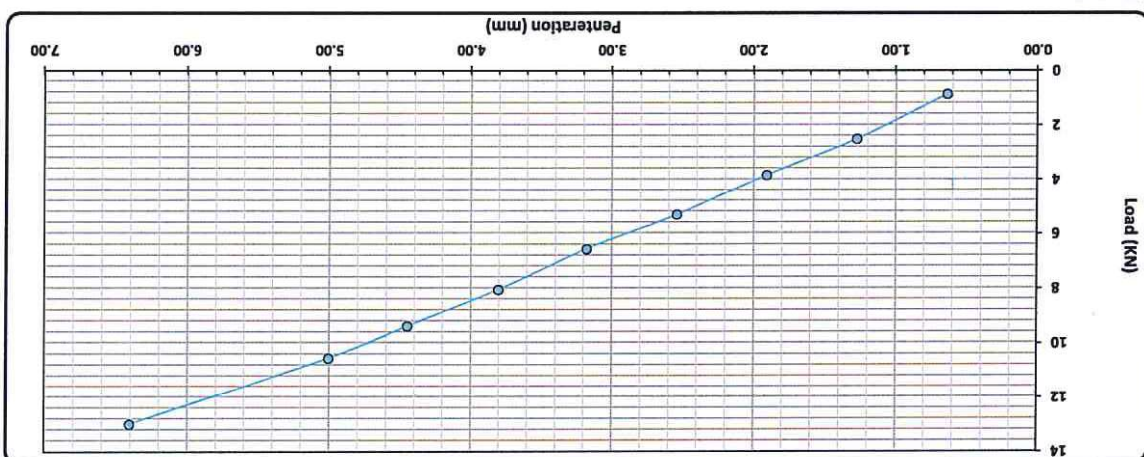
Compaction % for Mold	
Mold No.	55
Mold Vol (cm^3)	2151
Mold WT. (gm)	7810
Mold WT. + Wet WT. (gm)	12790
Wet WT. (gm)	4980
Wet Density (g/cm^3)	2.315
Dry Density (g/cm^3)	2.180
Proctor Density (g/cm^3)	2.183
Compaction %	100

Moisture 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
Initial Height (mm)	3.65
Final Height (mm)	3.65
Difference	0
Sample Height (mm)	122.00
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)	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 :-

Penetration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(kN)	(lb)	(%)	(%)	(%)	% 98 λ_{max} 10
2.50	5.31	13.4	39.8%	100	98	39.0%
5.00	10.54	20.0	52.7%			51.7%

Sign :

NAME :

Lab. Specialist

Lab. Engineer

Consultant Engineer

: 3U1E N

Sign :

Express Electric Trian project



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 after heating (A)	gm

Results:-

Bull specific gravity = $A / (B - C)$		
Apparent specific gravity = $A / (A - C)$		
Absorption = $(B - A) / A$		

Los Angeles abrasion AASHTO-T96

Results:

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

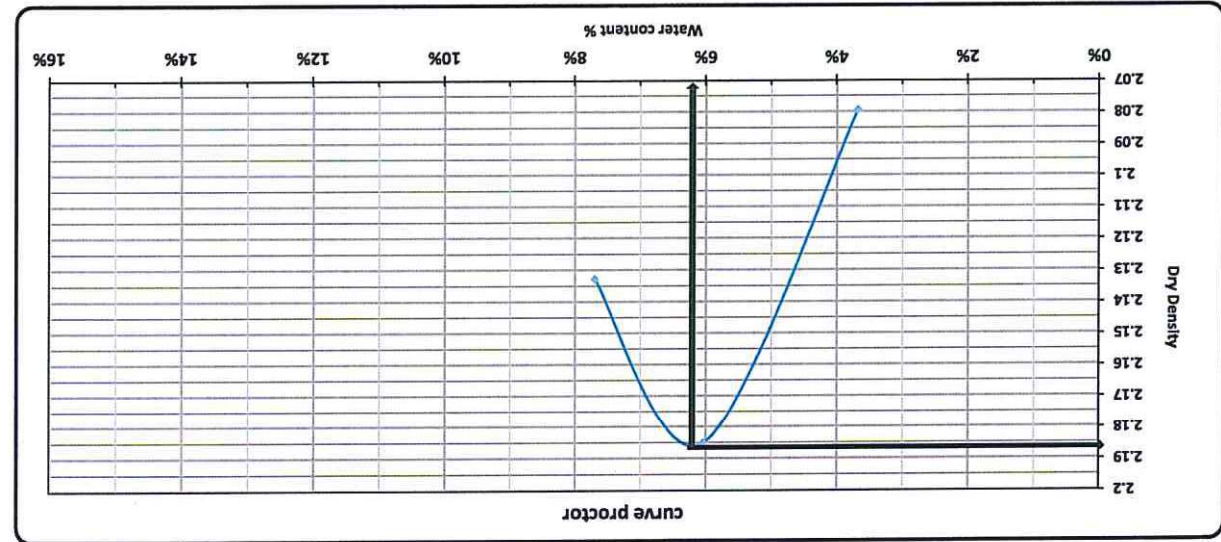


TESTING DATE:	2023/06/05	code	Station	549+000	552+000
	Material			PERPAVED	
LOCATION	k.p(550+500)	MH-4	layer thickness	25 cm	
NAME COMPANY	EL MAHJOUR				

Weight of empty mold :	6088.0	Mold Volume:	2032.0
MAX Dry Density	2.186	Water content %	6.3%

trial no :	1	2	3	4	5
Wt. OF Mold+ wet soil	10469.0	10796.1	10755.5		
WT. WET SOIL	4381.0	4708.1	4667.5		
Wt. Density	2.156	2.317	2.297		

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%		
A.V. Water content %	3.7%	6.0%	7.7%					
Dry Density	2.079	2.185	2.133					



المشروع
محطة السكك الحديدية - قنطرة
الخط الحديدي
الخط الحديدي
الخط الحديدي

Contractor

Consultant

California Bearing Ratio TEST

Testing Date :	6/6/2023	Code	FROM STA :	549+000	552+000
Location :	k.p(550+500)	MH-4	Material :	PREPARED	
Layer No. :			Layer Thickness :	25 cm	

:- Test Results

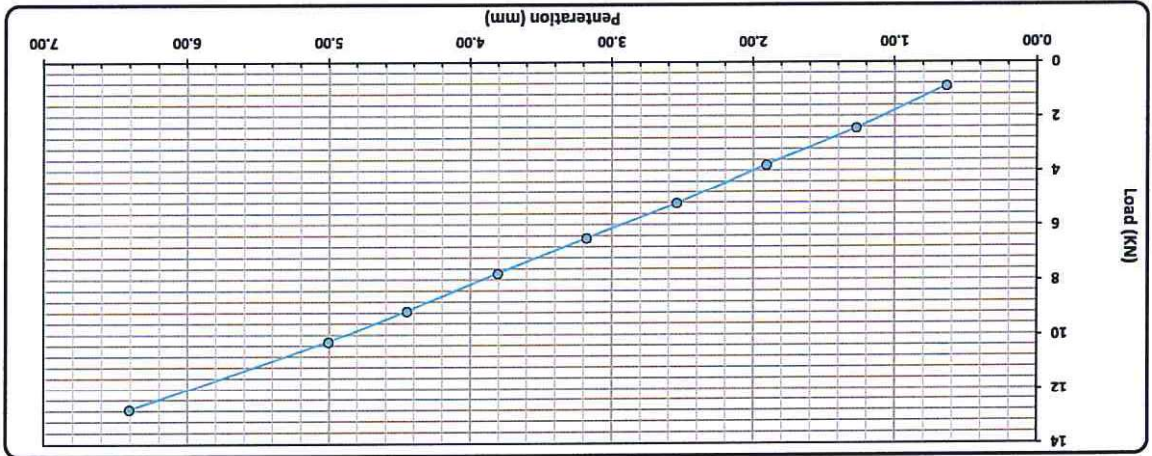
Compaction % for Mold		Mold No.	2151
Mold Vol. (cm ³)		Mold WT. (gm)	7810
Mold WT. + Wet WT. (gm)		Mold WT. + Wet WT. (gm)	12790
Wet WT. (gm)		Wet WT. (gm)	4980
Wet Density (g/cm ³)		Wet Density (g/cm ³)	2.315
Dry Density (g/cm ³)		Dry Density (g/cm ³)	2.168
Proctor Density (g/cm ³)		Proctor Density (g/cm ³)	2.186
Compaction %		Compaction %	99

Moisture Ratio After Compacted Mold		Tare No.	5
Tare WT. (gm)		Tare WT. (gm)	34
Tare WT. + Wet WT. (gm)		Tare WT. + Wet WT. (gm)	160
Tare WT. + Dry WT. (gm)		Tare WT. + Dry WT. (gm)	152
Water WT. (gm)		Water WT. (gm)	8.0
Dry WT. (gm)		Dry WT. (gm)	118.0
Moisture Content %		Moisture Content %	6.8

Swelling		Mold No.	3
Date		Date	٢٠٢٣/٠٦/٠٦
Initial Height (mm)		Initial Height (mm)	2.60
Final Height (mm)		Final Height (mm)	2.60
Difference		Difference	0
Sample Height (mm)		Sample Height (mm)	120.00
Swelling Ratio %		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)	90.00	247.00	385.00	530.00	660.00	790.00	930.00	1043.00	1298.00
Load (KN)	0.9	2.4	3.8	5.2	6.5	7.7	9.1	10.2	12.7



Calculations :-

Penetration	Load	Standard Load	CBR	Mold - Compaction	99	98	50.4%
(mm)	(Kn)	(lb)	(%)	(%)	(%)	(%)	38.4%
2.50	5.19	13.4	38.9%				
5.00	10.22	20.0	51.0%				

Lab. Specialist

Lab. Engineer

Consultant Engineer

Sign :

Name :

Name :

Sign :

Name :



Handwritten signature of the Consultant Engineer.

EL Mahgoub company

Express Electric Trian project

El Mahgoub lab



Absorption & Aggregate specific gravity
AASHTO-T85

Testing date :-	4/6/2023
location :-	K.P(550+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 after heating (A)		gm

Results:-

Bul/ spicific gravity = A / (B-C)		
Apparent spicific gravity = A / (A-C)		
Asorbtion = (B-A)/A		

Los Anglos abrasion AASHTO-T96

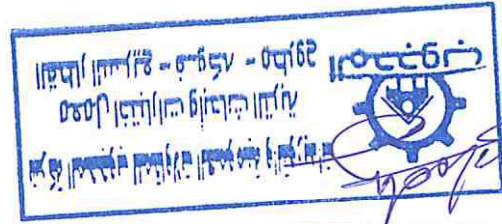
Results:-

Weight of sample before	5000
Weight of sample before test (gm)	3323
Abrasion ratio (%)	33.54



Lab Engineer/

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M. H.

Consultant

Contractor

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

REMARKS	sieve size(n)	sieve size(mm)	Cumulative Passing %	0-12	0-35	60-15	75-20	1/2	3/8	# 4	# 10	# 40	# 200
	2	50.0	100.0										
	1.5	37.5	93.2										
	1	25.0	81.0										
	3/4	19.0	71.9										
	1/2	12.5	59.6										
	3/8	9.5	50.5										
	# 4	4.75	38.4										
	# 10	2.00	19.5										
	# 40	0.425	12.5										
	# 200	0.075	8.8										

C-General gradient

sieve size	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %	10	40	200	WT.OF sample	500.00	gm
	246.00	49.20	50.80						
	337.00	67.40	32.60						
	385.00	77.00	23.00						

B-soft material gradation

A-gradation of bulk materials	sieve size	Mass retained (g)	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %	1	4/3	2/1	8/3	# 4	PASS	table classify	soil classify
	2	1820.0	1820.0	0.0	100.0	93.2	81.0	71.9	59.6	50.5	38.4	CBR	50.5%
	1.5	1820.0	1820.0	0.0	0.0	6.8	19.0	28.1	40.4	49.5	61.6	WC	6.5%
	1	3243.0	5063.0	0.0	0.0	1820.0	5063.0	7476.0	10771.0	13183.0	16403.0	PRO	2.180
	4/3	2413.0	2413.0	0.0	0.0	1820.0	3243.0	2413.0	3295.0	2412.0	3220.0	A-1-a	
	2/1	3295.0	3295.0	0.0	0.0	1820.0	3295.0	3295.0	3295.0	2412.0	3220.0		
	8/3	2412.0	16403.0	0.0	0.0	1820.0	5063.0	7476.0	10771.0	13183.0	16403.0		
	# 4	3220.0	16403.0	0.0	0.0	1820.0	5063.0	7476.0	10771.0	13183.0	16403.0		
	PASS	3220.0	16403.0	0.0	0.0	1820.0	5063.0	7476.0	10771.0	13183.0	16403.0		
	gm	26642.00	16403.0	0.0	0.0	1820.0	5063.0	7476.0	10771.0	13183.0	16403.0		

2-Gradient test

1-Visual inspection test

TESTING DATE:	4/6/2023	code	MH-3	Material	549+000	552+000
LOCATION	k.p(551+300)			layer thickness	PERPARED	
NAME COMPANY	EL MAHGOUB				25 cm	

PARTICLE SIZE DISTRIBUTION OF SOIL

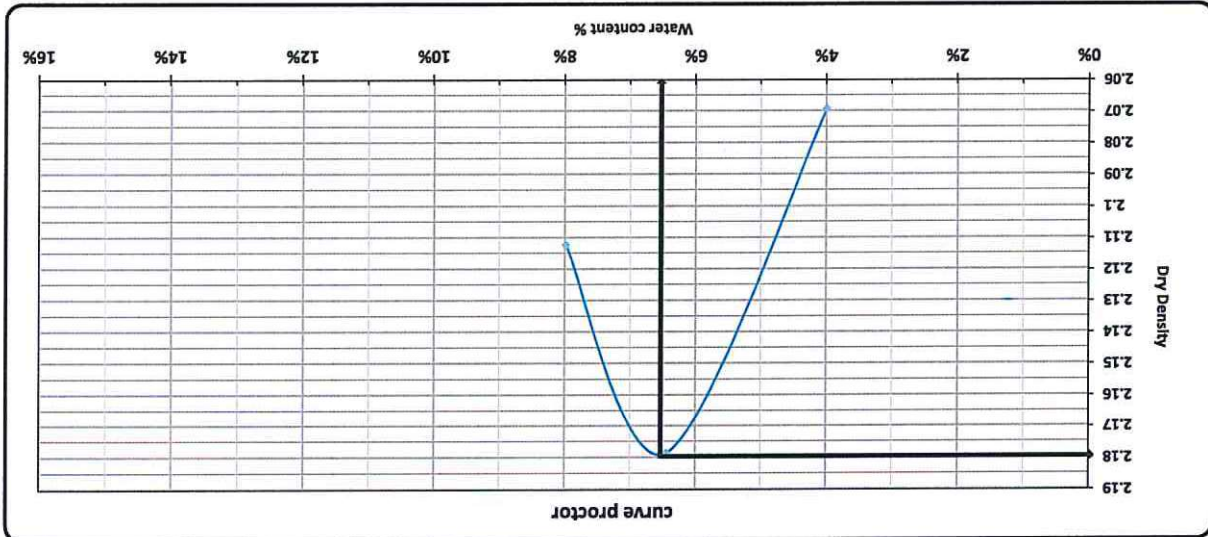
Electric Express Train - HSR	From El Ain El Sokhna City To El Alamein - MATROUH	Section - 7 From FOKA To MARSA MATROUH	From Station 504+000 To Station 568+177	المركز الاستشاري الهندسي ENGINEERING CONSULTING OFFICE	المكتب الاستشاري الهندسي ENGINEERING CONSULTING OFFICE

TESTING DATE:	2023/06/05	code	MH-3	Station	549+000	552+000
LOCATION	k.p(551+300)	Material		PERPARED		
NAME COMPANY	EL MAHJOURB	layer thickness		25 cm		

Weight of empty mold :	6088.0	Mold Volume:	2032.0
MAX Dry Density	2.18	Water content %	6.5%

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10460.9	10800.2	10723.0		
WT. WET SOIL	4372.9	4712.2	4635.0		
Wt. Density	2.152	2.319	2.281		

Tare No.	1	2	3	4	5	6	7	8
Tare wt.	30.34	28.45	34.87	28.12	30.54	30.26		
Wt. Of wet soil & tare	156.2	166.0	155.2	156.0	160.3	155.4		
Wt. Of dry soil & tare	151.5	160.5	148.2	148.0	151.2	145.7		
Wt. Of water	4.7	5.5	7.0	8.0	9.1	9.7		
Wt. Of dry soil	121.2	132.1	113.3	119.8	120.7	115.4		
Water content %	3.9%	4.1%	6.2%	6.7%	7.6%	8.4%		
AV. Water content %	4.0%	6.4%	8.0%					
Dry Density	2.069	2.179	2.112					



Consultant

Contractor

California Bearing Ratio TEST

Testing Date :	6/6/2023	Code	FROM STA :	S49+000	SS2+000
Location :	k.p(S51+300)	MH-3	Material	PREPARED	
Layer No. :			Layer Thickness	25 cm	

- : Test Results

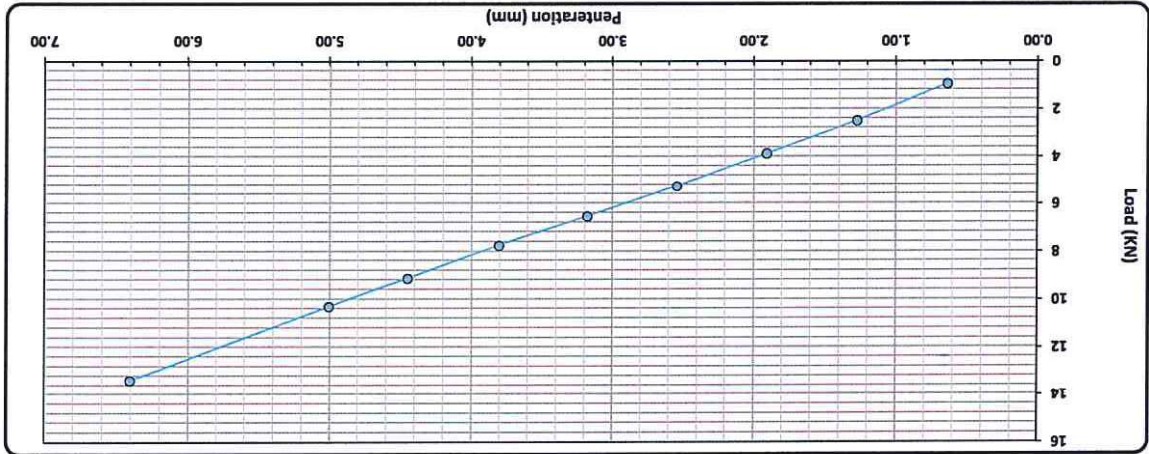
Compaction % for Mold	
Mold No.	55
Mold Vol. (cm ³)	2151
Mold WT. (gm)	7810
Mold WT. + Wet WT. (gm)	12790
Wet WT. (gm)	4980
Wet Density (g/cm ³)	2.315
Dry Density (g/cm ³)	2.175
Proctor Density (g/cm ³)	2.180
Compaction %	100

Moisture Ratio After Compacted Mold	
Tare No.	5
Tare WT. (gm)	28
Tare WT. + Wet WT. (gm)	160
Tare WT. + Dry WT. (gm)	152
Water WT. (gm)	8.0
Dry WT. (gm)	124.0
Moisture Content %	6.5

Swelling	
Mold No.	3
Date	٢٠٢٣/٠٦/٠٦
Initial Height (mm)	2.30
Final Height (mm)	2.30
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)	96.00	254.00	395.00	536.00	666.00	790.00	930.00	1050.00	1365.00
Load (KN)	0.9	2.5	3.9	5.3	6.5	7.7	9.1	10.3	13.4



Calculations :-

Penetration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(Kn)	(lb)	(%)	(%)	(%)	(%)
2.50	5.25	13.4	39.3%	98	38.7%	50.5%
5.00	10.29	20.0	51.4%	100		

Lab. Specialist

Name :
Sign :

Lab. Engineer



Name :
Sign :

Consultant Engineer

Signature

EL Mahgoub company

Express Electric Trian project

El Mahgoub lab



Absorption & Aggregate specific gravity
AASHTO-T85

Testing date :-	4/6/2023
location :-	K.p(551+300)
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 after heating (A)		gm

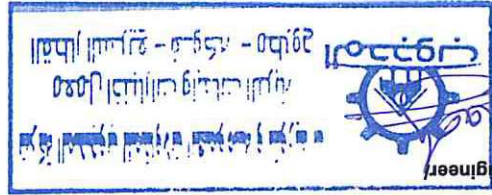
Results:-

Bul/ spicific gravity = A / (B-C)		
Apparent spicific gravity = A / (A-C)		
Absorbtion = (B-A)/A		

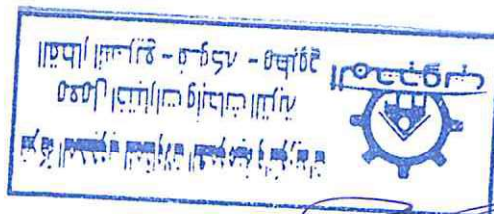
Los Anglos abrasion AASHTO-T96

Results:-

Weight of sample before	5000
Weight of sample before test (gm)	3342
Abrasion ratio (%)	33.16



M. S. El



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Consultant

Handwritten signature.

Contractor

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

sieve size(in)	sieve size(mm)	REMARKS					
		Cumulative Passing %	97-50	75-20	60-15	0-35	0-12
2	50.0	100.0	88.9	78.5	69.5	59.0	49.2
1.5	37.5	25.0	19.0	12.5	9.5	4.75	2.00
1	25.0	37.5	19.0	12.5	9.5	4.75	2.00
3/4	19.0	37.5	19.0	12.5	9.5	4.75	2.00
3/8	12.5	37.5	19.0	12.5	9.5	4.75	2.00
1/2	9.5	37.5	19.0	12.5	9.5	4.75	2.00
# 4	4.75	37.5	19.0	12.5	9.5	4.75	2.00
# 10	2.00	37.5	19.0	12.5	9.5	4.75	2.00
# 40	0.425	37.5	19.0	12.5	9.5	4.75	2.00
# 200	0.075	37.5	19.0	12.5	9.5	4.75	2.00

C-General gradation

sieve size	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %	B-soft material gradation	
				WT.OF sample	500.00 gm
10	165.00	33.00	67.00		
40	281.00	56.20	43.80		
200	374.00	74.80	25.20		

A-gradation of bulk materials	sieve size	Mass retained (g)	Cumulative Retained (g)	Cumulative Retained %	Cumulative Passing %	B-soft material gradation	
						WT.OF sample	500.00 gm
	2	0.0	3874.0	11.1	88.9		
	1.5	0.0	3611.0	21.5	78.5		
	1	3165.0	10650.0	30.5	69.5		
	4/3	3659.0	14309.0	41.0	59.0		
	2/1	3418.0	17727.0	50.8	49.2		
	8/3	3967.0	21694.0	62.2	37.8		
	# 4						
	PASS						
	gm		34875.00				
table classify							
soil classify	A-1-a						
	PRO	2.182					
	WC	6.6%					
	CBR	45.7%					

2-Gradient test

1-visual inspection test

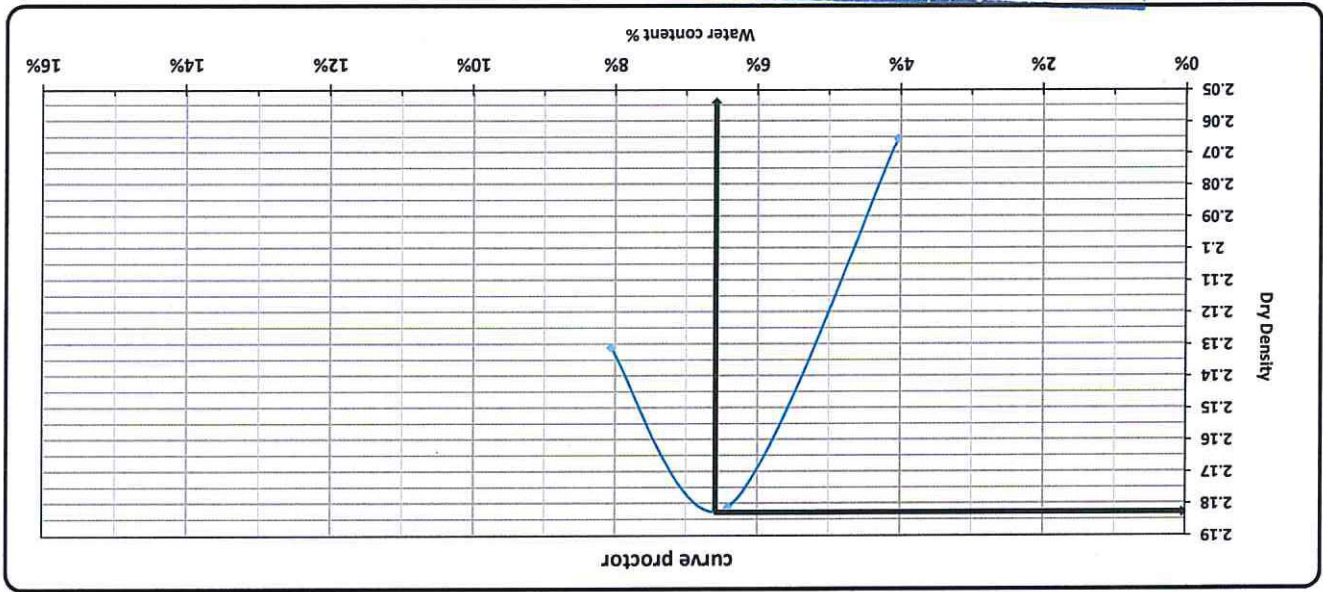
TESTING DATE:	31/5/2023	code	MH-2	layer thickness	25 cm
LOCATION	k.p(551+300)			Material	PERPARED
NAME COMPANY	EL MAHGOUB				

PARTICLE SIZE DISTRIBUTION OF SOIL

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	
المشروع		المشروع		المشروع		المشروع	
المشروع		المشروع		المشروع		المشروع	
المشروع		المشروع		المشروع		المشروع	

Consultant

Contractor



Tare No.	1	2	3	4	5	6	7	8
Tare wt.	34.25	34.12	28.33	22.74	28.36	29.41		
Wt. Of wet soil & tare	155.4	155.3	156.7	154.3	156.7	150.5		
Wt. Of dry soil & tare	151.0	150.3	148.7	146.7	147.4	141.2		
Wt. Of water	4.4	5.0	8.1	7.6	9.3	9.3		
Wt. Of dry soil	116.7	116.2	120.3	124.0	119.1	111.8		
Water content %	3.8%	4.3%	6.7%	6.1%	7.8%	8.3%		
AV. Water content %	4.0%	6.4%				8.1%		
Dry Density	2.066	2.181				2.131		

trial no :	1	2	3	4	5
Wt. Of Mold+ wet soil	10436.8	10786.3	10749.7		
WT. WET SOIL	4366.8	4716.3	4679.7		
Wt. Density	2.149	2.321	2.303		

Weight of empty mold :	6070.0
Mold Volume:	2032.0
MAX Dry Density	2.182
Water content %	6.6%

TESTING DATE:	2023/06/01	code	MH-2	Station	549+000	552+000
LOCATION	k(p(551+300))	Material	PERPAVED	layer thickness	25 cm	
NAME COMPANY	EL MAHJOUB					

PROCTOR TEST

ENGINEERING CONSULTING OFFICE
المكتب الاستشاري الهندسي

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 للنقل والاقتصاد