

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي د. خالد فريد	 LABORATORY AL NUBY CENTRAL LAB	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
Operating Lab	AL Nuby Central Lab		

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	6-4-2023	Code		zone	531+000	532+000
LOCATION	K,P (531+500)	UM2 (1)				
NAME COMPANY	U- Mark					

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		22808.00		gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	2325.0	2252.0	2453.0	2853.0	2490.0	2400.0		A-1-a	
Cumulative Retained (g)	0.0	2325.0	4577.0	7030.0	9883.0	12373.0	14773.0	PRO	2.17	
Cumulative Retained %	0.0	10.2	20.1	30.8	43.3	54.2	64.8	WC	8.80	
Cumulative Passing %	100.0	89.8	79.9	69.2	56.7	45.8	35.2	CBR	77.80	

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	68.50	190.10	353.60					
Cumulative Retained %	13.70	38.02	70.72					
Cumulative Passing %	86.30	61.98	29.28					

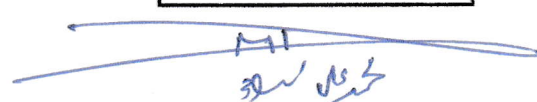
C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	89.8	79.9	69.2	56.7	45.8	35.2	30.4	21.8	10.3

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

Contractor

Consultant




 [Signature]



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

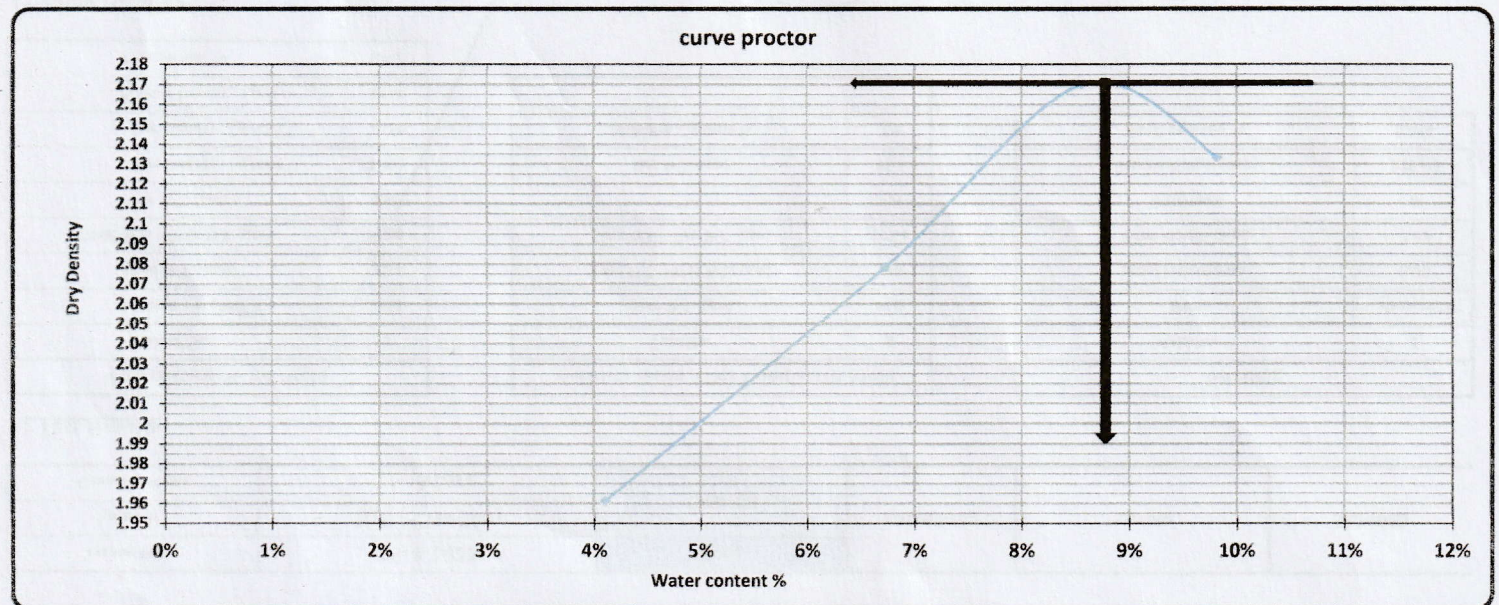
TESTING DATE:	6-4-2023	Code	zone	531+000	532+000
LOCATION	K,P (531+500)	UM2 (1)			
NAME COMPANY	U- Mark				

Weight of empty mold :	6033.0
Mold Volume:	2103.0

MAX Dry Density	2.17
Water content %	8.8

trial no :	1	2	3	4	
Wt. Of Mold+ wet soil	10325.0	10696.0	10985.0	10958	
WT. WET SOIL	4292.0	4663.0	4952.0	4925.0	
Wt. Density	2.041	2.217	2.355	2.342	

Tare No.	73	16	14	4	8	13	19	18		
Tare wt.	42.9	33.3	58.8	58.6	45.9	32.2	44.4	40.7		
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	145.6	145.6	144.5	144.0	141.9	140.6	140.5	140.3		
Wt. Of water	4.4	4.4	5.5	6.0	8.1	9.4	9.5	9.7		
Wt. Of dry soil	102.7	112.3	85.7	85.4	96.0	108.4	96.1	99.6		
Water content %	4.3%	3.9%	6.4%	7.0%	8.4%	8.7%	9.9%	9.7%		
AV. Water content %	4.1%		6.7%		8.6%		9.8%			
Dry Density	1.960		2.078		2.169		2.133			



Consultant

(Signature)

Operating Lab

AL Nuby Central Lab

California Bearing Ratio TEST

Testing Date :	9-4-2023	Code	FROM STA :	...+021	...+022
Location :	K,P (531+500)	UM2 (1)			
Company Name	U- Mark				

Test Results

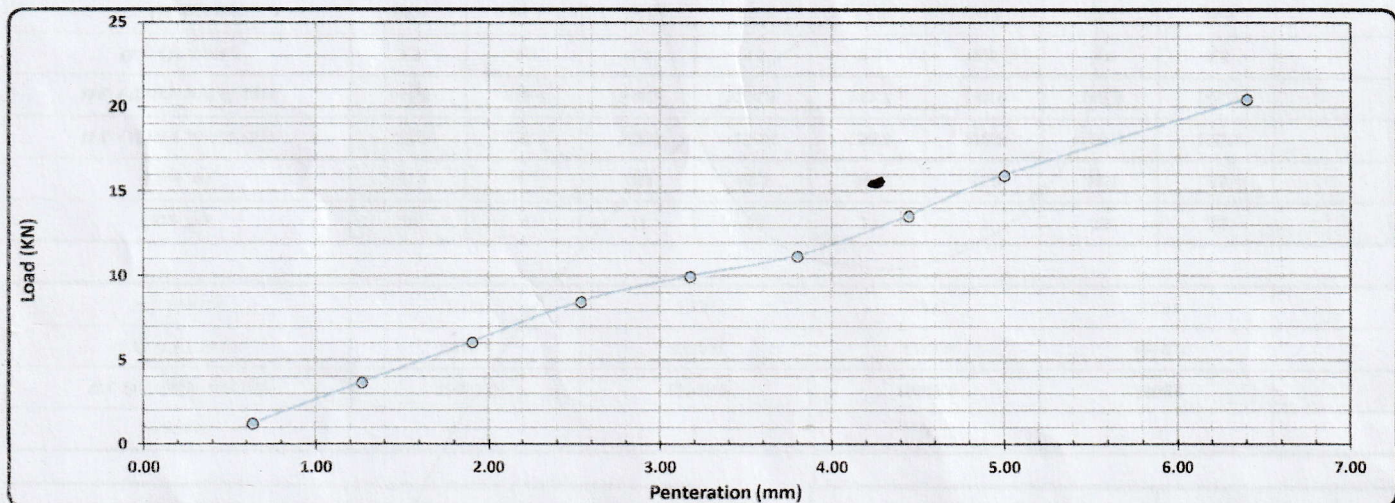
Compaction % for Mold	
Mold No.	5
Mold Vol. (cm^3)	2122
Mold WT. (gm)	4934
Mold WT. + Wet WT. (gm)	9940
Wet WT. (gm)	5006
Wet Density (g/cm^3)	2.359
Dry Density (g/cm^3)	2.169
Proctor Density (g/cm^3)	2.170
Compaction %	100.0

Mositure Ratio After Compacted Mold	
Tare No.	8
Tare WT. (gm)	46.8
Tare WT. +Wet WT. (gm)	150
Tare WT. +Dry WT. (gm)	141.7
۳۳۹A	8.3
Dry WT. (gm)	94.9
Moisture Content %	8.7

Swelling	
Mold No.	5
Date	9-4-2023
Initial Height (mm)	8.00
Final Height (mm)	8.00
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)	0.04	0.12	0.20	0.28	0.33	0.37	0.45	0.53	0.68
Load (KN)	1.2	3.6	6.0	8.4	9.9	11.1	13.5	15.9	20.4



Calculations :-

Penetration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(Kn)	(lb)	(%)	(%)	(%)	% عند نسبة ٩٨
2.50	8.40	13.4	62.9%	100	98	61.7%
5.00	15.90	20.0	79.4%			77.8%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :

Consultant Engineer

Name: Mohammed Ali

Sign :

 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أحمد خالد قنديل	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	 الجمعية المصرية للهندسة للسكك الحديدية (GAR.E.G.)
Operating Lab	AL Nuby Central Lab	

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	12-4-2023	Code			
LOCATION	K,P (531+500)	UM2 (2)	zone	531+000	532+000
NAME COMPANY	U- Mark				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		22385.00		gm	table classify	
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify	
Mass retained (g)	0.0	1675.0	2030.0	2352.0	2420.0	2365.0	2250.0		A-1-a	
Cumulative Retained (g)	0.0	1675.0	3705.0	6057.0	8477.0	10842.0	13092.0		PRO	2.16
Cumulative Retained %	0.0	7.5	16.6	27.1	37.9	48.4	58.5		WC	8.00
Cumulative Passing %	100.0	92.5	83.4	72.9	62.1	51.6	41.5		CBR	69.00

B-soft material gradation			WT.OF sample		500.00		gm
sieve size	10	40	200				
Cumulative Retained (g)	47.80	164.50	344.50				
Cumulative Retained %	9.56	32.90	68.90				
Cumulative Passing %	90.44	67.10	31.10				

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	92.5	83.4	72.9	62.1	51.6	41.5	37.5	27.9	12.9

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



Consultant

Ahmed.hamed

PROCTOR TEST

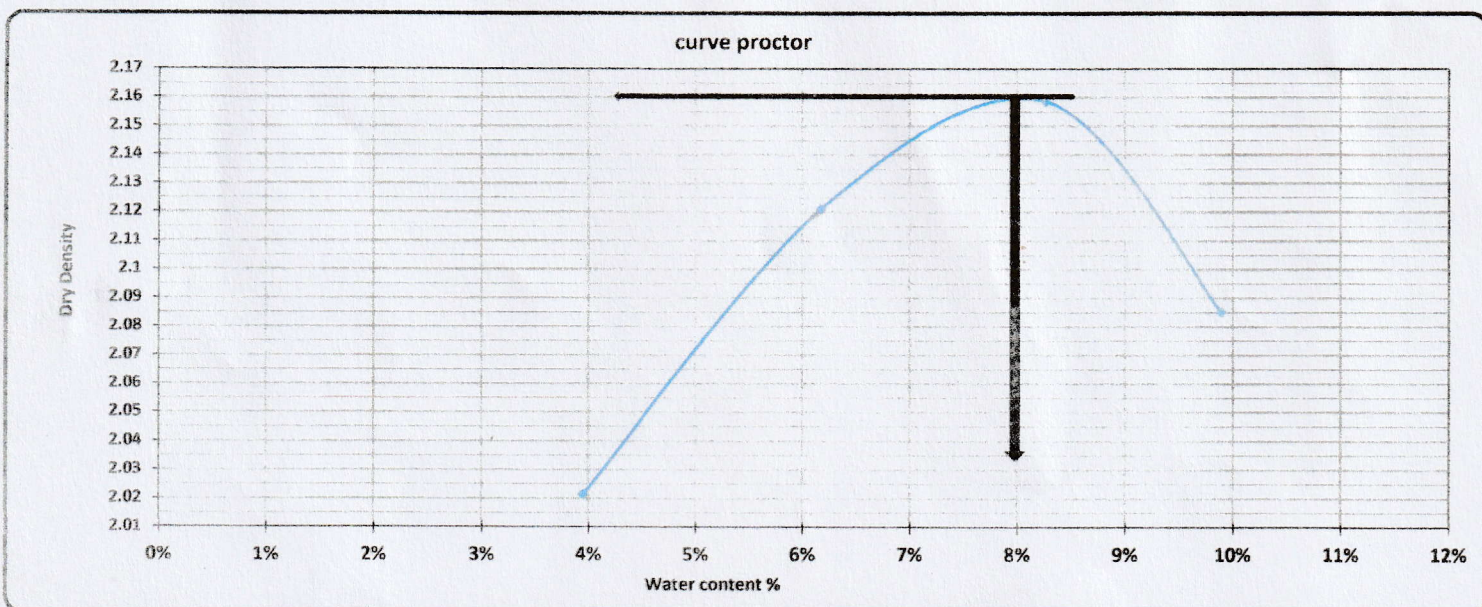
TESTING DATE:	12-4-2023	Code	zone	531+000	532+000
LOCATION	K,P (531+500)	UM2 (2)			
NAME COMPANY	U- Mark				

Weight of empty mold :	6033.0
Mold Volume:	2103.0

MAX Dry Density	2.16
Water content %	8

trial no :	1	2	3	4	
Wt. Of Mold+ wet soil	10452.0	10769.0	10948.0	10852	
WT. WET SOIL	4419.0	4736.0	4915.0	4819.0	
Wt. Density	2.101	2.252	2.337	2.291	

Tare No.	20	4	11	90	21	7	73	26		
Tare wt.	60.9	60.1	46.1	62.6	55.2	42.8	42.9	55		
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	146.8	146.4	144.1	144.8	142.7	141.9	140.3	141.5		
Wt. Of water	3.2	3.6	5.9	5.2	7.3	8.1	9.7	8.5		
Wt. Of dry soil	85.9	86.3	98.0	82.2	87.5	99.1	97.4	86.5		
Water content %	3.7%	4.2%	6.0%	6.3%	8.3%	8.2%	10.0%	9.8%		
AV. Water content %	3.9%		6.2%		8.3%		9.9%			
Dry Density	2.021		2.121		2.159		2.085			



Contractor
م. د. الزهرى
القطاع الهندسي
م. د. الزهرى
م. د. الزهرى

Consultant
Ahmed. hamed

Operating Lab

AL Nuby Central Lab

California Bearing Ratio TEST

Testing Date :	15-4-2023	Code	FROM STA :	531+000	532+000
Location :	K,P (531+500)	UM2 (2)			
Company Name	U- Mark				

Test Results

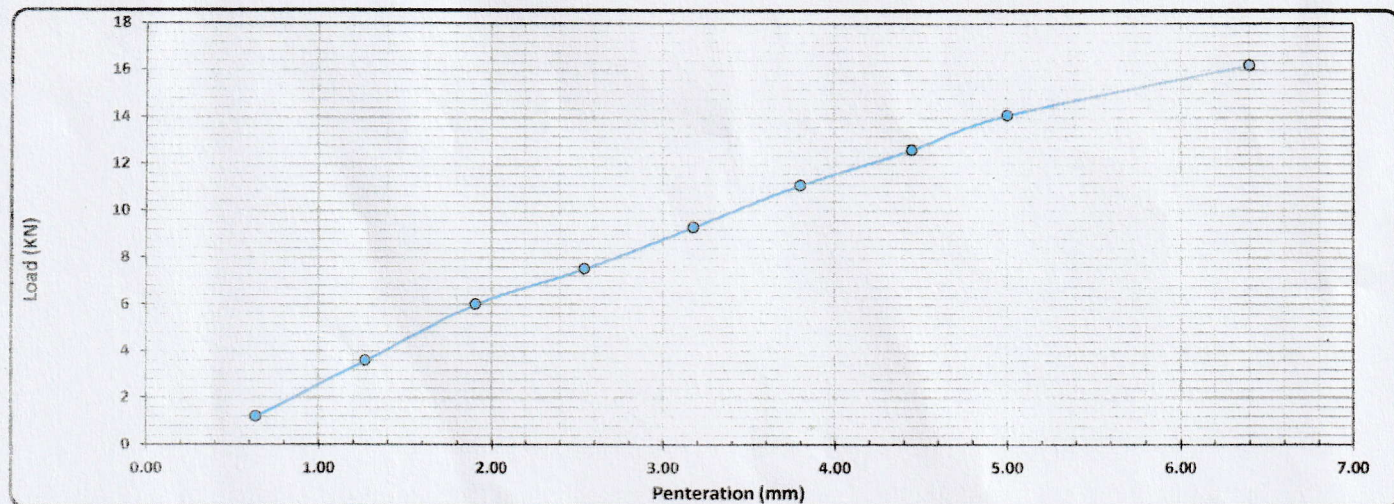
Compaction % for Mold	
Mold No.	3
Mold Vol. (cm ³)	2122
Mold WT. (gm)	4934
Mold WT. + Wet WT. (gm)	9880
Wet WT. (gm)	4946
Wet Density (g/cm ³)	2.331
Dry Density (g/cm ³)	2.159
Proctor Density (g/cm ³)	2.160
Compaction %	100.0

Moisture Ratio After Compacted Mold	
Tare No.	8
Tare WT. (gm)	46.8
Tare WT. + Wet WT. (gm)	150
Tare WT. + Dry WT. (gm)	142.4
WT. (gm)	7.6
Dry WT. (gm)	95.6
Moisture Content %	7.9

Swelling	
Mold No.	3
Date	15-4-2023
Initial Height (mm)	0.00
Final Height (mm)	0.00
Difference	0
Sample Height (mm)	120.00
Swelling Ratio %	0.0%

Loading Reading :

Penteration (mm)	0.64	1.27	1.91	2.54	3.18	3.80	4.45	5.00	6.40
Load Reading (mm)	0.04	0.12	0.20	0.25	0.31	0.37	0.42	0.47	0.54
Load (KN)	1.2	3.6	6.0	7.5	9.3	11.1	12.6	14.1	16.2



Calculations :-

Penteration (mm)	Load (Kn)	Standard Load (lb)	CBR (%)	Mold - Compaction (%)	Compaction (%)	CBR % عند نسبة ٩٨
2.50	7.50	13.4	56.2%	100	98	55.1%
5.00	14.10	20.0	70.4%			69.0%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

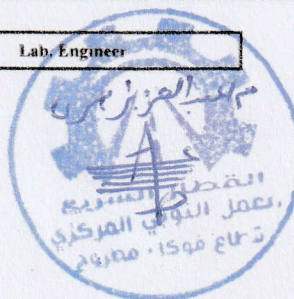
Sign :

Consultant Engineer

Name :

Sign :

Ahmed Hamed



 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد قنديل	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 للتخطيط والتنمية الاقتصادية (GABRI)
	Opreating Lab AL Nuby Central Lab	
	PARTICLE SIZE DISTRIBUTION OF SOIL	

TESTING DATE:	16-4-2023	Code	zone	531+000	532+000
LOCATION	K,P (531+500)	UM2 (3)			
NAME COMPANY	U- Mark				

1-visual inspection test

2-Gradient test

A-gradation of bulk materials				SAMPLE WEIGHT [g]		22266.00		gm	table classify
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify
Mass retained (g)	0.0	1536.0	1898.0	2013.0	2975.0	3410.0	3113.0		A-1-a
Cumulative Retained (g)	0.0	1536.0	3434.0	5447.0	8422.0	11832.0	14945.0		PRO 2.165
Cumulative Retained %	0.0	6.9	15.4	24.5	37.8	53.1	67.1		WC 6.80
Cumulative Passing %	100.0	93.1	84.6	75.5	62.2	46.9	32.9		CBR 70.50

B-soft material gradation				WT.OF sample		500.00		gm
sieve size	10	40	200					
Cumulative Retained (g)	64.10	157.70	294.80					
Cumulative Retained %	12.82	31.54	58.96					
Cumulative Passing %	87.18	68.46	41.04					

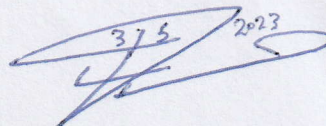
C-General gradient										
sieve size(in)	2	1.5	1	3/4	1/2	3/8	# 4	# 10	# 40	# 200
sieve size(mm)	50.0	37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075
Cumulative Passing %	100.0	93.1	84.6	75.5	62.2	46.9	32.9	28.7	22.5	13.5

ATTERBERG LIMITS	LIQUID LIMIT (L.L.)	PLASTIC LIMIT (P.L.)	PLASTIC INDEX (P.I.)
	23.1%	17.7%	5.4%

Contractor



Consultant

Hassan


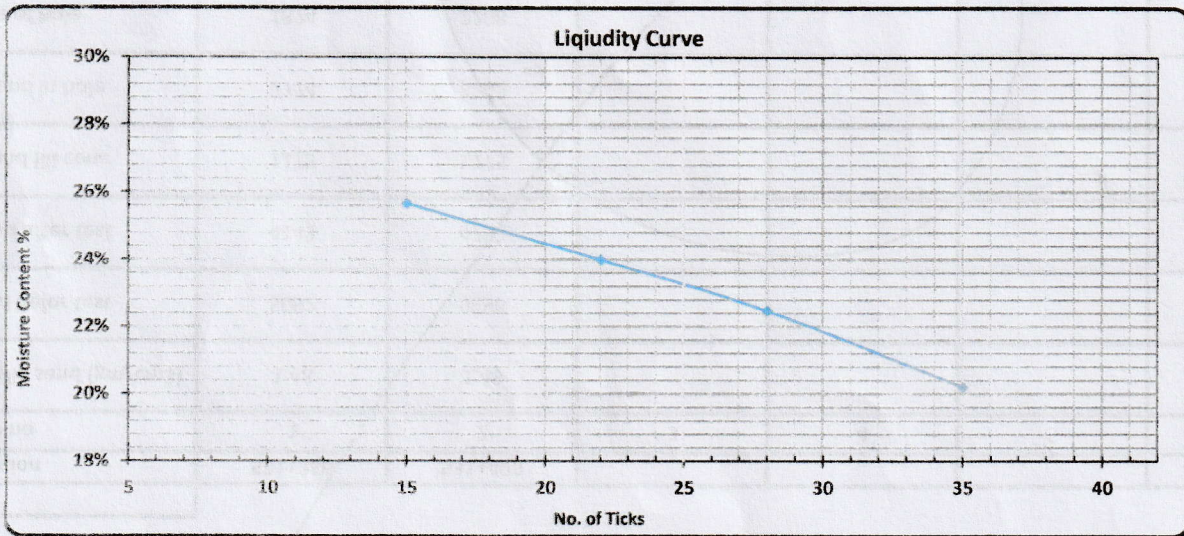
 ENGINEERING CONSULTING OFFICE المكتب الاستشاري الهندسي أ.د. خالد فهد SHAGOR	Electric Express Train - HSR	 الهيئة العامة للطيران المدني الهيئة العامة للموانئ الهيئة العامة للغمرات والملاحة الهيئة العامة للطرق الهيئة العامة للمواصلات الهيئة العامة للمواصلات الهيئة العامة للمواصلات
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Plasticity and Liquidity Test -Atterberg Limits

Testing Date:	16-4-2023	code	ZONE	531+000	532+000
Location:	K.P (531+500)	UM2 (3)			
Company Name	U-MARK				

Testing Results :-

Test	Liquid Limit				Plastic Limit	
No. of Ticks	35	28	22	15	-	-
Tare No.	11	4	22	10	16	40
Tare WT. (gm)	46.10	60.20	54.10	43.7	33.50	46.30
Tare WT. + Wet WT. (gm)	70.50	86.90	81.50	72.60	36.90	50.20
Tare WT. + Dry WT. (gm)	66.40	82.00	76.20	66.70	36.40	49.60
Water WT. (gm)	4.10	4.90	5.30	5.90	0.50	0.60
Dry WT. (gm)	20.30	21.80	22.10	23.00	2.90	3.30
Moisture Content %	20.2%	22.5%	24.0%	25.7%	17.2%	18.2%
Average %					17.7%	



LL	PL	PI
23.1%	17.7%	5.4%

Lab. Specialist	Lab. Engineer	Consultant Engineer
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Name :

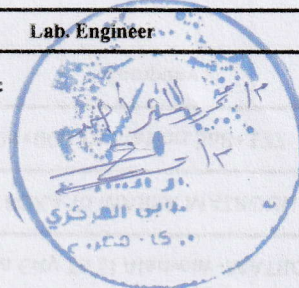
Name :

Name :

Sign :

Sign :

Sign :



PROCTOR TEST

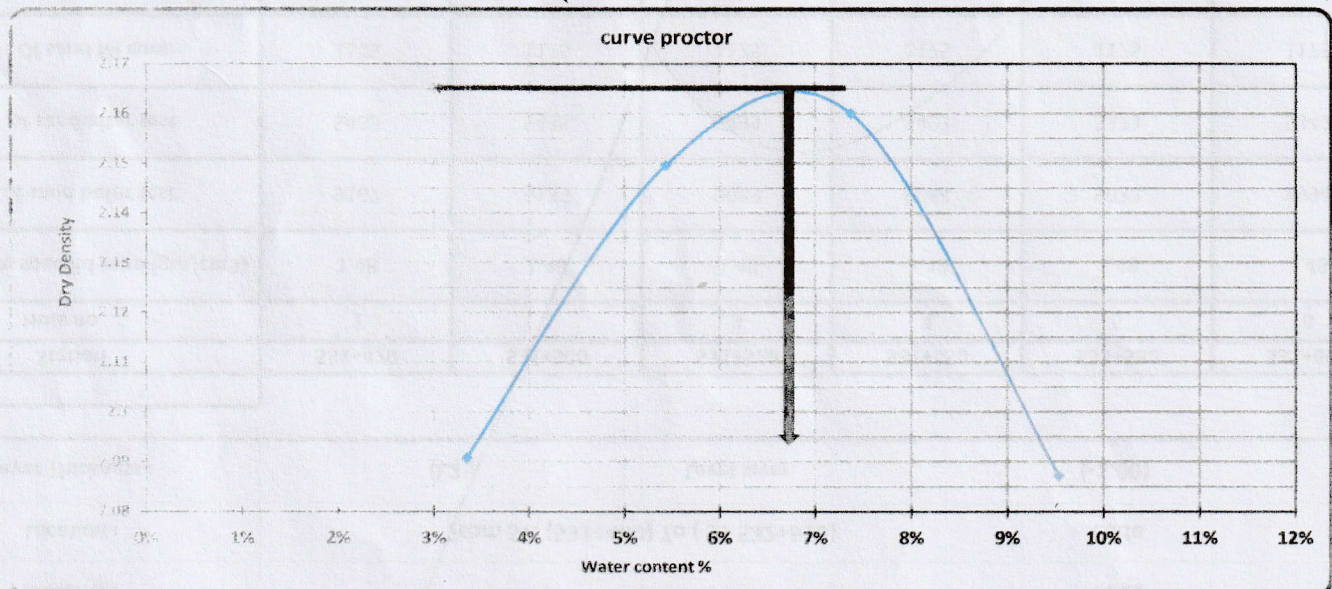
TESTING DATE:	16-4-2023	Code	zone	531+000	532+000
LOCATION	K.P (531+500)	UM2 (3)			
NAME COMPANY	U- Mark				

Weight of empty mold :	6033.0
Mold Volume:	2113.0

MAX Dry Density	2.165
Water content %	6.8

trial no	1	2	3	4	
Wt. Of Mold+ wet soil	10598.0	10821.0	10933.0	10863	
WT. WET SOIL	4565.0	4788.0	4900.0	4830.0	
Wt. Density	2.160	2.266	2.319	2.286	

Core No.	33	90	26	35	34	17	22	26		
Tare wt.	73.6	62.5	55	73.9	70.2	59.5	54.1	55		
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	147.6	147.1	145.1	146.1	144.7	143.6	141.8	141.6		
Wt. Of water	2.4	2.9	4.9	3.9	5.3	6.4	8.2	8.4		
Wt. Of dry soil	74.0	84.6	90.1	72.2	74.5	84.1	87.7	86.6		
Water content %	3.2%	3.4%	5.4%	5.4%	7.1%	7.6%	9.4%	9.7%		
AV. Water content %	3.3%		5.4%		7.4%		9.5%			
Dry Density	2.091		2.149		2.160		2.087			



Contractor

Consultant



Operating Lab

AL Nuby Central Lab

California Bearing Ratio TEST

Testing Date :	19-4-2023	Code	FROM STA :	531+000	532+000
Location :	K.P (531+500)	UM2 (3)			
Company Name	U- Mark				

- : Test Results

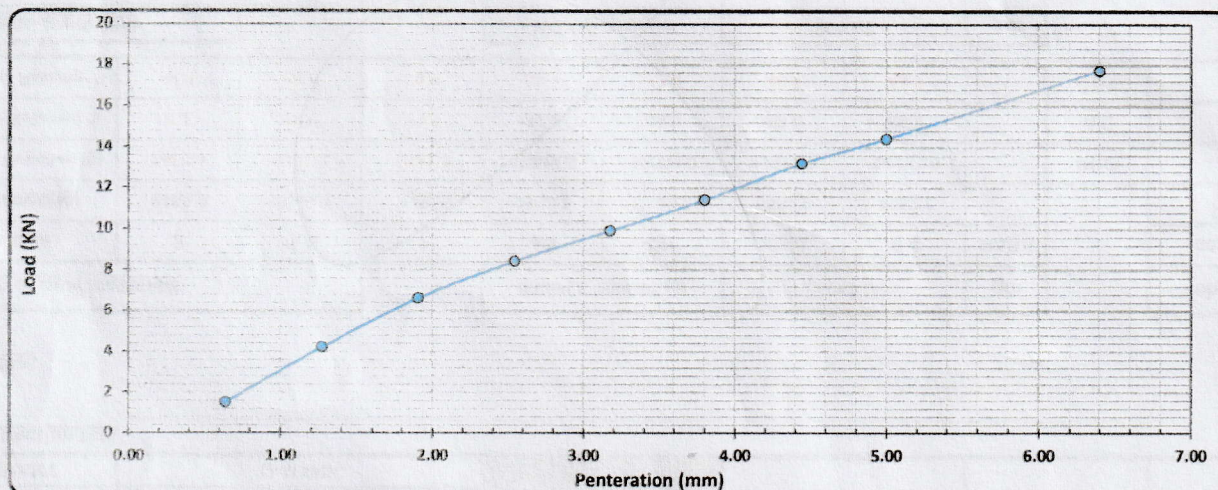
Compaction % for Mold	
Mold No.	3
Mold Vol. (cm ³)	2122
Mold WT. (gm)	4934
Mold WT. + Wet WT. (gm)	9866
Wet WT. (gm)	4932
Wet Density (g/cm ³)	2.324
Dry Density (g/cm ³)	2.175
Proctor Density (g/cm ³)	2.175
Compaction %	100.0

Moisture Ratio After Compacted Mold	
Tare No.	17
Tare WT. (gm)	59.5
Tare WT. +Wet WT. (gm)	150
Tare WT. +Dry WT. (gm)	144.2
Wt Of Water	5.8
Dry WT. (gm)	84.7
Moisture Content %	6.8

Swelling	
Mold No.	3
Date	19-4-2023
Initial Height (mm)	0.00
Final Height (mm)	0.00
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)	0.05	0.14	0.22	0.28	0.33	0.38	0.44	0.48	0.59
Load (KN)	1.5	4.2	6.6	8.4	9.9	11.4	13.2	14.4	17.7



Calculations :-

Penetration	Load	Standard Load	CBR	Mold - Compaction	Compaction	CBR
(mm)	(KN)	(lb)	(%)	(%)	(%)	% عند نسبة 98
2.50	8.40	13.4	62.9%	100	98	61.7%
5.00	14.40	20.0	71.9%			70.5%

Lab. Specialist

Name :

Sign :

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Operating lab

Mansour Lab

PARTICLE SIZE DISTRIBUTION OF SOIL

TESTING DATE:	7/5/2023	code		
LOCATION	KP 531+500	UM2 4	Zone	532+000 To 532+500
NAME COMPANY	U-Mark 2			

-visual inspection test

-Gradient test

gradation of bulk materials				SAMPLE WEIGHT [g]		35450.00		gm	table classify
sieve size	2	1.5	1	4/3	2/1	8/3	# 4	PASS	soil classify
0.00	335.0	1751.0	6210.0	2594.0	2467.0	1618.0	3502.0		A-1-a
Cumulative Retained (g)	335.0	2086.0	8296.0	10890.0	13357.0	14976.0	16478.0	PRO	2.145
Cumulative Retained %	0.9	5.9	23.4	30.7	37.7	42.2	52.1	WC	7.00
Cumulative Passing %	99.1	94.1	76.6	69.3	62.3	57.8	47.9	CBR	39.20

soft material gradation			WT.OF sample		500.00		gm
sieve size	10	40	200				
Cumulative Retained (g)	75.00	255.00	387.00				
Cumulative Retained %	15.00	51.00	77.40				
Cumulative Passing %	85.00	49.00	22.60				

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 %	99.1	94.1	76.6	69.3	62.3	57.8	47.9	40.7	23.5	10.8

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

Contractor



Consultant

Hassan
11/5/2023



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



operating Lab **Mansour Lab**

Proctor Test

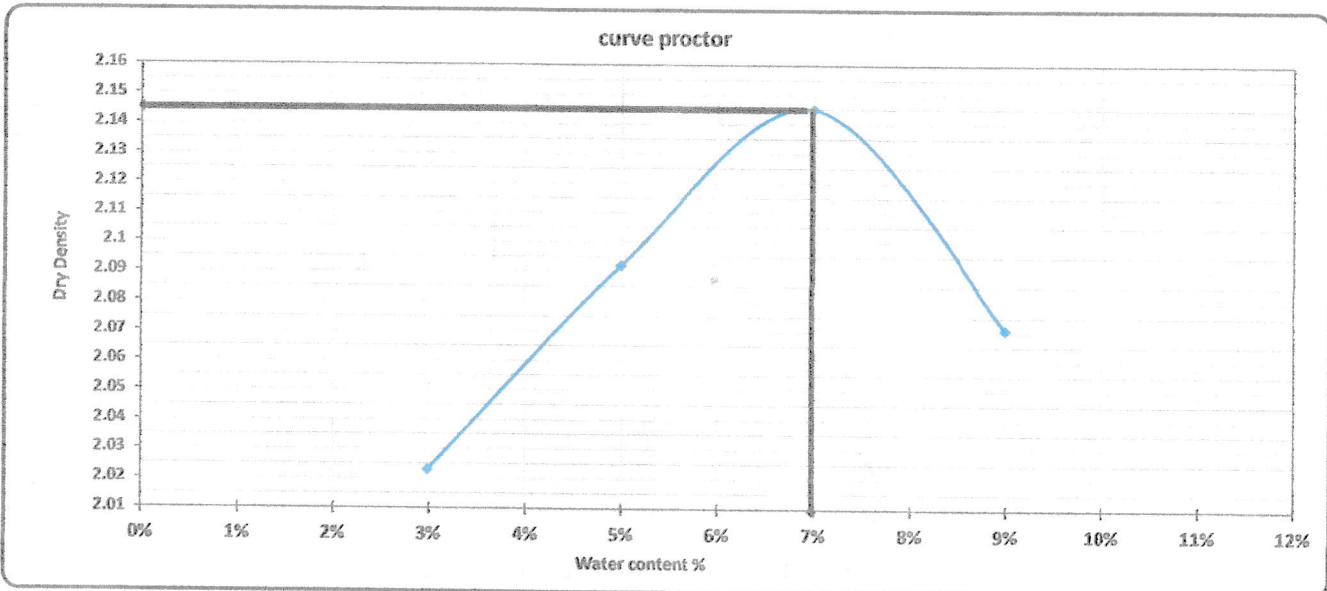
TESTING DATE:	8/5/2023	code		
LOCATION	KP 531+500	UM2 4	Zone	532+000 To 532+500
NAME COMPANY	U-Mark 2			

Weight of empty mold :	5759.0
Mold Volume:	2134.0

MAX Dry Density	2.145
Water content %	7

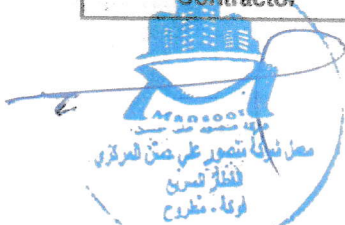
trial no :	1	2	3	4	
Wt. Of Mold+ wet soil	10205.4	10446.3	10656.6	10576.0	
WT. WET SOIL	4446.4	4687.3	4897.6	4817.0	
Wt. Density	2.084	2.196	2.295	2.257	

Tare No.	1	2	3	4	5	6	7	8		
Tare wt.	55.85	54.5	55.65	52.42	56.96	56.74	56.74	57.92		
Wt. Of wet soil & tare	150.3	149.9	150.3	151.3	149.7	150.1	149.2	151.8		
Wt. Of dry soil & tare	147.6	147.1	145.8	146.6	143.6	144.0	141.6	144.0		
Wt. Of water	2.7	2.8	4.5	4.7	6.1	6.1	7.6	7.7		
Wt. Of dry soil	91.7	92.6	90.2	94.1	86.7	87.3	84.8	86.1		
Water content %	3.0%	3.0%	5.0%	5.0%	7.0%	7.0%	9.0%	9.0%		
AV. Water content %	3.0%	5.0%	7.0%	9.0%						
Dry Density	2.023	2.092	2.145	2.071						



Contractor

Consultant



11.5 2023

 KSA KINGDOM OF SAUDI ARABIA OPERATING LAB	 SVSFA SHARJAH	Electric Express Train - HSR	 الهيئة العامة للنقل General Authority of Civil Aviation
Operating lab		Mansour Lab	

California Bearing Ratio TEST

Testing Date :	10/5/2023	Code			
Location :	KP 520+140	UM2-4	Zone	519+500	520+500
Name of Company	U-Mark 2				

Test Results

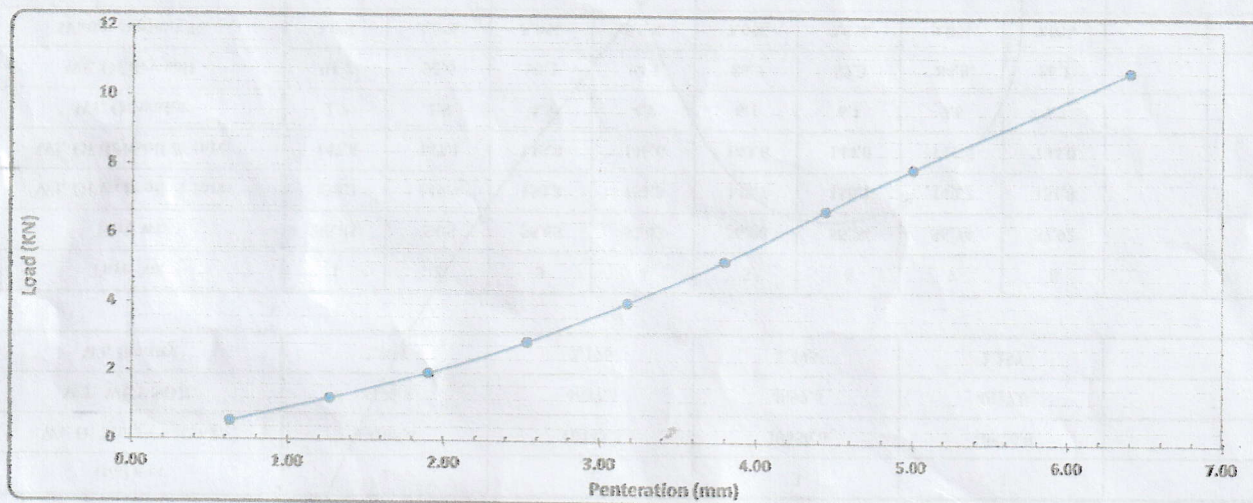
Compaction % for Mold	
Mold No.	1
Mold Vol. (cm ³)	2067
Mold WT. (gm)	8045
Mold WT. + Wet WT. (gm)	12766.81
Wet WT. (gm)	4722
Wet Density (g/cm ³)	2.284
Dry Density (g/cm ³)	2.335
Proctor Density (g/cm ³)	2.145
Compaction %	100

Moisture Ratio After Compacted Mold	
Tare No.	13
Tare WT. (gm)	55.81
Tare WT. + Wet WT. (gm)	149
Tare WT. + Dry WT. (gm)	143.2
Water WT. (gm)	6.1
Dry WT. (gm)	87.4
Moisture Content %	7.0

Swelling	
Mold No.	1
Date	0
Initial Height (mm)	0.00
Final Height (mm)	0.00
Difference	0
Sample Height (mm)	11600.00
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)	55.00	123.00	200.00	285.00	412.00	537.00	689.00	812.53	1100.00
Load (kN)	0.5	1.2	2.0	2.8	4.0	5.3	6.8	8.0	10.8



Calculations :

Penetration (mm)	Load (kN)	Standard Load (lb)	CBR (%)	Mold - Compaction (%)	Compaction (%)	CBR (%)
2.50	2.88	13.4	21.7%	100	98	21.3%
5.00	7.97	20.0	39.8%			39.2%

Lab. Engineer

Name :

Sign :



Consultant Engineer

Name :

Sign :

Signature of Consultant Engineer and date 11/5/2023.